Giving you total control of your installation

> Acti 9 Command and control

CoCom for complete control, monitoring and measurment for any installation



Acti 9: The efficiency you deserve

Schneider Electric

We can all adapt to the new energy world

Energy use reduction and management will be a continued focus of policy makers. Key targets for future policies will be:

- Limiting final energy consumption in all sectors
- Measuring and tracking energy use to establish benchmarks and targets
- Promoting alternative green energy sources and technologies
- Opening markets to promote emissions trading and demand reduction

Buildings and Industry offer the largest and most accessible opportunities for savings.

Commit to understand the impact and opportunity in your business.
Energy efficiency is the quickest, cheapest and cleanest way to extend our world's energy supplies.



Industry

- Over 30% of consumed energy
- Motors account for 60% of the electricity usage
- Average facility can reduce its energy consumption by 10 to 20%

Buildings

- Over 20% of consumed energy and goring (EU & US)
- 3 key areas: HVAC, lighting and integrated building solutions
- Technical projects can yield up to 30% of energy savings

Residential

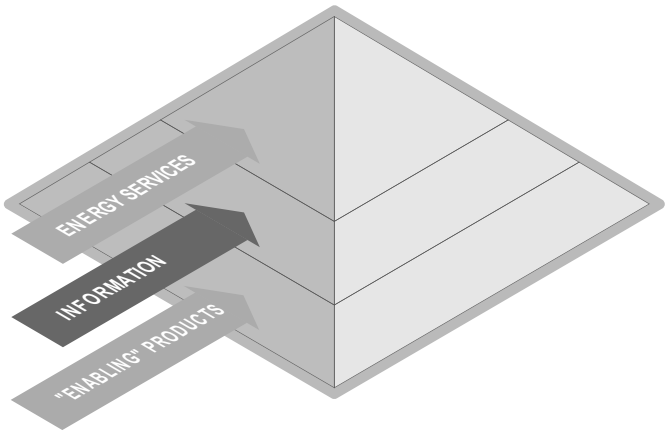
- Over 20% of consumed energy (EU & US)
- Using energy efficient products may save 10% to 40% electricity

" Schneider Electric has made this commitment and we can help you. "

Solutions which enable and sustain Energy efficiency

Our products and solutions are at every link in the energy chain enabling 10 to 30% or more in energy savings.

- Technology is crucial to achieving Energy efficiency. Energy smart innovations will continue to have significant impact on enabling energy and emissions reduction.
- Information, expertise and knowledge are crucial to apply technologies in practical and economically feasible ways.
- Behavioral and procedural actions facilitate the ability initiate and to sustain all savings.



Help customers make the right decisions to manage energy.
Provide information which evokes confidence in decision making.
Technology and solutions to eneable sustainable savings.

Solutions & knowledge

- **HVAC, ventilation, fan control, Lighting control & management**
- **Pump, compressor control, motor control & management**
- **Power management, critical power solutions**
- **Facility management, process optimisation**
- **Energy information services, audits & assessments**
- **Energy services…**

Enabling technology

- Metering, monitoring & control, automation & sensors
- Drives & motor control, Lighting control systems
- Building automation systems, electrical distribution
- Power Factor Correction, power filtering
- Uninterruptible Power Systems
- SCADA, information systems
- Management tools…

“ Schneider Electric enables customers to make a difference ”



Enabling energy saving

30%

Energy savings are feasible now with today's technologies.

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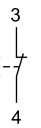
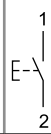
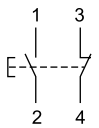
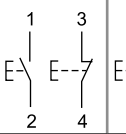
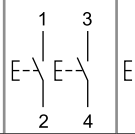
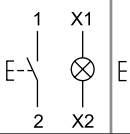
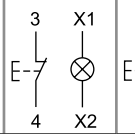
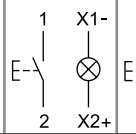
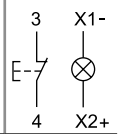
iPB pushbuttons

IEC 60669-1 and IEC 60947-5-1

■ iPB pushbuttons are used to control electric circuits by means of pulses.

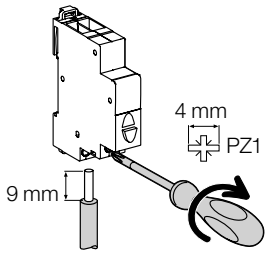
Catalogue numbers

iPB pushbuttons

Type		Single				Double		Single + indicator light			
		PB105259-40				PB105260-40		PB105261-40			
											
Diagram		1 NC		1 NO	1 NO + 1 NC	1 NO / 1 NC	1 NO / 1 NO	1 NO	1 NC	1 NO	1 NC
											
Pushbutton	Colour	Grey	Red	Grey	Grey	Green/red	Grey/grey	Grey	Grey	Grey	Grey
Indicator light	Power supply	-	-	-	-	-	-	110…230 V AC		12…48 V AC/DC	
	Colour	-	-	-	-	-	-	Green	Red	Green	Red
Cat. no.		**A9E18030**	**A9E18031**	**A9E18032**	**A9E18033**	**A9E18034**	**A9E18035**	**A9E18036**	**A9E18037**	**A9E18038**	**A9E18039**
Width in 9 mm modules		2				2		2			

Connection

DB123133

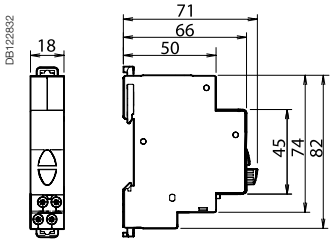


Tightening torque	Copper cables	
	Rigid	Flexible or ferrule
	DB122945	DB122946 
1 N.m	0.5 mm² min. 2 x 2.5 mm² max.	0.5 mm² min. 2 x 2.5 mm² max.

■ Phase-separated wall that can be divided to allow the teeth of all types of comb busbar to pass through.
■ Staggered terminals to simplify connection.

Dimensions (mm)

DB122832



Technical data

Main characteristics	
Pollution degree	3
Power circuit	
Voltage rating (Ue)	250 V AC
Current rating (Ie)	20 A
Additional characteristics	
Endurance (O-C)	30,000 operations AC22 (cos φ = 0.8)
Operating temperature	-35°C... +70°C
Storage temperature	-40°C... +80°C
Tropicalization	Treatment 2 (relative humidity 95 % at 55°C)
LED indicator light	Consumption: 0.3 W
	Service life: 100,000 hours of constant lighting efficiency
	Maintenance-free indicator light (non-interchangeable LEDs)

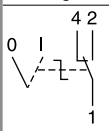
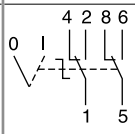
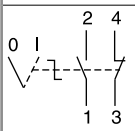
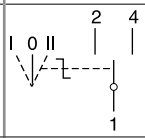
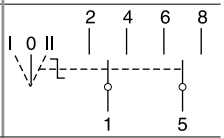
iSSW linear switches

IEC 60669-1 and IEC 60947-5-1

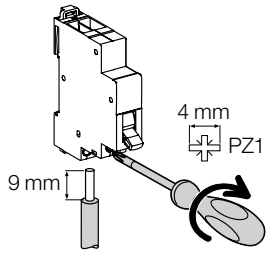
■ iSSW linear switches are used for the manual control of electric circuits.

Catalogue numbers

iSSW linear switches

Type	2 positions			3 positions	
	PB105262-40 			PB105263-40 	
Contact	1 changeover switch	2 changeover switches	1 NO + 1NC	1 changeover switch	2 changeover switches
Diagram					
Cat. no.	**A9E18070**	**A9E18071**	**A9E18072**	**A9E18073**	**A9E18074**
Width in 9 mm modules	2	4	2	2	4

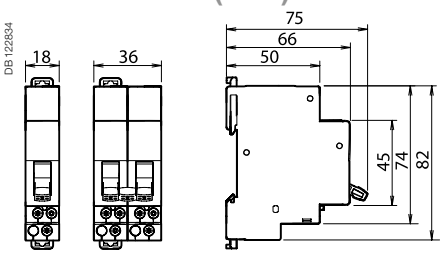
Connection

DB123134 

Tightening torque	Copper cables	
	Rigid	Flexible or ferrule
	DB122945	DB122946 
1 N.m	0.5 mm² min. 2 x 2.5 mm² max.	0.5 mm² min. 2 x 2.5 mm² max.

■ Phase-separated wall that can be divided to allow the teeth of all types of comb busbar to pass through.
■ Staggered terminals to simplify connection.

Dimensions (mm)

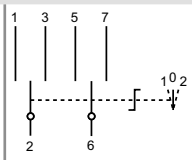
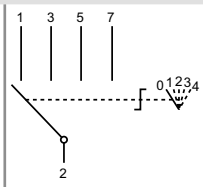
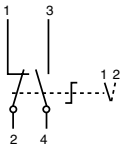
DB 122834 

Technical data

Main characteristics	
Pollution degree	3
Power circuit	
Voltage rating (Ue)	250 V AC
Current rating (Ie)	20 A
Additional characteristics	
Endurance (O-C)	30,000 cycles AC22 (cos φ = 0.8)
Operating temperature	-20°C... +50°C
Storage temperature	-40°C... +70°C
Tropicalization	Treatment 2 (relative humidity 95 % at 55°C)

DIN rail selector switches iCMB, iCMD, iCME, iCMC, iCMV and iCMA

Control

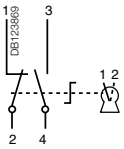
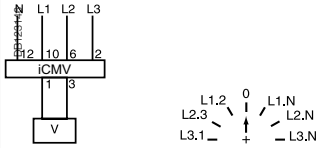
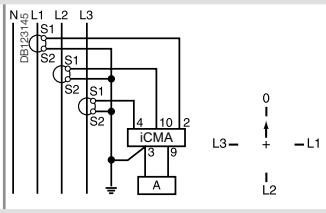
Selector switches	iCMB	iCMD	iCME
Type	**Two-pole with zero setting**	**4-way**	**2-way for electronic circuits**
In compliance with standards	IEC 60947-3 (EN 60947-3) VDE 0660 part. 107 UL	IEC 60947-3 (EN 60947-3) VDE 0660 part. 107 UL	IEC 60947-3 (EN 60947-3) VDE 0660 part. 107 UL
	PB107120-38 	PB107121-38 	PB107122-38 
Function			
	■ This two-pole selector switch with zero setting allows manual control of a circuit with 2-way operation with a stop position	■ This 4-way selector switch allows control of a circuit with operating priorities	■ This 2-way selector switch is used specially for the control of electronic circuits of low voltage and current level
Wiring diagrams			
	DB123860 	DB123861 	DB123862 
Use			
	Example: electrically controlled metal screen: ■ position 1 = raising ■ position 0 = stop ■ position 2 = lowering	Example: fan control: ■ position 0 = stop ■ position 1 = override operation, slow speed ■ position 2 = override operation, high speed ■ position 3 = remote control ■ position 4 = automatic operation	■ Voltage range from 30 mV to 600 V AC
Catalogue numbers	**A9E15120**	**A9E15121**	**A9E15122**

Technical specifications

Rated voltage (Ue)	V AC	415	415	See following table
Maximum operating voltage	V	440	440	440
Rating	A	10	10	See following table
Operating frequency	Hz	50/60	50/60	50/60
Width in 9-mm modules		4	4	4
Breaking capacity (resistive load)		–	–	
Operating temperature	°C	-20…+55	-20…+55	-20…+55
Storage temperature	°C	-25…+80	-25…+80	-25…+80

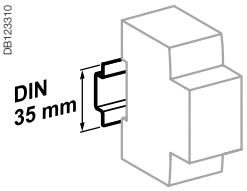
	V AC	**V DC**
1 V	5 A	3 A
12 V	1.2 A	0.7 A
24 V	0.7 A	0.4 A
48 V	0.45 A	0.25 A
110 V	0.25 A	0.13 A
240 V	0.15 A	0.08 A
300 V	0.13 A	0.07 A
440 V	0.1 A	0.05 A

DIN rail selector switches iCMB, iCMD, iCME, iCMC, iCMV and iCMA (cont.)

	iCMC	iCMV	iCMA
	2-way key-actuated	**7-position voltmeter**	**4-position ammeter**
	IEC 60947-3 (EN 60947-3) VDE 0660 part. 107 UL	IEC 60947-3 (EN 60947-3) VDE 0660 part. 107 UL	IEC 60947-3 (EN 60947-3) VDE 0660 part. 107 UL
			
	■ 2-way key-actuated selector switch with locking in one or the other position	■ This 7-position voltmeter selector switch makes it possible, with a single voltmeter, to measure in succession the voltages (phase-to-phase and phase-to-neutral) of a three-phase circuit	■ This 4-position ammeter selector switch makes it possible, with a single ammeter (using current transformers), to measure in succession the currents of a three-phase circuit
			
	–	–	–
	A9E15123	**15125**	**15126**
	415	415	415
	440	440	440
	10	10	10
	50/60	50/60	
	4	4	4
	–	–	–
	-20…+55	-20…+55	-20…+55
	-25…+80	-25…+80	-25…+80

DIN rail selector switches iCMB, iCMD, iCME, iCMC, iCMV and iCMA (cont.)

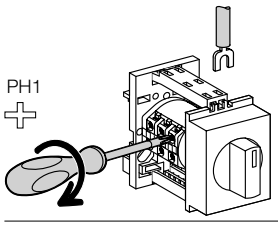
DB123310



Clip on DIN rail 35 mm.

Connection

DB123270



Tightening torque	Copper cables
	Flexible or rigid with ferrule
DB122945	
0.35 N.m	< 1.5 mm²

■ Connection by jumper terminals with captive screws.

Technical data

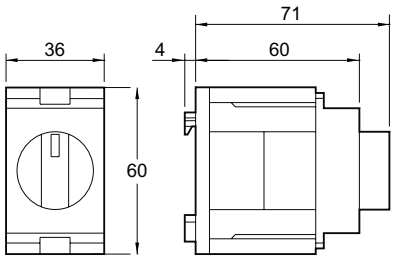
Additional characteristics		
Degree of protection	Device only	IP20
Endurance (O-C)	Electrical	1,000,000 switching operations
	Mechanical	2,000,000 switching operations (AC21A-3 x 440 V)

Weight (g)

Selector switches	
Type	
iCMA	58
iCMB	58
iCMC	70
iCMD	58
iCME	44
iCMV	58

Dimensions (mm)

DB123857



Button holders

They can be attached to a symmetrical 35 mm rail, in modular cabinets or enclosures, for control and indications auxiliaries: push-buttons, emergency stops, switches, light indicators; for tertiary and industrial applications.

PB107183-29



A9A15151

PB107184-29



A9A15152

Catalogue numbers

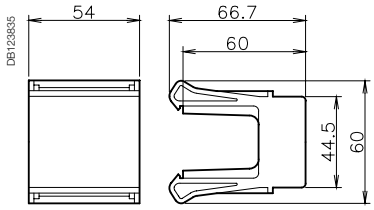
Button holders		
Type		**Width in 9 mm modules**
Ø 22 mm button holder		
	A9A15151	6
Universal support		
	A9A15152	6

Technical data

Main characteristics	Button holder	Universal support
For buttons, switches and indicators with metal or plastic flange Ø 22 of the Schneider Electric XB4 / XB5 type	■	-
For buttons, indicators, light emitting diodes (LED), potentiometers	-	■
Drilling diameter	Ø 22.3 mm	Easy drilling, to be adapted depending on use
Colour	White RAL 9003	
Self-extinguishing insulating material		
Depth under rail 60 mm (same as products)		

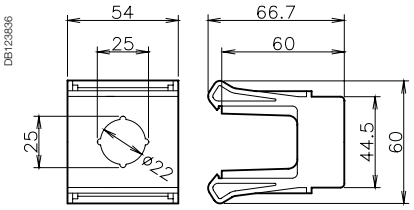
Dimensions (mm)

DB123835



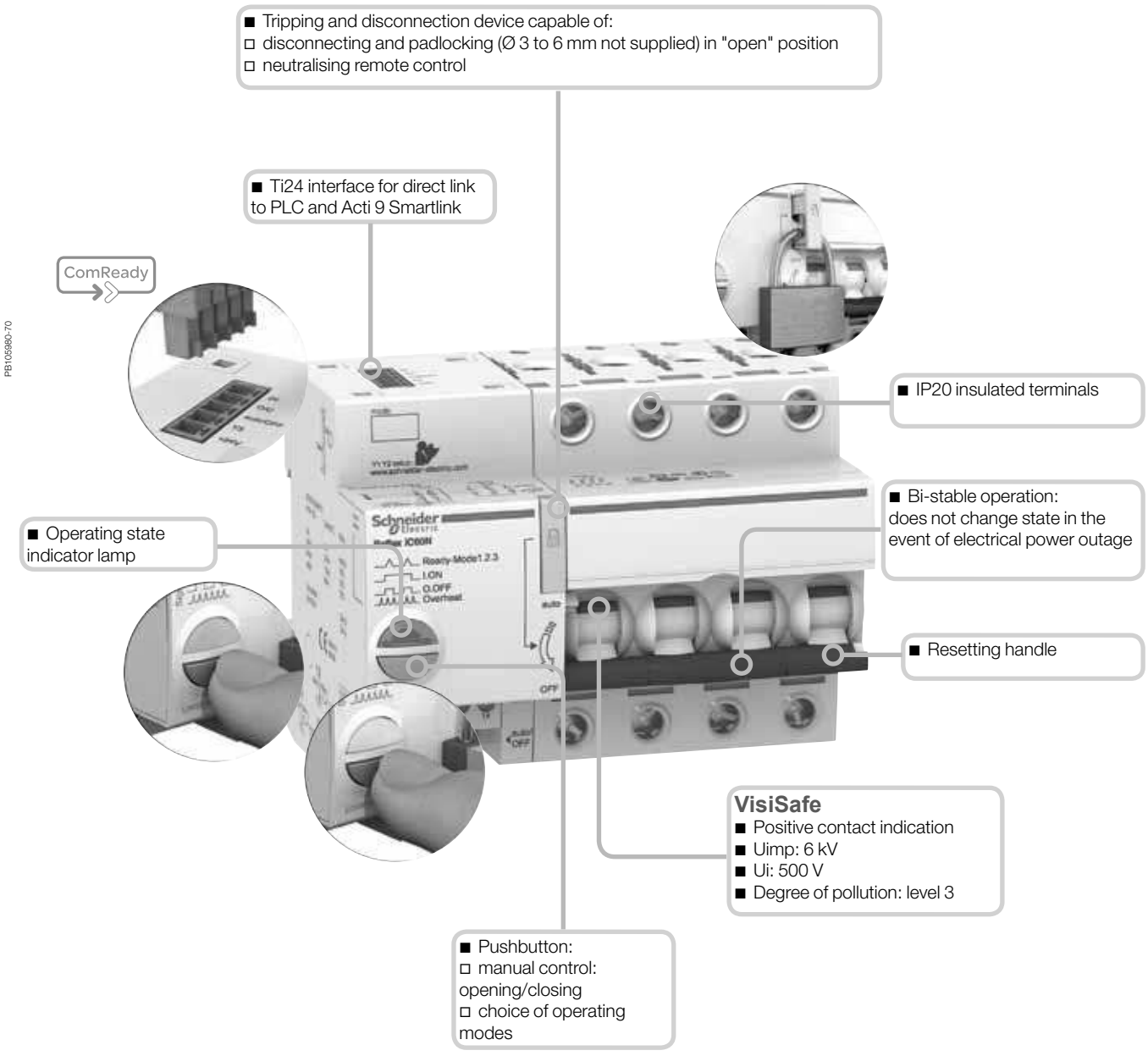
Universal support

DB123836



Ø 22 mm button holder

Reflex iC60H (curves C, D) (cont.)



Reflex iC60H (curves C, D) (cont.)

■ Longer product service life due to:
□ good overvoltage withstand capacity: products designed to provide a high industrial performance level (degree of pollution, rated impulse withstand voltage and insulation voltage),
□ high limitation performances,
□ fast closure independent of the speed of resetting of the operating handle.

DB123765



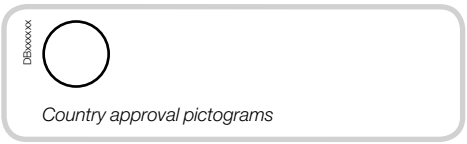
DB123516



Legend	
Ti24 interface	
+24VDC	V DC power supply
Y3	Remote control by latched order
auto/OFF	Circuit-breaker state information
O/C	Control circuit state information (open/closed)
0 V	V DC power supply

Y1	Latched order control
Y2	Control by impulse-type
N	230 V AC power supply
P	
O/C  11 12 14	Control circuit state indication contact
auto/OFF  21 22 24	Circuit-breaker tripping indication contact

Reflex iC60H (curves C, D)



Country approval pictograms

IEC/EN 60947-2

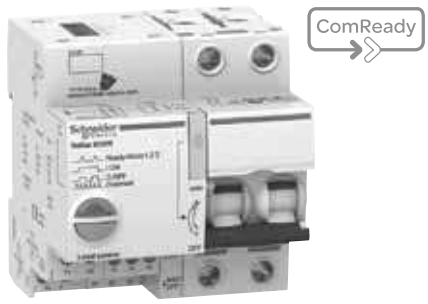
The Reflex iC60 devices are integrated control circuit breakers which combine the following main functions in a single device:
- Remote control by latched and/or impulse-type order according to the 3 operating modes to be chosen by the user
- Circuit breaker, to provide:
  - circuit protection against short-circuit currents
  - circuit protection against overload currents
  - disconnection in the industrial sector

Resetting after a fault is performed manually, by the resetting handle.

The version with Ti24 allows direct interfacing of the Reflex iC60 with a PLC, to:
- Execute remote control (Y3)
- Indicate the state of the control circuit (O/C) and circuit-breaker state information (auto/OFF)

The Ti24 interface also allows fast, reliable connection of the Reflex iC60 to the Acti 9 Smartlink due to the prefabricated cables.

PB106239-40



PB106238-40

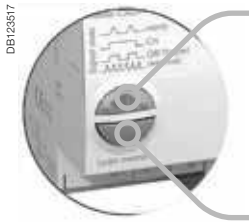


Alternating current (AC) 50 Hz				
Ultimate breaking capacity (Icu) as per IEC/EN 60947-2				**Service breaking capacity (Ics)**
		Voltage (Ue)		
Ph/Ph (2P, 3P, 4P)		**220 to 240 V**	**380 to 415 V**	
Reflex iC60H				
Rating (In)	10 to 40 A	30 kA	15 kA	50 % of Icu

Catalogue numbers

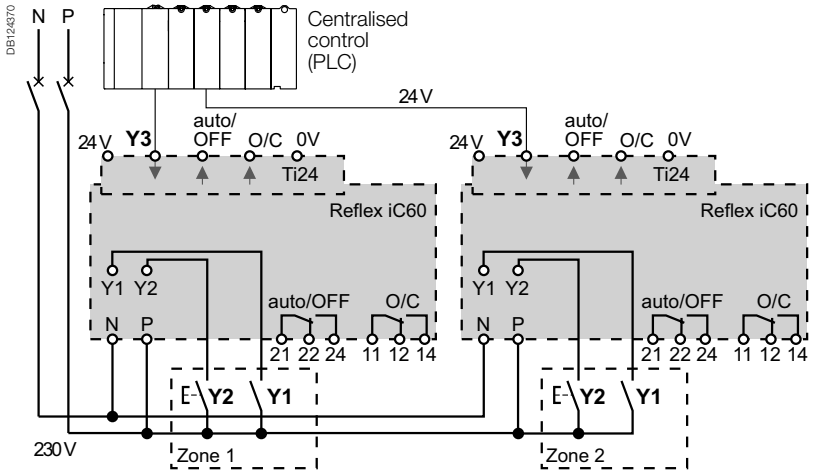
Reflex iC60 circuit breaker						
Type	**2P**		**3P**		**4P**	
Rating (In)	Curve		Curve		Curve	
	C	D	C	D	C	D
Reflex iC60H						
With Ti24 interface						
10 A	**A9C65210**	**A9C66210**	**A9C65310**	**A9C66310**	**A9C65410**	**A9C66410**
16 A	**A9C65216**	**A9C66216**	**A9C65316**	**A9C66316**	**A9C65416**	**A9C66416**
25 A	**A9C65225**	**A9C66225**	**A9C65325**	**A9C66325**	**A9C65425**	**A9C66425**
40 A	**A9C65240**	**-**	**A9C65340**	**-**	**A9C65440**	**-**
Width in 9 mm modules	**9**		**11**	**-**	**13**	**-**

Reflex iC60H (curves C, D) (cont.)



Remote control is possible by 3 operating modes to be set using the pushbutton on the front panel.

Three types of control: Y1, Y2, Y3



Operating modes

Mode 1: Reflex iC60 opening/closing, locally or centrally controlled

■ The opening/closing orders come from various control points, and they are taken into account in their order of arrival
□ Y1: latched order local control
□ Y2: impulse-type local control
□ Y3: latched order centralised control

Mode 2: Reflex iC60 opening/closing, possible inhibition of local impulse-type control

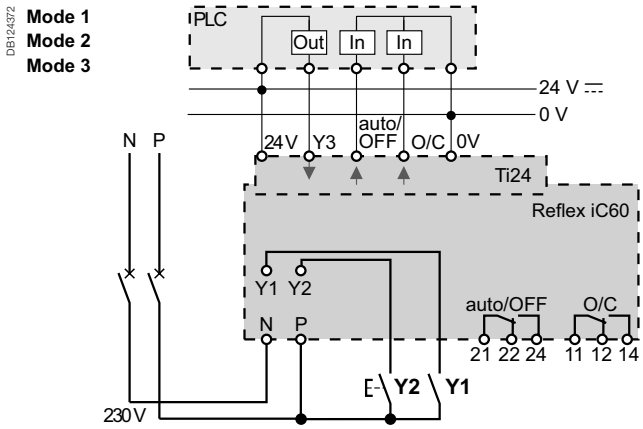
■ Y1 is used to inhibit Y2
□ Y1: local opening/Y2 inhibition latched order control
□ Y2: impulse-type local opening/closing control
□ Y3: latched order centralised opening/closing control

Mode 3: Reflex iC60 opening/closing, possible inhibition of centralised latched order control

■ Y1 is used to inhibit Y3
□ Y3 inhibition local latched order control
□ Y2: impulse-type local opening/closing control
□ Y3: latched order centralised opening/closing control

Reflex iC60 with Ti24 interface

Mode 1
Mode 2
Mode 3



Weight (g)

Circuit breaker	
Type	**Reflex iC60**
2P	480
3P	620
4P	750

Dimensions (mm)

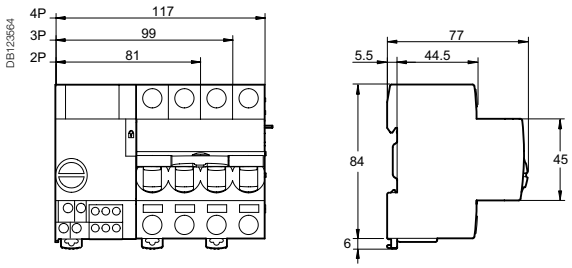
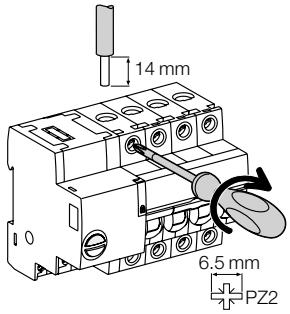


Table of modes			
	Mode 1	**Mode 2**	**Mode 3**
Reflex iC60 with interface Ti24	■ Possible mode	■ Possible mode	■ Default mode

Reflex iC60H (curves C, D) (cont.)

Power connection

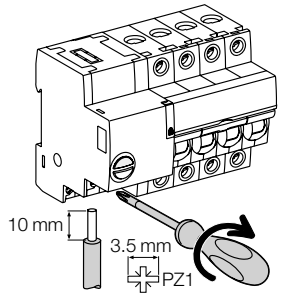
DB123561



Terminal	Rating	Tightening torque	Without accessories: Copper cables: Rigid	Without accessories: Copper cables: Flexible or with ferrule	With accessories: Al terminal 50 mm²	With accessories: Screw-on connection for ring terminal	With accessories: Multi-cable terminal: Rigid cables	With accessories: Multi-cable terminal: Flexible cables
		DB122945	DB122946	DB122935	Al DB118789	Ø DB118787		
Power	10 to 25 A	2 N.m	1 to 25 mm²	1 to 16 mm²	-	Ø 5 mm	-	-
	40 to 63 A	3.5 N.m	1 to 35 mm²	1 to 25 mm²	50 mm²		3 x 16 mm²	3 x 10 mm²

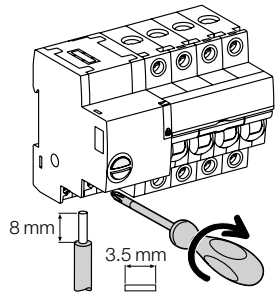
Control connection

DB123562



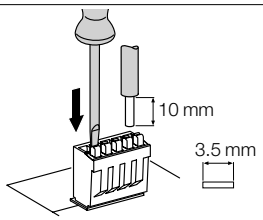
Terminal	Tightening torque	Without accessories: Copper cables: Rigid	Without accessories: Copper cables: Flexible	Without accessories: Copper cables: Flexible with ferrule
	DB122945	DB123553	DB123554	
Power supply (N/P) Inputs (Y1/Y2)	1 N.m	1 to 10 mm²	1 to 6 mm²	1 to 4 mm²

DB123563



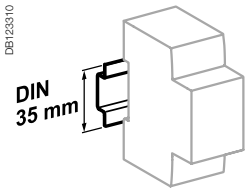
Outputs (O/C, auto/OFF)	0.7 N.m	1 to 2.5 mm²	1 to 2.5 mm²	1 to 1.5 mm²

DB123580

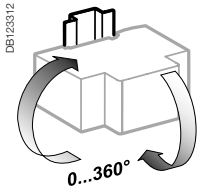


Ti24 interface	Spring-loaded terminals	0.5 to 1.5 mm²	0.5 to 1.5 mm²	0.5 to 1.5 mm²

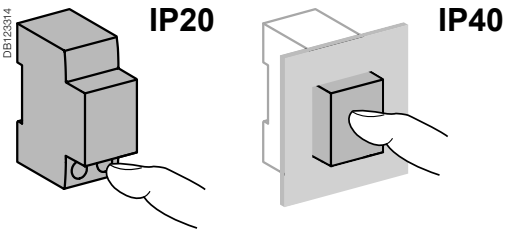
Reflex iC60H (curves C, D) (cont.)



Clip on DIN rail 35 mm.



Indifferent position of installation.



Technical data

Control circuit		
Supply voltage (Ue) (N/P)		230 V AC - 50 Hz
Control voltage (Uc)	Inputs (Y1/Y2)	230 V AC - 5 mA
	Input (Y3)	24 V DC - 5.5 mA
Min. duration of control impulse (Y2)		≥ 250 ms
Response time (Y2)		≤ 200 ms
Consumption		≤ 1 W
Inrush consumption		< 1000 VA
Length of control wires	Inputs (Y1/Y2)	Cable: 100 m
		Wires in a sheath: 500 m
	Input (Y3)	500 m
Inrush current at 230 V - 50 Hz	2P	4.2 Â
	3P	8.2 Â
	4P	16.2 Â
Power circuit		
Max. working voltage (Ue)		400 V AC
Insulation voltage (Ui)		500 V
Rated impulse withstand voltage (Uimp)	Set to Disconnected	6 kV
	Set to Ready	4 kV
Thermal tripping	Reference temperature	50°C
Magnetic tripping	Curve B	4 In ± 20 %
	Curve C	8 In ± 20 %
	Curve D	12 In ± 20 %
Overvoltage category (IEC 60364)		IV
Temperature derating		Consult us
Indication / Remote control		
Potential-free changeover contact outputs (O/C, auto/OFF)	Min.	24 V DC - 100 mA
	Max	230 V AC - 1 A
Ti24 interface (as per IEC 61131)		
Outputs (O/C, auto/OFF)	Ti24 interface	24 V DC - 100 mA max
Endurance (O-C)		
Electrical	AC1 - AC7a	Up to 50,000 cycles (1)
	AC5a - AC5b	Up to15,000 cycles (1)
	AC7c	Up to 20,000 cycles (1)
Mechanical		50,000 cycles
Additional characteristics		
Degree of protection (IEC 60529)	Device only	IP20
	Device in a modular enclosure	IP40 Insulation class II
Degree of pollution		3
Operating temperature		-25°C to +60°C
Storage temperature		-40°C to +85°C
Tropicalization		Treatment 2 (relative humidity of 93 % at 40°C)
Immunity to voltage dips		IEC 61000-4-11 class III
Immunity to power supply frequency variations		IEC 61000-4-28 and IACS E10
Immunity to harmonics		IEC 61000-4-13 class 2
Immunity to electrostatic discharges	Air	8 kV, IEC 61 000-4-2
	Contacts	4 kV, IEC 61 000-4-2
Immunity to stray magnetic fields		10 V/m up to 3 GHz, IEC 61000-4-3
Immunity to fast transients		4 kV from 5 to 100 kHz, IEC 61000-4-4
Immunity to shock waves		IEC 61000-4-5
Immunity to power frequency magnetic fields		10 V from 150 kHz to 80 MHz, IEC 61000-4-6
Immunity to network frequency magnetic fields		Level 4 30 A/m to IEC 61000-4-8 and IEC 61000-4-9
Conducted emissions		CISPR 11/22
Radiated emissions		CISPR 11/22

(1) See the derating table according to the load types and ratings

iCT contactors

DB123399 DB116619 DB106604

Country approval pictograms

EN 61095, IEC 1095

iCT contactors are available in two versions:

- Contactors without manually-operated
- Contactors with manually-operated.

The breadth of the iCT contactor range satisfies most application cases.
iCT contactors can be combined with auxiliary control, protection and indication functions.

Contactors

iCT 2P

PB106115-35



manual control

iCT 4P

PB106105-35



- iCT contactors can be used to remote control applications in alternative networks:
  - lighting, heating, ventilation, roller blinds, sanitary hot water
  - mechanical ventilation systems, etc
  - load-shedding of non-priority circuits

PB106120-34



Indication iACTs

- This auxiliary allows indication or control of the "open" or "closed" position of the contactor power contacts

PB106124-34



Interference filtering iACTp

- This auxiliary is an interference suppressor which limits overvoltages on the control circuit

PB106123-34



Dual control iACTc

- Used to control a contactor in impulse-type mode or to combine latched or impulse-type control orders

PB107751-34



Control and indication 24 V DC iACT24

- Allows control and indication of a 230 Vac contactor from the Acti 9 Smartlink or by a PLC, by 24 V DC signals
- Also allows control by a maintained signal

PB106125-34



Time delay iATEt

- This auxiliary is used to time delay for iCT and iTL. According to cabling, there are 5 possible time delay types:
  - 1 for iTL
  - 4 for iCT

Function type A:
late closing
Delay energizing of contactor

Function type B:
time delay
- Energize the contactor by closing a push button
- The time delay starts as soon as the control contacts are closed

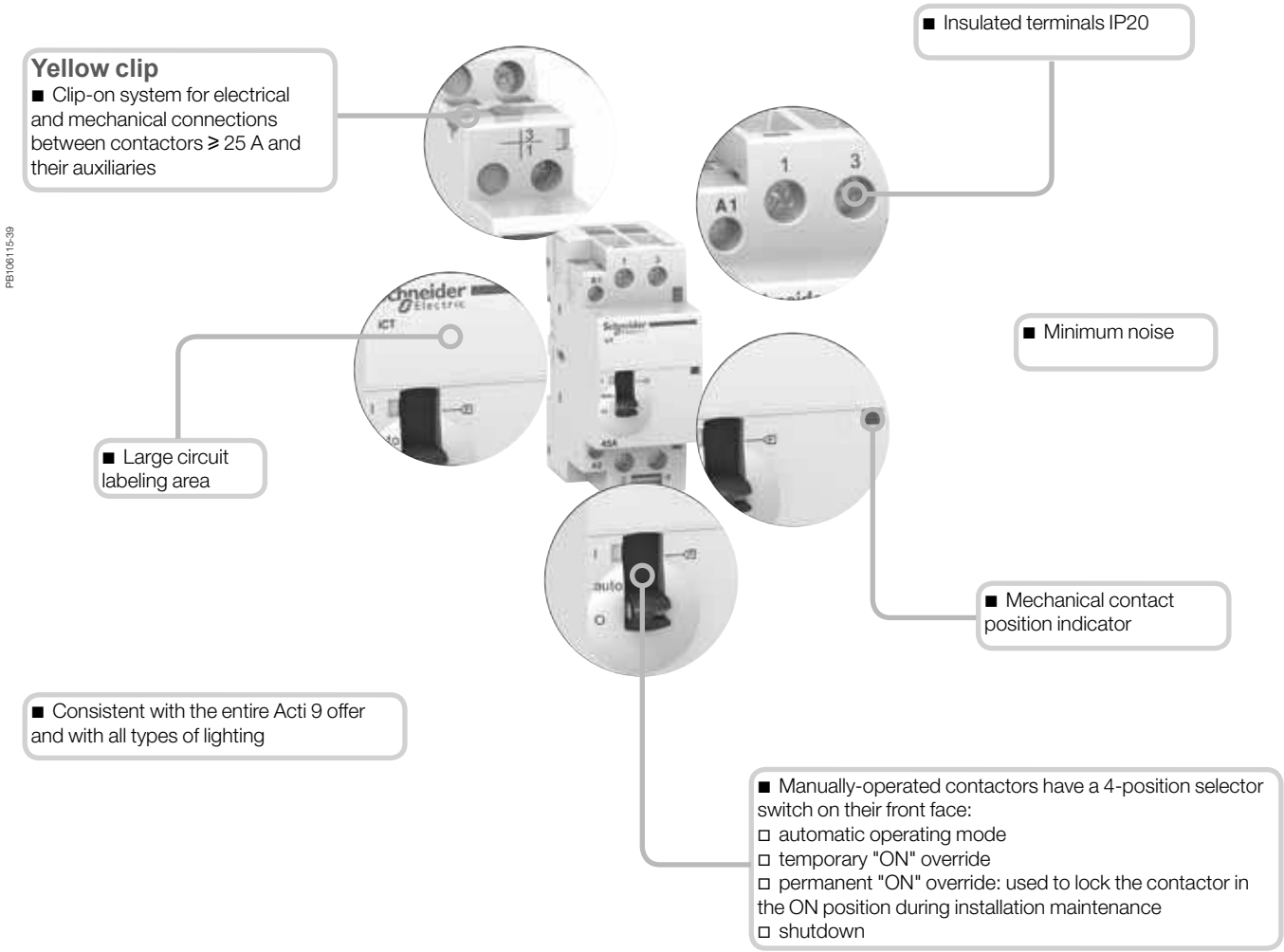
Function type C:
late opening
- Energize the contactor by closing a push button
- The time delay starts when the control contacts are opened

Function type H:
fixed time operation
- Operate the contactor for a pre-determined time from the moment of energizing

Contactors
Contactors auxiliaries

		Choice of 50 Hz contactors									
Type		**Contactor**						**Manually-operated contactors**			
Rating	A	16	20	25	40	63	100	16	25	40	63
Auxiliaries								**Contactors that can be equipped with auxiliaries**			
iACTs indication auxiliary		Yes	Yes	Yes				Yes			
iACTp protection auxiliary	By yellow clips	No	No	Yes				No	Yes		
iACTc, iATEt control auxiliary	By yellow clips	No	No	Yes				No	Yes		
iACT24 control auxiliary		Non	No	Yes (for contactors 230 V - 50 Hz)				No	Yes (for contactors 230 V - 50 Hz)		

iCT contactors (cont.)

