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2 - TeSys motor starters: enclosed version

2

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D.O.L. starters for motor control

- 0.55 to 30 kW
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- 2.2 to 45 kW
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- 0.37 to 5.5 kW
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  - Without isolating device . . . . . *page 2/32*
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Enclosed D.O.L. starters for motor control for use in a machine subject to the application of Machinery Directive 98/37/CE

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Enclosed D.O.L. starters for AS-Interface cabling system

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TeSys enclosed starters

Applications		D.O.L. starters				
Type		Standard starters				
						
Standard power ratings of 3-phase motors in AC-3 400/415 V		4…37 kW	0.06…45 kW	0.55…30 kW	0.37…5.5 kW	0.25…45 kW
Starters	Manual	•	•	•	–	–
	Auto	–	–	–	•	•
Isolation	Switch	•	–	–	–	–
	Circuit-breaker	–	•	•	•	–
	Fuse carrier	–	–	–	–	–
Protection	Short-circuit	–	•	•	•	–
	Overload	–	•	•	•	•
Communication		–	–	–	–	–
References	Non-reversing	V•F VCFN V•FX	GV2 ME GV3 PC	GV2 LC GV NGC	LE1 GVME	LE1 M LE1 D
	Reversing	–	–	–	–	LE2 K LE2 D
Pages		2/4 and 2/5	2/12and 2/13	2/18	2/30	2/20, 2/21 and 2/28

	Starters for safety applications			Starters for use on AS-Interface line	Soft starters	
					Standard star-delta starters	
						
2.2…45 kW	0.06…11 kW	0.06…9 kW	0.06…9 kW	0.06…5.5 kW	5.5…132 kW	7.5…75 kW
–	•	–	–	–	–	–
•	–	•	•	•	•	•
–	–	•	–	–	–	–
–	•	•	•	•	–	–
•	–	–	–	–	–	•
•	•	•	•	•	–	•
•	•	•	•	•	•	•
–	–	–	–	•	–	–
LE4 K **LE4 D**	**GV2 ME**	**LG1 K** **LG1 D**	**LG7 K** **LG7 D** **LJ7 K**	**LF3 P** **LF3 M**	**LE3 K** **LE3 D** **LE3 F**	**LE6 D** **LE3 D**
LE8 K **LE8 D** **LE2 D**	**–**	**–**	**LG8 K** **LJ8 K**	**LF4 P** **LF4 M**	**–**	**–**
2/24 and 2/25	2/14 and 2/15	2/63	2/62, 2/63, 2/68 and 2/69	2/84 and 2/85	2/32, 2/33 and 2/42	2/36 and 2/37

TeSys enclosed starters
VARIO enclosed switch disconnectors, pre-assembled


580545

VCF 0GE


580546

VCF 3GE


589394

VCF 5GEN


580548

VCFN 12GE

Enclosed switch disconnectors for high performance applications

- 3-pole rotary switch disconnectors, 10 to 140 A, conforming to IEC 60947-4-1 and IEC 60204.
- Marking on operator O I
- Padlockable operating handle (padlocks not included).
- IP 65 degree of protection enclosures, sealable and lockable.
- Cover lockable in position "I" (ON) up to 63 A rating.

3-pole main and Emergency Stop switch disconnectors *(1)*

Operator Handle	Front plate Dimensions	Ithe	Power AC-23 at 400 V	Incorporated switch body	Possible attachments *(2)*	Reference	Weight
	mm	A	kW				kg
Red, standard, padlockable with up to 3 padlocks (Ø 4 to Ø 8 shank)	Yellow 60 x 60	10	4	V02	2	**VCF 02GE**	0.500
		16	5.5	V01	2	**VCF 01GE**	0.500
		20	7.5	V0	2	**VCF 0GE**	0.500
		25	11	V1	2	**VCF 1GE**	0.500
		32	15	V2	2	**VCF 2GE**	0.500
		50	22	V3	3	**VCF 3GE**	0.930
		63	30	V4	3	**VCF 4GE**	0.930
Red, long, padlockable with up to 3 padlocks (Ø 4 to Ø 8 shanks)	Yellow 90 x 90	100	37	V5	1	**VCF 5GEN**	2.190
		140	45	V6	1	**VCF 6GEN**	2.190

3-pole main switch disconnectors *(1)*

Black, standard, padlockable with up to 3 padlocks (Ø 4 to Ø 8 shank)	Black 60 x 60	10	4	V02	2	**VBF 02GE**	0.500
		16	5.5	V01	2	**VBF 01GE**	0.500
		20	7.5	V0	2	**VBF 0GE**	0.500
		25	11	V1	2	**VBF 1GE**	0.500
		32	15	V2	2	**VBF 2GE**	0.500
		50	22	V3	3	**VBF 3GE**	0.930
		63	30	V4	3	**VBF 4GE**	0.930
Black, long, padlockable with up to 3 padlocks (Ø 4 to Ø 8 shank)	Black 90 x 90	100	37	V5	1	**VBF 5GEN**	2.190
		140	45	V6	1	**VBF 6GEN**	2.190

Enclosed switch disconnectors for standard applications

- 3-pole rotary switch disconnectors, 10 to 32 A, conforming to IEC 60947-4-1.
- Degree of protection IP 55.

3-pole main and Emergency Stop switch disconnectors *(1)*

Operator Handle	Front plate Dimensions	Ithe	Power AC-23 at 400 V	Incorporated switch body	Possible attachments *(2)*	Reference		Weight
	mm	A	kW					kg
Red padlockable, either by 1 (Ø 8 shank) **or by 3 padlocks** (Ø 6 shank)	Yellow 60 x 60	10	4	VN 12	2	**VCFN 12GE**	*(2)*	0.422
		16	5.5	VN 20	2	**VCFN 20GE**	*(2)*	0.422
		20	7.5	V0	0	**VCFN 25GE**		0.512
		25	11	V1	0	**VCFN 32GE**		0.512
		32	15	V2	0	**VCFN 40GE**		0.512

(1) For characteristics of switch disconnectors, please consult your Regional Sales Office.
(2) For VCF and VBF enclosures, see page 2/6. For VCFN enclosures, see page 2/7.

Dimensions: page 2/8
Schemes: page 2/9

TeSys enclosed starters
VARIO enclosed switch disconnectors, assembled by the user


580549

VBFX GE2

Empty enclosures

IP 65 enclosure with red padlockable handle operator and yellow front plate
(for mounting a main or Emergency Stop switch disconnector)

For switch body	Ithe	Possible attachments *(1)*	Reference	Weight
	A			kg
VN 12, VN 20 V02…V2	10…32	2	**VCFX GE1**	0.340
V02…V2	10…32	4	**VCFX GE4**	0.660
V3	50	3	**VCFX GE2**	0.660

IP 65 enclosure with black padlockable handle and black front plate
(for mounting a main switch disconnector)

VN 12, VN 20 V02…V2	10…32	2	**VBFX GE1**	0.340
V02…V2	10…32	4	**VBFX GE4**	0.660
V3	50	3	**VBFX GE2**	0.660

Switch bodies for standard applications *(2)*

Description	Rating	Reference	Weight
	A		kg
3-pole switch disconnectors	10	**VN 12**	0.110
	16	**VN 20**	0.110

Switch bodies for high performance applications *(2)*

Description	Rating	Reference	Weight
	A		kg
3-pole switch disconnectors	10	**V02**	0.200
	16	**V01**	0.200
	20	**V0**	0.200
	25	**V1**	0.200
	32	**V2**	0.200
	50	**V3**	0.200
	63	**V4**	0.200


580550

V0

(1) See pages 2/6 and 2/7.
(2) For characteristics of switch disconnectors, please consult your Regional Sales Office.

Dimensions:
page 2/8

Schemes:
page 2/9

TeSys enclosed starters
VARIO enclosed switch disconnectors
Add-on modules



VZ 0



VZ 11



VZ 15



VZ 20

Add-on modules for enclosures VCF and VBF

Description	Rating	Reference	Weight
	A		kg
Main pole module (mounted in enclosure)	10	**VZ 02**	0.050
	16	**VZ 01**	0.050
	20	**VZ 0**	0.050
	25	**VZ 1**	0.050
	32	**VZ 2**	0.050
	50	**VZ 3**	0.100
	63	**VZ 4**	0.100
Neutral pole modules with early make and late break contacts	10 to 32	**VZ 11**	0.050
	50 and 63	**VZ 12**	0.100
	100 and 140	**VZ 13**	0.250
Earthing modules	10 to 32	**VZ 14**	0.050
	50 and 63	**VZ 15**	0.100
	100 and 140	**VZ 16**	0.250

Description	Type of contacts	Reference	Weight
			kg
Auxiliary contact block modules with 2 auxiliary contacts	N/O + N/C *(1)*	**VZ 7**	0.050
	N/O + N/O	**VZ 20**	0.050

Maximum number of add-on modules that can be fitted on a switch body

1 add-on module on each side of the switch body

VZ 7 or VZ 20	+	**V0●**	+	VZ 7 or VZ 20
or				or
VZ 11 or VZ 12	+	**V0**	+	VZ 11 or VZ 12
or				or
VZ 14 or VZ 15	+	**to**	+	VZ 14 or VZ 15
or				or
VZ 0●/VZ 0 to VZ 4	+	**V4**	+	VZ 0●/VZ 0 to VZ 4

2 add-on modules on each side of the switch body

VZ 0●	+	VZ 0●	+	**V0●**	+	VZ 0●	+	VZ 7	or	VZ 20	or	VZ 11	or	VZ 14
VZ 0	+	VZ 0	+	**V0**	+	VZ 0	+	VZ 7	or	VZ 20	or	VZ 11	or	VZ 14
VZ 1	+	VZ 1	+	**V1**	+	VZ 1	+	VZ 7	or	VZ 20	or	VZ 11	or	VZ 14
VZ 2	+	VZ 2	+	**V2**	+	VZ 2	+	VZ 7	or	VZ 20	or	VZ 11	or	VZ 14
VZ 3	+	VZ 3	+	**V3**	+	VZ 3	+	VZ 7	or	VZ 20	or	VZ 12	or	VZ 15
VZ 4	+	VZ 4	+	**V4**	+	VZ 4	+	VZ 7	or	VZ 20	or	VZ 12	or	VZ 15

Note: *The add-on modules mounted next to the switch body are main pole modules. Maximum of 3 main pole modules per switch body.*

(1) Late make N/O, early break N/C contacts

Schemes : page 2/9

TeSys enclosed starters
VARIO enclosed switch disconnectors
Add-on modules



VZN 11



VZN 14



VZN 05

Add-on modules for enclosures VCFN 12GE and 20GE

Description	Rating	Reference	Weight
	A		kg
Main pole modules	10	**VZN 12**	0.020
	16	**VZN 20**	0.020
Neutral pole module with early make and late break contacts	10 and 16	**VZN 11**	0.020
Earthing module	10 and 16	**VZN 14**	0.016

Description	Type of contacts	Reference	Weight
			kg
Auxiliary contact block modules	1 N/O late make contact	**VZN 05**	0.020
	1 N/C early break contact	**VZN 06**	0.020

Maximum number of add-on modules that can be fitted on a switch body

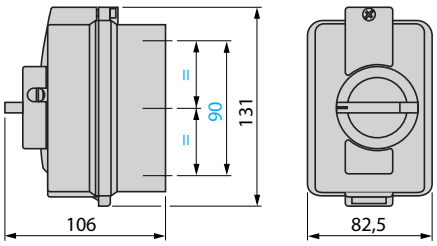
VZN 12 or VZN 20	+	**VN 12**	+	VZN 12 or VZN 20
				or
				VZN 11
or		**or**		or
		VN 20		VZN 05 or VZN 06
				or
VZN 05 or VZN 06				VZN 14

Schemes :
page 2/9

2

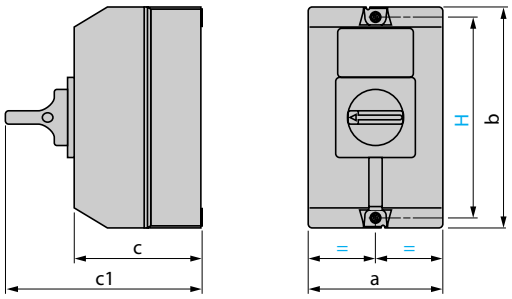
Dimensions

VCFN 12GE to VCFN 40GE



Cable glands: 2 x 16 P top and bottom.

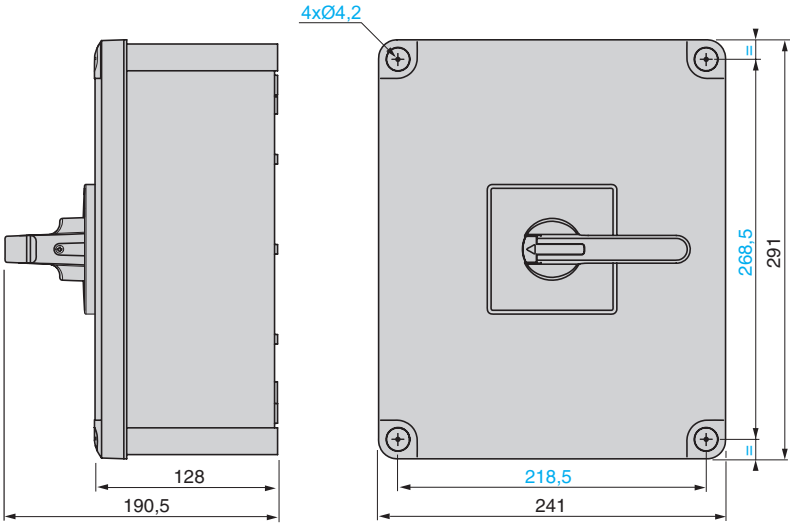
VCF or VBF 02GE to 4GE
VCFX or VBFX GE1 to GE4



	a	b	c	c1	H
V●F 02GE to **V●F 2GE, V●FX GE1** *(1)*	90	146	85	131	130
V●F 3GE and **V●F 4GE** *(2)*	150	170	106	152	164
V●FX GE2 and **V●FX GE4** *(2)*	150	170	106	152	164

(1) Cable glands: 2 x 16 P top and bottom.
*(2) **Cable glands: 2 x 16/21/29 P top and bottom .***

VCF or VBF 5GEN and 6GEN



References:
pages 2/4 and 2/5

Schemes:
page 2/9

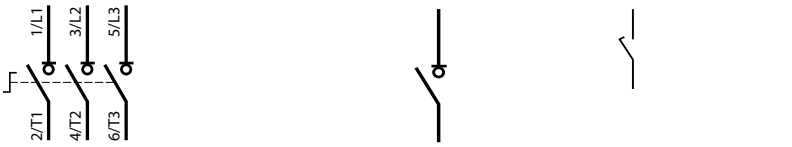
Schneider Electric

TeSys enclosed starters
VARIO enclosed switch disconnectors

Schemes

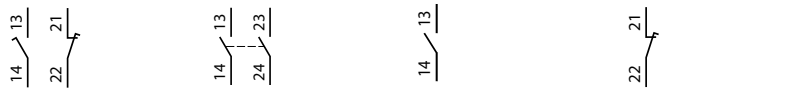
Switch disconnectors

Enclosed or switch bodies	Main pole module	Neutral pole module



Auxiliary contact blocks

VZ 7	VZ 20	VZN 05	VZN 06



References:
pages 2/4 and 2/5

TeSys enclosed starters

VARIO enclosed switch disconnectors for the North American market, conforming to UL and CSA standards

569396



VC1 GUN

569397



VC3 GUN

569398



VC5 GUN

569400



VZ 11

569401



VZ 15

569402



VZ 20

Enclosed switch disconnectors for high performance applications

- 3-pole rotary switch disconnectors, 25 to 140 A, conforming to IEC 60947-4-1, IEC 60204, UL 508 and CSA 22.2 n° 14.
- Marking on operator O I
- Padlockable operating handle (padlocks not included).
- NEMA type 1 and type 12 enclosures, IP 65 degree of protection, sealable and lockable.

3-pole main and Emergency stop switch disconnectors *(1)*

Operator		Rating		Standard power ratings of UL motors			Incor-porated switch body	Possible attach-ments	Reference	Weight
Handle	Front plate Dimensions	IEC (Ith)	UL							
			600 V	240 V	480 V	600 V				
	mm	A	A	HP	HP	HP				kg
Red, standard, padlockable with up to 3 padlocks (Ø 4 to Ø 8)	Yellow 60 x 60	32	20	5	10	10	V1	2	**VC1 GUN**	0.500
		40	25	5	10	15	V2	2	**VC2 GUN**	0.500
		63	45	10	20	30	V3	2	**VC3 GUN**	0.930
		80	63	15	30	40	V4	2	**VC4 GUN**	0.930
Red, long, padlockable with up to 3 padlocks (Ø 4 to Ø 8)	Yellow 90 x 90	125	100	25	50	50	V5	1	**VC5 GUN**	2.190
		175	115	30	50	60	V6	1	**VC6 GUN**	2.190

Add-on modules for VC enclosure

Description	Rating	Reference	Weight
	A		kg
Main pole module (mounted in enclosure)	25	**VZ 1**	0.050
	32	**VZ 2**	0.050
	50	**VZ 3**	0.100
	63	**VZ 4**	0.100
Neutral pole module with early make and late break contacts	10 to 32	**VZ 11**	0.050
	50 and 63	**VZ 12**	0.100
	100 and 140	**VZ 13**	0.250
Earthing modules	10 to 32	**VZ 14**	0.050
	50 and 63	**VZ 15**	0.100
	100 and 140	**VZ 16**	0.250

Description	Type of contacts	Reference	Weight
			kg
Auxiliary contact block modules with 2 auxiliary contacts	N/O + N/C *(2)*	**VZ 7**	0.050
	N/O + N/O	**VZ 20**	0.050

Maximum number of add-on modules that can be fitted on a switch body

1 add-on module on each side of the switch body

VZ 7 or VZ 20	+ **V1 to V4** +	VZ 7 or VZ 20
or		or
VZ 11 or VZ 12	+	VZ 11 or VZ 12
or		or
VZ 14 or VZ 15	+	VZ 14 or VZ 15
or		or
VZ 1 to VZ 4	+	VZ 1 to VZ 4

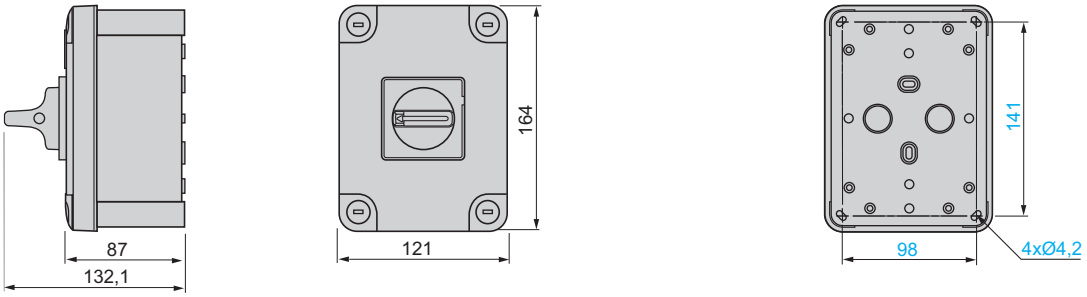
(1) For characteristics of switch disconnectors, please consult your Regional Sales Office.
(2) Late make N/O, early break N/C contacts.

TeSys enclosed starters

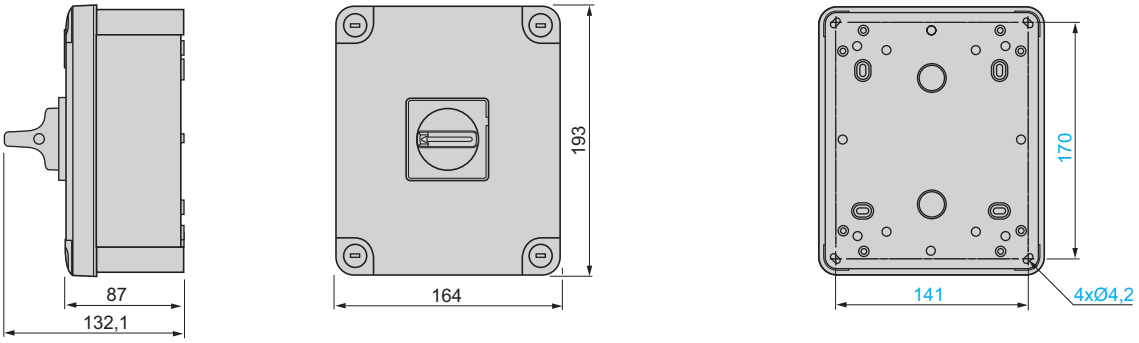
VARIO enclosed switch disconnectors for the North American market, conforming to UL and CSA standards

Dimensions

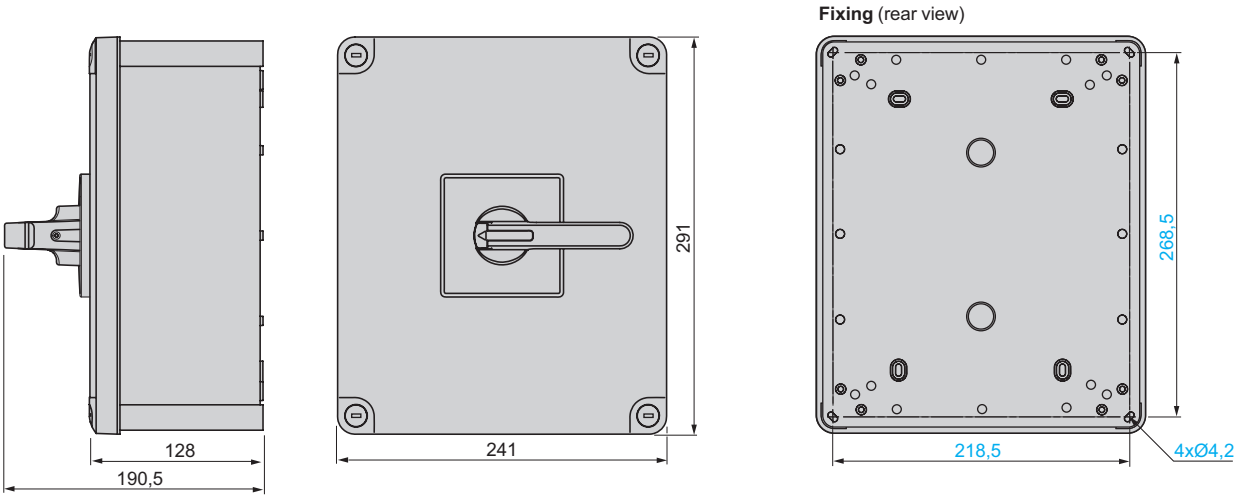
VC1 GUN and VC2 GUN



VC3 GUN and VC4 GUN



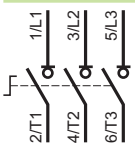
VC5 GUN and VC6 GUN



Schemes

Switch disconnectors

Enclosed switch disconnectors or switch bodies



Main pole module



Neutral pole module



Auxiliary contact block modules

VZ 7

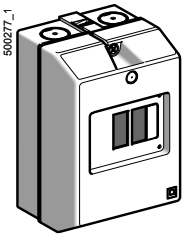


VZ 20

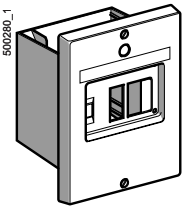


TeSys enclosed starters

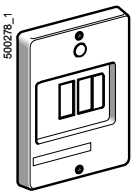
Enclosed thermal-magnetic motor circuit-breakers GV2 ME and accessories, for customer assembly



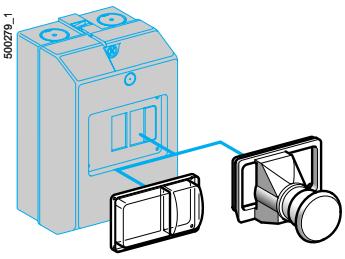
GV2 MC



GV2 MP



GV2 CP21



GV2 K011

References

Thermal-magnetic motor circuit-breakers GV2 ME

For motor circuit-breakers and accessories: see pages 3/46, 3/55 and 3/57.
Starters consisting of a GV2 ME motor circuit-breaker in an enclosure conform to standard IEC 60947-4-1.

GV2	ME 01	ME 02	ME 03	ME 04	ME 05	ME 06	ME 07	ME 08	ME 10	ME 14	ME 16	ME 20	ME 21	ME 22
Ithe in enclosure (A)	0.16	0.25	0.4	0.63	1	1.6	2.5	4	6.3	9	13	17	21	23

Enclosures for thermal-magnetic circuit-breakers GV2 ME

Type	Degree of protection	Possible no. of side mounting auxiliary contact blocks on GV2 ME		Reference	Weight
		LH side	RH side		kg
Surface mounting, double insulated with protective conductor. Sealable cover	IP 41	1	1	**GV2 MC01**	0.290
	IP 55	1	1	**GV2 MC02**	0.300
			or	**GV2 MCK04** *(1)*	0.420
	IP 55 for temperature < + 5 °C	1	1	**GV2 MC03**	0.300
Flush mounting, with protective conductor	IP 41 (front face)	1	1	**GV2 MP01**	0.115
	IP 41 (reduced flush mounting)	–	1	**GV2 MP03**	0.115
	IP 55 (front face)	1	1	**GV2 MP02**	0.130
	IP 55 (reduced flush mounting)	–	1	**GV2 MP04**	0.130

Front plate

Description		Reference	Weight kg
For direct control, through a panel, of a chassis mounted GV2 ME	IP 55	**GV2 CP21**	0.800

Accessories common to all enclosures *(to be ordered separately)*

Description			Sold in lots of	Unit reference	Weight kg
Padlocking device *(2)* for GV2 ME operator (padlocking is only possible in the "O" position)		1 to 3 padlocks Ø 4 to 8 mm	1	**GV2 V01**	0.075
Mushroom head Emergency stop pushbutton Ø 40 mm, red	Spring return *(2)*		1	**GV2 K011**	0.052
	Latching *(2)* IP 55	Key release, key n° 455	1	**GV2 K021**	0.160
		Turn to release	1	**GV2 K031**	0.115
			1	**GV2 K04** *(3)*	0.120
Sealing kit	For enclosures and front plate	IP 55 for temperature between + 5 °C and + 40 °C	10	**GV2 E01**	0.012
		IP 55 for temperature between - 20 °C and + 40 °C	10	**GV2 E02**	0.012
Neutral terminal			100	**AB1 VV635UBL**	0.015
Partition			50	**AB1 AC6BL**	0.003

*(1) Enclosure **GV2 MCK04** is fitted with a **GV2 K04** mushroom head Emergency stop pushbutton as standard.*
*(2) Supplied with IP 55 sealing kit. To be fitted with enclosure **GV2 M●01**.*
(3) Padlockable in "O" position using Ø 4 to 8 mm shank padlocks.

TeSys enclosed starters

Enclosed thermal-magnetic motor circuit-breakers GV3 P (for customer assembly)

References (continued)

Thermal-magnetic motor circuit-breakers GV3 P

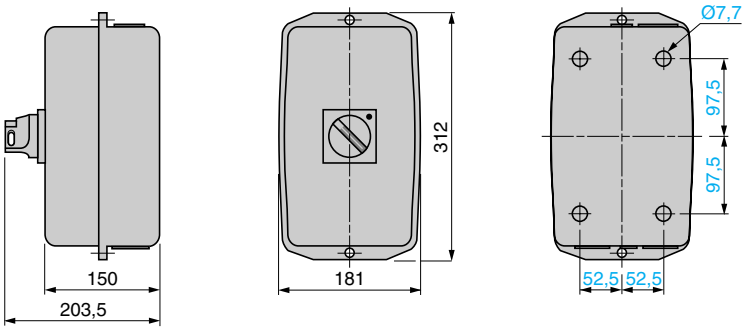
For motor circuit-breakers and accessories: see pages 3/48 and 3/59.
GV3 P40: operational current in enclosure limited to 30 A.
Starters consisting of a GV3 P motor circuit-breaker in an enclosure conform to standards IEC/EN 60947-4-1 and IEC/EN 60947-2.

Metal enclosures fitted with a padlockable rotary handle *(1)*, for thermal-magnetic circuit-breakers GV3 P, up to 30 A

Composition *(2)*	Type	Degree of protection of enclosure	Reference	Weight kg
■ Metal enclosure, ■ Black handle LU9 AP11 Padlocking in ON/OFF position ■ Circuit-breaker/handle adapter	Surface mounting	IP 55 IK 09	**GV3 PC01**	2.000
■ Metal enclosure, ■ Red handle LU9 AP12 Padlocking in OFF position ■ Circuit-breaker/handle adapter	Surface mounting	IP 55 IK 09	**GV3 PC02**	2.000

*(1) For special applications a **GV3 L** magnetic motor circuit-breaker can be fitted in this type of enclosure. Please consult your Regional Sales Office.*
(2) Components for customer assembly. Circuit-breaker to be ordered separately.

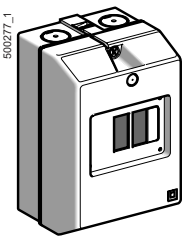
Dimensions



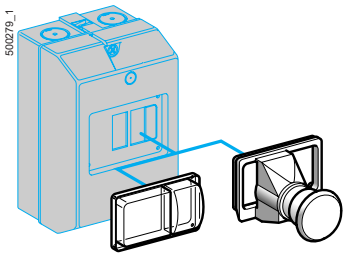
TeSys enclosed starters

Enclosed thermal-magnetic motor circuit-breakers GV2 ME and accessories

Assembly of a safety enclosure



GV2 MC



GV2 K011

Thermal-magnetic motor circuit-breakers GV2 ME

For motor circuit-breakers and accessories: see pages 3/46, 3/55 and 3/57. Starters consisting of a GV2 ME motor circuit-breaker in an enclosure conform to standard IEC 60947-4-1.

GV2	ME 01	ME 02	ME 03	ME 04	ME 05	ME 06	ME 07	ME 08	ME 10	ME 14	ME 16	ME 20	ME 21	ME 22
Ithe in enclosure (A)	0.16	0.25	0.4	0.63	1	1.6	2.5	4	6.3	9	13	17	21	23

Enclosures for thermal-magnetic circuit-breakers GV2 ME

Type	Degree of protection	Possible number of side-mounting auxiliary contact blocks on GV2 ME		Reference	Weight
		LH side	RH side		kg
Surface mounting, double insulated with protective conductor. Sealable cover	IP 41	1	1	**GV2 MC01**	0.290
	IP 55	1	1	**GV2 MC02**	0.300
			or	**GV2 MCK04** *(1)*	0.420
	IP 55 for temperature < + 5 °C	1	1	**GV2 MC03**	0.300

Accessories common to all enclosures *(to be ordered separately)*

Description			Sold in lots of	Unit reference	Weight kg
Padlocking devices *(2)* for GV2 ME operator (padlocking is only possible in the "O" position)		1 to 3 padlocks Ø 4 to 8 mm	1	**GV2 V01**	0.075
Mushroom head Emergency stop pushbutton Ø 40 mm, red	Spring return *(2)*		1	**GV2 K011**	0.052
	Latching *(2)* IP 55	Key release, key n° 455	1	**GV2 K021**	0.160
		Turn to release	1	**GV2 K031**	0.115
			1	**GV2 K04** *(3)*	0.120
Sealing kit	For enclosures and front plate	IP 55 for temperature between + 5 °C and + 40 °C	10	**GV2 E01**	0.012
		IP 55 for temperature between - 20 °C and + 40 °C	10	**GV2 E02**	0.012
Neutral terminal			100	**AB1 VV635UBL**	0.015
Partition			50	**AB1 AC6BL**	0.003

*(1) Enclosure **GV2 MCK04** is fitted with a **GV2 K04** mushroom head Emergency stop pushbutton as standard.*
*(2) Supplied with IP 55 sealing kit. To be fitted with enclosure **GV2 M●01**.*
(3) Padlockable in "Off" position using Ø 4 to 8 mm shank padlocks.

TeSys enclosed starters

Enclosed thermal-magnetic motor circuit-breakers GV2 ME and accessories

Assembly of a safety enclosure

Assembly of a safety enclosure

(conforming to standards IEC 60974-4-1, IEC 60204 and IEC 60292)

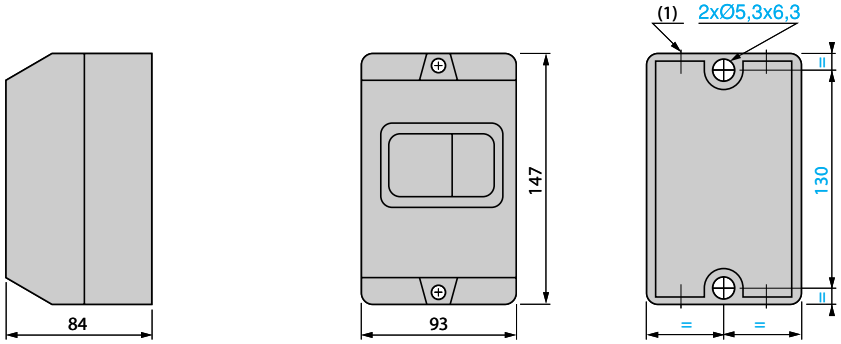
Type of product	Page	Reference
Enclosure	Opposite	**GV2 MC●●**
Circuit-breaker	3/46	**GV2 ME●●**
Undervoltage trip or INRS trip *(1)*	3/55	**GV2 A●●●●**
		or **GV2 AX●●●**
Latching mushroom head Stop pushbutton	Opposite	**GV2 K021**
		or **GV2 K031**
		or **GV2 K04**

(1) Safety device for dangerous machines conforming to INRS and VDE 0113.

2

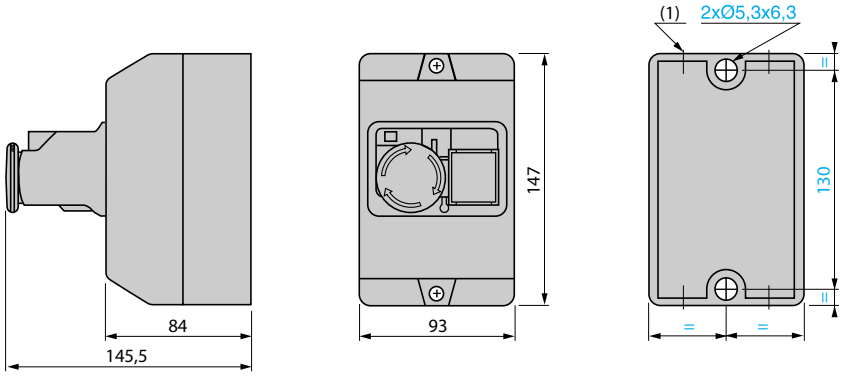
Dimensions

Surface mounting enclosure GV2 MC0●



(1) 4 knock-outs for 16 mm plastic cable gland or 16 mm conduit.

Surface mounting enclosure GV2 MCK04

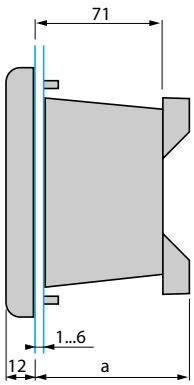


(1) 4 knock-outs for 16 mm plastic cable gland or 16 mm conduit.

