

An aerial photograph of an offshore oil rig platform in the ocean. The platform is a complex structure with multiple levels, yellow railings, and a red and yellow helipad on top. It is supported by several large, dark legs. The water is a deep blue with some white foam from the rig's operations.

Ex-Control units and control stations

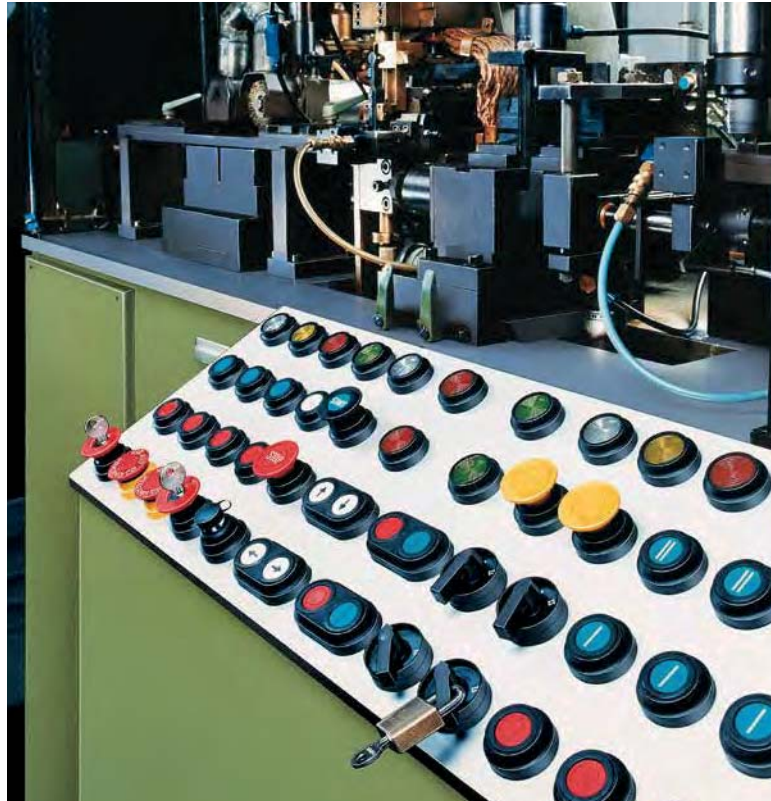




| | |
|--------------------------------------------------------------------|----------------|
| 4.1 GHG 273 Ex-Installation Switch 16 A | 2.4.6 |
| 4.2 GHG 41 Control Stations 16 A | 2.4.8 |
| Ex-moulded plastic control stations GHG 411 | 2.4.10 |
| Ex-moulded plastic control stations GHG 43..... | 2.4.15 |
| Ex-moulded plastic control stations GHG 432..... | 2.4.16 |
| 4.3 GHG 413 Control Stations 16 A | 2.4.22 |
| Ex-light metal control stations GHG 413..... | 2.4.23 |
| Ex-light metal control stations GHG 413 85..... | 2.4.25 |
| 4.4 GHG 414 Control Stations 16 A | 2.4.28 |
| Ex-stainless steel control stations GHG 414 81 | 2.4.30 |
| Ex-stainless steel control stations GHG 414 82 | 2.4.31 |
| 4.5 Ex Control Stations for Individual Configuration | 2.4.34 |
| Order code for individual control units | 2.4.36 |
| Ex-control stations - enclosures moulded plastic GHG 41 / 43 | 2.4.38 |
| Ex-control stations - enclosures GHG 413 / 414..... | 2.4.41 |
| Ex-control stations - enclosures GHG 44 | 2.4.44 |
| Ex-control stations - enclosures GHG 443 | 2.4.48 |
| Ex-control stations - enclosures GHG 44. 33 | 2.4.50 |
| Built-in components pushbutton | 2.4.54 |
| Built-in components - key-operated pushbutton | 2.4.58 |
| Built-in components - key-operated switch | 2.4.60 |
| Built-in components - mushroom-head pushbutton | 2.4.62 |
| Built-in components - mini-control switch..... | 2.4.66 |
| Built-in components - potentiometer | 2.4.70 |
| Built-in components - signal lamp | 2.4.71 |
| Built-in components - measuring instrument AM 45/AM 72..... | 2.4.72 |
| Built-in components - control switch Ex 23 and Ex 29..... | 2.4.74 |
| Built-in components - terminals | 2.4.77 |
| 4.6 Ex-Control and Signal Units for Panel Mounting | 2.4.82 |
| Ex-pushbutton for panel mounting..... | 2.4.83 |
| Ex-key-operated pushbutton for panel mounting | 2.4.87 |
| Ex-key-operated switch for panel mounting | 2.4.90 |
| Ex-mushroom-head pushbutton for panel mounting | 2.4.93 |
| Ex-mini-control switch for panel mounting | 2.4.97 |
| Ex-control switch GHG 249 for panel mounting..... | 2.4.100 |
| Ex-potentiometer for panel mounting..... | 2.4.103 |
| Ex-signal lamp for panel mounting..... | 2.4.105 |
| Ex-measuring instrument AM 72 for panel mounting..... | 2.4.107 |
| Accessories for panel mounting..... | 2.4.110 |
| 4.7 Ex-Control Switches with Plastic Enclosure | 2.4.114 |
| Ex-control switch GHG 292 and GHG 293..... | 2.4.115 |
| 4.8 Ex-Light Alloy Control Switches | 2.4.120 |
| Ex-control switch GHG 294 and GHG 295..... | 2.4.121 |
| 4.9 Ex-Light Alloy Control Stations | 2.4.126 |

4 Material selection

At the heart of every electrical system is the control station. Even under the most adverse conditions, CEAG control stations can be used and operated reliably. The enclosures consist of impact-resistant thermoplastic, glass-fibre-reinforced polyester, light alloy or stainless steel. The robust materials, thermoplastic and polyester, fulfil the specification for surface resistance $< 10^9 \Omega$ required by EN 60079. The well-tried enclosure materials have proven their high resistance to chemicals in indoor and outdoor installations – especially in the chemical and off-shore industries. All metal parts are made of stainless steel.