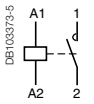
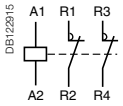
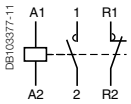
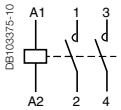
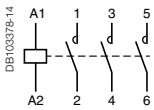
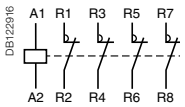
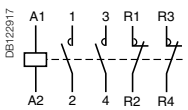
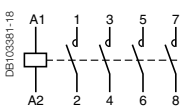
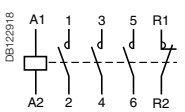


	Choice of 60 Hz contactors				
	Contactor				**Manually-operated contactors**
	16	25	40	63	40
	Contactors that can be equipped with auxiliaries				
	Yes				Yes
	No	Yes			Yes
	No	Yes			Yes
	No	Yes			No

iCT contactors (cont.)

Catalogue numbers

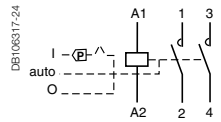
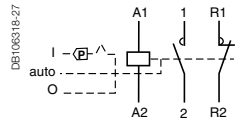
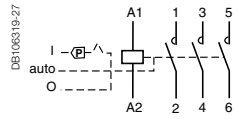
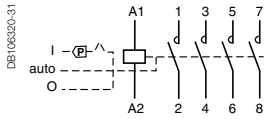
iCT contactors - 50 Hz

Type						Width in 9 mm modules
1P	**Rating (In)**		**Control voltage (V AC) (50 Hz)**	**Contact**		
	AC7a	**AC7b**				
	16 A	6 A	12	1NO	**A9C22011**	2
			24	1NO	**A9C22111**	2
			48	1NO	**A9C22211**	2
			220	1NO	**A9C22511**	2
			230…240	1NO	**A9C22711**	2
	25 A	8.5 A	220	1NO	**A9C20531**	2
			230…240	1NO	**A9C20731**	2
2P						
	16 A	6 A	12	2NO	**A9C22012**	2
			24	2NO	**A9C22112**	2
			48	2NO	**A9C22212**	2
			220	2NO	**A9C22512**	2
			230...240	2NO	**A9C22712**	2
			12	1NO+1NC	**A9C22015**	2
			24	1NO+1NC	**A9C22115**	2
			220	1NO+1NC	**A9C22515**	2
			230...240	1NO+1NC	**A9C22715**	2
	20 A	-	230...240	2NO	**A9C22722**	2
	25 A	8.5 A	24	2NO	**A9C20132**	2
			48	2NO	**A9C20232**	2
			220	2NO	**A9C20532**	2
			230...240	2NO	**A9C20732**	2
			220	2NC	**A9C20536**	2
			230...240	2NC	**A9C20736**	2
	40 A	15 A	220...240	2NO	**A9C20842**	4
	63 A	20 A	24	2NO	**A9C20162**	4
			220...240	2NO	**A9C20862**	4
	100 A	-	220...240	2NO	**A9C20882**	6
3P						
	16 A	6 A	220…240	3NO	**A9C22813**	4
	25 A	8.5 A	220…240	3NO	**A9C20833**	4
	40 A	15 A	220…240	3NO	**A9C20843**	6
	63 A	20 A	220…240	3NO	**A9C20863**	6
4P						
	16 A	6 A	24	4NO	**A9C22114**	4
			220...240	4NO	**A9C22814**	4
			220...240	2NO+2NC	**A9C22818**	4
	20 A	-	220 ...240	4NO	**A9C22824**	4
	25 A	8.5 A	24	4NO	**A9C20134**	4
			220...240	4NO	**A9C20834**	4
			24	4NC	**A9C20137**	4
			220...240	4NC	**A9C20837**	4
			220...240	2NO+2NC	**A9C20838**	4
	40 A	15 A	220...240	4NO	**A9C20844**	6
			220...240	4NC	**A9C20847**	6
	63 A	20 A	24	4NO	**A9C20164**	6
			220...240	4NO	**A9C20864**	6
			24	4NC	**A9C20167**	6
			220...240	4NC	**A9C20867**	6
			220...240	2NO+2NC	**A9C20868**	6
			220...240	3NO+1NC	**A9C20869**	6
	100 A	-	220...240	4NO	**A9C20884**	12

iCT contactors (cont.)

Catalogue numbers

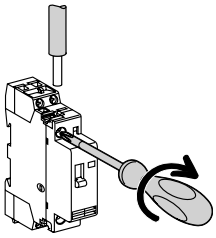
iCT manual control contactor 50 Hz

Type						Width in 9 mm modules
2P	**Rating (In)**		**Control voltage (V AC) (50/60 Hz)**	**Contact**		
	AC7a	**AC7b**				
 DB106317-24	16 A	6 A	220	2NO	**A9C23512**	2
			230...240	2NO	**A9C23712**	2
			220	1NO+1NC	**A9C23515**	2
			230...240	1NO+1NC	**A9C23715**	2
	25 A	8,5 A	24	2NO	**A9C21132**	2
 DB106318-27			220	2NO	**A9C21532**	2
			230...240	2NO	**A9C21732**	2
	40 A	15 A	24	2NO	**A9C21142**	2
			220...240	2NO	**A9C21842**	4
	63 A	20 A	24	2NO	**A9C21162**	4
			220...240	2NO	**A9C21862**	4
3P						
 DB106319-27	25 A	8,5 A	220...240	3NO	**A9C21833**	4
	40 A	15 A	220...240	3NO	**A9C21843**	6
4P						
 DB106320-31	25 A	8,5 A	24	4NO	**A9C21134**	4
			220...240	4NO	**A9C21834**	4
	40 A	15 A	24	4NO	**A9C21144**	6
			220...240	4NO	**A9C21844**	6
	63 A	20 A	24	4NO	**A9C21164**	6
			220...240	4NO	**A9C21864**	6

iCT contactors (cont.)

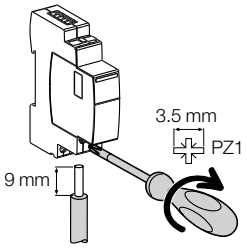
Connection

DB123606



Type		Rating	Lenght tripping	Circuit	Tightening torque	Copper cables	
						Rigid	Flexible or ferrule
					DB122945	DB122946	
iCT	PZ1: 4 mm	16 - 100 A	9 mm	Control	0.8 N.m	1.5 to 2.5 mm: 2 x 1.5 mm²	1.5 to 2.5 mm: 2 x 2.5 mm²
		16 and 25 A		Power		1.5 to 6 mm²	1 to 4 mm²
	PZ2: 6 mm	40 A - 63 A	14 mm		3.5 N.m	6 to 25 mm²	6 to 16 mm²
		100 A				6 to 35 mm²	6 to 35 mm²
iACTs, iACTp, iACTc, iATEt	PZ1: 4 mm	-	9 mm	-	0.8 N.m	1.5 to 2.5 mm: 2 x 1.5 mm²	1.5 to 2.5 mm: 2 x 2.5 mm²

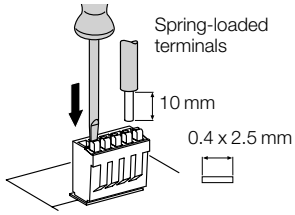
DB124308



Type	Terminals	Tightening torque	Copper cables		
			Rigid	Flexible	Flexible or ferrule
		DB122945	DB123553	DB123554	
iACT24	Power supply (N/P)	1 N.m	0.5 to 10 mm² 2 x 0.5 to 2 x 2.5 mm²	0.5 to 6 mm² 2 x 0.5 to 2 x 2.5 mm²	0.5 to 4 mm² 2 x 0.5 to 2 x 2.5 mm²
	Input (Y1/Y2)				

Ti24 connector connection

DB123590



Type	Catalogue numbers	Copper cables	
		Rigid	Flexible
	DB122945	DB123553	
Ti24 Interface	**A9XC2412**	1 x 0.5 to 1.5 mm²	1 x 0.5 to 1.5 mm²

Ti24 prefabricated cables connection

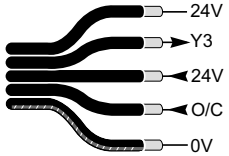
PB107754-10



PB107755-14

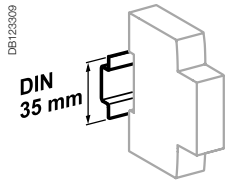


DB404857

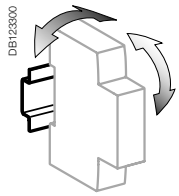


Type	Catalogue numbers	Length
Connection for Acti 9 Smartlink		
6 short prefabricated	**A9XCAS06**	100 mm
6 medium-sized prefabricated	**A9XCAM06**	160 mm
6 long prefabricated	**A9XCAL06**	870 mm
Connection for PLC type terminals		
6 long prefabricated on a single side	**A9XCAU06**	870 mm

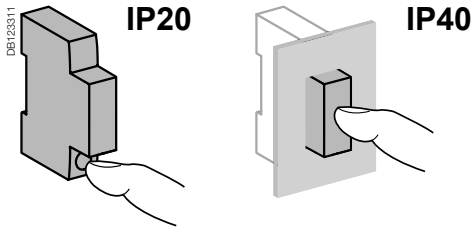
iCT contactors (cont.)

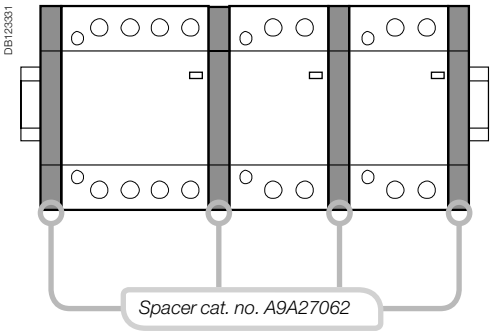


Clip on DIN rail 35 mm.



± 30° vertical.





Technical data

Power circuit		
Voltage rating (Ue)	1P, 2P	250 V AC
	3P, 4P	400 V AC
Frequency		50 Hz or 60 Hz
Type of load		See module CA908026
Endurance (O-C)		
Electrical		100,000 cycles
Maximum number of switching operation a day		100
Additional characteristics		
Insulation voltage (Ui)		500 V AC
Pollution degree		2
Rated impulse withstand voltage (Uimp)		2.5 kV (4 kV for 12/24/48 V AC)
Degree of protection (IEC 60529)	Device only	IP20
	Device in modular enclosure	IP40
Operating temperature		-5°C to +60°C (1)
Storage temperature		-40°C to +70°C
Tropicalization (IEC 60068-1)		Treatment 2 (relative humidity 95 % at 55°C)
ELSV compliance (Extra Low Safety Voltage) for 12/24/48 V AC versions		
The product control conforms to the SELV (safety extra low voltage) requirements		

(1) In the case of contactor mounting in a enclosure for which the interior temperature is in range between 50°C and 60°C, it is necessary to use a spacer, cat. no. A9A27062, between each contactor

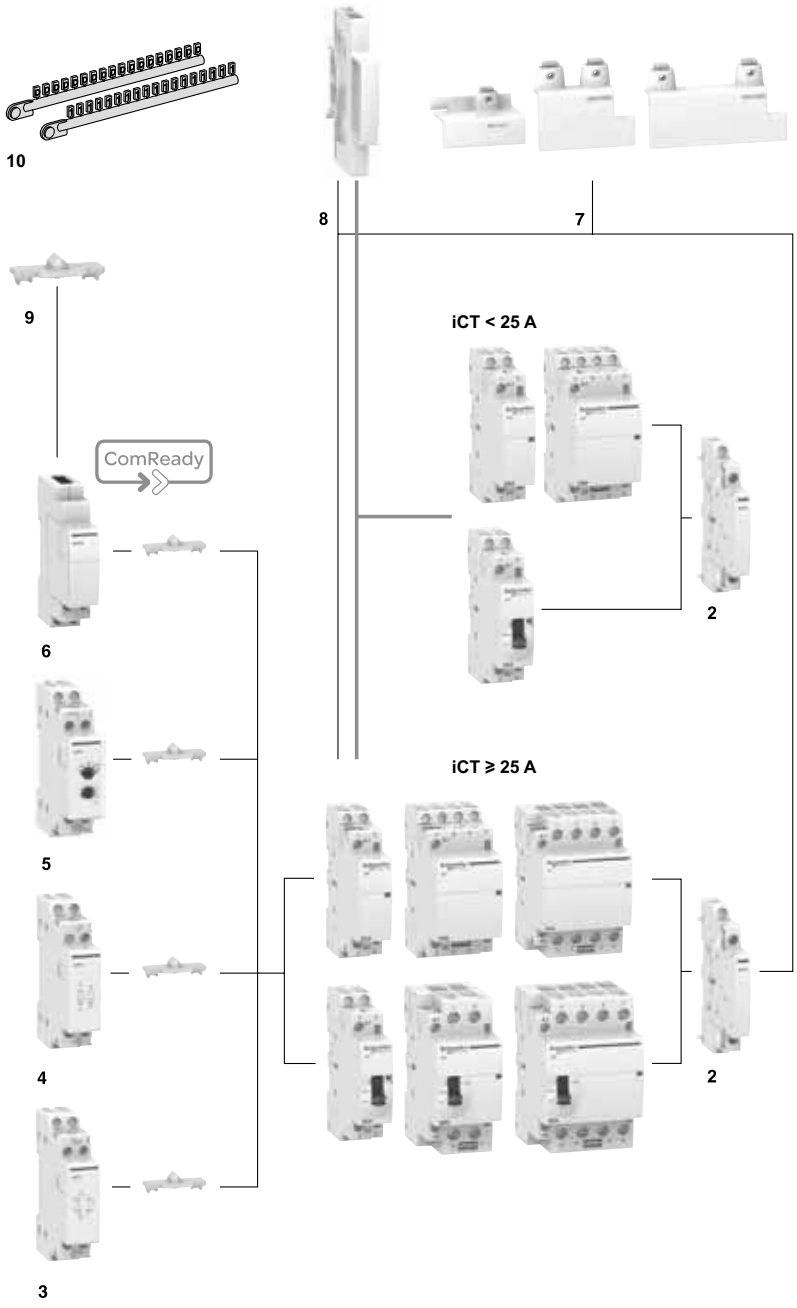
iCT contactors (cont.)

Mounting accessories

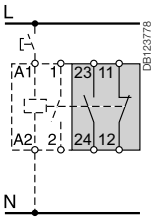
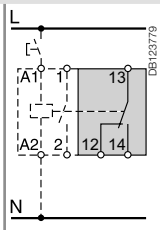
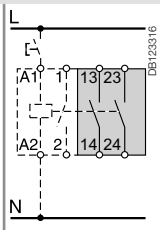
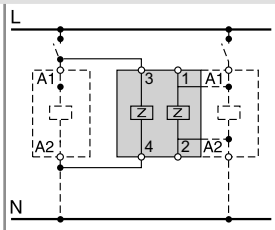
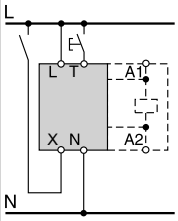
7	Sealable screw shields for top and bottom	3P, 4P 25 A	**A9A15921**
		2P 40/63 A	**A9A15922**
		3P, 4P 40/63 A	**A9A15923**
8	9 mm spacer		**A9A27062**
9	Yellow clips		**A9C15415**
10	Clip-on terminal markers	see module	**CA907001**

Auxiliaries

Indication			
2	iACTs	1NO + 1NC	**A9C15914**
		1CO	**A9C15915**
		2NO	**A9C15916**
Double control inputs			
3	iACTc	230 V AC	**A9C18308**
		24 V AC	**A9C18309**
Coil suppression blocs			
4	iACTp	12...48 V AC	**A9C15919**
		48...127 V AC	**A9C15918**
		220...240 V AC	**A9C15920**
Time delay			
5	iATEt	24...240 V AC	**A9C15419**
Control and indication			
6	iACT24	230 V AC	**A9C15924**



iCT contactors
Electrical auxiliaries for iCT

	Indication			Protection			Control	
Auxiliaries	**iACTs**			**iACTp**			**iACTc**	
Type	**Indication**			**Interference filtering**			**Impulse/latched control**	
	With Open/Close auxiliary contact			2 protection circuits				
	PB106120-34 			PB106124-34 			PB106123-34 	
Function								
	■ This auxiliary allows indication of the "open" or "closed" position of the contactor power contacts			■ This auxiliary is an interference suppressor which limits overvoltages on the control circuit			■ This auxiliary, combined with contactors, enables them to be controlled by 2 order types: □ impulse order for local control (input T) □ latched order for centralised control (input X) □ the last order received takes priority	
Wiring diagrams								
	DB123777 	DB123778 	DB123779 	DB123316 			DB123315 	
Mounting								
	■ Mounted to the right of iCT			■ Mounted to the left of iCT by yellow clips (1) ■ By wires			■ Mounted to the left of iCT by yellow clips (1)	
Use								
	–			■ The iACTp has 2 separate and identical circuits, allowing it to be combined with 2 different one on the iCT the other by wires			■ Mains power outages: □ < 70 ms: keeps its initial status □ > 80 ms: reset □ put back into operation by manual operation on input X or T. ■ Minimum impulse duration: 250 ms	
Catalogue numbers	**A9C15914**	**A9C15915**	**A9C15916**	**A9C15918**	**A9C15919**	**A9C15920**	**A9C18308**	**A9C18309**

Technical specifications									
Control voltage (Ue)	V AC	24…240			48 …127	12 …48	220 …240	230…240	24…48
	V DC	24…130			–			–	
Control voltage frequency	Hz	50/60			50/60			50/60	
Width in 9 mm modules		1			2			2	
Auxiliary contact (breaking capacity)		■ Mininimum: 10 mA at 24 V DC/AC - cos ⊠ = 1 ■ Maximum: □ 5 A at 240 V AC - cos ⊠ = 1 □ 1 A at 130 V DC			–			–	
Number of contacts		1NO + 1NC	1CO	2NO	–			–	
Operating temperature	°C	-5°C to +50°C							
Storage temperature	°C	-40°C to +70°C							
Consumption		–			–			OFF load: 3 VA Inrush (2): 2 VA Holding (2): 0.2 VA	

(1) Electrical and mechanical link.
(2) Maximum consumption of all contactors controlled.

iCT contactors
Electrical auxiliaries for iCT (cont.)

Control (cont.)

iATEt

Time delay

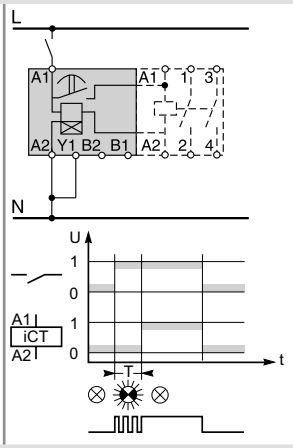
PB106125-34



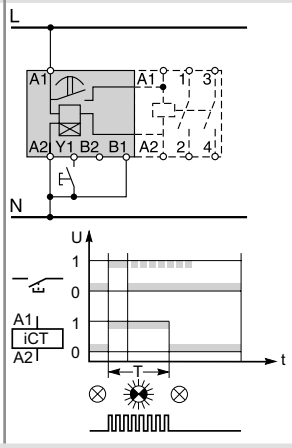
■ This auxiliary is used to time delay for iCT and iTL. According to cabling, there are 5 possible time delay types:
□ 1 for iTL
□ 4 for iCT.

Function type A: late closing	**Function type B: time delay**	**Function type C: late opening**	**Function type H: fixed time operation**
■ Delay energizing of contactor.	■ Energize the contactor by closing a push button. ■ The time delay starts as soon as the control contacts are closed.	■ Energize the contactor by closing a push button. ■ The time delay starts when the control contacts are opened.	■ Operate the contactor for a pre-determined time from the moment of energizing.

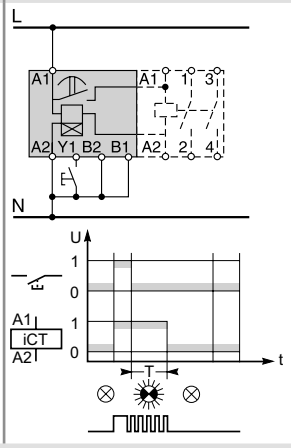
DB123321



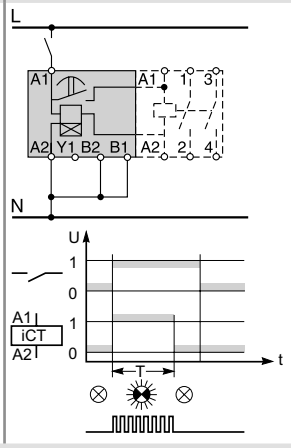
DB124104



DB123323



DB123324



■ Mounted to the left of iCT by yellow clips [1]

–

A9C15419

24…240

24…110

50/60

2

–

–

-20°C to +50°C

-40°C to +80°C

Off-load: 5 VA
Inrush [2]: 3 A
Holding [2]: 0.2 A

iCT contactors
Electrical auxiliaries for iCT (cont.)

Control and indication

Auxiliary	iACT24
Type	**Control and indication 24 V DC**
	With Ti24 connector

PB107751-34

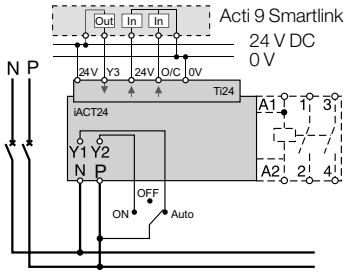


Function

- This auxiliary allows a contactor to be interfaced with the Acti 9 Smartlink interface or a programmable logic controller (PLC) in 24 V DC (control, O/C indication)
- 230 V AC control

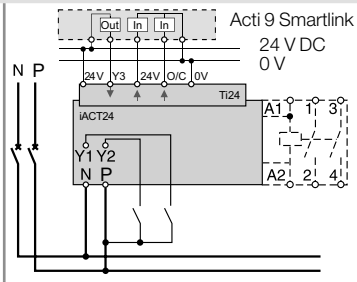
Wiring diagrams

DB124313



Wiring with exclusive selector
230 V AC control (Y1 = 0) / 24 V DC control (Y1 = 1)

DB124441



Wiring for non-exclusive 230 V AC and 24 V DC controls

Mounting

- To the left of the iCT contactor using the yellow clips (1).
- When an iACT24 is used, the A1/A2 terminals of the contactors should not be wired. Only the yellow clips integral with the iACT24 should be used for connection to the coil.

Utilization

- 230 V AC interface:
  - Y1: enabling of 24 V DC control (Y1 = 1) or inhibition of 24 V DC control (Y1 = 0).
  - Y2: 230 V pulse control
- "Ti24" 24 V DC interface:
  - Y3: 24 V DC control of iCT closing on rising edge and opening on falling edge
  - reading of the contactor status (opened or closed) from the position of the integrated O/C auxiliary contact
  - monitoring of connection of the "Ti24" terminal block by the upstream system (PLC, supervision system) via the 24 V terminal (in the centre of the Ti24 terminal block)

Catalogue numbers		**A9C15924**
Technical specifications		
Control voltage (Ue)	V AC	230, +10 %, -15 % (Y2)
	V DC	24, ± 20 % (Y3)
Control voltage frequency	Hz	50/60
Insulation voltage (Ui)	V AC	250
Rated impulse withstand voltage (Uimp)	kV	8 (OVC IV)
Pollution degree		3
Degree of protection		IP20B device only
		IP40 device in modular enclosure
Width in 9 mm modules		2
Auxiliary contact (O/C) Ti24		24 V DC protected output, min. 2 mA, max. 100 mA
Contact		1 O/C operating category AC 14
Operating temperature	°C	-25°C to +60°C
Storage temperature	°C	-40°C to +80°C
Consumption		<1 W
Standard		IEC/EN 60947-5-1

(1) Mechanical and electrical link.

iCT contactors
Accessories for iCT

Security

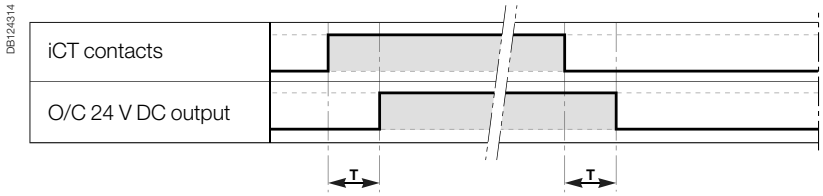
Accessories	Sealable screw shields			Yellow clips	Spacer
	PB104485-15	PB104486-15	PB104487-15	PB106143-10	PB104483-40
					
Function					
	■ Designed to cover terminals to avoid contact with device screws. ■ Allow sealing			■ Ensure the mechanical and/or electrical link between contactors and their auxiliaries.	■ Required to reduce temperature rise of modular devices installed side by side. ■ Recommended to separate electronic devices (thermostat, programmable clock, etc.) from electromechanical devices (relays, contactors).
	■ **For iCT: 3P, 4P - 25 A**	■ **For iCT: 2P - 40/63 A**	■ **For iCT: 3P, 4P - 40/63 A**	■ **For iCT: ≥ 25 A**	
Use					
	■ Bag of 10 upstream/10 downstream			■ Bag of 10	■ Bag of 5
Catalogue numbers	**A9A15921**	**A9A15922**	**A9A15923**	**A9C15415**	**A9A27062**
Technical specifications					
Width in 9 mm modules	4	4	6	–	1
Number of poles	3P, 4P	2P	3P	–	–

iCT contactors
Technical advice for iCT (cont.)

ComReady

Operation of the iACT24

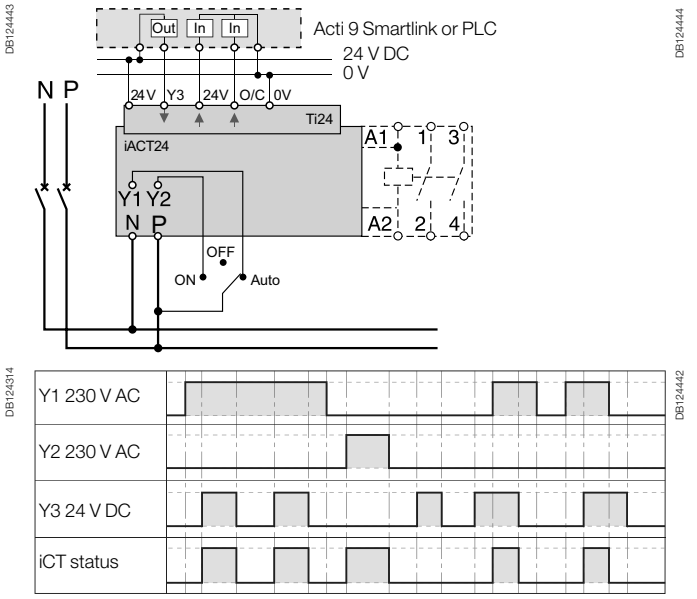
O/C 24 V DC output



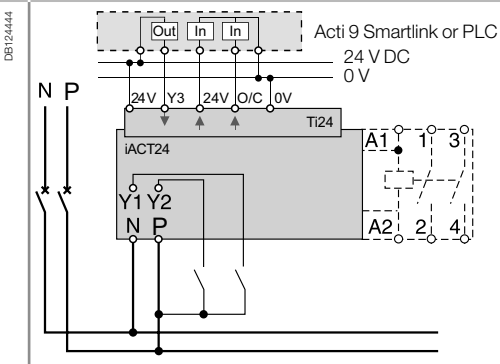
	Parameter	Min	Max
T	Time delay between iACT24 closing and indication	100 ms	200 ms

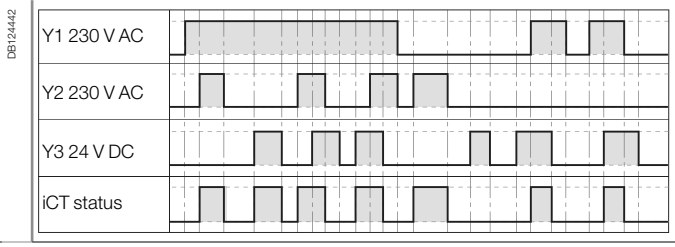
- Minimum duration of 230 V AC pulse (Y2): 200 ms.
- 30 iACT24 closing or opening actuations are authorized per minute: Minimum time delay between 2 actuations on the iACT4 via Y1,Y2, Y3 (closing or opening of the iCT coil): 220 ms.
- 10 closing or opening actuations spaced 440 milliseconds apart are authorized following no loading of the iACT24 during a period of 20 seconds.

Wiring with exclusive selector
230 V AC control (Y1 = 0) / 24 V DC control (Y1 = 1)



Wiring for non-exclusive 230 V AC and 24 V DC controls





iCT contactors
Technical advice for iCT

Consumption

iCT contactors - 50 Hz

Type							
1P	**Rating (In)**		**Control voltage (V AC) (50 Hz)**	**Consumption**		**Max. power**	
	AC7a	**AC7b**		**Holding**	**Inrush**		
	16 A	5 A	12	3.8 VA	15 VA	1.3 W	**A9C22011**
			24	3.8 VA	15 VA	1.3 W	**A9C22111**
			48	3.8 VA	15 VA	1.3 W	**A9C22211**
			220	3.8 VA	15 VA	1.3 W	**A9C22511**
			230…240	2.7 VA	9.2 VA	1.2 W	**A9C22711**
	25 A	8.5 A	220	3.8 VA	15 VA	1.3 W	**A9C20531**
			230…240	2.7 VA	9.2 VA	1.2 W	**A9C20731**
2P							
	16 A	5 A	12	3.8 VA	15 VA	1.3 W	**A9C22012**
			24	3.8 VA	15 VA	1.3 W	**A9C22112**
			48	3.8 VA	15 VA	1.3 W	**A9C22212**
			220	3.8 VA	15 VA	1.3 W	**A9C22512**
			230...240	2.7 VA	9.2 VA	1.2 W	**A9C22712**
			12	3.8 VA	15 VA	1.3 W	**A9C22015**
			24	3.8 VA	15 VA	1.3 W	**A9C22115**
			220	3.8 VA	15 VA	1.3 W	**A9C22515**
			230...240	2.7 VA	9.2 VA	1.2 W	**A9C22715**
	20 A	6.4 A	230...240	2.7 VA	9.2 VA	1.2 W	**A9C22722**
	25 A	8.5 A	24	3.8 VA	15 VA	1.3 W	**A9C20132**
			48	3.8 VA	15 VA	1.3 W	**A9C20232**
			220	3.8 VA	15 VA	1.3 W	**A9C20532**
			230...240	2.7 VA	9.2 VA	1.2 W	**A9C20732**
			220	3.8 VA	15 VA	1.3 W	**A9C20536**
			230...240	2.7 VA	9.2 VA	1.2 W	**A9C20736**
	40 A	15 A	220...240	4.6 VA	34 VA	1.6 W	**A9C20842**
	63 A	20 A	24	4.6 VA	34 VA	1.6 W	**A9C20162**
			220...240	4.6 VA	34 VA	1.6 W	**A9C20862**
	100 A	-	220...240	6.5 VA	53 VA	2.1 W	**A9C20882**
3P							
	16 A	5 A	220…240	4.6 VA	34 VA	1.6 W	**A9C22813**
	25 A	8.5 A	220…240	4.6 VA	34 VA	1.6 W	**A9C20833**
	40 A	15 A	220…240	6.5 VA	53 VA	2.1 W	**A9C20843**
	63 A	20 A	220…240	6.5 VA	53 VA	2.1 W	**A9C20863**
4P							
	16 A	5 A	24	4.6 VA	34 VA	1.6 W	**A9C22114**
			220...240	4.6 VA	34 VA	1.6 W	**A9C22814**
			220...240	4.6 VA	34 VA	1.6 W	**A9C22818**
	20 A	6.4 A	220 ...240	4.6 VA	34 VA	1.6 W	**A9C22824**
	25 A	8.5 A	24	4.6 VA	34 VA	1.6 W	**A9C20134**
			220...240	4.6 VA	34 VA	1.6 W	**A9C20834**
			24	4.6 VA	34 VA	1.6 W	**A9C20137**
			220...240	4.6 VA	34 VA	1.6 W	**A9C20837**
			220...240	4.6 VA	34 VA	1.6 W	**A9C20838**
	40 A	15 A	220...240	6.5 VA	53 VA	2.1 W	**A9C20844**
			220...240	6.5 VA	53 VA	2.1 W	**A9C20847**
	63 A	20 A	24	6.5 VA	53 VA	2.1 W	**A9C20164**
			220...240	6.5 VA	53 VA	2.1 W	**A9C20864**
			24	6.5 VA	53 VA	2.1 W	**A9C20167**
			220...240	6.5 VA	53 VA	2.1 W	**A9C20867**
			220...240	6.5 VA	53 VA	2.1 W	**A9C20868**
			220...240	6.5 VA	53 VA	2.1 W	**A9C20869**
	100 A	-	220...240	13 VA	106 VA	4.2 W	**A9C20884**

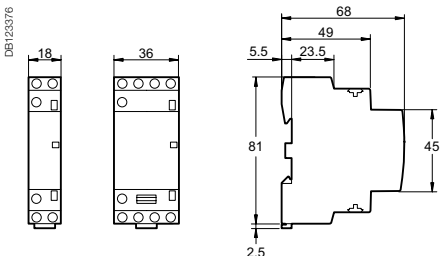
iCT contactors
Technical advice for iCT (cont.)

Consumption (cont.)

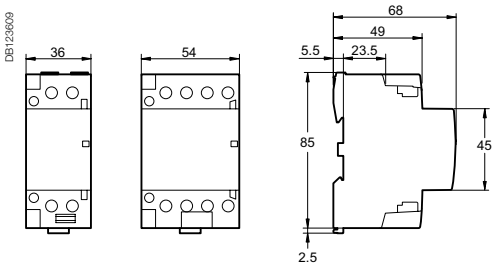
iCT manual control contactor 50 Hz							
Type							
2P	**Rating (In)**		**Control voltage (V AC) (50 Hz)**	**Consumption**		**Max. power**	
	AC7a	**AC7b**		**Holding**	**Inrush**		
	16 A	5 A	220	2.7 VA	9.2 VA	1.2 W	**A9C23512**
			230...240	2.7 VA	9.2 VA	1.2 W	**A9C23712**
			220	3.8 VA	15 VA	1.3 W	**A9C23515**
			230...240	2.7 VA	9.2 VA	1.2 W	**A9C23715**
	25 A	8.5 A	24	3.8 VA	15 VA	1.3 W	**A9C21132**
			220	2.7 VA	9.2 VA	1.2 W	**A9C21532**
			230...240	2.7 VA	9.2 VA	1.2 W	**A9C21732**
	40 A	15 A	24	4.6 VA	34 VA	1.6 W	**A9C21142**
			220...240	4.6 VA	34 VA	1.6 W	**A9C21842**
	63 A	20 A	24	4.6 VA	34 VA	1.6 W	**A9C21162**
			220...240	4.6 VA	34 VA	1.6 W	**A9C21862**
3P							
	25 A	8.5 A	220...240	4.6 VA	34 VA	1.6 W	**A9C21833**
	40 A	15 A	220...240	6.5 VA	53 VA	2.1 W	**A9C21843**
4P							
	25 A	8.5 A	24	4.6 VA	34 VA	1.6 W	**A9C21134**
			220...240	4.6 VA	34 VA	1.6 W	**A9C21834**
	40 A	15 A	24	6.5 VA	53 VA	2.1 W	**A9C21144**
			220...240	6.5 VA	53 VA	2.1 W	**A9C21844**
	63 A	20 A	24	6.5 VA	53 VA	2.1 W	**A9C21164**
			220...240	6.5 VA	53 VA	2.1 W	**A9C21864**

iCT contactors
Dimensions for iCT

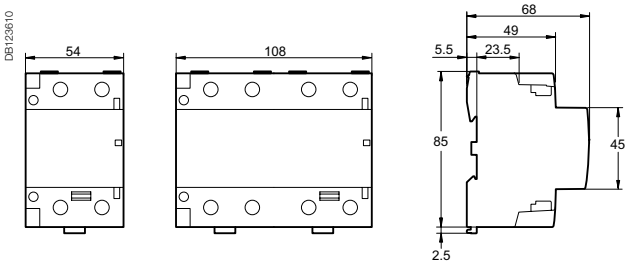
Dimensions (mm)



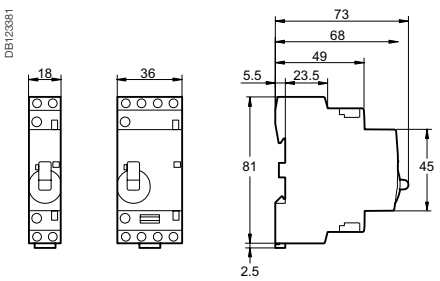
iCT 16/25 A



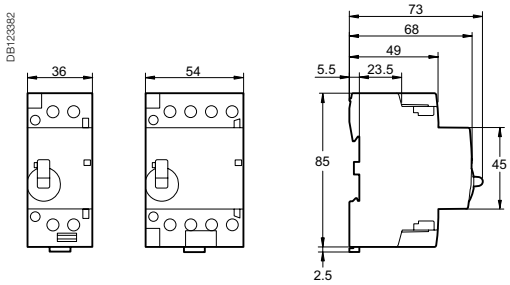
iCT 40/63 A



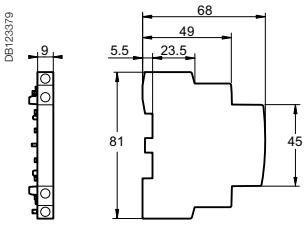
iCT 100 A



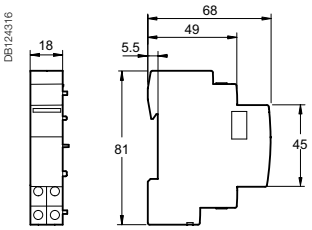
iCT manual control contactor 16/25 A



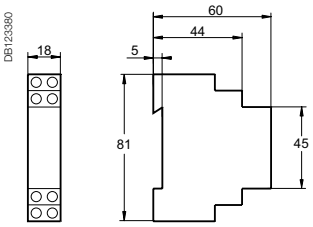
iCT manual control contactor 40/63 A



iACTs



iACT24



iATEt
iACTp
iACTc

iCT+ high-performance contactors

DB106604

Country approval pictograms

EN 60669-2-2

iCT+ high-performance contactors allow remote control of single-phase circuits.
They are designed for demanding applications.

iCT+ high-performance contactors can be used for remote control of applications on AC networks:
- lighting, heating, ventilation, roller blinds, domestic hot water
- mechanical ventilation systems, etc.
- load shedding on non-priority circuits.