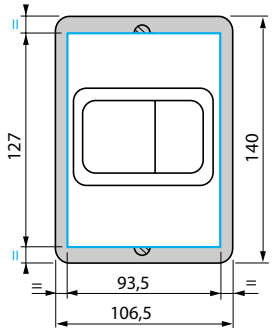
Mounting

Flush mounting enclosures GV2 MP0● (panel cut-out)

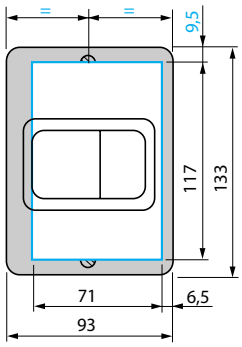
GV2 MP0●



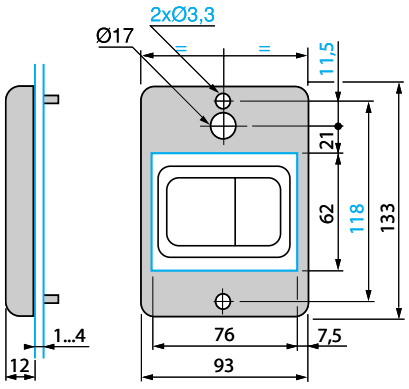
GV2 MP01, MP02



GV2 MP03, MP04



Front plate GV2 CP21

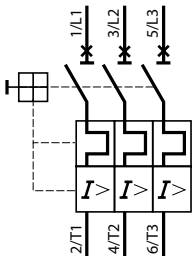


GV2	a
MP01, MP02	–
MP03, MP04	86

TeSys enclosed starters
Enclosed thermal-magnetic motor circuit-breakers
GV2 ME

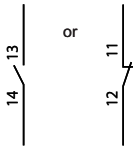
Schemes

GV2 ME●●

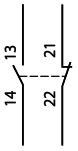


Instantaneous auxiliary contacts

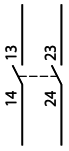
GV AE1



GV AE11

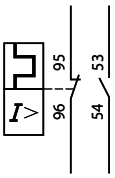


GV AE20

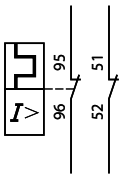


Instantaneous auxiliary contacts and fault signalling contacts

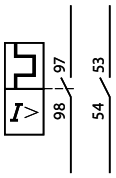
GV AD0110



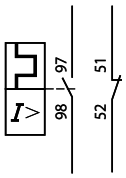
GV AD0101



GV AD1010

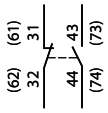


GV AD1001

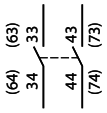


Instantaneous auxiliary contacts

GV AN11

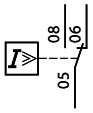


GV AN20



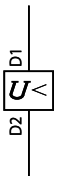
Short-circuit signalling contacts

GV AM11

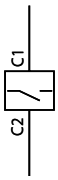


Voltage trips

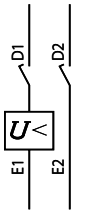
GV AU●●●



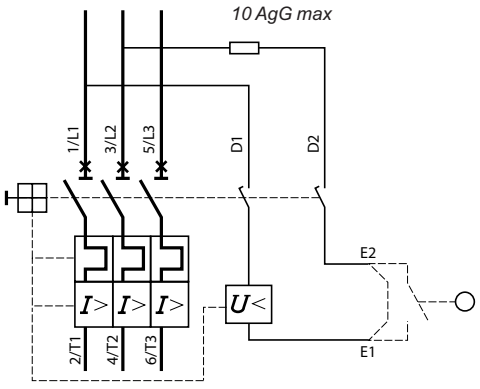
GV AS●●●



GV AX●●●



Wiring diagram for undervoltage trip used on potentially dangerous machines, conforming to INRS



TeSys enclosed starters

D.O.L. starters with manual control, with magnetic circuit-breaker, 0.55 to 30 kW

2

Characteristics *(1)*

Conforming to standards	IEC 60947-4, IEC 60439-1, VDE 0660-102 and EN 60947
Degree of protection conforming to IEC 60529	**GV2 LC**: IP 547 **GV NGC**: IP 407
Operational voltage Ue	**GV2 LC**: 690 V **GV NGC**: 500 V
Material	Polycarbonate *(2)*

References

Control by black rotary handle, padlockable in Off position (up to 3 padlocks with Ø 8 shank, to be ordered separately)

Rating In	Breaking capacity Icu conforming to IEC 60947-2				Magnetic tripping current Id ± 20 %	Reference	Weight
	220/ 230 V	400/ 415 V	440 V	500 V			
A	kA	kA	kA	kA	A		kg
1.6	100	100	100	100	13 In	**GV2 LC0206** *(3)*	0.780
2.5	100	100	100	100	13 In	**GV2 LC0207** *(3)*	0.780
4	100	100	100	100	13 In	**GV2 LC0208** *(3)*	0.780
6.3	100	100	100	100	13 In	**GV2 LC0210** *(3)*	0.780
10	100	100	20	10	13 In	**GV2 LC0214** *(3)*	0.780
14	100	50	20	10	13 In	**GV2 LC0216** *(3)*	0.780
18	100	50	20	10	13 In	**GV2 LC0220** *(3)*	0.780
25	100	50	30	15	12 In	**GV NGC0225**	2.450
32	100	50	30	15	12 In	**GV NGC0232**	2.450
40	100	50	30	15	12 In	**GV NGC0240**	2.450
50	100	50	30	15	12 In	**GV NGC0250**	2.450
63	100	50	30	15	12 In	**GV NGC0263**	2.450

533740



GV2 LC02●●

526148



GV2 LC02●●

526149



GV NGC02●●

Variants

Starters with control by red rotary handle on yellow background

Add the letter **R** to the references selected above.
Example: **GV2 LC0206** becomes **GV2 LC0206R**.

Enclosure without circuit-breaker, with rotary handle mounted on cover

Description	Rating	Reference	Weight
	A		kg
Black rotary handle	1.6…18	**GV2 LC02**	0.300
	25…63	**GV NGC02**	0.550
Red rotary handle on yellow background	1.6…18	**GV2 LC02R**	0.300
	25…63	**GV NGC02R**	0.550

526148



GV2 LC02

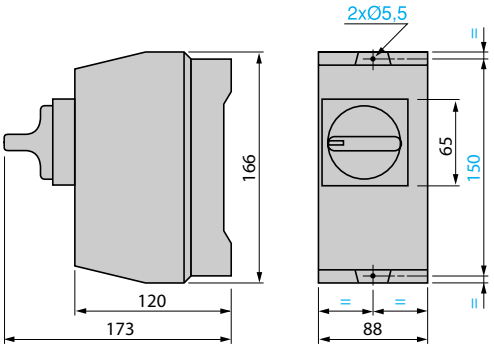
(1) Circuit-breaker characteristics:
***GV2 L**: see pages 3/14 and 3/15.*
***NG 125L**: product marketed under the Schneider Electric brand, please consult your Regional Sales Office.*
(2) Avoid placing this material in contact with harsh substances (detergents, chlorine solvents, ketones, alcohol, aromatic hydrocarbons).
*(3) The following can be fitted by the customer: a **GVAD** or **GVAM** auxiliary contact block on the LH side and a **GVA●** trip on the RH side.*

TeSys enclosed starters

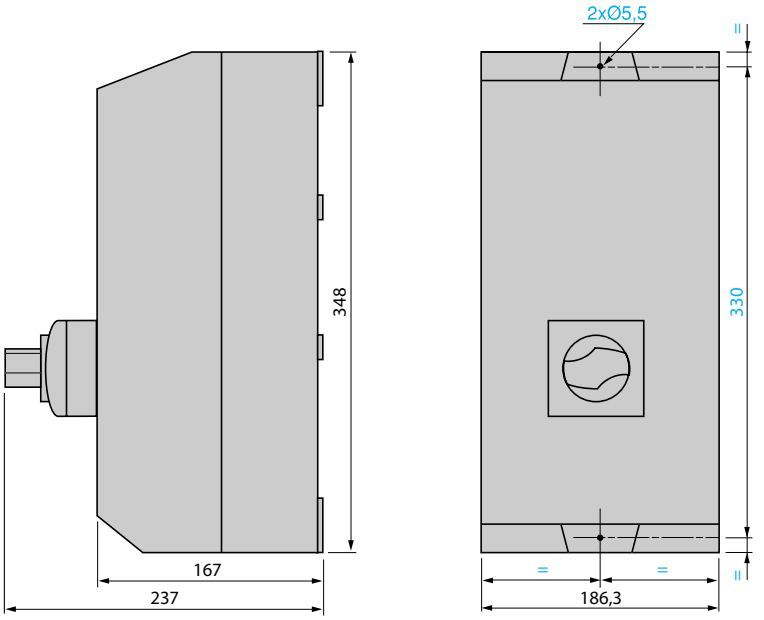
D.O.L. starters with manual control,
with magnetic circuit-breaker, 0.55 to 30 kW

Dimensions

GV2 LC0206…LC0220



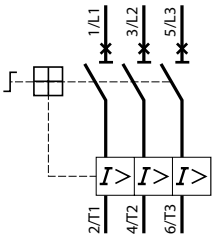
GV NGC0225…NGC0263



Knock-outs or blanking plugs for cable glands

Enclosure type	At top	At bottom
	ISO	ISO
GV2 LC	2 x 20 or 2 x 25	2 x 20 or 2 x 25
GV NGC	2 x 20 or 2 x 25 or 2 x 32 or 2 x 40	2 x 20 or 2 x 25 or 2 x 32 or 2 x 40

Scheme



TeSys enclosed starters

D.O.L. starters for motor control *(1)*

2.2 to 45 kW, without isolating device

Characteristics

Conforming to standards	IEC 60947-4-1 and IEC 60439-1, VDE 0660-102, EN 60947
Degree of protection conforming to IEC 60529	IP 659: **LE2 K** IP 657: **LE● D09**…**D35** IP 557: **LE● D405**…**D955**
Ambient air temperature	Operation: - 5…+ 40 °C
Operating positions	Same as that of the contactors
Material	Polycarbonate *(2)*: **LE2 K** and **LE● D09**…**D35** Sheet steel: **LE● D405**…**D955**

References

526423



LE1 D12●●

526424



LE2 D12●●

Non-reversing starters

Standard power ratings of 3-phase motors 50-60 Hz in category AC-3						Maximum current I the up to	Basic reference, to be completed by adding the voltage code *(3)*	Weight
220 V 230 V	380 V 400 V	415 V	440 V	500 V	660 V 690 V			
kW	kW	kW	kW	kW	kW	A		kg
2.2	4	4	4	5.5	5.5	**9**	**LE1 D09●●**	0.920
3	5.5	5.5	5.5	7.5	7.5	**12**	**LE1 D12●●**	0.920
4	7.5	9	9	10	10	**18**	**LE1 D18●●**	1.015
5.5	11	11	11	15	15	**25**	**LE1 D25●●**	1.015
7.5	15	15	15	18.5	18.5	**35**	**LE1 D35●●**	4.320
11	18.5	22	22	22	30	**40**	**LE1 D405●●**	4.820
15	22	25	30	30	33	**50**	**LE1 D505●●**	4.850
18.5	30	37	37	37	37	**65**	**LE1 D655●●**	4.850
22	37	45	45	55	45	**80**	**LE1 D805●●**	5.140
25	45	45	45	55	45	**95**	**LE1 D955●●**	5.440

Reversing starters

1.5	2.2	2.2	3	–	–	**6**	**LE2 K065●●**	1.080
2.2	4	4	4	–	–	**9**	**LE2 K095●●**	1.080
							LE2 D09●● *(4)*	2.100
–	–	–	–	5.5	5.5	**9**	**LE2 D09●●**	2.100
3	5.5	5.5	5.5	7.5	7.5	**12**	**LE2 D12●●**	2.100
4	7.5	9	9	10	10	**18**	**LE2 D18●●**	2.410
5.5	11	11	11	15	15	**25**	**LE2 D25●●**	2.570
7.5	15	15	15	18.5	18.5	**35**	**LE2 D35●●**	4.100
11	18.5	22	22	22	30	**40**	**LE2 D405●●**	5.270
15	22	25	30	30	33	**50**	**LE2 D505●●**	5.470
18.5	30	37	37	37	37	**65**	**LE2 D655●●**	5.470
22	37	45	45	55	45	**80**	**LE2 D805●●**	6.700
25	45	45	45	55	45	**95**	**LE2 D955●●**	7.000

(1) Overload protection must be provided by a thermal overload relay, to be ordered separately, see pages 6/20 to 6/23.
(2) Avoid placing this material in contact with harsh substances (detergents, chlorine solvents, ketones, alcohol, aromatic hydrocarbons).
(3) Standard control circuit voltages.

Volts ∼ 50/60 Hz	24	42	48	110	115	220	230	240	380	400	415	440
LE2 K	B7	D7	E7	F7	–	M7	P7	U7	Q7	V7	N7	R7
LE1, LE2 D	B7	D7	E7	F7	FE7	M7	P7	U7	Q7	V7	N7	R7

Other voltages: please consult your Regional Sales Office.
(4) Selection according to the number of operating cycles, please consult your Regional Sales Office.

Dimensions : page 2/22
Schemes : page 2/23

TeSys enclosed starters
D.O.L. starters for motor control (1)
2.2 to 45 kW, without isolating device

526425



LE1 D12●●A04

526426



LE1 D12●●A05

526427



LE1 D12●●A09

526428



LE1 D12●●A13

526429



LE1 D12●●A35

Description

Standard versions comprise:
■ For non-reversing starters:
□ 1 green Start button “I”,
□ 1 red Stop/Reset button “O”.

■ For reversing starters:
□ LE2 K:
- 1 Start button ⬆,
- 1 Start button ⬇,
- 1 red Stop/Reset button.

□ LE2 D09…D35:
- 1 2-position spring return selector switch “I”-“II”,
- 1 red Stop/Reset button “O”,

□ LE2 D405…D955:
- 1 blue Reset button “R”.

Variants (pre-assembled)

Description	Application	Suffix to be added to the starter reference (2)
No pushbuttons on cover	LE1 D09…D955 LE2 D09…D955	**A04**
1 green Start button “I” 1 green Start button “II” 1 red Stop/Reset button “O”	LE2 D405…D955	**A11**
1 blue Reset button “R”	LE1 D09…D955 LE2 K06 and K09 LE2 D09…D35	**A05**
1 3-position stay put selector switch (“I”-“O”-“II”) (“I”: Automatic Start; “O”: Stop; “II”: Manual Start) 1 blue Reset button “R”	LE1 D09…D35	**A09**
1 2-position stay put selector switch “O”-“I” (“O”: Stop; “I”: Manual Start) 1 blue Reset button “R”	LE1 D09…D35	**A13**
1 3-position selector switch “O”-“I” spring return to centre position (“I”: Manual start; “O”: Stop, stay put) 1 blue Reset button “R”	LE1 D09…D35	**A35**
1 neutral terminal Fitted as standard on LE1 and LE2 D09 to D35, LE1 and LE2 D405 to D955 starters ordered with 222 V (M7), 230 V (P7) or 240 V (U7) control supply	LE1 D405…D955 LE2 K06 and K09 LE2 D405…D955	**A59**
Mounting of an LC1 D09 or D12 contactor in an enclosure identical to LE1 D18 (3)	LE1 D09 LE1 D12	**T**

Accessory (for customer assembly)

Description	Application	Reference	Weight kg
Start pushbutton latching device for stay put operation (Start-Stop)	LE1 D405…D955	**LA9 D09907**	0.060

(1) See previous page.
*(2) Example: **LE1 D09F7A04**.*
(3) See dimensions page 2/22.

Other versions

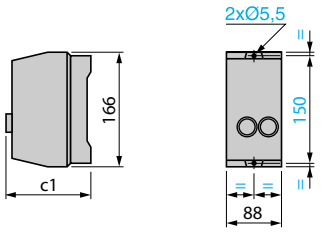
Possible combinations of 2 variants.
Please consult your Regional Sales Office.

Schemes :
page 2/23

TeSys enclosed starters
D.O.L. starters for motor control
2.2 to 45 kW, without isolating device

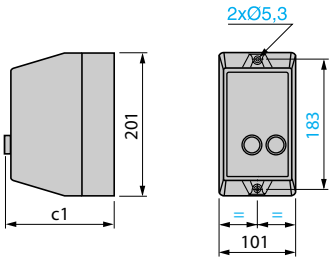
Dimensions

LE1 D09 and D12



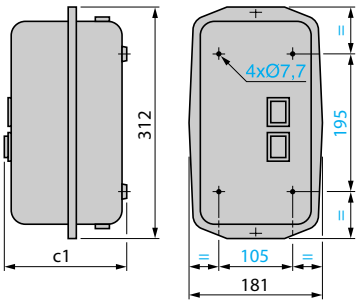
	c1
Standard version	128.5
Variant A04	135
Variant A05	128.5
Variant A09	135
Variant A13	135
Variant A35	135

LE1 D09 and D12●●T
LE1 D18…D35 and LE2 D09…D35



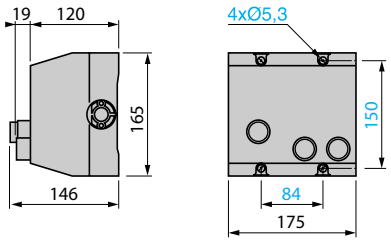
	c1	
	LE1 D	LE2 D
Standard version	153.5	160
Variant A04	145	145
Variant A05	153.5	153.5
Variant A09	160	–
Variant A13	160	–
Variant A35	160	–

LE1 D405…D655

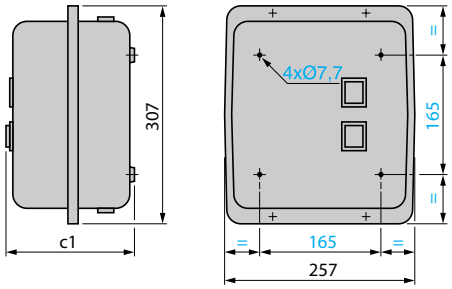


	c1
Standard version	161
Variant A04	150
Variant A05	161

LE2 K06 and K09

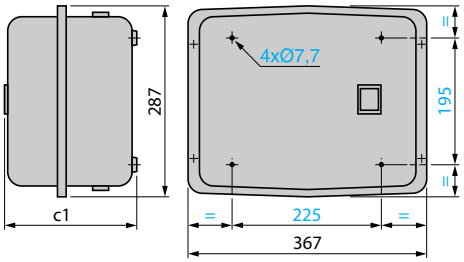


LE1 D805, LE1 D955 and LE2 D405…D655



	c1	
	LE1 D	LE2 D
Standard version	176	176
Variant A04	165	165
Variant A05	176	–
Variant A11	–	176

LE2 D805 and D955



	c1
Standard version	194
Variant A04	190
Variant A05	194

Knock-outs or blanking plugs for cable glands

Type of enclosure	At top		At bottom	
	PG	ISO	PG	ISO
LE1 D09 and D12	–	2 x 20	2 x 13 or 2 x 16	2 x 20
LE1 D18…D35 and LE2 D09…D35	–	2 x 20 or 2 x 25	2 x 16 or 2 x 21	2 x 20 or 2 x 25
LE2 D405	1 x 13 and 1 x 21	1 x 20 and 1 x 25	1 x 13 and 2 x 21	1 x 20 and 2 x 25
LE1 D405…D655, LE2 D505 and D655	1 x 13 and 1 x 29	1 x 20 and 1 x 32	1 x 13 and 2 x 29	1 x 20 and 2 x 32
LE1 or LE2 D805 and D955	1 x 13 and 1 x 36	1 x 20 and 1 x 40	1 x 13 and 2 x 36	1 x 20 and 2 x 40
LE2 K	2 x 13 and 2 x 16	4 x 20	2 x 13 and 2 x 16	4 x 20

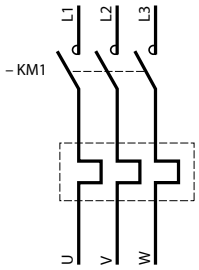
References :
pages 2/20 and 2/21

Schemes :
page 2/23

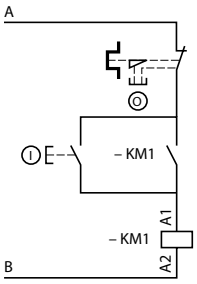
TeSys enclosed starters
D.O.L. starters for motor control
2.2 to 45 kW, without isolating device

Schemes

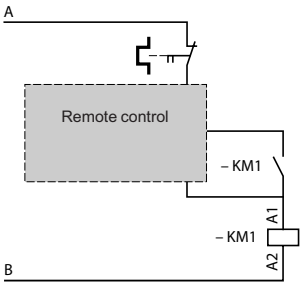
LE1 D09…D955



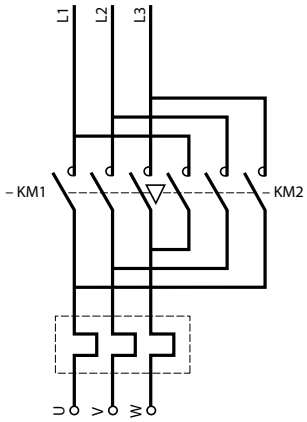
LE1 D09…D955



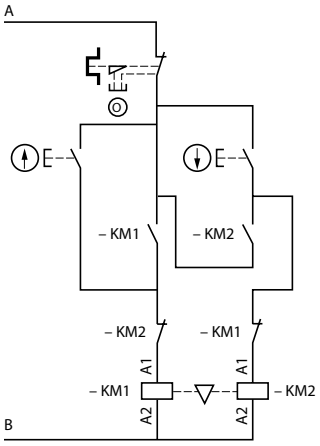
Variant A04 or A05



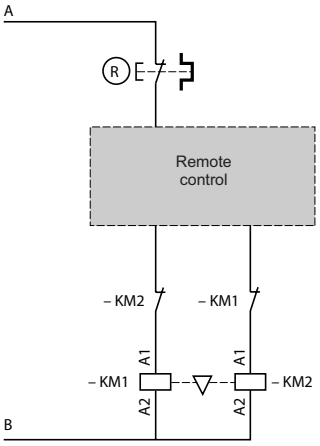
LE2 K06, K09



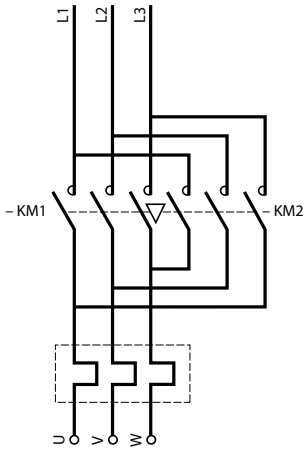
LE2 K06, K09



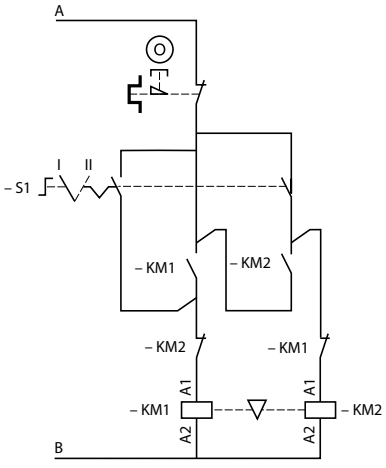
Variant A05



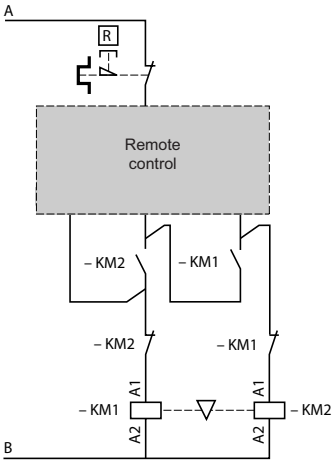
LE2 D09…D955



LE2 D09…D35



LE2 D405…D955, LE2 D09…D955 with variants A04 or A05



Connections		A	B
220 V, 230 V, 240 V	LE2 K, LE1 and LE2 D09 and D12	L3	Neutral
	LE1 and LE2 D18…D955	L3	Neutral terminal
380 V, 400 V, 415 V, 440 V	All products	L3	L1
Other voltages	LE1 and LE2 D09…D35	Terminal 1	Terminal 2
	LE2 K, LE1 and LE2 D405 and D955	Direct connection	

References : pages 2/20 and 2/21
Dimensions : page 2/22

TeSys enclosed starters
D.O.L. starters for motor control *(1)*
2.2 to 45 kW, with isolating device

Characteristics

Conforming to standards	IEC 60947-4-1 and IEC 60439-1, VDE 0660-102, EN 60947
Degree of protection conforming to IEC 60529	IP 659: **LE● K** IP 657: **LE● D09**…**D35** IP 557: **LE● D406**…**D806**
Ambient air temperature	Operation: - 5…+ 40 °C
Operating positions	Same as that of the contactors
Material	Polycarbonate *(2)*: **LE● K** and **LE● D09**…**D35** Sheet steel: **LE● D406**…**D806**

References

511547



LE4 D12●●

Non-reversing starters

Standard power ratings of 3-phase motors 50-60 Hz in category AC-3						Maximum current I the up to	Fuses to be fitted by the customer			Basic reference, to be completed by adding the voltage code *(3)*	Weight
220 V 230 V	380 V 400 V	415 V	440 V	500 V	660 V 690 V		Size	Type aM			
kW	kW	kW	kW	kW	kW	A		A			kg
1.5	2.2	2.2	3	–	–	**6**	10 x 38	10		**LE4 K065●●**	1.450
2.2	4	4	4	–	–	**9**	10 x 38	12		**LE4 K095●●**	1.450
									or	**LE4 D09●●** *(4)*	1.960
2.2	4	4	4	5.5	–	**9**	10 x 38	12		**LE4 D09●●**	1.960
3	5.5	5.5	5.5	7.5	–	**12**	10 x 38	16		**LE4 D12●●**	1.960
4	7.5	9	9	10	–	**18**	10 x 38	20		**LE4 D18●●**	2.200
5.5	11	11	11	15	–	**25**	10 x 38	25		**LE4 D25●●**	2.200
7.5	15	15	15	18.5	18.5	**35**	14 x 51	32		**LE4 D35●●**	5.190
11	18.5	22	22	22	30	**40**	14 x 51	40		**LE4 D406●●**	5.770
15	22	25	30	30	33	**50**	22 x 58	63		**LE4 D506●●**	6.440
18.5	30	37	37	37	37	**65**	22 x 58	80		**LE4 D656●●**	6.670
22	37	45	45	55	45	**80**	22 x 58	80		**LE4 D806●●** *(5)*	7.100

526430



LE8 D12●●

Reversing starters

1.5	2.2	2.2	3	–	–	**6**	10 x 38	10		**LE8 K065●●**	1.600
2.2	4	4	4	–	–	**9**	10 x 38	12		**LE8 K095●●**	1.600
									or	**LE8 D09●●** *(4)*	3.550
–	–	–	–	5.5	–	**9**	10 x 38	12		**LE8 D09●●**	3.550
3	5.5	5.5	5.5	7.5	–	**12**	10 x 38	16		**LE8 D12●●**	3.550
4	7.5	9	9	10	–	**18**	10 x 38	20		**LE8 D18●●**	3.700
5.5	11	11	11	15	–	**25**	10 x 38	25		**LE8 D25●●**	4.670
7.5	15	15	15	18.5	18.5	**35**	14 x 51	32		**LE8 D35●●**	5.800
11	18.5	22	22	22	30	**40**	14 x 51	40		**LE2 D406●●**	14.170
15	22	25	30	30	33	**50**	22 x 58	63		**LE2 D506●●**	14.700
18.5	30	37	37	37	37	**65**	22 x 58	80		**LE2 D656●●**	14.770
22	37	45	45	55	45	**80**	22 x 58	80		**LE2 D806●●**	16.000

(1) Overload protection must be provided by a thermal overload relay, to be ordered separately, see pages 6/20 to 6/23.
(2) Avoid placing this material in contact with harsh substances (detergents, chlorine solvents, ketones, alcohol, aromatic hydrocarbons).
(3) Standard control circuit voltages.

Volts ~ 50/60 Hz	24	42	48	110	115	220	230	240	380	400	415	440
LE● K	B7	D7	E7	F7	–	M7	P7	U7	Q7	V7	N7	R7
LE● D	B7	D7	E7	F7	FE7	M7	P7	U7	Q7	V7	N7	R7

Other voltages: please consult your Regional Sales Office.
(4) Selection according to dimensions and the number of operating cycles, please consult your Regional Sales Office.
(5) Supplied with 3 cable entries.

Dimensions: page 2/26
Schemes: page 2/27

Schneider Electric

TeSys enclosed starters

D.O.L. starters for motor control (1)
2.2 to 45 kW, with isolating device

526431



LE4 D12●●A04

526432



LE4 D12●●A05

Description

Standard versions comprise:
■ For non-reversing starters:
□ LE4 K and LE4 D09…D656
- 1 green Start button “I”,
- 1 red Stop/Reset button “O”.

□ LE4 D806
- no pushbuttons on cover

■ For reversing starters:
□ LE8 K :
- 1 Start button ⬆,
- 1 Start button ⬇,
- 1 red Stop/Reset button.

□ LE8 D09…D35 :
- 1 2-position spring return selector switch “I”-“II”,
- 1 red Stop/Reset button “O”,

□ LE2 D406 to D806:
- no pushbuttons on cover.

Protection	Power circuit	Control circuit
LE4 and LE8 K	1 3-pole isolating device	None
LE4 and LE8 D09…D25	1 3-pole isolating device	+ 1 additional pole
LE4 and LE2 D35…D806	1 3-pole isolating device	+ 1 circuit-breaker GB2 CB08

Variants (pre-assembled)

Description	Application	Suffix to be added to the starter reference (2)
No pushbuttons on cover	LE4 D09…D656 LE8 D09…D35	**A04**
1 green Start button “I” 1 green Start button “II” 1 red Stop/Reset button “O”	LE2 D406…D806	**A11**
1 blue Reset button “R”	LE4 D09…D806 LE8 K06 and K09 LE8 D09…D35 LE2 D406…D806	**A05**
1 neutral terminal Fitted as standard on LE4 D18…D806, LE8 D18…D35 and LE4 D406…D806 starters ordered with 220 V (M7), 230 V (P7) or 240 V (U7) control supply	LE4 K06 and K09 LE4 D09…D806 LE8 K06 and K09 LE8 D09…D35 LE2 D406…D806	**A59**

Accessory (for customer assembly)

Description	Application	Reference	Weight kg
Start pushbutton latching device for stay put operation (Start-Stop)	LE4 D406…D656	**LA9 D09907**	0.060

(1) See previous page
*(2) Example: **LE4 D09F7A04**.*

Other versions

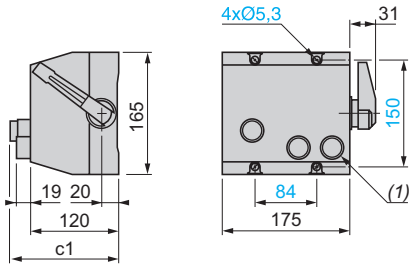
Possible combinations of 2 variants.
Please consult your Regional Sales Office.

Dimensions: page 2/26
Schemes: page 2/27

TeSys enclosed starters
D.O.L. starters for motor control
2.2 to 45 kW, with isolating device

Dimensions

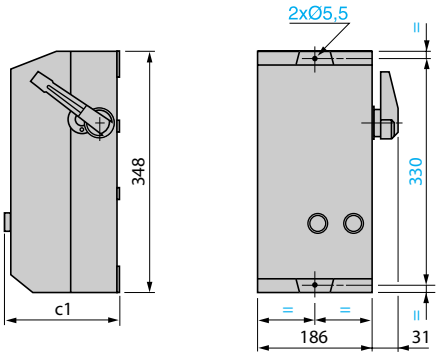
LE4 K06 and K09, LE8 K06 and K09



	c1	
	LE4 K	LE8 K
Standard version	146	146
Variant A05	–	139

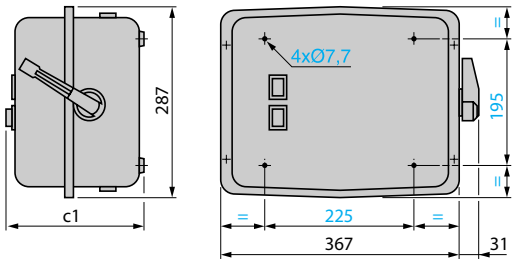
(1) For LE8 only

LE4 D09…D35, LE8 D09…D35



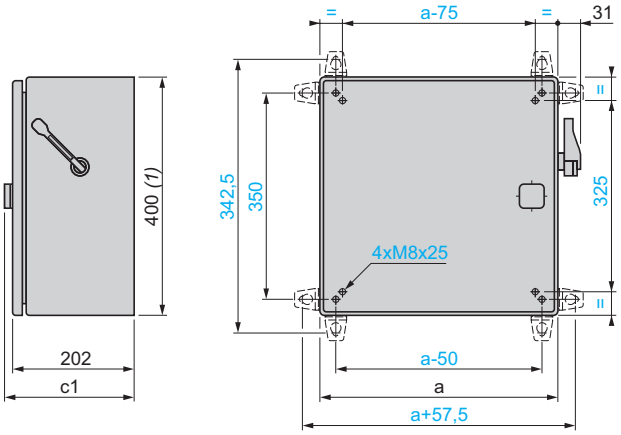
	c1	
	LE4 D	LE8 D
Standard version	175.5	182
Variant A04	167	167
Variant A05	175.5	175.5

LE4 D406…D656



	c1
Standard version	201
Variant A04	190
Variant A05	201

LE2 D406…D806, LE4 D806



	a
LE2 D406, D506, D656	300
LE2 D806	400
LE4 D806	400

(1) + 14 mm with blanking plugs.

	c1	
	LE2 D	LE4 D
Standard version	218	218
Variant A05	218	218
Variant A11	–	218

Knock-outs or blanking plugs for cable glands

Type of enclosure	At top		At bottom	
	PG	ISO	PG	ISO
LE4 and LE8 D09…D35	–	2 x 20 or 2 x 25 or 2 x 32 or 2 x 40	–	2 x 20 or 2 x 25 or 2 x 32 or 2 x 40
LE2 D09…D35	–	2 x 20 or 2 x 25	–	2 x 20 or 2 x 25
LE2 D406 and LE4 D406	1 x 13 and 1 x 21	1 x 20 and 1 x 25	1 x 13 and 2 x 21	1 x 20 and 2 x 25
LE1 D506…D656, LE4 D506 and D656	1 x 13 and 1 x 29	1 x 20 and 1 x 32	1 x 13 and 2 x 29	1 x 20 and 2 x 32
LE2 D806 and LE4 D806	1 x 13 and 1 x 36	1 x 20 and 1 x 40	1 x 13 and 2 x 36	1 x 20 and 2 x 40
LE4 K and LE8 K	2 x 13 and 2 x 16	4 x 20	2 x 13 and 2 x 16	4 x 20

References :
pages 2/24 and 2/25

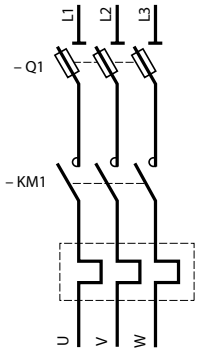
Schemes :
page 2/27

Schneider Electric

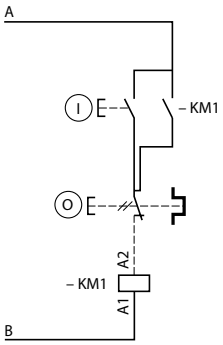
TeSys enclosed starters
D.O.L. starters for motor control
2.2 to 45 kW, with isolating device

Schemes

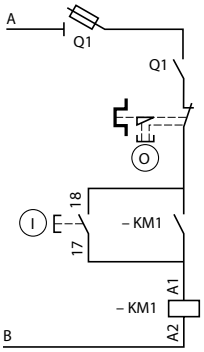
LE4 K06, K09 LE4 D09…D806



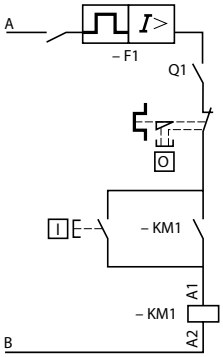
LE4 K06, K09



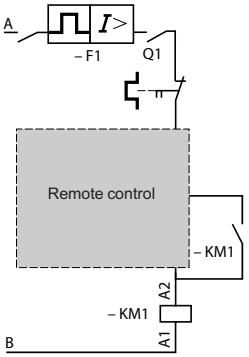
LE4 D09…D35



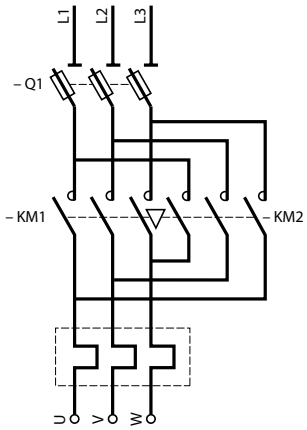
LE4 D406…D656



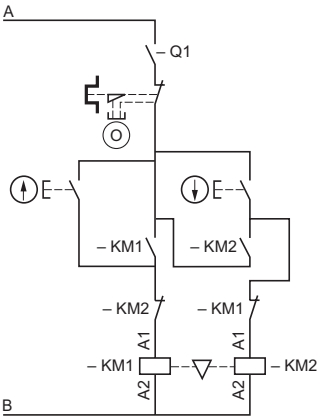
LE4 D806, LE4 D09…D656 with variant A04 or A05



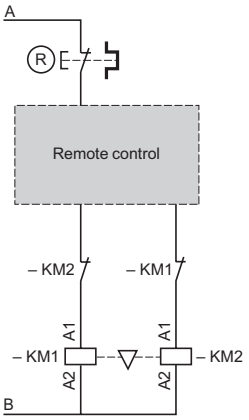
LE8 K06, K09



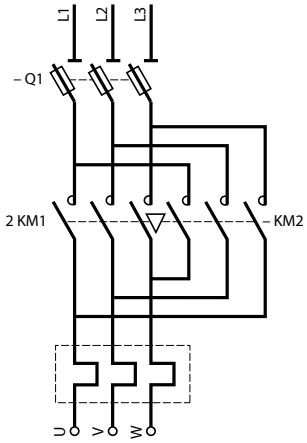
LE8 K06, K09



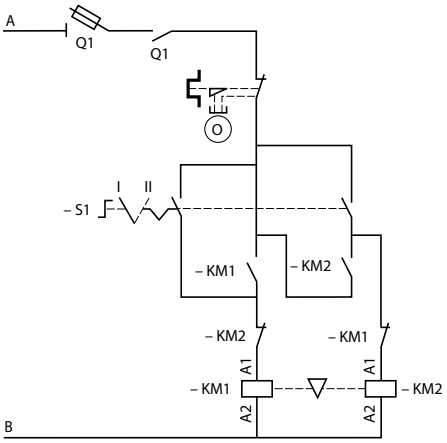
Variant A05



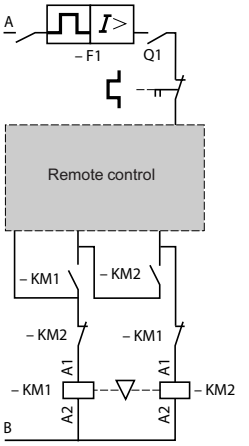
LE8 D09…LE2 D806



LE8 D09…D35



LE2 D406…D806



Connections		A	B
220 V, 230 V, 240 V	LE4 and LE8 K, LE4 and LE8 D09 and D12	L3	Neutral
	LE4 D18…D806, LE8 D18…D35 and LE2 D406…D806	L3	Neutral terminal
380 V, 400 V, 415 V, 440 V	All products	L3	L1
Other voltages	LE4 and LE8 D09…D35	Terminal 1	Terminal 2
	LE4 and LE2 D406…D806	Direct connection	

References : pages 2/24 and 2/25
Dimensions : page 2/26

TeSys enclosed starters

D.O.L. starters for motor control
0.25 to 7.5 kW with 3-phase thermal overload relay with 3 protected phases

Characteristics *(1)*

Conforming to standards	IEC 60947-4-1, IEC 60439-1, VDE 0660-102 and EN 60947
Degree of protection conforming to IEC 60529	IP 65
Ambient air temperature	Operation: - 5 to + 40 °C
Operating positions	Same as for the TeSys K contactors
Material	Self-extinguishing ABS

References

511548



533789



LE1 M35●●●●

Non-reversing starters

Starter LE1 M, combined with short-circuit protection components, provides type 1 or type 2 coordination, depending on the type of devices used.

