EX-CONTROL AND DISTRIBUTION SYSTEMS

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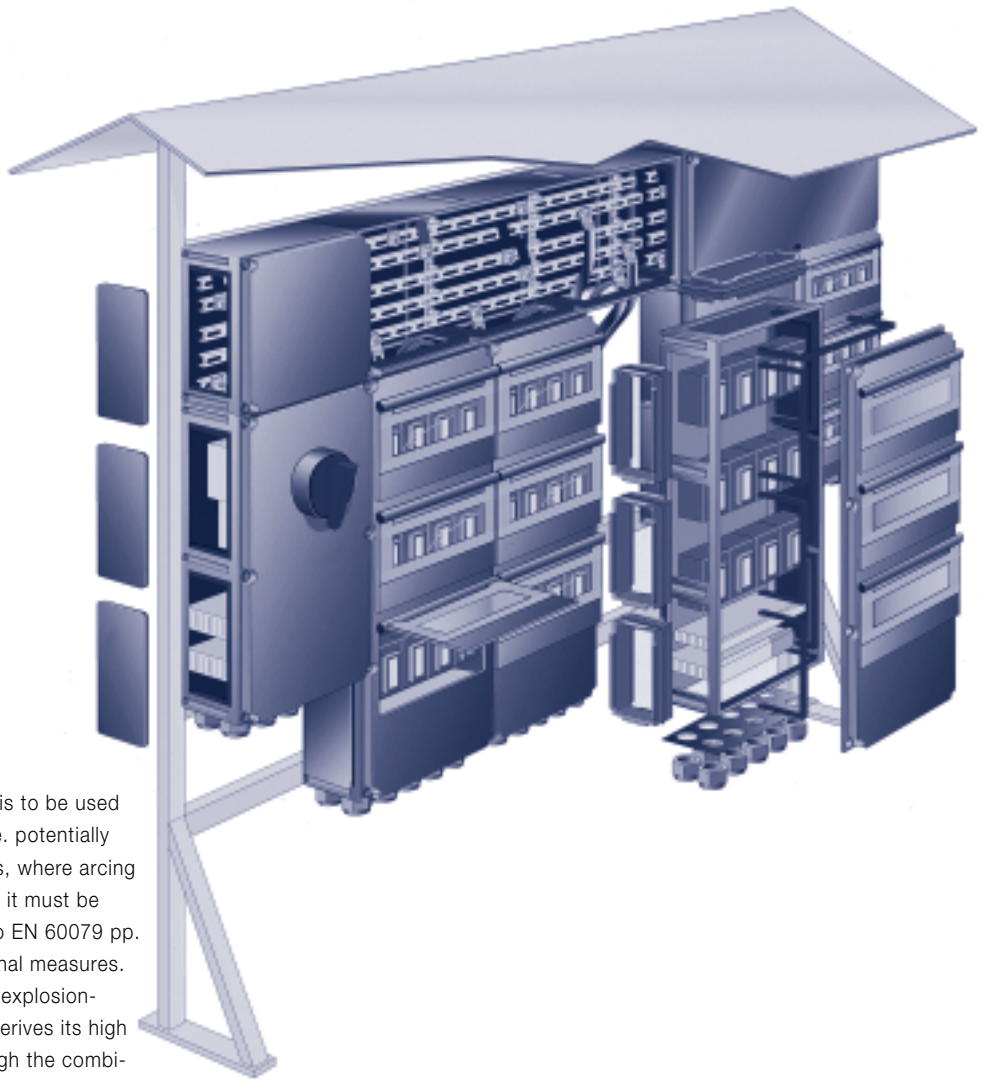
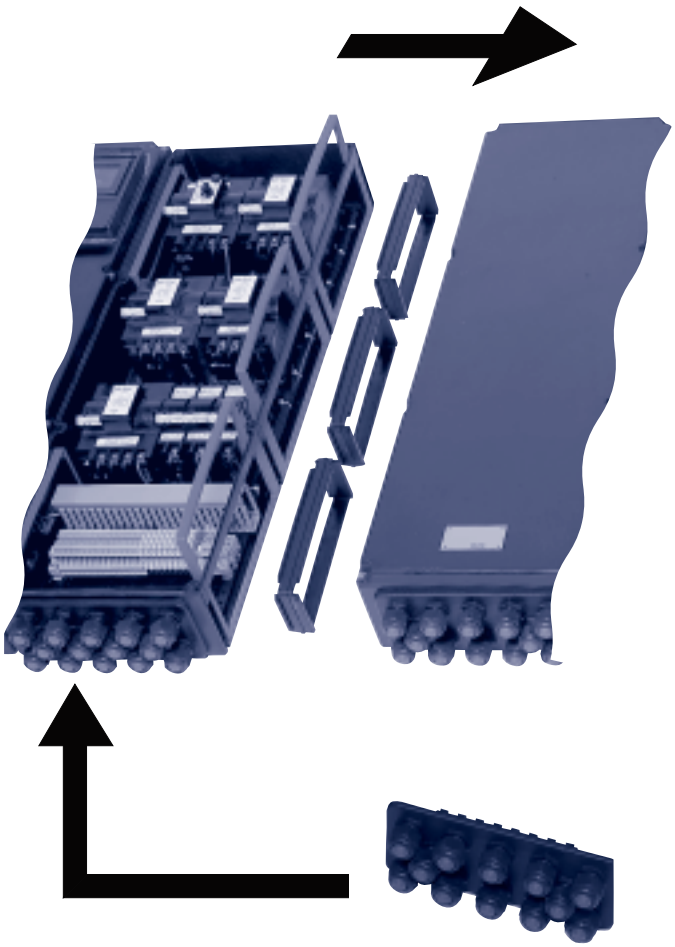


Distributions

If electrical apparatus is to be used in hazardous areas, i.e. potentially explosive atmospheres, where arcing or sparking can occur, it must be protected according to EN 60079 pp. by special constructional measures. Cooper Crouse-Hinds explosion-protected apparatus derives its high degree of safety through the combination of various types of protection. Thus, flameproof encapsulated devices (Ex-d), for instance, are also integrated in enclosures of the "Increased Safety" type (Ex-e). As these components are of modular design, they can be combined according to customers' requirements. The modules are inserted by simple snap-on rail mounting. Electrical apparatus with metal enclosures may be used in type "flameproof enclosure" (EE-d) without any volume limit. Up to three high-capacity apparatus with non-metal enclosures may take up an enclosure volume of up to 2000 cm^3. However, the heat generated in the enclosure must be dissipated, so that the temperature on the external surface of the enclosure does not exceed the limit set by the respective temperature class.

Product Range

The extensive Cooper Crouse-Hinds product range offers everything you're looking for – just in time: no matter whether you need a flameproof encapsulated component, an encapsulation of the components in a flameproof enclosure – or a combination of both. Whatever material you care for, CEAG has it: Distributions are available in the most diverse materials, such as glass-fibre reinforced polyester, electro-polished stainless steel or die-cast light alloy in explosion group IIB and IIC or alternatively polyester powder-coated steel. The explosion-protected CEAG distributions are certified for hazardous areas of Zones 1 and 2. We also have the right solution for Zones 21 and 22 for you.

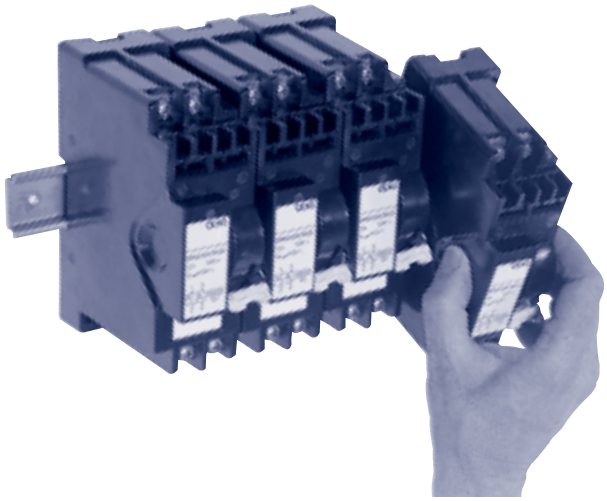


Snappy snap-on

The Cooper Crouse-Hinds GmbH gives you explosion protection in a snap – even with distributions. The enclosures and the main switches are of modular design in standardised sizes and can thus be combined as desired using the reliable flange snap-on mounting technique. Cable entries of all kinds can be mounted individually on the screwless plastic or brass flanges. And since these flanges can be inserted in a snap, cable entries can be easily mounted at any time. The same applies to other extensions or modifications. The snap-on technique gives you greater flexibility and cost-effectiveness for installations in hazardous areas.

Modular design

The modular distribution design makes modifications and extensions a snap: Remove the flange, insert the new enclosure, connect the apparatus, done! Moreover, you can do this as often as your system demands. The only limitation is space.



Rational component replacement

Components which can be quickly and reliably removed and inserted with the snap-on technique provide you with a rational method of replacing components for servicing as well as a simple and easy means of system extension.

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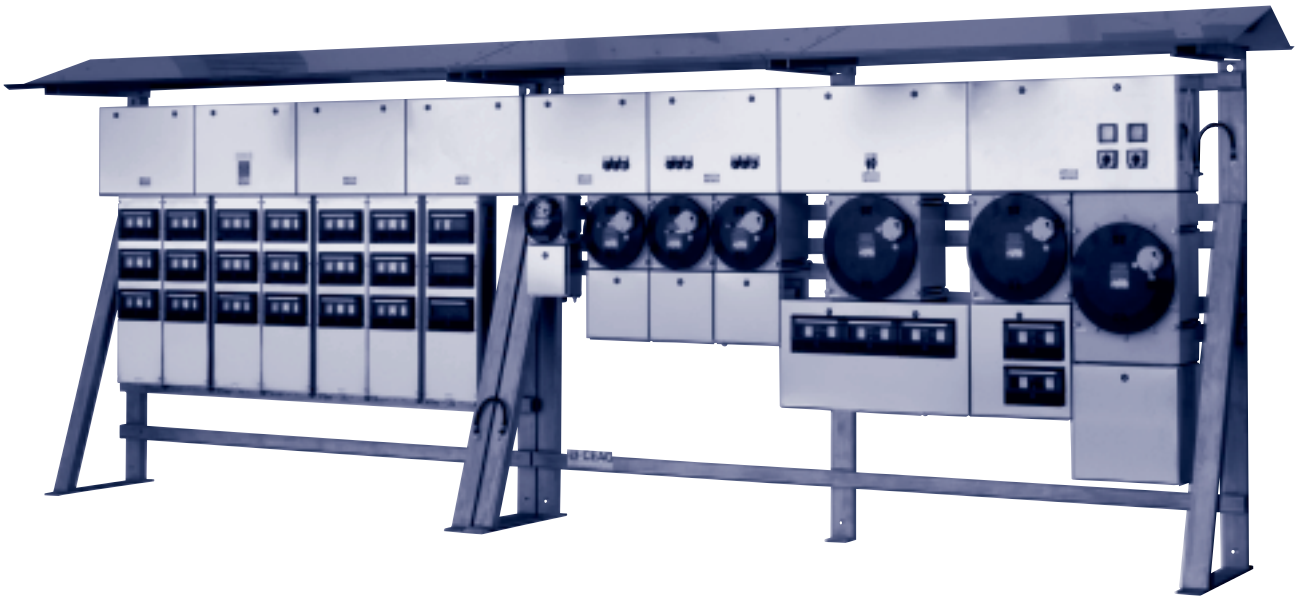
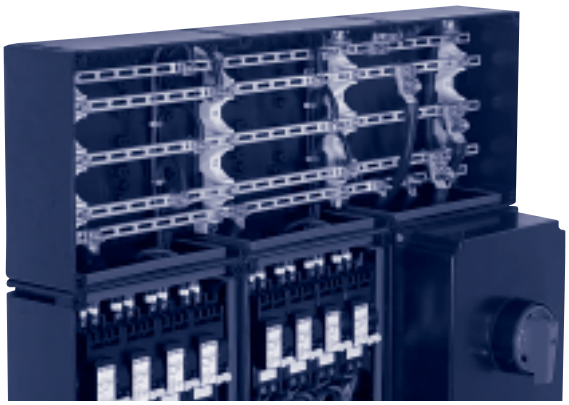


Frameworks

Modular CEAG enclosures of different series can be combined into large distribution systems on standardised wall-mounting or free-standing frameworks. The frameworks come in standardised sizes to accommodate the enclosure modules and can be extended as required. For outdoor installations, we recommend canopies to protect the distribution system from the sun and rain. Smaller distributions are mounted on flat or U-rails. All enclosures are made of galvanised steel or – as an option – stainless steel.

Bus bars

Inexpensive installations: Using the CEAG bus-bar system, a number of circuits can be simply and quickly connected for high cost-effectiveness. If required, individually encapsulated control and indicating units, such as pushbuttons, control switches or measuring instruments, can also be connected to the bus bars.



Worldwide approvals

We have years of experience with explosion- protection approvals worldwide and we carefully monitor the latest trends and developments. For our customers, this means not only better consultation, but future-proof products, such as ATEX-compatible systems and components. IECEx-Scheme conform products will be taken for granted.

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Actuating flaps

Via actuating flaps, integrated in the enclosure cover, switches and relays can be actuated without opening the enclosure. The switch positions of the built-in components can be seen from the outside. As an added security measure, the actuating flaps can be locked.

Explosion groups IIB and IIC

CEAG offers a complete product line of Ex-d distributions for gas explosion groups IIB and IIC. All common industrial switchgear that gives off arcs or sparks can be built into flame-proof enclosures. The distributions for explosion group IIC are designed for easy installation via "Increased Safety" type connection boxes. Enclosures in explosion group IIB are interconnected via flameproof cable bushings.

Planning and customized solutions

Regardless of whether you have an idea in mind or functional descriptions and wiring diagrams on paper, talk to our experienced project specialists. Our highly-qualified engineers and master technicians will provide you with expert advice and an offer. If you wish, they will also compile the needed documentation for your project (including a parts list as well as dimension, wiring and terminal diagrams as necessary) – on paper or as data files. You can rely on our flexible production for the assembly of your system. All systems and their components are 100% inspected and tested. You're welcome to perform a final acceptance test – including a complete electrical function test – in our laboratory.

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E X - D I S T R I B U T I O N S

Moulded plastic in modular design

Cooper Crouse-Hinds GmbH makes explosion protection a snap – and that also applies to distributions.

Electrical distributions for Ex-areas must be protected according to EN 60079 pp by constructional measures. Thus, the Cooper Crouse- Hinds GmbH flameproof moulded-plastic distributions provide type Ex-e protection.

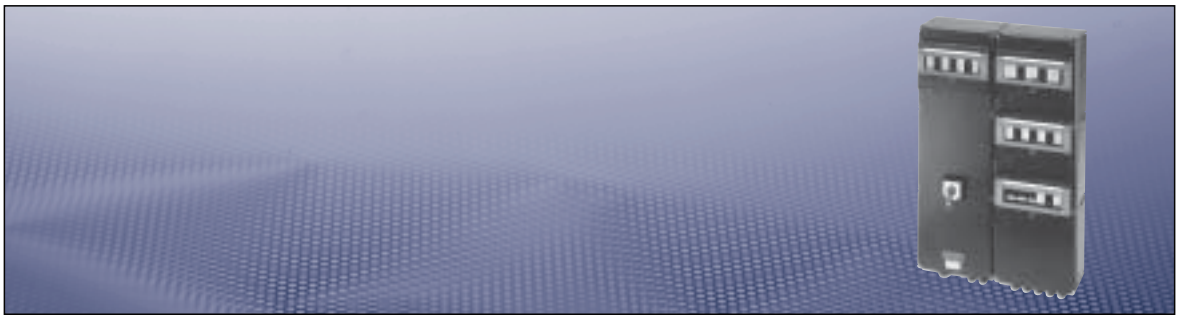
The enclosure and main-switch modules are available in the following materials: fibreglass reinforced polyester, electro-polished stainless steel and polyester powder-coated steel. Moulded plastic enclosures are flame-retardant according to UL 94 VO. All modules come in standardised sizes and can be interconnected as desired.

Cable entries of all kinds can be mounted individually on the screwless plastic or brass flanges. Since these flanges can be inserted in a snap, cable entries can be easily mounted at any time. The same applies to other extensions or modifications.

A bus-bar system can be used to provide power to the individual components. The flameproof encapsulated modules (Ex-d) can be combined according to customers' specifications. Five enclosure sizes provide enough space for whatever modules are required: MCBs, RCDs, contactors, motor starters, over current trips, star-delta time relays or main switches. The modules are inserted in the distribution by simple snap-on rail mounting. Thus, modules can be replaced or added quickly and reliably. Lockable actuating flaps allow operation without opening the enclosure.

Internationally approved.

- **Modular slip-on assembly**
- **High IP66 protection**
- **Snap-on components**
- **Retrofitting**



Technical data

MCB distribution for lighting circuits | heating circuits | socket distributions	
Marking to 94/9/EC	Ex II 2 G EEx de ia/ib m [ia/ib] IIC T4 - T6 / Ex II 2 D IP6X T80 °C
EC Type Examination Certificate	PTB 99 ATEX 1044
Permissible ambient temperature	–20 °C to +40 °C
	–55 °C to +55 °C (option)
IECEx Certificate of Conformity	IECEx BKI 06.0007
Marking accd. to IECEx	Ex de ia/ib m [ia/ib] T4 ... T6
	Ex tD A21 IP66 T80 °C
Rated voltage	440 V
Rated current	180 A
Insulation class	I
Terminal cross-section	up to 240 mm²
Degree of protection acc. to EN 60529	IP65
Weight	see ordering details
Enclosure material	Glass-fibre reinforced polyester
Enclosure colour	black

Ordering details MCB distribution for lighting circuits

Version	Type	MCB 2-pole	Terminal cross-section	Cable glands	Weight approx.	Order No.
40 A	1	8 x 16 A	10 mm²	1 x M40 (17 - 28 mm Ø)		
				8 x M25 (8 - 17 mm Ø)	20 kg	**EXKO 214 600 G 0000**
80 A	2	12 x 16 A	16 mm²	1 x M50 (22 - 35 mm Ø)		
				12 x M25 (8 - 17 mm Ø)	32 kg	**EXKO 214 600 G 0001**
80 A	3	24 x 16 A	16 mm²	1 x M50 (22 - 35 mm Ø)		
				24 x M25 (8 - 17 mm Ø)	56 kg	**EXKO 214 600 G 0002**

Ordering details MCB distribution for heating circuits

Version	Type	MCB with RCD 2-pole	Terminal cross-section	Cable glands	Weight approx.	Order No.
40 A	1	8 x 16 A, 30 mA	10 mm²	1 x M40 (17 - 28 mm Ø)		
				8 x M25 (8 - 17 mm Ø)	20 kg	**EXKO 214 600 G 0003**
80 A	2	12 x 16 A, 30 mA	16 mm²	1 x M50 (22 - 35 mm Ø)		
				12 x M25 (8 - 17 mm Ø)	32 kg	**EXKO 214 600 G 0004**
80 A	3	24 x 16 A, 30 mA	16 mm²	1 x M50 (22 - 35 mm Ø)		
				24 x M25 (8 - 17 mm Ø)	56 kg	**EXKO 214 600 G 0005**

Ordering details MCB distribution for sockets

Version	Type	Socket outlets	Cable glands	Weight approx.	Order No.
2 x 16 A	1	2 x 16 A 3-pole	1 x M40 (17 - 28 mm Ø)	10 kg	**EXKO 233 800 C 0001**
2 x 16 A	2	1 x 16 A 3-pole			
1 x 32 A		1 x 16 A 5-pole			
		1 x 32 A 5-pole	1 x M40	20 kg	**EXKO 233 800 C 0002**
4 x 16 A	3	2 x 16 A 3-pole			
		2 x 16 A 5-pole	1 x M40	25 kg	**EXKO 233 800 C 0003**

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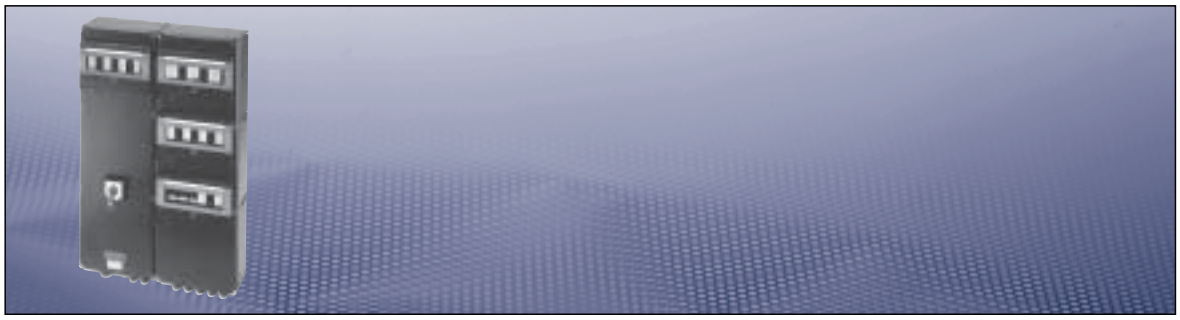
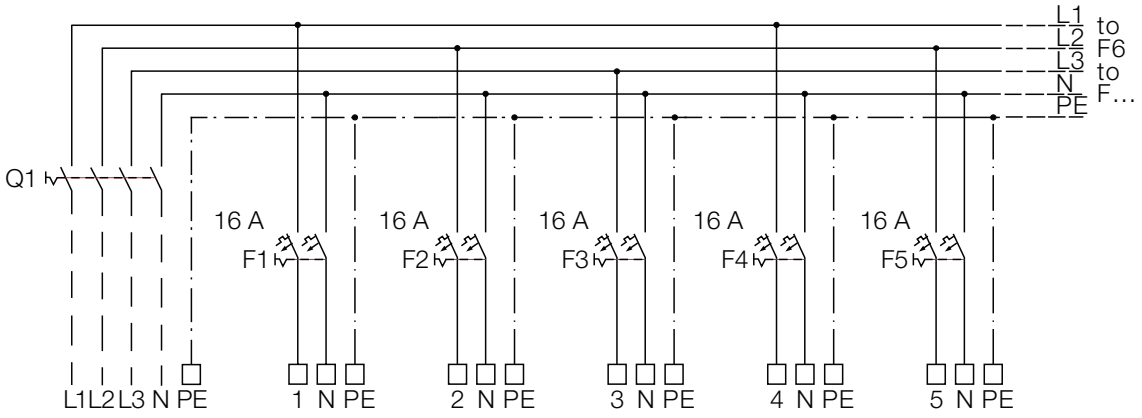
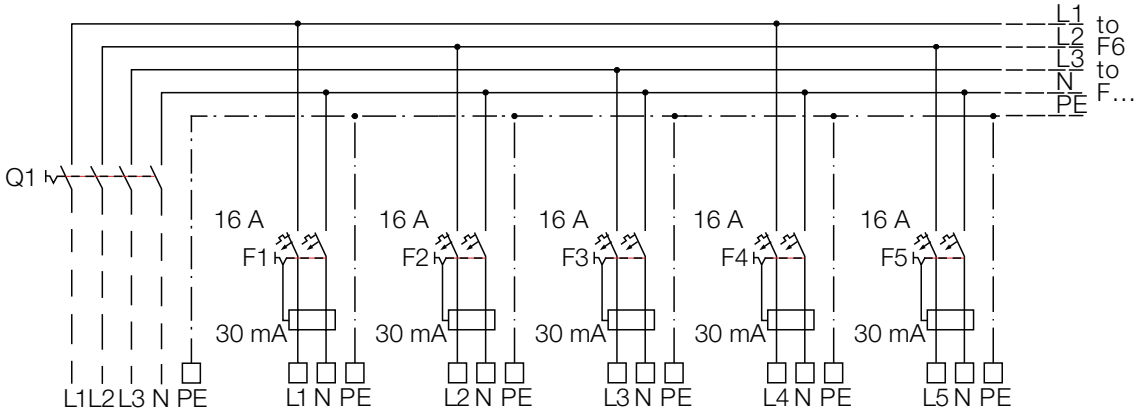


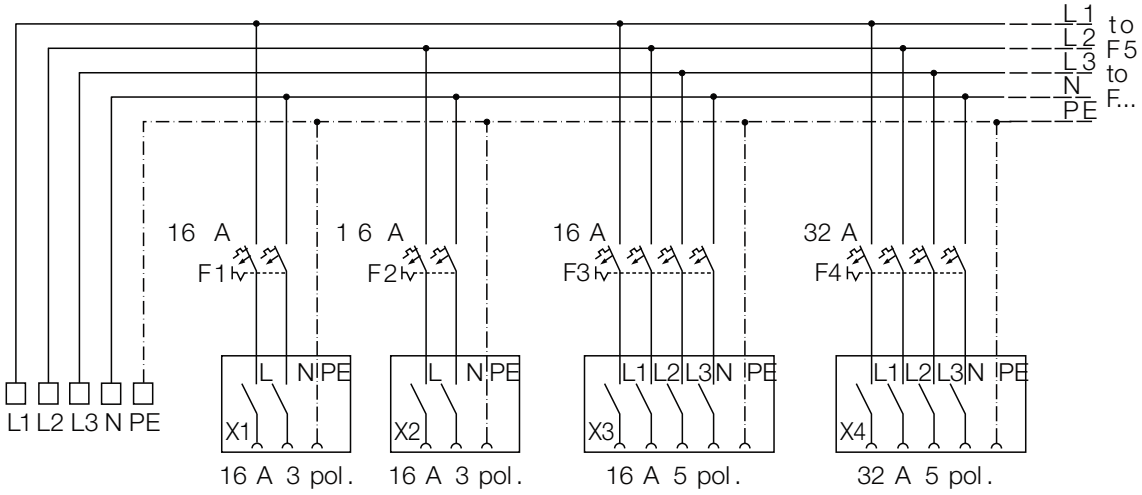
Wiring diagram lighting distribution | heating circuit distribution | socket distribution



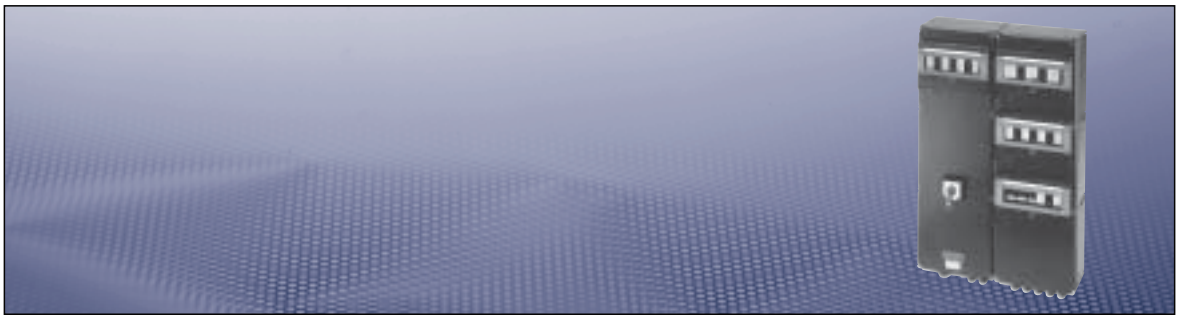
Lighting distribution



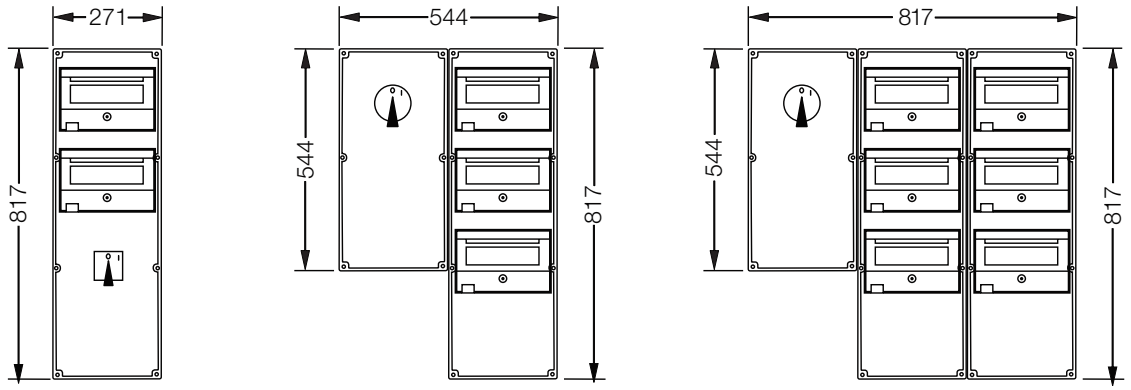
Heating circuits



Socket distributions

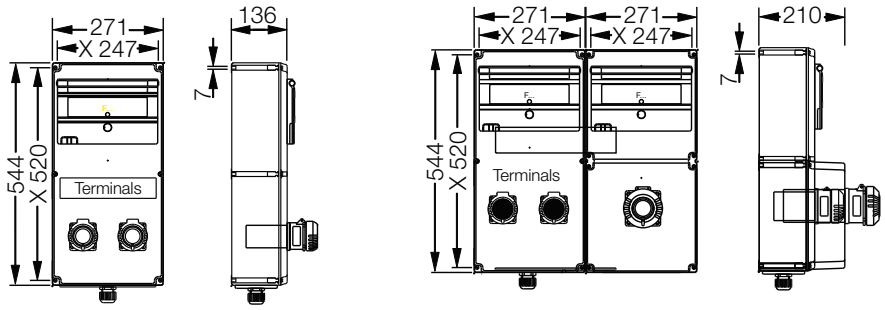


Dimension drawing lighting distribution | heating circuit distribution | socket distribution

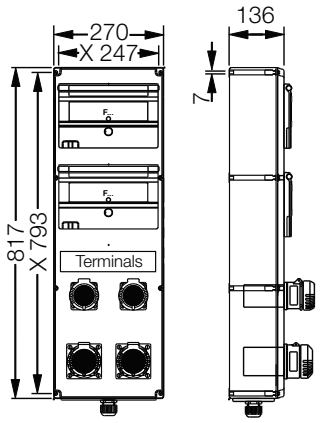


Type 1 **Type 2** **Type 3**

Lighting distribution/heating circuit distribution



Type 1 **Type 2**



Type 3

Socket distributions **X = fixing dimension**

Dimensions in mm

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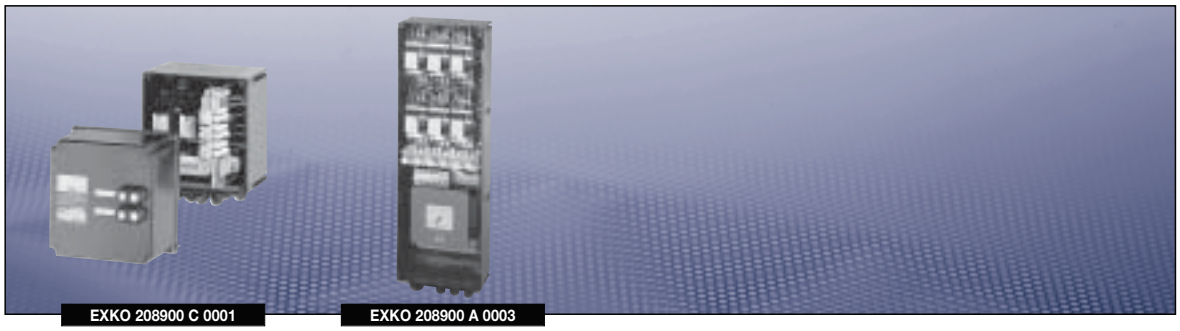


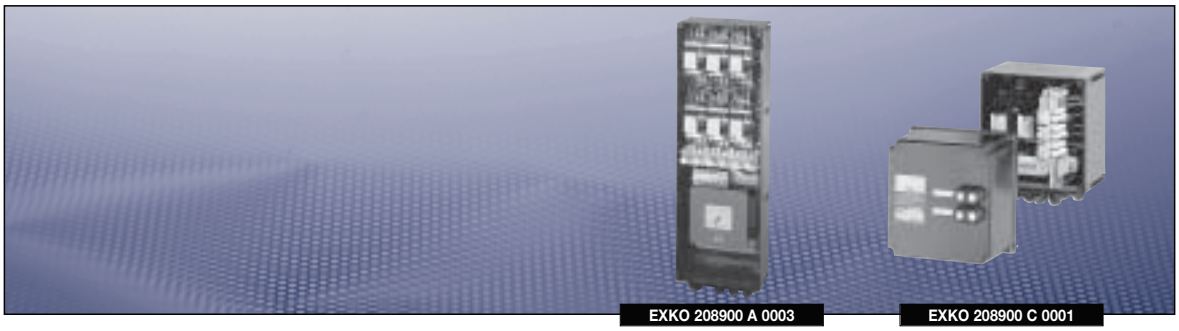
Technical data

Complete motor starter distributions	
Marking to 94/9/EC	Ex II 2 G EEx de ia/ib m [ia/ib] IIC T4 - T6 / Ex II 2 D IP6X T80 °C / 135 °C
EC Type Examination Certificate	PTB 99 ATEX 1044
Permissible ambient temperature	–20 °C to +40 °C
	–55 °C to +55 °C (option)
IECEx Certificate of Conformity	IECEx BKI 06.0007
Marking accd. to IECEx	Ex de ia/ib m [ia/ib] T4 ... T6
	Ex tD A21 IP66 T80 °C
Rated voltage	690 V
Rated current	180 A
Insulation class	I
Terminal cross-section	up to 240 mm²
Degree of protection acc. to EN 60529	IP66
Weight	see ordering details
Enclosure material	Glass-fibre reinforced polyester
Enclosure colour	black

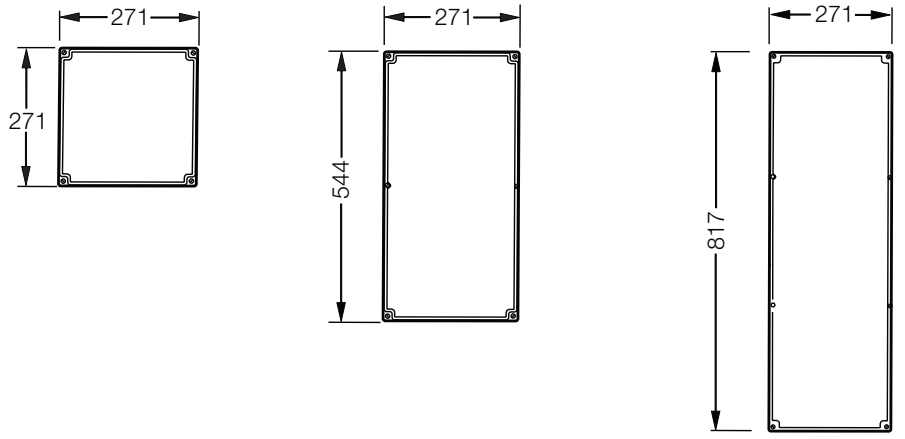
Ordering details complete motor starter distributions

Version Motor capacity to AC 3	Type	Terminal cross-section	Cable glands	Weight approx.	Order No.
Direct circuit					
4 KW	1	10 mm²	3 x M25 (8 - 17 mm Ø)	20 kg	**EXKO 208 900 A 0001**
5.5 KW	2	16 mm²	3 x M25 (8 - 17 mm Ø)	32 kg	**EXKO 208 900 A 0002**
7.5 KW	2	16 mm²	3 x M25 (8 - 17 mm Ø)	36 kg	**EXKO 208 900 A 0003**
Reversing circuit					
4 KW	2	10 mm²	3 x M25 (8 - 17 mm Ø)	20 kg	**EXKO 208 900 B 0001**
5.5 KW	2	16 mm²	3 x M25 (8 - 17 mm Ø)	32 kg	**EXKO 208 900 B 0002**
7.5 KW	2	16 mm²	3 x M25 (8 - 17 mm Ø)	36 kg	**EXKO 208 900 B 0003**
Star-delta starter					
4 KW	2	10 mm²	4 x M25 (8 - 17 mm Ø)	20 kg	**EXKO 208 900 C 0001**
5.5 KW	2	16 mm²	4 x M25 (8 - 17 mm Ø)	32 kg	**EXKO 208 900 C 0002**
7.5 KW	2	16 mm²	4 x M25 (8 - 17 mm Ø)	32 kg	**EXKO 208 900 C 0003**
11 KW	3	16 mm²	1 x M25 (8 - 17 mm Ø)		
			3 x M25 (8 - 17 mm Ø)	56 kg	**EXKO 208 900 C 0004**

The motor starters are completely wired for connection by customer.

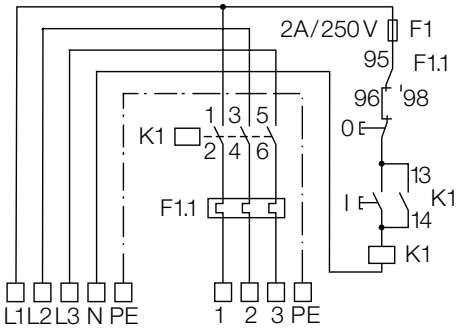


Dimension drawing | Wiring diagram

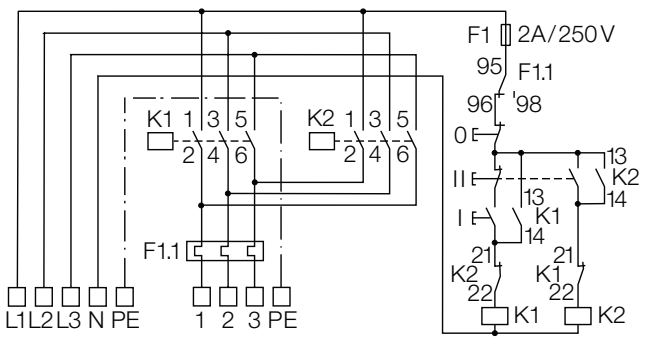


Type 1 **Type 2** **Type 3**

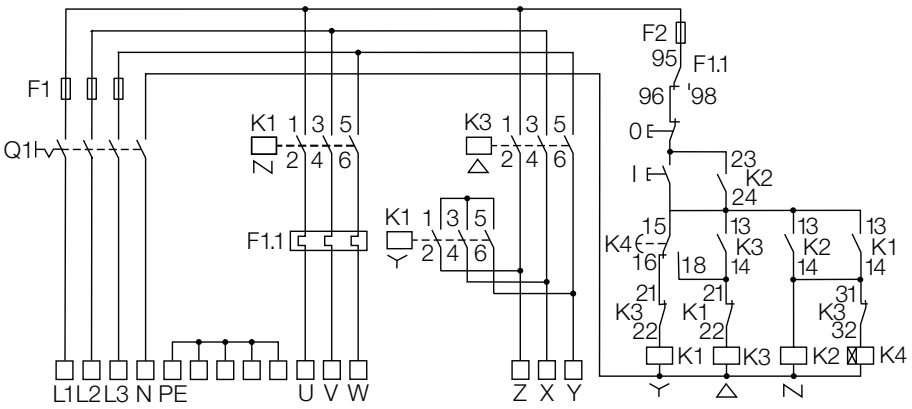
Direct circuit



Reversing circuit



Star-delta starter



Dimensions in mm

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E X - D I S T R I B U T I O N S

Stainless steel in modular design

Distributions made of stainless steel for protection against aggressive environments are used for lighting, heating, motor and socket circuits in potentially explosive atmospheres. The distributions contain components with flameproof enclosures. These flameproof components, such as MCBs, fuses etc., provide thermal and magnetic protection and can be snapped on individually on the DIN rails. The distribution systems are available in stainless steel enclosures of various sizes. On standardised wall-mounting or free-standing frameworks, the enclosures can be combined into large distribution systems. The frameworks come in standardised sizes to accommodate the enclosures and can be extended as required. MCBs, RCDs and other components can be operated via lockable actuating flaps, integrated in the enclosure cover, without opening the enclosure. CEAG fuse and MCB distributions provide cost-effective solutions. They fulfil all the requirements specified by the chemical, petrochemical and offshore industries.