PB107130-35



Standard 1P+N

PB107131-35



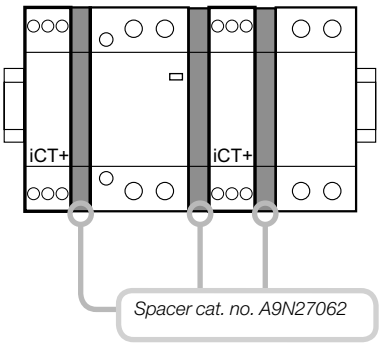
1P+N with manual control

PB104483-35



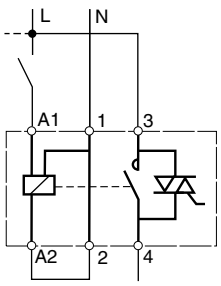
Spacer

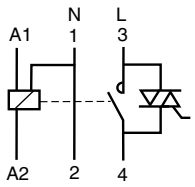
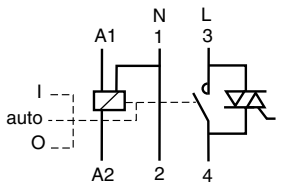
DB124140



Spacer cat. no. A9N27062

DB404607



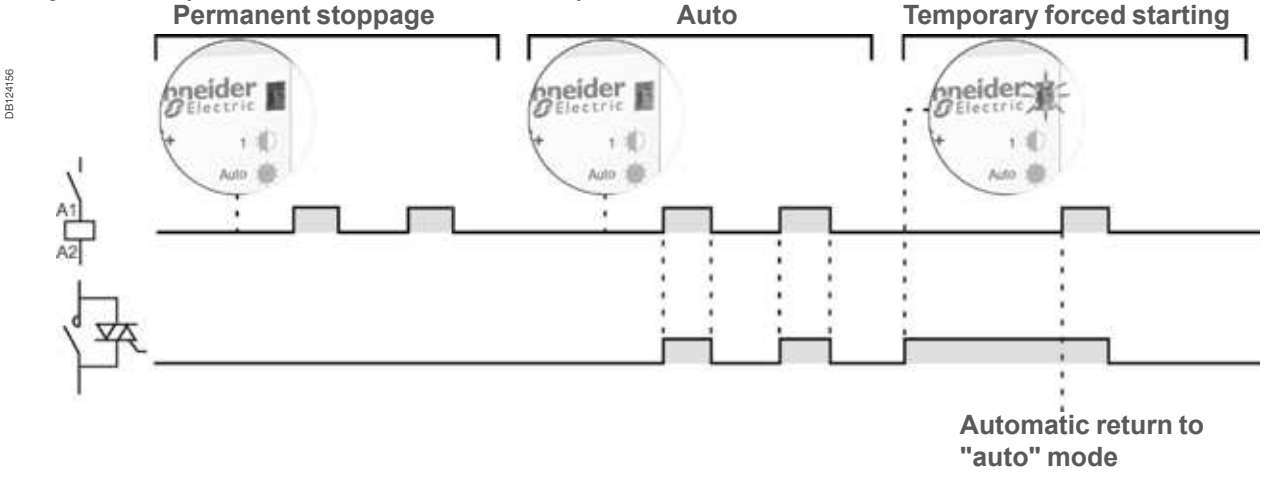
iCT+				
Type	**Rating**	**Contact**		**Width in 9-mm modules**
Standard 1P+N				
E57636 	20 A	1 NO	**A9C15030**	2+1 (1)
1P+N with manual control				
E57646 	20 A	1 NO	**A9C15031**	2+1 (1)

(1) Supplied with a 9 mm spacer (cat. no. **A9N27062***): to be used for mounting the iCT+ alongside a circuit breaker, contactor, impulse relay, etc., in order to maintain optimal operation.*

It is compulsory:
- to connect the neutral
- to keep the same control circuit connection "A1: phase", "A2: neutral"
- to use the same phase for connection of the power and control functions.

Operation (manual-control contactor)

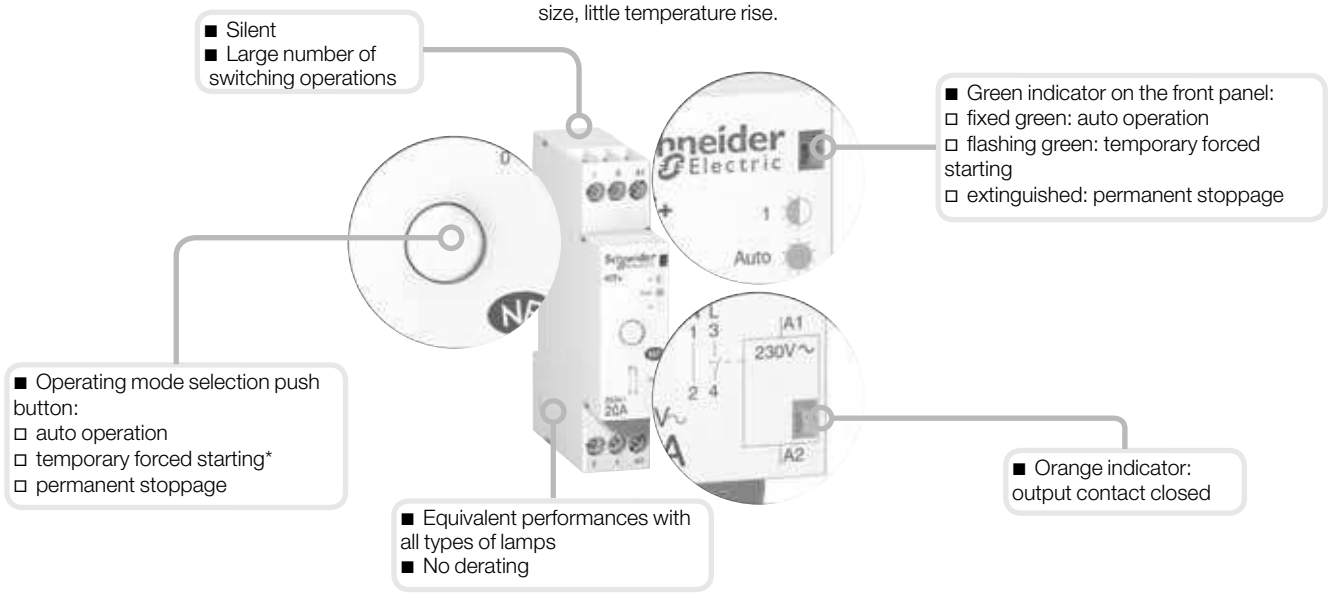
DB124156



iCT+ high-performance contactors (cont.)

They combine the benefits of static switching and electromechanical technology: small size, little temperature rise.

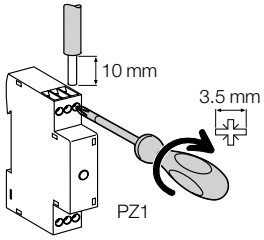
PB137131-40



Following a mains failure, the iCT+ returns to "auto" operating mode irrespective of its initial state.

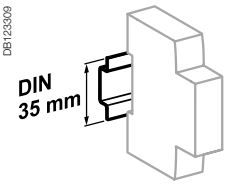
Connection

DB123655



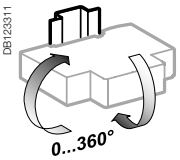
Type	Tightening torque	Copper cables	
		Rigid or flexible with ferrule	Rigid or flexible without ferrule
	DB123656	DB123657	
iCT+	1 N.m	2 x 1.5 mm²	2 x 2.5 mm² 1 x 4 mm²

DB123309



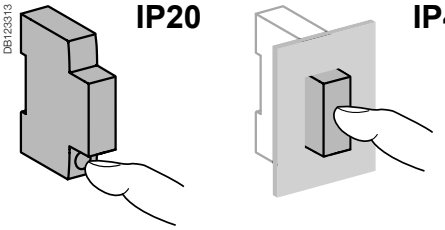
Clip on DIN rail 35 mm.

DB123311



Indifferent position of installation.

DB123313



Technical data

Control circuit		
Coil voltage (Uc)		230 V AC (± 10 %)
Frequency		50 Hz
Inrush power		11 VA
Holding power		1.1 VA
Power circuit		
Voltage rating (Ue)		230 V AC (± 10 %)
Frequency		50 Hz
Electrical load	Minimum	20 W
	Maximum	3600 W
Max. number of switching operations per minute		6
Other characteristics		
Endurance (O-C)	Electrical	5.000.000 cycles
Pollution degree		3
Degree of protection (IEC 60529)	Device only	IP20
	Device in modular enclosure	IP40 Insulation class II
Operating temperature		-5°C to +55°C
Storage temperature		-40°C to +60°C
Tropicalization (IEC 60068-1)		2 (relative humidity of 95 % at 55°C)

Weight (g)

High-performance contactors	
Type	**iCT+**
Standard 1P+N	70
1P+N with manual control	70

iTL impulse relays

DB123399 DB116619

iTL, iTLI, iTLs, iTLc, iTLm

Country approval pictograms

IEC/EN 60669-2-2
iTLs: IEC/EN 60947-5-1

Impulse relays

PB106126-34



PB106128-34



iTL

■ The impulse relays are used to control, by means of pushbuttons, lighting circuits consisting of:
□ incandescent lamps, low-voltage halogen lamps, etc. (resistive loads)
□ fluorescent lamps, discharge lamps, etc. (inductive loads)

Remote indication

PB106133-34



iTLs

■ Allows remote indication of its operating state (open/closed)

PB106139-34



Indication iATLs

■ Allows remote indication of the associated impulse relay

Centralised control

PB106130-34



iTLc

■ Allows centralised control of a group of TLc impulse relays, whilst at the same time retaining local impulse-type control

PB106137-34



Centralised control iATLc

■ Used for centralised control, thanks to a "pilot line", of a group of impulse relays controlling separate circuit, while at the same time maintaining local individual control of each impulse relay

Latched control

PB106132-34



iTLm

■ Operated by latched orders from a changeover contact (switch, time switch, thermostat). Manual control does not work

PB106138-34



Latched control iATLm

■ Controls the associated impulse relay by latched orders from a changeover contact

iTL impulse relays (cont.)

Impulse relays are used:

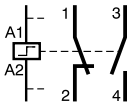
- Closing of the impulse relay pole(s) is triggered by an impulse on the coil.
- Having two stable mechanical positions, the pole(s) will be opened by the next impulse. Each impulse received by the coil reverses the position of the pole(s).
- Can be controlled by an unlimited number of pushbuttons.
- Zero energy consumption.

PB106131-34



Changeover contact iTLi

- This impulse relay has a changeover contact

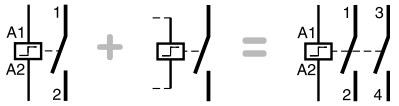


PB106134-34



Extensions iETL

- Used to increase the number of impulse relay poles
- Can be installed on the iTL, iTLi, iTLc, iTLm and iTLs



PB106140-34



Centralised control + indication iATLc+s

- Used for centralised control, thanks to a "pilot line", of a group of impulse relays controlling separate circuit, while at the same time maintaining local individual control of each impulse relay
- Remote indication of the mechanical status of each relay

PB106136-34



Multi-level centralised control iATLc+c

- Allows centralised control of a group of iTLc or "iTL + ATLc" impulse relays

PB107752-34



Control and indication 24 V DC iATL24

- Allows control and indication of a 230 V AC impulse relay from the Acti 9 Smartlink or by a PLC, by 24 V DC signals
- Also allows control by a pulsed signal

PB106125-34



Time delay iATEt

- Combined with an impulse relay, it automatically disconnects the circuit after a preset time

PB106141-34



Control iATLz

- Must be used when installing several illuminated PBs in parallel to control an impulse relay (prevents operating malfunctions)

PB106142-63



Step by step control iATL4

- Allows step-by-step control of two circuits via a single pushbutton

Impulse relays auxiliaries

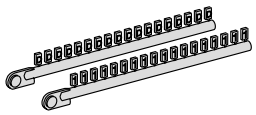
Specific auxiliaries

iTL impulse relays (cont.)

Mounting accessories

11	Yellow clips		**A9C15415**
12	9 mm spacer		**A9A27062**
13	Clip-on terminal markers	see module	**CA907001**

DB123631



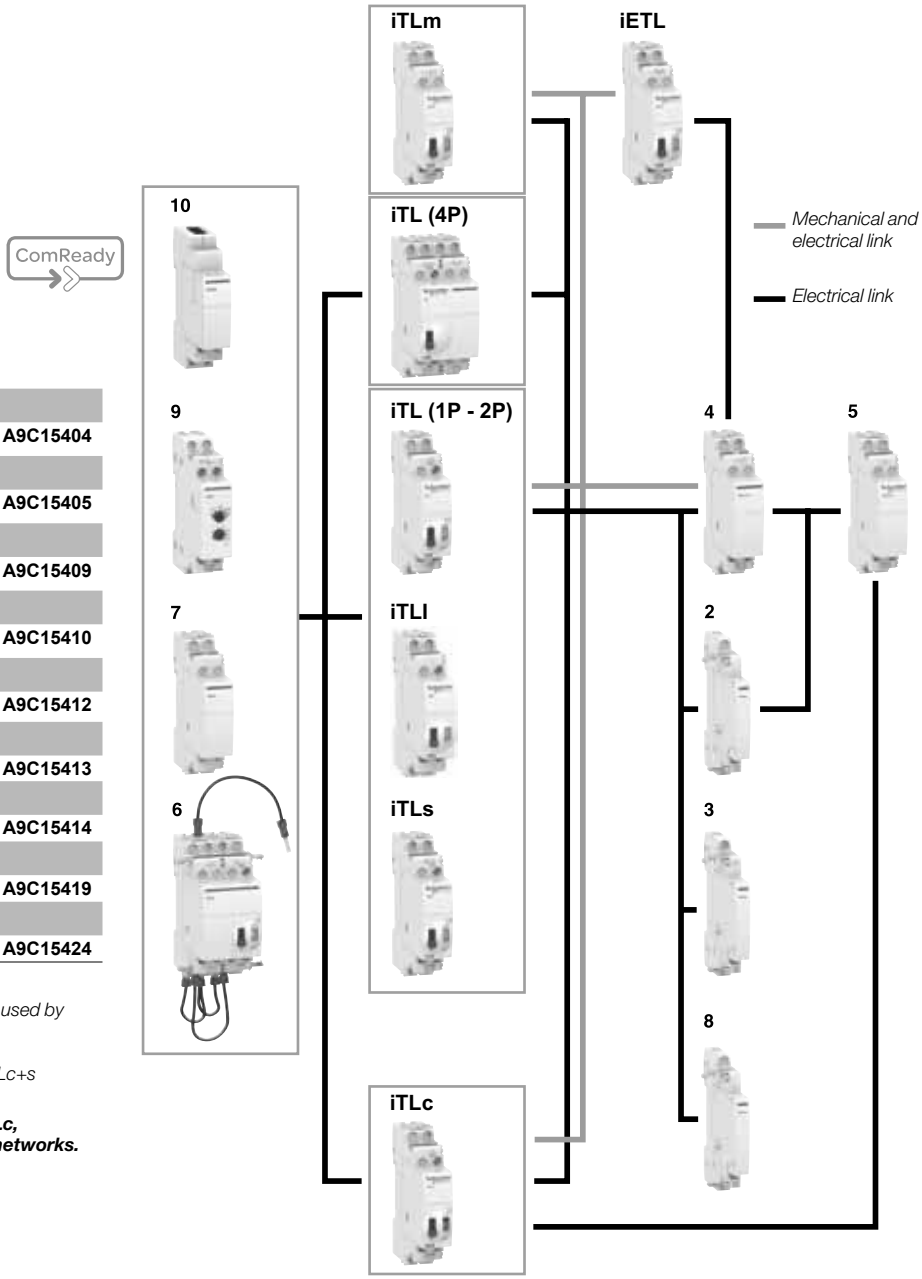
13



12



11



Auxiliaries

Centralised control			
2	iATLc [1], [3]	24...240 V AC	**A9C15404**
Indication			
3	iATLs [1]	24...240 V AC	**A9C15405**
Centralised control + indication			
4	iATLc+s [3]	24...240 V AC	**A9C15409**
Multi-level centralised control			
5	iATLc+c [2], [3]	24...240 V AC	**A9C15410**
Step by step control			
6	iATL4	230 V AC	**A9C15412**
Control by illuminated push-buttons			
7	iATLz	130...240 V AC	**A9C15413**
Latched control			
8	iATLm [1]	12...240 V AC	**A9C15414**
Time delay control			
9	iATEt [4]	24...240 V AC	**A9C15419**
Control and indication			
10	iATL24	230 V AC	**A9C15424**

(1) *The iATLc, iATLs and iATLm 9 mm auxiliaries are used by themselves to the right of an impulse relay.*
(2) *Connection by traditional cabling.*
The iATLc+c must be mounted to the right of an iATLc+s or an iATLc.

(3) The centralised control functions (iTLc, iATLc, iATLc+s, iATLc+c) only operate on AC voltage networks.

(4) *iATEt: control voltage:*
24...240 V AC, 24...110 V DC.

iTL impulse relays (cont.)

PB106126-41

Yellow clip
■ A simple clip-on system for flexible auxiliaries combination and improved robustness
■ For electrical and mechanical connections

■ Insulated terminals IP20

■ Large circuit labeling area

■ Built-in or optional auxiliary function: state indication, centralised control, latched control, control for illuminated pushbutton, step-by-step control, time delay

■ Disconnection of remote control by selector switch (except for 4P single-piece iTL) for maintenance operation

■ Consistent with the entire Acti 9 offer and with all types of lighting

■ Manual controls on front face: direct and priority manual control by O-I toggle
■ Mechanical contact position indicator



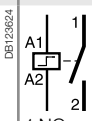
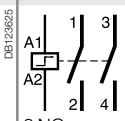
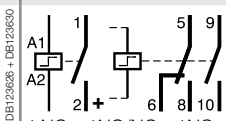
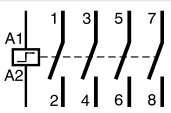
		Choice impulse relays auxiliaries																	
Type		**Standard iTL**						**Changeover iTLI**					**iTLc centralised control**			**iTLm control on latched order**	**iTLs remote indication**		
Rating	A	16					32	16					16			16	16		
Control voltage	V AC	230/240	130	48	24	12	230/240	230/240	130	48	24	12	230/240	48	24	230/240	230/240	48	24
	V DC	110	48	24	12	6	110	110	48	24	12	6	-			-	110	24	12
Auxiliaries																			
Extension																			
iETL		■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Centralised control + indication																			
iATLc+s		■	■	■	■	-	■	■	■	■	-	-	-	-	-	-	■	■	■
Centralised control																			
iATLc		■	■	■	■	-	■	■	■	■	-	-	-	-	-	-	■	■	■
Indication																			
iATLs		■	■	■	■	-	■	■	■	■	■	■	■	■	■	■	■	■	■
Multi-level centralised control																			
iATLc+c		■	■	■	■	-	■	■	■	■	-	-	■	■	■	-	■	■	■
Latched control																			
iATLm		■	■	■	■	■	■	■	■	■	■	■	-	-	-	-	■	■	■
Control for illuminated Pushbutton																			
iATLz		■	■	-	-	-	■	■	■	-	-	-	■	■	-	-	■	■	-
Step by step control																			
iATL4		■	-	-	-	-	■	■	-	-	-	-	■	-	-	-	■	-	-
Time delay control																			
iATEt		■	■	■	(*)	■	-	■	■	■	■	■	(*) -	■	■	■	-	■	■	■ (*)
Control and indication																			
iATL24		■	-	-	-	-	■	■	-	-	-	-	■	-	-	-	■	-	-

(*) iATEt : does not operate on 12 V DC.

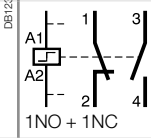
iTL impulse relays

Catalogue numbers

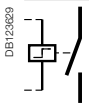
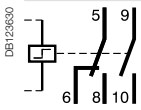
iTL impulse relays

Type			1P	2P	3P	4P
			 1 NO	 2 NO	 1 NO + 1NO/NC + 1NO	 4 NO
Rating (In)	**Control voltage (Uc)**					
	(V AC) (50/60 Hz)	**(V DC)**				
16 A	12	6	**A9C30011**	**A9C30012**	**A9C30011 + A9C32016**	**A9C30012 + A9C32016**
	24	12	**A9C30111**	**A9C30112**	**A9C30111 + A9C32116**	**A9C30114**
	48	24	**A9C30211**	**A9C30212**	**A9C30211 + A9C32216**	**A9C30212 + A9C32216**
	130	48	**A9C30311**	**A9C30312**	**A9C30311 + A9C32316**	**A9C30312 + A9C32316**
	230...240	110	**A9C30811**	**A9C30812**	**A9C30811 + A9C32816**	**A9C30814**
32 A	230...240	110	**A9C30831**	**A9C30831 + A9C32836**	**A9C30831 + 2 x A9C32836**	**A9C30831 + 3 x A9C32836**
Width in 9 mm modules			2	2	4	4

iTLI impulse relays

Type			2P
			 1NO + 1NC
Rating (In)	**Control voltage (Uc)**		
	(V AC) (50/60 Hz)	**(V DC)**	
16 A	12	6	**A9C30015**
	24	12	**A9C30115**
	48	24	**A9C30215**
	130	48	**A9C30315**
	230...240	110	**A9C30815**
Width in 9 mm modules			2

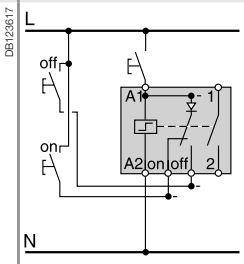
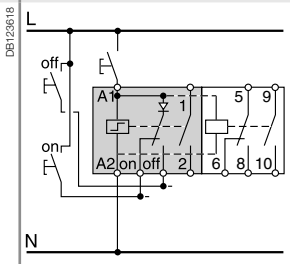
iETL extensions for iTL and iTLI

Type					Width in 9 mm modules
1P	**Rating (In)**	**Control voltage (Uc)**			
		(V AC) (50/60 Hz)	**(V DC)**		
 1NO	32 A	230...240	110	**A9C32836**	2
2P					
 1NO/NC + 1NO	16 A	12	6	**A9C32016**	2
		24	12	**A9C32116**	2
		48	24	**A9C32216**	2
		130	48	**A9C32316**	2
		230...240	110	**A9C32816**	2

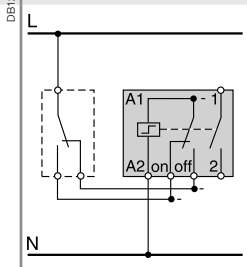
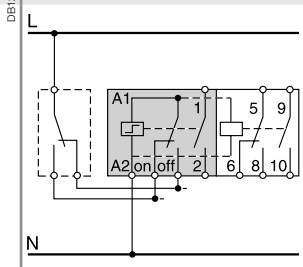
iTLc , iTLm, iTLs with built-in auxiliary function

Catalogue numbers (cont.)

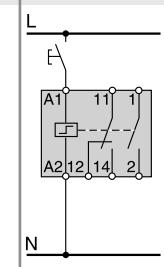
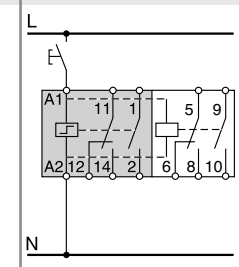
iTLc impulse relay with centralised control

Type		1P	3P
		 1NO	 3P
Rating (In)	**Control voltage (Uc) (V AC) (50/60 Hz)**		
16 A	24	**A9C33111**	**A9C33111 + A9C32116**
	48	**A9C33211**	**A9C33211 + A9C32216**
	230...240	**A9C33811**	**A9C33811 + A9C32816**
Width in 9 mm modules		2	4

iTLm impulse relay with latched control

Type		1P	3P
		 1NO	 3P
Rating (In)	**Control voltage (Uc) (V AC) (50/60 Hz)**		
16 A	230...240	**A9C34811**	**A9C34811 + A9C32816**
Width in 9 mm modules		2	4

iTLs impulse relay with remote indication*

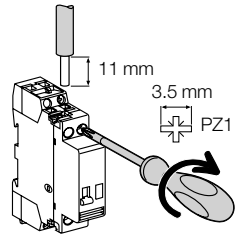
Type			1P	3P
			 1NO	 3P
Rating (In)	**Control voltage (Uc) (V AC) (50/60 Hz)**	**(V DC)**		
16 A	24	12	**A9C32111**	**A9C32111 + A9C32116**
	48	24	**A9C32211**	**A9C32211 + A9C32216**
	230...240	110	**A9C32811**	**A9C32811 + A9C32816**
Width in 9 mm modules			2	4

(*) Short circuit protection device for indication contacts : 6 A gG fuse.

iTL impulse relays

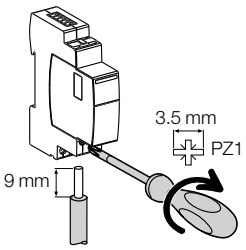
Connection

DB123132



Type	Rating	Circuit	Tightening torque	Copper cables	
				Rigid or ferrule	Flexible or ferrule
			DB122945	DB123553	
iTL, iTLi, iTLc, iTLm, iTLs, iETL	16 A	Control	1 N.m	0.5 to 4 mm²	1 to 4 mm²
		Power		1.5 to 4 mm²	1.5 to 4 mm²
iTL, iETL	32 A	Control		0.5 to 4 mm²	1 to 4 mm²
		Power	1.2 N.m	1.5 to 10 mm²	1.5 to 10 mm²
iATLs, iATLc, iATLc+s, iATLc+c, iATLm, iATEt, iATL4, iATLz			1 N.m	0.5 to 4 mm²	1 to 4 mm²

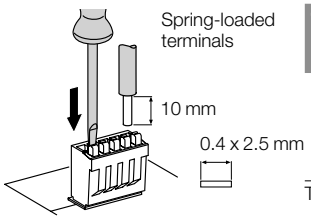
DB124308



Type	Terminals	Tightening torque	Copper cables		
			Rigid	Flexible	Flexible or ferrule
		DB122945	DB123553	DB123554	
iATL24	Power supply (N/P)	1 N.m	0.5 to 10 mm² 2 x 0.5 to 2 x 2.5 mm²	0.5 to 6 mm² 2 x 0.5 to 2 x 2.5 mm²	0.5 to 4 mm² 2 x 0.5 to 2 x 2.5 mm²
	Input (Y1/Y2)				

Ti24 connector connection

DB123580



Type	Catalogue numbers	Copper cables	
		Rigid	Flexible
	DB122945	DB123553	
Ti24 interface	**A9XC2412**	1 x 0.5 to 1.5 mm²	1 x 0.5 to 1.5 mm²

Ti24 prefabricated cables connection

Type	Catalogue numbers	Length
Connection for Acti 9 Smartlink		
6 short prefabricated	**A9XCAS06**	100 mm
6 medium-sized prefabricated	**A9XCAM06**	160 mm
6 long prefabricated	**A9XCAL06**	870 mm
Connection for PLC type terminals		
6 long prefabricated on a single side	**A9XCAU06**	870 mm

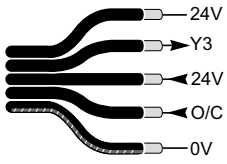
PB107754-10



PB107755-14

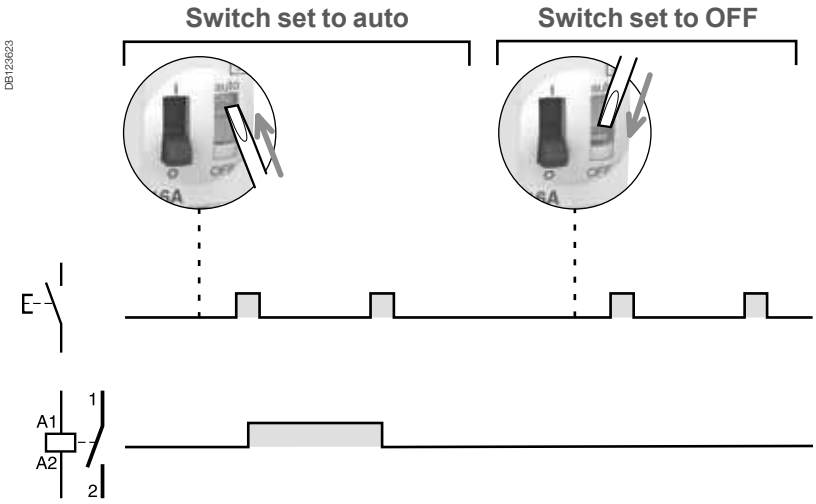


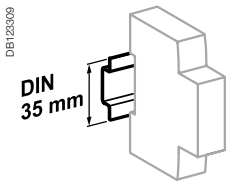
DB404857



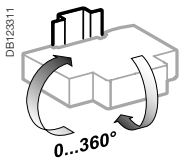
iTL impulse relays (cont.)

Operation

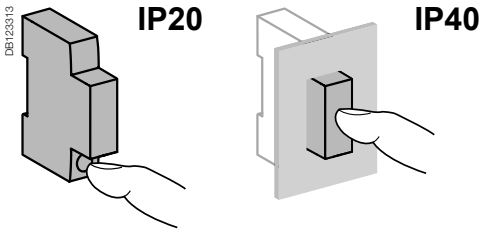




Clip on DIN rail 35 mm.



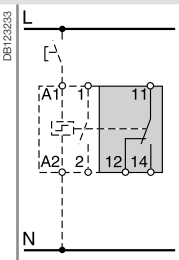
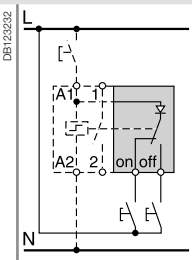
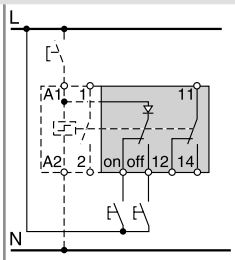
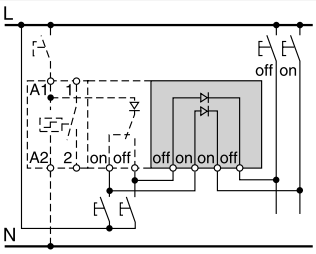
Indifferent position of installation.



Technical data

Control circuit			
		iTL and iTLI 16 A iTLc, iTLm, iTLs, iETL 16 A	**iTL 32 A, iETL 32 A**
Dissipated power (during the impulse)		1, 2, 3P: 19 VA	19 VA
		4P: 38 VA	
Illuminated PB control		Max. current 3 mA (if > use an ATLz)	
Operating threshold		Min. 85 % of Un in conformance with IEC/EN60669-2-2	
Duration of the control order		50 ms to 1 s (200 ms recommended)	
Response time		50 ms	
Power circuit			
Voltage rating (Ue)	1P, 2P	24 ...250 V AC	
	3P, 4P	24....415 V AC	
Frequency		50 Hz or 60 Hz	
Maximum number of operations per minute		5	
Maximum number of switching operation a day		100	
Additional characteristics to IEC/EN 60947-3			
Insulation voltage (Ui)		440 V AC	
Pollution degree		3	
Rated impulse withstand voltage (Uimp)		6 kV	
Endurance (O-C)			
Electrical to IEC/EN 60947-3		200,000 cycles (AC21)	50,000 cycles (AC21)
		100,000 cycles (AC22)	20,000 cycles (AC22)
Overvoltage category		IV	
Other characteristics			
Degree of protection (IEC 60529)	Device only	IP20	
	Device in modular enclosure	IP40 Insulation class II	
Operating temperature		-20°C to +50°C	
Storage temperature		-40°C to +70°C	
Tropicalization (IEC 60068-1)		Treatment 2 (relative humidity 95 % at 55°C)	

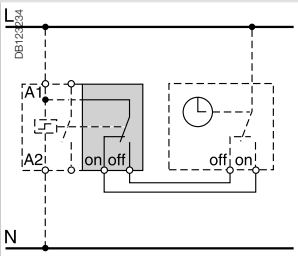
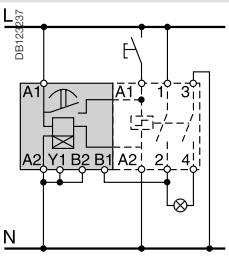
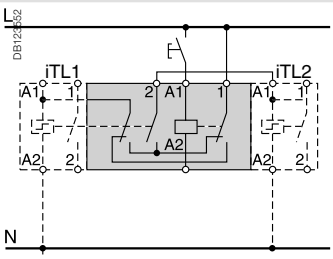
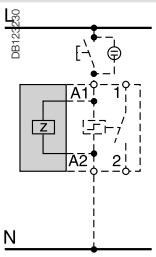
iTL impulse relays
Electrical auxiliaries
for iTL impulse relays

	Indication	Control		
Auxiliaries	**iATLs**	**iATLc**	**iATLc+s**	**iATLc+c**
Type	**Indication**	**Centralised control**	**Centralised control + indication**	**Multi-level centralised control**
	PB106139-34 	PB106137-34 	PB106140-34 	PB106136-34 
Function				
	■ Allows remote indication of the associated impulse relay	■ Used for centralised control, thanks to a "pilot line", of a group of impulse relays controlling separate networks, while at the same time maintaining local individual control of each impulse relay	■ And for remote indication of the mechanical status of each relay	■ Used to control the centralised controls of a number of impulse relay groups, while at the same time maintaining local individual control and centralised control by level
Wiring diagrams				
	DB123233 	DB123232 	DB123231 	DB123235 
	–	–	–	■ Each group, made up of iTLc or (iTL or iTLI or iTLs) + iATLc+s, must only contain a single iATLc+c ■ Maximum number of impulse relays that can be controlled: □ 230 V AC: 24 □ 130 V AC: 12 □ 48 V AC: 5
Mounting				
	■ Mounted to the right of iTL by yellow clips	■ Mounted to the right of iTL by yellow clips	■ Mounted to the right of iTL by yellow clips	■ Without mechanical link with impulse relays and auxiliaries
Catalogue numbers	**A9C15405**	**A9C15404**	**A9C15409**	**A9C15410**

Technical specifications					
Control voltage (Ue)	V AC	24…240	24…240	24…240	24 …240
	V DC	24…240	–	–	–
Control voltage frequency	Hz	50/60	50/60	50/60	50/60
Width in 9 mm modules		1	1	2	2
Auxiliary contact (breaking capacity)		■ Mininimum: 10 mA at 24 V AC/DC ■ Maximum (IEC 60947-5-1): □ 12…240 V AC 6 A □ 12…24 V DC 6 A □ 15…240 V AC 2 A □ 13…24 V DC 2 A	–	■ Mininimum: 10 mA at 24 V AC/DC ■ Maximum (IEC 60947-5-1): □ 12…240 V AC 6 A □ 12…24 V DC 6 A □ 15…240 V AC 2 A □ 13…24 V DC 2 A	–
Number of contacts		–	–	–	–
Operating temperature	°C	-20°C to +50°C			
Storage temperature	°C	-40°C to +70°C			

iTL impulse relays
Electrical auxiliaries
for iTL impulse relays (cont.)

Control

	iATLm	iATEt	iATL4	iATLz
	Latched control	**Time delay**	**Step by step control**	**Control by illuminated push-buttons**
				
	■ Combined with an impulse relay, it operates on latched orders	■ Combined with an impulse relay, it automatically disconnects the circuit after a preset time	■ Allows the step by step sequence over 2 circuits	■ Used to control impulse relays by illuminated push-buttons, without operating risks
				
	–	■ 5 time setting ranges: □ 1 to 10 s □ 6 to 60 s □ 2 to 10 min □ 6 to 60 min □ 2 to 10 h	■ The cycle is as follows: □ 1st impulse - iTL 1 closed, iTL 2 open □ 2nd impulse - iTL 1 open, iTL 2 closed □ 3rd impulse - iTL 1 and 2 closed □ 4th impulse - iTL 1 and 2 open □ 5th impulse - iTL 1 closed, iTL 2 open, etc	■ Provide an iATLz when the current drawn up by the illuminated push-buttons is higher than 3 mA (this current is sufficient to keep the coils energised). Above this value, fit one extra iATLz per 3 mA. ■ For example: for 7 mA, fit 2 iATLz
	■ Mounted to the right of iTL by yellow clips	■ Mounted to the left of iTL by yellow clips	■ Assembled between 2 impulse relays: according to the auxiliarisation table by yellow clips	■ Mounted to the left of iTL by yellow clips
	A9C15414	**A9C15419**	**A9C15412**	**A9C15413**
	12…240	24…240	230	130…240
	6…110	24…110	–	–
	50/60	50/60	50/60	50/60
	1	2	4	2
	–	–	–	–
	–	–	–	–
	-20°C to +50°C			
	-40°C to +70°C			

iTL impulse relays
Electrical auxiliaries
for iTL impulse relays (cont.)

