*Contents*

# 2–OsiSense® XS
# Inductive proximity sensors


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## OsiSense® XS

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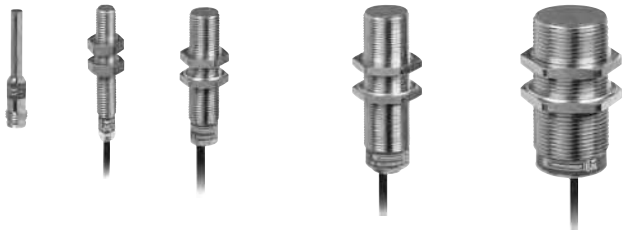
# OsiSense® XS
# Inductive proximity sensors
General Purpose

2

| Cylindrical type | | | Standard range | | | |
|---|---|---|---|---|---|---|
| | | | Flush mountable | | | |
| | | |  | | | |
| **Sensing distance Sn,** mm (in.) | | | **1.5 (0.06)** | **2 (0.08)** | **5 (0.20)** | **10 (0.39)** |
| **Diameter** | | | Ø 6.5 plain and M8 | M12 | M18 | M30 |
| **Short case** | Supply | | | | | |
| | 3-wire ⎓ (PNP/NPN) | Page | 46 | | | |
| | 2-wire ⎓ | Page | 50 | | | |
| **Long case** | Supply | | | | | |
| | 3-wire ⎓ (PNP/NPN) | Page | 47 | | | |
| | 2-wire ⎓ | Page | – | 51 | | |
| | 2-wire ≂ | Page | – | – | 40 | |
| **Function** | NO | | ● | ● | ● | ● |
| | NC | | ● | ● | ● | ● |
| **Connection** | Pre-cabled (L = 2 m) *(1)* | | ● | ● | ● | ● |
| | M8 connector, 3-pin (3-wire ⎓) | | ● | – | – | – |
| | M12 connector | | ● | ● | ● | ● |
| | | | | | | |
| | Remote connector | | Remote connectors available:<br>M8, M12, M18, screw terminal, 7/8", DIN: consult the Sensor Competency Center | | | |
| **Degree of protection** | | | IP 65 and IP 67, IP 68 for pre-cabled version, IP 69K for diameters 12 to 30 | | | |
| **Special temperatures** | - 40 °C, + 70 °C (-40 °F, +158 °F) | | Add the suffix **TF** to the end of the catalog number *(2)* | | | |
| | - 25 °C, + 85 °C (-13 °F, +185 °F) | | Add the suffix **TT** to the end of the catalog number *(2)* | | | |
| **Catalog Number** | | | **XS506** | **XS508** | **XS512** | **XS518** | **XS530** |
| **Pages** | | | 40–52 | | | |

*(1) Also available in lengths of 5 and 10 m, depending on model*
*(2) Product availability depends on model: consult the Sensor Competency Center*



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# OsiSense® XS
# Inductive proximity sensors
General Purpose



| | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Increased range** | | | | | | | |
| Flush mountable | | | | | Non-flush mountable | | |
|  | | | | | | | |
| **2.5 (0.10)** | **4 (0.16)** | **8 (0.31)** | **15 (0.59)** | | **7 (0.28)** | **12 (0.47)** | **22 (0.87)** |
| Ø 6.5 plain and M8 | M12 | M18 | M30 | | M12 | M18 | M30 |
| 20 and 32 | | | | | – | | |
| 34 | | | | | – | | |
| 36 | | | | | 42 | | |
| 34 | | | | | – | 44 | |
| – | 38 | | | | – | | |
| ● | ● | ● | ● | | ● | ● | ● |
| ● | ● | ● | ● | | ● | ● | ● |
| ● | ● | ● | ● | | ● | ● | ● |
| ● | – | – | – | | – | – | – |
| ● | ● | ● | ● | | ● | ● | ● |
| – | ● | ● | ● | | – | ● | ● |
| Remote connectors available:<br>M8, M12, M18, screw terminal, 7/8", DIN: consult the Sensor Competency Center | | | | | | | |
| IP 65 and IP 67, IP 68 for pre-cabled version, IP 69K for diameters 12 to 30 | | | | | IP 65 and IP 67, IP 68 for pre-cabled version, IP 69K for diameters 12 to 30 | | |
| Add the suffix **TF** to the end of the catalog number *(2)* | | | | | | | |
| Add the suffix **TT** to the end of the catalog number *(2)* | | | | | | | |
| **XS1•6, XS606** | **XS108, XS608** | **XS112, XS612** | **XS118, XS618** | **XS130, XS630** | **XS612** | **XS618** | **XS630** |
| 20, 34 | | | 21, 34 | | 42 | | |

*(2) Product availability depends on model: consult the Sensor Competency Center*



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# OsiSense® XS
# Inductive proximity sensors
General Purpose

2

| Block type | | | Standard range | | |
|---|---|---|---|---|---|
| | | | Flush mountable | | |
| | | |  |  |  |
| **Sensing distance Sn,** mm (in.) | | | **2.5 (0.10)** | **5 (0.20)** | **10 (0.39)** |
| **Dimensions (mm)** (W x H x D) | | | 8 x 22 x 8 | 15 x 32 x 8 | 26 x 26 x 13 |
| **Supply** | 3-wire ⎓ (PNP/NPN) | Page | 76 | | 78 |
| | 2-wire ⎓ | Page | 76 | | 78 |
| | ∿ | Page | – | – | – |
| | ≂ | Page | – | – | – |
| **Function** | NO | | ● | ● | ● |
| | NC | | ● | ● | ● |
| | NO + NC | | – | – | – |
| | NO/NC | | – | – | – |
| **Connection** | Pre-cabled (L = 2 m) *(1)* | | ● | ● | ● |
| | M8 connector, 3-pin (3-wire ⎓) | | – | – | ● |
| | M12 connector | | – | – | – |
| | 1/2"-20UNF connector | | – | – | – |
| | Screw terminals | | – | – | – |
| | Remote connector | M8 | ● | ● | – |
| | | M12 | – | – | ● |
| | | 1/2"-20UNF | – | – | – |
| | Other remote connectors available | | M18, screw terminal, 7/8", DIN: consult the Sensor Competency Center | | |
| **Degree of protection** | | | IP 67 | IP 67, double insulation ⧈<br>or IP 68, double insulation ⧈, depending on model | |
| **Special temperatures** | - 40 °C, + 70 °C (-40 °F, +158 °F) | | Add the suffix **TF** to the end of the catalog number *(2)* | | |
| | - 25 °C, + 85 °C (-13 °F, +185 °F) | | Add the suffix **TT** to the end of the catalog number *(2)* | | |
| **Catalog Number** | | | **XS7J** | **XS7F** | **XS7E** |
| **Pages** | | | 76 | | 78 |

*(1) Also available in lengths of 5 and 10 m, depending on model*
*(2) Product availability depends on model: consult the Sensor Competency Center*



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# OsiSense® XS
# Inductive proximity sensors
General Purpose



| | Standard range | | | Increased range | | | | |
|---|---|---|---|---|---|---|---|---|
| | Flush mountable | | Non-flush mountable | Flush or non-flush mountable | | Flush or non-flush mountable using teach mode | | |
| |  | |  |  | |  |  | |
| | 15 (0.59) | 40 (1.57) | 15 (0.59) | 20 (0.79) | 40 (1.57) | 15 (0.59) | 25 (0.98) | 60 (2.36) |
| | 40 x 40 x 15 | 80 x 80 x 26 | Limit switch style | | | 26 x 26 x 13 | 40 x 40 x 15 | 80 x 80 x 26 |
| | 78 | | 82 | | | 74 | | |
| | 78 | | 82 | | | 74 | | |
| | – | – | ● | | | – | | |
| | – | – | 84 | | | 74 | | |
| | ● | ● | ● | ● | ● | ● | ● | ● |
| | ● | ● | – | – | – | ● | ● | ● |
| | – | – | ● | ● | ● | – | – | – |
| | – | – | ● | ● | – | – | – | – |
| | ● | ● | – | – | – | ● | ● | ● |
| | ● | – | – | – | – | ● | ● | |
| | – | ● | – | – | – | – | – | ● |
| | – | – | – | – | – | – | – | ● |
| | – | – | ● | ● | ● | – | – | – |
| | – | – | – | – | – | – | – | – |
| | ● | – | – | – | – | ● | ● | – |
| | – | – | – | – | – | ● | ● | – |
| | M18, screw terminal, 7/8", DIN: consult the Sensor Competency Center | | | | | | | |
| | IP 67, double insulation ⧈ or IP 68, double insulation ⧈, depending on model | | IP 65 and IP 67 | | | IP 67, double insulation ⧈ or IP 68, double insulation ⧈, depending on model | | |
| | Add the suffix **TF** to the end of the catalog number *(2)* | | | | | | | |
| | Add the suffix **TT** to the end of the catalog number *(2)* | | | | | | | |
| | **XS7C** | **XS7D** | **XS7C40, XS8C40** | | | **XS8E** | **XS8C** | **XS8D** |
| | 78 | | 82 | | | 74 | | |

*(2) Product availability depends on model: consult the Sensor Competency Center*



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# OsiSense® XS
# Inductive proximity sensors
General Purpose

2

| Sensor type: flush and Non-flush mountable | | Multi-voltage sensors | Sensors with two complementary outputs | |
|---|---|---|---|---|
| | | With short-circuit protection | Solid-state PNP or NPN NO + NC outputs | Solid-state PNP + NPN, NO or NC programmable outputs |
| | |  |  |  |
| **Sensing distance Sn** mm (in.) | Flush mountable | **2–10 (0.08–0.39)** | **1.5–10 (0.06–0.39)** | **2–10 (0.08–0.39)** |
| | Non-flush mountable | **4–15 (0.16–0.59)** | **2.5 –15(0.10–0.59)** | **4–15 (0.016–0.59)** |
| **Diameter** | | Threaded: M12, M18, M30 | Plain: Ø 6.5<br>Threaded: M8, M12, M18, M30 | Threaded: M12, M18, M30 |
| **Case material** | | Nickel-plated brass | Nickel-plated brass or stainless steel or plastic | Nickel-plated brass or plastic |
| **Supply** | ⎓ | – | ● | ● |
| | ∿ | – | – | – |
| | ⎓ ∿ | ● | – | – |
| **Function** | NO | ● | – | – |
| | NC | ● | – | – |
| | NO + NC | – | ● | – |
| | NO/NC | – | – | ● |
| **Connection** | Pre-cabled (L = 2 m) *(1)* | ● | ● | ● |
| | M8 connector, 3-pin (3-wire ⎓) | – | – | – |
| | M12 connector | – | ● | ● |
| | 1/2"-20UNF connector | ● | – | – |
| | Remote connector | Remote connectors available:<br>M8, M12, M18, screw terminal, 7/8", DIN: consult the Sensor Competency Center | | |
| **Degree of protection** | | IP 67 or IP 68, depending on model | | |
| **Special temperatures** | - 40 °C, + 70 °C (-40 °F, +158 °F) | Add the suffix **TF** to the end of the catalog number *(2)* | | |
| | - 25 °C, + 85 °C (-13 °F, +185 °F) | Add the suffix **TT** to the end of the catalog number *(2)* | | |
| **Catalog Number** | | **XS1M**<br>**XS2M** | **XS1●●●●C410**<br>**XS2●●●●C410** | **XS1M●●KP340**<br>**XS2M●●KP340**<br>**XS4P●●KP340** |
| **Pages** | | 56 | 58 | 60 |

*(1) Also available in lengths of 5 and 10 m, depending on model*
*(2) Product availability depends on model: consult the Sensor Competency Center*
*(3) Packed and sold in lots of 20.*



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# OsiSense® XS
# Inductive proximity sensors
General Purpose



| | Plastic case sensors | Basic sensors | | Semi-flush mountable sensors | Miniature sensors |
|---|---|---|---|---|---|
| | For chemical processing, marine applications | For repetitive machines | | | For robotic, transfer machine, assembly line applications |
| |  |  |  |  |  |
| | **–** | **1.5–10 (0.06–0.39)** | **2.5–15 (0.10–0.59)** | **–** | **1–2.5 (0.04–0.10)** |
| | **2.5 –15 (0.10–0.59)** | **2.5 –15 (0.10–0.59)** | **–** | **2.5–20 (0.10–0.79)** | **–** |
| | Threaded: M8, M12, M18, M30 | Plain: Ø 6.5<br>Threaded: M8, M12, M18, M30 | Plain: Ø 6.5<br>Threaded: M8, M12, M18, M30 | | Plain: Ø 4<br>Threaded: M5 |
| | Plastic | Nickel-plated brass or plastic | Nickel-plated brass | | Nickel-plated brass or stainless steel |
| | ● | ● | ● | ● | ● |
| | – | ● | – | – | – |
| | ● | – | – | – | – |
| | – | ● | ● | ● | ● |
| | ● | ● | ● | ● | ● |
| | – | – | – | – | – |
| | – | – | – | – | – |
| | ● | ● | ● | ● | ● |
| | – | ● | ● | ● | ● |
| | – | ● | ● | ● | ● |
| | ● | – | – | – | – |
| | Remote connectors available:<br>M8, M12, M18, screw terminal, 7/8", DIN: consult the Sensor Competency Center | | | | |
| | IP 67 or IP 68, depending on model | IP 67 | | IP 67 or IP 68 | IP 67 |
| | Add the suffix **TF** to the end of the catalog number *(2)* | | | | |
| | Add the suffix **TT** to the end of the catalog number *(2)* | | | | |
| | **XS4P** | **XS1●●BL●**<br>**XS2●●AL●**<br>**XS2●●BL●** | **XS1●●●B3●●●●TQ** *(3)* | **XS1N●●349** | **XS1L**<br>**XS2L**<br>**XS1N** |
| | 30 | 22 | 20 | 54 | 32 |



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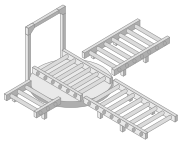
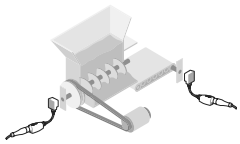
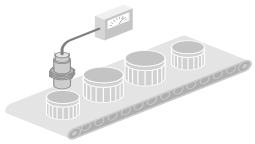
# OsiSense® XS
# Inductive proximity sensors
## Applications



Conveying



Detection of underspeed, shaft overload



Position, displacement and deformation control/monitoring



| **Sensor type: flush and non-flush mountable** | | **Adjustable range sensors** | **Sensors for rotation monitoring** | | **Sensors with analog output 0–10 V or 4–20 mA** | |
|---|---|---|---|---|---|---|
| **Developed in accordance with the needs expressed by our customers, these sensors provide a complete solution for specific application functions: rotation monitoring, selective detection, analog control, etc.** | |  |  | |  |  |
| **Sensing dist. Sn, mm (in.)** | Flush mountable | **3–11 (0.12–0.43)** *(1)* | **10 (0.39)** | **10–15 (0.39–0.59)** *(1)* | **0.2–10 (0.01–0.39)** *(1)* | **5–40 (0.20–1.57)** *(1)* |
| | Non-flush mountable | **5–18 (0.20–0.71)** *(1)* | | | **0.4–60 (0.02–2.36** *(1)* | |
| **Form** | **Cylindrical** | M12 x 54<br>M18 x 67<br>M30 x 71 | M30 x 81 | – | Threaded: M12, M18, M30 | – |
| | **Block (W x H x D) dimensions (mm)** | – | – | 26 x 26 x 13<br>40 x 40 x 15 | – | 32 x 15 x 8<br>26 x 26 x 13<br>40 x 40 x 15<br>80 x 80 x 26 |
| **Case material** | | Nickel-plated brass | Metal | PBT | Metal or plastic | PBT |
| **Supply** | ⎓ | ● | ● | ● | ● | ● |
| | ∿ | – | – | – | – | – |
| | ⎓ ∿ | – | ● | ● | – | – |
| **Function** | NO | ● | – | – | – | – |
| | NC | ● | ● | ● | – | – |
| | NO + NC | – | – | – | – | – |
| | NO/NC | – | – | – | – | – |
| **Connection** | Pre-cabled (L = 2 m) *(2)* | – | ● | – | ● | ● |
| | M8 connector, 3-pin (⎓ 3-wire) | – | – | – | – | – |
| | M12 connector | – | – | – | – | ● |
| | 1/2"-20UNF connector | – | – | – | – | – |
| | Remote connector | ● | – | ● | – | ● |
| | Screw terminals | – | – | – | – | – |
| **Degree of protection** | | IP 67, double insulation ⧈ | IP 67 | IP 67, double insulation ⧈ | IP 67 | IP 67 or IP 68 (pre-cabled version) |
| **Special temperatures** | -40 °C, +70 °C (-40 °F, +158 °F) | Add the suffix **TF** to the end of the catalog number *(3)* | | | | |
| | -25 °C, +85 °C (-13 °F, +185 °F) | Add the suffix **TT** to the end of the catalog number *(3)* | | | | |
| **Catalog Number** | | **XS612B2**<br>**XS618B2**<br>**XS630B2** | **XSAV** | **XS9●11R** | **XS1M●●●AB1**<br>**XS4P●●AB1** | **XS9●●●●A** |
| **Pages** | | 72 | 93 | 95 | 98 | 101 |

*(1) Depending on model.*
*(2) Also available in lengths of 5 and 10 m, depending on model.*
*(3) Product availability depends on model: consult the Sensor Competency Center.*



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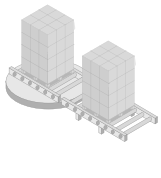
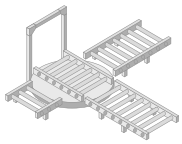
# OsiSense® XS
# Inductive proximity sensors
## Applications

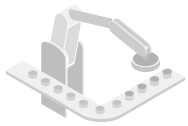


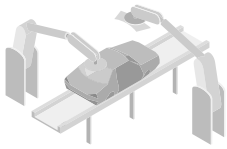
*Machine with stainless steel housing*





*Assembly machines, conveyor systems, material handling*





*Robotics*



| | Sensors for food/beverage and pharmaceutical applications | | Factor 1 (Fe/Nfe) sensors for ferrous and non-ferrous materials | | Selective detection sensors for ferrous materials only or non-ferrous materials only | Sensors for conveying and material handling applications | | | Sensors for welding machine applications |
|---|---|---|---|---|---|---|---|---|---|
| | Cylindrical, stainless steel | Cylindrical, plastic | | | | 12 x 40 x 26 format | Cubic 40 form | 80 x 80 x 40 format, increased range | |
| |  |  |  |  |  |  |  |  |  |
| | – | – | 5, 10 or 15 (0.20, 0.39 or 0.59) *(1)* | | 5, 6 or 10 (0.20, 0.24 or 0.39) *(1)* | 2 (0.08) | 15 (0.59) | 50 (1.97) | 2, 3, 5, 10 (0.08, 0.12, 0.20 or 0.39) *(1)* |
| | 7–22 (0.28–0.87)*(1)* | 7–22(0.28–0.87)*(1)* | – | | – | 4 (0.16) | 20(0.79) | 42 (1.65) | 4–10 (0.16–0.39) *(1)* |
| | Plain: Ø 18 Threaded: M12, M18, M30 | Threaded: M12, M18, M30 | Threaded: M18, M30 | – | Threaded: M18 | – | – | – | Threaded: M12, M18, M30 |
| | – | – | – | Limit switch style, form C, turret head | – | 12 x 40 x 26 | 40 x 40 x 40 | 80 x 80 x 40 | – |
| | Stainless steel, grade 316 L | Plastic, PPS | Metal | Plastic | Metal | Plastic | Plastic | Plastic | Plastic, PPS |
| | ● | ● | ● | ● | ● | ● | ● | ● | ● |
| | – | – | – | – | – | – | – | – | – |
| | ● | ● | – | – | – | ● | – | – | – |
| | ● | ● | – | – | ● | ● | ● | ● | ● |
| | – | – | – | – | – | ● | – | – | – |
| | – | – | – | – | – | ● | ● | – | – |
| | – | – | ● | ● | – | – | – | – | – |
| | ● | ● | ● | – | ● | ● | ● | – | – |
| | – | – | – | – | – | ● | – | – | – |
| | ● | ● | ● | – | – | – | – | ● | ● |
| | ● | ● | – | – | – | – | – | – | – |
| | – | – | ● | – | – | – | ● | – | ● |
| | – | – | – | ● | – | – | – | – | – |
| | IP 67 (connector version) IP 68 (pre-cabled version), double insulation ⧈ IP 69K conforming to DIN 40050 | | IP 68 | IP 67 | IP 67 or IP 68 *(1)* | IP 67 | IP 67 | IP 67, double insulation ⧈ | IP 67 |
| | Add the suffix **TF** to the end of the catalog number *(3)* | | | | | | | | |
| | Add the suffix **TT** to the end of the catalog number *(3)* | | | | | | | | |
| | **XS2●●SA** | **XS2●●AA** | **XS1M●●●KP** | **XS7C40** | **XS1M18PA** | **XS7G XS8G** | **XS7T XS8T** | **XS7D** | **XS●M XSLC** |
| | 62 | 66 | 108 | 106 | 108 | 88 | 86 | 80 | 110 |



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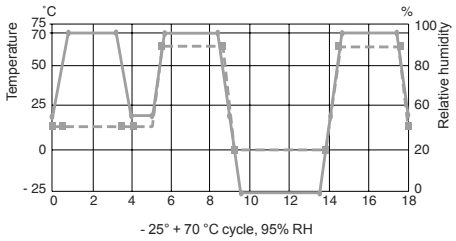
# OsiSense® XS
# Inductive proximity sensors

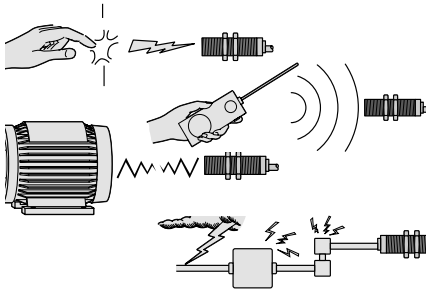


## Standards and certifications
## Parameters related to the environment




- 25° + 70 °C cycle, 95% RH

*Temperature °C*
*Humidity as %*



### Recommendations

The sensors detailed in this catalog are designed for use in standard industrial applications relating to presence detection.
These sensors do not incorporate the required redundant electrical circuit enabling their usage in safety applications.
For safety applications, refer to the Preventa™ Machine Safety Products catalog

### Quality control

**A variety of precautions are taken in order to provide inductive proximity sensors suitable for harsh industrial environments.**

- **Qualification**
  - The product specifications stated in this catalog are subject to a **qualification procedure** carried out in our laboratories.
  - In particular, the products are subjected to **climatic cycle** tests for 3,000 hours while powered up to verify their ability to maintain their specifications over time.
- **Production**
  - The electrical specifications and sensing distances at both ambient temperature and extreme temperatures are 100% checked.
  - Products are randomly selected during the course of production and subjected to **monitoring tests** relating to all their qualified specifications.
- **Customer returns**

Products that are returned to us and claimed inoperative are subjected to systematic analysis and may result in corrective actions or continuous improvement.

### Conformity to standards

**All Schneider Electric brand inductive proximity sensors conform to and are tested in accordance with the recommendations of IEC standard 60947-5-2.**

### Mechanical shock resistance

The sensors are tested in accordance with standard IEC 60068-2-27, 50 gn, duration 11 ms.

### Vibration resistance

The sensors are tested in accordance with standard IEC 60068-2-6, amplitude ± 2 mm, 10–55 Hz, 25 gn at 55 Hz.

### Resistance to the environment

- Refer to the specifications pages for the various sensors.
- **IP 67**: protection against the effects of immersion.
  Test conforming to IEC 60529: sensor immersed for 30 minutes in 1 m (39.37 in.) of water.
  No deterioration in either operating or insulation specifications is permitted.
- **IP 68**: protection against prolonged immersion.
  Sensor immersed for 336 hours in 40 meters (131.23 ft) of water at 50 °C (122 °F) .
  No deterioration in either operating or insulation specifications is permitted.
  Schneider Electric sensors with an IP 68 degree of protection are ideal for use in the most arduous conditions, such as machine tools and automatic car washes.
- **IP 69K**: protection against the effects of high pressure cleaning. Adherence to DIN 40050 which stipulates that the product must withstand a water jet at a pressure of 90 bar (1305 psi) and temperature of +80 °C (176 °F) for 3 minutes.
  No deterioration in either operating or insulation specifications is permitted.

### Resistance to electromagnetic interference

| | |
|---|---|
| ■ Electrostatic discharges | ∼ and ⎓ versions: level 4 immunity (15 kV). **IEC 61000-4-2** |
| ■ Radiated electromagnetic fields (electromagnetic waves) | ⎓, ∼ and ⎓ versions: level 2 (3 V/m) or level 3 (10 V/m) immunity. **IEC 61000-4-3** |
| ■ Fast transients (motor start/stop interference) | ⎓ version: level 3 immunity (1 kV). ∼ and ⎓ versions: level 4 immunity (2 kV) except Ø 8 mm model (level 2). **IEC 61000-4-4** |
| ■ Impulse voltage | ⎓, ∼ and ⎓ versions: level 3 immunity (2.5 kV) except Ø 8 mm and smaller models (level 1 kV). **IEC 60947-5-2** |

### Resistance to chemicals in the environment

- Due to the very wide range of chemicals encountered in industry, it is very difficult to give general guidelines common to all sensors.
- End users should verify that the application does not subject sensors to chemicals that may damage them.
- Cylindrical and flat plastic-case sensors offer excellent overall resistance to:
  - chemical products such as salts, aliphatic and aromatic oils, petroleum, acids and diluted bases. For alcohols, ketones and phenols, preliminary tests should be made relating to the nature and concentration of the liquid.
  - food and beverage industry products such as animal or vegetable based products (vegetable oils, animal fat, fruit juice, dairy proteins, etc.).

The materials selected (see product specifications) provide satisfactory compatibility in most industrial environments (for further information, consult our Customer Information Center).

## Insulation

### Class 2 devices ⧈

Electrical insulation conforms to IEC standards 61140 and NF C 20-030 relating to means of protection against electric shock.



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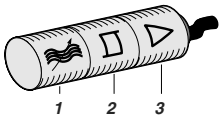
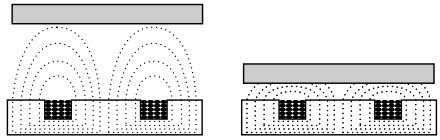
# OsiSense® XS
# Inductive proximity sensors

## Principle of inductive detection




*Composition of an inductive proximity sensor*



*Detection of a metal object*

### Operating principle

■ An inductive proximity sensor is solely for the detection of metal objects.
It essentially comprises an oscillator whose windings constitute the sensing face. An alternating magnetic field is generated in front of these windings.

■ When a metal object is placed within the sensor's magnetic field, currents are induced. These currents form an additional load, causing the sensor's oscillations to cease. This cessation causes the output driver to operate: depending on the sensor type, a normally open (NO) or normally closed (NC) output signal is produced.

2

### Inductive proximity detection

■ Inductive proximity sensors enable the detection, without physical contact, of metal objects.
■ Their range of applications is very extensive and includes:
□ monitoring the position of machine parts (cams, end stops, etc.),
□ counting the number of metal objects, etc.

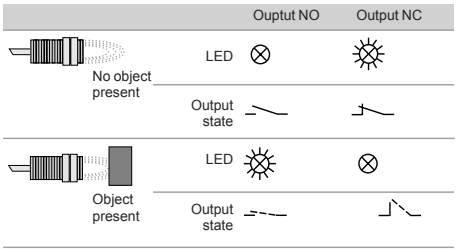
### Advantages of inductive detection

■ No physical contact with the object to be detected, thus avoiding wear and enabling detection of fragile objects, freshly painted objects, etc.
■ High operating rates. Fast response.
■ Excellent resistance to industrial environments (robust products, fully encapsulated in resin).
■ Solid-state technology: no moving parts, therefore service life of sensor not related to number of operating cycles.

### Flush mountable using teach mode sensors

■ The flush mountable sensors using teach mode are suitable for all metal environments (flush mountable or non-flush mountable) since they ensure a maximum sensing distance, even if there is a metal background. Precise detection of the position of the object can be obtained using the teach mode. For further information, see page 2/70.

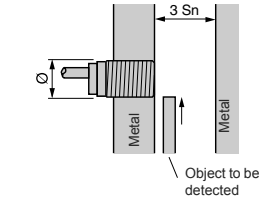
## LED indicator

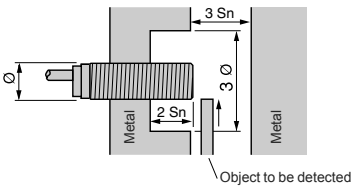



### Output LED

All Schneider Electric inductive proximity sensors incorporate an output state LED indicator.
The flush mountable sensors using teach mode are fitted with a green LED that indicates "Power on" and also assists the user during setup (teach mode).

## Mounting sensors on a metal support




### Flush mountable in metal

■ No side clearance required.
■ All flush mountable sensors using teach mode also enable detection of an object against a metal background. For further information, see page 2/70.

### Sensors not suitable for flush mounting in metal

■ Side clearance required.
Sensing distance greater than that for a standard flush mountable model.
■ Flush mountable sensors using teach mode eliminate the need for side clearance. For further information, see page 2/70.



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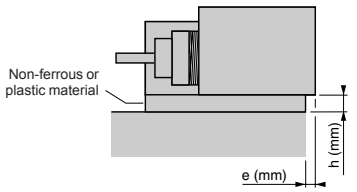
# Inductive proximity sensors



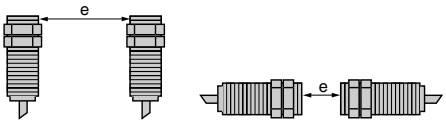
## Mounting sensors on a metal support




### Mounting using mounting clamp

- ■ Standard flush mountable models: e = 0, h = 0
- ■ Standard non-flush mountable models
- □ Ø 6.5 / 8 / 12 mm: e = 0, h = 0
- □ Ø 18 mm: if h = 0, e ⩾ 5; e = 0, h ⩾ 3.
- □ Ø 30 mm: if h = 0, e ⩾ 8; e = 0, h ⩾ 4.
- ■ Flush mountable sensors using teach mode: e = 0, h = 0

## Mounting distance between sensors




*Mounting side by side*
*e≥ 2 Sn (mm)*

*Mounting face to face*
*e ≥ 10 Sn (mm)*

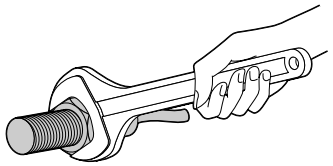
### Standard sensors

If two standard sensors are mounted too close to each other they are likely to lock in the "detection state" due to interference between their respective oscillating frequencies.
To avoid this condition, the minimum mounting distances stated for the sensors should be adhered to or, alternatively, sensors with staggered oscillating frequencies should be used.

### Staggered frequency sensors

For applications where the minimum recommended mounting distances for standard sensors cannot be achieved, it is possible to overcome this restraint by using staggered frequency sensors. consult the Sensor Competency Center.
In this case, a staggered frequency sensor is mounted adjacent to or opposite each standard sensor.

## Tightening torque for cylindrical type sensors



| | Maximum tightening torque for the various sensor case materials, N•m (lb-in) | | | |
|---|---|---|---|---|
| | Brass | Brass | Stainless steel | Plastic |
| Diameter of sensor (mm) | Short case model | Long case model form A | Long case model form A | All models |
| | XS5●●B1 | XS6●●B1<br>XS6●●B2<br>XSAV● | XS1●●<br>XS2●● | XS4P●● |
| **Ø 5** | 1.6 (14.16) | 1.6 (14.16) | 2 (17.70) | – |
| **Ø 8** | 5 (44.25) | 5 (44.25) | 9 (79.66) | 1 (8.85) |
| **Ø 12** | 6 (53.10) | 15 (132.76) | 30 (265.52) | 2 (17.70) |
| **Ø 18** | 15 (132.76) | 35 (309.78) | 50 (442.54) | 5 (44.25) |
| **Ø 30** | 40 (354.03) | 50 (442.54) | 100 (885.07) | 20 (177.01) |



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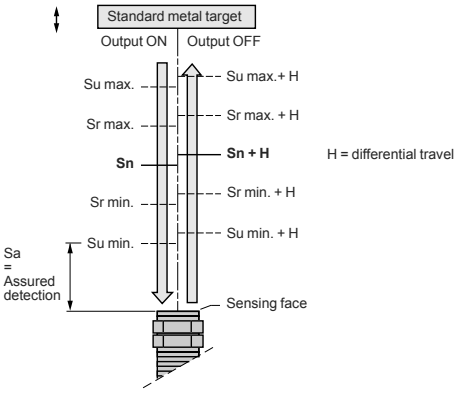
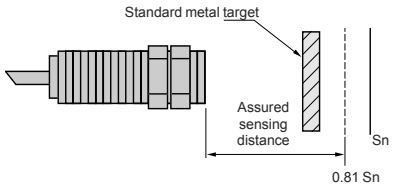
# Inductive proximity sensors

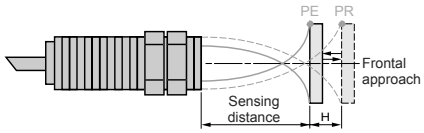


## Sensing distance

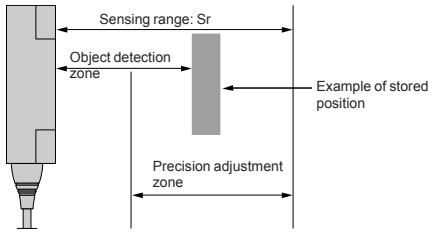


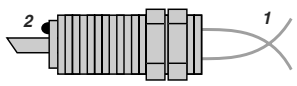




## Terminology




PE = pick-up point, the object is detected
PR = drop-out point, the object is no longer detected




***1*** *Detection threshold curves*
***2*** *"Object detected" LED*

### Definitions

In order to allow customers to make reliable product comparisons and selection, the standard IEC 60947-5-2 defines various sensing distances, such as:

- **Nominal sensing distance (Sn)**
  The rated operating distance for which the sensor is designed. It does not take into account any variations (manufacturing tolerances, temperature, voltage).
- **Effective sensing distance (Sr)**
  The effective sensing distance is measured at the rated voltage (Un) and the rated ambient temperature (Tn).
  It must be between 90% and 110% of the nominal sensing distance (Sn):
  $0.9\ Sn \leq Sr \leq 1.1\ Sn$.
- **Usable sensing distance (Su)**
  The usable sensing distance is measured at the limits of the permissible variations in the ambient temperature (Ta) and the supply voltage (Ub). It must be between 90% and 110% of the effective sensing distance: $0.9\ Sr \leq Su \leq 1.1\ Sr$.
- **Assured operating distance (Sa).**
  This is the operating zone of the sensor. The assured sensing distance is between 0 and 81% of the nominal sensing distance (Sn): $0 \leq Sa \leq 0.9 \times 0.9 \times Sn$

### Standard metal target

The standard IEC 60947-5-2 defines the standard metal target as a square mild steel (Fe 360) plate, 1 mm (0.04 in.) thick.
The side dimension of the plate is either equal to the diameter of the circle engraved on the sensing face of the sensor or three times the nominal sensing distance (Sn).

### Differential travel

The differential travel (H), or hysteresis, is the distance between the operating point, as the standard metal target moves towards the sensor, and the release point, as it moves away.
This hysteresis is essential for the stable operation of the sensor.

### Repeat accuracy

The repeat accuracy (R) is the repeatability of the sensing distance between successive operations. Readings are taken over a period of time while the sensor is subjected to voltage and temperature variations: 8 hours, 10 to 30 °C (50 to 86 °F), Un ± 5%.
It is expressed as a percentage of the effective sensing distance Sr.

### Detection zone and precision adjustment zone

- Flush mountable sensors using teach mode, due to adjustment of sensitivity while teaching, enable the position of an object to be detected as it approaches from the front or side.
  The teach mode can be used when the object is located in the zone known as the "precision adjustment zone". When the object approaches from the front, the detection zone of the object ranges from the stored position down to zero.

### Operating zone

- The operating zone relates to the area in front of the sensing face in which the detection of a metal object is certain.
  The values stated in the specifications relating to the various types of sensor are for steel objects of a size equal to the sensing face of the sensor.
  For objects of a different nature (smaller than the sensing face of the sensor, other metals, etc.), it is necessary to apply a correction coefficient.



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# OsiSense® XS
# Inductive proximity sensors



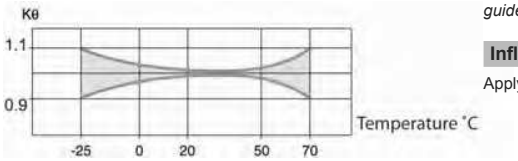
## Correction coefficients to apply to the assured operating distance

### Assured operating distance of a sensor

In practice, most objects to be detected are generally made of steel and are of a size equal to or greater than the sensing face of the sensor.

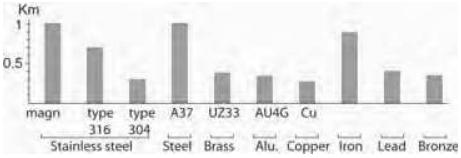
For the calculation of the assured operating distance for different operating conditions, you must take into account the correction coefficients that influence it.

*The curves indicated are purely representational of typical curves. They are only given as a guide to the approximate usable sensing distance of a proximity sensor for a given application.*




### Influence of ambient temperature

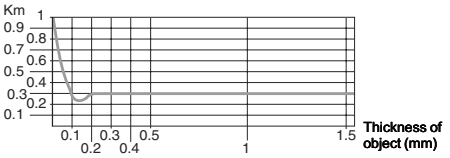
Apply a correction coefficient Kθ, determined from the curve shown opposite.




### Material of object to be detected

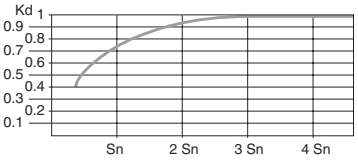
Apply a correction coefficient Km, determined from the diagram shown opposite.

The fixed sensing distance models for ferrous/non-ferrous (Fe/NFe) materials enable the detection of different objects at a fixed distance, regardless of the type of material.




Special case of a very thin object made of a non-ferrous material.

*Typical curve for a **copper** object used with a Ø 18 mm cylindrical sensor*




*Typical curve for a **steel** object used with a Ø 18 mm cylindrical sensor*

### Size of object to be detected

Apply a correction coefficient Kd, determined from the curve shown opposite.
When calculating the sensing distance for the selection of a sensor, make the assumption that Kd = 1.

### Variation of supply voltage

In all cases, apply the correction coefficient Kt = 0.9.

## Calculation examples

### Correction of the sensing distance of a sensor

Sensor with nominal sensing distance Sn = 15 mm.
Ambient temperature variation 0 to + 20 °C.
Object material and size: steel, 30 x 30 x 1 mm thick.
The assured sensing distance Sa is determined using the formula:
**Sa = Sn x Kq x Km x Kd x Kt =** 15 x 0.98 x 1 x 0.95 x 0.9
i.e. Sa = 12.5 mm.

### Selecting a sensor for a given application

Application specifications:
- object material and size: iron (Km = 0.9), 30 x 30 mm,
- temperature: 0 to 20 °C (Kθ = 0.98),
- object detection distance: 3 mm ± 1.5 mm, i.e. Sa max. = 4.5 mm,
- assume Kd = 1.

A sensor must be selected for which $\mathbf{Sn \geqslant \frac{Sa}{Kq \times Km \times Kd \times Kt} = \frac{4.5}{0.98 \times 0.9 \times 1 \times 0.9}}$

i.e. **Sn ⩾ 5.7 mm**



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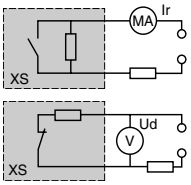
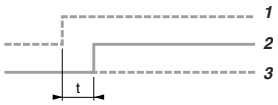
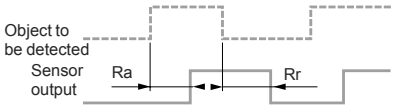
# OsiSense® XS
# Inductive proximity sensors

## Specific aspects of electronic sensors




### Terminology

■ Residual current (Ir)
□ The residual current (Ir) corresponds to the current flowing through the sensor when in the "open" state.
□ Characteristic of 2-wire type proximity sensors.

■ Voltage drop (Ud)
□ The voltage drop (Ud) corresponds to the voltage drop at the sensor's terminals when in the "closed" state (value measured at nominal current rating of sensor).

■ First-up delay
□ The first-up delay corresponds to the time (t) between the connection of the power supply to the sensor and its fully operational state.
***1*** *Supply voltage U on*
***2*** *Sensor operational at state 1*
***3*** *Sensor at state 0*

■ Response time
□ Response time (Ra): the time delay between the object to be detected entering the sensor's operating zone and the subsequent change of output state. This parameter limits the speed and size of the object.
□ Recovery time (Rr): the time delay between an object to be detected leaving the sensor's operating zone and the subsequent change of output state. This parameter limits the interval between successive objects.

2

## Supply

### Sensors for AC circuits (∿ and ≂ models)

Check that the voltage limits of the sensor are compatible with the nominal voltage of the AC supply used.

### Sensors for DC circuits

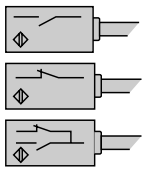
■ **DC source:** check that the voltage limits of the sensor and the acceptable level of ripple are compatible with the supply used.

■ **AC source** (comprising transformer, rectifier, smoothing capacitor): the supply voltage must be within the operating limits specified for the sensor.

Where the voltage is derived from a single-phase AC supply, the voltage must be rectified and smoothed to ensure that:
- the peak voltage of the DC supply is lower than the maximum voltage rating of the sensor. Peak voltage = nominal voltage x $\sqrt{2}$
- the minimum voltage of the supply is greater than the minimum voltage rating of the sensor, given that :
$\Delta V = (I \times t) / C$
$\Delta V$ = max. ripple: 10% (V),
I = anticipated load current (mA),
t = period of 1 cycle (10 ms full-wave rectified for a 50 Hz supply frequency),
C = capacitance (µF).
As a general rule, use a transformer with a lower secondary voltage (Ue) than the required DC voltage (U).

**Example:**
∿ 18 V to obtain ⎓ 24 V,
∿ 36 V to obtain ⎓ 48 V.

## Outputs



### Output signal (contact logic)

■ Normally open (NO)
Corresponds to a sensor whose output changes to the closed state when an object is present in the operating zone.

■ Normally closed (NC)
Corresponds to a sensor whose output changes to the open state when an object is present in the operating zone.

■ Complementary outputs (NO + NC)
Corresponds to a sensor with a normally closed output and a normally open output.



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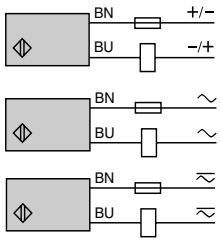
# OsiSense® XS
# Inductive proximity sensors



## Outputs (continued)



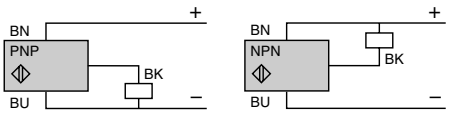

### 2-wire ⎓ type, non-polarized NO or NC output

■ **Specific aspects**

These sensors are wired in series with the load to be switched.
As a consequence, they are subject to:
- □ a residual current in the open state (current flowing through the sensor in the “open” state)
- □ A voltage drop in the closed state (voltage drop across the sensor’s terminals in the “closed” state)

■ **Advantages**
- □ Only two leads to be wired: these sensors can be wired in series in the same way as mechanical limit switches
- □ They can be connected to either positive-logic (PNP) or negative-logic (NPN) PLC inputs
- □ Simple, reversible connections

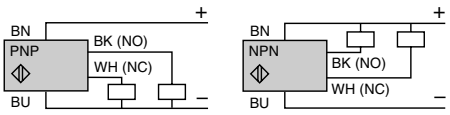
■ **Operating precautions**
- □ Check the possible effects of residual current and voltage drop on the actuator or input connected,
- □ For sensors that do not have overload and short-circuit protection (AC or AC/DC symbol), a 0.4 A fast-acting fuse must be connected in series with the load.




### 3-wire ⎓ type, NO or NC output, PNP or NPN

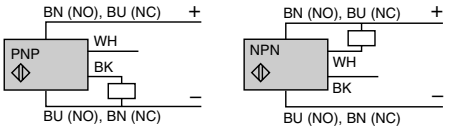
■ **Specific aspects**
- □ These sensors comprise two wires for the DC supply and a third wire for the output signal,
- □ PNP type: switching the positive side to the load
- □ NPN type: switching the negative side to the load

■ **Advantages**
- □ Protection against supply reverse polarity
- □ Protection against overload and short-circuit
- □ No residual current, low voltage drop



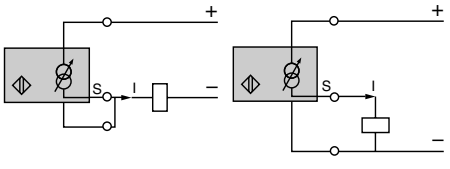

### 4-wire ⎓ type, complementary NO and NC outputs, PNP or NPN

■ **Advantages**
- □ Protection against supply reverse polarity (+/-)
- □ Protection against overload and short-circuit




### 4-wire ⎓ type, multifunction, programmable NO or NC output, PNP or NPN

■ **Advantages**
- □ Protection against supply reverse polarity (+/-)
- □ Protection against overload and short-circuit




*2-wire connection* *3-wire connection*

### Specific output signals, analog type

■ These sensors convert the approach of a metal object towards the sensing face into an output current variation which is proportional to the distance between the object and the sensing face.
■ Two models available:
- 0–10 V (0–10 mA) output for 3-wire connection
- 4–20 mA output for 2-wire connection



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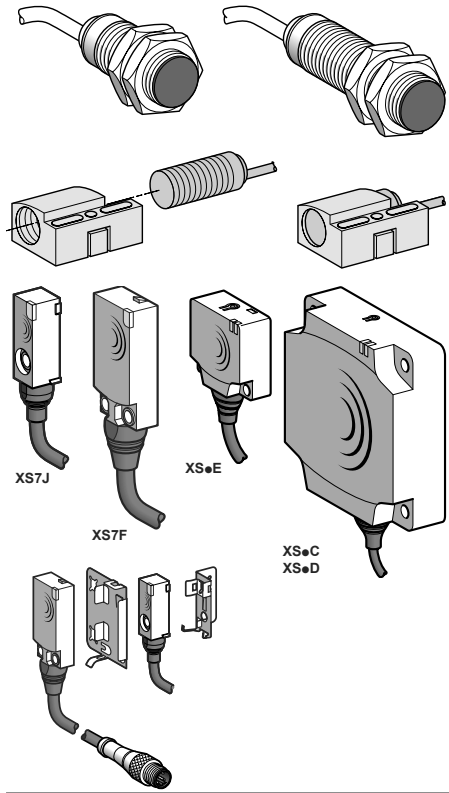
# Inductive proximity sensors



## Features of the various models

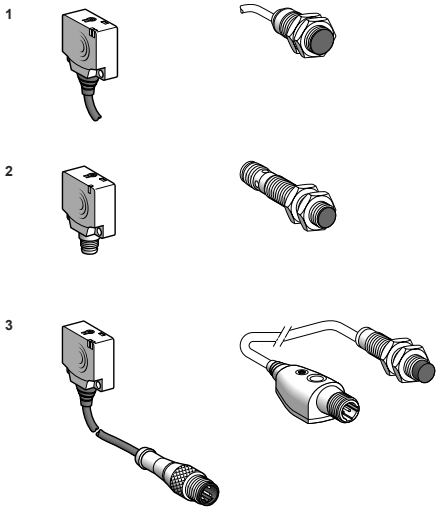



### Types of case

■ **Cylindrical case**
- □ Fast installation and setup.
- □ Short case and long case, 2-wire ⎓ and 3-wire ⎓ versions available.
- □ Pre-cabled (molded cable) and various integral connector (M8, M12, 7/8", M18) and remote connector (on pigtail connector) versions available.
- □ Small size facilitates mounting in locations with restricted access.
- □ **Interchangeability**, provided by indexed **mounting clamp**: when assembled, becomes similar to a block type sensor.

■ **Flat case**
- □ Reduced size (sensor volume divided by 8).
- □ Fast installation by mounting using clip-on brackets.
- □ Precision detection with the flush mountable sensors using teach mode
.

## Electrical connection




### Connection methods

**1 Pre-cabled:** factory-fitted molded cable, good protection against splashing liquids (IP 68). Example: machine tool.
**2 Connector:** easy installation and maintenance (IP 67).
**3 Remote connector:** easy installation and maintenance (IP 68 at sensor level and IP 67 at remote connector level).

### Wiring

■ **Length of cable**
- □ No limitation up to 200 m or up to a line capacitance of < 100 nF (specifications of sensor remain unaffected)
- □ In this case, it is important to take into account the voltage drop on the line

■ **Separation of control and power circuit wiring**
- □ The sensors are immune to electrical interference encountered in normal industrial conditions
- □ Where extreme conditions of electrical “noise” could occur (large motors, spot welders, etc.) it is advisable to protect against transients in the normal way:

- suppress interference at source
- separate power and control wiring from each other
- smooth the supply
- limit the length of cable

■ **Connect the sensor with supply switched off.**



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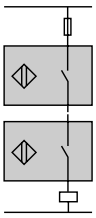
# OsiSense® XS
# Inductive proximity sensors



## Setup



### Connection in series

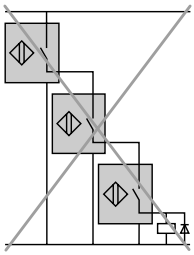
**2-wire type sensors**

- The following points should be taken into account:
  - Series wiring is only possible using sensors with wide voltage limits.
    Based on the assumption that each sensor has the same residual current value, each sensor, in the open state, will share the supply voltage, i.e.

$$U\ sensor = \frac{U\ (supply)}{n\ sensors}$$

U sensor and U supply must remain within the sensor's voltage limits.

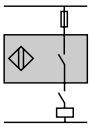
- If only one sensor in the circuit is in the open state, it will be supplied at a voltage almost equal to the supply voltage.
- When in the closed state, a small voltage drop is present across each sensor. The resulting loss of voltage at the load will be the sum of the individual voltage drops and therefore, the load voltage should be selected accordingly.



**3-wire type sensors**

This connection method is not recommended.

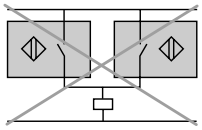
- Correct operation of the sensors cannot be assured and, if this method is used, tests should be made before installation.
  The following points should be taken into account:
  - Sensor 1 carries the load current in addition to the no-load current consumption values of the other sensors connected in series. For certain models, this connection method is not possible unless a current limiting resistor is used.
  - When in the closed state, a small voltage drop is present across each sensor. The load should therefore be selected accordingly.
  - As sensor 1 closes, sensor 2 does not operate until a certain time (t) has elapsed (corresponding to the first-up delay) and likewise for the following sensors in the sequence.
  - The use of "flywheel" diodes is recommended when an inductive load is being switched.



**Sensors and devices in series with an external mechanical contact**

**2 and 3-wire type sensors**

- The following points should be taken into account:
  - When the mechanical contact is open, the sensor is not supplied.
  - When the contact closes, the sensor does not operate until a certain time (t) has elapsed (corresponding to the first-up delay).

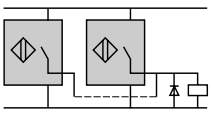


### Connection in parallel

**2-wire type sensors**

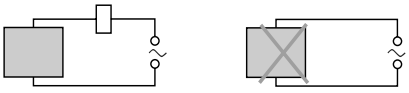
**This connection method is not recommended.**

- Should one of the sensors be in the closed state, the sensor in parallel will be "shorted-out" and no longer supplied.
  As the first sensor passes into the open state, the second sensor will become energized and will be subject to its first-up delay.
- This configuration is only permissible where the sensors will be working alternately.
- This method of connection can lead to irreversible damage to the units.



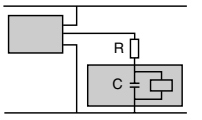
**3-wire type sensors**

- No specific restrictions. The use of "flywheel" diodes is recommended when an inductive load (relay) is being switched.



### AC supply

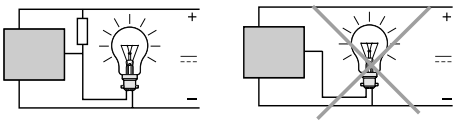
- **2-wire type sensors cannot be connected directly to an AC supply.**
  - Improper installation can result in injury or sensor damage
  - An appropriate load (refer to the instruction sheet supplied with the sensor) must always be connected in series with the sensor.




### Capacitive load (C > 0.1 µF)

- On power-up, it is necessary to limit (by resistor) the charging current of the capacitive load C.
  - The voltage drop in the sensor can also be taken into account by subtracting it from the supply voltage for the calculation of R.

$$R = \frac{U\ supply}{I\ max.\ (sensor)}$$




### Load comprising an incandescent lamp

- If the load comprises an incandescent lamp, the hot state resistance can be 10 times higher than the cold state resistance. This can cause very high current levels on switching. Fit a pre-heat resistor in parallel with the sensor.

$$R = \frac{U^2}{P} \times 10$$ , U = supply voltage and P = lamp power



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# OsiSense® XS
# Inductive proximity sensors



## Fast troubleshooting guide

| Problem | Possible causes | Remedy |
|---|---|---|
| **The sensor's output will not change state when a metal object enters the detection zone** | On a flush mountable sensor using teach mode:<br>setup or programming error. | ■ After a RESET, follow the environment teach mode procedure. Refer to instruction sheet supplied with sensor. |
| | Inoperative sensor or the short circuit protection has been opened | ■ Check that the sensor is compatible with the supply being used.<br>■ Check the load current specifications:<br>□ if load current I ≥ maximum switching capacity, an auxiliary relay, of the CADN type for example, should be interposed between the sensor and the load,<br>□ if I ≤ maximum switching capacity, check for wiring issues (short-circuit).<br>■ In all cases, a 0.4 A fast-acting fuse should be connected in series with the sensor. |
| | Wiring error | ■ Check that the wiring conforms to the wiring shown on the sensor label or instruction sheet. |
| | Improper power supply | ■ Check that the sensor is compatible with the supply (~ or ⎓).<br>■ Check that the supply voltage is within the voltage limits of the sensor. Remember that with a rectified, smoothed supply,<br>U peak = U nominal x $\sqrt{2}$ with a ripple voltage ≤ 10%. |
| **False or erratic operation, with or without the presence of a metal object in the detection zone** | On flush mountable sensor using teach mode:<br>setup or programming error. | ■ After a RESET, follow the environment teach mode procedure. Refer to instruction sheet supplied with sensor. |
| | Influence of background or metal environment | ■ Refer to the instruction sheet supplied with the sensor. For sensors with adjustable sensitivity, reduce the sensing distance. |
| | Sensing distance poorly defined for the object to be detected | ■ Apply the correction coefficients.<br>■ Realign the system or run the teach mode again. |
| | Influence of transient interference on the supply lines | ■ Ensure that any DC supplies, when derived from rectified AC, are correctly smoothed (C > 400 µF).<br>■ Separate AC power cables from low-level DC cables (24 V low level).<br>■ Where very long distances are involved, use suitable cable: screened and twisted pairs of the correct cross-sectional area. |
| | Equipment prone to emitting electromagnetic interference | ■ Position the sensors as far away as possible from any sources of interference. |
| | Response time of the sensor too slow for the particular object being detected | ■ Check the suitability of the sensor for the position or size of the object to be detected.<br>■ If necessary, select a sensor with a higher switching frequency. |
| | Influence of high temperature | ■ Eliminate sources of radiated heat or protect the sensor casing with a heat shield.<br>■ Realign, having adjusted the temperature around the mounting support. |
| **No detection following a period of service** | Vibration, shock | ■ Realign the system.<br>■ Replace the support or protect the sensor. |



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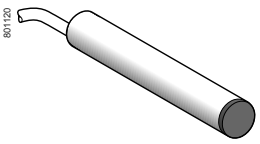
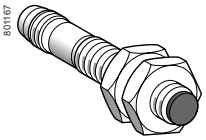
# OsiSense® XS
# Inductive proximity sensors

Basic, cylindrical, flush mountable, increased range
Three-wire DC, solid-state output

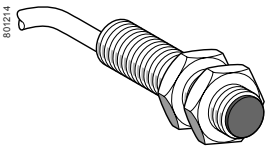





*XS106B3●●L2*




*XS108B3●●M8*




*XS112B3●●L2*

| Sensing distance Sn, mm (in.) | Function | Output | Connection | Sold in lots of | Catalog Number | Weight kg | (lb) |
|---|---|---|---|---|---|---|---|
| **Ø 6.5, plain** | | | | | | | |
| **Three-wire 12–24 V ⎓, flush mountable** | | | | | | | |
| **2 (0.07)** | NO | PNP | Pre-cabled (L = 2 m) *(1)* | 1 | **XS106B3PAL2** | 0.060 | (0.13) |
| | | | M8 connector | 1 | **XS106B3PAM8** | 0.030 | (0.06) |
| | | | M12 connector | 1 | **XS106B3PAM12** | 0.050 | (0.11) |
| | | | Pre-cabled (L = 2 m) | 20 | **XS106B3PAL2TQ** | 0.980 | (2.16) |
| | | | M8 connector | 20 | **XS106B3PAM8TQ** | 0.320 | (0.70) |
| | | NPN | Pre-cabled (L = 2 m) | 1 | **XS106B3NAL2** | 0.060 | (0.13) |
| | | | M8 connector | 1 | **XS106B3NAM8** | 0.030 | (0.06) |
| | NC | PNP | Pre-cabled (L = 2 m) *(1)* | 1 | **XS106B3PBL2** | 0.060 | (0.13) |
| | | | M8 connector | 1 | **XS106B3PBM8** | 0.030 | (0.06) |
| **Ø 8, threaded M8 x 1** | | | | | | | |
| **Three-wire 12–24 V ⎓, flush mountable** | | | | | | | |
| **2 (0.07)** | NO | PNP | Pre-cabled (L = 2 m) *(1)* | 1 | **XS108B3PAL2** | 0.070 | (0.15) |
| | | | M8 connector | 1 | **XS108B3PAM8** | 0.030 | (0.06) |
| | | | M12 connector | 1 | **XS108B3PAM12** | 0.060 | (0.13) |
| | | | Pre-cabled (L = 2 m) | 20 | **XS108B3PAL2TQ** | 1.120 | (2.46) |
| | | | M8 connector | 20 | **XS108B3PAM8TQ** | 0.460 | (1.01) |
| | | | M12 connector | 20 | **XS108B3PAM12TQ** | 0.940 | (2.07) |
| | | NPN | Pre-cabled (L = 2 m) *(1)* | 1 | **XS108B3NAL2** | 0.070 | (0.15) |
| | | | M8 connector | 1 | **XS108B3NAM8** | 0.030 | (0.06) |
| | | | M12 connector | 1 | **XS108B3NAM12** | 0.060 | (0.13) |
| | | | Pre-cabled (L = 2 m) | 20 | **XS108B3NAL2TQ** | 1.120 | (2.46) |
| | | | M8 connector | 20 | **XS108B3NAM8TQ** | 0.460 | (1.01) |
| | NC | PNP | Pre-cabled (L = 2 m) *(1)* | 1 | **XS108B3PBL2** | 0.070 | (0.15) |
| | | | M8 connector | 1 | **XS108B3PBM8** | 0.030 | (0.06) |
| | | | M12 connector | 1 | **XS108B3PBM12** | 0.060 | (0.13) |
| | | NPN | Pre-cabled (L = 2 m) *(1)* | 1 | **XS108B3NBL2** | 0.070 | (0.15) |
| | | | M8 connector | 1 | **XS108B3NBM8** | 0.030 | (0.06) |
| | | | M12 connector | 1 | **XS108B3NBM12** | 0.060 | (0.13) |
| **Ø 12, threaded M12 x 1** | | | | | | | |
| **Three-wire 12–24 V ⎓, flush mountable** | | | | | | | |
| **4 (0.15)** | NO | PNP | Pre-cabled (L = 2 m) *(1)* | 1 | **XS112B3PAL2** | 0.090 | (0.19) |
| | | | M12 connector | 1 | **XS112B3PAM12** | 0.030 | (0.06) |
| | | | Pre-cabled (L = 2 m) | 20 | **XS112B3PAL2TQ** | 1.600 | (3.52) |
| | | | M12 connector | 20 | **XS112B3PAM12TQ** | 0.470 | (1.03) |
| | | NPN | Pre-cabled (L = 2 m) *(1)* | 1 | **XS112B3NAL2** | 0.090 | (0.19) |
| | | | M12 connector | 1 | **XS112B3NAM12** | 0.030 | (0.06) |
| | | | Pre-cabled (L = 2 m) | 20 | **XS112B3NAL2TQ** | 1.600 | (3.52) |
| | | | M12 connector | 20 | **XS112B3NAM12TQ** | 0.470 | (1.03) |
| | NC | PNP | Pre-cabled (L = 2 m) *(1)* | 1 | **XS112B3PBL2** | 0.090 | (0.19) |
| | | | M12 connector | 1 | **XS112B3PBM12** | 0.030 | (0.06) |
| | | | M12 connector | 20 | **XS112B3PBM12TQ** | 0.470 | (1.03) |
| | | NPN | Pre-cabled (L = 2 m) *(1)* | 1 | **XS112B3NBL2** | 0.090 | (0.19) |
| | | | M12 connector | 1 | **XS112B3NBM12** | 0.030 | (0.06) |

*(1) For a 5 m cable replace L2 with L5.*
*Example: XS106B3PAL2 becomes **XS106B3PAL5** with a 5 m cable.*



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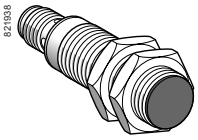
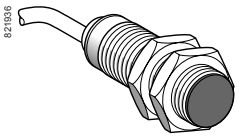
# Inductive proximity sensors

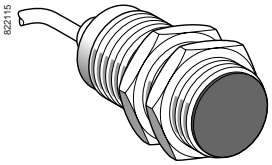
Basic, cylindrical, flush mountable, increased range
Three-wire DC, solid-state output



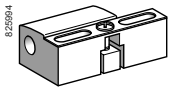

*XS118B3●●M12*




*XS118B3●●●L2*




*XS130B3●●L2*




*XSZB1●●*

| Sensing distance Sn, mm (in.) | Function | Output | Connection | Sold in lots of | Catalog Number | Weight kg | (lb) |
|---|---|---|---|---|---|---|---|
| **Ø 18, threaded M18 x 1** | | | | | | | |
| **Three-wire 12–24 V ⎓, flush mountable** | | | | | | | |
| **8 (0.31)** | NO | PNP | Pre-cabled (L = 2 m) *(1)* | 1 | **XS118B3PAL2** | 0.110 | (0.24) |
| | | | M12 connector | 1 | **XS118B3PAM12** | 0.060 | (0.13) |
| | | | Pre-cabled (L = 2 m) | 20 | **XS118B3PAL2TQ** | 2.000 | (4.40) |
| | | | M12 connector | 20 | **XS118B3PAM12TQ** | 1.140 | (2.51) |
| | | NPN | Pre-cabled (L = 2 m) *(1)* | 1 | **XS118B3NAL2** | 0.110 | (0.24) |
| | | | M12 connector | 1 | **XS118B3NAM12** | 0.060 | (0.13) |
| | | | Pre-cabled (L = 2 m) | 20 | **XS118B3NAL2TQ** | 2.000 | (4.40) |
| | | | M12 connector | 20 | **XS118B3NAM12TQ** | 1.140 | (2.51) |
| | NC | PNP | Pre-cabled (L = 2 m) *(1)* | 1 | **XS118B3PBL2** | 0.110 | (0.24) |
| | | | M12 connector | 1 | **XS118B3PBM12** | 0.060 | (0.13) |
| | | NPN | Pre-cabled (L = 2 m) *(1)* | 1 | **XS118B3NBL2** | 0.110 | (0.24) |
| | | | M12 connector | 1 | **XS118B3NBM12** | 0.060 | (0.13) |
| **Ø 30, threaded M30 x 1.5** | | | | | | | |
| **Three-wire 12–24 V ⎓, flush mountable** | | | | | | | |
| **15 (0.59)** | NO | PNP | Pre-cabled (L = 2 m) *(1)* | 1 | **XS130B3PAL2** | 0.180 | (0.39) |
| | | | M12 connector | 1 | **XS130B3PAM12** | 0.130 | (0.28) |
| | | | Pre-cabled (L = 2 m) | 20 | **XS130B3PAL2TQ** | 3.360 | (7.40) |
| | | | M12 connector | 20 | **XS130B3PAM12TQ** | 2.000 | (4.40) |
| | | NPN | Pre-cabled (L = 2 m) *(1)* | 1 | **XS130B3NAL2** | 0.180 | (0.39) |
| | | | M12 connector | 1 | **XS130B3NAM12** | 0.130 | (0.28) |
| | | | M12 connector | 20 | **XS130B3NAM12TQ** | 2.000 | (4.40) |
| | NC | PNP | Pre-cabled (L = 2 m) *(1)* | 1 | **XS130B3PBL2** | 0.180 | (0.39) |
| | | | M12 connector | 1 | **XS130B3PBM12** | 0.130 | (0.28) |
| | | NPN | Pre-cabled (L = 2 m) *(1)* | 1 | **XS130B3NBL2** | 0.180 | (0.39) |
| | | | M12 connector | 1 | **XS130B3NBM12** | 0.130 | (0.28) |

**Accessories**

| Description | For use with sensors | Catalog Number | Weight kg | (lb) |
|---|---|---|---|---|
| **Mounting clamps** | Ø = 6.5 (plain) | **XSZB165** | 0.005 | (0.01) |
| | Ø 8 (M8 x 1) | **XSZB108** | 0.006 | (0.01) |
| | Ø 12 (M12 x 1) | **XSZB112** | 0.006 | (0.01) |
| | Ø 18 (M18 x 1) | **XSZB118** | 0.010 | (0.02) |
| | Ø 30 (M30 x 1.5) | **XSZB130** | 0.020 | (0.04) |

*(1) For a 5 m cable replace L2 with L5.*
*Example: XS118B3PAL2 becomes **XS118B3PAL5** with a 5 m cable.*





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# OsiSense® XS
# Inductive proximity sensors
Basic, cylindrical, flush mountable, increased range
Three-wire DC, solid-state output



## Specifications

| Sensor type | | | XS1●●B3●●M8 | XS1●●B3●●M12 | XS1●●B3●●L2 |
|---|---|---|---|---|---|
| **Product certifications** | | | UL, CSA, CE | | |
| **Connection** | Connector | | M8 | M12 | – |
| | Pre-cabled | | – | – | Length 2 m |
| **Operating zone** | Ø 6.5 and Ø 8 | **mm** | 0–1.6 (0–0.06 in.) | | |
| | Ø 12 | **mm** | 0–3.2 (0–0.12 in.) | | |
| | Ø 18 | **mm** | 0–6.4 (0–0.25 in.) | | |
| | Ø 30 | **mm** | 0–12 (0–0.47 in.) | | |
| **Differential travel** | | **%** | 1–15 of effective sensing distance (Sr) | | |
| **Degree of protection** | Conforming to IEC 60529 | | IP 65 and IP 67 | | |
| **Storage temperature** | | **°C** | -40 to +85 (-40 to +185 °F) | | |
| **Operating temperature** | | **°C** | -25 to +70 (-13 to +158 °F) | | |
| **Materials** | Case | | Nickel-plated brass | | |
| | Cable | | – | | PvR 3 x 0.34 mm² (22 AWG) except Ø 6.5 and 8: 3 x 0.11 mm² (27 AWG) |
| **Vibration resistance** | Conforming to IEC 60068-2-6 | | 25 gn, amplitude ± 2 mm (f = 10 to 55 Hz) | | |
| **Shock resistance** | Conforming to IEC 60068-2-27 | | 50 gn, duration 11 ms | | |
| **Output state indication** | | | Yellow LED, 4 viewing ports at 90° | | Yellow LED, annular |
| **Rated supply voltage** | | **V** | ⎓ 12–24 with protection against reverse polarity | | |
| **Voltage limits (including ripple)** | | **V** | ⎓ 10–36 | | |
| **Switching capacity** | | **mA** | ≤ 200 with overload and short-circuit protection | | |
| **Voltage drop, closed state** | | **V** | ≤ 2 | | |
| **Current consumption, no-load** | | **mA** | ≤ 10 | | |
| **Maximum switching frequency** | Ø 6.5, Ø 8, and Ø 12 | **Hz** | 2500 | | |
| | Ø 18 | **Hz** | 1000 | | |
| | Ø 30 | **Hz** | 500 | | |
| **Delays** | First-up | **ms** | ≤ 10 | | |
| | Response | **ms** | ≤ 0.2 for Ø 8 and Ø 12, ≤ 0.3 for Ø 18, ≤ 0.6 for Ø 30 | | |
| | Recovery | **ms** | ≤ 0.2 for Ø 8 and Ø 12, ≤ 0.7 for Ø 18, ≤ 1.4 for Ø 30 | | |

## Wiring diagrams

**Connector**

M8



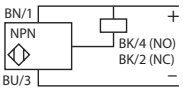

M12



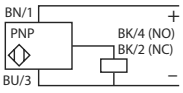

**Pre-cabled**

BU: Blue
BN: Brown
BK: Black

**NPN**




**PNP**




*For the M8 connector, the NO and NC outputs are on terminal 4.*



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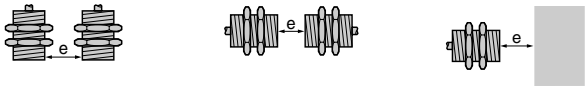
# OsiSense® XS
# Inductive proximity sensors
Basic, cylindrical, flush mountable, increased range
Three-wire DC, solid-state output

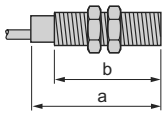
## Setup

**Minimum mounting distances (mm)**




| Sensors | | Side by side | Face to face | Facing a metal object |
|---|---|---|---|---|
| **Ø 6.5 flush mountable** | **XS106B3** | e ≥ 4 | e ≥ 24 | e ≥ 6 |
| **Ø 8 flush mountable** | **XS108B3** | e ≥ 4 | e ≥ 24 | e ≥ 6 |
| **Ø 12 flush mountable** | **XS112B3** | e ≥ 8 | e ≥ 50 | e ≥ 12 |
| **Ø 18 flush mountable** | **XS118B3** | e ≥ 16 | e ≥ 100 | e ≥ 25 |
| **Ø 30 flush mountable** | **XS130B3** | e ≥ 30 | e ≥ 180 | e ≥ 45 |

## Dimensions (mm)




| Sensors | | Flush mountable in metal | | | | | |
|---|---|---|---|---|---|---|---|
| | | Pre-cabled (mm) | | M8 connector (mm) | | M12 connector (mm) | |
| | | a | b | a | b | a | b |
| **Ø 6.5** | **XS106B3** | 33 | 30 | 42 | 34 | 45 | 24 |
| **Ø 8** | **XS108B3** | 33 | 25 | 42 | 26 | 45 | 23 |
| **Ø 12** | **XS112B3** | 35 | 25 | – | – | 50 | 29 |
| **Ø 18** | **XS118B3** | 38 | 28 | – | – | 50.3 | 28 |
| **Ø 30** | **XS130B3** | 42.3 | 32 | – | – | 54.5 | 32 |





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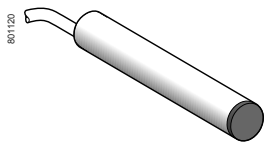
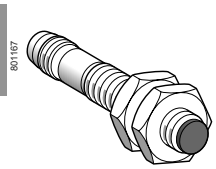
# Inductive proximity sensors

Basic, cylindrical, metal, flush and non-flush mountable
Two-wire, AC supply
Three-wire DC, solid-state output

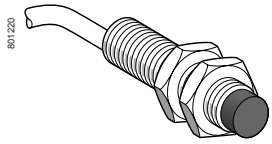




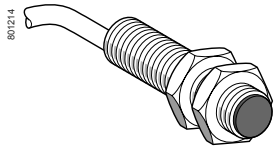

*XS106BL●●L2*



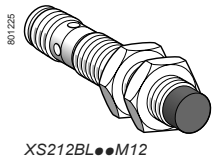

*XS108BL●●M8*




*XS208BL●●L2*




*XS112BL●●L2*




*XS212BL●●M12*

| Sensing distance Sn, mm (in.) | Function | Output | Connection | Catalog Number | Weight kg | (lb) |
|---|---|---|---|---|---|---|
| **Ø 6.5, plain** | | | | | | |
| **Three-wire 12–24 V ⎓, flush mountable** | | | | | | |
| **1.5 (0.05)** | NO | PNP | Pre-cabled (L = 2 m) *(1)* | **XS106BLPAL2** | 0.030 | (0.06) |
| | | NPN | Pre-cabled (L = 2 m) *(1)* | **XS106BLNAL2** | 0.030 | (0.06) |
| | NC | PNP | Pre-cabled (L = 2 m) *(1)* | **XS106BLPBL2** | 0.030 | (0.06) |
| | | NPN | Pre-cabled (L = 2 m) *(1)* | **XS106BLNBL2** | 0.030 | (0.06) |
| **Ø 8, threaded M8 x 1** | | | | | | |
| **Three-wire 12–24 V ⎓, flush mountable** | | | | | | |
| **1.5 (0.05** | NO | PNP | Pre-cabled (L = 2 m) *(1)* | **XS108BLPAL2** | 0.035 | (0.07) |
| | | | M8 connector | **XS108BLPAM8** | 0.008 | (0.01) |
| | | | M12 connector | **XS108BLPAM12** | 0.015 | (0.03) |
| | | NPN | Pre-cabled (L = 2 m) *(1)* | **XS108BLNAL2** | 0.035 | (0.07) |
| | | | M8 connector | **XS108BLNAM8** | 0.008 | (0.01) |
| | | | M12 connector | **XS108BLNAM12** | 0.015 | (0.03) |
| | NC | PNP | Pre-cabled (L = 2 m) *(1)* | **XS108BLPBL2** | 0.035 | (0.07) |
| | | | M8 connector | **XS108BLPBM8** | 0.008 | (0.01) |
| | | | M12 connector | **XS108BLPBM12** | 0.015 | (0.03) |
| | | NPN | Pre-cabled (L = 2 m) *(1)* | **XS108BLNBL2** | 0.035 | (0.07) |
| | | | M8 connector | **XS108BLNBM8** | 0.008 | (0.01) |
| | | | M12 connector | **XS108BLNBM12** | 0.015 | (0.03) |
| **Three-wire 12–24 V ⎓, non-flush mountable** | | | | | | |
| **2.5 (0.09)** | NO | PNP | Pre-cabled (L = 2 m) *(1)* | **XS208BLPAL2** | 0.035 | (0.07) |
| | | | M8 connector | **XS208BLPAM8** | 0.008 | (0.01) |
| | | | M12 connector | **XS208BLPAM12** | 0.015 | (0.03) |
| | | NPN | Pre-cabled (L = 2 m) *(1)* | **XS208BLNAL2** | 0.035 | (0.07) |
| | | | M8 connector | **XS208BLNAM8** | 0.008 | (0.01) |
| | | | M12 connector | **XS208BLNAM12** | 0.015 | (0.03) |
| | NC | PNP | Pre-cabled (L = 2 m) *(1)* | **XS208BLPBL2** | 0.035 | (0.07) |
| | | | M8 connector | **XS208BLPBM8** | 0.008 | (0.01) |
| | | | M12 connector | **XS208BLPBM12** | 0.015 | (0.03) |
| | | NPN | Pre-cabled (L = 2 m) *(1)* | **XS208BLNBL2** | 0.035 | (0.07) |
| | | | M8 connector | **XS208BLNBM8** | 0.008 | (0.01) |
| | | | M12 connector | **XS208BLNBM12** | 0.015 | (0.03) |
| **Ø 12, threaded M12 x 1** | | | | | | |
| **Three-wire 12–24 V ⎓, flush mountable** | | | | | | |
| **2 (0.07)** | NO | PNP | Pre-cabled (L = 2 m) *(2)* | **XS112BLPAL2** | 0.070 | (0.15) |
| | | | M12 connector | **XS112BLPAM12** | 0.015 | (0.03) |
| | | NPN | Pre-cabled (L = 2 m) *(2)* | **XS112BLNAL2** | 0.070 | (0.15) |
| | | | M12 connector | **XS112BLNAM12** | 0.015 | (0.03) |
| | NC | PNP | Pre-cabled (L = 2 m) *(2)* | **XS112BLPBL2** | 0.070 | (0.15) |
| | | | M12 connector | **XS112BLPBM12** | 0.015 | (0.03) |
| | | NPN | Pre-cabled (L = 2 m) *(2)* | **XS112BLNBL2** | 0.070 | (0.15) |
| | | | M12 connector | **XS112BLNBM12** | 0.015 | (0.03) |
| **Two-wire 24–240 V ∿, flush mountable** | | | | | | |
| **2 (0.07)** | NO | | Pre-cabled (L = 2 m) *(2)* | **XS112BLFAL2** | 0.075 | (0.16) |
| **Three-wire 12–24 V ⎓, non-flush mountable** | | | | | | |
| **4 (0.15)** | NO | PNP | Pre-cabled (L = 2 m) *(2)* | **XS212BLPAL2** | 0.070 | (0.15) |
| | | | M12 connector | **XS212BLPAM12** | 0.015 | (0.03) |
| | | NPN | Pre-cabled (L = 2 m) *(2)* | **XS212BLNAL2** | 0.070 | (0.15) |
| | | | M12 connector | **XS212BLNAM12** | 0.015 | (0.03) |
| | NC | PNP | Pre-cabled (L = 2 m) *(2)* | **XS212BLPBL2** | 0.070 | (0.15) |
| | | | M12 connector | **XS212BLPBM12** | 0.015 | (0.03) |
| | | NPN | Pre-cabled (L = 2 m) *(2)* | **XS212BLNBL2** | 0.070 | (0.15) |
| | | | M12 connector | **XS212BLNBM12** | 0.015 | (0.03) |