Standard power ratings of 3-phase motors 50-60 Hz in category AC-3				Setting range of thermal overload relay LR2 K *(2)*	Basic reference, to be completed by adding the voltage code *(3)*	Weight
220 V 230 V	240 V	380 V 400 V	415 V			
kW	kW	kW	kW	A		kg
0.12	0.12	0.25	0.25	0.54…0.8	**LE1 M35●●05**	0.600
0.18	0.18	0.37	0.37	0.8…1.2	**LE1 M35●●06**	0.600
0.25	0.25	0.55	0.55	1.2…1.8	**LE1 M35●●07**	0.600
0.37	0.37	1.1	0.75	1.8…2.6	**LE1 M35●●08**	0.600
0.55	0.55	1.5	1.5	2.6…3.7	**LE1 M35●●10**	0.600
1.1	0.75	2.2	2.2	3.7…5.5	**LE1 M35●●12**	0.600
1.5	1.1	3	3	5.5…8	**LE1 M35●●14**	0.600
2.2	2.2	4	4	8…11.5	**LE1 M35●●16**	0.600
3	3	5.5	5.5	10…14	**LE1 M35●●21**	0.600
3.7	4	7.5	7.5	12…16	**LE1 M35●●22**	0.600

Description

■ The standard version comprises:
□ 1 TeSys contactor LC1 K●●,
□ 1 TeSys thermal overload relay LR2 K,
□ 1 green Start button “I”,
□ 1 red Stop/Reset button “O/R”,
□ 1 yellow operating indicator.

■ Control may be pulsed or maintained.
■ An earth terminal and a neutral terminal are provided on the bottom of the enclosure.
■ For safey applications, see enclosed starters:
GV2 MC, LG1 K, LG1 D, LG7 K, LG7 D, LJ7 K, LG8 K and LJ8 K.

Variant

Starter without thermal overload relay LR2 K

Delete the last 2 digits of the starter references selected above.
Example: **LE1 M35●●**

Replacement part

Description	Basic reference, to be completed by adding the voltage code *(3)*	Weight kg
Contactor	**LC1 K●●A80**	0.180

(1) For characteristics of TeSys K contactor, see pages 5/10 to 5/13.
For characteristics of TeSys thermal overload relay LR2 K, see pages 6/10 and 6/11.
(2) Thermal overload relay fitted as standard.
(3) The contactor coil is pre-wired between 2 phases of the power circuit.
*The codes indicated below therefore correspond to the **power circuit voltage**.*

Volts ~ 50/60 Hz	**24**	**220**	**230**	**240**	**380**	**400**	**415**	**440**
Code	B7	M7	P7	U7	Q7	V7	N7	R7

*Example: 380/400 V 3-phase supply, 4 kW motor: **LE1 M35Q716**.*

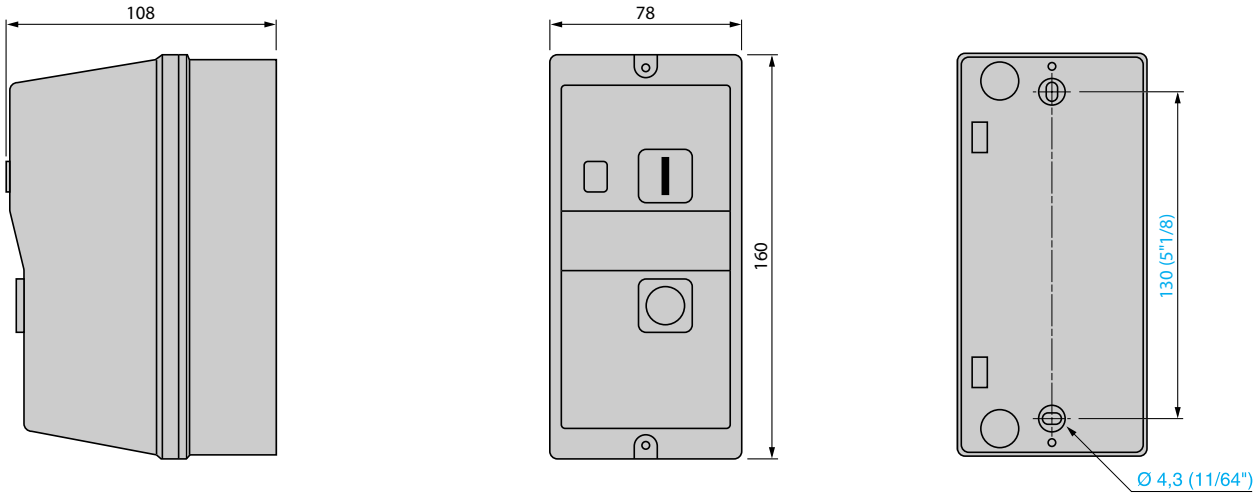
Dimensions : page 2/29
Schemes : page 2/29

TeSys enclosed starters

D.O.L. starters for motor control
0.25 to 7.5 kW with 3-phase thermal overload relay with 3 protected phases

Dimensions

LE1 M35 *(1)*



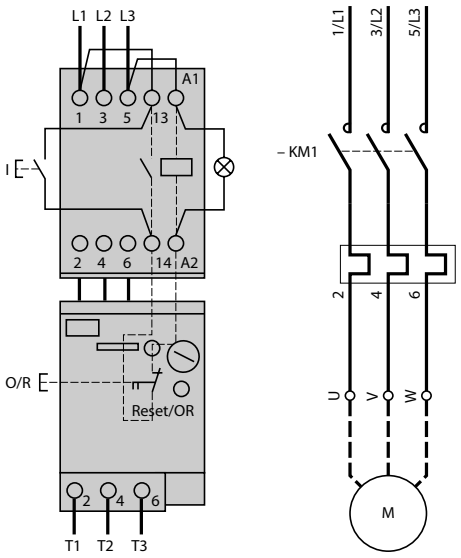
Knock-outs or blanking plugs for cable glands

Enclosure type	At top		At bottom	
	PG	ISO	PG	ISO
LE1 M	2 x 13 to 2 x 21	2 x 20 or 2 x 25	2 x 13 to 2 x 21	2 x 20 or 2 x 25

(1) Can be mounted on machine panel or frame. Knock-outs for 4 x 13 P cable glands.

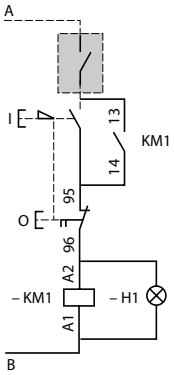
Schemes

LE1 M35

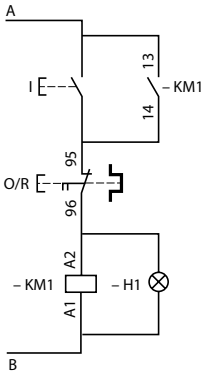


Choice of type of control built into the product

Control by latching pushbuttons



Control by spring return pushbuttons



Connection	A	B
220 V, 230 V, 240 V	L3	Neutral
380 V, 400 V, 415 V, 440 V	L3	L1
Other voltages	Terminal 1	Terminal 2

References :
page 2/28

TeSys enclosed starters

D.O.L. starters for motor control, 0.37 to 5.5 kW with thermal magnetic circuit-breaker and contactor

Characteristics

Conforming to standards	IEC 60947-4-1, IEC 60439-1, VDE 0660-102 and EN 60947
Degree of protection conforming to IEC 60529	IP 55
Ambient air temperature	Operation: - 5 to + 40 °C
Operating positions	Same as for the TeSys K contactors
Material	Polycarbonate *(1)*

References





LE1 GVME●●K●●

Standard power ratings of 3-phase motors 50-60 Hz in category AC-3					Setting range of thermal trips	Fixed magnetic tripping current 13 Irth	Basic reference, to be completed by adding the voltage code *(2)*	Weight
230 V	400/ 415 V	440 V	500 V	690 V				
kW	kW	kW	kW	kW	A	A		kg
0.18 0.25	0.37 0.55	0.37 0.55	0.37 0.55 0.75	0.75 1.1	1…1.6	22.5	**LE1 GVME06K●●**	1.210
0.37	0.75	0.75 1.1	1.1	1.5	1.6…2.5	33.5	**LE1 GVME07K●●**	1.210
0.55 0.75	1.1 1.5	1.5	1.5 2.2	2.2 3	2.5…4	51	**LE1 GVME08K●●**	1.210
1.1	2.2	2.2 3	3	4	4…6.3	78	**LE1 GVME10K●●**	1.210
1.5 2.2	3 4	4	4 5.5	5.5 7.5	6…10	138	**LE1 GVME14K●●**	1.210
2.2 3	5.5	5.5 7.5	7.5	9 11	9…14	170	**LE1 GVME16K●●**	1.210

Variants



LE1 GVMEK

Description	Suffix to be added to the starter reference *(3)*	Weight kg
Neutral terminal	**A59**	–

Description	Reference	Weight kg
Enclosure without starter, with sealing kit fitted (references of combination motor starters for customer assembly, see pages 1/6 and 1/7)	**LE1 GVMEK**	0.740

Accessories (to be ordered separately)

Description			Sold in lots of	Unit reference	Weight kg
Padlocking device *(4)* for GV2 ME operator (padlocking is only possible in the "O" position)		1 to 3 padlocks Ø 4 to 8 mm	1	**GV2 V01**	0.075
Mushroom head "Stop" pushbutton Ø 40 mm, red	Spring return *(4)*		1	**GV2 K011**	0.052
	Latching *(4)* IP 55	Key release, key n° 455	1	**GV2 K021**	0.160
		Turn to release	1	**GV2 K031**	0.115
			1	**GV2 K04** *(5)*	0.120
Sealing kit		IP 55 for temperature between + 5°C and + 40°C	10	**GV2 E01**	0.012
		IP 55 for temperature between - 20°C and + 40°C	10	**GV2 E02**	0.012

(1) Avoid placing this material in contact with harsh substances (detergents, chlorine solvents, ketones, alcohol, aromatic hydrocarbons).
(2) Standard control circuit voltages.

Volts ~ 50/60 Hz	24	42	48	110	115	220	230	240	380	400	415	440
Item	B7	D7	E7	F7	–	M7	P7	U7	Q7	V7	N7	R7

Other voltages: please consult your Regional Sales Office.
*(3) Example: **LE1 GVME06KF7A59**.*
(4) Supplied with IP 55 sealing kit.
(5) Padlockable in position "O" using Ø 4 to 8 mm shank padlocks.

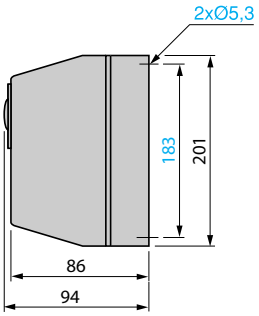
Dimensions : page 2/31
Schemes : page 2/31

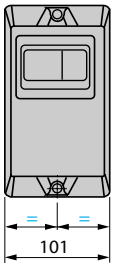
TeSys enclosed starters

D.O.L. starters for motor control, 0.37 to 5.5 kW
with thermal magnetic circuit-breaker and contactor

Dimensions

LE1 GVMEK

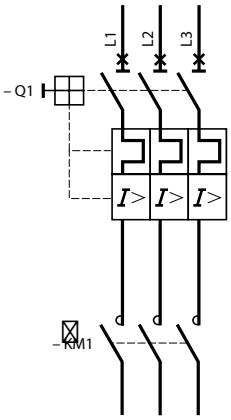


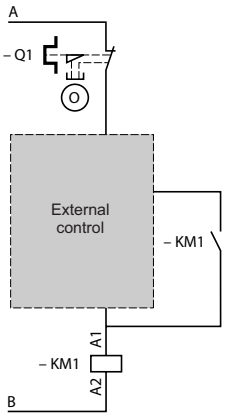


Knock-outs or blanking plugs for cable glands		
Enclosure type	**At top**	**At bottom**
	ISO	**ISO**
LE1 GV	2 x 20 or 2 x 25	2 x 20 or 2 x 25

Schemes

LE1 GVMEK





Connections	A	B
220 V, 230 V, 240 V	L3	Neutral
380 V, 400 V, 415 V, 440 V	L3	L1
Other voltages	Terminal 1	Terminal 2

References :
page 2/30

TeSys enclosed starters
Star-delta starters
5.5 to 132 kW, without isolating device *(1)*

Characteristics

Conforming to standards	IEC 60947-4-1 and IEC 60439-1, VDE 0660-102, EN 60947
Degree of protection conforming to IEC 60529	IP 659: **LE3 K** IP 657: **LE3 D09…D35** IP 557: **LE3 D405…D150**
Ambient air temperature	Operation: - 5 to + 40 °C
Operating positions	Same as that of the contactors
Material	Polycarbonate *(2)*: **LE3 K** and **LE3 D09…D35** Sheet steel: **LE3 D405…D150**

References

Maximum operating rate:
LE3 K: 12 starts/hour and LE3-D: 30 starts/hour.
Maximum starting time: 30 seconds.
LE3 D: an LAD S2 timer imposes a delay of 40 ms ± 15 ms on the delta contactor at the moment of changeover to ensure that the star contactor has sufficient breaking time.

526435



LE3 D12●●

Standard power ratings of squirrel cage motors Mains voltage - delta connection					Basic reference, to be completed by adding the voltage code *(3)*	Weight
220 V	380/400 V	415 V	440 V			
kW	kW	kW	kW			kg
3	5.5	5.5	5.5		**LE3 K065●●**	1.460
4	7.5	7.5	7.5		**LE3 K095●●**	1.460
				or	**LE3 D09●●** *(4)*	3.650
5.5	11	11	11		**LE3 D12●●**	3.650
11	18.5	22	22		**LE3 D18●●**	3.750
15	30	30	30		**LE3 D35●●**	5.160
18.5	37	37	37		**LE3 D405●●**	8.160
30	55	59	59		**LE3 D505●●**	8.150
37	75	75	75		**LE3 D805●●**	14.000
63	110	110	110		**LE3 D115●●**	24.500
75	132	132	147		**LE3 D150●●**	24.500

(1) Overload protection must be provided by a thermal overload relay, to be ordered separately. Select appropriate overload relay for setting at 0.58 of the full load rated motor current, see pages 6/20 to 6/23.
(2) Avoid placing this material in contact with harsh substances (detergents, chlorine solvents, ketones, alcohol, aromatic hydrocarbons).
(3) Standard control circuit voltages.

Volts ∼ 50/60 Hz	24	42	48	110	115	220	230	240	380	400	415	440
LE3 K	B7	D7	E7	F7	–	M7	P7	U7	–	–	–	–
LE3 D	B7	D7	E7	F7	FE7	M7	P7	U7	Q7	V7	N7	R7

Other voltages: please consult your Regional Sales Office.
(4) Selection according to dimensions and the number of operating cycles, please consult your Regional Sales Office.

Dimensions : page 2/34
Schemes : page 2/35

Schneider Electric

TeSys enclosed starters
Star-delta starters
5.5 to 132 kW, without isolating device

526436



LE3 D12●●A04

526437



LE3 D12●●A05

Description

The standard version comprises:

■ LE3 K and LE3 D09…D35:
□ 1 green Start button “I”,
□ 1 red Stop/Reset button “O”.

■ LE3 D405…D150:
□ no pushbuttons on cover.

Variants (pre-assembled)

Description	Application	Suffix to be added to the starter reference *(1)*
No pushbuttons on cover	LE3 D09…D35	**A04**
1 green Start button “I” **1 red Stop/Reset button “O”**	LE3 D405…D150	**A06**
1 blue Reset button “R”	LE3 D09…D805	**A05**
1 neutral terminal Fitted as standard on starters LE3 D115 and D150	LE3 K065 and K095 LE3 D09…D805	**A59**
Mechanical interlock Fitted as standard on starters LE3 K and LE3 D09…D35	LE3 D405 to D150	**A64**

(1) Example: LE3 D09F7A04

Other versions

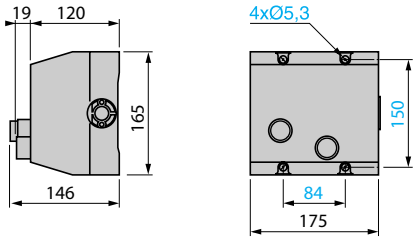
Possible combinations of 2 variants.
Please consult your Regional Sales Office.

Schemes :
page 2/35

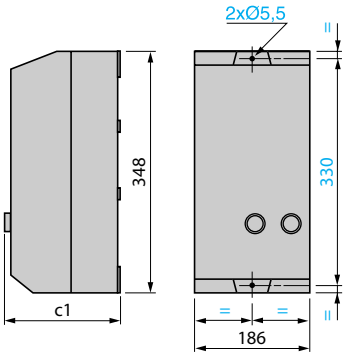
TeSys enclosed starters
Star-delta starters
5.5 to 132 kW, without isolating device

Dimensions

LE3 K065, K095

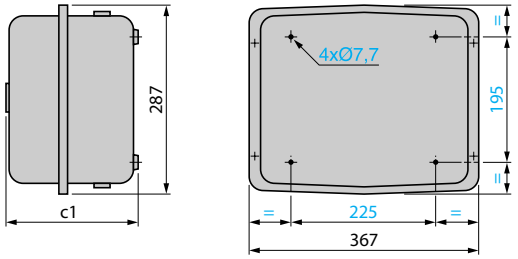


LE3 D09…D35

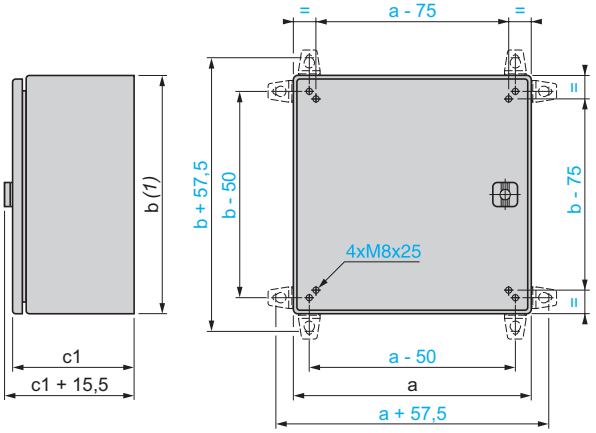


	c1
Standard version	175.5
Variant A04	167
Variant A05	175.5

LE3 D405 and D505



LE3 D805…D150



	c1
Standard version	190
Variant A05	194
Variant A06	194

LE3	a	b
D805	400	400
D1155	500	600
D1505	500	600

(1) + 14 mm with blanking plugs.

	c1	
LE3	**D805**	**D115, D150**
Standard version	202	252
Variant A05	218	
Variant A06	218	268

Knock-outs or blanking plugs for cable glands

Type of enclosure	At top		At bottom	
	PG	ISO	PG	ISO
LE3 D09…D35	–	2 x 20 or 2 x 25 or 2 x 32 or 2 x 40	–	2 x 20 or 2 x 25 or 2 x 32 or 2 x 40
LE3 D405	1 x 29	1 x 32	1 x 29, 2 x 13 and 2 x 21	1 x 32, 2 x 20 and 2 x 25
LE3 D505	1 x 36	1 x 40	1 x 36, 2 x 13 and 2 x 29	1 x 40, 2 x 20 and 2 x 32
LE3 D805	1 x 36	1 x 40	2 x 13 and 3 x 36	2 x 20 and 3 x 40
LE3 K	2 x 13 and 2 x 16	4 x 20	2 x 13 and 2 x 16	4 x 20

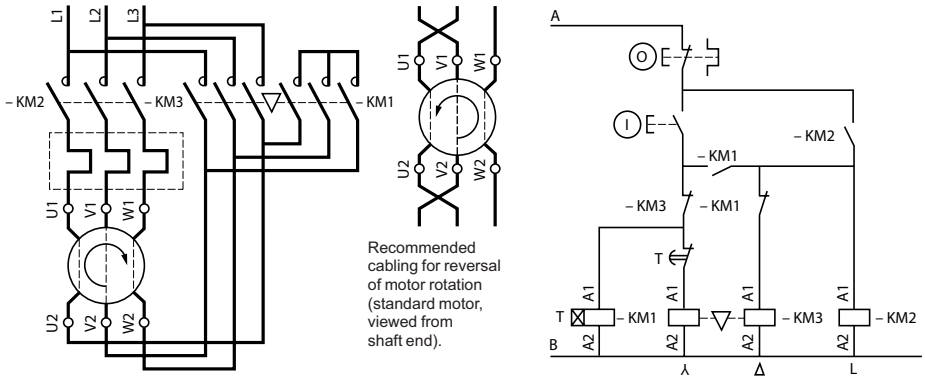
References :
pages 2/32 and 2/33

Schemes :
page 2/35

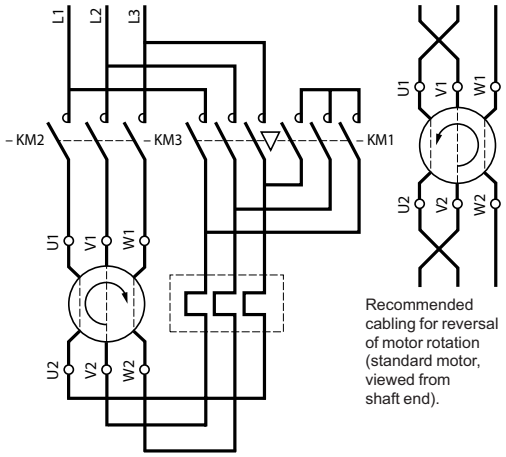
TeSys enclosed starters
Star-delta starters
5.5 to 132 kW, without isolating device

Schemes

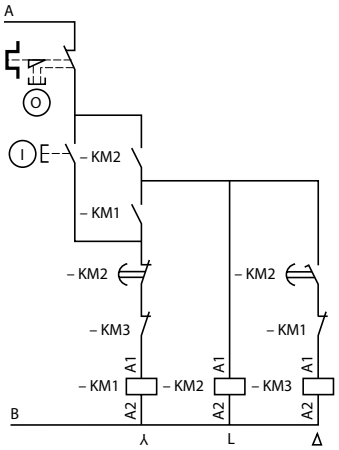
LE3 K065 and K095



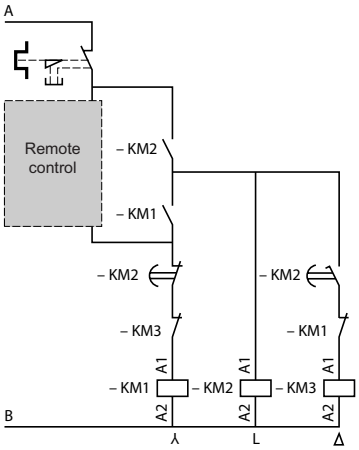
LE3 D09…D805



LE3 D09…D35

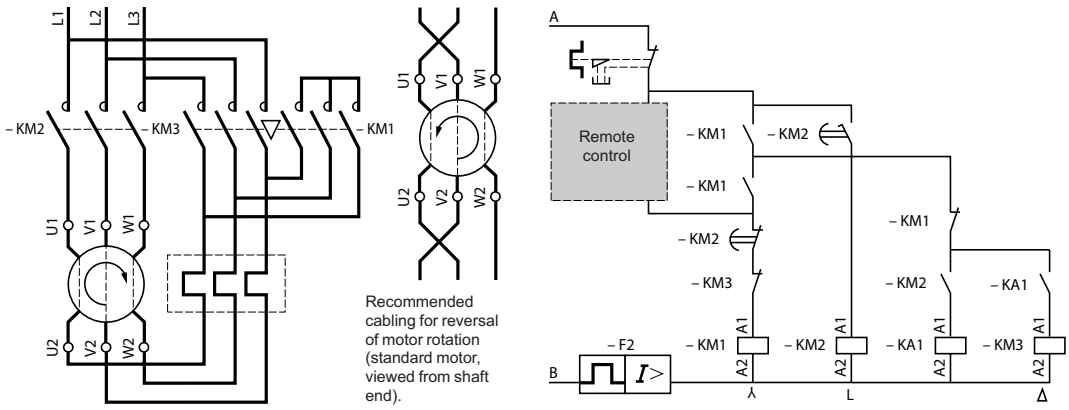


LE3 D405…D805



Note : *in accordance with current installation regulations, short-circuit protection must be provided by fuses or a circuit-breaker.*

LE3 D115 and D150



Connections		A	B
220 V, 230 V, 240 V	LD09 and D12	L3	Neutral
	LE3 D18 to D150	L3	Neutral terminal
380 V, 400 V, 415 V, 440 V	All products	L3	L1
Other voltages	LE3 D09…D35	Terminal 1	Terminal 2
	LE3 K and LE3 D405…D150	Direct connection	

References : pages 2/32 and 2/33
Dimensions : page 2/34

TeSys enclosed starters
Star-delta starters *(1)*
7.5 to 75 kW with isolating device

Characteristics

Conforming to standards	IEC 60947-4-1 and IEC 60439-1, VDE 0660-102, EN 60947
Degree of protection conforming to IEC 60529	IP 657: **LE6 D09…D18** IP 557: **LE3 D326…D806**
Ambient air temperature	Operation: - 5 to + 40 °C
Operating positions	Same as that of the contactors
Material	Polycarbonate *(2)*: **LE6 D** Sheet steel: **LE3 D**

References

Maximum operating rate: 30 starts/hour.
Maximum starting time: 30 seconds.
An LA2 DS2 timer imposes a delay of 40 ms ± 15 ms on the delta contactor at the moment of changeover to ensure that the star contactor has sufficient breaking time.

511549



LE6 D12●●

Standard power ratings of squirrel cage motors. Mains voltage - Delta connection				Fuses to be fitted by the customer		Basic reference, to be completed by adding the voltage code *(3)*	Weight
220 V	380 V 400 V	415 V	440 V	Size	Type aM		
kW	kW	kW	kW		A		kg
4	7.5	7.5	7.5	10 x 38	20	**LE6 D09●●**	3.900
5.5	11	11	11	10 x 38	25	**LE6 D12●●**	3.900
11	18.5	22	22	14 x 51	40	**LE6 D18●●**	4.850
15	30	30	30	22 x 58	63	**LE3 D326●●**	7.650
18.5	37	37	37	22 x 58	80	**LE3 D406●●**	16.900
30	55	59	59	22 x 58	125	**LE3 D506●●**	17.000
37	75	75	75	0	160	**LE3 D806●●**	27.500

(1) Overload protection must be provided by a thermal overload relay, to be ordered separately. Select appropriate overload relay for setting at 0.58 of the full load rated motor current, see pages 6/20 to 6/23.
(2) Avoid placing this material in contact with harsh substances (detergents, chlorine solvents, ketones, alcohol, aromatic hydrocarbons).
(3) Standard control circuit voltages.

Volts	**24**	**42**	**48**	**110**	**115**	**220**	**230**	**240**	**380**	**400**	**415**	**440**
50/60 Hz	B7	D7	E7	F7	FE7	M7	P7	U7	Q7	V7	N7	R7

Other voltages: please consult your Regional Sales Office.

Dimensions: page 2/38
Schemes: page 2/39

TeSys enclosed starters
Star-delta starters
7.5 to 75 kW, with isolating device

526438



LE6 D12●●A04

526439



LE6 D12●●A05

Description

The standard version comprises:

■ LE6 D09…D18:
□ 1 green Start button “I”,
□ 1 red Stop/Reset button “O”.

■ LE3 D326…D806:
□ no pushbuttons on cover

Protection	Power circuit	Control circuit
LE6 D09 and D12	1 3-pole isolating device	+ 1 additional pole
LE6 D18…LE3 D806	1 3-pole isolating device	+ 1 circuit-breaker GB2 CB08

Variants (pre-assembled)

Description	Application	Suffix to be added to the starter reference *(1)*
No pushbuttons on cover	LE6 D09…D18	**A04**
1 green Start button “I” 1 red Stop/Reset button “O”	LE3 D326…D806	**A06**
1 blue Reset button “R”	LE6 D09…LE3 D806	**A05**
1 neutral terminal	LE6 D09…LE3 D806	**A59**
Mechanical interlock Fitted as standard on starters LE6 D09…D18	LE3 D326…D806	**A64**

(1) Example: ***LE6 D09F7A04****.*

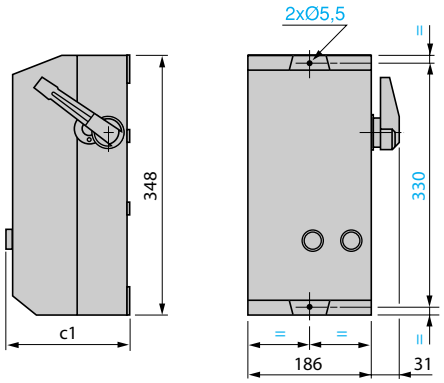
Dimensions:
page 2/38

Schemes:
page 2/39

TeSys enclosed starters
Star-delta starters
7.5 to 75 kW, with isolating device

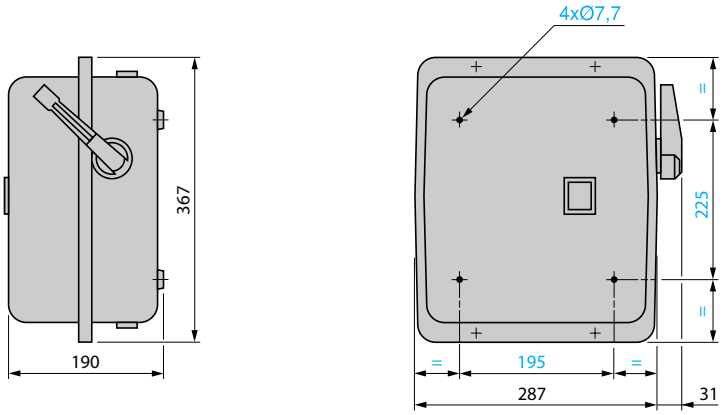
Dimensions

LE6 D09…D18

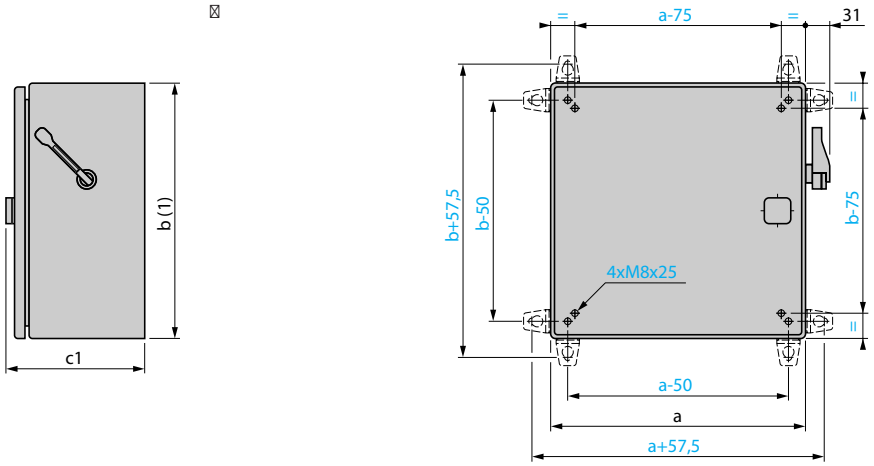


	c1
Standard version	175.5
Variant A04	167
Variant A05	175.5

LE3 D326



LE3 D406…D806



LE3	a	b	c1
D406, D506	400	500	218
D806	500	700	269

(1) + 14 mm with blanking plugs.