Control and indication

Auxiliaire	iATL24
Type	**Control and indication 24 V DC**
	With Ti24 connector

PB107752-34

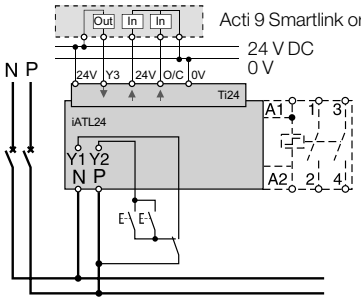


Function

- This auxiliary allows a impulse relay to be interfaced with the Acti 9 Smartlink interface or a programmable logic controller (PLC) in 24 V DC (control, O/C indication)
- 230 V AC control

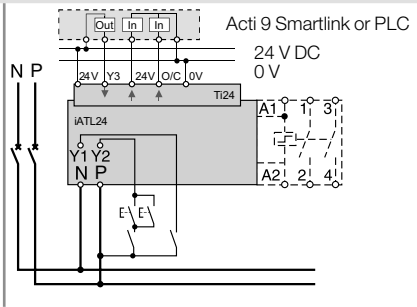
Wiring diagrams

DB124319



Wiring with exclusive selector 230 V AC and 24 V DC controls

DB124445



Wiring for non-exclusive 230 V AC and 24 V DC controls

Mounting

- To the left of the iTL impulse relay using the yellow clips (1).
- When an iATL24 is used, the A1/A2 terminals of the impulse relay should not be wired. Only the yellow clips integral with the iATL24 should be used for connection to the coil.

Utilization

- 230 V AC interface:
  - Y1: enabling of 24 V DC control (Y1 = 1) or inhibition of 24 V DC control (Y1 = 0).
  - Y2: 230 V pulse control
- "TI24" 24 V DC interface:
  - Y3: 24 V DC control of iTL closing on rising edge and opening on falling edge
  - reading of the impulse relay status (opened or closed) from the position of the integrated O/C auxiliary contact
  - monitoring of connection of the "Ti24" terminal block by the upstream system (PLC, supervision system) via the 24 V terminal (in the centre of the Ti24 terminal block)

Catalogue numbers		**A9C15424**
Technical specifications		
Control voltage (Ue)	V AC	230, +10 %, -15 % (Y2)
	V DC	24, ± 20 % (Y3)
Control voltage frequency	Hz	50/60
Insulation voltage (Ui)	V AC	250
Rated impulse withstand voltage (Uimp)	kV	8 (OVC IV)
Pollution degree		3
Degree of protection		IP20B device only
		IP40 device in modular enclosure
Width in 9 mm modules		2
Auxiliary contact (O/C) Ti24		24 V DC protected output, min. 2 mA, max. 100 mA
Contact		1 O/C operating category AC 14
Operating temperature	°C	-25°C to +60°C
Storage temperature	°C	-40°C to +80°C
Consumption		<1 W
Standard		IEC/EN 60947-5-1

(1) Mechanical and electrical connection.

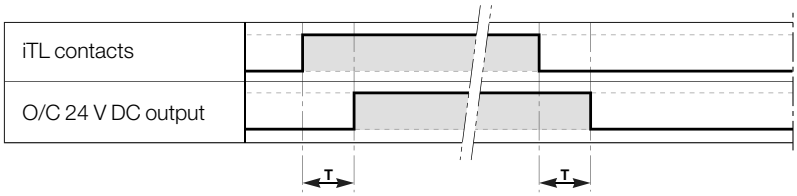
iTL impulse relays
Electrical auxiliaries
for iTL impulse relays (cont.)

ComReady

Operation of the iATL24

O/C 24 V DC output

DB124314

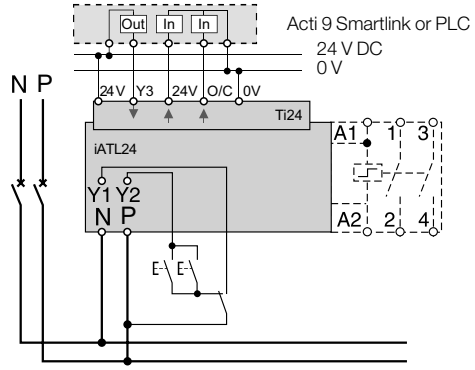


	Parameter	Min	Max
T	Time delay between iATL24 closing and indication	100 ms	200 ms

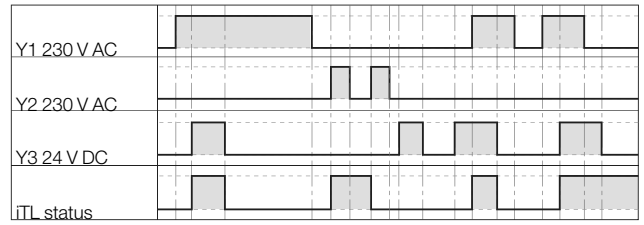
- Minimum duration of 230 V AC pulse (Y2): 200 ms.
- 30 iATL24 closing or opening actuations are authorized per minute: Minimum time delay between 2 actuations on the iATL24 via Y1,Y2, Y3 (closing or opening of the iTL coil): 440 ms.
- 10 closing or opening actuations spaced 440 milliseconds apart are authorized following no loading of the iATL24 during a period of 20 seconds.

Wiring with exclusive selector 230 V AC and 24 V DC controls

DB124446

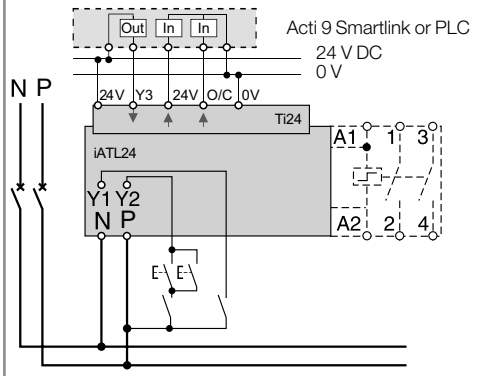


DB124448

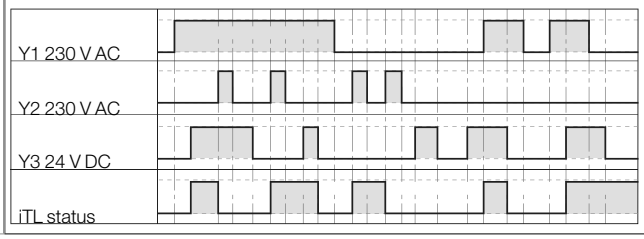


Wiring for non-exclusive 230 V AC and 24 V DC controls

DB124447



DB124449



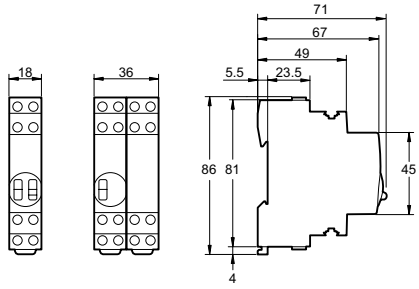
iTL impulse relays

Security

Accessories	Yellow clips	Spacer
	PB106143-10 	PB104483 
Function		
	■ Ensure the mechanical and/or electrical link between impulse relays and their auxiliaries (set of 10).	■ Required to reduce temperature rise of modular devices installed side by side. ■ Recommended to separate electronic devices (thermostat, programmable clock, etc.) from electromechanical devices (relays, contactors).
Catalogue numbers	**A9C15415**	**A9A27062**
Technical specifications		
Width in 9 mm modules	–	1

Dimensions (mm)

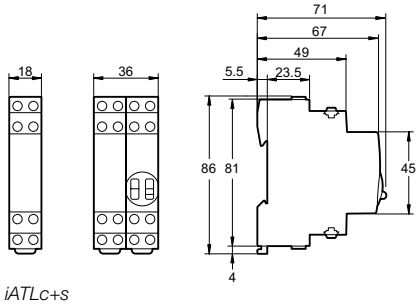
DB123375



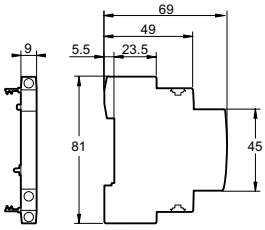
iTL 1P
iTLc
iTLm
iTLs
iTLi
iETL

iTL+iETL
iTL 4P

DB123383

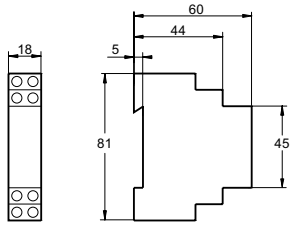


iATLc+s
iATLc+c
iATLz
iATL4



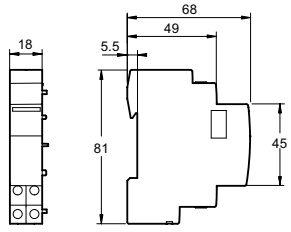
iATLc
iATLs
iATLm

DB123380



iATEt

DB124316



iATL24

iTL+ high-performance impulse relays

DB106604

Country approval pictograms

EN 60669-2-2

The iTL+ high-performance impulse relay allows remote control of single-phase circuits. It is designed for demanding applications.

The iTL+ high-performance impulse relay is used for push-button control of lighting circuits consisting of:
- incandescent lamps, low-voltage halogen lamps, etc. (resistive loads)
- fluorescent tubes, discharge lamps, etc. (inductive loads).

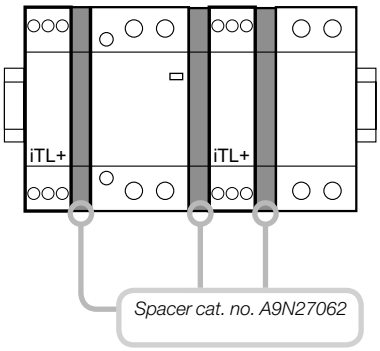
PB107132-35

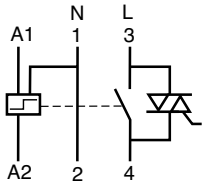


PB104483-35



DB124139

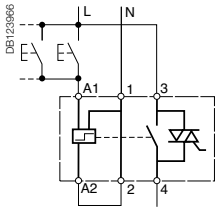


iTL+			
Type	**Rating**		**Width in 9 mm modules**
1P+N			
DB106156 	16 A	**A9C15032**	2+1 (1)

(1) Supplied with a 9 mm spacer (cat. no. **A9N27062***): to be used for mounting the iTL+ alongside a circuit breaker, contactor, impulse relay, etc., in order to maintain optimal operation.*

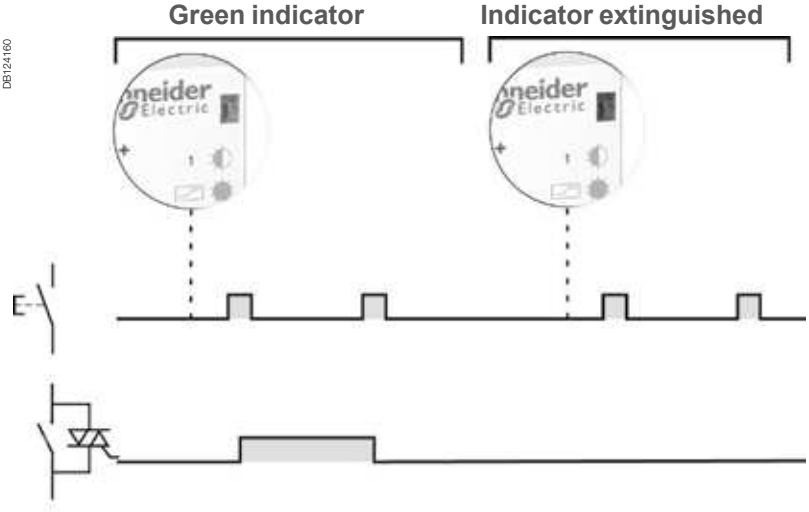
It is compulsory:
- to connect the neutral
- to keep the same control circuit connection "A1: phase", "A2: neutral"
- to use the same phase for connection of the power and control functions.

DB123966



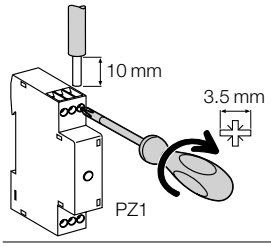
Operation

DB124160



Connection

DB123655

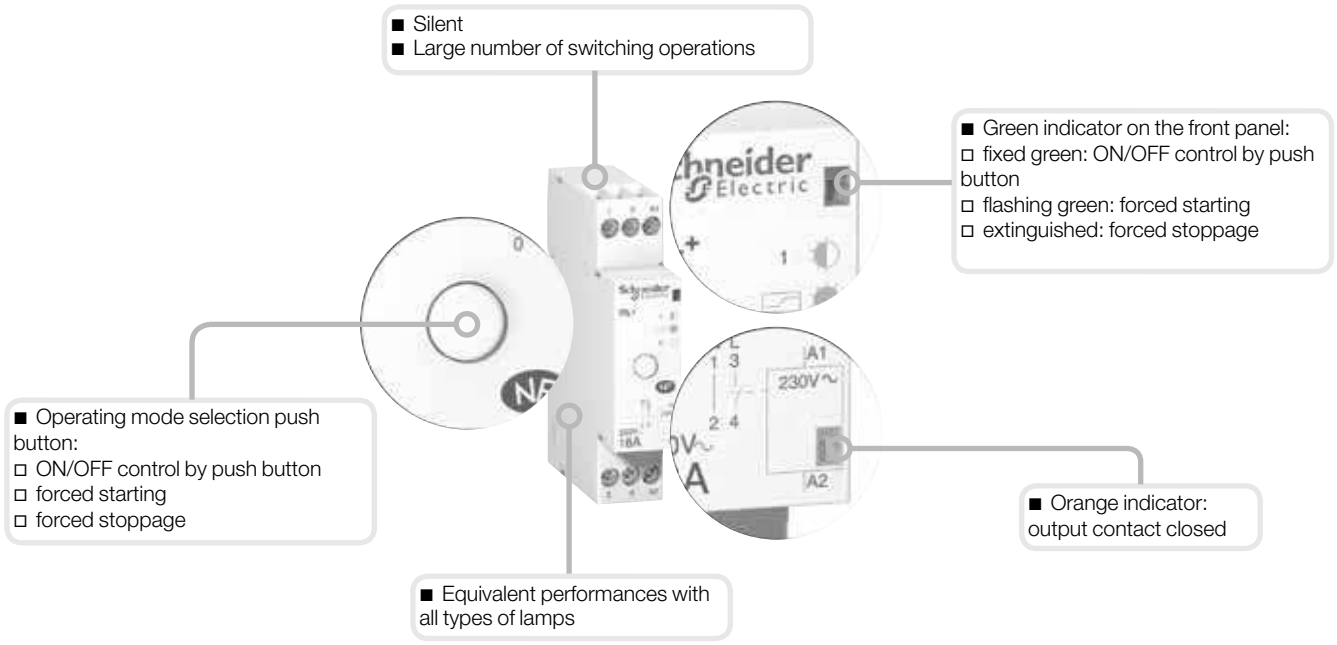


Type	Rating	Tightening torque	Copper cables	
			Rigid or flexible with ferrule	**Rigid or flexible without ferrule**
		DB123656	DB123657	
iTL+	16 A	1 N.m	2 x 1.5 mm²	2 x 2.5 mm² 1 x 4 mm²

iTL+ high-performance impulse relays (cont.)

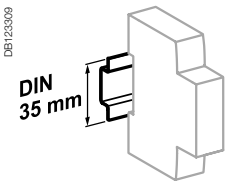
They combine the benefits of static switching and electromechanical technology: small size, little temperature rise.

PB107132-40



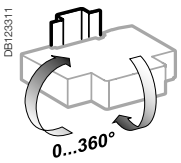
Following a mains failure, the iTL+ returns to 0 position (forced stoppage) irrespective of its initial state.

DB123309



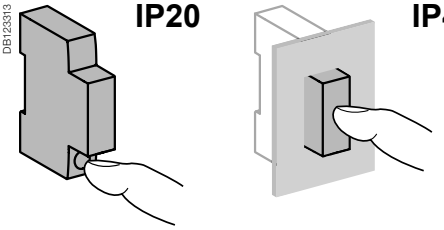
Clip on DIN rail 35 mm.

DB123311



Indifferent position of installation.

DB123313



Technical data

Control circuit		
Coil voltage (Uc)		230 V AC
Frequency		50 Hz
Inrush power		11 VA
Holding power		1.1 VA
Control by luminous push button		Max. current 5 mA
Control order duration		50 ms to 1 s (recommended 200 ms)
Power circuit		
Voltage rating (Ue)		230 V AC
Frequency		50 Hz
Electrical load	Minimum	20 W
	Maximum	3600 W
Max. number of switching operations per minute		6
Other characteristics		
Degree of protection (IEC 60529)	Device only	IP20
	Device in modular enclosure	IP40 Insulation class II
Endurance (O-C)	Electrical	5.000.000 cycles (AC21 - AC22)
Noise level at activation		< 30 dBA
Operating temperature		-5°C to +55°C
Storage temperature		-40°C to +60°C
Tropicalization (IEC 60068-1)		Treatment 2 (relative humidity of 95 % at 55°C)

Weight (g)

High-performance impulse relays	
Type	**iTL+**
1P+N	70

iIL indicator lights

IEC 60947-5-1

■ iIL indicator lights light up to indicate that a voltage is present.

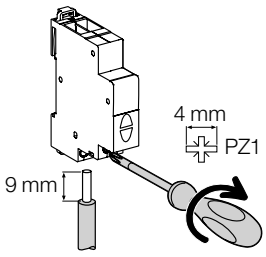
Catalogue numbers

iIL indicator lights

Type	Single					Double		Flashing light	Three-phase voltage presence indicator light
	PB105256-40				PB105257-40	PB105256-40		PB105258-40	
Diagram	DB122563 X1- X2+				DB122564	DB122565 X1 X3 X2 X4		DB122566 0,5 s X1 X2	X1 X2 X3 N
Colour	Red	Green	White	Blue	Yellow	Green/red	White/ white	Red	Red/red/red
Cat. no.									
12...48 V AC/DC	**A9E18330**	**A9E18331**	**A9E18332**	**A9E18333**	**A9E18334**	**A9E18335**	**-**	**-**	**-**
110...230 V AC	**A9E18320**	**A9E18321**	**A9E18322**	**A9E18323**	**A9E18324**	**A9E18325**	**A9E18328**	**A9E18326**	**-**
230...400 V AC (3 phases)	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**A9E18327**
Width in 9 mm modules	2					2		2	2

Connection

DB123137

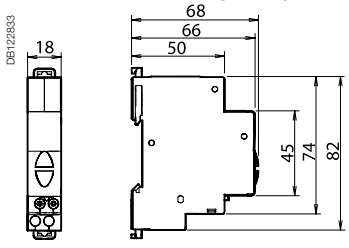


Tightening torque	Copper cables	
	Rigid	Flexible or ferrule
	DB122945	DB122946
1 N.m	0.5 mm² min.	0.5 mm² min.
	2 x 2.5 mm² max.	2 x 2.5 mm² max.

■ Phase-separated wall that can be divided to allow the teeth of all types of comb busbar to pass through.
■ Staggered terminals to simplify connection.

Dimensions (mm)

DB122833



Technical data

Main characteristics	
Pollution degree	3
Power circuit	
Operating frequency	50...60 Hz
Flashing frequency	2 Hz
Additional characteristics	
Operating temperature	-35°C... +70°C
Storage temperature	-40°C... +80°C
Tropicalization	Treatment 2 (relative humidity 95 % at 55°C)
LED indicator light	Consumption per indicator light: 0.3 W
	Service life: 100,000 hours of constant lighting efficiency
	Maintenance-free indicator light (non-interchangeable LEDs)

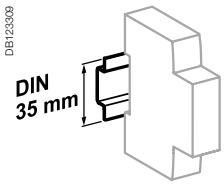
iSO bells and iRO buzzers



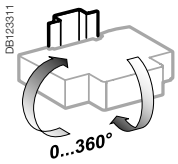
iSO



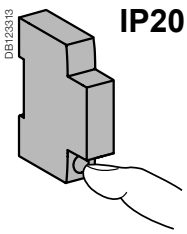
iRO

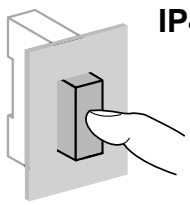


Clip on DIN rail 35 mm.



Indifferent position of installation.





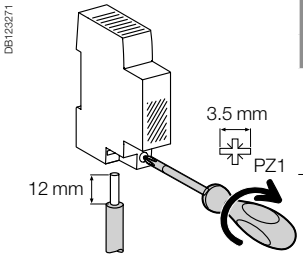
iSO and iRO

Audible indication in housing and the tertiary sector.

Catalogue numbers

Bell and buzzer			
Type			**Width in 9 mm modules**
iSO bell	**Voltage (Ue)**		
	230 V AC	**A9A15320**	2
	8…12 V AC	**A9A15321**	2
iRO buzzer			
	230 V AC	**A9A15322**	2
	8…12 V AC	**A9A15323**	2
Operating frequency	50...60 Hz		

Connection



Tightening torque	Copper cables	
	Rigid	Flexible or ferrule
		
1.3 N.m	< 4 mm²	< 4 mm²

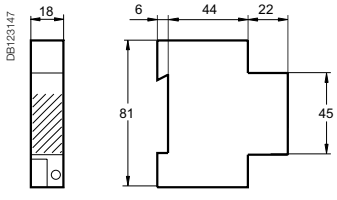
Technical data

Main characteristics		iSO	iRO
Consumption	8…12 V AC	3.6 VA	
	220…240 V AC	5 VA	
Additional characteristics			
Degree of protection (IEC 60529)	Device only	IP40	
	Device in modular enclosure	IP20	
Operating temperature		-10°C to +40°C	
Storage temperature		-25°C to +60°C	
Sound level (at a distance of 60 cm)		80 dBA	70 dBA

Weight (g)

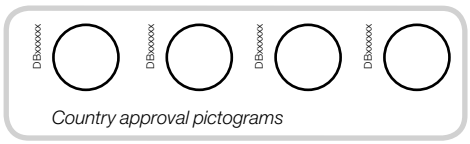
Bell and buzzer	
Type	
iSO	77
iRO	64

Dimensions (mm)



iSO bell and iRO buzzer

iTR transformers



Country approval pictograms

PB107156-35



PB107158-35



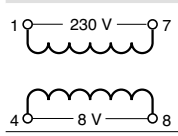
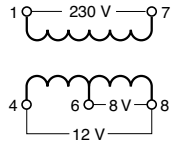
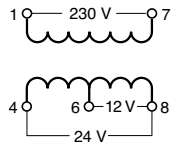
NF EN 60742, EN and IEC 61558-2-6, Approval NF USE

Bell transformers and safety transformers allow for a very low voltage (ELV 8 V, 12 V or 24 V) to be obtained from a low voltage network (LV 230 V).

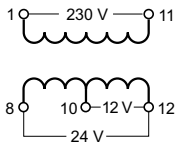
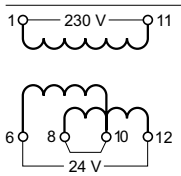
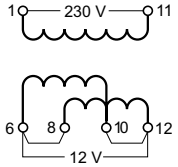
All Schneider Electric transformers are:
- Safe: primary and secondary circuits are perfectly insulated by each other
- Resistant to short-circuit currents thanks to the built-in device
- Class II with terminal shield (optional).

Catalogue numbers

Bell transformer

	Type	Power	Secondary voltage		Width in 9 mm modules
E56759		4 VA	8 V AC	**A9A15214**	4
E56760		4 VA	8-12 V AC	**A9A15213**	4
		8 VA	8-12 V AC	**A9A15216**	4
		16 VA	8-12 V AC	**A9A15212**	4
E56761		25 VA	12-24 V AC	**A9A15215**	6

Safety transformer

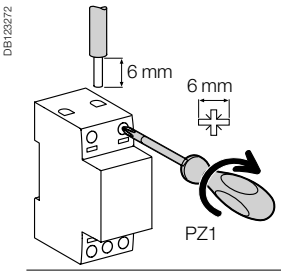
	Type	Power	Secondary voltage		Width in 9 mm modules
DB124153		16 VA	12-24 V AC	**A9A15218**	10
		25 VA	12-24 V AC	**A9A15219**	10
DB124154		40 VA	12-24 V AC	**A9A15220**	10
		63 VA	12-24 V AC	**A9A15222**	10
DB124155					
Operating frequency		50/60 Hz			

Terminal shield

Type		Width in 9 mm modules
	15228	4
	15229	6

iTR transformers (cont.)

Connection



Tightening torque	Copper cables	
	Rigid	Flexible or with ferrule
	 DB122945	 DB122946
0.5 N.m	< 2.5 mm²	< 2.5 mm²

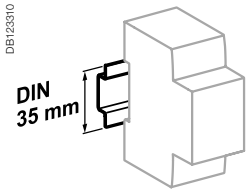
Technical data

Main characteristics		
Primary voltage		230 V AC ±10 %
Secondary voltage on load	For bell transformers	8-12-24 V AC ±15 %
	For safety transformers	12-24 V AC ±5 %

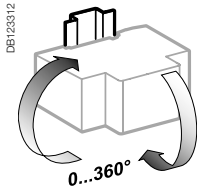
Transformer catalogue numbers	Rated secondary voltage	Off load voltage
A9A15214	8 V	12 V
A9A15213	8 V	12 V
	12 V	16 V
A9A15216	8 V	13 V
	12 V	18 V
A9A15212	8 V	13 V
	12 V	18 V
A9A15215	12 V	16 V
	24 V	32 V
A9A15218	12 V	14 V
	24 V	28 V
A9A15219	12 V	14 V
	24 V	28 V
A9A15220	12 V	14 V
	24 V	28 V
A9A15222	12 V	14 V
	24 V	28 V

Additional characteristics		
Degree of protection (IEC 60529)	Device only	IP20 with terminal shield
Operating temperature		-20°C to +55°C
Storage temperature		-25°C to +80°C

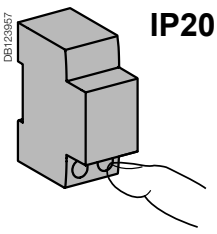
Note: Transformers have an off load operating voltage that is higher than the rated voltage. For loads that are sensitive to overloads (electro-magnetic circuits), the transformer must be made to operate at In. After operation of the protection device upon an overload, cut-off the power supply and let the transformer cool down before restart.



Clip on DIN rail 35 mm.



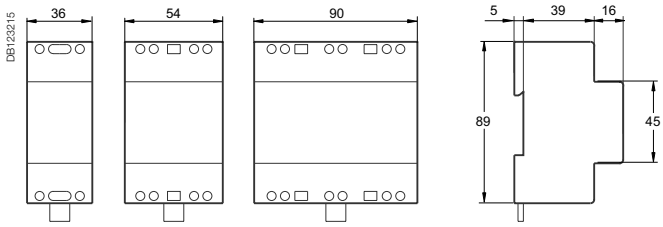
Bell transformer: indifferent position of installation.
Safety transformer: vertical position.



Weight (g)

iTR		
Type	**Cat. no.**	**Weight**
Bell	**A9A15212**	384
	A9A15213	240
	A9A15214	237
	A9A15215	633
	A9A15216	275
Safety	**A9A15218**	1082
	A9A15219	1125
	A9A15220	1190
	A9A15222	1309

Dimensions (mm)



A9A15212
A9A15213
A9A15214
A9A15216

A9A15215

A9A15218
A9A15219
A9A15220
A9A15222

Relays

Time delay relays

Time delay relays are used in service sector and industrial buildings for small automatic control systems: ventilation, heating, animation, roller blind servo controls, escalators, pumps, lighting, signalling, monitoring, etc.



iRTA
■ Delays energizing of a load



iRTB
■ Delays de-energizing of a load upon closing of an auxiliary contact (push button)



iRTC
■ Delays de-energizing of a load upon opening of an auxiliary contact (push button)

Time delay

Interface relays

iRBN and iRTBT relays can interface automatic control system inputs/ outputs with low-voltage devices.



iRBN
Low level relay
■ Actuation of low-amperage electronic circuits upon receiving an LV electrical order



iRTBT
Extra low voltage relay
■ Actuation of LV circuits based on an extra low voltage order

Control

Control relays

Control relays monitor electrical parameters and indicate when they are exceeded



iRCP
Phase control
■ Monitors the order and asymmetry of phases and the presence of voltage on the 3 phases of a three-phase circuit (power supply of a motor, etc.)



iRCI
Current control
■ Monitors the current flowing in a circuit and indicates any crossing of the set threshold

Monitoring

Relays (cont.)



iRTH
■ Applies a time delay to de-energizing of a load



iRTL
■ Applies a time delay to energizing and de-energizing of a load during different times, repeatedly (flasher)



iRTMF
■ Allows one of the four types of time delay to be selected: A, B, C or H

Changeover relays

iRLI and iERL relays are used to relay ON or OFF information to the auxiliary circuits and actuate low-power loads



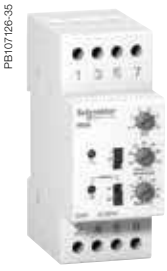


iRLI
Changeover

iERL extension

■ Relays ON or OFF information to the auxiliary circuits
■ Actuates low-power loads

Relaying and control



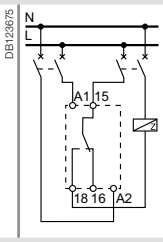
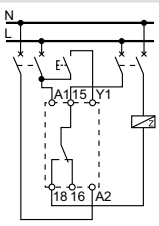
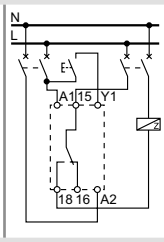
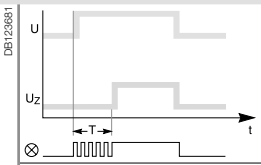
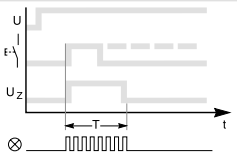
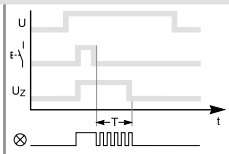
iRCU
Voltage control
■ Monitors the potential difference of a circuit and indicates any crossing of the set threshold



iRCC
Compressor control
■ Monitors the compressor power supply and prevents its immediate restarting upon detection of a power cut or voltage dip

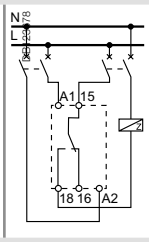
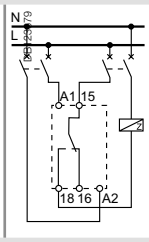
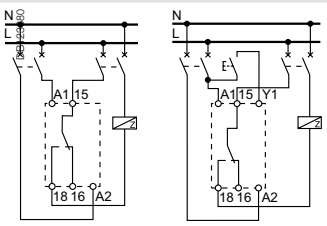
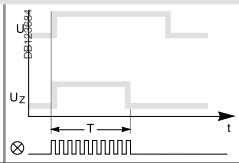
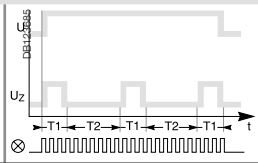
Time delay relays iRTA, iRTB, iRTC, iRTH, iRTL and iRTMF

Time delay relays

		iRTA	iRTB	iRTC
Type				
		 PB111581-35	 PB111582-35	 PB111583-35
Function				
		■ Delays energizing of a load	■ Delays de-energizing of a load upon closing of an auxiliary contact (push button)	■ Delays de-energizing of a load upon opening of an auxiliary contact (push button)
Wiring diagrams				
		 DB123675	 DB123676	 DB123677
Use				
		 DB123681	 DB123682	 DB123683
		■ The single time delay cycle starts at switching on of the iRTA relay power supply ■ The load is energized at the end of time delay T	■ The single time delay cycle starts at closing of an auxiliary contact (push button) ■ The load is de-energized at the end of time delay T	■ The single time delay cycle starts only upon release of an auxiliary contact (push button) ■ The load is de-energized at the end of time delay T
Catalogue numbers		**A9E16065**	**A9E16066**	**A9E16067**

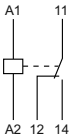
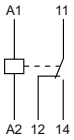
Technical specifications				
Control and power supply voltage (Uc)	V AC	24…240, ±10 %	24…240, ±10 %	24…240, ±10 %
	V DC	24, ±10 %	24, ±10 %	24, ±10 %
Operating frequency	Hz	50/60	50/60	50/60
Time delay range		0.1 s to 100 h	0.1 s to 100 h	0.1 s to 100 h
Precision		±10 % of full scale	±10 % of full scale	±10 % of full scale
Minimum duration of control impulse		100 ms	100 ms	100 ms
Insensitive to brownouts		≤ 20 ms	≤ 20 ms	≤ 20 ms
Max. resetting time per voltage interruption		100 ms	100 ms	100 ms
Accuracy of repetition		±0.5 % at constant parameters	±0.5 % at constant parameters	±0.5 % at constant parameters
Changeover contact (cadmium free)	Mini	Rating 10 mA/5 V DC	Rating 10 mA/5 V DC	Rating 10 mA/5 V DC
	Maxi	Rating 8 A/250 V AC/DC	Rating 8 A/250 V AC/DC	Rating 8 A/250 V AC/DC
Endurance	Mechanical	> 5 x 10^6 switching operations	> 5 x 10^6 switching operations	> 5 x 10^6 switching operations
	Electrical	> 10^5 switching operations (utilization category AC1)	> 10^5 switching operations (utilization category AC1)	> 10^5 switching operations (utilization category AC1)
Display of contact status by green indicator lamp		Flashing during time delay	Flashing during time delay	Flashing during time delay
Degree of protection	Device only	IP20	IP20	IP20
Connection by tunnel terminals	Without ferrule	2 x 2.5 mm² single-strand	2 x 2.5 mm² single-strand	2 x 2.5 mm² single-strand
	With ferrule	2 x 1.5 mm² multi-strand	2 x 1.5 mm² multi-strand	2 x 1.5 mm² multi-strand
Width in 9-mm modules		2	2	2
Operating temperature	°C	-5 … +55	-5 … +55	-5 … +55
Storage temperature	°C	-40 … +70	-40 … +70	-40 … +70

Time delay relays iRTA, iRTB, iRTC, iRTH, iRTL and iRTMF (cont.)

	iRTH	iRTL	iRTMF
			
	■ Applies a time delay to de-energizing of a load	■ Applies a time delay to energizing and de-energizing of a load during different times, repeatedly (flasher)	■ Allows one of the four types of time delay to be selected: A, B, C or H
			
			
	■ The single time delay cycle starts at switching on of the iRTH relay power supply ■ The load is de-energized at the end of time delay T	■ The time delay cycle starts at energizing ■ The load is energized during an adjustable time T1 and then de-energized during an adjustable time T2. This cycle is reproduced until de-energizing of the iRTL relay power supply	■ Depending on the choice, the iRTMF generates time delay cycles for the iRTA, iRTB, iRTC or iRTH relays
	A9E16068	**A9E16069**	**A9E16070**
	24…240, ±10 %	24…240, ±10 %	12…240, ±10 %
	24, ±10 %	24, ±10 %	12…240, ±10 %
	50/60	50/60	50/60
	0.1 s to 100 h	0.1 s to 100 h	0.1 s to 100 h
	±10 % of full scale	±10 % of full scale	±10 % of full scale
	100 ms	100 ms	100 ms
	⩽ 20 ms	⩽ 20 ms	⩽ 20 ms
	100 ms	100 ms	100 ms
	±0.5 % at constant parameters	±0.5 % at constant parameters	±0.5 % at constant parameters
	Rating 10 mA/5 V DC	Rating 10 mA/5 V DC	Rating 10 mA/5 V DC
	Rating 8 A/250 V AC/DC	Rating 8 A/250 V AC/DC	Rating 8 A/250 V AC/DC
	> 5 x 10^6 switching operations	> 5 x 10^6 switching operations	> 5 x 10^6 switching operations
	> 10^5 switching operations (utilization category AC1)	> 10^5 switching operations (utilization category AC1)	> 10^5 switching operations (utilization category AC1)
	Flashing during time delay	Flashing during time delay	Flashing during time delay
	IP20	IP20	IP20
	2 x 2.5 mm^2 single-strand	2 x 2.5 mm^2 single-strand	2 x 2.5 mm^2 single-strand
	2 x 1.5 mm^2 multi-strand	2 x 1.5 mm^2 multi-strand	2 x 1.5 mm^2 multi-strand
	2	2	2
	-5 … +55	-5 … +55	-5 … +55
	-40 … +70	-40 … +70	-40 … +70

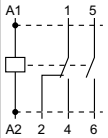
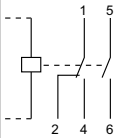
Interface relays iRBN, iRTBT

Interface relays

		iRBN	iRTBT
Type		**Low level**	**Extra low voltage**
		PB107144-35 	PB107164-35 
Standard		IEC 255 100 and IEC 529	IEC 255 100 and IEC 529
Function			
		■ Actuation of low-amperage electronic circuits upon receiving an LV electrical order	■ Actuation of LV circuits based on an extra low voltage order
Wiring diagrams			
		DB123686 	DB123686 
Use			
		■ Inputs of programmable logic controllers, of measuring or supervision circuits, etc.	■ ELV orders can be issued by a programmable logic controller (24 V DC static outputs), a central fire detection unit, a regulation system, etc.
Catalogue numbers		**A9A15393**	**A9A15416**
Technical specifications			
Input control voltage (Uc)	V AC	230, ±10 %	12...24, -15 to +10 %
	V DC	-	12...24, ±20 %
Output contact rating	Mini	5 mA/5 V DC (DC12) 5 mA/5 V AC	10 mA/10 V DC (DC12) 10 mA/10 V AC
	Maxi	1 A/24 V DC (DC12) 5 A/250 V AC	1 A/24 V DC (DC12) 5 A/250 V AC
Operating frequency	Hz	50/60	0…60
Strengthened insulation between ELV/LV circuits		4 kV	4 kV
Consumption	At inrush	5 VA	0.22 W
	At holding	2.5 VA	0.11 W
Endurance	Electrical	100,000 switching operations	100,000 switching operations
Display of voltage presence on the control circuit		By green indicator lamp	By green indicator lamp
Degree of protection	Device only	IP20	IP20
Connection by tunnel terminals		0.5 x 6 mm^2	0.5 x 6 mm^2
Width in 9-mm modules		2	2
Operating temperature	°C	-5 … +55	-5 … +55
Storage temperature	°C	-40 … +70	-40 … +70