Internationally approved.

- **Combinable for larger distributions**
- **Actuating flaps for easy operation**
- **Snap-on components**
- **Protection type IP66**
- **Retrofitting**

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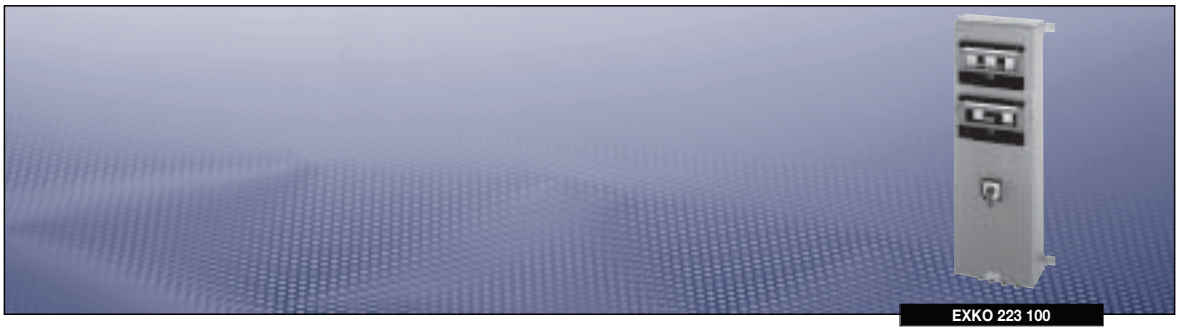

Technical data

MCB distribution for lighting circuits | heating circuits | socket distributions	
Marking to 94/9/EC	Ⓔx II 2 G EEx de ia/ib m [ia/ib] IIC T4 - T6 / Ⓔx II D IP6X T80 °C
EC Type Examination Certificate	PTB 99 ATEX 1044
Permissible ambient temperature	–20 °C to +40 °C –55 °C to +55 °C (Option)
IECEx Certificate of Conformity	IECEx BKI 06.0007
Marking accd. to IECEx	Ex de ia/ib m [ia/ib] T4 ... T6 Ex tD A21 IP66 T80 °C
Rated voltage	440 V
Rated current	180 A
Insulation class	I
Terminal cross-section	up to 240 mm²
Degree of protection acc. to EN 60529	IP66
Enclosure material	Stainless steel AISI 316 L
Enclosure colour	electro-polished

Ordering details MCB distribution for lighting circuits

Version	Type	MCB 2-pole	Terminal cross-section	Cable glands	Weight approx.	Order No.
40 A	1	8 x 16 A	10 mm²	1 x M40 (17 - 28 mm Ø) 8 x M25 (8 - 17 mm Ø)	22 kg	**EXKO 223 100 Q 0000**
80 A	2	12 x 16 A	16 mm²	1 x M50 (22 - 35 mm Ø) 12 x M25 (8 - 17 mm Ø)	34 kg	**EXKO 223 100 Q 0001**
80 A	3	24 x 16 A	16 mm²	1 x M50 (22 - 35 mm Ø) 24 x M25 (8 - 17 mm Ø)	58 kg	**EXKO 223 100 Q 0002**

Ordering details MCB distribution for heating circuits

Version	Type	MCB wit RCD 2-pole	Terminal cross-section	Cable glands	Weight approx.	Order No.
40 A	1	8 x 16 A, 30 mA	10 mm²	1 x M40 (17 - 28 mm Ø) 8 x M25 (8 - 17 mm Ø)	22 kg	**EXKO 223 100 G 0003**
80 A	2	12 x 16 A, 30 mA	16 mm²	1 x M50 (22 - 35 mm Ø) 12 x M25 (8 - 17 mm Ø)	34 kg	**EXKO 223 100 G 0004**
80 A	3	24 x 16 A, 30 mA	16 mm²	1 x M50 (22 - 35 mm Ø) 24 x M25 (8 - 17 mm Ø)	58 kg	**EXKO 223 100 G 0005**

Ordering details MCB distribution for sockets

Version	Type	Socket outlets	Cable glands	Weight approx.	Order No.
2 x 16 A	1	2 x 16 A 3-pole	1 x M40 (17 - 28 mm Ø)	12 kg	**EXKO 223 800 C 0004**
2 x 16 A 1 x 32 A	2	1 x 16 A 3-pole 1 x 16 A 5-pole 1 x 32 A 5-pole	1 x M40	22 kg	**EXKO 223 800 C 0005**
4 x 16 A	3	2 x 16 A 3-pole 2 x 16 A 5-pole	1 x M40	27 kg	**EXKO 223 800 C 0006**

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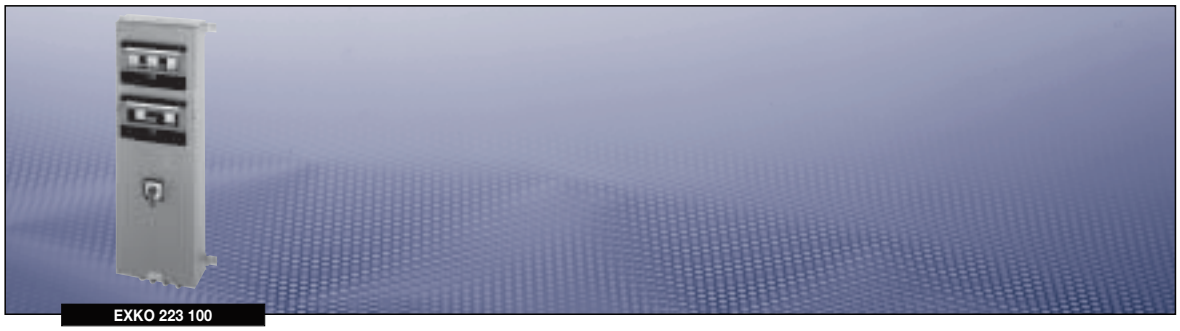
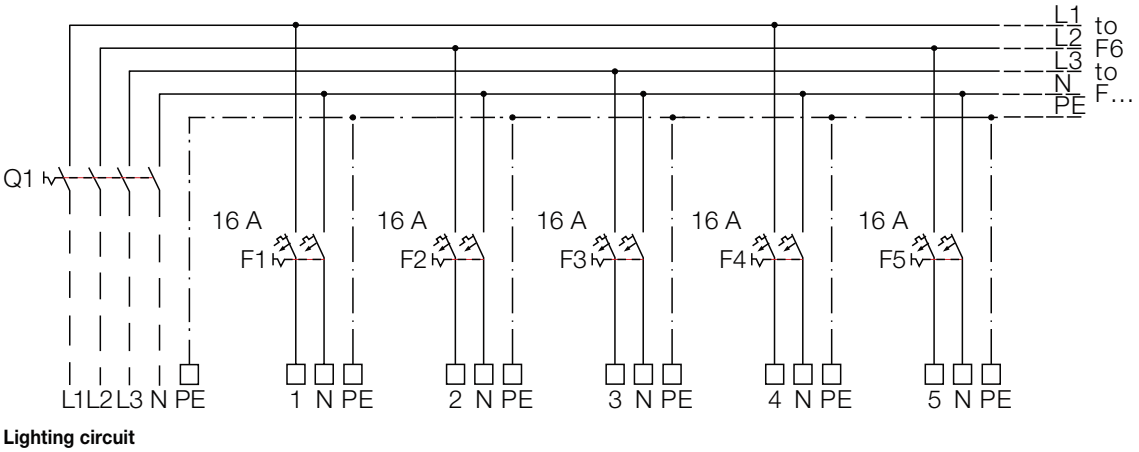
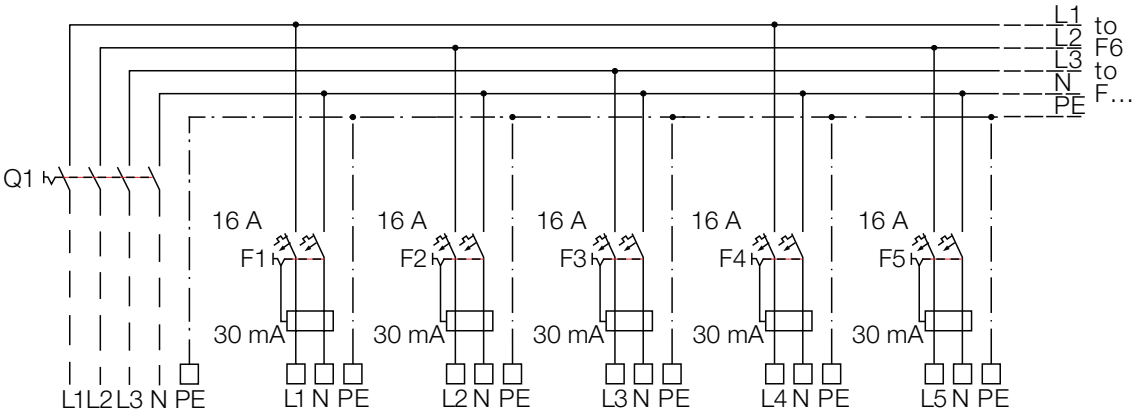


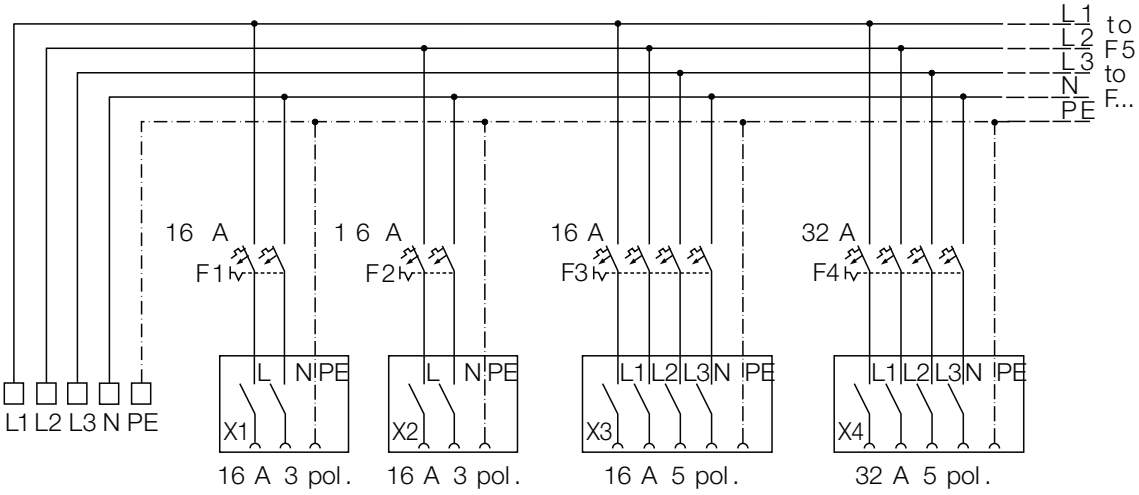
Wiring diagram lighting distribution | heating circuit distribution | socket distribution



Lighting circuit



Heating circuit



Socket distribution

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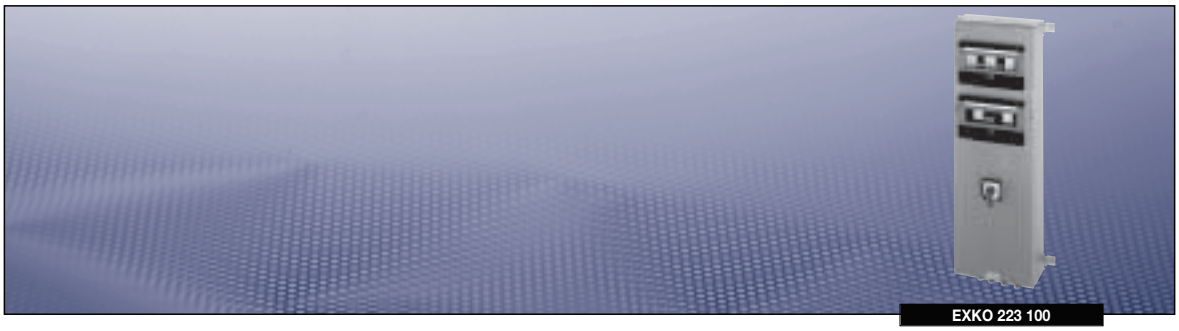
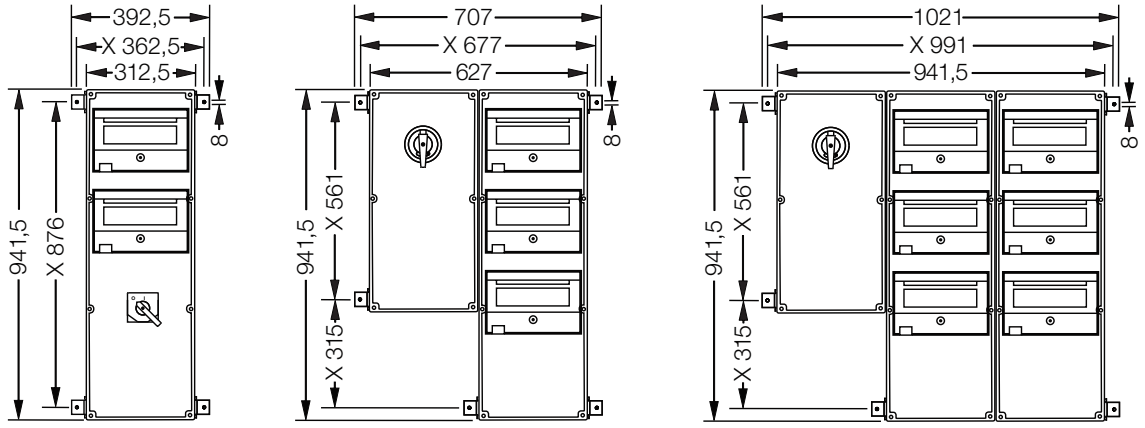
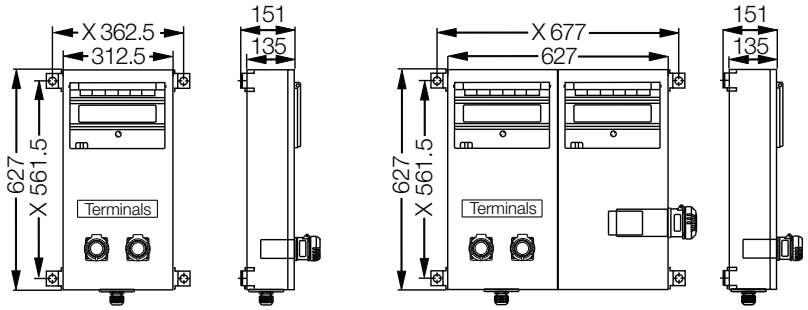


Dimension drawing lighting distribution | heating circuit distribution | socket distribution

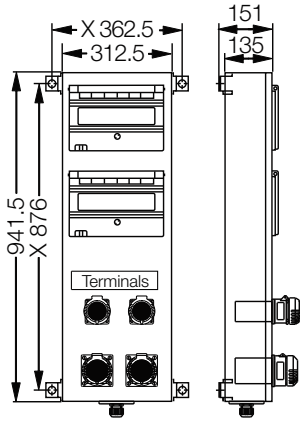


Type 1 **Type 2** **Type 3**

Lighting distribution/Heating circuit distribution **X = fixing dimensions**



Type 1 **Type 2**



Type 3

Socket distribution **X = fixing dimensions**

Dimensions in mm

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EX-D-BUILT-IN COMPONENTS

Flameproof encapsulation

If electrical apparatus is to be used in hazardous areas, i.e. potentially explosive atmospheres, where arcing or sparking can occur, it must be protected according to EN 60079 pp by special constructional measures. The Cooper Crouse-Hinds GmbH explosion-protected apparatus, such as the modules in Ex-e distributions, derives its high degree of safety through the combination of various types of protection. Thus, flameproof encapsulated components (Ex-d), for instance, are also integrated in enclosures of the type "Increased Safety" (Ex-e). As these components are of modular design, they can be combined according to customers' requirements. Five enclosure sizes provide enough space for whatever modules are required: MCBs, RCDs, contactors, motor starters, over-current trips, star-delta time relays or main switches. Protected by a transparent flap, all modules can be conveniently monitored and operated.

The modules are inserted in the distribution by simple snap-on rail mounting. Thus, modules can be replaced or added quickly and reliably. That makes servicing and extension work simpler and faster – and thus more cost-efficient.

We've also provided for your personal safety: MCBs, RCDs, and power circuit breakers can be equipped with a lock in the OFF position. That protects you during your work on the system against inadvertent switching on – better safe than sorry!

International certification.

- **Snap-on**
- **Individually combinable**
- **Operation via actuating flap**
- **Optimum space utilisation with 5 enclosure sizes**

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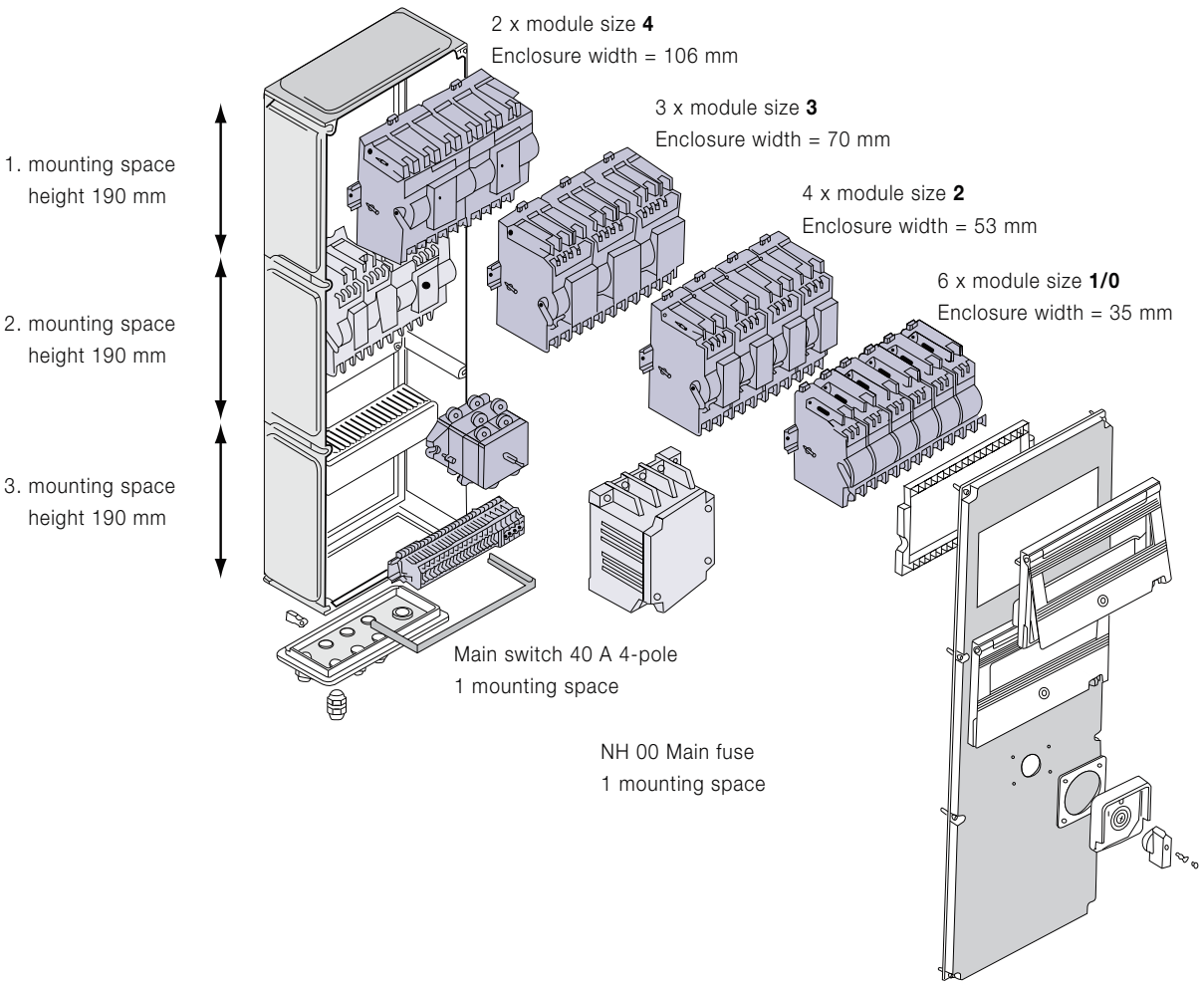
Enclosure module size 4
with 3 mounting spaces



Individual modular distributions

Cooper Crouse-Hinds explosion protected Ex-e moulded-plastic distributions can be individually assembled and equipped with various components. Enclosure modules of size 1, 2, 3 and 4 are available for combining flameproof encapsulated modules (Ex-d) according to customers' specifications. Five enclosure sizes provide enough space for whatever modules are required: MCBs, RCDs, contactors, motor starters, over-current trips, star-delta time relays or main switches. Different module sizes can be placed side by side in one mounting space. The modules are inserted in the distribution by simple snap-on rail mounting. Thus, modules can be replaced or added quickly and reliably. Lockable actuating flaps allow easy operation without opening the enclosure.

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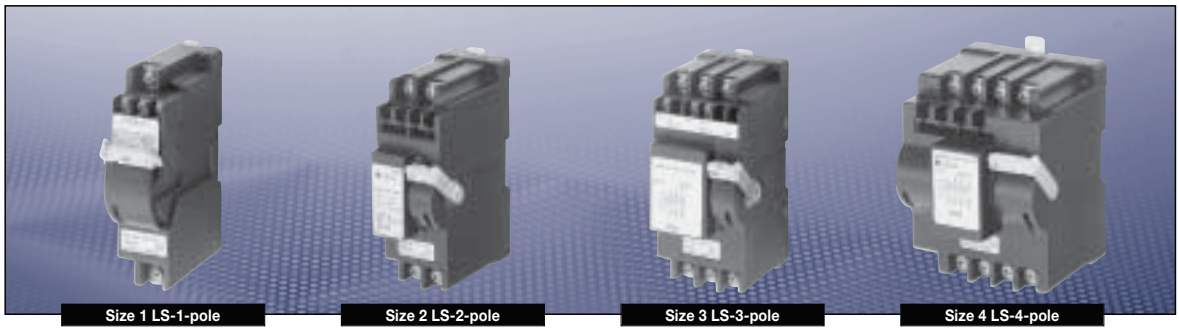
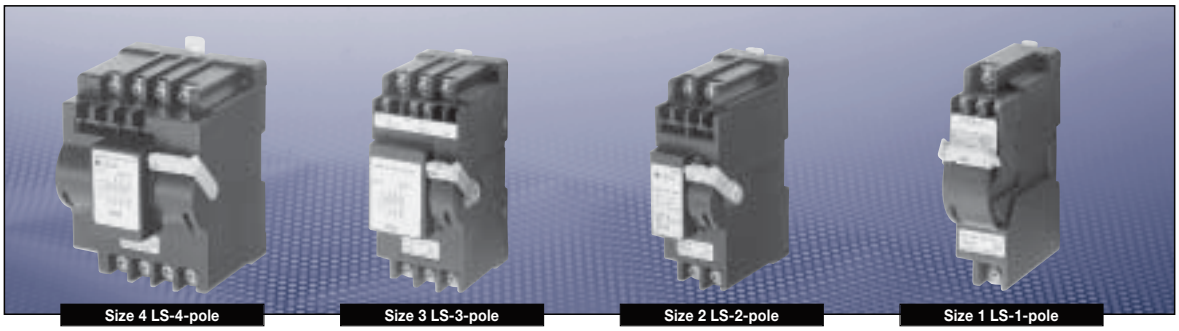


Technical data

MCB 0.5 A to 40 A		
Marking to 94/9/EC		Ⓔx II 2 G EEx de IIC
EC Type Examination Certificate		PTB 98 ATEX 1087 U
IECEx Certificate of Conformity		IECEx BKI 07.0038 U
Marking accd. to IECEx		Ex de IIC
Application temperature[1)]		–20 °C to +40 °C
Rated voltage	Main contact	max. 440 V AC
	Auxiliary contact	max. 250 V AC
Rated current	Main contact	0.5 A to 40 A
	Auxiliary contact	max. 5 A
Rated switching capacity 2/3 phase		10 kA
230 V AC (133/230 V AC) kA/cos φ		10/0.5
400 V AC (230/400 V AC) kA/cos φ		10/0.5
Back-up fuse		depend on rated current up to 100 A
Terminal cross-section	Main contact	2 x 10 mm² fine wire with wire end sleeve/single wire
	Auxiliary contact/	
	coil connection	2 x 2.5 mm² fine wire with wire end sleeve/single wire
Weight	1 pole	0.55 kg size 1
	2 pole	0.95 kg size 2
	3 pole	1.25 kg size 3
	4 pole	1.57 kg size 4
Enclosure material		Glass-fibre reinforced polyester
Enclosure colour		black
Options		auxiliary-signal contact
Padlocking facility		in OFF position with a commercially available padlock

[1)] Depend on installation



Ex-Built-in components

MCB 0.5 A to 40 A

GHG 612 XXXX R0YYY

1. Contacts

1. Contacts

Contacts	Termination diagram[1]	1 pole (xxxx)	Module size[2]	2 pole (xxxx)	Module size[2]	3 pole (xxxx)	Module size[2]	4 pole (xxxx)	Module size[2]
Only main contact	A1 to A5	**1141**	**1**	**2141**	**2**	**3141**	**3**	**4141**	**4**
+ auxiliary contact (1 change-over)	B3	**1142**	**1**	**2142**	**2**	**3142**	**3**	**4142**	**4**
+ auxiliary contact (1NO+1NC)	B1, B2			**3150**	**3**				
+ auxiliary contact (2NO)	B4					**4168**	**4**		
+ N + auxiliary contact (1NO+1NC)	A5, B1, B2					**4166**	**4**		
+ signal contact (1 change-over)	C3	**2148**	**2**	**3157**	**3**	**4147**	**4**	**4143**	**4**
+ signal contact (1NC) + auxiliary contact (1NO)	C2 + B1					**4148**	**4**		
+ signal contact (1NO) + auxiliary contact (1NO)	C1 + B1					**4161**	**4**	**4160**	**4**
+ signal contact (1NC) + auxiliary contact (1NC)	C2 + B2					**4163**	**4**		
+ overload release (12 - 60 V)	D	**2150**	**2**	**3147**	**3**				
+ overload release (110 - 415 V)	D	**2151**	**2**	**3146**	**3**	**4146**	**4**		
+ undervoltage trip	E			**3148**	**3**	**4144**	**4**		
+ signal contact (1 change-over)	C3								
+ auxiliary contact (1 change-over)	B3			**3143**	**3**	**4164**	**4**		
+ overload release (110 - 415 V)	D								
+ signal contact (1 change-over)	C3			**4159**	**4**				
+ overload release (12 - 60 V)	D								
+ auxiliary contact (1 change-over)	B3			**3149**	**3**				
+ overload release (110 - 415 V)	D								
+ signal contact (1 change-over)	C3								
+ auxiliary contact (1 change-over)	B3			**4165**	**4**				
+ overload release (12 - 60 V)	D								
+ signal contact (1 change-over)	C3								
+ auxiliary contact (1 change-over)	B3			**4169**	**4**				
+ undervoltage trip	E								
+ signal contact (1 change-over)	C3					**4167**	**4**		
+ undervoltage trip	E								
+ signal contact (1 change-over)	C3								
+ auxiliary contact (1 change-over)	B3					**4174**	**4**		

[1] Termination diagram see page 11.20

[2] Module size see dimension drawing page 11.21

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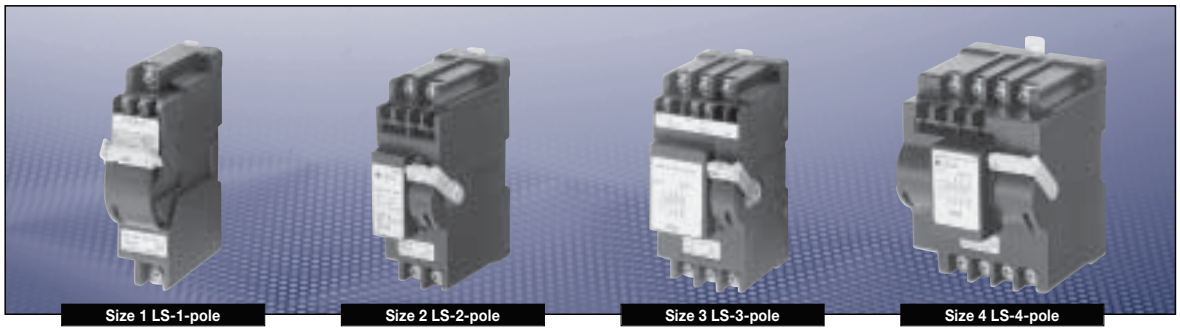


Ex-Built-in components

MCB 0.5 A to 40 A

GHG 612 XXXX R0YYY

2. Tripping current

2. Tripping current, characteristic, max. back-up fuse, power dissipation per pole

Tripping current	Characteristic K			Characteristic Z			Characteristic B			Characteristic C		
	Max. back-up fuse gL	Power dissipation per pole	YYY	Max. back-up fuse gL	Power dissipation per pole	YYY	Max. back-up fuse gL	Power dissipation per pole	YYY	Max. back-up fuse gL	Power dissipation per pole	YYY
0.5 A	not necessary	1.6 W	**013**	not necessary	2.5 W	**081**				not necessary	1.6 W	**121**
0.75 A		1.6 W	**014**									
1.0 A		1.6 W	**015**		2.3 W	**082**					1.4 W	**122**
1.6 A		1.6 W	**016**		2.8 W	**083**					1.6 W	**123**
2 A		1.9 W	**017**		2.5 W	**084**					1.8 W	**124**
3 A	20 A	1.9 W	**018**	20 A	1.9 W	**085**				20 A	1.9 W	**125**
4 A	25 A	2.6 W	**019**	20 A	2.6 W	**086**				20 A	2.4 W	**126**
6 A	63 A	2.4 W	**020**	35 A	2.7 W	**087**	63 A	2.2 W	**101**	40 A	2.2 W	**127**
8 A	63 A	2.9 W	**021**	40 A	3.5 W	**088**				63 A	2.9 W	**128**
10 A	63 A	1.9 W	**022**	63 A	2.1 W	**089**	100 A	1.4 W	**102**	100 A	1.4 W	**129**
13 A							100 A	2.3 W	**103**	100 A	2.3 W	**130**
16 A	80 A	2.1 W	**023**	63 A	2.8 W	**090**	100 A	2.5 W	**104**	100 A	2.5 W	**131**
20 A	81 A	2.9 W	**024**	80 A	2.9 W	**091**	100 A	2.9 W	**105**	100 A	2.9 W	**132**
25 A	100 A	3.5 W	**025**	80 A	3.5 W	**092**	100 A	3.5 W	**106**	100 A	3.5 W	**133**
32 A	100 A	4.2 W	**026**	100 A	4.2 W	**093**	100 A	4.2 W	**107**	100 A	4.2 W	**134**
40 A	125 A	6.4 W	**027**	100 A	6.4 W	**094**	125 A	6.4 W	**108**	125 A	6.4 W	**135**

Bach-up fuse is only required if at the installation point the max. prospective, unaffected short-circuit current will exceed the rated switching capacity.

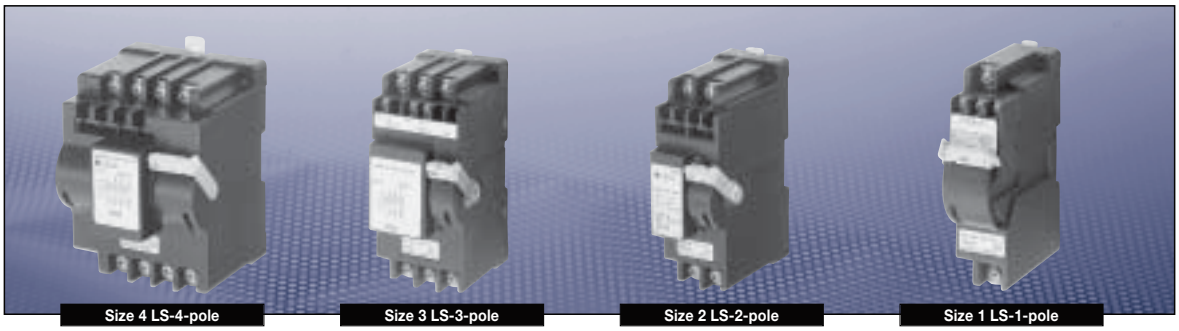
Example

GHG 612 XXXX R 0YYY

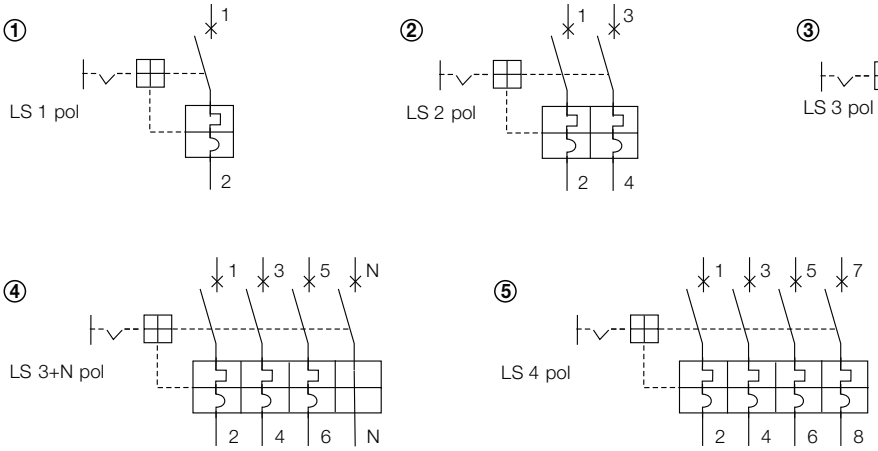
GHG 612 **3143** R 0**023**

3-pole
+ Signal contact (1 change-over)
+ Auxiliary contact (1 change-over)

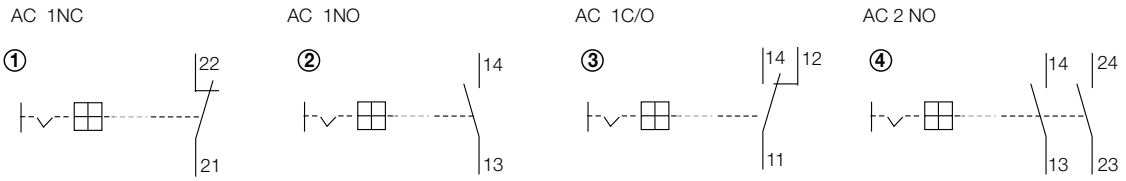
16 A
K-Characteristic



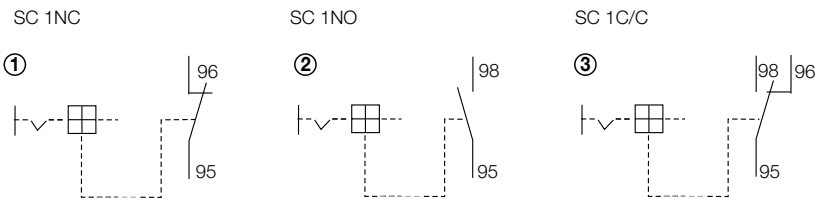
Termination diagram



A. Main contact



B. Auxiliary contacts



C. Signal contacts

D. Overload release

E. Undervoltage trip

MC = Main contact
AC = Auxiliary contact
SC = Signal contact
OR = Overload release
UT = Undervoltage trip

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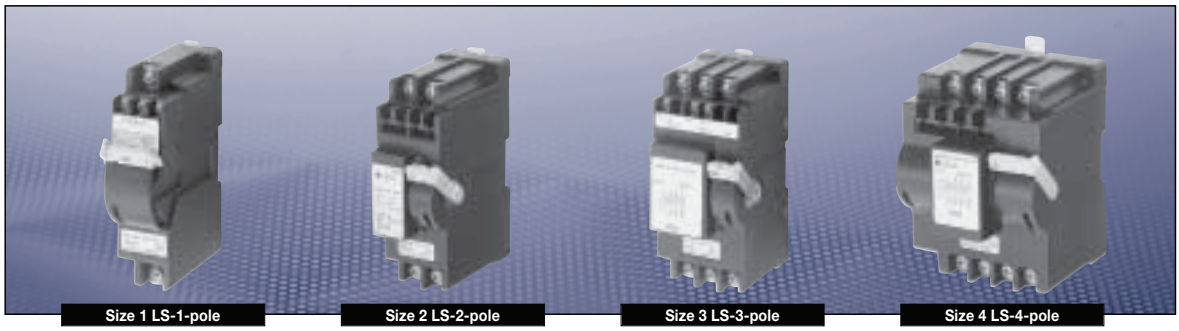
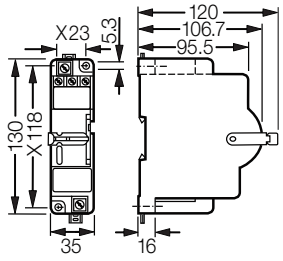
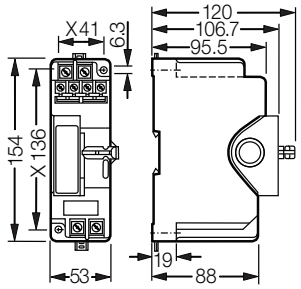