*(1) For a 5 m cable replace L2 with L5.*
*Example: XS106BLPAL2 becomes **XS106BLPAL5** with a 5 m cable.*
*(2) For a 5 m cable replace L2 with L5; for a 10 m cable replace L2 with L10.*
*Example: XS112BLPAL2 becomes **XS112BLPAL5** with a 5 m cable.*



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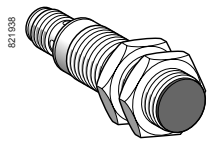
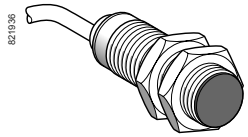
# Inductive proximity sensors

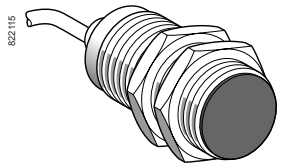
Basic, cylindrical, metal, flush and non-flush mountable
Two-wire, AC supply
Three-wire DC, solid-state output



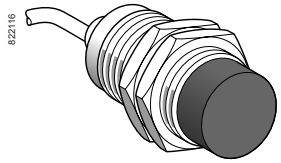

*XS118BL●●M12*



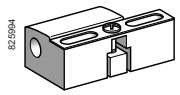

*XS118BL●●●L2*




*XS130BL●●L2*




*XS230BL●●L2*




*XSZB1●●*

| Sensing distance Sn, mm (in.) | Function | Output | Connection | Catalog Number | Weight kg | (lb) |
|---|---|---|---|---|---|---|
| **Ø 18, threaded M18 x 1** | | | | | | |
| **Three-wire 12–24 V ⎓, flush mountable** | | | | | | |
| **5 (0.19)** | NO | PNP | Pre-cabled (L = 2 m) *(1)* | **XS118BLPAL2** | 0.105 | (0.23) |
| | | | M12 connector | **XS118BLPAM12** | 0.035 | (0.07) |
| | | NPN | Pre-cabled (L = 2 m) *(1)* | **XS118BLNAL2** | 0.105 | (0.23) |
| | | | M12 connector | **XS118BLNAM12** | 0.035 | (0.07) |
| | NC | PNP | Pre-cabled (L = 2 m) *(1)* | **XS118BLPBL2** | 0.105 | (0.23) |
| | | | M12 connector | **XS118BLPBM12** | 0.035 | (0.07) |
| | | NPN | Pre-cabled (L = 2 m) *(1)* | **XS118BLNBL2** | 0.105 | (0.23) |
| | | | M12 connector | **XS118BLNBM12** | 0.035 | (0.07) |
| **Two-wire 24–240 V ∿, flush mountable** | | | | | | |
| **5 (0.19)** | NO | | Pre-cabled (L = 2 m) *(1)* | **XS118BLFAL2** | 0.120 | (0.26) |
| **Three-wire 12–24 V ⎓, non-flush mountable** | | | | | | |
| **8 (0.31)** | NO | PNP | Pre-cabled (L = 2 m) *(1)* | **XS218BLPAL2** | 0.105 | (0.23) |
| | | | M12 connector | **XS218BLPAM12** | 0.035 | (0.07) |
| | | NPN | Pre-cabled (L = 2 m) *(1)* | **XS218BLNAL2** | 0.105 | (0.23) |
| | | | M12 connector | **XS218BLNAM12** | 0.035 | (0.07) |
| | NC | PNP | Pre-cabled (L = 2 m) *(1)* | **XS218BLPBL2** | 0.105 | (0.23) |
| | | | M12 connector | **XS218BLPBM12** | 0.035 | (0.07) |
| | | NPN | Pre-cabled (L = 2 m) *(1)* | **XS218BLNBL2** | 0.105 | (0.23) |
| | | | M12 connector | **XS218BLNBM12** | 0.035 | (0.07) |
| **Ø 30, threaded M30 x 1.5** | | | | | | |
| **Three-wire 12–24 V ⎓, flush mountable** | | | | | | |
| **10 (0.39)** | NO | PNP | Pre-cabled (L = 2 m) *(1)* | **XS130BLPAL2** | 0.165 | (0.36) |
| | | | M12 connector | **XS130BLPAM12** | 0.075 | (0.16) |
| | | NPN | Pre-cabled (L = 2 m) *(1)* | **XS130BLNAL2** | 0.165 | (0.36) |
| | | | M12 connector | **XS130BLNAM12** | 0.075 | (0.16) |
| | NC | PNP | Pre-cabled (L = 2 m) *(1)* | **XS130BLPBL2** | 0.165 | (0.36) |
| | | | M12 connector | **XS130BLPBM12** | 0.075 | (0.16) |
| | | NPN | Pre-cabled (L = 2 m) *(1)* | **XS130BLNBL2** | 0.165 | (0.36) |
| | | | M12 connector | **XS130BLNBM12** | 0.075 | (0.16) |
| **Two-wire 24–240 V ∿, flush mountable** | | | | | | |
| **10 (0.39)** | NO | | Pre-cabled (L = 2 m) *(1)* | **XS130BLFAL2** | 0.205 | (0.45) |
| **Three-wire 12–24 V ⎓, non-flush mountable** | | | | | | |
| **15 (0.59)** | NO | PNP | Pre-cabled (L = 2 m) *(1)* | **XS230BLPAL2** | 0.155 | (0.34) |
| | | | M12 connector | **XS230BLPAM12** | 0.085 | (0.18) |
| | | NPN | Pre-cabled (L = 2 m) *(1)* | **XS230BLNAL2** | 0.155 | (0.34) |
| | | | M12 connector | **XS230BLNAM12** | 0.085 | (0.18) |
| | NC | PNP | Pre-cabled (L = 2 m) *(1)* | **XS230BLPBL2** | 0.155 | (0.34) |
| | | | M12 connector | **XS230BLPBM12** | 0.085 | (0.18) |
| | | NPN | Pre-cabled (L = 2 m) *(1)* | **XS230BLNBL2** | 0.155 | (0.34) |
| | | | M12 connector | **XS230BLNBM12** | 0.085 | (0.18) |

**Accessories**

| Description | | Catalog Number | Weight kg | (lb) |
|---|---|---|---|---|
| **Mounting clamps** | Ø 6.5 | **XSZB165** | 0.005 | (0.01) |
| | Ø 8 | **XSZB108** | 0.006 | (0.01) |
| | Ø 12 | **XSZB112** | 0.006 | (0.01) |
| | Ø 18 | **XSZB118** | 0.010 | (0.02) |
| | Ø 30 | **XSZB130** | 0.020 | (0.04) |

*(1) For a 5 m cable replace L2 with L5; for a 10 m cable replace L2 with L10.*
*Example: XS118BLPAL2 becomes **XS118BLPAL5** with a 5 m cable.*





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# OsiSense® XS
# Inductive proximity sensors

Basic, cylindrical, metal, flush and non-flush mountable
Two-wire, AC supply
Three-wire DC, solid-state output



## Specifications

| Sensor type | | | XS1●●BLP●L2<br>XS1●●BLN●L2 | XS1●●BLP●M●<br>XS1●●BLN●M● | XS2●●BLP●L2<br>XS2●●BLN●L2 | XS2●●BLP●M●<br>XS2●●BLN●M● | XS1●●BLFAL2 |
|---|---|---|---|---|---|---|---|
| **Product certifications** | | | UL, CSA, CE | | | | |
| **Connection** | Pre-cabled | | Length 2 m | – | Length 2 m | – | Length 2 m |
| | Connector | | – | M8 on Ø 8<br>M12 on Ø 8, Ø 12, Ø 18 and Ø 30 | – | M8 on Ø 8<br>M12 on Ø 8, Ø 12, Ø 18 and Ø 30 | – |
| **Operating zone** | Ø 6.5 | **mm** | 0–1.2 (0–0.04 in.) | | – | | – |
| | Ø 8 | **mm** | 0–1.2 (0–0.04 in.) | | 0–2 (0–0.07 in.) | | – |
| | Ø 12 | **mm** | 0–1.6 (0–0.06 in.) | | 0–3.2 (0–0.12 in.) | | 0–1.6 (0–0.06 in.) |
| | Ø 18 | **mm** | 0–4 (0–0.15 in.) | | 0–6.4 (0–0.25 in.) | | 0–4 (0–0.15 in.) |
| | Ø 30 | **mm** | 0–8 (0–0.31 in.) | | 0–12 (0–0.47 in.) | | 0–8 (0–0.31 in.) |
| **Differential travel** | | **%** | 1–15 of real sensing distance (Sr) | | | | |
| **Degree of protection** | Conforming to IEC 60529 | | IP 67 | | | | |
| **Storage temperature** | | **°C** | - 40 to + 85 (-40 to +185 °F) | | | | |
| **Operating temperature** | | **°C** | - 25 to + 70 (-13 to +158 °F) | | | | |
| **Materials** | Case | | Nickel-plated brass | | | | |
| | Cable | | PVC<br>3 x 0.34 mm² (22 AWG) except Ø 6.5 and 8:<br>3 x 0.11 mm² (27 AWG) | – | PVC<br>3 x 0.34 mm² (22 AWG) except Ø 6.5 and 8:<br>3 x 0.11 mm² (27 AWG) | – | PVC<br>2 x 0.34 mm² (22 AWG) |
| **Vibration resistance** | Conforming to IEC 60068-2-6 | | 25 gn, amplitude ± 2 mm (f = 10 to 55 Hz) | | | | |
| **Shock resistance** | Conforming to IEC 60068-2-27 | | 50 gn, duration 11 ms | | | | |
| **Output state indication** | | | Yellow LED, on rear | Yellow LED: 4 viewing ports at 90° | Yellow LED, on rear | Yellow LED: 4 viewing ports at 90° | Yellow LED, on rear |
| **Rated supply voltage** | | **V** | ⎓ 12–24 with protection against reverse polarity | | | | ∿ 24–240 |
| **Voltage limits (including ripple)** | | **V** | ⎓ 10–36 | | | | ∿ 20–264 |
| **Switching capacity** | | **mA** | ⩽ 100 (except Ø 6.5 and 8: ⩽ 50) with overload and short-circuit protection | | | | 5–300 (5–200 for Ø 12) *(1)* |
| **Voltage drop, closed state** | | **V** | ⩽ 2 | | | | ⩽ 4.5 (⩽ 7 for Ø 12) |
| **Current consumption, no-load** | | **mA** | ⩽ 10 | | | | – |
| **Residual current, open state** | | **mA** | – | | | | ≤ 1.5 |
| **Maximum switching frequency** | Ø 6.5, Ø 8 | **Hz** | 3000 | | | | – |
| | Ø 12 | **Hz** | 2000 | | 1000 | | 25 |
| | Ø 18 | **Hz** | 2000 | | 250 | | 25 |
| | Ø 30 | **Hz** | 200 | | 60 | | 25 |
| **Delays** | First-up | **ms** | ⩽ 5 (except Ø 30 ⩽ 10) | | | | ⩽ 40 |
| | Response | **ms** | ⩽ 0.5 for Ø 8, Ø 12, ⩽ 1 for Ø 18, ⩽ 2 for Ø 30 | | | | ⩽ 10 |
| | Recovery | **ms** | ⩽ 1 for Ø 8, ⩽ 0.5 for Ø 12, ⩽ 2 for Ø 18, ⩽ 6 for Ø 30 | | | | ⩽ 15 |

*(1) These sensors do not incorporate overload or short-circuit protection. A 0.4 A fast-acting fuse must be connected in series with the load.*

## Wiring diagrams

**Connector**

M8



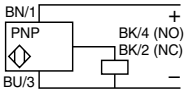

M12



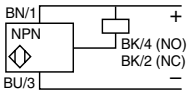

**Pre-cabled**

BU: Blue
BN: Brown
BK: Black

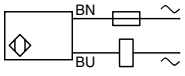
**PNP**




**NPN**




**2-wire ∿**



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# OsiSense® XS
# Inductive proximity sensors

Basic, cylindrical, metal, flush and non-flush mountable
Two-wire, AC supply
Three-wire DC, solid-state output

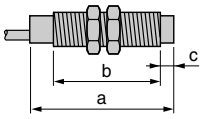
## Setup

**Minimum mounting distances (mm)**




| Sensors | | Side by side | Face to face | Facing a metal object | Mounted in a metal support |
|---|---|---|---|---|---|
| **Ø 6.5 flush mountable** | **XS106** | e ≥ 3 | e ≥ 18 | e ≥ 4.5 | d ≥ 6.5 h ≥ 0 |
| **Ø 8 flush mountable** | **XS108** | e ≥ 3 | e ≥ 18 | e ≥ 4.5 | d ≥ 8 h ≥ 0 |
| **Ø 8 non-flush mountable** | **XS208** | e ≥ 10 | e ≥ 30 | e ≥ 7.5 | d ≥ 24 h ≥ 5 |
| **Ø 12 flush mountable** | **XS112** | e ≥ 4 | e ≥ 24 | e ≥ 6 | d ≥ 12 h ≥ 0 |
| **Ø 12 non-flush mountable** | **XS212** | e ≥ 16 | e ≥ 48 | e ≥ 12 | d ≥ 36 h ≥ 8 |
| **Ø 18 flush mountable** | **XS118** | e ≥ 10 | e ≥ 60 | e ≥ 15 | d ≥ 18 h ≥ 0 |
| **Ø 18 non-flush mountable** | **XS218** | e ≥ 16 | e ≥ 96 | e ≥ 24 | d ≥ 54 h ≥ 16 |
| **Ø 30 flush mountable** | **XS130** | e ≥ 20 | e ≥ 120 | e ≥ 30 | d ≥ 30 h ≥ 0 |
| **Ø 30 non-flush mountable** | **XS230** | e ≥ 60 | e ≥ 180 | e ≥ 45 | d ≥ 90 h ≥ 30 |

## Dimensions (mm)




**Flush mountable in metal**

| Sensors | | Pre-cabled (mm) | | M8 connector (mm) | | M12 connector (mm) | |
|---|---|---|---|---|---|---|---|
| | | a | b | a | b | a | b |
| **Ø 6.5** | **XS106** | 42 | – | – | – | – | – |
| **Ø 8** | **XS108** | 42 | 39.4 | 52.2 | 41.3 | 61.4 | 39 |
| **Ø 12** | **XS112** | 41.3 | 38.7 | – | – | 53 | 39 |
| **Ø 18** | **XS118** | 51.3 | 48.4 | – | – | 64 | 48.5 |
| **Ø 30** | **XS130** | 51.3 | 48.4 | – | – | 64 | 48.5 |

**Non-flush mountable in metal**

| Sensors | | Pre-cabled (mm) | | M8 connector (mm) | | | M12 connector (mm) | | |
|---|---|---|---|---|---|---|---|---|---|
| | | a | b | a | b | c | a | b | c |
| **Ø 8** | **XS208** | 42 | 35.8 | 52.2 | 37.7 | 4 | 61.4 | 35.4 | 4 |
| **Ø 12** | **XS212** | 41.3 | 34.1 | – | – | – | 52.6 | 34 | 5 |
| **Ø 18** | **XS218** | 50.6 | 40.4 | – | – | – | 63.4 | 40.5 | 8 |
| **Ø 30** | **XS230** | 50.6 | 35.4 | – | – | – | 63.4 | 35.5 | 13 |





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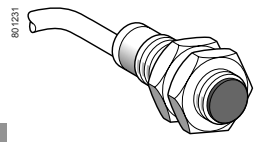
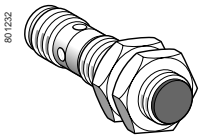
# OsiSense® XS
# Inductive proximity sensors

Basic, plastic, cylindrical, non-flush mountable
Three-wire DC, solid-state output

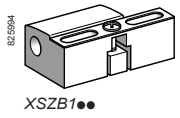





*XS2●●AL●●L2*




*XS2●●AL●●M12*




*XSZB1●●*

| Sensing distance Sn, mm (in.) | Function | Output | Connection | Catalog Number | Weight kg | (lb) |
|---|---|---|---|---|---|---|
| **Ø 8, threaded M8 x 1** | | | | | | |
| **Three-wire ⎓ 12–24 V, non-flush mountable** | | | | | | |
| **2.5 (0.09)** | NO | PNP | Pre-cabled (L = 2 m) *(1)* | **XS208ALPAL2** | 0.030 | (0.06) |
| | | NPN | Pre-cabled (L = 2 m) *(1)* | **XS208ALNAL2** | 0.030 | (0.06) |
| | NC | PNP | Pre-cabled (L = 2 m) *(1)* | **XS208ALPBL2** | 0.003 | (0.06) |
| | | NPN | Pre-cabled (L = 2 m) *(1)* | **XS208ALNBL2** | 0.030 | (0.06) |
| **Ø 12, threaded M12 x 1** | | | | | | |
| **Three-wire 12–24 V ⎓, non-flush mountable** | | | | | | |
| **4 (0.15)** | NO | PNP | Pre-cabled (L = 2 m) *(2)* | **XS212ALPAL2** | 0.065 | (0.14) |
| | | | M12 connector | **XS212ALPAM12** | 0.010 | (0.02) |
| | | NPN | Pre-cabled (L = 2 m) *(2)* | **XS212ALNAL2** | 0.065 | (0.14) |
| | | | M12 connector | **XS212ALNAM12** | 0.010 | (0.02) |
| | NC | PNP | Pre-cabled (L = 2 m) *(2)* | **XS212ALPBL2** | 0.065 | (0.14) |
| | | | M12 connector | **XS212ALPBM12** | 0.010 | (0.02) |
| | | NPN | Pre-cabled (L = 2 m) *(2)* | **XS212ALNBL2** | 0.065 | (0.14) |
| | | | M12 connector | **XS212ALNBM12** | 0.010 | (0.02) |
| **Ø 18, threaded M18 x 1** | | | | | | |
| **Three-wire 12–24 V ⎓, non-flush mountable** | | | | | | |
| **8 (0.31)** | NO | PNP | Pre-cabled (L = 2 m) *(2)* | **XS218ALPAL2** | 0.095 | (0.20) |
| | | | M12 connector | **XS218ALPAM12** | 0.025 | (0.05) |
| | | NPN | Pre-cabled (L = 2 m) *(2)* | **XS218ALNAL2** | 0.095 | (0.20) |
| | | | M12 connector | **XS218ALNAM12** | 0.025 | (0.05) |
| | NC | PNP | Pre-cabled (L = 2 m) *(2)* | **XS218ALPBL2** | 0.095 | (0.20) |
| | | | M12 connector | **XS218ALPBM12** | 0.025 | (0.05) |
| | | NPN | Pre-cabled (L = 2 m) *(2)* | **XS218ALNBL2** | 0.095 | (0.20) |
| | | | M12 connector | **XS218ALNBM12** | 0.025 | (0.05) |
| **Ø 30, threaded M30 x 1.5** | | | | | | |
| **Three-wire 12–24 V ⎓, non-flush mountable** | | | | | | |
| **15 (0.59)** | NO | PNP | Pre-cabled (L = 2 m) *(2)* | **XS230ALPAL2** | 0.135 | (0.29) |
| | | | M12 connector | **XS230ALPAM12** | 0.065 | (0.14) |
| | | NPN | Pre-cabled (L = 2 m) *(2)* | **XS230ALNAL2** | 0.135 | (0.29) |
| | | | M12 connector | **XS230ALNAM12** | 0.065 | (0.14) |
| | NC | PNP | Pre-cabled (L = 2 m) *(2)* | **XS230ALPBL2** | 0.135 | (0.29) |
| | | | M12 connector | **XS230ALPBM12** | 0.065 | (0.14) |
| | | NPN | Pre-cabled (L = 2 m) *(2)* | **XS230ALNBL2** | 0.135 | (0.29) |
| | | | M12 connector | **XS230ALNBM12** | 0.065 | (0.14) |

## Accessories

| Description | | Catalog Number | Weight kg | (lb) |
|---|---|---|---|---|
| **Mounting clamps** | Ø 8 | **XSZB108** | 0.006 | (0.01) |
| | Ø 12 | **XSZB112** | 0.006 | (0.01) |
| | Ø 18 | **XSZB118** | 0.010 | (0.02) |
| | Ø 30 | **XSZB130** | 0.020 | (0.04) |

*(1) For a 5 m cable replace L2 with L5.*
*Example: XS208ALPAL2 becomes **XS208ALPAL5** with a 5 m cable.*
*(2) For a 5 m cable replace L2 with L5; for a 10 m cable replace L2 by L10.*
*Example: XS218ALPAL2 becomes **XS218ALPAL5** with a 5 m cable.*



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# OsiSense® XS
# Inductive proximity sensors
Basic, plastic, cylindrical, non-flush mountable
Three-wire DC, solid-state output



## Specifications

| Sensor type | | | XS2●●ALP●L2<br>XS2●●ALN●L2 | XS2●●ALP●M12<br>XS2●●ALN●M12 |
|---|---|---|---|---|
| **Product certifications** | | | UL, CSA, CE | |
| **Connection** | Pre-cabled | | Length: 2 m | – |
| | Connector | | – | M12 |
| **Operating zone** | Ø 8 | **mm** | 0–2 (0–0.07 in.) | |
| | Ø 12 | **mm** | 0–3.2 (0–0.12 in.) | |
| | Ø 18 | **mm** | 0–6.4 (0–0.25 in.) | |
| | Ø 30 | **mm** | 0–12 (0–0.47 in.) | |
| **Differential travel** | | **%** | 1–15 of real sensing distance (Sr) | |
| **Degree of protection** | Conforming to IEC 60529 | | IP 67 | |
| **Storage temperature** | | **°C** | -40 to +85 (-40 to +185 °F) | |
| **Operating temperature** | | **°C** | -25 to +70 (-13 to +158 °F) | |
| **Materials** | Case | | PPS | |
| | Cable | | PVC 3 x 0.34 mm² (22 AWG) except Ø 8: 3 x 0.11 mm² (27 AWG) | – |
| **Vibration resistance** | Conforming to IEC 60068-2-6 | | 25 gn, amplitude ± 2 mm (f = 10 to 55 Hz) | |
| **Shock resistance** | Conforming to IEC 60068-2-27 | | 50 gn, duration 11 ms | |
| **Output state indication** | | | Yellow LED, on rear | Yellow LED: 4 viewing ports at 90° |
| **Rated supply voltage** | | **V** | ⎓ 12–24 with protection against reverse polarity | |
| **Voltage limits (including ripple)** | | **V** | ⎓ 10–36 | |
| **Switching capacity** | | **mA** | ≤ 100 (except Ø 8: ≤ 50) with overload and short-circuit protection | |
| **Voltage drop, closed state** | | **V** | ≤ 2 | |
| **Current consumption, no-load** | | **mA** | ≤ 10 | |
| **Maximum switching frequency** | Ø 8 | **Hz** | 3000 | |
| | Ø 12 | **Hz** | 1000 | |
| | Ø 18 | **Hz** | 250 | |
| | Ø 30 | **Hz** | 60 | |
| **Delays** | First-up | **ms** | ≤ 5 (except Ø 30: ≤ 10) | |
| | Response | **ms** | ≤ 0.5 for Ø 8, Ø 12, ≤ 1 for Ø 18, ≤ 2 for Ø 30 | |
| | Recovery | **ms** | ≤ 1 for Ø 8, ≤ 0.5 for Ø 12, ≤ 2 for Ø 18, ≤ 6 for Ø 30 | |

## Wiring diagrams

**Connector**

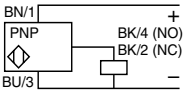
M12



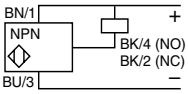

**Pre-cabled**

BU: Blue
BN: Brown
BK: Black

**PNP**




**NPN**

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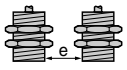
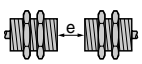
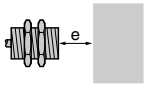
## Setup

**Minimum mounting distances (mm)**



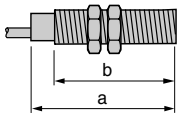







| Sensors | | Side by side | Face to face | Facing a metal object | Mounted in a metal support |
|---|---|---|---|---|---|
| **Ø 8** | **XS208AL** | e > 10 | e > 30 | e > 7.5 | d > 24 h > 5 |
| **Ø 12** | **XS212AL** | e > 16 | e > 48 | e > 12 | d > 36 h > 8 |
| **Ø 18** | **XS218AL** | e > 16 | e > 96 | e > 24 | d > 54 h > 16 |
| **Ø 30** | **XS230AL** | e > 60 | e > 180 | e > 45 | d > 90 h > 30 |

## Dimensions (mm)




**Non-flush mountable in metal**

| Sensors | | Pre-cabled (mm) | | Connector (mm) | |
|---|---|---|---|---|---|
| | | **a** | **b** | **a** | **b** |
| Ø 8 | XS208AL | 49 | 40 | – | – |
| Ø 12 | XS212AL | 49 | 42 | 61 | 42 |
| Ø 18 | XS218AL | 58.8 | 51.5 | 70.3 | 51.5 |
| Ø 30 | XS230AL | 58.8 | 51.5 | 70.3 | 51.5 |



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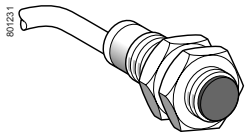
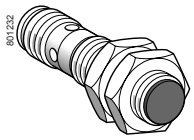
# OsiSense® XS
# Inductive proximity sensors

## General purpose
## Plastic, cylindrical, non-flush mountable
## Two-wire AC or DC
## Three-wire DC, solid-state output

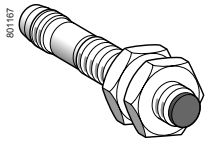





*XS4P●●●●340*
*XS4P●●●●370*
*XS4P●●●●230*




*XS4P●●●●340D*
*XS4P●●●●370D*
*XS4P●●●●230K*




*XS4P08●●340S*

| Sensing dist. Sn, mm (in.) | Function | Output | Connection | Catalog Number | Weight kg | (lb) |
|---|---|---|---|---|---|---|
| **Ø 8, threaded M8 x 1** | | | | | | |
| **Three-wire ⎓ 12-24 V** | | | | | | |
| **2.5 (0.10)** | NO | PNP | Pre-cabled (L = 2 m) *(1) (2)* | **XS4P08PA340** | 0.025 | (0.06) |
| | | NPN | Pre-cabled (L = 2 m) *(1) (2)* | **XS4P08NA340** | 0.025 | (0.06) |
| | NC | PNP | Pre-cabled (L = 2 m) *(1) (2)* | **XS4P08PB340** | 0.025 | (0.06) |
| | | NPN | Pre-cabled (L = 2 m) *(1) (2)* | **XS4P08NB340** | 0.025 | (0.06) |
| **Three-wire ⎓ 12-48 V** | | | | | | |
| **2.5 (0.10)** | NO | PNP | Pre-cabled (L = 2 m) *(1)* | **XS4P08PA370** | 0.030 | (0.07) |
| | | NPN | Pre-cabled (L = 2 m) | **XS4P08NA370** | 0.030 | (0.07) |
| | NC | PNP | Pre-cabled (L = 2 m) | **XS4P08PB370** | 0.030 | (0.07) |
| | | NPN | Pre-cabled (L = 2 m) | **XS4P08NB370** | 0.030 | (0.07) |
| **Two-wire ∿ or ⎓ 24-240 V** | | | | | | |
| **2.5 (0.10)** | NO | | Pre-cabled (L = 2 m) *(1)* | **XS4P08MA230** | 0.030 | (0.07) |
| | | | 1/2"-20UNF connector | **XS4P08MA230K** | 0.020 | (0.04) |
| | NC | | Pre-cabled (L = 2 m) *(1)* | **XS4P08MB230** | 0.030 | (0.07) |
| | | | 1/2"-20UNF connector | **XS4P08MB230K** | 0.020 | (0.04) |
| **Ø 12, threaded M12 x 1** | | | | | | |
| **Three-wire ⎓ 12-24 V** | | | | | | |
| **4 (0.16)** | NO | PNP | Pre-cabled (L = 2 m) *(1) (3)* | **XS4P12PA340** | 0.060 | (0.13) |
| | | NPN | Pre-cabled (L = 2 m) *(1) (3)* | **XS4P12NA340** | 0.060 | (0.13) |
| | NC | PNP | Pre-cabled (L = 2 m) *(1) (3)* | **XS4P12PB340** | 0.060 | (0.13) |
| | | NPN | Pre-cabled (L = 2 m) *(1) (3)* | **XS4P12NB340** | 0.060 | (0.13) |
| **Three-wire ⎓ 12-48 V** | | | | | | |
| **4 (0.16)** | NO | PNP | Pre-cabled (L = 2 m) *(1) (3)* | **XS4P12PA370** | 0.065 | (0.14) |
| | | NPN | Pre-cabled (L = 2 m) *(1) (3)* | **XS4P12NA370** | 0.065 | (0.14) |
| | NC | PNP | Pre-cabled (L = 2 m) *(1) (3)* | **XS4P12PB370** | 0.065 | (0.14) |
| | | NPN | Pre-cabled (L = 2 m) *(3)* | **XS4P12NB370** | 0.065 | (0.14) |
| **Two-wire ∿ or ⎓ 24-240 V** | | | | | | |
| **4 (0.16)** | NO | | Pre-cabled (L = 2 m) *(1)* | **XS4P12MA230** | 0.065 | (0.14) |
| | | | 1/2"-20UNF connector | **XS4P12MA230K** | 0.030 | (0.07) |
| | NC | | Pre-cabled (L = 2 m) *(1)* | **XS4P12MB230** | 0.065 | (0.14) |
| | | | 1/2"-20UNF connector | **XS4P12MB230K** | 0.030 | (0.07) |
| **Ø 18, threaded M18 x 1** | | | | | | |
| **Three-wire ⎓ 12-24 V** | | | | | | |
| **8 (0.31)** | NO | PNP | Pre-cabled (L = 2 m) *(1) (3)* | **XS4P18PA340** | 0.090 | (0.20) |
| | | NPN | Pre-cabled (L = 2 m) *(1) (3)* | **XS4P18NA340** | 0.090 | (0.20) |
| | NC | PNP | Pre-cabled (L = 2 m) *(1) (3)* | **XS4P18PB340** | 0.090 | (0.20) |
| | | NPN | Pre-cabled (L = 2 m) *(1) (3)* | **XS4P18NB340** | 0.090 | (0.20) |
| **Three-wire ⎓ 12-48 V** | | | | | | |
| **8 (0.31)** | NO | PNP | Pre-cabled (L = 2 m) *(1) (3)* | **XS4P18PA370** | 0.100 | (0.22) |
| | | NPN | Pre-cabled (L = 2 m) *(1) (3)* | **XS4P18NA370** | 0.100 | (0.22) |
| | NC | PNP | Pre-cabled (L = 2 m) *(1) (3)* | **XS4P18PB370** | 0.100 | (0.22) |
| | | NPN | Pre-cabled (L = 2 m) *(3)* | **XS4P18NB370** | 0.100 | (0.22) |
| **Two-wire ∿ or ⎓ 24-240 V** | | | | | | |
| **8 (0.31)** | NO | | Pre-cabled (L = 2 m) *(1)* | **XS4P18MA230** | 0.100 | (0.22) |
| | | | 1/2"-20UNF connector | **XS4P18MA230K** | 0.040 | (0.88) |
| | NC | | Pre-cabled (L = 2 m) *(1)* | **XS4P18MB230** | 0.100 | (0.22) |
| | | | 1/2"-20UNF connector | **XS4P18MB230K** | 0.040 | (0.88) |
| **Ø 30, threaded M30 x 1.5** | | | | | | |
| **Three-wire ⎓ 12-24 V** | | | | | | |
| **15 (0.59)** | NO | PNP | Pre-cabled (L = 2 m) *(1) (3)* | **XS4P30PA340** | 0.120 | (0.26) |
| | | NPN | Pre-cabled (L = 2 m) *(1) (3)* | **XS4P30NA340** | 0.120 | (0.26) |
| | NC | PNP | Pre-cabled (L = 2 m) *(1) (3)* | **XS4P30PB340** | 0.120 | (0.26) |
| | | NPN | Pre-cabled (L = 2 m) *(1) (3)* | **XS4P30NB340** | 0.120 | (0.26) |
| **Three-wire ⎓ 12-48 V** | | | | | | |
| **15 (0.59)** | NO | PNP | Pre-cabled (L = 2 m) *(1) (3)* | **XS4P30PA370** | 0.140 | (0.31) |
| | | NPN | Pre-cabled (L = 2 m) *(1) (3)* | **XS4P30NA370** | 0.140 | (0.31) |
| | NC | PNP | Pre-cabled (L = 2 m) *(3)* | **XS4P30PB370** | 0.140 | (0.31) |
| | | NPN | Pre-cabled (L = 2 m) *(3)* | **XS4P30NB370** | 0.140 | (0.31) |
| **Two-wire ∿ or ⎓** | | | | | | |
| **15 (0.59)** | NO | | Pre-cabled (L = 2 m) *(1)* | **XS4P30MA230** | 0.140 | (0.31) |
| | | | 1/2"-20UNF connector | **XS4P30MA230K** | 0.080 | (0.18) |
| | NC | | Pre-cabled (L = 2 m) *(1)* | **XS4P30MB230** | 0.140 | (0.31) |
| | | | 1/2"-20UNF connector | **XS4P30MB230K** | 0.080 | (0.18) |

*(1) For a 5 m cable add **L1** to the catalog number; for a 10 m cable add **L2** . Example: **XS4P08PA340** becomes **XS4P08PA340L1** with a 5 m cable.*
*(2)For an M8 connector, add **S** to the catalog number. Example: **XS4P08PA340** becomes **XS4P08PA340S** with an M8 connector.*
*(3) For an M12 connector, add **D** to the catalog number. Example: **XS4P12PA370** becomes **XS4P12PA370D** with an M12 connector.*



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*Specifications, Wiring Diagrams, Setup, dimensions*

# OsiSense® XS
# Inductive proximity sensors
General purpose
Plastic, cylindrical, non-flush mountable
Two-wire AC or DC
Three-wire DC, solid-state output



## Specifications

| Sensor type | | | XS4P●●●●340p | XS4P●●●●370● | XS4P●●M●230● |
|---|---|---|---|---|---|
| **Product certifications** | | | UL, CSA, CE | | |
| **Connection** | Pre-cabled | | Length: 2 m | | |
| | Connector | | M8 on Ø 8<br>M12 on Ø 12, Ø 18 and Ø 30 | | 1/2"-20UNF |
| **Operating zone** | Ø 6.5 and Ø 8 | mm | **0–2 (0–0.08 in.)** | | |
| | Ø 12 | mm | **0–3.2 (0–0.13 in.)** | | |
| | Ø 18 | mm | **0–6.4 (0–0.25 in.)** | | |
| | Ø 30 | mm | **0–12 (0–0.47 in.)** | | |
| **Differential travel** | | % | 1–15 of effective sensing distance (Sr) | | |
| **Degree of protection** | Conforming to IEC 60529 | | IP 68, double insulation for pre-cabled version (except Ø 8: IP 67)<br>IP 67 for connector version | | |
| **Storage temperature** | | °C | -40 to +85 (-40 to +185 °F) | | |
| **Operating temperature** | | °C | -25 to +70 (-13 to +158 °F) | | |
| **Materials** | Case | | PPS | | |
| | Cable | | PvR 3 x 0.34 mm² (24 AWG) except Ø 6.5 and 8: 3 x 0.11 mm² (26 AWG) | | PvR 2 x 0.34 mm² (24 AWG) except Ø 8: 2 x 0.11 mm² (26 AWG) |
| **Vibration resistance** | Conforming to IEC 60068-2-6 | | 25 gn, amplitude ± 2 mm (f = 10 to 55 Hz) | | |
| **Shock resistance** | Conforming to IEC 60068-2-27 | | 50 gn, duration 11 ms | | |
| **Output state indication** | | | Yellow LED: annular on pre-cabled version<br>Yellow LED: 4 viewing ports at 90° on connector version | | |
| **Rated supply voltage** | | V | ⎓ 12–24 with protection against reverse polarity | ⎓ 12–48 with protection against reverse polarity | ∿ or ⎓ 24–240 (50/60 Hz) |
| **Voltage limits (including ripple)** | | V | ⎓ 10–36 | ⎓ 10–58 | ∿ or ⎓ 20–264 |
| **Switching capacity** | | mA | ≤ 200 with overload and short-circuit protection | | 5–100 for Ø 8,<br>5–200 for Ø 12,<br>5–200 ⎓ and 5–300 ∿ for Ø 18 and 30 |
| **Voltage drop, closed state** | | V | ≤ 2 | | ≤ 5.5 |
| **Residual current, open state** | | mA | – | | ≤ 0.6 |
| **Current consumption, no-load** | | mA | ≤ 10 | | – |
| **Maximum switching frequency** | Ø 6.5, Ø 8 and Ø 12 | Hz | 5000 | | ⎓ 3000, ∿ 25 |
| | Ø 18 | Hz | 2000 | | ⎓ 2000, ∿ 25 |
| | Ø 30 | Hz | 1000 | | ⎓ 1000, ∿ 25 |
| **Delays** | First-up | ms | ≤ 10 | | ≤ 40 |
| | Response | ms | ≤ 0.1 for Ø 8 and Ø 12, ≤ 0.15 for Ø 18, ≤ 0.3 for Ø 30 | | ≤ 0.2 |
| | Recovery | ms | ≤ 0.1 for Ø 8 and Ø 12, ≤ 0.35 for Ø 18, ≤ 0.7 for Ø 30 | | ≤ 0.2 for Ø 8, Ø 12 and Ø 18, ≤ 0.4 for Ø 30 |

## Wiring diagrams

**Connector**

M8




M12




1/2"-20UNF

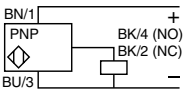



∿: 2
∿: 3

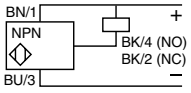
**Pre-cabled**

BU: Blue
BN: Brown
BK: Black

**PNP**

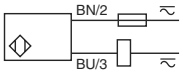



**NPN**




*For M8 connector, NO and NC outputs are on terminal 4*

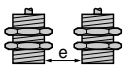
**2-wire ∿ or ⎓**

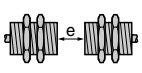


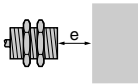

## Setup

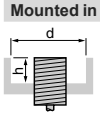
**Minimum mounting distances (mm)**

| | Side by side | Face to face | Facing a metal object | Mounted in a metal support |
|---|---|---|---|---|
| **Ø 8** | e ≥ 10 | e ≥ 30 | e ≥ 7.5 | d ≥ 24 h ≥ 5 |
| **Ø 12** | e ≥ 16 | e ≥ 48 | e ≥ 12 | d ≥ 36 h ≥ 8 |
| **Ø 18** | e ≥ 16 | e ≥ 96 | e ≥ 24 | d ≥ 54 h ≥ 16 |
| **Ø 30** | e ≥ 60 | e ≥ 180 | e ≥ 45 | d ≥ 90 h ≥ 30 |

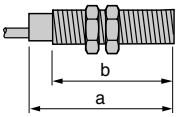



## Dimensions (mm)




| | 3-wire ⎓ 12-24 V | | | | 3-wire ⎓ 12-48 V or 2-wire ∿/⎓ 24-240 V | | | |
|---|---|---|---|---|---|---|---|---|
| | Pre-cabled (mm) | | Connector (mm) | | Pre-cabled (mm) | | Connector (mm) | |
| **XS4P** | **a** | **b** | **a** | **b** | **a** | **b** | **a** | **b** |
| Ø 8 | 33 | 26 | 42 | 26 | 50 | 40 | 61 | 40 |
| Ø 12 | 35 | 24.6 | 48 | 27 | 52 | 41.6 | 61 | 42 |
| Ø 18 | 35.3 | 24.6 | 48 | 29 | 61.8 | 51.1 | 70 | 51.5 |
| Ø 30 | 42.3 | 31.6 | 50 | 34 | 61.8 | 51.1 | 70 | 51.5 |



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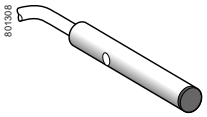
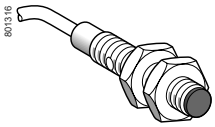
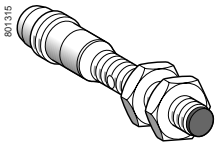
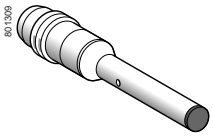
# OsiSense® XS
# Inductive proximity sensors
## General purpose
Miniature, cylindrical, flush and non-flush mountable
Three-wire DC, solid-state output

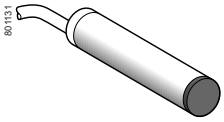


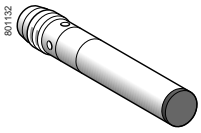

XS1L04●●310

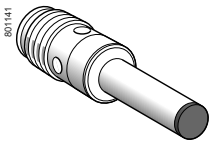

XS1N05●●310


XS1N05●●311S


XS1L04●●310S


XS●L06●●340


XS●L06●●340S
XS●L06●●349S


XS●L06●●340D

### Ø 4 plain

| Sensing distance Sn, mm (in.) | Function | Output | Connection (1) | Catalog Number | Weight kg | (lb) |
|---|---|---|---|---|---|---|
| **Brass case, flush mountable** | | | | | | |
| **1 (0.04)** | NO | PNP | Pre-cabled (L = 2 m) | **XS1L04PA310** | 0.025 | (0.06) |
| | | | M8 connector | **XS1L04PA310S** | 0.010 | (0.02) |
| | | NPN | Pre-cabled (L = 2 m) | **XS1L04NA310** | 0.025 | (0.06) |
| | | | M8 connector | **XS1L04NA310S** | 0.010 | (0.02) |
| | NC | PNP | Pre-cabled (L = 2 m) | **XS1L04PB310** | 0.025 | (0.06) |
| | | | M8 connector | **XS1L04PB310S** | 0.010 | (0.02) |
| | | NPN | Pre-cabled (L = 2 m) | **XS1L04NB310** | 0.025 | (0.06) |
| | | | M8 connector | **XS1L04NB310S** | 0.010 | (0.02) |
| **Stainless steel case, flush mountable** | | | | | | |
| **0.8 (0.03)** | NO | PNP | Pre-cabled (L = 2 m) | **XS1L04PA311** | 0.025 | (0.06) |
| | | | M8 connector | **XS1L04PA311S** | 0.010 | (0.02) |
| | | NPN | Pre-cabled (L = 2 m) | **XS1L04NA311** | 0.025 | (0.06) |
| | | | M8 connector | **XS1L04NA311S** | 0.010 | (0.02) |
| | NC | PNP | Pre-cabled (L = 2 m) | **XS1L04PB311** | 0.025 | (0.06) |
| | | | M8 connector | **XS1L04PB311S** | 0.010 | (0.02) |
| | | NPN | Pre-cabled (L = 2 m) | **XS1L04NB311** | 0.025 | (0.06) |
| | | | M8 connector | **XS1L04NB311S** | 0.010 | (0.02) |

### Ø 5, threaded M5 x 0.5

| Sensing distance Sn, mm (in.) | Function | Output | Connection (1) | Catalog Number | Weight kg | (lb) |
|---|---|---|---|---|---|---|
| **Brass case, flush mountable** | | | | | | |
| **1 (0.04)** | NO | PNP | Pre-cabled (L = 2 m) | **XS1N05PA310** | 0.030 | (0.07) |
| | | NPN | Pre-cabled (L = 2 m) | **XS1N05NA310** | 0.030 | (0.07) |
| | NC | PNP | Pre-cabled (L = 2 m) | **XS1N05PB310** | 0.030 | (0.07) |
| | | NPN | Pre-cabled (L = 2 m) | **XS1N05NB310** | 0.030 | (0.07) |
| **Stainless steel case, flush mountable** | | | | | | |
| **0.8 (0.03)** | NO | PNP | Pre-cabled (L = 2 m) | **XS1N05PA311** | 0.030 | (0.07) |
| | | | M8 connector | **XS1N05PA311S** | 0.015 | (0.03) |
| | | NPN | Pre-cabled (L = 2 m) | **XS1N05NA311** | 0.030 | (0.07) |
| | | | M8 connector | **XS1N05NA311S** | 0.015 | (0.03) |
| | NC | PNP | Pre-cabled (L = 2 m) | **XS1N05PB311** | 0.030 | (0.07) |
| | | | M8 connector | **XS1N05PB311S** | 0.015 | (0.03) |
| | | NPN | Pre-cabled (L = 2 m) | **XS1N05NB311** | 0.030 | (0.07) |
| | | | M8 connector | **XS1N05NB311S** | 0.015 | (0.03) |

### Ø 6.5 plain

| Sensing distance Sn, mm (in.) | Function | Output | Connection (1) | Catalog Number | Weight kg | (lb) |
|---|---|---|---|---|---|---|
| **Stainless steel case, non-flush mountable** | | | | | | |
| **2.5 (0.10)** | NO | PNP | Pre-cabled (L = 2 m) | **XS2L06PA340** | 0.025 | (0.06) |
| | | | M8 connector | **XS2L06PA340S** | 0.010 | (0.02) |
| | | | M12 connector | **XS2L06PA340D** | 0.015 | (0.03) |
| | | NPN | Pre-cabled (L = 2 m) | **XS2L06NA340** | 0.025 | (0.06) |
| | | | M8 connector | **XS2L06NA340S** | 0.010 | (0.02) |
| | | | M12 connector | **XS2L06NA340D** | 0.015 | (0.03) |
| | NC | PNP | Pre-cabled (L = 2 m) | **XS2L06PB340** | 0.025 | (0.06) |
| | | | M8 connector | **XS2L06PB340S** | 0.010 | (0.02) |
| | | | M12 connector | **XS2L06PB340D** | 0.015 | (0.03) |
| | | NPN | Pre-cabled (L = 2 m) | **XS2L06NB340** | 0.025 | (0.06) |
| | | | M8 connector | **XS2L06NB340S** | 0.010 | (0.02) |
| | | | M12 connector | **XS2L06NB340D** | 0.015 | (0.03) |

*(1) For a 5 m cable add L1 to the catalog number; for a 10 m cable add L2 .Example:*
***XS1L04PA310** becomes **XS1L04PA310L1** with a 5 m cable.*



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# OsiSense® XS
# Inductive proximity sensors
## General purpose
Miniature, cylindrical, flush and non-flush mountable
Three-wire DC, solid-state output



## Specifications

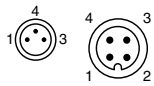
| Sensor type | | | XS1●●●●●●●●S; XS1●●●●●●●●D; XS2L06●A340● | XS1●●●●●●●; XS2L06●A340 |
|---|---|---|---|---|
| **Product certifications** | | | UL, CSA, CE | |
| **Connection** *(1)* | Connector | | M8 on **XS1●●●●●●●●S** and M12 on **XS1●●●●●●●●D** | – |
| | Pre-cabled | | – | Length: 2 m |
| **Operating zone** | Ø 4 | **mm (in.)** | **0–0.8 (0–0.03) (brass) 0–0.6 (0–0.02) (stainless steel)** | |
| | Ø 5 | **mm (in.)** | **0–0.8 (0–0.03) (brass), 0–0.6 (0–0.02) (stainless steel)** | |
| | Ø 6.5 non-flush mountable | **mm (in.)** | **0–2 (0.08) (stainless steel)** | |
| **Degree of protection** | Conforming to IEC 60529 | | IP 67 | |
| **Storage temperature** | | **°C (°F)** | -40 to +85 (-40 to +185) | |
| **Operating temperature** | | **°C (°F)** | -25 to +70 (-13 to +158) | |
| **Materials** | Case | | Nickel-plated brass or stainless steel, grade 303 | |
| | Cable | | PvR 3 x 0.11 mm² (26 AWG) or 4 x 0.08 mm² (20 AWG) | |
| **Vibration resistance** | Conforming to IEC 60068-2-6 | | 25 gn, amplitude ± 2 mm (f = 10 to 55 Hz) | |
| **Shock resistance** | Conforming to IEC 60068-2-27 | | 50 gn, duration 11 ms | |
| **Output state indication** | | | Yellow LED, 4 viewing ports at 90° | Yellow LED, annular |
| **Rated supply voltage** | | **V** | ⎓ 5–24 for **XS1L04●●●●●●** and **XS1N05●●●●●●**<br>⎓ 12–24 for **XS●L06●●●●●●** | |
| **Voltage limits (including ripple)** | | **V** | ⎓ 5–30 for **XS1L04●●●●●●** and **XS1N05●●●●●●**<br>⎓ 10–38 for **XS●L06●●●●●●** | |
| **Current consumption, no-load** | | **mA** | ≤ 10 | |
| **Switching capacity** | 3-wire PNP/NPN | **mA** | ≤ 100 with overload and short-circuit protection<br>≤ 200 for **XS●L06** with overload and short-circuit protection | |
| **Voltage drop, closed state** | | **V** | ≤ 2 | |
| **Maximum switching frequency** | | **kHz** | 5 | |
| **Delays** | First-up | **ms** | ≤ 5 | |
| | Response | **ms** | ≤ 0.1 | |
| | Recovery | **ms** | ≤ 0.1 | |

*(1) Detection curves, see page 2/135.*

## Wiring diagrams

**Connector**

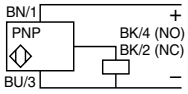
M8 M12



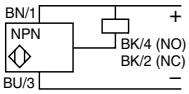

**Pre-cabled**

BU: Blue
BN: Brown
BK: Black
WH: White

**PNP 3-wire**




**NPN 3-wire**

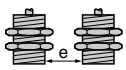


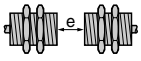

*For M8 connector, NO and NC outputs are on terminal 4.*

## Setup

**Minimum mounting distances (mm)**

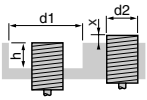
| Sensor | Side by side | Face to face | Facing a metal object | | | |
|---|---|---|---|---|---|---|
| Ø 4 | e ≥ 2 | e ≥ 12 | e ≥ 3 | d1 ≥ 4, h ≥ 0 | – | |
| Ø 5 | e ≥ 2 | e ≥ 12 | e ≥ 3 | d1 ≥ 5, h ≥ 0 | – | |
| Ø 6.5 | e ≥ 3 | e ≥ 18 | e ≥ 4.5 | d1 ≥ 3, h ≥ 0 | – | |
| Ø 6.5, XS2L06●A340● | e ≥ 5 | e ≥ 30 | e ≥ 7.5 | d1 ≥ 10, h ≥ 1.6 | d2 ≥ 6.5, x ≥ 1.3 | |





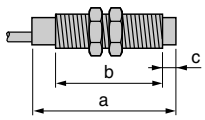





**Tightening torque**

Stainless steel: 2.2 N•m (19.47 lb-in)
Brass: 1.6 N•m (14.16 lb-in)

## Dimensions (mm)




| Sensor | Pre-cabled | | | M8 connector | | | M12 connector | | |
|---|---|---|---|---|---|---|---|---|---|
| | a | b | c | a | b | c | a | b | c |
| Ø 4 | 29 | 29 | – | 41 | 24 | – | – | – | – |
| Ø 5 | 29 | 29 | – | 41 | 24 | – | – | – | – |
| Ø 6.5 | 33 | 30 | – | 42 | 34 | – | 45 | 24 | – |
| Ø 6.5, XS2L06●A340● | 33 | 27 | 3 | 46 | 35 | 3 | 49 | 25 | 3 |



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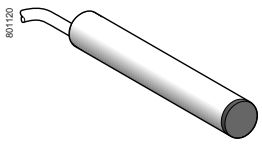
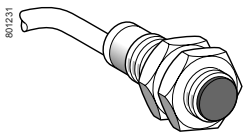
# OsiSense® XS
# Inductive proximity sensors
## General purpose
Cylindrical, increased range, flush mountable
Two-wire DC, solid-state output

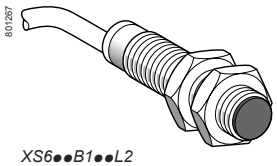


XS606B3●●L2

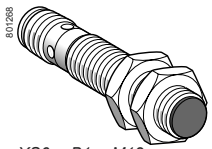




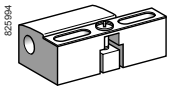
XS612B3●●L2



XS6●●B1●●L2



XS6●●B1●●M12



XSZB1●●

### Sensors, 2-wire 12-24 V ⎓, short case model

| Sensing dist. Sn, mm (in.) | Function | Connection | Catalog Number | Weight kg | (lb) |
|---|---|---|---|---|---|
| **Ø 6.5, plain** | | | | | |
| **2.5 (0.10)** | NO | Pre-cabled (L = 2 m) *(1)* | **XS606B3CAL2** | 0.060 | (0.13) |
| | | Remote M12 connector | **XS606B3CAL01M12** | 0.070 | (0.15) |
| | NC | Pre-cabled (L = 2 m) *(1)* | **XS606B3CBL2** | 0.060 | (0.13) |
| **Ø 8, threaded M8 x 1** | | | | | |
| **2.5 (0.10)** | NO | Pre-cabled (L = 2 m) *(1)* | **XS608B3CAL2** | 0.070 | (0.15) |
| | | Remote M12 connector | **XS608B3CAL01M12** | 0.070 | (0.15) |
| | NC | Pre-cabled (L = 2 m) *(1)* | **XS608B3CBL2** | 0.070 | (0.15) |
| | | Remote M12 connector | **XS608B3CBL01M12** | 0.070 | (0.15) |
| **Ø 12, threaded M12 x 1** | | | | | |
| **4 (0.16)** | NO | Pre-cabled (L = 2 m) *(1)* | **XS612B3DAL2** | 0.090 | (0.20) |
| | | M12 connector | **XS612B3DAM12** | 0.030 | (0.07) |
| | NC | Pre-cabled (L = 2 m) *(1)* | **XS612B3DBL2** | 0.090 | (0.20) |
| | | M12 connector | **XS612B3DBM12** | 0.030 | (0.07) |
| **Ø 18, threaded M18 x 1** | | | | | |
| **8 (0.31)** | NO | Pre-cabled (L = 2 m) *(1)* | **XS618B3DAL2** | 0.110 | (0.24) |
| | | M12 connector | **XS618B3DAM12** | 0.060 | (0.13) |
| | NC | Pre-cabled (L = 2 m) *(1)* | **XS618B3DBL2** | 0.110 | (0.24) |
| | | M12 connector | **XS618B3DBM12** | 0.060 | (0.13) |
| **Ø 30, threaded M30 x 1.5** | | | | | |
| **15 (0.59)** | NO | Pre-cabled (L = 2 m) *(1)* | **XS630B3DAL2** | 0.180 | (0.40) |
| | | M12 connector | **XS630B3DAM12** | 0.130 | (0.29) |
| | NC | Pre-cabled (L = 2 m) *(1)* | **XS630B3DBL2** | 0.180 | (0.40) |
| | | M12 connector | **XS630B3DBM12** | 0.180 | (0.40) |

### Sensors, 2-wire 12-48 V ⎓, long case model

| Sensing dist. Sn, mm (in.) | Function | Connection | Catalog Number | Weight kg | (lb) |
|---|---|---|---|---|---|
| **Ø 6.5, plain** | | | | | |
| **2.5 (0.10)** | NO | Pre-cabled (L = 2 m) *(1)* | **XS606B1DAL2** | 0.060 | (0.13) |
| | NC | Pre-cabled (L = 2 m) *(1)* | **XS606B1DBL2** | 0.060 | (0.13) |
| **Ø 8, threaded M8 x 1** | | | | | |
| **2.5 (0.10)** | NO | Pre-cabled (L = 2 m) *(1)* | **XS608B1DAL2** | 0.035 | (0.08) |
| | | M12 connector | **XS608B1DAM12** | 0.015 | (0.03) |
| | NC | Pre-cabled (L = 2 m) *(1)* | **XS608B1DBL2** | 0.035 | (0.08) |
| | | M12 connector | **XS608B1DBM12** | 0.015 | (0.03) |
| **Ø 12, threaded M12 x 1** | | | | | |
| **4 (0.16)** | NO | Pre-cabled (L = 2 m) *(1)* | **XS612B1DAL2** | 0.180 | (0.40) |
| | | M12 connector | **XS612B1DAM12** | 0.020 | (0.44) |
| | NC | Pre-cabled (L = 2 m) *(1)* | **XS612B1DBL2** | 0.075 | (0.17) |
| | | M12 connector | **XS612B1DBM12** | 0.020 | (0.44) |
| **Ø 18, threaded M18 x 1** | | | | | |
| **8 (0.31)** | NO | Pre-cabled (L = 2 m) *(1)* | **XS618B1DAL2** | 0.100 | (0.22) |
| | | M12 connector | **XS618B1DAM12** | 0.040 | (0.09) |
| | NC | Pre-cabled (L = 2 m) *(1)* | **XS618B1DBL2** | 0.100 | (0.22) |
| | | M12 connector | **XS618B1DBM12** | 0.040 | (0.09) |
| **Ø 30, threaded M30 x 1.5** | | | | | |
| **15 (0.59)** | NO | Pre-cabled (L = 2 m) *(1)* | **XS630B1DAL2** | 0.205 | (0.45) |
| | | M12 connector | **XS630B1DAM12** | 0.145 | (0.32) |
| | NC | Pre-cabled (L = 2 m) *(1)* | **XS630B1DBL2** | 0.205 | (0.45) |
| | | M12 connector | **XS630B1DBM12** | 0.145 | (0.32) |

### Accessories

| Description | For use with sensors | Catalog Number | Weight kg | (lb) |
|---|---|---|---|---|
| **Mounting clamps** | Ø 6.5 (plain) | **XSZB165** | 0.005 | (0.01) |
| | Ø 8 (M8 x 1) | **XSZB108** | 0.006 | (0.01) |
| | Ø 12 (M12 x 1) | **XSZB112** | 0.006 | (0.01) |
| | Ø 18 (M18 x 1) | **XSZB118** | 0.010 | (0.02) |
| | Ø 30 (M30 x 1.5) | **XSZB130** | 0.020 | (0.04) |

*(1) For a 5 m cable replace L2 with **L5**.*
*Example: XS606B3CAL2 becomes **XS606B3CAL5** with a 5 m cable.*



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# OsiSense® XS
# Inductive proximity sensors
## General purpose
Cylindrical, increased range, flush mountable
Two-wire DC, solid-state output



## Specifications

| Sensor type | | | XS6●●B3D●M12, XS6●●B1D●M12 | XS6●●B3D●L2, XS6●●B1D●L2 |
|---|---|---|---|---|
| **Product certifications** | | | UL, CSA, CE | |
| **Connection** | Connector | | M12 or remote M12 connector (L01M12) on 0.15 m pigtail connector | |
| | Pre-cabled | | Length 2 m | |
| **Operating zone** | Ø 6.5 and Ø 8 | **mm** | 0–2 (0–0.08 in.) | |
| | Ø 12 | **mm** | 0–3.2 (0–0.13 in.) | |
| | Ø 18 | **mm** | 0–6.4 (0–0.25 in.) | |
| | Ø 30 | **mm** | 0–12 (0–0.47 in.) | |
| **Differential travel** | | **%** | 1–15 of effective sensing distance (Sr) | |
| **Degree of protection** | Conforming to IEC 60529 | | IP 65 and IP 67 | IP 65 and IP 68 double isolation ⧈ (except Ø 6.5 and Ø 8: IP 67) |
| | Conforming to DIN 40050 | | IP 69K | |
| **Storage temperature** | | **°C** | -40 to +85 (-40 to +185 °F) | |
| **Operating temperature** | | **°C** | -25 to +70 (-13 to +158 °F) | |
| **Materials** | Case | | Nickel-plated brass (except **XS606B1D** or **XS608B1D**: stainless steel, grade 303) | |
| | Sensing face | | PPS | |
| | Cable | | PvR 2 x 0.34 mm² (22 AWG) except Ø 6.5 and Ø 8: 2 x 0,11 mm² (27 AWG) | |
| **Vibration resistance** | Conforming to IEC 60068-2-6 | | 25 gn, amplitude ± 2 mm (f = 10 to 55 Hz) | |
| **Shock resistance** | Conforming to IEC 60068-2-27 | | 50 gn, duration 11 ms | |
| **Output state indication** | | | Yellow LED, 4 viewing ports at 90° | |
| **Rated supply voltage** | | **V** | ⎓ 12–48 non-polarized for XS6●●B1D,<br>⎓ 12–24 non-polarized for XS6●●B3D (except Ø 6.5 and Ø 8 short case models: polarized), with protection against reverse polarity | |
| **Voltage limits (including ripple)** | | **V** | ⎓ 10–58 for XS6●●B1D<br>⎓ 10–36 for XS6●●B3D | |
| **Switching capacity** | | **mA** | ≤ 100 with overload and short-circuit protection | |
| **Voltage drop, closed state** | | **V** | 4 | |
| **Current consumption, no-load** | | **mA** | ≤ 0.5 mA | |
| **Maximum switching frequency** | Ø 6.5, Ø 8 | **Hz** | 3000 | |
| | Ø 12 | **Hz** | 2000 | |
| | Ø 18 | **Hz** | 1000 | |
| | Ø 30 | **Hz** | 500 | |
| **Delays** | First-up | **ms** | ≤ 10 | |
| | Response | **ms** | ≤ 0.3 | |
| | Recovery | **ms** | ≤ 0.3 | |

## Wiring diagrams

**M12 connector**

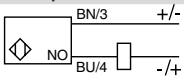



**Pre-cabled**

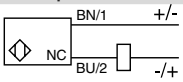
BU: Blue
BN: Brown

**2-wire c non-polarized**

**NO output**

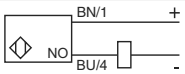



**NC output**

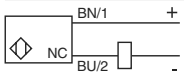



**2-wire c polarized**

**XS6ppB3CA**

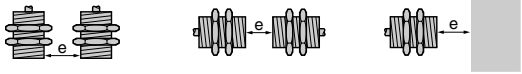



**XS6ppB3CB**



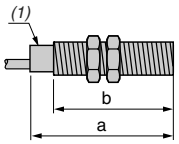

## Setup

**Minimum mounting distances (mm)**




| Sensors | Side by side | Face to face | Facing a metal object |
|---|---|---|---|
| Ø 6.5 | e ≥ 5 | e ≥ 30 | e ≥ 8 |
| Ø 8 | e ≥ 5 | e ≥ 30 | e ≥ 8 |
| Ø 12 | e ≥ 8 | e ≥ 50 | e ≥ 12 |
| Ø 18 | e ≥ 16 | e ≥ 100 | e ≥ 25 |
| Ø 30 | e ≥ 30 | e ≥ 180 | e ≥ 45 |

## Dimensions (mm)




*(1) LED*

| Sensors | | | Pre-cabled (mm) | | M12 connector (mm) | |
|---|---|---|---|---|---|---|
| **Short case model** | | | **a** | **b** | **a** | **b** |
| Ø 6.5 | | **XS606B3D** | 33 | – | – | – |
| Ø 8 | | **XS608B3D** | 33 | 25 | – | 24 |
| Ø 12 | | **XS612B3D** | 35 | 25 | 50 | 30 |
| Ø 18 | | **XS618B3D** | 39 | 28 | 50 | 28 |
| Ø 30 | | **XS630B3D** | 43 | 32 | 55 | 32 |
| **Long case model** | | | **a** | **b** | **a** | **b** |
| Ø 6.5 | | **XS606B1D** | 51 | – | – | – |
| Ø 8 | | **XS608B1D** | 51 | 42 | 62 | 40 |
| Ø 12 | | **XS612B1D** | 53 | 42 | 62 | 42 |
| Ø 18 | | **XS618B1D** | 62 | 52 | 74 | 52 |
| Ø 30 | | **XS630B1D** | 62 | 52 | 74 | 52 |



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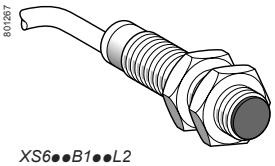
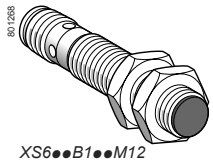
## General purpose
Cylindrical, increased range, flush mountable
Three-wire DC, solid-state output

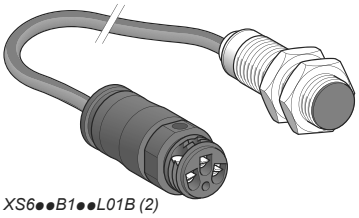


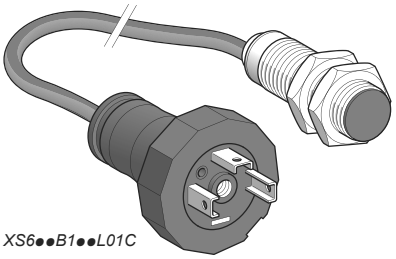


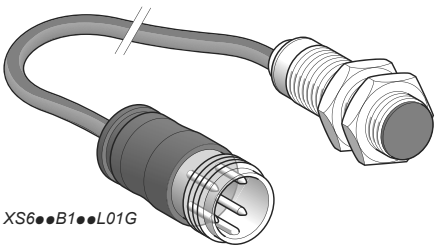
XS6●●B1●●L2

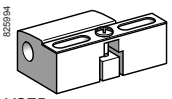


XS6●●B1●●M12


XS6●●B1●●L01B (2)


XS6●●B1●●L01C


XS6●●B1●●L01G



XSZB●●●

| Sensors, 3-wire 12-48 V ⎓, long case model | | | | | | |
|---|---|---|---|---|---|---|
| Sensing dist. Sn, mm (in.) | Function | Output | Connection | Catalog Number | Weight kg | (lb) |
| **Ø 8, threaded M8 x 1** | | | | | | |
| **2.5 (0.10)** | NO | PNP | Pre-cabled (L = 2 m) *(1)* | **XS608B1PAL2** | 0.035 | (0.08) |
| | | | M12 connector | **XS608B1PAM12** | 0.015 | (0.03) |
| | | NPN | Pre-cabled (L = 2 m) *(1)* | **XS608B1NAL2** | 0.035 | (0.08) |
| | | | M12 connector | **XS608B1NAM12** | 0.015 | (0.03) |
| | NC | PNP | Pre-cabled (L = 2 m) *(1)* | **XS608B1PBL2** | 0.035 | (0.08) |
| | | | M12 connector | **XS608B1PBM12** | 0.015 | (0.03) |
| | | NPN | Pre-cabled (L = 2 m) *(1)* | **XS608B1NBL2** | 0.035 | (0.08) |
| | | | M12 connector | **XS608B1NBM12** | 0.015 | (0.03) |
| **Ø 12, threaded M12 x 1** | | | | | | |
| **4 (0.16)** | NO | PNP | Pre-cabled (L = 2 m) *(1)* | **XS612B1PAL2** | 0.075 | (0.17) |
| | | | M12 connector | **XS612B1PAM12** | 0.020 | (0.04) |
| | | NPN | Pre-cabled (L = 2 m) *(1)* | **XS612B1NAL2** | 0.075 | (0.17) |
| | | | M12 connector | **XS612B1NAM12** | 0.020 | (0.04) |
| | NC | PNP | Pre-cabled (L = 2 m) *(1)* | **XS612B1PBL2** | 0.075 | (0.17) |
| | | | M12 connector | **XS612B1PBM12** | 0.020 | (0.04) |
| | | NPN | Pre-cabled (L = 2 m) *(1)* | **XS612B1NBL2** | 0.075 | (0.17) |
| | | | M12 connector | **XS612B1NBM12** | 0.020 | (0.04) |
| **Ø 18, threaded M18 x 1** | | | | | | |
| **8 (0.31)** | NO | PNP | Pre-cabled (L = 2 m) *(1)* | **XS618B1PAL2** | 0.100 | (0.22) |
| | | | M12 connector | **XS618B1PAM12** | 0.040 | (0.09) |
| | | | Remote screw term. connector | **XS618B1PAL01B** *(2)* | 0.100 | (0.22) |
| | | | Remote DIN 43650 connector | **XS618B1PAL01C** | 0.100 | (0.22) |
| | | | Remote M18 connector | **XS618B1PAL01G** | 0.100 | (0.22) |
| | | NPN | Pre-cabled (L = 2 m) *(1)* | **XS618B1NAL2** | 0.100 | (0.22) |
| | | | M12 connector | **XS618B1NAM12** | 0.040 | (0.09) |
| | | | Remote screw term. connector | **XS618B1NAL01B** *(2)* | 0.100 | (0.22) |
| | | | Remote DIN 43650 connector | **XS618B1NAL01C** | 0.100 | (0.22) |
| | NC | PNP | Pre-cabled (L = 2 m) *(1)* | **XS618B1PBL2** | 0.100 | (0.22) |
| | | | M12 connector | **XS618B1PBM12** | 0.040 | (0.09) |
| | | | Remote screw term. connector | **XS618B1PBL01B** *(2)* | 0.100 | (0.22) |
| | | | Remote DIN 43650 connector | **XS618B1PBL01C** | 0.100 | (0.22) |
| | | NPN | Pre-cabled (L = 2 m) *(1)* | **XS618B1NBL2** | 0.100 | (0.22) |
| | | | M12 connector | **XS618B1NBM12** | 0.040 | (0.09) |
| | | | Remote screw term. connector | **XS618B1NBL01B** *(2)* | 0.100 | (0.22) |
| | | | Remote DIN 43650 connector | **XS618B1NBL01C** | 0.100 | (0.22) |
| **Ø 30, threaded M30 x 1.5** | | | | | | |
| **15 (0.59)** | NO | PNP | Pre-cabled (L = 2 m) *(1)* | **XS630B1PAL2** | 0.205 | (0.45) |
| | | | M12 connector | **XS630B1PAM12** | 0.145 | (0.32) |
| | | | Remote screw term. connector | **XS630B1PAL01B** *(2)* | 0.205 | (0.45) |
| | | | Remote DIN 43650 connector | **XS630B1PAL01C** | 0.205 | (0.45) |
| | | | Remote M18 connector | **XS630B1PAL01G** | 0.205 | (0.45) |
| | | NPN | Pre-cabled (L = 2 m) *(1)* | **XS630B1NAL2** | 0.205 | (0.45) |
| | | | M12 connector | **XS630B1NAM12** | 0.145 | (0.32) |
| | | | Remote screw term. connector | **XS630B1NAL01B** *(2)* | 0.205 | (0.45) |
| | | | Remote DIN 43650 connector | **XS630B1NAL01C** | 0.205 | (0.45) |
| | NC | PNP | Pre-cabled (L = 2 m) *(1)* | **XS630B1PBL2** | 0.205 | (0.45) |
| | | | M12 connector | **XS630B1PBM12** | 0.145 | (0.32) |
| | | | Remote screw term. connector | **XS630B1PBL01B** *(2)* | 0.205 | (0.45) |
| | | | Remote DIN 43650 connector | **XS630B1PBL01C** | 0.205 | (0.45) |
| | | | Remote M18 connector | **XS630B1PBL01G** | 0.205 | (0.45) |
| | | NPN | Pre-cabled (L = 2 m) *(1)* | **XS630B1NBL2** | 0.205 | (0.45) |
| | | | M12 connector | **XS630B1NBM12** | 0.145 | (0.32) |
| | | | Remote screw term.connector | **XS630B1NBL01B** *(2)* | 0.205 | (0.45) |
| | | | Remote DIN 43650 connector | **XS630B1NBL01C** | 0.205 | (0.45) |

| Accessories | | | | |
|---|---|---|---|---|
| Description | For use with sensors | Catalog Number | Weight kg | (lb) |
| **Mounting clamps** | Ø 8 | **XSZB108** | 0.006 | (0.01) |
| | Ø 12 | **XSZB112** | 0.006 | (0.01) |
| | Ø 18 | **XSZB118** | 0.010 | (0.02) |
| | Ø 30 | **XSZB130** | 0.020 | (0.02) |

*(1) For a 5 m cable replace L2 with **L5**; for a 10 m cable replace L2 with **L10**.*
*Example: XS608B1PAL2 becomes **XS608B1PAL5** with a 5 m cable.*
*(2) Protective cable gland included with remote screw terminal connector.*



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# OsiSense® XS
# Inductive proximity sensors
## General purpose
Cylindrical, increased range, flush mountable
Three-wire DC, solid-state output