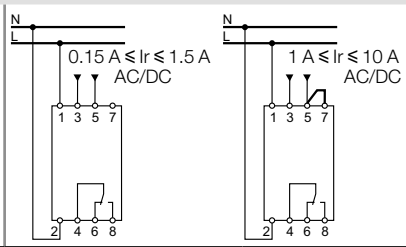
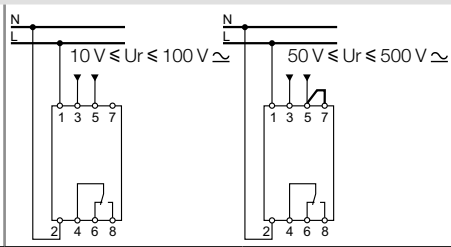
iRLI changeover and iERL extension relays

Changeover and extension relays

		iRLI				iERL			
Type		**Changeover relay**				**Extension for RLI**			
		PB107108-35 				PB107109-35 			
Standard		IEC 255 and NF C 45-250				IEC 255 and NF C 45-250			
Function									
		■ Relaying of ON or OFF information to the auxiliary circuits and actuation of low-power loads				■ Extension allowing additional contacts to be added to the iRLI changeover relays			
Wiring diagrams									
		DB123687 				DB123688 			
Use									
		■ The iRLI relay contains 1 changeover contact (O-C) and 1 normally open contact (N/O)				■ The iERL extension (max. 3 iERLs for 1 iRLI) contains 1 changeover contact (O-C) and 1 normally open contact (N/O) ■ Can be mounted without any tool and without additional cabling using a yellow clip which performs mechanical assembly and electrical connection between the coils			
Catalogue numbers		**A9E15535**	**A9E15536**	**A9E15537**	**A9E15538**	**A9E15539**	**A9E15540**	**A9E15541**	**A9E15542**
Technical specifications									
Control voltage (Uc)	V AC	230…240	48	24	12	230…240	48	24	12
Voltage rating (Ue)	V AC	230				230			
Insulation voltage (Ui)	V AC	250				250			
Rating (In)	A	10, cos ⊠ = 1				10, cos ⊠ = 1			
Operating frequency	Hz	50/60				50/60			
Inrush and holding power		4 VA				iRLI + iERL : 8 VA			
Endurance	Electrical	100,000 cycles AC21 (cos ⊠ = 1)				100,000 cycles AC21 (cos ⊠ = 1)			
Commande directe en face avant	Power	By push button				By push button			
	Coil	By selector switch (disconnection)				By selector switch (disconnection)			
Position indicator		Mechanical indicator				Mechanical indicator			
Marking		Clip-on markers on the front panel				Clip-on markers on the front panel			
Degree of protection	Device only	IP20				IP20			
Connection by tunnel terminals		0.5 x 6 mm²				0.5 x 6 mm²			
Width in 9-mm modules		2				2			
Operating temperature	°C	-5 … +55				-5 … +55			
Storage temperature	°C	-40 … +70				-40 … +70			

iRCP phase control, iRCI current control, iRCU voltage control and iRCC compressor control relays

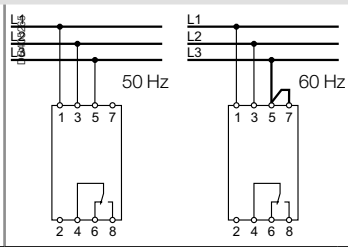
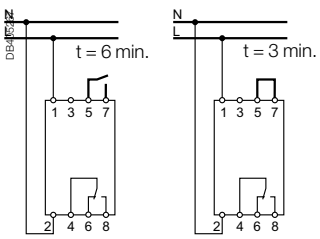
Control relays

	iRCI	iRCU
Type	**Current control**	**Voltage control**
		
Function		
	■ Monitors the current (Ir) flowing in an AC or DC circuit and indicates any crossing of the set threshold	■ Monitors the voltage variation (Ur) of an AC or DC circuit and indicates any crossing of the set threshold
Wiring diagrams		
		
Catalogue numbers	**A9E21181**	**A9E21182**

Common technical specifications		
Supply voltage (Uc)	V AC	230, -15 % à +10 %
Frequency	Hz	50/60
Parameter setting		■ On the front panel, by direct scale, using a screwdriver
Precision of display		±10 % of full scale
Output by changeover contact		8 A under 250 V AC (cos ⊠ = 1)
Indications by LED	Green	Voltage presence
	Red	Fault
Consumption	VA	3
Dissipated power	W	2
Degree of protection	Device only	IP20
Connection by tunnel terminals	Rigid cable	1.5 x 6 mm²
Width in 9-mm modules		4
Operating temperature	°C	-5 … +55
Storage temperature	°C	-40 … +80

Particular technical specifications		
	Threshold adjustable from 10 % to 100 % of Ir	Threshold adjustable from 10 % to 100 % of Ur
	Hysteresis adjustable from 5 % to 50 % of Ir	Hysteresis adjustable from 5 % to 50 % of Ur
	Monitoring of overcurrent and undercurrent (selection by selector switch)	
	Fail-safe contact	
	De-energized / Energized with fault 	
	Energized without fault 	
	Time delay on crossing threshold: 0.1 s to 10 s	
	Possibility of memorizing fault with resetting	
	Compatible with current transformers (CTs) of ratio X/5	■ Automatic recognition of AC voltage or DC voltage. ■ 2 measuring ranges selected by cabling: □ 10 V to 50 V □ 50 V to 500 V
	■ Automatic recognition of alternating or direct current. ■ 2 measuring ranges selected by cabling: □ 0.15 A to 1.5 A □ 1 A to 10 A	

iRCP phase control, iRCI current control, iRCU voltage control and iRCC compressor control relays (cont.)

	iRCP	iRCC
	Phase control	**Compressor control**
		
	■ Monitors phases and the presence of voltage on the 3 phases of a three-phase circuit (power supply of a motor, etc.). It indicates any phase loss or inversion	■ Monitors the compressor's power supply and prevents its immediate restarting upon detection of a power cut or voltage dip
		
	A9E21180	**A9E21183**
	400, ±15 %	230, -15 % à +10 %
	50/60	
	■ On the front panel, by direct scale, using a screwdriver	
	±10 % of full scale	
	8 A under 250 V AC (cos ⊠ = 1)	
	Voltage presence	
	Fault	
	3	
	3 (total on the 3 phases)	2
	IP20	
	1.5 x 6 mm²	
	4	
	-5 … +55	
	-40 … +80	
	Setting of phase asymmetry threshold: 5 % to 2 5% of 400 V	Threshold setting: ±5 % to ±15 % of 230 V
	Hysteresis: fixed, 5 % of asymmetry threshold	
	Monitoring of direction of phase rotation	
	Monitoring of presence of the 3 phases	
	Fail-safe contact	Fail-safe contact
	De-energized Energized with fault 	De-energized Energized with fault 
	Energized without fault 	Energized without fault 
	Time delay on tripping: 0.3 s	Time delay on overshoot: 3 or 6 minutes (selection by cabling)

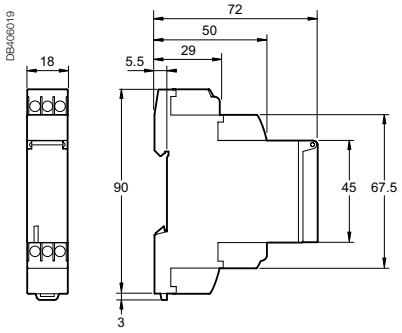
Relays

Technical data

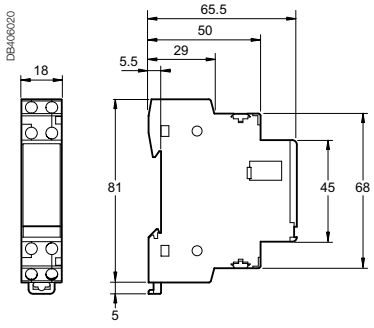
Weight (g)

Relays	
Type	
iRTA, iRTB, iRTC, iRTH, iRBN	65
iRTL	66
iRTMF	68
iRTBT	63
iRLI, iERL	112
iRCP, iRCC	210
iRCI, iRCU	215

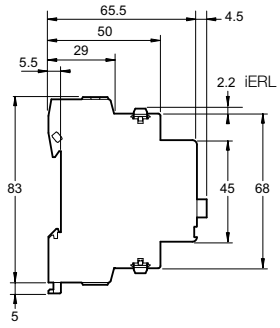
Dimensions (mm)



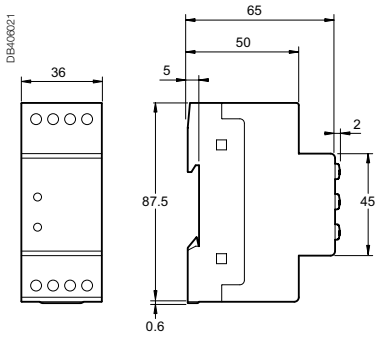
iRTA, iRTB, iRTC, iRTH, iRTL, iRTMF



iRBN, iRTBT



iRLI, iERL



iRCP, iRCI, iRCU, iRCC

IC100, IC2000, IC2000P+, IC 100k, IC Astro

Twilight switches



IC100
Adjustable from 2 to 100 lux.
It comes with a wall-mounted cell.



IC2000
Adjustable from 2 to 2000 lux. It comes with a standard wall-mounted or switchboard cell.



IC2000P+
It has 3 customisable pre-set programs and 3 setting ranges from 2 to 2100 lux.
Its 4 keys and large screen facilitate its programming.
It comes with a wall-mounted cell.



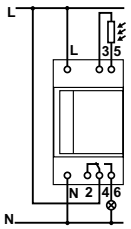
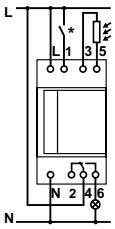
IC Astro
It operates without photoelectric cell and calculates sunrise and sunset times according to its geographic position.
It can be customised by using its programmation function.



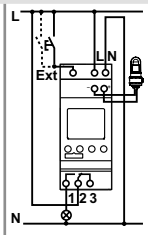
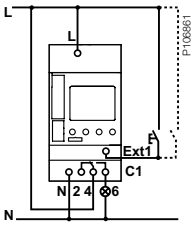
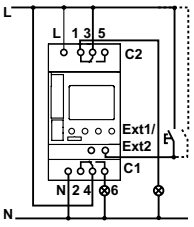
IC 100k
Adjustable from 2 to 99000 lux.
Its 4 keys and large screen facilitate its programming.
It comes with a digital wall-mounted or a switchboard cell.

IC100, IC2000, IC2000P+, IC 100k, IC Astro (cont.)

Selection table

	IC2000		IC2000P+
	P111637 + P83237 		P111640 + P83237 
Function			
	The IC2000 control closing of a contact when brightness decreases and drops below the selected threshold. They control opening of a contact when brightness increases and rises above the selected threshold		The IC2000P+ controls lighting according to brightness and time. If brightness drops below the set threshold (twilight function: IC) and if the time program allows relay closing (time switch function), then the lighting circuit is activated
Wiring diagrams			
	P1108857 	P1108858	
Catalogue numbers	**CCT15284**	**CCT15368**	**15483** (1)
Technical specifications			
Delivered with	Switchboard cell (**CCT15281**)	Wall-mounted cell (**CCT15268**)	Wall-mounted cell
Optional accessories	Switchboard cell (**CCT15281**) Wall-mounted cell (**CCT15268**)	Wall-mounted cell (**CCT15268**) Switchboard cell (**CCT15281**)	Wall-mounted cell (**CCT15268**)
Adjustable brightness threshold	2 to 2000 lx		Range 1: 2 to 50 lx Range 2: 60 to 300 lx Range 3: 350 to 2100 lx
Voltage rating (Ue) (+10 %, -15 %)	230 V AC, 50/60 Hz		230 V AC, 50/60 Hz
Consumption	6 VA		3 VA
Operating temperature	-25°C to +50°C		-20°C to +50°C
Width (9 mm modules)	5		5
Insulation class	Class II		Class II
Degree of protection	IP20B		IP20B
Output contact rating (under 250 VAC) cos φ = 1	16 A		16 A
Output contact rating (under 250 VAC) cos φ = 0.6	10 A		10 A
Time delays (On and Off)	⩾ 60 s		Adjustable from 20 to 140 s (80 s by default)
Operating accuracy	–		< ±1 s / day at 20 °C.
Monitoring indicator light, not time delayed, lit when brightness is less than the threshold	Red		–
Contact switching indicator light	Green		–
LCD liquid crystal display	–		Back-lit
Program saving by lithium battery	–		☒
Operating reserve	–		5-6 years
Location for instruction manual on front face	☒		☒
Cabling test function with a push-button on front face	☒		–
Number of channels	1		1
Control by brightness detection	☒		☒
Coupling with weekly programming	–		42 switching times Minimum switching: 1 min Switching accuracy: 1 s
Control by calculation of sunrise/sunset times	–		–

Languages: *(1) English, french, spanish, italian, german, portuguese, swedish, dutch, finnish, norwegian/danish. (2) English, french, spanish, portuguese, hungarian, polish, romanian, cze*

	IC 100k		IC Astro	
	IC 100k+ 1C	IC 100k+ 2C	IC Astro 1C	IC Astro 2C
	P116853 + P116858 	P116854 	P116866 	P116867 
	The IC 100k+ 1C/2C control closing of a contact when brightness decreases and drops below the selected threshold. It controls opening of a contact when brightness increases and rises above the selected threshold		The IC Astro astronomic programmable twilight switch is used to start and stop an electric load (e.g. lighting) according to sunrise and sunset times, without a brightness detector.Sunrise and sunset times are calculated automatically by the IC Astro according to the geographic parameters configured by the user	
	P106862 		P106860 	P106861 
	CCT15251 (3)	**CCT15253**	**CCT15224** (3)	**CCT15244** (3)
	Digital wall-mounted cell (**CCT15260**)		–	Memory key (alone) (**CCT15861**)
	Digital wall-mounted cell (**CCT15260**) Digital switchboard cell (**CCT15261**) Programming kit for PC (**CCT15860**)		Programming kit for PC (**CCT15860**) Memory key (alone) (**CCT15861**)	
	1 to 99000 lx		According to sunrise/sunset times	
	230 V AC, 50/60 Hz	100-240 V AC, 50/60 Hz	230 V AC, 50/60 Hz	
	3 VA		3 VA	6 VA
	-30°C to +50°C		-25°C to +45°C	
	4	6	5	
	Class II		Class II	
	IP20C		IP20B	
	16 A		16 A	
	10 A		10 A	
	Adjustable from 0 to 59.59 min.		Difference in sunset and/or sunrise times adjustable separately by ±120 min.	
	–		–	
	–		–	
	–		–	
	Back-lit		Back-lit	
	■		■	
	10 years		6 years	
	–		■	
	–		–	
	1	2	1	2
	■		–	
	–		84 switching times (not including sunrise/sunset) Minimum time between 2 switching operations: 1 min. Switching accuracy: 1 s Time accuracy: ±1 s /day	
	–		■	

ech, slovak, bulgarian, greek, slovene, serbian, croatian. ***(3)*** *English, french, italian, german, swedish,dutch, finnish, danish, russian, ukrainian, latvian, lituanien, estonian, turkish.*

IC100, IC2000, IC2000P+, IC 100k, IC Astro (cont.)

Accessories selection table

	Wall-mounted cell		Switchboard cell	Programming kit for PC	Memory key	Digital wall-mounted cell	Digital switchboard cell
	P83237 / P116858	P106856	P93580	P93581	P116858	P116859	
Function							
	Wall-mounted photoelectric cell		Switchboard photoelectric cell	Consists of a programming device, a memory key, a CDROM and a 2 m USB cable	Saving and duplicating programs	Digital wall-mounted photoelectric cell	Digital wall-mounted photoelectric cell
Mounting							
	■ Delivered with its fixing device for IC100 and IC200P+ ■ Replaced by CCT15268 for spare part use ■ Cell connection: by double insulation 2-conductor cable, not to be laid next to mains cables or water ducts, maximum length: 25 m	Delivered with 1 m cable and its fixing device	■ Delivered with its fixing device ■ Cell connection: by double insulation 2-conductor cable, not to be laid next to mains cables or water ducts, maximum length: 100 m	–	–	■ Delivered with its fixing device. ■ Cell connection: □ by double insulation 2-conductor cable: - 0.5 - 2.5 mm² for **CCT15260** - 0.25 - 1.5 mm² for **CCT15261** □ Not to be laid next to mains cables or water ducts, maximum length: - 100 m (2 x 1.5 mm²) - 50 m (2 x 0.75 mm²)	
Catalogue no.	**–**	**CCT15268**	**15281**	**CCT15860**	**CCT15861**	**CCT15260**	**CCT15261**
Technical spécifications							
Degree of protection	IP54	IP65	IP54	–	–	IP55	IP66
	IK05	–	IK05	–	–	–	–
Operating temperature	-40°C to +70°C	-40°C to +70°C	-40°C to +70°C	–	–	-40°C to +70°C	-40°C to +70°C
Horizontally orientable	–	–	90°	–	–	90°	90°

Load table

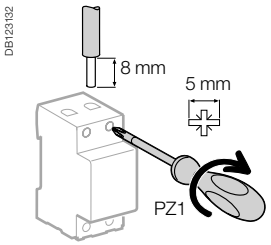
Type of lighting (230 V AC)	**Max. power** (for higher power, relay with a contactor)				
	IC100	**IC2000**	**IC2000P+**	**IC Astro**	**IC 100k**
Incandescent and halogen lamps	2300 W	2300 W	2300 W	2300 W	2600 W
Non-corrected / serial-corrected / dual mounted fluorescent tubes with conventional ballast	2300 VA	2300 VA	26 x 36 W, 20 x 58 W, 10 x 100 W	26 x 36 W, 20 x 58 W, 10 x 100 W	26 x 36 W, 20 x 58 W, 10 x 100 W
Parallel corrected fluorescent tubes with conventional ballast	400 VA	400 VA	10 x 36 W, 6 x 58 W, 2 x 100 W	10 x 36 W, 6 x 58 W, 2 x 100 W	10 x 36 W, 6 x 58 W, 2 x 100 W
Fluorescent tubes with electronic ballast	–	–	9 x 36 W, 6 x 58 W	9 x 36 W, 6 x 58 W	650 VA max.
Dual-mounted fluorescent tubes with electronic ballast	300 VA	300 VA	5 x (2 x 36 W), 3 x (2 x 58 W)	5 x (2 x 36 W), 3 x (2 x 58 W)	–
Fluocompact lamps with electronic ballast	9 x 7 W, 7 x 11 W, 7 x 15 W, 7 x 20 W, 7 x 23 W	9 x 7 W, 7 x 11 W, 7 x 15 W, 7 x 20 W, 7 x 23 W	9 x 7 W, 7 x 11 W, 7 x 15 W, 7 x 20 W	9 x 7 W, 7 x 11 W, 7 x 15 W, 7 x 20 W	22 x 7 W, 18 x 11 W, 16 x 15 W, 16 x 20 W, 14 x 23 W
Fluocompact lamps with conventional ballast	1500 VA	1500 VA	–	–	–
Parallel-corrected mercury and sodium vapour lamps	400 VA	400 VA	250 VA	250 VA	800 VA max. (80uF)
Non-corrected/ serial-corrected mercury and sodium vapour lamps	1000 VA	1000 VA	–	–	–
Motor	–	–	–	–	2300 VA max.

Specific technical data

IC2000P+	
External input	
Voltage rating (Ue)	230 V AC, +10 %, -15 %
Frequency	50/60 Hz
Input current	≤ 2.5 mA
Consumption	≤ 0.4 mW
Cable length	≤ 100 m
IC Astro	
Programming longitude	-180° (East) to +180° (West) in steps of 1°
Programming latitude	-90° (South) to +90° (North) in steps of 1°
External inputs for external control with a standard switch or a push-button	■ 1 input "Ext1" for IC Astro 1C ■ 2 inputs "Ext1" and "Ext2" for IC Astro 2C □ consumption: < 0.5 mA □ cable length: ≤ 100 m
Programming accessories	■ Programming kit for PC consists of a programming device, a memory key, a CDROM and a 2 m USB cable ■ Memory key for saving and duplicating programs
IC 100k, IC Astro	
Programming accessories	■ Programming kit for PC consists of a programming device, a memory key, a CDROM and a 2 m USB cable ■ Memory key for saving and duplicating programs
Memory key delivered on front face for IC100kp+ 1C, IC100kp+ 2C and IC Astro	
External inputs	
External inputs for external control with a standard switch or a push-button	■ 1 input "Ext" for 1 channel versions ■ 2 inputs "Ext1" and "Ext2"for 2 channels versions
Voltage rating (Ue)	■ 230 V AC, +10 %, -15 % for 1 channel versions ■ 100-240 V AC +10 %, -15 % for 2 channels versions
Frequency	50/60 Hz
Input current	≤ 0.5 mA
Consumption	≤ 130 mW
Cable length	≤ 100 m

IC100, IC2000, IC2000P+, IC 100k, IC Astro (cont.)

Connection



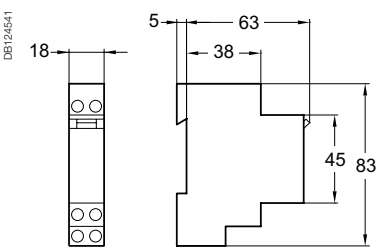
Type	Tightening torque	Copper cables	
		Rigid	Flexible or with ferrule
	DB122945	DB123553	
IC100, IC2000P+	1.2 N.m	≤ 6 mm²	≤ 6 mm²
IC2000, IC Astro, IC 100k	2 screwless / pole	2 x 2.5 mm²	2 x 2.5 mm²

IC100, IC Astro are mechanical compatible with electrical distribution comb busbar.

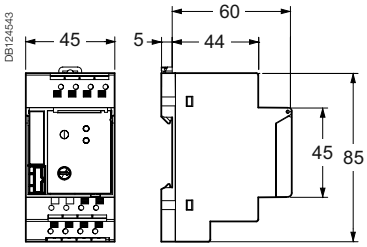
Weight (g)

Twilight switches	
IC100	173
IC2000	280
IC2000P+	323
IC Astro	132
IC 100k+/kp+ 1C / IC 100k+/kp+ 2C	183/ 352

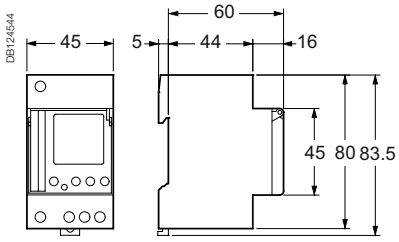
Dimensions (mm)



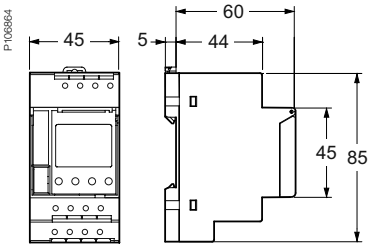
IC100



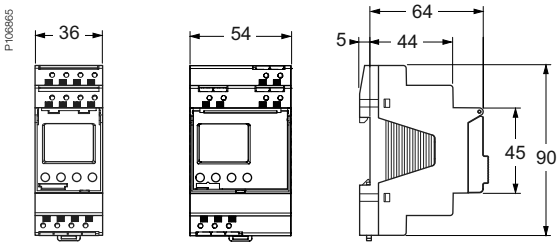
IC2000



IC2000P+

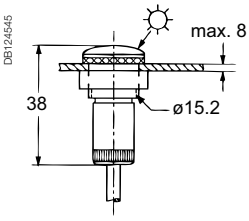


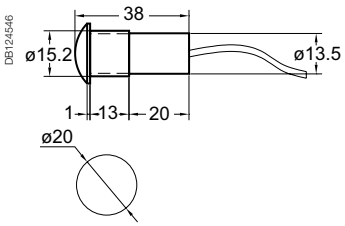
IC Astro 1C/2C



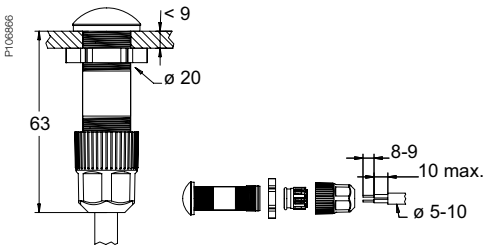
IC 100k+ 1C/2C, IC100kp+ 1C/2C

Cells

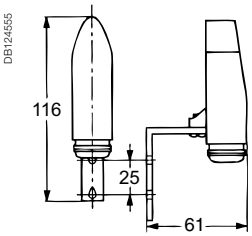


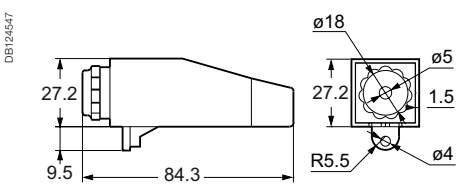


Standard switchboard cell (15281) Fixed externally in vertical position by 2 ø 4 mm screws

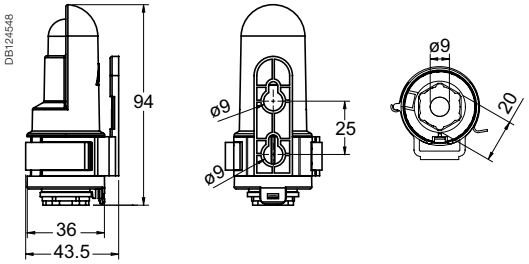


Digital switchboard cell (CCT15261)





Wall-mounted cell (delivered with IC100, IC2000P+)



Standard and digital wall-mounted cell (CCT15268, CCT15260)

IHP, IH, IHH, ITM

Time switches

The 45 mm intuitive switches



IHP 1c



IHP 2c



IHP+1c



IHP+2c

Automatically switch On and Off loads according to the program entered by the user with 4 keys and a display, they operate on a weekly cycle: the same program is repeated week after week.





IHP DCF 1c + ANT DCF

Synchronised on the frankfort transmitter via the ANT DCF antenna.

The 18 mm intuitive switches





IHP 1c/+ 1c

Automatically switch On and Off loads according to the program entered by the user with 4 keys and a display, they operate on a weekly cycle: the same program is repeated week after week.

> The 54 mm mechanical switches

P116860



IH 60mn 1c SRM

P116862



IH 24h 1c SRM/ ARM

P116616



IH 24h 2c ARM

P116619



IH 24h + 7j 1+1c ARM

P116863



IH 7j 1c ARM

Automatically switch On and Off loads according to the program entered by the user they operate on an hourly, daily or weekly cycle: the same program is repeated hour after hour (IH 60mn), day after day (IH 24h) or week after week (IH 7j).

> The 18 mm mechanical switches

P111614



IH 24h 1c SRM/ ARM

P111613



IHH 7j 1c ARM

Automatically switch On and Off loads according to the program entered by the user they operate daily on a weekly cycle.

IHP, IH, IHH (cont.)

Selection table

The time switches control opening and closing of one or more separate circuits according to a programming pre-set by the user:
- by memorisation of On and Off switching operations for the IHP switches
- by positioning of jumpers or captive segments on a programming dial for the mechanical IH switches.

An IHP or IH time switch is chosen according to the following criteria:

Designation	Number of channels	Cycle period (d: day)	Minimum time between 2 switching operations	Number of switching operations	Saving on mains cut off	Width (modules of 9 mm)	Override controls On / Off	Output contact changeover switch (cos φ =1)	Time changeover (summer / winter)
The 45 mm intuitive switches									
IHP 1c	1	24 h and/or 7 d	1 min.	56	6 years	5	On / Off	16 A	Auto
IHP + 1c	1	24 h and/or 7 d	1 s	84	6 years	5	On / Off	16 A	Auto
IHP 2c	2	24 h and/or 7 d	1 min.	56	6 years	5	On / Off	16 A	Auto
IHP + 2c	2	24 h and/or 7 d	1 s	84	6 years	5	On / Off	16 A	Auto
IHP DCF 1c (1)	1	24 h and/or 7 d	1 s	42	4 years	5	On / Off	16 A	Auto
The 18 mm intuitive switches									
IHP 1c 18 mm	1	24 h and/or 7 d	1 min.	56	10 years	2	On / Off	16 A	Auto
IHP + 1c 18 mm	1	24 h and/or 7 d	1 min.	84	10 years	2	On / Off	16 A	Auto
The 54 mm mechanical switches									
IH 60mn 1c SRM	1	60 min.	37.5 s	48 On - 48 Off	none	6	On	10 A	Manual
IH 24h 1c SRM	1	24 h	15 min.	48 On - 48 Off	none	6	On	16 A	Manual
IH 24h 1c ARM	1	24 h	15 min.	48 On - 48 Off	200 h (4)	6	On	16 A	Manual
IH 24h 2c ARM	2	24 h	30 min.	24 On - 24 Off	150 h	6	On	16 A	Manual
IH 7j 1c ARM	1	7 days	2 h	42 On - 42 Off	200 h (4)	6	On	16 A	Manual
IH 24h + 7j 1+1c ARM	1+1	24 h + 7 days	45 min. + 12 h	16 On -16 Off + 7 On -7 Off	150 h	6	On	16 A	Manual
The 18 mm mechanical switches									
IHH 7j 1c ARM	1	7 days	2 h	42 On - 42 Off	100 h	2	On / Off	16 A	Manual
IH 24h 1c ARM	1	24 h	15 min.	48 On - 48 Off	100 h	2	On / Off	16 A	Manual
IH 24h 1c SRM	1	24 h	15 min.	48 On - 48 Off	none	2	On / Off	16 A	Manual
Accessories									
Programming kit (6)									
Memory key (6)									

(1) The IHP DCF is synchronised on the Frankfurt 's DCF77 radio station via the ANT DCF antenna.
(2) 4 output channels and 6 condition inputs.
(3) 45 time brackets in weekly time programming, 15 time brackets in annual time programming, 20 different pulses in pulse programming.
(4) 110 h for 100 V CA supply voltage.
(5) On/Off via an override input or a condition input.
(6) For IHP +1c and IHP+ 2c.

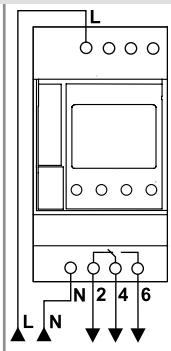
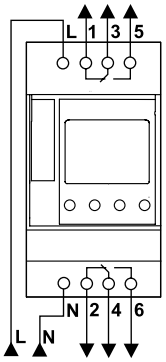
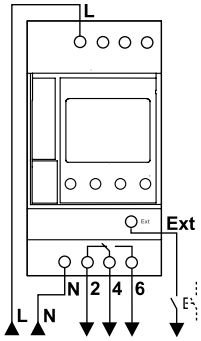
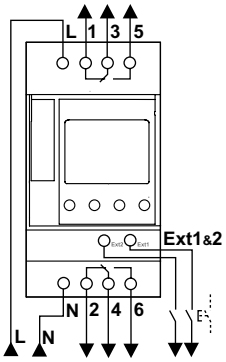
	Back-lit display, random function and pulse programming (8)	"Absence for holidays" function	Screwless connection	Mechanical compatibility with electrical distribution comb busbars	Input for external control	Instruction manual holder on front face	Memory key supplied with the product	Cat. no.
		■	■	■		■		**CCT15720** (12)
	■	■	■	■	1 input	■	■	**CCT15721** (12)
		■	■	■		■		**CCT15722** (12)
	■	■	■	■	2 inputs	■	■	**CCT15723** (12)
	Random function	■				■		**15857**
		■	■					**CCT15854** (14)
	Random and pulse function	■	■		■		■	**CCT15837** (14)
			■					**CCT15338**
			■					**CCT16364**
			■					**CCT15365**
								15337
			■					**CCT15367**
								15366
								15331
								15336
								15335
								CCT15860
								CCT15861

(8) Pulse programming allows switching operations of a duration less than one minute (adjustable from 1 to 59 s); a pulse control always has priority.
(9) English, Russian, Ukrainian, Latvian, Lituanien, Estonian languages.
(10) English, Bulgarian, Greek, Slovene, Serbian, Croatian languages.
(11) English, Hungarian, Polish, Romanian, Czech, Slovak languages.
(12) French, English, Italian, Spanish, German, Portuguese languages.
(13) French, English, Swedish, Dutch, Finnish, Norwegian/Danish languages.
(14) French, English, Italian, Spanish, German, Portuguese, Dutch languages.

IHP, ITM

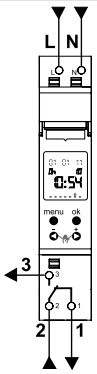
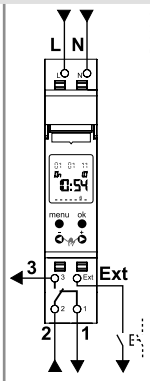
Selection table

Programmable time switches

	IHP2c	IHP+1c	IHP+2c	
	P111627 	P111625 	P111624 	P111626 
Function				
	■ These time switches automatically switch on and off loads according to the program entered by the user ■ They operate on weekly cycle: the same program is repeated week after week ■ They offer automatic summer/winter time change and allow to adjust it according to where you are located ■ The program can be overriden temporary or permanently by pressing 2 keys on the product ■ They also offer holidays program, by configuring the starting and ending dates of the absence.			
			■ A memory key (**CT15861**) and a programming kit (**CCT15860**) can be used to duplicate on another IHP+ 1C/2c or to save the program created by the contractor (see "Accessories selection table")	
Wiring diagrams				
	P1068873 	P1068874 	P1068875 	P1068876 
Catalogue numbers	**CCT15720** (4)	**CCT15722** (4)	**CCT15721** (4)	**CCT15723** (4)

Technical specifications					
Voltage rating (Ue)		230 V AC, ±10 %, 50/60 Hz	230 V AC, ±10 %, 50/60 Hz	230 V AC, ±10 %, 50/60 Hz	230 V AC, ±10 %, 50/60 Hz
Consumption		4 VA	7 VA	4 VA	7 VA
Output contact current (250 V AC)	Cos φ = 1	16 A	16 A	16 A	16 A
	Cos φ = 0.6	10 A	10 A	10 A	10 A
Degree of protection		IP20B	IP20B	IP20B	IP20B
Operating temperature		-10°C to +50°C	-10°C to +50°C	-10°C to +50°C	-10°C to +50°C
Time accuracy		± 1 s per day at 20°C	± 1 s per day at 20°C	± 1 s per day at 20°C	± 1 s per day at 20°C
Saving of program and time by lithium battery	Lifetime	6 years	6 years	6 years	6 years
	Back-up time, cumulated mains cut off	6 years	6 years	6 years	6 years

(1) English, russian, ukrainian, latvian, lituanien, estonian. (2) English, bulgarian, greek, slovene, serbian, croatian.
(3) English, hungarian, polish, romanian, czech, slovak. (4) French, english, italian, spanish, german, portuguese.

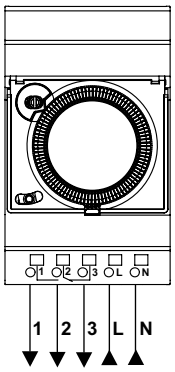
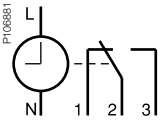
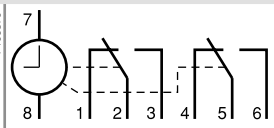
	IHP 1c 18 mm	IHP+1c 18 mm
	P111633 	P111630 
	■ A memory key (**CT15861**) and a programming kit (**CCT15860**) can be used to duplicate on another IHP	
	P1008877 	P1008878 
	CCT15854 (6)	**CCT15837** (6)
	230 V AC, +10 %, -15 %, 50/60 Hz	230 V AC, +10 %, -15 %, 50/60 Hz
	2.3 VA	2.3 VA
	16 A	16 A
	4 A	4 A
	IP20B	IP20B
	-25°C to +55°C	-25°C to +55°C
	± 0.5 s per day at 25°C	± 0.5 s per day at 25°C
	10 years	10 years
	10 years	10 years

(5) French, english, swedish, dutch, finnish, norwegian/danish. (6) French, english, italian, spanish, german, portuguese, dutch.