Knock-outs or blanking plugs for cable glands

Type of enclosure	At top		At bottom	
	PG	ISO	PG	ISO
LE6 D09…D18	–	2 x 20 or 2 x 25 or 2 x 32 or 2 x 40	–	2 x 20 or 2 x 25 or 2 x 32 or 2 x 40
LE3 D326	1 x 21	1 x 32	2 x 13, 2 x 16 and 1 x 21	2 x 20, 2 x 25 and 1 x 32
LE3 D406	1 x 29	1 x 32	2 x 13, 2 x 21 and 1 x 29	2 x 20, 2 x 25 and 1 x 32
LE3 D506	1 x 36	1 x 40	2 x 13, 2 x 29 and 1 x 36	1 x 40, 2 x 20 and 2 x 32
LE3 D806	1 x 36	1 x 40	2 x 13 and 3 x 36	2 x 20 and 3 x 40

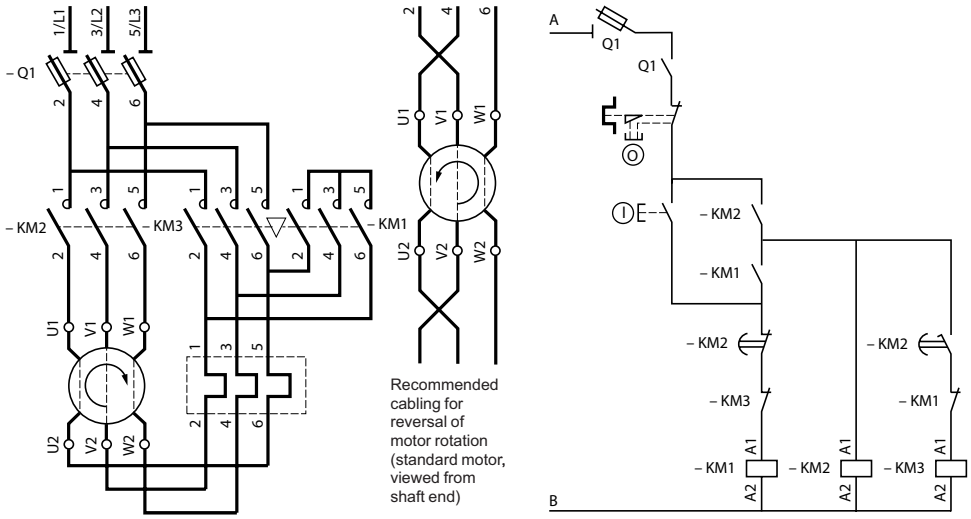
References :
pages 2/36 and 2/37

Schemes :
page 2/39

TeSys enclosed starters
Star-delta starters
7.5 to 75 kW, with isolating device

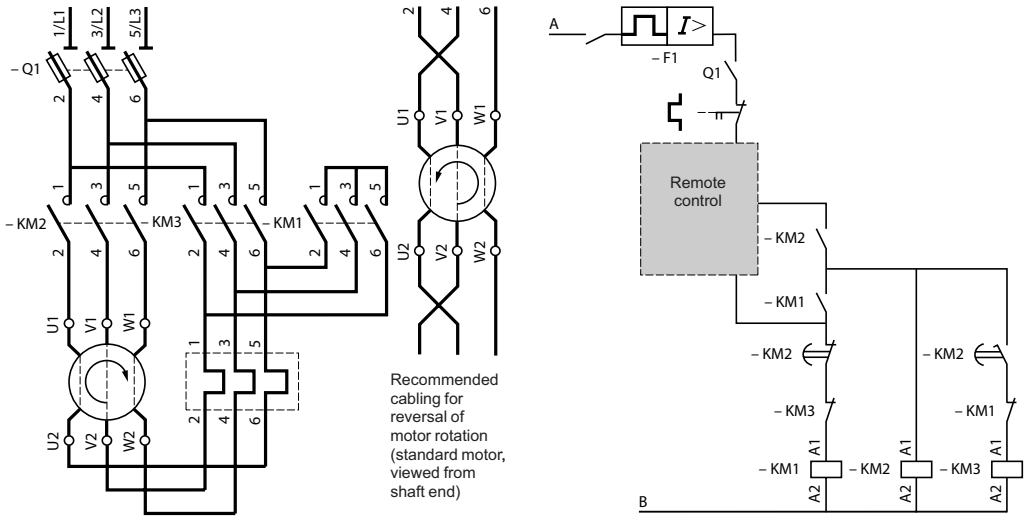
Schemes

LE6 D09…D18



Recommended cabling for reversal of motor rotation (standard motor, viewed from shaft end)

LE3 D326…D806

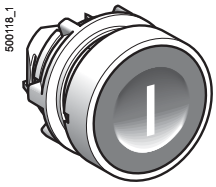


Recommended cabling for reversal of motor rotation (standard motor, viewed from shaft end)

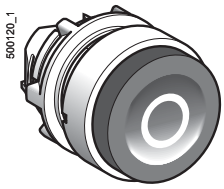
Connections		A	B
220 V, 230 V, 240 V	LE6 D09 and D12	L3	Neutral
	LE6 D18…LE3 D806	L3	Neutral terminal
380 V, 400 V, 415 V, 440 V	All products	L3	L1
Other voltages	LE6 D09…D18	Terminal 1	Terminal 2
	LE3 D326…D806	Direct connection	

References : pages 2/36 and 2/37
Dimensions : page 2/38

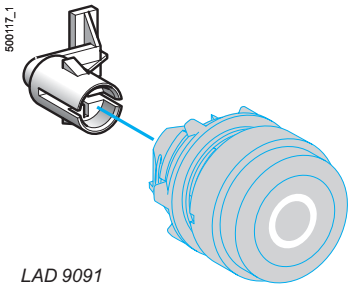
TeSys enclosed starters
Replacement parts for starters without isolating device



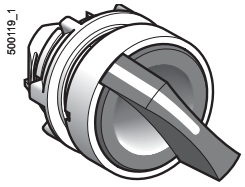
ZB5 AA331



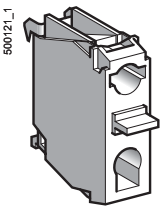
ZB5 AL432



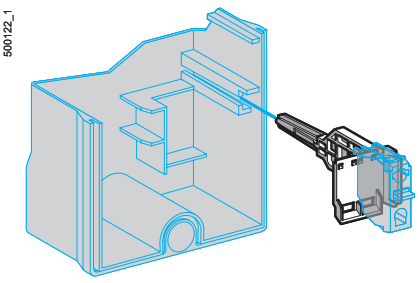
LAD 9091



ZB5 AD●



ZEN L1111



LAD 91809

Heads for Start and Stop/Reset pushbuttons

Description	For use on	Unit reference	Weight kg
Flush, green "I" *(1)*	LE1 D09...D35	**ZB5 AA331**	0.018
Projecting, red "O" *(1)*	LE1 D09...D35	**ZB5 AL432**	0.019
Adaptation kit for head ZB5 AL432	LE1 D09 and D12	**LAD 9091**	0.002
	LE1 D18...D35	**LAD 91810**	0.003

Heads for Reset pushbuttons

Flush, blue "R" *(2)*	LE1 D09...D35	**ZB5 AA0**	0.022
		+ **ZBA 639** *(3)*	0.001
Adaptation kit for head ZB5 AA0 + ZBA 639	LE1 D09 and D12	**LAD 9092**	0.002
	LE1 or LE2 D18...D35	**LAD 91810**	0.003
	LE3, LE6, LE4 or LE8 D09...D35	**LAD 9T4**	0.004

Heads for selector switches

3-position stay put	LE1 D09...D35	**ZB5 AD3**	0.024
2-position stay put	LE1 D09...D35	**ZB5 AD2**	0.024
3-position spring return to centre	LE1 D09...D35	**ZB5 AD5**	0.024

Contact blocks

1 N/O spring return	LE1 D09...D35	**ZEN L1111**	0.010
1 N/C spring return	LE1 D09...D35	**ZEN L1121**	0.010
Mounting for contact block	LE1 D09 and D12	**LAD 90909**	0.008
	LE● D18...D35 *(4)*	**LAD 91809**	0.014

(1) Remember to order adaptation kit LAD 9091 or LAD 91810, depending on size.
(2) Remember to order adaptation kit LAD 9092.
(3) Sold in lots of 10.
(4) LE1, LE2, LE3, LE4, LE6 or LE8.

TeSys enclosed starters

Replacement parts for starters without isolating device

511551



DE1 DS1A04

511552



DE1 DS1A05

511553



DE1 DS1

511554



DE1 DS1A13

Empty enclosures for D.O.L. starters without isolating device

Designed for use with	Head(s) mounted on cover	Reference	Weight kg
LE1 D09 and D12	Without	**DE1 DS1A04**	0.300
	1 flush blue head “R”	**DE1 DS1A05**	0.300
	1 flush green head “I” 1 projecting red head “O”	**DE1 DS1**	0.300
	1 flush blue head “R” 1 switch	**DE1 DS1A13**	0.300
LE1 D18...D35	Without	**DE1 DS2A04**	0.500
	1 flush blue head “R”	**DE1 DS2A05**	0.500
	1 flush green head “I” 1 projecting red head “O”	**DE1 DS2**	0.500
	1 flush blue head “R” 1 switch	**DE1 DS2A13**	0.500

TeSys enclosed starters

Star-delta starters (1)
90 to 375 kW, without isolating device

533866



533867



LE3 F●●●●●

Star-delta starters

Maximum operating rate: 12 starts/hour.
Maximum starting time: 20 seconds

Standard power ratings of squirrel cage motors Mains voltage - delta connection				Basic reference, to be completed by adding the voltage code (2) (3)	Weight
220 V	380 V	415 V	440 V		
kW	kW	kW	kW		kg
90	160	160	185	**LE3 F185●●**	31.400
100	200	200	220	**LE3 F225●●**	33.000
110	220	220	250	**LE3 F265●●**	50.800
160	280	280	315	**LE3 F330●●**	80.000
185	315	355	375	**LE3 F400●●**	82.000

Specifications

Enclosure	LE3 F185…F400	Metal, degree of protection IP 559
No pushbuttons on cover	LE3 F185…F400	–
Connections	LE3 F185…F400	Pre-wired power and control circuit connections

Variants (pre-assembled)

Description	For use on	Suffix to be added to the starter reference (4)
1 green Start button “I” 1 red Stop/Reset button “O”	LE3 F185…F400	**A06**

(1) Overload protection must be provided by a thermal overload relay, to be ordered separately. Select appropriate overload relay for setting at 0.58 of the full load rated motor current, see pages 6/34 and 6/35.
(2) Standard control circuit voltages.

Volts	48	110	220/230	230	240	380/400	400	415
50/60 Hz	E7	F7	M7	P7	U7	Q7	V7	N7

For other voltages, see pages 5/130 to 5/139.
(3) LC1 F185 and F225: contactors fitted with LX9 F coils, LC1 F265…F400: contactors fitted with LX1 F coils.
*(4) Example: **LE3 F185M7A06**.*

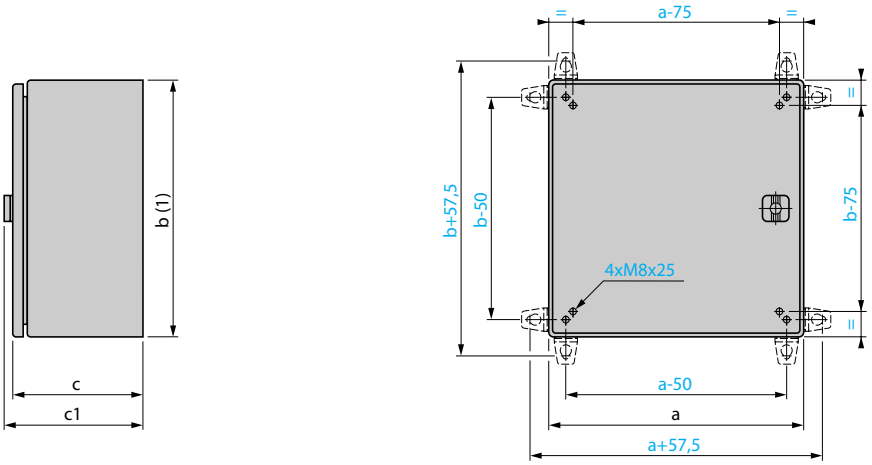
Other versions

Possible combinations of 2 variants.
Please consult your Regional Sales Office.

Dimensions : page 2/43
Schemes : page 2/43

TeSys enclosed starters
Star-delta starters
90 to 375 kW, without isolating device

Dimensions
LE3 F●●●

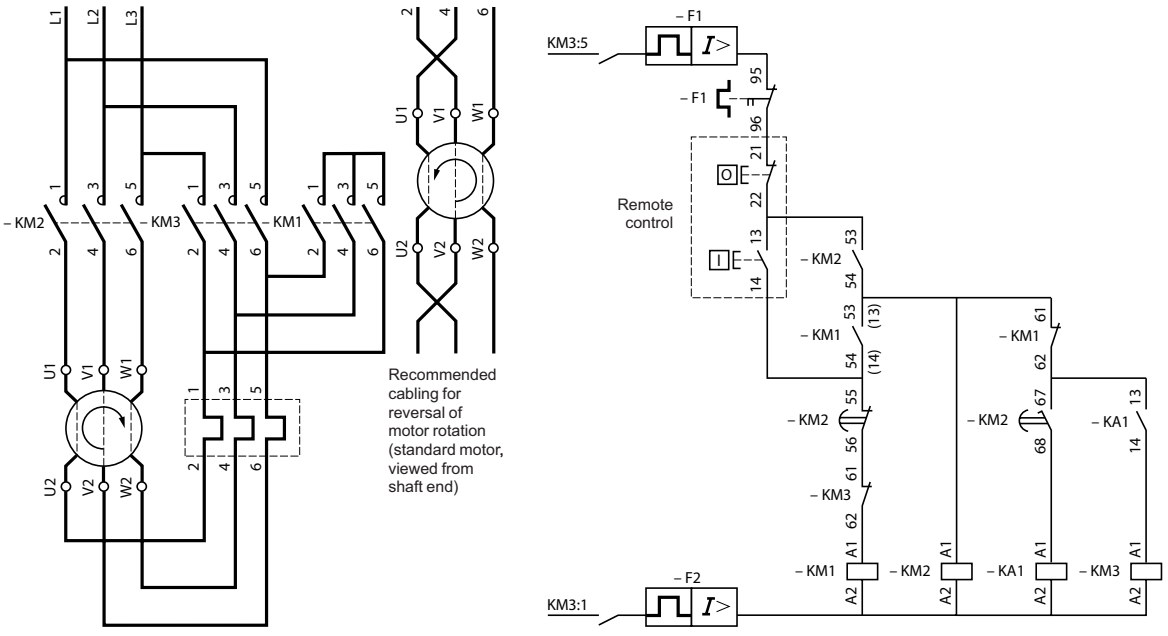


LE3	a	b *(1)*	c	c1
F185, F225	600	700	303	319
F265	700	900	303	319
F330, F400	800	1000	403	419

(1) + 14 mm with blanking plugs.

Knock-outs or blanking plugs for cable glands		
Type of enclosure	**At top**	**At bottom**
LE3 F185, F225	2 x 48 P	2 x 13 P and 4 x 48 P
LE3 F265…400	–	–

Schemes
LE3 F●●●



Note : *in accordance with current installation regulations, each starter must be provided with short-circuit protection by fuses or a circuit-breaker.*

References :
page 2/42

TeSys enclosed starters

Equipment for control in utilisation category AC-1 *(1) (2)*, without isolating device

511550



LE1 D123

526421



LE1 D405

References

Operational current up to	Minimum c.s.a. of phase conductors	Fuses to be fitted separately		For use with relay LR2 D or kit LA9 D (to be ordered separately)	Basic reference, to be completed by adding the voltage code *(3)*	Weight
		aM	gG			
A	mm²	A	A			kg
16	2.5	–	16	**LA9 D1275** *(4)*	**LE1 D123●●**	0.920
17.5	1.5	20	–	**LR2 D1321** *(2)*	**LE1 D123●●**	0.920
24	2.5	25	–	**LR2 D1322** *(2)*	**LE1 D255●●**	1.015
32	6	–	32	**LA9 D0975** *(4)*	**LE1 D255●●**	1.015
50	10	–	50	**–**	**LE1 D405●●A04** *(5)*	4.820
57	10	63	–	**LR2 D3359** *(2)*	**LE1 D405●●**	4.820
63	16	–	63	**–**	**LE1 D655●●A04** *(5)*	4.850
76	16	80	–	**LR2 D3363** *(2)*	**LE1 D655●●**	4.850
90	25	100	–	**LR2 D3365** *(2)*	**LE1 D805●●**	5.140
100	35	–	100	**–**	**LE1 D805●●A04** *(5)*	5.140

Specifications

Enclosure	LE1 D12	Double insulated, degree of protection IP 659
	LE1 D25	Double insulated, degree of protection IP 557
	LE1 D40...D80	Metal, degree of protection IP 559
Control (2 pushbuttons mounted on enclosure cover)	LE1 D12…D80	1 green Start button “I” 1 red Stop/Reset button “O”
No pushbuttons on cover	LE1 D●●●●●A04	
Connections	LE1 D12…D80	Pre-wired control circuit connections

(1) 3-phase 220/230 V, 240 V, 380/400 V or 415 V 50/60 Hz. 3-core or 3 Ph + N (unprotected neutral) insulated PVC cable, fixed to walls, ceilings, in cable racks or ducting, laid singly, ambient temperature ⩽ 35 °C, conforming to NF C 15-100.
*(2) Order the required **LR2 D** thermal overload relay separately, for use on balanced circuits only.*
*(3) Control circuit voltage 50/60 Hz 220/230 V (code **M7**) or 380/400 V (code **Q7**).*
*(4) As protection is provided by type gG fuses only, the Stop function normally provided by the thermal overload relay (where aM type fuses are used) can be obtained by means of kit **LA9 D●●75**.*
(5) Equipment supplied without pushbuttons; external Start-Stop station required.

Dimensions : page 2/46
Schemes : page 2/47

TeSys enclosed starters

Equipment for control in utilisation category AC-1 (1) (2), without isolating device

Variants (pre-assembled)

Description	Application	Suffix to be added to the starter reference (3)
No pushbuttons on cover	LE1 D12 and D25	**A04**
1 blue Reset button "R"	LE1 D12…D80	**A05**
1 green Start button "I" and 1 red Stop button "O" with 1 N/C contact (for distribution circuits without thermal overload relay)	LE1 D12 and D25	**A07**
1 2-position selector switch "O-I" ("O": Stop; "I": Manual Start) 1 blue Reset button "R"	LE1 D12	**A13**
Knock-outs for 4 x 16 mm plastic cable glands (instead of 4 x 13 mm plastic glands)	LE1 D12	**A20**
1 neutral terminal (for 3-phase + N circuits)	LE1 D12…D80	**A59**

Accessories (for customer assembly)

Description		For use on	Reference	Weight kg
Start pushbutton latching device for stay put operation (Start-Stop)		LE1 D25…D65	**LA9 D09907**	0.060
Kits to provide Stop function without thermal overload relay fitted		LE1 D12	**LA9 D1275**	0.040
		LE1 D25	**LA9 D0975**	0.020
Miniature control circuit fuse holder size 5 x 20, 4 A/250 V Fuse supplied		LE1 D12	**LA9 D931**	0.040
		LE1 D25	**LA9 D941**	0.025
Pilot light with neon bulb, red lens and locking ring	110 V	LE1 D12 and D25	**LA9 D924**	0.020
	220 V	LE1 D12 and D25	**LA9 D925**	0.020
	380, 415 V	LE1 D12 and D25	**LA9 D926**	0.020
1 front-mounting block of 2 auxiliary contacts, please consult your Regional Sales Office		LE1 D12… D80	**LA1 DN●●**	0.030

(1) 3-phase 220/230 V or 380/400 V 50/60 Hz. 3-core or 3 Ph + N (unprotected neutral) insulated PVC cable, fixed to walls, ceilings, in cable racks or ducting, laid singly, ambient temperature ≤ 35 °C, conforming to NF C 15-100.
*(2) Order the required **LR2 D** thermal overload relay separately, for use on balanced circuits only.*
*Example: **LE1 D123M7A04**.*

Other versions

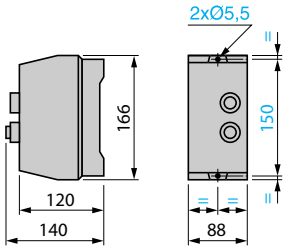
Possible combinations of 2 variants.
Please consult your Regional Sales Office.

Schemes :
page 2/47

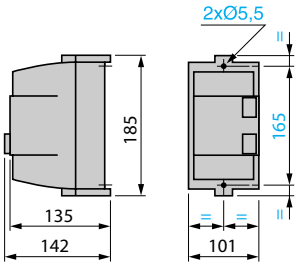
TeSys enclosed starters
D.O.L. starters and equipment, without isolating device

Dimensions

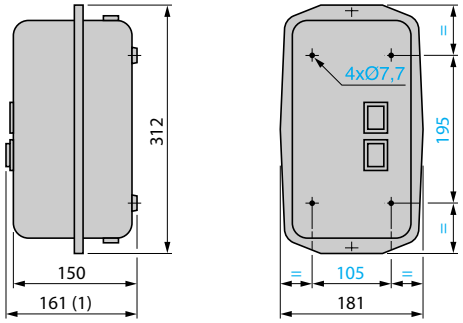
LE1 D123



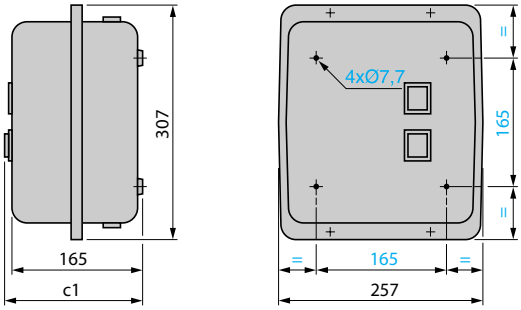
LE1 D255



LE1 D405, D655



LE1 D805



(1) 150 for LE1 D●●●●●A04 (without pushbuttons).

Knock-outs or blanking plugs for cable glands

Type of enclosure	At top	At bottom
LE1 D123	2 x 13 P	2 x 13 P
LE1 D255	1 x 13 P and 1 x 16 P	2 x 16 P
LE1 D405 and LE1 D655	1 x 13 P and 1 x 29 P	1 x 13 P and 2 x 29 P
LE1 D805	1 x 13 P and 1 x 36 P	1 x 13 P and 2 x 36 P

References : pages 2/44 and 2/45
Schemes : page 2/47

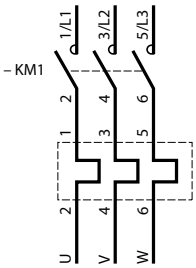
Schneider Electric

TeSys enclosed starters
D.O.L. starters and equipment,
without isolating device

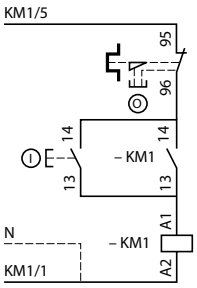
Schemes

D.O.L. starters and equipment for control in category AC-1

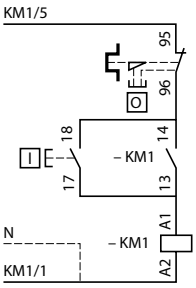
LE1 D123...D805, LE1 D●●●●●A04



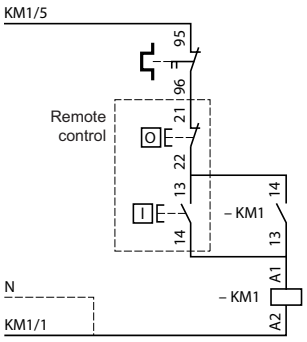
LE1 D123



LE1 D255...D805



LE1 D●●●●●A04, LE1 D●●●●●A05



References :
pages 2/44 and 2/45

Dimensions :
page 2/46

TeSys enclosed starters

Equipment for control in utilisation category AC-1 *(1) (2)*, with isolating device

526419



LE4 D126

526420



LE4 D406

References

Operational current up to	Minimum c.s.a. of phase conductors	Fuses to be fitted by the customer			For use with relay LR2 D or kit LA9 D (to be ordered separately)	Basic reference, to be completed by adding the voltage code *(3)*	Weight
		Size	Type				
			aM	gG			
A	mm^2		A	A			kg
16	2.5	10 x 38	–	16	**LA9 D0975** *(4)*	**LE4 D126●●**	1.960
17.5	1.5	10 x 38	20	–	**LR2 D1321** *(2)*	**LE4 D126●●**	1.960
20	2.5	10 x 38	–	20	**LA9 D0975** *(4)*	**LE4 D256●●**	2.200
22	2.5	10 x 38	25	–	**LR2 D1322** *(2)*	**LE4 D256●●**	2.200
40	10	14 x 51	–	40	**–**	**LE4 D406●●A04** *(5)*	5.770
45	10	14 x 51	50	–	**LR2 D3357** *(2)*	**LE4 D406●●**	5.770
63	16	22 x 58	–	63	**–**	**LE4 D656●●A04** *(5)*	6.670
76	16	22 x 58	80	–	**LR2 D3363** *(2)*	**LE4 D656●●**	6.670
90	25	22 x 58	100	–	**LR2 D3365** *(2)*	**LE4 D806●●** *(5)*	7.100
100	35	22 x 58	–	100	**–**	**LE4 D806●●** *(5)*	7.100

Specifications

Enclosure	LE4 D12 and D25	Double insulated, degree of protection IP 557
	LE4 D40…D80	Metal, degree of protection IP 559
Control (2 pushbuttons mounted on enclosure cover)	LE4 D12…D65	1 green Start button “I”
		1 red Stop/Reset button “O”
No pushbuttons on cover	LE4 D●●●●● A04 LE4 D80	–
Isolating device with external operator	LE4 D12 and D25	1 3-pole isolator + 1 additional pole
	LE4 D40…D80	1 3-pole isolator and 1 circuit breaker GB2 CB08
Connections	LE4 D12…D80	Pre-wired power and control circuit connections

(1) 3-phase 220/230 V or 380/400 V 50/60 Hz. 3-core or 3 Ph + N (unprotected neutral) insulated PVC cable, fixed to walls, ceilings, in cable racks or ducting, laid singly, ambient temperature ≤ 35 °C, conforming to NF C 15-100.
*(2) Order the required **LR2 D** thermal overload relay separately, for use on balanced circuits only.*
*(3) Control circuit voltage 50/60 Hz 220/230 V (code **M7**) or 380/400 V (code **Q7**).*
*(4) As protection is provided by type gG fuses only, the Stop function normally provided by the thermal overload relay (where aM type fuses are used) can be obtained by means of kit **LA9 D0975**.*
(5) Equipment supplied without pushbuttons; external Start-Stop station required.

Dimensions : page 2/50
Schemes : page 2/51

TeSys enclosed starters

Equipment for control in utilisation category AC-1 *(1) (2)*, with isolating device

Variants (pre-assembled)

Description	For use on	Suffix to be added to the starter reference *(3)*
No pushbuttons on cover	LE4 D12 and D25	**A04**
1 blue Reset button "R"	LE4 D12…D80	**A05**
1 green Start button "I" and 1 red Stop button "O" with 1 N/C contact (for distribution circuits without thermal overload relay)	LE4 D12 and D25	**A07**
1 neutral terminal (for 3-phase + N circuits)	LE4 D12…D80	**A59**

Accessories (for customer assembly)

Description		For use on	Reference	Weight kg
Start button latching device for stay put operation (Start-Stop)		LE4 D12…D65	**LA9 D09907**	0.060
Kit to provide Stop function without thermal overload relay fitted		LE4 D12 and D25	**LA9 D0975**	0.020
Miniature control circuit fuse holder size 5 x 20, 4 A/250 V Fuse supplied		LE4 D12 and D25	**LA9 D941**	0.025
Pilot light with neon bulb, red lens and locking ring	110 V	LE4 D12 and D25	**LA9 D924**	0.020
	220 V	LE4 D12 and D25	**LA9 D925**	0.020
	380, 415 V	LE4 D12 and D25	**LA9 D926**	0.020
1 front-mounting block of 2 auxiliary contacts, please consult your Regional Sales Office		LE4 D12…D80	**LA1 DN●●**	0.030

(1) 3-phase 220/230 V or 380/400 V 50/60 Hz. 3-core or 3 Ph + N (unprotected neutral) insulated PVC cable, fixed to walls, ceilings, in cable racks or ducting, laid singly, ambient temperature ≤ 35 °C, conforming to NF C 15-100.
*(2) Order the required **LR2 D** thermal overload relay separately, for use on balanced circuits only.*
*(3) Example: **LE4 D126M7A04**.*

Other versions

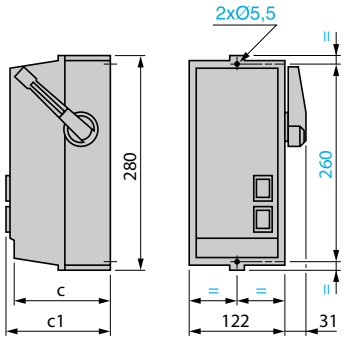
Possible combinations of 2 variants.
Please consult your Regional Sales Office.

Schemes :
page 2/51

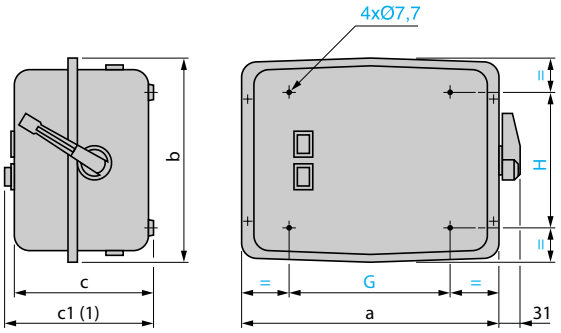
TeSys enclosed starters
D.O.L. starters and equipment,
with isolating device

Dimensions

LE4 D126, D256



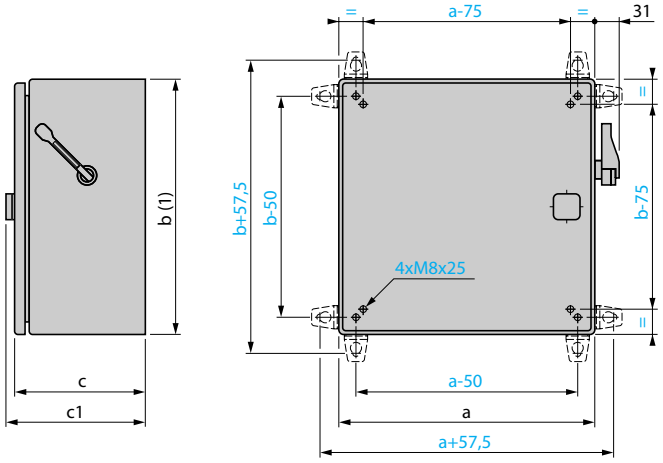
LE4 D406, D656



LE4	c	c1
D126	132	139
D256	144	151

(1) c1 = c for LE4 D●●●●●A04 (without pushbuttons).

LE4 D806



(1) + 14 mm with blanking plugs.

Knock-outs or blanking plugs for cable glands

Type of enclosure	At top	At bottom
LE4 D126	2 x 13 P	2 x 13 P
LE4 D256	1 x 13 P and 1 x 16 P	2 x 16 P
LE4 D406	1 x 13 P and 1 x 21 P	1 x 13 P and 2 x 21 P
LE4 D656	1 x 13 P and 1 x 29 P	1 x 13 P and 2 x 29 P
LE4 D806	1 x 13 P and 1 x 36 P	1 x 13 P and 2 x 36 P

References :
pages 2/48 and 2/49

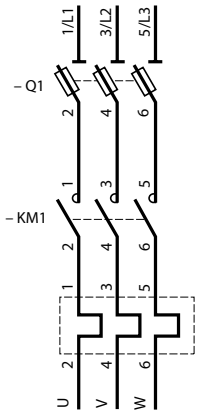
Schemes :
page 2/51

TeSys enclosed starters
D.O.L. starters and equipment,
with isolating device

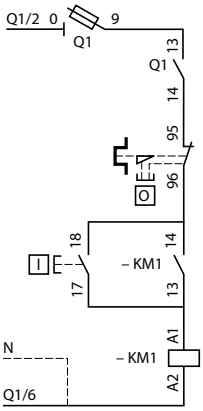
Schemes

D.O.L. starters and equipment for control in category AC-1

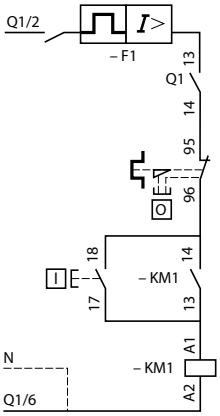
LE4 D126…D806, LE4 D●●●●●A04



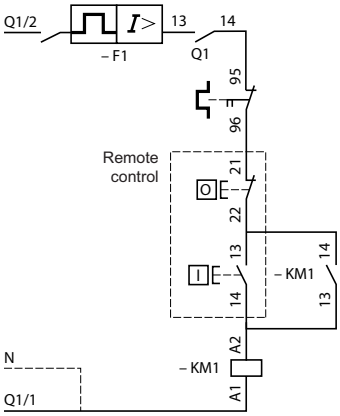
LE4 D126 and D256



LE4 D406 and D656



LE4 D806, LE4 D●●●●●A04 and D●●●●●A05



References :
pages 2/48 and 2/49

Dimensions :
page 2/50

TeSys enclosed starters
integral 63 contactor breakers
and reversing contactor breakers,
for customer assembly

526411



DE1 LT315

Empty metal enclosure

Type of enclosure	For use on integral	Reference	Weight kg
Degree of protection IP 54 with drillings for door interlock mechanism (interlock not supplied), for customer assembly *(1)*	LD1 LD or LD4 LD	**DE1 LT315**	3.510

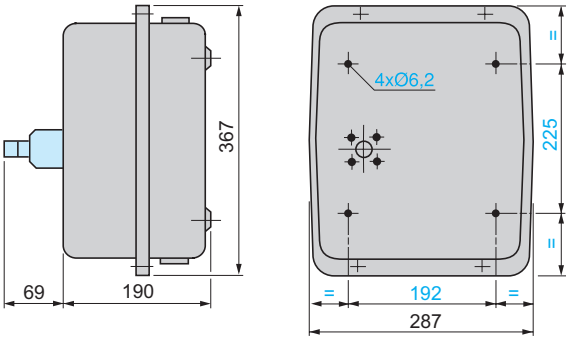
Door interlock mechanisms (IP 54)

Type	For use on enclosure	Colour of knob	Reference	Weight kg
Non-adjustable	DE1 LT315 (LD1)	Red	**LA9 LC320**	0.200
		Black	**LA9 LC321**	0.200
	DE1 LT315 (LD4)	Red	**LA9 LC520**	0.200
		Black	**LA9 LC521**	0.200

(1) Enclosures supplied with drillings and fitted with removable blanking plugs, for addition of cable glands (to be ordered separately): for number and diameters, see page 2/53.

Dimensions :
page 2/53

Empty metal enclosure, degree of protection IP 54



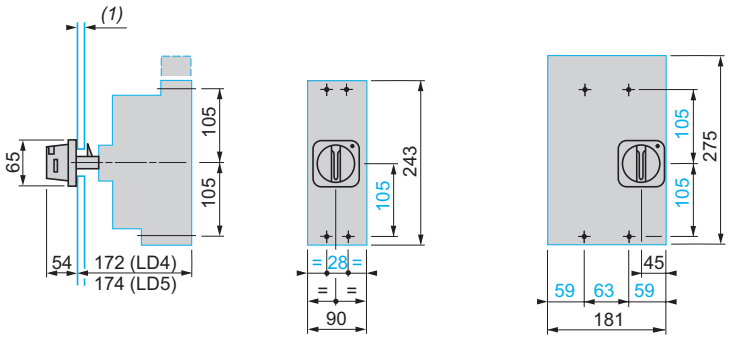
Number of blanked-off cable entries for addition of cable glands

At		Cable Ø		For cable gland	
top	bottom	min.	max.	N°	Type
1	2	10	12	13	13M
1	2	24	30	36	36M

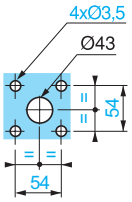
Non-adjustable door interlock mechanisms LA9 LC33● and LA9 LC53●

For mounting on LD4 LD●30 and LD5 LD●30

LD4 LD●30 **LD5 LD●30**



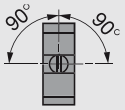
Door drillings



(1) Thickness: 5 mm max.