## Specifications

| Sensor type | | | XS1/XS6●●B●●●M8 | XS1/XS6●●B●●●M12 | XS1/XS6●●B●●●L2 |
|---|---|---|---|---|---|
| **Product certifications** | | | UL, CSA, CE | | |
| **Connection** | Connector | | M8 | M12 | – |
| | Pre-cabled | | – | – | Length 2 m |
| | Remote connector | | Remote screw terminal (L01B), DIN 43650 (L01C) or M18 connector (L01G) on 0.15 m pigtail connector | | |
| **Operating zone** | Ø 6.5 and Ø 8 | mm | 0–2 (0–0.08 in.) | | |
| | Ø 12 | mm | 0–3.2 (0–0.13 in.) | | |
| | Ø 18 | mm | 0–6.4 (0–0.25 in.) | | |
| | Ø 30 | mm | 0–12 (0–0.47 in.) | | |
| **Differential travel** | | % | 1–15 of effective sensing distance (Sr) | | |
| **Degree of protection** | Conforming to IEC 60529 | | IP 65 and IP 67 | | IP 65 and IP 68, double insulation ⧈ except Ø 6.5 and Ø 8: IP 67 |
| | Conforming to DIN 40050 | | IP 69K for Ø 12, 18 and 30 sensors | | |
| **Storage temperature** | | °C | -40 to +85 (-40 to +185 °F) | | |
| **Operating temperature** | | °C | -25 to +70 (-13 to +158 °F) | | |
| **Materials** | Case | | Nickel-plated brass (except **XS608**: stainless steel, grade 303) | | |
| | Sensing face | | PPS | | |
| | Cable | | – | | PvR 3 x 0.34 mm² (22 AWG) except Ø 6.5 and 8: 3 x 0.11 mm (27 AWG)² |
| **Vibration resistance** | Conforming to IEC 60068-2-6 | | 25 gn, amplitude ± 2 mm (f = 10 to 55 Hz) | | |
| **Shock resistance** | Conforming to IEC 60068-2-27 | | 50 gn, duration 11 ms | | |
| **Output state indication** | | | Yellow LED, 4 viewing ports at 90° | | Yellow LED, annular |
| **Rated supply voltage** | | V | **XS1** ⎓ 12–24 with protection against reverse polarity<br>**XS6** ⎓ 12–48 with protection against reverse polarity | | |
| **Voltage limits (including ripple)** | | V | **XS1** ⎓ 10–36; **XS6** ⎓ 10–58 | | |
| **Switching capacity** | | mA | ≤ 200 with overload and short-circuit protection | | |
| **Voltage drop, closed state** | | V | ≤ 2 | | |
| **Current consumption, no-load** | | mA | ≤ 10 | | |
| **Maximum switching frequency** | Ø 6.5, Ø 8 and Ø 12 | Hz | 2500 | | |
| | Ø 18 | Hz | 1000 | | |
| | Ø 30 | Hz | 500 | | |
| **Delays** | First-up | ms | ≤ 10 | | |
| | Response | ms | ≤ 0.2 for Ø 6.5, Ø 8 and Ø 12, ≤ 0.3 for Ø 18, ≤ 0.6 for Ø 30 | | |
| | Recovery | ms | ≤ 0.2 for Ø 6.5, Ø 8 and Ø 12, ≤ 0.7 for Ø 18, ≤ 1.4 for Ø 30 | | |

## Wiring diagrams

**Connector**

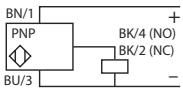
M8 / M12



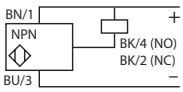

**Pre-cabled**

BU: Blue
BN: Brown
BK: Black

**PNP**



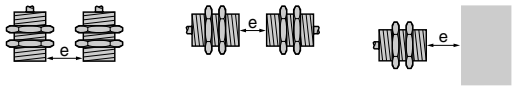

**NPN**




*For M8 connector, NO and NC outputs are on terminal 4*

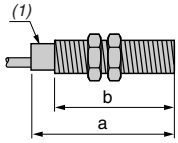
## Setup

**Minimum mounting distances (mm)**




| Sensors | Side by side | Face to face | Facing a metal object |
|---|---|---|---|
| Ø 6.5 | e ≥ 5 | e ≥ 30 | e ≥ 8 |
| Ø 8 | e ≥ 5 | e ≥ 30 | e ≥ 8 |
| Ø 12 | e ≥ 8 | e ≥ 50 | e ≥ 12 |
| Ø 18 | e ≥ 16 | e ≥ 100 | e ≥ 24 |
| Ø 30 | e ≥ 30 | e ≥ 180 | e ≥ 45 |

## Dimensions (mm)




*(1) LED*

| Sensors | | | Pre-cabled (mm) | | M8 connector (mm) | | M12 connector (mm) | |
|---|---|---|---|---|---|---|---|---|
| **Short case model** | | | **a** | **b** | **a** | **b** | **a** | **b** |
| | Ø 6.5 | **XS106B3** | 33 | – | 42 | – | 45 | – |
| | Ø 8 | **XS108B3** | 33 | 25 | 42 | 26 | 45 | 24 |
| | Ø 12 | **XS112B3** | 35 | 25 | – | – | 50 | 30 |
| | Ø 18 | **XS118B3** | 39 | 28 | – | – | 50 | 28 |
| | Ø 30 | **XS130B3** | 43 | 32 | – | – | 55 | 32 |
| **Sensors** | | | **Pre-cabled** (mm) | | **M12 connector** (mm) | | | |
| **Long case model** | | | **a** | **b** | **a** | **b** | | |
| | Ø 8 | **XS6 08B1** | 51 | 42 | 62 | 40 | | |
| | Ø 12 | **XS612B1** | 53 | 42 | 62 | 42 | | |
| | Ø 18 | **XS618B1** | 62 | 52 | 74 | 52 | | |
| | Ø 30 | **XS630B1** | 62 | 52 | 74 | 52 | | |



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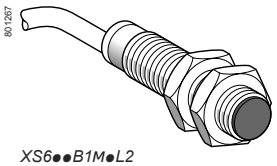
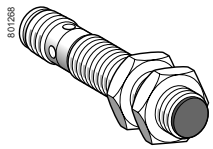
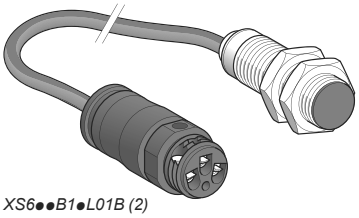
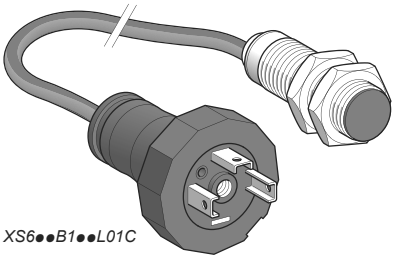
# OsiSense® XS
# Inductive proximity sensors
## General purpose
Cylindrical, increased range, flush mountable
Two-wire AC or DC *(2)*

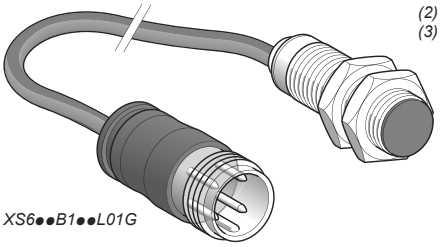


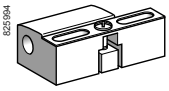

XS6●●B1M●L2


XS6●●B1●●U20


XS6●●B1●L01B (2)


XS6●●B1●●L01C


XS6●●B1●●L01G


XSZB1●●

### Sensors, 2-wire 24-240 V ~, long case model

| Sensing distance Sn, mm (in.) | Function | Connection | Catalog Number | Weight kg | (lb) |
|---|---|---|---|---|---|
| **Ø 12, threaded M12 x 1** | | | | | |
| **4 (0.16)** | NO | Pre-cabled (L = 2 m) *(1)* | **XS612B1MAL2** | 0.075 | (0.17) |
| | | 1/2"-20UNF connector | **XS612B1MAU20** | 0.025 | (0.06) |
| | NC | Pre-cabled (L = 2 m) *(1)* | **XS612B1MBL2** | 0.075 | (0.17) |
| | | 1/2"-20UNF connector | **XS612B1MBU20** | 0.025 | (0.06) |
| **Ø 18, threaded M18 x 1** | | | | | |
| **8 (0.31)** | NO | Pre-cabled (L = 2 m) *(1)* | **XS618B1MAL2** | 0.100 | (0.22) |
| | | 1/2"-20UNF connector | **XS618B1MAU20** | 0.060 | (0.13) |
| | | Remote screw terminal connector | **XS618B1MAL01B** *(3)* | 0.100 | (0.22) |
| | | Remote DIN 43650A connector | **XS618B1MAL01C** | 0.100 | (0.22) |
| | | Remote M18 connector | **XS618B1MAL01G** | 0.100 | (0.22) |
| | NC | Pre-cabled (L = 2 m) *(1)* | **XS618B1MBL2** | 0.100 | (0.22) |
| | | 1/2"-20UNF connector | **XS618B1MBU20** | 0.060 | (0.13) |
| | | Remote screw terminal connector | **XS618B1MBL01B** *(3)* | 0.100 | (0.22) |
| | | Remote DIN 43650A connector | **XS618B1MBL01C** | 0.100 | (0.22) |
| | | Remote M18 connector | **XS618B1MBL01G** | 0.100 | (0.22) |
| **Ø 30, threaded M30 x 1.5** | | | | | |
| **15 (0.59)** | NO | Pre-cabled (L = 2 m) *(2)* | **XS630B1MAL2** | 0.205 | (0.45) |
| | | 1/2"-20UNF connector | **XS630B1MAU20** | 0.145 | (0.32) |
| | | Remote screw terminal connector | **XS630B1MAL01B** *(3)* | 0.205 | (0.45) |
| | | Remote DIN 43650A connector | **XS630B1MAL01C** | 0.205 | (0.45) |
| | | Remote M18 connector | **XS630B1MAL01G** | 0.205 | (0.45) |
| | NC | Pre-cabled (L = 2 m) *(2)* | **XS630B1MBL2** | 0.205 | (0.45) |
| | | 1/2"-20UNF connector | **XS630B1MBU20** | 0.145 | (0.32) |
| | | Remote screw terminal connector | **XS6 30B1MBL01B** *(3)* | 0.205 | (0.45) |
| | | Remote DIN 43650A connector | **XS6 30B1MBL01C** | 0.205 | (0.45) |
| | | Remote M18 connector | **XS6 30B1MBL01G** | 0.205 | (0.45) |

### Accessories

| Description | For use with sensors | Catalog Number | Weight kg | (lb) |
|---|---|---|---|---|
| **Mounting clamps** | Ø 12 | **XSZB112** | 0.006 | (0.01) |
| | Ø 18 | **XSZB118** | 0.010 | (0.02) |
| | Ø 30 | **XSZB130** | 0.020 | (0.04) |

*(1) For a 5 m cable replace L2 with **L5**; for a 10 m cable replace L2 with **L10**.*
*Example: XS612B1MAL2 becomes **XS612B1MAL5** with a 5 m cable.*
*(2) Available in ø8 plastic with double insulation, see page 2/30.*
*(3) Protective cable gland included with remote screw terminal connector.*



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# OsiSense® XS
# Inductive proximity sensors
## General purpose
Cylindrical, increased range, flush mountable
Two-wire AC or DC



## Specifications

| Sensor type | | | XS6●●B1M●U20 | XS6●●B1M●L● |
|---|---|---|---|---|
| **Product certifications** | | | UL, CSA, CE | |
| **Connection** | Connector | | 1/2" - 20 UNF | – |
| | Pre-cabled | | – | Length 2 m |
| | Remote connector | | Remote screw terminal (L01B), DIN 43650A (L01C) or M18 connector (L01G) on 0.15 m pigtail connector | |
| **Operating zone** | Ø 12 | **mm** | 0–3.2 (0–0.13 in.) | |
| | Ø 18 | **mm** | 0–6.4 (0–0.25 in.) | |
| | Ø 30 | **mm** | 0–12 (0–0.47 in.) | |
| **Differential travel** | | **%** | 1–15 of effective sensing distance (Sr) | |
| **Degree of protection** | Conforming to IEC 60529 | | IP 65 and IP 68 double isolation ⧈ | |
| | Conforming to DIN 40050 | | IP 69K | |
| **Storage temperature** | | **°C** | -40 to +85 (-40 to +185 °F) | |
| **Operating temperature** | | **°C** | -25 to +70 (-13 to +158 °F) | |
| **Materials** | Case | | Nickel-plated brass | |
| | Sensing face | | PPS | |
| | Cable | | PvR 2 x 0.34 mm² (22 AWG) | |
| **Vibration resistance** | To IEC 60068-2-6 | | 25 gn, amplitude ± 2 mm (f = 10 to 55 Hz) | |
| **Shock resistance** | To IEC 60068-2-27 | | 50 gn, duration 11 ms | |
| **Output state indication** | | | Yellow LED: annular on pre-cabled version<br>Yellow LED with 4 viewing ports at 90° on connector version | |
| **Rated supply voltage** | | **V** | ≂ 24–240 (~ 50/60 hZ) | |
| **Voltage limits (including ripple)** | | **V** | ≂ 20–264 | |
| **Switching capacity** | **XS612B1M●●●** | **mA** | 5–200 *(2)* | |
| | **XS618B1M●●●, XS630B1M●●●** | **mA** | ∼ 5–300 or ⎓ 5–200 *(1)* | |
| **Voltage drop, closed state** | | **V** | ≤ 5.5 | |
| **Current consumption, no-load** | | **mA** | ≤ 0.8 | |
| **Maximum switching frequency** (a.c./d.c. supply) | Ø 12 | **Hz** | ⎓ 1000 / ∼ 25 | |
| | Ø 18 | **Hz** | ⎓ 1000 / ∼ 25 | |
| | Ø 30 | **Hz** | ⎓ 500 / ∼ 25 | |
| **Delays** | First-up | **ms** | ≤ 25 for Ø 18 and Ø 30 sensors; ≤ 20 for Ø 12 sensors | |
| | Response | **ms** | ≤ 0.5 | |
| | Recovery | **ms** | ≤ 0.2 for Ø 12 sensors; ≤ 0.5 for Ø 18 sensors; ≤ 2 for Ø 30 sensors | |

*(1) A 0.4 A fast-acting fuse must be connected in series with the load.*

## Wiring diagrams

**Connector** *(1)*

1/2"-20UNF

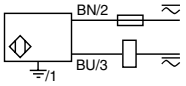



≂ : 2
⏚ : 1
≂ : 3

**Pre-cabled**

BU: Blue
BN: Brown

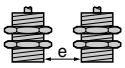
**2-wire ∼ or ⎓**
**NO or NC output**

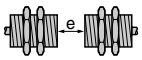



⏚: *on connector models only*

## Setup

**Minimum mounting distances (mm)**



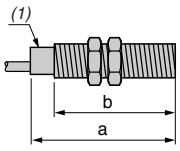







| Sensors | Side by side | Face to face | Facing a metal object |
|---|---|---|---|
| Ø 12 | e ≥ 8 | e ≥ 50 | e ≥ 12 |
| Ø 18 | e ≥ 16 | e ≥ 100 | e ≥ 25 |
| Ø 30 | e ≥ 30 | e ≥ 180 | e ≥ 45 |

## Dimensions (mm)




*(1) LED*

| Sensors | | Pre-cabled (mm) | | Connector (mm) | |
|---|---|---|---|---|---|
| | | a | b | a | b |
| Ø 12 | **XS612B1M●** | 53 | 42 | 62 | 42 |
| Ø 18 | **XS618B1M●** | 62 | 52 | 73 | 52 |
| Ø 30 | **XS630B1M●** | 62 | 52 | 73 | 52 |



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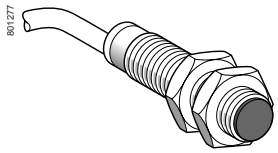
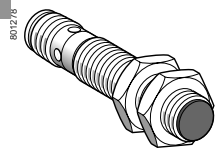
# OsiSense® XS
# Inductive proximity sensors
## General purpose
## Cylindrical, standard range, flush mountable
## Two-wire AC or DC *(2)*

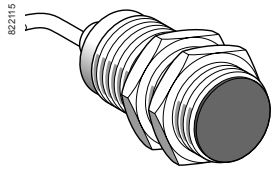




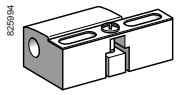

*XS5●●B1M●L2*




*XS5●●B1M●U20*




*XS530B1●●L2*




*XSZB1●●*

**Sensors, 2-wire 24-240 V ~, long case model**

**Ø 12, threaded M12 x 1**

| Sensing distance Sn, mm (in.) | Function | Connection | Catalog Number | Weight kg | (lb) |
|---|---|---|---|---|---|
| **2 (0.08)** | NO | Pre-cabled (L = 2 m) *(1)* | **XS512B1MAL2** | 0.075 | (0.17) |
| | | 1/2"-20UNF connector | **XS512B1MAU20** | 0.025 | (0.06) |
| | NC | Pre-cabled (L = 2 m) *(1)* | **XS512B1MBL2** | 0.075 | (0.17) |
| | | 1/2"-20UNF connector | **XS512B1MBU20** | 0.025 | (0.06) |

**Ø 18, threaded M18 x 1**

| Sensing distance Sn, mm (in.) | Function | Connection | Catalog Number | Weight kg | (lb) |
|---|---|---|---|---|---|
| **5 (0.20)** | NO | Pre-cabled (L = 2 m) *(1)* | **XS518B1MAL2** | 0.100 | (0.22) |
| | | 1/2"-20UNF connector | **XS518B1MAU20** | 0.060 | (0.13) |
| | NC | Pre-cabled (L = 2 m) *(1)* | **XS518B1MBL2** | 0.100 | (0.22) |
| | | 1/2"-20UNF connector | **XS518B1MBU20** | 0.060 | (0.13) |

**Ø 30, threaded M30 x 1.5**

| Sensing distance Sn, mm (in.) | Function | Connection | Catalog Number | Weight kg | (lb) |
|---|---|---|---|---|---|
| **10 (0.39)** | NO | Pre-cabled (L = 2 m) *(1)* | **XS530B1MAL2** | 0.205 | (0.45) |
| | | 1/2"-20UNF connector | **XS530B1MAU20** | 0.145 | (0.32) |
| | NC | Pre-cabled (L = 2 m) *(1)* | **XS530B1MBL2** | 0.205 | (0.45) |
| | | 1/2"-20UNF connector | **XS530B1MBU20** | 0.145 | (0.32) |

**Accessories**

| Description | For use with sensors | Catalog Number | Weight kg | (lb) |
|---|---|---|---|---|
| **Mounting clamps** | Ø 12 | **XSZB112** | 0.006 | (0.01) |
| | Ø 18 | **XSZB118** | 0.010 | (0.02) |
| | Ø 30 | **XSZB130** | 0.020 | (0.04) |

*(1) For a 5 m cable replace L2 with **L5**; for a 10 m cable replace L2 with **L10**.*
*Example: XS512B1MAL2 becomes **XS512B1MAL5** with a 5 m cable.*
*(2) Available in ø8 plastic with double insulation, see page 2/30.*



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# OsiSense® XS
# Inductive proximity sensors
## General purpose
Cylindrical, standard range, flush mountable
Two-wire AC or DC



## Specifications

| Sensor type | | | XS5●●B1M●U20 | XS5●●B1M●L2 |
|---|---|---|---|---|
| **Product certifications** | | | UL, CSA, CE | |
| **Connection** | Connector | | 1/2"-20UNF | – |
| | Pre-cabled | | – | Length 2 m |
| **Operating zone** | Ø 12 | **mm** | 0–1.6 (0–0.05 in.) | |
| | Ø 18 | **mm** | 0–4 (0–0.16 in.) | |
| | Ø 30 | **mm** | 0–8 (0–0.31 in.) | |
| **Differential travel** | | **%** | 1–15 of effective sensing distance (Sr) | |
| **Degree of protection** | Conforming to IEC 60529 | | IP 65 and IP 67 | IP 65 and IP 68, double insulation ⧈ |
| | Conforming to DIN 40050 | | IP 69K | |
| **Storage temperature** | | **°C** | -40 to + 85 (-40 to +185 °F) | |
| **Operating temperature** | | **°C** | -25 to + 70 (-13 to +158 °F) | |
| **Materials** | Case | | Nickel-plated brass | |
| | Sensing face | | PPS | |
| | Cable | | – | PvR 2 x 0.34 mm² (22 AWG) |
| **Vibration resistance** | Conforming to IEC 60068-2-6 | | 25 gn, amplitude ± 2 mm (f = 10 to 55 Hz) | |
| **Shock resistance** | Conforming to IEC 60068-2-27 | | 50 gn, duration 11 ms | |
| **Output state indication** | | | Yellow LED: 4 viewing ports at 90° | Yellow LED: annular |
| **Rated supply voltage** | | **V** | ∿ or ⎓ 24–240 (∿ 50/60 Hz) | |
| **Voltage limits (including ripple)** | | **V** | ∿ or ⎓ 20–264 | |
| **Switching capacity** | **XS512B1M●●●** | **mA** | 5–200 *(1)* | |
| | **XS518B1M●●●, XS530B1M●●●** | **mA** | ∿ 5–300 or ⎓ 5–200 *(1)* | |
| **Voltage drop, closed state** | | **V** | ≤ 5.5 | |
| **Residual current, open state** | | **mA** | ≤ 0.8 | |
| **Maximum switching frequency** | **XS512B1●●●, XS518B1M●●●** | **Hz** | ∿ 25 or ⎓ 1000 | |
| | **XS530B1M●●●** | **Hz** | ∿ 25 or ⎓ 500 | |
| **Delays** | First-up | **ms** | ≤ 20 **XS512B1M●●●**,<br>≤ 25 **XS518B1M●●●** and **XS530B1M●●●** | |
| | Response | **ms** | ≤ 0.5 | |
| | Recovery | **ms** | ≤ 0.2 **XS512B1M●●●**,<br>≤ 0.5 **XS518B1M●●●**,<br>≤ 2 **XS530B1M●●●** | |

*(1) A 0.4 A fast-acting fuse must be connected in series with the load.*

## Wiring diagrams

**Connector**

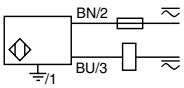
1/2"-20UNF




**Pre-cabled**

BU: Blue
BN: Brown

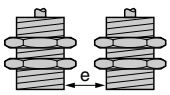
**2-wire ∿ or ⎓**
**NO or NC output**

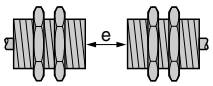


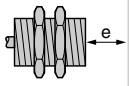

*⏚: on connector models only*

## Setup

**Minimum mounting distances (mm)**

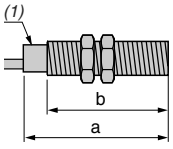



| Sensor | Side by side | Face to face | Facing a metal object |
|---|---|---|---|
| Ø 12 | e ≥ 8 | e ≥ 48 | e ≥ 12 |
| Ø 18 | e ≥ 16 | e ≥ 100 | e ≥ 25 |
| Ø 30 | e ≥ 30 | e ≥ 180 | e ≥ 45 |

## Dimensions (mm)




| Sensor | Pre-cabled (mm) | | Connector (mm) | |
|---|---|---|---|---|
| | a | b | a | b |
| **XS512B1M** | 53 | 42 | 62 | 42 |
| **XS518B1M** | 62 | 52 | 73 | 52 |
| **XS530B1M** | 62 | 52 | 73 | 52 |

*(1) LED*



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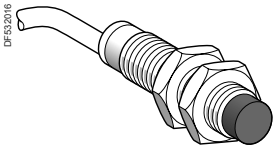
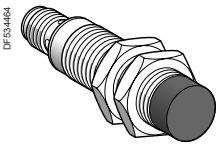
# OsiSense® XS
# Inductive proximity sensors
## General purpose
Cylindrical, increased range, non-flush mountable
Three-wire DC, solid-state output

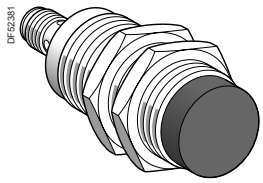




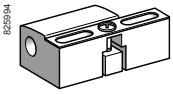
*XS612B4●●L2*



*XS618B4●●M12*



*XS630B4●●M12*



*XSZB●●●*

### Sensors, 3-wire ⎓ 12–48 V, long case model

#### Ø 12, threaded M12 x 1

| Sensing distance Sn, mm (in.) | Function | Output | Connection | Catalog Number | Weight kg | (lb) |
|---|---|---|---|---|---|---|
| **7 (0.28)** | NO | PNP | Pre-cabled (L = 2 m) *(1)* | **XS612B4PAL2** | 0.075 | (0.17) |
| | | | M12 connector | **XS612B4PAM12** | 0.020 | (0.04) |
| | | NPN | Pre-cabled (L = 2 m) *(1)* | **XS612B4NAL2** | 0.075 | (0.17) |
| | | | M12 connector | **XS612B4NAM12** | 0.020 | (0.04) |
| | NC | PNP | Pre-cabled (L = 2 m) *(1)* | **XS612B4PBL2** | 0.075 | (0.17) |
| | | | M12 connector | **XS612B4PBM12** | 0.020 | (0.04) |
| | | NPN | Pre-cabled (L = 2 m) *(1)* | **XS612B4NBL2** | 0.075 | (0.17) |
| | | | M12 connector | **XS612B4NBM12** | 0.020 | (0.04) |

#### Ø 18, threaded M18 x 1

| Sensing distance (Sn) mm | Function | Output | Connection | Catalog Number | Weight kg | (lb) |
|---|---|---|---|---|---|---|
| **12 (0.47)** | NO | PNP | Pre-cabled (L = 2 m) *(1)* | **XS618B4PAL2** | 0.100 | (0.22) |
| | | | M12 connector | **XS618B4PAM12** | 0.040 | (0.09) |
| | | NPN | Pre-cabled (L = 2 m) *(1)* | **XS618B4NAL2** | 0.100 | (0.22) |
| | | | M12 connector | **XS618B4NAM12** | 0.040 | (0.09) |
| | NC | PNP | Pre-cabled (L = 2 m) *(1)* | **XS618B4PBL2** | 0.100 | (0.22) |
| | | | M12 connector | **XS618B4PBM12** | 0.040 | (0.09) |
| | | NPN | Pre-cabled (L = 2 m) *(1)* | **XS618B4NBL2** | 0.100 | (0.22) |
| | | | M12 connector | **XS618B4NBM12** | 0.040 | (0.09) |

#### Ø 30, threaded M30 x 1.5

| Sensing distance (Sn) mm | Function | Output | Connection | Catalog Number | Weight kg | (lb) |
|---|---|---|---|---|---|---|
| **22 (0.87)** | NO | PNP | Pre-cabled (L = 2 m) *(1)* | **XS630B4PAL2** | 0.205 | (0.45) |
| | | | M12 connector | **XS630B4PAM12** | 0.145 | (0.32) |
| | | NPN | Pre-cabled (L = 2 m) *(1)* | **XS630B4NAL2** | 0.205 | (0.45) |
| | | | M12 connector | **XS630B4NAM12** | 0.145 | (0.32) |
| | NC | PNP | Pre-cabled (L = 2 m) *(1)* | **XS630B4PBL2** | 0.205 | (0.45) |
| | | | M12 connector | **XS630B4PBM12** | 0.145 | (0.32) |
| | | NPN | Pre-cabled (L = 2 m) *(1)* | **XS630B4NBL2** | 0.205 | (0.45) |
| | | | M12 connector | **XS630B4NBM12** | 0.145 | (0.32) |

### Accessories

| Description | For use with sensors | Catalog Number | Weight kg | (lb) |
|---|---|---|---|---|
| **Mounting clamps** | Ø 12 | **XSZB112** | 0.006 | (0.01) |
| | Ø 18 | **XSZB118** | 0.010 | (0.02) |
| | Ø 30 | **XSZB130** | 0.020 | (0.04) |

*(1) For a 5 m cable replace L2 with **L5**; for a 10 m cable replace L2 with **L10**.*
*Example: XS612B4PAL2 becomes **XS612B4PAL5** with a 5 m cable.*



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# OsiSense® XS
# Inductive proximity sensors
## General purpose
Cylindrical, increased range, non-flush mountable
Three-wire DC, solid-state output



## Specifications

| Sensor type | | | XS6●●B4●●M12 | XS6●●B4●●L2 |
|---|---|---|---|---|
| **Product certifications** | | | UL, CSA, CE | |
| **Connection** | Connector | | M12 | – |
| | Pre-cabled | | – | Length 2 m |
| **Operating zone** | Ø 12 | **mm** | 0–5.6 (0–0.22 in.) | |
| | Ø 18 | **mm** | 0–9.6 (0–0.38 in.) | |
| | Ø 30 | **mm** | 0–17.6 (0–0.69 in.) | |
| **Differential travel** | | **%** | 1–15 of effective sensing distance (Sr) | |
| **Degree of protection** | Conforming to IEC 60529 | | IP 65 and IP 67 | IP 65 and IP 68, double insulation ⧈ |
| **Storage temperature** | | **°C** | -40 to +85 (-40 to +185 °F) | |
| **Operating temperature** | | **°C** | -25 to +70 (-13 to +158 °F) | |
| **Materials** | Case | | Nickel-plated brass | |
| | Sensing face | | PPS | |
| | Cable | | – | PvR 3 x 0.34 mm² (22 AWG) |
| **Vibration resistance** | Conforming to IEC 60068-2-6 | | 25 gn, amplitude ± 2 mm (f = 10 to 55 Hz) | |
| **Shock resistance** | Conforming to IEC 60068-2-27 | | 50 gn, duration 11 ms | |
| **Output state indication** | | | Yellow LED: 4 viewing ports at 90° | Yellow LED: annular |
| **Rated supply voltage** | | **V** | ⎓ 12–48 with protection against reverse polarity | |
| **Voltage limits (including ripple)** | | **V** | ⎓ 10–58 | |
| **Switching capacity** | | **mA** | ≤ 200 with overload and short-circuit protection | |
| **Voltage drop, closed state** | | **V** | ≤ 2 | |
| **Current consumption, no-load** | | **mA** | ≤ 10 | |
| **Maximum switching frequency** | **XS612B4●●●●** | **Hz** | 2500 | |
| | **XS618B4●●●●** | **Hz** | 1000 | |
| | **XS630B4●●●●** | **Hz** | 500 | |
| **Delays** | First-up | **ms** | ≤ 10 | |
| | Response | **ms** | ≤ 0.2 for Ø 12, ≤ 0.3 for Ø 18, ≤ 0.6 for Ø 30 | |
| | Recovery | **ms** | ≤ 0.2 for Ø 12, ≤ 0.7 for Ø 18, ≤ 1.4 for Ø 30 | |

## Wiring diagrams

**Connector**

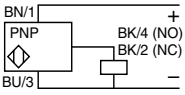
M12



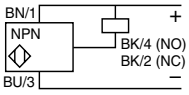

**Pre-cabled**

BU: Blue
BN: Brown
BK: Black

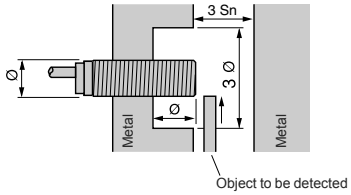
**PNP**



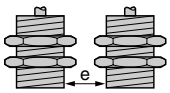

**NPN**

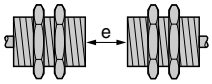


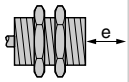

## Setup




**Minimum mounting distances (mm)**

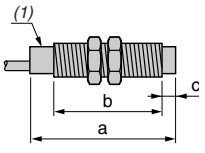



| | Side by side | Face to face | Facing a metal object |
|---|---|---|---|
| Ø 12 | e ≥ 48 | e ≥ 84 | e ≥ 21 |
| Ø 18 | e ≥ 72 | e ≥ 144 | e ≥ 36 |
| Ø 30 | e ≥ 120 | e ≥ 264 | e ≥ 66 |

## Dimensions (mm)




| | **Pre-cabled** (mm) | | **Connector** (mm) | | |
|---|---|---|---|---|---|
| **XS6** | **a** | **b** | **a** | **b** | **c** |
| Ø 12 | 55 | 42 | 66 | 42 | 5 |
| Ø 18 | 60 | 44 | 72 | 44 | 8 |
| Ø 30 | 63 | 41 | 74 | 41 | 13 |

*(1) LED*



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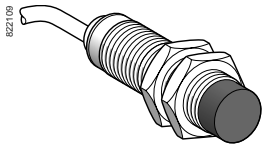
# OsiSense® XS
# Inductive proximity sensors
## General purpose
Cylindrical, increased range, non-flush mountable
Two-wire AC or DC



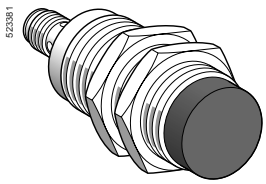



*XS6●●B4M●L2*

**Sensors, 2-wire ≂ 24–240 V, long case model**

**Ø 18, threaded M18 x 1**

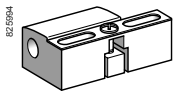
| Sensing distance Sn, mm (in.) | Function | Connection | Catalog Number | Weight kg | (lb) |
|---|---|---|---|---|---|
| **12 (0.47)** | NO | Pre-cabled (L = 2 m) *(1)* | **XS618B4MAL2** | 0.120 | (0.26) |
| | | 1/2"-20UNF connector | **XS618B4MAU20** | 0.060 | (0.13) |
| | NC | Pre-cabled (L = 2 m) *(1)* | **XS618B4MBL2** | 0.120 | (0.26) |
| | | 1/2"-20UNF connector | **XS618B4MBU20** | 0.060 | (0.13) |




*XS6●●B4M●U20*

**Ø 30, threaded M30 x 1.5**

| Sensing distance Sn, mm (in.) | Function | Connection | Catalog Number | Weight kg | (lb) |
|---|---|---|---|---|---|
| **22 (0.87)** | NO | Pre-cabled (L = 2 m) *(1)* | **XS630B4MAL2** | 0.205 | (0.45) |
| | | 1/2"-20UNF connector | **XS630B4MAU20** | 0.145 | (0.32) |
| | NC | Pre-cabled (L = 2 m) *(1)* | **XS630B4MBL2** | 0.205 | (0.45) |
| | | 1/2"-20UNF connector | **XS630B4MBU20** | 0.145 | (0.32) |




*XSZB1●●*

**Accessories**

| Description | For use with sensors | Catalog Number | Weight kg | (lb) |
|---|---|---|---|---|
| **Mounting clamps** | Ø 18 | **XSZB118** | 0.010 | (0.02) |
| | Ø 30 | **XSZB130** | 0.020 | (0.04) |

*(1) For a 5 m cable replace L2 with **L5**; for a 10 m cable replace L2 with **L10**.*
*Example: XS618B4MAL2 becomes **XS618B4MAL5** with a 5 m cable.*



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# OsiSense® XS
# Inductive proximity sensors
## General purpose
Cylindrical, increased range, non-flush mountable
Two-wire AC or DC



## Specifications

| Sensor type | | | XS6●●B4M●U20 | XS6●●B4M●L2 |
|---|---|---|---|---|
| **Product certifications** | | | UL, CSA, CE | |
| **Connection** | Connector | | 1/2"-20UNF | – |
| | Pre-cabled | | – | Length 2 m |
| **Operating zone** | Ø 18 | **mm** | 0–9.6 (0–0.38 in.) | |
| | Ø 30 | **mm** | 0–17.6 (0–0.69 in.) | |
| **Differential travel** | | **%** | 1–15 of effective sensing distance (Sr) | |
| **Degree of protection** | Conforming to IEC 60529 | | IP 65 and IP 67 | IP 65 and IP 68, double insulation ⧈ |
| **Storage temperature** | | **°C** | - 40 to + 85 (-40 to +185 °F) | |
| **Operating temperature** | | **°C** | - 25 to + 70 (-13 to +158 °F) | |
| **Materials** | Case | | Nickel-plated brass | |
| | Sensing face | | PPS | |
| | Cable | | – | PvR 2 x 0.34 mm² (22 AWG) |
| **Vibration resistance** | Conforming to IEC 60068-2-6 | | 25 gn, amplitude ± 2 mm (f = 10 to 55 Hz) | |
| **Shock resistance** | Conforming to IEC 60068-2-27 | | 50 gn, duration 11 ms | |
| **Output state indication** | | | Yellow LED: 4 viewing ports at 90° | Yellow LED: annular |
| **Rated supply voltage** | | **V** | ∼ or ⎓ 24–240 (∼ 50/60 Hz) | |
| **Voltage limits (including ripple)** | | **V** | ∼ or ⎓ 20–264 | |
| **Switching capacity** | | **mA** | ∼ 50300 or ⎓ 5–200 *(1)* | |
| **Voltage drop, closed state** | | **V** | ≤ 5.5 | |
| **Residual current, open state** | | **mA** | ≤ 0.8 | |
| **Maximum switching frequency** | **XS618B4M●●●** | **Hz** | ∼ 25 or ⎓ 1000 | |
| | **XS630B4M●●●** | **Hz** | ∼ 25 or ⎓ 300 | |
| **Delays** | First-up | **ms** | ≤ 30 **XS618B4M●●●** and **XS630B4M●●●** | |
| | Response | **ms** | ≤ 0.5 | |
| | Recovery | **ms** | ≤ 0.5 **XS618B4M●●●**, ≤ 2 **XS630B4M●●●** | |

*(1) A 0.4 A fast-acting fuse must be connected in series with the load.*

## Wiring diagrams

**Connector**

1/2"-20UNF



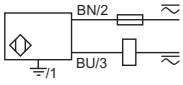

⎓ : 2
⏚ : 1
∼ : 3

**Pre-cabled**

BU: Blue
BN: Brown

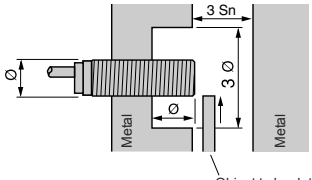
**2-wire ∼ or ⎓**

**NO or NC output**

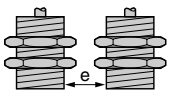


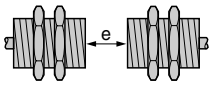

⏚: *on connector models only*

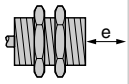
## Setup




**Minimum mounting distances (mm)**

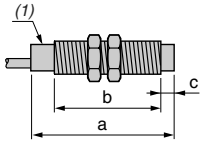



| | Side by side | Face to face | Facing a metal object |
|---|---|---|---|
| Ø 18 | e ≥ 72 | e ≥ 144 | e ≥ 36 |
| Ø 30 | e ≥ 120 | e ≥ 264 | e ≥ 66 |

## Dimensions (mm)




*(1) LED*

| | **Pre-cabled** (mm) | | **Connector** (mm) | | |
|---|---|---|---|---|---|
| **XS6** | **a** | **b** | **a** | **b** | **c** |
| Ø 18 | 60 | 44 | 72 | 44 | 8 |
| Ø 30 | 63 | 41 | 74 | 41 | 13 |



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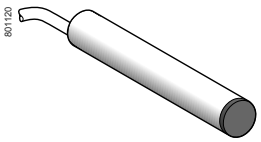
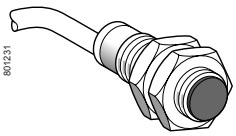
# OsiSense® XS
# Inductive proximity sensors
## General purpose
Cylindrical, standard range, flush mountable
Three-wire DC, solid-state output

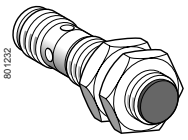




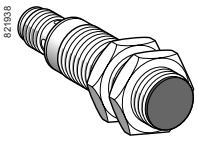
*XS506B1●●L2*



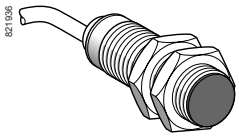
*XS508B1●●L2*



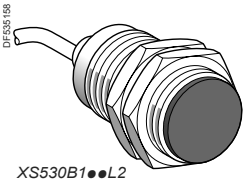
*XS512B1●●M12*



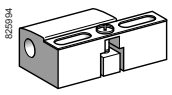
*XS518B1●●M12*



*XS518B1●●●L2*



*XS530B1●●L2*



*XSZB1●●*

| Sensors, 3-wire 12-24 V ⎓, short case model | | | | | | |
|---|---|---|---|---|---|---|
| **Sensing dist. Sn, mm (in.)** | **Function** | **Output** | **Connection** | **Catalog Number** | **Weight kg** | **(lb)** |
| **Ø 6.5, plain** | | | | | | |
| **1.5 (0.06)** | NO | PNP | Pre-cabled (L = 2 m) *(1)* | **XS506B1PAL2** | 0.035 | (0.08) |
| | | | M8 connector | **XS506B1PAM8** | 0.025 | (0.06) |
| | | | M12 connector | **XS506B1PAM12** | 0.025 | (0.06) |
| | | NPN | Pre-cabled (L = 2 m) *(1)* | **XS506B1NAL2** | 0.035 | (0.08) |
| | | | M8 connector | **XS506B1NAM8** | 0.025 | (0.06) |
| | NC | PNP | Pre-cabled (L = 2 m) *(1)* | **XS506B1PBL2** | 0.035 | (0.08) |
| | | | M8 connector | **XS506B1PBM8** | 0.025 | (0.06) |
| | | NPN | Pre-cabled (L = 2 m) *(1)* | **XS506B1NBL2** | 0.035 | (0.08) |
| | | | M8 connector | **XS506B1NBM8** | 0.025 | (0.06) |
| **Ø 8, threaded M8 x 1** | | | | | | |
| **1.5 (0.06)** | NO | PNP | Pre-cabled (L = 2 m) *(1)* | **XS508B1PAL2** | 0.035 | (0.08) |
| | | | M8 connector | **XS508B1PAM8** | 0.025 | (0.06) |
| | | | M12 connector | **XS508B1PAM12** | 0.025 | (0.06) |
| | | NPN | Pre-cabled (L = 2 m) *(1)* | **XS508B1NAL2** | 0.035 | (0.08) |
| | | | M8 connector | **XS508B1NAM8** | 0.025 | (0.06) |
| | | | M12 connector | **XS508B1NAM12** | 0.025 | (0.06) |
| | NC | PNP | Pre-cabled (L = 2 m) *(1)* | **XS508B1PBL2** | 0.035 | (0.08) |
| | | | M8 connector | **XS508B1PBM8** | 0.025 | (0.06) |
| | | | M12 connector | **XS508B1PBM12** | 0.025 | (0.06) |
| | | NPN | Pre-cabled (L = 2 m) *(1)* | **XS508B1NBL2** | 0.035 | (0.08) |
| | | | M8 connector | **XS508B1NBM8** | 0.025 | (0.06) |
| | | | M12 connector | **XS508B1NBM12** | 0.025 | (0.06) |
| **Ø 12, threaded M12 x 1** | | | | | | |
| **2 (0.08)** | NO | PNP | Pre-cabled (L = 2 m) *(1)* | **XS512B1PAL2** | 0.075 | (0.17) |
| | | | M12 connector | **XS512B1PAM12** | 0.035 | (0.08) |
| | | NPN | Pre-cabled (L = 2 m) *(1)* | **XS512B1NAL2** | 0.075 | (0.17) |
| | | | M12 connector | **XS512B1NAM12** | 0.035 | (0.08) |
| | NC | PNP | Pre-cabled (L = 2 m) *(1)* | **XS512B1PBL2** | 0.075 | (0.17) |
| | | | M12 connector | **XS512B1PBM12** | 0.035 | (0.08) |
| | | NPN | Pre-cabled (L = 2 m) *(1)* | **XS512B1NBL2** | 0.075 | (0.17) |
| | | | M12 connector | **XS512B1NBM12** | 0.035 | (0.08) |
| **Ø 18, threaded M18 x 1** | | | | | | |
| **5 (0.20)** | NO | PNP | Pre-cabled (L = 2 m) *(1)* | **XS518B1PAL2** | 0.120 | (0.26) |
| | | | M12 connector | **XS518B1PAM12** | 0.060 | (0.13) |
| | | NPN | Pre-cabled (L = 2 m) *(1)* | **XS518B1NAL2** | 0.120 | (0.26) |
| | | | M12 connector | **XS518B1NAM12** | 0.060 | (0.13) |
| | NC | PNP | Pre-cabled (L = 2 m) *(1)* | **XS518B1PBL2** | 0.120 | (0.26) |
| | | | M12 connector | **XS518B1PBM12** | 0.060 | (0.13) |
| | | NPN | Pre-cabled (L = 2 m) *(1)* | **XS518B1NBL2** | 0.120 | (0.26) |
| | | | M12 connector | **XS518B1NBM12** | 0.060 | (0.13) |
| **Ø 30, threaded M30 x 1.5** | | | | | | |
| **10 (0.39)** | NO | PNP | Pre-cabled (L = 2 m) *(1)* | **XS530B1PAL2** | 0.205 | (0.45) |
| | | | M12 connector | **XS530B1PAM12** | 0.145 | (0.32) |
| | | NPN | Pre-cabled (L = 2 m) *(1)* | **XS530B1NAL2** | 0.205 | (0.45) |
| | | | M12 connector | **XS530B1NAM12** | 0.145 | (0.32) |
| | NC | PNP | Pre-cabled (L = 2 m) *(1)* | **XS530B1PBL2** | 0.205 | (0.45) |
| | | | M12 connector | **XS530B1PBM12** | 0.145 | (0.32) |
| | | NPN | Pre-cabled (L = 2 m) *(1)* | **XS530B1NBL2** | 0.205 | (0.45) |
| | | | M12 connector | **XS530B1NBM12** | 0.145 | (0.32) |

| Accessories | | | | |
|---|---|---|---|---|
| **Description** | **For use with sensors** | **Catalog Number** | **Weight kg** | **(lb)** |
| **Mounting clamps** | Ø 6.5 (plain) | **XSZB165** | 0.005 | (0.01) |
| | Ø 8 | **XSZB108** | 0.006 | (0.01) |
| | Ø 12 | **XSZB112** | 0.006 | (0.01) |
| | Ø 18 | **XSZB118** | 0.010 | (0.02) |
| | Ø 30 | **XSZB130** | 0.020 | (0.02) |

*(1) For a 5 m cable replace L2 with **L5**; for a 10 m cable replace L2 with **L10**.*
*Example: XS508B1PAL2 becomes **XS508B1PAL5** with a 5 m cable.*



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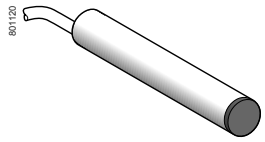
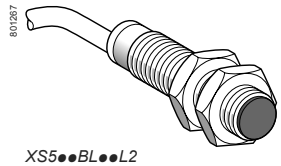
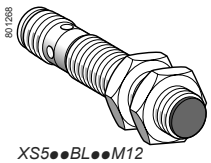
# OsiSense® XS
# Inductive proximity sensors
## General purpose
Cylindrical, standard range, flush mountable
Three-wire DC, solid-state output



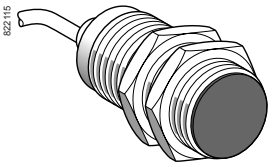

*XS506BL●●L2*



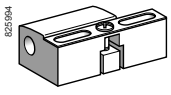

*XS5●●BL●●L2*




*XS5●●BL●●M12*




*XS5 30BL●●L2*




*XSZB1●●*

**Sensors, 3-wire 12-48 V ⎓, long case model**

| Sensing dist. Sn, mm (in.) | Function | Output | Connection | Catalog Number | Weight kg | (lb) |
|---|---|---|---|---|---|---|
| **Ø 6.5, plain** | | | | | | |
| **1.5 (0.06)** | NO | PNP | Pre-cabled (L = 2 m) *(1)* | **XS506BLPAL2** | 0.035 | (0.08) |
| | | NPN | Pre-cabled (L = 2 m) *(1)* | **XS506BLNAL2** | 0.035 | (0.08) |
| **Ø 8, threaded M8 x 1** | | | | | | |
| **1.5 (0.06)** | NO | PNP | Pre-cabled (L = 2 m) *(1)* | **XS508BLPAL2** | 0.035 | (0.08) |
| | | | M12 connector | **XS508BLPAM12** | 0.025 | (0.06) |
| | | NPN | Pre-cabled (L = 2 m) *(1)* | **XS508BLNAL2** | 0.035 | (0.08) |
| | | | M12 connector | **XS508BLNAM12** | 0.025 | (0.06) |
| | NC | PNP | Pre-cabled (L = 2 m) *(1)* | **XS508BLPBL2** | 0.035 | (0.08) |
| | | | M12 connector | **XS508BLPBM12** | 0.025 | (0.06) |
| | | NPN | Pre-cabled (L = 2 m) *(1)* | **XS508BLNBL2** | 0.035 | (0.08) |
| | | | M12 connector | **XS508BLNBM12** | 0.025 | (0.06) |
| **Ø 12, threaded M12 x 1** | | | | | | |
| **2 (0.08)** | NO | PNP | Pre-cabled (L = 2 m) *(1)* | **XS512BLPAL2** | 0.075 | (0.17) |
| | | | M12 connector | **XS512BLPAM12** | 0.035 | (0.08) |
| | | NPN | Pre-cabled (L = 2 m) *(1)* | **XS512BLNAL2** | 0.075 | (0.17) |
| | | | M12 connector | **XS512BLNAM12** | 0.035 | (0.08) |
| | NC | PNP | Pre-cabled (L = 2 m) *(1)* | **XS512BLPBL2** | 0.075 | (0.17) |
| | | | M12 connector | **XS512BLPBM12** | 0.035 | (0.08) |
| | | NPN | Pre-cabled (L = 2 m) *(1)* | **XS512BLNBL2** | 0.075 | (0.17) |
| | | | M12 connector | **XS512BLNBM12** | 0.035 | (0.08) |
| **Ø 18, threaded M18 x 1** | | | | | | |
| **5 (0.20)** | NO | PNP | Pre-cabled (L = 2 m) *(1)* | **XS518BLPAL2** | 0.120 | (0.26) |
| | | | M12 connector | **XS518BLPAM12** | 0.060 | (0.13) |
| | | NPN | Pre-cabled (L = 2 m) *(1)* | **XS518BLNAL2** | 0.120 | (0.26) |
| | | | M12 connector | **XS518BLNAM12** | 0.060 | (0.13) |
| | NC | PNP | Pre-cabled (L = 2 m) *(1)* | **XS518BLPBL2** | 0.120 | (0.26) |
| | | | M12 connector | **XS518BLPBM12** | 0.060 | (0.13) |
| | | NPN | Pre-cabled (L = 2 m) *(1)* | **XS518BLNBL2** | 0.120 | (0.26) |
| | | | M12 connector | **XS518BLNBM12** | 0.060 | (0.13) |
| **Ø 30, threaded M30 x 1.5** | | | | | | |
| **10 (0.39)** | NO | PNP | Pre-cabled (L = 2 m) *(1)* | **XS530BLPAL2** | 0.205 | (0.45) |
| | | | M12 connector | **XS530BLPAM12** | 0.145 | (0.32) |
| | | NPN | Pre-cabled (L = 2 m) *(1)* | **XS530BLNAL2** | 0.205 | (0.45) |
| | | | M12 connector | **XS530BLNAM12** | 0.145 | (0.32) |
| | NC | PNP | Pre-cabled (L = 2 m) *(1)* | **XS530BLPBL2** | 0.205 | (0.45) |
| | | | M12 connector | **XS530BLPBM12** | 0.145 | (0.32) |
| | | NPN | Pre-cabled (L = 2 m) *(1)* | **XS530BLNBL2** | 0.205 | (0.45) |
| | | | M12 connector | **XS530BLNBM12** | 0.145 | (0.32) |

**Accessories**

| Description | For use with sensors | Catalog Number | Weight kg | (lb) |
|---|---|---|---|---|
| **Mounting clamps** | Ø 6.5 (plain) | **XSZ B165** | 0.005 | (0.01) |
| | Ø 8 | **XSZB108** | 0.006 | (0.01) |
| | Ø 12 | **XSZB112** | 0.006 | (0.01) |
| | Ø 18 | **XSZB118** | 0.010 | (0.02) |
| | Ø 30 | **XSZB130** | 0.020 | (0.04) |

*(1) For a 5 m cable replace L2 with **L5**; for a 10 m cable replace L2 with **L10**.*
*Example: XS508BLPAL2 becomes **XS508BLPAL5** with a 5 m cable.*





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# OsiSense® XS
# Inductive proximity sensors
## General purpose
## Cylindrical, standard range, flush mountable
## Three-wire DC, solid-state output



### Specifications

| Sensor type | | | XS5●●B1●●M8, XS5●●B1●●M12<br>XS5●●BL●●M8, XS5●●BL●●M12 | XS5●●B1●●L2<br>XS5●●BL●●L2 |
|---|---|---|---|---|
| **Product certifications** | | | UL, CSA, CE | |
| **Connection** | Connector | | M8 on Ø 6.5 and Ø 8,<br>M12 on Ø 8, Ø 12, Ø 18 and Ø 30 | – |
| | Pre-cabled | | – | Length 2 m |
| **Operating zone** | Ø 6.5 and Ø 8 | **mm** | 0–1.2 (0–0.05 in.) | |
| | Ø 12 | **mm** | 0–1.6 (0–0.06 in.) | |
| | Ø 18 | **mm** | 0–4 (0–0.28 in.) | |
| | Ø 30 | **mm** | 0–8 (0–0.31 in.) | |
| **Differential travel** | | **%** | 1–15 of effective sensing distance (Sr) | |
| **Degree of protection** | Conforming to IEC 60529 | | IP 65 and IP 67 | IP 65 and IP 68, double insulation ⧈<br>(except Ø 6.5 and Ø 8: IP 67) |
| | Conforming to DIN 40050 | | IP 69K for Ø 12 to Ø 30 | |
| **Storage temperature** | | **°C** | -40 to +85 (-40 to +185 °F) | |
| **Operating temperature** | | **°C** | -25 to +70 (-13 to +158 °F) | |
| **Materials** | Case | | Nickel-plated brass (except XS5 06 and XS5 08BL: stainless steel, grade 303) | |
| | Sensing face | | PPS | |
| | Cable | | – | PvR 3 x 0.34 mm² (22 AWG) except **XS506** and **XS508**: 3 x 0.11 mm² (27 AWG) |
| **Vibration resistance** | Conforming to IEC 60068-2-6 | | 25 gn, amplitude ± 2 mm (f = 10 to 50 Hz) | |
| **Shock resistance** | Conforming to IEC 60068-2-27 | | 50 gn, duration 11 ms | |
| **Output state indication** | | | Yellow LED: 4 viewing ports at 90° | Yellow LED: annular |
| **Rated supply voltage** | | **V** | ⎓ 12–48 for XS5●●BL,<br>⎓ 12–24 for XS5 ●●B1<br>with protection against reverse polarity | |
| **Voltage limits (including ripple)** | | **V** | ⎓ 10–58 for XS5●●BL,<br>⎓ 10–36 for XS5●●B1 | |
| **Switching capacity** | | **mA** | ≤ 200 with overload and short-circuit protection | |
| **Voltage drop, closed state** | | **V** | ≤ 2 | |
| **Current consumption, no-load** | | **mA** | ≤ 10 | |
| **Maximum switching frequency** | **XS506, XS508, XS512** | **Hz** | 5000 | |
| | **XS518** | **Hz** | 2000 | |
| | **XS530** | **Hz** | 1000 | |
| **Delays** | First-up | **ms** | ≤ 10 | |
| | Response | **ms** | ≤ 0.1 : **XS506 , XS508** and **XS512**<br>≤ 0.15 : **XS518**<br>≤ 0.3 : **XS530** | |
| | Recovery | **ms** | ≤ 0.1 : **XS506, XS508** and **XS512**<br>≤ 0.35 : **XS518**<br>≤ 0.7 : **XS530** | |



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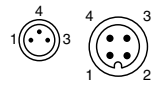
# OsiSense® XS
# Inductive proximity sensors
## General purpose
Cylindrical, standard range, flush mountable
Three-wire DC, solid-state output

## Wiring diagrams

**Connector**

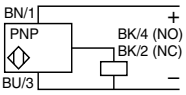
M8 M12



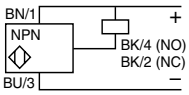

**Pre-cabled**

BU: Blue
BN: Brown
BK: Black

**PNP**



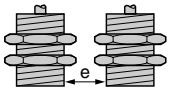

**NPN**

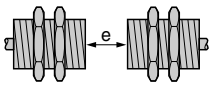


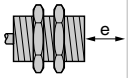

*For M8 connector, NO and NC outputs are on terminal 4*

## Setup

**Minimum mounting distances (mm)**

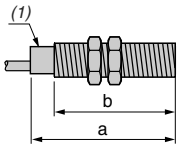



| Sensors | Side by side | Face to face | Facing a metal object |
|---|---|---|---|
| Ø 6.5 | e ≥ 3 | e ≥ 18 | e ≥ 4.5 |
| Ø 8 | e ≥ 3 | e ≥ 18 | e ≥ 4.5 |
| Ø 12 | e ≥ 4 | e ≥ 24 | e ≥ 6 |
| Ø 18 | e ≥ 10 | e ≥ 60 | e ≥ 15 |
| Ø 30 | e ≥ 20 | e ≥ 120 | e ≥ 30 |

## Dimensions (mm)




*(1) LED*

| Sensors | | Pre-cabled (mm) | | M8 connector (mm) | | M12 connector (mm) | |
|---|---|---|---|---|---|---|---|
| **Short case model** | | **a** | **b** | **a** | **b** | **a** | **b** |
| Ø 6.5 | **XS506B1** | 33 | – | 42 | – | 45 | – |
| Ø 8 | **XS508B1** | 33 | 25 | 42 | 26 | 45 | 24 |
| Ø 12 | **XS512B1** | 35 | 25 | – | – | 50 | 30 |
| Ø 18 | **XS518B1** | 39 | 28 | – | – | 50 | 28 |
| Ø 30 | **XS530B1** | 43 | 32 | – | – | 55 | 32 |

| Sensors | | Pre-cabled (mm) | | M12 connector (mm) | |
|---|---|---|---|---|---|
| **Long case model** | | **a** | **b** | **a** | **b** |
| Ø 6.5 | **XS506BL** | 51 | – | – | – |
| Ø 8 | **XS508BL** | 51 | 42 | 62 | 40 |
| Ø 12 | **XS512BL** | 53 | 42 | 62 | 42 |
| Ø 18 | **XS518BL** | 62 | 52 | 74 | 52 |
| Ø 30 | **XS530BL** | 62 | 52 | 74 | 52 |



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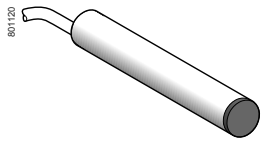
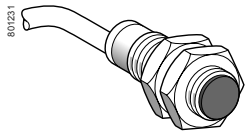
# Inductive proximity sensors
## General purpose
Cylindrical, standard range, flush mountable
Two-wire DC

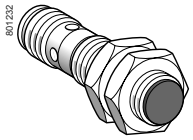




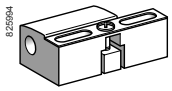

*XS506BS●●L2*




*XS512BS●●L2*




*XS5●●BS●●M12*




*XSZB1●●*

| Sensors, 2-wire 12-24 V ⎓, short case model | | | | | |
|---|---|---|---|---|---|
| **Sensing dist. Sn, mm (in.)** | **Function** | **Connection** | **Catalog Number** | **Weight kg** | **(lb)** |
| **Ø 6.5, plain** | | | | | |
| **1.5 (0.06)** | NO terminals 1 & 4 *(2)* | Pre-cabled (L = 2 m) *(1)* | **XS506BSCAL2** | 0.035 | (0.08) |
| | | Remote M12 connector | **XS506BSCAL01M12** | 0.050 | (0.11) |
| | NC | Pre-cabled (L = 2 m) *(1)* | **XS506BSCBL2** | 0.035 | (0.08) |
| **Ø 8, threaded M8 x 1** | | | | | |
| **1.5 (0.06)** | NO terminals 1 & 4 *(2)* | Pre-cabled (L = 2 m) *(1)* | **XS508BSCAL2** | 0.035 | (0.08) |
| | | Remote M12 connector | **XS508BSCAL01M12** | 0.050 | (0.11) |
| | | Remote M12 connector | **XS508BSCAL08M12** | 0.050 | (0.11) |
| | NC | Pre-cabled (L = 2 m) *(1)* | **XS508BSCBL2** | 0.035 | (0.08) |
| | | Remote M12 connector | **XS508BSCBL01M12** | 0.050 | (0.11) |
| **Ø 12, threaded M12 x 1** | | | | | |
| **2 (0.08)** | NO | Pre-cabled (L = 2 m) *(1)* | **XS512BSDAL2** | 0.075 | (0.17) |
| | | M12 connector | **XS512BSDAM12** | 0.035 | (0.08) |
| | NO terminals 1 & 4 *(2)* | M12 connector | **XS512BSCAM12** | 0.035 | (0.08) |
| | | Remote M12 connector | **XS512BSCAL08M12** | 0.060 | (0.13) |
| | NC | Pre-cabled (L = 2 m) *(1)* | **XS512BSDBL2** | 0.075 | (0.17) |
| | | M12 connector | **XS512BSDBM12** | 0.035 | (0.08) |
| **Ø 18, threaded M18 x 1** | | | | | |
| **5 (0.20)** | NO | Pre-cabled (L = 2 m) *(1)* | **XS518BSDAL2** | 0.120 | (0.26) |
| | | M12 connector | **XS518BSDAM12** | 0.060 | (0.13) |
| | NO terminals 1 & 4 *(2)* | M12 connector | **XS518BSCAM12** | 0.060 | (0.13) |
| | | Remote M12 connector | **XS518BSCAL08M12** | 0.085 | (0.19) |
| | NC | Pre-cabled (L = 2 m) *(1)* | **XS518BSDBL2** | 0.120 | (0.26) |
| | | M12 connector | **XS518BSDBM12** | 0.060 | (0.13) |
| **Ø 30, threaded M30 x 1.5** | | | | | |
| **10 (0.39)** | NO | Pre-cabled (L = 2 m) *(1)* | **XS530BSDAL2** | 0.205 | (0.45) |
| | | M12 connector | **XS530BSDAM12** | 0.145 | (0.32) |
| | NO terminals 1 & 4 *(2)* | M12 connector | **XS530BSCAM12** | 0.145 | (0.32) |
| | | Remote M12 connector | **XS530BSCAL08M12** | 0.170 | (0.37) |
| | NC | Pre-cabled (L = 2 m) *(1)* | **XS530BSDBL2** | 0.205 | (0.45) |
| | | M12 connector | **XS530BSDBM12** | 0.145 | (0.32) |

| Accessories | | | | |
|---|---|---|---|---|
| **Description** | **For use with sensors** | **Catalog Number** | **Weight kg** | **(lb)** |
| **Mounting clamps** | Ø 6.5 (plain) | **XSZ B165** | 0.005 | (0.01) |
| | Ø 8 | **XSZB108** | 0.006 | (0.01) |
| | Ø 12 | **XSZB112** | 0.006 | (0.01) |
| | Ø 18 | **XSZB118** | 0.010 | (0.02) |
| | Ø 30 | **XSZB130** | 0.020 | (0.04) |

*(1) For a 5 m cable replace L2 with L5; for a 10 m cable replace L2 with **L10**.*
*Example: XS508BSCAL2 becomes **XS508BSCAL5** with a 5 m cable.*
*(2) The NO output is connected to terminals 1 and 4 of the M12 connector.*



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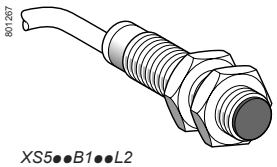
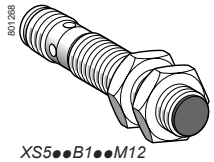
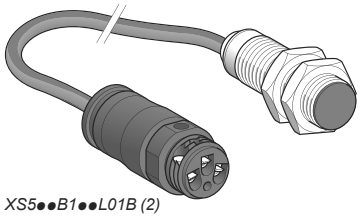
## General purpose
Cylindrical, standard range, flush mountable
Two-wire DC



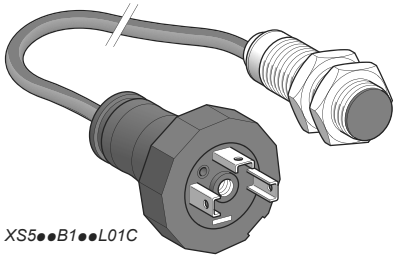

*XS5●●B1●●L2*



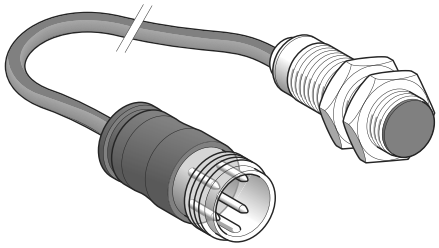

*XS5●●B1●●M12*



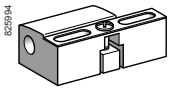
*XS5●●B1●●L01B (2)*



*XS5●●B1●●L01C*



*XS5●●B1●●L01G*




*XSZB1●●*

**Sensors, 2-wire 12–48 V ⎓, long case model**

| Sensing distance Sn, mm (in.) | Function | Connection | Catalog Number | Weight kg | (lb) |
|---|---|---|---|---|---|
| **Ø 8, threaded M8 x 1** | | | | | |
| **1.5 (0.06)** | NO | Pre-cabled (L = 2 m) *(1)* | **XS508B1DAL2** | 0.035 | (0.08) |
| | | Remote M12 connector | **XS508B1DAL08M12** | 0.050 | (0.11) |
| | | M12 connector | **XS508B1DAM12** | 0.025 | (0.06) |
| | NO terminals 1 & 4 *(3)* | M12 connector | **XS508B1CAM12** | 0.025 | (0.06) |
| | | Remote M12 connector | **XS508B1CAL08M12** | 0.050 | (0.11) |
| | NC | Pre-cabled (L = 2 m) *(1)* | **XS508B1DBL2** | 0.035 | (0.08) |
| | | M12 connector | **XS508B1DBM12** | 0.025 | (0.06) |
| **Ø 12, threaded M12 x 1** | | | | | |
| **2 (0.08)** | NO | Pre-cabled (L = 2 m) *(1)* | **XS512B1DAL2** | 0.075 | (0.17) |
| | | Remote 7/8" connector | **XS512B1DAL08U78** | 0.050 | (0.11) |
| | | M12 connector | **XS512B1DAM12** | 0.035 | (0.08) |
| | NO terminals 1 & 4 *(3)* | M12 connector | **XS512B1CAM12** | 0.035 | (0.08) |
| | | Remote M12 connector | **XS512B1CAL08M12** | 0.060 | (0.13) |
| | NC | Pre-cabled (L = 2 m) *(1)* | **XS512B1DBL2** | 0.075 | (0.17) |
| | | M12 connector | **XS512B1DBM12** | 0.035 | (0.08) |
| | | Remote M12 connector | **XS512B1DBL08M12** | 0.060 | (0.13) |
| **Ø 18, threaded M18 x 1** | | | | | |
| **5 (0.20)** | NO | Pre-cabled (L = 2 m) *(1)* | **XS518B1DAL2** | 0.120 | (0.26) |
| | | Low temperature version (- 40 °C) | **XS518B1DAL2TF** *(4)* | 0.120 | (0.26) |
| | | Remote screw terminal connector *(2)* | **XS518B1DAL01B** | 0.085 | (0.19) |
| | | Remote DIN 43650A connector | **XS518B1DAL01C** | 0.085 | (0.19) |
| | | Remote M18 connector | **XS518B1DAL01G** | 0.085 | (0.19) |
| | | M12 connector | **XS518B1DAM12** | 0.060 | (0.13) |
| | NO terminals 1 & 4 *(3)* | M12 connector | **XS518B1CAM12** | 0.060 | (0.13) |
| | | Remote M12 connector | **XS518B1CAL08M12** | 0.085 | (0.19) |
| | NC | Pre-cabled (L = 2 m) *(1)* | **XS518B1DBL2** | 0.120 | (0.26) |
| | | M12 connector | **XS518B1DBM12** | 0.060 | (0.13) |
| | | Remote M12 connector | **XS518B1DBL08M12** | 0.085 | (0.19) |
| | | Remote screw terminal connector *(2)* | **XS518B1DBL01B** | 0.120 | (0.26) |
| **Ø 30, threaded M30 x 1.5** | | | | | |
| **10 (0.39)** | NO | Pre-cabled (L = 2 m) *(1)* | **XS530B1DAL2** | 0.205 | (0.45) |
| | | Low temperature version (- 40 °C) | **XS530B1DAL2TF** *(4)* | 0.120 | (0.26) |
| | | M12 connector | **XS530B1DAM12** | 0.145 | (0.32) |
| | | Remote screw terminal connector *(2)* | **XS530B1DAL01B** | 0.205 | (0.45) |
| | | Remote DIN 43650A connector | **XS530B1DAL01C** | 0.205 | (0.45) |
| | | Remote M18 connector | **XS530B1DAL01G** | 0.205 | (0.45) |
| | NO terminals 1 & 4 *(3)* | M12 connector | **XS530B1CAM12** | 0.145 | (0.32) |
| | | Remote M12 connector | **XS530B1CAL08M12** | 0.170 | (0.37) |
| | NC | Pre-cabled (L = 2 m) *(1)* | **XS530B1DBL2** | 0.205 | (0.45) |
| | | M12 connector | **XS530B1DBM12** | 0.145 | (0.32) |
| | | Remote screw terminal connector *(2)* | **XS530B1DBL01B** | 0.205 | (0.37) |

**Accessories**

| Description | For use with sensors | Catalog Number | Weight kg | (lb) |
|---|---|---|---|---|
| **Mounting clamps** | Ø 8 | **XSZB108** | 0.006 | (0.01) |
| | Ø 12 | **XSZB112** | 0.006 | (0.01) |
| | Ø 18 | **XSZB118** | 0.010 | (0.02) |
| | Ø 30 | **XSZB130** | 0.020 | (0.04) |

*(1) For a 5 m cable replace L2 with **L5**; for a 10 m cable replace L2 with **L10**.*
*Example: XS508B1DAL2 becomes **XS508B1DAL5** with a 5 m cable.*
*(2) Protective cable gland included with remote screw terminal connector.*
*(3) The NO output is connected to terminals 1 and 4 of the M12 connector.*
*(4) For a 5 m cable replace L2 with **L5**.*
*Example: XS518B1DAL2TF becomes **XS518B1DAL5TF** with a 5 m cable.*
*For PUR cable, replace the letter L in the catalog number with **P**.*
*Example: XS518B1DAL2TF becomes **XS518B1DAP2TF** with PUR cable.*
*For a 5 m PUR cable replace P2 with **P5**.*
*Example: XS518B1DAP2TF becomes **XS518B1DAP5TF** with a 5 m PUR cable.*





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# OsiSense® XS
# Inductive proximity sensors
## General purpose
## Cylindrical, standard range, flush mountable
## Two-wire DC



### Specifications

| Sensor type | | | XS5●●B1●●M12, XS5●●BS●●M12 | XS5●●B1D●L2, XS5●●BSD●L2 |
|---|---|---|---|---|
| **Product certifications** | | | UL, CSA, CE | |
| **Connection** | Connector | | M12 | – |
| | Pre-cabled | | – | Length 2 m |
| | Remote connector | | Remote M12 connector (L01M12), screw terminal (L01B), DIN 43650A (L01C) and remote M18 connector (L01G) on 0.15 m pigtail connector.<br>Remote M12 (L08M12) or 7/8" (L08U78) connector on 0.80 m pigtail connector. | |
| **Operating zone** | Ø 6.5 | **mm** | 0–1.2 (0–0.05 in.) | |
| | Ø 8 | **mm** | 0–1.2 (0–0.05 in.) | |
| | Ø 12 | **mm** | 0–1.6 (0–0.06 in.) | |
| | Ø 18 | **mm** | 0–4 (0–0.16 in.) | |
| | Ø 30 | **mm** | 0–8 (0–0.31 in.) | |
| **Differential travel** | | **%** | 1–15 of effective sensing distance (Sr) | |
| **Degree of protection** | Conforming to IEC 60529 | | IP 65 and IP 67 | IP 65 and ⧈ IP 68, double insulation (except Ø 6.5 and Ø 8: IP 67) |
| **Storage temperature** | | **°C** | -40 to +85 (-40 to +185 °F) | |
| **Operating temperature** | | **°C** | -5 to +70 (-13 to +158 °F); TF products: - 40 to + 70 (-40 to +158°F) | |
| **Materials** | Case | | Nickel-plated brass (except XS5 06 and XS5 08B1: stainless steel, grade 303) | |
| | Sensing face | | PPS | |
| | Cable | | – | PvR 2 x 0.34 $mm^2$ (22 AWG) (except XS5 06 and XS5 08: 2 x 0.11 $mm^2$ (27 AWG) PUR available *(1)* |
| **Vibration resistance** | Conforming to IEC 60068-2-6 | | 25 gn, amplitude ± 2 mm (f = 10 to 55 Hz) | |
| **Shock resistance** | Conforming to IEC 60068-2-27 | | 50 gn, duration 11 ms | |
| **Output state indication** | | | Yellow LED: 4 viewing ports at 90° | Yellow LED: annular |
| **Rated supply voltage** | | **V** | ⎓ 12–48 non-polarized for XS5●●B1D,<br>⎓ 12–24 non-polarized for XS5●●BS (except Ø 6.5 and Ø 8 short case models: polarized) with protection against reverse polarity | |
| **Voltage limits (including ripple)** | | **V** | ⎓ 10–58 for XS5●●B1D,<br>⎓ 10–36 for XS5●●BS | |
| **Switching capacity** | | **mA** | 1.5–100 with overload and short-circuit protection | |
| **Voltage drop, closed state** | | **V** | ≤ 4 | |
| **Residual current, open state** | | **mA** | ≤ 0.5 | |
| **Maximum switching frequency** | **XS506, XS508, XS512** | **Hz** | 4000 | |
| | **XS518** | **Hz** | 3000 | |
| | **XS530** | **Hz** | 2000 | |
| **Delays** | First-up | **ms** | ≤ 10 | |
| | Response | **ms** | ≤ 0.2 : **XS506, XS508** and **XS512**<br>≤ 0.15 : **XS518**<br>≤ 0.3 : **XS530** | |
| | Recovery | **ms** | ≤ 0.2 (except **XS530B1**: ≤ 0.3) | |

*(1) For PUR cable, replace the letter L in the catalog number with **P**. Example: XS506BSDAL2 becomes **XS506BSDAP2** with PUR cable.*



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# OsiSense® XS
# Inductive proximity sensors
## General purpose
Cylindrical, standard range, flush mountable
Two-wire DC



## Wiring diagrams

**Connector**

M12



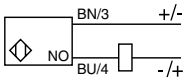

**Pre-cabled**

BU: Blue
BN: Brown

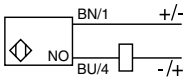
**2-wire ⎓ non-polarized**

**NO output**

**XS5●●B1DA●●●**

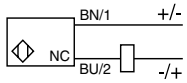



**XS5●●B1CA●●●**




**NC output**

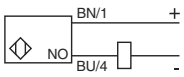
**XS5●●●B1DB●●●**




**2-wire ⎓ polarized**

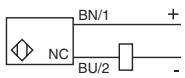
**NO output**

**XS508BSCA●●●**




**NC output**

**XS508BSCB●●●**

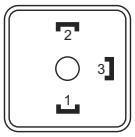



### Remote connectors LO1B, LO1C, LO1G

**Screw terminal (LO1B)**

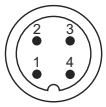
The terminal numbering differs according to the version (⎓ 2-wire, ⎓ 3-wire, ≂ 2-wire).