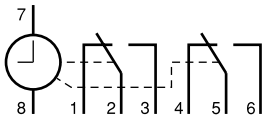
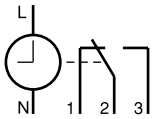
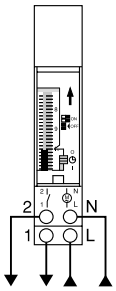
IH, IHH

Selection table

Mechanical time switches

	IH 60mn 1c SRM	IH 24h 1c SRM	IH 24h 1c ARM	IH 24h 2c ARM
	P116860 	P116861 	P116862 	P116616 
Function				
	■ They operate on hourly, daily or weekly cycle: the same program is repeated hour after hour (IH 60mn), day after day (IH 24h) or week after week (IH 7j, (IHH 7j) ■ The program can be overriden On			
Wiring diagrams				
	P106923  P106881 			P106879 
Catalogue numbers	**CCT15338**	**CCT16364**	**CCT15365**	**15337**

Technical specifications					
Voltage rating (Ue)		230 V AC +10 %, -15%, 50 Hz	230 V AC +10 %, -15%, 50/60 Hz	110-230 V AC +10 %, -15%, 50/60 Hz	230 V AC +10 %, -15%, 50/60 Hz
Consumption		1 VA	2.5 VA	2.5 VA	2.5 VA
Output contact current under 250 VAC	Cos φ = 1	10 A	16 A	16 A	16 A
	Cos φ = 0.6	4 A	4 A	4 A	4 A
Degree of protection		IP20B	IP20B	IP20B	IP20B
Operating temperature		-20°C to +55°C	-20°C to +55°C	-20°C to +55°C	-20°C to +55°C
Time accuracy		±1 s per day at 20°C	±1 s per day at 20°C	±1 s per day at 20°C	±1 s per day at 20°C
Saving of program and time by lithium battery	Lifetime	–	–	6 years	6 years
	Back-up time, cumulated mains cut off	–	–	200 h with 230 V AC 100 h with 100 V AC	150 h
Programming by:	Jumpers (supplied)	–	–	–	4 red + 4 green + 2 white
	Captive segments	96	96	96	–

	IH 24h + 7j 1+1c ARM	IH 7j 1c ARM	IH24h 1c SRM 18 mm	IH 24h 1c ARM 18 mm	IHH 7j 1c ARM 18 mm
	P111619 	P116863 	P111614 	P111615 	P111613 
	P106879 	P106881 	P106882 		
	15366	**CCT15367**	**15335**	**15336**	**15331**
	230 V AC +10 %, -15%, 50 Hz	110-230 V AC +10 %, -15%, 50/60 Hz	230 V AC, ±10 %, 50/60 Hz	230 V AC, ±10 %, 50/60 Hz	230 V AC, ±10 %, 50/60 Hz
	2.5 VA	2.5 VA	2.5 VA	2.5 VA	2.5 VA
	16 A	16 A	16 A	16 A	16 A
	4 A	4 A	4 A	4 A	4 A
	IP20B	IP20B	IP20B	IP20B	IP20B
	-20°C to +55°C	-20°C to +55°C	-10°C to +50°C	-10°C to +50°C	-10°C to +50°C
	±1 s per day at 20°C	±1 s per day at 20°C	±1 s per day at 20°C	±1 s per day at 20°C	±1 s per day at 20°C
	6 years	6 years	–	10 years	10 years
	150 h	200 h with 230 V AC 100 h with 110 V AC	–	100 h	100 h
	6 yellow (24 h), 12 blue + 2 red (7 days)	–	–	–	–
	–	84	96	96	84

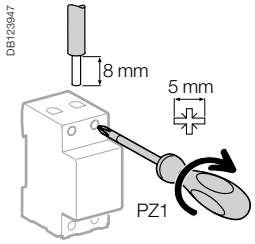
Accessories selection table	Program	Memory	Additional jumpers	Wall mount accessory
	IHP+ programming kit for PC	**IHP+ key**	**IH jumpers**	
	P93580 		P151159	
Function				
	Consists of a programming device, a memory key, a CDROM and a 2 m USB cable	Saving and duplicating programs For IHP+ 1c/2c, ICAstro 1c/2c, IC100kp+ 1c/2c, IHP 1c 18 mm, IHP+ 1c 18 mm	They are used to program a larger number of sequences for: ■ IH 24h 2c ARM (**15337**) ■ IH 24h + 7j 1+1c ARM (**15366**)	The 18 mm time switches can be mounted on a wall by using 15359 reference. The protection cover is sealable.
Mounting				
	–	Located on front face	1 bag containing: ■ 5 red ■ 5 green ■ 5 white ■ 5 yellow	The 15359 accessory can be also used to mount others 18 mm DIN rail devices (for example: timers , circuit breakers...).
Catalogue numbers	**CCT15860**	**CCT15861**	**15341**	**15359**
Technical spécifications				
Degree of protection	–	–	–	
Operating temperature	–	–	–	
Overall dimensions L x W x H (mm)	–	–	–	See § dimensions

Specific technical data

IHP+ 1c, IHP+ 2c, IHP DCF	
Manual functions	Temporary cancellation of programming for holidays, public holidays, etc. by configuration of the 2 dates - start and end of absence
	Simulation of presence thanks to random operation during On periods
Pulse functions	Programming of pulses adjustable from 1 to 59 s (pulse takes priority over switching)
Back-lighting of the screen	
External input (only for IHP+ 1c, IHP+ 2c)	
External inputs for external control with a standard switch or a push-button	1 input for IHP+ 1c 2 inputs for IHP+ 2c
Voltage rating (Ue)	230 V AC, +10 %, -15 %
Frequency	50/60 Hz
Input current	≤ 1.2 mA
Consumption	≤ 0.3 mW
Cable length	≤ 100 m
Synchronisation on the Frankfurt's DCF 77 radio station signal (only for IHP DCF)	
Automatic on commissioning, then at 1 am, 2 am, 3 am and 4 am every day	
Manual by pressing the IHP keys or after a "reset"	
Displayed on the screen by the letters RC	
Programming of pulses adjustable from 1 to 59 s (pulse takes priority over switching)	

IHP, IH, IHH, ITM (cont.)

Connection



Type		Tightening torque	Copper cables	
			Rigid	Flexible or with ferrule
		DB122945	DB122946	
IHP	1c, 2c, +1c, +2c	2 screwless / pole	2 x 2.5 mm²	2 x 2.5 mm²
IHP 18 mm	1c, +1c	2 screwless / pole	2 x 2.5 mm²	2 x 2.5 mm²
IHP	DCF	1.2 N.m	⩽ 6 mm²	⩽ 6 mm²
IH	60mn 1c SRM	2 screwless / pole	2 x 2.5 mm²	2 x 2.5 mm²
	24h 1c SRM, ARM	2 screwless / pole	2 x 2.5 mm²	2 x 2.5 mm²
	24h 2c ARM	1.2 N.m	⩽ 6 mm²	⩽ 6 mm²
	7j 1c ARM	2 screwless / pole	2 x 2.5 mm²	2 x 2.5 mm²
	24h + 7j 1+1c ARM	1.2 N.m	⩽ 6 mm²	⩽ 6 mm²
IH 18 mm	24h 1c SRM/ ARM	1.2 N.m	⩽ 6 mm²	⩽ 6 mm²
IHH 18 mm	7j 1c ARM	1.2 N.m	⩽ 6 mm²	⩽ 6 mm²
ITM 4c-6E		1.2 N.m	⩽ 6 mm²	⩽ 6 mm²

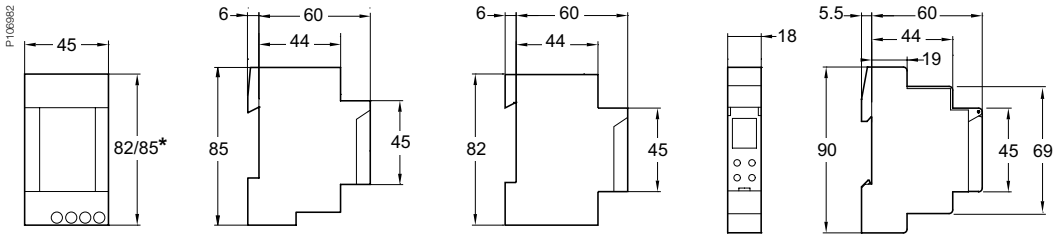
IHP 1c/2c, IHP+ 1c/2c are mechanical compatible with electrical distribution comb busbar.

Weight (g)

Time switches		
IHP	1c / 2c	170/ 205
IHP+	1c / 2c	190/ 211
IHP 18 mm	1c / +1c	90
IHP DCF		244
IH 54 mm	60mn 1c SRM	208
	24h 1c SRM/ARM	212 / 119
	24h 2c ARM	216
	7j 1c ARM	119
	24h + 7j 1+1c ARM	223
IH 18 mm	24h 1c SRM / ARM	97
IHH 18 mm	7j 1c ARM	101
Accessories		
Programming kit for PC		150
ANT DCF		168

Dimensions (mm)

IHP programmable time switches



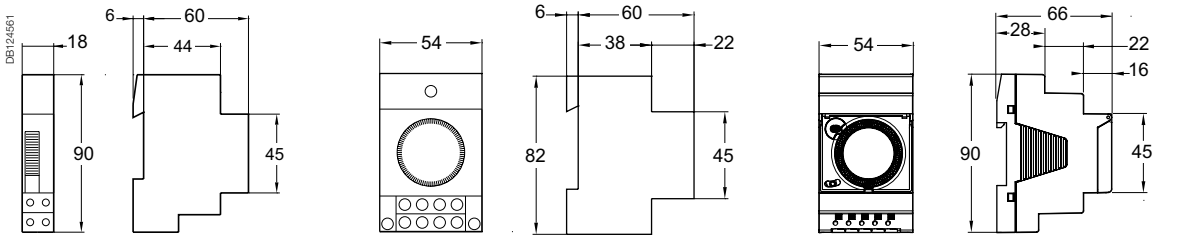
5P: IHP DCF
*5P: IHP 1C/2C/+1C/+2C

5 P: IHP 1C/2C/+1C/+2C

5P : IHP DCF

2P (18 mm)
IHP 1C /+

IH, IHH time switches

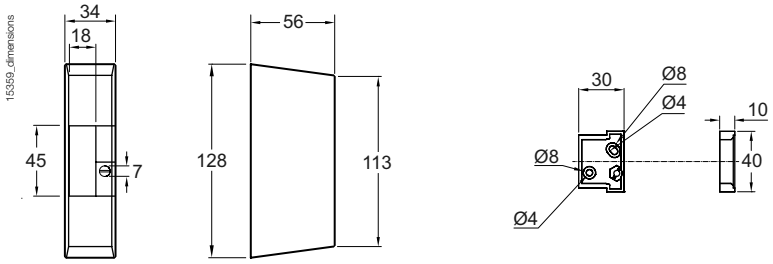


2P (18 mm)

6P (IH 24h 2c ARM,
IH 24h +7j 1+1c ARM)

6P (IH 60m□ 1c □RM, IH 24h 1c □RM□AR
IH 7j 1c ARM)

Wall mount accessory



MIN, MINs, MINp, MINt

Timers

Electromechanical timer



MIN
Adjustable time delay from 1 to 7 min.

Silent electronic timers



MINs
Adjustable time delay from 0.5 to 20 min.



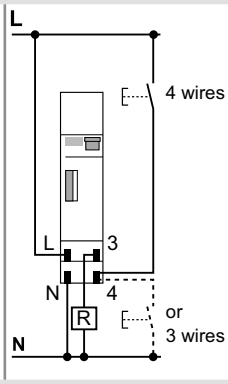
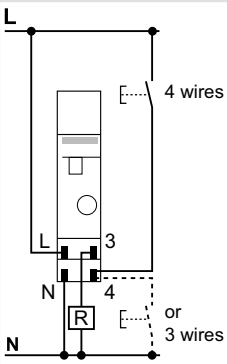
MINp
Adjustable time delay from 0.5 to 20 min. with switch-off warning.



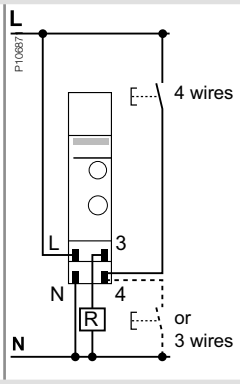
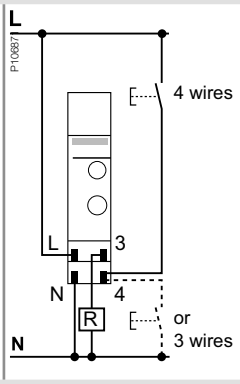
MINt
Adjustable time delay from 0.5 to 20 min. with switch-off warning and impulse relay function.

MIN, MINs, MINp, MINt (cont.)

Selection table

	MIN	MINs
Type	**Electromechanical timer**	**Silent electronic timer**
	P111648 	P111642 
Function		
	These timers allow closing and then opening of a contact in a determined time	
	Control circuit: connected standard or luminous push-buttons. Timer inoperative via self-protection if consumption above 50 mA maximum	
Wiring diagrams		
	P106867 	P106869 
Mounting		
	Two operating modes triggered by switch on front face: ■ Automatic mode: □ operation in timing mode □ time delay adjustable from 1 to 7 min. □ setting in steps of 15 s using knob □ pressing a push-button renews the time delay ■ Manual override mode: constant lighting	Two operating modes triggered by switch on front face: ■ Timer mode: time delay adjustable from 0.5 to 20 min. ■ Permanent mode: constant lighting
Catalogue numbers	**15363**	**CCT15232**

Technical specifications			
Voltage rating (Ue) (+10 %, -15 %)		230 V AC, 50 Hz	230 V AC, 50/60 Hz
Consumption		1 VA	< 6 VA
Output contact current	Cos φ = 1	16 A	16 A
Degree of protection		IP20B	IP20B
Operating temperature		-10°C to +50°C	-10°C to +50°C
Width (9 mm modules)		2	2
Consumption of connected luminous push-buttons		50 mA maxi	150 mA maxi
Adjustable time delay		1 to 7 min.	0.5 to 20 min.
Long time delay		–	–
Insulation class		–	Class II
1 screw connection per pole for cables up to 6 mm^2		■	■
Selection of the type of connection (3 or 4 wires)		Selector switch	Automatic
Mechanical compatibility with electrical distribution comb busbar		–	■
Switch-off warning function		–	–
Impulse relay function		–	–

	MINp	MINt
	Silent electronic timer	
		
	The MINp timer allows closing and then opening of a contact in a determined time, and it also provides warning that the lighting is about to be switched off by flickering of the lamplight (switch-off warning)	The MINt timer is the same as MINp with an "impulse relay" additional function
		
	■ Time delay adjustable from 0.5 to 20 min. ■ Three operating modes triggered by switch on front face: □ timer mode with "switch-off warning" function built into the device. The lamp blinks 40 and 30 s before the end of the time delay □ timer mode mode without "switch-off warning" function □ permanent mode : constant lighting	
	■ Timer mode operation: □ pressing a push-button for longer than 2 s: lighting will last for 1 h. Pressing again a push-button for less than 2 s relaunch the time delay of 1 h and pressing again a push-button for more than 2 s switches off the light □ pressing a push-button for less than 2 s launch the pre-set time delay, pressing again a push-button for less than 2 s relaunch the pre-set time delay	■ Timer mode operation: □ pressing a push-button for longer than 2 s: lighting will last for 1 h. Pressing again a push-button for less than 2 s relaunch □ the time delay of 1 h and pressing again a push-button for more than 2 s switches off the light □ pressing a push-button for less than 2 s launch the pre-set time delay, pressing again a push-button for less than 2 s, switches off the light (impulse relay mode)
	CCT15233	**CCT15234**
	230 V AC, 50/60 Hz	230 V AC, 50/60 Hz
	< 6 VA	< 6 VA
	16 A	16 A
	IP20B	IP20B
	-25°C to +50°C	-25°C to +50°C
	2	2
	150 mA maxi	150 mA maxi
	0.5 to 20 min.	0.5 to 20 min.
	1 h	1 h
	Class II	Class II
	■	■
	Automatic	Automatic
	■	■
	■	■
	–	■

P135159

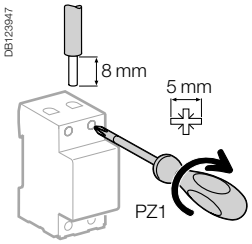
MIN, MINs, MINp, MINt (cont.)

Load table

Products	MIN	MINs	MINp, MINt
Type of lighting	**Maximum power**		
230 V incandescent and halogen lamps	2300 W	2300 W	3600 W
Non-corrected / serial-corrected / dual mounted fluorescent tubes with conventional ballast	2300 VA	2300 VA	3600 VA (1)
Fluocompact lamps with conventional ballast	2000 VA	1500 VA	1500 VA (1)
Parallel-corrected fluorescent tubes with conventional ballast	1300 VA (70 F)	400 VA (42 µF)	1200 VA (120 µF) (1)
Fluorescent tubes with electronic ballast	300 VA	300 VA	1000 VA
Fluocompact lamps with electronic ballast	9 x 7 W, 6 x 11 W, 5 x 15 W, 5 x 20 W	9 x 7 W, 7 x 11 W, 7 x 15 W, 7 x 20 W, 7 x 23 W	34 x 7 W, 27 x 11 W, 24 x 15 W, 22 x 23 W

(1) *The "switch-off warning" function is not available for these types of loads.*

Connection



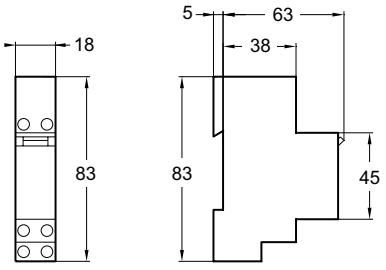
Type	Tightening torque	Copper cables	
		Rigid	Flexible or with ferrule
		 DB122945	 DB122946
MIN, MINs, MINp, MINt	1.2 N.m	≤ 6 mm²	≤ 6 mm²

Weight (g)

Time switches	
MIN	84
MINs	75
MINp	103
MINt	76

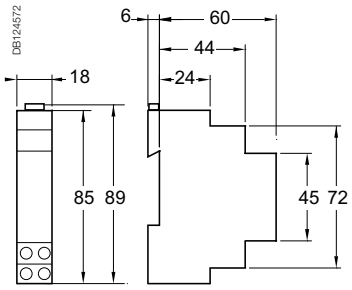
Dimensions (mm)

DB124571



MIN

DB124572



MINs, MINp, MINt

TH7 and THP1, THP2

Thermostats

P123731



TH7

For industrial premises stretching from cold storage to ovens, TH7 thermostat monitors and regulates temperature from -40°C to +80°C
with a wide setting range.
It can also be used for frost protections at home.

Programmable thermostats

P126317



P126318



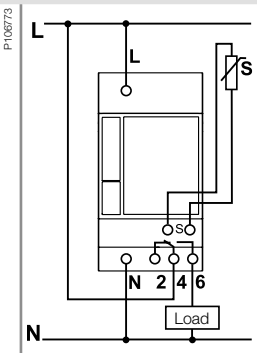
THP1 and THP2

Programmable thermostats control the operating periods of all heating types by monitoring and regulating ambient temperature between 5°C and 30°C, using a programme pre-set by the user and memorised:

- THP1: 1 zone,
- THP2: 2 zones.

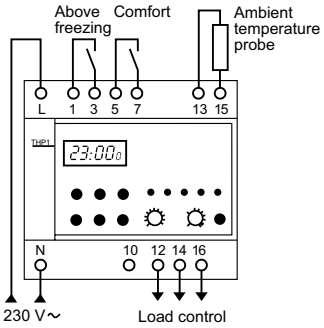
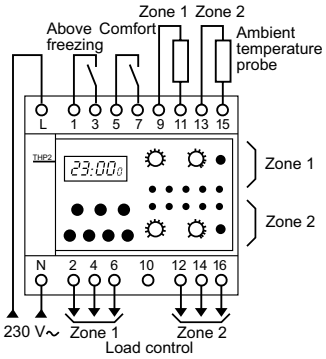
TH7 and THP1, THP2 (cont.)

Selection table

	TH7
Type	
	 P123731
Function	
	■ For industrial premises stretching from cold storage to ovens, TH7 thermostat monitors and regulates temperature from -40°C to +80°C with a wide setting range ■ It can also be used for frost protections at home
Wiring diagrams	
	 P106773
Mounting	
	Delivered without probe
Catalogue numbers	**CCT15840**

Technical specifications		
Voltage rating (Ue)		230 V AC, ± 10 %, 50/60 Hz
		–
Consumption		< 4 VA
Output contact current (250 V AC)	Cos φ = 1	16 A
	Cos φ = 0.6	3 A
Power reserve		–
Time base		–
Difference between tripping and activation		±0.2°C
Degree of protection		IP20
Operating temperature		-10°C to +55°C
Storage temperature		-20°C to +60°C
Set Point accuracy		1°C
Humidity		15-95 % RH (no condensation)
Width (module of 9 mm)		5
Color		White RAL 9003
Protections, fuses		Internal over voltage protection against surges, internal over temperature protection
Compliance with Community Directives	Isolating requirements, E.M.C. guidelines and Safety guidelines	EN 60730-2-9
	RoHS and environmental issues	EU-directive 2002/95/EC (RoHS)
		WEEE-directive 2002/96/EC (recycling)
		REACH Regulation (EC) No 1907/2006

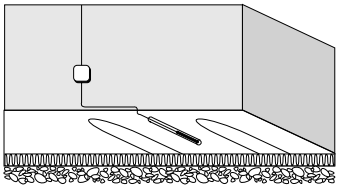
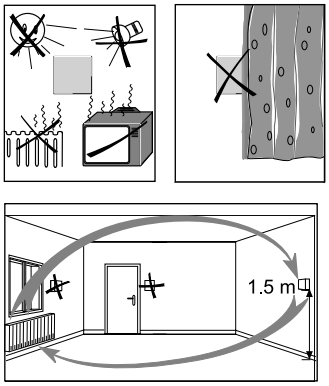
Programmable thermostats

	THP1	THP2
	P126317 	P126318 
	■ The THP1 and THP2 programmable thermostats control the operating periods of all heating types by monitoring and regulating ambient temperature between 5°C and 30°C, using a programme pre-set by the user and memorised ■ The THP1 and THP2 monitors and regulates temperature in a room by comparing the value of the temperature measured by the ambient temperature probe with the value of the setpoint displayed on its front face according to 3 operating modes: □ comfort: 5°C to 30°C while the premises are occupied □ reduced: 5°C to 26°C while the premises are unoccupied □ above freezing: the temperature in the premises is maintained at approximately 6°C ■ The THP1 and THP2, can control the following loads: □ convectors □ a burner □ a "hot air" heating system □ heating valves: hydraulic, electromagnetic or electrothermal	
	P106851 	P106852 
	Delivered with 1 non-adjustable ambient temperature probe	Delivered with -2 non-adjustable ambient temperature probes
	15833	**15834**

	230 V AC
	–
	1 VA
	5 A
	1 A
	6 years
	Quartz
	±0.2°C
	IP20.1
	-5°C to +55°C
	-25°C to +70 °C
	–
	30-50 % RH (no condensation)
	10
	White RAL 9003
	–
	NF C 47-121 EN 60730-1: 1991
	–
	–
	–

TH7 and THP1, THP2 (cont.)

Selection table TH7 temperature probes

Accessories	Floor temperature probe (with 1.5 m cable)	Ambient temperature probe (with 1.5 m cable)
Type		
	P123733 	P123734 
Installation		
	P100853 	P100854 
Mounting		
	This probe must be placed: ■ in a Ø 9 mm tube, embedded in the slab in the middle of a turn ■ one of the ends must run out of a distribution box sealed in the nearest wall (to simplify probe installation or replacement)	This probe must be fixed 1.50 m above the floor, away from drafts and sources of heat (sun's rays, radiators, machines, etc.)
Catalogue numbers	**CCT15845**	**CCT15846**

Note: *for all probes, do not run connecting cables alongside power cables.*
TH4 and TH7 probes cables can be extended up to 70 m by using 6/10th telephone cable or up to 150 m by using shielded copper cable.
THP1 and THP2 probes cables can be extended up to 50 m by using 6/10th telephone cable or shielded copper cable.

Specific technical data

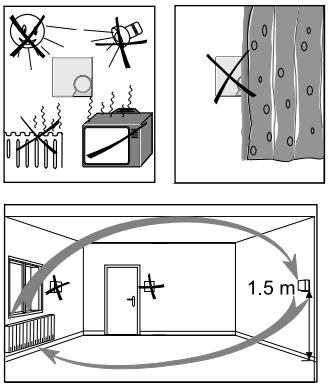
TH4		
Settings	Comfort	From +8°C to +26°C
	Reduced	From 0°C to 10°C below the selected "comfort" temperature set point: control (manual or automatic) by external dry contact
	Above freezing	Maintains room temperature according to a factory adjusted temperature set point of +5°C: control (manual or automatic) by external dry contact
Three indicator lights visualise	Green	Above freezing operation
	Yellow	Reduced operation
	Red	Relay: ON
Delivered with ambient temperature probe (CCT15846)		NTC 10 kΩ (25°C) can be extended up to 150 m with shieded copper cable and up to 70 m with telephone cable

Note: *however, the set point selected never can't be less than +8°C. Eg. If the reduced set point is selected with a 12°C set point temperature and a 10°C reduction temperature, the operative set point will not be +2°C (12-10) but rather +8°C (+5°C only if the "above freezing" input is closed/active).*

TH7		
Temperature set point settings (1)	Range	6 fixed positions: -40°C, -20°C, 0°C, +20°C, +40°C and +60°C
	Adjustements	From 0°C to 20°C above the selected fixed position
Indicator light	Red	Relay: ON
Delivered without probe		

(1) For example: if "range" is on -40°C, setting is possible between -40°C and -20°C.

THP1,THP2 temperature probes

	Outside temperature probe (with 2 m cable)	Collar temperature probe (with 1.5 m cable)	Ambient temperature probes		
			Non-adjustable probe	± 3 °C adjustable probe	Spare battery
	P123735 P123736 	P126320 	049540r 	P126321 	
		P106855 			
	This probe must be fixed away from: ■ the sun preferably facing north ■ all heat sources (chimney, etc.)	This probe must be fixed on the hot water outgoing pipe (min. ø 21 mm, max. ø 90 mm) approximately 1.50 m from the boiler.	These probes must be fixed 1.50 m above the floor, away from drafts and sources of heat (sun's rays, radiators, machines, etc.)		
	CCT15847	**CCT15848**	**15835**	**15836**	**16358**

THP1, THP2	
Display	By liquid crystal display of hour, minutes, day of the week and of contact status
	Indicator lights: 5 LEDs for 1 zone and 10 for 2 zones displaying: ■ the automatic, comfort and reduced operating modes (yellow) ■ the above freezing operating mode (green) ■ the ON position of the output contact(s) (red)
Choosing the operating mode	By local pushbutton: automatic, reduced, comfort, above freezing
	By external remote contact overriding the local push-button
	The comfort operating mode overrides the above freezing mode
Programming	Minimum programming time between 2 switching operations: 1 minute
	Memory: ■ THP1: up to 42 switching operations ■ THP2: up to 168 switching operations
	Programming 24 h / 7 days with: ■ possible anticipation of switching ■ deletion of a switching operation in order to modify or cancel a sequence
	Changeover to "summer-winter" time in a single operation

TH7 and THP1, THP2 (cont.)
Practical advice

P106775

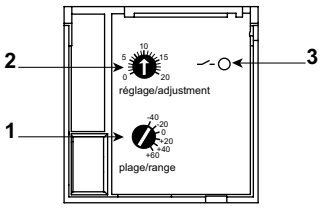


Fig. 2.

P106885

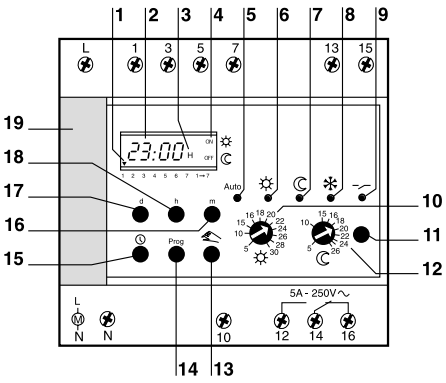


Fig. 3.

P106886

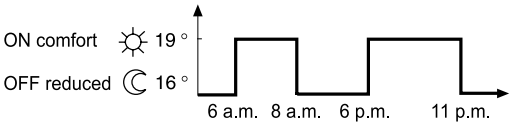


Fig. 4.

TH7

Front face (see Fig. 2)

1 Temperature range setting (6 ranges).
2 Temperature fine adjustement.
3 Relay indicator.

THP1

Front face (see Fig. 3)

1 Days indication: cursor on 1 = Monday, on 2 = Tuesday, etc.
2 Hours and minutes indication.
3 Stopping during holiday periods (holiday override mode).
4 Visualisation of switching status:
ON: comfort ☼
OFF: reduced ☾
5 Yellow indicator light: "Auto" position.
6 Yellow indicator light: "comfort" position.
7 Yellow indicator light: "reduced" position.
8 Green indicator light: "above freezing" position.
9 Red indicator light: output contact status.
10 Button for setting the "comfort" operating mode.
11 Pushbutton for selecting the operating mode for zone 1.
12 Button for setting the "reduced" operating mode.
13 Key for anticipation of switching and programming over 7 days.
14 Key for scrolling the switching and memorisation operations.
15 Function key for time and day updating and return to the time display.
16 Minutes setting key.
17 Days setting key.
18 Hours setting key.
19 Manual slot.

THP1 programming

A programmable clock, built into the THP1, is used for programming (see Fig. 4).
■ The various operations for:
□ updating time and day,
□ introduction of the programme, are the same as those used to programme the IHP 24 hours and 7 days.
■ Programming possibilities:
□ 24 hours and 7 days: a separate programme for each day of the week,
□ up to 42 switching operations memorised,
□ the same switching operation used over several days only counts as one switching operation,
□ power reserve: 6 years.

Example

■ Programming:
□ temperature thresholds: "comfort" 19°C and "reduced" 16°C,
□ presence from 6 a.m. to 8 a.m. and from 6 p.m. to 11 p.m.:
"comfort" heating, temperature of 19°C,
□ absence (from 8 a.m. to 6 p.m.) and nighttime (from 11 p.m. to 6 a.m.):
"reduced" heating, temperature of 16°C.

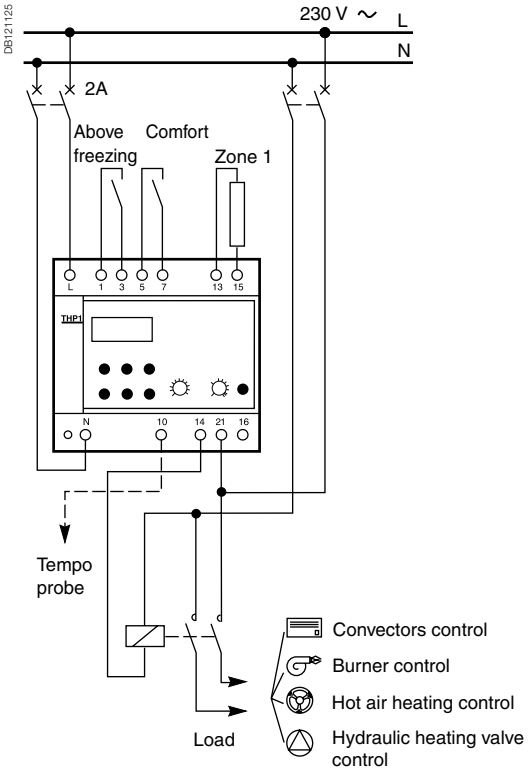


Fig. 5. THP1 connection example.

Local control

The operating mode pushbutton (**11**) is used to select the operating mode and to light up the relevant indicator lights in turn:

Auto (indicator light **5**)
Operation takes place according to a pre-set programme (see § on "programming").
■ Temperature is regulated with respect to the following temperature thresholds:
□ comfort (ON symbol visible) which is set using the button (**10**),
□ reduced (OFF symbol visible) which is set using the button (**12**).

Comfort (indicator light **6**)
The ON symbol is visible.
■ Indicator light ON: temperature is regulated only with respect to the "comfort" temperature threshold (setting button **10**).
■ Flashing indicator light (see § on "remote control").

Reduced (indicator light **7**)
Temperature is regulated only with respect to the "reduced" temperature threshold (setting button **12**). The OFF symbol is visible.

Above freezing (indicator light **8**)
■ Indicator light ON: temperature is regulated only with respect to the 6.5°C temperature threshold pre-set in the factory.
■ Flashing indicator light (see § on "remote control").

Remote control

This operating mode corresponds to the closing of a contact external to the THP (e.g. switch or TRC).

Closing a comfort operation contact
(Red indicator light (**6**) flashing on the THP). Once closed, temperature is only regulated with respect to the "comfort" temperature threshold.
This external contact (terminals 5 and 7) takes priority over:
■ The local controls ("Auto", "comfort", "reduced", "above freezing").
■ The external "above freezing" contact.

Closing an above freezing operation contact
(Green indicator light (**8**) flashing on the THP). Once closed, temperature is only regulated with respect to the "above freezing" temperature threshold.
This external contact (terminals 1 and 3) takes priority over local controls ("Auto", "comfort", "reduced", "above freezing").

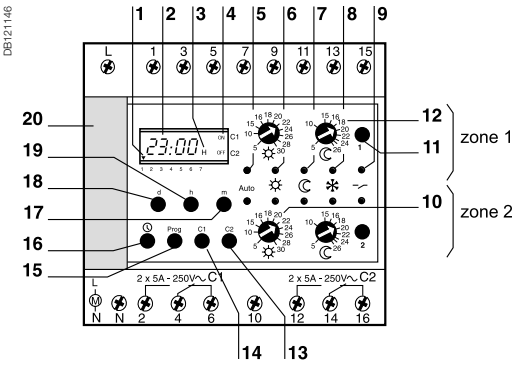


Fig. 6.

THP2

Front face (see Fig. 6)

1 Days indication: cursor on 1 = Monday, on 2 = Tuesday, etc.
2 Hours and minutes indication.
3 Stopping during holiday periods (holiday override).
4 Visualisation of switching status.

		Comfort ☼	Reduced ☾
Zone 1	C1	ON	OFF
Zone 2	C2	ON	OFF

5 Yellow indicator light: "Auto" position.
6 Yellow indicator light: "comfort" position.
7 Yellow indicator light: "reduced" position.
8 Green indicator light: "above freezing" position.
9 Red indicator light: output contact status.
10 Button for setting the "comfort" operating mode.
11 Pushbutton for selecting the operating mode for the zone.
12 Button for setting the "reduced" operating mode.
13 Zone 2 selection key.
14 Zone 1 selection key.
15 Key for scrolling switching and memorisation operations.
16 Function key for updating time and day and return to the time display.
17 Minutes setting key.
18 Days setting key.
19 Hours setting key.
20 Manual slot.

TH7 and THP1, THP2 (cont.)
Practical advice

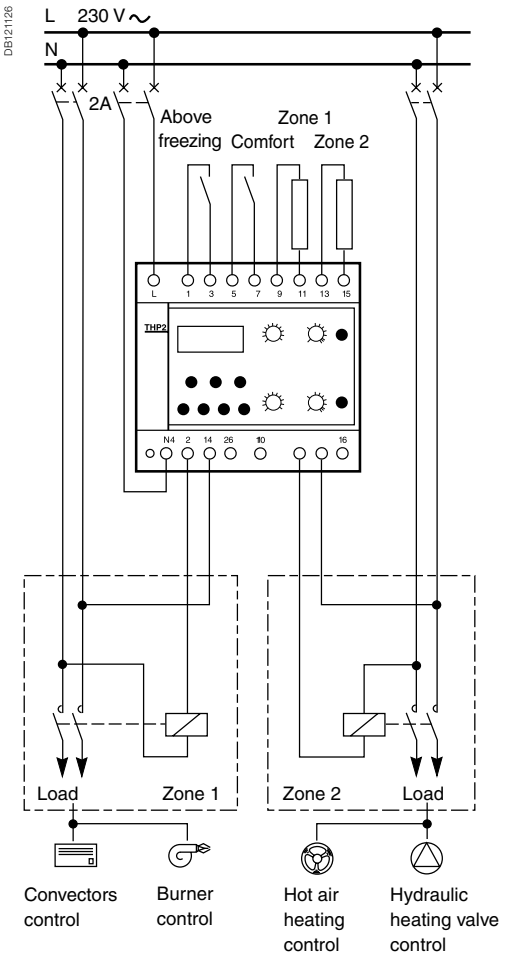
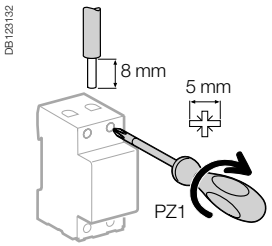


Fig. 7. THP2 connection example.

THP2 programming

■ Programming is carried out by a 2 channel, IHP 24 hours and 7 days programmable time switch, built into the THP2.
■ Programming possibilities:
□ 24 hours and 7 days: a separate programme for each day of the week,
□ 24 switching operations memorised, to be divided up over the 2 zones,
□ the same switching operation, used over several days, only counts for the same operation,
□ power reserve: 6 years.

Connection

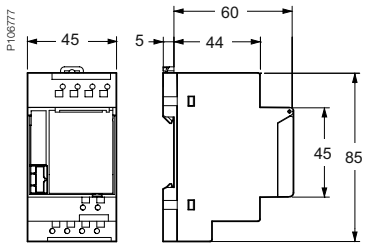


Type	Tightening torque	Copper cables	
		Rigid	Flexible or with ferrule
	DB122945	DB123553	
THP1, THP2	1.2 N.m	4 mm²	4 mm²
TH4, TH7	2 screwless / pole	2 x 2.5 mm²	2 x 2.5 mm²

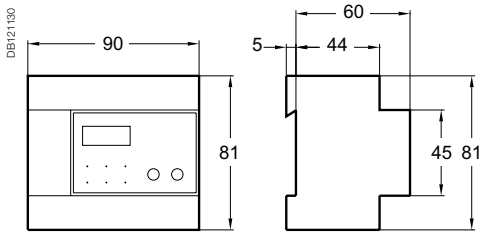
Weight (g)

Thermostats	
TH4, TH7	125
TH4 with probe	205
Programmable thermostats	
THP1	489
THP2	570

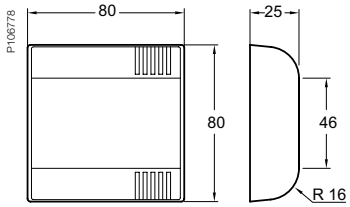
Dimensions (mm)



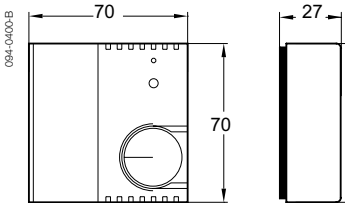
TH7 thermostats



THP1 and THP2 programmable thermostats



TH7, ambient temperature probe



THP1, THP2, ambient temperature probes

STI isolatable fuse-carriers

PG1134083A_SE



15646

0534611D-30



15668

STI	Cartridges
IEC EN 60947-3	NF C 60-200, NF C 63-210 and IEC 60269-1/2

- The STI isolatable fuse-carriers provide overload and short-circuit protection.
- They are used for industrial applications requiring a high breaking capacity.
- They perform the isolation function and must not be used as switches.
- They can be equipped with an indicator light indicating blowing of the fuse cartridge.
- Isolation of all poles is guaranteed for the 2P, 3P, and 3P+N versions during factory assembly.

The general purpose fuse (gG fuse) provides overload and short-circuit protection.
The fuse for motor application **(aM fuse)** only provides short-circuit protection.
It is used for protection of loads with a high peak current (motors, transformer primaries, etc.).

Accessories

Comb busbar
- Used to quickly bridge several STI of the same kind.

Busbar connectors
- Used to supply the busbar.
- For 25 mm² cable.

230 V neon indicator light
- Indicates fuse blowing (off in normal operation and lit red after fuse blowing).
- 400 V maxi.

Padlocking device
- Locks the toggle in the "open" or "closed" position. Used with an 8 mm max. diameter padlock (not supplied).

Clip-on markers (C60 type)
- Used to identify:
  - ◻ either on the front face of the device
  - ◻ or on the downstream terminals.