References :
page 2/52

TeSys enclosed starters
integral 63 contactor breakers
and reversing contactor breakers

Type				integral 63
Number of poles				3
Rated operational current (Ie)			**A**	63 in AC-3
Rated operational voltage (Ue)			**V**	690
Electrical durability, AC-43 at 415 V				1.2 million operating cycles
Mechanical durability at Uc				5 million operating cycles
Maximum operating rate at ambient temperature ≤ 55 °C	~			3600 operating cycles/hour
	⎓ With converter			600 operating cycles/hour
Environment				
Conforming to standards				IEC: 60947-1, 60047-2, 60947-3, 60947-4-1, 60947-6-2 VDE: 0100, 0110, 0113, 0170, 0171, 471, 0660 BS: 5424, 4752, 4941 NEN, NBN
Product certifications				ASE, ASEFA, ASTA, BV, CSA, DEMKO, DNV, GL, NEMKO, NKK, ÖVE, RINA, SCC, SETI, UL, USSR, LROS, PTB, SEMKO
Protective treatment				"TH"
Ambient air temperature around the device	~	Operation	**°C**	- 20…+ 60
		Storage	**°C**	- 40…+ 80
	⎓ *(1)*	Operation	**°C**	- 25…+ 50
		Storage	**°C**	- 25…+ 70
Vibration resistance Permissible acceleration	5…100 Hz			Energised state: 3 gn
				De-energised state: 3 gn
Shock resistance Permissible acceleration	Impulse duration: 11 ms			Energised state: 8 gn
				De-energised state: 8 gn
Degree of protection	Conforming to IEC 144 and 529			IP 20B
	Conforming to VDE 0106			Protection against direct finger contact
Flame resistance				Conforming to IEC 60295-2-1, NF C 20-455 and the requirement of 22-12-81 (JO 27 NC of 1st and 2/2/1982) and conforming to UL 94 - V0 and NF T 51-072
Maximum operating altitude	Without derating		**m**	3000
Operating positions (without derating)	In relation to normal vertical mounting plane			 From main axis (left-right tilt)
Control circuit characteristics				
Rated control circuit voltage (Uc)	~ 50 Hz		**V**	24…660
	~ 60 Hz		**V**	24…600
	⎓ With converter		**V**	24, 48, 110
Voltage limits at θ ≤ 55 °C	Operating			0.85…1.1 Uc
	Drop-out			0.25…0.7 Uc
Average consumption at 20 °C and at Uc	~	Inrush	**VA**	375 (50 Hz), 450 (60 Hz)
		Sealed	**VA**	25 (50 or 60 Hz)
	⎓ *(1)*	Inrush	**W**	300 for 50 ms
		Sealed	**W**	8
Heat dissipation	~ 50 Hz		**W**	8 (50 Hz) 11 (60 Hz)
Operating time *(2)* at 20 °C and at Uc	~ 50/60 Hz	"C"	**ms**	12…35
		"O"	**ms**	7…20
	⎓ *(1)*	"C"	**ms**	25…40
		"O"	**ms**	15…25

(1) With converter.
(2) The closing time "C" is measured from the moment the coil supply is switched on to initial contact of the main poles. The opening time "O" is measured from the moment the coil supply is switched off to the moment the main poles separate.

References : pages 2/56 to 2/59
Dimensions : page 2/60
Schemes : page 2/61

TeSys enclosed starters
integral 63 contactor breakers
and reversing contactor breakers

Pole characteristics

Type			integral 63				
Rated thermal current (Ith)	θ ≤ 40 °C	**A**	63				
Frequency limits of the operational current		**Hz**	40…60				
Rated impulse withstand voltage (Uimp)	Conforming to IEC 60947-4	**kV**	8				
Rated insulation voltage (Ui)	Conforming to IEC 60947-1	**V**	690				
Heat dissipation in the power circuits of the contactor breaker and its protection module	Operational current	**A**	25	32	40	50	63
	Power per pole, hot state	**W**	4.4	5	5.8	7	9
Rated making capacity	I rms conforming to IEC 60947-4	**A**	12 or 15 x Ith *(1)*				
	I peak conforming to IEC 60947-2	**kA**	105				
Rated breaking capacity conforming to IEC 60947-2	**Operational voltage**	**V**	**220/ 240**	**380/ 415**	**440**	**480/ 525**	**600/ 690**
	Value of cos φ		0.25	0.25	0.25	0.25	0.5
	Icu (O-t CO)	**kA rms**	50	50	40	35	10
	Ics (O-t-CO-t-CO)	**kA rms**	50	50	40	35	10
Conforming to IEC 60947-6-2 ensuring continuity of service	Icu = Ics (O-t-CO-t-rCO)	**kA rms**	50	50	50	30	10
			O : breaking short-circuit current (open) t : time CO : closing on short-circuit, breaking short-circuit current (closed-open) (manual) rCO : closing on short-circuit, breaking short-circuit current (remote control)				
Total breaking time		**ms**	4				
Thermal stress limit	With Isc max. at 415 V, 50 Hz	**A^2s**	300 x 10^3				
Cabling			**Maximum c.s.a.**			**Minimum c.s.a.**	
	Flexible cable without cable end	**mm^2**	1 x 50 or 2 x 35			1 x 6	
	Flexible cable with cable end	**mm^2**	2 x 25			1 x 6	
	Solid cable	**mm^2**	1 x 50			1 x 6	
Tightening torque		**N.m**	6				

Characteristics of thermal-magnetic or magnetic only protection modules

Module type			LB1 LD03P	LB1 LD03M	LB6 LD03P	LB1 LD03L
Protection	Standard motors, frequent starting, distribution circuits		Standard motors	Standard motors	Frequent starting	Distribution circuits
	Conforming to standards		IEC 60947-4 type 2 (Iq = 50 kA) and NF C			
			63-650	63-650	63-650	63-120
	Number of poles		3	3	3	3
	Number of protected poles		3	3	3	3
	Rated operational voltage	**V**	690	690	690	690
	Maximum continuous current	**A**	13…63	13…63	13…63	13…63
Thermal protection	Setting range (Irth min./Irth max.)	**A**	10/13... 45/63	10/13... 45/63	–	10/13... 45/63
	Temperature compensation	**°C**	- 20…+ 60			
	Protection against phase imbalance		With	With	Without	Without
	Tripping class		20	20	–	–
Magnetic protection conforming to IEC 60947-1/2/4/6-2	Instantaneous trip current setting range	**Irth max.**	Fixed at 15	6…12 *(2)*	6…12	3…6
	Tripping tolerance		± 20 %			

Characteristics of versions with control test function and padlocking facility

Conforming to standards			IEC 60947, NF C 63-130, VDE 0660, VDE 0113
Rated operational voltage		**V**	690
Mechanical durability	Operating cycles		10 000
Padlocking			1, 2 or 3 padlocks (shank Ø 8 mm max. and Ø 5 mm min.). When flush mounting, interlocking of the enclosure or cabinet door is possible.

(1) Above this value, the breaker trips.
(2) Usual setting range 9…10 Irth max.

References : pages 2/56 to 2/59 | Dimensions : page 2/60 | Schemes : page 2/61

TeSys enclosed starters
integral 63 contactor breakers
for control and protection of motors

526404



LD4 LD030●

3-pole contactor breakers without protection module *(1)*

Standard power ratings of 3-phase motors 50-60 Hz in category AC-43					Operational current	Breaking capacity (Iq) for Ue ≤ 415 V	Basic reference, to be completed by adding the control voltage code *(2)*	Weight
220 V 240 V	400 V 415 V	440 V	500 V	660 V				
kW	kW	kW	kW	kW	A	kA		kg
With control test function and padlocking facility								
Red knob on yellow background (CNOMO) Emergency Stop								
15	30 33	33	37	55	**63**	50	**LD4 LD030●**	3.800

526405



LD5 LD030●

3-pole reversing contactor breakers without protection module *(1)*

Standard power ratings of 3-phase motors 50-60 Hz in category AC-43					Operational current	Breaking capacity (Iq) for Ue ≤ 415 V	Basic reference, to be completed by adding the control voltage code *(2)*	Weight
220 V 240 V	400 V 415 V	440 V	500 V	660 V				
kW	kW	kW	kW	kW	A	kA		kg
With control test function and padlocking facility								
Red knob on yellow background (CNOMO) Emergency Stop								
15	30 33	33	37	55	**63**	50	**LD5 LD030●**	7.600

(1) For the unit to function, it must be fitted with a protection module, to be ordered separately, see page opposite.
(2) Standard control circuit voltages (for other voltages, please consult your Regional Sales Office):

Volts	24	36	42	48	110	120	220	230	240	380/ 400	415	440	480	500	600	660
50 Hz	B	–	D	E	F	–	M	M	U	Q	N	N	–	S	–	Y
60 Hz	BC	CC	–	CE	K	FC	LC	MC	MC	–	–	UX	Q	–	S	–
⎓ *(3)*	BD	–	–	ED	FD	–	–	–	–	–	–	–	–	–	–	–

(3) For use on d.c., the unit is supplied with 1 or 2 converters, including coil suppression devices (2 converters for reversing contactor breakers).

Characteristics : pages 2/54 and 2/55
Dimensions : page 2/60
Schemes : page 2/61

TeSys enclosed starters
integral 63 contactor breakers
Motor protection modules (for customer assembly)

533936



LB1 LD03M●●

Thermal-magnetic protection, compensated and differential for normal starting motors

Standard power ratings of 3-phase motors 50-60 Hz in category AC-3					Thermal setting range (Irth min. to Irth max.)	Magnetic setting range (6...12 Irth max)	Reference	Weight
220 V 240 V	400 V 415 V	440 V	480/ 525 V	600/ 690 V				
kW	kW	kW	kW	kW	A	A		kg
Fixed magnetic protection, set at 15 Irth max								
3	5.5	5.5	7.5	10	10...13	–	**LB1 LD03P16**	0.780
4	9	9	11	15	13...18	–	**LB1 LD03P21**	0.780
5.5	11	11	15	18.5	18...25	–	**LB1 LD03P22**	0.780
7.5	15	15	18.5	22	23...32	–	**LB1 LD03P53**	0.780
9	22	22	25	33	28...40	–	**LB1 LD03P55**	0.780
11	25	25	33	45	35...50	–	**LB1 LD03P57**	0.780
15	33	33	40	55	45...63	–	**LB1 LD03P61**	0.780
Adjustable magnetic protection from 6 to 12 Irth max								
3	5.5	5.5	7.5	10	10...13	78...156	**LB1 LD03M16**	0.780
4	9	9	11	15	13...18	108...216	**LB1 LD03M21**	0.780
5.5	11	11	15	18.5	18...25	150...300	**LB1 LD03M22**	0.780
7.5	15	15	18.5	22	23...32	190...380	**LB1 LD03M53**	0.780
9	22	22	25	33	28...40	240...480	**LB1 LD03M55**	0.780
11	25	25	33	45	35...50	300...600	**LB1 LD03M57**	0.780
15	33	33	40	55	45...63	380...760	**LB1 LD03M61**	0.780

533936



LB6 LD03M●●

Magnetic only protection, for frequent starting motors

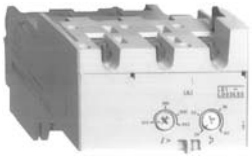
Standard power ratings of 3-phase motors 50-60 Hz in category AC-3					Thermal setting range (Irth min. to Irth max.)	Magnetic setting range (6...12 Irth max)	Reference	Weight
220 V 240 V	400 V 415 V	440 V	480/ 525 V	600/ 690 V				
kW	kW	kW	kW	kW	A	A		kg
Adjustable magnetic protection from 6 to 12 Irth max								
3	5.5	5.5	7.5	10	–	78...156	**LB6 LD03M16**	0.780
4	9	9	11	15	–	108...216	**LB6 LD03M21**	0.780
5.5	11	11	15	18.5	–	150...300	**LB6 LD03M22**	0.780
7.5	15	15	18.5	22	–	190...380	**LB6 LD03M53**	0.780
9	22	22	25	33	–	240...480	**LB6 LD03M55**	0.780
11	25	25	33	45	–	300...600	**LB6 LD03M57**	0.780
15	33	33	40	55	–	380...760	**LB6 LD03M61**	0.780

Characteristics : pages 2/54 and 2/55
Dimensions : page 2/60
Schemes : page 2/61

TeSys enclosed starters
integral 63 contactor breakers
for control and protection of resistive circuits
in category AC-1

3 and 4-pole contactor breakers without protection module *(1)*

Rated thermal current Ith θ ≤ 40 °C	Maximum operational current AC-1 θ ≤ 40 °C	Maximum operational voltage	Breaking capacity Iq for Ue ≤ 415 V	Number of poles	Basic reference, to be completed by adding the control voltage code *(2)*	Weight
A	A	V	kA			kg
With control test function and padlocking facility						
Red knob on yellow background (CNOMO) Emergency Stop						
63	63	690	50	3	**LD4 LD030●**	3.800


533937

LB1 LD03L●●

Protection modules (for customer assembly)

Thermal-magnetic (compensated)

Thermal setting range (Irth min. to Irth max.)	Magnetic setting range (3...6 Irth max)	Number of poles	Number of protected poles	Reference	Weight
A	A				kg
10...13	39...78	3	3	**LB1 LD03L16**	0.780
13...18	54...108	3	3	**LB1 LD03L21**	0.780
18...25	75...150	3	3	**LB1 LD03L22**	0.780
23...32	95...190	3	3	**LB1 LD03L53**	0.780
28...40	120...240	3	3	**LB1 LD03L55**	0.780
35...50	150...300	3	3	**LB1 LD03L57**	0.780
45...63	190...380	3	3	**LB1 LD03L61**	0.780

(1) For the unit to function, it must be fitted with a protection module, to be ordered separately.
(2) Standard control circuit voltages (for other voltages, please consult your Regional Sales Office):

Volts	24	36	42	48	110	120	220	230	240	380/400	415	440	480	500	600	660
50 Hz	B	–	D	E	F	–	M	M	U	Q	N	N	–	S	–	Y
60 Hz	BC	CC	–	CE	K	FC	LC	MC	MC	–	–	UX	Q	–	S	–
⎓ *(3)*	BD	–	–	ED	FD	–	–	–	–	–	–	–	–	–	–	–

(3) For use on d.c., the unit is supplied with a converter, including coil suppression device.

Characteristics : pages 2/54 and 2/55
Dimensions : page 2/60
Schemes : page 2/61

TeSys enclosed starters
integral 63 contactor breakers
Auxiliary contact blocks and accessories

526407



integral
+
LA1 LC030

Instantaneous auxiliary contact blocks (IP 20)

For use on	Type and number of blocks per unit	Composition	Reference	Weight kg
LD4 or **LD5** Mounted on RH side	1 block of 6 instantaneous contacts comprising: 3 signalling contacts “contactor state” 1 signalling contact “tripped on short-circuit” 1 signalling contact “tripped” 1 signalling contact “control knob in any position other than “Auto”	2 1 – – – 1 – – 1 – – 1	**LA1 LC010**	0.280
	1 block of 5 instantaneous contacts comprising: 3 signalling contacts “contactor state” 1 signalling contact “tripped” 1 signalling contact “tripped on short-circuit”	2 1 – 1 – – 1 – –	**LA1 LC012**	0.220

526408



integral
+
LA1 LC010
+
LA1 LC070●

Isolating blocks

For use on	Type and number of blocks per unit	Composition	Reference	Weight kg
LD4 Mounted on LH side	1 control circuit isolating block (1 or 2 blocks per unit)	1 – –	**LA1 LC030**	0.035
LD5 Mounted on LH side	1 control circuit isolating block	2 – –	**LA1 LC031**	0.100

Electrical tripping devices

For use on	Type and number of blocks per unit	Function	Basic reference, to be completed by adding the control voltage code *(1)*	Weight kg
LD4 or **LD5** fitted with an **LA1 LC010** or **LA1 LC012** add-on block	1 undervoltage trip	Time delay 0.2 s	**LA1 LC070●**	0.150
		Instantaneous	**LA1 LC072●**	0.150
	or 1 shunt trip	Instantaneous	**LA1 LC071●**	0.150

526409



integral
+
LA1 LC012
+
LA1 LC052●

Remote electrical reset devices

For use on	Type and number of blocks per unit	Control voltage	Reference	Weight kg
LD4 or **LD5** fitted with an **LA1 LC010** or **LA1 LC012** add-on block	1 remote electrical reset block	24 V 50/60 Hz	**LA1 LC052B**	0.320
		42 V 50 Hz 48 V 50/60 Hz	**LA1 LC052E**	0.320
		100/127 V 50/60 Hz	**LA1 LC052F**	0.320
		200/240V 50/60 Hz	**LA1 LC052M**	0.320

(1) Standard control circuit voltages (for other voltages, please consult your Regional Sales Office):

Volts	24	48	110	120	220/230	240	380/400	415	440
50 Hz	B	E	F	–	M	U	Q	N	N
60 Hz	B	E	F	F	M	M	Q	–	N

Characteristics : pages 2/54 and 2/55
Dimensions : page 2/60
Schemes : page 2/61

TeSys enclosed starters
integral 63 contactor breakers
and reversing contactor breakers
Enclosures

References

Empty metal enclosure

Type of enclosure	For use on	Reference	Weight kg
Degree of protection IP 54 *(1)* with drillings for door interlock mechanism (interlock not supplied). For customer assembly	LD4 LD130● LD4 LD030●	**DE1 LT315**	3,510

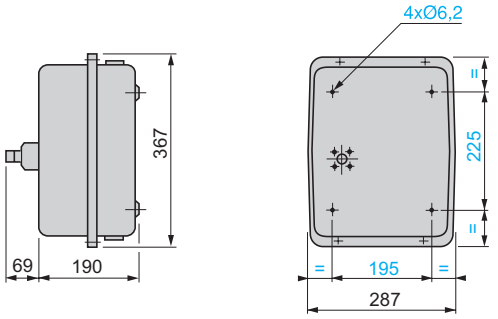
Door interlock mechanism *(IP 54)*

Type	For use on enclosure	Colour of knob	Reference	Weight kg
Non-adjustable	DE1 LT315	Red	**LA9 LC520**	0,200

(1) Enclosure supplied with drillings and fitted with removable blanking plugs, for addition of cable glands (te be ordered separately): for number and diameters, see below.

Dimensions

Metal enclosure DE1 LT315



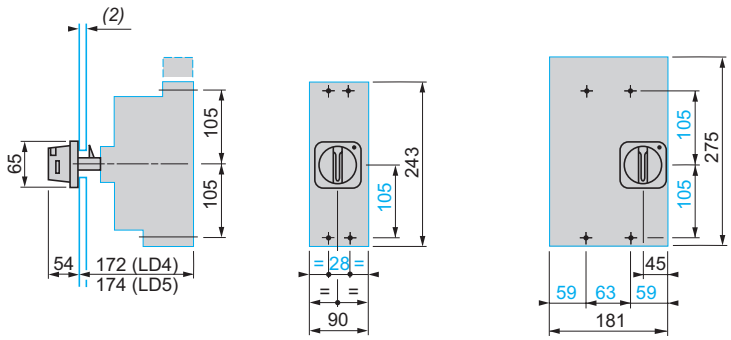
Number of blanked-off cable entries

At		Cable Ø		For cable gland	
Top	Bottom	min.	max.	N°	Type
1	2	10	12	13	13M
1	2	24	30	36	36M

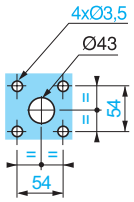
Non-adjustable door interlock mechanism LA9 LC52●

integral 63, for mounting on LD4 LD030 and LD5 LD030

LD4 LD030 **LD5 LD030**



Door drillings

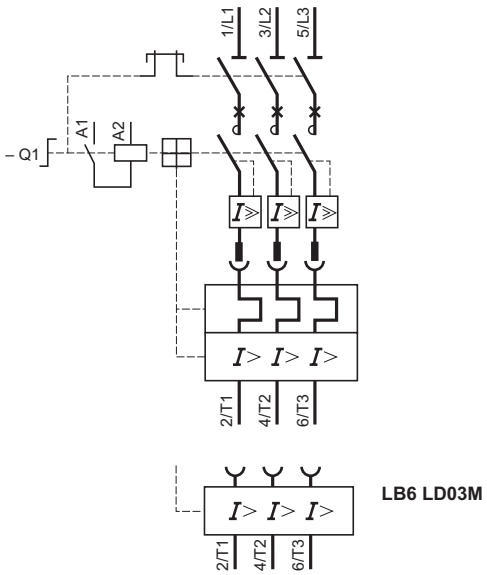


(2) thickness 5 mm max.

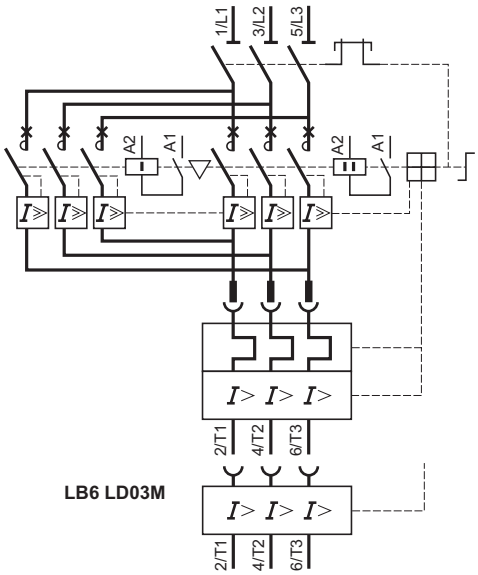
Schemes :
page 2/61

TeSys enclosed starters
integral 63 contactor breakers
and reversing contactor breakers
Enclosures

Contactor breakers with protection module LB●
LD4 LD030 + LB1 LD03●



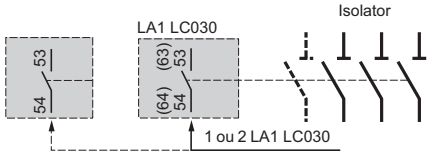
Reversing contactor breakers with protection module LB●
LD5 LD030 + LB1 LD03M or LD03P



Add-on blocks

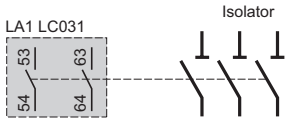
Mounted on LH side

Mounted on LH side



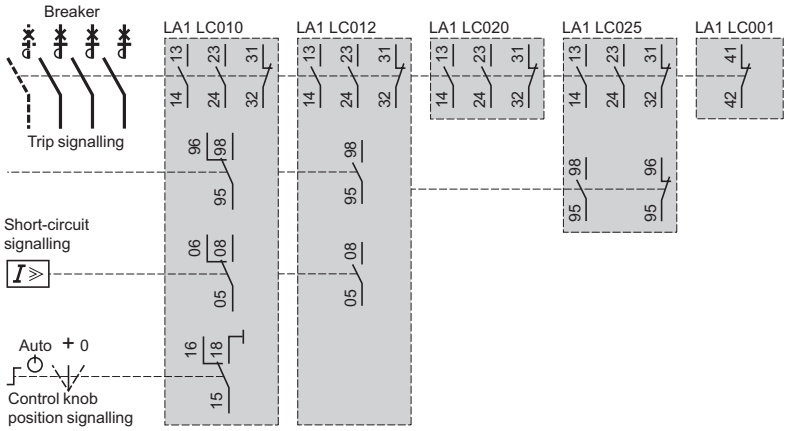
For reversing contactor breaker LD5

Mounted on LH side



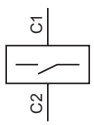
For contactor breaker LD4 and reversing contactor breaker LD5

Mounted on RH side

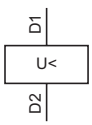


Tripping devices *(1)* for LD4, LD5

LA1L C071

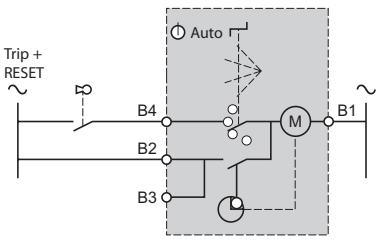


LA1L C070, LC072



Remote electrical reset devices *(1)* for LD4, LD5

LA1L C052●



*(1) For contactor breakers and reversing contactor breakers already fitted with an **LA1 LC010** or **LA1 LC012** instantaneous auxiliary contact block.*

References, dimensions :
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TeSys enclosed starters

Enclosed D.O.L. starters for motor control for use on a machine subject to the application of Machinery Directive 98/37/CE *(1)*

526414



LG7 K06

526415



LG7 D12 with padlocking facility fitted as standard

Non-reversing starters (with pushbutton control of isolation)

Standard power ratings of 3-phase motors 50-60 Hz in category AC-3			Circuit-breaker	Dust & damp protected starter	Weight
220/ 230 V	400/ 415 V	440 V	Setting range of thermal trips	Basic reference, to be completed by adding the voltage code *(2) (3)*	
kW	kW	kW	A		kg
–	0.06	0.06	0.16…0.25	**LG7 K06●●02**	1.300
0.06	0.09	0.12	0.25…0.40	**LG7 K06●●03**	1.300
–	0.18	0.18	0.40…0.63	**LG7 K06●●04**	1.300
0.12	0.25	0.37	0.63…1	**LG7 K06●●05**	1.300
0.25	0.55	0.55	1…1.6	**LG7 K06●●06**	1.300
0.37	0.75	1.1	1.6…2.5	**LG7 K06●●07**	1.300
0.75	1.5	1.5	2.5…4	**LG7 K06●●08**	1.300
1.1	2.2	3	4…6.3	**LG7 K06●●10**	1.300
1.5	4	4	6…10	**LG7 K09●●14**	1.450
3	5.5	5.5	9…14	**LG7 D12●●16**	1.600
4	7.5	9	13…18	**LG7 D18●●20**	1.630
4	9	9	17…23	**LG7 D18●●21**	1.630

Specifications

Functions performed by the starter:
- isolation,
- locking of isolation fitted as standard as from LG7 K09,
- lockable Emergency Stop (1/4 turn) *(3)*,
- short-circuit protection,
- overload protection,
- pushbutton control: 1 white Start button “I” and 1 black Stop button “O”,
- degree of protection of enclosure: IP 657, double insulated.

Switching back on of power supply after tripping must be by a deliberate action.
A GV2 SN●● indicator light may be added (to be assembled by customer), please consult your Regional Sales Office.
For supply voltages between 380 and 415 V (codes Q7, V7 or N7) the control circuit is pre-wired between phases.
For other supply voltages, the control circuit must be wired by the customer.

Variants (pre-assembled)

See page 2/65.

(1) Compliance with a harmonised European standard assumes conformity with the corresponding directive, provided that installation, building in and/or assembly of the starter is carried out correctly by the machine manufacturer.
Harmonised European standards: EN 60947 and EN 60439.
Conformity to international standards: IEC 60947 and IEC 60439.

(2) Standard control circuit voltages (for other voltages, please consult your Regional Sales Office):

LG7 K

Volts ~ 50/60 Hz	12	24	36	42	48	110	127	220/ 230	230	230/ 240	380/ 400	400	400/ 415	440	500	660/ 690
Code	J7	B7	C7	D7	E7	F7	FC7	M7	P7	U7	Q7	V7	N7	R7	S7	Y7

LG7 D

Volts ~ 50/60 Hz	24	42	48	110	220/ 230	230	240	380/ 400	400	415	440
Code	B7	D7	E7	F7	M7	P7	U7	Q7	V7	N7	R7

*(3) **LG7 K06**: the mushroom head type Emergency Stop acts mechanically on the circuit-breaker.*
***LG7 K09**, **D12**, **D18**: the Emergency Stop function is performed by an undervoltage trip, acting on the circuit-breaker. This circuit-breaker is always supplied pre-wired for use on 380/415 V 50 Hz. For a 60 Hz supply, please consult your Regional Sales Office.*

Other versions — Starters for voltages other than those indicated above. Please consult your Regional Sales Office.

Dimensions : page 2/66
Schemes : page 2/67

Schneider Electric

TeSys enclosed starters

Enclosed D.O.L. starters for motor control for use on a machine subject to the application of Machinery Directive 98/37/CE (1)



LG1 K

Non-reversing starters (with rotary operator for control of isolation)

Enclosure cannot be opened when energised in position "I".

Standard power ratings of 3-phase motors 50-60 Hz in category AC-3			Circuit-breaker Setting range of thermal trips	Dust & damp protected starter Basic reference, to be completed by adding the voltage code (2)	Weight
220/230 V	400/415 V	440 V			
kW	kW	kW	A		kg
–	0.06	0.06	0.16…0.25	**LG1 K065●●02**	0.970
0.06	0.09	0.12	0.25…0.40	**LG1 K065●●03**	0.970
–	0.18	0.18	0.40…0.63	**LG1 K065●●04**	0.970
0.12	0.25	0.25	0.63…1	**LG1 K065●●05**	0.970
0.25	0.55	0.55	1…1.6	**LG1 K065●●06**	0.970
0.37	0.75	1.1	1.6…2.5	**LG1 K065●●07**	0.970
0.75	1.5	1.5	2.5…4	**LG1 K065●●08**	0.970
1.1	2.2	3	4…6.3	**LG1 K065●●10**	0.970
1.5	4	4	6…10	**LG1 K095●●14**	1.120
3	5.5	5.5	9…14	**LG1 D122●●16**	1.270
4	7.5	9	13…18	**LG1 D182●●20**	1.290
4	9	9	17…23	**LG1 D182●●21**	1.290

Specifications

Functions performed by the starter:
- isolation,
- locking of isolation,
- lockable Emergency Stop (red/yellow switch disconnector),
- short-circuit protection,
- overload protection,
- pushbutton control: 1 white Start button "I" and 1 black Stop button "O",
- degree of protection of enclosure: IP 657, double insulated.

Switching back on of power supply after tripping must be by a deliberate action.
A GV2 SN●● indicator light may be added (to be assembled by customer), please consult your Regional Sales Office.
For supply voltages between 380 and 415 V (codes Q7, V7 or N7) the control circuit is pre-wired between phases.
For other supply voltages, the control circuit must be wired by the customer.

Variants (pre-assembled)

See page 2/65.

(1) Compliance with a harmonised European standard assumes conformity with the corresponding directive, provided that installation, building in and/or assembly of the starter is carried out correctly by the machine manufacturer.
Harmonised European standards: EN 60947 and EN 60439.
Conformity to international standards: IEC 60947 and IEC 60439.
(2) Standard control circuit voltages (for other voltages, please consult your Regional Sales Office):

LG1 K

Volts ~ 50/60 Hz	12	24	36	42	48	110	127	220/230	230	230/240	380/400	400	400/415	440	500	660/690
Code	J7	B7	C7	D7	E7	F7	FC7	M7	P7	U7	Q7	V7	N7	R7	S7	Y7

LG1 D

Volts ~ 50/60 Hz	24	42	48	110	220/230	230	240	380/400	400	415	440
Code	B7	D7	E7	F7	M7	P7	U7	Q7	V7	N7	R7

Other versions — Starters for voltages other than those indicated above. Please consult your Regional Sales Office.

Dimensions : page 2/66
Schemes : page 2/67

TeSys enclosed starters

Enclosed D.O.L. starters for motor control for use on a machine subject to the application of Machinery Directive 98/37/CE *(1)*

526417



LG8 K06

Reversing starters (with pushbutton control of isolation)

Standard power ratings of 3-phase motors 50-60 Hz in category AC-3			Circuit-breaker Setting range of thermal trips	Dust & damp protected starter Basic reference, to be completed by adding the voltage code *(2) (3)*	Weight
220/ 230 V	400/ 415 V	440 V			
kW	kW	kW	A		kg
–	0.06	0.06	0.16…0.25	**LG8 K06●●02**	1.640
0.06	0.09	0.12	0.25…0.40	**LG8 K06●●03**	1.640
–	0.18	0.18	0.40…0.63	**LG8 K06●●04**	1.640
0.12	0.25	0.25	0.63…1	**LG8 K06●●05**	1.640
0.25	0.55	0.55	1…1.6	**LG8 K06●●06**	1.640
0.37	0.75	1.1	1.6…2.5	**LG8 K06●●07**	1.640
0.75	1.5	1.5	2.5…4	**LG8 K06●●08**	1.640
1.1	2.2	3	4…6.3	**LG8 K06●●10**	1.640
1.5	4	4	6…10	**LG8 K09●●14**	1.640
3	5.5	5.5	9…14	**LG8 K12●●16**	1.640

526418



LG8 K09 with padlocking facility fitted as standard

Specifications of reversing starters

Functions performed by the starter:
- isolation,
- locking of isolation fitted as standard as from LG8 K09,
- Emergency stop *(3)*,
- short-circuit protection,
- overload protection,
- control by selector switch “1-2”, position non maintained,
- degree of protection of enclosure: IP 657, double insulated.

Switching back on of power supply after tripping must be by a deliberate action.
A GV2 SN●● indicator light may be added (to be assembled by customer), please consult your Regional Sales Office.
For supply voltages between 380 and 415 V (codes Q7, V7 or N7) the control circuit is pre-wired between phases.
For other supply voltages, the control circuit must be wired by the customer.

Variants (pre-assembled)

See page 2/65.

(1) Compliance with a harmonised European standard assumes conformity with the corresponding directive, provided that installation, building in and/or assembly of the starter is carried out correctly by the machine manufacturer.
Harmonised European standards: EN 60947 and EN 60439.
Conformity to international standards: IEC 60947 and IEC 60439.
(2) Standard control circuit voltages (for other voltages, please consult your Regional Sales Office):

Volts ∼ 50/60 Hz	12	24	36	42	48	110	127	220/ 230	230	230/ 240	380/ 400	400	400/ 415	440	500	660/ 690
Code	J7	B7	C7	D7	E7	F7	FC7	M7	P7	U7	Q7	V7	N7	R7	S7	Y7

*(3) **LG8 K06**: the mushroom head type Emergency Stop acts mechanically on the circuit-breaker.*
***LG8 K09**: the Emergency Stop function is performed by an undervoltage trip, acting on the circuit-breaker. This circuit-breaker is always supplied pre-wired for use on 380/415 V 50 Hz. For a 60 Hz supply, please consult your Regional Sales Office.*

Other versions — Starters for higher power ratings.
Please consult your Regional Sales Office.

Dimensions : page 2/66
Schemes : page 2/67

Schneider Electric

TeSys enclosed starters

Enclosed D.O.L. starters for motor control for use on a machine subject to the application of Machinery Directive 98/37/CE (1)

Variants

Description	Application	Suffix to be added to the starter reference (2)
With Emergency Stop **No control pushbuttons**	LG1, LG7, LG8	**A04**
With Emergency Stop **2 pushbuttons with arrows "↑" and "↓"** (latching) 1 Stop button "O"	LG8 K06	**A10**
Without Emergency Stop **2 pushbuttons with arrows "↑" and "↓"** (non latching) Without Emergency Stop	LG8	**A14**
With Emergency Stop, mushroom head	LG1	**A37**
Without Emergency Stop (when the Emergency Stop is on the machine)	LG7, LG8	**A39**
With padlocking facility (fitted as standard as from LG1 K09 or LG7 K09)	LG1 K06, LG7 K06	**A29**
1 neutral terminal Fitted as standard on starters ordered for use on 240 V (U7) supply	LG1, LG7, LG8	**A59**
Short-circuit signalling block	LG7	**A12**
Vacuum valve for compressor	LG7 D	**A40**
Without circuit-breaker	LG1, LG7, LG8	(3)

Possible combinations of variants for the selected starter type (4)

Starter type	A04	A10	A12	A14	A29	A37	A39	A40	A59
LG1 K	■				■	(5)			■
LG7 K06	■		■		■		■		■
LG7 K09	■		■				■		■
LG7 D12	■		■				■	■	■
LG8 K06	■				■		■		■
		■			■		■		■
				■	■		■		■
LG8 K09	■						■		■
				■			■		■

■ Combination possible ■ Combination not possible

(1) *Compliance with a harmonised European standard assumes conformity with the corresponding directive, provided that installation, building in and/or assembly of the starter is carried out correctly by the machine manufacturer.*
Harmonised European standards: EN 60947 and EN 60439.
Conformity to international standards: IEC 60947 and IEC 60439.