**DIN 43650 A (LO1C)**



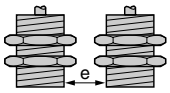

*The NO or NC outputs are connected to terminal 2.*

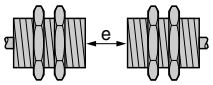
**M18 (LO1G)**

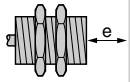



## Setup

**Minimum mounting distances (mm)**

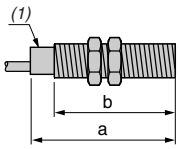



| | Side by side | Face to face | Facing a metal object |
|---|---|---|---|
| Ø 6.5 | e ≥ 3 | e ≥ 18 | e ≥ 4.5 |
| Ø 8 | e ≥ 3 | e ≥ 18 | e ≥ 4.5 |
| Ø 12 | e ≥ 4 | e ≥ 24 | e ≥ 6 |
| Ø 18 | e ≥ 10 | e ≥ 60 | e ≥ 15 |
| Ø 30 | e ≥ 20 | e ≥ 120 | e ≥ 30 |

## Dimensions (mm)




*(1) LED*

| Sensors | | Pre-cabled (mm) | | M8 connector (mm) | | M12 connector (mm) | |
|---|---|---|---|---|---|---|---|
| **Short case model** | | **a** | **b** | **a** | **b** | **a** | **b** |
| Ø 6.5 | **XS506BS** | 33 | – | 42 | – | 45 | – |
| Ø 8 | **XS508BS** | 33 | 25 | 42 | 26 | 45 | 24 |
| Ø 12 | **XS512BS** | 35 | 25 | – | – | 50 | 30 |
| Ø 18 | **XS518BS** | 39 | 28 | – | – | 50 | 28 |
| Ø 30 | **XS530BS** | 43 | 32 | – | – | 55 | 32 |

| Sensors | | Pre-cabled (mm) | | M12 connector (mm) | |
|---|---|---|---|---|---|
| **Long case model** | | **a** | **b** | **a** | **b** |
| Ø 8 | **XS508B1** | 51 | 42 | 62 | 40 |
| Ø 12 | **XS512B1** | 53 | 42 | 62 | 42 |
| Ø 18 | **XS518B1** | 62 | 52 | 74 | 52 |
| Ø 30 | **XS530B1** | 62 | 52 | 74 | 52 |



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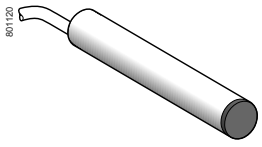
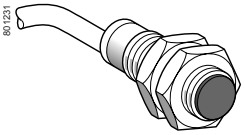
# OsiSense® XS
# Inductive proximity sensors
## General purpose
Cylindrical, semi-flush mountable, increased range
Three-wire DC, solid-state output

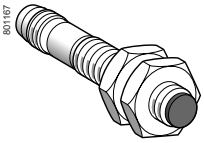




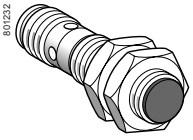
*XS1L06●A349*



*XS1N●●●●349*



*XS1N08●●349S*

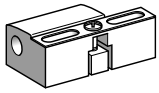


*XS1N●●●●349D*

| Sensing distance Sn, mm (in.) | Function | Output | Connection | Catalog Number | Weight kg | (lb) |
|---|---|---|---|---|---|---|
| **Ø 6.5, plain** | | | | | | |
| **2.5 (0.10)** | NO | PNP | Pre-cabled (L = 2 m) | **XS1L06PA349** | 0.025 | (0.06) |
| | | | M8 connector | **XS1L06PA349S** | 0.010 | (0.02) |
| | | | M12 connector | **XS1L06PA349D** | 0.015 | (0.03) |
| | | NPN | Pre-cabled (L = 2 m) | **XS1L06NA349** | 0.025 | (0.06) |
| | | | M8 connector | **XS1L06NA349S** | 0.010 | (0.02) |
| | | | M12 connector | **XS1L06NA349D** | 0.015 | (0.03) |
| | NC | PNP | Pre-cabled (L = 2 m) | **XS1L06PB349** | 0.025 | (0.06) |
| | | | M8 connector | **XS1L06PB349S** | 0.010 | (0.02) |
| | | NPN | Pre-cabled (L = 2 m) | **XS1L06NB349** | 0.025 | (0.06) |
| | | | M8 connector | **XS1L06NB349S** | 0.010 | (0.02) |
| **Ø 8, threaded M8 x 1** | | | | | | |
| **2.5 (0.10)** | NO | PNP | Pre-cabled (L = 2 m) | **XS1N08PA349** | 0.035 | (0.08) |
| | | | M8 connector | **XS1N08PA349S** | 0.015 | (0.03) |
| | | | M12 connector | **XS1N08PA349D** | 0.020 | (0.04) |
| | | NPN | Pre-cabled (L = 2 m) | **XS1N08NA349** | 0.035 | (0.08) |
| | | | M8 connector | **XS1N08NA349S** | 0.015 | (0.03) |
| | | | M12 connector | **XS1N08NA349D** | 0.020 | (0.04) |
| | NC | PNP | Pre-cabled (L = 2 m) | **XS1N08PB349** | 0.035 | (0.08) |
| | | | M8 connector | **XS1N08PB349S** | 0.015 | (0.03) |
| | | | M12 connector | **XS1N08PB349D** | 0.020 | (0.04) |
| | | NPN | Pre-cabled (L = 2 m) | **XS1N08NB349** | 0.035 | (0.08) |
| | | | M8 connector | **XS1N08NB349S** | 0.015 | (0.03) |
| | | | M12 connector | **XS1N08NB349D** | 0.020 | (0.04) |
| **Ø 12, threaded M12 x 1** | | | | | | |
| **4 (0.16)** | NO | PNP | Pre-cabled (L = 2 m) | **XS1N12PA349** | 0.070 | (0.15) |
| | | | M12 connector | **XS1N12PA349D** | 0.020 | (0.04) |
| | | NPN | Pre-cabled (L = 2 m) | **XS1N12NA349** | 0.070 | (0.15) |
| | | | M12 connector | **XS1N12NA349D** | 0.020 | (0.04) |
| | NC | PNP | Pre-cabled (L = 2 m) | **XS1N12PB349** | 0.070 | (0.15) |
| | | | M12 connector | **XS1N12PB349D** | 0.020 | (0.04) |
| | | NPN | Pre-cabled (L = 2 m) | **XS1N12NB349** | 0.070 | (0.15) |
| | | | M12 connector | **XS1N12NB349D** | 0.020 | (0.04) |
| **Ø 18, threaded M18 x 1** | | | | | | |
| **10 (0.39)** | NO | PNP | Pre-cabled (L = 2 m) | **XS1N18PA349** | 0.100 | (0.22) |
| | | | M12 connector | **XS1N18PA349D** | 0.040 | (0.09) |
| | | NPN | Pre-cabled (L = 2 m) | **XS1N18NA349** | 0.100 | (0.22) |
| | | | M12 connector | **XS1N18NA349D** | 0.040 | (0.09) |
| | NC | PNP | Pre-cabled (L = 2 m) | **XS1N18PB349** | 0.100 | (0.22) |
| | | | M12 connector | **XS1N18PB349D** | 0.040 | (0.09) |
| | | NPN | Pre-cabled (L = 2 m) | **XS1N18NB349** | 0.100 | (0.22) |
| | | | M12 connector | **XS1N18NB349D** | 0.040 | (0.09) |
| **Ø 30, threaded M30 x 1.5** | | | | | | |
| **20 (0.79)** | NO | PNP | Pre-cabled (L = 2 m) | **XS1N30PA349** | 0.160 | (0.35) |
| | | | M12 connector | **XS1N30PA349D** | 0.100 | (0.22) |
| | | NPN | Pre-cabled (L = 2 m) | **XS1N30NA349** | 0.160 | (0.35) |
| | | | M12 connector | **XS1N30NA349D** | 0.100 | (0.22) |
| | NC | PNP | Pre-cabled (L = 2 m) | **XS1N30PB349** | 0.160 | (0.35) |
| | | | M12 connector | **XS1N30PB349D** | 0.100 | (0.22) |
| | | NPN | Pre-cabled (L = 2 m) | **XS1N30NB349** | 0.160 | (0.35) |
| | | | M12 connector | **XS1N30NB349D** | 0.100 | (0.22) |

## Accessories

| Description mm | | Catalog Number | Weight kg | (lb) |
|---|---|---|---|---|
| **Mounting clamps** | Ø 6.5 (plain) | **XSZB165** | 0.005 | (0.01) |
| | Ø 8 | **XSZB108** | 0.006 | (0.01) |
| | Ø 12 | **XSZB112** | 0.006 | (0.01) |
| | Ø 18 | **XSZB118** | 0.010 | (0.02) |
| | Ø 30 | **XSZB130** | 0.020 | (0.04) |


*XSZB1●●*



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*Specifications,*
*Wiring Diagrams,*
*Setup,*
*Dimensions*

# OsiSense® XS
# Inductive proximity sensors
## General purpose
Cylindrical, semi-flush mountable, increased range
Three-wire DC, solid-state output



## Specifications

| Sensor type | | | XS1●●●●●349D | XS1●●●●●349S | XS1●●●●●349 |
|---|---|---|---|---|---|
| **Product certifications** | | | UL, CSA, CE | | |
| **Connection** | | | M12 connector | M8 connector | Pre-cabled, length: 2 m |
| **Operating zone** | Ø 6.5 and Ø 8 | mm | **0–2 (0–0.08 in.)** | | |
| | Ø 12 | mm | **0–3.2 (0–0.13 in.)** | | |
| | Ø 18 | mm | **0–8 (0–0.31 in.)** | | |
| | Ø 30 | mm | **0–16 (0–0.63 in.)** | | |
| **Differential travel** | | % | 1–15 of effective sensing distance (Sr) | | |
| **Degree of protection** | Conforming to IEC 60529 | | IP 67 | | IP 68, double insulation (except Ø 6.5 and Ø 8: IP 67) |
| | Conforming to DIN 40050 | | IP 69K for Ø 12 to Ø 30 | | |
| **Storage temperature** | | °C | -40 to +85 (-40 to +185 °F) | | |
| **Operating temperature** | | °C | -25 to +70 (-13 to +158 °F) | | |
| **Materials** | Case | | Nickel-plated brass | | |
| | Cable | | – | | PvR 3 x 0.34 mm² (22 AWG) except Ø 6.5 and 8: 3 x 0.11 mm² (28 AWG) |
| **Vibration resistance** | Conforming to IEC 60068-2-6 | | 25 gn, amplitude ± 2 mm (f = 10 to 55 Hz) | | |
| **Shock resistance** | Conforming to IEC 60068-2-27 | | 50 gn, duration 11 ms | | |
| **Output state indication** | | | Yellow LED, 4 viewing ports at 90° | | Yellow LED, annular |
| **Rated supply voltage** | | V | ⎓ 12–24 with protection against reverse polarity | | |
| **Voltage limits (including ripple)** | | V | ⎓ 10–36 | | |
| **Switching capacity** | | mA | ≤ 200 with overload and short-circuit protection | | |
| **Voltage drop, closed state** | | V | ≤ 2 | | |
| **Current consumption, no-load** | | mA | ≤ 10 | | |
| **Maximum switching frequency** | Ø 6.5, Ø 8 and Ø 12 | Hz | 2500 | | |
| | Ø 18 | Hz | 1000 | | |
| | Ø 30 | Hz | 500 | | |
| **Delays** | First-up | ms | ≤ 5 | | |
| | Response | ms | ≤ 0.2 for Ø 8 and Ø 12, ≤ 0.3 for Ø 18, ≤ 0.6 for Ø 30 | | |
| | Recovery | ms | ≤ 0.2 for Ø 8 and Ø 12, ≤ 0.7 for Ø 18, ≤ 1.4 for Ø 30 | | |

## Wiring diagrams

**Connector**

M8



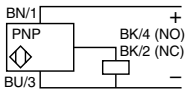

M12



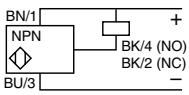

**Pre-cabled**

BU: Blue
BN: Brown
BK: Black

**PNP 3-wire**




**NPN 3-wire**



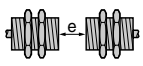

For M8 connector, NO and NC outputs are on terminal 4

## Setup

**Minimum mounting distances (mm)**

| Sensor | Side by side | Face to face | Facing a metal object | Mounted in a metal support |
|---|---|---|---|---|
| Ø 6.5 | e ≥ 5 | e ≥ 30 | e ≥ 7.5 | d ≥ 10 h ≥ 1.6 |
| Ø 8 | e ≥ 5 | e ≥ 30 | e ≥ 7.5 | d ≥ 10 h ≥ 1.6 |
| Ø 12 | e ≥ 8 | e ≥ 48 | e ≥ 12 | d ≥ 14 h ≥ 2.4 |
| Ø 18 | e ≥ 20 | e ≥ 96 | e ≥ 30 | d ≥ 28 h ≥ 3.6 |
| Ø 30 | e ≥ 40 | e ≥ 240 | e ≥ 60 | d ≥ 50 h ≥ 6 |



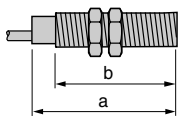










## Dimensions (mm)




**Flush mountable in metal**

| Sensor | Pre-cabled | | M8 connector | | M12 connector | |
|---|---|---|---|---|---|---|
| | a | b | a | b | a | b |
| Ø 6.5 | 33 | 30 | 42 | 34 | 45 | 24 |
| Ø 8 | 33 | 25 | 42 | 26 | 45 | 23 |
| Ø 12 | 35 | 24.6 | – | – | 50 | 30 |
| Ø 18 | 38.5 | 27.5 | – | – | 50 | 27.5 |
| Ø 30 | 42.6 | 31.6 | – | – | 54.3 | 31.6 |



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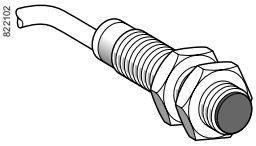
# OsiSense® XS
# Inductive proximity sensors

## General purpose

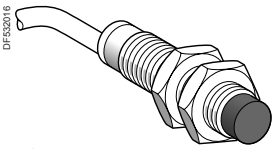
Multi-voltage sensor, cylindrical, flush mountable and non-flush mountable

Two-wire AC or DC, short-circuit protection

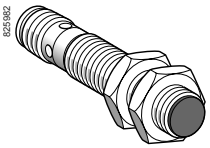




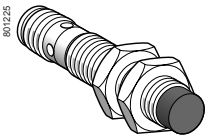

*XS1M●●●●250*



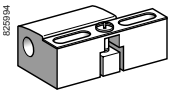

*XS2M●●●●250*




*XS1M●●●●250K*




*XS2M●●●●250K*




*XSZB1●●*

| Sensing distance Sn, mm (in.) | Function | Connection | Catalog Number | Weight kg | (lb) |
|---|---|---|---|---|---|
| **Ø 12, threaded M12 x 1** | | | | | |
| **Flush mountable** | | | | | |
| **2 (0.08)** | NO | Pre-cabled (L = 2 m) *(1)* | **XS1M12MA250** | 0.075 | (0.17) |
| | | 1/2"-20UNF connector | **XS1M12MA250K** | 0.025 | (0.06) |
| | NC | Pre-cabled (L = 2 m) *(1)* | **XS1M12MB250** | 0.075 | (0.17) |
| | | 1/2"-20UNF connector | **XS1M12MB250K** | 0.025 | (0.06) |
| **Non-flush mountable** | | | | | |
| **4 (0.16)** | NO | Pre-cabled (L = 2 m) *(1)* | **XS2M12MA250** | 0.075 | (0.17) |
| | | 1/2"-20UNF connector | **XS2M12MA250K** | 0.025 | (0.06) |
| | NC | Pre-cabled (L = 2 m) *(1)* | **XS2M12MB250** | 0.075 | (0.17) |
| **Ø 18, threaded M18 x 1** | | | | | |
| **Flush mountable** | | | | | |
| **5 (0.20)** | NO | Pre-cabled (L = 2 m) *(1)* | **XS1M18MA250** | 0.120 | (0.26) |
| | | 1/2"-20UNF connector | **XS1M18MA250K** | 0.060 | (0.13) |
| | NC | Pre-cabled (L = 2 m) *(1)* | **XS1M18MB250** | 0.120 | (0.26) |
| | | 1/2"-20UNF connector | **XS1M18MB250K** | 0.060 | (0.13) |
| **Non-flush mountable** | | | | | |
| **8 (0.31)** | NO | Pre-cabled (L = 2 m) *(1)* | **XS2M18MA250** | 0.120 | (0.26) |
| | | 1/2"-20UNF connector | **XS2M18MA250K** | 0.060 | (0.13) |
| | NC | Pre-cabled (L = 2 m) *(1)* | **XS2M18MB250** | 0.120 | (0.26) |
| | | 1/2"-20UNF connector | **XS2M18MB250K** | 0.060 | (0.13) |
| **Ø 30, threaded M30 x 1.5** | | | | | |
| **Flush mountable** | | | | | |
| **10 (0.39)** | NO | Pre-cabled (L = 2 m) *(1)* | **XS1M30MA250** | 0.205 | (0.45) |
| | | 1/2"-20UNF connector | **XS1M30MA250K** | 0.145 | (0.32) |
| | NC | Pre-cabled (L = 2 m) *(1)* | **XS1M30MB250** | 0.205 | (0.45) |
| | | 1/2"-20UNF connector | **XS1M30MB250K** | 0.145 | (0.32) |
| **Non-flush mountable** | | | | | |
| **15 (0.59)** | NO | Pre-cabled (L = 2 m) *(1)* | **XS2M30MA250** | 0.205 | (0.45) |
| | | 1/2"-20UNF connector | **XS2M30MA250K** | 0.145 | (0.32) |
| | NC | Pre-cabled (L = 2 m) *(1)* | **XS2M30MB250** | 0.205 | (0.45) |
| | | 1/2"-20UNF connector | **XS2M30MB250K** | 0.145 | (0.32) |

## Accessories

| Description mm | | Catalog Number | Weight kg | (lb) |
|---|---|---|---|---|
| **Mounting clamps** | Ø 12 | **XSZB112** | 0.006 | (0.01) |
| | Ø 18 | **XSZB118** | 0.010 | (0.02) |
| | Ø 30 | **XSZB130** | 0.020 | (0.04) |

*(1) For a 5 m cable add L1 to the catalog number; for a 10 m cable add L2. Example:*
***XS1M18MA250** becomes **XS1M18MA250L1** with a 5 m cable.*



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# OsiSense® XS
# Inductive proximity sensors
## General purpose
Multi-voltage sensor, cylindrical, flush mountable and non-flush mountable
Two-wire AC or DC, short-circuit protection



## Specifications

| Sensor type | | | XS●M●●M●250K | XS●M●●M●250 |
|---|---|---|---|---|
| **Product certifications** | | | UL, CSA, CE | |
| **Connection** | | | 1/2"-20UNF connector | Pre-cabled, length: 2 m |
| **Operating zone** | Ø 12 flush mountable | mm | **0–1.6 (0–0.06 in.)** | |
| | Ø 12 non-flush mountable | mm | **0–3.2 (0–0.13 in.)** | |
| | Ø 18 flush mountable | mm | **0–4 (0–0.16 in.)** | |
| | Ø 18 non-flush mountable | mm | **0–6.4 (0–0.25 in.)** | |
| | Ø 30 flush mountable | mm | **0–8 (0–0.31 in.)** | |
| | Ø 30 non-flush mountable | mm | **0–12 (0–0.47 in.)** | |
| **Differential travel** | | % | 1–15 of effective sensing distance (Sr) | |
| **Degree of protection** | Conforming to IEC 60529 | | IP 67 | IP 68, double insulation |
| **Storage temperature** | | °C | -40 to +85 (-40 to +185 °F) | |
| **Operating temperature** | | °C | -25 to +70 (-13 to +158 °F) | |
| **Materials** | Case | | Nickel-plated brass | |
| | Cable | | – | PvR 2 x 0.34 mm² (22 AWG) |
| **Vibration resistance** | Conforming to IEC 60068-2-6 | | 25 gn, amplitude ± 2 mm (f = 10 to 55 Hz) | |
| **Shock resistance** | Conforming to IEC 60068-2-27 | | 50 gn, duration 11 ms | |
| **Indicators** | Output state | | Yellow LED, 4 viewing ports at 90° | Yellow LED |
| | Supply on | | – | Green LED (only on Ø 18 and Ø 30) |
| **Rated supply voltage** | | V | ∿ 24–240 (50/60 Hz) or ⎓ 24–210 | |
| **Voltage limits (including ripple)** | | V | ∿ or ⎓ 20–264 | |
| **Switching capacity** | | mA | ∿ 5–300 or ⎓ 5–200 (except Ø 12: ∿ or ⎓ 5–200) with overload and short-circuit protection | |
| **Voltage drop, closed state** | | V | ≤ 5.5 | |
| **Current consumption, no-load** | | mA | – | |
| **Residual current, open state** | | mA | ≤ 1.5 | |
| **Maximum switching frequency** | Ø 12 | Hz | ∿ 25 or ⎓ 4000 | |
| | Ø 18 | Hz | ∿ 25 or ⎓ 2000 | |
| | Ø 30 flush mountable | Hz | ∿ 25 or ⎓ 2000 | |
| | Ø 30 non-flush mountable | Hz | ∿ 25 or ⎓ 1000 | |
| **Delays** | First-up | ms | ≤ 70 | |
| | Response | ms | ≤ 0.2 for Ø 12, ≤ 2 for Ø 18 and Ø 30 | |
| | Recovery | ms | ≤ 0.2 for Ø 12, ≤ 4 for Ø 18, ≤ 5 for Ø 30 flush mountable, ≤ 10 for Ø 30 non-flush mountable | |

## Wiring diagrams

**1/2"-20UNF connector**

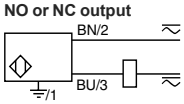



**Pre-cabled**

BU: Blue
BN: Brown

**2-wire ∿ or ⎓**

**NO or NC output**

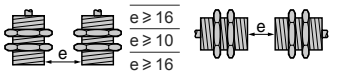



⏚ *: on connector models only.*

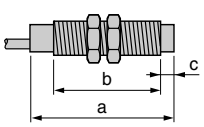
## Setup

**Minimum mounting distances (mm)**

| Sensor | Side by side | Face to face | Facing a metal object | Mounted in a metal support |
|---|---|---|---|---|
| Ø 12 flush mountable | e ≥ 4 | e ≥ 24 | e ≥ 6 | d ≥ 12 h ≥ 0 |
| Ø 12 non-flush mountable | e ≥ 16 | e ≥ 48 | e ≥ 12 | d ≥ 36 h ≥ 8 |
| Ø 18 flush mountable | e ≥ 10 | e ≥ 60 | e ≥ 15 | d ≥ 18 h ≥ 0 |
| Ø 18 non-flush mountable | e ≥ 16 | e ≥ 96 | e ≥ 24 | d ≥ 54 h ≥ 16 |
| Ø 30 flush mountable | e ≥ 20 | e ≥ 120 | e ≥ 30 | d ≥ 30 h ≥ 0 |
| Ø 30 non-flush mountable | e ≥ 60 | e ≥ 180 | e ≥ 45 | d ≥ 90 h ≥ 30 |




## Dimensions (mm)




| Sensor | Flush mountable in metal | | | | Non-flush mountable in metal | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | Pre-cabled | | Connector | | Pre-cabled | | Connector | | |
| | a | b | a | b | a | b | a | b | c |
| Ø 12 | 55 | 47 | 66 | 48 | 54.6 | 42 | 65.6 | 42 | 5 |
| Ø 18 | 60 | 51 | 72 | 51 | 60 | 44 | 72 | 44 | 8 |
| Ø 30 | 60 | 51 | 72 | 51 | 62.6 | 41 | 74.7 | 41 | 13 |



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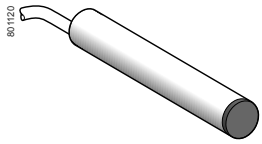
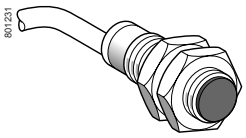
# OsiSense® XS
# Inductive proximity sensors
## General purpose
Cylindrical, metal and plastic, flush mountable and non-flush mountable, 4-wire DC, solid-state NO + NC output

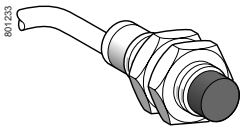




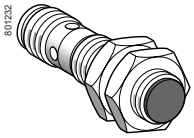

*XS1L06●C410*



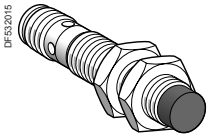

*XS1●●●●C410*



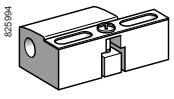

*XS2●●●●C410*




*XS1N●●●C410D*




*XS2N●●●C410D*




*XSZB1●●*

| Sensing distance Sn, mm (in.) | Function | Output | Connection | Catalog Number | Weight kg | (lb) |
|---|---|---|---|---|---|---|
| **Ø 6.5 plain** | | | | | | |
| **Stainless steel case, flush mountable** | | | | | | |
| **1.5 (0.06)** | NO + NC | PNP | Pre-cabled (L = 2 m) *(1)* | **XS1L06PC410** | 0.025 | (0.06) |
| | | NPN | Pre-cabled (L = 2 m) *(1)* | **XS1L06NC410** | 0.025 | (0.06) |
| **Ø 8, threaded M8 x 1** | | | | | | |
| **Stainless steel case, flush mountable** | | | | | | |
| **1.5 (0.06)** | NO + NC | PNP | Pre-cabled (L = 2 m) | **XS1M08PC410** | 0.035 | (0.08) |
| | | | M12 connector | **XS1M08PC410D** | 0.025 | (0.06) |
| | | NPN | Pre-cabled (L = 2 m) | **XS1M08NC410** | 0.035 | (0.08) |
| | | | M12 connector | **XS1M08NC410D** | 0.025 | (0.06) |
| **Stainless steel case, non-flush mountable** | | | | | | |
| **2.5 (0.10)** | NO + NC | PNP | Pre-cabled (L = 2 m) | **XS2M08PC410** | 0.035 | (0.08) |
| | | | M12 connector | **XS2M08PC410D** | 0.025 | (0.06) |
| | | NPN | Pre-cabled (L = 2 m) | **XS2M08NC410** | 0.035 | (0.08) |
| | | | M12 connector | **XS2M08NC410D** | 0.025 | (0.06) |
| **Ø 12, threaded M12 x 1** | | | | | | |
| **Brass case, flush mountable** | | | | | | |
| **2 (0.08)** | NO + NC | PNP | Pre-cabled (L = 2 m) *(1)* | **XS1N12PC410** | 0.070 | (0.15) |
| | | | M12 connector | **XS1N12PC410D** | 0.020 | (0.04) |
| | | NPN | Pre-cabled (L = 2 m) *(1)* | **XS1N12NC410** | 0.070 | (0.15) |
| | | | M12 connector | **XS1N12NC410D** | 0.020 | (0.04) |
| **Brass case, non-flush mountable** *(2)* | | | | | | |
| **4 (0.16)** | NO + NC | PNP | Pre-cabled (L = 2 m) *(1)* | **XS2N12PC410** | 0.070 | (0.15) |
| | | | M12 connector | **XS2N12PC410D** | 0.020 | (0.04) |
| | | NPN | Pre-cabled (L = 2 m) *(1)* | **XS2N12NC410** | 0.070 | (0.15) |
| | | | M12 connector | **XS2N12NC410D** | 0.020 | (0.04) |
| **Ø 18, threaded M18 x 1** | | | | | | |
| **Brass case, flush mountable** | | | | | | |
| **5 (0.20)** | NO + NC | PNP | Pre-cabled (L = 2 m) *(1)* | **XS1N18PC410** | 0.100 | (0.22) |
| | | | M12 connector | **XS1N18PC410D** | 0.040 | (0.09) |
| | | NPN | Pre-cabled (L = 2 m) *(1)* | **XS1N18NC410** | 0.100 | (0.22) |
| | | | M12 connector | **XS1N18NC410D** | 0.040 | (0.09) |
| **Brass case, non-flush mountable** *(2)* | | | | | | |
| **8 (0.31)** | NO + NC | PNP | Pre-cabled (L = 2 m) *(1)* | **XS2N18PC410** | 0.100 | (0.22) |
| | | | M12 connector | **XS2N18PC410D** | 0.040 | (0.09) |
| | | NPN | Pre-cabled (L = 2 m) *(1)* | **XS2N18NC410** | 0.100 | (0.22) |
| | | | M12 connector | **XS2N18NC410D** | 0.040 | (0.09) |
| **Ø 30, threaded M30 x 1.5** | | | | | | |
| **Brass case, flush mountable** | | | | | | |
| **10 (0.39)** | NO + NC | PNP | Pre-cabled (L = 2 m) *(1)* | **XS1N30PC410** | 0.160 | (0.35) |
| | | | M12 connector | **XS1N30PC410D** | 0.100 | (0.22) |
| | | NPN | Pre-cabled (L = 2 m) *(1)* | **XS1N30NC410** | 0.160 | (0.35) |
| | | | M12 connector | **XS1N30NC410D** | 0.100 | (0.22) |
| **Brass case, non-flush mountable** *(2)* | | | | | | |
| **15 (0.59)** | NO + NC | PNP | Pre-cabled (L = 2 m) *(1)* | **XS2N30PC410** | 0.160 | (0.35) |
| | | | M12 connector | **XS2N30PC410D** | 0.100 | (0.22) |
| | | NPN | Pre-cabled (L = 2 m) *(1)* | **XS2N30NC410** | 0.160 | (0.35) |
| | | | M12 connector | **XS2N30NC410D** | 0.100 | (0.22) |

## Accessories

| Description mm | | Catalog Number | Weight kg | (lb) |
|---|---|---|---|---|
| **Mounting clamps** | Ø 8 | **XSZB108** | 0.006 | (0.01) |
| | Ø 12 | **XSZB112** | 0.006 | (0.01) |
| | Ø 18 | **XSZB118** | 0.010 | (0.02) |
| | Ø 30 | **XSZB130** | 0.020 | (0.04) |

*(1) For a 5 m cable add L1 to the catalog number; for a 10 m cable add L2. Example:* ***XS1N12PC410*** *becomes* ***XS1N12PC410L1*** *with a 5 m cable.*

*(2) For a non-flush mountable sensor with a plastic, case, replace 2N by 4P in the catalog number. Example:* ***XS2N12PC410*** *becomes* ***XS4P12PC410*** *with a plastic case.*



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# OsiSense® XS
# Inductive proximity sensors
## General purpose
Cylindrical, metal and plastic, flush mountable and non-flush mountable, 4-wire DC, solid-state NO + NC output



## Specifications

| Sensor type | | | XS●●●●●C410D | XS●●●●●C410 |
|---|---|---|---|---|
| **Product certifications** | | | UL, CSA, CE | |
| **Connection** | | | M12 connector | Pre-cabled, length: 2 m |
| **Operating zone** | Ø 6.5 and Ø 8 flush mtble | **mm** | **0–1.2 (0–0.05 in.)** | |
| | Ø 8 non-flush mountable | **mm** | **0–2 (0–0.08 in.)** | |
| | Ø 12 flush mountable | **mm** | **0–1.6 (0–0.06 in.)** | |
| | Ø 12 non-flush mountable | **mm** | **0–3.2 (0–0.13 in.)** | |
| | Ø 18 flush mountable | **mm** | **0–4 (0–0.16 in.)** | |
| | Ø 18 non-flush mountable | **mm** | **0–6.4 (0–0.25 in.)** | |
| | Ø 30 flush mountable | **mm** | **0–8 (0–0.31 in.)** | |
| | Ø 30 non-flush mountable | **mm** | **0–12 (0–0.47 in.)** | |
| **Differential travel** | | **%** | 1–15 of effective sensing distance (Sr) | |
| **Degree of protection** | Conforming to IEC 60529 | | IP 67 | IP 68, double insulation (except Ø 6.5 and Ø 8: IP 67) |
| **Storage temperature** | | **°C** | -40 to +85 (-40 to +185 °F) | |
| **Operating temperature** | | **°C** | -25 to +70 (-13 to +158 °F) | |
| **Materials** | Case | | Nickel-plated brass for XS1N and XS2N<br>Stainless steel, grade 303, for XS1L06, XS1M08 and XS2M08<br>Plastic, PPS, for XS4 P | |
| | Cable | | – | PvR 4 x 0.34 mm² (22 AWG) except Ø 6.5 and 8: 4 x 0.08 mm² (28 AWG) |
| **Vibration resistance** | Conforming to IEC 60068-2-6 | | 25 gn, amplitude ± 2 mm (f = 10 to 55 Hz) | |
| **Shock resistance** | Conforming to IEC 60068-2-27 | | 50 gn, duration 11 ms | |
| **Output state indication** | | | Yellow LED, 4 viewing ports at 90° | Yellow LED, annular |
| **Rated supply voltage** | | **V** | ⎓ 12–24 with protection against reverse polarity | |
| **Voltage limits (including ripple)** | | **V** | ⎓ 10–36 | |
| **Switching capacity** | | **mA** | ≤ 200 with overload and short-circuit protection | |
| **Voltage drop, closed state** | | **V** | ≤ 2 | |
| **Current consumption, no-load** | | **mA** | ≤ 10 | |
| **Maximum switching frequency** | Ø 6.5, Ø 8 and Ø 12 | **Hz** | 5000 | |
| | Ø 18 | **Hz** | 2000 | |
| | Ø 30 | **Hz** | 1000 | |
| **Delays** | First-up | **ms** | ≤ 5 | |
| | Response | **ms** | ≤ 0.1 for Ø 8 and Ø 12, ≤ 0.15 for Ø 18, ≤ 0.3 for Ø 30 | |
| | Recovery | **ms** | ≤ 0.1 for Ø 8 and Ø 12, ≤ 0.35 for Ø 18, ≤ 0.7 for Ø 30 | |

## Wiring diagrams

**M12 connector**

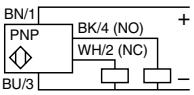



.

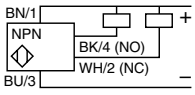
**Pre-cabled**

BU: Blue
BN: Brown
BK: Black
WH: White

**PNP 4-wire**



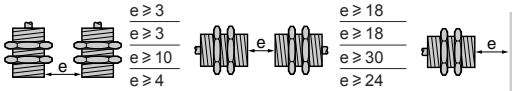

**NPN 4-wire**



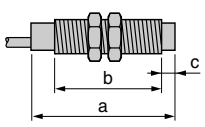

## Setup

**Minimum mounting distances (mm)**

| Sensor | Side by side | Face to face | Facing a metal object | Mounted in a metal support |
|---|---|---|---|---|
| Ø 6.5 flush mountable **XS1L06** | e ≥ 3 | e ≥ 18 | e ≥ 4.5 | d ≥ 6.5 h ≥ 0 |
| Ø 8 flush mountable **XS1M08** | e ≥ 3 | e ≥ 18 | e ≥ 4.5 | d ≥ 8 h ≥ 0 |
| Ø 8 non-flush mountable **XS2M08** | e ≥ 10 | e ≥ 30 | e ≥ 7.5 | d ≥ 24 h ≥ 5 |
| Ø 12 flush mountable **XS1N12** | e ≥ 4 | e ≥ 24 | e ≥ 6 | d ≥ 12 h ≥ 0 |
| Ø 12 non-flush mtble **XS1N12** or **XS4P12** | e ≥ 16 | e ≥ 48 | e ≥ 12 | d ≥ 36 h ≥ 8 |
| Ø 18 flush mountable **XS1N18** | e ≥ 10 | e ≥ 60 | e ≥ 15 | d ≥ 18 h ≥ 0 |
| Ø 18 non-flush mtble **XS2N18** or **XS4P18** | e ≥ 16 | e ≥ 96 | e ≥ 24 | d ≥ 54 h ≥ 16 |
| Ø 30 flush mountable **XS1N30** | e ≥ 20 | e ≥ 120 | e ≥ 30 | d ≥ 30 h ≥ 0 |
| Ø 30 non-flush mtble **XS2N30** or **XS4P30** | e ≥ 60 | e ≥ 180 | e ≥ 45 | d ≥ 90 h ≥ 30 |




## Dimensions (mm)




| Sensor | Flush mountable in metal | | | | Non-flush mountable in metal | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | Pre-cabled | | Connector | | Pre-cabled | | Connector | | |
| | a | b | a | b | a | b | a | b | c |
| Ø 6.5 metal | 50 | 47 | – | – | – | – | – | – | – |
| Ø 8 metal | 50 | 42 | 61 | 42 | 50 | 36 | 61 | 36 | 4 |
| Ø 12 metal | 33 | 25 | 48 | 29 | 37.6 | 25 | 52.6 | 29 | 5 |
| Ø 12 plastic | – | – | – | – | 33 | 25 | 48 | 29 | 0 |
| Ø 18 metal | 36.5 | 28 | 48.6 | 28 | 36.5 | 20 | 48.6 | 20 | 8 |
| Ø 18 plastic | – | – | – | – | 33.5 | 26 | 48 | 29 | 0 |
| Ø 30 metal | 40.6 | 32 | 52.7 | 32 | 40.5 | 19 | 52.6 | 19 | 13 |
| Ø 30 plastic | – | – | – | – | 40.5 | 33 | 50 | 34 | 0 |



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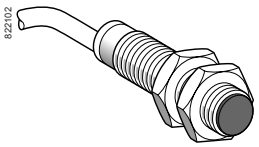
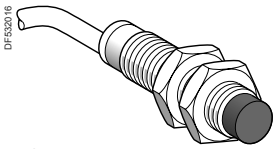
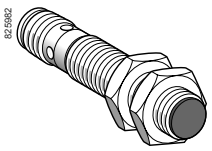
# OsiSense® XS
# Inductive proximity sensors
## General purpose
Cylindrical, metal and plastic, flush and non-flush mountable, 4-wire DC, solid-state PNP + NPN NO/NC programmable output



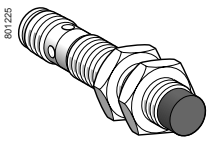

*XS1M●●KP340*
*XS4P●●KP340*



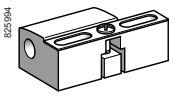

*XS2M●●KP340*




*XS1M●●KP340D*
*XS4P●●KP340D*




*XS2M●●KP340D*




*XSZB1●●*

| Sensing distance Sn, mm (in.) | Function | Output | Connection | Catalog Number | Weight kg | (lb) |
|---|---|---|---|---|---|---|
| **Ø 12, threaded M12 x 1** | | | | | | |
| **Metal case, flush mountable** | | | | | | |
| **2 (0.08)** | NO/NC programmable | PNP + NPN | Pre-cabled (L = 2 m) *(1)* | **XS1M12KP340** | 0.075 | (0.17) |
| | | | M12 connector | **XS1M12KP340D** | 0.025 | (0.06) |
| **Metal case, non-flush mountable** | | | | | | |
| **4 (0.16)** | NO/NC programmable | PNP + NPN | Pre-cabled (L = 2 m) *(1)* | **XS2M12KP340** | 0.075 | (0.17) |
| | | | M12 connector | **XS2M12KP340D** | 0.025 | (0.06) |
| **Plastic case, non-flush mountable** | | | | | | |
| **4 (0.16)** | NO/NC programmable | PNP + NPN | Pre-cabled (L = 2 m) *(1)* | **XS4P12KP340** | 0.075 | (0.17) |
| | | | M12 connector | **XS4P12KP340D** | 0.025 | (0.06) |
| **Ø 18, threaded M18 x 1** | | | | | | |
| **Metal case, flush mountable** | | | | | | |
| **5 (0.20)** | NO/NC programmable | PNP + NPN | Pre-cabled (L = 2 m) *(1)* | **XS1M18KP340** | 0.120 | (0.12) |
| | | | M12 connector | **XS1M18KP340D** | 0.060 | (0.13) |
| **Metal case, non-flush mountable** | | | | | | |
| **8 (0.31)** | NO/NC programmable | PNP + NPN | Pre-cabled (L = 2 m) *(1)* | **XS2M18KP340** | 0.120 | (0.12) |
| | | | M12 connector | **XS2M18KP340D** | 0.060 | (0.13) |
| **Plastic case, non-flush mountable** | | | | | | |
| **8 (0.31)** | NO/NC programmable | PNP + NPN | Pre-cabled (L = 2 m) *(1)* | **XS4P18KP340** | 0.120 | (0.12) |
| | | | M12 connector | **XS4P18KP340D** | 0.060 | (0.13) |
| **Ø 30, threaded M30 x 1.5** | | | | | | |
| **Metal case, flush mountable** | | | | | | |
| **10 (0.39)** | NO/NC programmable | PNP + NPN | Pre-cabled (L = 2 m) *(1)* | **XS1M30KP340** | 0.205 | (0.45) |
| | | | M12 connector | **XS1M30KP340D** | 0.145 | (0.32) |
| **Metal case, non-flush mountable** | | | | | | |
| **15 (0.59)** | NO/NC programmable | PNP + NPN | Pre-cabled (L = 2 m) *(1)* | **XS2M30KP340** | 0.205 | (0.45) |
| | | | M12 connector | **XS2M30KP340D** | 0.145 | (0.32) |
| **Plastic case, non-flush mountable** | | | | | | |
| **15 (0.59)** | NO/NC programmable | PNP + NPN | Pre-cabled (L = 2 m) *(1)* | **XS4P30KP340** | 0.205 | (0.45) |
| | | | M12 connector | **XS4P30KP340D** | 0.145 | (0.32) |

## Accessories

| Description | | Catalog Number | Weight kg | (lb) |
|---|---|---|---|---|
| **Mounting clamps** | Ø 12 mm | **XSZB112** | 0.006 | (0.01) |
| | Ø 18 mm | **XSZB118** | 0.010 | (0.02) |
| | Ø 30 mm | **XSZB130** | 0.020 | (0.02) |

*(1) For a 5 m cable add L1 to the catalog number; for a 10 m cable add L2. Example:*
***XS1M12KP340** becomes **XS1M12KP340L1** with a 5 m cable.*



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# OsiSense® XS
# Inductive proximity sensors
## General purpose
Cylindrical, metal and plastic, flush and non-flush mountable, 4-wire DC, solid-state PNP + NPN NO/NC programmable output



## Specifications

| Sensor type | | | XS●M●●KP340D | XS●M●●KP340 |
|---|---|---|---|---|
| **Product certifications** | | | UL, CSA, CE | |
| **Connection** | | | M12 connector | Pre-cabled, length: 2 m |
| **Operating zone** | Ø 12 flush mountable | mm | **0–1.6 (0–0.06 in.)** | |
| | Ø 12 non-flush mountable | mm | **0–3.2 (0–0.13 in.)** | |
| | Ø 18 flush mountable | mm | **0–4 (0–0.16 in.)** | |
| | Ø 18 non-flush mountable | mm | **0–6.4 (0–0.25 in.)** | |
| | Ø 30 flush mountable | mm | **0–8 (0–0.31 in.)** | |
| | Ø 30 non-flush mountable | mm | **0–12 (0–0.47 in.)** | |
| **Differential travel** | | % | 1–15 of effective sensing distance (Sr) | |
| **Degree of protection** | Conforming to IEC 60529 | | IP 67 | IP 68, double insulation |
| **Storage temperature** | | °C | -40 to +85 (-40 to +185 °F) | |
| **Operating temperature** | | °C | -25 to +70 (-13 to +158 °F) | |
| **Materials** | Case | | Nickel-plated brass for XS1M and XS2M, PPS for XS4P | |
| | Cable | | – | PvR 4 x 0.34 mm² (22 AWG) |
| **Vibration resistance** | Conforming to IEC 60068-2-6 | | 25 gn, amplitude ± 2 mm (f = 10 to 55 Hz) | |
| **Shock resistance** | Conforming to IEC 60068-2-27 | | 50 gn, duration 11 ms | |
| **Output state indication** | | | Yellow LED, 4 viewing ports at 90° | Yellow LED, annular |
| **Rated supply voltage** | | V | ⎓ 12–24 with protection against reverse polarity | |
| **Voltage limits (including ripple)** | | V | ⎓ 10–36 | |
| **Switching capacity** | | mA | ≤ 200 with overload and short-circuit protection | |
| **Voltage drop, closed state** | | V | ≤ 2.6 | |
| **Current consumption, no-load** | | mA | ≤ 10 | |
| **Maximum switching frequency** | Ø 12 | Hz | 5000 | |
| | Ø 18 | Hz | 2000 | |
| | Ø 30 flush mountable | Hz | 1000 | |
| | Ø 30 non-flush mountable | Hz | 1000 | |
| **Delays** | First-up | ms | ≤ 5 | |
| | Response | ms | ≤ 0.1 for Ø 12, ≤ 0.15 for Ø 18, ≤ 0.3 for Ø 30 | |
| | Recovery | ms | ≤ 0.1 for Ø 12, ≤ 0.35 for Ø 18, ≤ 0.7 for Ø 30 | |

## Wiring diagrams

**M12 connector**

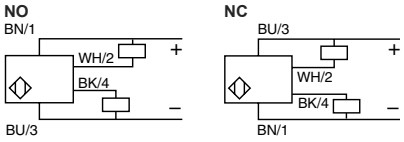



**Pre-cabled**

BU: Blue
BN: Brown
BK: Black
WH: White

**PNP + NPN**

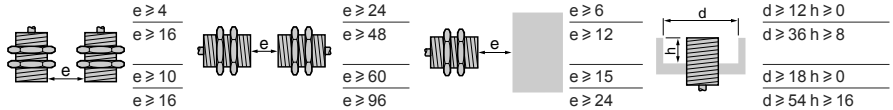
**4-wire programmable, NO or NC output**



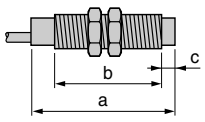

## Setup

**Minimum mounting distances (mm)**

| Sensor | Side by side | Face to face | Facing a metal object | Mounted in a metal support |
|---|---|---|---|---|
| Ø 12 flush mountable **XS1M12** | e ≥ 4 | e ≥ 24 | e ≥ 6 | d ≥ 12 h ≥ 0 |
| Ø 12 non-flush mountable **XS2M12** and **XS4P12** | e ≥ 16 | e ≥ 48 | e ≥ 12 | d ≥ 36 h ≥ 8 |
| Ø 18 flush mountable **XS1M18** | e ≥ 10 | e ≥ 60 | e ≥ 15 | d ≥ 18 h ≥ 0 |
| Ø 18 non-flush mountable **XS2M18** and **XS4P18** | e ≥ 16 | e ≥ 96 | e ≥ 24 | d ≥ 54 h ≥ 16 |
| Ø 30 flush mountable **XS1M30** | e ≥ 20 | e ≥ 120 | e ≥ 30 | d ≥ 30 h ≥ 0 |
| Ø 30 non-flush mountable **XS2M30** and **XS4P30** | e ≥ 60 | e ≥ 180 | e ≥ 45 | d ≥ 90 h ≥ 30 |




## Dimensions (mm)




| Sensor | Flush mountable in metal | | | | Non-flush mountable in metal | | | | |
|---|---|---|---|---|---|---|---|---|---|
| | Pre-cabled | | Connector | | Pre-cabled | | Connector | | |
| | a | b | a | b | a | b | a | b | c |
| Ø 12 metal | 50 | 42 | 61 | 42 | 54.6 | 42 | 65.6 | 42 | 5 |
| Ø 12 plastic | – | – | – | – | 50 | 42 | 61 | 42 | 0 |
| Ø 18 metal | 60 | 51 | 72 | 51 | 60 | 44 | 72 | 44 | 8 |
| Ø 18 plastic | – | – | – | – | 60 | 51 | 70 | 51 | 0 |
| Ø 30 metal | 60 | 51 | 72 | 51 | 62.6 | 41 | 74.7 | 41 | 13 |
| Ø 30 plastic | – | – | – | – | 60 | 51 | 70 | 51 | 0 |



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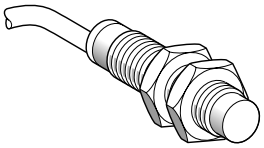
# OsiSense® XS
# Inductive proximity sensors
## Application, food and beverage processing series • Cylindrical, stainless steel, non-flush mountable, three-wire DC, solid-state output

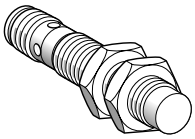


DF520016



*XS2●●SA●●L2*

DF520015



*XS2●●SA●●M12*

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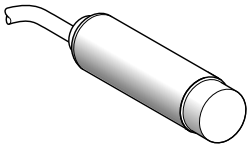

*XS2L2SA●●L2*

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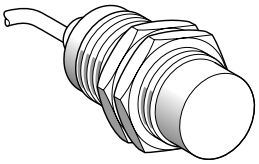


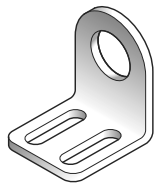
*XS230SA●●L2*

503663



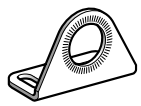
*XUZB2005*

523363



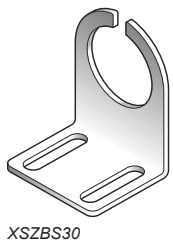
*XSZBS12*

806817



*XUZA118*

523364



*XSZBS30*

### Ø 12, threaded M12 x 1

| Sensing distance Sn, mm (in.) | Function | Output | Connection | Catalog Number | Weight kg | (lb) |
|---|---|---|---|---|---|---|
| **7 (0.28)** | NO | PNP | Pre-cabled (L = 2 m) *(1)* | **XS212SAPAL2** | 0.075 | (0.17) |
| | | | M12 connector | **XS212SAPAM12** | 0.035 | (0.08) |
| | | NPN | Pre-cabled (L = 2 m) *(1)* | **XS212SANAL2** | 0.075 | (0.17) |
| | | | M12 connector | **XS212SANAM12** | 0.035 | (0.08) |

### Ø 18, threaded M18 x 1

| Sensing distance Sn, mm (in.) | Function | Output | Connection | Catalog Number | Weight kg | (lb) |
|---|---|---|---|---|---|---|
| **12 (0.47)** | NO | PNP | Pre-cabled (L = 2 m) *(1)* | **XS218SAPAL2** | 0.120 | (0.26) |
| | | | M12 connector | **XS218SAPAM12** | 0.060 | (0.13) |
| | | NPN | Pre-cabled (L = 2 m) *(1)* | **XS218SANAL2** | 0.120 | (0.26) |
| | | | M12 connector | **XS218SANAM12** | 0.060 | (0.13) |

### Ø 18, plain

| Sensing distance Sn, mm (in.) | Function | Output | Connection | Catalog Number | Weight kg | (lb) |
|---|---|---|---|---|---|---|
| **12 (0.47)** | NO | PNP | Pre-cabled (L = 2 m) *(1)* | **XS2L2SAPAL2** | 0.120 | (0.26) |
| | | | M12 connector | **XS2L2SAPAM12** | 0.060 | (0.13) |
| | | NPN | Pre-cabled (L = 2 m) *(1)* | **XS2L2SANAL2** | 0.120 | (0.26) |
| | | | M12 connector | **XS2L2SANAM12** | 0.060 | (0.13) |

### Ø 30, threaded M30 x 1.5

| Sensing distance Sn, mm (in.) | Function | Output | Connection | Catalog Number | Weight kg | (lb) |
|---|---|---|---|---|---|---|
| **22 (0.87)** | NO | PNP | Pre-cabled (L = 2 m) *(1)* | **XS230SAPAL2** | 0.205 | (0.45) |
| | | | M12 connector | **XS230SAPAM12** | 0.145 | (0.32) |
| | | NPN | Pre-cabled (L = 2 m) *(1)* | **XS230SANAL2** | 0.205 | (0.45) |
| | | | M12 connector | **XS230SANAM12** | 0.145 | (0.32) |

### Accessories

| Description | For use with | Catalog Number | Weight kg | (lb) |
|---|---|---|---|---|
| **Plastic mounting clamp,** 24.1 mm centers, with locking screw | Ø 18 sensor, plain case | **XUZB2005** | 0.007 | (0.02) |
| **Stainless steel mounting bracket** | Ø 12 sensor | **XSZBS12** | 0.060 | (0.13) |
| | Ø 18 sensor | **XUZA118** | 0.045 | (0.10) |
| | Ø 30 sensor | **XSZBS30** | 0.080 | (0.18) |

### Connecting cables *(2)*

| Description | Type | Length m | Catalog Number | Weight kg | (lb) |
|---|---|---|---|---|---|
| **Pre-wired M12 connectors** Female, 4-pin, stainless steel clamping ring | Straight | 2 | **XZCPA1141L2** | 0.090 | (0.20) |
| | | 5 | **XZCPA1141L5** | 0.210 | (0.46) |
| | | 10 | **XZCPA1141L10** | 0.410 | (0.90) |
| | Elbowed | 2 | **XZCPA1241L2** | 0.090 | (0.20) |
| | | 5 | **XZCPA1241L5** | 0.210 | (0.46) |
| | | 10 | **XZCPA1241L10** | 0.410 | (0.90) |
| **M12 jumper cable** Male, 3-pin, stainless steel clamping ring | Straight | 2 | **XZCRA151140A2** | 0.095 | (0.21) |
| | | 5 | **XZCRA151140A5** | 0.200 | (0.44) |

*(1) For a 5 m cable replace L2 wi**th** L5; for a 10 m cable replace L2 by **L10**.*
*Example: **XS212SAPAL2** becomes **XS212SAPAL5** with a 5 m cable.*
*(2) For further information, see Machine Cabling section.*



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# OsiSense® XS
# Inductive proximity sensors
Application, food and beverage processing series • Cylindrical, stainless steel, non-flush mountable, three-wire DC, solid-state output



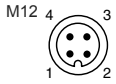
## Specifications

| Sensor type | | | XS2●●SA●●M12 | XS2●●SA●●L2 |
|---|---|---|---|---|
| **Product certifications/approvals** | | | UL, CSA, CE | |
| **Connection** | Connector | | M12 | – |
| | Pre-cabled | | – | Length: 2 m |
| **Operating zone** | Ø 12 | **mm** | **0–5.6 (0–0.22 in.)** | |
| | Ø 18 | **mm** | **0–9.6 (0– 0.38 in.)** | |
| | Ø 30 | **mm** | **0–17.6 (0–0.69 in.)** | |
| **Differential travel** | | **%** | 1–15 of effective sensing distance (Sr) | |
| **Degree of protection** | Conforming to IEC 60529 | | IP 67 | IP 68, double insulation ⧈ |
| | DIN 40050 | | IP 69K | |
| **Storage temperature** | | **°C** | -40 to +85 (-40 to +185 °F)*(1)* | |
| **Operating temperature** | | **°C** | -25 to +85 (-13 to +185 °F) | |
| **Materials** | Case | | Stainless steel, grade 316 L | |
| | Cable | | – | Non-poisonous PVC, 3 x 0.34 mm² (22 AWG) |
| **Vibration resistance** | Conforming to IEC 60068-2-6 | | 25 gn, amplitude ± 2 mm (f = 10 to 55 Hz) | |
| **Shock resistance** | Conforming to IEC 60068-2-27 | | 50 gn, duration 11 ms | |
| **Output state indication** | | | Yellow LED: 4 viewing ports at 90° | Yellow LED: annular |
| **Rated supply voltage** | | **V** | ⎓ 12–24 with protection against reverse polarity | |
| **Voltage limits (including ripple)** | | **V** | ⎓ 10–36 | |
| **Switching capacity** | | **mA** | ⩽ 200 with overload and short-circuit protection | |
| **Voltage drop, closed state** | | **V** | ⩽ 2 | |
| **Current consumption, no-load** | | **mA** | ⩽ 10 | |
| **Maximum switching frequency** | **XS212SA●●●●** | **Hz** | 2500 | |
| | **XS218SA●●●●** and **XS2L2●●●●** | **Hz** | 1000 | |
| | **XS230SA●●●●** | **Hz** | 500 | |
| **Delays** | First-up | **ms** | ⩽ 10 | |
| | Response | **ms** | ⩽ 0.2 Ø 12, ⩽ 0.3 Ø 18, ⩽ 0.6 Ø 30 | |
| | Recovery | **ms** | ⩽ 0.2 Ø 12, ⩽ 0.7 Ø 18, ⩽ 1.4 Ø 30 | |

*(1) + 100 °C (+212 °F) for cleaning and sterilization phases while not in service.*

## Wiring diagrams

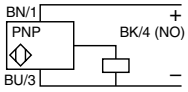
**Connector**



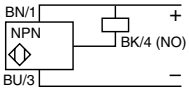

**Pre-cabled**

BU: Blue
BN: Brown
BK: Black

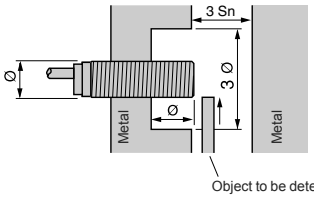
**PNP**



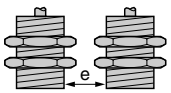

**NPN**

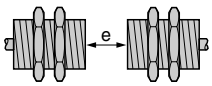


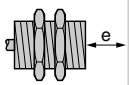

## Setup




**Minimum mounting distances (mm)**



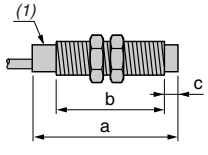




| | Side by side | Face to face | Facing a metal object |
|---|---|---|---|
| Ø 12 | e ⩾ 48 | e ⩾ 84 | e ⩾ 21 |
| Ø 18 | e ⩾ 72 | e ⩾ 144 | e ⩾ 36 |
| Ø 30 | e ⩾ 120 | e ⩾ 264 | e ⩾ 66 |

## Dimensions (mm)

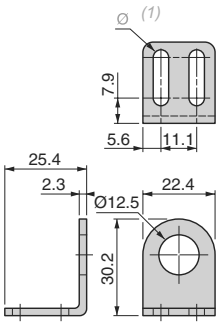
**XS2**



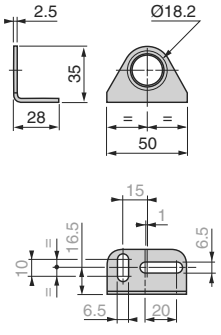

*(1) LED*

| XS2 | Pre-cabled (mm) a | b | Connector (mm) a | b | c |
|---|---|---|---|---|---|
| Ø 12 | 54.5 | 38 | 61 | 37 | 5 |
| Ø 18 | 60 | 40 | 70 | 42 | 8 |
| Ø 30 | 62.5 | 41 | 70 | 36 | 13 |

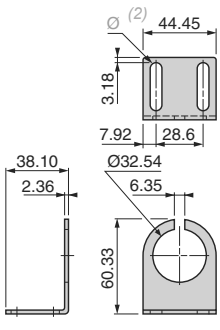
**XSZBS12**




**XUZA118**




**XSZBS30**




*(1) Ø: 2 elongated holes Ø 4.8 x 12.7* *(2) Ø: 2 elongated holes Ø 7.14 x 29.36*



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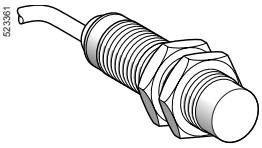
# OsiSense® XS
# Inductive proximity sensors
## Application, food and beverage processing series • Cylindrical, stainless steel, non-flush mountable, two-wire AC or DC

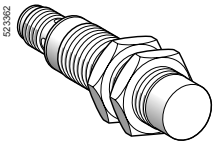


523361



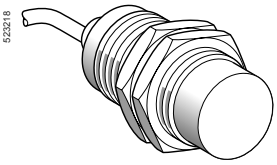
*XS218SAM●L2*

523362



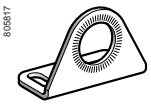
*XS218SAM●U20*

522218



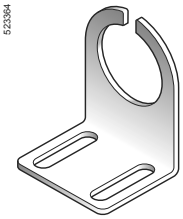
*XS230SAM●L2*

805817



*XUZA118*

523364



*XSZBS30*

### Ø 18, threaded M18 x 1

| Sensing distance Sn, mm (in.) | Function | Connection | Catalog Number | Weight kg | (lb) |
|---|---|---|---|---|---|
| **12 (0.47)** | NO | Pre-cabled (L = 2 m) *(1)* | **XS218SAMAL2** | 0.120 | (0.26) |
| | | 1/2"-20UNF connector | **XS218SAMAU20** | 0.060 | (0.13) |

### Ø 30, threaded M30 x 1.5

| Sensing distance Sn, mm (in.) | Function | Connection | Catalog Number | Weight kg | (lb) |
|---|---|---|---|---|---|
| **22 (0.87)** | NO | Pre-cabled (L = 2 m) *(1)* | **XS230SAMAL2** | 0.205 | (0.45) |
| | | 1/2"-20UNF connector | **XS230SAMAU20** | 0.145 | (0.32) |

### Connecting cables *(2)*

| Description | Type | Length m | Catalog Number | Weight kg | (lb) |
|---|---|---|---|---|---|
| **Pre-wired connectors** 1/2"-20UNF 3-pin female, stainless steel clamping ring | Straight | 5 | **XZCPA1865L5** | 0.210 | (0.46) |
| | | 10 | **XZCPA1865L10** | 0.410 | (0.90) |
| | Elbowed | 5 | **XZCPA1965L5** | 0.250 | (0.55) |
| | | 10 | **XZCPA1965L10** | 0.485 | (1.07) |

### Accessories

| Description | For use with | Catalog Number | Weight kg | (lb) |
|---|---|---|---|---|
| **Stainless steel mounting bracket** | Ø 18 sensor | **XUZA118** | 0.045 | (0.10) |
| | Ø 30 sensor | **XSZBS30** | 0.080 | (0.18) |

*(1) For a 5 m cable replace L2 wi**th** L5; for a 10 m cable replace L2 by **L10**.*
*Example: **XS218SAMAL2** becomes **XS218SAMAL5** with a 5 m cable.*



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# OsiSense® XS
# Inductive proximity sensors
Application, food and beverage processing series • Cylindrical, stainless steel, non-flush mountable, two-wire AC or DC



## Specifications

| Sensor type | | | XS2●●SAM●U20 | XS2●●SAM●L2 |
|---|---|---|---|---|
| **Product certifications/approvals** | | | UL, CSA, CE | |
| **Connection** | Connector | | 1/2"-20UNF | – |
| | Pre-cabled | | – | Length: 2 m |
| **Operating zone** | Ø 18 | **mm** | **0–9.6 (0–0.38)** | |
| | Ø 30 | **mm** | **0–17.6 (0–0.69)** | |
| **Differential travel** | | **%** | 1–15 of effective sensing distance (Sr) | |
| **Degree of protection** | Conforming to IEC 60529 | | IP 67 | IP 68, double insulation ⧈ |
| | DIN 40050 | | IP 69K | |
| **Storage temperature** | | **°C** | -40 to +85 (-40 to +185 °F) *(1)* | |
| **Operating temperature** | | **°C** | -25 to +85 (-13 to +185 °F) | |
| **Materials** | Case | | Stainless steel, grade 316 L | |
| | Cable | | – | Non-poisonous PVC, 2 x 0.34 mm² (22 AWG) |
| **Vibration resistance** | Conforming to IEC 60068-2-6 | | 25 gn, amplitude ± 2 mm (f = 10 to 55 Hz) | |
| **Shock resistance** | Conforming to IEC 60068-2-27 | | 50 gn, duration 11 ms | |
| **Output state indication** | | | Yellow LED: 4 viewing ports at 90° | Yellow LED: annular |
| **Rated supply voltage** | | **V** | ∿ or ⎓ 24–240 (∿ 50/60 Hz) | |
| **Voltage limits (including ripple)** | | **V** | ∿ or ⎓ 20–264 | |
| **Switching capacity** | | **mA** | ∿ 50–300 or ⎓ 5–200 *(2)* | |
| **Voltage drop, closed state** | | **V** | ≤ 5.5 | |
| **Residual current, open state** | | **mA** | ≤ 0.8 | |
| **Maximum switching frequency** | **XS218SAM●●●** | **Hz** | ∿ 25 or ⎓ 1000 | |
| | **XS230SAM●●●** | **Hz** | ∿ 25 or ⎓ 300 | |
| **Delays** | First-up | **ms** | ≤ 30 | |
| | Response | **ms** | ≤ 0.5 | |
| | Recovery | **ms** | ≤ 0.5 **XS218SAM●●●**, ≤ 2 **XS230SAM●●●** | |

*(1) + 100 °C (+212 °F) for cleaning and sterilization processes while not in service.*
*(2) A 0.4 A fast-acting fuse must be connected in series with the load.*

## Wiring diagrams

**Connector**

1/2"-20UNF



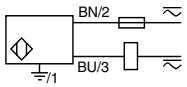

AC/DC: 2
⏚ : 1
AC/DC: 3

**Pre-cabled**

BU: Blue
BN: Brown

**2-wire ∿ or ⎓**

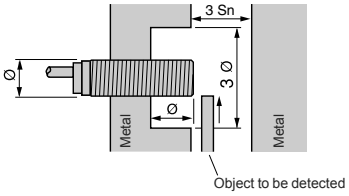
**NO output**

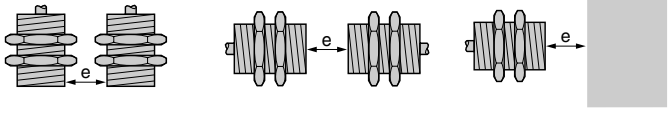



⏚: *on connector models only*

## Setup

**Minimum mounting distances (mm)**

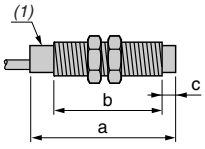



| | Side by side | Face to face | Facing a metal object |
|---|---|---|---|
| Ø 18 | e ≥ 72 | e ≥ 144 | e ≥ 36 |
| Ø 30 | e ≥ 120 | e ≥ 264 | e ≥ 66 |

## Dimensions (mm)

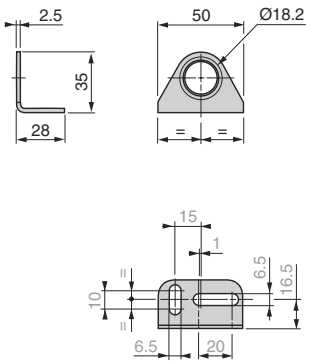
**XS2**



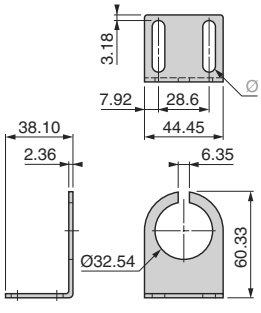

*(1) LED*

| XS2 | Pre-cabled (mm) a | Pre-cabled (mm) b | Connector (mm) a | Connector (mm) b | Connector (mm) c |
|---|---|---|---|---|---|
| Ø 18 | 60 | 40 | 72 | 44 | 8 |
| Ø 30 | 62.5 | 41 | 74 | 40 | 13 |

**XSZA118**




**XSZBS30**




*Ø: 2 elongated holes Ø 7.14 x 29.36*



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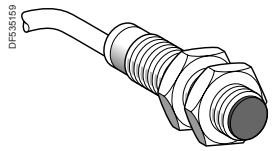
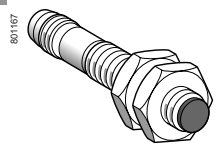
# OsiSense® XS
# Inductive proximity sensors

Application, food and beverage processing
series • Cylindrical, plastic, non-flush mountable
Three-wire DC, solid-state output

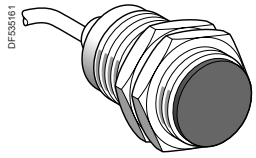



*XS2●●AA●●L2*

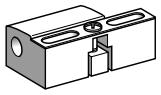





*XS2●●AA●●M12*




*XS230AA●●L2*



*XSZB●●●*

## Ø 12, threaded M12 x 1

| Sensing distance Sn, mm (in.) | Function | Output | Connection | Catalog Number | Weight kg | (lb) |
|---|---|---|---|---|---|---|
| **7 (0.28)** | NO | PNP | Pre-cabled (L = 2 m) *(1)* | **XS212AAPAL2** | 0.065 | (0.14) |
| | | | M12 connector | **XS212AAPAM12** | 0.030 | (0.07) |
| | | NPN | Pre-cabled (L = 2 m) *(1)* | **XS212AANAL2** | 0.065 | (0.14) |
| | | | M12 connector | **XS212AANAM12** | 0.030 | (0.07) |

## Ø 18, threaded M18 x 1

| Sensing distance Sn, mm (in.) | Function | Output | Connection | Catalog Number | Weight kg | (lb) |
|---|---|---|---|---|---|---|
| **12 (0.47)** | NO | PNP | Pre-cabled (L = 2 m) *(1)* | **XS218AAPAL2** | 0.100 | (0.22) |
| | | | M12 connector | **XS218AAPAM12** | 0.040 | (0.09) |
| | | NPN | Pre-cabled (L = 2 m) *(1)* | **XS218AANAL2** | 0.100 | (0.22) |
| | | | M12 connector | **XS218AANAM12** | 0.040 | (0.09) |

## Ø 30, threaded M30 x 1.5

| Sensing distance Sn, mm (in.) | Function | Output | Connection | Catalog Number | Weight kg | (lb) |
|---|---|---|---|---|---|---|
| **22 (0.87)** | NO | PNP | Pre-cabled (L = 2 m) *(1)* | **XS230AAPAL2** | 0.140 | (0.31) |
| | | | M12 connector | **XS230AAPAM12** | 0.080 | (1.76) |
| | | NPN | Pre-cabled (L = 2 m) *(1)* | **XS230AANAL2** | 0.140 | (0.31) |
| | | | M12 connector | **XS230AANAM12** | 0.080 | (1.76) |

## Accessories

| Description | | Catalog Number | Weight kg | (lb) |
|---|---|---|---|---|
| **Mounting clamps** | Ø 12 | **XSZB112** | 0.006 | (0.01) |
| | Ø 18 | **XSZB118** | 0.010 | (0.02) |
| | Ø 30 | **XSZB130** | 0.020 | (0.04) |

## Connecting cables

| Description | Type | Length m | Catalog Number | Weight kg | (lb) |
|---|---|---|---|---|---|
| **Pre-wired M12 connectors** Female, 4-pin, stainless steel clamping ring | Straight | 2 | **XZCPA1141L2** | 0.090 | (0.20) |
| | | 5 | **XZCPA1141L5** | 0.190 | (0.42) |
| | | 10 | **XZCPA1141L10** | 0.370 | (0.82) |
| | Elbowed | 2 | **XZCPA1241L2** | 0.090 | (0.20) |
| | | 5 | **XZCPA1241L5** | 0.190 | (0.42) |
| | | 10 | **XZCPA1241L10** | 0.370 | (0.82) |
| **M12 jumper cable** Male, 3-pin, stainless steel clamping ring | Straight | 2 | **XZCRA151140A2** | 0.090 | (0.20) |
| | | 5 | **XZCRA151140A5** | 0.190 | (0.42) |

*(1) For a 5 m cable replace L2 wi**th** L5; for a 10 m cable replace L2 by **L10**.*
*Example: **XS212AAPAL2** becomes **XS212AAPAL5** with a 5 m cable.*



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# OsiSense® XS
# Inductive proximity sensors
Application, food and beverage processing
series • Cylindrical, plastic, non-flush mountable
Three-wire DC, solid-state output



## Specifications

| Sensor type | | | XS2●●AA●●M12 | XS2●●AA●●L2 |
|---|---|---|---|---|
| Product certifications/approvals | | | UL, CSA, CE | |
| Connection | Connector | | M12 | – |
| | Pre-cabled | | – | Length: 2 m |
| Operating zone | Ø 12 | mm | 0–5.6 (0–0.22 in.) | |
| | Ø 18 | mm | 0–9.6 (0–0.38 in.) | |
| | Ø 30 | mm | 0–17.6 (0–0.69 in.) | |
| Differential travel | | % | 1–15 of effective sensing distance (Sr) | |
| Degree of protection | Conforming to IEC 60529 | | IP 67 | IP 68, double insulation ⧈ |
| | DIN 40050 | | IP 69K | |
| Storage temperature | | °C | -40 to +85 (-40 to +185 °F) | |
| Operating temperature | | °C | -25 to +85 (-13 to + 185 °F) | |
| Materials | Case | | PPS | |
| | Cable | | – | PvR and 3 x 0.34 mm² (24 AWG) |
| Vibration resistance | Conforming to IEC 60068-2-6 | | 25 gn, amplitude ± 2 mm (f = 10 to 55 Hz) | |
| Shock resistance | Conforming to IEC 60068-2-27 | | 50 gn, duration 11 ms | |
| Output state indication | | | Yellow LED: annular | |
| Rated supply voltage | | Vdc | 12–48 for T - 25 to + 85 °C (-13 to + 185 °F) | |
| Voltage limits (including ripple) | | Vdc | 10–58 for T - 25 to + 85 °C (-13 to +185 °F) | |
| Switching capacity | | mA | ≤ 200 with overload and short-circuit protection | |
| Voltage drop, closed state | | V | ≤ 2 | |
| Current consumption, no-load | | mA | ≤ 10 | |
| Maximum switching frequency | XS212AA●●●● | Hz | 2500 | |
| | XS218AA●●●● | Hz | 1000 | |
| | XS230AA●●●● | Hz | 500 | |
| Delays | First-up | ms | ≤ 10 | |
| | Response | ms | ≤ 0.2 Ø 12, ≤ 0.3 Ø 18, ≤ 0.6 Ø 30 | |
| | Recovery | ms | ≤ 0.2 Ø 12, ≤ 0.7 Ø 18, ≤ 1.4 Ø 30 | |

## Wiring diagrams

**Connector**

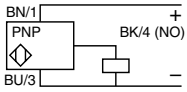
M12



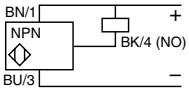

**Pre-cabled**

BU: Blue
BN: Brown
BK: Black

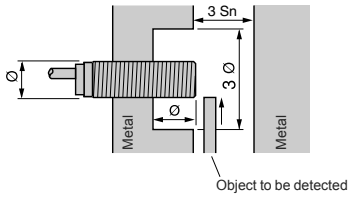
**PNP**



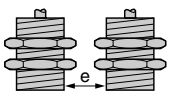

**NPN**

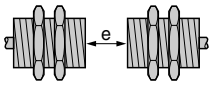


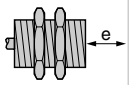

## Setup




**Minimum mounting distances (mm)**

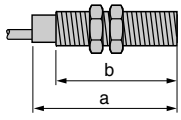



| | Side by side | Face to face | Facing a metal object |
|---|---|---|---|
| Ø 12 | e ≥ 48 | e ≥ 84 | e ≥ 21 |
| Ø 18 | e ≥ 72 | e ≥ 144 | e ≥ 36 |
| Ø 30 | e ≥ 120 | e ≥ 264 | e ≥ 66 |

## Dimensions (mm)




**XS2**

| XS2 | Pre-cabled (mm) a | Pre-cabled (mm) b | Connector (mm) a | Connector (mm) b |
|---|---|---|---|---|
| Ø 12 | 50 | 42 | 61 | 43 |
| Ø 18 | 60 | 51 | 70 | 52 |
| Ø 30 | 60 | 51 | 70 | 52 |



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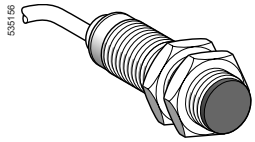
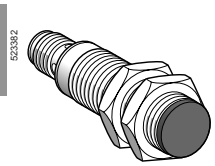
# OsiSense® XS
# Inductive proximity sensors
## Application, food and beverage processing
## series • Cylindrical, plastic, non-flush mountable
## Two-wire AC or DC

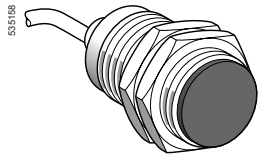



*XS2●●AAM●L2*

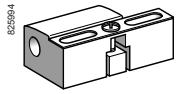





*XS2●●AAM●U20*




*XS230AAM●L2*




*XSZB1●●*

### Ø 18, threaded M18 x 1

| Sensing distance Sn, mm (in.) | Function | Connection | Catalog Number | Weight kg | (lb) |
|---|---|---|---|---|---|
| **12 (0.47)** | NO | Pre-cabled (L = 2 m) *(1)* | **XS218AAMAL2** | 0.100 | (0.22) |
| | | 1/2"-20UNF connector | **XS218AAMAU20** | 0.040 | (0.09) |

### Ø 30, threaded M30 x 1.5

| Sensing distance Sn, mm (in.) | Function | Connection | Catalog Number | Weight kg | (lb) |
|---|---|---|---|---|---|
| **22 (0.87)** | NO | Pre-cabled (L = 2 m) *(1)* | **XS230AAMAL2** | 0.140 | (0.31) |
| | | 1/2"-20UNF connector | **XS230AAMAU20** | 0.080 | (0.18) |

### Accessories

| Description | | Catalog Number | Weight kg | (lb) |
|---|---|---|---|---|
| **Mounting clamps** | Ø 18 | **XSZB118** | 0.010 | (0.02) |
| | Ø 30 | **XSZB130** | 0.020 | (0.04) |

### Connecting cables

| Description | Type | Length m | Catalog Number | Weight kg | (lb) |
|---|---|---|---|---|---|
| **Pre-wired connectors** 1/2"-20UNF 3-pin female, stainless steel 316 L clamping ring | Straight | 5 | **XZCPA1865L5** | 0.180 | (0.40) |
| | | 10 | **XZCPA1865L10** | 0.350 | (0.77) |
| | Elbowed | 5 | **XZCPA1965L5** | 0.180 | (0.40) |
| | | 10 | **XZCPA1965L10** | 0.350 | (0.77) |

*(1) For a 5 m cable replace L2 wi**th** L5; for a 10 m cable replace L2 by **L10**.*
*Example: **XS218AAMAL2** becomes **XS218AAMAL5** with a 5 m cable..*



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# OsiSense® XS
# Inductive proximity sensors
XS Application, food and beverage processing series • Cylindrical, plastic, non-flush mountable
Two-wire AC or DC



## Specifications

| Sensor type | | | XS2●●AAM●U20 | XS2●●AAM●L2 |
|---|---|---|---|---|
| **Product certifications/approvals** | | | UL, CSA, CE | |
| **Connection** | Connector | | 1/2"-20UNF | – |
| | Pre-cabled | | – | Length: 2 m |
| **Operating zone** | Ø 18 | **mm** | **0–9.6** | |
| | Ø 30 | **mm** | **0–17.6** | |
| **Differential travel** | | **%** | 1–15 of effective sensing distance (Sr) | |
| **Degree of protection** | Conforming to IEC 60529 | | IP 67 | IP 68, double insulation ⧈ |
| | DIN 40050 | | IP 69K | |
| **Storage temperature** | | **°C** | -40 to +85 (-40 to 185 °F) | |
| **Operating temperature** | | **°C** | -25 to +85 (-13 to 185 °F) | |
| **Materials** | Case | | PPS | |
| | Cable | | – | PvR and 2 x 0.34 mm² (24 AWG) |
| **Vibration resistance** | Conforming to IEC 60068-2-6 | | 25 gn, amplitude ± 2 mm (f = 10 to 55 Hz) | |
| **Shock resistance** | Conforming to IEC 60068-2-27 | | 50 gn, duration 11 ms | |
| **Output state indication** | | | Yellow LED: annular | |
| **Rated supply voltage** | | **V** | ∼ or ⎓ 24–240 (∼ 50/60 Hz) | |
| **Voltage limits (including ripple)** | | **V** | ∼ or ⎓ 200264 | |
| **Switching capacity** | | **mA** | ∼ 5–300 or ⎓ 5–200 *(1)* | |
| **Voltage drop, closed state** | | **V** | ≤ 5.5 | |
| **Residual current, open state** | | **mA** | ≤ 0.8 | |
| **Maximum switching frequency** | **XS218AAM●●●** | **Hz** | ∼ 25 or ⎓ 1000 | |
| | **XS230AAM●●●** | **Hz** | ∼ 25 or ⎓ 300 | |
| **Delays** | First-up | **ms** | ≤ 30 | |
| | Response | **ms** | ≤ 0.5 | |
| | Recovery | **ms** | ≤ 0.5 **XS218AAM●●●**, ≤ 2 **XS230AAM●●●** | |

*(1) A 0.4 A fast-acting fuse must be connected in series with the load.*

## Wiring diagrams

**Connector**

1/2"-20UNF



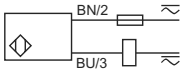

⎓: 2
∼: 3

**Pre-cabled**

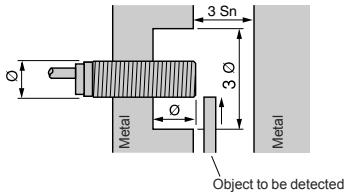
BU: Blue
BN: Brown

**2-wire ∼ or ⎓**

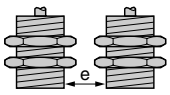
**NO output**

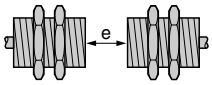


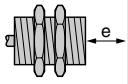

## Setup




**Minimum mounting distances (mm)**



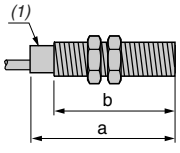




| | Side by side | Face to face | Facing a metal object |
|---|---|---|---|
| Ø 18 | e ≥ 72 | e ≥ 144 | e ≥ 36 |
| Ø 30 | e ≥ 120 | e ≥ 264 | e ≥ 66 |

## Dimensions (mm)

**XS2**




*(1) LED*

| | Pre-cabled (mm) | | Connector (mm) | |
|---|---|---|---|---|
| **XS2** | **a** | **b** | **a** | **b** |
| Ø 18 | 60 | 51 | 70 | 52 |
| Ø 30 | 60 | 51 | 70 | 52 |



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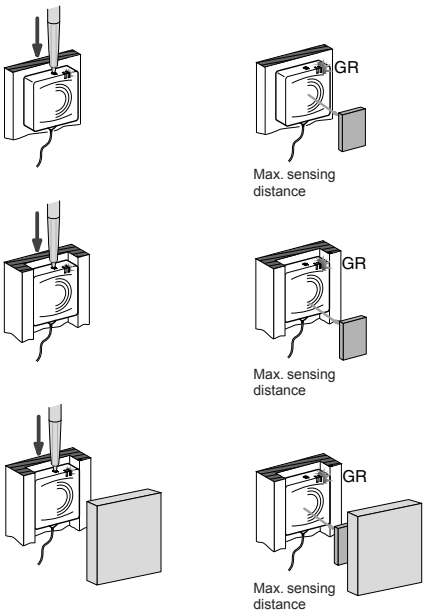
# OsiSense® XS
# Inductive proximity sensors
## Flush mountable using teach mode






## Operating principle

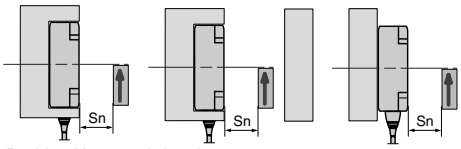
Schneider Electric's flush mountable sensors using teach mode offer simplicity through innovation.