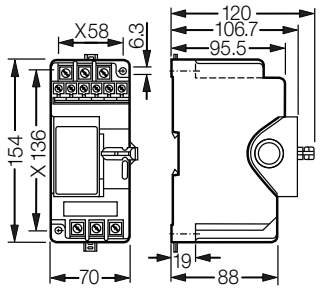
Dimension drawing



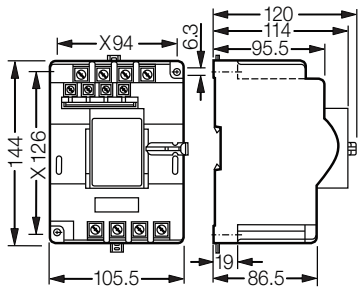
Module size 1



Module size 2



Module size 3



Module size 4

X = fixing dimensions

Dimensions in mm

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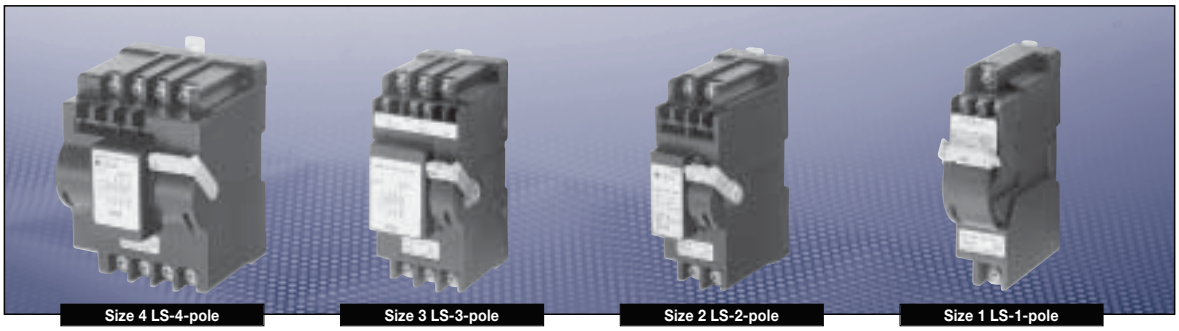
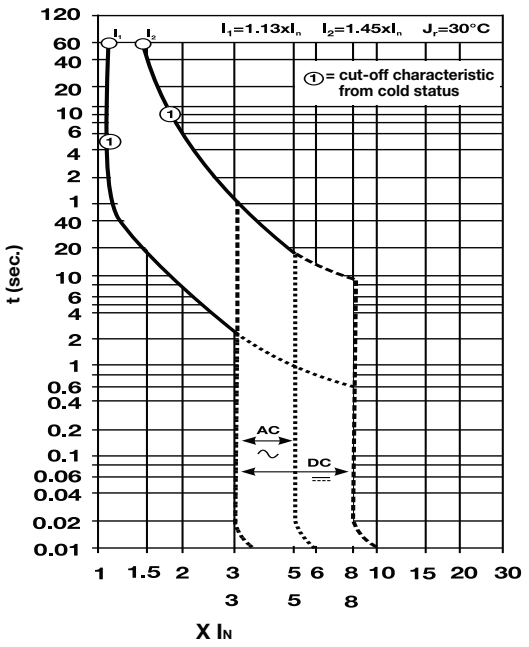
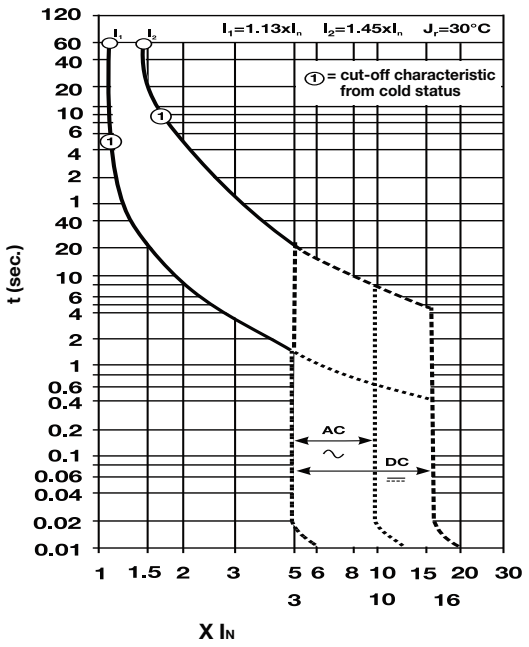


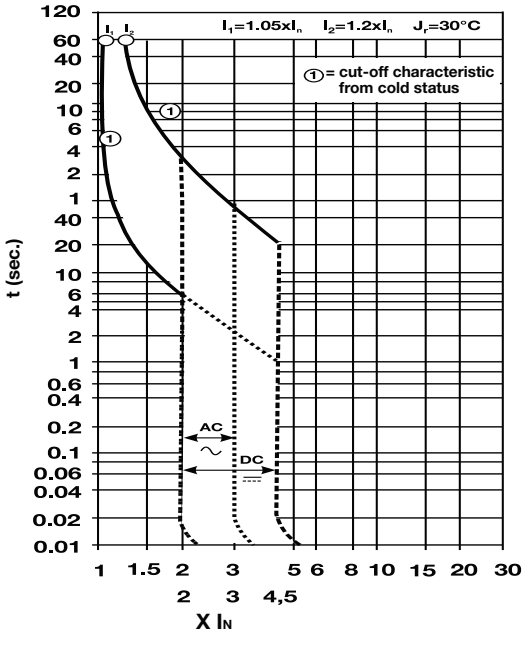
Tripping characteristic



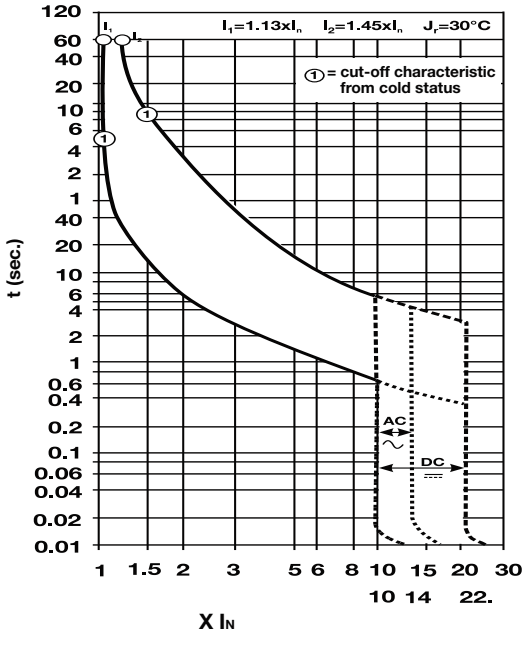
B-Characteristic



C-Characteristic



Z-Characteristic



K-Characteristic

Dimensions in mm

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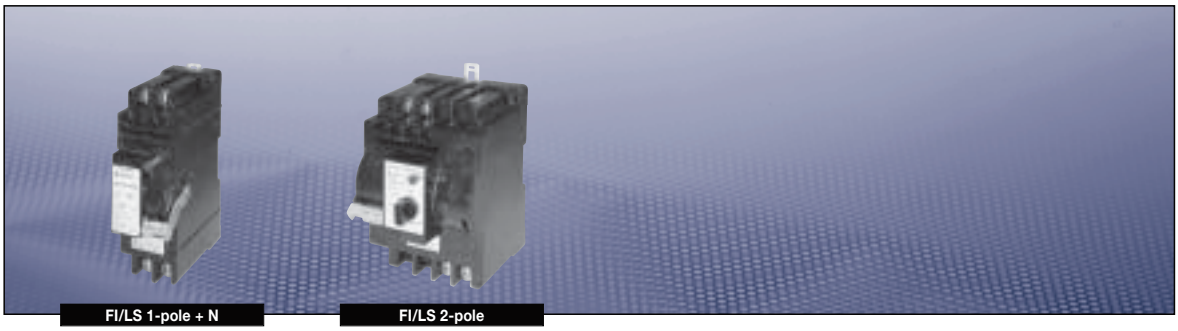
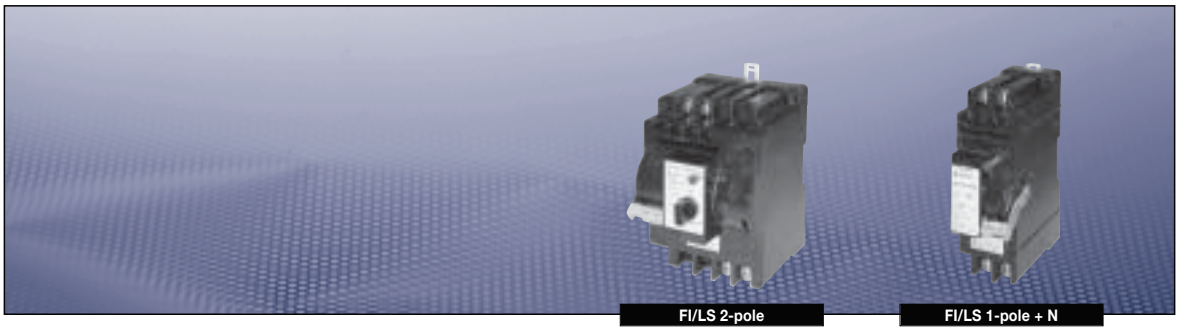


Technical data

MCB 0.5 A to 40 A with RCD				
Marking to 94/9/EC		⟨Ex⟩ II 2 G EEx de IIC / Ex de IIC		
EC Type Examination Certificate		PTB 98 ATEX 1087 U		
IECEx Certificate of Conformity		IECEx BKI 07.0038 U		
Marking accd. to IECEx		Ex de IIC		
Application temperature[1)]		–20 °C – +40 °C		
Rated voltage	Main contact	max. 440 V AC		
	Auxiliary contact	max. 250 V AC		
Rated current	RCD	25 A; 40 A		
	Main contact	1,0 A to 40 A		
	Auxiliary contact	max. 5 A		
Power dissipation per pole in W		Release current	1P + N	2P
		2 A	1.8	3.9
		4 A	1.8	3.9
		6 A	2.0	4.1
		8 A	2.1	4.1
		10 A	2.1	4.1
		16 A	4.5	4.5
		20 A	4.8	6.4
		25 A	6.3	8.5
		32 A	8.8	10.9
		40 A	9.9	15.0
Rated switching capacity 2/3 phase		6 KA (1-pole + N) / 10 KA (2-pole)		
Back-up fuse	RCD	63 A gL		
	MCB	depend on rated current up to 100 A		
Terminal cross-section	Main contact	2 x 10 mm^2 fine wire with wire end sleeve/single wire		
	Auxiliary contact/			
	Coil connection	2 x 2.5 mm^2 fine wire with wire end sleeve/single wire		
Weight	1 pole + N	0.95 kg size 2		
	2 pole	1.57 kg size 4		
Enclosure material		Glass-fibre reinforced polyester		
Enclosure colour		black		
Options		auxiliary-/signal contact		
Padlocking facility		in OFF position with a commercially available padlock		

[1)] Depend on installation



Ex-Built-in components

MCB 0.5 A to 40 A with RCD

GHG 612 XXXX RXYYY

1. Contacts
2. Release current

1. MCB with RCD 6 kA

Pole	Characteristic	Contacts	Termination diagram	Module size	XXXX RX
1 pole + N	B, C, K		1	2 53.0 mm	**2143 R 2**
1 pole + N	B, C, K	Signal contact (1 change-over)	2	3 70.0 mm	**3144 R 2**
1 pole + N	B, C, K	Auxiliary contact (1 change-over)	3		**3159 R 2**
2 pole	K		4	4 105.5 mm	**4156 R 0**
2 pole	K	Auxiliary contact (1 change-over)	5		**4157 R 0**
2 pole	K	Signal contact (1 change-over)	6		**4158 R 0**
2 pole	B, C				**4156 R 2**
2 pole	B, C	Auxiliary contact (1 change-over)	5		**4157 R 2**
2 pole	B, C	Signal contact (1 change-over)	6		**4158 R 2**

1. MCB with RCD 10 kA

Pole	Characteristic	Contacts	Termination diagram	Module size	XXXX RX
1 pole + N	B, C		1	2 53,0 mm	**2143 R 5**
1 pole + N	B, C	Signal contact (1 change-over)	2	2 70.0 mm	**3144 R 5**
1 pole + N	B, C	Auxiliary contact (1 change-over)	3		**3159 R 5**
2 pole	K		4	4 105,5 mm	**4156 R 5**
2 pole	K	Auxiliary contact (1 change-over)	5		**4157 R 5**
2 pole	K	Auxiliary contact (1 change-over)	6		**4158 R 5**

2. Release current and characteristic

Tripping current	Characteristic C (YYY)		Characteristic B (YYY)		Characteristic K (YYY)		Characteristic C (YYY)
	30 mA	300 mA	30 mA	300 mA	30 mA	300 mA	100 mA
2 A	**004**	**024**			**084**	**104**	**204**
4 A	**005**	**025**			**085**	**105**	**205**
6 A	**006**	**026**	**046**	**066**	**086**	**106**	**206**
8 A	**007**	**027**	**047**	**067**	**087**	**107**	**207**
10 A	**008**	**028**	**048**	**068**	**088**	**108**	**208**
16 A	**009**	**029**	**049**	**069**	**089**	**109**	**209**
20 A	**010**	**030**	**050**	**070**	**090**	**110**	**210**
25 A	**011**	**031**	**051**	**071**	**091**	**111**	**211**
32 A	**012**	**032**	**052**	**072**	**092**	**112**	**212**
40 A			**053**	**073**	**093**	**113**	**213**

Example

GHG 612 XXXX R XYYY

GHG 612 **4157** R 0**090**

K-Characteristic 6 kA; with auxiliary contact — 20 A; 30 mA; K

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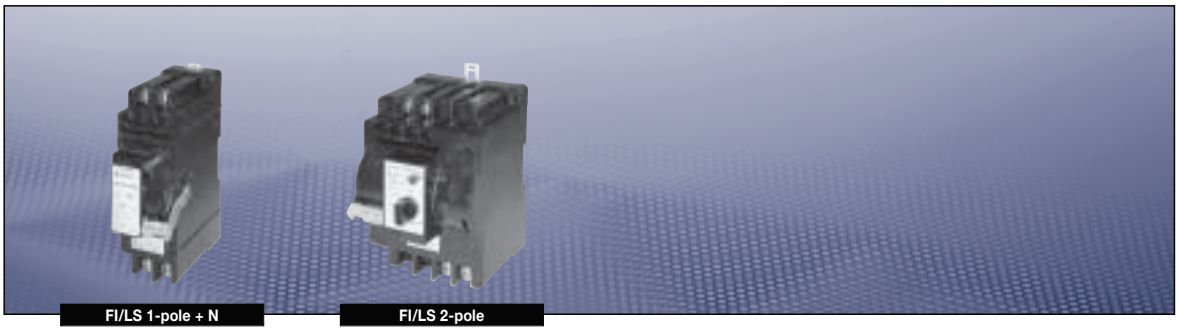
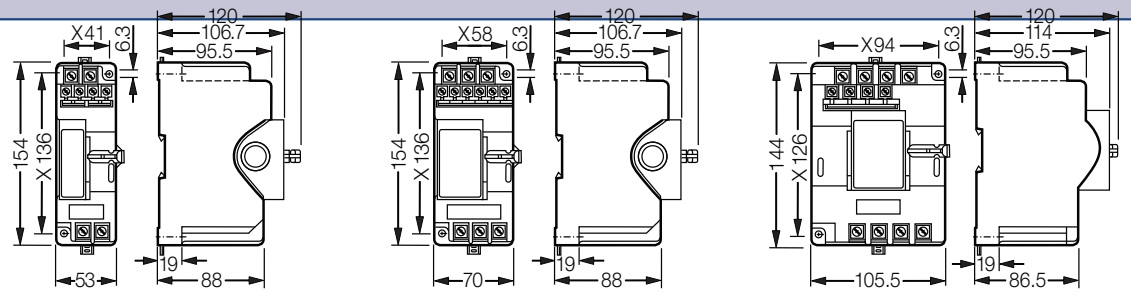
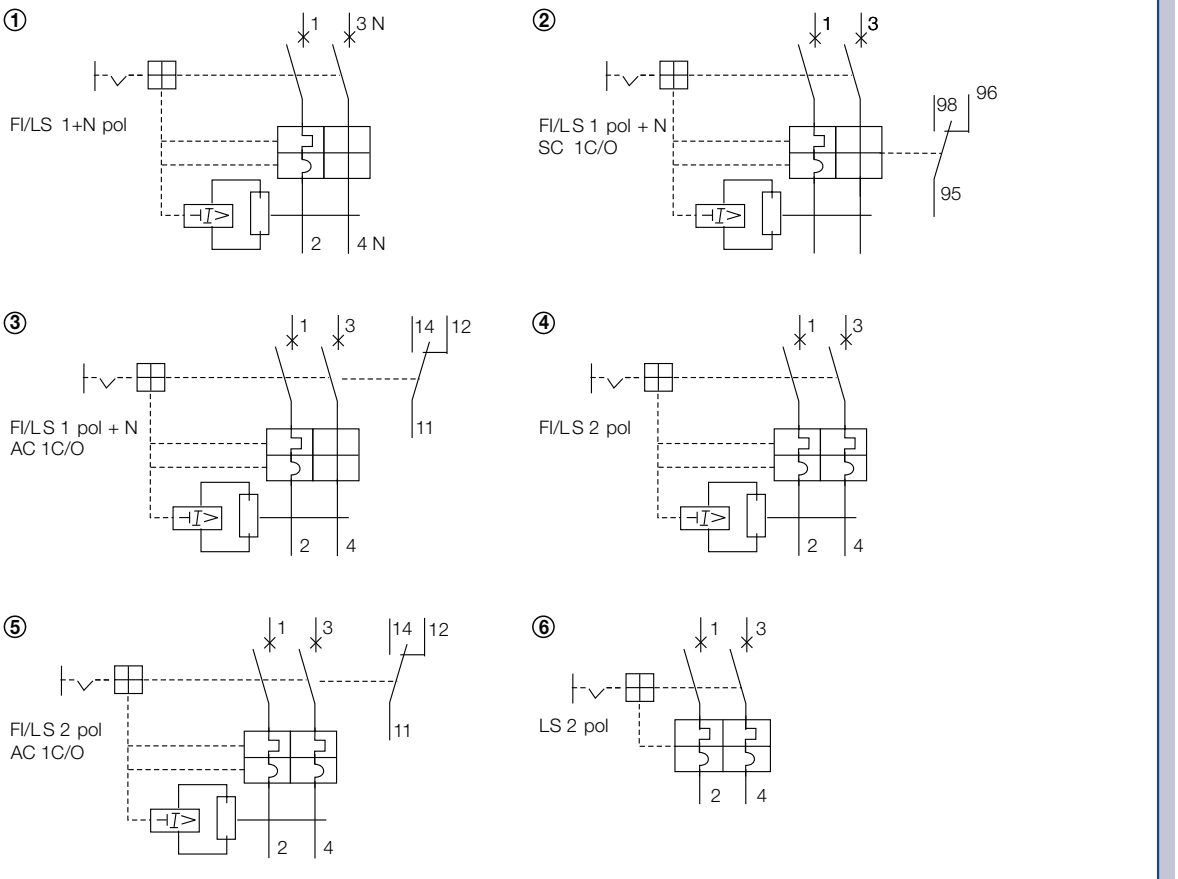


Dimension drawing | Termination diagram



Module size 2 **Module size 3** **Module size 4**

X = fixing dimensions



Tripping characteristic see page 11.23

MC = Main contact
AC = Auxiliary contact
SC = Signal contact

Dimensions in mm

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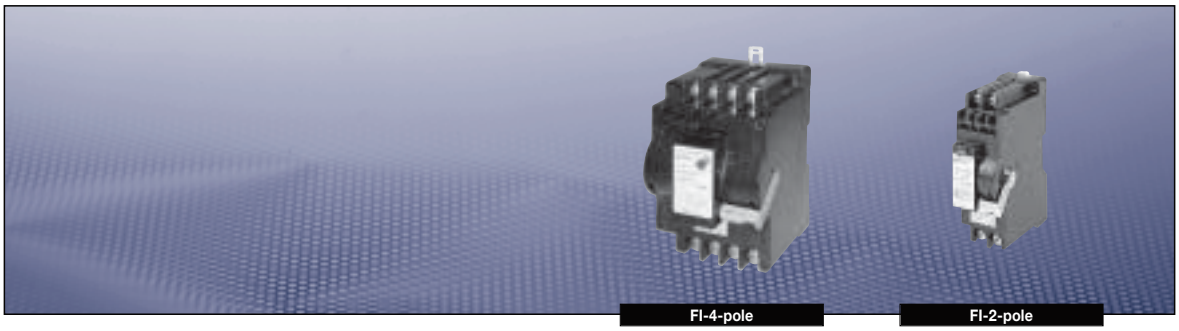

Technical data

RCD from 30 mA		
Marking to 94/9/EC		Ⓔx II 2 G EEx de IIC
EC Type Examination Certificate		PTB 98 ATEX 1087 U
IECEx Certificate of Conformity		IECEx BKI 07.0038 U
Marking accd. to IECEx		Ex de IIC
Application temperature[1)]		–20 °C to +40 °C
Rated voltage	Main contact	max. 440 V AC
	Auxiliary contact	max. 250 V AC
Rated current	RCD	25 A; 40 A; 63 A
	Auxiliary contact	max. 5 A
Rated switching capacity		10 kA
Power dissipation in W		see ordering details
Back-up fuse	RCD	63 A gL
	Release current FI	30 mA to 500 mA
Terminal cross-section	Main contact	2 x 10 mm² fine wire with wire end sleeve/single wire
	Auxiliary contact/	
	Coil connection	2 x 2,5 mm² fine wire with wire end sleeve/single wire
Weight	2 pole	0.95 kg size 2
	4 pole	1.57 kg size 4
Enclosure material		Glass-fibre reinforced polyester
Enclosure colour		black
Options		Auxiliary contact
Padlocking facility		in OFF position with a commercially available padlock

[1)] Depend on installation

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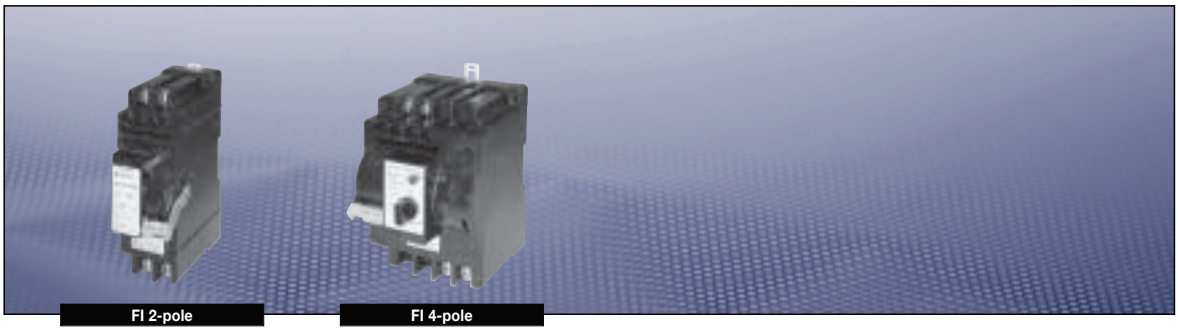

Ex-Built-in components

RCD from 30 mA

GHG 612 XXXX RYYYY

1. Contacts
2. Release current

1. Contacts

Contacts	Characteristic	Enclosure width	XXXX
2 pole	only main contact	Enclosure size 2, 53.0 mm	**2144**
2 pole	auxiliary contact (1 change-over) (F200)		**2147**
4 pole	only main contact	Enclosure size 4, 105.4 mm	**4149**
4 pole	auxiliary contact (1 change-over) (F200)		**4150**

2. Release current and tripping current

Release current	Tripping current	Power dissipation in W		YYYY
		2 pole	4 pole	
25 A	0.03 A	2.0	4.8	**0002**
40 A	0.03 A	4.8	8.4	**0003**
63 A	0.03 A	7.2	13.2	**0004**
25 A	0.1 A	2.0	4.8	**0005**
40 A	0.1 A	4.8	8.4	**0006**
63 A	0.1 A	7.2	13.2	**0007**
25 A	0.3 A	2.0	4.8	**0008**
40 A	0.3 A	4.8	8.4	**0009**
63 A	0.3 A	7.2	13.2	**0010**
25 A	0.5 A	2.0	4.8	**0011**
40 A	0.5 A	4.8	8.4	**0012**
63 A	0.5 A	7.2	13.2	**0013**

Example

GHG 612 A B R C

GHG 612 **21 44** R **0002**

Enclosure size 2, 53 mm — 2 pole — Release current 25 A

Tripping current 0.03 A

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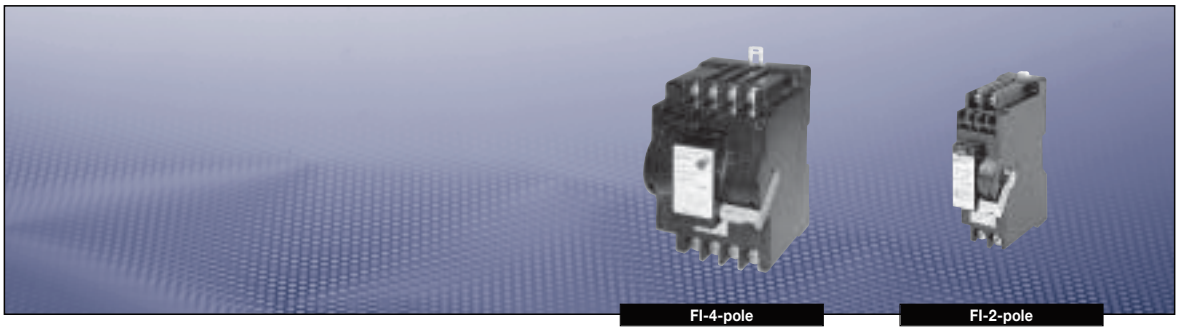
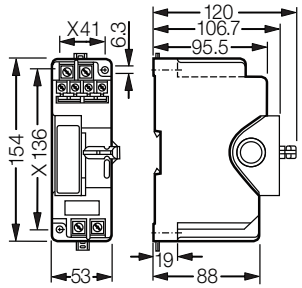
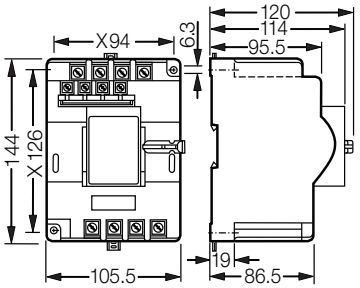


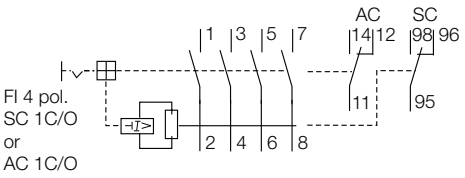
Dimension drawing | Termination diagram



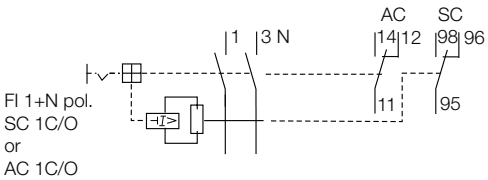
Module size 2



Module size 4 **X = fixing dimensions**



1-pole + N + AC or SC



4-pole + AC or SC

MC = Main contact
AC = Auxiliary contact
SC = Signal contact

Dimensions in mm

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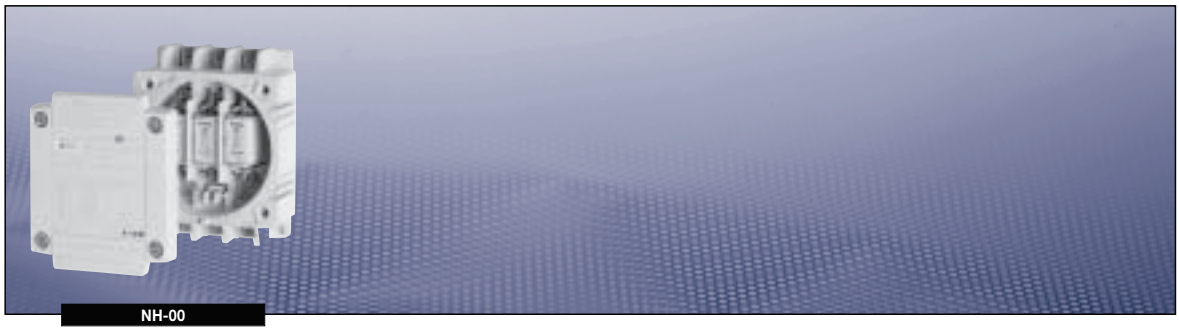
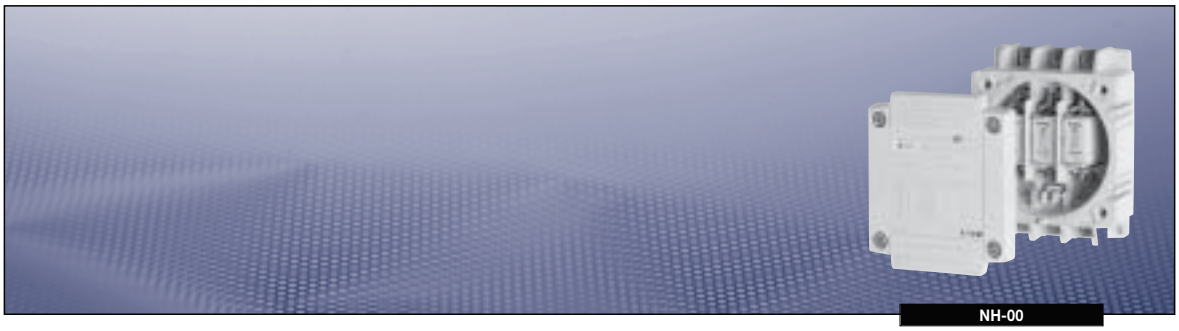

NH-00

Technical data

NH 00 Main fuse up to 125 A		
Marking to 94/9/EC		Ⓔx II 2 G EEx de IIC
EC Type Examination Certificate		PTB 99 ATEX 1066 U
IECEx Certificate of Conformity		IECEx BKI 07.0035 U
Marking accd. to IECEx		Ex de IIC
Application temperature[1)]		–20 °C to +40 °C
Rated voltage	Main contact	690 V
	Auxiliary contact	max. 250 V AC
Rated current	Main contact	2 A to 125 A
	Auxiliary contact	max. 5 A
Rated switching capacity		100 kA
Terminal cross-section		bis 95 mm^2
Terminal cross-section		up to 25 A 4 mm^2
		up to 35 A 6 mm^2
		up to 50 A 10 mm^2
		up to 63 A 25 mm^2
		up to 100 A 50 mm^2
		up to 125 A 70 mm^2
Signal contact		2 x 2.5 mm^2 fine wire
Weight		approx. 3.5 kg (without fuse)
Enclosure material		Glass-fibre reinforced polyester
Enclosure colour		white
Options		Signal contact

[1)] Depend on installation

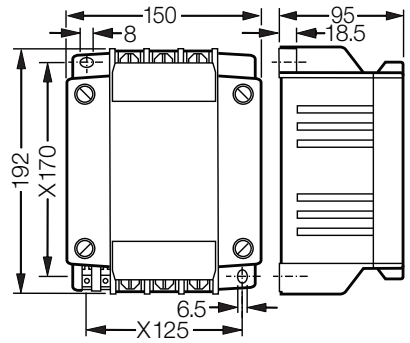


Ordering details NH 00 Main fuse up to 125 A

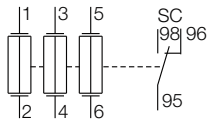
Version	Rated current	Mounting width	Order No.
Equipped without signal contact (SPP 2 pcs.)			
3-pole	2 A - 125 A	150 mm	**GHG 610 1940 R0001**
Equipped with signal contact (1 change-over) (SPP 2 pcs.)			
3-pole	2 A - 125 A	150 mm	**GHG 610 1940 R0002**

Delivery with fuses on request

Dimension drawing | Termination diagram



X = fixing dimensions



NH 00

SC = Signal contact

Dimensions in mm

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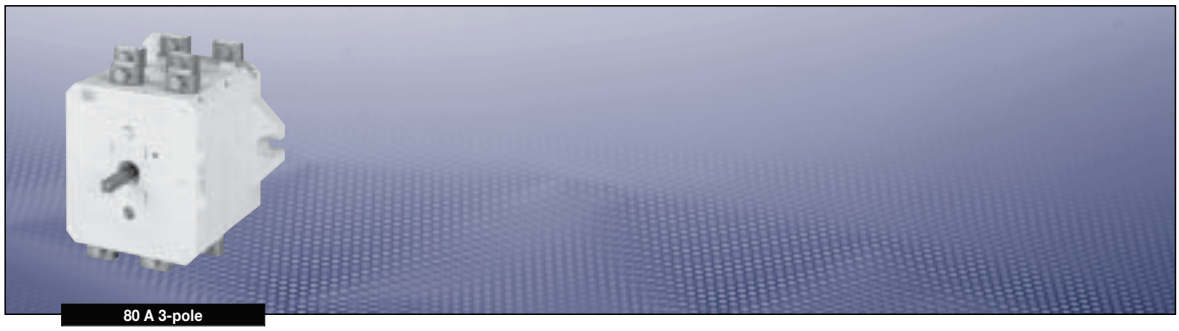
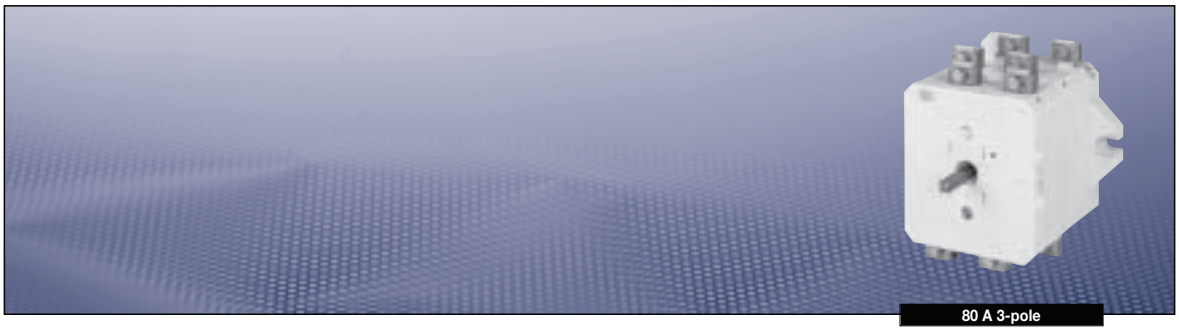


Technical data

Main switch up to 180 A						
Marking to 94/9/EC		⟨Ex⟩ II 2 G EEx de IIC				
EC Type Examination Certificate						
	Switch 20 A	PTB 98 ATEX 1117 U				
	Switch 40 A	PTB 99 ATEX 1031 U				
	Switch 80 A	PTB 00 ATEX 1069 U				
	Switch 125 A to 180 A	PTB 99 ATEX 1062 U				
IECEx Certificate of Conformity						
	Switch 20 A	IECEx BKI 07.0004 U				
	Switch 40 A	IECEx BKI 07.0006 U				
	Switch 80 A	IECEx BKI 07.0006 U				
	Switch 125 A to 180 A	IECEx BKI 07.0003 U				
Marking accd. to IECEx		Ex de (ia/ib) IIC				
Application temperature[1)]		–20 °C up to +40 °C				
Rated voltage		690 V				
Type of switch		20 A	40 A	80 A	125 A	180 A
Rated current		20 A	40 A	80 A	125 A	180 A
Rated switching capacity AC 3						
	230 V to 400 V	20 A	40 A	80 A	125 A	180 A
	500 V	16 A	40 A	80 A	125 A	150 A
	690 V	10 A	32 A	63 A	110 A	125 A
Back-up fuse to 500 V/gL		35 A	80 A	160 A	200 A	250 A
Terminal cross-section	Switch 20 A	2 x 1.5 to 4 mm^2				
	Switch 40 A	2 x 4 to 16 mm^2				
	Switch 80 A	2 x 4 to 25 mm^2 with cable lug 1 x 35 mm^2				
	Switch 125 A	2 x 4 to 70 mm^2 with cable lug 1 x 120 mm^2				
	Switch 180 A	2 x 50 to 150 mm^2				
Weight		1.0 kg	1.2 kg	3.68 kg	6.3 kg	6.5 kg
Enclosure material		glass-fibre reinforced polyester				
Enclosure colour		white				

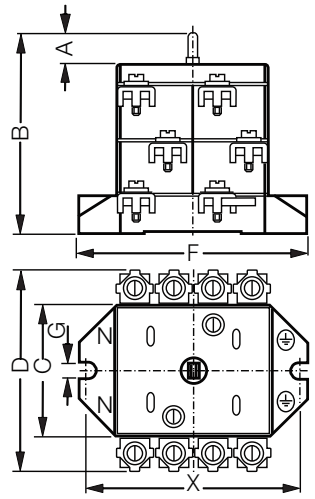
[1)] Depend on installation


80 A 3-pole

Ordering details Main switch up to 180 A

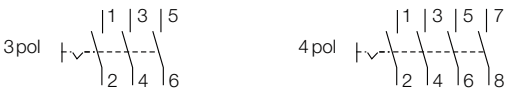
Version	Rated current	Order No.
Type 3-pole		
3-pole	20 A	**GHG 260 1004 R0005**
3-pole	40 A	**GHG 260 1005 R0005**
3-pole	80 A	**GHG 260 1006 R0005**
3-pole	125 A	**GHG 260 1007 R0003**
3-pole	180 A	**GHG 260 1008 R0003**
Type 4-pole		
4-pole	20 A	**GHG 260 1004 R0006**
4-pole	40 A	**GHG 260 1005 R0006**
4-pole	80 A	**GHG 260 1006 R0006**
4-pole	125 A	**GHG 260 1007 R0004**
4-pole	180 A	**GHG 260 1008 R0004**

Dimension drawing | Termination diagram



Main switch

Dimensions	Switch 20 A	40 A	80 A	125 A/180 A
A	21.5	34	38.5	16
B	83	87	130	159
C	50	73	131	146
D	70.4	118	165	194
X	72	115	141	170
F	80	128	161	193
G	6.3	6.3	9.5	12



Dimensions in mm

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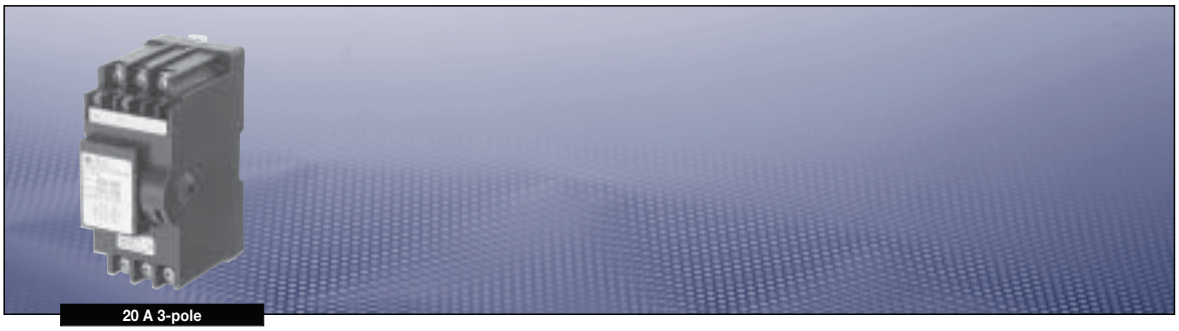
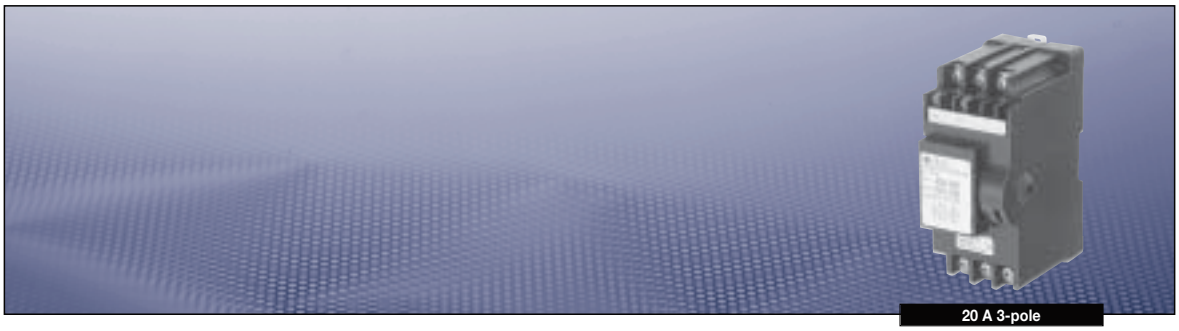