(2) *Example: **LG7 D12M716A04**.*

(3) *Delete the last 2 digits of the selected starter reference. Example: **LG1 K065●●08** becomes **LG1 K065●●**.*

(4) *Example: **LG8 K095●●A04A39A59**.*

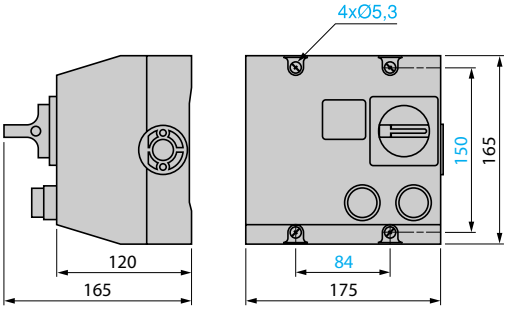
(5) ***LG1 K06**: the mushroom head type Emergency Stop acts mechanically on the circuit-breaker.*
***LG1 K09**, **D12**, **D18**: the Emergency Stop function is performed by an undervoltage trip, acting on the circuit-breaker. This circuit-breaker is always supplied pre-wired for use on 380/415 V 50 Hz. For a 60 Hz supply, please consult your Regional Sales Office.*

TeSys enclosed starters

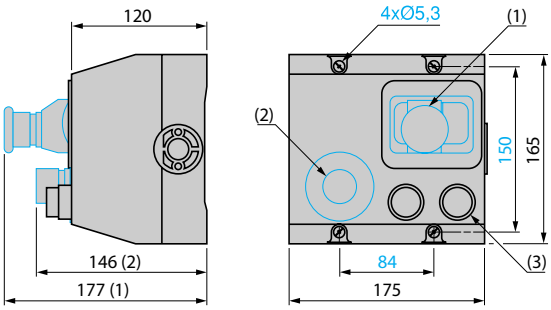
Enclosed D.O.L. starters for motor control
for use on a machine subject to the application
of Machinery Directive 98/37/CE

Starters without isolator

LG1 K06, K09
LG1 D12, D18



LG7 K06, K09, D12, D18
LG8 K06, K09, K12



(1) Emergency Stop for starters < 3 kW
(2) Emergency Stop for starters ≥ 3 kW
(3) Only for LG7

Knock-outs or blanking plugs for cable glands

Type of enclosure	At top	At bottom
LG1 K and LG1 D	2 x 13 P and 2 x 16 P	2 x 13 P and 2 x 16 P
LG7 K and LG7 D	2 x 13 P and 2 x 16 P	2 x 13 P and 2 x 16 P
LG8 K	2 x 13 P and 2 x 16 P	2 x 13 P and 2 x 16 P

References :
pages 2/62 to 2/65

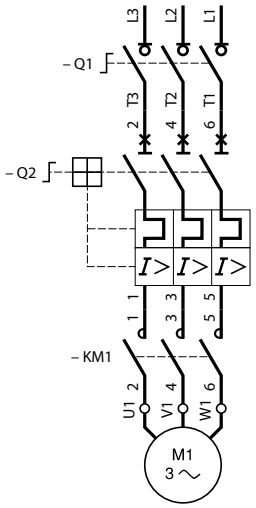
Schemes :
page 2/67

TeSys enclosed starters

Enclosed D.O.L. starters for motor control
for use on a machine subject to the application
of Machinery Directive 98/37/CE

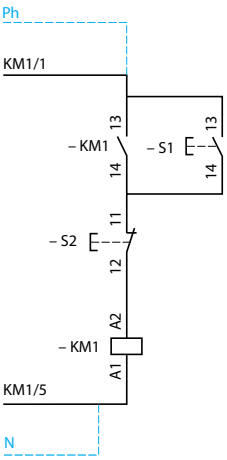
D.O.L. starters

LG1 K06, K09, D12, D18

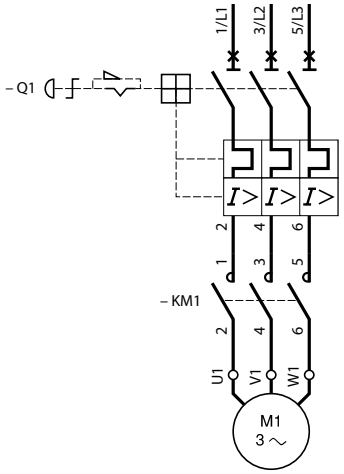


LG1 K06, K09, D12, D18

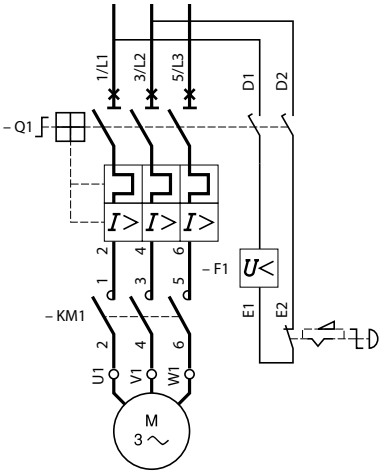
380/400 V, code Q7 or 400/415 V, code N7
220/230 V, code M7



LG7 K06

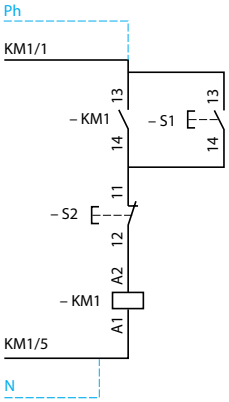


LG7 K09, D12, D18



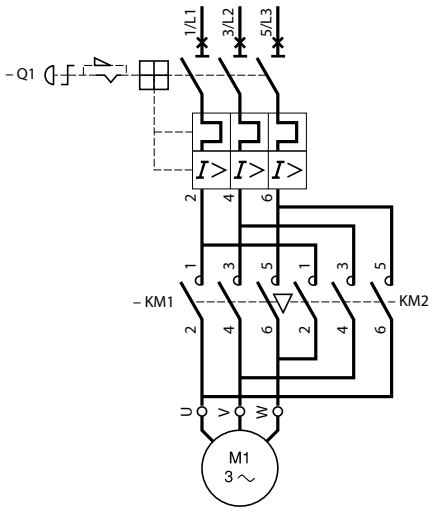
LG7 K06, K09, D12, D18

380/400 V, code Q7 or
400/415 V, code N7
220/230 V, code M7

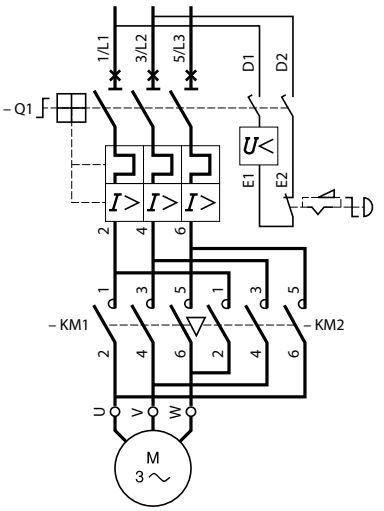


Reversing starters

LG8 K06

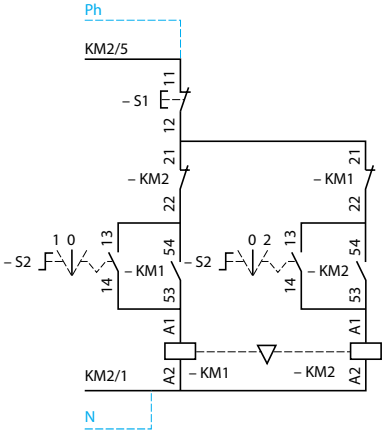


LG8 K09, K12



LG8 K06, K09, K12

380/400 V, code Q7 or
400/415 V, code N7
220/230 V, code M7



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Schemes :
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TeSys enclosed starters

Enclosed D.O.L. starters for motor control for use on a machine subject to the application of Machinery Directive 98/37/CE

5111544



LJ7 K

Non-reversing starters with integral transformer

Compliance with a harmonised European standard assumes conformity with the corresponding directive, provided that installation, building in and/or assembly of the starter is carried out correctly by the machine manufacturer.
Harmonised European standards: EN 60947 and EN 60439.
Conformity to international standards: IEC 60947 and IEC 60439.

Starters pre-wired for operation on a 3-phase 380 to 400 V 50 Hz supply
(with pushbutton control of isolator function)

Standard power ratings of 3-phase motors 50 Hz in category AC-3	Circuit-breaker	Dust and damp protected starter	Weight
380/400 V	Setting range of thermal trips	Reference *(1)*	
kW	A		kg
0.06	0.16…0.25	**LJ7 K06Q702**	2.270
0.09	0.25…0.40	**LJ7 K06Q703**	2.270
0.18	0.40…0.63	**LJ7 K06Q704**	2.270
0.25	0.63…1	**LJ7 K06Q705**	2.270
0.55	1…1.6	**LJ7 K06Q706**	2.270
0.75	1.6…2.5	**LJ7 K06Q707**	2.270
1.5	2.5…4	**LJ7 K06Q708**	2.270
2.2	4…6.3	**LJ7 K06Q710**	2.270
4	6…10	**LJ7 K09Q714**	2.270

Specifications

Functions performed by the starter:
- isolation,
- locking of isolation fitted as standard on LJ7 K09,
- lockable Emergency Stop (1/4 turn) *(2)*,
- short-circuit protection,
- overload protection,
- pushbutton control: 1 white Start button “I” and 1 black Stop button “O”,
- terminal allowing connection of a volt-free contact, if required, in the control circuit,
- degree of protection of enclosure: IP 657, double insulated.

Switching back on of power supply after tripping must be by a deliberate action.
A GV2 SN●● indicator light may be added (to be assembled by customer), please consult your Regional Sales Office.
Integral transformer: 400/24 V, 25 VA.

Variants *(3)*

Description	For use on	Suffix to be added to the starter reference *(4)*
With Emergency Stop No control pushbuttons	LJ7	**A04**
Without Emergency Stop (when the Emergency Stop is on the machine)	LJ7	**A39**
With padlocking facility (fitted as standard on LJ7 K09)	LJ7 K06	**A29**
Without circuit-breaker	LJ7	*(5)*

*(1) In the reference, the voltage code **Q7 (380/400 V) indicates the power supply voltage** to which the starter will be connected, it being assumed that the contactor has a ∼ 24 V coil (see control circuit scheme).*
*(2) **LJ7 K06** (P ⩽ 3 kW at 400 V): the mushroom head type Emergency Stop acts mechanically on the circuit-breaker.*
*__LJ7 K09__ (P > 3 kW at 400 V): the Emergency Stop function is performed by an undervoltage trip **GV AX385**, acting on the circuit-breaker. This circuit-breaker is always supplied pre-wired for use on 380/400 V 50 Hz.*
*(3) Possible combination of variants A04, A29 and A39 on starters LJ7 K06. Example: **LJ7 K06Q702A04A29A39**.*
*Possible combination of variants A04 and A39 on starters **LJ7 K09Q714A04A39**.*
*(4) Example: **LJ7 K06Q702A04**.*
*(5) Delete the last 2 digits of the selected starter reference. Example: **LJ7 K06Q702** becomes **LJ7 K06Q7**.*

Other versions

Starters for voltages other than those indicated above.
Please consult your Regional Sales Office.

Dimensions : page 2/70
Schemes : page 2/71

TeSys enclosed starters

Enclosed D.O.L. starters for motor control for use on a machine subject to the application of Machinery Directive 98/37/CE

5111545



LJ8 K

Reversing starters with integral transformer

Compliance with a harmonised European standard assumes conformity with the corresponding directive, provided that installation, building in and/or assembly of the starter is carried out correctly by the machine manufacturer.
Harmonised European standards: EN 60947 and EN 60439.
Conformity to international standards: IEC 60947 and IEC 60439.

Starters pre-wired for operation on a 3-phase 380 to 400 V 50 Hz supply (with pushbutton control of isolator function)

Standard power ratings of 3-phase motors 50 Hz in category AC-3	Circuit-breaker	Dust and damp protected starter	Weight
380/400 V	Setting range of thermal trips	Reference *(1)*	
kW	A		kg
0.06	0.16…0.25	**LJ8 K06Q702**	2.650
0.09	0.25…0.40	**LJ8 K06Q703**	2.650
0.18	0.40…0.63	**LJ8 K06Q704**	2.650
0.25	0.63…1	**LJ8 K06Q705**	2.650
0.55	1…1.6	**LJ8 K06Q706**	2.650
0.75	1.6…2.5	**LJ8 K06Q707**	2.650
1.5	2.5…4	**LJ8 K06Q708**	2.650
2.2	4…6.3	**LJ8 K06Q710**	2.650
4	6…10	**LJ8 K09Q714**	2.650

Specifications

Functions performed by the starter:
- isolation,
- locking of isolation fitted as standard on LJ8 K09,
- lockable Emergency Stop (1/4 turn) *(2)*,
- short-circuit protection,
- overload protection,
- pushbutton control: 1 white Start button “I” and 1 black Stop button “O”,
- terminal allowing connection of a volt-free contact, if required, in the control circuit,
- degree of protection of enclosure: IP 657, double insulated.

Switching back on of power supply after tripping must be by a deliberate action.
A GV2 SN●● indicator light may be added (to be assembled by customer), please consult your Regional Sales Office.
Integral transformer: 400/24 V, 25 VA.

Variants *(3)*

Description	For use on	Suffix to be added to the starter reference *(4)*
With Emergency Stop No control pushbuttons	LJ8	**A04**
Without Emergency Stop (when the Emergency Stop is on the machine)	LJ8	**A39**
With padlocking facility (fitted as standard on LJ8 K09)	LJ8 K06	**A29**
Without circuit-breaker	LJ8	*(5)*

*(1) In the reference, the voltage code **Q7 (380/400 V) indicates the power supply voltage** to which the starter will be connected, it being assumed that the contactor has a ∼ 24 V coil (see control circuit scheme).*
*(2) **LJ8 K06** (P ≤ 3 kW at 400 V): the mushroom head type Emergency Stop acts mechanically on the circuit-breaker.*
*__LJ8 K09__ (P > 3 kW at 400 V): the Emergency Stop function is performed by an undervoltage trip **GV AX385**, acting on the circuit-breaker. This circuit-breaker is always supplied pre-wired for use on 380/400 V 50 Hz.*
*(3) Possible combination of variants A04, A29 and A39 on starters LJ8 K06. Example: **LJ8 K06Q702A04A29A39**.*
*Possible combination of variants A04 and A39 on starters LJ8 K09. Example : **LJ8 K09Q714A04A39**.*
*(4) Example: **LJ8 K06Q702A04**.*
*(5) Delete the last 2 digits of the selected starter reference. Example: **LJ8 K06Q702** becomes **LJ8 K06Q7**.*

Other versions

Starters for voltages other than those indicated above.
Please consult your Regional Sales Office.

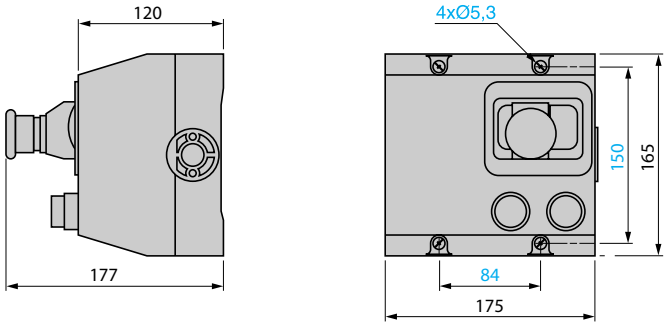
Dimensions : page 2/70
Schemes : page 2/71

TeSys enclosed starters

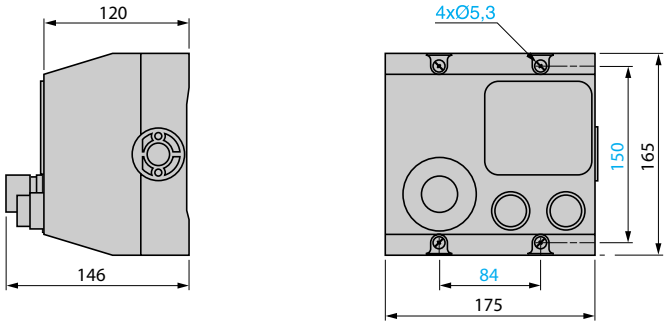
Enclosed D.O.L. starters for motor control
for use on a machine subject to the application
of Machinery Directive 98/37/CE

Dimensions

LJ7 K06, LJ8 K06



LJ7 K09, LJ8 K09



Cut-outs or blanking plugs for cable glands at the top and at the bottom 2 x 13 P and 2 x 16 P.

References :
pages 2/68 and 2/69

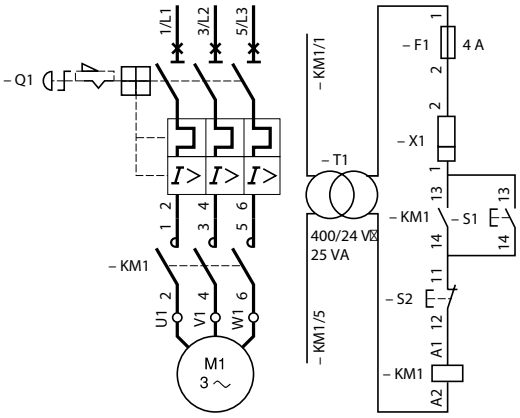
TeSys enclosed starters

Enclosed D.O.L. starters for motor control
for use on a machine subject to the application
of Machinery Directive 98/37/CE

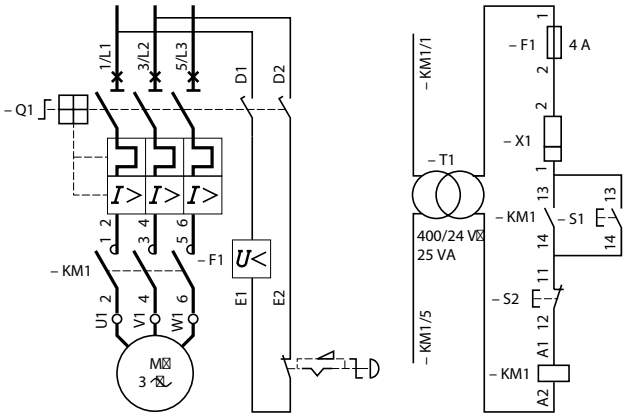
Schemes

Non-reversing starters

LJ7 K06

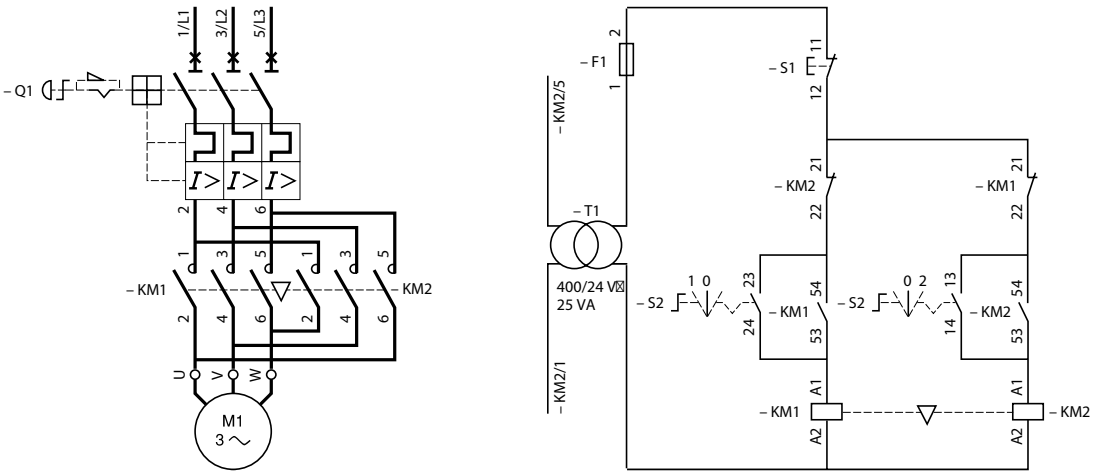


LJ7 K09

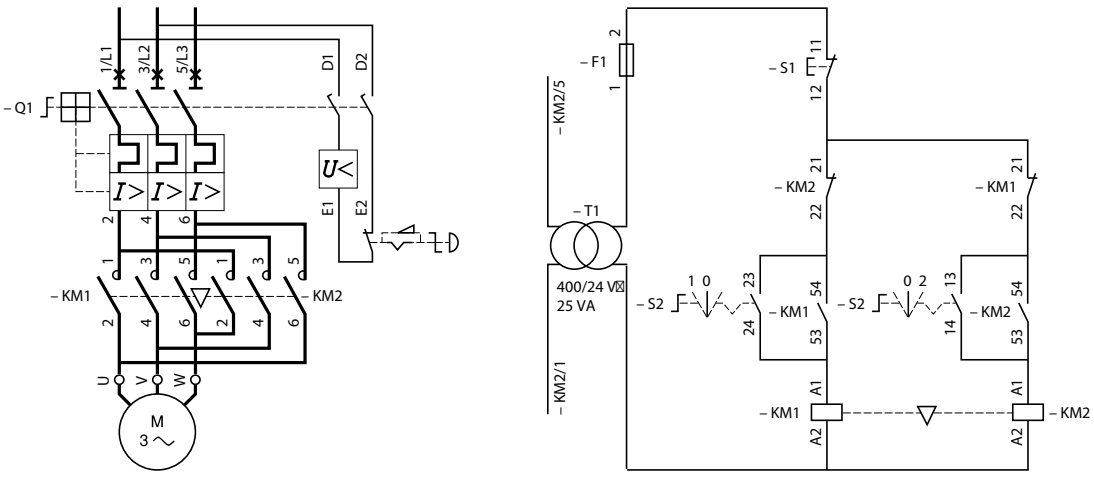


Reversing starters

LJ8 K06



LJ8 K09



References :
pages 2/68 and 2/69

TeSys enclosed starters
D.O.L. starters for AS-Interface cabling system

Applications			
			
Composition		Thermal-magnetic circuit-breaker Low consumption contactor or contactor pair Electronic control device	
Degree of protection		IP 54	
Enclosure		Insulated (plastic)	
Operator		Rotary knob	
Sensor connection		With	With and local/line control
Contactors	Non-reversing	**LF3 P●●●**	**LF3 P●●●A79**
	Reversing	**LF4 P●●●**	**LF4 P●●●A79**
Pages		2/84 and 2/85	





Metal		Insulated (plastic)	
		Pushbuttons	
With	With and local/line control	With	With and local/line control
LF3 MP●●●	**LF3 MP●●●A79**	**LF3 M●●●**	**LF3 M●●●A79**
LF4 MP●●●	**LF4 MP●●●A79**	**LF4 M●●●**	**LF4 M●●●A79**

TeSys enclosed starters
D.O.L. starters for AS-Interface cabling system

Presentation

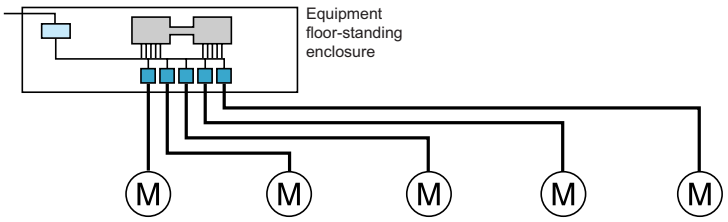
Decentralised control of motors using enclosed starters which communicate on AS-Interface, drastically reduces setting-up times, thereby increasing the availability of machines.

In order to cater for different environments, these starters are sub-divided according to:
- the different power connection methods: cable gland or Harting plug-in connectors,
- the local/AS-Interface remote operating modes,
- the type of enclosure: insulated (plastic) or metal.

Decentralisation of machine starters

These enclosed starters which communicate on AS-Interface are pre-assembled and ready-to-use with a minimum of cabling.
They are designed for building decentralised electrical installations:
i.e. the starters are installed as near as possible to the motors they are to control.
The decentralisation of the starters provides obvious advantages regarding power distribution to machines not grouped together, for example: motors driving a conveyor system.

Traditional installation

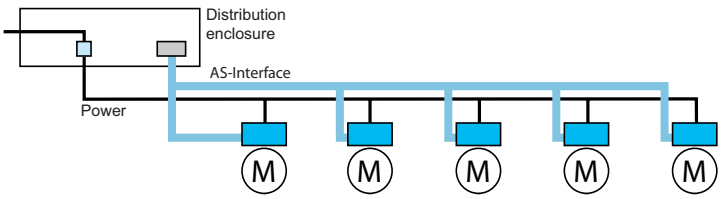


Distribution circuit circuit-breaker

Programmable controller with its inputs/outputs

Contactor + thermal overload relay

Decentralised installation



Distribution circuit circuit-breaker

Programmable controller

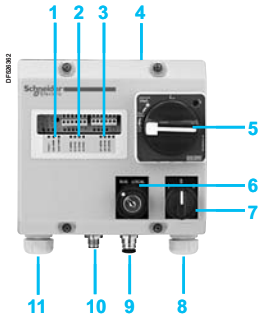
AS-Interface starters

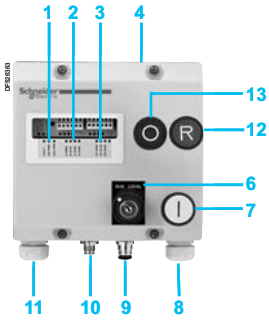
Power is distributed either by prefabricated trunking or by cable.
These starters incorporate all the functions necessary for the management of motors (control, protection, isolation, etc.), and comprise:
- a thermal-magnetic circuit-breaker,
- a low consumption contactor (non reversing) or contactor pair (reversing),
- an I/O module ASI 20MT●●.

Designed primarily for use with 3-phase a.c. motors, they can nevertheless be used with single-phase or d.c. motors. In these applications, the 3 phases of the internal circuit-breaker should be wired in series (each phase sensing the same current) in order to avoid tripping due to an assumed phase failure.

Characteristics: pages 2/80 to 2/83
References: pages 2/84 and 2/85
Dimensions, schemes: pages 2/88 to 2/93
Connections: pages 2/94 and 2/95

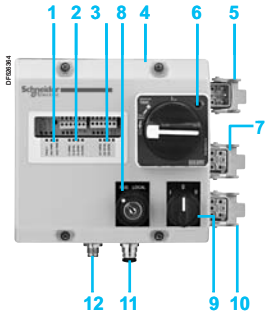
TeSys enclosed starters
D.O.L. starters for AS-Interface cabling system

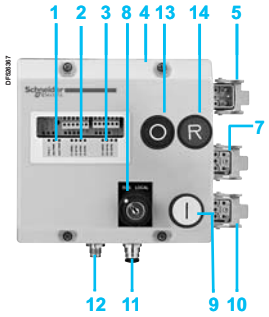




Connection by cable gland

1 Product diagnostics via 3 LEDs.
2 Input state.
3 Output state.
4 Knock-out for cable gland (not included for any power extension or output control relay cabling).
5 Disconnect rotary control knob.
Indicates “Trip” when switch-disconnector tripped.
6 Local/AS-Interface key switch (variant A79).
7 For variant A79: 3-position, spring return to zero selector switch for reversing starter (LF4). Function:
- position 1 = forward running,
- position 0 = Stop,
- position 2 = reverse running.
Pushbutton for non-reversing starter (LF3).
Function: Pulsed operation.
8 Cable gland for power supply cable.
9 M12 female connector for cable connection to a sensor (supplied with protective cap).
10 M12 male connector for connection to AS-Interface *(1)* and auxiliary supply.
11 Cable gland for motor cabling.
12 Reset pushbutton.
13 Stop pushbutton.





Connection by plug-in connectors (variant A74)

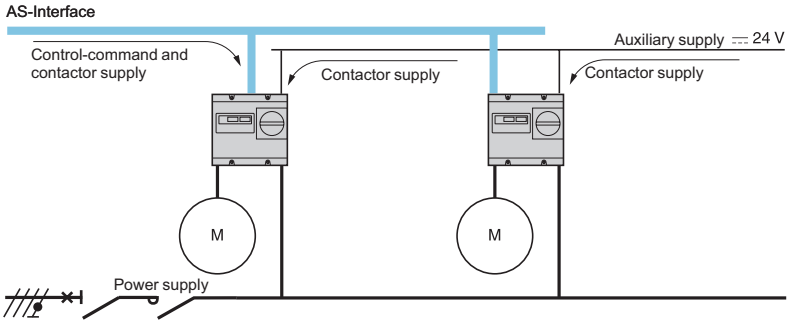
1 Product diagnostics via 3 LEDs.
2 Input state.
3 Output state.
4 Knock-out for cable gland (not included for output control relay cabling).
5 Male connector for incoming power supply to motor starter *(2)*.
6 Disconnect rotary control knob.
Indicates “Trip” when switch-disconnector tripped.
7 Female connector for power supply to the next motor starter *(2)*.
8 Local/AS-Interface key switch.
9 For variant A79: 3-position, spring return to zero selector switch for reversing starter (LF4). Function:
- position 1 = forward running,
- position 0 = Stop,
- position 2 = reverse running.
Pushbutton: for non-reversing starters (LF3).
Function: Pulsed operation.
10 Female connector for power supply to motor *(2)*.
11 M12 female connector for cable connection to a sensor (supplied with protective cap).
12 M12 male connector for connection to AS-Interface *(1)* and auxiliary supply.
13 Stop pushbutton.
14 Reset pushbutton.

(1) Extension cables: please consult your Regional Sales Office.
(2) HARTING plug-in connector to be fitted to cable (not included, see page 2/95).

Characteristics: pages 2/80 to 2/83
References: pages 2/84 and 2/85
Dimensions, schemes: pages 2/88 to 2/93
Connections: pages 2/94 and 2/95

TeSys enclosed starters
D.O.L. starters for AS-Interface cabling system

Auxiliary supply



A ⎓ 24 V supply is necessary for LF3 and LF4 starters.

Prospective current consumptions are listed on page 2/83.

Motor command-control

The functions provided by this range of starters are:
- motor control and status monitoring via AS-Interface,
- D.O.L. starting (non-reversing or reversing),
- overload protection of the motor,
- short-circuit protection of the motor and its power supply cabling.



Starters with rotary control knob

These starters provide the following functions:
- load break switch-disconnector with padlockable control knob,
- IP 54 degree of protection, double insulation.

Opening of the enclosure is mechanically inhibited whilst the starter is switched on or whilst in the off position and padlocked.

The rotary control knob has 3 positions:
0: switch-disconnector opened manually,
I: switch-disconnector closed,
Trip: switch-disconnector tripped.



Starters with pushbutton control

These starters provide the following functions:
- pushbutton resetting of the protection device,
- pushbutton stop control,
- IP 54 degree of protection, double insulation.



Local control

Stop and reset functions are possible from the front of the enclosure. The stop command is achieved by actuating the internal circuit-breaker, which provides the switch-disconnector function.

Depending on the type of starter, stopping is controlled by either:
- a rotary control knob, or
- a stop pushbutton (black).

In the event of an overload, resetting of the internal thermal-magnetic circuit-breaker is possible after the motor has cooled down.

Depending on the type of starter, resetting is controlled by either:
- a rotary control knob, or
- a reset pushbutton (blue).

Integral local/AS-Interface control (variant A79)

This starter variant is fitted with a 2-position “local/AS-Interface” switch which, depending on the position of the switch, allows the following functions:

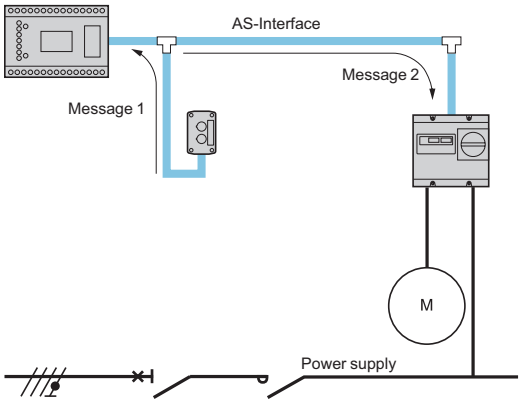
■ AS-Interface: the PLC controls the motor starter.

■ Local: local Start/Stop commands override instructions from the PLC.

■ 3-position, spring return to zero selector switch for reversing starter (LF4).
Function:
- position 1 = forward running,
- position 0 = Stop,
- position 2 = reverse running.

■ Pushbutton for non-reversing starter (LF3) .
Function:
- Pulsed operation.

Control via a control station



It is possible to achieve manual local start control from pushbutton control stations connected to AS-Interface. Please consult your Regional Sales Office.

Actuation of a pushbutton is transmitted to the programmable controller (message 1) which passes it on to the starter (message 2).

2

Local signalling

Indication of all the operating states (diagnostic, inputs and outputs) is visible without having to open the enclosure (transparent window in the enclosure cover).

Safety

The starter features continual self-checking to ensure correct operation.

External safety functions are not processed by the starter.

Emergency stop and machine safety wiring must follow standard safety practice and be hard-wired, using electromechanical devices in the approved way. These functions must not be handled by communication bus systems (EN 60204 § 9.2.5.4).

Protection against unexpected restarting, after an accidental power supply failure, must be provided by a safety device separate from the starter.

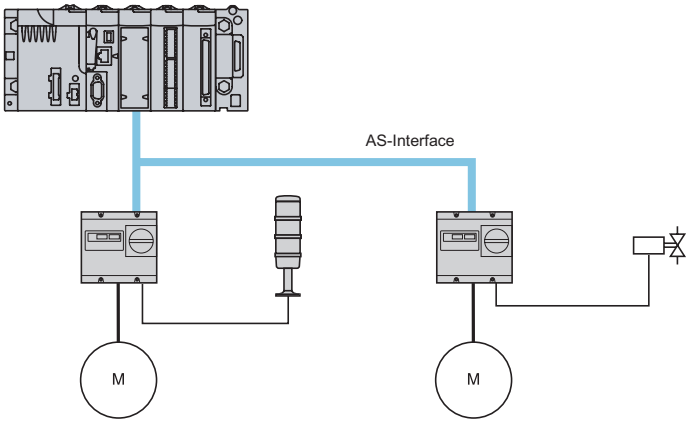
The starter control (rotary knob or pushbutton) does not provide the Emergency Stop function if the machine is fitted with other actuators. The control operators on the starter are therefore coloured black, in accordance with standard EN 60204 § 10.2.1. Starters with rotary control knob may be padlocked in the ON position, since this control does not provide an Emergency Stop function.

Assume fallback condition

When communication is interrupted, the starter is no longer controlled by the PLC. The fallback condition of the starter is “motor stopped” (outputs at 0).

Output control relay

This relay incorporates a C/O contact, which may be used to control an indicator lamp, solenoid valve, etc. (250 V, 5 A), via AS-Interface.



Starters with sensors connected *(1)*

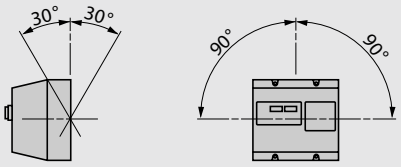
Two 3-wire PNP sensors (50 mA max) or 2-wire limit switches can be connected directly to the starter.

The information supplied by the sensor/limit switch is fed back via the AS-Interface line.

(1) For "Reflex Stop" function, please consult your Regional Sales Office.