■ A single product enables flush mounting using teach mode and meets all the requirements for inductive sensing of metal objects.
Simply press the "Teach mode" button, and the sensor automatically acquires optimum configuration for all sensing, flush mounting and environment requirements.

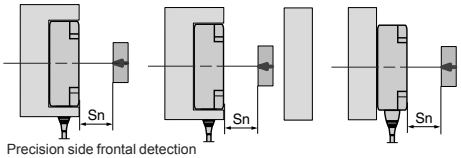
■ Other advantages of flush mountable sensors using teach mode
□ Increased performance:
- sensing distance optimized regardless of the mounting method, object, environment or background,
- suitable for all metal environments.

□ Simplified use provided by:
- the flush mountability using teach mode technology, associated with the availability of the flattest and most compact sensors on the market, simplifies integration in the machine and limits the risks of mechanical damage,
- mechanical adjustments no longer necessary due to teach mode.

□ Lower costs due to:
- the elimination of adjustment times and complex supports
- the elimination of flush mountable and non-flush mountable versions, which decreases the number of catalog numbers,
- much easier and much quicker product selection.



Precision side approach detection



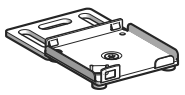
Precision side frontal detection

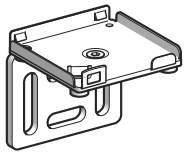
## Precision position detection

All flush mountable inductive proximity sensors using teach mode benefit from ultra-precise adjustment, which is very quick regardless of the metal environment.

■ Precision side approach detection makes it possible to accurately define the distance at which the object will be detected as it passes the sensor.
On flush mountable sensors using teach mode, the desired detection position can be stored in memory by simply pressing the teach button.

■ Precision frontal approach detection makes it possible to accurately define the distance at which the object will be detected as it approaches the sensor.
On flush mountable sensors using teach mode, the desired detection position can be stored in memory by simply pressing the teach button.





## Mounting accessories

Schneider Electric offers a complete, inexpensive range of mounting accessories (clamps, plates, brackets, etc.) that provide solutions for all installation problems.

■ Mounting kits for quick installation or replacement of sensors

■ No adjustment is required. Simple clip-in enables the sensor to be mounted into position and ready for operation.



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# OsiSense® XS
# Inductive proximity sensors
## Flush mountable using teach mode



XS8E1A1

XS8C1A1

XS8D1A1

| Block type | | | | |
|---|---|---|---|---|
| **Dimensions (mm)** | | 26 x 26 x 13 | 40 x 40 x 15 | 80 x 80 x 26 |
| **Sensing distance mm (in.)** | Flush mounted use | 0–10 (0–0.39) | 0–15 (0–0.59) | 0–40 (0–1.57) |
| | Non-flush mounted use | 0–15 (0–059) | 0–25 (0–0.98) | 0–60 (0–2.36) |
| **Sensor type** | | **XS8E1A1** | **XS8C1A1** | **XS8D1A1** |
| **Page** | | 76 | | |



XS612B2

XS618B2

XS630B2

| Cylindrical type | | | | |
|---|---|---|---|---|
| **Dimensions (mm)** | | ø12 | ø18 | ø30 |
| **Sensing distance (mm)** | Flush mounted use | 0–3.4 (0–0.13) | 0–6 (0–0.24) | 0–11 (0–0.43) |
| | Non-flush mounted use | 0–5 (0–0.20) | 0–9 (0–0.35) | 0–18 (0–0.71) |
| **Sensor type** | | **XS612B2** | **XS618B2** | **XS630B2** |
| **Page** | | 74 | | |

2



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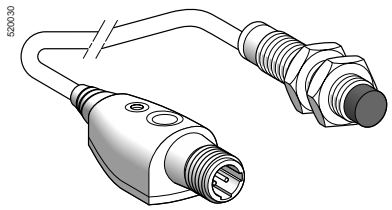
# OsiSense® XS
# Inductive proximity sensors
## Application
## Adjustable range sensors
Cylindrical, flush mountable and non-flush mountable
Three-wire DC, solid-state output




*XS6●●B2●●L01M12*

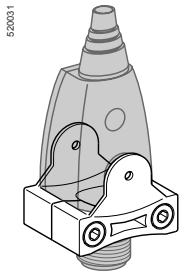


### Ø 12, threaded M12 x 1

| Sensing distance Sn, mm (in.) | Function | Output | Connection | Catalog Number | Weight kg | (lb) |
|---|---|---|---|---|---|---|
| **5 (0.20)** | NO | PNP | Remote M12 connector on 0.15 m pigtail connector | **XS612B2PAL01M12** | 0.100 | (0.22) |
| | | NPN | Remote M12 connector on 0.15 m pigtail connector | **XS612B2NAL01M12** | 0.100 | (0.22) |
| | NC | PNP | Remote M12 connector on 0.15 m pigtail connector | **XS612B2PBL01M12** | 0.100 | (0.22) |
| | | NPN | Remote M12 connector on 0.15 m pigtail connector | **XS612B2NBL01M12** | 0.100 | (0.22) |

### Ø 18, threaded M18 x 1

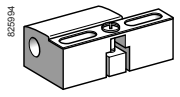
| Sensing distance Sn, mm (in.) | Function | Output | Connection | Catalog Number | Weight kg | (lb) |
|---|---|---|---|---|---|---|
| **9 (0.35)** | NO | PNP | Remote M12 connector on 0.15 m pigtail connector | **XS618B2PAL01M12** | 0.140 | (0.31) |
| | | NPN | Remote M12 connector on 0.15 m pigtail connector | **XS618B2NAL01M12** | 0.140 | (0.31) |
| | NC | PNP | Remote M12 connector on 0.15 m pigtail connector | **XS618B2PBL01M12** | 0.140 | (0.31) |
| | | NPN | Remote M12 connector on 0.15 m pigtail connector | **XS618B2NBL01M12** | 0.140 | (0.31) |




*XSZBPM12*

### Ø 30, threaded M30 x 1.5

| Sensing distance Sn, mm (in.) | Function | Output | Connection | Catalog Number | Weight kg | (lb) |
|---|---|---|---|---|---|---|
| **18 (0.71)** | NO | PNP | Remote M12 connector on 0.15 m pigtail connector | **XS630B2PAL01M12** | 0.220 | (0.49) |
| | | NPN | Remote M12 connector on 0.15 m pigtail connector | **XS630B2NAL01M12** | 0.220 | (0.49) |
| | NC | PNP | Remote M12 connector on 0.15 m pigtail connector | **XS630B2PBL01M12** | 0.220 | (0.49) |
| | | NPN | Remote M12 connector on 0.15 m pigtail connector | **XS630B2NBL01M12** | 0.220 | (0.49) |




*XSZB●●●*

### Accessories

| Description | | Catalog Number | Weight kg | (lb) |
|---|---|---|---|---|
| **Remote control mounting clamp** | | **XSZBPM12** | 0.015 | (0.03) |
| **Sensor mounting clamps** | Ø 12 | **XSZB112** | 0.006 | (0.01) |
| | Ø 18 | **XSZB118** | 0.010 | (0.02) |
| | Ø 30 | **XSZB130** | 0.020 | (0.04) |



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# OsiSense® XS
# Inductive proximity sensors
## Application
## Adjustable range sensors
Cylindrical, flush mountable and non-flush mountable
Three-wire DC, solid-state output



## Specifications

| Sensor type | | | | XS6●●B2●●L01M12 |
|---|---|---|---|---|
| **Product certifications** | | | | UL, CSA, CE |
| **Connection** | Connector | | | Remote M12 connector on 0.15 m pigtail connector |
| **Sensing distance and adjustment zone** | Ø 12 | Nominal sensing distance (Sn) | **mm (in.)** | **0–5** (0–0.20) non-flush mounted / **0–3.4** (0–0.13) flush mounted |
| | | Precision adjustment zone | **mm (in.)** | **1.7–5** (0.07–0.20) non-flush mounted / **1.7–3.4** (0.07–0.20) flush mounted |
| | Ø 18 | Nominal sensing distance (Sn) | **mm (in.)** | **0–9** (0–0.35) non-flush mounted / **0–6** (0–0.24) flush mounted |
| | | Precision adjustment zone | **mm (in.)** | **3–9** (0.12–0.35) non-flush mounted / **3–6** (0.12–0.24) flush mounted |
| | Ø 30 | Nominal sensing distance (Sn) | **mm (in.)** | **0–18** (0–0.71) non-flush mounted / **0–11** (0–0.43) flush mounted |
| | | Precision adjustment zone | **mm (in.)** | **6–18** (0.24–0.71) non-flush mounted / **6–11** (0.24–0.43) flush mounted |
| **Differential travel** | | | **%** | **1–15** of effective sensing distance (Sr) |
| **Degree of protection** | Conforming to IEC 60529 | | | IP 67, ⧈ |
| **Storage temperature** | | | **°C (°F)** | -40 to +85 (-40 to +185) |
| **Operating temperature** | | | **°C (°F)** | -25 to +70 (-13 to +158) |
| **Materials** | Case | | | Nickel-plated brass |
| | Remote control | | | PBT |
| | Cable | | | PvR - Ø 4.2 mm |
| **Vibration resistance** | Conforming to IEC 60068-2-6 | | | 25 gn, amplitude ± 2 mm (f = 10 to 55 Hz) |
| **Shock resistance** | Conforming to IEC 60068-2-27 | | | 50 gn, duration 11 ms |
| **Indicators** | Output state | | | Yellow LED |
| | Supply on and teach mode | | | Green LED |
| **Rated supply voltage** | | | **V** | ⎓ 12–24 with protection against reverse polarity |
| **Voltage limits (including ripple)** | | | **V** | ⎓ 10–36 |
| **Switching capacity** | | | **mA** | ≤ 100 with overload and short-circuit protection |
| **Voltage drop, closed state** | | | **V** | ≤ 2 |
| **Current consumption, no-load** | | | **mA** | ≤ 10 |
| **Maximum switching frequency** | | | **Hz** | 1000 |
| **Delays** | First-up | | **ms** | ≤ 10 |
| | Response | | **ms** | ≤ 0.3 |
| | Recovery | | **ms** | ≤ 0.7 |

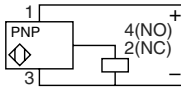
## Wiring diagrams

**Connector**

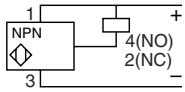
M12




**PNP**

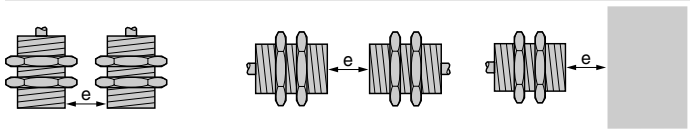



**NPN**




## Setup

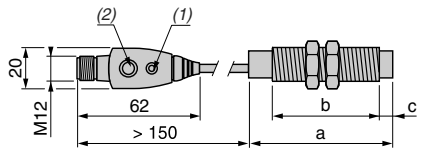
**Minimum mounting distances (mm)**




| | Side by side | | Face to face | | Facing a metal object |
|---|---|---|---|---|---|
| | flush mounted | non-flush mounted | flush mounted | non-flush mounted | |
| Ø 12 | e ≥ 14 | 50 | e ≥ 50 | 100 | e ≥ 3.4 |
| Ø 18 | e ≥ 28 | 100 | e ≥ 100 | 200 | e ≥ 6 |
| Ø 30 | e ≥ 48 | 180 | e ≥ 180 | 360 | e ≥ 11 |

## Dimensions (mm)

**XS6**




*(1) LED*
*(2) Teach mode button*

| | Connector (mm) | | |
|---|---|---|---|
| | a | b | c |
| Ø 12 | 54.6 | 42 | 5 |
| Ø 18 | 60 | 44 | 8 |
| Ø 30 | 62.6 | 41 | 13 |



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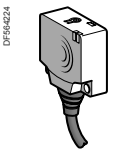
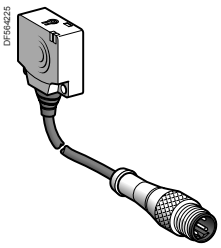
# OsiSense® XS
# Inductive proximity sensors

General Purpose with increased range
Flat, flush mountable/non-flush mountable + teach mode *(1)*
Two-wire AC or DC
Three-wire DC, solid-state output

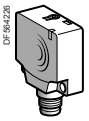




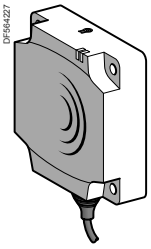

*XS8E1A1●●L2*



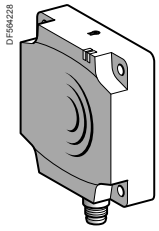

*XS8p1A1●●L01M12*
*XS8p1A1●●L01U20*



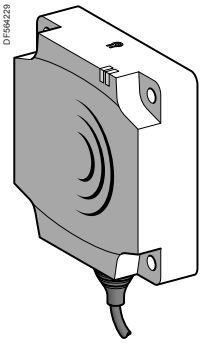

*XS8E1A1●●M8*



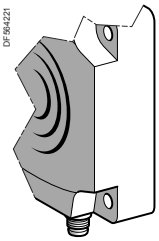

*XS8C1A1●●L2*



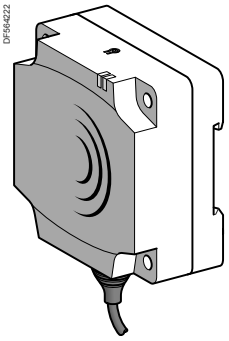

*XS8C1A1●●M8*



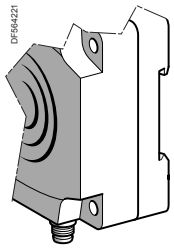

*XS8D1A1●●L2*




*XS8D1A1●●M12*




*XS8D1A1●●L2DIN*




*XS8D1A1●●M12DIN*

## Flat, 26 x 26 x 13 mm format

| Sensing distance Sn, mm (in.) | Function | Output | Connection | Catalog Number | Weight kg | (lb) |
|---|---|---|---|---|---|---|
| **Three-wire ⎓ with overload and short-circuit protection** | | | | | | |
| **15 (0.59)** | NO | PNP | Pre-cabled (L = 2 m) *(2)* | **XS8E1A1PAL2** | 0.075 | (0.17) |
| | | | M8 connector | **XS8E1A1PAM8** | 0.040 | (0.09) |
| | | | Remote M12 connector | **XS8E1A1PAL01M12** | 0.040 | (0.09) |
| | | NPN | Pre-cabled (L = 2 m) *(2)* | **XS8E1A1NAL2** | 0.075 | (0.17) |
| | | | M8 connector | **XS8E1A1NAM8** | 0.040 | (0.09) |
| | | | Remote M12 connector | **XS8E1A1NAL01M12** | 0.040 | (0.09) |
| | NC | PNP | Pre-cabled (L = 2 m) *(2)* | **XS8E1A1PBL2** | 0.075 | (0.17) |
| | | | M8 connector | **XS8E1A1PBM8** | 0.040 | (0.09) |
| | | | Remote M12 connector | **XS8E1A1PBL01M12** | 0.040 | (0.09) |
| | | NPN | Pre-cabled (L = 2 m) *(2)* | **XS8E1A1NBL2** | 0.075 | (0.17) |
| | | | M8 connector | **XS8E1A1NBM8** | 0.040 | (0.09) |
| | | | Remote M12 connector | **XS8E1A1NBL01M12** | 0.040 | (0.09) |
| **Two-wire ∿ or ⎓ unprotected** *(3)* | | | | | | |
| **15 (0.59)** | NO | – | Pre-cabled (L = 2 m) *(2)* | **XS8E1A1MAL2** | 0.070 | (0.15) |
| | | | Remote 1/2"-20UNF connector | **XS8E1A1MAL01U20** | 0.040 | (0.09) |
| | NC | – | Pre-cabled (L = 2 m) *(2)* | **XS8E1A1MBL2** | 0.070 | (0.15) |
| | | | Remote 1/2"-20UNF connector | **XS8E1A1MBL01U20** | 0.040 | (0.09) |

## Flat, 40 x 40 x 15 mm format

| Sensing distance Sn, mm (in.) | Function | Output | Connection | Catalog Number | Weight kg | (lb) |
|---|---|---|---|---|---|---|
| **Three-wire ⎓ with overload and short-circuit protection** | | | | | | |
| **25 (0.98)** | NO | PNP | Pre-cabled (L = 2 m) *(3)* | **XS8C1A1PAL2** | 0.095 | (0.21) |
| | | | M8 connector | **XS8C1A1PAM8** | 0.060 | (0.13) |
| | | | Remote M12 connector | **XS8C1A1PAL01M12** | 0.060 | (0.13) |
| | | NPN | Pre-cabled (L = 2 m) *(3)* | **XS8C1A1NAL2** | 0.095 | (0.21) |
| | | | M8 connector | **XS8C1A1NAM8** | 0.060 | (0.13) |
| | | | Remote M12 connector | **XS8C1A1NAL01M12** | 0.060 | (0.13) |
| | NC | PNP | Pre-cabled (L = 2 m) *(3)* | **XS8C1A1PBL2** | 0.095 | (0.21) |
| | | | M8 connector | **XS8C1A1PBM8** | 0.060 | (0.13) |
| | | | Remote M12 connector | **XS8C1A1PBL01M12** | 0.060 | (0.13) |
| | | NPN | Pre-cabled (L = 2 m) *(3)* | **XS8C1A1NBL2** | 0.095 | (0.21) |
| | | | M8 connector | **XS8C1A1NBM8** | 0.060 | (0.13) |
| | | | Remote M12 connector | **XS8C1A1NBL01M12** | 0.060 | (0.13) |
| **Two-wire ∿ or ⎓ unprotected** *(4)* | | | | | | |
| **25 (0.98)** | NO | – | Pre-cabled (L = 2 m) *(3)* | **XS8C1A1MAL2** | 0.090 | (0.20) |
| | | | Remote 1/2"-20UNF connector | **XS8C1A1MAL01U20** | 0.060 | (0.13) |
| | NC | – | Pre-cabled (L = 2 m) *(3)* | **XS8C1A1MBL2** | 0.090 | (0.20) |
| | | | Remote 1/2"-20UNF connector | **XS8C1A1MBL01U20** | 0.060 | (0.13) |

## Flat, 80 x 80 x 26 mm format

| Sensing distance Sn, mm (in.) | Function | Output | Connection | Catalog Number | Weight kg | (lb) |
|---|---|---|---|---|---|---|
| **Three-wire ⎓ with overload and short-circuit protection** | | | | | | |
| **60 (2.36)** | NO | PNP | Pre-cabled (L = 2 m) *(2)* | **XS8D1A1PAL2** *(4)* | 0.390 | (0.86) |
| | | | M12 connector | **XS8D1A1PAM12** *(4)* | 0.340 | (0.75) |
| | | NPN | Pre-cabled (L = 2 m) *(2)* | **XS8D1A1NAL2** *(4)* | 0.390 | (0.86) |
| | | | M12 connector | **XS8D1A1NAM12** *(4)* | 0.340 | (0.75) |
| | NC | PNP | Pre-cabled (L = 2 m) *(2)* | **XS8D1A1PBL2** *(4)* | 0.390 | (0.86) |
| | | | M12 connector | **XS8D1A1PBM12** *(4)* | 0.340 | (0.75) |
| | | NPN | Pre-cabled (L = 2 m) *(2)* | **XS8D1A1NBL2** *(4)* | 0.390 | (0.86) |
| | | | M12 connector | **XS8D1A1NBM12** *(4)* | 0.340 | (0.75) |
| **Two-wire ∿ or ⎓ unprotected** *(4)* | | | | | | |
| **60 (2.36)** | NO | – | Pre-cabled (L = 2 m) *(2)* | **XS8D1A1MAL2** *(4)* | 0.390 | (0.86) |
| | | | 1/2"-20UNF connector | **XS8D1A1MAU20** *(4)* | 0.340 | (0.75) |
| | NC | – | Pre-cabled (L = 2 m) *(2)* | **XS8D1A1MBL2** *(4)* | 0.390 | (0.86) |
| | | | 1/2"-20UNF connector | **XS8D1A1MBU20** *(4)* | 0.340 | (0.75) |

*(1) For further information on flush or non-flush mountable sensors using teach mode, see page 2/70.*
*(2) For a 5 m cable replace L2 with L5; for a 10 m cable replace L2 by **L10**.*
*(3) A 0.4 A fast-acting fuse must be connected in series with the load.*
*(4) For clipping onto 35 mm omega rail or 80 x 80 x 40 mm format, add DIN to the end of the catalog number. Example: **XS8D1A1PAL2DIN**.*



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# OsiSense® XS
# Inductive proximity sensors
## General Purpose with increased range
Flat, flush mountable/non-flush mountable + teach mode *(1)*
Two-wire AC or DC
Three-wire DC, solid-state output

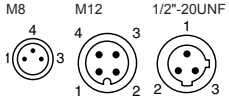


## Specifications

| Sensor type | | | | XS8E●●●●●M8, XS8C●●●●●M8, XS8D●●●●●M12, XS8D●●●●●U20 | XS8E●●●●●L01M12, XS8E●●●●●L01U20, XS8C●●●●●L01M12, XS8C●●●●●L01U20 | XS8E●●●●●L2, XS8C●●●●●L2, XS8D●●●●●L2 |
|---|---|---|---|---|---|---|
| **Product certifications** | | | | UL, CSA, CE | | |
| **Connection** | Connector | | | M8 except XS8●●●●●●M12: M12 XS8●●●●●●U20: 1/2"-20UNF | Remote on 0.15 m pigtail connector XS8●●●●●●L01M12: M12 XS8●●●●●●L01U20: 1/2"-20UNF | – |
| | Pre-cabled | | | – | – | Length: 2 m |
| **Sensing distance and adjustment zone** | XS8E | Nominal sensing dist. Sn | **mm (in.)** | **0–15** (0–0.59) non-flush mounted / **0–10** (0–0.39) flush mounted | | |
| | | Fine adjustment zone | **mm (in.)** | **5–15** (0.20–0.59) non-flush mounted / **5–10** (0.20–0.39) flush mounted | | |
| | XS8C | Nominal sensing dist. Sn | **mm (in.)** | **0–25** (0–0.98) non-flush mounted / **0–15** (0–0.59) flush mounted | | |
| | | Fine adjustment zone | **mm (in.)** | **8–25** (0.31–0.98) non-flush mounted / **8–15** (0.31–0.59) flush mounted | | |
| | XS8D | Nominal sensing dist. Sn | **mm (in.)** | **0–60** (0–2.36) non-flush mounted / **0–40** (0–1.57) flush mounted | | |
| | | Fine adjustment zone | **mm (in.)** | **0–60** (0–2.36) non-flush mounted / **20–40** (0.79–1.57) flush mounted | | |
| **Differential travel** | | | **%** | **1–15** of effective sensing distance (Sr) | | |
| **Degree of protection** | Conforming to IEC 60529 | | | IP 67, double insulation ⧈ (except M8 connector: IP 67) | | IP 68, ⧈ |
| **Storage temperature** | | | **°C (°F)** | -40 to +85 (-40 to +185) | | |
| **Operating temperature** | | | **°C (°F)** | -25 to +70 (-13 to +158) | | |
| **Materials** | Case | | | PBT | | |
| | Cable | | | – | PvR 3 x 0.34 mm² (24 AWG) ⎓ and PvR 2 x 0.34 mm² (24 AWG) ∿ | |
| **Vibration resistance** | Conforming to IEC 60068-2-6 | | | 25 gn, amplitude ± 2 mm (f = 10 to 55 Hz) | | |
| **Shock resistance** | Conforming to IEC 60068-2-27 | | | 50 gn, duration 11 ms | | |
| **Indicators** | Output state | | | Yellow LED | | |
| | Supply on and teach mode | | | Green LED | | |
| **Rated supply voltage** | 3-wire | | **V** | 12–24 with protection against reverse polarity | | |
| | 2-wire | | **V** | ∿ or ⎓ 24–240 (∿ 50/60 Hz) | | |
| **Voltage limits (including ripple)** | 3-wire | | **V** | 10–36 | | |
| | 2-wire | | **V** | ∿ or ⎓ 20–264 | | |
| **Current consumption, no-load** | 3-wire | | **mA** | ⩽ 10 | | |
| **Residual current, open state** | 2-wire | | **mA** | ⩽ 1.5 | | |
| **Switching capacity** | 3-wire | | **mA** | ⩽ 100 **XS8E**, ⩽ 200 **XS8C** and **XS8D**, with overload and short-circuit protection | | |
| | 2-wire | | **mA** | 5–200 ∿ **XS8E**, 5–300 ∿ **XS8C** and **XS8D**, 5–200 ⎓ **XS8C** and **XS8D** | | |
| **Voltage drop, closed state** | 3-wire | | **V** | ⩽ 2 | | |
| | 2-wire | | **V** | ⩽ 5.5 | | |
| **Maximum switching frequency** | | | **Hz** | 2,000 **XS8E**, 1,000 **XS8C**, 150 **XS8D** | | |
| **Delays** | First-up | | **ms** | ⩽ 10 **XS8E**, **XS8C** and **XS8D** (3-wire), ⩽ 10 **XS8E** and **XS8C**, ⩽ 15 **XS8D** (2-wire) | | |
| | Response | | **ms** | ⩽ 0.3 | | |
| | Recovery | | **ms** | ⩽ 0.8 **XS8E** and **XS8C**, ⩽ 6 **XS8D** | | |

## Wiring diagrams

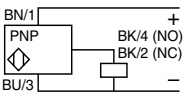
### Connector



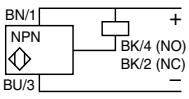

### Pre-cabled

BU: Blue
BN: Brown
BK: Black

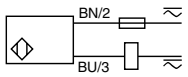
### PNP/M12 or M8




### NPN/M12 or M8




### 2-wire 1/2"-20UNF

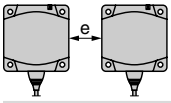



*For M8 connector, NO and NC outputs are on terminal 4*

## Setup

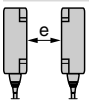
### Minimum mounting distances (mm)

**Side by side**



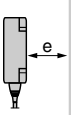

| e ⩾ | XS8E | XS8C | XS8D |
|---|---|---|---|
| Flush mounted | 40 | 60 | 200 |
| Non-flush mounted | 150 | 125 | 600 |

**Face to face**




| e ⩾ | XS8E | XS8C | XS8D |
|---|---|---|---|
| Flush mounted | 80 | 120 | 400 |
| Non-flush mounted | 300 | 250 | – |

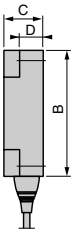
**Facing a metal object**



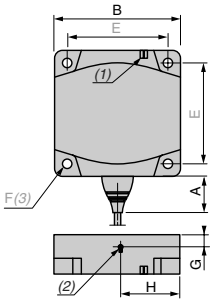

| e ⩾ | XS8E | XS8 C | XS8D |
|---|---|---|---|
| | 10 | 15 | 40 |

## Dimensions (mm)

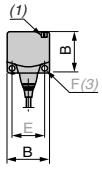
### XS8C/D/E




### XS8C/D




### XS8E




*(1) LED*
*(2) Teach mode button*
*(3) For CHC type screws*

| Sensor | A (cable) | A (connector) | B | C | D | E | F | G | H |
|---|---|---|---|---|---|---|---|---|---|
| **XS8E** | 14 | 11 | 26 | 13 | 8.8 | 20 | 3.5 | 6.8 | 6.6 |
| **XS8C** | 14 | 11 | 40 | 15 | 9.8 | 33 | 4.5 | 8.3 | 13.6 |
| **XS8D** | 23 | 18 | 80 | 26 | 16 | 65 | 5.5 | 8.5 | 37.8 |
| **XS8D●●DIN** | 23 | 18 | 80 | 40 | 30 | 65 | 5.1 | 22.5 | 37.8 |



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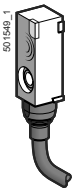
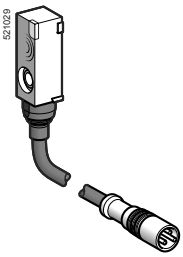
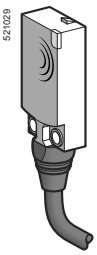
# OsiSense® XS
# Inductive proximity sensors
## General Purpose, standard range
Flat format, flush mountable
Two-wire DC
Three-wire DC, solid-state output



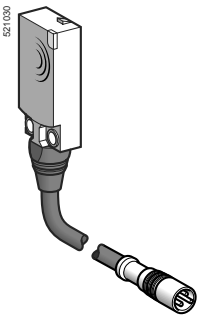

*XS7J1A1●●L2*




*XS7J1A1●●L01M8*




*XS7F1A1●●L2*




*XS7F1A1●●L01M8*

### Flat, 8 x 22 x 8 mm format *(1)*

**Three-wire ⎓**

| Sensing distance Sn, mm (in.) | Function | Output | Connection | Catalog Number | Weight kg | (lb) |
|---|---|---|---|---|---|---|
| **2.5 (0.10)** | NO | PNP | Pre-cabled (L = 2 m) *(2)* | **XS7J1A1PAL2** | 0.060 | (0.13) |
| | | | Remote M8 connector on 0.15 m pigtail connector | **XS7J1A1PAL01M8** | 0.040 | (0.09) |
| | | NPN | Pre-cabled (L = 2 m) *(2)* | **XS7J1A1NAL2** | 0.060 | (0.13) |
| | | | Remote M8 connector on 0.15 m pigtail connector | **XS7J1A1NAL01M8** | 0.040 | (0.09) |
| | NC | PNP | Pre-cabled (L = 2 m) *(2)* | **XS7J1A1PBL2** | 0.060 | (0.13) |
| | | | Remote M8 connector on 0.15 m pigtail connector | **XS7J1A1PBL01M8** | 0.040 | (0.09) |
| | | NPN | Pre-cabled (L = 2 m) *(2)* | **XS7J1A1NBL2** | 0.060 | (0.13) |
| | | | Remote M8 connector on 0.15 m pigtail connector | **XS7J1A1NBL01M8** | 0.040 | (0.09) |

**Two-wire ⎓**

| Sensing distance Sn, mm (in.) | Function | Connection | Catalog Number | Weight kg | (lb) |
|---|---|---|---|---|---|
| **2.5 (0.10)** | NO | Pre-cabled (L = 2 m) *(2)* | **XS7J1A1DAL2** | 0.050 | (0.11) |
| | | Remote M8 connector on 0.15 m pigtail connector | **XS7J1A1DAL01M8** | 0.035 | (0.08) |
| | NC | Pre-cabled (L = 2 m) *(2)* | **XS7J1A1DBL2** | 0.050 | (0.11) |
| | | Remote M8 connector on 0.15 m pigtail connector | **XS7J1A1DBL01M8** | 0.035 | (0.08) |

### Flat, 15 x 32 x 8 mm format

**Three-wire ⎓**

| Sensing distance Sn, mm (in.) | Function | Output | Connection | Catalog Number | Weight kg | (lb) |
|---|---|---|---|---|---|---|
| **5 (0.20)** | NO | PNP | Pre-cabled (L = 2 m) *(2)* | **XS7F1A1PAL2** | 0.065 | (0.14) |
| | | | Remote M8 connector on 0.15 m pigtail connector | **XS7F1A1PAL01M8** | 0.045 | (0.10) |
| | | NPN | Pre-cabled (L = 2 m) *(2)* | **XS7F1A1NAL2** | 0.065 | (0.14) |
| | | | Remote M8 connector on 0.15 m pigtail connector | **XS7F1A1NAL01M8** | 0.045 | (0.10) |
| | NC | PNP | Pre-cabled (L = 2 m) *(2)* | **XS7F1A1PBL2** | 0.065 | (0.14) |
| | | | Remote M8 connector on 0.15 m pigtail connector | **XS7F1A1PBL01M8** | 0.045 | (0.10) |
| | | NPN | Pre-cabled (L = 2 m) *(2)* | **XS7F1A1NBL2** | 0.065 | (0.14) |
| | | | Remote M8 connector on 0.15 m pigtail connector | **XS7F1A1NBL01M8** | 0.045 | (0.10) |

**Two-wire ⎓**

| Sensing distance Sn, mm (in.) | Function | Connection | Catalog Number | Weight kg | (lb) |
|---|---|---|---|---|---|
| **5 (0.20)** | NO | Pre-cabled (L = 2 m) *(2)* | **XS7F1A1DAL2** | 0.055 | (0.12) |
| | | Remote M8 connector on 0.15 m pigtail connector | **XS7F1A1DAL01M8** | 0.045 | (0.10) |
| | NC | Pre-cabled (L = 2 m) *(2)* | **XS7F1A1DBL2** | 0.055 | (0.12) |
| | | Remote M8 connector on 0.15 m pigtail connector | **XS7F1A1DBL01M8** | 0.045 | (0.10) |

*(1) Sensors **XS7J** include a mounting clamp with screw.*
*(2) For a 5 m cable replace L2 with **h** L5; for a 10 m cable replace L2 by **L10**.*
*Example: **XS7J1A1PAL2** becomes **XS7J1A1PAL5** with a 5 m cable.*



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# OsiSense® XS
# Inductive proximity sensors
## General Purpose, standard range
## Flat format, flush mountable
## Two-wire DC
## Three-wire DC, solid-state output



## Specifications

| Sensor type | | | XS7J●●●●●L01M8 | XS7F●●●●●L01M8 | XS7J●●●●●L2, XS7F●●●●●L2 |
|---|---|---|---|---|---|
| **Product certifications** | | | CE | UL, CSA, CE | |
| **Connection** | Connector | | Remote M8 connector on 0.15 m pigtail connector | | – |
| | Pre-cabled | | – | | Length: 2 m |
| **Operating zone** | **XS7J** | **mm** | **0–2 (0–0.08 in.)** | | |
| | **XS7F** | **mm** | **0–4 (0–0.16 in.)** | | |
| **Differential travel** | | **%** | 1–15 of effective sensing distance (Sr) | | |
| **Degree of protection** | Conforming to IEC 60529 | | IP 67 (**XS7J**), IP 68 (**XS7F**) | | |
| **Storage temperature** | | **°C** | -40 to +85 (-40 to +185 °F) | | |
| **Operating temperature** | | **°C** | -25 to +70 (-13 to +158 °F) | | |
| **Materials** | Case | | PBT | | |
| | Cable | | PvR 3 x 0.11 mm² (26 AWG) or 2 x 0.11 mm² (26 AWG) (XS7 F: 2 or 3 x 0.34 mm² [24 AWG]) | | |
| **Vibration resistance** | Conforming to IEC 60068-2-6 | | 25 gn, amplitude ± 2 mm (f = 10 to 55 Hz) | | |
| **Shock resistance** | Conforming to IEC 60068-2-27 | | 50 gn, duration 11 ms | | |
| **Output state indication** | | | Yellow LED | | |
| **Rated supply voltage** | | **V** | ⎓ 12–24 with protection against reverse polarity | | |
| **Voltage limits (including ripple)** | | **V** | ⎓ 10–36 | | |
| **Current consumption, no-load** | 3-wire | **mA** | ≤ 10 | | |
| **Residual current, open state** | 2-wire | **mA** | ≤ 0.5 | | |
| **Switching capacity** | 3-wire | **mA** | 100 with overload and short-circuit protection | | |
| | 2-wire | **mA** | 1.5–100 with overload and short-circuit protection | | |
| **Voltage drop, closed state** | 3-wire | **V** | ≤ 2 | | |
| | 2-wire | **V** | ≤ 4 | | |
| **Maximum switching frequency** | 3-wire | **kHz** | 2 | | |
| | 2-wire | **kHz** | 4 for **XS7J,** 5 for **XSF** | | |
| **Delays** | First-up | **ms** | 3-wire: 5 | | |
| | | **ms** | 2-wire: 10 **XS7J**, 5 **XS7F** | | |
| | Response | **ms** | 3-wire: 0.1 | | |
| | | **ms** | 2-wire: 0.5 **XS7J**, 5 **XS7F** | | |
| | Recovery | **ms** | 3-wire: 0.1 | | |
| | | **ms** | 2-wire: 1 **XS7J**, 5 **XS7F** | | |

## Wiring diagrams

**Connector**

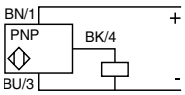
M8



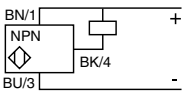

**Pre-cabled**

BU: Blue
BN: Brown
BK: Black

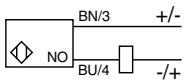
**PNP NO or NC**



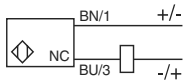

**NPN NO or NC**




**2-wire NO**

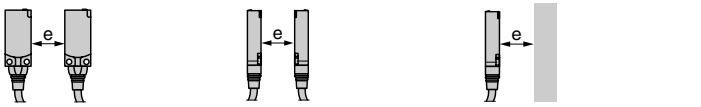



**2-wire NC**




## Setup

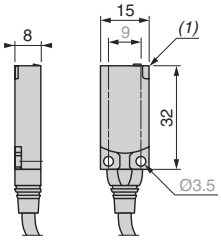
**Minimum mounting distances (mm)**



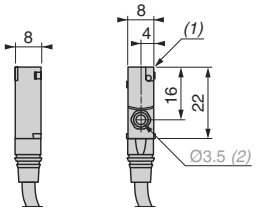

| | Side by side | Face to face | Facing a metal object |
|---|---|---|---|
| **XS7J** | e ≥ 1 | e ≥ 6 | e ≥ 7.5 |
| **XS7F** | e ≥ 1 | e ≥ 12 | e ≥ 15 |

## Dimensions (mm)

**XS7F**




**XS7J**




*(1) LED*
*(2) For CHC type screws*



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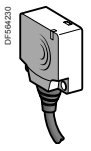
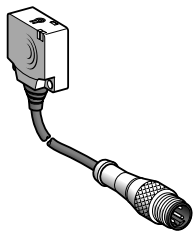
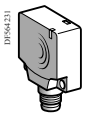
# OsiSense® XS
# Inductive proximity sensors

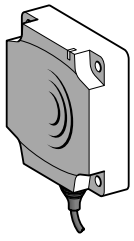
## General Purpose, standard range
## Flat format, flush mountable
## Two-wire DC
## Three-wire DC, solid-state output

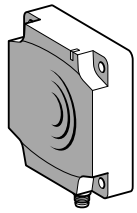


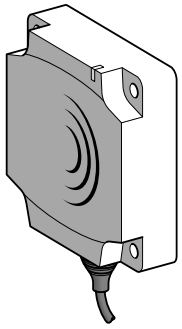

XS7E1A1●●L2

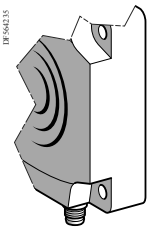

XS7●1A1●L0●M12

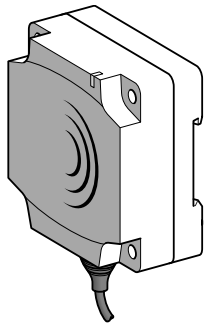

XS7E1A1●●M8

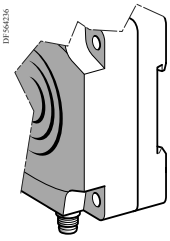

XS7C1A1●●L2


XS7C1A1●●M8


XS7D1A1●●L2


XS7D1A1●●M12


XS7D1A1●●L2DIN


XS7D1A1●●M12DIN

| Sens. dist. Sn, mm (in.) | Function | Output | Connection | Catalog Number | Weight kg | Weight (lb) |
|---|---|---|---|---|---|---|
| **Flat, 26 x 26 x 13 mm format** | | | | | | |
| **Three-wire ⎓** | | | | | | |
| **10 (0.39)** | NO | PNP | Pre-cabled (L = 2 m) *(3)* | **XS7E1A1PAL2** | 0.075 | (0.17) |
| | | | M8 connector | **XS7E1A1PAM8** | 0.040 | (0.09) |
| | | | Remote M12 connector | **XS7E1A1PAL01M12** | 0.040 | (0.09) |
| | | NPN | Pre-cabled (L = 2 m) *(3)* | **XS7E1A1NAL2** | 0.075 | (0.17) |
| | | | M8 connector | **XS7E1A1NAM8** | 0.075 | (0.17) |
| | | | Remote M12 connector | **XS7E1A1NAL01M12** | 0.040 | (0.09) |
| | NC | PNP | Pre-cabled (L = 2 m) *(3)* | **XS7E1A1PBL2** | 0.075 | (0.17) |
| | | | M8 connector | **XS7E1A1PBM8** | 0.040 | (0.09) |
| | | | Remote M12 connector | **XS7E1A1PBL01M12** | 0.040 | (0.09) |
| | | NPN | Pre-cabled (L = 2 m) *(3)* | **XS7E1A1NBL2** | 0.075 | (0.17) |
| | | | M8 connector | **XS7E1A1NBM8** | 0.040 | (0.09) |
| | | | Remote M12 connector | **XS7E1A1NBL01M12** | 0.040 | (0.09) |
| **Two-wire ⎓** | | | | | | |
| **10 (0.39)** | NO | | Pre-cabled (L = 2 m) *(3)* | **XS7E1A1DAL2** | 0.070 | (0.15) |
| | | | M8 connector | **XS7E1A1DAM8** | 0.040 | (0.09) |
| | | | Remote M12 connector | **XS7E1A1DAL01M12** | 0.040 | (0.09) |
| | NO terminals 1 and 4 *(1)* | | Remote M12 connector | **XS7E1A1CAL01M12** | 0.040 | (0.09) |
| | | | Remote M12 connector *(2)* | **XS7E1A1CAL08M12** | 0.065 | (0.14) |
| | NC | | Pre-cabled (L = 2 m) *(3)* | **XS7E1A1DBL2** | 0.070 | (0.15) |
| | | | M8 connector | **XS7E1A1DBM8** | 0.040 | (0.09) |
| | | | Remote M12 connector | **XS7E1A1DBL01M12** | 0.040 | (0.09) |
| **Flat, 40 x 40 x 15 mm format** | | | | | | |
| **Three-wire ⎓** | | | | | | |
| **15 (0.59)** | NO | PNP | Pre-cabled (L = 2 m) *(3)* | **XS7C1A1PAL2** | 0.095 | (0.21) |
| | | | M8 connector | **XS7C1A1PAM8** | 0.060 | (0.13) |
| | | | Remote M12 connector | **XS7C1A1PAL01M12** | 0.060 | (0.13) |
| | | NPN | Pre-cabled (L = 2 m) *(3)* | **XS7C1A1NAL2** | 0.095 | (0.21) |
| | | | M8 connector | **XS7C1A1NAM8** | 0.060 | (0.13) |
| | | | Remote M12 connector | **XS7C1A1NAL01M12** | 0.060 | (0.13) |
| | NC | PNP | Pre-cabled (L = 2 m) *(3)* | **XS7C1A1PBL2** | 0.095 | (0.21) |
| | | | M8 connector | **XS7C1A1PBM8** | 0.060 | (0.13) |
| | | | Remote M12 connector | **XS7C1A1PBL01M12** | 0.060 | (0.13) |
| | | NPN | Pre-cabled (L = 2 m) *(3)* | **XS7C1A1NBL2** | 0.095 | (0.21) |
| | | | M8 connector | **XS7C1A1NBM8** | 0.060 | (0.13) |
| | | | Remote M12 connector | **XS7C1A1NBL01M12** | 0.060 | (0.13) |
| **Two-wire ⎓** | | | | | | |
| **15 (0.59)** | NO | | Pre-cabled (L = 2 m) *(3)* | **XS7C1A1DAL2** | 0.090 | (0.20) |
| | | | M8 connector | **XS7C1A1DAM8** | 0.060 | (0.13) |
| | | | Remote M12 connector | **XS7C1A1DAL01M12** | 0.060 | (0.13) |
| | NO terminals 1 and 4 *(1)* | | Remote M12 connector | **XS7C1A1CAL01M12** | 0.060 | (0.13) |
| | | | Remote M12 connector *(2)* | **XS7C1A1CAL08M12** | 0.090 | (0.20) |
| | NC | | Pre-cabled (L = 2 m) *(3)* | **XS7C1A1DBL2** | 0.090 | (0.20) |
| | | | M8 connector | **XS7C1A1DBM8** | 0.060 | (0.13) |
| | | | Remote M12 connector | **XS7C1A1DBL01M12** | 0.060 | (0.13) |
| **Flat, 80 x 80 x 26 mm format** | | | | | | |
| **Three-wire ⎓** | | | | | | |
| **40 (1.57)** | NO | PNP | Pre-cabled (L = 2 m) *(3)* | **XS7D1A1PAL2** *(4)* | 0.340 | (0.75) |
| | | | M12 connector | **XS7D1A1PAM12** *(4)* | 0.290 | (0.64) |
| | | NPN | Pre-cabled (L = 2 m) *(3)* | **XS7D1A1NAL2** *(4)* | 0.340 | (0.75) |
| | | | M12 connector | **XS7D1A1NAM12** *(4)* | 0.290 | (0.64) |
| | NC | PNP | Pre-cabled (L = 2 m) *(3)* | **XS7D1A1PBL2** *(4)* | 0.340 | (0.75) |
| | | | M12 connector | **XS7D1A1PBM12** *(4)* | 0.290 | (0.64) |
| | | NPN | Pre-cabled (L = 2 m) *(3)* | **XS7D1A1NBL2** *(4)* | 0.340 | (0.75) |
| | | | M12 connector | **XS7D1A1NBM12** *(4)* | 0.290 | (0.64) |
| **Two-wire ⎓** | | | | | | |
| **40 (1.57)** | NO | | Pre-cabled (L = 2 m) *(3)* | **XS7D1A1DAL2** *(4)* | 0.340 | (0.75) |
| | | | M12 connector | **XS7D1A1DAM12** *(4)* | 0.290 | (0.64) |
| | NO terminals 1 and 4 *(1)* | | M12 connector | **XS7D1A1CAM12** *(4)* | 0.290 | (0.64) |
| | NC | | Pre-cabled (L = 2 m) *(3)* | **XS7D1A1DBL2** *(4)* | 0.340 | (0.75) |
| | | | M12 connector | **XS7D1A1DBM12** *(4)* | 0.290 | (0.64) |

*(1) The NO output is connected to terminals 1 and 4 of the M12 connector.*

*(2) Remote connector on 0.8 m pigtail connector.*

*(3) For a 5 m cable replace L2 with **h** L5; for a 10 m cable replace L2 by **L10**. Example: **XS7J1A1PAL2** becomes **XS7J1A1PAL5** with a 5 m cable.*

*(4) For clipping onto 35 mm omega rail or 80 x 80 x 40 mm format, add DIN to the end of the catalog number. Example: **XS7D1A1PAL2** becomes **XS7D1A1PAL2DIN**.*



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# OsiSense® XS
# Inductive proximity sensors
## General Purpose, standard range
## Flat format, flush mountable
## Two-wire DC
## Three-wire DC, solid-state output



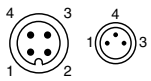
## Specifications

| Sensor type | | | | XS7E●●●●●M8, XS7C●●●●●M8, XS7D●●●●●M12 | XS7E●●●●●L01M12, XS7C●●●●●L01M12 | XS7E●●●●●L2, XS7C●●●●●L2, XS7D●●●●●L2 |
|---|---|---|---|---|---|---|
| **Product certifications** | | | | UL, CSA, CE | | |
| **Connection** | Connector | | | M8 except M12 on **XS7D●●●●●M12** | M12 on 0.15 m pigtail connector for **XS7●●●●●L01M12** | – |
| | Pre-cabled | | | – | – | Length: 2 m |
| **Operating zone** | **XS7E** | | **mm** | **0–8 (0–0.31 in.)** | | |
| | **XS7C** | | **mm** | **0–12 (0–0.47 in.)** | | |
| | **XS7D** | | **mm** | **0–32 (0–1.26)** | | |
| **Differential travel** | | | **%** | 1–15 of effective sensing distance (Sr) | | |
| **Degree of protection** | Conforming to IEC 60529 | | | IP 67, double insulation ⧈ (except for M8 connector: IP 67) | | IP 68, ⧈ |
| **Storage temperature** | | | **°C** | -40 to +85 (-40 to +185 °F) | | |
| **Operating temperature** | | | **°C** | -25 to +70 (-13 to +158 °F) | | |
| **Materials** | Case | | | PBT | | |
| | Cable | | | – | PvR 3 x 0.34 mm² (24 AWG) or 2 x 0.34 mm² (24 AWG) | |
| **Vibration resistance** | Conforming to IEC 60068-2-6 | | | 25 gn, amplitude ± 2 mm (f = 10 to 55 Hz) | | |
| **Shock resistance** | Conforming to IEC 60068-2-27 | | | 50 gn, duration 11 ms | | |
| **Output state indication** | | | | Yellow LED | | |
| **Rated supply voltage** | | | **V** | 12–24 with protection against reverse polarity | | |
| **Voltage limits (including ripple)** | | | **V** | 10–36 | | |
| **Current consumption, no-load** | 3-wire | | **mA** | ≤ 10 | | |
| **Residual current, open state** | 2-wire | | **mA** | ≤ 0.5 | | |
| **Switching capacity** | 3-wire | | **mA** | ≤ 100 with overload and short-circuit protection | | |
| | 2-wire | | **mA** | 1.5–100 with overload and short-circuit protection | | |
| **Voltage drop, closed state** | 3-wire | | **V** | ≤ 2 | | |
| | 2-wire | | **V** | ≤ 4 | | |
| **Maximum switching frequency** | **XS7E, XS7C** | | **kHz** | 1 | | |
| | **XS7D** | | **Hz** | 100 | | |
| **Delays** | First-up | 3-wire | **ms** | 10 **XS7E** and **XS7C**, 30 **XS7D** | | |
| | | 2-wire | **ms** | 5 **XS7E** and **XS7D**, 10 **XS7D** | | |
| | Response | 3-wire | **ms** | 2 **XS7E** and **XS7C**, 5 **XS7D** | | |
| | | 2-wire | **ms** | 0.3 **XS7E** and **XS7 D**, 10 **XS7D** | | |
| | Recovery | 3-wire | **ms** | 6 **XS7E**, 5 **XS7C**, 35 **XS7D** | | |
| | | 2-wire | **ms** | 0.7 **XS7E** and **XS7D**, 10 **XS7D** | | |

## Wiring diagrams

**Connector**

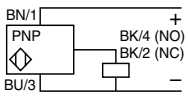
M12 M8



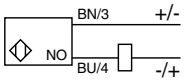

**Pre-cabled**

BU: Blue
BN: Brown
BK: Black

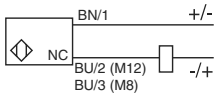
**PNP/M12 or M8**



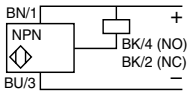

**2-wire NO/M12 or M8**



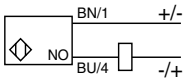

**2-wire NC/M12 or M8**




**NPN/M12 or M8**



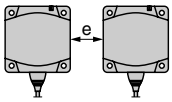

**2-wire NO/M12 XS7●●●●CA●●●**



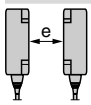

*For M8 connector, NO and NC outputs are on terminal 4*

## Setup

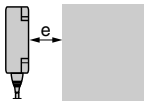
**Minimum mounting distances (mm)**

| Side by side | e ≥ | XS7E | XS7C | XS7D |
|---|---|---|---|---|
|  | | 4 | 5 | 40 |



| Face to face | e ≥ | XS7E | XS7C | XS7D |
|---|---|---|---|---|
|  | | 72 | 110 | 300 |

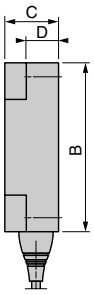


| Facing a metal object | e ≥ | XS7E | XS7C | XS7D |
|---|---|---|---|---|
|  | | 30 | 45 | 120 |

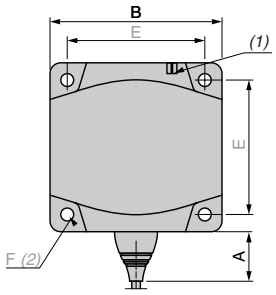


## Dimensions (mm)

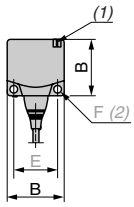
**XS7C/D/E**




**XS7C/D**




**XS7E**




*(1) LED*
*(1) For CHC type screws*

| Sensor | A (cable) | A (connector) | B | C | D | E | F |
|---|---|---|---|---|---|---|---|
| **XS7E** | 14 | 11 | 26 | 13 | 8.8 | 20 | 3.5 |
| **XS7C** | 14 | 11 | 40 | 15 | 9.8 | 33 | 4.5 |
| **XS7D** | 23 | 18 | 80 | 26 | 16 | 65 | 5.5 |
| **XS7D●●DIN** | 23 | 18 | 80 | 40 | 30 | 65 | 5.1 |



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# OsiSense® XS
# Inductive proximity sensors

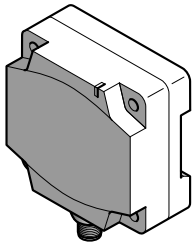
Application

Flat sensor, flush mountable, increased range, switching capacity 300 mA

80 x 80 x 40 format, DIN rail mounting, solid-state output



| | |
|---|---|
| **Sensor** | **Flush mountable in metal** |



| | | |
|---|---|---|
| **Dimensions** (mm) | | 80 x 80 x 40 |
| **Nominal sensing distance** Sn, mm (in.) | | 50 (1.97) (non-flush mounted: 42 [1.65]) |
| **Catalog Numbers** | | |
| **2-wire** ⎓ (non-polarized) | NO | **XS7D1A3CAM12DIN** |
| **Weight, kg (lb)** | | 0.374 (0.82) |
| **Specifications** | | |
| **Product certifications** | | CE; CSA, UL: pending |
| **Degree of protection** | Conforming to IEC 60529 | IP 67, double insulation ⧈ |
| **Temperature** | Operating | -25 to + 70 °C (-13 to +158 °F) |
| | Storage | - 40 to + 85 °C (-40 to +185 °F) |
| **Vibration resistance** | Conforming to IEC 60068-2-6 | 25 gn, amplitude ± 2 mm (f = 10 to 55 Hz) |
| **Shock resistance** | Conforming to IEC 60068-2-27 | 50 gn, duration 11 ms |
| **Connection** | | M12 connector |
| **Operating zone, mm (in.)** | | 0–40 (0–1.57) (non-flush mounted: 0–35 [0–1.35]) |
| **Repeat accuracy** | | 3% of Sr |
| **Differential travel** | | 1–15% of Sr |
| **Output state indication** | | Yellow LED |
| **Rated supply voltage** | | ⎓ 12–48 V with protection against reverse polarity |
| **Voltage limits** (including ripple) | | ⎓ 10–58 V |
| **Residual current, open state** | | ≤ 0.5 mA |
| **Switching capacity** | | 1.5–300 mA with overload and short-circuit protection |
| **Voltage drop, closed state** | | ≤ 4.5 V |
| **Maximum switching frequency** | | 100 Hz |
| **Delays** | First-up | ≤ 10 ms |
| | Response | ≤ 2 ms |
| | Recovery | ≤ 5 ms |



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# OsiSense® XS
# Inductive proximity sensors

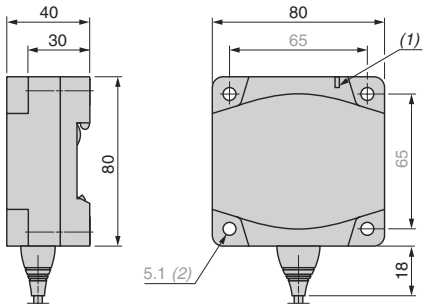
## Application

Flat sensor, flush mountable, increased range,
switching capacity 300 mA
80 x 80 x 40 format, DIN rail mounting, solid-state output



## Dimensions (mm)

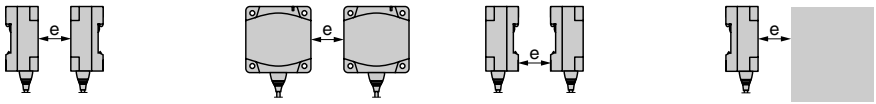
**XS7D1A3CAM12DIN**




*(1) Output LED*
*(2) For CHC type screws*

## Setup

**Minimum mounting distances (mm)**




| | Face to face | Side by side | Back to back | Facing a metal object |
|---|---|---|---|---|
| **Flush mounted** | 450 | 140 | 90 | 150 |
| **Non-flush mounted** | 450 | 180 | 180 | 150 |

## Flush/non-flush conditions

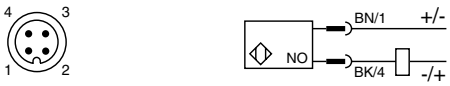
**In A37 steel**




| Sn | Su | Sn | Su |
|---|---|---|---|
| 42 mm | 35 mm | 50 mm | 40 mm |

## Wiring diagrams

**2-wire NO/M12 XS7D1A3CAM12DIN**



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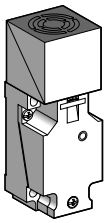
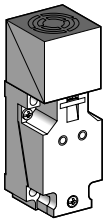
# OsiSense® XS
# Inductive proximity sensors
## General Purpose
Plastic case, limit switch style
5-position turret head. DC supply



| Sensor | | | Flush mountable in metal | | | Non-flush mountable in metal | | |
|---|---|---|---|---|---|---|---|---|
| | | |  | | |  | | |
| **Nominal sensing distance Sn, mm (in.)** | | | 15 (0.59) | Increased range 20 (0.79) | 15 (0.59) | 20 (0.79) | Increased range 40 (1.57) | 20 (0.79) |
| **Catalog Numbers** | | | | | | | | |
| **4-wire** ⎓ (complementary outputs) | PNP | NO + NC | **XS7C40PC440H7** | **XS7C40PC449H7** | – | **XS8C40PC440H7** | **XS8C40PC449H7** | – |
| | NPN | NO + NC | **XS7C40NC440H7** | **XS7C40NC449H7** | – | **XS8C40NC440H7** | **XS8C40NC449H7** | – |
| **2-wire** ⎓ (non-polarized) | NO | | – | – | **XS7C40DA210H7** | – | – | **XS8C40DA210H7** |
| | NO or NC programmable | | – | – | **XS7C40DP210H7** | – | – | **XS8C40DP210H7** |
| **Weight, kg (lb)** | | | 0.220 (0.49) | 0.220 (0.49) | 0.220 (0.49) | 0.220 (0.49) | 0.220 (0.49) | 0.220 (0.49) |

## Specifications

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| **Product certifications** | | UL, CSA, CE | | | | | |
| **Degree of protection** conforming to IEC 60529 | | IP 67 | | | | | |
| **Operating temperature** | | -25 to +70 °C (-13 to +158 °F) | | | | | |
| **Connection (1)** | | Screw terminals, clamping capacity: 2 or 4 x 1.5 mm² (16 AWG) *(2)* | | | | | |
| **Operating zone, mm (in.)** | | **0–12 (0–0.47)** | **0–16 (0–0.63)** | **0–12 (0–0.47)** | **0–16 (0–0.63)** | **0–32 (0–1.26)** | **0–16 (0–0.63)** |
| **Repeat accuracy** | | ≤ 3% of effective sensing distance (Sr) | | | | | |
| **Differential travel** | | 3–20% of effective sensing distance (Sr) | | | | | |
| **Status indication** | Output | Yellow LED | | Yellow LED | Yellow LED | | Yellow LED |
| | Supply on | Green LED | | – | Green LED | | – |
| **Rated supply voltage** | | ⎓ 12–48 V with protection against reverse polarity | | | | | |
| **Voltage limits (including ripple)** | | ⎓ 10–58 V | | | | | |
| **Current consumption, no-load** | | ≤ 10 mA | | – | ≤ 10 mA | | – |
| **Switching capacity** | | 0–200 mA | | 1.5–100 mA | 0–200 mA | | 1.5–100 mA |
| | | With overload and short-circuit protection | | | | | |
| **Residual current, open state** | | – | | ≤ 0.5 mA | – | | ≤ 0.5 mA |
| **Voltage drop, closed state** | | ≤ 2 V | | ≤ 4 V | ≤ 2 V | | ≤ 4 V |
| **Maximum switching frequency** | | 1000 Hz | | 1500 Hz | 1000 Hz | 500 Hz | 800 Hz |
| **Delays** | First-up | ≤ 5 ms | | ≤ 5 ms | ≤ 5 ms | ≤ 5 ms | ≤ 5 ms |
| | Response | ≤ 0.3 ms | | ≤ 2 ms | ≤ 0.3 ms | < 1 ms | ≤ 2 ms |
| | Recovery | ≤ 0.7 ms | | ≤ 5 ms | ≤ 0.7 ms | < 1 ms | ≤ 7 ms |

*(1) Delete "H7" suffix for PG13 conduit entry.*
*(2) Cable gland not included with sensor. For suitable metric version PG13 cable gland (XSZPE13), see page 2/131.*



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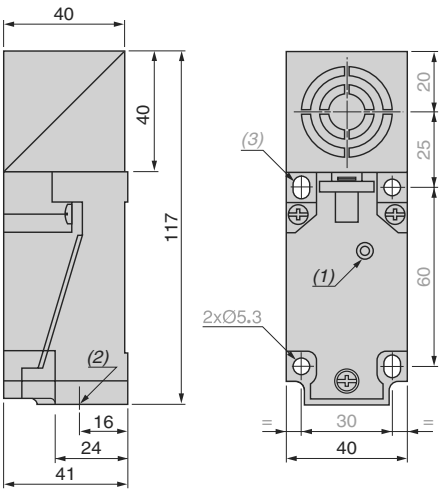
# OsiSense® XS
# Inductive proximity sensors
## General Purpose
Plastic case, limit switch style,5-position turret head, DC supply



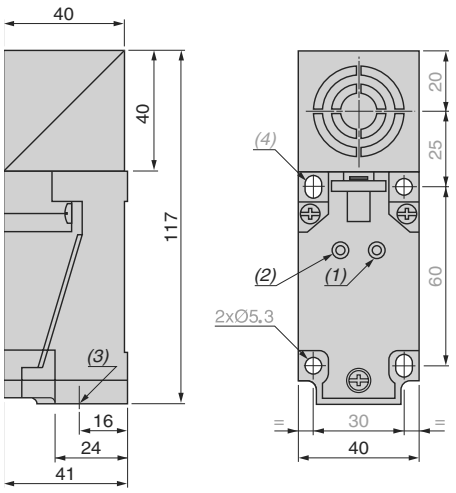
## Dimensions (mm)

**XS7C40D●210, XS8C40D●210**




*(1) Output LED.*
*(2) 1 tapped entry for 1/2" NPT conduit entry.*
*(3) 2 elongated holes Ø 5.3 x 7.*

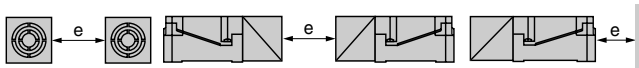
**XS7C40●C44●, XS8C40●C44●**




*(1) Output LED.*
*(2) Supply LED.*
*(3) 1 tapped entry for 1/2" NPT conduit entry.*
*(4) 2 elongated holes Ø 5.3 x 7.*

## Setup

**Minimum mounting distances (mm)**

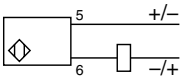


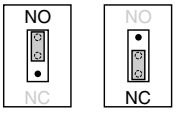

| | | Side by side | Face to face | Facing a metal object |
|---|---|---|---|---|
| **Sensors flush mountable in metal** | **XS7** | e ≥ 40 | e ≥ 120 | e ≥ 45 |
| | **XS7 increased range model** | e ≥ 80 | e ≥ 240 | e ≥ 60 |
| **Sensors non-flush mountable in metal** | **XS8** | e ≥ 80 | e ≥ 160 | e ≥ 60 |
| | **XS8 increased range model** | e ≥ 160 | e ≥ 320 | e ≥ 120 |

**Tightening torque of cover mounting screws and clamp screws:** < 1.2 N•m (10.62 lb-in)

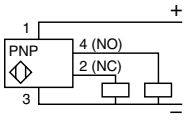
## Wiring diagrams

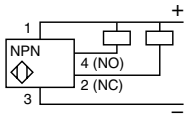
**2-wire ⎓ (non-polarized), NO or NC output depending on position of link**




**4-wire ⎓, NO + NC output**



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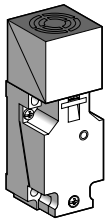
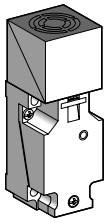
# OsiSense® XS
# Inductive proximity sensors
## General Purpose
Plastic case, limit switch style, plug-in
5-position turret head, AC or DC supply



| Sensor | | Flush mountable in metal | | Non-flush mountable in metal | |
|---|---|---|---|---|---|
| | |  | |  | |
| | | **AC** | **AC/DC** | **AC** | **AC/DC** |
| **Nominal sensing distance Sn, mm (in.)** | | 15 (0.59) | | 20 (0.79) | |
| **Catalog Numbers** | | | | | |
| **2-wire ∼** | NO or NC programmable | **XS7C40FP260H7** | – | **XS8C40FP260H7** | – |
| **2-wire ∼ or ⎓ universal model** | NO or NC programmable | – | **XS7C40MP230H7** | – | **XS8C40MP230H7** |
| **Weight, kg (lb)** | | 0.220 (0.49) | 0.220 (0.49) | 0.220 (0.49) | 0.220 (0.49) |
| **Specifications** | | | | | |
| **Product certifications** | | UL, CSA, CE | | | |
| **Degree of protection** conforming to IEC 60529 | | IP 67 | | | |
| **Operating temperature** | | -25 to +70 °C (-13 to +158 °F) | | | |
| **Connection** | | Screw terminals, clamping capacity 2 x 1.5 mm² (16 AWG) *(1) (2)* | | | |
| **Operating zone, mm (in.)** | | **0–12 (0–0.47)** | | **0–16 (0–0.63)** | |
| **Repeat accuracy** | | ≤ 3% of effective sensing distance (Sr) | | | |
| **Differential travel** | | 3–20% of effective sensing distance (Sr) | | | |
| **Output state indication** | | Yellow LED | | | |
| **Rated supply voltage** with protection against reverse polarity | | ∼ 24–240 V, 50/60 Hz | ∼ 24–240 V, 50/60 Hz or ⎓ 24–210 V | ∼ 24–240 V, 50/60 Hz | ∼ 24–240 V, 50/60 Hz or ⎓ 24–210 V |
| **Voltage limits (including ripple)** | | ∼ 20–264 V | ∼ or ⎓ 20–264 V | ∼ 20–264 V | ∼ or ⎓ 20–264 V |
| **Current consumption, no-load** | | – | | | |
| **Switching capacity (3)** | | 5–500 mA *(2)* (2 A inrush) | ∼ 5–300 mA or ⎓ *5–200 mA (2)* | 5–500 mA *(2)* (2 A inrush) | ∼ 5–300 mA or ⎓ *5–200 mA (2)* |
| **Residual current, open state** | | ⩽ 1.5 mA | 0.8 mA on 24 V 1.5 mA on 120 V | ⩽ 1.5 mA | 0.8 mA on 24 V 1.5 mA on 120 V |
| **Voltage drop, closed state** | | ⩽ 5.5 V | | | |
| **Maximum switching frequency** | | 25 Hz | ∼ 25 Hz, ⎓ 50 Hz | 25 Hz | ∼ 25 Hz, ⎓ 50 Hz |
| **Delays** | First-up | ⩽ 120 ms | | | |
| | Response | ⩽ 30 ms | | | |
| | Recovery | ⩽ 20 ms | | | |

*(1) Delete H7 suffix for PG13 conduit entrance*

*(2) Cable gland not included with sensor. For suitable metric version PG13 cable gland (XSZPE13), see page 2/131.*

*(3) These sensors do not incorporate overload or short-circuit protection. A fast-acting fuse must be connected in series with the load.*



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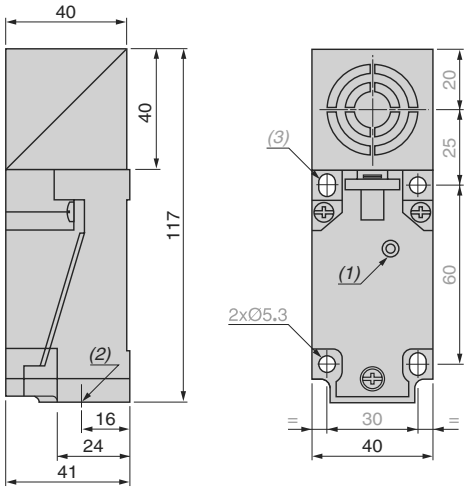
# OsiSense® XS
# Inductive proximity sensors
## General Purpose
Plastic case, limit switch style, plug-in
5-position turret head, AC or DC supply