20 A 3-pole

Technical data

Air-break contactor 20 A			
Marking to 94/9/EC		Ⓔx II 2 G EEx de IIC	
EC Type Examination Certificate		PTB 98 ATEX 1087 U	
IECEx Certificate of Conformity		IECEx BKI 07.0038 U	
Marking accd. to IECEx		Ex de IIC	
Application temperature[1)]		–20 °C to +40 °C	
Rated voltage	Main contact	max. 690 V/AC	
	Auxiliary contact	max. 250 V/AC	
Rated switching capacity		12 V to 690 V	
Rated current	Main contact	max. 20 A	
	Auxiliary contact	max. 6 A	
Power dissipation per pole		3.5 W	
		Main contact	Auxiliary contact
Rated switching capacity AC3	230 V	2.2 KW	4 A (AC-11)
	400 V	4 KW	
	690 V	4 KW	
Terminal cross-section			
	Main contact	2 x 10 mm² fine wire with wire end sleeve/single wire	
	Auxiliary contact	2 x 2.5 mm² fine wire with wire end sleeve/single wire	
	Control contact/		
	Coil connection	2 x 2.5 mm² fine wire with wire end sleeve/single wire	
Weight		1.26 kg size 3	
Enclosure material		glass-fibre reinforced polyester	
Enclosure colour		black	
Options		Auxiliary contact	

[1)] Depend on installation



Ex-Built-in components

Air-break contactor 20 A

GHG 618 3104 RXXXX ← Auxiliary contact

One auxiliary contact for mounting width 70mm

	Auxiliary contacts (XXXX)	
Coil voltage 50/60 Hz	1 NO	1 NC
24 V	**0101**	**0201**
42 V	**0102**	**0202**
48 V	**0103**	**0203**
110 V	**0104**	**0204**
220 V	**0105**	**0205**
240 V	**0106**	**0206**
380 V	**0107**	**0207**
400 V	**0110**	**0210**
12 V DC	**0131**	**0231**
24 V DC	**0132**	**0232**
42 V DC	**0133**	**0233**
48 V DC	**0134**	**0234**
60 V DC	**0135**	**0235**
110 V DC	**0136**	**0236**
220 V DC	**0137**	**0237**

GHG 618 3105 RXXXX ← Auxiliary contact

Two auxiliary contacts mounting width 70mm

	Auxiliary contacts (XXXX)		
Coil voltage 50/60 Hz	1 NO 1 NC	2 NC	2 NO
24 V	**0101**	**0201**	**0301**
42 V	**0102**	**0202**	**0302**
48 V	**0103**	**0203**	**0303**
110 V	**0104**	**0204**	**0304**
220 / 230 V	**0105**	**0205**	**0305**
230 / 240 V	**0106**	**0206**	**0306**
400 V	**0107**	**0207**	**0307**
440 V	**0108**	**0208**	**0308**
24 V DC	**0111**	**0211**	**0311**
12 V DC	**0112**	**0212**	**0312**
48 V DC	**0114**	**0214**	**0314**
60 V DC	**0115**	**0215**	**0315**
110 V DC	**0116**	**0216**	**0316**
220 V DC	**0117**	**0217**	**0317**

Example

GHG 618 31 05 R B

GHG 618 3105 R **0206**

Air-break contactor coil voltage 230/240 V 2 NC

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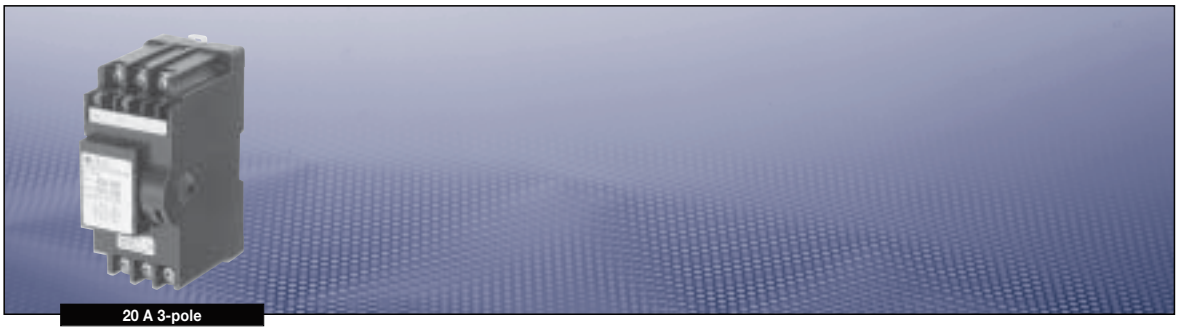
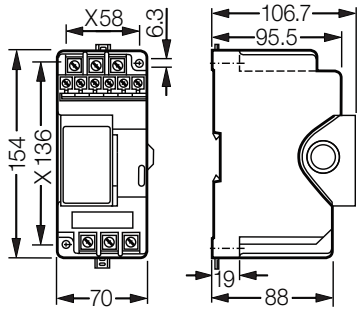
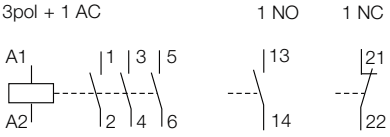


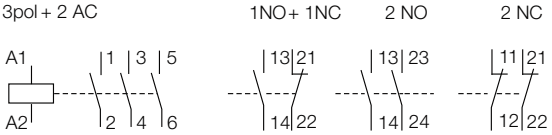
Dimension drawing | Main contact | Auxiliary contact



Module size 3

X = fixing dimensions





AC = Auxiliary contact

Dimensions in mm

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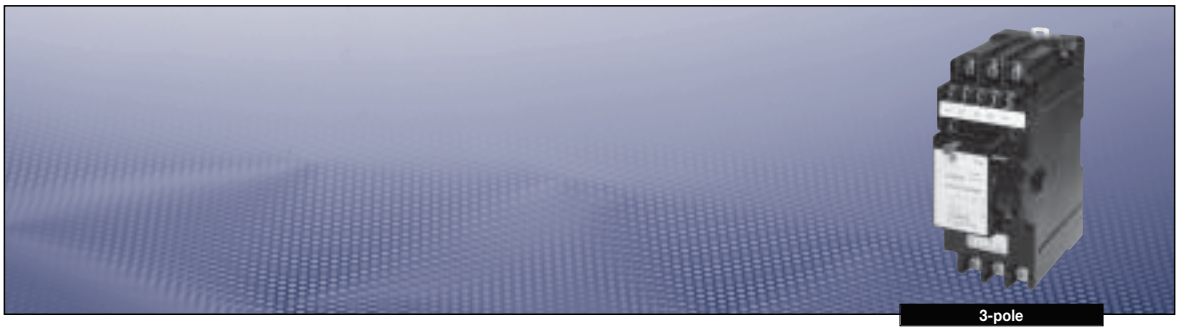

Technical data

Motor starter for direct on-line starting with thermal release 4 kW			
Marking to 94/9/EC		Ⓔx II 2 G EEx de IIC	
EC Type Examination Certificate		PTB 98 ATEX 1087 U	
IECEx Certificate of Conformity		IECEx BKI 07.0038 U	
Marking accd. to IECEx		Ex de IIC	
Application temperature[1)]		–20 °C to +40 °C	
Rated voltage	Main contact	max. 690 V/AC	
Rated switching capacity		12 V to 690 V	
Rated current	Main contact	max. 20 A	
	Auxiliary contact	max. 6 A	
Power dissipation per pole		2 W	
		Main contact	Auxiliary contact
Rated switching capacity AC3	230 V	2.2 kW	4 A (AC-15)
	400 V	4 kW	
	690 V	4 kW	
Back-up fuse		20 A gL	
Terminal cross-section			
	Main contact	2 x 10 mm² fine wire with wire end sleeve/single wire	
	Auxiliary contact/		
	Coil connection	2 x 2.5 mm² fine wire with wire end sleeve/single wire	
	Control contact	2 x 2.5 mm² fine wire with wire end sleeve/single wire	
Weight		1.72 kg size 3	
Enclosure material		Glass-fibre reinforced polyester	
Enclosure colour		black	
Options		Auxiliary contact	

[1)] Depend on installation

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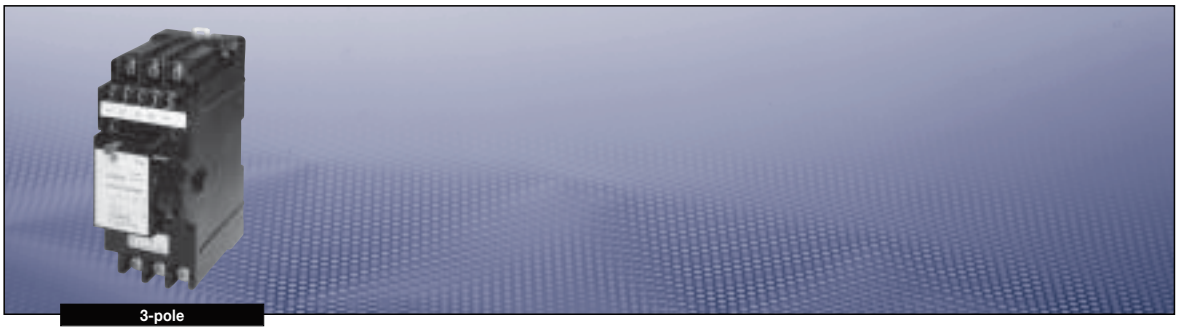

Ex-Built-in components

Motor starter for direct on-line starting with thermal release 4 kW

GHG 618 3102 RXXYY

1. Rated current | 2. Coil voltage

Ordering details Type: 3-pole

1. Rated current	XX	2. Coil voltage	YY
Contact mounting width 70 mm			
0.11 A - 0.16 A	**01**	100 V	**04**
0.16 A - 0.23 A	**02**	230 V	**05**
0.23 A - 0.36 A	**03**	240 V	**06**
0.36 A - 0.54 A	**04**	120 V	**07**
0.54 A - 0.80 A	**05**	400 V	**08**
0.80 A - 1.20 A	**06**	440 V	**09**
1.20 A - 1.8 A	**07**	380 / 400 V	**10**
1.8 A - 2.6 A	**08**	24 V DC	**32**
2.6 A - 3.7 A	**09**	48 V DC	**34**
3.7 A - 5.5 A	**10**	110 V DC	**36**
5.5 A - 8.0 A	**11**		
8.0 A - 11.5 A	**12**		

Example

GHG 618 31 02 R B C

GHG 618 31 02 R **08** **05**

Rated current 230 V | Coil voltage 230 V

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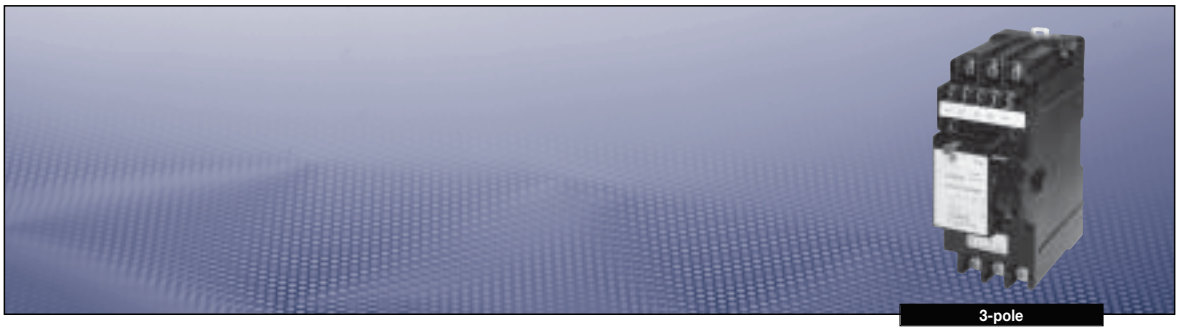
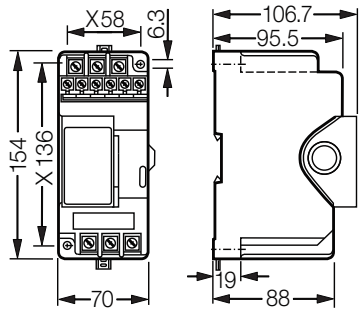
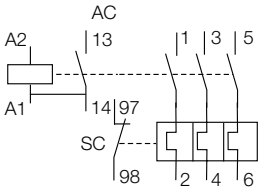


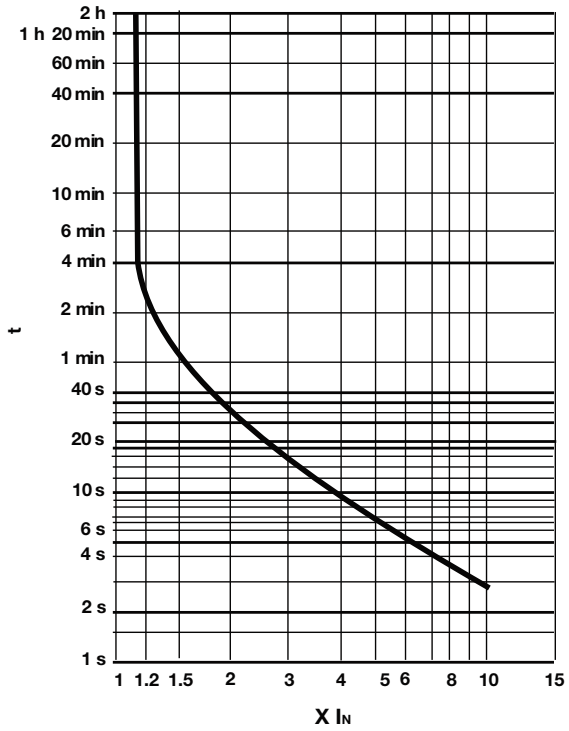
Dimension drawing | Main contacts



Module size 3



Main contacts



AC = Auxiliary contact
SC = Signal contact

Dimensions in mm

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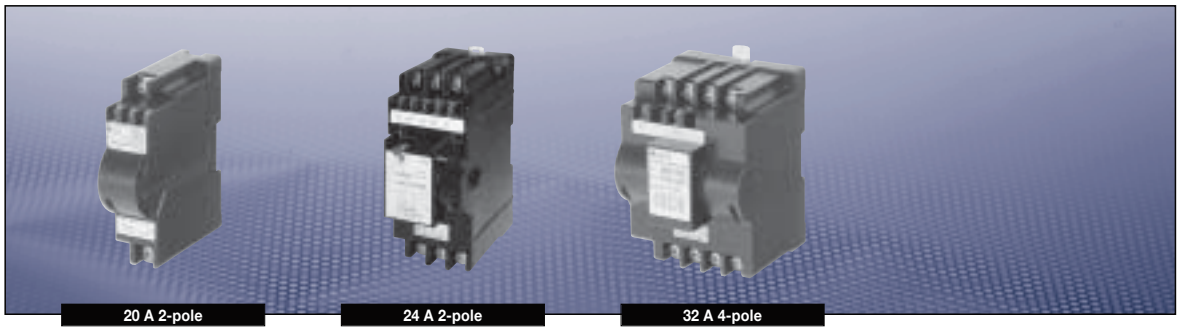
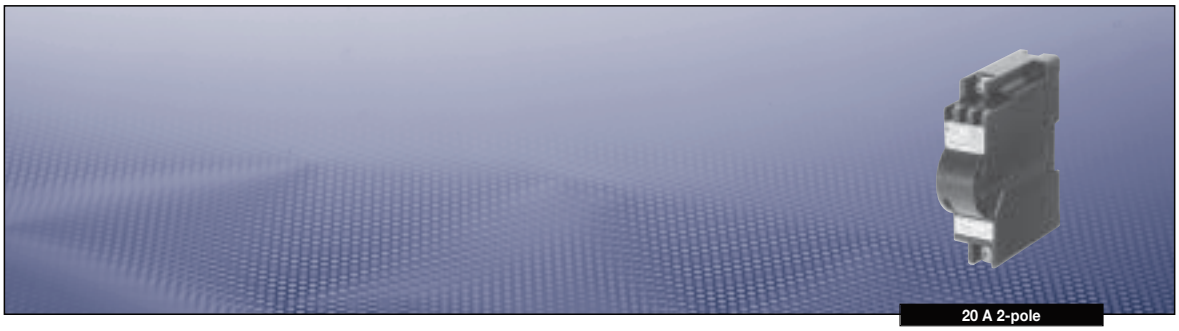


Technical data

Installation contactor 20 A up to 32 A			
Marking to 94/9/EC	Ⓔx II 2 G EEx de IIC		
EC Type Examination Certificate	PTB 98 ATEX 1087 U		
IECEx Certificate of Conformity	IECEx BKI 07.0038 U		
Marking accd. to IECEx	Ex de IIC		
Application temperature[1)]	–20 °C to +40 °C		
Contactor	20 A	24 A	32 A
Rated voltage			
Main contact	max. 250 V	440 V	440 V
Auxiliary contact	–	440 V	440 V
Control voltage	24 V to 400 V AC		
Rated current			
Main contact NC	20 A	24 A	32 A
Main contact NO	20 A	24 A	32 A
Auxiliary contact			6 A
Rated switching capacity			
Main contact AC 1 - 230 V	4.0 kW	9.0 kW	15.2 kW
Main contact AC 1 - 400 V	–	16 kW	26 kW
Main contact AC 3 - 230 V	1.3 kW	2.2 kW	5.5 kW
Main contact AC 3 - 400 V	–	4.0 kW	11 kW
DC 3 1 current path 60 V/230 V	–	4 A/0.2 A	5 A/0.3 A
DC 3 2 current paths 60 V/230 V	–	14 A/1.0 A	16 A/1.1 A
DC 3 3 current paths 60 V/230 V	–	24 A/4.0 A	34 A/4.5 A
Auxiliary contact at 230 V	–		4 A
Auxiliary contact at 400 V		3 A	3 A
Power dissipation per pole	3.3 W	3.3 W	5.6 W
Back-up fuse	20 A gL	35 A gL	63 A gL
Terminal cross-section			
Main contact	2 x 10 mm² fine wire with wire end sleeve/single wire		
Auxiliary contact/Coil connection	2 x 2.5 mm² fine wire with wire end sleeve/single wire		
Control contact	2 x 2.5 mm² fine wire with wire end sleeve/single wire		
Weight	0.55 kg size 0	1.2 kg size 3	1.65 kg size 4
Enclosure material	Glass-fibre reinforced polyester		
Enclosure colour	black		
Options	Auxiliary contact		

[1)] Depend on installation



Ex-Built-in components

Installation contactor 20 A

Coil voltage and contacts

Coil voltage AC 50/60 Hz	Contacts	Order No.
24 V	2 NO	**GHG 618 0001 R0010**
24 V	2 NC	**GHG 618 0001 R0011**
24 V	1 NO / 1 NC	**GHG 618 0001 R0012**
42 V	2 NO	**GHG 618 0001 R0007**
42 V	2 NC	**GHG 618 0001 R0008**
42 V	1 NO / 1 NC	**GHG 618 0001 R0009**
110 V	2 NO	**GHG 618 0001 R0004**
110 V	2 NC	**GHG 618 0001 R0005**
110 V	1 NO / 1 NC	**GHG 618 0001 R0006**
230 V	2 NO	**GHG 618 0001 R0001**
230 V	2 NC	**GHG 618 0001 R0002**
230 V	1 NO / 1 NC	**GHG 618 0001 R0003**
240 V	2 NO	**GHG 618 0001 R0016**
240 V	2 NC	**GHG 618 0001 R0017**
240 V	1 NO / 1 NC	**GHG 618 0001 R0018**
380 V	2 NO	**GHG 618 0001 R0013**
380 V	2 NC	**GHG 618 0001 R0014**
380 V	1 NO / 1 NC	**GHG 618 0001 R0015**

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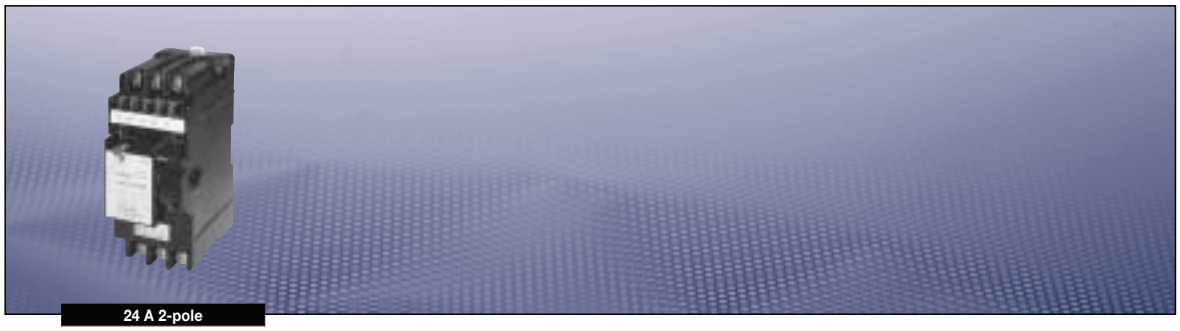

Ex-Built-in components

Installation contactor 24 A

GHG 618 3118 RXXXX

Coil voltage / Contacts

Coil voltage and contacts

Coil voltage	Contacts (XXXX)			
AC 40 – 400 Hz/DC	1 NO / 3 NC	2 NO / 2 NC	3 NO / 1 NC	4 NO
24 V	**1301**	**2201**	**3101**	**4001**
42 V	**1302**	**2202**	**3102**	**4002**
48 V	**1303**	**2203**	**3103**	**4003**
110-127 V	**1304**	**2204**	**3104**	**4004**
240 V	**1305**	**2205**	**3105**	**4005**
230-240 V	**1306**	**2206**	**3106**	**4006**
380-415 V	**1307**	**2207**	**3107**	**4007**
12 V	**1309**	**2209**	**3109**	**4009**
24 V	**1311**	**2211**	**3111**	**4011**
110 V	**1314**	**2214**	**3114**	**4014**
220-240 V	**1316**	**2216**	**3116**	**4016**
380-415 V	**1317**	**2217**	**3117**	**4017**

Example

GHG 618 31 18 R B

GHG 618 31 18 R **2206**

Installation contactor 24 A — Coil voltage 230 - 240 V 2NO 2NC

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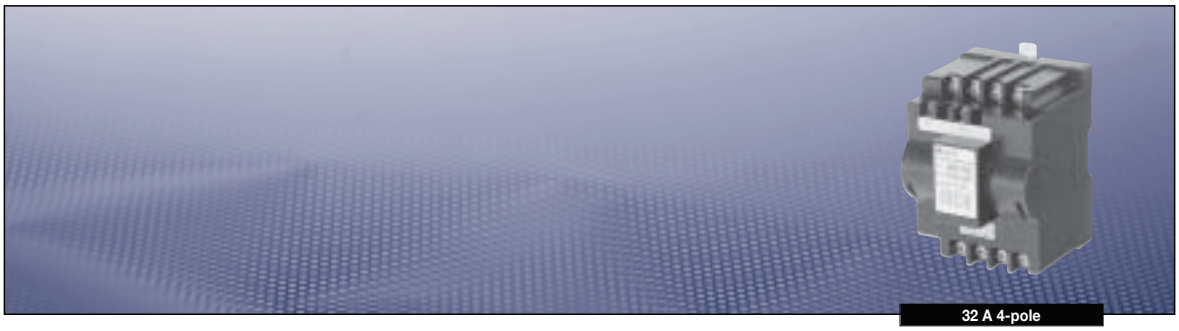

Ex-Built-in components

Installation contactor 32 A

GHG 618 4109 RYYYY

Coil voltage / Contacts

Coil voltage and contacts

Coil voltage	Contacts (YYYY)		
AC 40 – 400 Hz/DC	4 x MC	4 x MC + 1NC (AC)	4 x MC + 1NO (AC)
24 V	**4001**	**4011**	**4021**
48 V	**4003**	**4013**	**4023**
110 V	**4004**	**4014**	**4024**
240 V	**4005**	**4015**	**4025**
230 V	**4006**	**4016**	**4026**
380 V	**4007**	**4017**	**4027**
415 V	**4008**	**4018**	**4028**

Example

GHG 618 41 A R B

GHG 618 41 **09** R **4015**

Installation contactor 32 A — Coil voltage 240 V 1NC

MC = Main contact

AC = Auxiliary contact

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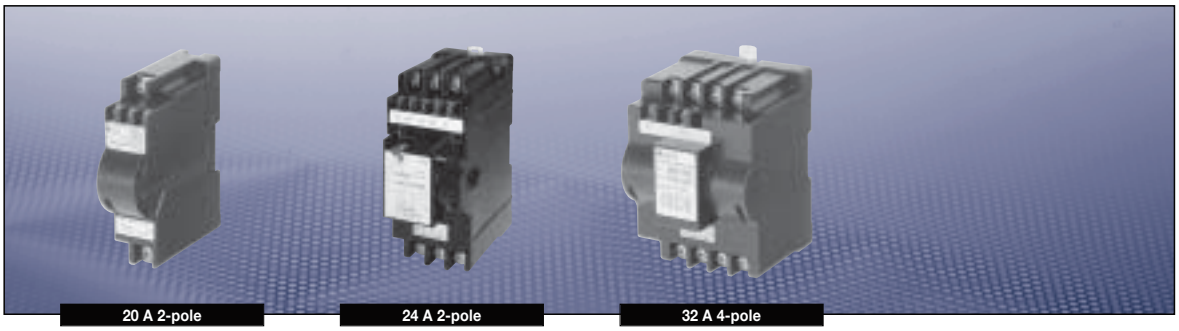
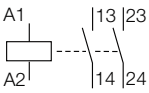
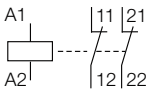


Termination diagram

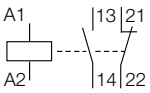
2 NO



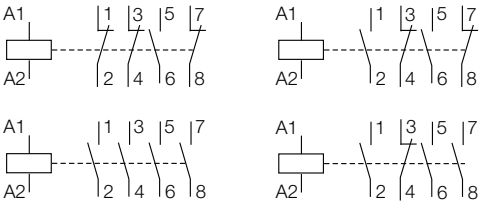
2 NC



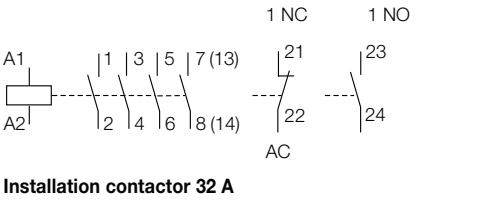
1 NO + 1 NC



Installation contactor 20 A



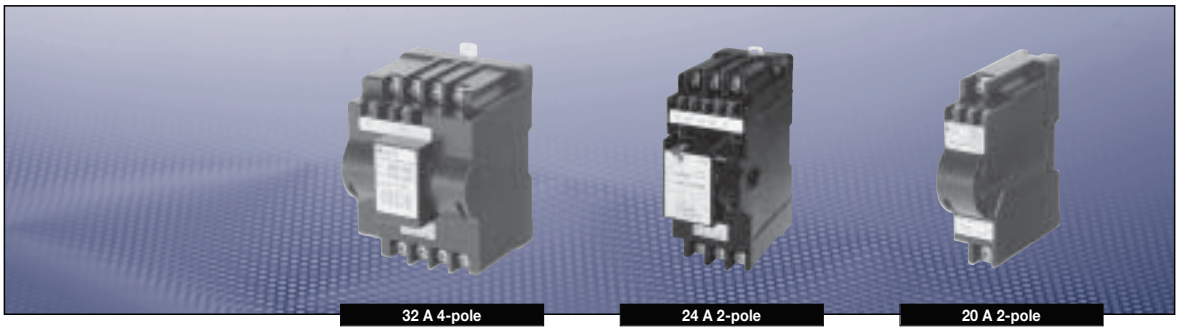
Installation contactor 24 A



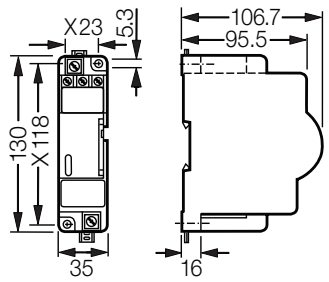
Installation contactor 32 A

AC = Auxiliary contact

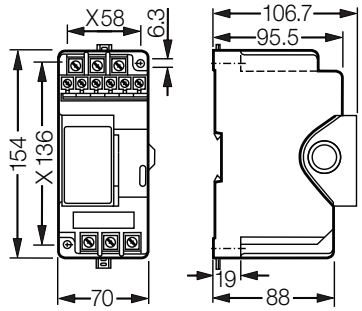
Dimensions in mm



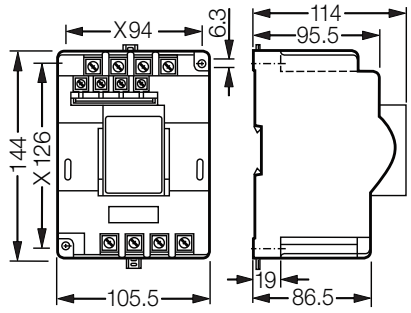
Dimension drawing



Module size 0



Module size 3



Module size 4

X = fixing dimensions

Dimensions in mm

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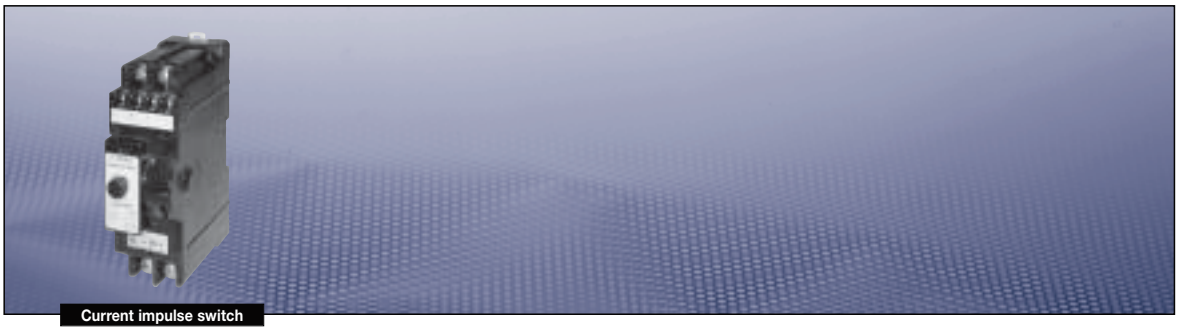
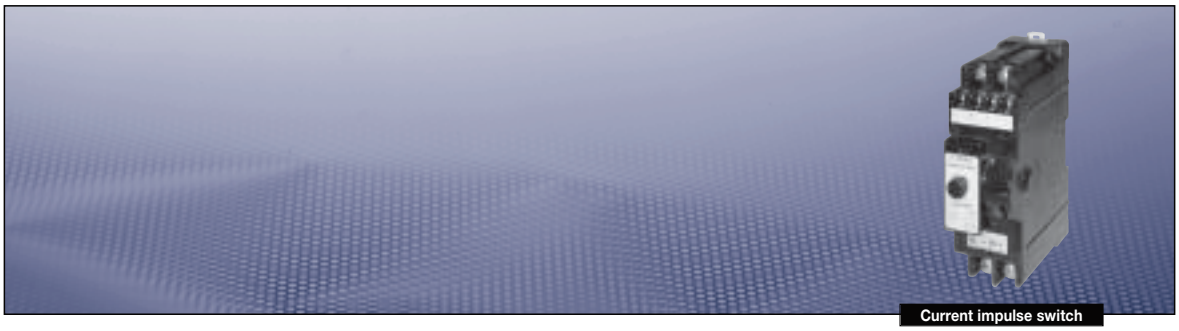


Current impulse switch

Technical data

Current impulse switch up to 16 A		
Marking to 94/9/EC		Ⓔx II 2 G EEx de IIC
EC Type Examination Certificate		PTB 98 ATEX 1087 U
IECEx Certificate of Conformity		IECEx BKI 07.0038 U
Marking accd. to IECEx		Ex de IIC
Application temperature[1)]		–20 °C to +40 °C
Rated voltage	Contact	400 V AC
Rated current	Contact	16 A
Rated switching capacity AC3	Contact	250 V: 16 A, 400 V: 10 A
Power dissipation per pole		2 W
Back-up fuse		16 A gL
Terminal cross-section	Contact	2 x 10 mm^2 fine wire with wire end sleeve/single wire
	Coil connection	2 x 2.5 mm^2 fine wire with wire end sleeve/single wire
Weight		0.95 kg size 2
Enclosure material		Glass-fibre reinforced polyester
Enclosure colour		black

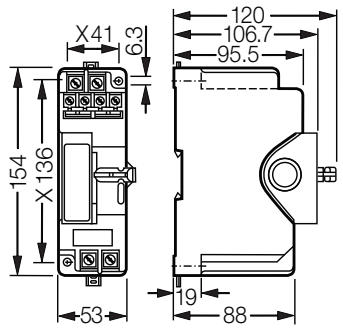
[1)] Depend on installation


Current impulse switch

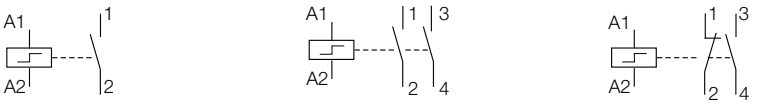
Ordering details

Rated current	Contact	Coil voltage	Mounting width	Order No.
16 A	1 NO	230 V AC	35 mm	**GHG 618 0002 R0004**
16 A	1 NC	230 V AC	35 mm	**GHG 618 0002 R0005**
16 A	1 NO + 1NC	230 V AC	35 mm	**GHG 618 0002 R0012**

Dimension drawing | Termination diagram



Module size 2 **X = fixing dimensions**



Termination diagram current impulse switch

Dimensions in mm

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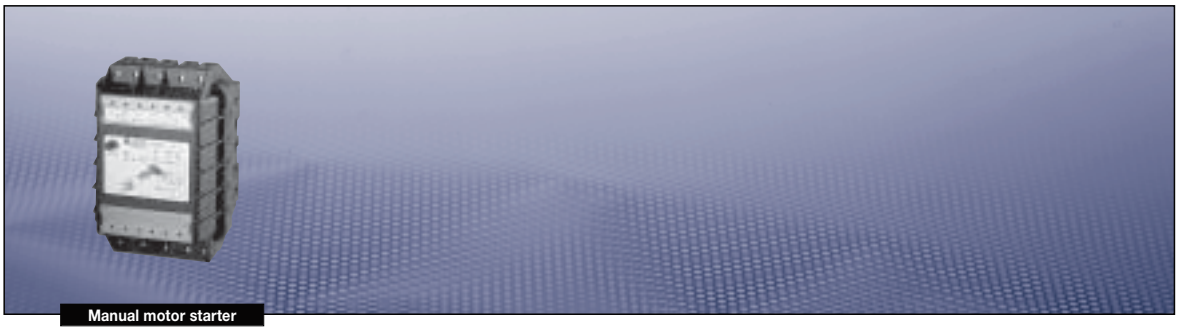


Manual motor starter

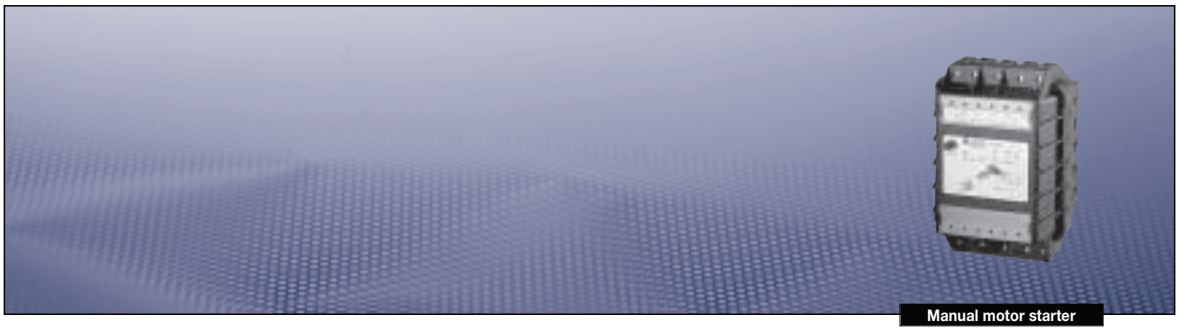
Technical data

Manual motor starter 0.1 A up to 25 A		
Marking to 94/9/EC		Ⓔx II 2 G EEx de IIC
EC Type Examination Certificate		PTB 99 ATEX 1007 U
IECEx Certificate of Conformity		IECEx BKI 07.0038 U
Marking accd. to IECEx		Ex de IIC
Application temperature[1)]		–20 °C to +55 °C
Rated voltage	Main contact	690 V AC, 50/60 Hz, 440 V DC
	Auxiliary contact	110 V; 230; 400 V; 500 V 50/60 Hz
Rated current	Main contact	25 A
Rated current	Auxiliary contact	230 V/2 A 400 V/0.5 A
Rated switching capacity AC3	Main contact	25 A
Thermal tripping characteristic		T II
Tripping time at 6x Ie		≥ 5 sec.
Back-up fuse	Main contact	see table
	Auxiliary contact	not required
Terminal cross-section	Main contact	2 x (0.75 to 4.0 mm²)
	Auxiliary contact	2 x 2.5 mm²
Dimensions (L x W x H)		Mounting width 106 mm
Weight		1.3 kg
Enclosure material		Glass-fibre reinforced polyester
Enclosure colour		black
Mounting		35 mm top hat rail (DIN-rail)
Options		Auxiliary contact

[1)] Depend on installation

Short-circuit protection up to 100 kA and max. back-up fuse protection

Setting range	230 V AC		400 V AC		500 V AC		690 V AC	
	Ics	gL, aM	Ics	gL, aM	Ics	gL, aM	Ics	gL, aM
0.1 ... 0.16 A								
1.0 ... 1.6 A		short-						
1.6 ... 2.5 A		circuit					40 kA	25 A
2.5 ... 4.0 A		proof,			60 kA	35/40 A	10 kA	40 A
4.0 ... 6.3 A		no back-up			40 kA	50 A	7 kA	40 A
6.3 ... 9.0 A		fuse			30 kA	80 A	5 kA	50 A
9.0 ... 12.5 A		required	75 kA	80 A	27 kA	80 A	4.5 kA	50 A
12.5 ... 16.0 A			60 kA	100 A	25 kA	100 A	4.0 kA	50 A
16.0 ... 20.0 A			55 kA	100 A	22 kA	100 A	3.5 kA	50 A
20.0 ... 25.0 A	50 kA	125 A	50 kA	125 A	20 kA	125 A	3.0 kA	50 A


Manual motor starter

Ex-Built-in components

Manual motor starter 0.1 A to 25 A

GHG 635 XXXX RYYYY

1. Auxiliary contacts
2. Setting range

Ordering details

Setting range	Undervoltage	Auxiliary contacts XXXX				Setting range
	trip (UT)	without AC	1NO / 1NC AC	2NO AC	1NC AC	YYYY
0.10 – 0.16	–	–	1032	1033	–	0001
0.16 – 0.25	–	–	1032	1033	–	0002
0.25 – 0.40	–	1031	1032	1033	–	0003
0.40 – 0.63	–	1031	1032	1033	–	0004
0.63 – 1.00	–	1031	1032	1033	1034	0005
1.00 – 1.60	–	1031	1032	1033	1034	0006
1.60 – 2.50	–	1031	1032	1033	–	0007
2.50 – 4.00	–	1031	1032	1033	–	0008
4.00 – 6.30	–	1031	1032	1033	–	0009
6.30 – 9.00	–	1031	1032	1033	–	0010
9.00 – 12.50	–	1031	1032	1033	–	0011
12.50 – 16.00	–	1031	1032	1033	–	0012
16.00 – 20.00	–	1031	1032	1033	–	0013
20.00 – 25.00	–	–	1032	1033	–	0014
0.25 – 0.40	230 V	–	–	–	–	0103
0.40 – 0.63	230 V	1031	–	–	–	0104
0.63 – 1.00	230 V	–	1032	–	–	0105
1.00 – 1.60	230 V	1031	1032	–	–	0106
1.60 – 2.50	230 V	1031	1032	–	–	0107
2.50 – 4.00	230 V	1031	1032	–	–	0108
4.00 – 6.30	230 V	–	1032	–	–	0109
6.30 – 9.00	230 V	1031	1032	–	–	0110
9.00 – 12.50	230 V	1031	–	–	–	0111
16.00 – 20.00	230 V	–	–	–	–	–
20.00 – 25.00	230 V	–	–	–	–	–
0.25 – 0.40	400 V	–	1032	–	–	0203
2.50 – 4.00	400 V	1031	1032	–	–	0208
4.00 – 6.30	400 V	–	1032	–	–	0209