2

Environment

Starter type			LF3, LF4
Conforming to standards			IEC 60204-1, EN 60204-1, IEC 60439-1, IEC 60947-4-1, EN 60947-4-1 UL 508, CSA C22-2 n° 14 *(1)*
Product certifications			–
Protective treatment	Standard version		"TC"
Degree of protection conforming to IEC 60529			IP 54
Ambient air temperature around the device conforming to IEC 60439-1	Storage	**°C**	- 40…+ 80
	Operation	**°C**	- 5…+ 40
Maximum operating altitude	Without derating	**m**	2000
Operating position without derating	In relation to normal vertical mounting plane		
Flame resistance of equipment	Conforming to IEC 60695-2-1	**°C**	960
Shock resistance (1/2 sine wave, 11ms) conforming to IEC 60068-2-27	Contactor open		10 gn
	Contactor closed		15 gn
Vibration resistance 5…150 Hz conforming to IEC 60068-2-6	Contactor open		2 gn
	Contactor closed		4 gn
Safe separation of circuits	Conforming to VDE 0106 and IEC 60536		SELV (Safety Extra Low Voltage), up to 400 V
Immunity to non-dissipating shock wave (Uimp)	Conforming to IEC 60947-1	**kV**	6: power 2.5: AS-Interface, 24 V and sensor
Material and colour of enclosure base	Insulated enclosures		Polycarbonate impregnated with 20 % glass fibre, black throughout
	Metal enclosures		Sheet steel RAL 9001
Material and colour of enclosure cover	Insulated enclosures		Polycarbonate impregnated with 20% glass fibre, RAL 9001 throughout
	Metal enclosures		Sheet steel RAL 9001
Resistance to chemical agents	Insulated enclosures		Avoid allowing this material to come into contact with: strong bases (certain detergents), aromatic hydrocarbons, alcohol, chlorine solvents, ketones.

Electromagnetic compatibility

Immunity to electrostatic discharge	Conforming to IEC 61000-4-2 EN 61000-4-2	**kV**	8: in open air (level 3) 4: in indirect mode (level 2)
Immunity to fast transient currents	Conforming to IEC 61000-4-4 EN 61000-4-4	**kV**	2: power, AS-Interface, 24 V and sensor (level 3)
Immunity to dissipated shock wave	Conforming to IEC 61000-4-5 EN 61000-4-5	**kV**	4/2: power (level 4) 2/0.5: power, AS-Interface, 24 V and sensor (level 2)
Immunity to conducted radio-frequency interference	Conforming to IEC 61000-4-6 ENV 50 141	**V/m**	10
Immunity to radiated radio-frequency interference	Conforming to IEC 61000-4-3 ENV 50 140 and ENV 50 204 (GSM)	**V/m**	10
Radio-conducted and radio-radiated rejection	ENV 55 011/CISPR11 (G1)		Class B

*(1) Only for metal enclosures with letter **U** at the end of the reference. Certification pending.*

Functions : pages 2/76 to 2/79
References: pages 2/84 and 2/85
Dimensions, schemes: pages 2/88 to 2/93
Connections: pages 2/94 and 2/95

Cabling

Starter type				LF3		LF4	
				Min.	Max.	Min.	Max.
Power supply cabling	Screw clamp terminals	Solid cable	**mm²**	1 x 1.5	2 x 6	1 x 1.5	2 x 6
		Flexible cable without cable end	**mm²**	1 x 1.5	2 x 6	1 x 1.5	2 x 6
		Flexible cable with cable end	**mm²**	1 x 1.5	2 x 4	1 x 1.5	2 x 4
		Tightening torque (1)	**N.m**	1.7	1.7	1.7	1.7
	Cable Gland (Pg 16)	Clamping capacity	**mm**	10	15	10	15
				Min.	Max.	Min.	Max.
Motor cabling	Screw clamp terminals	Solid cable	**mm²**	1 x 1.5	2 x 4	1 x 1.5	1 x 4
		Flexible cable without cable end	**mm²**	1 x 1.5	2 x 4	1 x 1.5	1 x 4
		Flexible cable with cable end	**mm²**	1 x 1.5	1 x 1.5 + 1 x 2.5	1 x 1.5	1 x 2.5
		Tightening torque (1)	**N.m**	0.8	0.8	0.8	0.8
	Cable Gland (Pg 16)	Clamping capacity	**mm**	10	15	10	15
				Min.	Max.	Min.	Max.
Output control relay cabling	Terminal block	Solid cable	**mm²**	0.5	1.5	0.5	1.5
		Flexible cable without cable end	**mm²**	0.5	1.5	0.5	1.5
		Flexible cable with cable end	**mm²**	0.5	1.5	0.5	1.5
		Tightening torque (2)	**N.m**	0.7	0.7	0.7	0.7
	Cable gland	Clamping capacity Pg 13	**mm**	8	13	8	13
		Pg 16	**mm**	10	15	10	15

Pole electrical characteristics

Utilisation category	Conforming to IEC 60947-2 (circuit-breaker)		A
	Conforming to 947-4-1 (motor starter)		AC-3
Rated operational voltage (Ue)	Conforming to IEC 60947	**V**	415
Rated insulation voltage (Ui)	Conforming to IEC 60947	**V**	415
Rated operational frequency	Conforming to IEC 60947	**Hz**	50/60
Breaking capacity (Ics and Icu)	Conforming to IEC 60947-2 230/240 V	**kA**	> 100
	400/415 V	**kA**	> 100
Sensitivity to phase failure	Conforming to IEC 60947-4-1 § 7-2-1-5-2		Yes

Circuit-breaker characteristics (manual operation)

Mechanical durability	C.O.: closing, opening	**C.O.**	100 000
Electrical durability	For AC-3 duty	**C.O.**	100 000
Duty class	Maximum operating rate	**C.O./h**	25

Circuit-breaker characteristics (automatic operation)

Maximum operating rate	In operating cycles per hour		3600	
Mechanical durability	In millions of operating cycles		30	5
Electrical durability	In category AC-3 at 8.5 A		800 000	

Other characteristics

Starters with rotary control knob	Circuit-breaker type **GV2 P**		See pages 3/8 to 3/11
Starters with pushbutton control	Circuit-breaker type **GV2 ME LF3, LF4** only		See pages 3/8 to 3/11
Non-reversing starters	Contactor **LP4 K0901BW3** *(3)*		See pages 5/10 to 5/13
Reversing starters	Reversing contactor **LP5 K0901BW3** *(4)*		See pages 5/10 to 5/13

(1) Philips n° 2 or flat screwdriver Ø 5.5.
(2) Flat screwdriver Ø 3.5.
(3) LP4 K1201BW3 for circuit-breaker ratings 00 and 16.
(4) LP5 K1201BW3 for circuit-breaker ratings 00 and 16.

Functions : pages 2/76 to 2/79
References: page 2/84 and 2/85
Dimensions, schemes: pages 2/88 to 2/93
Connections: pages 2/94 and 2/95

2

Sensor inputs

Starter type				LF3, LF4
Cabling				M12
Nominal input values	Voltage		**V**	⎓ 24
	Maximum current available per sensor		**mA**	50
	Sensor supply (including ripple)		**V**	19…30
Input voltage range	At state 1	Voltage	**V**	⎓ > 11
		Current	**mA**	> 6
	At state 0	Voltage	**V**	⎓ < 5
		Current	**mA**	< 2
Maximum number of sensors				2
Proximity sensor compatibility				2-wire/3-wire
Isolation with respect to the AS-Interface line				Yes
Input type				Resistive for PNP type sensor

Output control relay

Operating voltage limit		a.c. supply	**V**	250
		d.c. supply	**V**	30
Thermal current at 40 °C (Ith)			**A**	5
Service life on an ∼ 24 V load	Resistive load AC-12	Millions of operating cycles		0.1 *(1)* in 5 A current, 1 *(2)* in 1 A current.
	Inductive load AC-14	Millions of operating cycles		0.5 *(2)* in 1 A current, 1 *(2)* in 0.5 A current, 5 *(3)* in 0.25 A current.
Service life on a ⎓ 24 V load	Resistive load DC-12	Millions of operating cycles		0.1 *(1)* in 5 A current, 0.2 *(1)* in 2 A current.
	Resistive load DC-3	Millions of operating cycles		0.5 *(2)* in 1 A current, > 1 *(3)* in 0.25 A current.
Response time		Latching	**ms**	< 10
		Unlatching	**ms**	< 15
Contact type				C/O
Built-in protection		Against overload and short-circuits		None, a quick-blow fuse must be fitted
		Against a.c. or d.c. inductive overloads		Protected against overvoltages generated by switching the coils of preactuators
Isolation		rms voltage between output and earth or between output and internal logic	**V**	1500, 50/60 Hz for 60 s
		Insulation resistance between output terminals and AS-Interface	mΩ	> 1000

(1) 0.2 of an operation (C/O) per second.
(2) 0.5 of an operation (C/O) per second.
(3) 1 operation (C/O) per second.

Functions : pages 2/76 to 2/79
References: page 2/84 and 2/85
Dimensions, schemes: pages 2/88 to 2/93
Connections: pages 2/94 and 2/95

Consumption

Starter type			Product configured for supply from an auxiliary ⎓ 24 V supply	
			LF3	**LF4**
Current consumption	From the AS-Interface line *(1)*	De-energised	20 mA	20 mA
		Inrush	20 mA	20 mA
		Sealed	20 mA	20 mA
		Per sensor	Sensor consumption (50 mA max) + 10 mA (signal = 1)	
		Relays	20 mA	
	From the auxiliary ⎓ 24 V supply	De-energised	0	0
		Inrush	110 mA	110 mA
		Energised	30 mA	30 mA

Data exchange characteristics

AS-Interface profile		7.D.F.F (standard addressing 7.A.7.0 (extended addressing A/B)	
Data bits (commands)	Bit value	**= 0**	**= 1**
	Command D0 (O)	Stop - forward running	Start - forward running
	Command D1 (O)	Stop - reverse running	Start - reverse running *(2)*
	Command D2 (O)	Deactivation of control relay	Activation of control relay
	Command D3 (O)	Not Used	Not Used
Data bits (status)	Bit value	**= 0**	**= 1**
	Status D0 (I)	Not ready or fault	Ready
	Status D1 (I)	Stopped	Running
	Status D2 (I)	Sensor 1 signal absent *(3)*	Sensor 1 signal present *(3)*
	Status D3 (I)	Sensor 2 signal absent *(4)*	Sensor 2 signal present *(4)*

(1) 30 mA maximum + sensor consumption.
(2) Only on LF4.
(3) Sensor 1 or circuit-breaker fault signal, depending on configuration.
(4) Sensor 1 or sensor 2 signal or control/local mode, depending on configuration.

TeSys enclosed starters
D.O.L. starters for AS-Interface cabling system LF3 P and LF4 P

Characteristics

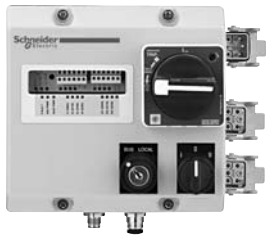
Conforming to standards		IEC 60204-1, 60439-1, 60947-4-1, EN 60204-1, 60947-4-1 UL 508, CSA C22-2 n° 14 *(1)*
Degree of protection	Conforming to IEC 60529	IP 54
Ambient air temperature	Operation	- 5 to + 40 °C
Operating positions		Same as that of the contactors
Material		**LF● P**: polycarbonate *(2)*. **LF● MP**: sheet steel

Starters in insulated (plastic) enclosure


DF526356

LF3 P●●D

Standard power ratings of 3-phase motors 50-60 Hz in category AC-3		Circuit-breaker adjustment range of thermal trips	Starter		
220/230 V	400/415 V		Ref. with standard addressing	Ref. with extended addressing	Weight
kW	kW	A			kg
Non-reversing starters with rotary control knob, with black handle on blue background *(3)*					
–	–	Without	**LF3 P00D** *(4)*	**LF3 P00E** *(4)*	1.020
–	0.06	0.16…0.25	**LF3 P02D**	**LF3 P02E**	1.300
0.06	0.09	0.25…0.40	**LF3 P03D**	**LF3 P03E**	1.300
– –	0.12 0.18	0.40…0.63	**LF3 P04D**	**LF3 P04E**	1.300
0.09 0.12	0.25 –	0.63…1	**LF3 P05D**	**LF3 P05E**	1.300
0.18 0.25	0.37 0.55	1…1.6	**LF3 P06D**	**LF3 P06E**	1.350
0.37	0.75	1.6…2.5	**LF3 P07D**	**LF3 P07E**	1.350
0.55 0.75	1.1 1.5	2.5…4	**LF3 P08D**	**LF3 P08E**	1.350
1.1	2.2	4…6.3	**LF3 P10D**	**LF3 P10E**	1.350
1.5 –	3 4	6…10	**LF3 P14D**	**LF3 P14E**	1.350
2.2 3	5.5 –	9…14	**LF3 P16D**	**LF3 P16E**	1.350


DF526357

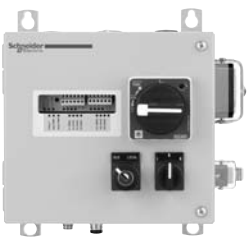
LF4 P●●DA79A74

Reversing starters with rotary control knob, with black handle on blue background *(3)*					
–	–	Without	**LF4 P00D** *(4)*	**LF4 P00E** *(4)*	1.020
–	0.06	0.16…0.25	**LF4 P02D**	**LF4 P02E**	1.550
0.06	0.09	0.25…0.40	**LF4 P03D**	**LF4 P03E**	1.550
– –	0.12 0.18	0.40…0.63	**LF4 P04D**	**LF4 P04E**	1.550
0.09 0.12	0.25 –	0.63…1	**LF4 P05D**	**LF4 P05E**	1.550
0.18 0.25	0.37 0.55	1…1.6	**LF4 P06D**	**LF4 P06E**	1.600
0.37	0.75	1.6…2.5	**LF4 P07D**	**LF4 P07E**	1.600
0.55 0.75	1.1 1.5	2.5…4	**LF4 P08D**	**LF4 P08E**	1.600
1.1	2.2	4…6.3	**LF4 P10D**	**LF4 P10E**	1.600
1.5 –	3 4	6…10	**LF4 P14D**	**LF4 P14E**	1.600
2.2 3	5.5 –	9…14	**LF4 P16D**	**LF4 P16E**	1.600

Starters in metal enclosures

- To order a metal enclosure, add a letter **M** after LF3 or LF4, in the references selected above. Example: LF3 P02D becomes **LF3 MP02D**.
- To order a metal enclosure that conforms to standards UL 508 and CSA C22-2 n° 14, add a letter **M** after LF3 or LF4 and a letter **U** at the end of the references selected above. Example: LF3 P02D becomes **LF3 MP02DU**.

Variants (pre-assembled)


DF526358

LF4 MP●●DA74A79

Description	For mounting on	Suffix to be added to the starter reference *(5)*
With HARTING connectors *(6)*	Insulated or metal enclosure	**A74**
With local/AS-Interface control	Insulated enclosure	**A79**
With local/AS-Interface control	Metal enclosure	**A79**

*(1) Only for metal enclosures with letter **U** at the end of the reference. Certification pending.*
(2) Avoid allowing the material to come into contact with strong bases (detergents, chlorine solvents, ketones, alcohol, aromatic hydrocarbons).
*(3) On metal enclosures only, to order an Emergency Stop rotary control knob with red handle on yellow background, add the letter **R** to the end of the reference. Example: **LF3 MP02DR**.*
(4) Supplied without GV2 P motor circuit-breaker.
*(5) Example: **LF3 P02DA79A74**.*
(6) Connectors to be fitted to cables (to be ordered separately, see page 2/95).

Dimensions: pages 2/88 to 2/90
Schemes: pages 2/91 to 2/93

TeSys enclosed starters
D.O.L. starters for AS-Interface cabling system LF3 M and LF4 M

Characteristics

Conforming to standards		IEC 60204-1, 60439-1, 60947-4-1, EN 60204-1, 60947-4-1 UL 508, CSA C22-2 n° 14
Degree of protection Conforming to IEC 60529		IP 54
Ambient air temperature	Operation	- 5 to + 40 °C
Operating positions		Same as that of the contactors
Material		**LF● M**: polycarbonate *(1)*.

Starters in insulated (plastic) enclosure



LF3 M●●D



LF3 M●●DA79

Standard power ratings of 3-phase motors 50-60 Hz in category AC-3		Circuit-.breaker adjustment range of thermal trips	Starter		
220/230 V	400/415 V		Ref. with standard addressing	Ref. with extended addressing	Weight
kW	kW	A			kg
Non-reversing starters with pushbutton control					
–	–	Without	**LF3 M00D** *(2)*	**LF3 M00E** *(2)*	1.000
–	0.06	0.16…0.25	**LF3 M02D**	**LF3 M02E**	1.250
0.06	0.09	0.25…0.40	**LF3 M03D**	**LF3 M03E**	1.250
– –	0.12 0.18	0.40…0.63	**LF3 M04D**	**LF3 M04E**	1.250
0.09 0.12	0.25 –	0.63…1	**LF3 M05D**	**LF3 M05E**	1.250
0.18 0.25	0.37 0.55	1…1.6	**LF3 M06D**	**LF3 M06E**	1.300
0.37	0.75	1.6…2.5	**LF3 M07D**	**LF3 M07E**	1.300
0.55 0.75	1.1 1.5	2.5…4	**LF3 M08D**	**LF3 M08E**	1.300
1.1	2.2	4…6.3	**LF3 M10D**	**LF3 M10E**	1.300
1.5 –	3 4	6…10	**LF3 M14D**	**LF3 M14E**	1.300
2.2 3	5.5 –	9…14	**LF3 M16D**	**LF3 M16E**	1.300
Reversing starters with pushbutton control					
–	–	Without	**LF4 M00D** *(2)*	**LF4 M00E** *(2)*	1.000
–	0.06	0.16…0.25	**LF4 M02D**	**LF4 M02E**	1.500
0.06	0.09	0.25…0.40	**LF4 M03D**	**LF4 M03E**	1.500
– –	0.12 0.18	0.40…0.63	**LF4 M04D**	**LF4 M04E**	1.500
0.09 0.12	0.25 –	0.63…1	**LF4 M05D**	**LF4 M05E**	1.500
0.18 0.25	0.37 0.55	1…1.6	**LF4 M06D**	**LF4 M06E**	1.550
0.37	0.75	1.6…2.5	**LF4 M07D**	**LF4 M07E**	1.550
0.55 0.75	1.1 1.5	2.5…4	**LF4 M08D**	**LF4 M08E**	1.550
1.1	2.2	4…6.3	**LF4 M10D**	**LF4 M10E**	1.550
1.5 –	3 4	6…10	**LF4 M14D**	**LF4 M14E**	1.550
2.2 3	5.5 –	9…14	**LF4 M16D**	**LF4 M16D**	1.550

Variants (pre-assembled)

Description	For mounting on	Suffix to be added to the starter reference *(3)*
With HARTING connectors *(4)*	Insulated enclosure	**A74**
With local/AS-Interface control	Insulated enclosure	**A79**

(1) Avoid allowing the material to come into contact with strong bases (detergents, chlorine solvents, ketones, alcohol, aromatic hydrocarbons).
(2) Supplied without GV2 ME motor circuit-breaker.
*(3) Example: **LF3 M02DA79A74**.*
(4) Connectors to be fitted to cables (to be ordered separately, see page 2/95).

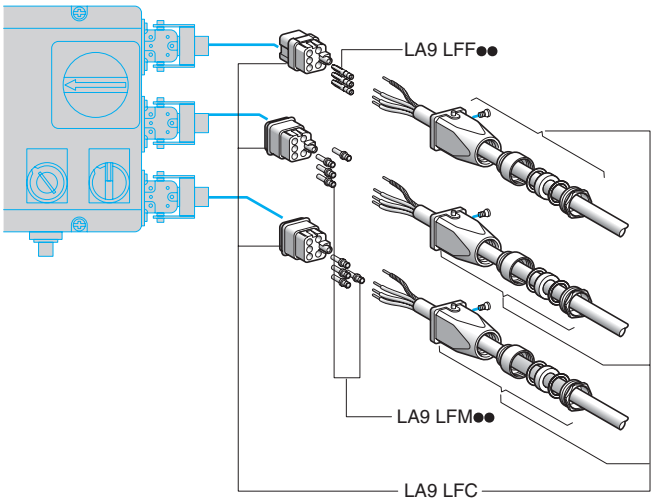
Dimensions:
pages 2/88 to 2/90

Schemes:
pages 2/91 to 2/93

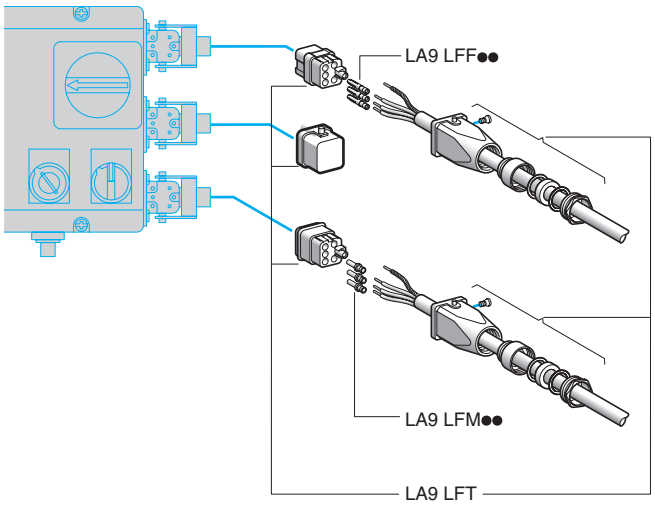
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Insulated enclosures LF3 and LF4

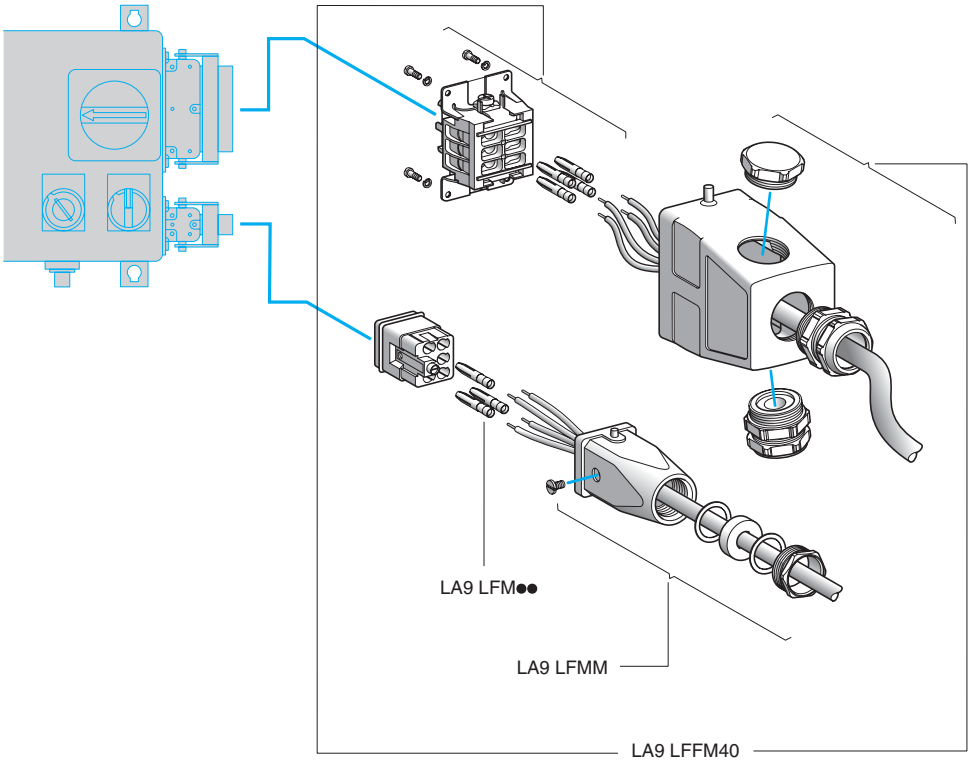
Power extension (daisy-chaining)



Terminal



Metal enclosures LF3 and LF4

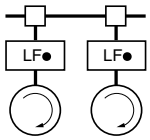


Accessories for insulated enclosures with variant A74

Presentation

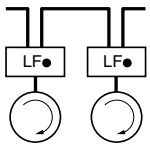
In order to reduce setting-up times and to simplify maintenance, variant A74 LF starters are fitted with Harting plug-in connectors. These starters are designed to allow 2 types of connection topology.

Connection using tap links



This configuration avoids having to switch off the power supply when replacing or adding one or more starters. Although machine availability is increased, a larger number of power connections is required: 4 per starter.

Connection using power extension (daisy-chaining)



The number of power connections per starter is halved, but continuity of service is no longer assured if any of the "upstream" starters are disconnected or removed. With this type of installation, special precautions must be taken because removal of a starter at the head of the power supply line de-energises all the remaining starters on that line. For safety reasons therefore, starters must not be removed under load (prohibited by standard EN60204 above 3kW/400V).

The 2 connection kits and accessories shown below have been designed to facilitate setting up of power extension configurations by the user.

Connection kit (depending on enclosure application)

Enclosure application	Capacity	Kit contents	For mounting on	Reference	Weight
	mm²				kg
Power extension (daisy-chaining)	3-pole 1.5 or 2.5	1 female connector 2 male connectors and corresponding power sockets *(1)*	Enclosures LF3 and LF4	**LA9 LFC**	0.150
Terminal	3-pole 1.5 or 2.5	1 female connector 1 male connector 1 blanking plug and corresponding power sockets *(1)*	Enclosures LF3 and LF4	**LA9 LFT**	0.110

Crimping contacts

Type	Capacity mm²	Sold in lots of	Unit reference	Weight kg
Male	1.5	**100**	**LA9 LFM15**	0.120
	2.5	**100**	**LA9 LFM25**	0.120
Female	1.5	**100**	**LA9 LFF15**	0.160
	2.5	**100**	**LA9 LFF25**	0.150

Accessories for metal enclosures with variant A74

Connection kits

For connector	Kit contents	For mounting on	Reference	Weight
				kg
Input	1 metal cover 2 size 16 cable glands 1 blanking plug 1 female power socket (3P + earth) 4 female crimping contacts *(2)*	Metal enclosures LF3, LF4	**LA9 LFFM40**	0.260
Output to motor	1 metal cover 1 size 16 cable gland 1 female power socket (3P+ earth) *(1)*	Metal enclosures LF3, LF4	**LA9 LFMM**	0.060

Crimping contacts

Type	Capacity	Thermal current	Voltage	Sold in lots of	Unit reference	Weight
	mm²	A	V			kg
Male	1.5	10	400	**100**	**LA9 LFM15**	0.120
	2.5	10	400	**100**	**LA9 LFM25**	0.120

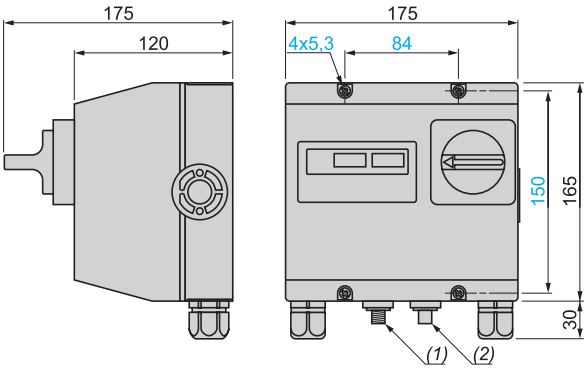
(1) Crimping contacts to be ordered separately.
(2) For flexible cable, 4 mm² maximum, Ith: 16 A, Us: 400 V.

TeSys enclosed starters
D.O.L. starters for AS-Interface cabling system
LF3 P and LF4 P

Non-reversing and reversing starters with rotary control knob

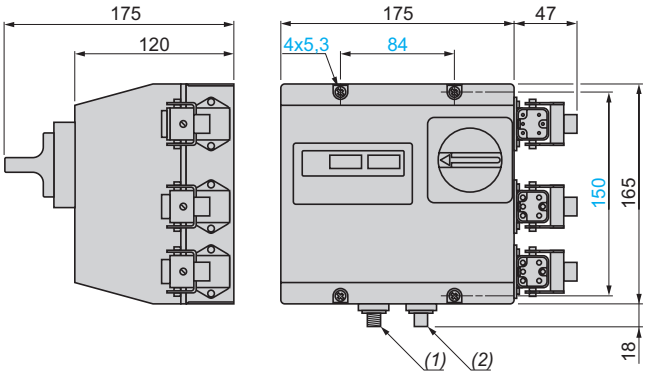
With cable glands

LF● P●●●



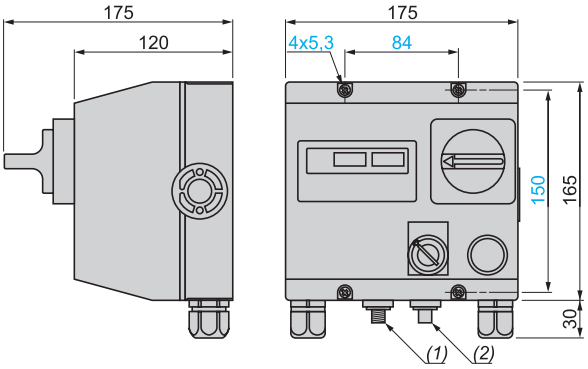
With HARTING plug-in connectors (A74)

LF● P●●●A74



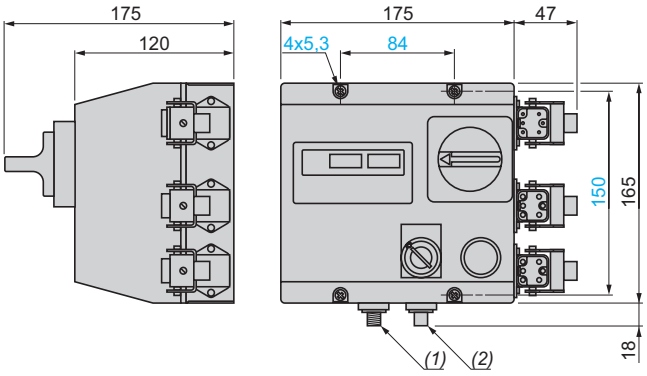
With cable glands
Incorporating sensor and local/AS-Interface control variant (A79)

LF● P●●●A79



With HARTING plug-in connectors (A74)
Incorporating sensor and local/AS-Interface control variant (A79)

LF● P●●●A79A74



Knock-outs for cable gland

From above	2 x Pg16 and 2 x Pg13
From below	2 x Pg16 (cable glands supplied)

(1) M12 male connector for connection to AS-Interface and auxiliary 24 V supply.
(2) M12 female connector for connection to sensor.

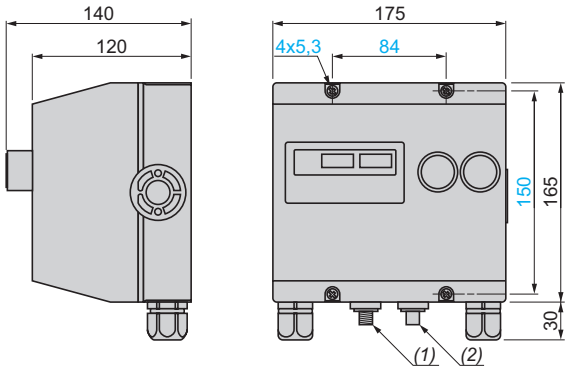
References:
page 2/84

Schemes:
pages 2/91 to 2/93

Non-reversing and reversing starters with pushbutton control

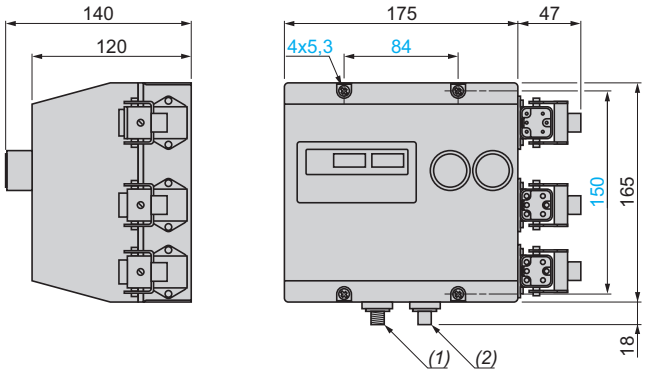
With cable glands

LF● M●●●



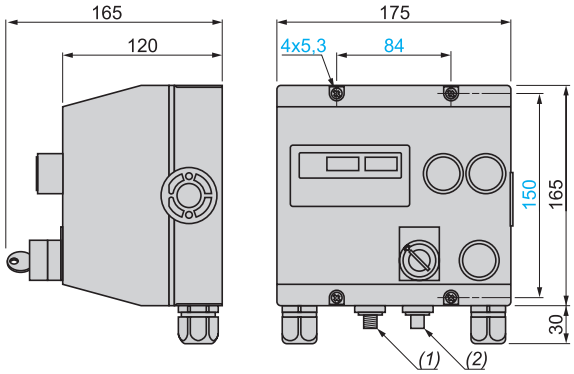
With HARTING plug-in connectors (A74)

LF● M●●●A74



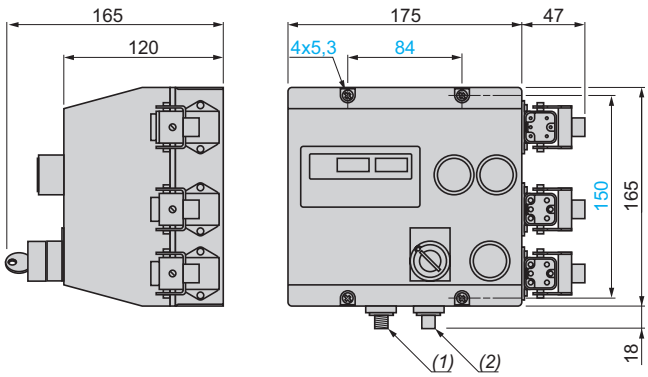
With cable glands Incorporating sensor and local/AS-Interface control variant (A79)

LF● M●●●A79



With HARTING plug-in connectors (A74) Incorporating sensor and local/AS-Interface control variant (A79)

LF● M●●●A79A74



Knock-outs for cable gland

From above	2 x Pg16 and 2 x Pg13
From below	2 x Pg16 (cable glands supplied)

(1) M12 male connector for connection to AS-Interface and auxiliary 24 V supply.
(2) M12 female connector for connection to sensor.