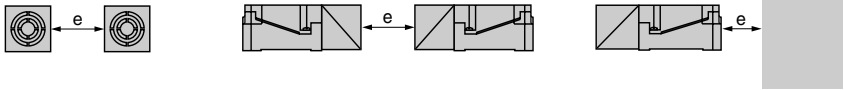


## Dimensions (mm)
**XS7C40FP260H7, XS7C40MP230H7, XS8C40FP260H7, XS8C40MP230H7**




*(1) Output LED.*
*(2) 1 tapped entry for 1/2" NPT conduit entry.*
*(3) 2 elongated holes Ø 5.3 x 7.*

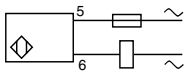
## Setup
**Minimum mounting distances (mm)**

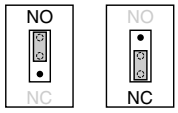



| | Side by side | Face to face | Facing a metal object |
|---|---|---|---|
| **XS7 flush mountable** | e ≥ 40 | e ≥ 120 | e ≥ 45 |
| **XS8 non-flush mountable** | e ≥ 80 | e ≥ 160 | e ≥ 60 |

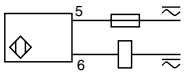
**Tightening torque of cover mounting screws and clamp screws:** < 1.2 N•m (10.62 lb-in)

## Wiring diagrams
**2-wire a programmable, NO or NC output depending on position of link**




**2-wire ∿ or ⎓ programmable, NO or NC output depending on position of link**



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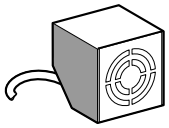
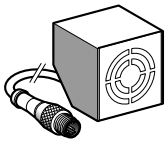
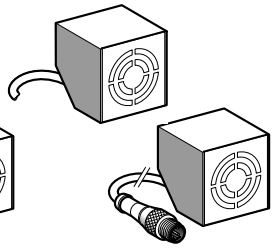
# OsiSense® XS
# Inductive proximity sensors
## Application
For conveying and material handling applications
Plastic case, cubic 40 form, multi-position, DC supply



| Sensor | | Flush mountable in metal | | | | | Non-flush mountable in metal | |
|---|---|---|---|---|---|---|---|---|
| | |  | |  | |  |  | |
| **Nominal sensing distance Sn, mm (in.)** | | 15 (0.59) | | | | | 20 (0.79) | |
| **Catalog Numbers** | | | | | | | | |
| **2-wire** ⎓ (non-polarized) | NO | **XS7T4DA210** | – | **XS7T4DA214LD** | – | **XS7T4DA214LD01** | – | – |
| **4-wire** ⎓ (complementary outputs) | PNP NO + NC | – | **XS7T4PC440** | – | **XS7T4PC440LD** | – | **XS8T4PC440** | **XS8T4PC440LD** |
| | NPN NO + NC | – | **XS7T4NC440** | – | **XS7T4NC440LD** | – | **XS8T4NC440** | **XS8T4NC440LD** |
| **Weight, kg (lb)** | | 0.265 (0.01) | 0.265 (0.01) | 0.220 (0.01) | 0.220 (0.01) | 0.200 (0.01) | 0.265 (0.01) | 0.220 (0.01) |
| **Specifications** | | | | | | | | |
| **Product certifications** | | UL, CSA, CE | | | | | | |
| **Degree of protection** Conforming to IEC 60529 | | IP 67 | | | | | | |
| **Operating temperature** | | - 25 to + 70 °C (-13 to 158 °F) | | | | | | |
| **Connection** | Pre-cabled | 2 x 0.5 mm² (22 AWG) length 2 m *(1)* | 4 x 0.34 mm² (22 AWG) length 2 m *(1)* | – | | | 4 x 0.34 mm² (22 AWG) length 2 m *(1)* | – |
| | Connector Remote M12 | – | | 0.8 m pigtail connector | | 0.15 m pigtail connector | – | 0.8 m pigtail connector |
| **Operating zone, mm (in.)** | | **0–12 (0–0.47)** | | | | | **0–16 (0–0.63)** | |
| **Repeat accuracy** | | ≤ 3% of Sr (effective sensing distance) | | | | | | |
| **Differential travel** | | 3–20% of Sr (effective sensing distance) | | | | | | |
| **Output state indication** | | Yellow LED, on rear | | | | | | |
| **Rated supply voltage** | | ⎓ 12–48 V with protection against reverse polarity | | | | | | |
| **Voltage limits (including ripple)** | | ⎓ 10–58 V | | | | | | |
| **Current consumption, no-load** | | – | ≤ 10 mA | – | ≤ 10 mA | – | ≤ 10 mA | |
| **Switching capacity** | | 1.5–100 mA | 0–200 mA | 1.5–100 mA | 0–200 mA | 1.5–100 mA | 0–200 mA | |
| | | With overload and short-circuit protection | | | | | | |
| **Residual current, open state** | | ≤ 0.7 mA | ≤ 0.1 mA | ≤ 0.7 mA | ≤ 0.1 mA | ≤ 0.7 mA | ≤ 0.1 mA | |
| **Voltage drop, closed state** | | ≤ 5.2 V | ≤ 2 V | ≤ 5.2 V | ≤ 2 V | ≤ 5.2 V | ≤ 2 V | |
| **Maximum switching frequency** | | 150 Hz | 1000 Hz | 150 Hz | 1000 Hz | 150 Hz | 1000 Hz | |
| **Delays** | First-up | ≤ 5 ms | ≤ 7 ms | ≤ 5 ms | ≤ 7 ms | ≤ 5 ms | ≤ 7 ms | |
| | Response | ≤ 2 ms | ≤ 0.3 ms | ≤ 2 ms | ≤ 0.3 ms | ≤ 2 ms | ≤ 0.3 ms | |
| | Recovery | ≤ 5 ms | ≤ 0.7 ms | ≤ 5 ms | ≤ 0.7 ms | ≤ 5 ms | ≤ 0.7 ms | |

*(1) Sensors available with other cable lengths:*

| Length of cable | Suffix to be added to catalog numbers stated above for 2 m pre-cabled sensors | Weight increase, kg (lb) |
|---|---|---|
| 5 m | **L1** | 0.120 (0.01) |
| 10 m | **L2** | 0.320 (0.01) |

Example: sensor **XS7T4DA210** with 5 m cable becomes **XS7T4DA210L1**

**Other versions** Sensors specifically designed for other operating temperatures. consult the Sensor Competency Center.



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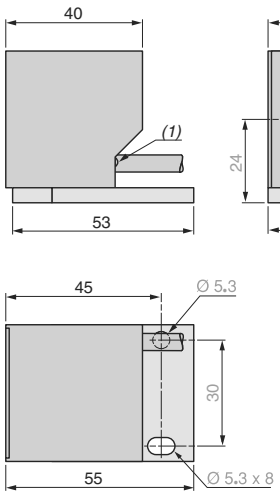
# OsiSense® XS
# Inductive proximity sensors
## Application
For conveying and material handling applications
Plastic case, cubic 40 form, multi-position, DC supply



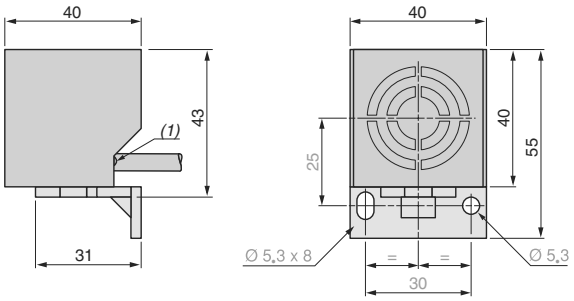
## Dimensions (mm)

**XS●T4●●●●●, XS●T4●●●●●LD, XS7T4●●●●●LD01**

**Plate mounted**

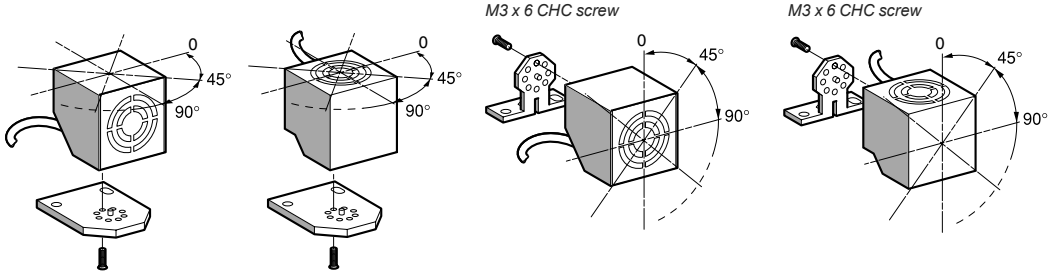



**Bracket mounted**



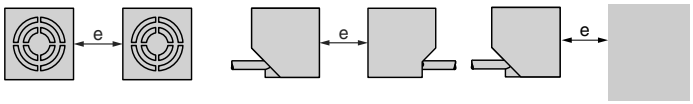

*(1) LED.*

**Alternative positions of head**



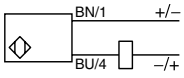
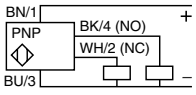
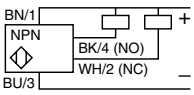

## Setup

**Minimum mounting distances (mm)**




| | | Side by side | Face to face | Facing a metal object |
|---|---|---|---|---|
| **Sensors flush mountable in metal** | **XS7T, 2-wire** | e ≥ 40 | e ≥ 120 | e ≥ 45 |
| | **XS7T, 4-wire** | e ≥ 40 | e ≥ 120 | e ≥ 45 |
| **Sensors non-flush mountable in metal** | **XS8T, 4-wire** | e ≥ 60 | e ≥ 160 | e ≥ 60 |

## Wiring diagrams

| Connector | Pre-cabled | 2-wire ⎓, NO output | 4-wire ⎓, NO + NC output | |
|---|---|---|---|---|
|  | BU: Blue<br>BN: Brown<br>BK: Black<br>WH: White |  |  |  |









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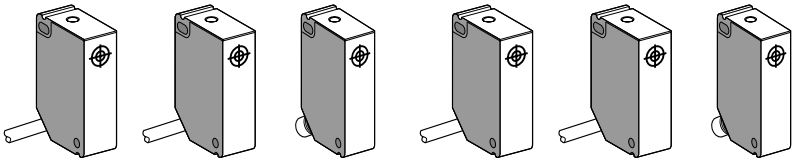
# OsiSense® XS
# Inductive proximity sensors

## Application

For assembly, packaging and light material handling
Plastic case, 12 x 26 x 40 mm
DC supply, solid-state output



| Sensor | | Flush mountable in metal | | | Non-flush mountable in metal | | |
|---|---|---|---|---|---|---|---|
| | |  | | | | | |
| **Nominal sensing distance Sn, mm (in.)** | | 2 (0.08) | | | 4 (0.16) | | |
| **Catalog Numbers** | | | | | | | |
| **3-wire** ⎓ | PNP NO | **XS7G12PA140** | – | **XS7G12PA140S** | **XS8G12PA140** | – | **XS8G12PA140S** |
| | NPN NO | **XS7G12NA140** | – | **XS7G12NA140S** | **XS8G12NA140** | – | **XS8G12NA140S** |
| **4-wire** ⎓ | PNP NO + NC | – | **XS7G12PC440** | – | – | **XS8G12PC440** | – |
| | NPN NO + NC | – | **XS7G12NC440** | – | – | **XS8G12NC440** | – |
| **Weight, kg (lb)** | | 0.100 (0.22) | 0.100 (0.22) | 0.030 (0.07) | 0.100 (0.22) | 0.100 (0.22) | 0.030 (0.07) |
| **Specifications** | | | | | | | |
| **Product certifications** | | CSA, UL, CE | | | | | |
| **Connection** | Pre-cabled | 3 x 0.34 mm² (24 AWG), length 2 m *(1)* | 4 x 0.34 mm² (24 AWG), length 2 m *(1)* | – | 3 x 0.34 mm² (24 AWG), length 2 m *(1)* | 4 x 0.34 mm² (24 AWG), length 2 m *(1)* | – |
| | Connector | – | – | M8 | – | – | M8 |
| **Operating zone, mm (in.)** | | **0–1.6 (0–0.06)** | | | **0–3.2 (0–0.13)** | | |
| **Repeat accuracy** | | ≤ 10% of Sr | | | | | |
| **Differential travel** | | 3–20% of Sr | | | | | |
| **Degree of protection** | | IP 67 | | | | | |
| **Storage temperature** | | -40 to + 85 °C (-40 to +185 °F) | | | | | |
| **Operating temperature** | | -25 to +70 °C(-13 to +158 °F) | | | | | |
| **Materials** | | Case: PBT, cable: PVC | | | | | |
| **Vibration resistance** Conforming to IEC 60068-2-6 | | 25 gn, amplitude ± 2 mm (f = 10 to 55 Hz) | | | | | |
| **Shock resistance** Conforming to IEC 60068-2-27 | | 50 gn, duration 11 ms | | | | | |
| **Output state indication** | | Yellow LED (on top of case) | | | | | |
| **Rated supply voltage** | | ⎓ 12–24 V | ⎓ 12–48 V | ⎓ 12–24 V | ⎓ 12–24 V | ⎓ 12–48 V | ⎓ 12–24 V |
| **Voltage limits (including ripple)** | | ⎓ 10–30 V | ⎓ 10–58 V | ⎓ 10–30 V | ⎓ 10–30 V | ⎓ 10–58 V | ⎓ 10–30 V |
| **Current consumption, no-load** | | ≤ 10 mA | | | | | |
| **Switching capacity** | | 0–100 mA *(2)* | 0–200 mA *(2)* | 0–100 mA *(2)* | 0–100 mA *(2)* | 0–200 mA *(2)* | 0–100 mA *(2)* |
| **Voltage drop, closed state** | | ≤ 1.8 V | ≤ 2.6 V | ≤ 1.8 V | ≤ 1.8 V | ≤ 2.6 V | ≤ 1.8 mA |
| **Maximum switching frequency** | | ≤ 2 kHz | | | ≤ 1 kHz | | |
| **Delays** | First-up | ≤ 4 ms | | | | | |
| | Response | ≤ 0.5 ms | | | | | |
| | Recovery | ≤ 1 ms | | | | | |

*(1) Sensors available with other cable lengths:*

| Length of cable | Suffix to be added to catalog numbers stated above for 2 m pre-cabled sensors | Weight increase |
|---|---|---|
| 5 m | **L1** | 0.120 kg (0.26 lb) |
| 10 m | **L2** | 0.320 kg (0.71 lb) |

Example: sensor **XS7G12PA140** with 5 m cable becomes **XS7G12PA140L1.**

*(2) With overload and short-circuit protection*



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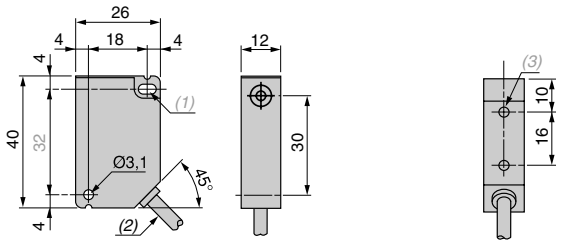
# OsiSense® XS
# Inductive proximity sensors

Application
For assembly, packaging and light material handling
Plastic case, 12 x 26 x 40 mm
DC supply, solid-state output



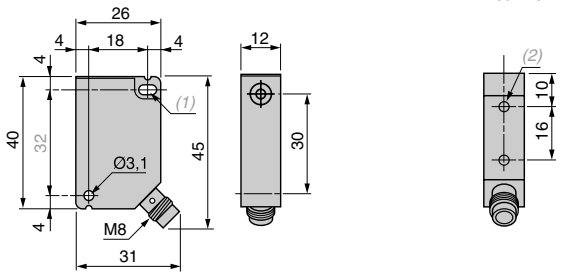
## Dimensions (mm)

### XS●G12●A140, XS●G12●C440




*(1) 1 elongated hole Ø 3.1 x 5.1.*
*(2) Cable L = 2 m.*
*(3) 2 holes M3 x 5.*

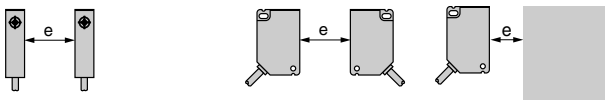
### XS●G12●A140S




*(1) 1 elongated hole Ø 3.1 x 5.1.*
*(2) 2 holes M3 x 5.*

## Setup

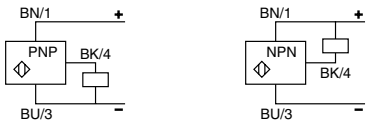
### Minimum mounting distances (mm)



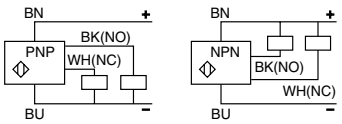

| | Side by side | Face to face | Facing a metal object and mounted in a metal support |
|---|---|---|---|
| **XS7G flush mountable** | e ≥ 0 | e ≥ 15 | e ≥ 6 |
| **XS8G non-flush mountable** | e ≥ 10 | e ≥ 60 | e ≥ 12 |

## Wiring diagrams

### 3-wire ⎓, NO output




### 4-wire ⎓, NO + NC output




### Connector

M8



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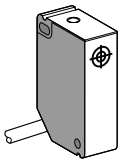
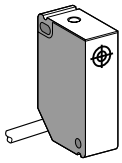
# OsiSense® XS
# Inductive proximity sensors

## Application

For assembly, packaging and light material handling
Plastic case, 12 x 26 x 40 mm
AC or DC supply

| Sensor | | Flush mountable in metal | Non-flush mountable in metal |
|---|---|---|---|
| | |  |  |
| **Nominal sensing distance Sn, mm (in.)** | | 2 (0.04) | 4 (0.08) |
| **Catalog Numbers** | | | |
| **2-wire ⎓ or ∿** | NO | **XS7G12MA230** | **XS8G12MA230** |
| | NC | **XS7G12MB230** | **XS8G12MB230** |
| **Weight, kg (lb)** | | 0.100 (0.22) | 0.100 (0.22) |
| **Specifications** | | | |
| **Product certifications** | | CSA, UL, CE | |
| **Connection** | | Pre-cabled, 2 x 0.34 mm² (24 AWG), length 2 m *(1)* | |
| **Operating zone, mm (in.)** | | **0–1.6 (0–0.06)** | **0–3.2 (0–0.13)** |
| **Repeat accuracy** | | ≤ 10% of Sr | |
| **Differential travel** | | 3–20% of Sr | |
| **Degree of protection** | | IP 67 | |
| **Storage temperature** | | -40 to +85 °C (-40 to +185 °F) | |
| **Operating temperature** | | -25 to +70 °C (-13 to +158 °F) | |
| **Materials** | | Case: PBT, cable: PVC | |
| **Vibration resistance** Conforming to IEC 60068-2-6 | | 25 gn, amplitude ± 2 mm (f = 10 to 55 Hz) | |
| **Shock resistance** Conforming to IEC 60068-2-27 | | 50 gn, duration 11 ms | |
| **Output state indication** | | Yellow LED (on top of case) | |
| **Rated supply voltage** | | ∿ 24–240 V (50/60 Hz) or ⎓ 24–210 V | |
| **Voltage limits (including ripple)** | | ∿ or ⎓ 20–264 V | |
| **Switching capacity** | | 5–200 mA (2) | |
| **Voltage drop, closed state** | | ≤ 5.5 V | |
| **Residual current, open state** | | ≤ 0.8 mA/24 V, 1.5 mA/120 V | |
| **Maximum switching frequency** | | ∿ 25 Hz or ⎓ 250 Hz | |
| **Delays** | First-up | ≤ 40 ms | |
| | Response | ≤ 1 ms | |
| | Recovery | ≤ 2 ms | |

*(1) Sensors available with other cable lengths:*

| Length of cable | Suffix to be added to catalog numbers stated above for 2 m pre-cabled sensors | Weight increase |
|---|---|---|
| 5 m | **L1** | 0.120 kg (0.26 lb) |
| 10 m | **L2** | 0.320 kg (0.71 lb) |

Example: sensor **XS7G12MA230** with 5 m cable becomes **XS7G12MA230L1.**

*(2) These sensors do not incorporate overload or short-circuit protection and therefore, a 0.4 A fast-acting fuse must be connected in series with the load.*



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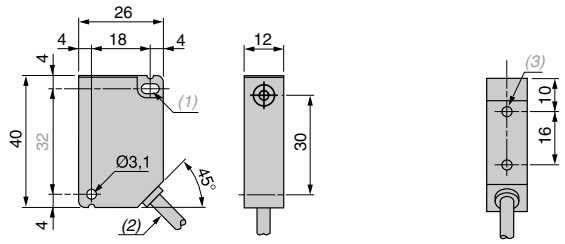
# OsiSense® XS
# Inductive proximity sensors

Application
For assembly, packaging and light material handling
Plastic case, 12 x 26 x 40 mm
AC or DC supply



## Dimensions (mm)

**XS●G12M●230**



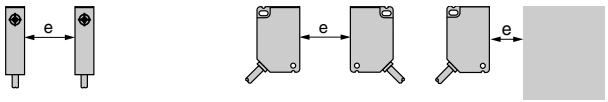

Rear view




*(1) 1 elongated hole Ø 3.1 x 5.1.*
*(2) Cable L = 2 m*

## Setup

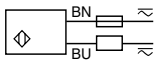
**Minimum mounting distances (mm)**




| | Side by side | Face to face | Facing a metal object and mounted in a metal support |
|---|---|---|---|
| **XS7G flush mountable** | e ≥ 0 | e ≥ 15 | e ≥ 6 |
| **XS8G non-flush mountable** | e ≥ 10 | e ≥ 60 | e ≥ 12 |

## Wiring diagrams

**2-wire ∼ or ⎓, NO or NC output**



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# OsiSense® XS
# Inductive proximity sensors
## Application
Sensors for rotation monitoring, slip detection, shaft overload detection, Cylindrical form



**Example:**
Coupling breakage monitoring

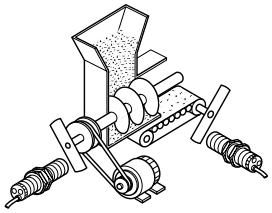
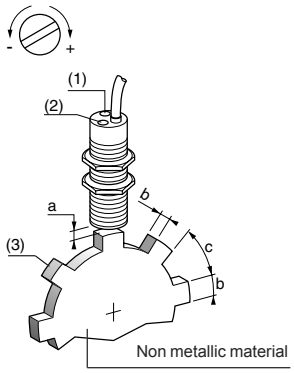


**Figure 1**




## Functions
As a special feature, these self-contained rotation speed monitoring sensors incorporate, in the same case, the pulse sensing and processing electronics with the output switching amplifier, which are required to establish an integrated rotation monitoring device.

The unit provides an economical solution for detecting slip, belt breakage, drive shaft shear and overloading, etc., in the following applications: conveyor belts, bucket elevators, Archemedian screws, grinders, crushers, pumps, centrifugal driers, mixers, etc.

## Operating principle
The output signal of this type of sensor is processed by an impulse comparator in the sensor. The impulse frequency Fc generated by the moving part to be monitored is compared to the frequency Fr preset on the sensor. The output switching circuit of the sensor is in the closed state for Fc > Fr and the open state for Fc < Fr.

Sensors XSA-V are particularly suitable for the detection of underspeed: when the speed of the moving part Fc falls below a preset threshold Fr, this causes the output circuit of the sensor to switch off.

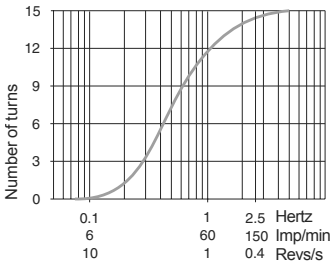
***Note:*** *Following power-up, the operational status of the sensor is subject to a delay of 9 seconds so the moving part being monitored and run up to its nominal speed. During this time, the output of the sensor remains in the closed state.*

**Adjustment of frequency threshold**
- Adjustment of sensor's frequency threshold: using potentiometer, 15 turns approximately.
- To increase the frequency threshold: turn the adjustment screw clockwise (+).
- To decrease the frequency threshold: turn the adjustment screw counter clockwise (–).

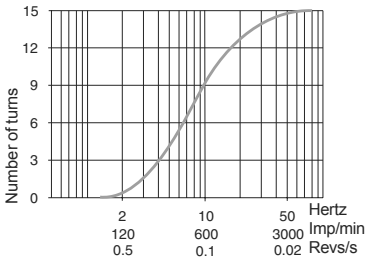
| **Figure 1** | **Diameter of sensor: ø30 mm** | | | |
|---|---|---|---|---|
| 1. Potentiometer | Distance | a | b | c |
| 2. LED | mm (in.) | 4–6 (0.16–0.24) | 30 (1.18) | 60 (2.36) |
| 3. Metal target | | | | |

**Potentiometer adjustment curves** (for **XSAV1●801**, 2-wire ∿ or ⎓ sensors)

Low speed version (6–150 impulses/minute)

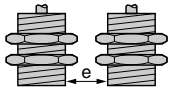



High speed version (120–3000 impulses/minute)



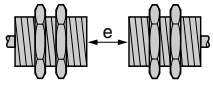

## Setup
**Minimum distances (mm)**

Side by side



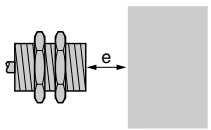

e ≥ 20

Face to face



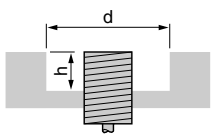

e ≥ 120

Facing a metal object




e ≥ 30

Mounted in a metal support




d ≥ 30, h ≥ 0

Mounting nut tightening torque: < 50 N•m (442.54 lb-in)



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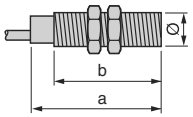
# OsiSense® XS
# Inductive proximity sensors

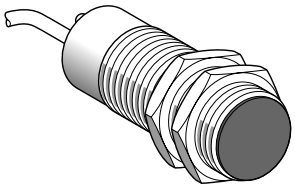
## Application

Sensors for rotation monitoring, slip detection, shaft overload detection, Cylindrical form



## Flush mountable in metal



Lengths (mm):
a = Overall
b = Threaded section

| | DC | DC | AC/DC | AC/DC |
|---|---|---|---|---|
| **Nominal sensing distance** (Sn) | 10 mm (0.39 in.) | 10 mm (0.39 in.) | 10 mm (0.39 in.) | 10 mm (0.39 in.) |
| **Adjustable frequency range** | 6–150 impulses/min | 120–3000 impulses/min | 6–150 impulses/min | 120–3000 impulses/min |

## Catalog Numbers

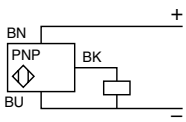
| | | | | | |
|---|---|---|---|---|---|
| **3-wire** ⎓ | **PNP / NC** | **XSAV11373** | **XSAV12373** | – | – |
| **2-wire** | **⎓ or ∿ / NC** | – | – | **XSAV11801** | **XSAV12801** |
| **Weight,** kg (lb) | | 0.300 (0.66) | | | |

## Specifications

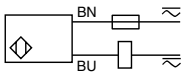
| | | |
|---|---|---|
| **Connection** | **Pre-cabled, 3 x 0.34 mm² (22 AWG), length 2 m** *(1)* | **Pre-cabled, 2 x 0.34 mm² (22 AWG), length 2 m** *(1)* |
| **Degree of protection** conforming to IEC 60529 | IP 67 | |
| **Operating zone, mm (in.)** | 0–8 mm (0–0.31) | |
| **Repeat accuracy** | 3% of Sr | |
| **Differential travel** | 3–15% of Fr | |
| **Operating temperature** | -25 to +70 °C (-13 to +158 °F) | |
| **Output state indication** | Red LED | |
| **Rated supply voltage** | **⎓ 12–48 V with protection against reverse polarity** | **∿ 24–240 V (50/60 Hz) or ⎓ 24–210 V** |
| **Voltage limits (including ripple)** | ⎓ 10–58 V | ∿ or ⎓ 20–264 V |
| **Switching capacity** | **≤ 200 mA with overload and short-circuit protection** | **∿ 5–350 mA or ⎓ 5–200 mA** *(2)* |
| **Voltage drop, closed state** | ≤ 1.8 V | ≤ 5.7 V |
| **Residual current, open state** | | ≤ 1.5 mA |
| **Current consumption, no-load** | ≤ 15 mA | – |
| **Maximum switching frequency** | 6000 impulses/min (for **XSAV11●●●**); 48,000 impulses/min (for **XSAV12●●●**) | |
| **Run-up delay following power-up** | 9 seconds ± 20% + 1/Fr (3) | |

## Wiring diagrams

3-wire ⎓
XSAV1●**373**




2-wire ∿ or ⎓
**XSAV1●801**




*(1) For a 5 m cable add L05 to the catalog number, for a 10 m cable add L10.*
*Example: XSA V11373 becomes **XSAV11373L05** with a 5 m cable.*
*(2) These sensors do not incorporate overload or short-circuit protection and therefore, it is essential to connect a 0.4 A fast-acting fuse in series with the load, see page 2/131.*
*(3) For a sensor without a run-up delay following power-up, replace XSA V1 in the catalog number by XSAV0. Example: XSA V11801 becomes **XSAV01801** without a run-up delay. For a reduced run-up delay of 3 s, replace XSAV1 in the catalog number with XSAV3.*



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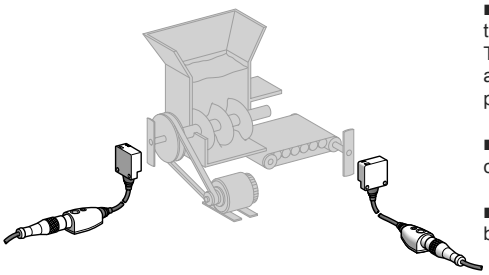
# OsiSense® XS
# Inductive proximity sensors
## Application
Sensors for rotation monitoring, slip detection and shaft overload detection, with teach mode



## Operating principle and applications

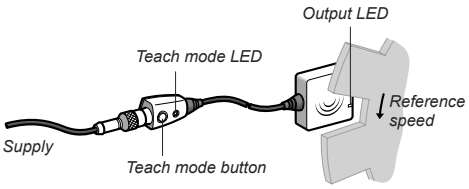


■ These inductive proximity sensors are designed for monitoring rotational speed or the speed of the flow of objects to be protected or monitored.
They operate on the principle of comparing a speed threshold preset by the operator against the instantaneous measurement of the speed of the moving object to be protected.

■ They provide a simple, economical solution for detecting slip, belt breakage, coupling breakage and overload, etc.

■ They are widely used in grinder/crusher, mixer, pump, centrifugal driver, conveyor belt, bucket elevator, Archimedean screw, etc. type applications.

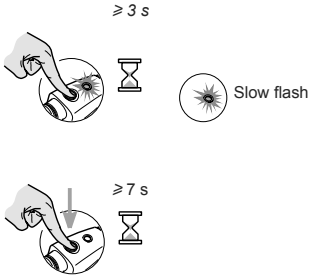
## Installation and setup




### Setup and positioning the sensor

■ In the positioning phase, the XS9 sensor can operate as a standard inductive sensor (Schneider Electric patent pending).
Operation in inductive mode enables validation of reliable detection of all the moving objects to be monitored.

■ Using this system, the positioning is reliable and can be checked at any time without altering the settings of the sensor.




### Speed adjustment in teach mode

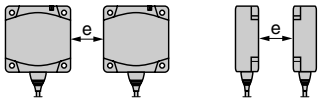
■ The normal or reference speed of the moving object (1) to be monitored is adjusted by simply pressing the teach mode button (*2*) and is then validated by the display LED.
□ If in doubt, the sensor can be reset at any time to the factory settings.

*(1) To allow the moving object to reach its normal speed (machine inertia), the sensor holds its output closed for 9 seconds.*

*(2) The sensor's default drop-out underspeed corresponds to the preset speed - 30%.*
*Example: If the preset speed is 1000 rpm, the sensor drops out on underspeed when the speed of the moving object drops below 700 rpm [1000 – (1000 x 0.3)].*
*- 20%, - 11% and - 6% thresholds can be obtained by pressing the teach mode button.*

## Setup

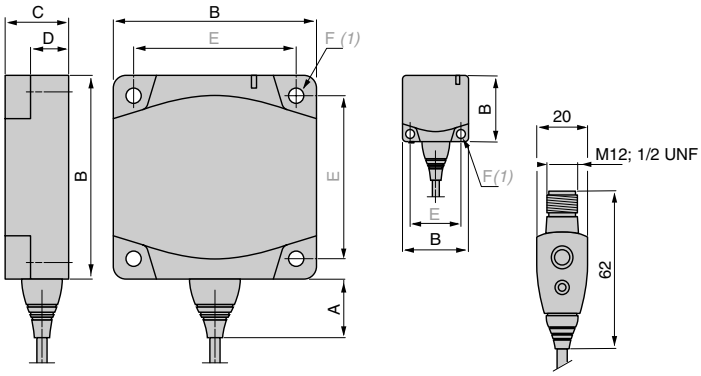
### Minimum mounting distances (mm)




| Type | Side by side | Face to face |
|---|---|---|
| **XS9E** | e ≥ 40 | e ≥ 80 |
| **XS9C** | e ≥ 60 | e ≥ 120 |

## Dimensions (mm)

### XS9E, XS9C




*(1) For CHC type screws*

| Type | A | B | C | D | E | F |
|---|---|---|---|---|---|---|
| **XS9E** | 14 | 26 | 13 | 8.8 | 20 | 3.5 |
| **XS9C** | 14 | 40 | 15 | 9.8 | 33 | 4.5 |



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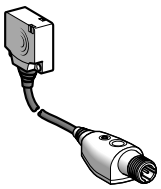
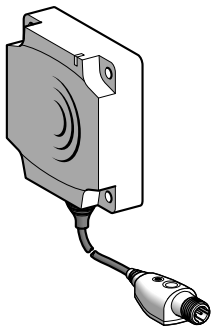
# OsiSense® XS
# Inductive proximity sensors
## Application
Sensors for rotation monitoring, slip detection and shaft overload detection, with teach mode



**Flush mountable in metal**

**PBT case**

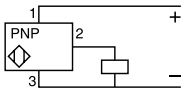
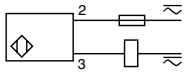




| | | | | | |
|---|---|---|---|---|---|
| **Nominal sensing distance Sn, mm (in.)** | | **10 (0.39)** | **15 (0.59)** | **10 (0.39)** | **15 (0.59)** |
| **Adjustable frequency range** | | 6 to 6000 impulses/min | | | |
| **Catalog Numbers** | | | | | |
| **3-wire** | PNP / NC | **XS9E11RPBL01M12** | **XS9C11RPBL01M12** | – | – |
| **2-wire** | ⎓ or ∿ / NC | – | – | **XS9E11RMBL01U20** | **XS9C11RMBL01U20** |
| **Weight, kg (lb)** | | 0.040 (0.09) | 0.060 (0.13) | 0.040 (0.09) | 0.060 (0.13) |
| **Specifications** | | | | | |
| **Product certifications** | | UL, CSA, CE | | | |
| **Connection** | | Remote M12 connector on 0.15 m pigtail connector | | Remote 1/2"-20UNF connector on 0.15 m pigtail connector | |
| **Operating zone, mm (in.)** | | **0–8 (0–0.31)** | **0–12 (0–0.47)** | **0–8 (0–0.31)** | **0–12 (0–0.47)** |
| **Degree of protection** | Conforming to IEC 60529 | IP 67, double insulation ⧈ | | | |
| **Storage temperature** | | - 40 to + 85 °C (-40 to +185 °F) | | | |
| **Operating temperature** | | - 25 to + 70 °C (-13 to +158 °F) | | | |
| **Vibration resistance** | Conforming to IEC 60068-2-6 | 25 gn, amplitude ± 2 mm (f = 10 to 55 Hz) | | | |
| **Shock resistance** | Conforming to IEC 60068-2-27 | 50 gn, duration 11 ms | | | |
| **Indicators** | Output state | Yellow LED | | | |
| | Supply on | Green LED | | | |
| **Rated supply voltage** | | ⎓ 12–24 V | | ∿ or ⎓ 24–240 V (50/60 Hz) | |
| **Voltage limits (including ripple)** | | ⎓ 10–36 V | | ∿ or ⎓ 20–264 V | |
| **Switching capacity** | | ≤ 100 mA *(1)* | ≤ 200 mA *(1)* | ∿ or ⎓ 5–100 mA *(2)* | ⎓ 5–200 mA, ∿ 5–300 mA *(2)* |
| **Voltage drop, closed state** | | ≤ 2 V | | ≤ 5.5 V | |
| **Residual current, open state** | | ≤ 100 mA | | ≤ 1.5 mA | |
| **Current consumption, no-load** | | ≤ 10 mA | | – | |
| **Maximum switching frequency** | | 48,000 impulses/min | | | |
| **Run-up delay following power-up** | | 9 seconds + 1/Fr | | | |

*(1) With overload and short-circuit protection.*
*(2) A 0.4 A fast-acting fuse must be connected in series with the load.*

## Wiring diagrams

| **Connector** | | **3-wire** ⎓ | **2-wire** ∿ **or** ⎓ |
|---|---|---|---|
| **M12** | **1/2"-20UNF** | **XS9●11RPBL01M12** | **XS9●11RMBL01U20** |
|  |  |  |  |

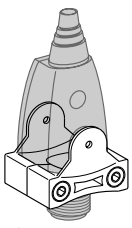








## Accessory

| | **Description** | **Catalog Number** | **Weight kg** |
|---|---|---|---|
|  | **Remote control mounting clamp** | **XSZBPM12** | 0.015 |

*XSZBPM12*



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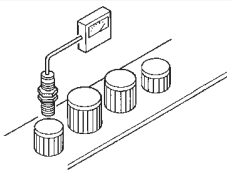
# OsiSense® XS
# Inductive proximity sensors
## Application
Sensors with analog output signal 0–10 V *(1)*
or 4–20 mA
For position, displacement and deformation control/monitoring



## Functions

Example:
Sorting parts



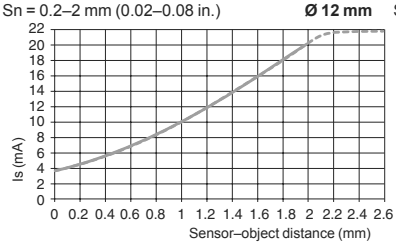
These analog output proximity sensors are solid-state sensors designed for monitoring displacement. They are not measuring sensors. They are suitable for use in many sectors, particularly for applications involving:
- deformation and displacement monitoring,
- vibration amplitude and frequency monitoring,
- control of dimensional tolerances,
- position control,
- concentricity or eccentricity monitoring.

## Operating principle

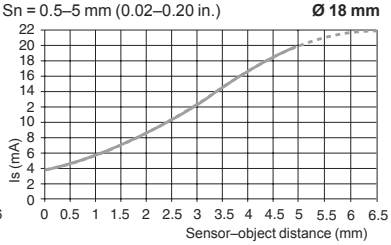
The operating principle of the sensor is that of a damped oscillator. The degree of damping will depend on the distance of an object from the sensing face. The sensor will sense the distance and produce an output current with a value directly proportional to this distance.

## Operating curves 4–20 mA, 2-wire connection

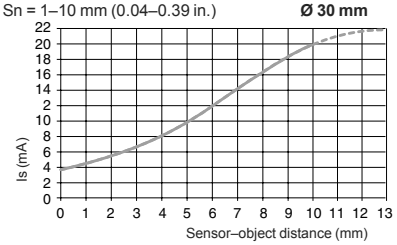
**XS1M12AB120**
Sn = 0.2–2 mm (0.02–0.08 in.) **Ø 12 mm**



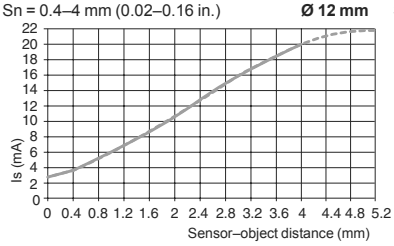

**XS1M18AB120**
Sn = 0.5–5 mm (0.02–0.20 in.) **Ø 18 mm**



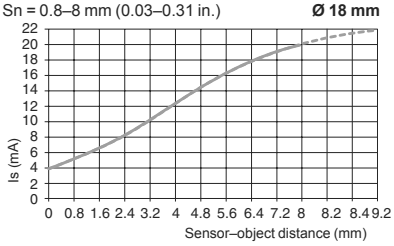

**XS1M30AB120**
Sn = 1–10 mm (0.04–0.39 in.) **Ø 30 mm**



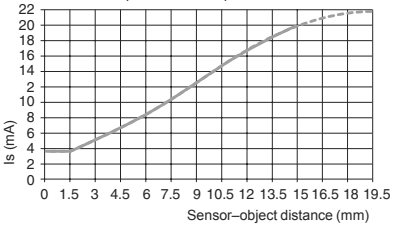

**XS4P12AB120**
Sn = 0.4–4 mm (0.02–0.16 in.) **Ø 12 mm**




**XS4P18AB120**
Sn = 0.8–8 mm (0.03–0.31 in.) **Ø 18 mm**

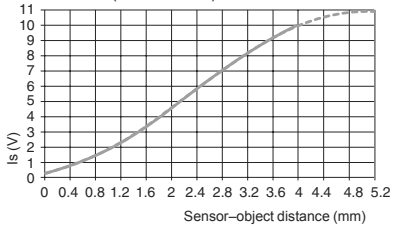



**XS4P30AB120**
Sn = 1.5–15 mm (0.06–0.59 in.) **Ø 30 mm**

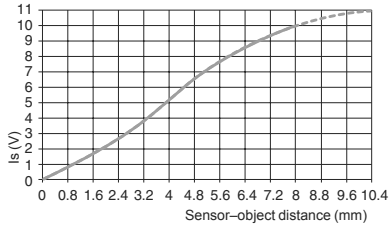



## Operating curves 0–10 V, 3-wire connection

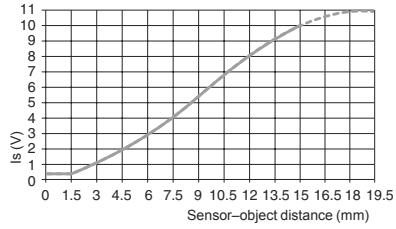
**XS4P12AB110**
Sn = 0.4–4 mm (0.02–0.16 in.) **Ø 12 mm**




**XS4P18AB110**
Sn = 0.4–4 mm (0.02–0.16 in.) **Ø 18 mm**

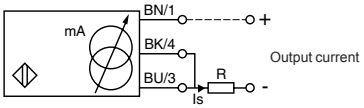



**XS4P30AB110**
Sn = 0.4–4 mm (0.02–0.16 in.) **Ø 30 mm**




## Wiring diagrams

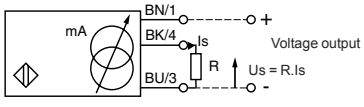
**2-wire connection**




| | Output current | Load impedance value |
|---|---|---|
| 12 V | 4–20 mA | R ⩽ 8.2 Ω |
| 24 V | 4–20 mA | R ⩽ 470 Ω |

Ensure a minimum of 10 V between the + and the - (terminal 3) of the sensor.

**3-wire connection**




| | Output current | Load impedance value | Output voltage | Load impedance value |
|---|---|---|---|---|
| 24 V | 0–10 mA | R ⩽ 1500 Ω | 0–10 V | R = 1000 Ω |
| 48 V | 0–10 mA | R ⩽ 3300 Ω | 0–10 V | R = 1000 Ω |

Ensure a minimum of 5 V between the + and the sensor output (terminal 4).

*(1) Voltage range only obtained with a load impedance of 1000 Ω.*



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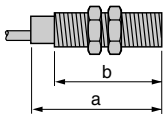
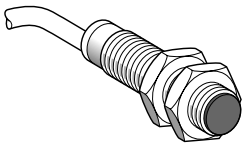
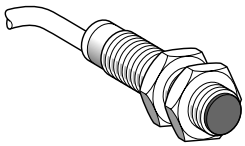
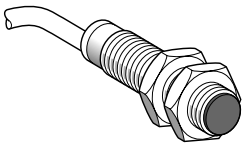
# OsiSense® XS
# Inductive proximity sensors
## Application
Sensors with analog output signal 0–10 V *(1)*
or 4–20 mA
For position, displacement and deformation control/monitoring



| Sensor | Flush mountable in metal | Non-flush mountable in metal | |
|---|---|---|---|
| |  |  |  |  |
| Lengths (mm):<br>a = Overall<br>b = Threaded section | a = 50<br>b = 42 | a = 50<br>b = 42 | a = 50<br>b = 42 |
| | **Metal case** | **Plastic case** | **Plastic case** |
| **Nominal sensing distance** Sn, mm (in.) | 2 (0.08) | 4 (0.16) | 4 (0.16) |

## Catalog Numbers

| | | | | |
|---|---|---|---|---|
| 3-wire ⎓ | Output 0–10 V *(2)* | – | – | **XS4P12AB110** |
| 2-wire ⎓ | Output 4–20 mA *(2)* | **XS1M12AB120** | **XS4P12AB120** | – |
| Weight, kg (lb) | | 0.075 (0.17) | 0.065 (0.14) | 0.065 (0.14) |

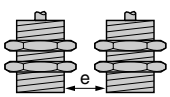
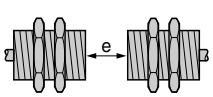
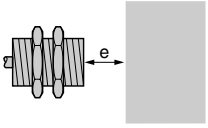
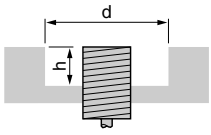
## Specifications

| | | | |
|---|---|---|---|
| **Product certifications** | CE, UL, CSA | | |
| **Connection** | **Pre-cabled, PvR 3 x 0.34 mm² (24 AWG), length 2 m** | | |
| **Degree of protection**<br>Conforming to IEC 60529 | IP 67 | | |
| **Operating zone, mm (in.)** | **0.2–2 (0.01–0.08)** | **0.4–4 (0.02–0.16)** | **0.4–4 (0.02–0.16)** |
| **Repeat accuracy** | ± 3% | | |
| **Linearity error** | ± 2 mA | | ± 1 V |
| **Ambient air temperature** | For operation: -25 to +70 °C (-13 to +158 °F) | | |
| **Rated supply voltage** | ⎓ **12–24 V** | ⎓ **12–24 V** | ⎓ **24–48 V** |
| **Voltage limits (including ripple)** | ⎓ 10–36 V | ⎓ 10–36 V | ⎓ 15–58 V |
| **Output current drift**<br>Ambient temperature: -25 to+70 °C (-13 to +158 °F) | ≤ 10% | | |
| **Current consumption, no-load** | 4 mA | | |
| **Maximum operating rate** | 1500 Hz | | |

*(1) Voltage range only obtained with a load impedance of 1000 Ω.*
*(2) Output current range (Is)*

## Setup

**Minimum mounting distances (mm)**

| | Side by side | Face to face | Facing a metal object | Mounted in a metal support |
|---|---|---|---|---|
| |  |  |  |  |
| **XS1M12AB120 flush mountable** | e ≥ 4 | e ≥ 24 | e ≥ 6 | d ≥ 12, h ≥ 0 |
| **XS4P12AB110 non-flush mountable** | e ≥ 16 | e ≥ 48 | e ≥ 12 | d ≥ 36, h ≥ 8 |
| **XS4P12AB120 non-flush mountable** | e ≥ 16 | e ≥ 48 | e ≥ 12 | d ≥ 36, h ≥ 8 |

| | |
|---|---|
| **Mounting nut tightening torque** | < 6 N•m (53.10 lb-in) (metal case), < 2 N•m (17.70 lb-in) (plastic case) |
| **Other versions** | Consult the Sensor Competency Center. |



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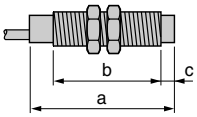
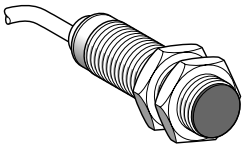
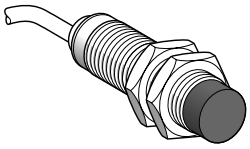
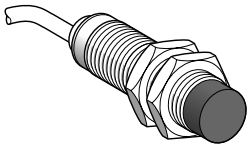
# OsiSense® XS
# Inductive proximity sensors
## Application
Sensors with analog output signal 0–10 V *(1)*
or 4–20 mA



| Sensor | Flush mountable in metal | Non-flush mountable in metal | |
|---|---|---|---|
| |  |  |  |  |
| Lengths (mm):<br>a = Overall<br>b = Threaded section<br>c = For non-flush mountable sensors | a = 52.5<br>b = 44<br>c = 0 | a = 40.6<br>b = 26<br>c = 8 | a = 40.6<br>b = 26<br>c = 8 |
| | **Metal case** | **Plastic case** | **Plastic case** |
| **Nominal sensing distance**<br>Sn, mm (in.) | 5 (0.20) | 8 (0.31) | 8 (0.31) |

### Catalog Numbers

| | | | | |
|---|---|---|---|---|
| 3-wire ⎓ | Output 0–10 V *(2)* | – | – | **XS4P18AB110** |
| 2-wire ⎓ | Output 4–20 mA *(2)* | **XS1M18AB120** | **XS4P18AB120** | – |
| Weight (kg) | | 0.120 (0.26) | 0.080 (0.18) | 0.080 (0.18) |

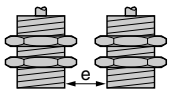
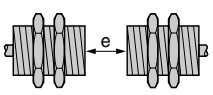
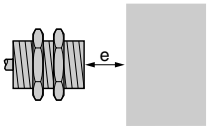
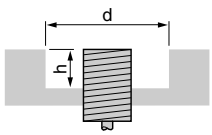
### Specifications

| | | | |
|---|---|---|---|
| **Product certifications** | CE, UL, CSA | | |
| **Connection** | **Pre-cabled, PvR 3 x 0.34 mm² (24 AWG), length 2 m** | | |
| **Degree of protection**<br>Conforming to IEC 60529 | IP 67 | | |
| **Operating zone, mm (in.)** | **0.5–5 (0.02–0.20)** | **0.8–8 (0.03–0.31)** | **0.8–8 (0.03–0.31)** |
| **Repeat accuracy** | ± 3% | | |
| **Linearity error** | ± 2 mA | | ± 1 V |
| **Ambient air temperature** | For operation: - 25 to + 70 °C (-13 to +158 °F) | | |
| **Rated supply voltage** | ⎓ **12–24 V** | ⎓ **12–24 V** | ⎓ **24–48 V** |
| **Voltage limits (including ripple)** | ⎓ 10–36 V | ⎓ 10–36 V | ⎓ 15–58 V |
| **Output current drift**<br>Ambient temperature: - 25 to + 70 °C (-13 to +158 °F) | ≤ 10% | | |
| **Current consumption, no-load** | 4 mA | | |
| **Maximum operating rate** | 500 Hz | | |

*(1) Voltage range only obtained with a load impedance of 1000 Ω.*
*(2) Output current range Is, see page 2/96.*

### Setup

**Minimum mounting distances (mm)**

| | Side by side | Face to face | Facing a metal object | Mounted in a metal support |
|---|---|---|---|---|
| |  |  |  |  |
| **XS1M18AB120 flush mountable** | e ≥ 10 | e ≥ 60 | e ≥ 15 | d ≥ 18, h ≥ 0 |
| **XS4P18AB110 non-flush mountable** | e ≥ 32 | e ≥ 96 | e ≥ 24 | d ≥ 54, h ≥ 16 |
| **XS4P18AB120 non-flush mountable** | e ≥ 32 | e ≥ 96 | e ≥ 24 | d ≥ 54, h ≥ 16 |

| | |
|---|---|
| **Mounting nut tightening torque** | < 15 N•m (132.76 lb-in) (metal case), < 5 N•m (44.25 lb-in) (plastic case) |
| **Other versions** | Consult the Sensor Competency Center. |



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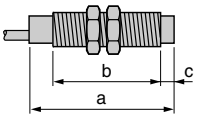
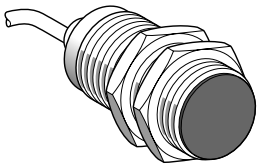
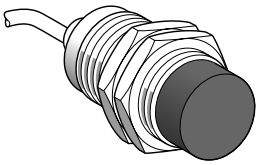
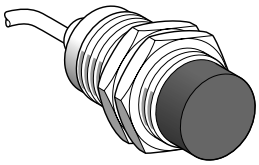
# OsiSense® XS
# Inductive proximity sensors
## Application
Sensors with analog output signal 0–10 V *(1)* or 4–20 mA



| Sensor | Flush mountable in metal | Non-flush mountable in metal | |
|---|---|---|---|
|  |  |  |  |
| Lengths (mm):<br>a = Overall<br>b = Threaded section<br>c = For non-flush mountable sensors | a = 50<br>b = 42<br>c = 0 | a = 52.6<br>b = 32<br>c = 13 | a = 52.6<br>b = 32<br>c = 13 |
| | **Metal case** | **Plastic case** | **Plastic case** |
| **Nominal sensing distance** Sn, mm (in.) | 10 (0.39) | 15 (0.59) | 15 (0.59) |

## Catalog Numbers

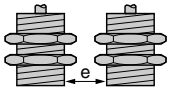
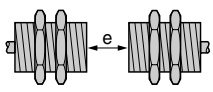
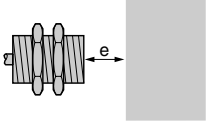
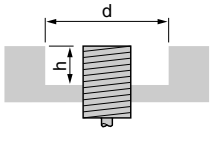
| | | | | |
|---|---|---|---|---|
| 3-wire ⎓ | Output 0–10 V *(2)* | – | – | **XS4P30AB110** |
| 2-wire ⎓ | Output 4–20 mA *(2)* | **XS1M30AB120** | **XS4P30AB120** | – |
| Weight, kg (lb) | | 0.200 (0.44) | 0.100 (0.22) | 0.100 (0.22) |

## Specifications

| | | | |
|---|---|---|---|
| **Product certifications** | CE, UL, CSA | | |
| **Connection** | **Pre-cabled, PvR 3 x 0.34 mm² (22 AWG), length 2 m** | | |
| **Degree of protection**<br>Conforming to IEC 60529 | IP 67 | | |
| **Operating zone, mm (in.)** | **1–10 (0.04–0.39)** | **1.5–15 (0.06–0.59)** | **1.5–5 (0.06–0.20)** |
| **Repeat accuracy** | ± 3% | | |
| **Linearity error** | ± 2 mA | | ± 1 V |
| **Ambient air temperature** | For operation: - 25 to + 70 °C (-13 to +158 °F) | | |
| **Rated supply voltage** | ⎓ **12–24 V** | ⎓ **12–24 V** | ⎓ **24–48 V** |
| **Voltage limits (including ripple)** | ⎓ 10–36 V | ⎓ 10–36 V | ⎓ 15–58 V |
| **Output current drift**<br>Ambient temperature: - 25 to + 70 °C (-13 to +158 °F) | ≤ 10% | | |
| **Current consumption, no-load** | 4 mA | | |
| **Maximum operating rate** | 300 Hz | | |

*(1) Voltage range only obtained with a load impedance of 1000 Ω.*
*(2) Output current range Is, see page 2/96.*

## Setup

| **Minimum mounting distances (mm)** | Side by side | Face to face | Facing a metal object | Mounted in a metal support |
|---|---|---|---|---|
| |  |  |  |  |
| **XS1M30AB120 flush mountable** | e ≥ 20 | e ≥ 120 | e ≥ 30 | d ≥ 30, h ≥ 0 |
| **XS4P30AB110 non-flush mountable** | e ≥ 60 | e ≥ 180 | e ≥ 45 | d ≥ 90, h ≥ 30 |
| **XS4P30AB120 non-flush mountable** | e ≥ 60 | e ≥ 180 | e ≥ 45 | d ≥ 90, h ≥ 30 |

| | |
|---|---|
| **Mounting nut tightening torque** | < 40 N•m (354.03 lb-in) (metal case) , < 20 N•m (177.01 lb-in) (plastic case) |
| **Other versions** | Consult the Sensor Competency Center. |



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# OsiSense® XS
# Inductive proximity sensors
## Application
Sensors with analog output signal 0–10 V (1)
For position, displacement and deformation control/monitoring



## Functions

These analog output proximity sensors are solid-state sensors designed for monitoring displacement. They are not measuring sensors.

**They are suitable for use in many sectors, particularly for applications involving:**

- deformation and displacement monitoring,
- vibration amplitude and frequency monitoring,
- control of dimensional tolerances,
- position control,
- concentricity or eccentricity monitoring.

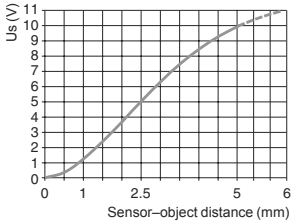
## Operating principle

The operating principle of the sensor is that of a damped oscillator. The degree of damping will depend on the distance of an object from the sensing face. The sensor will sense the distance and produce an output current with a value directly proportional to this distance.

## Operating curves 0–10 V, 3-wire connection

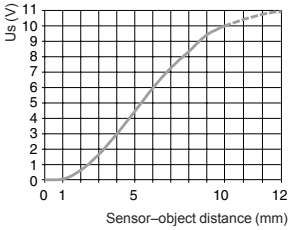
### XS9F

Sn = 1–5 mm (0.04–0.20 in.)



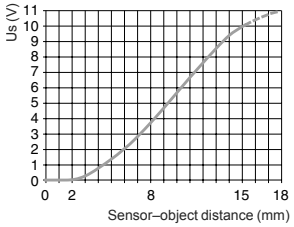

### XS9E

Sn = 1–10 mm(0.04–0.39 in.)



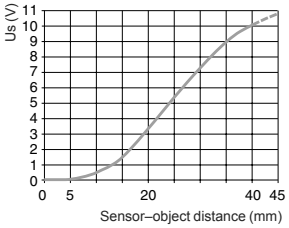

### XS9C

Sn = 2–15 mm (0.04–0.59 in.)




### XS9D

Sn = 5–40 mm (0.20–1.57 in.)




## Wiring diagrams

### Connector

M8



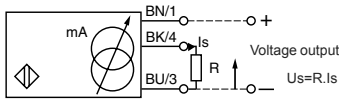

M12




### Pre-cabled

BN: Brown
BU: Blue
BK: Black

### 3-wire connection




| | Output current | Load impedance value | Output voltage | Load impedance value |
|---|---|---|---|---|
| **24 V** | 0–10 mA | R ≤ 1400 Ω | 0–10 V | R = 1000 Ω |

***Note:*** *Ensure a minimum of 5 V between the + (terminal 1) and the sensor output (terminal 4).*

*(1) Voltage range only obtained with a load impedance of 1000 Ω.*



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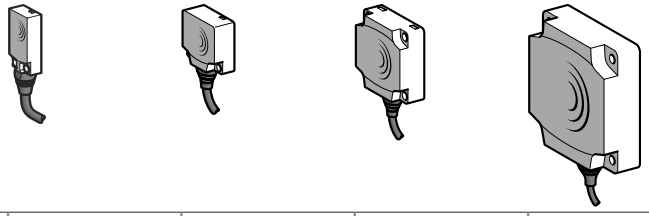
# OsiSense® XS
# Inductive proximity sensors
## Application
Sensors with analog output signal 0–10 V (1)
For position, displacement and deformation control/monitoring



**Flush mountable in metal**

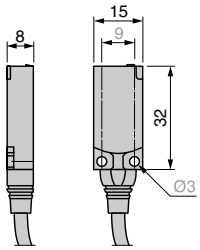
**PBT case**



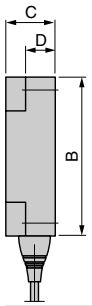
| **Nominal sensing distance Sn, mm (in.)** | | **5 (0.20)** | **10 (0.39)** | **15(0.59)** | **40 (1.57)** |
|---|---|---|---|---|---|
| **Catalog Numbers** | | | | | |
| **3-wire** ⎓ 0–10 V | Pre-cabled (L = 2 m) *(2)* | **XS9F111A1L2** | **XS9E111A1L2** | **XS9C111A1L2** | **XS9D111A1L2** |
| | Connector | **XS9F111A1L01M8** | **XS9E111A1L01M12** | **XS9C111A1L01M12** | **XS9D111A1M12** |
| **Weight, kg (lb)** | Pre-cabled (L = 2 m) *(2)* | 0.060 (0.13) | 0.075 (0.17) | 0.095 (0.21) | 0.340 (0.75) |
| | Connector | 0.040 (0.09) | 0.055 (0.12) | 0.075 (0.17) | 0.320 (0.71) |
| **Specifications** | | | | | |
| **Product certifications** | | UL, CSA, CE | | | |
| **Connection** | Pre-cabled | PvR 3 x 0.34 mm² (22 AWG), length 2 m for **XS9●111A●L2** | | | |
| | Connector | 0.15 m pigtail connector with M8 connector | 0.15 m pigtail connector with M12 connector | | M12 |
| **Operating zone, mm (in.)** | | **1–5 (0.04–0.20)** | **1–10 (0.04–0.39)** | **2–15 (0.08–0.59)** | **5–40 (0.20–1.57)** |
| **Degree of protection** Conforming to IEC 60529 | Pre-cabled | IP 68 | IP 68, double insulation ⧈ | | |
| | Connector | IP 67 | IP 67, double insulation ⧈ | | |
| **Storage temperature** | | -40 to +85 °C (-40 to +185 °F) | | | |
| **Operating temperature** | | -25 to +70 °C (-13 to +158 °F) | | | |
| **Materials** | | PBT case | | | |
| **Vibration resistance** | Conforming to IEC 60068-2-6 | 25 gn, amplitude ± 2 mm (f = 10 to 55 Hz) | | | |
| **Shock resistance** | Conforming to IEC 60068-2-27 | 50 gn, duration 11 ms | | | |
| **Output state indication** | | No | | | |
| **Rated supply voltage** | | ⎓ 24 V | | | |
| **Voltage limits (including ripple)** | | ⎓ 15–36 V | | | |
| **Repeat accuracy** | | ± 3% | | | |
| **Linearity error** | | ± 1 V | | | |
| **Current consumption, no-load** | | ≤ 4 mA with overload and short-circuit protection | | | |
| **Maximum operating frequency** | | 2000 Hz | 1000 Hz | | 100 Hz |
| **Output current drift** | | ≤ 10% (throughout the operating temperature range) | | | |

## Dimensions (mm)

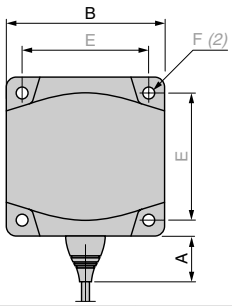
**XS9F**



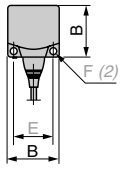

**XS9E/C/D**




**XS9C/D**




**XS9E**

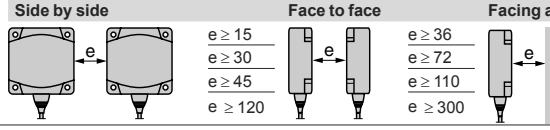



*(2) For CHC type screws*

| **Type** | **A (L2)** | **A (M12)** | **B** | **C** | **D** | **E** | **F** |
|---|---|---|---|---|---|---|---|
| **XS9E** | 14 | – | 26 | 13 | 8.8 | 20 | 3.5 |
| **XS9C** | 14 | – | 40 | 15 | 9.8 | 33 | 4.5 |
| **XS9D** | 23 | 14 | 80 | 26 | 16 | 65 | 5.5 |

## Setup (Minimum mounting distances (mm)

| **Type** | **Side by side** | | **Face to face** | | **Facing a metal object** | |
|---|---|---|---|---|---|---|
| **XS9F** | e ≥ 15 | e ≥ 36 | e ≥ 15 | e ≥ 36 | e ≥ 15 | e ≥ 36 |
| **XS9E** | e ≥ 30 | e ≥ 72 | e ≥ 30 | e ≥ 72 | e ≥ 30 | e ≥ 72 |
| **XS9C** | e ≥ 45 | e ≥ 110 | e ≥ 45 | e ≥ 110 | e ≥ 45 | e ≥ 110 |
| **XS9D** | e ≥ 120 | e ≥ 300 | e ≥ 120 | e ≥ 300 | e ≥ 120 | e ≥ 300 |




*(1) Voltage range only obtained with a load impedance of 1000 Ω.*
*(2) For a 5 m cable replace L2 by L5, for a 10 m cable replace L2 by L10.*
*Example: XS9C111A1L2 becomes **XS9C111A1L5** with a 5 m cable.*



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# OsiSense® XS
# Inductive proximity sensors
## Application
Sensors with analog output signal 4–20 mA
For position, displacement and deformation control/monitoring



## Functions

These analog output proximity sensors are solid-state sensors designed for monitoring displacement. They are not measuring sensors.

**They are suitable for use in many sectors, particularly for applications involving:**

- □ deformation and displacement monitoring,
- □ vibration amplitude and frequency monitoring,
- □ control of dimensional tolerances,
- □ position control,
- □ concentricity or eccentricity monitoring.

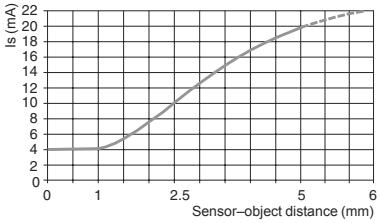
## Operating principle

The operating principle of the sensor is that of a damped oscillator. The degree of damping will depend on the distance of an object from the sensing face. The sensor will sense the distance and produce an output current with a value directly proportional to this distance.