AC = Auxiliary contact

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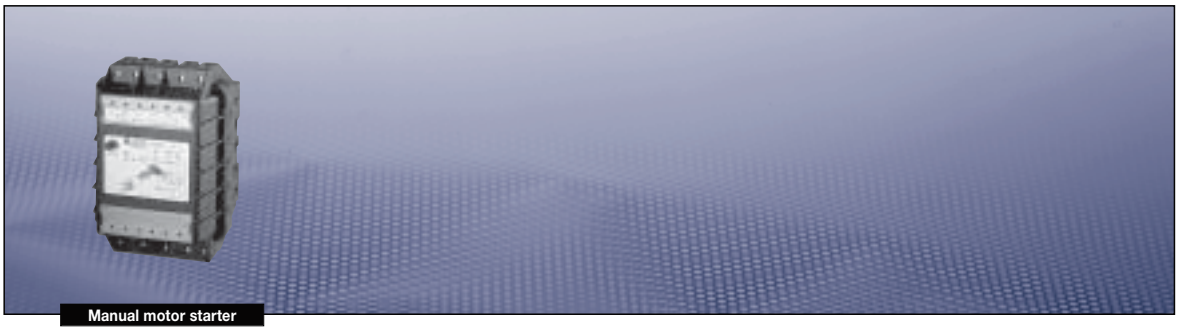
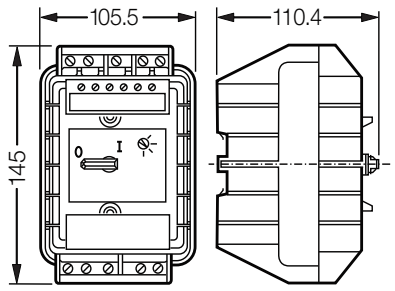
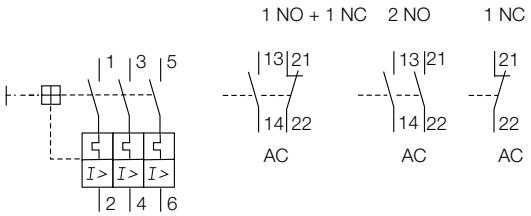


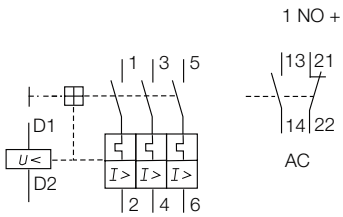
Dimension drawing



Manual motor starter 25 A



without undervoltage trip



with undervoltage trip

AC = Auxiliary contact

Dimensions in mm

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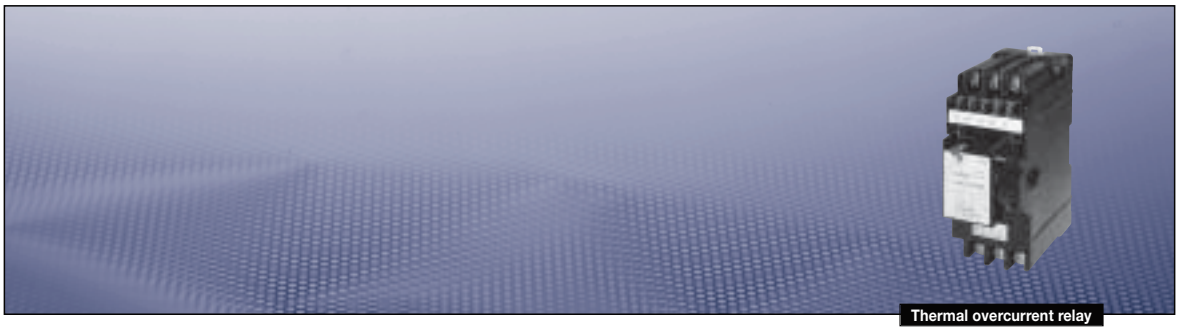
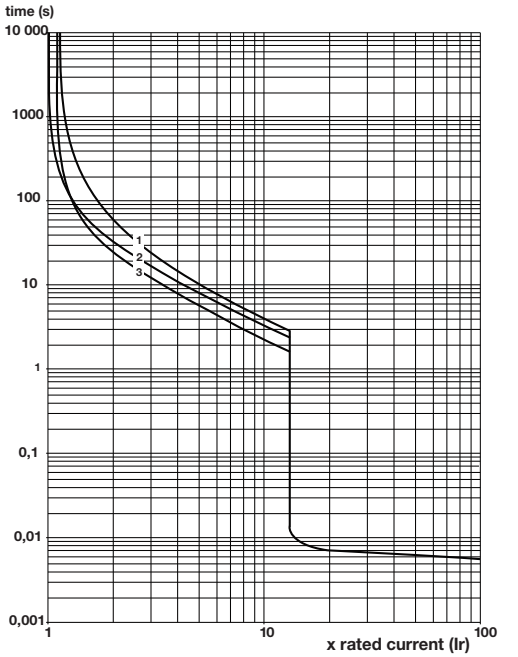

Thermal overcurrent relay

Technical data

Thermal overcurrent relay		
Marking to 94/9/EC		Ⓔx II 2 G EEx de IIC
EC Type Examination Certificate		PTB 98 ATEX 1087 U
IECEx Certificate of Conformity		IECEx BKI 07.0038 U
Marking accd. to IECEx		Ex de IIC
Application temperature[1)]		–20 °C to +40 °C
Rated voltage		690 V AC, 50/60 Hz
Rated operating voltage		690 V AC, 50/60 Hz
Release current		Thermal tripping with phase failure protection, manual reset
Rated voltage	Auxiliary contact	690 V AC
Rated current	Auxiliary contact	6 A
Terminal cross-section	Main contact	2 x 10 mm² fine wire with wire end sleeve/single wire
	Auxiliary contact/ Coil connection	2 x 2.5 mm² fine wire with wire end sleeve/single wire
Dimensions (L x W x H)		Mounting width 70 mm
Weight		1.1 kg size 3
Enclosure material		Glass-fibre reinforced polyester
Enclosure colour		black
Options		Auxiliary contact

[1)] Depend on installation

Tripping characteristic



Mean tripping time at 20°C in relationship to the multiple rated current

1. 3-pole load at cold condition
2. 2-pole load at cold condition
3. 3-pole load at warm condition

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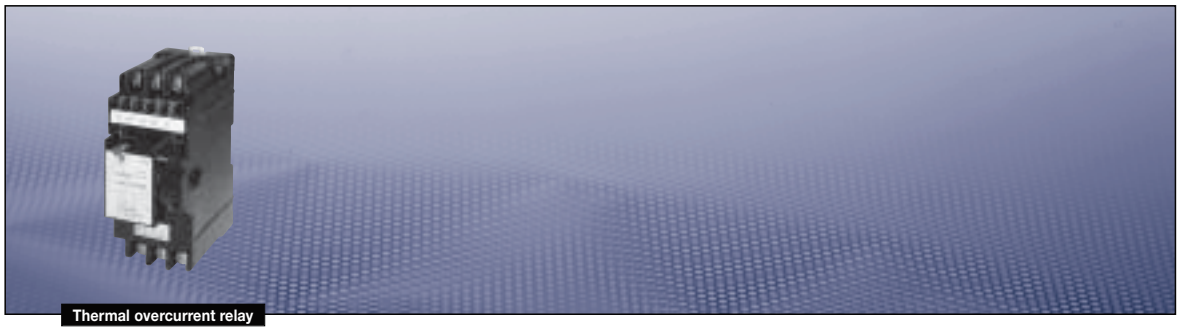

Thermal overcurrent relay

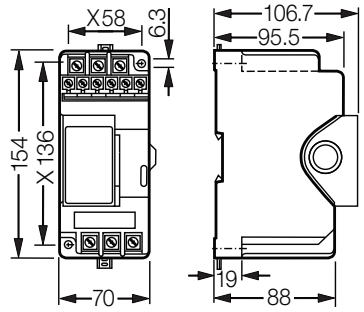
Ex-Built-in components

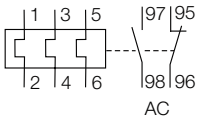
Thermal overcurrent relay

Release current

Release current	Order No.
0.1 A - 0.16 A	**GHG 618 3103 R0012**
0.16 A - 0.23 A	**GHG 618 3103 R0001**
0.23 A - 0.36 A	**GHG 618 3103 R0002**
0.36 A - 0.54 A	**GHG 618 3103 R0003**
0.54 A - 0.8 A	**GHG 618 3103 R0004**
0.8 A - 1.2 A	**GHG 618 3103 R0005**
1.2 A - 1.8 A	**GHG 618 3103 R0006**
1.8 A - 2.6 A	**GHG 618 3103 R0007**
2.6 A - 3.7 A	**GHG 618 3103 R0008**
3.7 A - 5.5 A	**GHG 618 3103 R0009**
5.5 A - 8.0 A	**GHG 618 3103 R0010**
8.0 A - 11.5 A	**GHG 618 3103 R0011**

Dimension drawing | Termination diagram





Module size 3

X = fixing dimensions

AC = Auxiliary contact

Dimensions in mm

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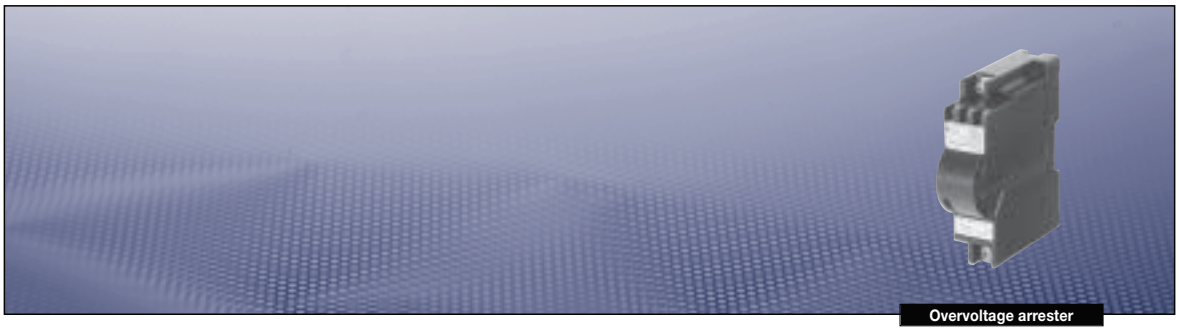

Overvoltage arrester

Technical data

Overvoltage arrester	
Marking to 94/9/EC	Ⓔx II 2 G EEx de IIC
EC Type Examination Certificate	PTB 98 ATEX 1087 U
IECEx Certificate of Conformity	IECEx BKI 07.0038 U
Marking accd. to IECEx	Ex de IIC
Application temperature[1)]	–20 °C to +40 °C
Rated voltage	275 V
Rated discharge surge current I_{sn}	max. 5 kA
Rated forward sureg current I_s	max. 25 kA
Response time	25 ns
Residual voltage at mains operating voltage	approx. 1000 V
Extinction voltage U_L to earth	280 V AC
Tripping current of cut-off device	5 A
Short-circuit protection	25 kA eff
Back-up fuse	max. 63 A gL
Terminal cross-section	2 x 10 mm² fine wire with wire end sleeve/single wire
Dimensions (L x W x H)	Mounting width 35 mm
Weight	0.52 kg size 1
Enclosure material	Glass-fibre reinforced polyester
Enclosure colour	black
Options	tripping indication in inspection window

[1)] Depend on installation

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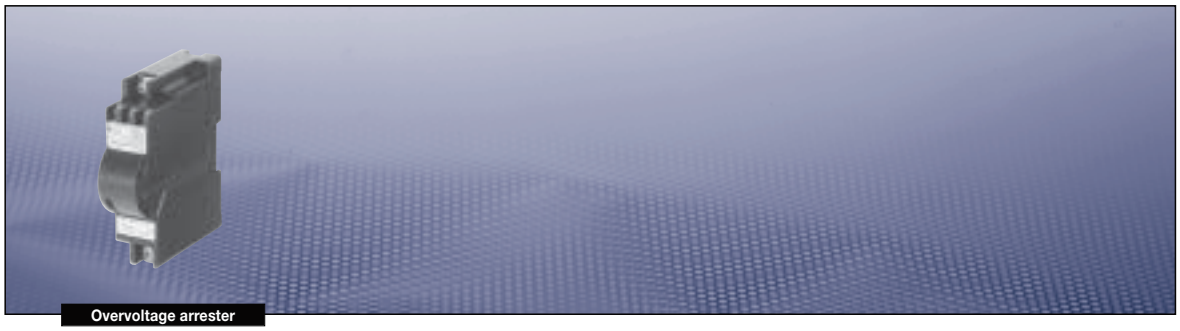
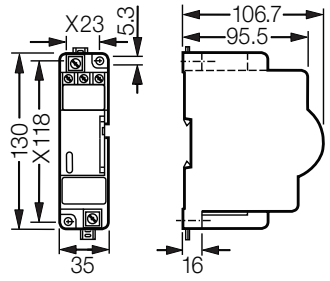


Ordering details

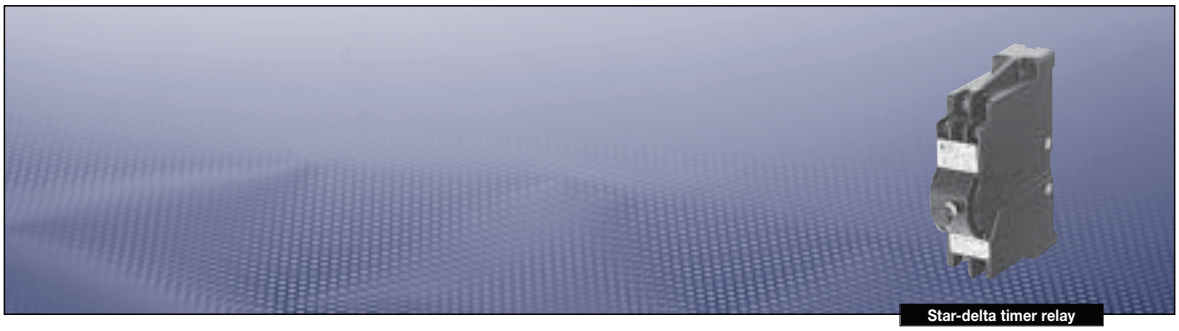
Version	Mounting width	Order No.
Type: 1-pole Equipped with optional tripping indication		
1-pole overvoltage arrester	35 mm	**GHG 612 1003 R0001**

Dimension drawing | Termination diagram



Module size 1

Dimensions in mm


Star-delta timer relay

Technical data

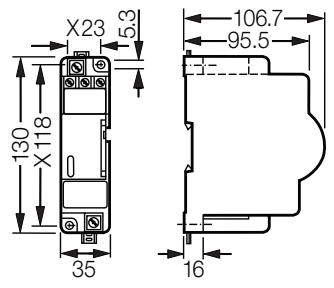
Star-delta timer relay		
Marking to 94/9/EC		Ⓔx II 2 G EEx de IIC
EC Type Examination Certificate		PTB 98 ATEX 1087 U
IECEx Certificate of Conformity		IECEx BKI 07.0038 U
Marking accd. to IECEx		Ex de IIC
Application temperature[1)]		–20 °C to +40 °C
Rated voltage		max. 250 V
Rated swichting capacity		110 V - 127 V AC; 220 V - 240 V AC; 24 V AC/DC
Rated continuous I_{th}		3 A
Power dissipation per pole		2 W
Rated switching capacity AC 15		230 V/3 A
Tripping time		1.5 s to 30 s continuously externally adjustable
Terminal cross-section	Main contact	2 x 10 mm² fine wire with wire end sleeve/single wire
	Auxiliary contact/ Coil connection	2 x 2.5 mm² fine wire with wire end sleeve/single wire
Dimensions (L x W x H)		Mounting width 35 mm
Weight		0.53 kg size 0
Enclosure material		Glass-fibre reinforced polyester
Enclosure colour		black
Options		Auxiliary contact

[1)] Depend on installation

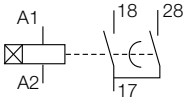
Ordering details

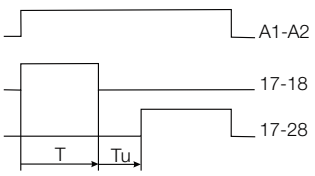
Version	Rated current	Response time	Mounting width	Order No.
Type: 1-pole Equipped with 1 change-over				
1-pole	3 A	1,5 s - 30 s	35 mm	**GHG 618 1102 R 0001**

Dimension drawing | Termination diagram



Module size 1





Characteristic

Dimensions in mm

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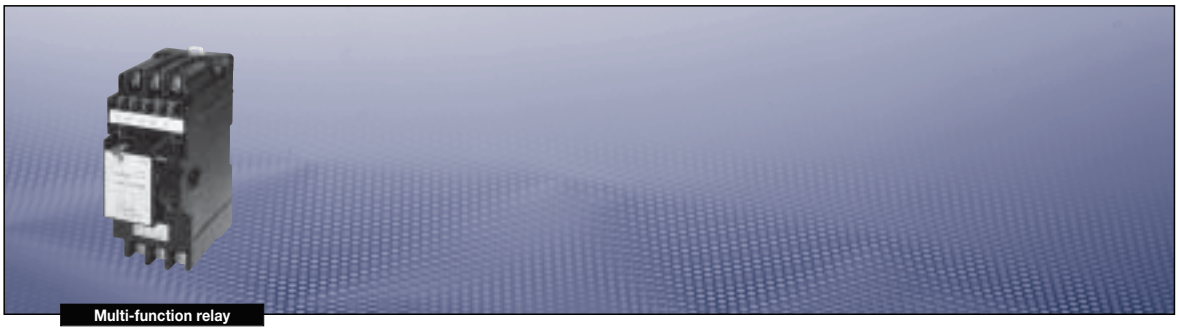

Multi-function relay

Technical data

Multi-function relay		
Marking to 94/9/EC		⟨Ex⟩ II 2 G EEx de IIC
EC Type Examination Certificate		PTB 98 ATEX 1087 U
IECEx Certificate of Conformity		IECEx BKI 07.0038 U
Marking accd. to IECEx		Ex de IIC
Application temperature[1)]		–20 °C to +40 °C
Rated voltage		max. 440 V AC
Rated swichting capacity		24 V AC to 440 V AC or 24 V DC to 240 V DC
Rated current		6 A
Power dissipation per pole		2 W
Rated switching capacity AC 11		440 V/3 A
Rated switching capacity DC 22		24 V / 1 A; 60 V / 0.35 A; 220 V / 0.20 A
Terminal cross-section	Main contact	2 x 10 mm²
	Auxiliary contact/ Coil connection	2 x 2.5 mm²
Dimensions (L x W x H)		Mounting width 70 mm
Weight		1.26 kg, size 2
Enclosure material		Glass-fibre reinforced polyester
Enclosure colour		black
Options		Control contact

[1)] Depend on installation

Ex-Built-in components

Multi-function relay

GHG 618 2910 RXXYY

1. Control function | 2. Response time/time range

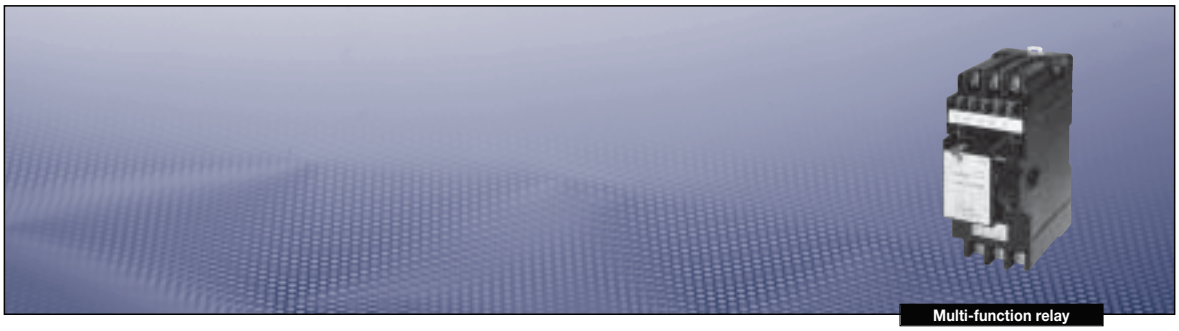
1. Control function

Control function	XX
delayed response	**11**
delayed OFF response	**12**
delayed ON and OFF response	**16**
impulse ON	**21**
impulse OFF	**22**
flashing	**42**
pulsing	**81**
pulse shaper	**82**

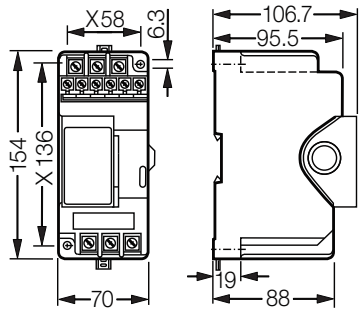
2. Response time/time range

Response time/time range	YY
0.15 min - 3 min	**01**
3 s - 60 s	**02**
0.5 s - 10 s	**03**
0.15 s - 3 s	**04**
0.05 s - 1 s	**05**
0.5 s - 10 min	**06**
3 - 60 min	**07**
0.15 h - 3 h	**08**
0.5 h - 10 h	**09**
3 h - 60 h	**10**

Note: The time setting within the time ranges is performed via potentiometer 10 K Ω (GHG 417 1601 R 0006) to be connected externally.

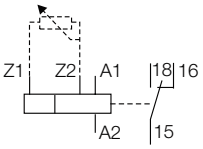


Dimension drawing | Termination diagram | Function diagram

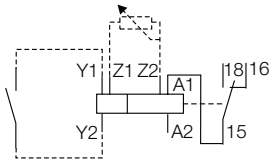


Module size 2

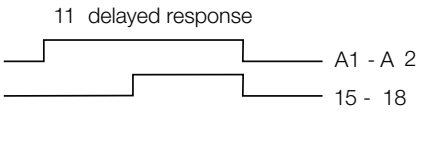
Termination diagram multi-function relay

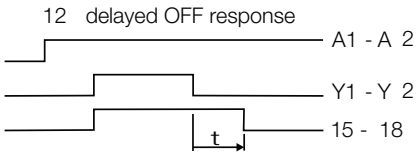


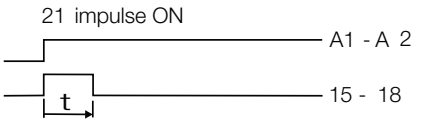
Contacts for function 11, 21, 42 and 81

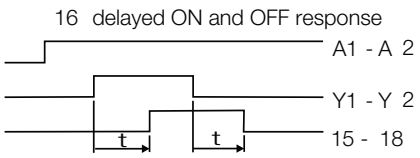


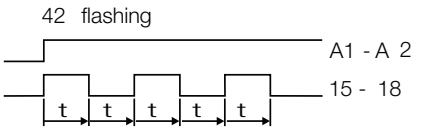
Contacts for function 12, 16, 22 and 81

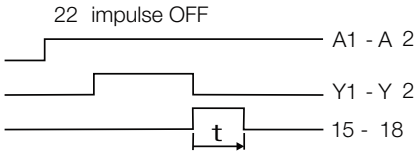


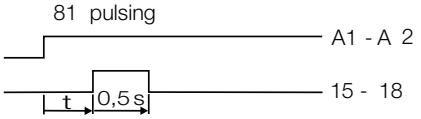


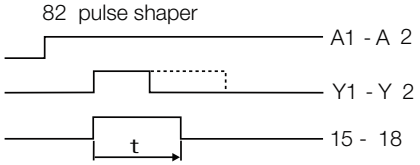












Dimensions in mm

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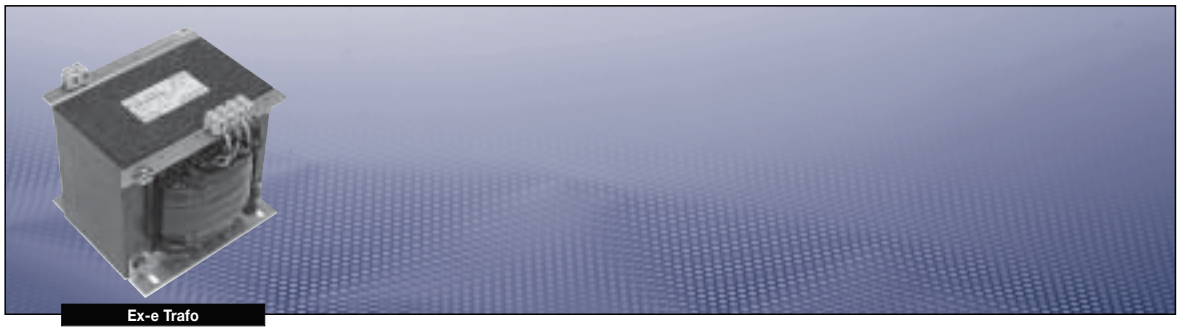

Ex-e Trafo

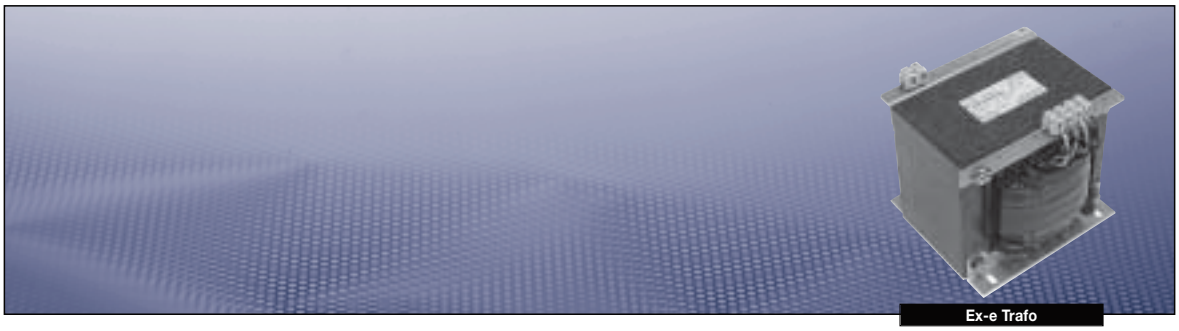
Technical data

Ex-e safety and isolating transformer	
Marking to 94/9/EC	Ⓔx II 2 G EEx e II T1, T2, T3 or T4
EC-Type Examination Certificate	PTB 04 ATEX 3019 X
Permissible ambient temperature	–20 °C to +40 °C
Rated voltage	110 V to 690 V
Frequency	50 – 60 Hz
Power consumption	100 VA up to 1200 VA
Short-circuit voltage	4.2 %
Duty type	S1
Thermal class	E
Back up fuse	max. 1.5 x of secondary rated current
Connecting terminals	2.5 – 16 mm², Option direct wire connections
Insulation class	I
Degree of protection accd. EN 60529	1)

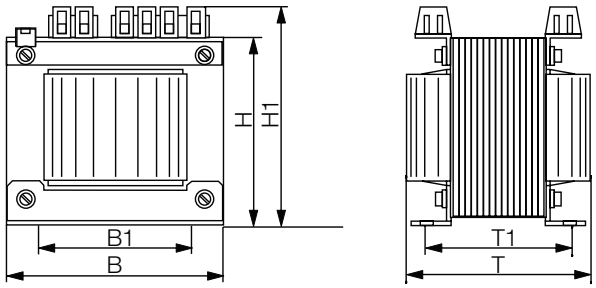
1) The transformer may only be mounted in a certified enclosure with minimum degree of protection IP54

Ordering details

Type	Prim. / sex.	Max. input power	Order No.
Ex-e safety and isolating transformer			
Ex-e Trafo	110 V / 24 V	100 VA	**GHG 410 1992 R0001**
Ex-e Trafo	220 V / 24 V	100 VA	**GHG 410 1992 R0002**
Ex-e Trafo	230 V / 24 V	100 VA	**GHG 410 1992 R0003**
Ex-e Trafo	230 V / 48 V	100 VA	**GHG 410 1992 R0004**
Ex-e Trafo	400 V / 24 V	100 VA	**GHG 410 1992 R0005**
Ex-e Trafo	500 V / 24 V	100 VA	**GHG 410 1992 R0006**
Ex-e Trafo	230 V / 230 V	100 VA	**GHG 410 1992 R0007**
Ex-e Trafo	400 V / 230 V	100 VA	**GHG 410 1992 R0008**
Ex-e Trafo	500 V / 120 V	100 VA	**GHG 410 1992 R0009**
Ex-e Trafo	230 V / 24 V	200 VA	**GHG 410 1992 R0010**
Ex-e Trafo	400 V / 24 V	200 VA	**GHG 410 1992 R0011**
Ex-e Trafo	400 V / 230 V	200 VA	**GHG 410 1992 R0012**
Ex-e Trafo	230 V / 24 V	400 VA	**GHG 410 1992 R0013**
Ex-e Trafo	400 V / 24 V	400 VA	**GHG 410 1992 R0014**
Ex-e Trafo	400 V / 230 V	400 VA	**GHG 410 1992 R0015**
Ex-e Trafo	230 V / 24 V	550 VA	**GHG 410 1992 R0016**
Ex-e Trafo	400 V / 24 V	550 VA	**GHG 410 1992 R0017**
Ex-e Trafo	400 V / 230 V	550 VA	**GHG 410 1992 R0018**
Ex-e Trafo	230 V / 24 V	1200 VA	**GHG 410 1992 R0019**
Ex-e Trafo	400 V / 24 V	1200 VA	**GHG 410 1992 R0020**
Ex-e Trafo	400 V / 230 V	1200 VA	**GHG 410 1992 R0021**



Dimension drawing



Ex-e Trafo

Power (VA)	B	B1	T	T1	H	H1 (mini terminal)	H1 (4 mm²)	H1 (16 mm²)
100	105	84	80	66	91	108	124	128
200	120	90	102	88	106	123	139	143
400	135	104	128	106	120	137	153	157
550	150	122	150	126	134	151	167	171
1200	174	135	170	136	154	171	187	191

Dimensions in mm

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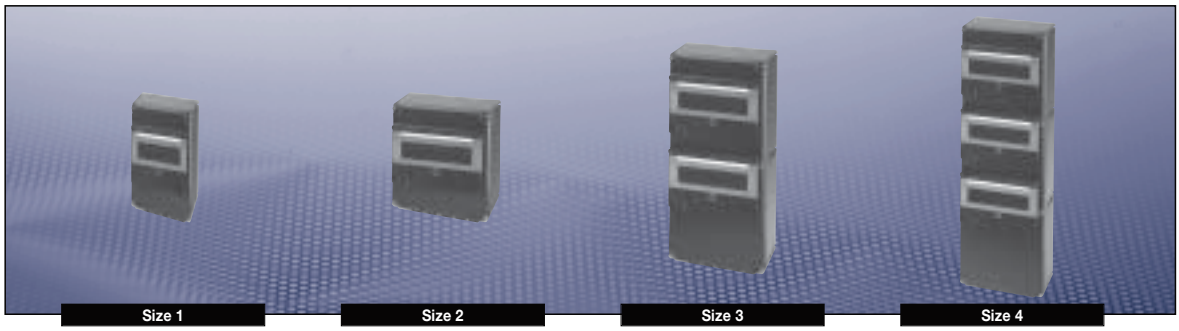


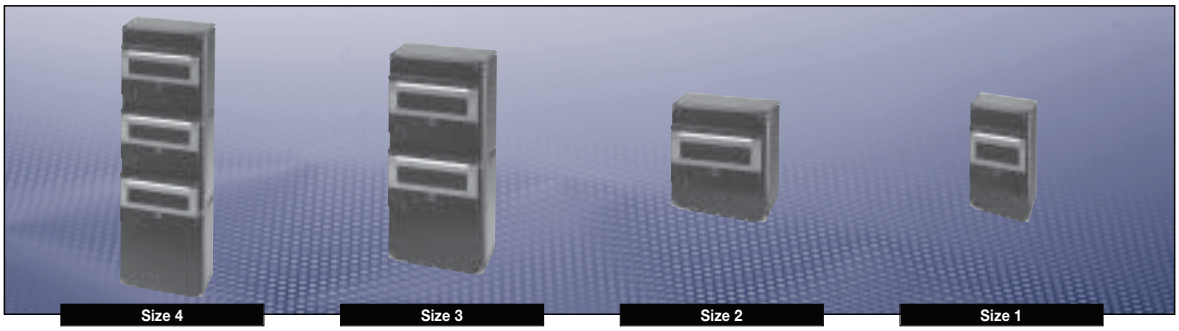
Technical data

Empty enclosures made of moulded plastic	
Marking to 94/9/EC	Ⓔx II 2 G EEx de IIC T4 - T6 / Ⓔx II 2 D IP6X T80 °C / 135 °C[1)]
EC Type Examination Certificate	PTB 99 ATEX 1044
IECEx Certificate of Conformity	IECEx BKI 06.0007
Marking accd. to IECEx	Ex de ia/ib m [ia/ib] T4 ... T6
	Ex tD A21 IP66 T80 °C
Permissible ambient temperature	–20 °C to +40 °C
	–55 °C to +55 °C (option)
Rated voltage	690 V
Rated current	180 A
Insulation class	I
Terminal cross-section	up to 240 mm²
Cable gland	acc. to customer specification
Degree of protection acc. to EN 60529	IP66
Weight	see ordering details
Enclosure material	Glass-fibre reinforced polyester
Enclosure colour	black

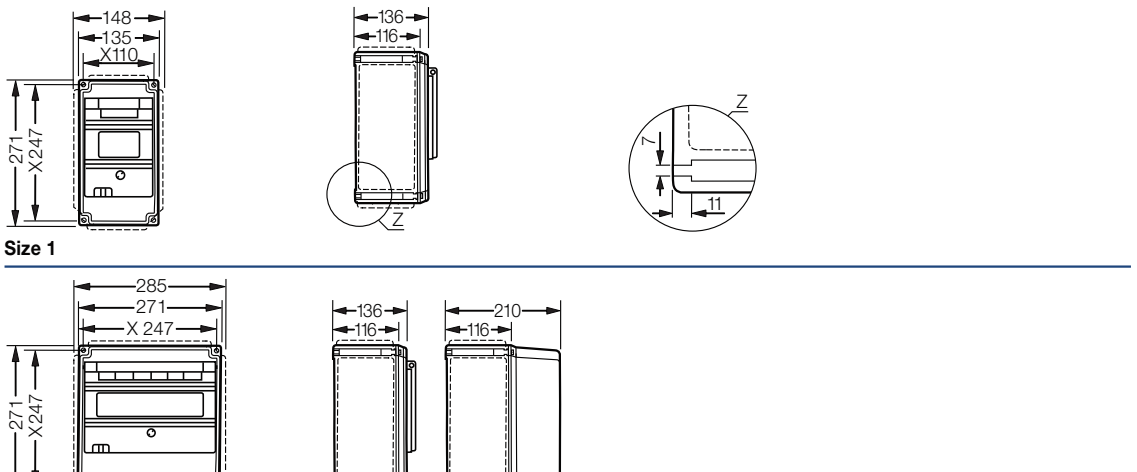
[1)] depents on installed components

Ordering details Empty enclosures made of moulded plastic

Version	Mounting width	Weight approx.	Order No.
Size 1: 1 Mounting space 106 mm			
Cover closed	106 mm	1.5 kg	**GEH 001 00**
Cover cut-out with small actuating flap	106 mm	1.9 kg	**GEH 001 01**
Size 2: 1 Mounting space 213 mm			
Cover closed	213 mm	2.5 kg	**GEH 002 00**
Cover cut-out with 1 actuating flap	213 mm	3.2 kg	**GEH 002 01**
Cover raised for insertion of main switch = 80 A		3.3 kg	**GEH 002 02**
Size 3: 2 Mounting space 213 mm			
Cover closed	2 x 213 mm	4.5 kg	**GEH 003 00**
Cover cut-out with 1 actuating flap	2 x 213 mm	5.2 kg	**GEH 003 01**
Cover cut-out with 2 actuating flaps	2 x 213 mm	5.9 kg	**GEH 003 02**
Cover with 1 actuating flap and main switch ≤ 40 A	1 x 213 mm	6.2 kg	**GEH 003 03**
Cover raise for insertion of main switch ≥ 80 A to 180 A		5.5 kg	**GEH 003 03**
Size 4: 3 Mounting space 213 mm			
Cover closed	3 x 213 mm	5.5 kg	**GEH 004 00**
Cover cut-out with 1 actuating flap	3 x 213 mm	6.2 kg	**GEH 004 01**
Cover cut-out with 2 actuating flaps	3 x 213 mm	6.9 kg	**GEH 004 02**
Cover cut-out with 3 actuating flaps	3 x 213 mm	7.6 kg	**GEH 004 03**
Cover with 2 actuating flaps and main switch ≤ 40 A	1 x 213 mm	8.1 kg	**GEH 004 04**



Dimension drawing



X = fixing dimensions

Dimensions in mm

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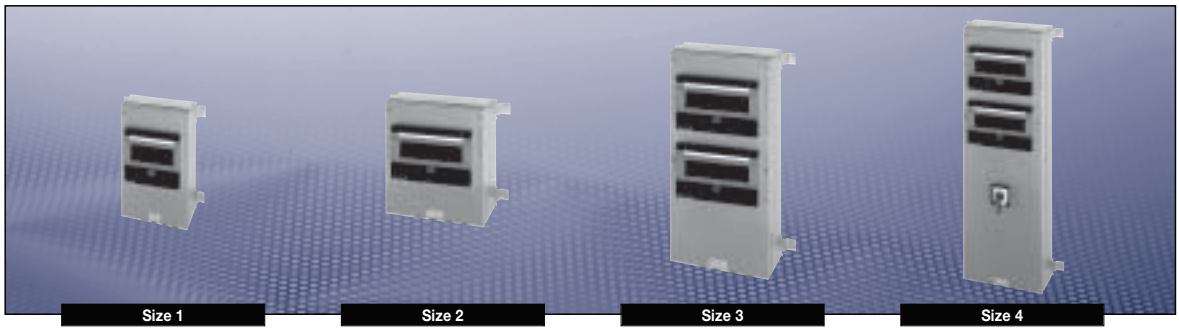


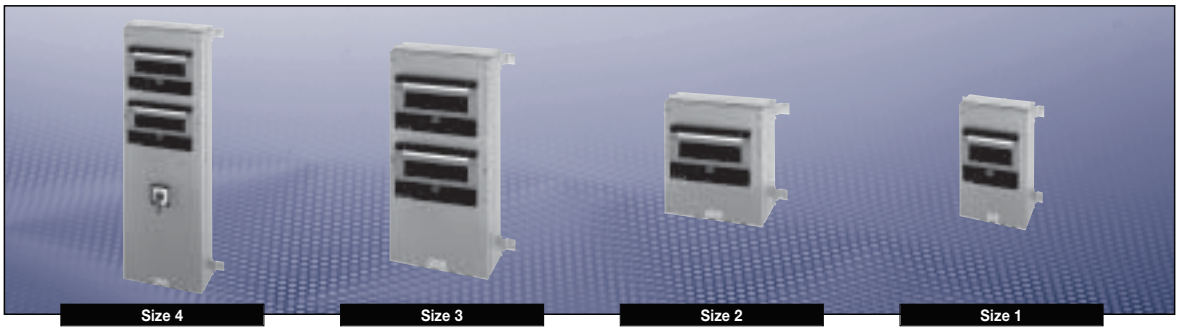
Technical data

Empty enclosures made of stainless steel	
Marking to 94/9/EC	Ⓔx II 2 G EEx de IIC T4 ... T6 / Ⓔx II D IP6X T80 °C[1)]
EC Type Examination Certificate	PTB 99 ATEX 1044
IECEx Certificate of Conformity	IECEx BKI 06.0007
Marking accd. to IECEx	Ex de ia/ib m [ia/ib] T4 ... T6
	Ex tD A21 IP66 T80 °C
Permissible ambient temperature	–20 °C to +40 °C
	–55 °C to +55 °C (Option)
Rated voltage	440 V
Rated current	180 A
Insulation class	I
Terminal cross-section	up to 240 mm²
Cable gland	acc. to customer specification
Degree of protection acc. to EN 60529	IP66
Enclosure material	Stainless steel AISI 316 L
Enclosure colour	electro-polished