Catalogue numbers

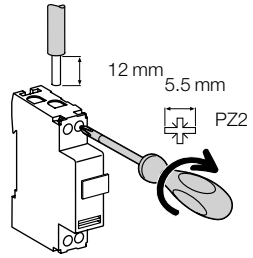
Fuse cartridge (Type F)					STI fuse holder				
Type					Network type				
	Rating	Voltage rating (Ue)	Short-circuit current (Isc)						
			aM	gG	1P	1P+N (1)	2P	3P	3P+N (1)
PB102098-20				DB112797	DB112798	DB112799	DB112800	DB110801	
8.5 x 31.5	2 A	400 V AC	20 kA	20 kA	**15635** 2 modules of 9 mm	**15645** 2 modules of 9 mm	**15650** 4 modules of 9 mm	**15655** 6 modules of 9 mm	**15657** 6 modules of 9 mm
	4 A	400 V AC	20 kA	20 kA					
	6 A	400 V AC	20 kA	20 kA					
	8 A	400 V AC	20 kA	20 kA					
	10 A	400 V AC	20 kA	20 kA					
10.3 x 38	2 A	500 V AC	120 kA	120 kA	**15636** 2 modules of 9 mm	**15646** 2 modules of 9 mm	**15651** 4 modules of 9 mm	**15656** 6 modules of 9 mm	**15658** 6 modules of 9 mm
	4 A	500 V AC	120 kA	120 kA					
	6 A	500 V AC	120 kA	120 kA					
	10 A	500 V AC	120 kA	120 kA					
	16 A	500 V AC	120 kA	120 kA					
	20 A	500 V AC	120 kA	120 kA					
	25 A	400 V AC	120 kA	120 kA					
	32 A	400 V AC	120 kA	120 kA					
					Operating frequency : 50/60 Hz				

(1) The neutral pole comes equipped with a locked tube.

STI isolatable fuse-carriers (cont.)

Connection

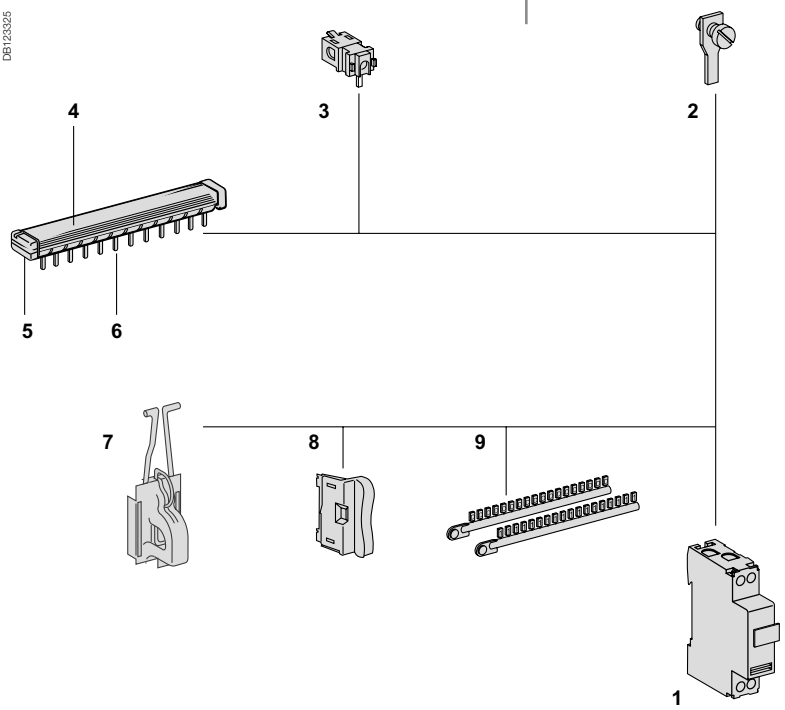
DB123241



Type	Rating	Tightening torque	Without accessory: Copper cables – Rigid	Without accessory: Copper cables – Flexible or ferrule	Without accessory: Multi-cables terminal – Rigid cables	Without accessory: Multi-cables terminal – Flexible cables	With accessories: Screw-on connection for ring terminal
			DB122945	DB122946	DB118787	DB118789	
STI	All	2 N.m	0.75 to 10 mm²	0.33 to 6 mm²	0.75 to 10 mm²	0.33 to 6 mm²	Ø 5 mm

2	Screw-on connection for ring terminal			**27053**
3	Insulated connectors		(set of 4)	**14885**
4	Comb busbar	24 pas	1P	**14881**
		26 pas	1P+N	**14880**
		24 pas	2P	**14882**
		24 pas	3P	**14883**
		24 pas	4P	**14884**
5	Flange for comb busbars (set of 40)		For 1P, 2P	**14886**
			For 3P, 4P	**14887**
6	Teeth shield		(set of 40)	**14888**

DB123325

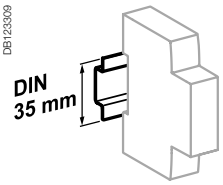


Mounting accessories

7	Padlocking device		**15669**
8	Neon indicator light	1 piece blister	**15668**
9	Clip-on terminal markers	See module	**CA907001**

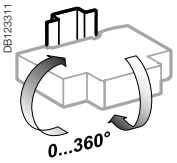
STI isolatable fuse-carriers (cont.)

DB123309



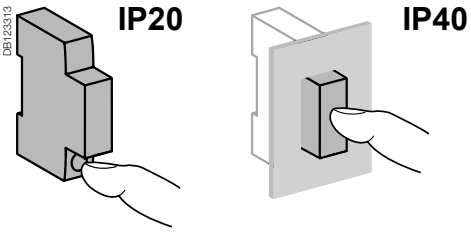
Clip on DIN rail 35 mm.

DB123311



Indifferent position of installation.

DB123313



Technical data

Main characteristics		
Insulation voltage (Ui)		690 V
Pollution degree		3
Additional characteristics		
Degree of protection	Device only	IP20
	Device in modular enclosure	IP40 Insulation classe II
Operating temperature		-20°C to +60°C
Storage temperature		-40°C to +80°C
Isolation with positive contact indication by tilting the fuse-carrier		Captive fuse-carrier
		Additional housing is provided for a spare fuse
Cartridge blowing signalling (option)		By indicator light ON after blowing

To be equiped with aM or gG (gL - gl) type fuse cartridge without striker, with or without fuse blowing indicator:

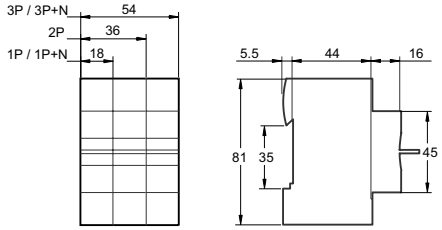
Fuse cartridge type		Ith	Pmax*
8.5 x 31 mm	aM	10 A	3 W
	gG	20 A	3 W
10.3 x 38 mm	aM	25 A	3.5 W
	gG	32 A	3.5 W

**Pmax: maximum dissipated power per fuse cartridge.*

Specific technical data STI 1P+N and 3P+N
Disconnection of the phase and neutral in the normal dimensions of the phase (2 mod. of 9 mm)
Phase opening causes compulsory opening of the neutral
The phase opens before the neutral on isolation and closes after the neutral on circuit closing

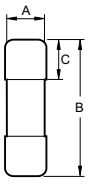
Dimensions (mm)

DB122933



STI

DB122934



aM, gG fuse cartridge			
Type	**A**	**B**	**C**
8.5 x 31.5 mm	8.5	31.5	10.3
10.3 x 38 mm	10.3	38	10.5

aM, gG

Argus surface mounted movement detectors



ARGUS 70

Description	Part number
Polar white	**MTN545719**

Electronic outdoor movement detector. 70° surface monitoring for smaller areas such as gateways, entrances or staircases.

Technical data

Mains voltage: AC 230 V ±10 %, 50 Hz

Connected load: up to 500 VA

Max. switching current: 2 A, AC 230 V, cosφ = 0,6

Halogen lamps: AC 230 V, up to 300 W

Capacitive load: max. 21 µF

Power consumption: < 1 W

Number of levels: 4

Number of zones: 26 with 104 switching segments

Area of detection: 70° surface monitoring, approx. 7x8 m

Light sensor: infinitely adjustable from 3-1000 lux

Range: approx. 7 m

Time: 1 sec. to approx. 8 min. in 6 steps

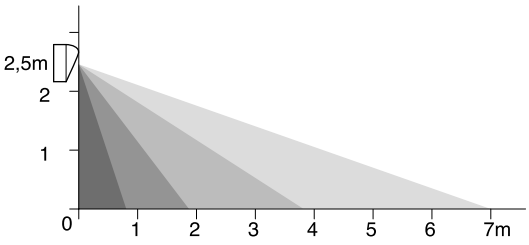
Ambient temperature: -25 °C to +55 °C

Neutral conductor: requiredType of protection: IP 4

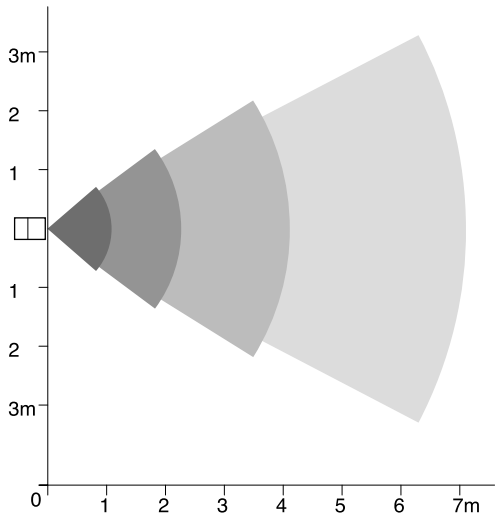
Accessories: Capacitor, Part number MTN542895.

Area of detection

The actual values depend on a number of factors - heat source (size and temperature), direction of movement, speed, temperature difference - and can therefore be higher or lower than the values given.



From the side



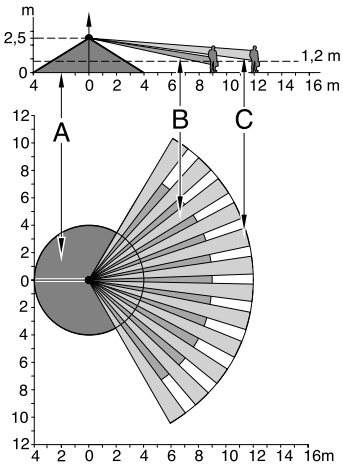
From above

Argus surface mounted movement detectors



Area of detection

ARGUS 110 Basic



A =Inner safety zone with an area of detection of 360° within a radius of approx. 4 m.
B = Middle safety zone with a detection angle of 110° and an area of detection of approx. 9 m x 18 m.
C = Outer safety zone with a detection angle of 110° and an area of detection of approx. 12 m x 24 m.

ARGUS 110 basic

Description	Part number
Polar white	**MTN565119**

Electronic outdoor movement detector. 11 0° surface monitoring for smaller house fronts and sections of the house.

- 360° short-range zone with a radius of approx. 4 m
- Very easy installation thanks to large wiring compartment and plug-in connection system
- Looping through is possible
- Integrated LED function display for alignment at installation site
- Potentiometers for adjustment are protected under the easily accessible cover plate
- Can be installed on walls and ceilings without additional accessories.
- Can be mounted on inner/outer corners and stationary pipes with installation bracket, Part number MTN5652
- The area of detection can be adjusted to local conditions with the aid of the spherical head which can be adjusted horizontally, vertically and axially
- The design is independent of the position of the sensor head
- Possible to blank out individual lens areas

Under the cover plate there are potentiometers for setting the brightness and time.

Technical data

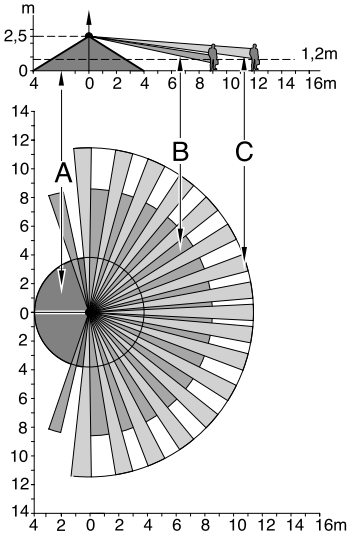
Mains voltage: AC 230 V, ± 10 %, 50 Hz
Incandescent lamps: AC 230 V, max. 2000 W
Halogen lamps: AC 230 V, max. 1200 W
Fluorescent lamps: AC 230 V, 1200 W uncompensated
Capacitive load: max. 35 µF
Max. switching current: 16 A, AC 230 V, cosφ = 1
Angle of detection: 11 0°
Range: max. 12 m
Number of levels: 7
Number of zones: 92 with 368 switching segments
Light sensor: infinitely adjustable from 3-1000 lux
Time: 1 sec. to approx. 8 min. in 6 levels
Neutral conductor: required
Possible to set the sensor headWall mounting: 9° up, 24° down, 12° left/right, ±12° axial
Ceiling mounting: 4° up, 29° down, 25° left/right, ± 8.5° axial
EC guidelines: Low voltage guideline 73/23/EEC and EMC guideline 89/336/EEC
Type of protection: IP 5
Accessories: Mounting bracket, Part number MTN565291.
Capacitor, Part number MTN542895.
Contents: With cover plate and segments to limit area of detection, screws & plugs.

Argus surface mounted movement detectors



Area of detection

ARGUS 220 Basic



A =Inner safety zone with an area of detection of 360° within a radius of approx. 4 m.
B = Middle safety zone with a detection angle of 220° and an area of detection of approx. 9 m x 18 m.
C = Outer safety zone with a detection angle of 220° and an area of detection of approx. 12 m x 24 m.
The specified ranges refer to average conditions and a mounting height of 2.50 m and should therefore be taken as guide values. The range can vary greatly depending on the weather.

ARGUS 220 basic

Description	Part number
Polar white	**MTN565219**

Electronic outdoor movement detector. 220° surface monitoring for large house fronts and sections of the house.

The movement detector for outdoor areas

- 360° short-range zone with a radius of approx. 4 m
- Very easy installation thanks to large wiring compartment and plug-in connection system
- Looping through is possible
- Integrated LED function display for alignment at installation site
- Potentiometers for adjustment are protected under the easily accessible cover plate
- Can be installed on walls and ceilings without additional accessories
- Can be mounted on inner/outer corners and stationary pipes with installation bracket, Part number MTN5652
- The area of detection can be adjusted to local conditions with the aid of the spherical head which can be adjusted horizontally, vertically and axially
- The design is independent of the position of the sensor head
- Possible to blank out individual lens areas
- Under the cover plate there are potentiometers for setting the brightness and time

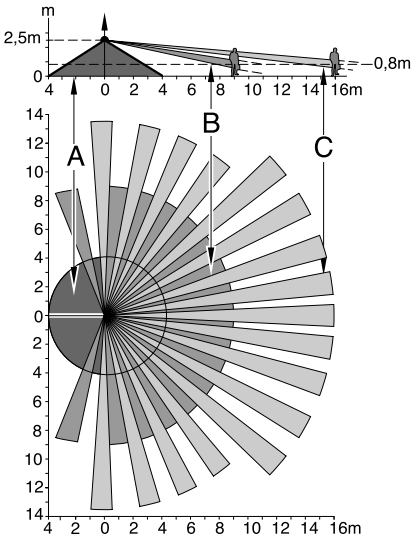
Technical data

Mains voltage: AC 230 V, ± 10 %, 50 Hz
Incandescent lamps: AC 230 V, max. 2000 W
Halogen lamps: AC 230 V, max. 1200 W
Fluorescent lamps: AC 230 V, 1200 W uncompensated
Capacitive load: max. 35 µF
Max. switching current: 16 A, AC 230 V, cosφ = 1
Angle of detection: 220°
Range: max. 12 m
Number of levels: 7
Number of zones: 112 with 448 switching segments
Light sensor: infinitely adjustable from 3-1000 lux
Time: 1 sec. to approx. 8 min. in 6 levels
Neutral conductor: required
Possible to set the sensor headWall mounting: 9° up, 24° down, 12° left/right, ± 12° axial
Ceiling mounting: 4° up, 29° down, 25° left/right, ± 8.5° axial
EC guidelines: Low voltage guideline 73/23/EEC and EMC guideline 89/336/EEC
Type of protection: IP 5
Accessories: Mounting bracket, art. no. MTN565291.
Capacitor, art. no. MTN542895.
Contents: With cover plate and segments to limit the area of detection, screws and plugs.

Argus surface mounted movement detectors



Area of detection



A = Inner safety area with an area of detection of 360° within a radius of approx. 4 m.
B = Middle safety zone with a detection angle of 220° and an area of detection of approx. 9 m x 18 m.
C = Outer safety zone with a detection angle of 220° and an area of detection of approx. 16 m x 28 m.
The specified ranges refer to average conditions and a mounting height of 2.50 m and should therefore be taken as guide values. The range can vary greatly depending on the weather.



ARGUS 220 advanced

Description	Part number
Polar white	**MTN565419**

Electronic outdoor movement detector. 220° surface monitoring for large house fronts and sections of the house.

The movement detector for outdoor areas
- 360° short-range zone with a radius of approx. 4 m
- Sensitivity: infinitely adjustable
- Very easy installation thanks to large wiring compartment and plug-in connection system
- Looping through is possible
- Integrated LED function display for alignment at installation site
- Potentiometers for adjustment are protected under the easily accessible cover plate
- Can be installed on walls and ceilings without additional accessories
- Can be mounted on inner/outer corners and stationary pipes with installation bracket, Part number MTN5652
- The area of detection can be adjusted to local conditions with the aid of the spherical head which can be adjusted horizontally, vertically and axially
- The design is independent of the position of the sensor head
- Possible to blank out individual lens areas
- Potentiometers for setting functions are located underneath the cover plate

Technical data

Mains voltage: AC 230 V, ± 10 %, 50 Hz
Incandescent lamps: AC 230 V, max. 2000 W
Halogen lamps: AC 230 V, max. 2000 W
Fluorescent lamps: AC 230 V, 1200 W uncompensated
Capacitive load: max. 35 µF
Max. switching current: 16 A, AC 230 V, cosφ = 1
Angle of detection: 220°
Range: max. 16 m
Number of levels: 7
Number of zones: 112 with 448 switching segments
Light sensor: infinitely adjustable from 3-1000 lux
Time: 1 sec. to approx. 8 min. in 6 levels
Sensitivity: infinitely adjustable
Neutral conductor: required
Possible to set the sensor headWall mounting: 9° up, 24° down, 12° left/right, ± 12° axial
Ceiling mounting: 4° up, 29° down, 25° left/right, ± 8.5° axial
EC guidelines: Low voltage guideline 73/23/EEC and EMC guideline 89/336/EEC
Type of protection: IP 54
Accessories: Mounting bracket, Part number MTN565291.
Capacitor, Part number MTN542895.
Contents: With cover plate and segments to limit the area of detection, screws and plugs.

Mounting bracket

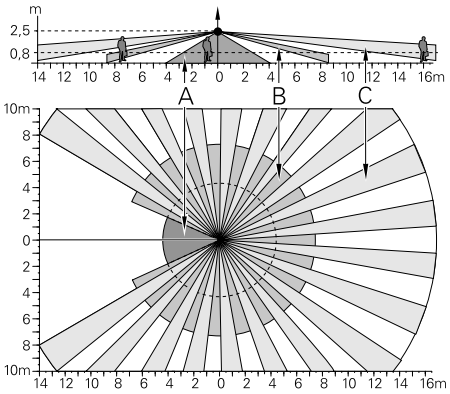
Description	Part number
Polar white	**MTN565291**

Installation bracket for attaching the ARGUS 110/220 Basic, Timer or Connect to outer or inner corners. Can also be secured to fixed pipes (VDE 0100) with conventional conduit clips.
Contents: With screws and plugs. Without conduit clip.

Argus surface mounted movement detectors



Area of detection



The specified ranges refer to average conditions and a mounting height of 2.50 m and should therefore be taken as guide values. The range can vary greatly depending on the weather.

A =Inner safety zone with an area of detection of 360° within a radius of approx. 4 m.
B = Middle safety zone with a detection angle of 300° and a radius of approx. 7 m.
C = Outer safety zone with a detection angle of 300° and an area of detection of approx. 16 m x 20 m.



ARGUS 300

Description	Part number
Polar white	**MTN564319**

Electronic outdoor movement detector.
300° surface monitoring for mounting on house corners in order to secure the area of two house walls. 360° short-range zone with a radius of approx. 4 m.
The plug-in system and the enlarged wiring compartment facilitate simple and convenient installation.
The range of the area of detection can be adjusted in sectors with three selectively adjustable 100° sectors. This makes it possible to compensate for a site that slopes upwards or downwards.
Function bar for configuring brightness, time and sensitivity (range). The integrated function display allows the ARGUS to be aligned quickly and easily at the installation site. The universal housing allows these detectors to be mounted on house corners without requiring additional accessories. The area of detection can be optimally adapted to prevailing on-site conditions with the aid of the spherical head which can be adjusted horizontally, vertically and axially. To prevent obstacles such as downpipes from blanking the area of detection, ARGUS 300 can be installed with an extension.

Technical data

Mains voltage: AC 230 V, ± 10 %, 50 Hz
Incandescent lamps: max. 3000 W
Halogen lamps: AC 230 V, max. 2500 W
Capacitive load: max. 140 µF
Max. switching current: 16 A, AC 230 V, cosφ = 0,6
Power consumption: <1 W
Angle of detection: 300°
Range: max. 16 m
Number of levels: 7
Number of zones: 123 with 492 switching segments
Light sensor: infinitely externally adjustable
approx. 3-1000 lux
Time: externally adjustable in 6 levels of approx. 1 sec. to approx. 8 min.
Neutral conductor: required
Possible to adjust the sensor head: Horizontal rotation to the left and right by 30°. Swivelling
of the sensor head to the right or left by 45°.
EC guidelines: Low voltage guideline 73/23/EEC and EMC guideline 89/336/EEC
Type of protection: IP 5
Accessories: Capacitor, Part number MTN542895.
Contents: With 2 blanking inserts to limit the area of detection, unlocking clamp, screws and plugs.

Extension

Description	Part number
Polar white	**MTN554399**

The extension between wall bracket and sensor head can be installed for the ARGUS 300 in order to increase the distance between the movement detector and the wall. Obstacles such as downpipes, which blank the area of detection if mounted on corners, can be prevented.
Length: 11.5 cm

Argus surface mounted movement detectors

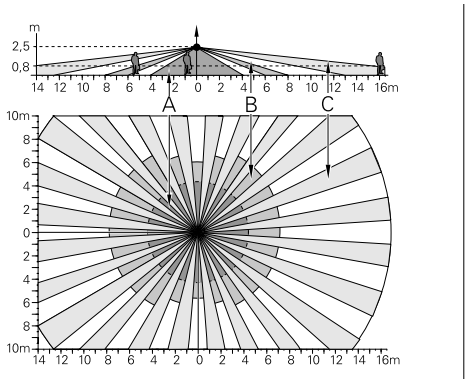


ARGUS 360

Description	Part number
Polar white	**MTN564419**

Electronic movement detector for outdoor ceiling mounting.
360° surface monitoring over a length of 30 m and a width of 20 m.
Function bar to set brightness and time. With integrated function display.

Area of detection



The specified ranges refer to average conditions and a mounting height of 2.50 m and should therefore be taken as guide values. The range can vary greatly depending on the weather.

A = Inner safety area with an area of detection of 360° within a radius of approx. 4 m.
B = Middle safety zone with an angle of detection of 360° and a radius of approx. 7 m.
C = Outer safety zone with a detection angle of 360° and an area of detection of approx. 30 m depth (16 m to the front and 14 m to the back) and 20 m width.



Technical data

Mains voltage: AC 230 V, ± 10 %, 50 Hz
Incandescent lamps: max. 3000 W
Halogen lamps: AC 230 V, max. 2500 W
Capacitive load: max. 140 µF
Max. switching current: 16 A, AC 230 V, cosφ = 0,6
Power consumption: < 1 W
Angle of detection: 360°
Range: max. 16 m
Number of levels: 7
Number of zones: 124 with 496 switching segments
Light sensor: infinitely adjustable from 3-1000 lux
Time: adjustable in 6 levels of approx. 1 sec. to approx. 8 min.
Neutral conductor: required
EC guidelines: Low voltage guideline 73/23/EEC and EMC guideline 89/336/EEC
Type of protection: IP 5
Accessories: Capacitor, Part number MTN542895.

Accessories

Description	Part number
Capacitor AC 230 V, 0.33 µF	**MTN542895**

AC 230 V, 0.33 µF
For use in push-button circuits to prevent flickering of the neon lamp and/or instantaneous switching of the installation relay when several push-buttons with neon lamps are in use.
For interference suppression of inductive loads, e.g. relays, contactors, fluorescent lamps, transformers, if the induction voltage of these devices leads to the retriggering of the ARGUS.

Argus presence system



Presence system

	Part number
	MTN550499

Indoor presence detection. The system detects the slightest movement in the room, switches the light on and leaves it on until no further movement is detected or natural lighting is sufficient.

The power unit has two relay outputs:
Relay 1:
For brightness-dependent movement detection, e.g. lighting. The overshoot time is infinitely adjustable at the sensor within a range of between 10 seconds and 30 minutes. The device constantly monitors the brightness in the room. Then, when there is sufficient natural light, the artificial light is switched off even if there is still someone in the room. The relay switches phase L.

Relay 2:
Floating contact (electrically isolated). For movement detection independent of brightness e.g. ventilation or heating control. The overshoot time is infinitely adjustable at the sensor within a range of between 5 minutes and 2 hours.
The system consists of the sensor head and a power unit with a permanently attached interconnecting cable (length 2.5 m) plugged into the sensor head. Every sensor head has two sockets to enable through-wiring. A maximum of 8 sensor heads (Part number 550419) can be connected in this way to one power unit (master-slave principle). Installing several sensor heads makes it possible to seamlessly monitor long corridors and large rooms for example.

The sensor head that registered the last movement determines the overshoot time. Can also be controlled via an extension input. Sensor heads are installed in 68 mm ceiling openings. Areas of use include: offices, schools, public buildings, homes. Optimum installation height of 2.50 m.

Technical data

Mains voltage: AC 230 V ± 10%, 50 Hz
Connecting cable: 2.5 m
Max. switching current per relay: 10 A, AC 230 V, cosφ = 0,6
Incandescent lamps: max. 2300 W
Halogen lamps: max. 2000 W
Motor load: max. 1000 W
Capacitive load: max. 140 µF
Power consumption: 2 W for 8 sensors
Angle of detection: 360°
Range: a radius of max. 4m from the installation site (mounting height of 2.50m)
Number of levels: 5
Number of zones: 71 with 284 switching segments
Light sensor: infinitely adjustable between approx. 10 and 1000 lux. The light sensor is not active in the test position.
EC guidelines: Low voltage guideline 73/23/EEC and EMC guideline 89/336/EEC



Presence system sensor

Description	Part number
Polar white	**MTN550419**

Sensor head with prefabricated interconnecting cable for extending the ARGUS Presence system. Each sensor head has two plugs allowing through-wiring to other sensors.

Technical data

Interconnecting cable: 8 m long
Angle of detection: 360°
Range: a radius of max. 4m from the installation site (mounting height of 2.50m)
Number of levels: 5
Number of zones: 71 with 284 switching segments
Light sensor: infinitely adjustable between approx. 10 and 1000 lux. The light sensor is not active in the test position.
EC guidelines: Low voltage guideline 73/23/EEC and EMC guideline 89/336/EEC

Argus presence system



Presence	
Description	**Part number**
Polar white	**MTN550590**

- Indoor presence detection
- ARGUS switches on the light and leaves it switched on until presence is no longer detected or the ambient brightness is sufficient. Can be used in offices, schools, public buildings or homes, for example. The detector is installed in or on the ceiling
- For installation on the ceiling in a 60 mm installation box. Optimum height 2.50 m
- The surface-mounted housing, Part number MTN550619, allows the presence detector to be mounted on non-suspended ceilings

The device has 2 relay outputs:
Relay 1:
For brightness-dependent movement detection, e.g. lighting. The overshoot time is infinitely adjustable within a range of between 10 seconds and 30 minutes. ARGUS Presence constantly monitors the brightness in the room. Then, when there is sufficient natural light, the artificial light is switched off even if there is still someone in the room.

Relay 2:
For movement detection independent of brightness e.g. ventilation or heating control. The overshoot time is infinitely adjustable between 5 minutes and 2 hours.

Technical data

Mains voltage: AC 230 V ±10 %, 50 Hz
Relay 1 (sole use):Nominal capacity: max. 1000 W/VA,
5 A, cosφ = 1
5 A, cosφ = 0.6
Incandescent lamps: 1000 W
230 V halogen: 1000 W
LV halogen: 500 W with conventional transformer
Capacitive load: 5 A, 140 µF
Fluorescent lamps: 5 A, 140 µF;
1000 W, uncompensated;
1000 W, 140 µF parallel compensation;
2x500 W, twin-lamp circuit;
Electronic ballast: 5 A, Cmax ≤ 140 µF
Minimum load: 10 mA, ≥ DC 24 V
Relay 2 (sole use):Nominal capacity: max. 1000 W, cosφ = 1
Relays 1+2 (combined use):Nominal capacity: max. 1000 VA, cosφ = 0.6 and max. 750 W, halogen 230 V
Fuse: T5H
Power consumption: < 1 W
Angle of detection: 360°
Range: a radius of max. 7m from the installation site (mounting height of 2.50m)
Number of levels: 6
Number of zones: 136 with 544 switching segments
Light sensor: infinitely adjustable between approx. 10 and 1000 lux. The light sensor is not active in the test position.
EC guidelines: Low voltage guideline 73/23/EEC and EMC guideline 89/336/EEC
Accessories: Surface-mounted housing for Argus Presence, Part number MTN550619.

Argus presence system



ARGUS Presence with IR receiver and for extension unit operation

Description	Part number
Polar white	**MTN550591**

- Indoor presence detection
- ARGUS switches on the light and leaves it switched on until presence is no longer detected or the ambient brightness is sufficient. Can be used in offices, schools, public buildings or homes, for example. The detector is installed in or on the ceiling
- For installation on the ceiling in a 60 mm installation box. Optimum height 2.50 m
- The surface-mounted housing, Part number MTN550619, allows the presence detector to be mounted on non-suspended ceilings

When connecting the nominal voltage or short-term interruption of the power supply (e.g. with a push-button connected as a make contact), the device switches channel 1 on for one minute plus the set time, regardless of the level of light.
Other features and attributes as for ARGUS Presence, Part number MTN550590.
For channel 1, the functions “Permanent ON”, “Permanent OFF” and “Automatic” can be controlled with the IR remote control.
Accessories: Surface-mounted housing for Argus Presence, Part number MTN550619.
Transmitter: IR remote control Distance, Part number MTN570222.



Surface-mounted housing for ARGUS Presence

Description	Part number
Polar white	**MTN550619**

The surface-mounted housing for ARGUS Presence devices also allows them to be surface mounted.

AMP/VLT/FRE digital meters



Application

The meters facilitate the real time monitoring of current, voltage and frequency.

Technical data

Supply voltage:	230Vac
Operating frequency:	50 - 60Hz
Display by red LED:	3 digits
Accuracy at full scale:	0.5% ± 1 digital
Consumption:	0.3VA
Connection:	Tunnel terminals for 2.5mm² cables
EMC electromagnetic compatibility:	IEC EN 50081-1 and IEC EN 50082-2
Safety:	IEC EN 61010-1

Specific technical data

AMP 10A

Minimum value measured:	4% of rating
Measurement input consumption:	1VA

AMP Multirange

Ratings:	In direct reading: 5A
	By CT (not supplied) configurable on the front face of the ammeter: 10, 15, 20, 25, 40, 50, 60, 100, 150, 200, 250, 400, 500, 600, 800, 1000, 1500, 2000, 2500, 4000, 5000A
Minimum value measured:	4% of rating
Measurement input consumption:	0.55VA

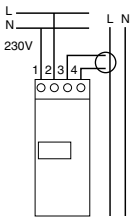
VLT

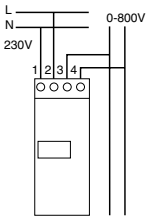
Direct measurement:	0 - 600Vac
Input impedance:	2 MΩ
Minimum value measured:	4% of rating

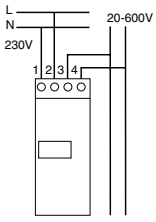
FRE

Minimum value measured:	20Hz
Maximum value measured:	100Hz
Full scale display:	99.9Hz

Type	Scale	Connection with CT	Width in 18mm ways	Part number
Amp with direct connection				
	0 - 10A	Direct	2	**15202**
AMP with multirating				
	0 - 5000A	As per rating	2	**15209**
VLT				
	0 - 600V	As per rating	2	**15201**
FRE				
	20 - 100Hz	As per rating	2	**15208**







Kilowatt-hour meters



iEM2000T



iEM2000



iEM2010



iME1zr.

Function

Digital kilowatt-hour meters designed for sub-metering of active energy (rms) consumed by a single-phase or three-phase electric circuit with or without distributed neutral.

iEM2000T
40 A single-phase kilowatt-hour meter without display, with remote transfer of metering impulses (static output).

iEM2000
40 A single-phase kilowatt-hour meter.

iEM2010
40 A single-phase kilowatt-hour meter with remote transfer of metering impulses (static output).

iME1
Single-phase kilowatt-hour meter.

iME1z
Single-phase kilowatt-hour meter with partial meter.

iME1zr
Single-phase kilowatt-hour meter with partial meter and remote transfer of metering impulses (relay output).

Catalogue numbers

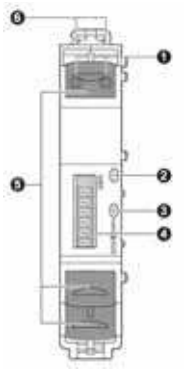
Type	Rating (A)	Voltage (V AC)	Tolerance (V AC)	Width in mod. of 9 mm	Cat. no.
Single-phase circuit (1L + N)					
iEM2000	40	230	±20	2	**A9MEM2000**
iEM2010	40	230	±20	2	**A9MEM2010**
iEM2000T	40	230	±20	2	**A9MEM2000T**
iME1	63	230	±20	4	**A9M17065**
iME1z	63	230	±20	4	**A9M17066**
iME1zr	63	230	±20	4	**A9M17067**

Main technical data

	iEM2000T	iEM2000/iEM2010	iME
Accuracy class	1	1	1
Frequency	48/62 Hz	48/62 Hz	48/62 Hz
Consumption	<10VA	<10VA	2.5 VA
Operating temp	-10°C to +55°C	-10°C to +55°C	-25°C to +55°C
Connection by tunnel terminals	Top terminals: 4 mm^2	Top terminals: 4 mm^2	Top terminals: 6 mm^2
	Bottom terminals: 10 mm^2	Bottom terminals: 10 mm^2	Bottom terminals: 16 mm^2
Compliance with standard	IEC 61557-12 : - PMD/DD/K55/1	IEC 61557-12 : - PMD/DD/K55/1	IEC 61557-12 : - PMD/DD/K55/1
	IEC 62053-21 (accuracy)	IEC 62053-21 (accuracy)	IEC 62053-21 (accuracy)
Sealable screw shield	Yes	Yes	Yes
MID Compliance	No	Yes	No

Kilowatt-hour meters

DB115816



iEM2010

Description

iEM2000, iEM2010, iEM2000T

1 Remote transfer pulse output (iEM2000T, iEM2010).
2 Green power-on indicator light.
3 Yellow metering indicator light (flashing).
4 Display unit (iEM2000, iEM2010).
5 Seal.
6 Allow the comb busbar to pass.

DB118760_i

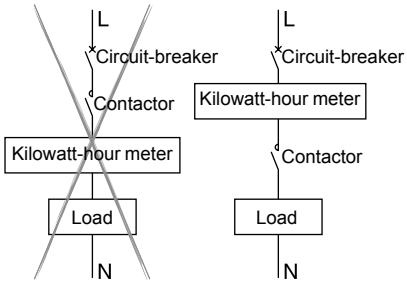


iME1zr.

iME1, iME1z, iME1zr

1 Pulse output for remote transfer (iME1zr).
2 Flashing meter indicator.
3 Total or partial meter display (iME1z, iME1zr).
4 Wiring error indicator.
5 Push-button: total or partial meter display, reset partial meter (ME1z, ME1zr).
6 Sealing connection.

DB118815



Example: meter on a load switching

Installation

- The front panel of the product is IP40 and its housing is IP20.
- Its installation must be appropriate to the operating conditions.
- The protection must not be less than IP65 for outdoor use.

Use with a contactor

A measurement instrument is normally continually supplied.
For a non-continuous supply (load switching), we recommend that you place the breaking device downstream from the measurement instrument to limit disturbances on the module inputs.
These disturbances, particularly on inductive loads, may result in early ageing of the device.
You must also place the measurement instrument at a distance from the breaking device to limit the risk of disturbance.

Kilowatt-hour meters

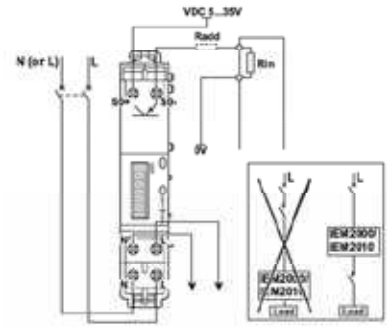
Specific technical data

iEM2000, iEM2010, iEM2000T, iME1, iME1z and iME1zr specific technical data						
	iEM2000	**iEM2010**	**iEM2000T**	**iME1**	**iME1z**	**iME1zr**
Direct measurement	Up to 40 A			Up to 63 A		
Metering and activity indicator light (yellow)	3,200 flashes per kWh			1,000 flashes per kWh		
Wiring error indicator	Yes					
Total meter (max. capacity) on one phase	999 999.9 kWh			999.99 MWh		
Total meter display	In kWh with 7 significant digits (not for iEM2000T)			In kWh or MWh with 5 significant digits. No decimal point in kWh; 2 digits after the decimal point in MWh		
Partial meter (max. capacity) on one phase with RESET	-			-	99.99 MWh	
Partial meter display	-			-	In kWh or MWh with 4 significant digits. No decimal point in kWh; 2 digits after the decimal point in MWh	
Remote transfer	-	By static output: - ELV insulation voltage: 4 kV, 50 Hz - 20 mA/35 V DC max. - 100 impulses of 120 ms per kWh		-	-	By NO impulse contact: - ELV insulation voltage: 4 kV, 50 Hz - 18 mA/24 V DC, 100 mA/230 V AC - 1 impulse of 200 ms (contact closing) per kWh

Connection

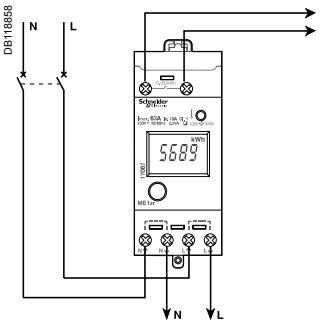
Single-phase circuit

DB118858



iEM2010

DB118858

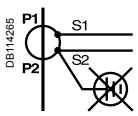


iME1 / iME1z / iME1zr.