## Operating curves 4–20 mA, 2-wire connection

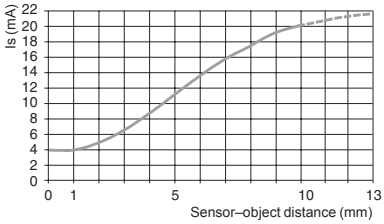
### XS9F

**Sn = 1–5 mm (0.04–0.20 in.)**



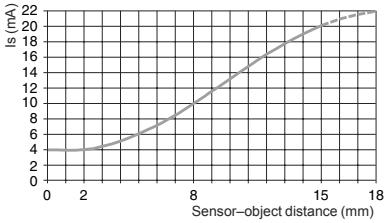

### XS9E

**Sn = 1–10 mm (0.04–0.10 in.)**



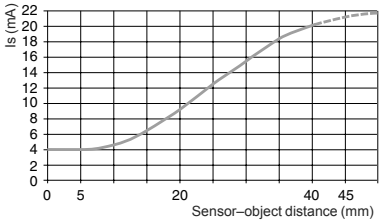

### XS9C

**Sn = 2–15 mm (0.04–0.59 in.)**




### XS9D

**Sn = 5–40 mm (0.20–1.57 in.)**




## Wiring diagrams

### Connector

M8



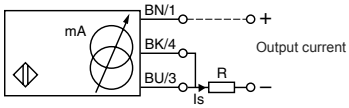

M12




### Pre-cabled

BN: Brown
BU: Blue
BK: Black

### 2-wire connection




| | Output current | Load impedance value |
|---|---|---|
| **12 V** | 4–20 mA | R ≤ 8.2 Ω |
| **24 V** | 4–20 mA | R ≤ 470 Ω |

***Note:*** *Ensure a minimum of 10 V between the + (terminal 1) and - (terminal 3) of the sensor.*



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# OsiSense® XS
# Inductive proximity sensors

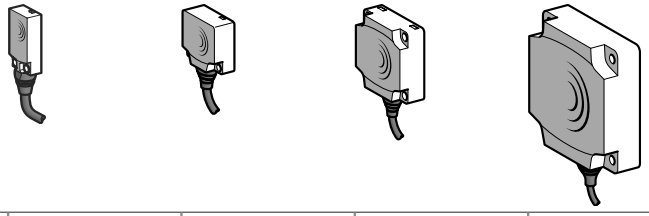
## Application

Sensors with analog output signal 4–20 mA
For position, displacement and deformation control/monitoring



**Flush mountable in metal**

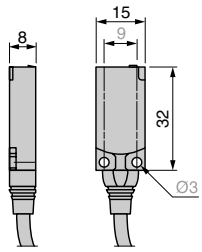
**PBT case**



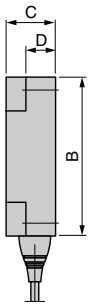
| **Nominal sensing distance Sn, mm (in.)** | | **5 (0.20)** | **10 (0.39)** | **15 (0.59)** | **40 (1.57)** |
|---|---|---|---|---|---|
| **Catalog Numbers** | | | | | |
| **2-wire** ⎓ 4–20 mA | Pre-cabled (L = 2 m) *(1)* | **XS9F111A2L2** | **XS9E111A2L2** | **XS9C111A2L2** | **XS9D111A2L2** |
| | Connector | **XS9F111A2L01M8** | **XS9E111A2L01M12** | **XS9C111A2L01M12** | **XS9D111A2M12** |
| **Weight, kg (lb)** | Pre-cabled (L = 2 m) | 0.060 (0.13) | 0.075 (0.17) | 0.095 (0.21) | 0.340 (0.75) |
| | Connector | 0.040 (0.09) | 0.055 (0.12) | 0.075 (0.17) | 0.320 (0.71) |
| **Specifications** | | | | | |
| **Product certifications** | | UL, CSA, CE | | | |
| **Connection** | Pre-cabled | PvR 3 x 0.34 mm² (22 AWG), length 2 m for **XS9●111A●L2** | | | |
| | Connector | 0.15 m pigtail connector with M8 connector | 0.15 m pigtail connector with M12 connector | | M12 |
| **Operating zone, mm (in.)** | | **1–5 (0.04–0.20)** | **1–10 (0.04–0.39)** | **2–15 (0.08–0.59)** | **5–40 (0.20–1.57)** |
| **Degree of protection** Conforming to IEC 60529 | Pre-cabled | IP 68 | IP 68, double insulation ⧈ | | |
| | Connector | IP 67 | IP 67, double insulation ⧈ | | |
| **Storage temperature** | | -40 to +85 °C (-40 to +185 °F) | | | |
| **Operating temperature** | | -25 to +70 °C (-13 to +158 °F) | | | |
| **Materials** | | PBT case | | | |
| **Vibration resistance** | Conforming to IEC 60068-2-6 | 25 gn, amplitude ± 2 mm (f = 10 to 55 Hz) | | | |
| **Shock resistance** | Conforming to IEC 60068-2-27 | 50 gn, duration 11 ms | | | |
| **Output state indication** | | No | | | |
| **Rated supply voltage** | | ⎓ 12–24 V | | | |
| **Voltage limits (including ripple)** | | ⎓ 10–36 V | | | |
| **Repeat accuracy** | | ± 3% | | | |
| **Linearity error** | | ± 2 mA | | | |
| **Current consumption, no-load** | | ≤ 4 mA with overload and short-circuit protection | | | |
| **Maximum operating frequency** | | 2000 Hz | 1000 Hz | | 100 Hz |
| **Output current drift** | | ≤ 10% (throughout the operating temperature range) | | | |

## Dimensions (mm)

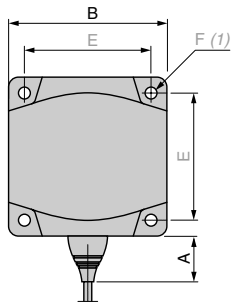
**XS9F**



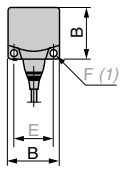

**XS9E/C/D**




**XS9C/D**




**XS9E**

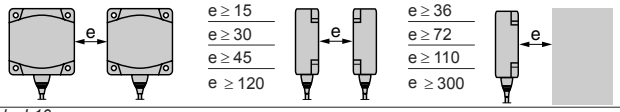



*(1) For CHC type screws*

| Type | A (L2) | A (M12) | B | C | D | E | F |
|---|---|---|---|---|---|---|---|
| **XS9E** | 14 | – | 26 | 13 | 8.8 | 20 | 3.5 |
| **XS9C** | 14 | – | 40 | 15 | 9.8 | 33 | 4.5 |
| **XS9D** | 23 | 14 | 80 | 26 | 16 | 65 | 5.5 |

## Setup (Minimum mounting distances (mm)

| Type | Side by side | Face to face | Facing a metal object |
|---|---|---|---|
| **XS9F** | e ≥ 15 | e ≥ 36 | e ≥ 15 |
| **XS9E** | e ≥ 30 | e ≥ 72 | e ≥ 30 |
| **XS9C** | e ≥ 45 | e ≥ 110 | e ≥ 45 |
| **XS9D** | e ≥ 120 | e ≥ 300 | e ≥ 120 |




*(1) For a 5 m cable replace L2 with L5; for a 10 m cable replace L2 by L10.*
*Example: XS9F111A2L2 becomes **XS9F111A2L5** with a 5 m cable.*



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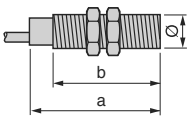
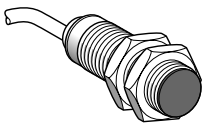
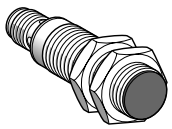
# OsiSense® XS
# Inductive proximity sensors

Detection at fixed sensing distance. factor 1 (Fe/Nfe) sensors *(1)* for ferrous and non-ferrous materials
Solid-state output

**Flush mountable in metal**





2

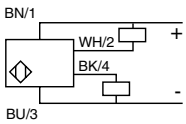
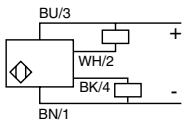
Lengths (mm):
a = Overall
b = Threaded section

a = 60
b = 51.5
Ø = M18 x 1

a = 70
b = 51.5
Ø = M18 x 1

| | | Brass case | Brass case |
|---|---|---|---|
| **Nominal sensing distance Sn, mm (in.)** | | **5 (0.20)** | **5 (0.20)** |
| **Catalog Numbers** | | | |
| **4-wire ⎓** | PNP/PNP programmable NO/NC | **XS1M18KPM40** | **XS1M18KPM40D** |
| **Weight, kg (lb)** | | 0.120 (0.26) | 0.060 (0.13) |
| **Specifications** | | | |
| **Product certifications** | | CE, UL, CSA | |
| **Connection** | | **Pre-cabled, PvR 4 x 0.34 mm² (22 AWG), length 2 m** *(2)* | **M12 connector** |
| **Degree of protection** | Conforming to IEC 60529 | IP 68 | IP 67 |
| **Operating zone, mm (in.)** | | **0–4 (0–0.16)** | |
| **Repeat accuracy** | | 3% of Sr | |
| **Differential travel** | | 1–15% of Sr | |
| **Operating temperature** | | 0 to +50 °C (32 to +122 °F) | |
| **Output state indication** | | Yellow LED, annular | Yellow LED, 4 viewing ports at 90° |
| **Rated supply voltage** | | ⎓ **12–24 V with protection against reverse polarity** | |
| **Voltage limits** (including ripple) | | ⎓ 10–38 V | |
| **Switching capacity** | | **0–200 mA with overload and short-circuit protection** | |
| **Voltage drop, closed state** | | ≤ 2.6 V | |
| **Current consumption, no-load** | | ≤ 15 mA | |
| **Maximum switching frequency** | | 1000 Hz | |
| **Delays** | First-up | ≤ 10 ms | |
| | Response | ≤ 0.3 ms | |
| | Recovery | ≤ 0.7 ms | |

## Wiring diagrams

| **M12 connector** | **Pre-cabled** | **4-wire ⎓, PNP/NPN, NO or NC output** | |
|---|---|---|---|
| | | **NO** | **NC** |
|   | BN: brown<br>BU: blue<br>BK: black<br>WH: white |   |   |

*(1) The variation in sensing distance between ferrous and non-ferrous materials is typically less than 5%.*
*(2) Sensors available with other cable lengths: consult the Sensor Competency Center.*



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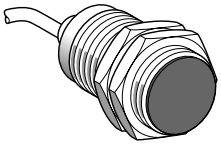
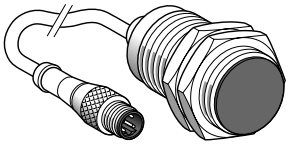
# OsiSense® XS
# Inductive proximity sensors

Detection at fixed sensing distance. factor 1 (Fe/Nfe) sensors *(1)* for ferrous and non-ferrous materials
Solid-state output





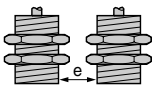
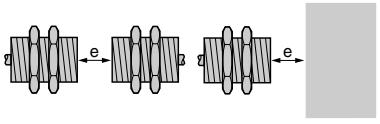
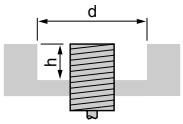
a = 60
b = 51.5
Ø = M30 x 1.5



a = 70
b = 51.5
Ø = M12 x 1

| **Stainless steel case** | **Stainless steel case** |
|---|---|
| **10 (0.39)** | **10 (0.39)** |
| | |
| **XS1M30KPM40** | **XS1M30KPM40LD** |
| 0.205 (0.45) | 0.145 (0.32) |
| | |
| CE, UL, CSA | |
| **Pre-cabled, PvR 4 x 0.34 mm² (22 AWG), length 2 m** *(2)* | **M12 connector on 0.8 m pigtail connector** |
| IP 68 | IP 67 |
| **0–8 (0–0.31)** | |
| 3% of Sr | |
| 1–15% of Sr | |
| 0 to + 50 °C (32 to +122 °F) | |
| Yellow LED, annular | |
| ⎓ **12–24 V with protection against reverse polarity** | |
| ⎓ 10–38 V | |
| **0–200 mA with overload and short-circuit protection** | |
| ≤ 2.6 V | |
| ≤ 15 mA | |
| 1000 Hz | |
| ≤ 5 ms | |
| ≤ 0.3 ms | |
| ≤ 0.7 ms | |

## Setup

| **Minimum mounting distances (mm)** | **Side by side** | **Face to face** | **Facing a metal object** | **Mounted in a metal support** |
|---|---|---|---|---|
| |  |  | |  |
| **XS1M18 flush mountable** | e ≥ 10 | e ≥ 60 | e ≥ 15 | d ≥ 18, h ≥ 0 |
| **XS1M30 flush mountable** | e ≥ 20 | e ≥ 120 | e ≥ 30 | d ≥ 30, h ≥ 0 |

***Mounting nut tightening torque: XS1M18****: < 35 N•m (309.78 lb-in),* ***XS1M30****: < 100 N•m (885.07 lb-in)*

*(1) The variation in sensing distance between ferrous and non-ferrous materials is typically less than 5%.*
*(2) Sensors available with other cable lengths: consult the Sensor Competency Center.*



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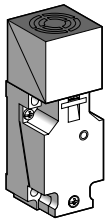
# OsiSense®
# XS Inductive proximity sensors

## Application

Fixed sensing distance detection, Factor 1 (Fe/Nfe) sensors *(1)* for ferrous and non-ferrous materials
Solid-state output

| **Sensor** | **Flush mountable in metal** |
|---|---|





| | | |
|---|---|---|
| **Nominal sensing distance Sn, mm (in.)** | | 15 (0.59) |
| **Catalog Numbers** | | |
| **4-wire ⎓** | PNP/NPN/NO/NC programmable | **XS7C40KPM40H7** |
| **Weight, kg (lb)** | | 0.220 (0.49) |
| **Specifications** | | |
| **Product certifications** | | CE, CSA, UL |
| **Degree of protection** | Conforming to IEC 60529 | IP 67 |
| **Operating temperature** | | 0 to +50 °C (+32 to +122 °F) |
| **Connection** | | Screw terminals, clamping capacity 4 x 0.34 mm² (24 AWG) *(2)* |
| **Operating zone, mm (in.)** | | **0–12 (0.47)** |
| **Repeat accuracy** | | 3% of Sr |
| **Differential travel** | | 1–15% of Sr |
| **Output state indication** | | Yellow LED |
| **Rated supply voltage** | | ⎓ 12–24 V with protection against reverse polarity |
| **Voltage limits (including ripple)** | | ⎓ 10–38 V |
| **Current consumption, no-load** | | ≤ 15 mA |
| **Switching capacity** | | 0–200 mA with overload and short-circuit protection |
| **Voltage drop, closed state** | | ≤ 2.6 V |
| **Maximum switching frequency** | | 1000 Hz |
| **Delays** | First-up | ≤ 5 ms |
| | Response | ≤ 0.3 ms |
| | Recovery | ≤ 0.7 ms |

*(1) The variation in sensing distance between ferrous and non-ferrous materials is typically less than 5%.*
*(2) Cable gland not included with sensor. For suitable Pg 13 cable gland (XSZPE13), see page 2/131.*



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# OsiSense® XS
# Inductive proximity sensors

Application

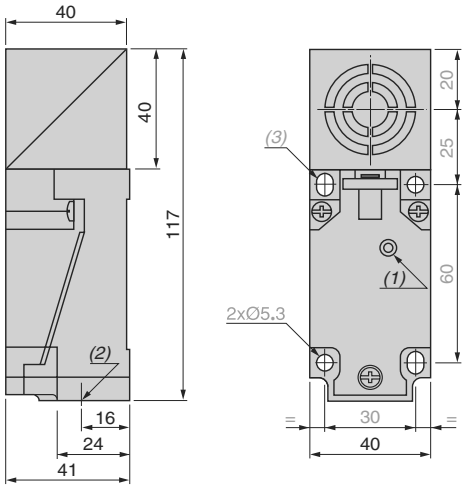
Fixed sensing distance detection, Factor 1 (Fe/Nfe) sensors *(1)* for ferrous and non-ferrous materials

Solid-state output



## Dimensions (mm)

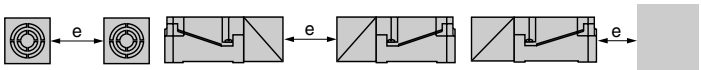
**XS7C40KPM40**




*(1) Output LED.*
*(2) 1 tapped entry for Pg 13 cable gland.*
*(3) 2 elongated holes Ø 5.3 x 7.*

## Setup

**Minimum mounting distances (mm)**




| | | Side by side | Face to face | Facing a metal object |
|---|---|---|---|---|
| **Sensor flush mountable in metal** | **XS7C40KPM40** | e ≥ 40 | e ≥ 120 | e ≥ 45 |

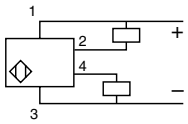
**Tightening torque of cover mounting screws and clamp screws:** < 1.2 N•m (10.62 lb-in)

## Wiring diagrams

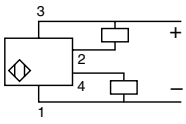
**PNP/NPN**

**4-wire c programmable, NO or NC output**

**NO output**




**NC output**



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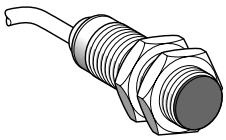
# OsiSense® XS
# Inductive proximity sensors

## Application

Selective detection of ferrous materials
Selective detection of non-ferrous materials
Cylindrical type, solid-state output

**Flush mountable**

**Stainless steel case**





| | |
|---|---|
| **Nominal sensing distance (Sn)** | 5 mm |

## Catalog Numbers

| | | | |
|---|---|---|---|
| **3-wire, ferrous version**<br>Insensitive to non-ferrous materials | PNP | NO | **XS1M18PAS40** |
| **3-wire, non-ferrous version**<br>Insensitive to ferrous materials | PNP | NO | **XS1M18PAS20** |
| **Weight, kg (lb)** | | | 0.120 (0.26) |

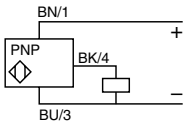
## Specifications

| | | |
|---|---|---|
| **Product certifications** | | UL, CSA, CE |
| **Connection** | | **Pre-cabled, PvR,** 3 x 0.34 mm² (24 AWG), length 2 m *(1)* |
| **Operating zone, mm (in.)** | | **0–4 (0–0.16)** |
| **Degree of protection** conforming to IEC 60529 | | IP 68 |
| **Operating temperature** | | -25 to +70 °C (-13 to +158 °F) |
| **Output state indication** | | Yellow LED, annular |
| **Rated supply voltage** | | ⎓ 12–24 V with protection against reverse polarity |
| **Voltage limits (including ripple)** | | ⎓ 10–38 V |
| **Switching capacity** | | 0–200 mA with overload and short-circuit protection |
| **Voltage drop, closed state** | | ≤ 2.6 V |
| **Residual current, open state** | | – |
| **Current consumption, no-load** | | ≤ 15 mA |
| **Maximum switching frequency** | | 1000 Hz |
| **Delays** | First-up | ≤ 10 ms |
| | Response | ≤ 0.3 ms |
| | Recovery | ≤ 0.7 ms |

*(1) Sensors available with other cable lengths: consult the Sensor Competency Center.*

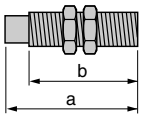
## Wiring diagrams

**3-wire ⎓ PNP**




## Dimensions (mm)

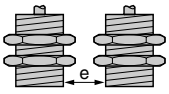
**XS1M**

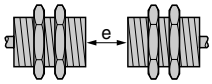


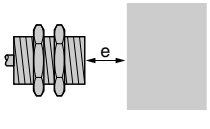

| a (mm) | b (mm) |
|---|---|
| 60 | 51.5 |

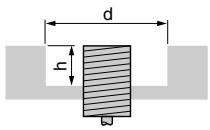
## Setup

**Minimum mounting distances (mm)**




| | Side by side | Face to face | Facing a metal object | Mounted in a metal support |
|---|---|---|---|---|
| **XS1M18** | e ≥ 10 | e ≥ 60 | e ≥ 15 | d ≥ 18, h ≥ 0 (ferrous metal)<br>d ≥ 18, h ≥ 5 (non-ferrous metal) |



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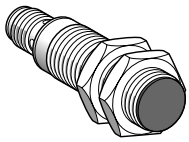
# OsiSense® XS
# Inductive proximity sensors

## Application

Selective detection of ferrous materials
Selective detection of non-ferrous materials
Cylindrical type, solid-state output

**Flush mountable**

**Stainless steel case**



| | |
|---|---|
| **Nominal sensing distance Sn, mm (in.)** | 5 (0.20) |



## Catalog Numbers

| | | | |
|---|---|---|---|
| **3-wire, ferrous version**<br>Insensitive to non-ferrous materials | PNP | NO | **XS1M18PAS40D** |
| **3-wire, non-ferrous version**<br>Insensitive to ferrous materials | PNP | NO | **XS1M18PAS20D** |
| **Weight, kg (lb)** | | | 0.060 (0.13) |

## Specifications

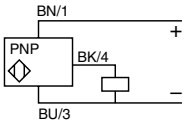
| | | |
|---|---|---|
| **Product certifications** | | UL, CSA, CE |
| **Connection** | | M12 connector |
| **Degree of protection** conforming to IEC 60529 | | IP 67 |
| **Operating zone, mm (in.)** | | **0–4 (0–0.08)** |
| **Operating temperature** | | -25 to +70 °C (-13 to +158 °F) |
| **Output state indication** | | Yellow LED, 4 viewing ports at 90° |
| **Rated supply voltage** | | ⎓ 12–24 V with protection against reverse polarity |
| **Voltage limits (including ripple)** | | ⎓ 10–38 V |
| **Switching capacity** | | 0–200 mA with overload and short-circuit protection |
| **Voltage drop, closed state** | | ≤ 2.6 V |
| **Residual current, open state** | | – |
| **Current consumption, no-load** | | ≤ 15 mA |
| **Maximum switching frequency** | | 1000 Hz |
| **Delays** | First-up | ≤ 10 ms |
| | Response | ≤ 0.3 ms |
| | Recovery | ≤ 0.7 ms |

## Wiring diagrams

**M12 connector**

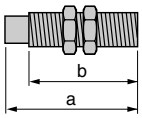



**3-wire ⎓ PNP**




## Dimensions (mm)

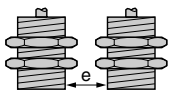
**XS1M**

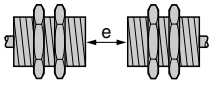


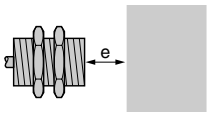

| a (mm) | b (mm) |
|---|---|
| 70 | 51.5 |

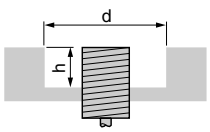
## Setup

**Minimum mounting distances (mm)**




| | Side by side | Face to face | Facing a metal object | Mounted in a metal support |
|---|---|---|---|---|
| **XS1M18** | e ≥ 10 | e ≥ 60 | e ≥ 15 | d ≥ 18, h ≥ 0 (ferrous metal)<br>d ≥ 18, h ≥ 5 (non-ferrous metal) |



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# OsiSense® XS
# Inductive proximity sensors

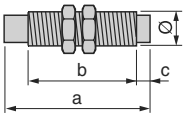
## Application

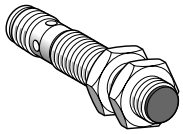
Sensors for welding machine applications *(1)*

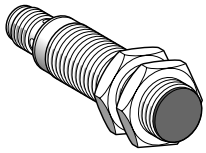
Cylindrical type. metal case, Teflon® coated steel, threaded



**Sensors flush mountable in metal**





Lengths (mm):
a = Overall
b = Threaded section
c = For non-flush mountable sensors

a = 60
b = 40
Ø = M12 x 1

a = 60
b = 40
Ø = M18 x 1

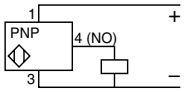
| | | Teflon front face | Teflon front face |
|---|---|---|---|
| **Nominal sensing distance Sn, mm (in.)** | | **2 (0.08)** | **5 (0.20)** |
| **Catalog Numbers** | | | |
| **3-wire ⎓** | PNP, NO | **XS1M12PAW01D** | **XS1M18PAW01D** |
| **Weight, kg (lb)** | | 0.025 (0.06) | 0.060 (0.13) |
| **Specifications** | | | |
| **Product certifications** | | Ⓒ€, UL, CSA | |
| **Connection** | | **M12 connector** | |
| **Degree of protection** | Conforming to IEC 60529 | IP 67 | |
| **Operating zone, mm (in.)** | | **0–1.6 (0–0.06)** | **0–4 (0–0.16)** |
| **Repeat accuracy** | | 3% of Sr | |
| **Differential travel** | | 1–20% of Sr | |
| **Operating temperature** | | -25 to +70 °C (-13 to +158 °F) | |
| **Output state indication** | | Yellow LED, 4 viewing ports at 90° | |
| **Rated supply voltage** | | ⎓ **12–24 V with protection against reverse polarity** | |
| **Voltage limits** (including ripple) | | ⎓ 10–36 V | |
| **Switching capacity** | | **0–250 mA with overload and short-circuit protection** | |
| **Voltage drop, closed state** | | ≤ 2.5 V | |
| **Current consumption, no-load** | | ≤ 15 mA | |
| **Immunity to electromagnetic fields** | | ≤ 140 mT | |
| **Maximum switching frequency** | | 1000 Hz | 500 Hz |
| **Delays** | First-up | ≤ 10 ms | ≤ 10 ms |
| | Response | ≤ 0.1 ms | ≤ 0.2 ms |
| | Recovery | ≤ 0.4 ms | ≤ 0.6 ms |

## Wiring diagrams

**M12 connector**




**3-wire ⎓, PNP, NO output**




*(1) Sensors particularly resistant to welding machine electromagnetic fields.*



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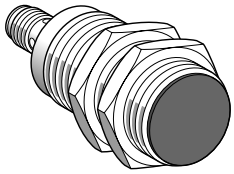
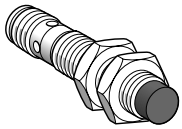
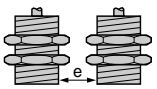
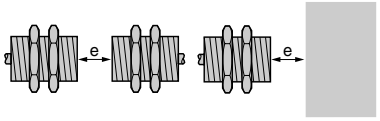
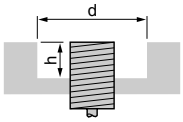
# OsiSense® XS
# Inductive proximity sensors
## Application
Sensors for welding machine applications *(1)*

Cylindrical type. metal case, Teflon® coated steel, threaded



| | Sensors non-flush mountable in metal |
|---|---|
|  |  |
| a = 60<br>b = 40<br>Ø = M30 x 1.5 | a = 60<br>b = 36<br>c = 4<br>Ø = M12 x 1 |
| **Teflon front face** | **Teflon front face** |
| **10 (0.39)** | **4 (0.16)** |
| **XS1M30PAW01D** | **XS2M12PAW01D** |
| 0.145 (0.32) | 0.025 (0.06) |
| CE, UL, CSA | |
| **M12 connector** | |
| IP 67 | |
| **0–8 (0–0.31)** | **0–3.2 (0–0.13)** |
| 3% of Sr | |
| 1–20% of Sr | |
| -25 to +70 °C (-13 to +158 °C) | |
| Yellow LED, 4 viewing ports at 90° | |
| ⎓ **12–24 V with protection against reverse polarity** | |
| ⎓ 10–36 V | |
| **0–250 mA with overload and short-circuit protection** | |
| ≤ 2.5 V | |
| ≤ 15 mA | |
| ≤ 140 mT | |
| 250 Hz | 1000 Hz |
| ≤ 10 ms | ≤ 10 ms |
| ≤ 0.7 ms | ≤ 0.2 ms |
| ≤ 5 ms | ≤ 0.4 ms |

## Setup

| Minimum mounting distances (mm) | Side by side | Face to face | Facing a metal object | Mounted in a metal support |
|---|---|---|---|---|
| |  |  | |  |
| **XS1M12 flush mountable** | e ≥ 0 | e ≥ 7 | e ≥ 6 | d ≥ 12, h ≥ 0 |
| **XS1M18 flush mountable** | e ≥ 0 | e ≥ 16 | e ≥ 9 | d ≥ 18, h ≥ 0 |
| **XS1M30 flush mountable** | e ≥ 0 | e ≥ 20 | e ≥ 20 | d ≥ 30, h ≥ 0 |
| **XS2M12 non-flush mountable** | e ≥ 15 | e ≥ 9 | e ≥ 11 | d ≥ 36, h ≥ 8 |

***Mounting nut tightening torque: XS1M12, XS2M12**: < 15 N•m (13.28 lb-in), **XS1M18**: < 35 N•m (309.78 lb-in), **XS1M30**: < 50 N•m (442.54 lb-in)*



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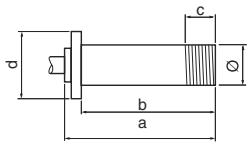
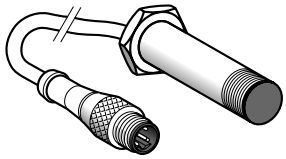
# OsiSense® XS
# Inductive proximity sensors

## Application

For welding machine applications
Cylindrical type. metal case, plain, with shoulder

**Flush mountable in metal**





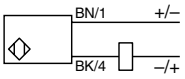
Lengths (mm):
a = Overall
b = To shoulder
c = Removal
d = Shoulder

Ø = 12
a = 55
b = 50
c = 9 (threaded end)
d = 15 hexagonal

| **Nominal sensing distance Sn, mm (in.)** | | | **3 (0.12)** | **3 (0.12)** | **3 (0.12)** |
|---|---|---|---|---|---|
| **Catalog Numbers** | | | | | |
| **2-wire ⎓ (non-polarized) Terminal connections** | 1-4 | NO | **XSLC1401393L1** | **XSLC1401393L3** | **XSLC1401393L4** |
| **Weight, kg (lb)** | | | 0.050 (0.11) | 0.065 (0.14) | 0.050 (0.11) |
| **Specifications** | | | | | |
| **Connection** | | | Remote M12 connector on 1.2 m pigtail connector | Remote M12 connector on 0.8 m pigtail connector | Remote M12 connector on 0.15 m pigtail connector |
| **Degree of protection** conforming to IEC 60529 | | | IP 67 | | |
| **Operating zone, mm (in.)** | | | 0–2.4 (0–0.09) | | |
| **Repeat accuracy** | | | ≤ 3% of Sr | | |
| **Differential travel** | | | 1–15% of Sr | | |
| **Operating temperature** | | | -25 to +80 °C (-13 to +176 °F) | | |
| **Output state indication** | | | Yellow LED, annular | | |
| **Rated supply voltage** | | | ⎓ 12–48 V | | |
| **Voltage limits** (including ripple) | | | ⎓ 10–58 V | | |
| **Switching capacity** | | | 1.5–100 mA with overload and short-circuit protection | | |
| **Voltage drop, closed state** | | | ≤ 4 V | | |
| **Residual current, open state** | | | ≤ 0.5 mA | | |
| **Current consumption, no-load** | | | – | | |
| **Maximum switching frequency** | | | 800 Hz | | |
| **Delays** | | | First-up: ≤ 5 ms; response: ≤ 05 ms; recovery: ≤ 0.5 ms | | |

## Wiring diagrams

**2-wire ⎓ , non-polarized, NO output**



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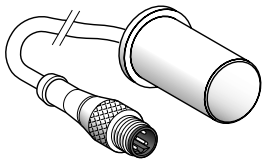
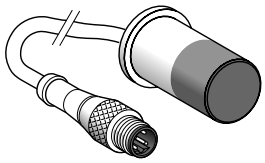
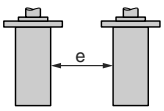
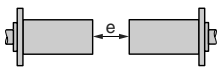
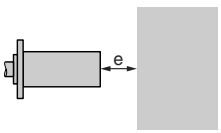
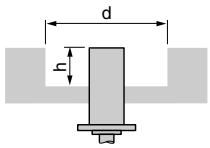
# OsiSense® XS
# Inductive proximity sensors
## Application
For welding machine applications
Cylindrical type. metal case, plain, with shoulder



| Flush mountable in metal | Non-flush mountable in metal | |
|---|---|---|
|  |  | |
| Ø = 18<br>a = 40<br>b = 35<br>c = 0 (PPS front face)<br>d = Ø 22 | Ø = 18<br>a = 45<br>b = 35<br>c = 20 (Teflon front face and case)<br>d = Ø 22 | |
| **6.3 mm (0.25)** | **10 (0.39)** | **10 (0.39)** |
| **XSLC1401392L1** | **XSLC1401405L3** | **XSLC1401405L4** |
| 0.100 (0.22) | 0.065 (0.14) | 0.050 (0.11) |
| Remote M12 connector on 1.2 m pigtail connector | Remote M12 connector on 0.8 m pigtail connector | Remote M12 connector on 0.15 m pigtail connector |
| IP 67 | | |
| 0–5 (0–0.20) | 0–8 (0–0.31) | |
| 3% of Sr | | |
| 1–15% of Sr | | |
| -25 to +70 °C (-13 to +158 °F) | | |
| Yellow LED, annular | | |
| ⎓ 12–48 V | | |
| ⎓ 10–58 V | | |
| 1.5–100 mA with overload and short-circuit protection | | |
| ≤ 4 V | | |
| ≤ 0.5 mA | | |
| – | | |
| 100 Hz | | |
| First-up: ≤ 10 ms; response: ≤ 10 ms; recovery: ≤ 2 ms | | |

## Setup

**Minimum mounting distances** (mm)

| | | Side by side | Face to face | Facing a metal object | Mounted in a metal support |
|---|---|---|---|---|---|
| | |  |  |  |  |
| **XSLC** | **Ø 12 (flush mountable)** | e ≥ 10 | e ≥ 60 | e ≥ 15 | d = 12, h = 0 |
| | **Ø 18 (non-flush mountable)** | e ≥ 16 | e ≥ 96 | e ≥ 24 | d = 54, h = 16 |



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# OsiSense® XS
# Inductive proximity sensors
## SG magnet actuated sensors
## Surface mounted style






Surface-mounted, magnet-actuated sensors for industrial applications

- Sensing is independent of magnet polarity.
- Typical applications: security systems (gate interlocks), high-speed rotational counting, identification of metal bins with magnet-coded labels, sensing through non-magnetic walls.

### Features

- Housing: aluminum except SG08168 and SG28195 are plastic (PBT)
- Completely encapsulated in epoxy
- Very fast response time (reed output only)
- PLC-compatible AC models (triac output)
- High transients protection (AC models)
- No bouncing

### Magnet-actuated proximity sensors

| Circuit Type | AC ratings VA (max.) | Voltage (4) | Current (max.) | DC ratings VA (max.) | Voltage (max.) | Current (max.) | Leakage (mA) | Dim. Figure | Wiring Figure | Catalog Number |
|---|---|---|---|---|---|---|---|---|---|---|
| **Reed output—DC only** | | | | | | | | | | |
| N.O. | — | — | — | 10 | 200 | 0.5 A | 0 | 1 | A | **SGA8016** |
| N.O. | — | — | — | 10 | 200 | 0.5 A | 0 | 2 | A | **SGA8031** |
| **Reed output—DC only—Built-in resistor protection** | | | | | | | | | | |
| N.O. | — | — | — | 10 | 200 | 0.5 A | 0 | 1 | A | **SGA8182** |
| **Reed output—DC only—High temperature -40 to 300 °F** | | | | | | | | | | |
| N.O. | — | — | — | 10 | 200 | 0.5 A | 0 | 1 | A | **SGA8053** |
| **Reed output—AC and DC—Built-in RC protection** | | | | | | | | | | |
| N.C. | 3 | 130 | 0.25 A | 3 | 100 | 0.25 A | 6 (1) (3) | 2 | B | **SGB8175** |
| N.O. | 10 | 130 | 0.5 A | 10 | 200 | 0.5 A | 6 (1) (3) | 2 | A | **SGA8176** |
| N.O. | 10 | 130 | 0.5 A | 10 | 200 | 0.5 A | 6 (1) (3) | 1 | A | **SGA8177** |
| **Triac output—AC only (inductive PLC)** | | | | | | | | | | |
| N.O. | 240 | 120 | 2.0 A | — | — | — | 1.7 (1) (2) | 3 | A | **SG08168** (5) |
| N.O./N.C. | 50 | 240 | 0.5 A | — | — | — | 1.7 (1) (2) | 3 | C | **SG28195** (5) |
| N.O. | 50 | 130 | 0.5 A | — | — | — | 1.7 (1) (2) | 1 | A | **SG08239** |

(1) PLC applications:
(2) PLC compatible.
(4) Bleeder resistor required.
(3) For reed output: maximum voltage. For triac output: nominal voltage.
(5) UL Recognized

### Magnet actuators

| Description | | Sensing distance All (6) | Sensing distance SG2 8195 | Catalog Number |
|---|---|---|---|---|
| Tubular | | 33 mm 1.3 in. () | 25.4 mm (1 in.) | **7046** |
| Flat bracket, center | South pole | 17.7 mm (0.7 in.) | 10 mm (0.4 in.) | **7093** |
| Flat bracket, side | South pole | 12.7 mm (0.5 in.) | 5 mm (0.2 in.) | **7063** |
| 90° bracket | South pole | 12.7 mm (0.5 in.) | 5 mm (0.2 in.) | **7062** |
| Block type | | 12.7 mm (0.5 in.) | 5 mm (0.2 in.) | **7099** |
| Flexible tape, 1 ft (305 mm) long | | 7.6 mm (0.3 in.) | 5 mm (0.2 in.) | **7096** |

(6) All block sensors except SG28195.



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# OsiSense® XS
# Inductive proximity sensors
## SG magnet actuated sensors
## Surface mounted style



### Mechanical Specifications

| | |
|---|---|
| **Standard temperature range** | -40 to +60 °C (-40 to +140 °F); to 149 °C (300 °F) for SGA8053 |
| **Enclosure ratings** | NEMA Types 1, 4, 13 |
| **Vibration resistance** | 20 G (10 to 2,000 Hz) |
| **Shock resistance** | 50 G for 11 ms |
| **Differential** | Maximum 75% |
| **Repeatability** | 0.08 mm (0.003 in.) |

### Wiring

**Figure A (N/O)**

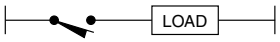



**Figure B (N/C)**

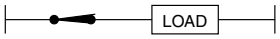
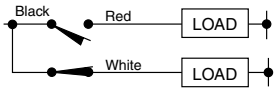



**Figure C (N/O or N/C)**




| **Electrical Specifications** | **AC (triac)** | **DC** |
|---|---|---|
| **Voltage drop (across switch)** | 2 V | 0 V (IR for SGA8182) (1) |
| **Minimum load current** | 15 mA | — |
| **On delay (ms)** | 1 ms | 0.75 ms |
| **Off delay (ms)** | 8 ms | 0.75 ms |
| **Cable, 3 ft (0.9 m)** | 0.31 mm² (22 AWG) vinyl, except: 1.2 mm² (16 AWG) SJTO for **SGO8168;** 2 individual fluorinated hydrocarbon coated 1.2 mm² (22 AWG) for **SGA8053** | |
| **Agency listings** | E 42259 CCN NKCR2 (SGO8168 and SG28195 only) | |

(1) Voltage drop = IR, where I= load current, R = 150 Ω

### Options

| **Description** | **Cable Type** | **Suffix** |
|---|---|---|
| 2 m (6.6 ft) of individual wires | Fluorinated hydrocarbon coated GA8053) | **L02** |
| 5 m (16.4 ft) of individual wires | Fluorinated hydrocarbon coated (SGA8053) | **L05** |
| 5 m (16.4 ft) of cable | Vinyl | **L05** |
| | SJTO (SGO8168) | **L05** |
| 10 m (32.8 ft) of cable for triac and models with built-in resistor | Vinyl | **L10** |
| | SJTO (SGO8168) | **L10** |

Ex: SGO8168L05

### Dimensions

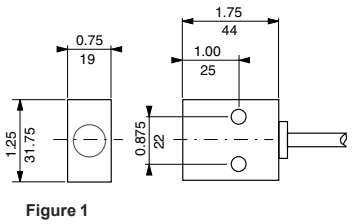



**Figure 1**

SGA8016
SGA8177
SGA8182
SGA8053
SGO8239

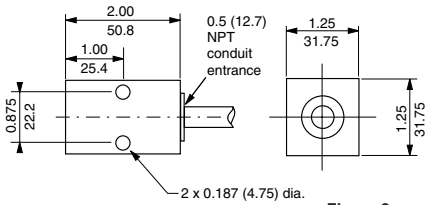



**Figure 2**

SGA8031
SGA8175
SGA8176

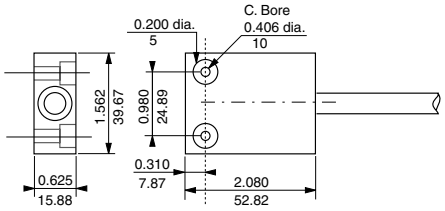



**Figure 3**

SGO8168
SG28195

in.
(mm)



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# OsiSense® XS
# Inductive proximity sensors
## SG magnet actuated sensors
## Limit switch style



*Non-plug-in*

Limit-switch style, magnet-actuated proximity sensors for heavy-duty industrial applications

- Sensing independent of magnet polarity
- Typical applications: security systems (gate interlocks), high-speed rotational countings, identification

### Features

- Diecast zinc housing
- Completely encapsulated in epoxy
- Plug-in models for fast replacement
- Very fast response time (reed output only)
- PLC-compatible AC models
- High transient protection
- Overload and short protection (transistor models)
- No bouncing
- 12.7 mm (0.5 in.) NPT conduit entrance
- UL recognized (except where indicated)

| Circuit Type | AC ratings (inductive or resistive) | | | VA (max.) | DC ratings (resistive only) | | Leakage (mA) | Dim. Figure | Wiring Figure | Catalog Number |
|---|---|---|---|---|---|---|---|---|---|---|
| | VA (max.) | Voltage (nom.) | Current (max.) | | Voltage (max.) | Current (max.) | | | | |
| **AC triac output, non-plug-in** | | | | | | | | | | |
| N.O. | 360 | 120 | 3.0 A | — | — | — | 1.7 (1) | 1 | A | **SG08003** |
| N.C. | 360 | 120 | 3.0 A | — | — | — | 1.7 (1) | 1 | B | **SG18004** |
| **Non-plug-in with light indicator** | | | | | | | | | | |
| N.O. | 360 | 120 | 3.0 A | — | — | — | 1.7 (1) | 1 | A | **SG0L8003** |
| N.C. | 360 | 120 | 3.0 A | — | — | — | 1.7 (1) | 1 | B | **SG1L8004** |
| **DC, transistor output, non-plug-in** | | | | | | | | | | |
| N.O. | — | — | — | 7.5 | 30 | 0.25 A | 0 | 1 | D | **SG08079** |
| N.C. | — | — | — | 7.5 | 30 | 0.25 A | 0 | 1 | E | **SG18056** |
| **Reed output, non-plug-in (AC model has built-in surge RC protection)** | | | | | | | | | | |
| N.O. | — | — | — | 10 | 200 | 0.5 A | 0 | 1 | A | **SGA8005** |
| N.O. | 15 | 120 | 1.0 A | 15 | 250 | 1.0 A | 6 (1) (2) | 1 | A | **SGA8040** |
| N.O./N.C. | — | — | — | 3 | 200 | 0.25 A | 0 | 1 | C | **SGC8027** |
| N.O./N.C. | — | — | — | 20 | 500 | 1.5 A | 0 | 3 | C | **SGC8025** |

(1) PLC compatible. (2) Bleeder resistor required for PLC compatibility.

### Magnet actuators, mm (in.)

| Description | | Sensing distance | | | | | Catalog Number |
|---|---|---|---|---|---|---|---|
| | | 8079 | 8040 | 8027 | 8025 | All others | |
| Tubular | | 30.5 (1.2) | 20.3 (0.8) | 23 (0.9) | 25.4 (1.0) | 33 (1.3) | **7046** |
| Flat bracket, center | South pole | 12.7 (0.5) | 10.0 (0.4) | 10.0 (0.4) | 10.0 (0.4) | 17.7 (0.7) | **7093** |
| Flat bracket, side | South pole | 10.0 (0.4) | 5.1 (0.2) | 5.1 (0.2) | 5.1 (0.2) | 12.7 (0.5) | **7063** |
| 90° bracket | South pole | 10.0 (0.4) | 5.1 (0.2) | 5.1 (0.2) | 5.1 (0.2) | 12.7 (0.5) | **7062** |
| Block type | | 5.1 (0.2) | 5.1 (0.2) | 7.6 (0.3) | 5.1 (0.2) | 12.7 (0.5) | **7099** |
| Flexible type—305 mm (1 ft) long | | 2.5 (0.1) | — | 5.1 (0.2) | 0.1 (2.5) | 7.6 (0.3) | **7096** |



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# OsiSense® XS
# Inductive proximity sensors
## SG magnet actuated sensors
## Limit switch style



### Specifications

| General specifications | | | | | | |
|---|---|---|---|---|---|---|
| **Temperature range** | -40 to 60 °C (-40 to 140 °F) | | | | | |
| | -40 to 52 °C (-40 to 125 °F) for transistor models | | | | | |
| **Enclosure ratings** | NEMA Types 1, 4, 13 | | | | | |
| **Vibration resistance** | 20 G (10 to 2,000 Hz) | | | | | |
| **Shock resistance** | 50 G for 11 ms | | | | | |
| **Differential** | Maximum 75% | | | | | |
| **Repeatability** | 0.08 mm (0.003 in.) | | | | | |
| | **AC triac** | **Transistor** | **Reed** | | | |
| **Voltage drop (across switch)** | 2 V | — | — | | | |
| **Minimum load current (maximum)** | 15 mA | — | — | | | |
| | | | **SGA8005** | **SGA8040** | **SGS8027** | **SGC8025** |
| **On delay (maximum)** | 1 ms | 0.75 ms | 0.75 | 2 ms | 1 ms N.O./ 1.5 ms N.C. | 2 ms N.O./ 4 ms N.C. |
| **Off delay (maximum)** | — | 0.75 ms | 0.75 | 2 ms | 11 ms N.O./ 1.5 ms N.C. | 2 msN.O./ 4 ms N.C. |
| **Cable—screw terminals** | 1.5 mm² (16 AWG) | — | | | | |
| **Agency listings except where noted** | E 42259 CCN NKCR2 | | | | | |

### Options—triac models only

| Description | Figure | Suffix adder |
|---|---|---|
| 3 ft (0.9 m) 16-3 SJTO vinyl cable, epoxy sealed | A, B | **320** |
| 3 ft (0.9 m) 16-3 SJTO vinyl cable, cord connector | A, B | **321** |
| 3 ft (0.9 m) 16-4 SJTO vinyl cable, epoxy sealed | C, D, E | **420** |
| 3-pin mini-style receptacle | — | **347** |

### Wiring

**Figure A**

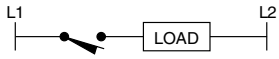



**Figure B**

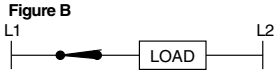
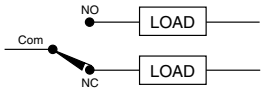
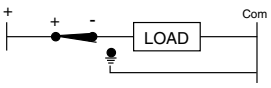



**Figure C**



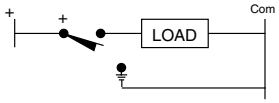

Terminal strip marked: NO-COM-NC

**Figure D**




SG18056 is normally closed. Connect the red terminal (+) to the power source. Connect the minus terminal (-) to the load. The housing must be connected to minus.

**Figure E**



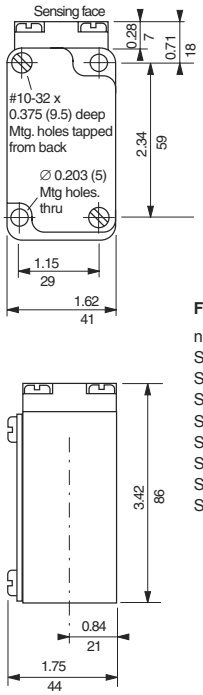




**Figure 1**
non-plug-in
SGA8005
SGO8003
SGC8027
SGI8056
SGO8056
SGI8004
SGO8040
SGO8079

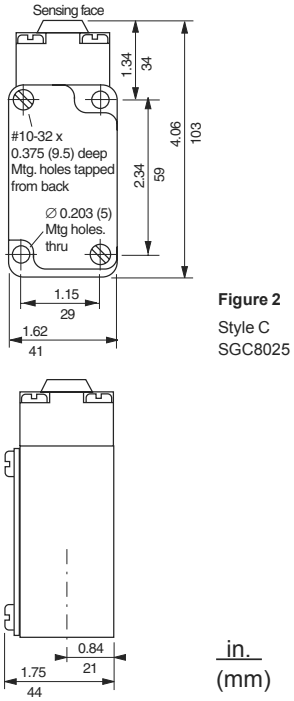



**Figure 2**
Style C
SGC8025

in.
(mm)



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# OsiSense® XS
# Inductive proximity sensors
## SG magnet actuated sensors
## Tubular style



### Dimensions

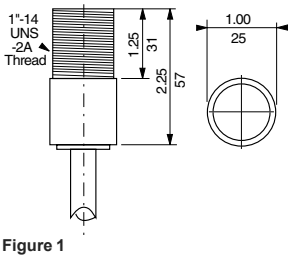


**Figure 1**

SGA8057
(Aluminum)
SGC8058 (PVC)
SGA8072 (PVC)
SGA8189 (Brass)

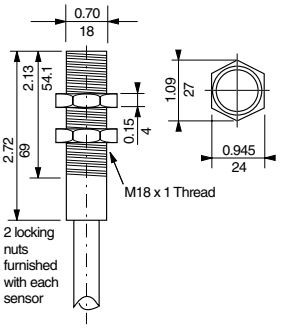


**Figure 2**

SGA8179
SGA8180
SGC8181

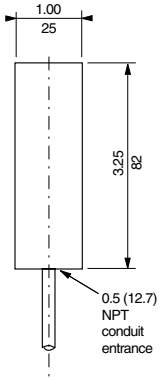


**Figure 3**

SGA8038

in.
(mm)

Tubular, magnet-actuated proximity sensors for heavy-duty applications such as:

- High-speed rotational counting
- Identification of metal bins with magnet-coded labels
- Sensing through non-magnetic walls

Sensing is independent of magnet polarity.

### Features

- Housings: aluminum for SGA8057; plastic (PVC) for SGC8058, SGA8072, SGA8039; polymide for SGA8179, SGA8180, SGA8181
- Completely encapsulated in epoxy
- High transient protection
- Threaded and smooth housings
- High voltage versions
- SPST and SPDT models
- No bouncing
- UL recognized (except where noted with #).

| Circuit type | AC ratings (inductive or resistive) | | | DC ratings (resistive only) | | | Leakage (mA) | Dim. Figure | Wiring Figure | Catalog Number |
|---|---|---|---|---|---|---|---|---|---|---|
| | VA (max.) | Voltage nominal | Current (max.) | VA (max.) | Voltage (max.) | Current (max.) | | | | |
| **Reed output AC and DC switching (built-in RC protection), threaded** | | | | | | | | | | |
| N.O. | 15 | 120 | 1.0 A | 12 | 48 | 0.25 A | 6 (1) | 1 | A | **SGA8057** |
| N.O./N.C. | 15 | 120 | 1.0 A | 15 | 100 | 1.0 A | 6 (1) | 1 | C | **SGC8058** |
| N.O. | 15 | 120 | 1.0 A | 15 | 250 | 1.0 A | 6 (1) | 1 | A | **SGA8072** |
| N.O. | 25 | 480 | 1.0 A | 25 | 480 | 1.0 A | .16 | 2 | A | **SGA8179 (3)** |
| **Reed output—DC, threaded, resistor built-in for long cable runs** (2) | | | | | | | | | | |
| N.O. | — | — | — | 10 | 200 | 0.5 A | 0 | 2 | A | **SGA8180 (3)** |
| N.O./N.C. | — | — | — | 3 | 100 | 0.25 A | 0 | 2 | C | **SGC8181 (3)** |
| **Reed output—AC and DC (built-in RC protection), smooth** | | | | | | | | | | |
| 1 N.O. | 15 | 120 | 1.0 A | 15 | 250 | 1.0 A | 6 (1) | 3 | A | **SGA8038(3)** |

(1) Bleeder resistor required for PLC AC switching compatibility.
(2) 150 Ω for SGA8180 and 470 Ω for SGC8181.
(3) Not UL

### Magnet actuators, mm (in.)

| Description | | Sensing distance SGA8180 | Sensing distance All Others | Catalog Number |
|---|---|---|---|---|
| Tubular | | 33 (1.3) | 20.3 (0.8) | **7046** |
| Flat bracket, center | South pole | 17.8 (0.7) | 10.0 (0.4) | **7093** |
| Flat bracket, side | South pole | 5.1 (0.2) | 5.1 (0.2) | **7063** |
| 90° bracket | South pole | 5.1 (0.2) | 5.1 (0.2) | **7062** |
| Block type | | 5.1 (0.2) | 5.1 (0.2) | **7099** |
| Flexible tape—1 ft (305 mm) long | | 2.5 (0.1) | 2.5 (0.1) | **7096** |



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# OsiSense® XS
# Inductive proximity sensors
## SG magnet actuated sensors
## Tubular style



### Wiring

**Figure A**

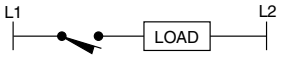
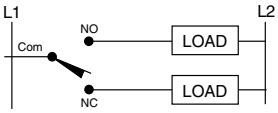



**Figure C**

SGC8058 and SGC8181
Black—Com
Blue—N.O.
Brown—N.C.




### Specifications

| General specifications | | | |
|---|---|---|---|
| **Temperature range** | -40 to 60 °C (-40 to 140 °F) | | |
| **Enclosure ratings** | NEMA Types 1, 4, 13 | | |
| **Vibration resistance** | 20 G (10 to 1000 Hz) | | |
| **Shock resistance** | 50 G for 11 ms | | |
| **Differential** | Maximum 75% (except SGA8179 = 1.06 in. maximum) | | |
| **Repeatability** | Maximum 0.08 mm (0.003 in.) | | |
| | **Reed AC and DC** | **SGA8180 Built-in resistor (DC)** | **SGC8181 Built-in resistor (DC)** |
| **Voltage drop (1)** | 25 mV | IR | IR |
| **On delay (maximum)** | 2 ms | 0.75 ms | 2.5 ms N.O.<br>3.5 ms N.C. |
| **Cable, 3 ft (0.9 m)** | 22-2 vinyl: SGA8038, 8180; 23-2 vinyl SGC 8181; | | |
| | 16-2 SJTO: SGA8057, 8072. SO cable for SGA8179 | | |
| **Agency listings except where noted** | E 42259<br>CCN NKCR2 | | |

(1) Voltage drop = IR, where I is the load current and R the built-in resistor.

### Options

| Description | | Suffix |
|---|---|---|
| 5 m (16.4 ft) of cable | Vinyl | **L05** |
| | SJTO (8057, 8072, 8179) | **L05** |
| 10 m (32.8 ft) of cable | Vinyl | **L10** |
| (for models with built-in resistor) | SJTO (8057, 8072, 8179) | **L10** |



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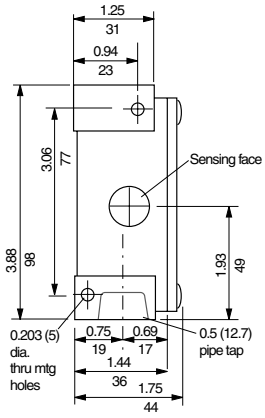
# OsiSense® XS
# Inductive proximity sensors
## SG magnet actuated sensors
## Maintained contact



Dimensions



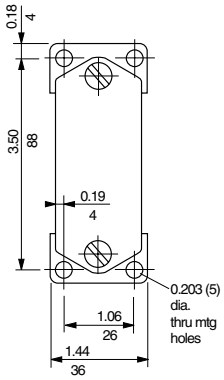




**Figure 1**
SGA8018
SGO8026
SGO8110
SGO8141

in.
(mm)

**Maintained contact model—**A highly reliable, magnet-actuated proximity limit switch designed to maintain contact for high-speed stacker cranes, slow-down, and memory applications. Eliminates the camming required for mechanically operated limit switches. **Maintains the information even if power is down.**

### Features

- Diecast zinc housing
- PLC compatibility
- High transient protection
- No bouncing
- 12.7 mm (0.5 in.) NPT conduit entrance
- UL recognized

When the north or south pole of a magnet actuator moves past the blue-dot sensitive area within the specified range along the switch, the contact position changes from open to closed. Once latched, the movement of the same magnetic pole in the opposite direction—or the movement of the opposite magnetic pole in the same direction—unlatches the switch.

**NOTE:** If during this procedure the switch closes and then opens again (pulses), reverse the polarity of the magnet and repeat the above procedure. If the desired direction of operation is opposite to that established above, reverse the polarity of the magnet.

| Circuit Type | AC ratings (inductive or resistive) | | | DC ratings (resistive only) | | | Leakage (mA) | Wiring Figure | Catalog Number |
|---|---|---|---|---|---|---|---|---|---|
| | VA (max.) | Voltage (nom.) | Current (max.) | VA (max.) | Voltage (max.) | Current (max.) | | | |
| **Reed, DC** | | | | | | | | | |
| 1 N.O. | — | — | — | 15 | 250 | 1.0 A | 0 | A | **SGA8018** |
| **Triac, AC** | | | | | | | | | |
| 1 N.O. | 360 | 120 | 3.0 A | — | — | — | 1.7 | A | **SGO8026** |
| **Triac, AC low temperature: -34 to +29° C (-30 to 85° F)** | | | | | | | | | |
| 1 N.O. | 360 | 120 | 3.0 A | — | — | — | 1.7 | B | **SGO8110** |

### Magnet actuators, mm (in.)

| Description | | Sensing Distance, mm (in.) | Catalog Number |
|---|---|---|---|
| Tubular | | 33 (1.3) | **7046** |
| Flat bracket, center | South pole | 25 (1.0) | **7093** |
| | North pole | 25 (1.0) | **7547** |
| Flat bracket, side | South pole | 18 (0.7) | **7063** |
| | North pole | 18 (0.7) | **70631** |
| 90° bracket | South pole | 18 (0.7) | **7062** |
| | North pole | 18 (0.7) | **70621** |
| Block type | | 13 (0.5) | **7099** |
| Flexible tape—305 mm (1 ft) long | | 13 (0.5) | **7096** |



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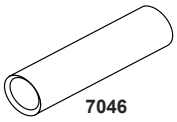
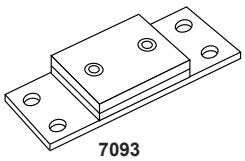
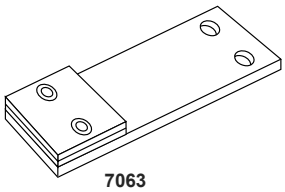
# OsiSense® XS
# Inductive proximity sensors
## SG magnet actuated sensors
## Magnet actuators



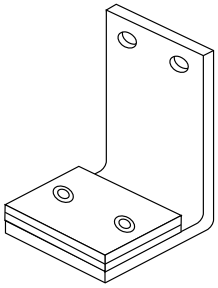
**7046**



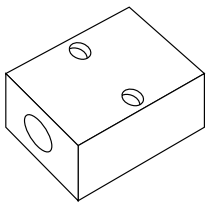
**7093**



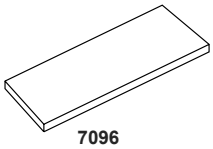
**7063**



**7062**



**7099**



**7096**

### Features

- Industrial grade magnet is recommended for magnet-actuated proximity sensors.
- Alnico is used as magnet material for all rigid models.
- Aramid fiber is used for the flexible magnetic tape.
- The rigid models come mounted on one of several types of standard brackets for convenience (except the tubular high-power version).
- Both south and north poles are accessible and marked. The south pole version is the standard. North pole versions may be required in conjunction with the maintained magnetic switch.
- For comparison, an average magnetic strength rating is listed below. Measurements were made with a Gaussmeter at 3.3 mm (0.13 in.) from the sensing surface.



| Description | | Magnetic Strength | Catalog Number |
|---|---|---|---|
| Tubular | | 700 Gauss | **7046** |
| Flat bracket, center | South pole | 330 Gauss | **7093** |
| | North pole | 330 Gauss | **7547** |
| Flat bracket, side | South pole | 240 Gauss | **7063** |
| | North pole | 240 Gauss | **70631** |
| 90° bracket | South pole | 260 Gauss | **7062** |
| | North pole | 260 Gauss | **70621** |
| Block type | | 340 Gauss | **7099** |
| Flexible tape | 1 ft long | 180 Gauss | **7096•** (1) |

(1) For longer tape, specify the total length in feet. Example: 70966 = 6 ft.



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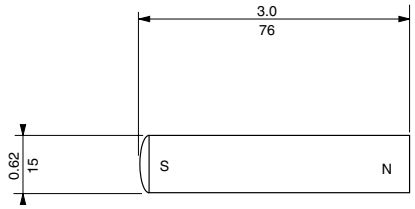
# OsiSense® XS
# Inductive proximity sensors
SG magnet actuated sensors
Magnet actuators

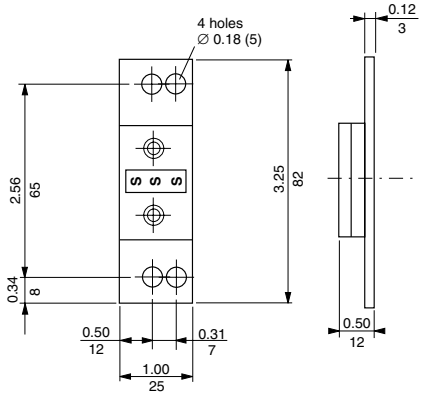


**Magnet actuator dimensions, mm**

**Tubular magnet actuator 7046**

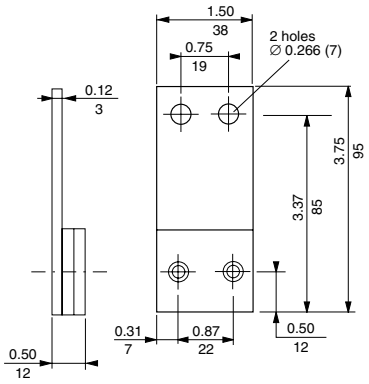



**Magnet actuator 7093 (south pole)**
**Magnet actuator 7597 (north pole)**

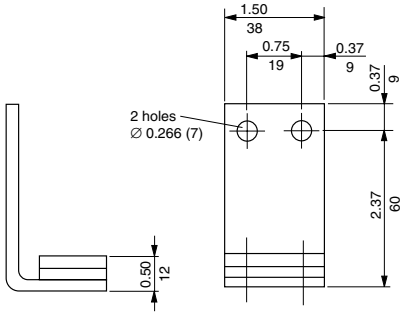



in.
(mm)

**Magnetic actuator 7063 (south pole)**
**Magnet actuator 70631 (north pole)**

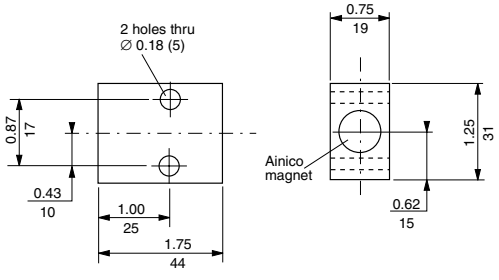



**Magnet actuator 7062 (south pole)**
**Magnet actuator 70621 (north pole)**

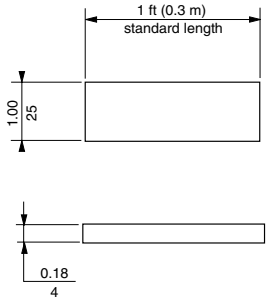



in.
(mm)

**Block type magnet actuator 7099**




**Flexible magnetic tape 7096• (1 ft)**




in.
(mm)



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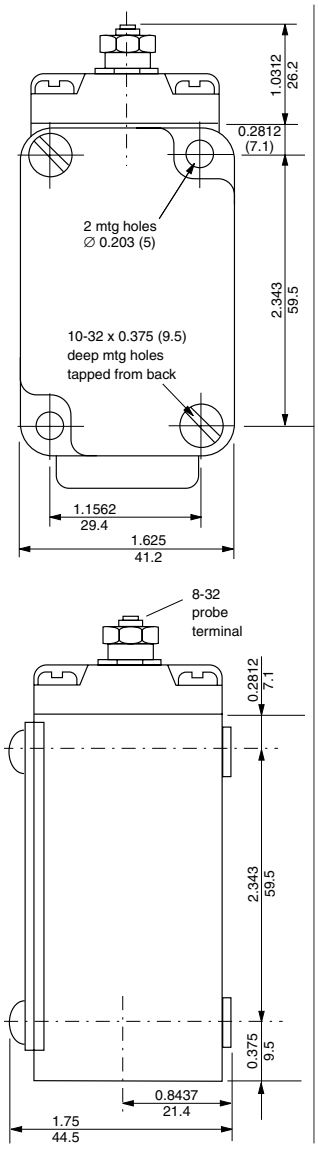
# OsiSense® XS
# Inductive proximity sensors
## ST grounded probe switch

Dimensions




in.
(mm)

The touch switch is a highly reliable AC solid-state presence sensor designed for precise conductivity sensing. Applications include high temperature, light conductive, aggressive mechanical, and chemical environments that target positive end-point sensing. All models have a visible neon pilot light to indicate operation of the switch.

### Features

- Diecast zinc housing
- Solid state—no moving parts
- 115 Vac, completely self-contained
- Probes up to 10 ft (3 m) long
- High current output—no relay required for most applications
- Fast response—no warm-up time
- 12.7 mm (0.5 in. ) NPT conduit entrance
- UL Recognized

### Operation

The switch is actuated when a conductive path is established between the probe terminal and ground (1 M Ω or less). The electrical contact to ground operates the switching thyristor. Internal RC snubber and varistor provide effective protection from typical transients. Normal open models have a 10 ms (maximum) turn on time. Different off-delay times are offered to permit compensation for relay chatter when the probe is subjected to bounce from irregular contact with the grounded metal point of contact.

**NOTE:** For isolated circuits where the ground is not common, the ground terminal of the switch should be connected to the neutral. The metal target to be detected by the probe should also then be wired to the neutral.

### Probe characteristics

The probe terminal is an 8-32 stud protruding from the center of the head.
*Extensions may be any electrically conductive wire or material suitably insulated from grounded surface and limited in length to 3 m (10 ft) or less.*

- Open voltage: 12 Vdc
- Peak current: 1 mA

### Switch models

| Circuit type | Voltage (nominal) | Current load (maximum) | Leakage current (maximum) | On delay | Off delay | Catalog Number |
|---|---|---|---|---|---|---|
| **Terminal screws** | | | | | | |
| N.O. | 120 Vac | 3 A | 1.7 mA | 10 ms | 100 ms | **STO8164** |
| N.C. | 120 Vac | 3 A | 1.7 mA | 100 ms | 30 m s | **ST18165** |
| N.O. | 120 Vac | 3 A | 1.7 mA | 10 ms | 400 ms | **STO8166** |
| N.O. | 120 Vac | 3 A | 1.7 mA | 10 ms | 20 ms | **STO8167** |
| **Pre-wired with 0.9 m (3 ft) of cable** | | | | | | |
| N.O. | 120 Vac | 3 A | 1.7 mA | 10 ms | 100 ms | **STO8001** |
| N.C. | 120 Vac | 3 A | 1.7 mA | 100 ms | 30 ms | **ST18002** |
| N.O. | 120 Vac | 3 A | 1.7 mA | 10 ms | 400 ms | **STO8036** |
| N.O. | 120 Vac | 3 A | 1.7 mA | 10 ms | 20 ms | **STO8042** |





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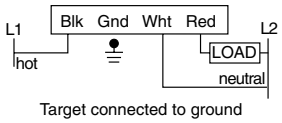
# OsiSense® XS
# Inductive proximity sensors
## ST grounded probe switch



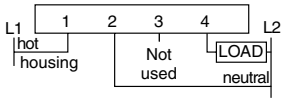
### Wiring

**Cable wiring**




Target connected to ground

**Terminal strip wiring**




Target connected to ground. Housing must be grounded for proper operation.

Model ST switches may be wired in series or parallel. Connect the red lead to the black lead of other switch (terminal 4 to terminal 1 of the other switch) for series operation. The voltage drop across each switch (in the closed state) does not exceed 2 Vac.

### Specifications

| General characteristics | |
|---|---|
| **Temperature range** | -40 to 70 °C (-40 to 158 °F) |
| **Enclosure ratings** | NEMA Types 1, 4, 13 |
| **Voltage drop** | 2 V |
| **Maximum inrush current** | 10 A |
| **Minimum load current** | 15 mA |
| **Power supply current (no load)** | 30 mA |
| **Cable** | 0.9 m (3 ft) 16-4 SJTO or terminal screws 1.2 $mm^2$ (16 AWG) |



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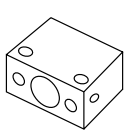
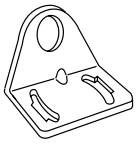
# OsiSense® XS
# Inductive proximity sensors
## Mounting brackets



*8316●●*



*9006PA●●*

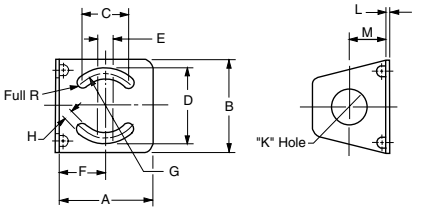
### Mounting brackets

| Description | Sensor Diameter | For use with | Catalog Number |
|---|---|---|---|
| Steel mounting bracket, 90° for tubular inductive proximity sensors | 12 (M12 x 1) | XS1, XS2, XS4 | **9006PA12** |
| | 18 (M18 x 1) | XS1, XS2, XS4 | **9006PA18** |
| | 30 (M30 x 1.5) | XS1, XS2, XS4 | **9006PA30** |
| Diecast zinc mounting bracket for tubular sensors, 4–12 mm dia. | 4 mm | XS1L04 | **831604** |
| | 5 mm | XS1L05 | **831605** |
| | 6 mm | XS1L06, XS2L06 | **831606** |
| | 8 mm | XS1, XS2, XS4 | **831608** |
| | 12 mm | XS1, XS2, XS4 | **831612** |

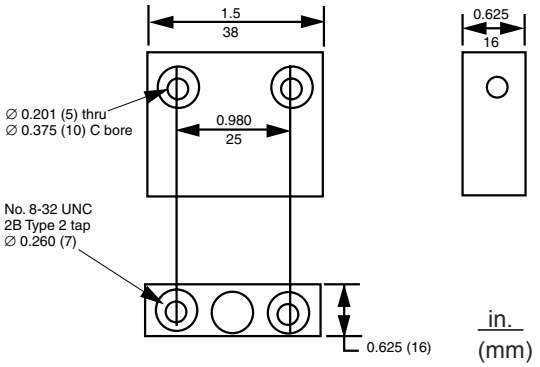


### Approximate Dimensions

**9006PA••**




**8316 Bracket**




| Type | A | | B | | C | | D | | E | | F | | G | | H | | J | | K | | L | | M | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | in. | mm | in. | mm | in. | mm | in. | mm | in. | mm | in. | mm | in. | mm | in. | mm | in. | mm | in. | mm | in. | mm | in. | mm |
| **PA30** | 2.64 | 67 | 2.56 | 65 | 1.39 | 35 | 1.99 | 51 | 0.39 | 10 | 1.28 | 33 | 1.97 | 50 | 0.21 | 5 | 2.05 | 52 | 1.20 | 31 | 0.08 | 2 | 0.98 | 25 |
| **PA18** | 2.05 | 52 | 1.97 | 50 | 0.97 | 25 | 1.60 | 41 | 0.39 | 10 | 0.98 | 25 | 1.38 | 35 | 0.21 | 5 | 1.65 | 42 | 0.73 | 19 | 0.08 | 2 | 0.79 | 20 |
| **PA12** | 1.38 | 35 | 1.57 | 40 | 0.69 | 18 | 1.20 | 31 | 0.39 | 10 | 0.69 | 18 | 0.98 | 25 | 0.21 | 5 | 1.28 | 33 | 0.49 | 13 | 0.08 | 3 | 0.71 | 18 |



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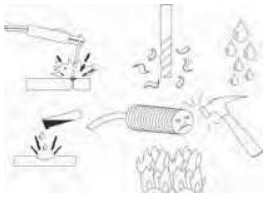
# OsiSense® XS
# Inductive proximity sensors
## Face caps for tubular proximity sensors



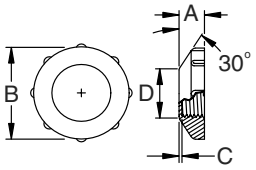


### Features

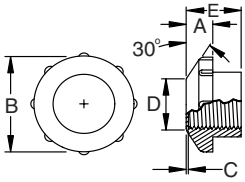
- Shielded and non-shielded caps available
- Different versions available (beveled or non-beveled)
- Helps to provide sensor face protection with no effect on operation

### Description

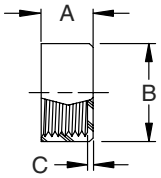
Protection in harsh applications, helps to prevent abrasions, cracks, and other possible damage to the sensor face. Available in several different materials: Ceramic, acetal resin, and Fluorinated hydrocarbon coated material. Helps provide the sensor with protection and a longer life without the additional charge of a stainless steel face option.




*XSZEN●●*




*XSZENN●●*




*XSZSC●●●●*

### Beveled caps (30° chamfer), mm (in.)

| A mm (in.) | B mm (in.) | C mm (in.) | D mm (in.) | E mm (in.) | Catalog Number |
|---|---|---|---|---|---|
| **8 mm diameter shielded** | | | | | |
| 5.1 (0.20) | 15.1 (0.59) | 0.38 (0.15) | 7.00 (0.28) | — | **XSZEN08** |
| **12 mm diameter shielded** | | | | | |
| 6.2 (0.26) | 24.1 (0.95) | 0.76 (0.03) | 12.2 (0.48) | — | **XSZEN12** |
| **18 mm diameter shielded** | | | | | |
| 8.2 (0.32) | 31.2 (1.23) | 0.76 (0.03) | 17.0 (0.67) | — | **XSZEN18** |
| **30 mm diameter shielded** | | | | | |
| 7.6 (0.30) | 44.5 (1.75) | 1.01 (0.04) | 29.0 (1.19) | — | **XSZEN30** |
| **8 mm diameter non-shielded** | | | | | |
| 5.1 (0.20) | 14.1 (0.56) | 0.38 (0.15) | 7.00 (2.76) | 9.60 (0.37) | **XSZENN08** |
| **12 mm diameter non-shielded** | | | | | |
| 6.5 (0.26) | 22.9 (0.90) | 0.76 (0.03) | 12.9 (0.51) | 17.3 (0.68) | **XSZENN12** |
| **18 mm diameter non-shielded** | | | | | |
| 8.2 (0.32) | 34.0 (1.34) | 0.76 (0.03) | 16.6 (0.65) | 17.8 (0.70) | **XSZENN18** |
| **30 mm diameter non-shielded** | | | | | |
| 7.5 (0.30) | 44.5 (1.75) | 1.01 (0.04) | 30.0 (1.18) | 22.8 (0.90) | **XSZENN30** |

### Non-beveled caps, mm (in.)

| A | B | C | Catalog Number |
|---|---|---|---|
| **12 mm diameter shielded** | | | |
| 8.90 (0.35) | 16.1 (0.63) | 1.26 (0.05) | **XSZSC12C** |
| 8.90 (0.35) | 16.1 (0.63) | 0.76 (0.03) | **XSZSC12D** |
| 8.90 (0.35) | 16.1 (0.63) | 0.76 (0.03) | **XSZSC12T** |
| **18 mm diameter shielded** | | | |
| 8.80 (0.35) | 24.4 (0.96) | 1.27 (0.05) | **XSZSC18D** |
| 8.80 (0.35) | 24.4 (0.96) | 1.27 (0.05) | **XSZSC18T** |
| **12 mm diameter non-shielded** | | | |
| 15.2 (0.60) | 16.1 (0.63) | 0.76 (0.03) | **XSZSC12ND** |
| 15.2 (0.60) | 16.1 (0.63) | 0.76 (0.03) | **XSZSC12NT** |
| **18 mm diameter non-shielded** | | | |
| 18.0 (0.59) | 24.4 (0.96) | 1.27 (0.05) | **XSZSC18ND** |
| 18.0 (0.59) | 24.4 (0.96) | 1.27 (0.05) | **XSZSC18NT** |



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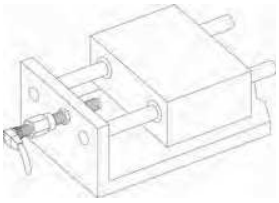
# OsiSense® XS
# Inductive proximity sensors
## Plunger screw adapters



### Features

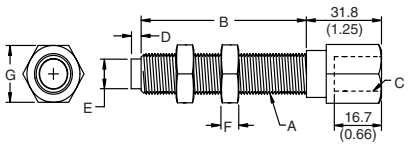
- Accepts 8, 12, or 18 mm shielded sensor
- Heat-treated alloy steel construction
- Rugged stop with solid-state output

### Description

Plunger screw adapters allow a shielded inductive proximity sensor to be used as a mechanical stop switch in applications requiring a precise end-of-travel signal or a hard stop. The spring requires a force of 252 g (9 oz) to actuate the sensor.



| A | B mm (in.) | C | D mm (in.) | E (dia.) mm (in.) | F mm (in.) | G mm (in.) | Impact Force (Maximum) | Catalog Number |
|---|---|---|---|---|---|---|---|---|
| **8 mm diameter shielded sensors** | | | | | | | | |
| M8x1 | 25 (1) | M8x1 | 3.16 (0.12) | 5.84 (0.23) | 6.26 (0.24) | 11.0 (0.43) | 2,000 N (450 lbf) | **XSZB0825** |
| M8x1 | 50 (2) | M8x1 | 3.16 (0.12) | 5.84 (0.23) | 6.26 (0.24) | 11.0 (0.43) | 2,000 N (450 lbf) | **XSZB0850** |
| **12 mm diameter shielded sensors** | | | | | | | | |
| M12x1 | 25 (1) | M12x1 | 4.32 (0.17) | 9.40 (0.37) | 4.22 (0.17) | 15.7 (0.62) | 20,500 N (4,609 lbf) | **XSZB1225** |
| M12x1 | 50 (2) | M12x1 | 4.32 (0.17) | 9.40 (0.37) | 4.22 (0.17) | 15.7 (0.62) | 20,500 N (4,609 lbf) | **XSZB1250** |
| M12x1 | 75 (3) | M12x1 | 4.32 (0.17) | 9.40 (0.37) | 4.22 (0.17) | 15.7 (0.62) | 20,500 N (4,609 lbf) | **XSZB1275** |
| M12x1 | 100 (4) | M12x1 | 4.32 (0.17) | 9.40 (0.37) | 4.22 (0.17) | 15.7 (0.62) | 20,500 N (4,609 lbf) | **XSZB1210** |
| **18 mm diameter shielded sensors** | | | | | | | | |
| M18x1 | 25 (1) | M18x1 | 4.32 (0.17) | 14.2 (0.56) | 4.22 (0.17) | 22.1 (0.87) | 45,000 N (10,116 lbf) | **XSZB1825** |
| M18x1 | 50 (2) | M18x1 | 4.32 (0.17) | 14.2 (0.56) | 4.22 (0.17) | 22.1 (0.87) | 45,000 N (10,116 lbf) | **XSZB1850** |
| M18x1 | 75 (3) | M18x1 | 4.32 (0.17) | 14.2 (0.56) | 4.22 (0.17) | 22.1 (0.87) | 45,000 N (10,116 lbf) | **XSZB1875** |
| M18x1 | 100 (4) | M18x1 | 4.32 (0.17) | 14.2 (0.56) | 4.22 (0.17) | 22.1 (0.87) | 45,000 N (10,116 lbf) | **XSZB1810** |




mm
in.

*XSZB●●●●*



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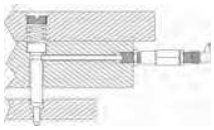
# OsiSense® XS
# Inductive proximity sensors
## Proximity probe adapters, conduit adapters for tubular sensors



### Features

- Accepts any 8 or 12 mm shielded sensor
- Accurate and compact switching in confined areas
- Large variety of stand probe lengths and diameters

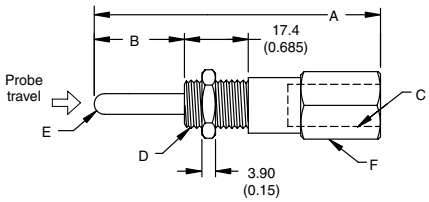
### Description

Proximity probes are spring-loaded actuators designed to work with 8 mm or 12 mm tubular inductive proximity sensors. The probe and sensor combination offers increased flexibility in applications that require tight positioning.



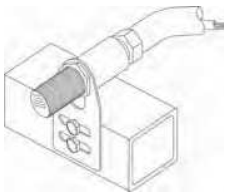
**Dimensions: mm (in.)**

| A mm (in.) | B mm (in.) | C mm (in.) | D mm (in.) | E (Dia.) mm (in.) | F mm (in.) | Catalog Number |
|---|---|---|---|---|---|---|
| **8 mm Diameter Shielded Sensor** | | | | | | |
| 75.6 (2.98) | 25.0 (1.00) | M8 x 1 to depth of 21.8 (0.86) | M8 x 1 | 3.18 (0.125) | 11.1 (0.436) | **XSZPP0825** |
| 99.6 (3.92) | 50.0 (2.00) | M8 x 1 to depth of 21.8 (0.86) | M8 x 1 | 3.18 (0.125) | 11.1 (0.436) | **XSZPP0850** |
| 126 (4.96) | 75.0 (3.00) | M8 x 1 to depth of 21.8 (0.86) | M8 x 1 | 3.18 (0.125) | 11.1 (0.436) | **XSZPP0875** |
| 150 (5.91) | 100 (4.00) | M8 x 1 to depth of 21.8 (0.86) | M8 x 1 | 3.18 (0.125) | 11.1 (0.436) | **XSZPP0810** |
| **12 mm Diameter Shielded Sensor** | | | | | | |
| 75.6 (2.98) | 25.0(1.00) | M12 x 1 to depth of 18.0 (0.71) | M12 x 1 | 6.35 (0.25) | 15.8 (0.623) | **XSZPP1225** |
| 99.6 (3.92) | 50.0 (2.00) | M12 x 1 to depth of 18.0 (0.71) | M12 x 1 | 6.35 (0.25) | 15.8 (0.623) | **XSZPP1250** |
| 126 (4.96) | 75.0 (3.00) | M12 x 1 to depth of 18.0 (0.71) | M12 x 1 | 6.35 (0.25) | 15.8 (0.623) | **XSZPP1275** |
| 150 (5.91) | 100 (4.00) | M12 x 1 to depth of 18.0 (0.71) | M12 x 1 | 6.35 (0.25) | 15.8 (0.623) | **XSZPP1210** |




*XSZPP●●●●*

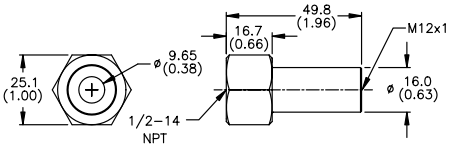
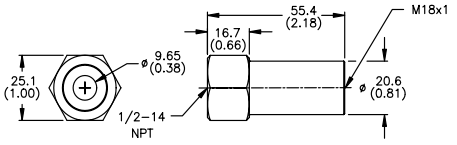
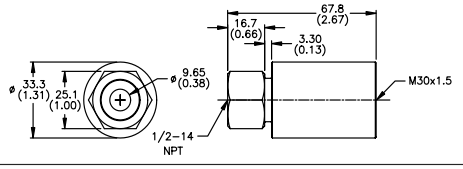
## Conduit Adapters for Tubular Sensors



*XSZCAR●●*

### Features

- Available for 12, 18, and 30 mm tubular sensors
- 1/2 in. NPT inside thread
- Nickel-plated brass

| Tube Diameter | Tube Thread Size | Dimensions, mm (in.) | Catalog Number |
|---|---|---|---|
| 12 mm (0.47 in.) | M12 x 1 |   | **XSZCAR12** |
| 18 mm (0.71 in.) | M18 x 1 |   | **XSZCAR18** |
| 30 mm (1.18) | M30 x 1.5 |   | **XSZCAR30** |



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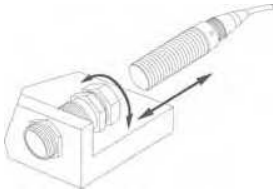
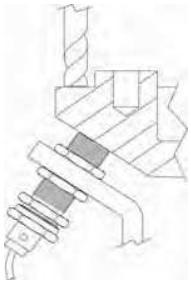
# OsiSense® XS
# Inductive proximity sensors
Quick change mounting tube





**Dimensions: mm (in.)**

### Features

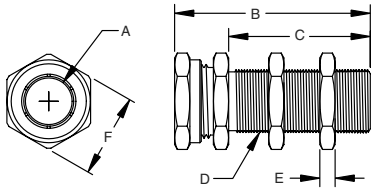
- Quick change mounting available for 8, 12, 18, and 30 mm sensors
- Short and long barrel lengths available
- One-time adjustment simplifies sensor replacement
- Helps protect the sensor from impact and damage
- Fluorinated hydrocarbon coated caps available for quick change mounts (shown below)

### Description

The quick change mounting tube reduces sensor maintenance and helps prevent downtime. An internal shoulder stop and collet-style locknut precisely hold the sensor in place—helping maintain a precise sensing distance and simplifying sensor installation.