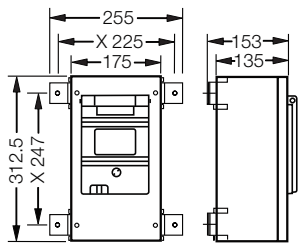
[1)] depents on installed components

Ordering details Empty enclosures made of stainless steel

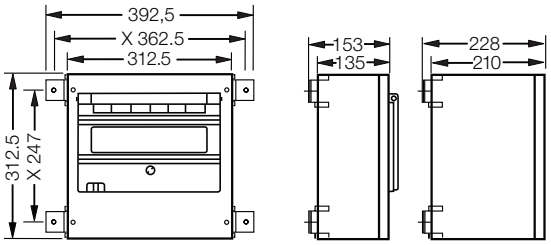
Version	Mounting width	Weight approx.	Order No.
Size 1: 1 Mounting space 106 mm			
Cover closed	106 mm	3.5 kg	**GEH 100 00**
Cover cut-out with small actuating flap	106 mm	3.8 kg	**GEH 100 01**
Size 2: 1 Mounting space 213 mm			
Cover closed	213 mm	7.5 kg	**GEH 200 00**
Cover cut-out with 1 actuating flap	213 mm	8.1 kg	**GEH 200 01**
Size 3: 2 Mounting space 213 mm			
Cover closed	2 x 213 mm	11.5 kg	**GEH 300 00**
Cover cut-out with 1 actuating flap	2 x 213 mm	12.1 kg	**GEH 300 01**
Cover cut-out with 2 actuating flaps	2 x 213 mm	12.7 kg	**GEH 300 02**
Cover with 1 actuating flap and main switch ≤ 40 A	1 x 213 mm	12.9 kg	**GEH 300 03**
Size 4: 3 Mounting space 213 mm			
Cover closed	3 x 213 mm	16.5 kg	**GEH 400 00**
Cover cut-out with 1 actuating flap	3 x 213 mm	17.1 kg	**GEH 400 01**
Cover cut-out with 2 actuating flaps	3 x 213 mm	17.7 kg	**GEH 400 02**
Cover cut-out with 3 actuating flaps	3 x 213 mm	18.4 kg	**GEH 400 03**
Cover with 2 actuating flap and main switch ≤ 40 A	2 x 213 mm	18.6 kg	**GEH 400 04**



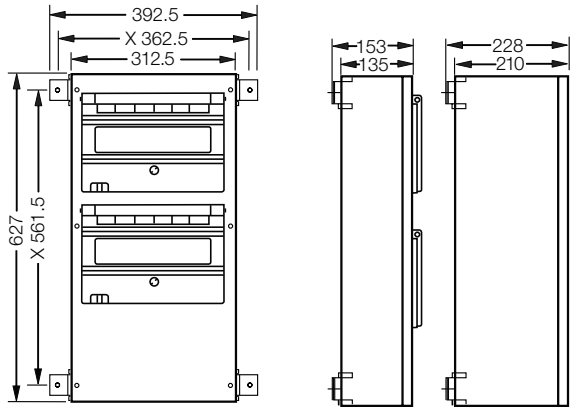
Dimension drawing



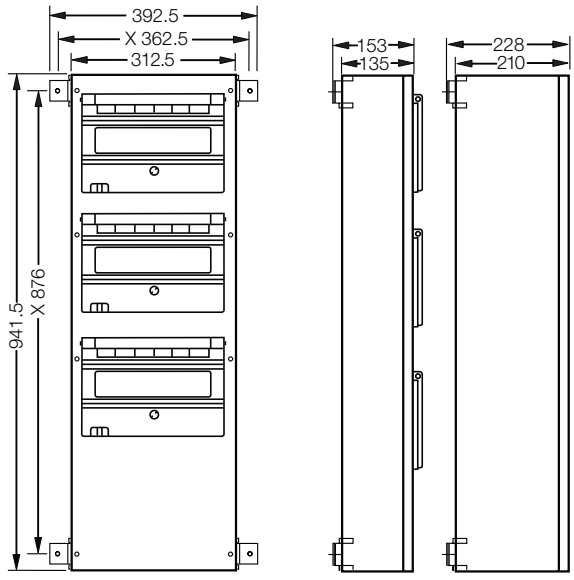
Size 1



Size 2



Size 3



Size 4

X = fixing dimensions

Dimensions in mm

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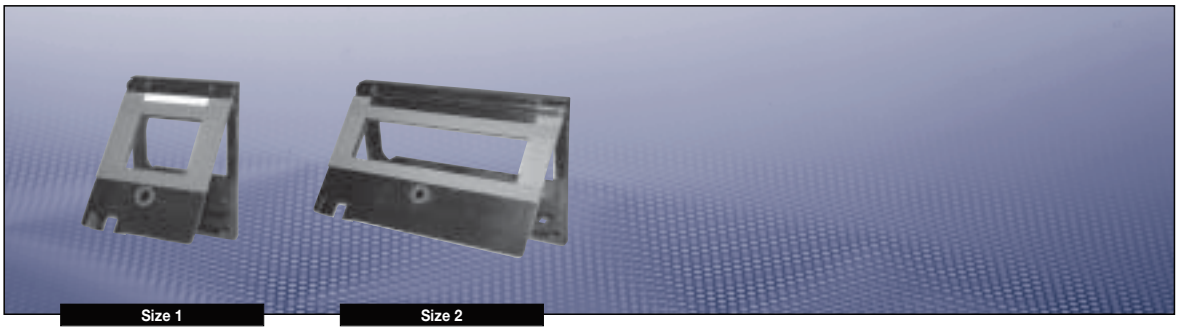


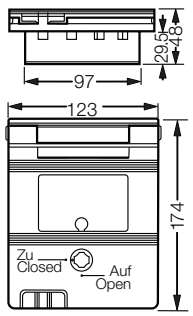
Technical data

Actuating flap	
Marking to 94/9/EC	Ⓔx II 2 G Ex e II / Ⓔx II 2 D tD A21 IP65
EC Type Examination Certificate	PTB 99 ATEX 3107U
Degree of protection acc. to EN 60529	IP65 (on installed condition)
Weight	flap size 1 0.48 kg
	flap size 1 0.78 kg

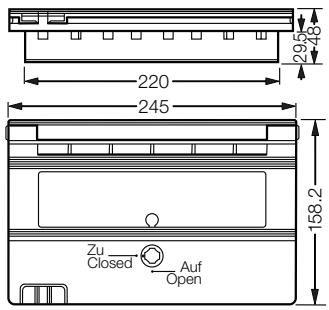
Ordering details actuating flap

Version	Mounting width	Weight approx.	Order No.
Size 1: 1 Mounting space 106 mm			
Lockable	123 mm	0.48 kg	**BKL 100 00**
Size 2: 1 Mounting space 213 mm			
Lockable	245 mm	0.78 kg	**BKL 200 00**

Dimension drawing



Size 1



Size 2

Dimensions in mm

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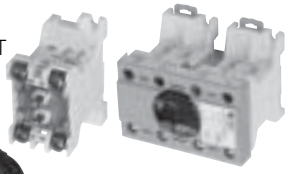
Customised enclosure, covered by Type Examination Certificates, can be individually combined from CEAG's numerous built-in components.

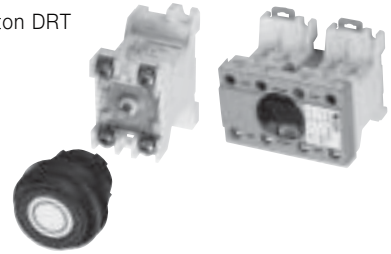
A coding system for these components with unique designations can be used for planning, selection and ordering.

For the selection of control units and components, please see page 9.52 to 9.74.

Double pushbutton DDT
2-pole and 4-pole

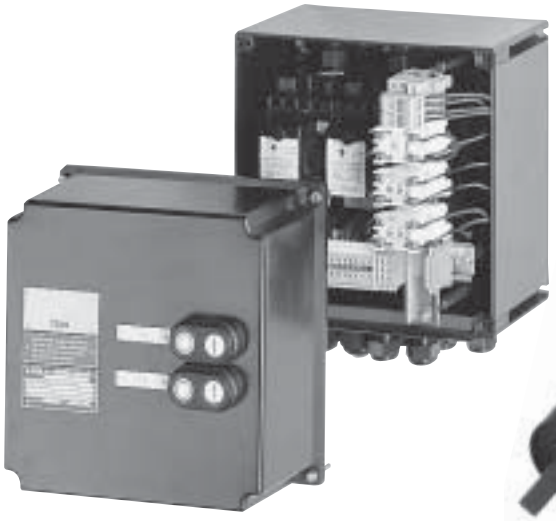


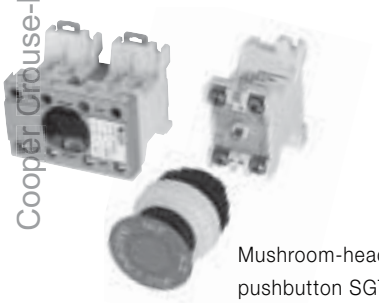
Pushbutton DRT



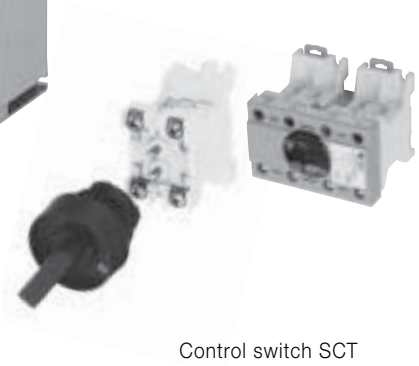
Signal lamp SIL

Measuring instrument
AM72

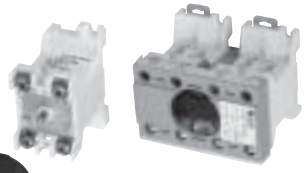




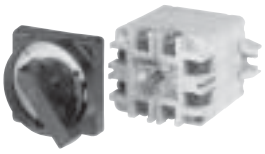
Mushroom-head
pushbutton SGT



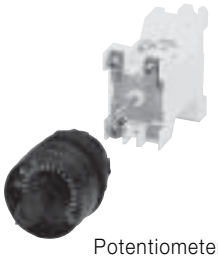
Control switch SCT



Key-operated
pushbutton SLT
and key-
operated
switch SLS



Control switch GHG 23



Potentiometer POT

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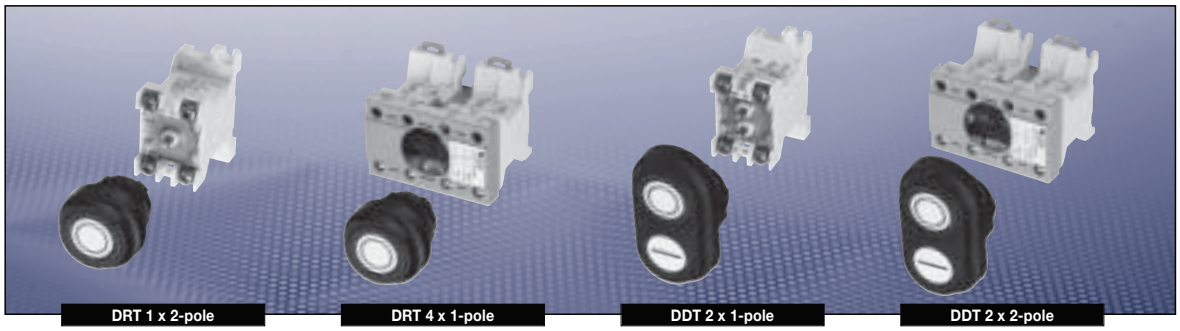


Technical data

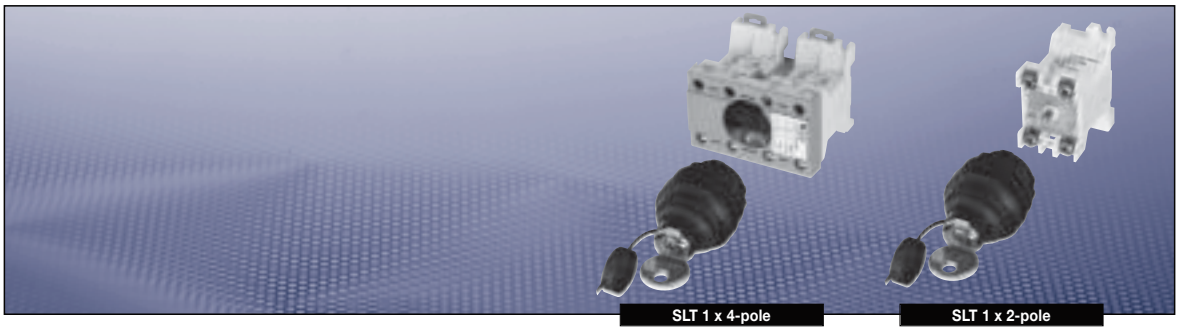
Ex-Pushbutton DRT and Double pushbutton DDT	
Marking to 94/9/EC	Ex II 2 G EEx ed IIC T6 / Ex I M2 EEx de I
EC-Type Examination Certificate	PTB 97 ATEX 1081 U
Application temperature	–20 °C to +40 °C
	–55 °C to +55 °C (option)
Rated voltage	500 V AC
Rated current	16 A
Rated current gold contacts	0.4 A
Switch rating	400 V / 16 A AC-1 / 400 V / 4 A AC-11
Degree of protection accd. EN 60529	IP66
Type of mounting	DIN rail mounting
Enclosure colour	grey
Gasket material	Neoprene (Standard), Fluoric Silicone or Viton on request

2-pole Version	
Connecting terminals	2 x 2.5 mm²
Dimensions (L x W x H)	59 x 31 x 45 mm
Weight	0.15 kg

4-pole Version	
Connecting terminals	4 x 2.5 mm²
Dimensions (L x W x H)	59 x 73 x 45 mm
Weight	0.35 kg

[1] The 4-pole pushbutton needs two mounting areas of a 2-pole pushbutton.
The actuator will be in the middle of the two mounting areas.

For detailed information see page 9.52 – 9.74.



Technical data

Ex-Key operated pushbutton SLT	
Marking to 94/9/EC	Ⓔx II 2 G EEx ed IIC T6 / M 2 EEx de
EC-Type Examination Certificate	PTB 97 ATEX 1081 U
Application temperature	–20 °C to +40 °C
	–55 °C to +55 °C (option)
Rated voltage	500 V AC
Rated current	16 A
Rated current gold contacts	0.4 A
Switch rating	400 V / 16 A AC-1 / 400 V / 4 A AC-11
Degree of protection accd. EN 60529	IP66
Type of mounting	DIN rail mounting
Enclosure colour	grey
Gasket material	Neoprene (Standard), Fluoric Silicone or Viton on request
Latch point	CEAG 1 (others on request)

2-pole Version	
Connecting terminals	2 x 2.5 mm²
Dimensions (L x W x H)	59 x 31 x 45 mm
Weight	0.15 kg

4-pole Version	
Connecting terminals	4 x 2.5 mm²
Dimensions (L x W x H)	59 x 73 x 45 mm
Weight	0.35 kg

[1] The 4-pole pushbutton needs two mounting areas of a 2-pole pushbutton.
The actuator will be in the middle of the two mounting areas.
For detailed information see page 9.52 – 9.74.

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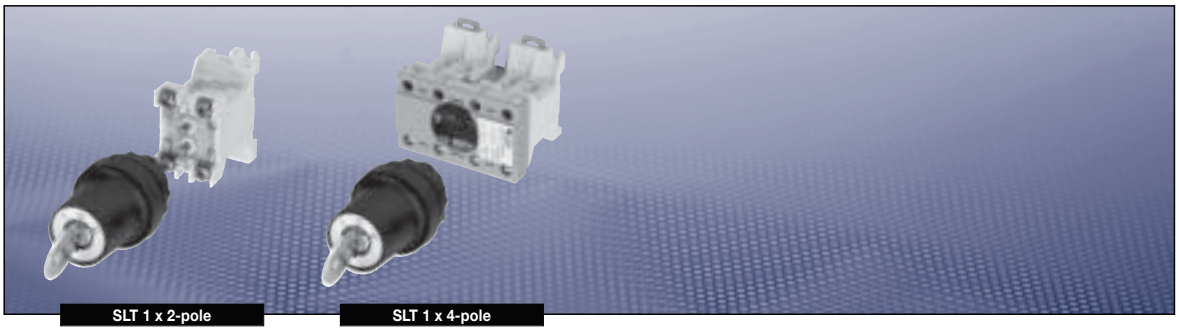


Technical data

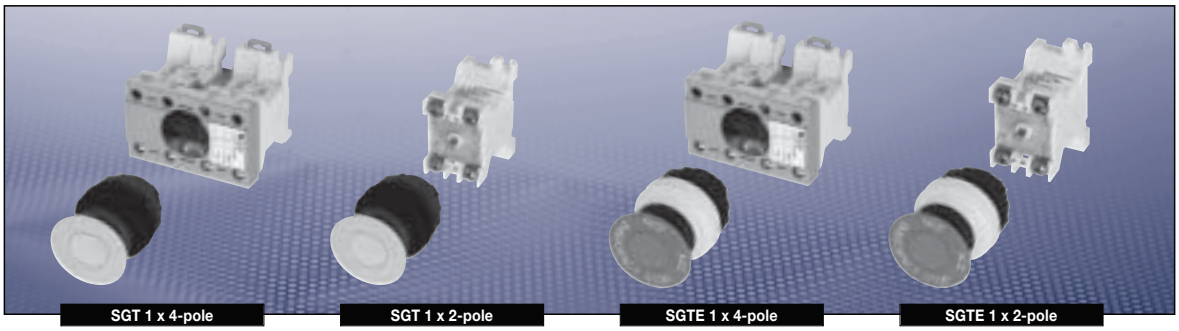
Ex-built-in Components for individual control stations Key switch SLS	
Marking to 94/9/EC	Ⓔx II 2 G EEx ed IIC T6 / M 2 EEx de
EC-Type Examination Certificate	PTB 97 ATEX 1081 U
Application temperature	–20 °C to +40 °C
	–55 °C to +55 °C (option)
Rated voltage	500 V AC
Rated current	16 A
Rated current gold contacts	0.4 A
Switch rating	400 V / 16 A AC-1 / 400 V / 4 A AC-11
Switching system	engaging – engaging – engaging
Degree of protection accd. EN 60529	IP54
Type of mounting	DIN rail mounting
Enclosure colour	grey
Latch point	CEAG 1 (others on request)

2-pole Version	
Connecting terminals	2 x 2.5 mm²
Dimensions (L x W x H)	59 x 31 x 45 mm
Weight	0.15 kg

4-pole Version	
Connecting terminals	4 x 2.5 mm²
Dimensions (L x W x H)	59 x 73 x 45 mm
Weight	0.35 kg

[1] The 4-pole pushbutton needs two mounting areas of a 2-pole pushbutton.
The actuator will be in the middle of the two mounting areas.

For detailed information see page 9.52 – 9.74.



Technical data

Ex-Mushroom Head Pushbutton (Emergency Stop „SGTE“ and Normal Version „SGT”)	
Marking to 94/9/EC	Ⓔx II 2 G EEx ed IIC T6 / M 2 EEx de
EC-Type Examination Certificate	PTB 97 ATEX 1081 U
Application temperature	–20 °C to +40 °C
	–55 °C to +55 °C (option)
Rated voltage	500 V AC
Rated current	16 A
Rated current gold contacts	0.4 A
Switch rating	400 V / 16 A AC-1 / 400 V / 4 A AC-11
Degree of protection accd. EN 60529	IP66
Type of mounting	DIN rail mounting
Enclosure colour	grey
Gasket material	Neoprene (Standard), Fluoric Silicone or Viton on request

2-pole Version	
Connecting terminals	2 x 2.5 mm²
Dimensions (L x W x H)	59 x 31 x 45 mm
Weight	0.15 kg

4-pole Version	
Connecting terminals	4 x 2.5 mm²
Dimensions (L x W x H)	59 x 73 x 45 mm
Weight	0.35 kg

[1] The 4-pole pushbutton needs two mounting areas of a 2-pole pushbutton.
The actuator will be in the middle of the two mounting areas.
The pushbutton „Emergency Stop“ will be equipped with a black plate in the centre of the pushbutton actuator.

For detailed information see page 9.52 – 9.74.

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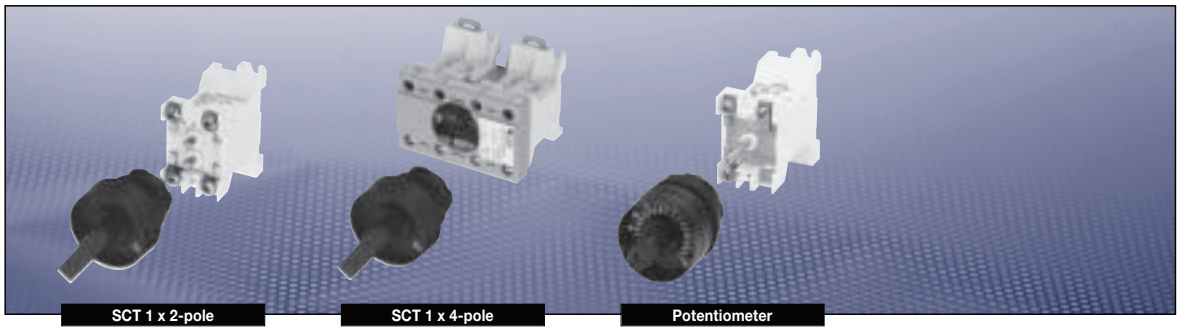


Technical data

Ex-Mini-control switch SCT	
Marking to 94/9/EC	⟨Ex⟩ II 2 G EEx ed IIC T6 / M 2 EEx de
EC-Type Examination Certificate	PTB 97 ATEX 1081 U
Application temperature	–20 °C to +40 °C
	–55 °C to +55 °C (option)
Rated voltage	500 V AC
Rated current	16 A
Rated current gold contacts	0.4 A
Switch rating	400 V / 16 A AC-1 / 400 V / 4 A AC-11
Degree of protection accd. EN 60529	IP66
Type of mounting	DIN rail mounting
Enclosure colour	grey

2-pole Version	
Connecting terminals	2 x 2.5 mm²
Dimensions (L x W x H)	59 x 31 x 45 mm
Weight	0.15 kg

4-pole Version	
Connecting terminals	4 x 2.5 mm²
Dimensions (L x W x H)	59 x 73 x 45 mm
Weight	0.35 kg

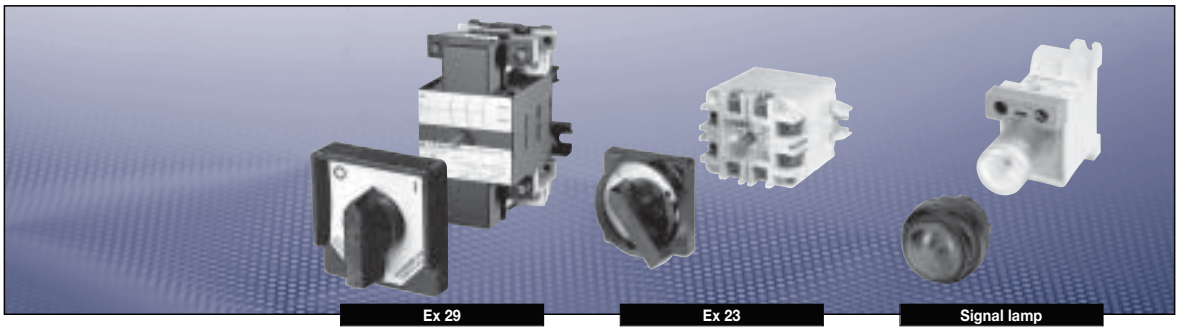
[1] The 4-pole pushbutton needs two mounting areas of a 2-pole pushbutton.
The actuator will be in the middle of the two mounting areas.

For detailed information see page 9.52 – 9.74.

Technical data

Ex-Potentiometer POT	
Marking to 94/9/EC	⟨Ex⟩ II 2 G EEx ed IIC T6 / M 2 EEx de
EC-Type Examination Certificate	PTB 97 ATEX 1081 U
Application temperature	–20 °C to +40 °C
	–55 °C to +55 °C (option)
Rated voltage	up to 250 V
Power consumption	max. 1 W
Resistance range	100 – 10000 Ohm
Tolerance	± 20 %
Connecting terminals	2 x 2.5 mm²
Degree of protection accd. EN 60529	IP66
Dimensions (L x W x H)	approx. 59 x 31 x 45 mm
Weight	0.15 kg
Type of mounting	DIN rail mounting
Enclosure colour	grey
Angle of rotation	270°
Scale	0 - 100 %

For detailed information see page 9.52 – 9.74.



Technical data

Ex-Signal lamp SIL	
Marking to 94/9/EC	Ex II 2 G EEx ed IIC / Ex II 2 G EEx d ia IIC
EC-Type Examination Certificate	PTB 98 ATEX 1040 U
Application temperature	–20 °C to +40 °C
	–55 °C to +55 °C (option)
Rated voltage (EEx ed IIC)	20 V to 250 V AC/DC
(EEx d ia IIC)	10 V to 28 V DC
(EEx ed IIC)	12 V to 30 V AC/DC
Rated current (20 V to 250 V)	approx. 4 - 15 mA
(10 V to 28 V EEx d ia IIC)	max. 25 mA
12 V to 30 V	max. 24 mA
Connecting terminals	2 x 2.5 mm²
Degree of protection accd. EN 60529	IP66
Dimensions (L x W x H)	approx. 59 x 31 x 45 mm
Weight	0.15 kg
Type of mounting	DIN rail mounting
Enclosure colour	grey

For detailed information see page 9.52 – 9.74.

Technical data

Ex-built-in Components for individual control stations Control switch Ex 23 and Ex 29			
		Ex 23	Ex 29
Marking to 94/9/EC		Ex II 2 G EEx ed IIC T6/ I M 2 EEx e I	
EC-Type Examination Certificate		PTB 98 ATEX 1116 U	PTB 98 ATEX 1118 U
Application temperature		–20 °C to +40 °C	–20 °C to +40 °C
		–55 °C to +45 °C (option)	–55 °C to +55 °C (option)
Rated voltage			up to 500 V
Rated current		10 A	16 A[1)]
Rated current gold contacts			0.4 A
Switch rating	AC 15:	230 V/6 A	400 V/4 A
	DC 13:	24 V/2 A	230 V/0.5 A
Connecting terminals		2 x 0.5 - 2.5 mm²	2 x 0.5 - 2.5 mm² or 1 x 1.0 - 6.0 mm²
Weight	1 tier:	approx. 0.2 kg	approx. 0.25 kg
	2 tiers:	approx. 0.35 kg	approx. 0.40 kg
	3 tiers:		approx. 0.55 kg
Type of mounting		DIN rail mounting	
Enclosure colour		grey	black

[1)] 12 A cable section must be 2.5 mm²

For detailed information see page 9.52 – 9.74.

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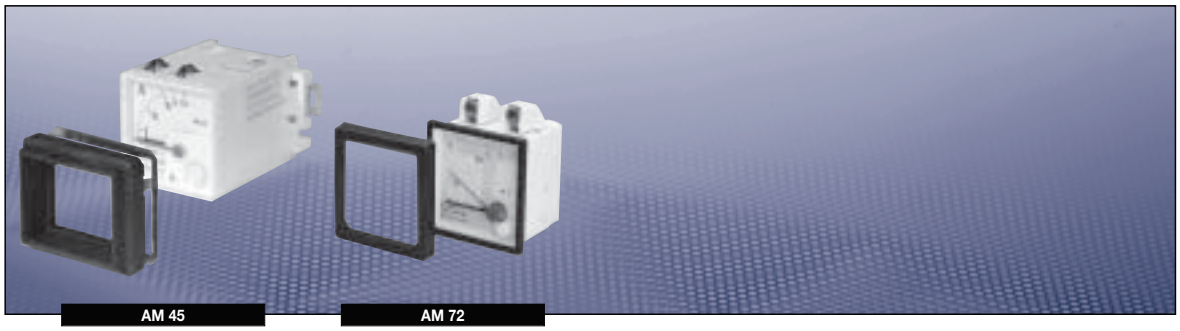

Technical data

Ex-Measuring instrument AM 45/AM 72		
	moving iron	moving coil
Marking to 94/9/EC	⟨Ex⟩ II 2 G EEx e IIC / I M 2 EEx e I	⟨Ex⟩ II 2 G EEx ib IIC / I M 2 EEx ib I
EC-Type Examination Certificate	PTB 99 ATEX 2032 U	
Application temperature	–20 °C to +40 °C	
	–55 °C to +55 °C (option)	
Rated voltage	up to 420 V (AM 45)	
	up to 750 V (AM 72)	
Power consumption	max. 0.31 A	
Overload range	10 fold - 25 sec.	10 fold - 5 sec.
	25 fold - 4 sec.	
	50 fold - 1 sec.	
	indicated 1 : 1.5	
Measuring range	max. 0 - 25 A direct / n / 1A	0/4 - 24 mA
Inductance Li		≤ 0.1 mH
Capacitance Ci		≤ 0.1 nF
Winding specification of moving coil		26.5 windings
Internal resistance		2.5 Ω ±30 %
Open circuit voltage max. Ui		30 V
Short circuit current max. Ii		150 mA
Accuracy	Class 2.5	Class 1.5
Circuit	moving iron	moving coil
Connecting terminals	2 x 1.5 - 4 mm²	
Degree of protection accd. EN 60529	IP 65	
Display size	50 x 45 mm (AM 45)	
	72 x 72 mm (AM 72)	
Weight	0.35 kg	
Type of mounting	DIN rail mounting	
Enclosure material	grey	

For detailed information see page 9.52 – 9.74.

EX-D DISTRIBUTIONS

with metal EJ enclosures
for gases in explosion group IIB

Apparatus which gives off arcs or sparks can be integrated in distributions at low cost using flameproof enclosures. Built-in electrical components can be actuated by means of control units mounted from the outside on the covers.

The extensive product line for use in explosion group IIB for the hazardous areas of Zones 1 and 2 fulfils the requirements of ATEX directive 94/9/EC. Due to the most diverse demands, individualised distribution systems can be put together. Enclosures are connected via flame-proof cable entries. The design and equipment of the distributions depends on customers' requirements.

- **Modular design**
- **Rated current up to 1200 A**
- **Suited for tropical and maritime climates through powder coating**
- **Apparatus can be operated from the outside**
- **Direct cable entries**

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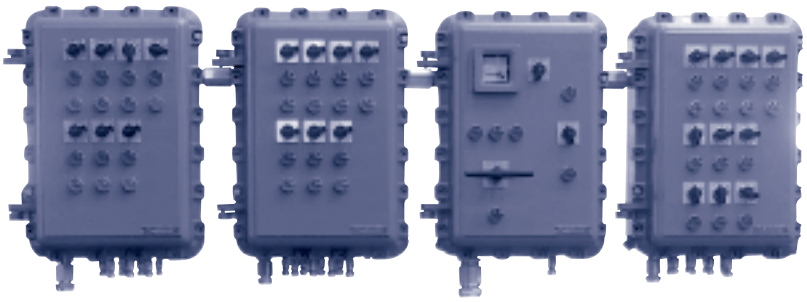


The distributions and built-in components are combined to customers' specifications for wall-mounting or free-standing frameworks, depending on the installation site.

Free-standing frameworks are designed according to the distributions or special apparatus required and fitted with standardised U-rails. For outdoor installations, we recommend a canopy to protect the distribution from the sun and rain.

The frameworks all feature a grey epoxyresin finish identical with that of the EJ enclosures. Hot-dip galvanised steel frameworks are available on request.
The modular design makes it possible to put together distributions and built-in components using standardised enclosure sizes.

The enclosures are interconnected with cable bushings and/or bus bars and are especially designed to facilitate bus-bar allocation when putting distributions together.

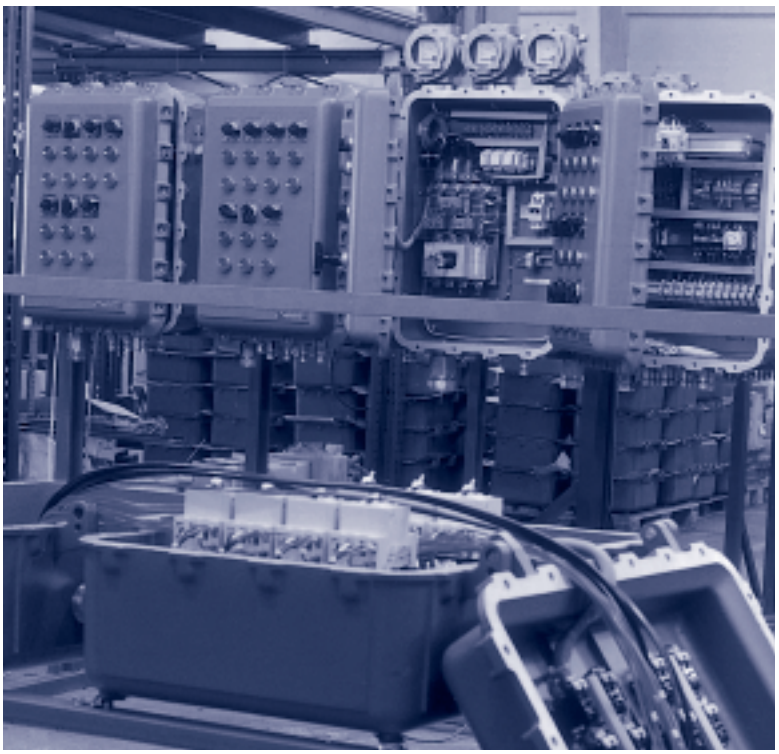
Electrical components built into the enclosures can be actuated from the outside via control units mounted on the front panels.

Ex-d cable entries must be used where required.

EJB enclosures are made of copper-free aluminium (<0.1%) and EJW enclosures of welded steel. All enclosures are coated with a grey epoxy resin.

Covers and enclosures are mounted on a flameproof flange plate and screwed down with stainless steel screws.

Enclosures of the types EJB 12R to EJB 23R are fitted with hinges for easy opening and closing.