References:
page 2/85

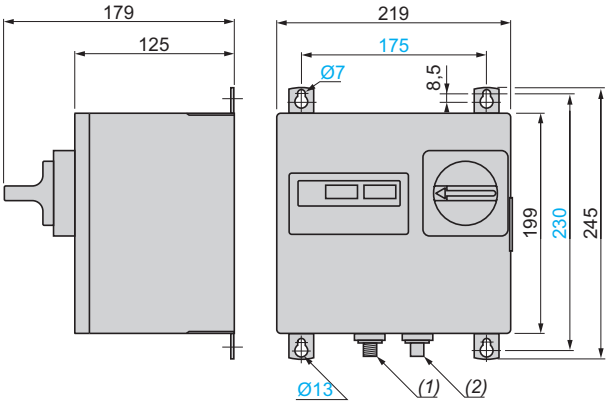
Schemes :
pages 2/91 to 2/93

2

Non-reversing and reversing starters with rotary control knob

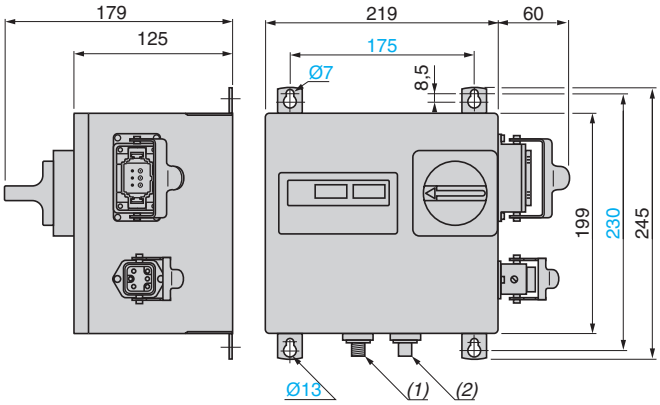
With cable glands

LF● MP●●●



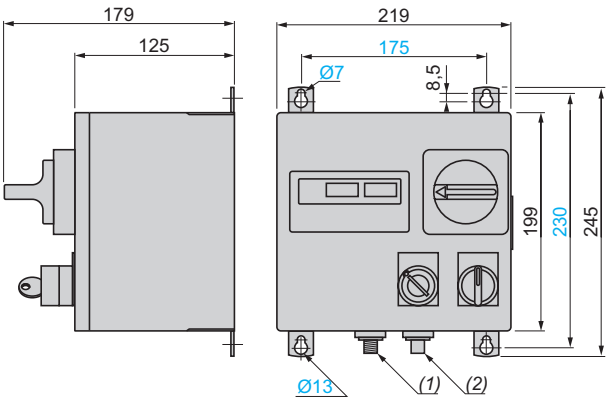
With HARTING plug-in connectors (A74)

LF● MP●●●A74



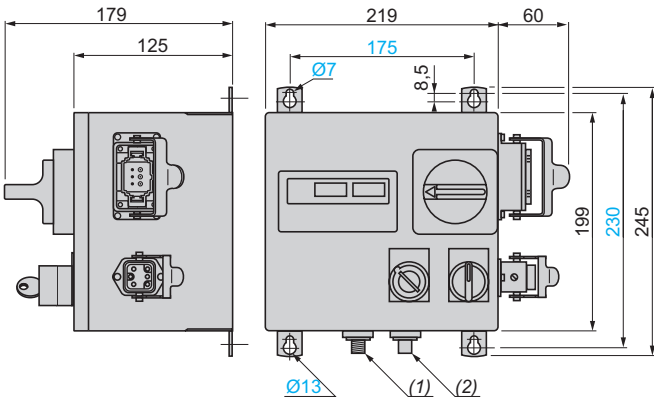
With cable glands Incorporating sensor and local/AS-Interface control variant (A79)

LF● MP●●●A79



With HARTING plug-in connectors (A74) Incorporating sensor and local/AS-Interface control variant (A79)

LF● MP●●●A79A74



Knock-outs for cable gland	Standard enclosure	Enclosure with variant A74
From above	3 x Pg16	1 x Pg16
From below	2 x Pg16	1 x Pg16

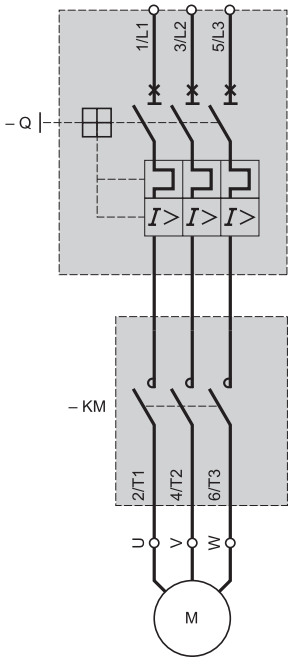
(1) M12 male connector for connection to AS-Interface and auxiliary 24 V supply.
(2) M12 female connector for connection to sensor.

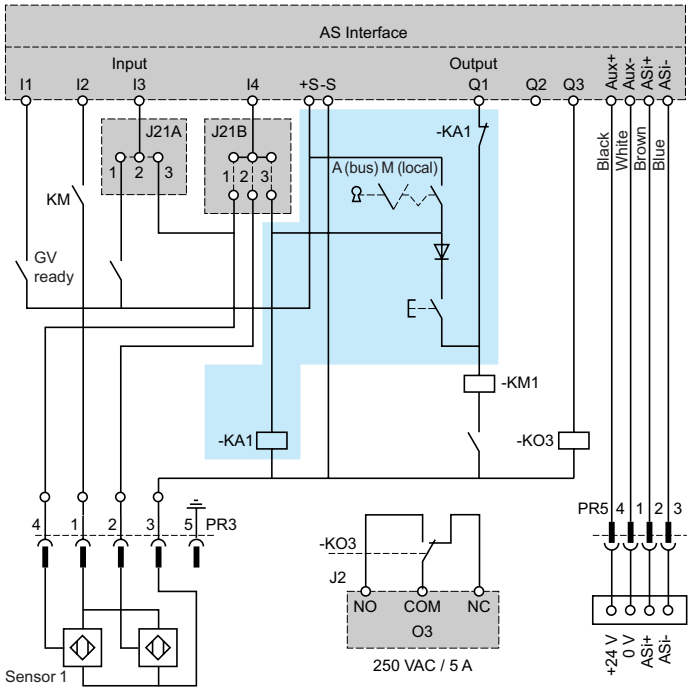
References:
pages 2/84 and 2/85

Schemes:
pages 2/91 to 2/93

2

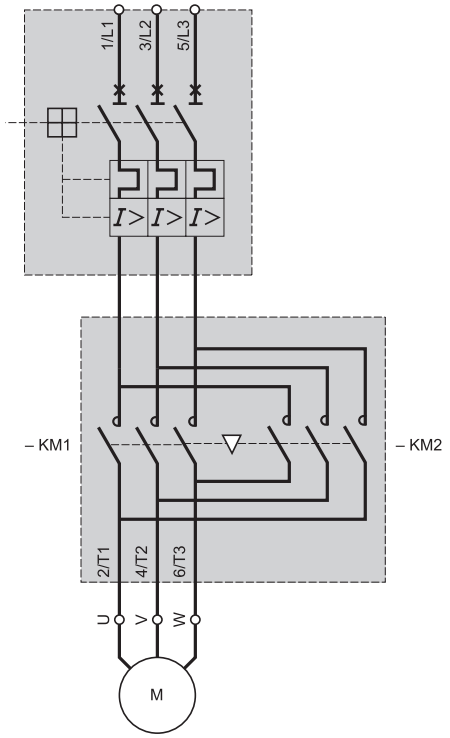
Non-reversing starters LF3

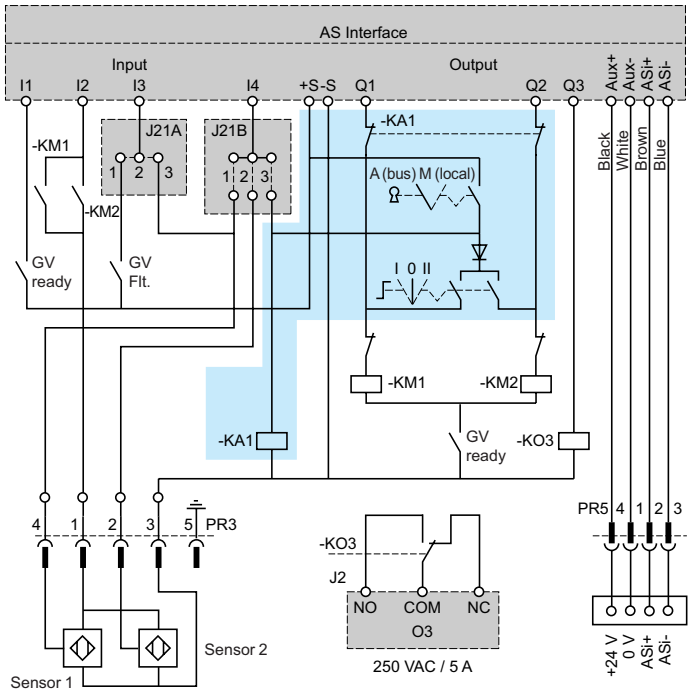




Insulated enclosure with variant A79 or metal enclosure with variant A79

Reversing starters LF4





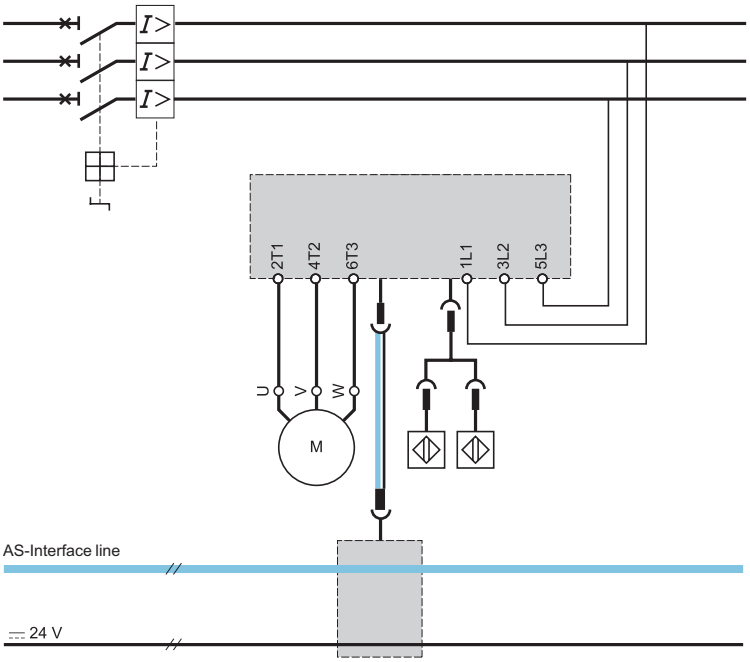
Insulated enclosure with variant A79 or metal enclosure with variant A79

References :
pages 2/84 and 2/85

Dimensions :
pages 2/88 to 2/90

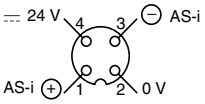
2

Non-reversing and reversing starters with 2 sensors, an auxiliary supply and a control relay



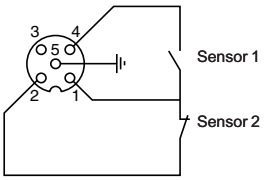
Connections on enclosure

M12 male connector for AS-Interface and ⎓ 24 V auxiliary supply

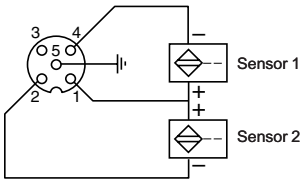


Sensor M12 female connector

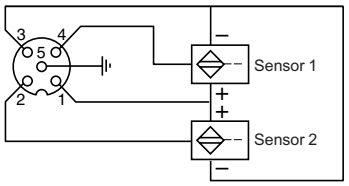
Limit switch



2-wire PNP type sensor

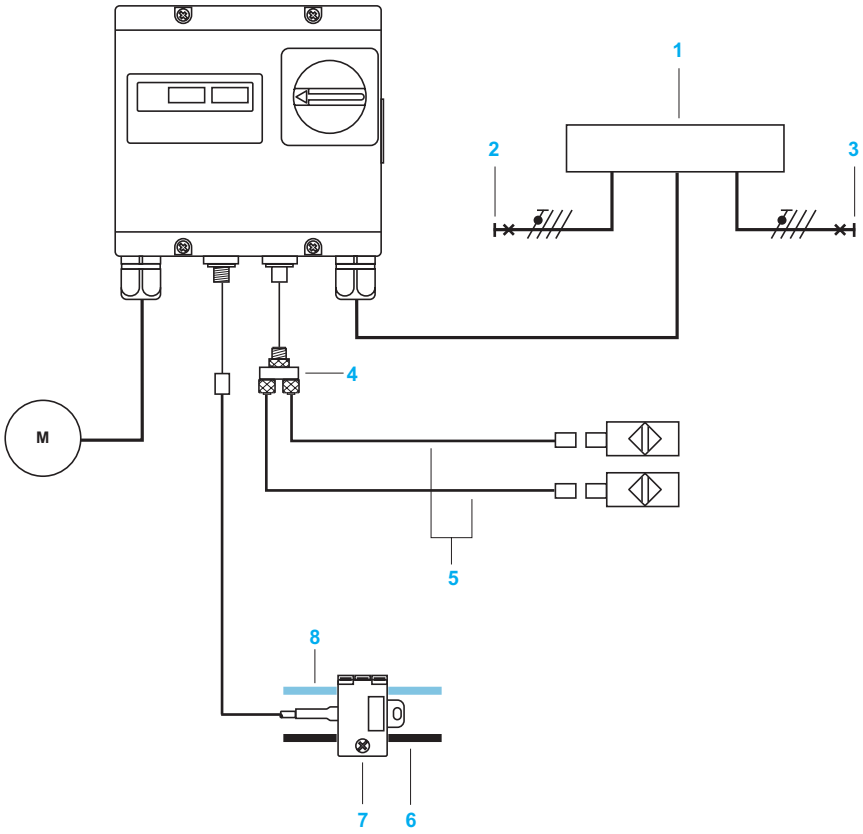


3-wire PNP type sensor



2

Starters in enclosures with cable glands



1 Junction box

2 Incoming power

3 Power extension

4 **FTX CY1212**: splitter block

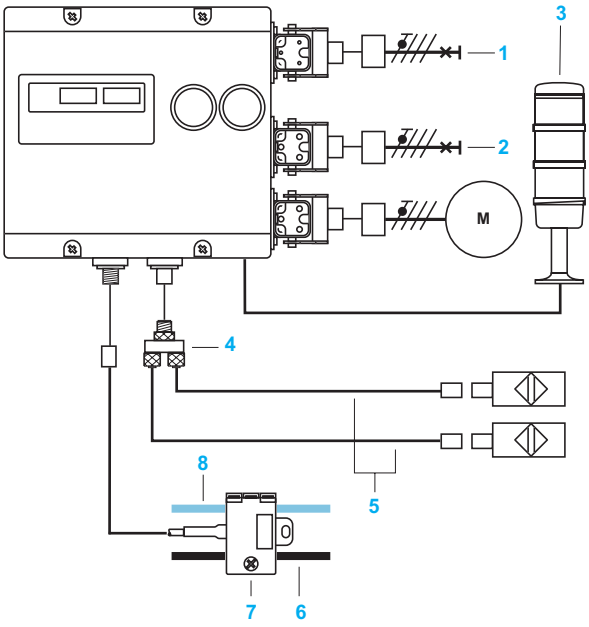
5 **XZ CR1511040A●**: extension

6 **XZ CB1●●02**: flat cable (black) for auxiliary supply

7 **XZ CG01403D**: tap link for two cables

8 **XZ CB1●●01**: flat cable (yellow) for AS-Interface

Starters in insulated enclosures with HARTING type plug-in power connectors

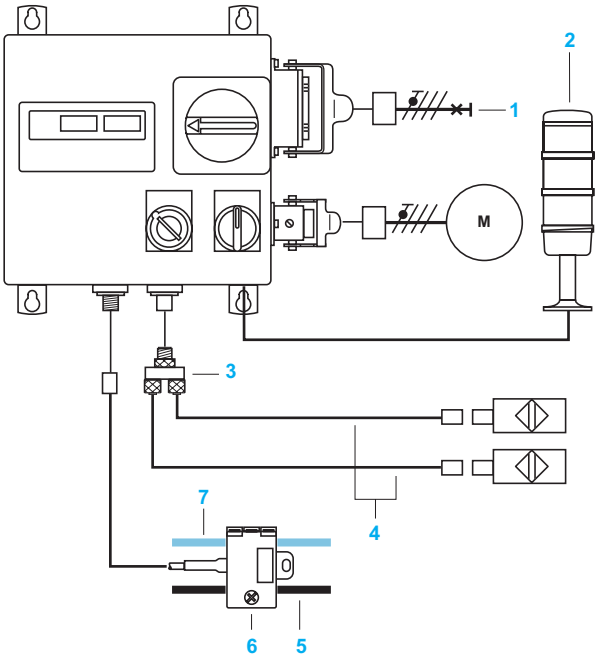


1 Incoming power
2 Power extension
3 Control relay (example: illuminated indicator bank
4 **FTX CY1212**: splitter block
5 **XZ CR1511040A●**: extension
6 **XZ CB1●●02**: flat cable (black) for auxiliary supply
7 **XZ CG01403D**: tap link for two cables
8 **XZ CB1●●01**: flat cable (yellow) for AS-Interface

Configuration of HARTING connectors to be fitted on cables (to be ordered separately)

	Number and HARTING reference	
	for incoming power female connector	for power extension and motor connection male connectors
Straight cover	1 x **09-20-003-0420**	2 x **09-20-003-0420**
Male insert 6-way, 400 V	–	2 x **09-12-005-3101**
Female insert 6-way, 400 V	1 x **09-12-005-3001**	–
Male contacts 2.5 mm²	–	8 x **09-33-000-6102**
Female contacts 2.5 mm²	3 x **09-33-000-6202**	–
Plug for the last socket	–	1 x **09-20-003-5408**

Starters in metal enclosures with HARTING type plug-in power connectors



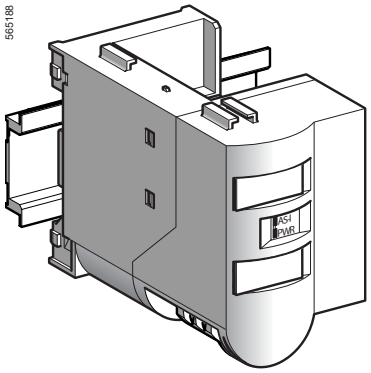
1 Incoming power
2 Control relay (example: illuminated indicator bank
3 **FTX CY1212**: splitter block
4 **XZ CR1511040A●**: extension
5 **XZ CB1●●02●**: flat cable (black) for auxiliary supply
6 **XZ CG1403D**: tap link for two cables
7 **XZ CB1●●01●**: flat cable (yellow) for AS-Interface

Configuration of HARTING connectors to be fitted on cables (to be ordered separately)

	Number and HARTING reference	
	for incoming power female connector	for power extension and motor connection male connectors
Straight cover	1 x **09-30-006-442** *(1)* 1 x **09-30-006-443** *(2)*	2 x **09-20-003-1440**
Male insert 6-way, 400 V	–	2 x **09-12-005-3101**
Female insert 6-way, 400 V	1 x **09-33-006-2702**	–
Male contacts 2.5 mm²	–	5 x **09-33-000-6102**
Female contacts 2.5 mm²	3 x **09-33-000-6207**	–

(1) PG21.
(2) PG29.

TeSys D.O.L. starters
LA9 Z modules for AS-Interface cabling system



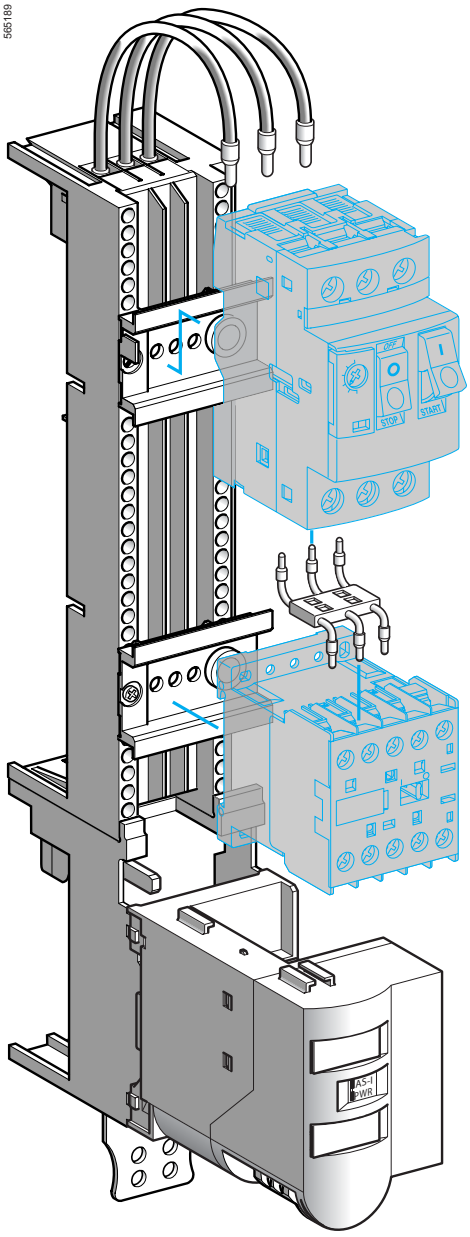
565188

Presentation

AS-Interface modules **LA9 Z32810** and **LA9 Z32811** allow motor starters to be monitored and controlled by AS-Interface. These products are in addition to the "AS-Interface enclosed starter" range, LF1 and LF2.

The module sizes offered are: 2 inputs/1 output or 4 inputs/2 outputs.

These products can be mounted in two ways:
- on ⊔ rail,
- on **LA9 Z●●●** adapters for use with busbar systems.



565189

Inputs/outputs are connected to a built-in, flexible terminal type connector, so reducing installation time.
The AS-Interface line is connected to the module by the yellow connector.
The external ⎓ 24 V supply to the module outputs is connected to the black connector. With this supply method, it is possible to make the output states subject to external safety conditions (Emergency stop, safety overtravel, etc.).

Characteristics: page 2/98
References: page 2/99
Dimensions, scheme : pages 2/100 and 2/101

Fields of application

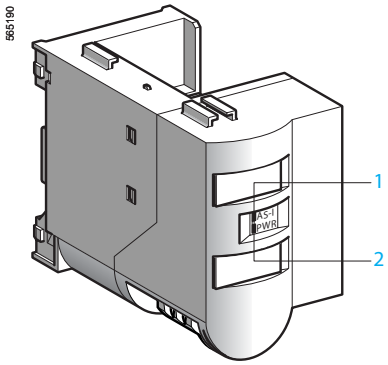
The various module sizes allow control of:

- non-reversing starters,
- reversing starters,
- 2-speed starters for motors with separate windings.

The outputs, supplied by the separate auxiliary voltage, can simultaneously switch a current of 0.5 A at ⎓ 24 V and can therefore switch the following contactors:

- LP1, LP4 K06 to K12,
- LC1 D09 to D32.

Composition



AS-Interface module

1 AS-Interface green/red LED indicator:
- red: no communication with the Master. The outputs are switched off,
- green: communication OK, outputs OK,
- red/yellow flashing: module has no address (assign an address between 1 and 31),
- off: no power supply to AS-Interface.

2 Green PWR LED:
- LED on: auxiliary power supply ON,
- LED off: auxiliary power supply OFF.

Characteristics: page 2/98
References: page 2/99
Dimensions, schemes: pages 2/100 and 2/101

2

General system environment

Interface type				LA9 Z32810		LA9 Z32811	
Product certifications				AS-Interface N° 18701		AS-Interface N° 18601	
Protective treatment				"TH"			
Degree of protection	Conforming to IEC 60539			IP 20			
Ambient air temperature around the device	Storage, conforming to IEC 60539		°C	- 40…+ 85			
	Operation		°C	- 10…+ 55			
Maximum operating altitude	Without derating		m	2000			
Flame resistance	Conforming to IEC 60695-2-1		°C	960			
Resistance to external mechanical impact	1/2 sine wave, 11ms conforming to IEC 60068-2-6			15 gn			
Vibration resistance	5…150 Hz conforming to 60068-2-6			2 gn			
Immunity to non-dissipating shockwave (Uimp)	Conforming to IEC 60439-1		kV	2.5: AS-Interface, 24 V and on inputs/outputs			
Immunity to electrostatic discharge	Conforming to IEC 61000-4-2 EN 61000-4-2		kV	8: in open air (level 3) 4: in indirect mode (level 2)			
Immunity to fast transient currents	Conforming to IEC 61000-4-4 EN 61000-4-4 level 4		kV	2: AS-Interface, 24 V and on inputs/outputs			
Immunity to dissipated shock wave	Conforming to IEC 61000-4-5 EN 61000-4-5		kV	2: AS-Interface, 24 V and on inputs/outputs			
Immunity to conducted radio-frequency interference	Conforming to IEC 61000-4-6 ENV 50 141		V/m	10			
Immunity to radiated radio-frequency interference	Conforming to IEC 61000-4-3 ENV 50 140 and ENV 50 204 (GSM)		V/m	10			
Radio-conducted and radio-radiated rejection	ENV 55 011/CISPR (G1)			Class A			
AS-Interface supply			V	29.5-31.6			
Cabling c.s.a., AS-Interface	Flexible cable		mm^2	2 x 0.5…0.75			
Cabling c.s.a., 24 V	Flexible cable		mm^2	2 x 0.5…0.75			
Cabling c.s.a., input/output	Flexible cage terminal and flexible cable		mm^2	0.08…2.5; AWG28…12			
Input current			mA	7			
Coincidence of inputs				100 %			
Maximum length of wires to switching components			m	0.4			
Maximum current of outputs	⎓ 13/14, (24 V)		A	0.5			
Thermal current	Ith		A	2			
Coincidence of outputs				100 %			
Short-circuit protection	By flywheel diode			Yes			
Outputs switched off in event of interference on the AS-Interface line	Watchdog			Yes			
AS-Interface profile				3 F		7 F	
Number of I/O				2 inputs/1 output		4 inputs/2 outputs	
Current consumption	On AS-Interface On/OFF		mA	8…12		8…12	
Data bits		Status		0	1	0	1
	Command	D0 (O)	Out 1	Off	On	Off	On
		D1 (O)	Out 2	Not used		Off	On
		D2 (O)	Out 3	Not used			
		D3 (O)	Out 4	Not used			
	Status	D0 (I)	In 1	Absent	Present	Absent	Present
		D1 (I)	In 2	Absent	Present	Absent	Present
		D2 (I)	In 3	Not used		Absent	Present
		D3 (I)	In 4	Not used		Absent	Present
Parameters		P0…P3		Not used			

Presentation : pages 2/96 and 2/97
References : page 2/99
Dimensions, schemes : pages 2/100 and 2/101

TeSys D.O.L. starters
LA9 Z modules for AS-Interface cabling system

AS-Interface modules *(1) (2)*

No. of channels	Number of inputs	Number of outputs	Output voltage	Current per output	Reference	Weight
			V	A		kg
3	2	1	⎓ 24	0.5	**LA9 Z32810**	0.070
6	4	2	⎓ 24	0.5	**LA9 Z32811**	0.070

Accessories

Description	Busbar system	Width	Reference	Weight
	mm	mm		kg
Modules without electrical connection, for use with all LA9 Z●● adapters	40 or 60	45	**LA9 Z32744**	0.044
		54	**LA9 Z32745**	0.051
Module with PE + N polarity and 5-way connector	40	45	**LA9 Z32740**	0.091
		54	**LA9 Z32741**	0.098
	60	45	**LA9 Z32742**	0.085
		54	**LA9 Z32743**	0.092

Replacement connectors and adapter cable

Description	Colour	Sold in lots of	Unit reference	Weight kg
Insulation Displacement Connector (IDC) for AS-Interface	Yellow	5	**LA9 Z32825**	0.100
Insulation Displacement Connector (IDC) for auxiliary supply	Black	5	**LA9 Z32826**	0.100

Description	Cable length	Reference	Weight
	m		kg
Adapter cable for connection to addressing terminal XZ MC11	0.5	**XZ MG12**	0.070

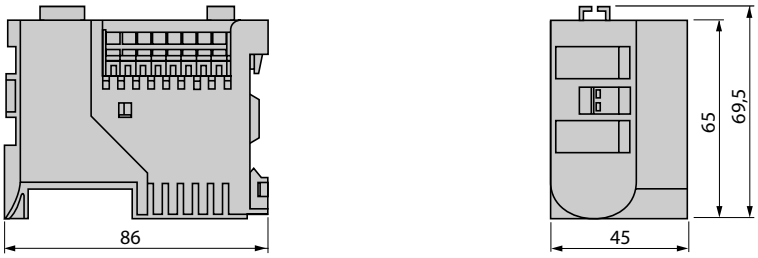
(1) User's Manual to be ordered separately, please consult your Regional Sales Office.
*(2) Supplied with connectors **LA9 Z32825** and **LA9 Z32826**.*

Presentation : pages 2/96 and 2/97
Characteristics : page 2/98
Dimensions, schemes : pages 2/100 and 2/101

2

Dimensions

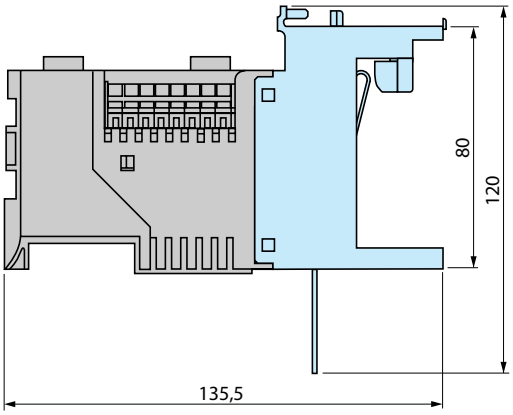
LA9 Z3281●



Mounting on modules

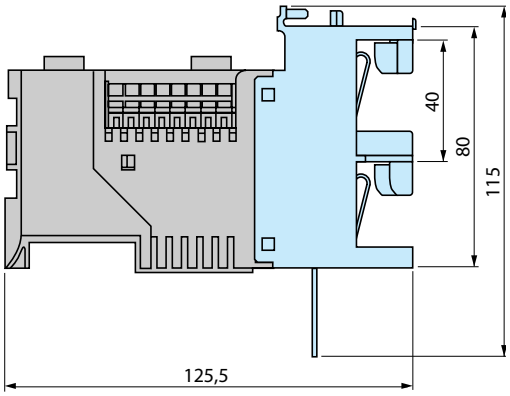
LA9 Z32742, LA9 Z32743

60 mm busbar system

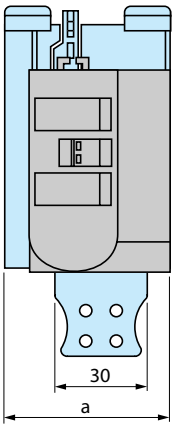


LA9 Z32740, LA9 Z32741

40 mm busbar system



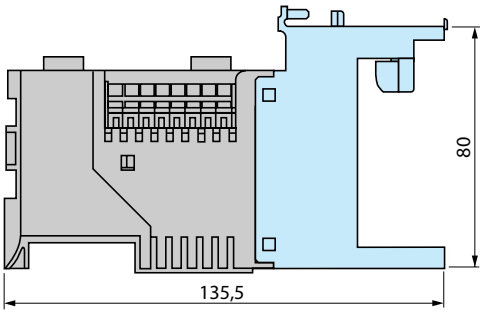
Common front face view



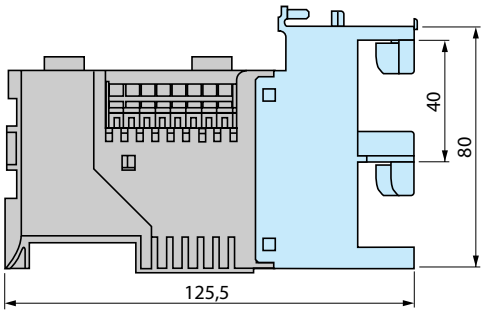
LA9	a
Z32740, Z32742	45
Z32741, Z32743	54

LA9 Z32745

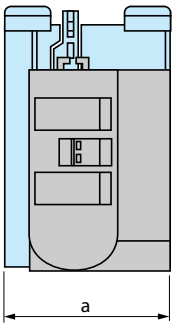
40 or 60 mm busbar system



LA9 Z32744



Common front face view

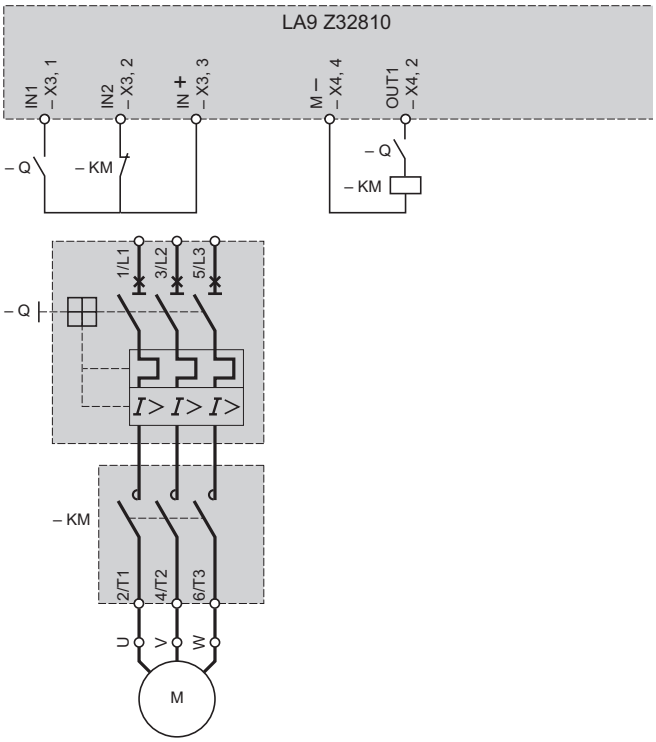


LA9	a
Z32745	54
Z32744	45

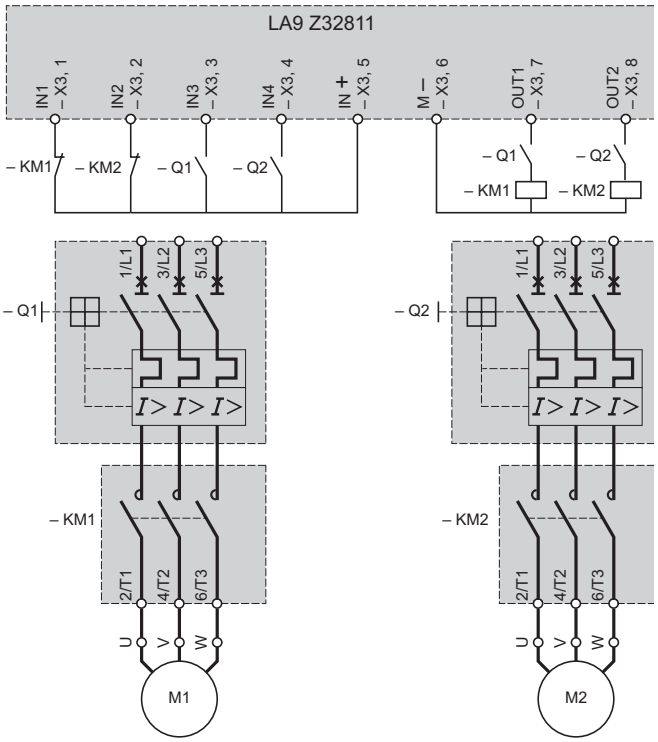
Schemes

D.O.L. starter, non-reversing

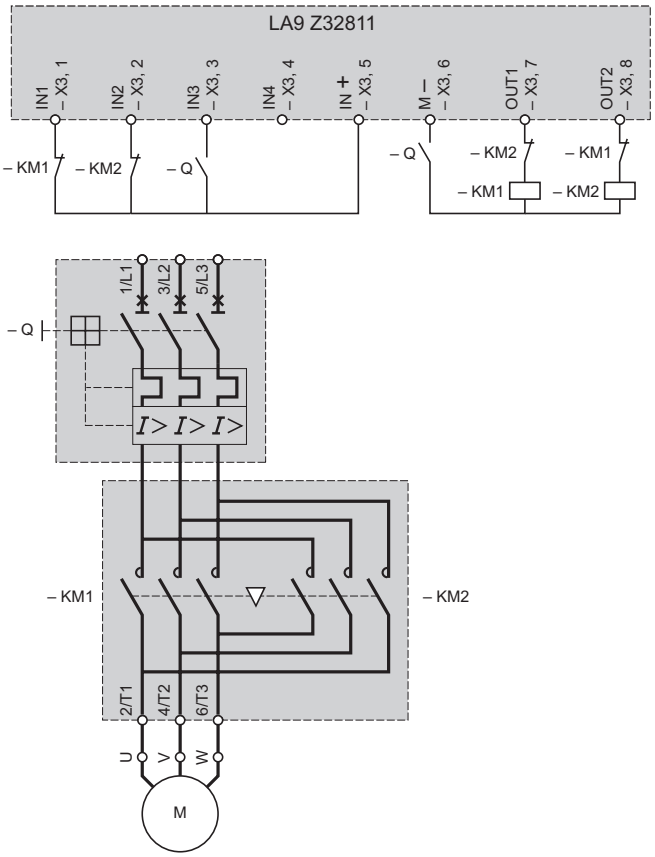
1 motor



2 motors



D.O.L. starter, reversing



Presentation : pages 2/96 and 2/97
Characteristics : page 2/98
References : page 2/99