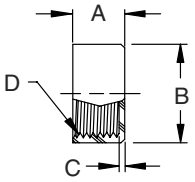
| A | B | C | D | E mm (in.) | F mm (in.) | Catalog Number |
|---|---|---|---|---|---|---|
| **8 mm diameter shielded sensors** | | | | | | |
| 8.18 (0.32) | 32.4 (1.28) | 17.5 (0.69) | M12x1 | 3.85 (0.15) | 16.9 (0.67) | **XSZQT08** |
| 8.18 (0.32) | 48.0 (1.90) | 34.0 (1.34) | M12x1 | 3.85 (0.15) | 16.9 (0.67) | **XSZQTL08** |
| **12 mm diameter shielded sensors** | | | | | | |
| 12.1 (0.48) | 33.7 (1.34) | 19.5 (0.77) | M16.5x1.5 | 4.01 (0.16) | 21.8 (0.86) | **XSZQT12** |
| 12.1 (0.48) | 44.8 (1.76) | 30.0 (1.18) | M16.5x1.5 | 4.01 (0.16) | 21.8 (0.86) | **XSZQTL12** |
| **18 mm diameter shielded sensor** | | | | | | |
| 18.1 (0.71) | 38.5 (1.52) | 20.0 (0.79) | M24 x 1.5 | 4.95 (0.19) | 30.0 (1.18) | **XSZQT18** |
| 18.1 (0.71) | 58.0 (2.28) | 40.0 (1.57) | M24 x 1.5 | 4.95 (0.19) | 30.0 (1.18) | **XSZQTL18** |
| **30 mm diameter shielded sensors** | | | | | | |
| 30.1 (1.19) | 35.0 (1.50) | 20.0 (0.79) | M36 x 1.5 | 6.13 (0.24) | 41.0 (1.61) | **XSZQT30** |
| 30.1 (1.19) | 58.0 (2.28 | 40.0 (1.57) | M36 x 1.5 | 6.13 (0.24) | 41.0 (1.61) | **XSZQTL30** |




*XSZQT●●●*

### Fluorinated hydrocarbon coated caps for quick change mounting tubes

| A mm (in.) | B mm (in.) | C mm (in.) | D mm (in.) | Catalog Number |
|---|---|---|---|---|
| 8.84 (0.35) | 14.8 (0.59) | 0.76 (0.03) | M12x1 | **XSZQTC08** |
| 7.24 (0.29) | 19.9 (0.75) | 0.76 (0.03 | M16x1 | **XSZQTC12** |
| 9.00 (0.35) | 28.7 (1.13) | 0.76 (0.03 | M24x1.5 | **XSZQTC18** |
| 9.00 (0.35) | 41.4 (1.63) | 1.26 (0.05) | M36x1.5 | **XSZQTC30** |




*XSZQTC●●*



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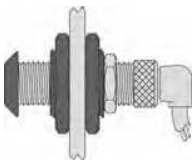
# OsiSense® XS
# Inductive proximity sensors
Spring-loaded tubular sensor mount



### Features

- Accepts 8, 12, 18, and 30 mm shielded or non-shielded sensors
- Shocked is absorbed so sensors can possibly be unaffected by accidental impact
- Shielded and non-shielded caps available (see page 2/126)

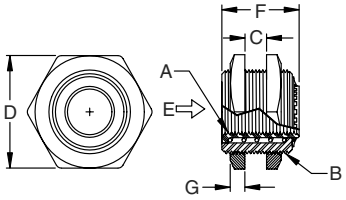
### Description

Spring-loaded sensor mount for tubular body styles helps prevent impact damage to the sensor from target overtravel. The mount is designed to be threaded onto a tubular sensor and held in place with one of the mounting nuts provided with the sensor. Caps are available to help protect the face of the sensor from lateral and axial impacts (see page 2/126).



**Dimensions: mm (in.)**

| A Inside Thread | B Outside Thread | C Maximum mm (in.) | D Across Flats mm (in.) | E Maximum Overtravel | F mm (in.) | G mm (in.) | Catalog Number |
|---|---|---|---|---|---|---|---|
| **8 mm Diameter Sensors** | | | | | | | |
| M8 x 1 | M16 x 1.5 | 12.2 (0.481) | 22.2 (0.875) | 9.22 (0.363) | 22.0 (0.867) | 3.10 (0.155) | **XSZSN08** |
| **12 mm Diameter Sensors** | | | | | | | |
| M12 x 1 | M18 x 1 | 10.0 (0.394) | 23.9 (0.943) | 12.1 (0.476) | 21.3 (0.840) | 3.94 (0.156) | **XSZSN12LP** |
| M12 x 1 | M22 x 1.5 | 11.5 (0.454) | 28.4 (1.12) | 10.5 (0.413) | 22.1 (0.871) | 3.88 (0.153) | **XSZSN12** |
| **18 mm Diameter Sensors** | | | | | | | |
| M18 x 1 | M30 x 1.5 | 16.1 (0.634) | 34.8 (1.37) | 13.3 (0.523) | 29.7 (1.17) | 5.08 (0.20) | **XSZSN18** |
| **30 mm Diameter Sensors** | | | | | | | |
| M30 x 1.5 | M47 x 1.5 | 24.6 (0.972) | 50.8 (2.00) | 15.6 (0.615) | 37.0 (1.37) | 4.98 (0.196) | **XSZSN30** |




*XSZSN●●*



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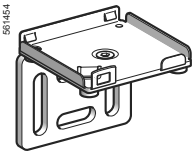
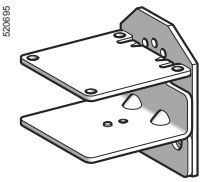
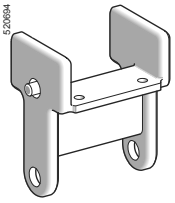
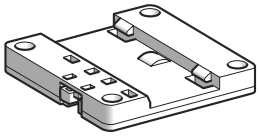
# OsiSense® XS
# Inductive proximity sensors
Accessories

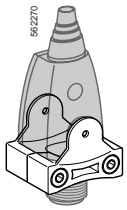

XSZB●00

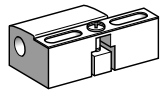

XSZB●90


XSZBC10

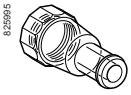

XSZBE10

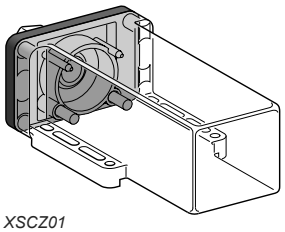

XSZBD10


XSZBPM12

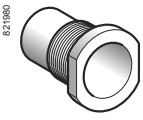

XSZB1●●


XSZA0●●


XSZP1●●


XSCZ01


XSZF10


XTAZ30

## Mounting and mounting accessories

| Description | For use with sensor Type | Diameter (mm) | Catalog Number | Weight kg | (lb) |
|---|---|---|---|---|---|
| **Clip mounting plate** Can be mounted without clip-on threaded holes | XS●J | – | **XSZBJ00** | 0.003 | (0.01) |
| | XS●F | – | **XSZBF00** | 0.005 | (0.01) |
| | XS●E | – | **XSZBE00** | 0.025 | (0.06) |
| | XS●C | – | **XSZBC00** | 0.060 | (0.13) |
| **Clip 90° mounting bracket** Can be mounted without clip-on threaded holes | XS●J | – | **XSZBJ90** | 0.003 | (0.01) |
| | XS●F | – | **XSZBF90** | 0.005 | (0.01) |
| | XS●E | – | **XSZBE90** | 0.025 | (0.06) |
| | XS●C | – | **XSZBC90** | 0.060 | (0.13) |
| **Replacement bracket** | XS●E Replaces: XS7 T2, XS8T2, XSE | – | **XSZBE10** | 0.060 | (0.13) |
| | XS●C Replaces: XS7 T4, XS7C40, XS8 T4, XS8C40 and XSC | – | **XSZBC10** | 0.110 | (0.24) |
| | XS●D (for XSD) *(1)* | – | **XSZBD10** | 0.065 | (0.14) |
| **Mounting clamp for remote control** | XS9, XS6●●●B2 | – | **XSZBPM12** | 0.015 | (0.03) |
| **Mounting clamps** | XS1 | 4 (plain) | **XSZB104** | 0.005 | (0.01) |
| | | 5 (M5 x 0.5) | **XSZB105** | 0.005 | (0.01) |
| | XS1, XS2 | 6.5 (plain) | **XSZB165** | 0.005 | (0.01) |
| | XS1, XS2, XS4, XS5, XS6 | 8 (M8 x 1) | **XSZB108** | 0.006 | (0.01) |
| | XS1, XS2, XS4, XS5, XS6, XT1 | 12 (M12 x 1) | **XSZB112** | 0.006 | (0.01) |
| | | 18 (M18 x 1) | **XSZB118** | 0.010 | (0.02) |
| | | 30 (M30 x 1.5) | **XSZB130** | 0.020 | (0.04) |
| | XT1 | 32 (plain) | **XUZB32** | 0.050 | (0.11) |
| **Set of 2 metal mounting nuts, nickel plated** | XS1 | 5 (M5 x 0.5) | **XSZE105** | 0.010 | (0.02) |
| | XS1, XS2, XS5, XS6 | 8 (M8 x 1) | **XSZE108** | 0.015 | (0.03) |
| | XS1, XS2, XT1, XS5, XS6 | 12 (M12 x 1) | **XSZE112** | 0.015 | (0.03) |
| | | 18 (M18 x 1) | **XSZE118** | 0.020 | (0.04) |
| | | 30 (M30 x 1.5) | **XSZE130** | 0.050 | (0.11) |
| **Set of 2 stainless steel mounting nuts** | XS1, XS2, XS5, XS6 | 8 (M8 x 1) | **XSZE308** | 0.015 | (0.03) |
| | XS1, XS2, XT1, XS5, XS6 | 12 (M12 x 1) | **XSZE312** | 0.015 | (0.03) |
| | | 18 (M18 x 1) | **XSZE318** | 0.020 | (0.04) |
| | | 30 (M30 x 1.5) | **XSZE330** | 0.050 | (0.11) |
| **Set of 2 plastic mounting nuts** | XS4 | 8 (M8 x 1) | **XSZE208** | 0.002 | (0.01) |
| | | 12 (M12 x 1) | **XSZE212** | 0.003 | (0.01) |
| | XS4 | 18 (M18 x 1) | **XSZE218** | 0.004 | (0.01) |
| | | 30 (M30 x 1.5) | **XSZE230** | 0.005 | (0.01) |
| **Adapter collar** **Ø 20** | XS●, XT● | 18 (M18 x 1) | **XSZA020** | 0.005 | (0.01) |
| **Ø 34** | XS●, XT● | 30 (M30 x 1.5) | **XSZA034** | 0.005 | (0.01) |

## Protection accessories

| | | | | | |
|---|---|---|---|---|---|
| **Cable sleeve adapter** (CNOMO type) | XS●, XT● | 12 (M12 x 1) | **XSZP112** | 0.005 | (0.01) |
| | | 18 (M18 x 1) | **XSZP118** | 0.005 | (0.01) |
| | | 30 (M30 x 1.5) | **XSZP130** | 0.010 | (0.02) |
| **Outer cover (IP 68)** | XT7C | – | **XSCZ01** | 0.100 | (0.22) |
| **Thread adapter** | XS●, XT● | 30 (M30 x 1.5) | **XTAZ30** | 0.035 | (0.08) |
| **Pg 13 cable gland** | Clamping capacity Ø 9 to 12 mm | | **XSZPE13** | 0.010 | (0.02) |
| **Protective cover** Sold in lots of 50 | M12 universal connectors | | **XSZF10** | 0.020 | (0.04) |

## Mounting

| | | | | | |
|---|---|---|---|---|---|
| **Threaded inserts for rear mounting** | XS● E | M3 | **XSZVF03** | 0.002 | (0.01) |
| | XS● C | M4 | **XSZVF04** | 0.005 | (0.01) |
| | XS● D | M5 | **XSZVF05** | 0.006 | (0.01) |

## Fuses (for unprotected 2-wire ⎓/∿ sensors)

| Description | Type | Sold in lots of | Catalog Number | Weight kg | (lb) |
|---|---|---|---|---|---|
| **Cartridge fuses 5 x 20** | 0.4 A fast-acting | 10 | **XUZE04** | 0.001 | (0.01) |
| | 0.63 A fast-acting | 10 | **XUZE06** | 0.001 | (0.01) |
| | 0.8 A fast-acting | 10 | **XUZE08** | 0.001 | (0.01) |
| **Fuse terminal block for XUZE0●** | | 50 | **AB1FU10135U** | 0.040 | (0.09) |

*(1) Depth adjustment shim for converting 80 x 80 x 26 mm format to 80 x 80 x 40 mm format. Also enables clipping onto 35 mm omega rail.*



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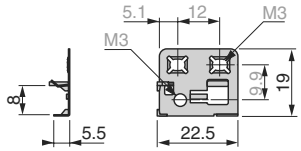
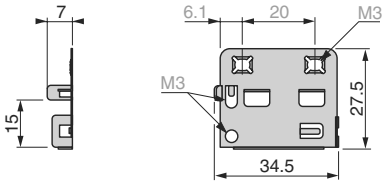
## Inductive proximity sensors
Accessories



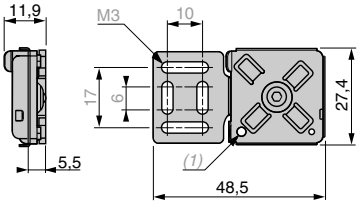
**XSZBJ00**




**XSZBF00**

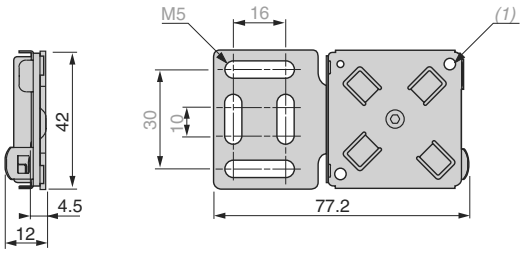



**XSZBE00**



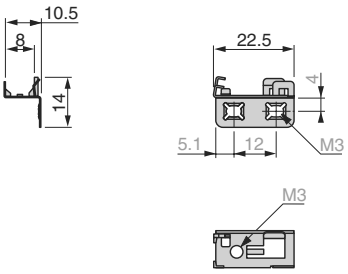

*(1) 2 screws M3 x 12 (included).*

**XSZBC00**

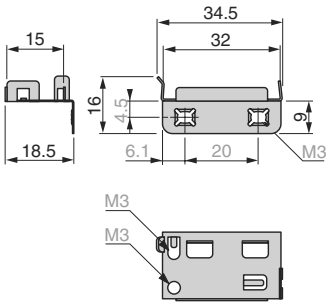



*(1) 4 screws M4 x 14 (included).*

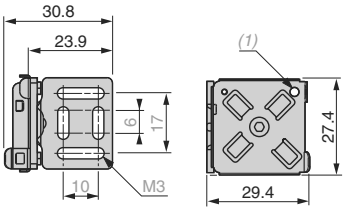
**XSZBJ90**




**XSZBF90**

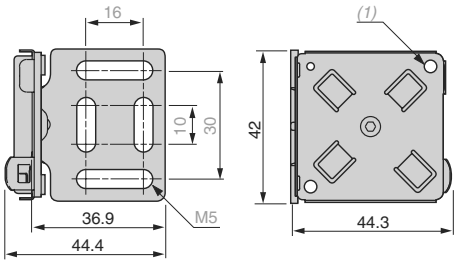



**XSZBE90**




*(1) 2 screws M3 x 12 (included).*

**XSZBC90**




*(1) 4 screws M4 x 14 (included).*



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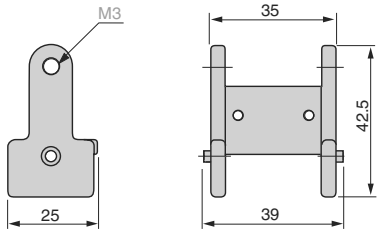
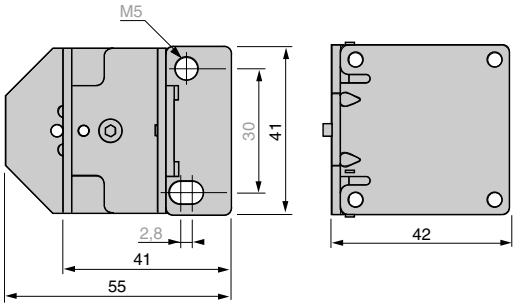
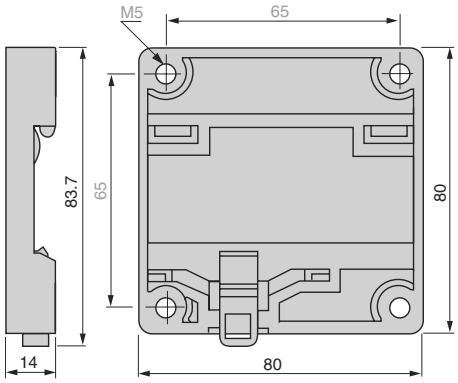
**XSZBE10**



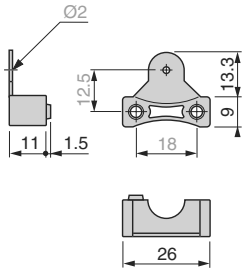

**XSZBC10**



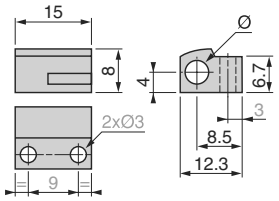

**XSZBD10 (for mounting on XS●D●●●●)**




**XSZBPM12**



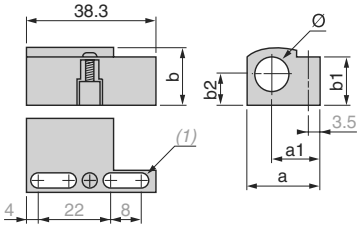

**XSZB104, B105**




| XSZ | Ø |
|---|---|
| **B104** | 4 |
| **B105** | 5 |

***Note:*** *for mounting clamps XSZB118 and XSZB130, see mounting recommendations, page 13*

**XSZB108, B112, B118, B130, B165**




| XSZ | a | a1 | b | b1 | b2 | Ø |
|---|---|---|---|---|---|---|
| **B108** | 19.9 | 14.5 | 14 | 12.5 | 7.5 | 8 |
| **B112** | 21.9 | 14.5 | 16 | 15.5 | 8.5 | 12 |
| **B118** | 26 | 15.7 | 22.3 | 20.1 | 11.5 | 18 |
| **B130** | 39 | 21.7 | 35.5 | 31 | 18.5 | 30 |
| **B165** | 19.9 | 14.5 | 14 | 12.5 | 7.5 | 6.5 |

*(1) 2 elongated holes 4 x 8 mm.*



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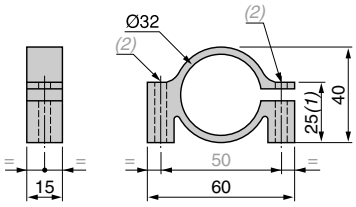
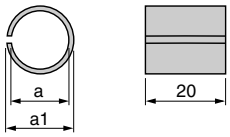
2

### XUZB32



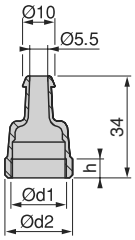

*(1) Maximum value*
*(2) 2 holes Ø 5.5*
*2 x M5 screws, HM head, included with mounting clamp*

### XSZA0●●



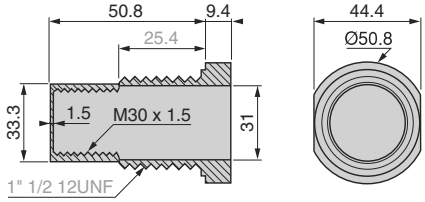

| XSZ | a | a1 |
|---|---|---|
| **A020** | Ø18 | Ø20 |
| **A034** | Ø30 | Ø34 |

### XSZP112, P118, P130

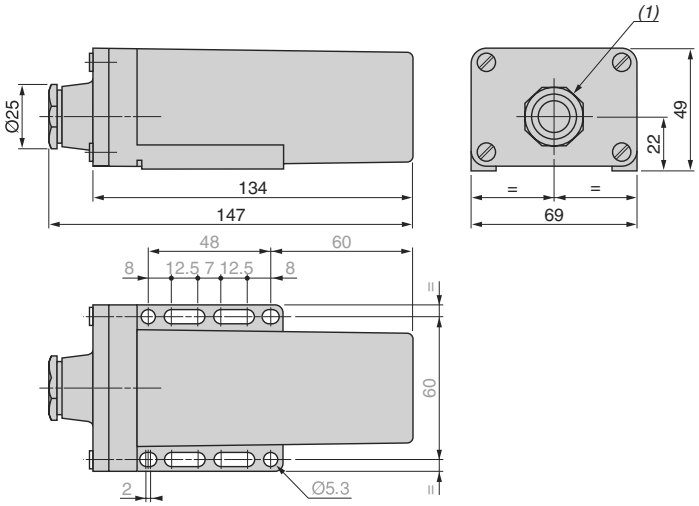



| XSZ | h | Ø d1 | Ø d2 |
|---|---|---|---|
| **P112** | 7 | 12 | 16.8 |
| **P118** | 6.2 | 18 | 23 |
| **P130** | 6.2 | 30 | 34.4 |

### XTAZ30




### XSCZ01




*(1) Pg 13 cable gland*



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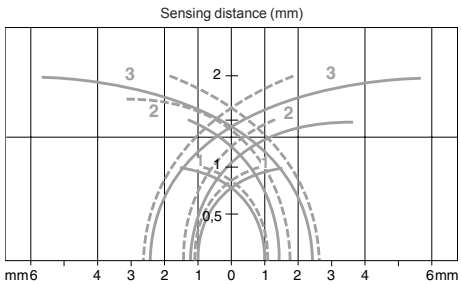
# Inductive proximity sensors

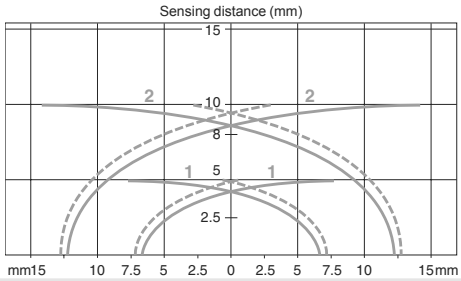
## Cylindrical type sensors

### Flush mountable in metal




| Sensor (mm) | Standard steel target (mm) | Operating zone, mm (in.) |
|---|---|---|
| **Ø 4** | 5 x 5 x 1 | 0–0.8 (0–0.03) |
| **Ø 5** | 5 x 5 x 1 | 0–0.8 (0–0.03) |
| **Ø 6.5** | 8 x 8 x 1 | 0–1.2 (0–0.05) |
| **Ø 8** | 8 x 8 x 1 | 0–1.2 (0–0.05) |
| **Ø 12** | 12 x 12 x 1 | 0–1.6 (0–0.06) |

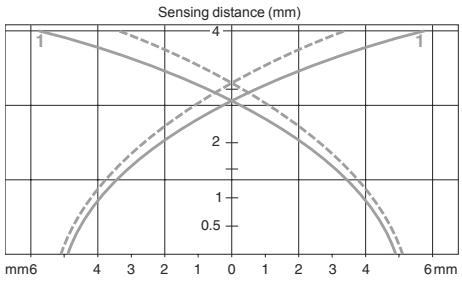
*pick-up points*
*drop-out points (object approaching from the side)*
*1 Ø 4 (plain) XS1 and Ø 5 (M5 x 0.5) XS1*
*2 Ø 6.5 (plain) XS1 and Ø 8 (M8 x 1) XS5*
*3 Ø 12 (M12 x 1) XS5*




| Sensor (mm) | Standard steel target (mm) | Operating zone, mm (in.) |
|---|---|---|
| **Ø 18** | 18 x 18 x 1 | 0–4 (0–0.16) |
| **Ø 30** | 30 x 30 x 1 | 0–8 (0–0.31) |

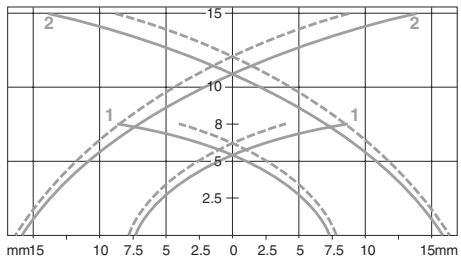
*pick-up points*
*drop-out points (object approaching from the side)*
*1 Ø 18 (M18 x 1) XS5*
*2 Ø 30 (M30 x 1.5) XS5*

### Non-flush mountable in metal




| Sensor (mm) | Standard steel target (mm) | Operating zone, mm (in.) |
|---|---|---|
| **Ø 12** | 12 x 12 x 1 | 0–3.2 (0–0.13) |

*pick-up points*
*drop-out points (object approaching from the side)*
*1 Ø 12 (M12 x 1) XS4*

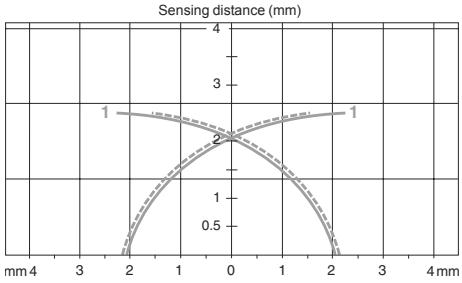



| Sensor (mm) | Standard steel target (mm) | Operating zone, mm (in.) |
|---|---|---|
| **Ø 18** | 24 x 24 x 1 | 0–6.4 (0–0.25) |
| **Ø 30** | 45 x 45 x 1 | 0–12 (0–0.47) |

*pick-up points*
*drop-out points (object approaching from the side)*
*1 Ø 18 (M18 x 1), XS4*
*2 Ø 30 (M30 x 1.5), XS4*

## Cylindrical type sensors, increased range

### Flush mountable in metal




| Sensor (mm) | Standard steel target (mm) | Operating zone, mm (in.) |
|---|---|---|
| **Ø 6.5** | 8 x 8 x 1 | 0–2 (0–0.08) |

*pick-up points*
*drop-out points (object approaching from the side)*
*1 Ø 6.5 (plain) XS1L06pp349*





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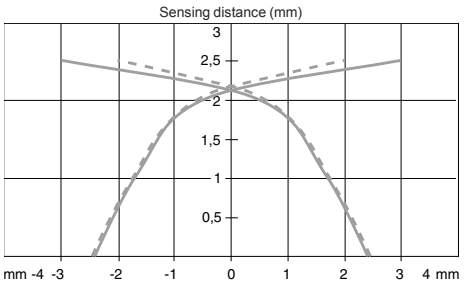
2

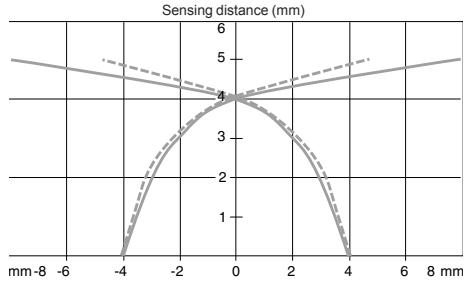
## Flat type sensors

### Flush mountable in metal




| Sensor (mm) | Standard steel target (mm) | Operating zone, mm (in.) |
|---|---|---|
| **XS7J1A1D** | 5 x 5 x 1 | 0–2 (0–0.08) |

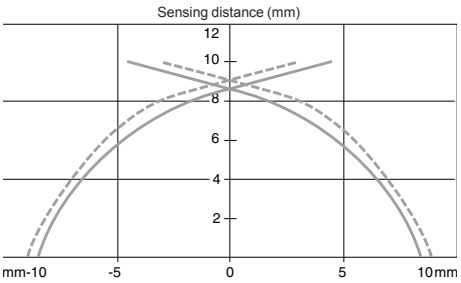
*pick-up points*
*drop-out points (object approaching from the side)*




| Sensor (mm) | Standard steel target (mm) | Operating zone, mm (in.) |
|---|---|---|
| **XS7F1A1D** | 5 x 5 x 1 | 0–4 (0–0.16) |

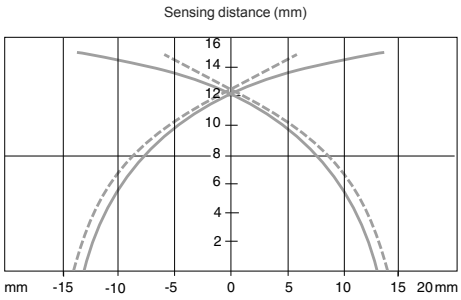
*pick-up points*
*drop-out points (object approaching from the side)*

### Non-flush mountable in metal



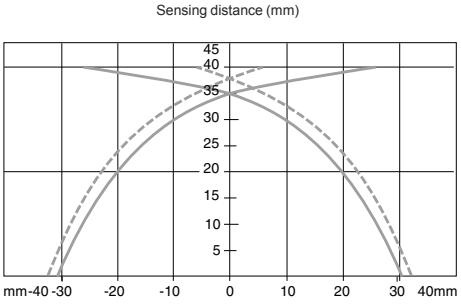

| Sensor (mm) | Standard steel target (mm) | Operating zone, mm (in.) |
|---|---|---|
| **XS7E1A1D** | 8 x 8 x 1 | 0–8 (0–0.31) |
| **XS7E1A1C** | 8 x 8 x 1 | 0–8 (0–0.31) |

*pick-up points*
*drop-out points (object approaching from the side)*




| Sensor (mm) | Standard steel target (mm) | Operating zone, mm (in.) |
|---|---|---|
| **XS7C1A1D** | 18 x 18 x 1 | 0–12 (0–0.47) |
| **XS7C1A1C** | 18 x 18 x 1 | 0–12 (0–0.47) |

*pick-up points*
*drop-out points (object approaching from the side)*




| Sensor (mm) | Standard steel target (mm) | Operating zone, mm (in.) |
|---|---|---|
| **XS7D1A1D** | 30 x 30 x 1 | 0–32 (0–1.26) |
| **XS7D1A1C** | 30 x 30 x 1 | 0–32 (0–1.26) |

*pick-up points*
*drop-out points (object approaching from the side)*



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# OsiSense® XS
# Inductive proximity sensors

| *Old sensor* | **New OsiSense® XS sensor** |
|---|---|
| **Cylindrical type, DC** | |
| **Diameter 6.5 mm** | |
| *XS1* | |
| *XS1L06NA140* | **XS106BLNAL2** |
| *XS1L06PA140* | **XS106BLPAL2** |
| *XS1L06NA340* | **XS506B1NAL2** |
| *XS1L06NA340S* | **XS506B1NAM8** |
| *XS1L06NB340* | **XS506B1NBL2** |
| *XS1L06NB340S* | **XS506B1NBM8** |
| *XS1L06PA340* | **XS506B1PAL2** |
| *XS1L06PA340L1* | **XS506B1PAL5** |
| *XS1L06PA340D* | **XS506B1PAM12** |
| *XS1L06PA340S* | **XS506B1PAM8** |
| *XS1L06PB340* | **XS506B1PBL2** |
| *XS1L06PB340L1* | **XS506B1PBL5** |
| *XS1L06PB340S* | **XS506B1PBM8** |
| *XS1L06NA349* | **XS106B3NAL2** |
| *XS1L06NA349S* | **XS106B3NAM8** |
| *XS1L06NB349* | **XS106B3NBL2** |
| *XS1L06NB349S* | **XS106B3NBM8** |
| *XS1L06PA349* | **XS106B3PAL2** |
| *XS1L06PA349L1* | **XS106B3PAL5** |
| *XS1L06PA349D* | **XS106B3PAM12** |
| *XS1L06PA349S* | **XS106B3PAM8** |
| *XS1L06PB349* | **XS106B3PBL2** |
| *XS1L06PB349L1* | **XS106B3PBL5** |
| *XS1L06PB349S* | **XS106B3PBM8** |
| **Diameter 8 mm** | |
| *XS1* | |
| *XS1D08NA140* | **XS108BLNAL2** |
| *XS1D08NA140D* | **XS108BLNAM12** |
| *XS1D08PA140* | **XS108BLPAL2** |
| *XS1D08PA140D* | **XS108BLPAM12** |
| *XS1D08PA140L1* | **XS108BLPAL5** |
| *XS1M08DA210* | **XS508B1DAL2** |
| *XS1M08DA210D* | **XS508B1DAM12** |
| *XS1M08DA210L1* | **XS508B1DAL5** |
| *XS1M08DA210L2* | **XS508B1DAL10** |
| *XS1M08DA210LD* | **XS508B1DAL08M12** |
| *XS1M08DB210* | **XS508B1DBL2** |
| *XS1M08DB210D* | **XS508B1DBM12** |
| *XS1M08DB210L1* | **XS508B1DBL5** |
| *XS1M08DB210LD* | **XS508B1DBM12** *(1)* |

| *Old sensor* | **New OsiSense® XS sensor** |
|---|---|
| *XS1M08DA214D* | **XS508B1CAM12** |
| *XS1M08DA214LD* | **XS508B1CAL08M12** |
| *XS1M08NA370* | **XS508BLNAL2** |
| *XS1M08NA370D* | **XS508BLNAM12** |
| *XS1M08NA370L1* | **XS508BLNAL5** |
| *XS1M08NB370* | **XS508BLNBL2** |
| *XS1M08NB370D* | **XS508BLNBM12** |
| *XS1M08PA370* | **XS508BLPAL2** |
| *XS1M08PA370D* | **XS508BLPAM12** |
| *XS1M08PA370L1* | **XS508BLPAL5** |
| *XS1M08PA370L2* | **XS508BLPAL10** |
| *XS1M08PA370LD* | **XS508BLPAM12** *(1)* |
| *XS1M08PA370S* | **XS508BLPAM12** *(2)* |
| *XS1M08PB370* | **XS508BLPBL2** |
| *XS1M08PB370D* | **XS508BLPBM12** |
| *XS1M08PB370L1* | **XS508BLPBL5** |
| *XS1M08PB370L2* | **XS508BLPBL10** |
| *XS1N08NA340* | **XS508B1NAL2** |
| *XS1N08NA340D* | **XS508B1NAM12** |
| *XS1N08NA340L1* | **XS508B1NAL5** |
| *XS1N08NA340L2* | **XS508B1NAL10** |
| *XS1N08NA340S* | **XS508B1NAM8** |
| *XS1N08NB340* | **XS508B1NBL2** |
| *XS1N08NB340D* | **XS508B1NBM12** |
| *XS1N08NB340S* | **XS508B1NBM8** |
| *XS1N08PA340* | **XS508B1PAL2** |
| *XS1N08PA340D* | **XS508B1PAM12** |
| *XS1N08PA340L1* | **XS508B1PAL5** |
| *XS1N08PA340L2* | **XS508B1PAL10** |
| *XS1N08PA340LD* | **XS508B1PAM12** |
| *XS1N08PA340S* | **XS508B1PAM8** |
| *XS1N08PB340* | **XS508B1PBL2** |
| *XS1N08PB340D* | **XS508B1PBM12** |
| *XS1N08PB340L1* | **XS508B1PBL5** |
| *XS1N08PB340L2* | **XS508B1PBL10** |
| *XS1N08PB340S* | **XS508B1PBM8** |
| *XS1N08NA349* | **XS108B3NAL2** |
| *XS1N08NA349L1* | **XS108B3NAL5** |
| *XS1N08NA349D* | **XS108B3NAM12** |
| *XS1N08NA349S* | **XS108B3NAM8** |
| *XS1N08NB349* | **XS108B3NBL2** |
| *XS1N08NB349L1* | **XS108B3NBL5** |
| *XS1N08NB349D* | **XS108B3NBM12** |
| *XS1N08NB349S* | **XS108B3NBM8** |
| *XS1N08PA349* | **XS108B3PAL2** |
| *XS1N08PA349L1* | **XS108B3PAL5** |
| *XS1N08PA349D* | **XS108B3PAM12** |

| *Old sensor* | **New OsiSense® XS sensor** |
|---|---|
| *XS1N08PA349S* | **XS108B3PAM8** |
| *XS1N08PB349* | **XS108B3PBL2** |
| *XS1N08PB349L1* | **XS108B3PBL5** |
| *XS1N08PB349D* | **XS108B3PBM12** |
| *XS1N08PB349S* | **XS108B3PBM8** |
| *XS2* | |
| *XS2M08NA340* | **XS608B1NAL2** |
| *XS2N08NA340* | **XS108B3NAL2** |
| *XS2N08NA340D* | **XS108B3NAM12** |
| *XS2N08NA340L1* | **XS108B3NAL5** |
| *XS2N08NA340L2* | **XS108B3NAL10** |
| *XS2N08NA340S* | **XS108B3NAM8** |
| *XS2N08NB340* | **XS108B3NBL2** |
| *XS2N08NB340D* | **XS108B3NBM12** |
| *XS2N08NB340S* | **XS108B3NBM8** |
| *XS2N08PA340* | **XS108B3PAL2** |
| *XS2N08PA340D* | **XS108B3PAM12** |
| *XS2N08PA340L1* | **XS108B3PAL5** |
| *XS2N08PA340L2* | **XS108B3PAL10** |
| *XS2N08PA340S* | **XS108B3PAM8** |
| *XS2N08PB340* | **XS108B3PBL2** |
| *XS2N08PB340D* | **XS108B3PBM12** |
| *XS2N08PB340S* | **XS108B3PBM8** |
| *XS3* | |
| *XS3P08NA340* | **XS508B1NAL2** *(3)* |
| *XS3P08NA340D* | **XS508B1NAM12** *(3)* |
| *XS3P08NA340L1* | **XS508B1NAL5** *(3)* |
| *XS3P08PA340* | **XS508B1PAL2** *(3)* |
| *XS3P08PA340D* | **XS508B1PAM12** *(3)* |
| *XS3P08PA340L1* | **XS508B1PAL5** *(3)* |
| *XS3P08NA370* | **XS508BLNAL2** *(3)* |
| *XS3P08NA370L1* | **XS508BLNAL5** *(3)* |
| *XS3P08PA370* | **XS508BLPAL2** *(3)* |
| *XS3P08PA370L1* | **XS508BLPAL5** *(3)* |

*(1) For the new sensor an integral M12 connector replaces the remote M12 connector on a 0.80 m pigtail connector.*
*(2) For the new sensor an M12 connector replaces the M8 connector.*
*(3) For the new OsiSense XS sensor, the metal case replaces the plastic case.*





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# OsiSense® XS
# Inductive proximity sensors



| *Old sensor* | **New OsiSense® XS sensor** |
|---|---|
| **Cylindrical type, DC** *(continued)* | |
| **Diameter 12 mm** | |
| ***XS1*** | |
| *XS1D12NA140* | **XS112BLNAL2** |
| *XS1D12NA140D* | **XS112BLNAM12** |
| *XS1D12PA140* | **XS112BLPAL2** |
| *XS1D12PA140D* | **XS112BLPAM12** |
| *XS1D12PA140L1* | **XS112BLPAL5** |
| | |
| | |
| *XS1M12DA210* | **XS512B1DAL2** |
| *XS1M12DA210D* | **XS512B1DAM12** |
| *XS1M12DA210L1* | **XS512B1DAL5** |
| *XS1M12DA210L2* | **XS512B1DAL10** |
| *XS1M12DA210LA* | **XS512B1DAL08U78** |
| *XS1M12DA210LD* | **XS512B1DAL08M12** |
| *XS1M12DB210* | **XS512B1DBL2** |
| *XS1M12DB210D* | **XS512B1DBM12** |
| *XS1M12DB210L1* | **XS512B1DBL5** |
| *XS1M12DB210L2* | **XS512B1DBL10** |
| *XS1M12DB210LD* | **XS512B1DBL08M12** |
| | |
| | |
| *XS1M12DA214D* | **XS512B1CAM12** |
| *XS1M12DA214LD* | **XS512B1CAL08M12** |
| | |
| | |
| *XS1M12NA370* | **XS512BLNAL2** |
| *XS1M12NA370D* | **XS512BLNAM12** |
| *XS1M12NA370L1* | **XS512BLNAL5** |
| *XS1M12NA370L2* | **XS512BLNAL10** |
| *XS1M12NA370S* | **XS612B1NAM12** *(2)* |
| *XS1M12NB370* | **XS512BLNBL2** |
| *XS1M12NB370D* | **XS512BLNBM12** |
| *XS1M12PA370* | **XS512BLPAL2** |
| *XS1M12PA370D* | **XS512BLPAM12** |
| *XS1M12PA370L1* | **XS512BLPAL5** |
| *XS1M12PA370L2* | **XS512BLPAL10** |
| *XS1M12PA370LA* | **XS612B1PAL08U78** |
| *XS1M12PA370LD* | **XS612B1PAL08M12** |
| *XS1M12PB370* | **XS512BLPBL2** |
| *XS1M12PB370D* | **XS512BLPBM12** |
| *XS1M12PB370L1* | **XS512BLPBL5** |
| *XS1M12PB370L2* | **XS512BLPBL10** |
| *XS1M12PB370LD* | **XS612B1PAM12** *(1)* |
| | |
| | |
| *XS1N12NA340* | **XS512B1NAL2** |
| *XS1N12NA340D* | **XS512B1NAM12** |
| *XS1N12NA340L1* | **XS512B1NAL5** |
| *XS1N12NA340L2* | **XS512B1NAL10** |
| *XS1N12NB340* | **XS512B1NBL2** |

| *Old sensor* | **New OsiSense® XS sensor** |
|---|---|
| *XS1N12NB340D* | **XS512B1NBM12** |
| *XS1N12PA340* | **XS512B1PAL2** |
| *XS1N12PA340D* | **XS512B1PAM12** |
| *XS1N12PA340L1* | **XS512B1PAL5** |
| *XS1N12PA340L2* | **XS512B1PAL10** |
| *XS1N12PA340LD* | **XS512B1PAM12** *(1)* |
| *XS1N12PA340S* | **XS512B1PAM12** *(2)* |
| *XS1N12PB340* | **XS512B1PBL2** |
| *XS1N12PB340D* | **XS512B1PBM12** |
| *XS1N12PB340L1* | **XS512B1PBL5** |
| | |
| | |
| *XS1M12PA349D* | **XS612B1PAM12** |
| *XS1N12NA349* | **XS112B3NAL2** |
| *XS1N12NA349L1* | **XS112B3NAL5** |
| *XS1N12NA349D* | **XS112B3NAM12** |
| *XS1N12NB349* | **XS112B3NBL2** |
| *XS1N12NB349L1* | **XS112B3NBL5** |
| *XS1N12NB349D* | **XS112B3NBM12** |
| *XS1N12PA349* | **XS112B3PAL2** |
| *XS1N12PA349L1* | **XS112B3PAL5** |
| *XS1N12PA349D* | **XS112B3PAM12** |
| *XS1N12PB349* | **XS112B3PBL2** |
| *XS1N12PB349L1* | **XS112B3PBL5** |
| *XS1N12PB349D* | **XS112B3PBM12** |
| | |
| | |
| ***XS2*** | |
| *XS2D12NA140* | **XS212BLNAL2** |
| *XS2D12NA140D* | **XS212BLNAM12** |
| *XS2D12NA140L1* | **XS212BLNAL5** |
| *XS2D12PA140* | **XS212BLPAL2** |
| *XS2D12PA140D* | **XS212BLPAM12** |
| *XS2D12PA140L1* | **XS212BLPAL5** |
| | |
| | |
| *XS2M12NA370* | **XS612B1NAL2** |
| *XS2M12NA370D* | **XS612B1NAM12** |
| *XS2M12NA370L1* | **XS612B1NAL5** |
| *XS2M12NA370L2* | **XS612B1NAL10** |
| *XS2M12NB370* | **XS612B1NBL2** |
| *XS2M12NB370D* | **XS612B1NBM12** |
| *XS2M12PA370* | **XS612B1PAL2** |
| *XS2M12PA370D* | **XS612B1PAM12** |
| *XS2M12PA370L1* | **XS612B1PAL5** |
| *XS2M12PA370L2* | **XS612B1PAL10** |
| *XS2M12PA370LA* | **XS612B1PAL08U78** |
| *XS2M12PA370LD* | **XS612B1PAL08M12** |
| *XS2M12PB370* | **XS612B1PBL2** |
| *XS2M12PB370D* | **XS612B1PBM12** |
| *XS2M12PB370L1* | **XS612B1PBL5** |
| *XS2M12PB370S* | **XS612B1PBM12** *(2)* |

| *Old sensor* | **New OsiSense® XS sensor** |
|---|---|
| | |
| | |
| *XS2N12NA340* | **XS112B3NAL2** |
| *XS2N12NA340D* | **XS112B3NAM12** |
| *XS2N12NA340L1* | **XS112B3NAL5** |
| *XS2N12NA340L2* | **XS112B3NAL10** |
| *XS2N12NB340* | **XS112B3NBL2** |
| *XS2N12NB340D* | **XS112B3NBM12** |
| *XS2N12PA340* | **XS112B3PAL2** |
| *XS2N12PA340D* | **XS112B3PAM12** |
| *XS2N12PA340L1* | **XS112B3PAL5** |
| *XS2N12PA340L2* | **XS112B3PAL10** |
| *XS2N12PB340* | **XS112B3PBL2** |
| *XS2N12PB340D* | **XS112B3PBM12** |
| *XS2N12PB340L1* | **XS112B3PBL5** |
| | |
| | |
| ***XS3*** | |
| *XS3P12NA340* | **XS512B1NAL2** *(3)* |
| *XS3P12NA340D* | **XS512B1NAM12** *(3)* |
| *XS3P12NA340L1* | **XS512B1NAL5** *(3)* |
| *XS3P12PA340* | **XS512B1PAL2** *(3)* |
| *XS3P12PA340D* | **XS512B1PAM12** *(3)* |
| *XS3P12PA340L1* | **XS512B1PAL5** *(3)* |
| | |
| | |
| *XS3P12NA370* | **XS512BLNAL2** *(3)* |
| *XS3P12NA370L1* | **XS512BLNAL5** *(3)* |
| *XS3P12PA370* | **XS512BLPAL2** *(3)* |
| *XS3P12PA370L1* | **XS512BLPAL5** *(3)* |

*(1) For the new sensor an integral M12 connector replaces the remote M12 connector on a 0.80 m pigtail connector.*
*(2) For the new sensor an M12 connector replaces the M8 connector.*
*(3) For the new OsiSense XS sensor, the metal case replaces the plastic case.*



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# OsiSense® XS
# Inductive proximity sensors

| Old sensor | New OsiSense® XS sensor |
|---|---|
| **Cylindrical type, DC** *(continued)* | |
| **Diameter 18 mm** | |
| *XS1* | |
| *XS1D18NA140* | **XS118BLNAL2** |
| *XS1D18NA140D* | **XS118BLNAM12** |
| *XS1D18NA140L1* | **XS118BLNAL5** |
| *XS1D18PA140* | **XS118BLPAL2** |
| *XS1D18PA140D* | **XS118BLPAM12** |
| *XS1D18PA140L1* | **XS118BLPAL5** |
| | |
| *XS1M18DA210* | **XS518B1DAL2** |
| *XS1M18DA210B* | **XS518B1DAL01B** *(4)* |
| *XS1M18DA210C* | **XS518B1DAL01C** *(4)* |
| *XS1M18DA210D* | **XS518B1DAM12** |
| *XS1M18DA210G* | **XS518B1DAL01G** *(4)* |
| *XS1M18DA210L1* | **XS518B1DAL5** |
| *XS1M18DA210L2* | **XS518B1DAL10** |
| *XS1M18DA210LD* | **XS518B1DAL08M12** |
| *XS1M18DB210* | **XS518B1DBL2** |
| *XS1M18DB210B* | **XS518B1DBL01B** *(4)* |
| *XS1M18DB210D* | **XS518B1DBM12** |
| *XS1M18DB210LD* | **XS518B1DBL08M12** |
| | |
| *XS1M18DA214D* | **XS518B1CAM12** |
| *XS1M18DA214LD* | **XS518B1CAL08M12** |
| | |
| *XS1M18NA370* | **XS518BLNAL2** |
| *XS1M18NA370A* | **XS618B1NAL01U78** *(4)* |
| *XS1M18NA370B* | **XS618B1NAL01B** *(4)* |
| *XS1M18NA370C* | **XS618B1NAL01C** *(4)* |
| *XS1M18NA370D* | **XS518BLNAM12** |
| *XS1M18NA370L1* | **XS518BLNAL5** |
| *XS1M18NA370L2* | **XS518BLNAL10** |
| *XS1M18NB370* | **XS518BLNBL2** |
| *XS1M18NB370B* | **XS618B1NBL01B** *(4)* |
| *XS1M18NB370C* | **XS618B1NBL01C** *(4)* |
| *XS1M18NB370D* | **XS518BLNBM12** |
| *XS1M18NB370L1* | **XS518BLNBL5** |
| *XS1M18NB370L2* | **XS518BLNBL10** |
| *XS1M18PA370* | **XS518BLPAL2** |
| *XS1M18PA370A* | **XS618B1PAL01U78** *(4)* |
| *XS1M18PA370B* | **XS618B1PAL01B** *(4)* |
| *XS1M18PA370C* | **XS618B1PAL01C** *(4)* |
| *XS1M18PA370D* | **XS518BLPAM12** |
| *XS1M18PA370G* | **XS618B1PAL01G** *(4)* |
| *XS1M18PA370DTQ* | **XS518BLPAM12TQ** |
| *XS1M18PA370G* | **XS618B1PAL01G** *(4)* |
| *XS1M18PA370L1* | **XS518BLPAL5** |
| *XS1M18PA370L2* | **XS518BLPAL10** |

| Old sensor | New OsiSense® XS sensor |
|---|---|
| *XS1M18PA370LA* | **XS618B1PAL08U78** |
| *XS1M18PA370LD* | **XS518BLPAM12** *(1)* |
| *XS1M18PA370DTQ* | **XS518BLPAM12TQ** |
| *XS1M18PA370TF* | **XS518BLPAL2TF** |
| *XS1M18PB370* | **XS518BLPBL2** |
| *XS1M18PB370A* | **XS618B1PBL01U78** *(4)* |
| *XS1M18PB370B* | **XS618B1PBL01B** *(4)* |
| | |
| | |
| *XS1* | |
| *XS1M18PB370D* | **XS518BLPBM12** |
| *XS1M18PB370L1* | **XS518BLPBL5** |
| *XS1M18PB370L2* | **XS518BLPBL10** |
| *XS1M18PB370C* | **XS618B1PBL01C** *(4)* |
| | |
| | |
| *XS1N18NA340* | **XS518B1NAL2** |
| *XS1N18NA340D* | **XS518B1NAM12** |
| *XS1N18NA340L1* | **XS518B1NAL5** |
| *XS1N18NA340L2* | **XS518B1NAL10** |
| *XS1N18NB340* | **XS518B1NBL2** |
| *XS1N18NB340D* | **XS518B1NBM12** |
| *XS1N18NB340L2* | **XS518B1NBL10** |
| *XS1N18PA340* | **XS518B1PAL2** |
| *XS1N18PA340D* | **XS518B1PAM12** |
| *XS1N18PA340L1* | **XS518B1PAL5** |
| *XS1N18PA340L2* | **XS518B1PAL10** |
| *XS1N18PB340* | **XS518B1PBL2** |
| *XS1N18PB340D* | **XS518B1PBM12** |
| *XS1N18PB340L2* | **XS518B1PBL10** |
| | |
| | |
| *XS2* | |
| *XS2D18NA140* | **XS218BLNAL2** |
| *XS2D18NA140D* | **XS218BLNAM12** |
| *XS2D18PA140* | **XS218BLPAL2** |
| *XS2D18PA140D* | **XS218BLPAM12** |
| *XS2D18PA140L1* | **XS218BLPAL5** |
| | |
| | |
| *XS2N18NA340* | **XS118B3NAL2** |
| *XS2N18NA340D* | **XS118B3NAM12** |
| *XS2N18NA340L1* | **XS118B3NAL5** |
| *XS2N18NA340L2* | **XS118B3NAL10** |
| *XS2N18NB340* | **XS118B3NBL2** |
| *XS2N18NB340D* | **XS118B3NBM12** |
| *XS2N18PA340* | **XS118B3PAL2** |
| *XS2N18PA340D* | **XS118B3PAM12** |
| *XS2N18PA340L1* | **XS118B3PAL5** |
| *XS2N18PA340L2* | **XS118B3PAL10** |
| *XS2N18PB340* | **XS118B3PBL2** |
| *XS2N18PB340D* | **XS118B3PBM12** |

| Old sensor | New OsiSense® XS sensor |
|---|---|
| *XS2M18NA370* | **XS618B1NAL2** |
| *XS2M18NA370A* | **XS618B1NAL01U78** *(4)* |
| *XS2M18NA370B* | **XS618B1NAL01B** *(4)* |
| *XS2M18NA370C* | **XS618B1NAL01C** *(4)* |
| *XS2M18NA370D* | **XS618B1NAM12** |
| *XS2M18NA370L1* | **XS618B1NAL5** |
| *XS2M18NA370L2* | **XS618B1NAL10** |
| *XS2M18NB370* | **XS618B1NBL2** |
| *XS2M18NB370B* | **XS618B1NBL01B** *(4)* |
| *XS2M18NB370C* | **XS618B1NBL01C** *(4)* |
| *XS2M18NB370D* | **XS618B1NBM12** |
| *XS2M18NB370L1* | **XS618B1NBL5** |
| *XS2M18NB370L2* | **XS618B1NBL10** |
| *XS2M18PA370* | **XS618B1PAL2** |
| *XS2M18PA370A* | **XS618B1PAL01U78** *(4)* |
| *XS2M18PA370B* | **XS618B1PAL01B** *(4)* |
| *XS2M18PA370C* | **XS618B1PAL01C** *(4)* |
| *XS2M18PA370D* | **XS618B1PAM12** |
| *XS2M18PA370G* | **XS618B1PAL01G** *(4)* |
| *XS2M18PA370LA* | **XS618B1PAL08U78** *(4)* |
| *XS2M18PA370L1* | **XS618B1PAL5** |
| *XS2M18PA370L2* | **XS618B1PAL10** |
| *XS2M18PB370* | **XS618B1PBL2** |
| *XS2M18PB370A* | **XS618B1PBL01U78** *(4)* |
| *XS2M18PB370B* | **XS618B1PBL01B** *(4)* |
| *XS2M18PB370C* | **XS618B1PBL01C** *(4)* |
| *XS2M18PB370D* | **XS618B1PBM12** |
| *XS2M18PB370L1* | **XS618B1PBL5** |
| *XS2M18PB370L2* | **XS618B1PBL10** |
| | |
| | |
| *XS3* | |
| *XS3P18NA340* | **XS518B1NAL2** *(3)* |
| *XS3P18NA340D* | **XS518B1NAM12** *(3)* |
| *XS3P18NA340L1* | **XS518B1NAL5** *(3)* |
| *XS3P18PA340* | **XS518B1PAL2** *(3)* |
| *XS3P18PA340D* | **XS518B1PAM12** *(3)* |
| *XS3P18PA340L1* | **XS518B1PAL5** *(3)* |
| | |
| | |
| *XS3P18NA370* | **XS518BLNAL2** *(3)* |
| *XS3P18NA370L1* | **XS518BLNAL5** *(3)* |
| *XS3P18PA370* | **XS518BLPAL2** *(3)* |
| *XS3P18PA370L1* | **XS518BLPAL5** *(3)* |
| *XS3P18PA370L2* | **XS518BLPAL10** *(3)* |
| | |
| | |
| *XS4* | |
| *XS4P18NA370B* | **XS4P18NA370L01B** *(4)* |
| *XS4P18NB370B* | **XS4P18NB370L01B** *(4)* |
| *XS4P18PA370B* | **XS4P18PA370L01B** *(4)* |
| *XS4P18PB370B* | **XS4P18PB370L01B** *(4)* |

*(1) For the new sensor an integral M12 connector replaces the remote M12 connector on a 0.80 m pigtail connector.*
*(3) For the new OsiSense XS sensor, the metal case replaces the plastic case.*
*(4) For the new sensor, connectors A, B, C and G on 0.1 m pigtail connector replace integral connectors A, B, C and G.*





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# OsiSense® XS
# Inductive proximity sensors



| *Old sensor* | **New OsiSense® XS sensor** |
|---|---|
| **Cylindrical type, DC** *(continued)* | |
| **Diameter 30 mm** | |
| *XS1* | |
| *XS1D30NA140* | **XS130BLNAL2** |
| *XS1D30NA140D* | **XS130BLNAM12** |
| *XS1D30PA140* | **XS130BLPAL2** |
| *XS1D30PA140D* | **XS130BLPAM12** |
| *XS1D30PA140L1* | **XS130BLPAL5** |
| *XS2D30NA140* | **XS230BLNAL2** |
| *XS2D30NA140D* | **XS230BLNAM12** |
| *XS2D30PA140* | **XS230BLPAL2** |
| *XS2D30PA140D* | **XS230BLPAM12** |
| | |
| *XS1M30DA210* | **XS530B1DAL2** |
| *XS1M30DA210B* | **XS530B1DAL01B** *(4)* |
| *XS1M30DA210C* | **XS530B1DAL01C** *(4)* |
| *XS1M30DA210D* | **XS530B1DAM12** |
| *XS1M30DA210G* | **XS530B1DAL01G** *(4)* |
| *XS1M30DA210L1* | **XS530B1DAL5** |
| *XS1M30DA210L2* | **XS530B1DAL10** |
| *XS1M30DA210LD* | **XS530B1DAL08M12** |
| *XS1M30DB210* | **XS530B1DBL2** |
| *XS1M30DB210B* | **XS530B1DBL01B** *(4)* |
| *XS1M30DB210D* | **XS530B1DBM12** |
| *XS1M30DB210LD* | **XS530B1DBM12** *(1)* |
| | |
| *XS1M30DA214D* | **XS530B1CAM12** |
| *XS1M30DA214LD* | **XS530B1CAL08M12** |
| | |
| *XS1M30PA349D* | **XS630B1PAM12** *(5)* |
| | |
| *XS1M30NA370* | **XS530BLNAL2** |
| *XS1M30NA370B* | **XS630B1NAL01B** *(4)* |
| *XS1M30NA370C* | **XS630B1NAL01C** *(4)* |
| *XS1M30NA370D* | **XS530BLNAM12** |
| *XS1M30NA370L1* | **XS530BLNAL5** |
| *XS1M30NA370L2* | **XS530BLNAL10** |
| *XS1M30NB370* | **XS530BLNBL2** |
| *XS1M30NB370B* | **XS630B1NBL01B** *(4)* |
| *XS1M30NB370C* | **XS630B1NBL01C** *(4)* |
| *XS1M30NB370D* | **XS530BLNBM12** |
| *XS1M30NB370L1* | **XS530BLNBL5** |
| *XS1M30NB370L2* | **XS530BLNBL10** |
| | |
| *XS1M30PA370* | **XS530BLPAL2** |
| *XS1M30PA370A* | **XS630B1PAL01U78** *(4)* |
| *XS1M30PA370B* | **XS630B1PAL01B** *(4)* |
| *XS1M30PA370C* | **XS630B1PAL01C** *(4)* |

| *Old sensor* | **New OsiSense® XS sensor** |
|---|---|
| *XS1M30PA370D* | **XS530BLPAM12** |
| *XS1M30PA370G* | **XS630B1PAL01G** *(4)* |
| *XS1M30PA370L1* | **XS530BLPAL5** |
| *XS1M30PA370L2* | **XS530BLPAL10** |
| *XS1M30PB370* | **XS530BLPBL2** |
| *XS1M30PB370B* | **XS630B1PBL01B** *(4)* |
| *XS1M30PB370C* | **XS630B1PBL01C** *(4)* |
| *XS1M30PB370D* | **XS530BLPBM12** |
| *XS1M30PB370G* | **XS630B1PBL01G** *(4)* |
| *XS1M30PB370L1* | **XS530BLPBL5** |
| *XS1M30PB370L2* | **XS530BLPBL10** |
| | |
| *XS1N30NA340* | **XS530B1NAL2** |
| *XS1N30NA340D* | **XS530B1NAM12** |
| *XS1N30NA340L1* | **XS530B1NAL5** |
| *XS1N30NA340L2* | **XS530B1NAL10** |
| *XS1N30NB340* | **XS530B1NBL2** |
| *XS1N30NB340D* | **XS530B1NBM12** |
| *XS1N30PA340* | **XS530B1PAL2** |
| *XS1N30PA340D* | **XS530B1PAM12** |
| *XS1N30PA340L1* | **XS530B1PAL5** |
| *XS1N30PA340L2* | **XS530B1PAL10** |
| *XS1N30PB340* | **XS530B1PBL2** |
| *XS1N30PB340D* | **XS530B1PBM12** |
| | |
| *XS2* | |
| *XS2N30NA340* | **XS130B3NAL2** |
| *XS2N30NA340D* | **XS130B3NAM12** |
| *XS2N30NA340L1* | **XS130B3NAL5** |
| *XS2N30NA340L2* | **XS130B3NAL10** |
| *XS2N30NB340* | **XS130B3NBL2** |
| *XS2N30NB340D* | **XS130B3NBM12** |
| *XS2N30PA340* | **XS130B3PAL2** |
| *XS2N30PA340D* | **XS130B3PAM12** |
| *XS2N30PA340L1* | **XS130B3PAL5** |
| *XS2N30PA340L2* | **XS130B3PAL10** |
| *XS2N30PB340* | **XS130B3PBL2** |
| *XS2N30PB340D* | **XS130B3PBM12** |
| | |
| *XS2M30NA370* | **XS630B1NAL2** |
| *XS2M30NA370B* | **XS630B1NAL01B** *(4)* |
| *XS2M30NA370C* | **XS630B1NAL01C** *(4)* |
| *XS2M30NA370D* | **XS630B1NAM12** |
| *XS2M30NA370L1* | **XS630B1NAL5** |
| *XS2M30NA370L2* | **XS630B1NAL10** |
| *XS2M30NB370* | **XS630B1NBL2** |
| *XS2M30NB370B* | **XS630B1NBL01B** *(4)* |
| *XS2M30NB370C* | **XS630B1NBL01C** *(4)* |
| *XS2M30NB370D* | **XS630B1NBM12** |
| *XS2M30NB370L1* | **XS630B1NBL5** |

| *Old sensor* | **New OsiSense® XS sensor** |
|---|---|
| *XS2M30NB370L2* | **XS630B1NBL10** |
| *XS2M30PA370* | **XS630B1PAL2** |
| *XS2M30PA370A* | **XS630B1PAL01U78** *(4)* |
| *XS2M30PA370B* | **XS630B1PAL01B** *(4)* |
| *XS2M30PA370C* | **XS630B1PAL01C** *(4)* |
| *XS2M30PA370D* | **XS630B1PAM12** |
| *XS2M30PA370G* | **XS630B1PAL01G** *(4)* |
| *XS2M30PA370L1* | **XS630B1PAL5** |
| *XS2M30PA370L2* | **XS630B1PAL10** |
| *XS2M30PB370* | **XS630B1PBL2** |
| *XS2M30PB370B* | **XS630B1PBL01B** *(4)* |
| *XS2M30PB370C* | **XS630B1PBL01C** *(4)* |
| *XS2M30PB370D* | **XS630B1PBM12** |
| *XS2M30PB370G* | **XS630B1PBL01G** *(4)* |
| *XS2M30PB370L1* | **XS630B1PBL5** |
| *XS2M30PB370L2* | **XS630B1PBL10** |
| | |
| *XS3* | |
| *XS3P30NA340* | **XS530B1NAL2** *(3)* |
| *XS3P30NA340D* | **XS530B1NAM12** *(3)* |
| *XS3P30NA340L1* | **XS530B1NAL5** *(3)* |
| *XS3P30PA340* | **XS530B1PAL2** *(3)* |
| *XS3P30PA340D* | **XS530B1PAM12** *(3)* |
| *XS3P30PA340L1* | **XS530B1PAL5** *(3)* |
| *XS3P30PA340L2* | **XS530B1PAL10** *(3)* |
| | |
| *XS3P30PA370* | **XS530BLPAL2** *(3)* |
| *XS3P30PA370L1* | **XS530BLPAL5** *(3)* |
| *XS3P30PA370L2* | **XS530BLPAL10** *(3)* |
| *XS3P30NA370* | **XS530BLNAL2** *(3)* |
| *XS3P30NA370L1* | **XS530BLNAL5** *(3)* |
| | |
| *XS4* | |
| *XS4P30NA370B* | **XS4P30NA370L01B** *(4)* |
| *XS4P30NB370B* | **XS4P30NB370L01B** *(4)* |
| *XS4P30PA370B* | **XS4P30PA370L01B** *(4)* |
| *XS4P30PB370B* | **XS4P30PB370L01B** *(4)* |

*(1) For the new sensor an integral M12 connector replaces the remote M12 connector on a 0.80 m pigtail connector.*
*(3) For the new OsiSense XS sensor, the metal case replaces the plastic case.*
*(4) For the new sensor, connectors A, B, C and G on 0.1 m pigtail connector replace integral connectors A, B, C and G.*
*(5) For the new sensor, Sn = 15 mm (0.59 in.) instead of 20 mm (0.79 in.)*



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# OsiSense® XS
# Inductive proximity sensors

| *Old sensor* | **New OsiSense® XS sensor** |
|---|---|
| **Cylindrical type, AC or DC** | |
| **Diameter 12 mm** | |
| *XS1* | |
| *XS1M12FA264* | **XS112BLFAL2** |
| *XS1M12FA264L2* | **XS112BLFAL10** |
| | |
| | |
| *XS1M12MA230* | **XS512B1MAL2** |
| *XS1M12MA230K* | **XS512B1MAU20** |
| *XS1M12MA230L1* | **XS512B1MAL5** |
| *XS1M12MA230L2* | **XS512B1MAL10** |
| *XS1M12MB230* | **XS512B1MBL2** |
| *XS1M12MB230K* | **XS512B1MBU20** |
| *XS1M12MB230L1* | **XS512B1MBL5** |
| *XS1M12MB230L2* | **XS512B1MBL10** |
| | |
| | |
| *XS1M12MA239* | **XS612B1MAL2** |
| *XS1M12MA239K* | **XS612B1MAU20** |
| | |
| | |
| *XS2* | |
| *XS2M12MA230* | **XS612B1MAL2** |
| *XS2M12MA230K* | **XS612B1MAU20** |
| *XS2M12MA230L1* | **XS612B1MAL5** |
| *XS2M12MA230L2* | **XS612B1MAL10** |
| *XS2M12MB230* | **XS612B1MBL2** |
| *XS2M12MB230K* | **XS612B1MBU20** |
| *XS2M12MB230L1* | **XS612B1MBL5** |
| *XS2M12MB230L2* | **XS612B1MBL10** |
| | |
| | |
| *XS3* | |
| *XS3P12MA230* | **XS612B1MAL2** *(3)* |
| *XS3P12MA230K* | **XS612B1MAU20** *(3)* |
| *XS3P12MA230L1* | **XS612B1MAL5** *(3)* |
| *XS3P12MA230L2* | **XS612B1MAL10** *(3)* |
| *XS3P12MB230* | **XS612B1MBL2** *(3)* |
| *XS3P12MB230K* | **XS612B1MBU20** *(3)* |
| *XS3P12MB230L1* | **XS612B1MBL5** *(3)* |

| *Old sensor* | **New OsiSense® XS sensor** |
|---|---|
| **Diameter 18 mm** | |
| *XS1* | |
| *XS1M18FA264* | **XS118BLFAL2** |
| | |
| | |
| *XS1M18MA230* | **XS518B1MAL2** |
| *XS1M18MA230A* | **XS618B1MAL01U78** *(4)* |
| *XS1M18MA230B* | **XS618B1MAL01B** *(4)* |
| *XS1M18MA230C* | **XS618B1MAL01C** *(4)* |
| *XS1M18MA230G* | **XS618B1MAL01G** *(4)* |
| *XS1M18MA230K* | **XS518B1MAU20** |
| *XS1M18MA230L1* | **XS518B1MAL5** |
| *XS1M18MA230L2* | **XS518B1MAL10** |
| *XS1M18MB230* | **XS518B1MBL2** |
| *XS1M18MB230A* | **XS618B1MBL01U78** *(4)* |
| *XS1M18MB230B* | **XS618B1MBL01B** *(4)* |
| *XS1M18MB230C* | **XS618B1MBL01C** *(4)* |
| *XS1M18MB230G* | **XS618B1MBL01G** *(4)* |
| *XS1M18MB230K* | **XS518B1MBU20** |
| *XS1M18MB230L1* | **XS518B1MBL5** |
| *XS1M18MB230L2* | **XS518B1MBL10** |
| | |
| | |
| *XS1M18MA239* | **XS618B1MAL2** *(5)* |
| *XS1M18MA239A* | **XS1M18MA239L01A** *(4)* |
| *XS1M18MA239K* | **XS618B1MAU20** *(5)* |
| | |
| | |
| *XS2* | |
| *XS2M18MA230* | **XS618B1MAL2** |
| *XS2M18MA230A* | **XS618B1MAL01U78** *(4)* |
| *XS2M18MA230B* | **XS618B1MAL01B** *(4)* |
| *XS2M18MA230C* | **XS618B1MAL01C** *(4)* |
| *XS2M18MA230G* | **XS618B1MAL01G** *(4)* |
| *XS2M18MA230K* | **XS618B1MAU20** |
| *XS2M18MA230L1* | **XS618B1MAL5** |
| *XS2M18MA230L2* | **XS618B1MAL10** |
| *XS2M18MB230* | **XS618B1MBL2** |
| *XS2M18MB230A* | **XS618B1MBL01U78** *(4)* |
| *XS2M18MB230B* | **XS618B1MBL01B** *(4)* |
| *XS2M18MB230C* | **XS618B1MBL01C** *(4)* |
| *XS2M18MB230G* | **XS618B1MBL01G** *(4)* |
| *XS2M18MB230K* | **XS618B1MBU20** |
| *XS2M18MB230L1* | **XS618B1MBL5** |
| *XS2M18MB230L2* | **XS618B1MBL10** |

| *Old sensor* | **New OsiSense® XS sensor** |
|---|---|
| *XS3* | |
| *XS3P18MA230* | **XS618B1MAL2** *(3)* |
| *XS3P18MA230K* | **XS618B1MAU20** *(3)* |
| *XS3P18MA230L1* | **XS618B1MAL5** *(3)* |
| *XS3P18MA230L2* | **XS618B1MAL10** *(3)* |
| *XS3P18MB230* | **XS618B1MBL2** *(3)* |
| *XS3P18MB230A* | **XS618B1MBU20** *(3)* |
| *XS3P18MB230K* | **XS618B1MBU20** *(3)* |
| *XS3P18MB230L1* | **XS618B1MBL5** *(3)* |
| | |
| | |
| *XS4* | |
| *XS4P18MA230B* | **XS4P18MA230L01B** *(4)* |
| *XS4P18MA230C* | **XS4P18MA230L01C** *(4)* |
| *XS4P18MA230G* | **XS4P18MA230L01G** *(4)* |
| *XS4P18MB230B* | **XS4P18MB230L01B** *(4)* |
| *XS4P18MB230C* | **XS4P18MB230L01C** *(4)* |



*(3) For the new OsiSense XS sensor, the metal case replaces the plastic case.*
*(4) For the new sensor, connectors A, B, C and G on 0.1 m pigtail connector replace integral connectors A, B, C and G.*
*(5) For the new sensor, Sn = 8 mm (0.31 in.) instead of 10 mm (0.39 in.).*



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# OsiSense® XS
# Inductive proximity sensors



| *Old sensor* | **New OsiSense® XS sensor** |
|---|---|
| **Cylindrical type, AC or DC** *(continued)* | |
| **Diameter 30 mm** | |
| *XS1* | |
| *XS1M30FA264* | **XS130BLFAL2** |
| *XS1M30MA230* | **XS530B1MAL2** |
| *XS1M30MA230A* | **XS630B1MAL01U78** *(4)* |
| *XS1M30MA230B* | **XS630B1MAL01B** *(4)* |
| *XS1M30MA230C* | **XS630B1MAL01C** *(4)* |
| *XS1M30MA230G* | **XS630B1MAL01G** *(4)* |
| *XS1M30MA230K* | **XS530B1MAU20** |
| *XS1M30MA230L1* | **XS530B1MAL5** |
| *XS1M30MA230L2* | **XS530B1MAL10** |
| *XS1M30MB230* | **XS530B1MBL2** |
| *XS1M30MB230A* | **XS630B1MBL01U78** *(4)* |
| *XS1M30MB230B* | **XS630B1MBL01B** *(4)* |
| *XS1M30MB230C* | **XS630B1MBL01C** *(4)* |
| *XS1M30MB230G* | **XS630B1MBL01G** *(4)* |
| *XS1M30MB230K* | **XS530B1MBU20** |
| *XS1M30MB230L1* | **XS530B1MBL5** |
| *XS1M30MB230L2* | **XS530B1MBL10** |
| *XS1M30MA239* | **XS630B1MAL2** *(5)* |
| *XS1M30MA239A* | **XS1M30MA239L01A** *(4)* |
| *XS2* | |
| *XS2M30MA230* | **XS630B1MAL2** |
| *XS2M30MA230A* | **XS630B1MAL01U78** *(4)* |
| *XS2M30MA230B* | **XS630B1MAL01B** *(4)* |
| *XS2M30MA230C* | **XS630B1MAL01C** *(4)* |
| *XS2M30MA230G* | **XS630B1MAL01G** *(4)* |
| *XS2M30MA230K* | **XS630B1MAU20** |
| *XS2M30MA230L1* | **XS630B1MAL5** |
| *XS2M30MA230L2* | **XS630B1MAL10** |
| *XS2M30MB230* | **XS630B1MBL2** |
| *XS2M30MB230A* | **XS630B1MBL01U78** *(4)* |
| *XS2M30MB230B* | **XS630B1MBL01B** *(4)* |
| *XS2M30MB230C* | **XS630B1MBL01C** *(4)* |
| *XS2M30MB230G* | **XS630B1MBL01G** *(4)* |
| *XS2M30MB230K* | **XS630B1MBU20** |
| *XS2M30MB230L1* | **XS630B1MBL5** |
| *XS2M30MB230L2* | **XS630B1MBL10** |

| *Old sensor* | **New OsiSense® XS sensor** |
|---|---|
| *XS3* | |
| *XS3P30MA230* | **XS630B1MAL2** *(3)* |
| *XS3P30MA230K* | **XS630B1MAU20** *(3)* |
| *XS3P30MA230L1* | **XS630B1MAL5** *(3)* |
| *XS3P30MA230L2* | **XS630B1MAL10** *(3)* |
| *XS3P30MB230* | **XS630B1MBL2** *(3)* |
| *XS3P30MB230K* | **XS630B1MBU20** *(3)* |
| *XS3P30MB230L1* | **XS630B1MBL5** *(3)* |
| *XS4* | |
| *XS4P30MA230B* | **XS4P30MA230L01B** *(4)* |
| *XS4P30MA230C* | **XS4P30MA230L01C** *(4)* |
| *XS4P30MA230G* | **XS4P30MA230L01G** *(4)* |
| *XS4P30MB230B* | **XS4P30MB230L01B** *(4)* |
| *XS4P30MB230C* | **XS4P30MB230L01C** *(4)* |

*(3) For the new OsiSense XS sensor, the metal case replaces the plastic case.*
*(4) For the new sensor, connectors A, B, C and G on 0.1 m pigtail connector replace integral connectors A, B, C and G.*
*(5) For the new sensor, Sn = 15 mm (0.59 in.) instead of 20 mm (0.79 in.).*



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