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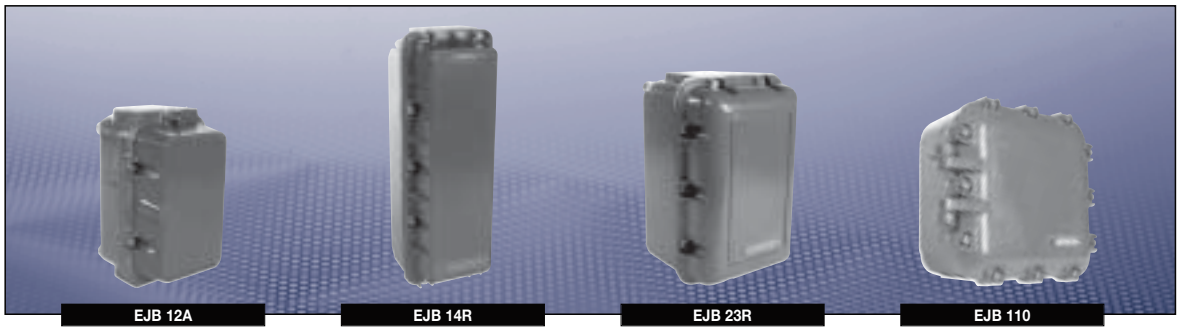

Technical data

Ex EJB Enclosures light alloy/sheet steel	
Marking to 94/9/EC	Ex II 2 G EEx de IIB
EC Type Examination Certificate	LOM 02 ATEX 3060 U
Application temperature[1)]	–20 °C to +40 °C
Rated voltage	690 V
Rated current	1200 A
Insulation class	I
Degree of protection acc. to EN 60529	IP65
Weight	see ordering details
Enclosure material	EJB in aluminium
	EJB 214 M1 and M2 cast iron
	EJW welded steel
	Front panels cast iron
Enclosure colour	epoxy-resin finish, grey

[1)] Depend on installation

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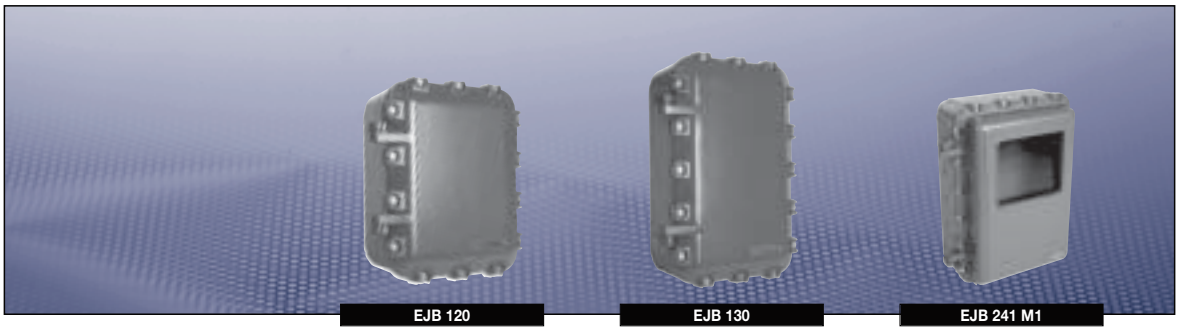
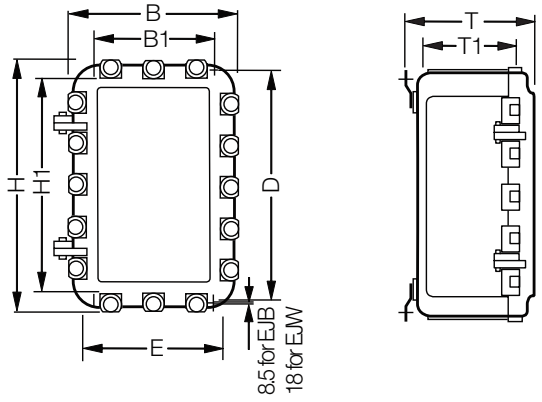


Ordering details

Version	Power dissipation in W			Rated current in A	Weight kg	Fixing dimensions		Enclosure dimensions			Mounting-space dimensions			Order No.
	T6	T5	T4			D	E	H	B	T	H1	B1	T1	
EJB 12 R	30	60	100	40	3.0	242	166	215	131	102	178	89	57	**NOR 000 001 170 438**
EJB 12 A	30	60	100	40	3.6	242	166	215	131	162	178	89	110	**NOR 000 001 170 446**
EJB 14 R	80	140	240	65	8.3	436	178	412	150	143	358	103	85	**NOR 000 001 170 462**
EJB 23 R	60	140	240	100	11.0	354	240	336	217	212	276	163	152	**NOR 000 001 170 488**
EJB 110	125	170	295	160	22.0	310	310	373	373	230	305	305	162	**NOR 000 001 170 496**
EJB 120	150	270	480	300	28.5	414	310	474	373	230	405	305	162	**NOR 000 001 170 503**
EJB 120 M3	150	270	480	300	28.5	414	310	474	373	230	405	305	162	**NOR 000 111 170 601**
EJB 120 M4	150	270	480	300	28.5	414	310	474	373	230	405	305	162	**NOR 000 111 170 606**
EJB 121	150	280	500	350	32.0	414	310	474	373	295	405	305	235	**NOR 000 001 170 511**
EJB 130	200	340	590	450	35.3	520	310	577	373	230	518	305	162	**NOR 000 001 170 529**
EJB 131	200	350	610	500	39.0	520	310	577	373	295	518	305	235	**NOR 000 001 170 537**
EJB 240	250	400	700	800	52.3	624	414	680	474	230	619	405	162	**NOR 000 001 170 545**
EJB 241	250	400	700	850	56.8	624	414	680	474	295	619	405	235	**NOR 000 001 170 553**
EJB 241 M1	250	400	700	850	54.0	624	414	680	474	295	619	405	235	**NOR 000 111 170 469**
EJB 241 M2	250	400	700	850	51.0	624	414	680	474	295	619	405	235	**NOR 000 111 170 451**
EJW 250	250	340	560	1200	145.0	852	387	890	425	280	810	345	199	**NOR 000 001 190 139**
EJW 251	380	520	850	1200	167.0	852	387	890	425	440	810	345	320	**NOR 000 001 190 197**
EJW 350	380	520	850	1200	168.0	852	502	890	540	322	810	460	250	**NOR 000 001 190 171**
EJW 351	450	600	1000	1200	175.0	852	502	890	540	446	810	460	375	**NOR 000 001 190 062**
EJW 561	600	730	1000	1200	380.0	1242	687	1280	765	386	1200	685	325	**NOR 000 001 190 064**

Dimension drawing



Ex-Encosure IIB Metal enclosure

Dimensions in mm

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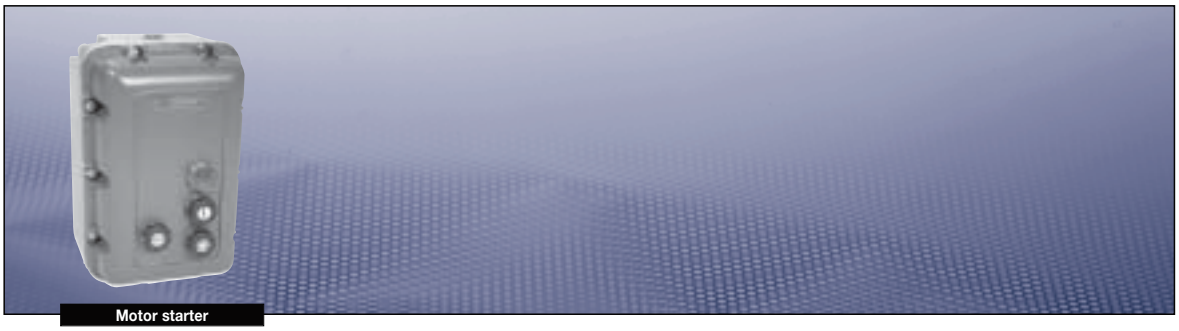
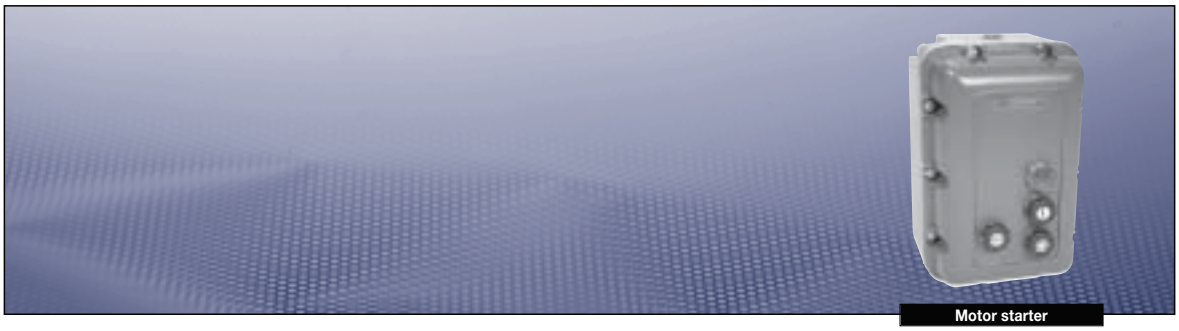

Motor starter

Technical data

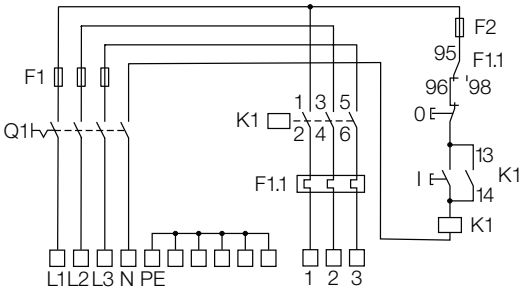
Ex EJB Light-alloy motor starter	
Marking to 94/9/EC	Ⓔx II 2 G EEx d IIB T6
EC Type Examination Certificate	LOM 03 ATEX 2004 X
Permissible ambient temperature	–20 °C to +40 °C
Rated voltage	690 V
Rated current	63 A
Insulation class	I
Terminal cross-section	up to max. 240 mm²
Degree of protection acc. to EN 60529	IP65
Dimensions (L x W x H)	see dimension drawing
Weight	see ordering details
Enclosure material	EJB in aluminium
	Front panels cast iron
Enclosure colour	epoxy-resin finish, grey

Ordering details

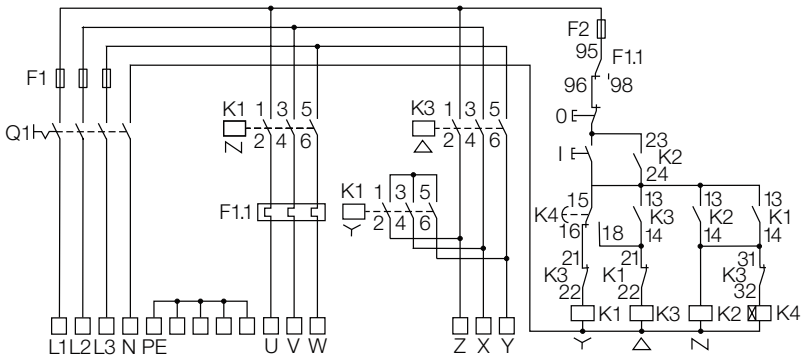
Motor capacity	Main switch	Cable entry	Weight	Version	Order No.
Type: Direct circuit					
4.0 kW	25 A	2 x M 25 Ex-d	4.0 kg	1	**EXKO 732 101 M**
4.0 kW	25 A	2 x M 25 Ex-d	12.0 kg	2	**EXKO 732 102 M**
5.5 kW	40 A	2 x M 25 Ex-d	12.0 kg	2	**EXKO 732 103 M**
8.0 kW	40 A	2 x M 25 Ex-d	16.8 kg	3	**EXKO 732 104 M**
12.5 kW	63 A	2 x M 32 Ex-d	17.2 kg	3	**EXKO 732 105 M**
15.0 kW	63 A	2 x M 32 Ex-d	18.8 kg	3	**EXKO 732 106 M**
Type: Star-delta starter					
12.5 kW	40 A	2 x M 25 Ex-d	17.2 kg	2	**EXKO 732 113 M**
18.5 kW	40 A	2 x M 32 Ex-d	19.7 kg	2	**EXKO 732 114 M**
25.0 kW	40 A	2 x M 32 Ex-d	25.3 kg	3	**EXKO 732 115 M**
Type: Reversing circuit					
4.0 kW	25 A	2 x M 25 Ex-d	4.0 kg	1	**EXKO 732 107 M**
4.0 kW	25 A	2 x M 25 Ex-d	12.0 kg	2	**EXKO 732 108 M**
5.5 kW	40 A	2 x M 25 Ex-d	12.0 kg	2	**EXKO 732 109 M**
8.0 kW	40 A	2 x M 25 Ex-d	16.8 kg	3	**EXKO 732 110 M**
12.5 kW	63 A	2 x M 32 Ex-d	17.2 kg	3	**EXKO 732 111 M**
15.0 kW	63 A	2 x M 32 Ex-d	18.8 kg	3	**EXKO 732 112 M**



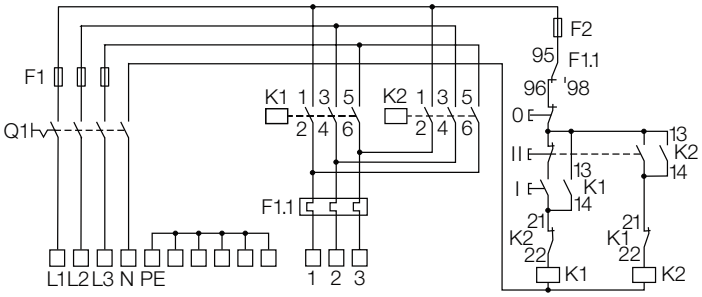
Wiring diagram | Dimension drawing



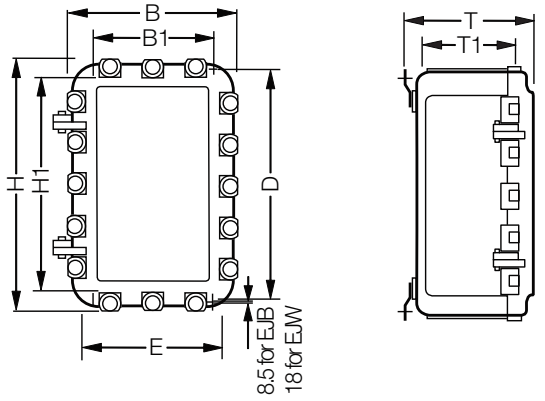
Direct on-line starter



Star-delta starter



Reversing circuit



Version	Fixing dimensions		Dimensions enclosure			Dimensions mounting space		
	D	E	H	B	T	H1	B1	T1
1	242	166	215	131	102	178	89	57
2	436	178	412	150	143	358	103	85
3	354	240	336	217	212	276	163	152

Dimensions in mm

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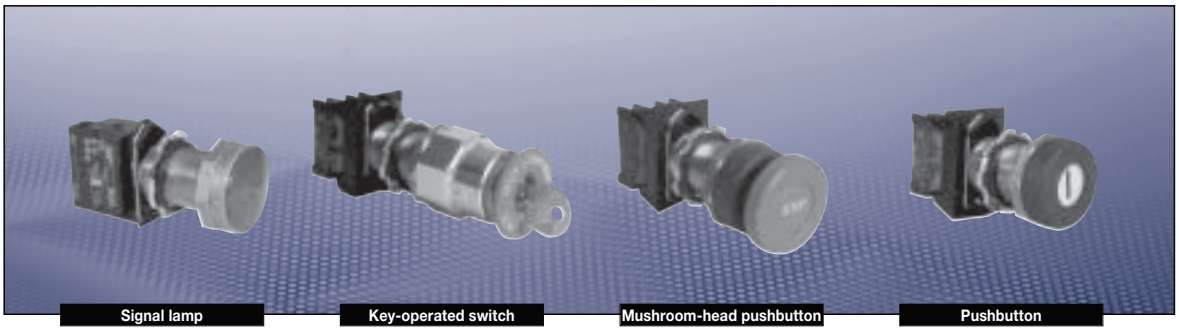
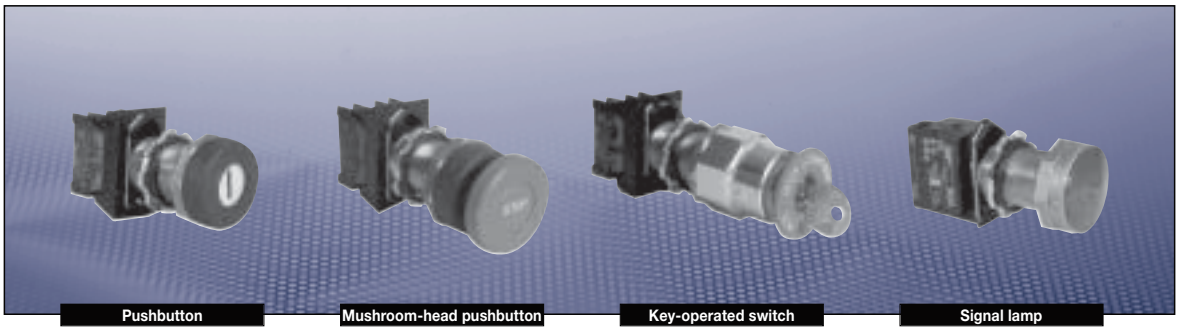


Technical data

Signal lamp	
Marking to 94/9/EC	Ex II 2 G EEx d IIB
EC Type Examination Certificate	LOM 02 ATEX 3060 U
Application temperature[1)]	–20 °C to +40 °C
Rated voltage	500 V
Rated power	3 W
Terminal cross-section	2 x 2.5 mm²
Degree of protection acc. to EN 60529	IP65
Weight	see ordering details
Enclosure material	body material aluminium
	window material white, yellow, red or green polycarbonate
Lamp holder	Ba 9 s

Pushbutton | Mushroom-head pushbutton | Key-operated switch	
Marking to 94/9/EC	Ex II 2 G EEx d IIB
EC Type Examination Certificate	LOM 02 ATEX 3060 U
Application temperature[1)]	–20 °C to +40 °C
Rated voltage	500 V
Rated current	10 A
Terminal cross-section	2 x 2.5 mm²
Degree of protection acc. to EN 60529	IP65
Weight	see ordering details
Enclosure material	Aluminium

[1)] Depend on installation



Ordering details

Version	Colour	Marking	Order No.
Pushbutton and mushroom-head pushbutton with contact block 1NC + 1NO			
Pushbutton	white	I 0 STOP START	**NOR 000 001 170 004**
Pushbutton lockable in pushed position with padlock	white	0 STOP OFF	**NOR 000 001 170 005**
Pushbutton lockable in un-pushed position with padlock	white	I 0 STOP START	**NOR 000 001 170 006**
Mushroom-head pushbutton	red, yellow	0 STOP OFF	**NOR 000 001 170 007**
Mushroom-head pushbutton lockable in un-pushed position with padlock	red, yellow	0 STOP OFF	**NOR 000 001 170 008**
Mushroom-head pushbutton lockable in un-pushed position with padlock	red, yellow	0 STOP OFF	**NOR 000 001 170 009**
Key-operated switch			**NOR 000 001 170 010**
Mushroom-head pushbutton with key release			**NOR 000 001 170 011**
Pushbutton		RESET	**NOR 000 001 170 012**
Contact block			
1 NC			**NOR 000 001 170 013**
1 NO			**NOR 000 001 170 014**
Pushbutton label		II Arrow ON RESET TEST	
		green, red, yellow, black	**NOR 000 001 170 015**
Indication lamps			
Incandescent lamp 240 V, 3 W	white, yellow, red, yellow-green		**NOR 000 001 170 016**
Incandescent lamp 130 V, 2.6 W	white, yellow, red, yellow-green		**NOR 000 001 170 017**
Incandescent lamp 24 V, 1.2 W	white, yellow, red, yellow-green		**NOR 000 001 170 018**
Transformer incandescent lamp 380-400/6V, 1.2 W	white, yellow, red, yellow-green		**NOR 000 001 170 019**
LED 230 V	white, yellow, red, yellow-green		**NOR 000 001 170 116**
LED 130 V	white, yellow, red, yellow-green		**NOR 000 001 170 117**
LED 24 V	white, yellow, red, yellow-green		**NOR 000 001 170 118**
Rotary switch			
0-1, 2 P 12 A			**NOR 000 001 170 020**
0-1, 2 P 25 A			**NOR 000 001 170 021**
0-1, 3 P 25 A			**NOR 000 001 170 022**
1-2, 1 P 12 A			**NOR 000 001 170 023**
1-2, 2 P 12 A			**NOR 000 001 170 024**
1-0-2, 1 P 12 A			**NOR 000 001 170 025**

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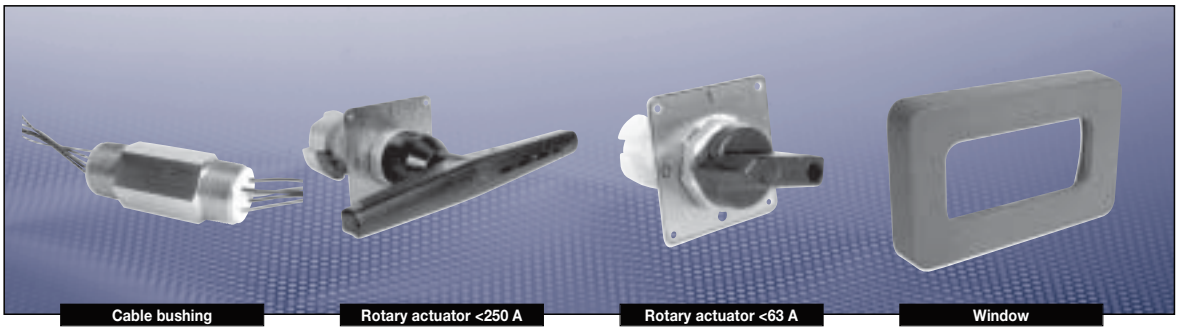


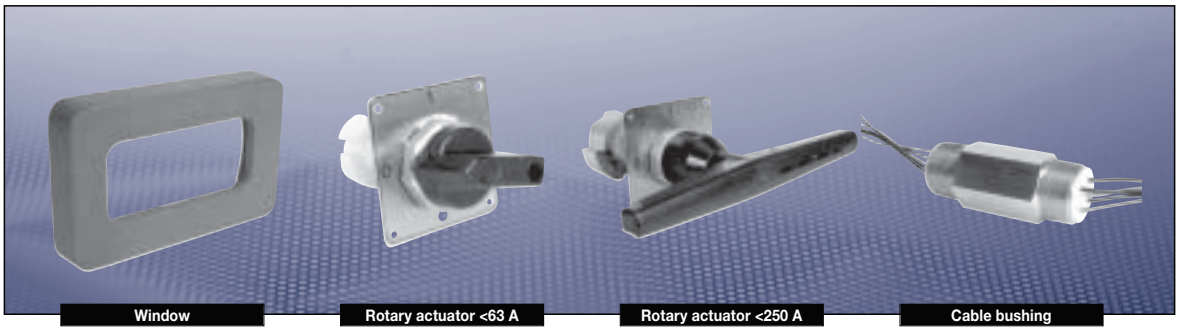
Technical data

Window	
Marking to 94/9/EC	Ex II 2 G EEx d IIB
EC Type Examination Certificate	LOM 02 ATEX 3060 U
Application temperature[1)]	–20 °C to +40 °C
Degree of protection acc. to EN 60529	IP65
Dimensions (L x W x H)	60 x 60 mm
	75 x 75 mm
	110 x 50 mm
	110 x 75 mm
Enclosure material	frame material aluminium
	window material borosilicate glass
Enclosure colour	grey epoxy resin finish

Rotary actuator	
Marking to 94/9/EC	Ex II 2 G EEx d IIB
EC Type Examination Certificate	LOM 02 ATEX 3060 U
Application temperature[1)]	–20 °C to +40 °C
Rated voltage	500 V
Rated current	25 A
	63 A
	250 A
	500 A
Degree of protection acc. to EN 60529	IP65
Enclosure material	aluminium
Enclosure colour	stainless-steel finish
Options	Locking facility for units up to 40 A
	on front panel, for units > 40 A on enclosure panel

Cable bushing	
Marking to 94/9/EC	Ex II 2 G EEx d IIB
EC Type Examination Certificate	LOM 02 ATEX 3060 U
Application temperature[1)]	–20 °C to +40 °C
Rated voltage	500 V
Rated current	25 A
	75 A
	150 A
Size 50 A	4 x 10 mm^2 + 1 x 6 mm^2 up to 9 x 1.5 mm^2 + as required
	4 x 16 mm^2 + 1 x 10 mm^2 up to 9 x 1.5 mm^2 + as required
	4 x 50 mm^2 + 1 x 10 mm^2 up to 47 x 1.5 mm^2 + as required
Degree of protection acc. to EN 60529	IP65
Material	bichromatised hexagonal steel
Enclosure colour	stainless-steel finish
Cable sealing	high-thermal and chemical-resistant compound

[1)] Depend on installation



Ordering details

Version	Order No.
Rotary switch	
Rotary switch, 1-0-2, 2 P, 12 A	**NOR 000 001 170 026**
Rotary switch, 0-1, 2 P, 12 A	**NOR 000 001 170 027**
Rotary switch, 0-1-M, 2 P, 12 A	**NOR 000 001 170 028**
Main switch	
Main switch, 25 A to < 63 A	**NOR 000 001 170 029**
Main switch, 63 A to < 100 A	**NOR 000 001 170 030**
Main switch, 100 A to < 250 A	**NOR 000 001 170 031**
Main switch, 250 A to < 1000 A	**NOR 000 001 170 032**
Plain labels for switch	
Plain labels for switch, 60 x 60	**NOR 000 001 170 033**
Plain labels for switch, 70 x 70	**NOR 000 001 170 034**
Plain labels for switch, 85 x 85	**NOR 000 001 170 035**
Rotary control switch for MCBs	
Rotary control switch for MCBs 1 pole ABB	**NOR 000 001 170 933**
Rotary control switch for MCBs Multipole ABB	**NOR 000 001 170 925**
Rotary control switch for MCBs 1 pole M&G	**NOR 000 001 170 600**
Rotary control switch for MCBs Multipole M&G	**NOR 000 001 170 569**
Rotary control switch for MCBs POWER	**NOR 000 001 170 565**

Cable bushing	Version	
3/4" NPT, 3P+N+PE	4 x 10 mm^2 + 1 x 6 mm^2 50A	**NOR 000 001 170 892**
1" NPT, 3P+N+PE	4 x 16 mm^2 + 1 x 10 mm^2 75A	**NOR 000 001 170 909**
1"1/2 NPT, 3P+N+PE	4 x 50 mm^2 + 1 x 10 mm^2 150A	**NOR 000 001 170 917**

Window	
60 x 60 mm, Type M 6060	**NOR 000 001 170 000**
75 x 75 mm, Type M 7575	**NOR 000 001 170 001**
110 x 50 mm, Type M 11050	**NOR 000 001 170 002**
110 x 75 mm, Type M 11075	**NOR 000 001 170 003**
Blanking plug	
Blanking plug	**NOR 000 001 170 154**

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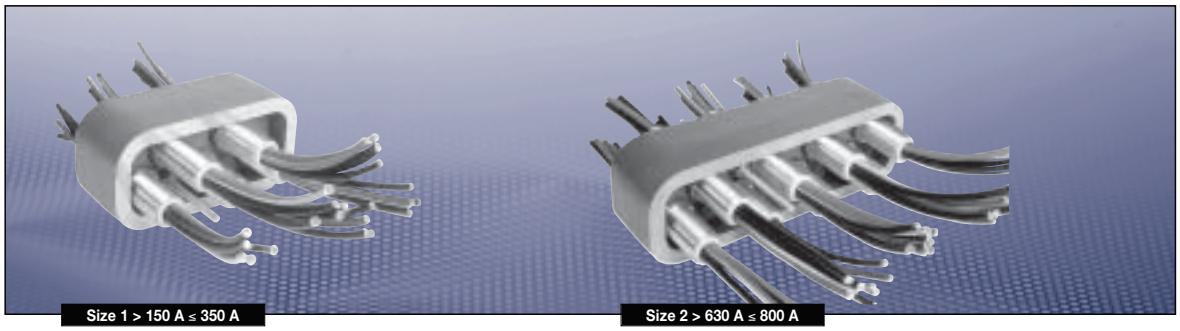
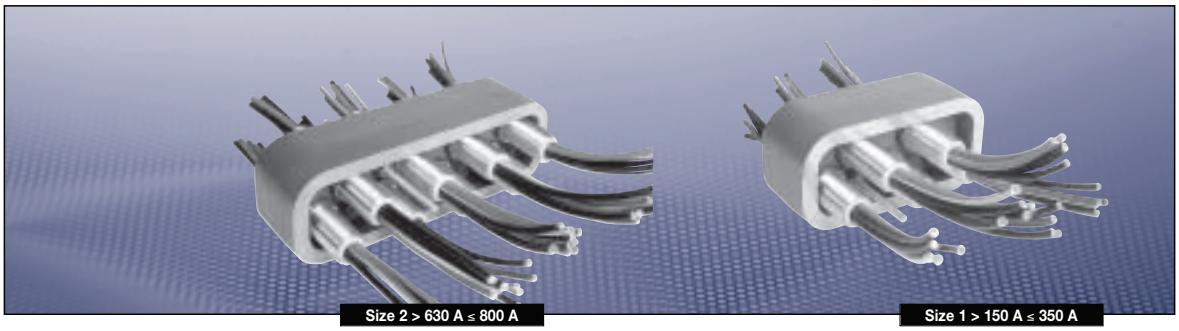


Technical data

Bus bar for interconnection of enclosures	
Marking to 94/9/EC	Ex II 2 G EEx d IIB
EC Type Examination Certificate	LOM 02 ATEX 3060 U
Application temperature[1)]	–20 °C to +40 °C
Rated voltage	690 V AC
Rated current	150 A
	350 A
	500 A
	800 A
Terminal cross-section	
Size to 150 A 3P+N+PE	4 x 10 mm² + 1 x 6 mm², to 9 x 1.5 mm² + depends on use
Size to 350 A 3P+N+PE	Aluminium coupler 208 x 102 mm, comprising 4 bars, (3P+N) 350 A,
	1 auxiliary bushing max. 19 x 1.5 mm², 1 PE-Rail
Size to 500 A	Aluminium coupler 208 x 102 mm, comprising 4 bars, (3P+N) 500 A,
	1 auxiliary bushing max. 19 x 1.5 mm², 1 PE-Rail
Size to 800 A	Aluminium coupler 310 x 102 mm, comprising 7 bars, (3P+N) 800 A,
	1 auxiliary bushing max. 19 x 1.5 mm², 1 PE-Rail
Degree of protection acc. to EN 60529	IP65
Dimensions (L x W x H)	60 x 60 mm
	75 x 75 mm
	110 x 50 mm
	110 x 75 mm
Enclosure material	Duroplastic
Cable sealing	high-thermal and chemical-resistant compound

[1)] Depend on installation



Ordering details

Version	Enclosure size	Order No.
Bus bars for interconnection of enclosures		
Aluminium coupler 208 x 102 mm, comprising 4 bars, (3P+N+PE) >350 A, 1 auxiliary bushing max. 19 x 1.5 mm², 1 PE-Rail	1	**NOR 000 001 170 036**
Aluminium coupler 208 x 102 mm, comprising 4 bars, (3P+N+PE) >350 A ≤ 500 A, 1 auxiliary bushing max. 19 x 1.5 mm², 1 PE-Rail	1	**NOR 000 001 170 037**
Aluminium coupler 310 x 102 mm, comprising 4 bars, (3P+N+PE) >500 A ≤ 630 A, 1 auxiliary bushing max. 19 x 1.5 mm², 1 PE-Rail	2	**NOR 000 001 170 038**
Aluminium coupler 310 x 102 mm, comprising 3 x 2 + 1 bars, (3P+N+PE) >630 A ≤ 800 A, 1 auxiliary bushing max. 19 x 1.5 mm², 1 PE-Rail	2	**NOR 000 001 170 039**

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EX-D ENCLOSURES AND DISTRIBUTIONS

made of metal
for gases of explosion group IIC

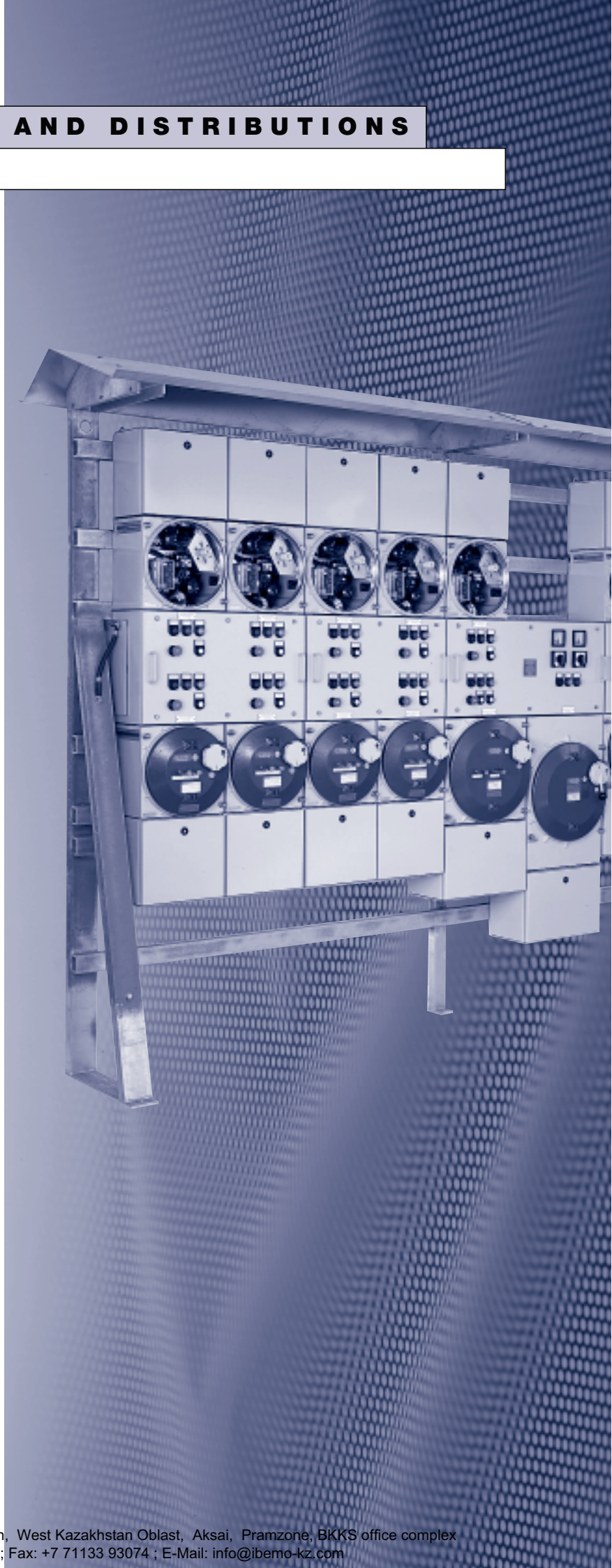
To use MCBs, fuses, contactors etc. which give off arcs in potentially hazardous areas, they must be integrated in Ex-d distributions.

For just this purpose, the Cooper Crouse-Hinds GmbH offers a distribution system comprising flameproof aluminium enclosures and Ex-e steel terminal boxes with a polyester powder coating suited for tropical and marine climates. Seven enclosure sizes can be combined into large distributions allowing integration of built-in components up to 630 A and 690 V.

To simplify the integration of large installations, bus-bar systems for up to 630 A are used.

Customer-specified distributions are planned individually, taking explosion-protection requirements into account.

Explosion-protected signal lamps, indicating and control components are built into connection and bus-bar boxes, as required. Alternatively, these boxes can be supplied as separate terminal and control boxes. CEAG explosion-protected metal distributions fulfil all the requirements specified by the chemical, petrochemical and offshore industries.



- **Modular design**
- **Rated current up to 630 A**
- **Generously dimensioned terminal compartment**
- **Suited for tropical and maritime climates through powder coating**
- **Cable entries via removable flanges**
- **Main switch can be actuated from outside**
- **Metal parts without finish are corrosion resistant**
- **Explosion group IIC**

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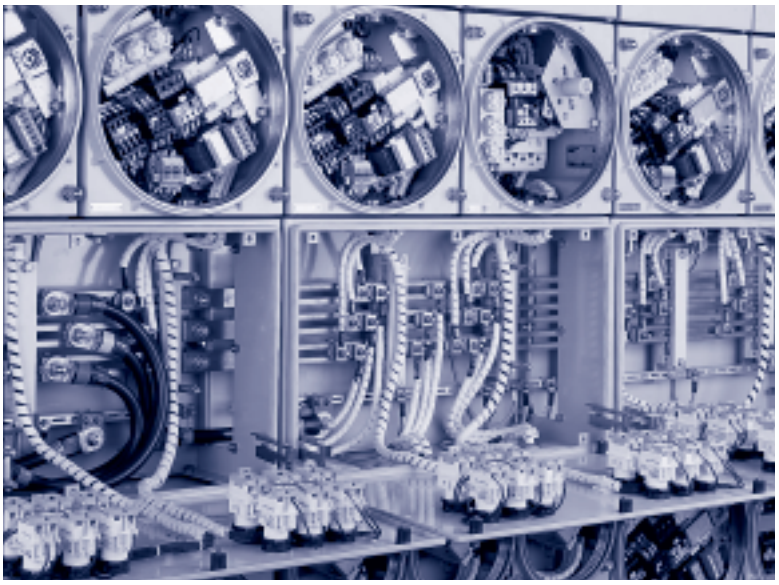
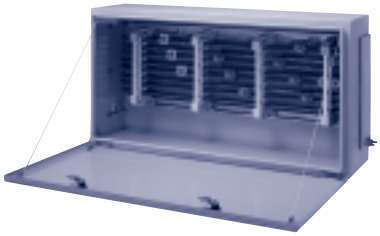


The modular design provides an economical and clearly arranged method of putting together distributions on the unit construction system using connection and bus bar boxes in the type of protection "Increased Safety". The individual flameproof distribution enclosures are joined together via the flange openings of the Ex-e connection boxes and the bus bar boxes. It is also possible to put together completely flameproof distributions by using flameproof cable glands.

The flameproof enclosures are also available as empty enclosures with and without Ex-e connection boxes as well as with and without main switches for equipping by the customer. In this case, please note that national standards require a special inspection by an authorized expert. Also single or multi-wire bushings with connectors can be mounted on the distributions, if required. Alternatively, these leads can be connected to a terminal rail.

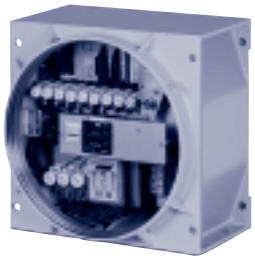
Any conventional industrial switchgear that gives off arcs or sparks during operation can be built into these flameproof enclosures. The power dissipation must not exceed the values stated in the PTB certificate.

The various circuits can be connected quickly and economically via a bus-bar system.



If required, individually encapsulated control and indicating units, such as pushbuttons, control switches or Ex-e measuring instruments as well as Ex-i digital indicating instruments can be built into the Ex-e connection or bus-bar boxes.

The enclosures can be combined into large distribution system on standardised wall mounting or free-standing frameworks. The frameworks come in standardized sizes to accommodate the enclosure modules and can be extended as required. For outdoor installations, we recommend canopies to protect the distribution system from the sun and rain. Smaller distributions are mounted on flat or U-rails. All enclosures are made of hot-dip galvanised steel.



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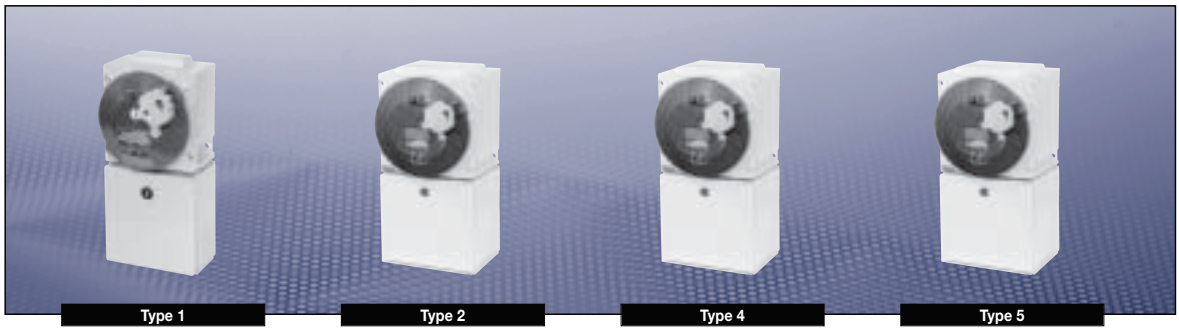


Technical data

Ex d Light alloy enclosure for motor starter	
Marking to 94/9/EC	Ⓔx II 2 G EEx de ia/ib [ia/ib] II C T6/T5
	Ⓔx II 2 D IP66 T80 °C ... T130 °C[1)]
EC Type Examination Certificate	PTB 99 ATEX 1057
Permissible ambient temperature	–20 °C to +40 °C
	–55 °C to +55 °C (Option)
Rated voltage	690 V
Rated current	630 A
Insulation class	I
Terminal cross-section	up to 240 mm²
Degree of protection acc. to EN 60529	IP54 (IP66 on request)
Weight	see ordering details
Enclosure material	aluminium die-cast housing
Enclosure colour	pebbles grey, cover dark grey

[1)] Dust certification only in combination with IP66

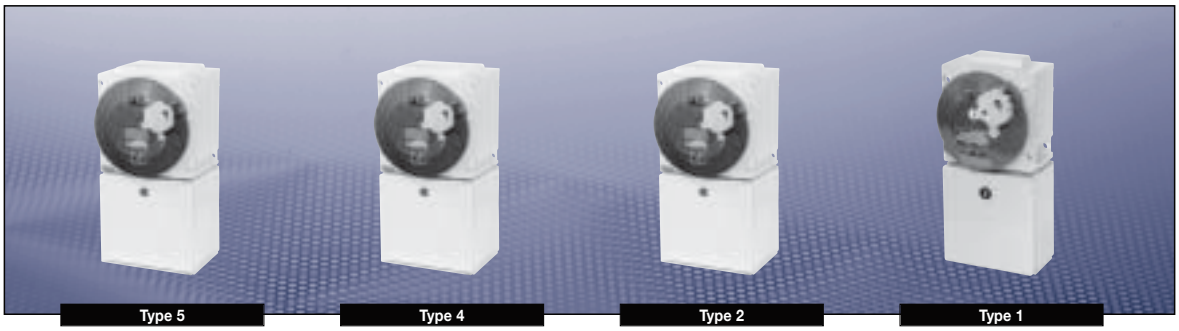
Ordering details

Version Motor capacity to AC 3	Type	Main switch	Cable glands	Weight approx.	Degree of protection EN 60529	Order No.
Direct circuit						
11 kW	1	25 A	3 x M25	14.5 kg	IP54	**EXKO 71 5000 F 0000**
15 kW	2	25 A	2 x M32 / 1 x M25	24.5 kg	IP54	**EXKO 71 5000 H 0000**
22 kW	4	40 A	2 x M40 / 1 x M25	37.5 kg	IP54	**EXKO 71 5000 K 0000**
Reversing circuit						
11 kW	1	25 A	3 x M25	14.5 kg	IP54	**EXKO 71 5100 F 0000**
15 kW	2	25 A	2 x M32 / 1 x M25	24.5 kg	IP54	**EXKO 71 5100 H 0000**
22 kW	4	40 A	2 x M40 / 1 x M25	39.5 kg	IP54	**EXKO 71 5100 K 0000**
Star-delta starter						
7.5 KW	2	40 A	4 x M25	25 kg	IP54	**EXKO 71 5200 B 0000**
12.5 KW	2	40 A	4 x M25	25 kg	IP54	**EXKO 71 5200 D 0000**
18.5 KW	4	40 A	3 x M32 / 1 x M25	37 kg	IP54	**EXKO 71 5200 F 0000**
30.0 KW	4	63 A	3 x M32 / 1 x M25	39 kg	IP54	**EXKO 71 5200 H 0000**
37.0 KW	5	100 A	1 x M40 / 2 x M32			
			1 x M25	64 kg	IP54	**EXKO 71 5200 K 0000**
55.0 KW	5	100 A	1 x M40 / 2 x M32			
			1 x M25	64 kg		**EXKO 71 5200 M 0000**

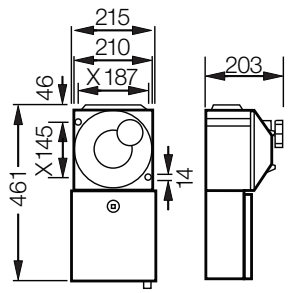
The motor starter is ready pre-wired for customised use with terminals.