Caution

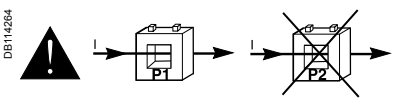
■ Do not earth the CT secondary (S2).

DB114265



■ You must comply with the routing direction of power cables in the current transformer primary. Cables enter in "P1" and leave in "P2" to the loads.

DB114264



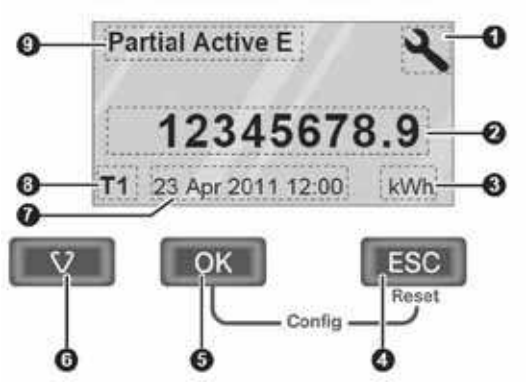
Energy Meter Series iEM3000 Functions and characteristics



Energy Meter Series iEM3100



Energy Meter Series iEM3255



Front of meter parts
1 Configuration mode
2 Values and parameters
3 Unit
4 Cancellation
5 Confirmation
6 Selection
7 Date and time
8 Tariff currently used (iEM3255)
9 Functions/Measurements

The PowerLogic Energy meter Series iEM3000 offers a cost-attractive, competitive range of DIN rail-mounted energy meters ideal for sub-billing and cost allocation applications.

Combined with communication systems, like Smart Link, the iEM3000 series make it easy to integrate electrical distribution measurements into customer's facility management systems. It's the right energy meter at the right price for the right job.

Two versions are available: 63A direct measure (iEM3100) and current transformers associated meter (iEM3200). For each range five versions are available to satisfy from basic to advanced applications:
- iEM3100/iEM3200: kWh meter with partial counter
- iEM3110/iEM3210: kWh meter with partial counter and pulse output. MID certified.
- iEM3115/iEM3215: a multi-tariff meter controlled by digital input or internal clock, MID certified.
- iEM3150/iEM3250: kWh meter with partial counter and current, voltage, power measurement. Modbus communication.
- iEM3155/iEM3255: energy meter, four quadrant, multi-tariffs with partial counter and current, voltage, power measurement. Modbus communication, digital input/output and MID certified.

- Innovative design makes the meters smart and simple:
- Easy to install for panel builders
- Easy to commission for contractors and installers
- Easy to operate for end users

Applications

Cost management applications
- Bill verification
- Sub-billing, including WAGES view
- Cost allocation, including WAGES view

Network management applications
- Basic electrical parameters like current, voltage and power
- Onboard overload alarm to avoid circuit overload and trip
- Easy integration with PLC systems by input/output interface

■ Market segments
- ■ Buildings & Industry
- ■ Data centres and networks
- ■ Infrastructure (airports, road tunnels, telecom)

■ Characteristics
- Self-powered meters
- Chain measurement (meters + CTs) accuracy class 1
- Compliance with IEC 61557-12, IEC 62053-21/22, IEC 62053-23, EN50470-3
- Graphical display for easy viewing
- Easy wiring (without CTs) iEM3100 series
- Double fixation on DIN rail (horizontal or vertical)
- Anti-tamper security features ensure the integrity of your data

Part numbers

Meter model and description	Current measurement	Part no.
iEM3100 basic energy meter	Direct connected 63 A	**A9MEM3100**
iEM3110 energy meter with pulse output	Direct connected 63 A	**A9MEM3110**
iEM3115 multi-tariff energy meter	Direct connected 63 A	**A9MEM3115**
iEM3150 energy meter & electrical parameter plus RS485 comm port	Direct connected 63 A	**A9MEM3150**
iEM3155 advanced multi-tariff energy meter & electrical parameter plus RS485 comm port	Direct connected 63 A	**A9MEM3155**
iEM3200 basic energy meter	Transformer connected 6 A	**A9MEM3200**
iEM3210 energy meter with pulse output	Transformer connected 6 A	**A9MEM3210**
iEM3215 multi-tariff energy meter	Transformer connected 6 A	**A9MEM3215**
iEM3250 energy meter & electrical parameter plus RS485 comm port	Transformer connected 6 A	**A9MEM3250**
iEM3255 advanced multi-tariff energy meter & electrical parameter plus RS485 comm port	Transformer connected 6 A	**A9MEM3255**

Energy Meter Series iEM3000
Functions and characteristics

Function guide	iEM3100	iEM3110	iEM3115	iEM3150	iEM3155	iEM3200	iEM3210	iEM3215	iEM3250	iEM3255
Direct measurement (up to 63 A)	■	■	■	■	■					
CTs inputs (1 A, 5A)						■	■	■	■	■
VTs inputs									■	■
Active energy measurements	■	■	■	■	■	■	■	■	■	■
Four quadrant energy measurements					■					■
Electrical measurements (I, V, P, etc.)				■	■				■	■
Multi-tariff (internal clock)			4		4			4		4
Multi-tariff (external control)			4		2			4		2
Measurement display	■	■	■	■	■	■	■	■	■	■
Programmable inputs					1					1
Programmable digital outputs					1					1
Pulse output		■					■			
kW overload alarm					■					■
Modbus RS485				■	■				■	■
MID (legal metrology certification)		■	■		■		■	■		■
Width (18 mm module in DIN Rail mounting)	5	5	5	5	5	5	5	5	5	5



Direct connected up to 63 A

Connectivity advantages	
Programmable digital input	External tariff control signal (4 tariffs) Remote Reset partial counter External status, e.g. breaker status Collect WAGES pulses
Programmable digital output	kWh overload alarm (i EM3155/iEM5255) kWh pulses
Graphic LCD display	Scroll energies Current, voltage, power, frequency, power factor
Communication	Modbus RS485 with plug-in screw terminals allows connection to a daisy chain
Standards	
IEC standardsntegrated display	IEC 61557-12, IEC 61036, IEC 61010, IEC 62053-21/22 Class 1 and Class 0.5S, IEC 62053-23
MID	EN 50470-1/3



CTs connected (1 A / 5 A)

Multi-tariff capability
The iEM3000 range allows arrangement of kWh consumption in four different registers. This can be controlled by:
- Digital Inputs. Signal can be provided by PLC or utilities
- Internal clock programmable by HMI
- Through communication

This function allows users to:
- Make tenant metering for dual source applications to differentiate backup source or utility source
- Understand well the consumption during working time and non working time, and between working days and weekends
- Follow up feeders consumption in line with utility tariff rates

Energy Meter Series iEM3000
Functions and characteristics

Specification guide	iEM3100 Range				
	iEM3100	iEM3110	iEM3115	iEM3150	iEM3155
Current (max.) Direct connected	63 A				
Meter constant LED	500/kWh				
Pulse output		Up to 1000p/kWh			Up to 1000p/kWh
Multi-tariff			4 tariffs		4 tariffs
Communication				Modbus via RS485	Modbus via RS485
DI/DO		0/1	2/0		1/1
MID (EN50470-3)		■	■		■
Network	1P+N, 3P, 3P+N				
Accuracy class	Class 1 (IEC 62053-21 and IEC61557-12) Class B (EN50470-3)				
Wiring capacity	16 mm²				
Display max.	LCD 99999999.9kWh				
Voltage (L-L)	3 x 100/173 Vac to 3 x 277/480 Vac (50/60 Hz)				
IP protection	IP40 front panel and IP20 casing				
Temperature	-25°C to 55°C (K55)				
Product size	10 steps of 9mm				
Overvoltage and measurement	Category III, Degree of pollution 2				
kWh	■	■	■	■	■
kVARh					■
Active power				■	■
Reactive power					■
Currents and voltages				■	■
Overload alarm					■
Hour counter					■

Specification guide	iEM3200 Range				
	iEM3200	iEM3210	iEM3215	iEM3250	iEM3255
1 A / 5 A CTs (max current)	6 A				
Meter constant LED	5000/kWh				
Pulse output frequency		Up to 100p/kWh			Up to 100p/kWh
Multi-tariff			4 tariffs		4 tariffs
Communication				Modbus via RS485	Modbus via RS485
DI/DO		0/1	2/0		1/1
MID (EN50470-3)		■	■		■
Network	1P+N, 3P, 3P+N support CTs			1P+N, 3P, 3P+N support CTs & VTs	
Accuracy class	Class 0.5S (IEC 62053-22 and IEC61557-12) Class C (EN50470-3)(1)				
Wiring capacity	6 mm² for currents and 4 mm² for voltages				
Display max.	LCD 99999999.9kWh or 99999999.9MWh				
Voltage (L-L)	3 x 100/173 Vac to 3 x 277/480 Vac (50/60 Hz)				
IP protection	IP40 front panel and IP20 casing				
Temperature	-25°C to 55°C (K55)				
Product size	10 steps of 9mm				
Overvoltage & measurement	Category III, Degree of pollution 2				
kWh	■	■	■	■	■
kVARh					■
Active power				■	■
Reactive power					■
Currents and voltages				■	■
Overload alarm					■
Hour counter					■
(1) For 1 A CTs Class 1 (IEC6253-21 and IEC61557-12 Class B (EN50470-3)					

Power Meter Series PM3200
Functions and characteristics

PB108433

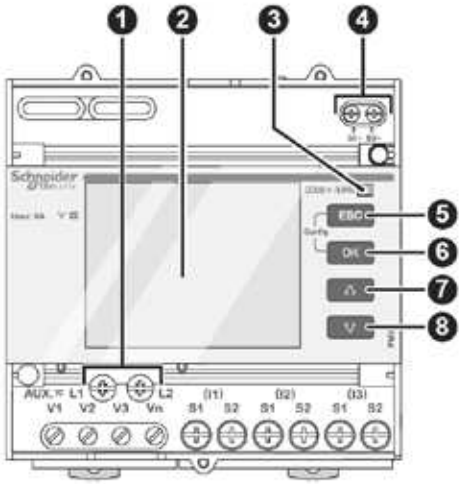


Power Meter Series PM3200

PB108435



Power Meter Series PM3255



Front of meter parts
1 Control power
2 Display with white backlit
3 Flashing yellow meter indicator (to check accuracy)
4 Pulse output for remote transfer (PM3210)
5 ESC Cancellation
6 OK Confirmation
7 Up
8 Down

This PowerLogic Power meter offers basic to advanced measurement capabilities. With compact size and DIN rail mounting, the PM3200 allows mains and feeders monitoring in small electrical cabinets. Combined with current transformers and voltage transformers, these meters can monitor 2-, 3- and 4-wire systems. The graphic display has intuitive navigation to easily access important parameters.

Four versions are available offering basic to advanced applications:
- PM3200
  - Electrical parameters I, In, U, V, PQS, E, PF, Hz
  - Power/current demand
  - Min/max.
- PM3210
  - Electrical parameters I, In, U, V, PQS, E, PF, Hz, THD
  - Power/current demand, peak demand
  - Min/max.
  - 5 timestamped alarms
  - kWh pulse output
- PM3250
  - Electrical parameters I, In, U, V, PQS, E, PF, Hz, THD
  - Power/current demand, peak demand
  - Min/max.
  - 5 timestamped alarms
  - LED to indicate communications
  - RS485 port for Modbus communication
- PM3255
  - Electrical parameters I, In, U, V, PQS, E, PF, Hz, THD
  - Power/current demand and peak demand
  - Min/max. and 15 timestamped alarms
  - LED to indicate communications
  - Up to 4 tariffs management
  - 2 digital inputs, 2 digital outputs
  - Memory for load profile (demand 10mn to 60mn)
  - RS485 port for Modbus communication

- Innovative design makes the meters smart and simple:
- Easy to install for panel builders
- Easy to commission for contractors and installers
- Easy to operate for end users

Applications

Cost management applications
- Bill checking
- Sub-billing, including WAGES view
- Cost allocation, including WAGES view

Network management applications
- Panel instrumentation
- Up to 15 onboard timestamped alarms to monitor events
- Easy integration with PLC system by input/output interface

Market segments
- Buildings
- Industry
- Data centres and networks

Meter model and description	Performance	Part no.
PM3200 basic power meter	Basic power meter	**METSEPM3200**
PM3210 power meter with pulse output	Power, current, THD, peak demand	**METSEPM3210**
PM3250 power meter with RS485 port	Power, current, THD, peak demand	**METSEPM3250**
PM3255 power meter plus 2 digital inputs, 2 digital outputs with RS485 port	Power, current, THD, peak demand, memory for load profile	**METSEPM3255**

Power Meter Series PM3200
Functions and characteristics

Function guide		PM3200 Range			
		PM3200	PM3210	PM3250	PM3255
Performance standard					
IEC61557-12 PMD/Sx/K55/0.5		■	■	■	■
General					
Use on LV and HV systems		■	■	■	■
Number of samples per cycle		32	32	32	32
CT input 1A/5A		■	■	■	■
VT input		■	■	■	■
Multi-tariff		4	4	4	4
Multi-lingual backlit display		■	■	■	■
Instantaneous rms values					
Current, voltage	Per phase and average	■	■	■	■
Active, reactive, apparent power	Total and per phase	■	■	■	■
Power factor	Total and per phase	■	■	■	■
Energy values					
Active, reactive and apparent energy; import and export		■	■	■	■
Demand value					
Current, power (active, reactive, apparent) demand; present		■	■	■	■
Current, power (active, reactive, apparent) demand; peak			■	■	■
Power quality measurements					
THD Current and voltage			■	■	■
Data recording					
Min/max of the instantaneous values		■	■	■	■
Power demand logs					■
Energy consumption log (day, week, month)					■
Alarms with time stamping			5	5	15
Digital inputs/digital outputs			0/1		2/2
Communication					
RS-485 port				■	■
Modbus protocol				■	■



Power Meter Series PM3210

Connectivity advantages	
Programmable digital input	External tariff control signal (4 tariffs) Remote Reset partial counter External status like breaker status Collect WAGES pulses
Programmable digital output	Alarm (PM3255) kWh pulses
Graphic LCD display	Backlit graphic display allows smart navigation in relevant information and in multi languages
Communication	Modbus RS485 with screw terminals allows connection to a daisy chain

Power Meter Series PM3200
Functions and characteristics

Specifications	PM3200 Range
Type of measurement	True rms up to the 15th harmonic on three-phase (3P,3P+N) and single-phase AC systems. 32 samples per cycle
Measurement accuracy	
Current with x/5A CTs	0.3% from 0.5A to 6A
Current with x/1A CTs	0.5% from 0.1A to 1.2A
Voltage	0.3% from 50V to 330V (Ph-N), from 80V to 570V (Ph-Ph)
Power factor	±0.005 from 0.5A to 6A with x/5A CTs; from 0.1A to 1.2A with x/1A CTs and from 0.5L to 0.8C
Active/Apparent Power with x/5A CTs	Class 0.5
Active/Apparent Power with x/1A CTs	Class 1
Reactive power	Class 2
Frequency	0.05% from 45 to 65Hz
Active energy with x/5A CTs	IEC62053-22 Class 0.5s
Active energy with x/1A CTs	IEC62053-21 Class 1
Reactive energy	IEC62053-23 Class 2
Data update rate	
Update rate	1s
Input-voltage characteristics	
Measured voltage	50V to 330V AC (direct / VT secondary Ph-N) 80V to 570V AC (direct / VT secondary Ph-Ph) up to 1MV AC (with external VT)
Frequency range	45Hz to 65Hz
Input-current characteristics	
CT primary	Adjustable from 1A to 32767A
CT secondary	1A or 5A
Measurement input range with x/5A CTs	0.05A to 6A
Measurement input range with x/1A CTs	0.02A to 1.2A
Permissible overload	10A continuous, 20A for 10s/hour
Control Power	
AC	100/173 to 277/480V AC (+/-20%), 3W/5VA; 45Hz to 65Hz
DC	100 to 300V DC, 3W
Input	
Digital inputs (PM3255)	11 to 40V DC, 24V DC nominal, <=4mA maximum burden, 3.5kVrms insulation
Output	
Digital output (PM3210)	Optocoupler, polarity sensitive, 5 to 30V, 15mA max, 3.5kVrms insulation
Digital outputs (PM3255)	Solid state relay, polarity insensitive, 5 to 40V, 50mA max, 50Ω max, 3.5kVrms insulation

Power Meter Series PM3200
Functions and characteristics

Specifications (continued)	PM3200 Range
Mechanical characteristics	
Weight	0.26kg
IP degree of protection (IEC60529)	IP40 front panel, IP20 meter body
Dimension	90 x 95 x 70mm
Environmental conditions	
Operating temperature	-25 °C to +55 °C
Storage temperature	-40 °C to +85 °C
Humidity rating	5 to 95% RH at 50°C (non-condensing)
Pullution degree	2
Metering category	III, for distribution systems up to 277/480VAC
Dielectric withstand	As per IEC61010-1, Doubled insulated front panel display
Altitude	3000m max
Electromagnetic compatibility	
Electrostatic discharge	Level IV (IEC61000-4-2)
Immunity to radiated fields	Level III (IEC61000-4-3)
Immunity to fast transients	Level IV (IEC61000-4-4)
Immunity to surge	Level IV (IEC61000-4-5)
Conducted immunity	Level III (IEC61000-4-6)
Immunity to power frequency magnetic fields	0.5mT (IEC61000-4-8)
Conducted and radiated emissions	Class B (EN55022)
Safety	
	CE as per IEC61010-1 (1)
Communication	
RS485 port	Half duplex, from 9600 up to 38400 bauds, Modbus RTU (double insulation)
Display characteristics	
Dimensions (VA)	43mm x 34.6mm
Display resolution	128 x 96 dots
Standard compliance	
	IEC61557-12, EN61557-12 IEC61010-1, UL61010-1 IEC62052-11, IEC62053-21, IEC62053-22, IEC62053-23 EN50470-1, EN50470-3

(1) Protected throughout by double insulation

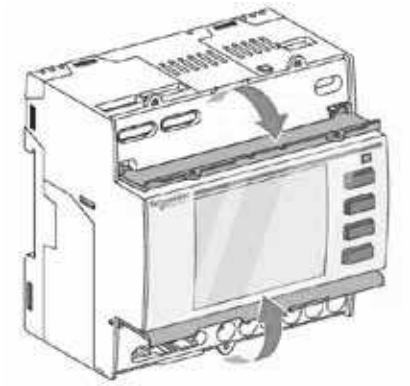


Power Meter Series PM3250

Multi-tariff capability
The PM3200 range allows arrangement of kWh consumption in four different registers. This can be controlled by:
- Digital Inputs. Signal can be provided by PLC or utilities
- Internal clock programmable by HMI
- Through communication

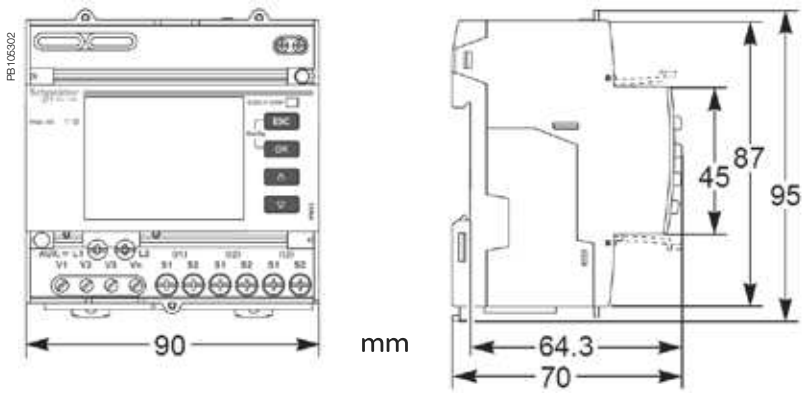
This function allows users to:
- Make tenant metering for dual source applications to differentiate backup source or utility source
- Understand well the consumption during working time and non working time, and between working days and weekends
- Follow up feeders consumption in line with utility tariff rates

Power Meter Series PM3200
Installation and connection

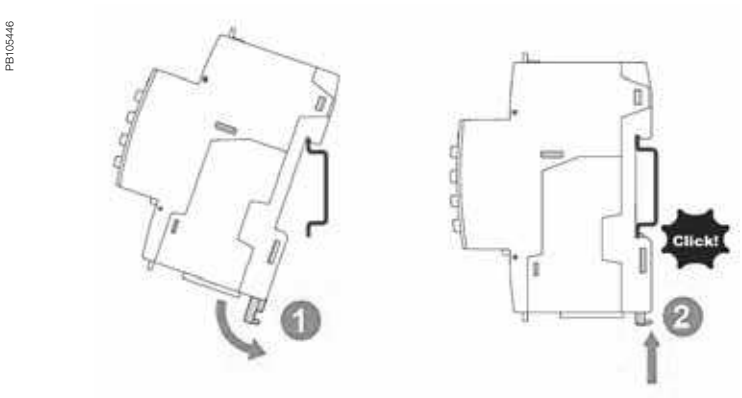


PM3200 top and lower flaps

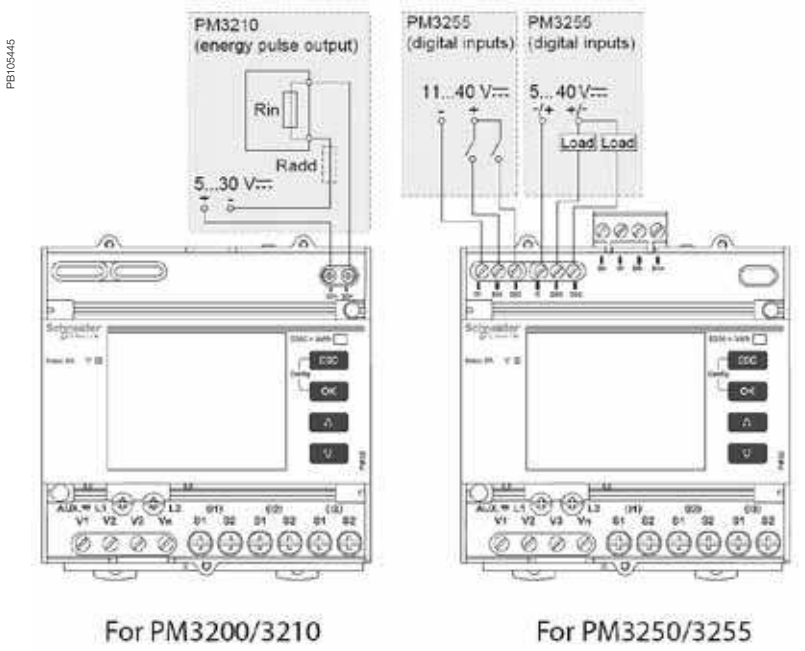
PM3200 series dimensions



PM3200 series easy installation



Digital Output and Digital Input sample wiring diagrams



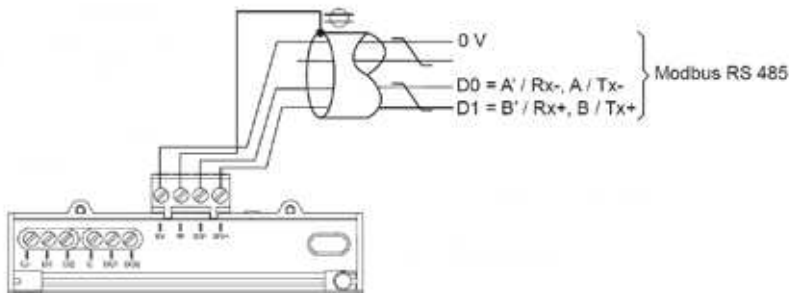
***Note**: These are sample wiring diagrams only. For further information please see the Instruction Sheet and User Guide documents for these products.*

Power Meter Series PM3200
Installation and connection (cont.)

***Note**: These are sample wiring diagrams only. For further information please see the Instruction Sheet and User Guide documents for these products.*

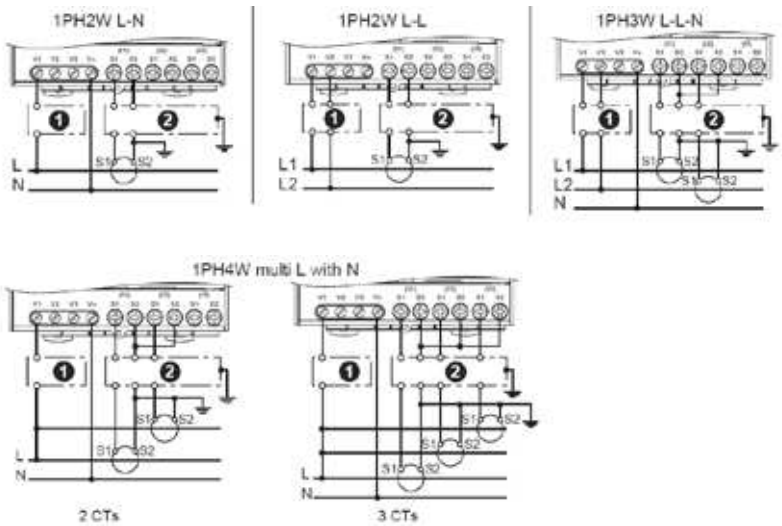
Modbus communications wiring diagram

PB108448



PM32xx series sample wiring diagrams - 1 phase

PB105325



❶ Protection (to be adapted to suit the short-circuit current at the connection point)

❷ Shorting switch unit

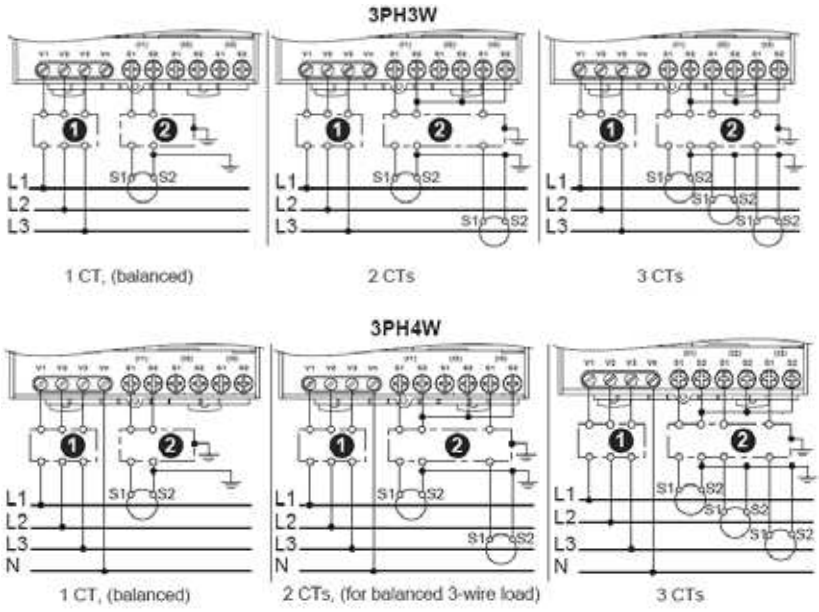
***Note**: These are sample wiring diagrams only. For further information please see the Instruction Sheet and User Guide documents for these products.*

Power Meter Series PM3200
Installation and connection (cont.)

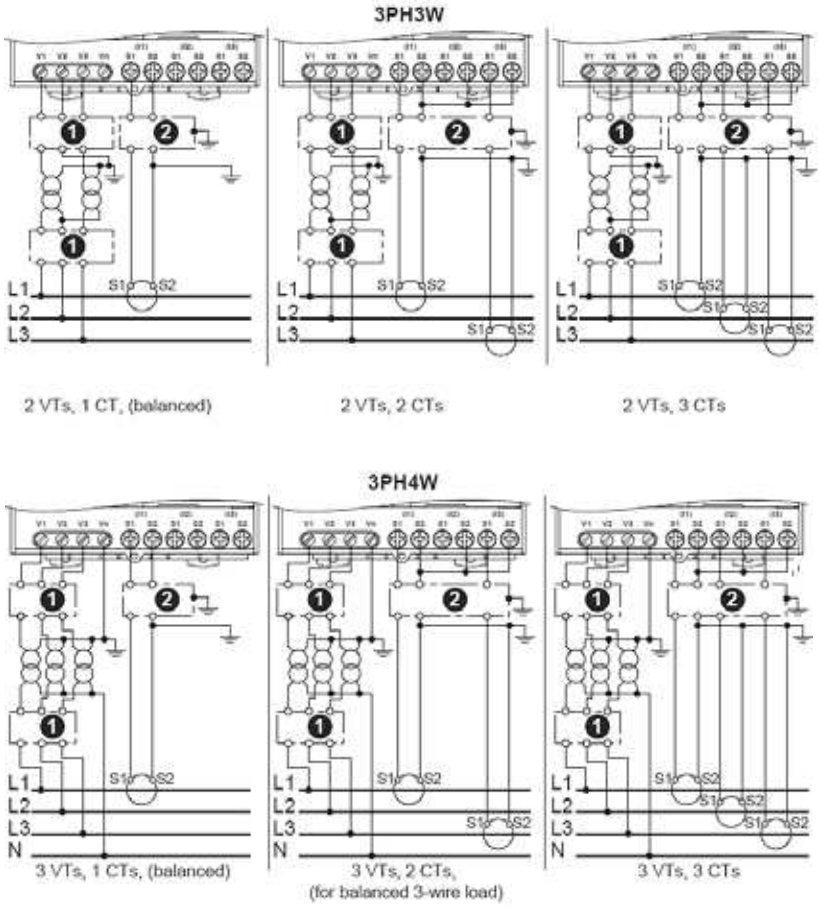
1. Protection (to be adapted to suit the short-circuit current at the connection point)
2. Shorting switch unit

***Note**: These are sample diagrams only. For further information please see the Instruction Sheet and User Guide documents for these products.*

PM32xx Series sample wiring diagrams - 3 phase without VTs



PM32xx Series sample wiring diagrams - 3 phase with VTs



CT current transformers



16453.



16462.



16542.



16453 + 16550.



Sealable cover.

Function

The Ip/5A ratio current transformers deliver at the secondary a current of 0 to 5 A that is proportional to the current measured at the primary. They are available in two major families:

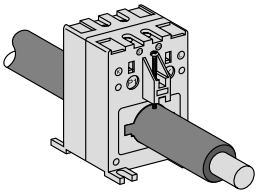
- Cable current transformers
- Bar current transformers.

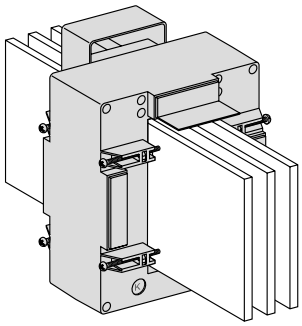
This allows them to be used in combination with measurement instruments: ammeters, kilowatt-hour meters, measurement units, control relays, etc.

Common technical data

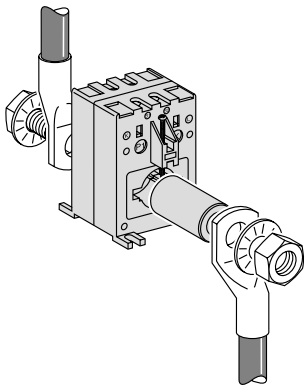
- Secondary current: 5 A
- Max. voltage rating Ue: 720 V
- Frequency: 50/60 Hz
- Safety factor (sf):
  - 40 to 4,000 A : sf ⩽ 5
  - 5,000 to 6,000 A : sf ⩽ 10.
- Degree of protection: IP20
- Operating temperature: tropicalised range, -25 °C to +60 °C, relative humidity > 95 %
- Compliance with standards: IEC 60044-1 and VDE 0414
- Secondary connection (as per model):
  - By terminals for lug
  - By tunnel terminals
  - By screws

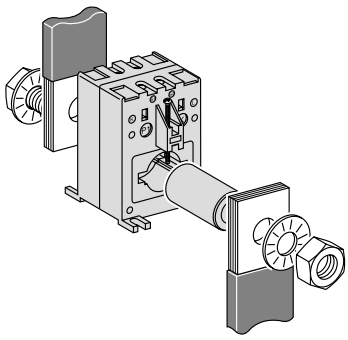
Connection





CT with let-through primary.





CT with primary connection by screw and nut.
Use of cylinder 16550 or 16551.

The three references 16482, 16483 and 16534 have a double connection output at the secondary: twice S1 and twice S2. The terminals are in parallel, as there is only one secondary winding.
The unused secondary outputs must not be connected.

CT current transformers

Part numbers

Rating Ip/5 A	Power (VA) Accuracy class: 0.5	1	3	Insulated cable: maximum diameter [1] (mm)	maximum cross-section [1] (mm^2)	Dimension opening for bars	Weight (g)	Part numbers Tropicalised CT	Cylinder [2]	Sealable cover
40 A	-	-	1	21	120	-	200	**16500**	**16550** [3]	built-in
50 A	-	1.25	1.5	21	120	-	200	**16451**	**16550**	built-in
75 A	-	1.5	2.5	21	120	-	200	**16452**	**16550**	built-in
100 A	2	2.5	3.5	21	120	-	200	**16453**	**16550**	built-in
125 A	2.5	3.5	4	21	120	-	200	**16454**	**16550**	built-in
150 A	3	4	5	21	120	-	200	**16455**	**16550**	built-in
	1.5	5.5	6.5	22	150	30 x 10	270	**16459**	**16551** [4]	**16552**
200 A	4	5.5	6	21	120	-	200	**16456**	**16550**	built-in
	4	7	8.5	22	150	30 x 10	270	**16460**	**16551**	**16552**
	-	2	5	-	-	65 x 32	600	**16476**	**-**	built-in
250 A	6	9	11	22	150	30 x 10	270	**16461**	**16551**	**16552**
	2.5	5	8	35	240	40 x 10	430	**16468**	**-**	**16553**
	1	4	6	-	-	65 x 32	600	**16477**	**-**	built-in
300 A	7.5	11	13.5	22	150	30 x 10	270	**16462**	**16551**	**16552**
	4	8	12	35	240	40 x 10	430	**16469**	**-**	**16553**
	1.5	6	7	-	-	65 x 32	600	**16478**	**-**	built-in
400 A	10.5	15	18	22	150	30 x 10	270	**16463**	**16551**	**16552**
	8	12	15	35	240	40 x 10	430	**16470**	**-**	**16553**
	4	8	10	-	-	65 x 32	600	**16479**	**-**	built-in
500 A	12	18	22	22	150	30 x 10	270	**16464**	**16551**	**16552**
	10	12	15	35	240	40 x 10	430	**16471**	**-**	**16553**
	2	4	6	-	-	64 x 11 51 x 31	500	**16473**	**-**	built-in
	8	10	12	-	-	65 x 32	600	**16480**	**-**	built-in
600 A	14.5	21.5	26	22	150	30 x 10	270	**16465**	**16551**	**16552**
	4	6	8	-	-	64 x 11 51 x 31	500	**16474**	**-**	built-in
	8	12	15	-	-	65 x 32	600	**16481**	**-**	built-in
800 A	12	15	20	-	-	65 x 32	600	**16482**	**-**	built-in
1000 A	15	20	25	-	-	65 x 32	600	**16483**	**-**	built-in
1250 A	15	20	25	-	-	65 x 32	600	**16534**	**-**	built-in
	12	15	20	-	-	84 x 34	700	**16537**	**-**	built-in
	8	12	-	-	-	127 x 38	1500	**16540**	**-**	built-in
1500 A	20	25	30	-	-	65 x 32	600	**16535**	**-**	built-in
	15	20	25	-	-	84 x 34	700	**16538**	**-**	built-in
	10	15	-	-	-	127 x 38	1000	**16541**	**-**	built-in
2000 A	15	20	-	-	-	127 x 38	1000	**16542**	**-**	built-in
2500 A	20	25	-	-	-	127 x 38	1000	**16543**	**-**	built-in
	30	50	60	-	-	127 x 52	1300	**16545**	**-**	built-in
3000 A	25	30	-	-	-	127 x 38	1000	**16544**	**-**	built-in
	40	60	60	-	-	127 x 52	1300	**16546**	**-**	built-in
4000 A	50	60	60	-	-	127 x 52	1300	**16547**	**-**	built-in
5000 A	60	120	-	-	-	165 x 55	5000	**16548**	**-**	built-in
6000 A	70	120	-	-	-	165 x 55	5000	**16549**	**-**	built-in

(1) Cable(s) that can be routed through the CT
(2) For CT with primary connection by screw and nut.
(3) Cylinder with inner dia. 8.5 mm, L = 32 mm
(4) Cylinder with inner dia. 12.5 mm, L = 62 mm

Fastening mode

CT Part number	Adapter for DIN rail	Mounting plate	Insulated locking screw
16451...16456	■	■	-
16459...16471	■	■	■
16473 and 16474	-	■	■
16476...16483	-	-	■
16500	■	■	-
16534...16549	-	-	■

CH/CI counters





Application

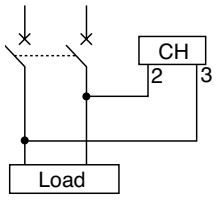
The CH counters measure the total operating time of any load. The CI counters count 230Vac pulses from devices such as utility meters or people counters.

Specific technical data

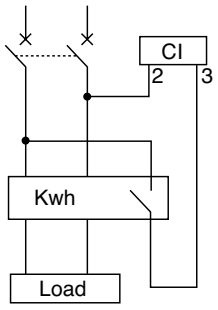
CH	
Electromechanical display	
Maximum display:	99999.99 hours
Display accuracy:	0.01%
Without reset	
Storage temperature:	-25°C to +85°C
Connection:	Tunnel terminals for 2.5mm² cable
Consumption:	0.15VA
Operating temperature:	-10°C to +70°C
Mounting on symmetrical rail	

CI	
Supply and metering voltage:	230Vac, 50/60 Hz
Consumption:	0.15VA
Maximum display:	9 999 999 impulses
Without reset	
Metering data	Minimum impulse time: 50ms
	Minimum time between 2 impulses: 50ms
Storage temperature:	-25°C to +85°C
Operating temperature:	-10°C to +70°C
Connection:	Tunnel terminals for 2.5mm² cable

Type	Control voltage	Width in 18mm ways	Part number
CH	230Vac	2	**15440**
CI	230Vac	2	**15443**



CH



CI

Notes

Notes

Notes

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