Further switching capacities up to 630 A on request.

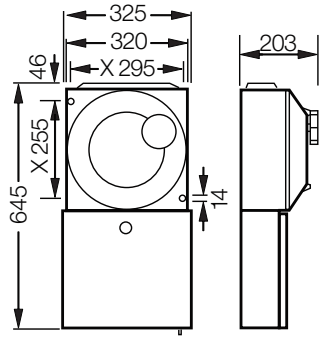
Please state motor operating voltage and rated current in your order.



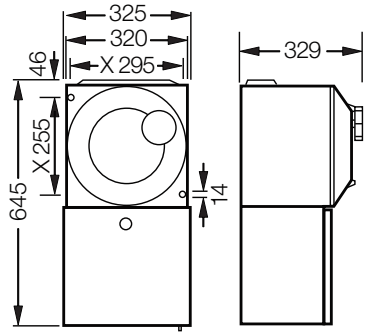
Dimension drawing | Wiring diagram



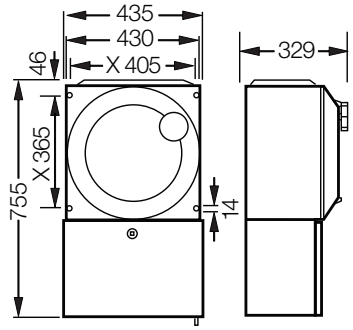
Type 1



Type 2

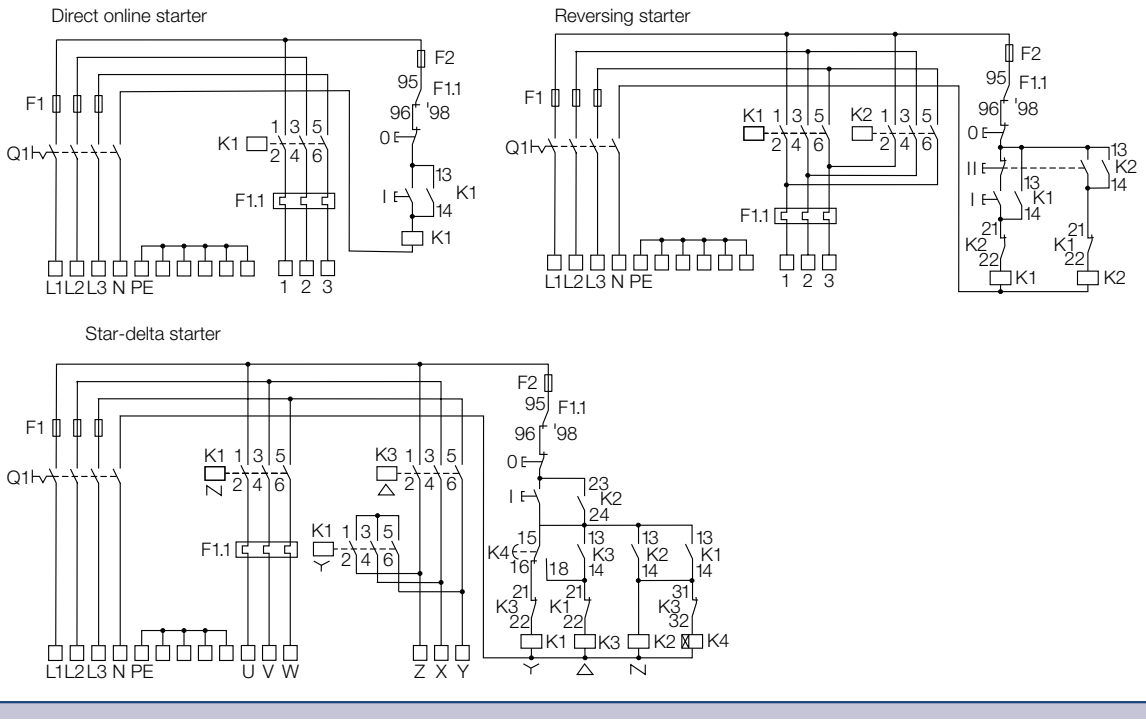


Type 4



Type 5

X = fixing dimensions



Dimensions in mm

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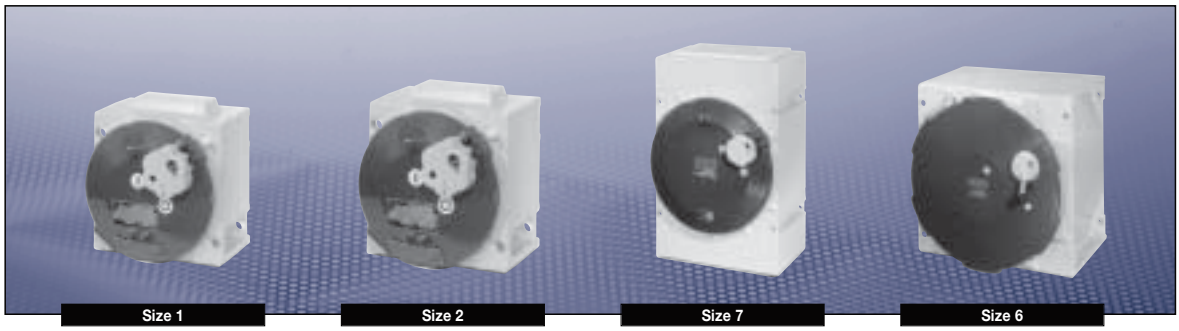
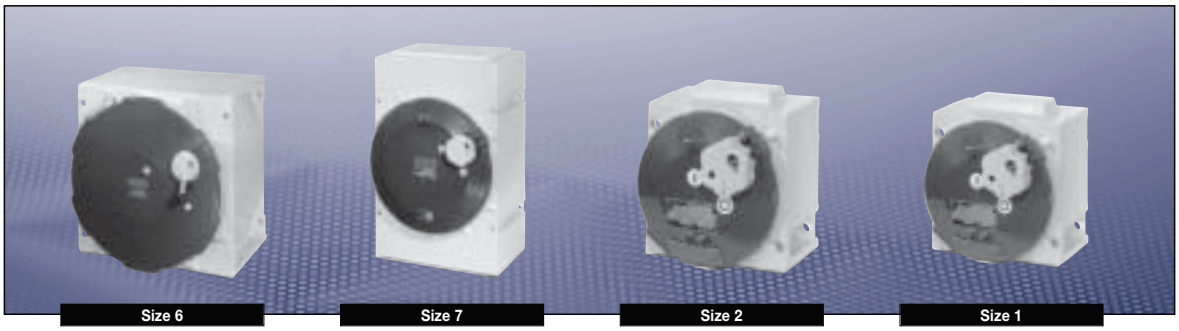


Technical data

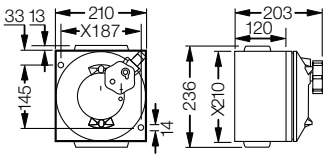
Ex d Light alloy empty enclosures	
Marking to 94/9/EC	Ex II 2 G EEx de ia/ib [ia/ib] II T4/T5/T6
	Ex II 2 D IP66 T80 °C/T95 °C/T130 °C
EC Type Examination Certificate	PTB 99 ATEX 1057
Permissible ambient temperature	–20 °C to +40 °C
	–55 °C to +55 °C (option)
Rated voltage	690 V
Rated current	630 A
Terminal cross-section	up to 240 mm^2
Degree of protection acc. to EN 60529	IP54 (IP66 on request)
Weight	see ordering details
Enclosure material	aluminium die-cast housing
Enclosure colour	coating suited for tropical and marine climates
	finish polyester coating in RAL 7032/7022

Ordering details

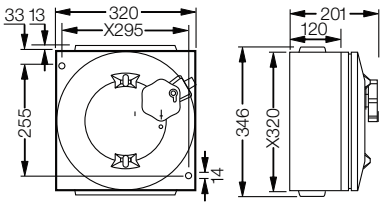
Version	Power dissipation T6	T5	Rated current	Weight	Order No.
Ex d light alloy empty enclosures					
Size 1	80 W	120 W	125 A	8 kg	**on request**
Size 2	150 W	210 W	260 A	16 kg	**on request**
Size 4	210 W	280 W	400 A	23 kg	**on request**
Size 5	300 W	420 W	400 A	40 kg	**on request**
Size 7	300 W	420 W	400 A	55 kg	**on request**
Size 6	700 W	975 W	630 A	195 kg	**on request**



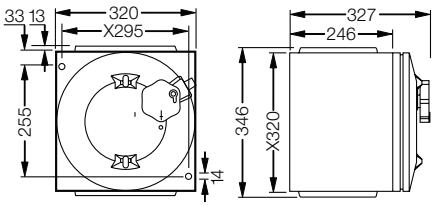
Dimension drawing



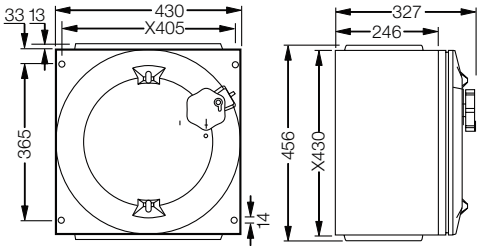
Size 1



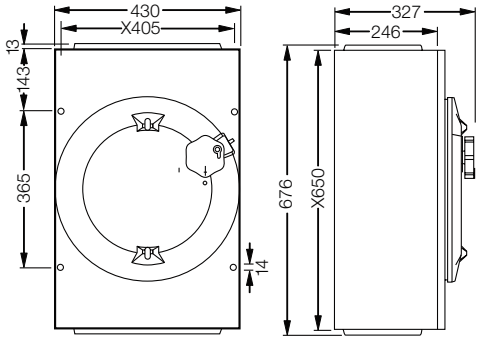
Size 2



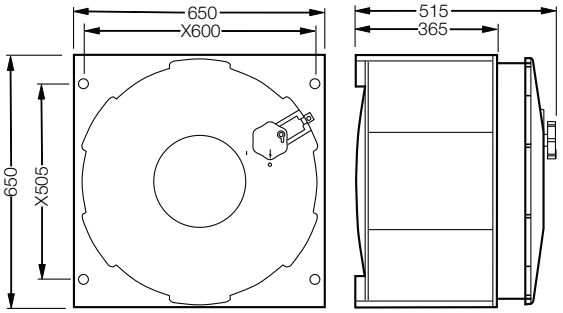
Size 4



Size 5



Size 7



Size 6

X = fixing dimensions

Dimensions in mm

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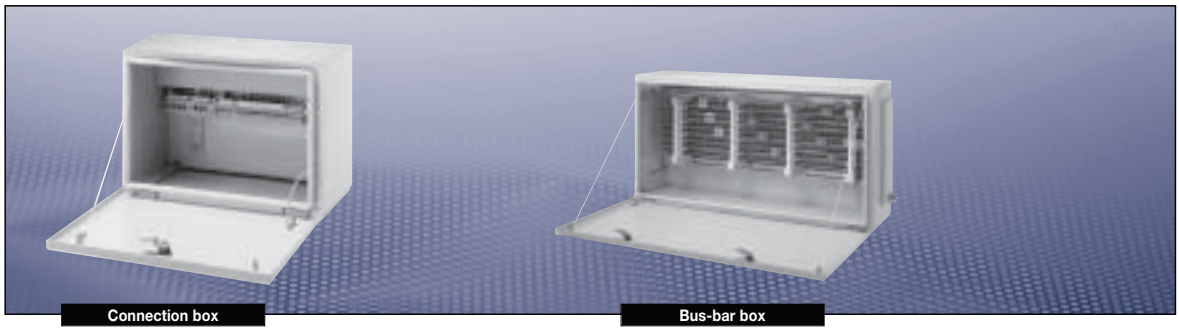


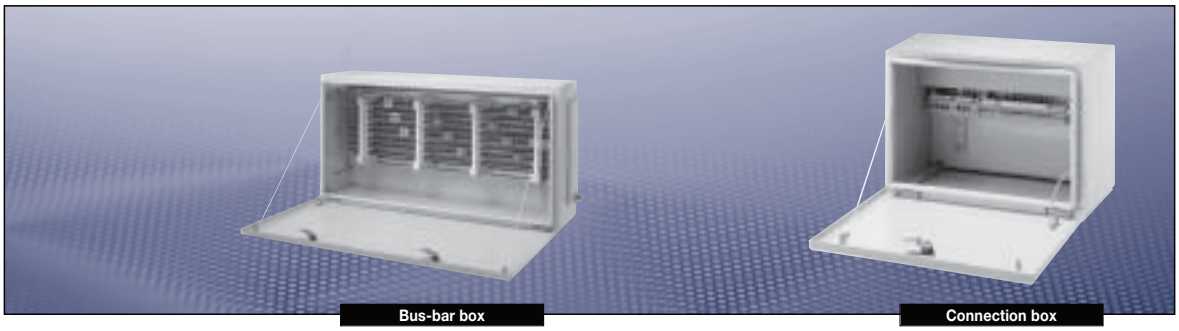
Technical data

Steel-connection box			
Marking to 94/9/EC	Ⓔx II 2 G EEx de ia/ib [ia/ib] IIC T4 ... T6 Ⓔx II 2 D IP66 T80 °C, T95 °C, T100 °C		
EC Type Examination Certificate	PTB 00 ATEX 1073		
Permissible ambient temperature	–55 °C to +40 °C		
Rated voltage	690 V		
Rated current	630 A		
Terminal cross-section	up to 240 mm²		
Degree of protection acc. to EN 60529	IP54 (IP65 on request)		
Weight	see ordering details		
Enclosure material	steel		
Enclosure colour	finish polyester powder coating in RAL 7032		

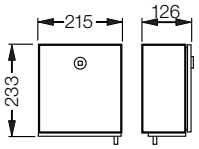
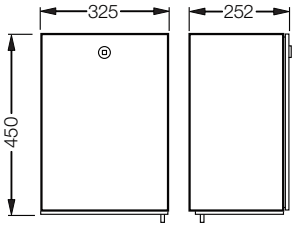
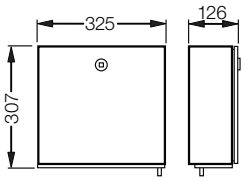
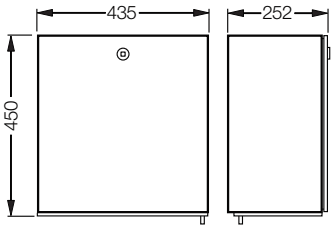
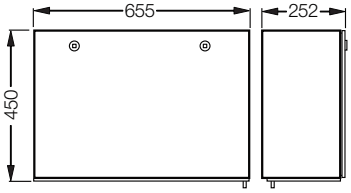
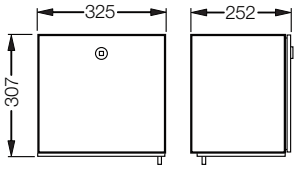
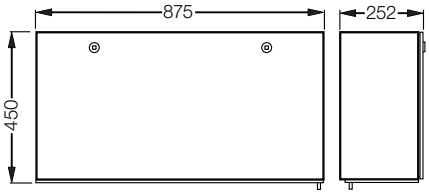
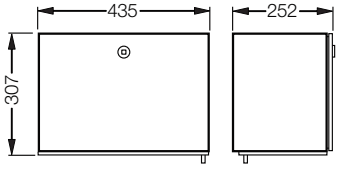
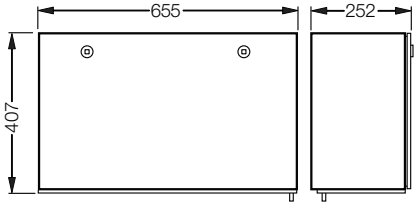
Steel-bus-bar box			
Marking to 94/9/EC	Ⓔx II 2 G EEx de ia/ib [ia/ib] IIC T4 - T6 Ⓔx II 2 D IP66 T80 °C, T95 °C, T100 °C		
EC Type Examination Certificate	PTB 00 ATEX 1073		
Permissible ambient temperature	–55 °C to +40 °C		
Rated voltage	690 V		
Rated current	250 A	400 A	600 A
Rated short-circuit current	35 kA	53 kA	85.8 kA
Rated thermal short-time current	9.4 kA (1s)	10.7 kA (1s)	13.2 kA (1s)
Terminal cross-section	up to 240 mm²		
Degree of protection acc. to EN 60529	IP54 (IP66 on request)		
Weight	see ordering details		
Enclosure material	steel		
Enclosure colour	finish polyester powder coating in RAL 7032		

Ordering details

Version	Max. no. of built-in control units	Version size	Length of terminal rail	Weight	Order No.
Steel-connection box					
AK 1-2	4	1	1 x 190 mm	4.3 kg	**on request**
AK 2-2	15	2	2 x 200 mm	7.0 kg	**on request**
AK 4-1	15	4	3 x 300 mm	9.5 kg	**on request**
AK 5-1	21	5	3 x 410 mm	11.5 kg	**on request**
AK 6-1	52	6	3 x 630 mm	23.5 kg	**on request**
Steel-bus-bar box					
SSK 1	20	1	1 x 295 mm	11.0 kg	**on request**
SSK 2	28	2	2 x 405 mm	15.0 kg	**on request**
SSK 3	52	4	2 x 625 mm	23.0 kg	**on request**
SSK 4	72	4	2 x 845 mm	31.0 kg	**on request**



Dimension drawing

	Steel-connection box	Steel-bus-bar box
Size 1		
Size 2		
Size 3		
Size 4		
Size 5		
Size 6		

Dimensions in mm

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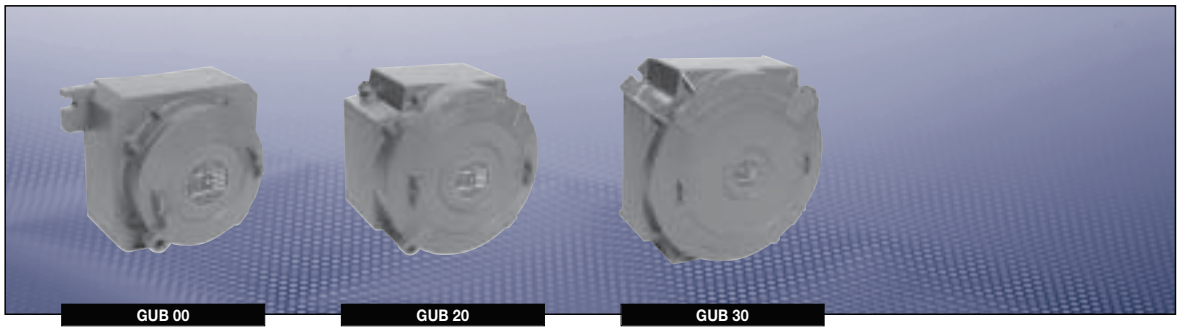

Technical data

Ex d Light Alloy Enclosure	
Marking 94/9/EC	Ⓔx II 2 G EEx d IIC T6 - T4 Ⓔx II 2 D IP67 T[1)]
EC-Type Examination Certificate	LOM 03 ATEX 3107U
Permissible ambient temperature	–20 °C to +40 °C
Rated voltage	690 V
Rated current	max. 250 A
Insulation class	I
Degree of protection accd. EN 60529	IP67
Cable glands/enclosure drilling	[1)]
Dimensions (L x W x H)	[1)]
Weight	[1)]
Enclosure material	Copper-free aluminium
Enclosure colour	grey coating

[1)] see table

Ordering details

Type	Dissipated power T6	T5	T4	Rated current max.	Weight approx.	Order No.
Ex d Light Alloy Enclosure GUB						
GUB 00	60	85	150	60 A	3.20 kg	**NOR 000 001 160 116**
GUB 20	100	145	255	150 A	6.20 kg	**NOR 000 001 160 124**
GUB 30	140	200	360	250 A	10.20 kg	**NOR 000 001 160 132**

Max. entries per side

Type	1/2”	3/4”	1”	1 1/4”	1 1/2”	2 ”	2 1/2”
GUB 00	4	3	2	2	2	–	–
GUB 20	6	5	3	2	2	1	1
GUB 30	10	8	5	3	3	2	2

These enclosures can provide according to LOM 04 ATEX 2018 certification with the following electrical apparatus:
Bus-bars, Terminals, Low voltage transformers, Air circuit breakers, Automatic circuit breakers, Control and operations circuits, Servomotors without ventilation, Starters and ballasts for discharge lamps, Electronic apparatus, Associated SI apparatus, etc., According customer needs.

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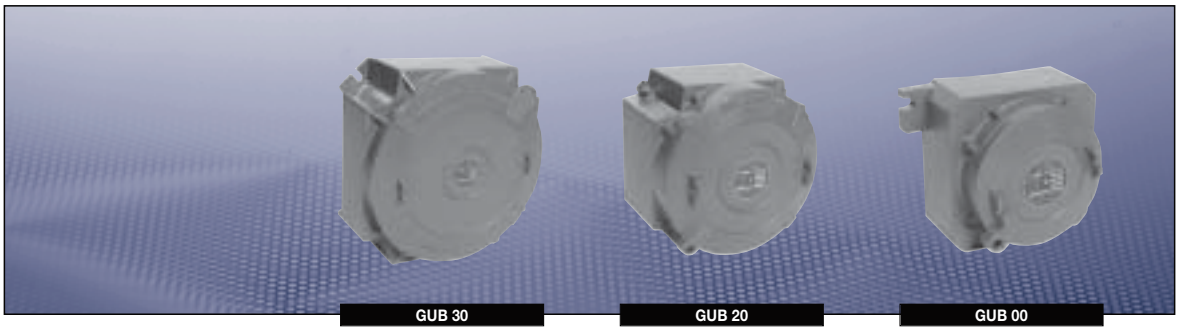
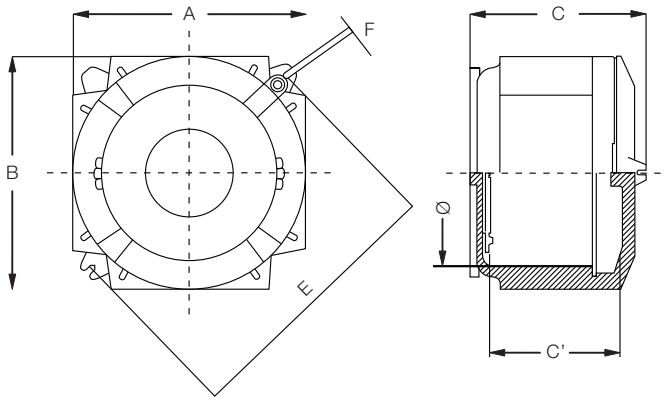


Dimension drawing



Ex d Light Alloy Enclosure GUB

Type	External		Internal			Mounting		
	A	B	C	A'	B'	C'	E	F
GUB 00	170	170	135	125	125	74	210	9
GUB 20	215	215	195	175	175	139	250	11
GUB 30	333	333	180	295	295	120	370	11

Dimensions in mm

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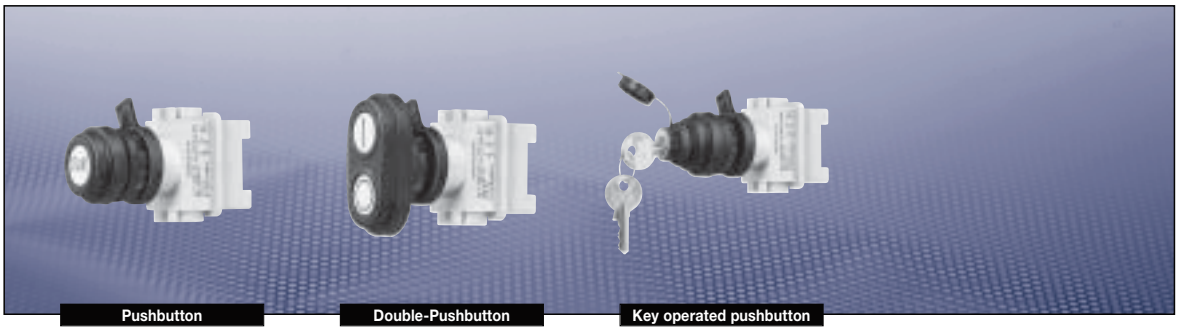


Technical data

Ex-Control and signal units for panel mounting Pushbutton Type 418 811 and Double pushbutton Type 418 814				
Marking to 94/9/EC		Ⓔx II 2 G EEx ed IIC T6 / I M 2 EEx e I Ⓔx II 2 G Ex ed IIC T6 / I M 2 Ex e I		
EC-Type Examination Certificate		PTB 97 ATEX 1081 U PTB 99 ATEX 1034[1)]		
Permissible ambient temperature		–20 °C to +40 °C –55 °C to +55 °C (Option)		
Rated voltage		500 V AC		
Rated current		16 A		
Rated current gold contacts		0.4 A		
Switch rating	AC 15 DC 13	250 V/6 A 24 V/6 A	500 V/4 A 60 V/0.8 A	 110 V/0.5 A
Connecting terminals		2 x 2.5 mm²		
Degree of protection accd. EN 60529		IP66[1)]		
Dimensions (L x W x H)		approx. 59 x 31 x 45 mm		
Weight		0.20 kg		
Type of mounting		Ø 30.5 mm fixing hole		
Enclosure colour		grey		
Gasket material		Neoprene (Standard), Fluoric silicone or viton on request		

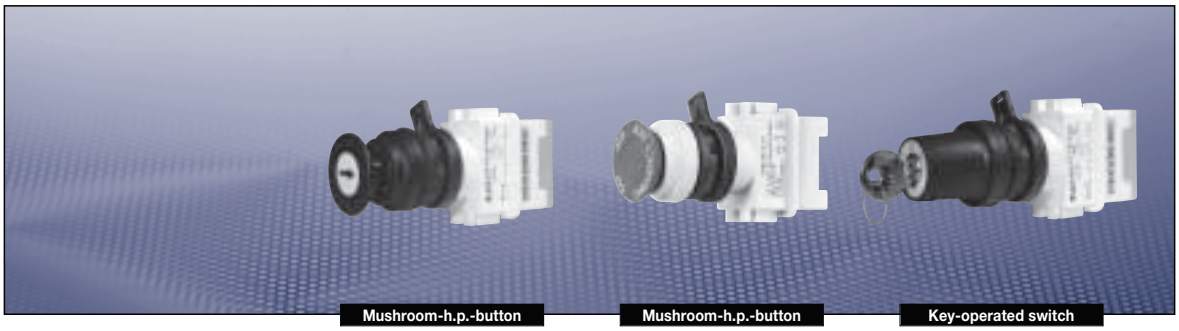
[1)] If protective covers are used

Technical data

Ex-Control and signal units for panel mounting Key operated pushbutton Type 418 812				
Marking to 94/9/EC		Ⓔx II 2 G Ex ed IIC T6/ I M 2 Ex e I		
EC-Type Examination Certificate		PTB 97 ATEX 1081 U PTB 99 ATEX 1034[1)]		
Permissible ambient temperature		–20 °C to +40 °C –55 °C to +55 °C (Option)		
Rated voltage		500 V AC		
Rated current		16 A		
Rated current gold contacts		0.4 A		
Switch rating	AC 15 DC 13	250 V/6 A 24 V/6 A	500 V/4 A 60 V/0.8 A	 110 V/0.5 A
Connecting terminals		2 x 2.5 mm²		
Degree of protection accd. EN 60529		IP66[1)]		
Dimensions (L x W x H)		approx. 59 x 31 x 45 mm		
Weight		0.15 kg		
Type of mounting		Ø 30.5 mm fixing hole		
Enclosure colour		grey		
Gasket material		Neoprene (Standard), Fluoric silicone or viton on request		
Latch point		CEAG 1 (others on request)		

[1)] If protective covers are used

For detailed information, see page 9.80 - 9.107.



Technical data

Ex-Control and signal units for panel mounting Key operated switch Type 418 8195				
Marking to 94/9/EC		Ⓔx II 2 G Ex ed IIC T6/ I M 2 Ex e I		
EC-Type Examination Certificate		PTB 97 ATEX 1081 U PTB 99 ATEX 1034[1)]		
Permissible ambient temperature		–20 °C to +40 °C –55 °C to +55 °C (Option)		
Rated voltage		500 V AC		
Rated current		16 A		
Rated current gold contacts		0.4 A		
Switch rating	AC 15 DC 13	250 V/6 A 24 V/6 A	500 V/4 A 60 V/0.8 A	 110 V/0.5 A
Connecting terminals		2 x 2.5 mm²		
Switching system		engaging - engaging - engaging		
Dimensions (L x W x H)		approx. 59 x 31 x 45 mm		
Weight		0.15 kg		
Type of mounting		Ø 30.5 mm fixing hole		
Enclosure colour		grey		
Latch point		CEAG 1 (others on request)		

[1)] If protective covers are used

Technical data

Ex-Control and signal units for panel mounting Mushroom head pushbutton (Emergency stop and normal version)	
Marking to 94/9/EC	Ⓔx II 2 G EEx ed IIC T6/ I M 2 EEx e I
EC-Type Examination Certificate	PTB 97 ATEX 1081 U PTB 99 ATEX 1034[1)]
Permissible ambient temperature	–20 °C to +40 °C –55 °C to +55 °C (Option)
Rated voltage	500 V AC
Rated current	16 A
Rated current gold contacts	0.4 A
Switch rating	400 V/16 A AC-1 400 V/ 4 A AC-11
Connecting terminals	2 x 2.5 mm²
Dimensions (L x W x H)	approx. 59 x 31 x 45 mm
Weight	0.15 kg
Type of mounting	Ø 30.5 mm fixing hole
Enclosure colour	grey
Gasket material	Neoprene (Standard), fluoric silicone or viton on request

[1)] If protective covers are used

For detailed information, see page 9.80 - 9.107.

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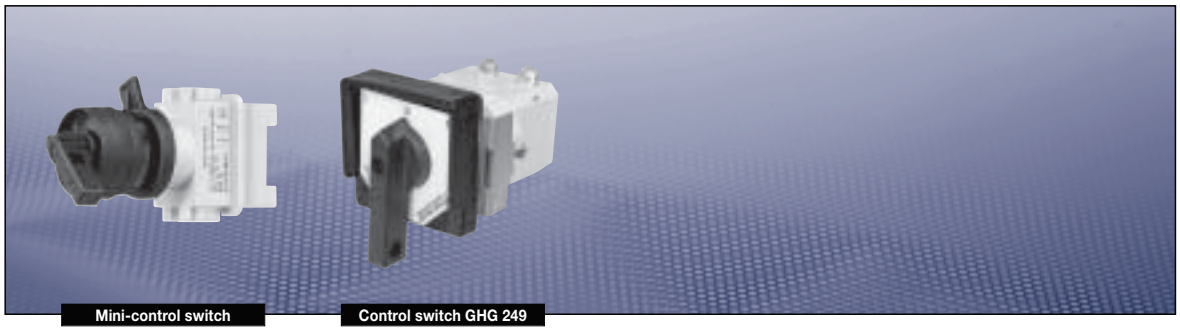

Mini-control switch | Control switch GHG 249

Technical data

Ex-Control and signal units for panel mounting Mini-Control switch Type 418 8190				
Marking to 94/9/EC		Ⓔx II 2 G Ex ed IIC T6/ I M 2 Ex e I		
EC-Type Examination Certificate		PTB 97 ATEX 1081 U		
		PTB 99 ATEX 1034[1)]		
Permissible ambient temperature		–20 °C to +40 °C		
		–55 °C to +55 °C (Option)		
Rated voltage		500 V AC		
Rated current		16 A		
Rated current gold contacts		0.4 A		
Switch rating	AC 15	250 V/6 A	500 V/4 A	
	DC 13	24 V/6 A	60 V/0.8 A	110 V/0.5 A
Connecting terminals		2 x 2.5 mm²		
Dimensions (L x W x H)		approx. 59 x 31 x 45 mm		
Weight		0.15 kg		
Type of mounting		Ø 30.5 mm fixing hole		
Enclosure colour		grey		

[1)] If protective covers are used

Technical data

Ex-Control and signal units for panel mounting Control switch GHG 249		
Marking to 94/9/EC		Ⓔx II 2 G Ex ed IIC T6/ I M 2 Ex e I
EC-Type Examination Certificate		PTB 98 ATEX 1117 U[1)]
Permissible ambient temperature		–20 °C to +40 °C
		–55 °C to +45 °C (Option)
Rated voltage		up to 690 V AC
Rated current		up to 20 A
Rated current gold contacts		up to 0.4 A
Switch rating	AC 1	690 V/20 A
	AC 3	400 V/20 A / 500 V/16 A
	AC 11	230 V/ 8 A / 500 V/ 6 A
	DC 11	24 V/ 6 A / 230 V/0.4 A
Connecting terminals		2 x 2.5 mm² multi wire, 6 mm² single wire
Weight		0.55 kg
Type of mounting		Ø 30.5 mm fixing hole
Enclosure colour		grey

[1)] Must be installed in a certified enclosure

For detailed information, see page 9.80 - 9.107.

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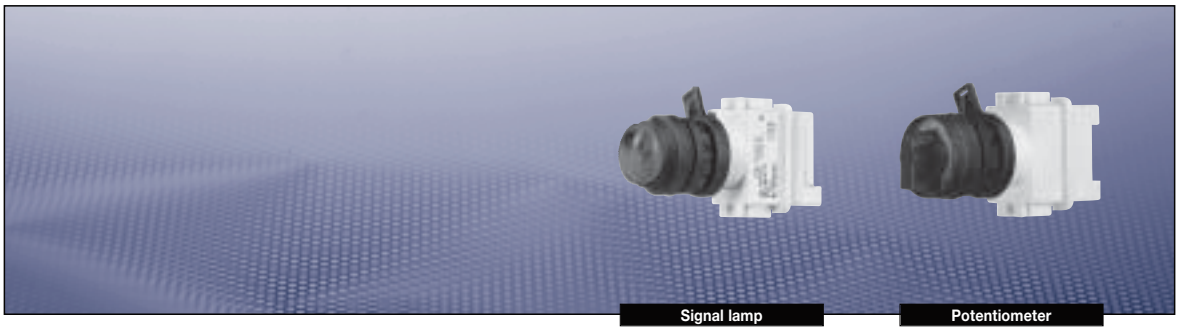

Technical data

Ex-Control and signal units for panel mounting Potentiometer Type 418 8131	
Marking to 94/9/EC	Ⓔx II 2 G Ex ed IIC T6/ I M 2 Ex e I
EC-Type Examination Certificate	PTB 97 ATEX 1081 U PTB 99 ATEX 1034[1)]
Permissible ambient temperature	–20 °C to +40 °C –55 °C to +55 °C (Option)
Rated voltage	up to 250 V AC
Power consumption	max. 1 W
Resistance range	100 - 10000 Ω
Tolerance	± 20 %
Connecting terminals	2 x 2.5 mm²
Dimensions (L x W x H)	approx. 59 x 31 x 45 mm
Weight	0.15 kg
Type of mounting	Ø 30.5 mm fixing hole
Enclosure colour	grey
Angle of rotation	270°
Scale	0 - 100 %

[1)] If protective covers are used

Technical data

Ex-Control and signal units for panel mounting Signal lamp Type 418 8170		
Marking to 94/9/EC		Ⓔx II 2 G Ex ed IIC / II 2 G Ex d ia IIC
EC-Type Examination Certificate		PTB 98 ATEX 1040 U PTB 99 ATEX 1034[1)]
Permissible ambient temperature		–20 °C to +40 °C –55 °C to +55 °C (Option)
Rated voltage	(Ex ed IIC)	20 V to 250 V AC/DC
	(Ex d ia IIC)	10 V to 28 V DC
	(Ex ed IIC)	12 V to 30 V AC/DC
Rated current	(20 V to 250 V)	approx. 4 - 15 mA
	(10 V to 28 V Ex d ia IIC)	max. 25 mA
	(12 V to 30 V)	max. 24 mA
Connecting terminals		2 x 2.5 mm²
Dimensions (L x W x H)		approx. 59 x 31 x 45 mm
Weight		0.15 kg
Type of mounting		Ø 30.5 mm fixing hole
Enclosure colour		grey

[1)] If protective covers are used

For detailed information, see page 9.80 - 9.107.

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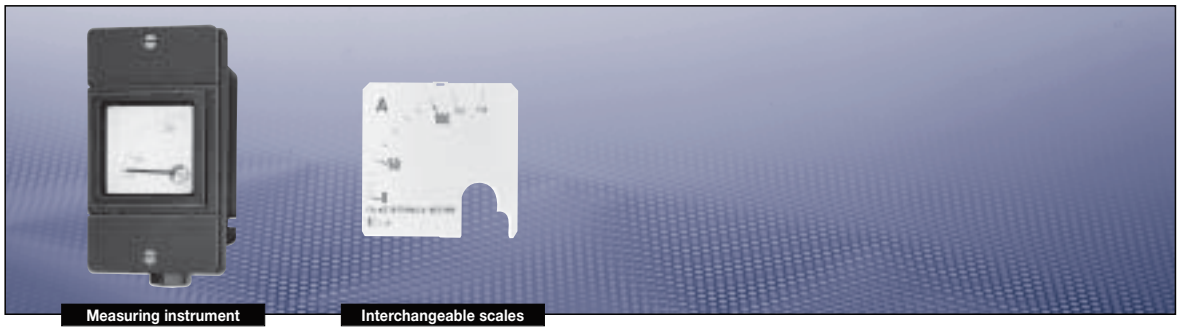

Technical data

Type 413 84 with measuring instrument AM 72		
	Moving iron	Moving coil
Marking to 94/9/EC	⟨Ex⟩ II G Ex e II / I M 2 Ex e I	⟨Ex⟩ II G Ex ib IIC / I M 2 Ex ib I
EC-Type Examination Certificate	PTB 00 ATEX 3117	
Permissible ambient temperature	–20 °C to +40 °C	
	–55 °C to +55 °C (option)	
Rated voltage	up to 750 V	
Power consumption	max. 0.31 VA	
Overload range	10 fold - 25 sec.	10-fold - 5 sec.
	25 fold - 4 sec.	
	50 fold - 1 sec.	
	indicated 1 : 1.5	
Measuring range	max. 0 - 25 A direct / n / 1A	0/4 - 24 mA
Inductance Li		< 0.1 mH
Capacitance Ci		< 0.1 nF
Winding specification of moving coil		26.5 windings
Internal resistance		2.5 Ω ± 30 %
Open circuit voltage max. Ui		≤ 30 V
Short circuit current max. Ii		≤ 150 mA
Accuracy	Class 2.5	Class 1.5
Connecting terminals	2 x 1.5 - 4 mm²	
Degree of protection accd. EN 60529	IP66	
Cable glands/Gland plates/Enclosure drilling	1 x M25 (Ø 8 - 17 mm)	
Dimensions (L x W x H)	160 x 95 x 62 mm	
Display size AM 72	72 x 72 mm	
Weight	0.8 kg	
Type of mounting	DIN rail mounting	
Enclosure colour	grey	

For detailed information, see page 9.80 - 9.107.