Combination of moulded plastic enclosures

The modular design of the GHG 44x control-station series lets you combine distribution modules with screwless snap-on mounting logically and at low cost. Standard sizes enable enclosure mounting via flanged joints. The screwless snap-on mounting system also allows the attachment of plastic or brass flanges on the enclosures. This mounting technique also lets you quickly and easily retrofit cable entries on the flanges. System modifications and extensions can thus be implemented in short time and with little effort.



Panel mounting

CEAG control and indicating elements can be integrated in panels with a wall thickness of up to 5 mm. The CEAG components for panel mounting, such as signal lamps, pushbuttons and switches, can be instantly plugged into the control and indicating elements on the panel via a bayonet-ring fitting. The single-wire installation is clear and simple. All panel-mounted apparatus can be retrofitted for cable connection



with a slip-on strain relief and protective cap and is then completely certified. Planning and procurement of panel-mounted apparatus with different cable lengths is a thing of the past.

Installation technology

CEAG control stations have a well thought out design concept. The flameproof built-in components, such as signal lamps, pushbuttons and switches, are snap-on mounted to a rail moulded in the enclosure. They can be snapped out of the enclosure to facilitate cable-entry feeding. Notches in the mounting rails define the position of the built-in components and prevent them from being twisted out of place. Low-cut side walls allow a quick and optimised cable connection. CEAG control stations feature standard M25 moulded-plastic cable entries with an 8 to 17 mm clamping diameter. Alternatively, metal screws and flanges can be used for mounting. The metal flanges enable external earthing. The CEAG control stations are installed using pre-wired connection terminals. The wired built-in components are snap-on mounted on a stainless-steel fold-out mounting frame. To connect the control and indicating elements, the mounting frame is folded out, the cables are quickly and easily fed into enclosure and attached logically to the terminals.

4.1

GHG 273 Ex-Installation Switch 16 A

250 V for Zone 1, 2, 21 and 22

4

The explosion-protected installation switches are for use in the Zones 1, 2, 21 and 22. The materials used have proved to be safe and reliable for both indoor and outdoor installations, in particular in chemical and offshore plants. The robust housings are made of a modified polyamide material.

The large actuator surface of the installation switch allows perfect operation, even when wearing working gloves. A protective collar prevents inadvertent operation. The tog-

gle has a luminescent label which is in accordance with §7 of the Workshop Regulations and is also free from radioactive additives. Due to the external fixing facility, the switch can be installed easily while the cover is closed. Cable entry from the top is made possible by turning the base. In special cases a through wiring is possible as one can see on the illustration opposite.



Features

- Large toggle also for working gloves
- Safety standard IP66
- Cable entry from the top or bottom
- Connecting terminals easily accessible



Switch/Pushbutton

Technical data

Ex-installation switch and Ex-pushbuttons

| | |
|----------------------------------------|-----------------------------------------------------------------------------------|
| Marking accd. to 2014/34/EU | Ⓔ II 2 G Ex de IIC T6 / Ⓔ II 2 D Ex tD A21 IP66 T80 °C |
| EC-Type Examination Certificate | PTB 98 ATEX 3121 |
| IECEX Certificate of Conformity | IECEX BK1 07.0036 |
| Marking accd. to IECEx | Ex ed IIC T6 Ex tD A21 IP66 T67 °C |
| Permissible ambient temperature | -20 °C up to +40 °C -55 °C up to +55 °C (option) |
| Rated voltage | 250 V, 50 - 60 Hz |
| Rated current | 16 A |
| Connecting terminals | Switch terminals: 2 x 2.5 mm ² / PE-terminals: 4 x 2.5 mm ² |
| Degree of protection accd. to EN 60529 | IP66 |
| Cable glands ¹⁾ | Ex e cable glands max. 2 x M25; 2 x M20 thread |
| Weight | 0.32 kg |
| Enclosure material | Polyamide |

Ordering details

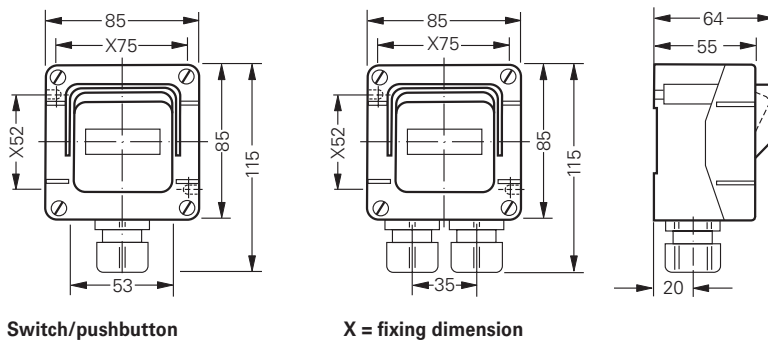
| Type | Circuit | Cable glands ¹⁾ | Order No. |
|---------------------------------------------|---------|----------------------------|---------------------------|
| ON-OFF switch 2-pole -55 °C up to +55 °C | | 1 x M25 | GHG 273 2000 R0017 |
| | | 2 x M25 | GHG 273 2000 R0018 |
| | | 2 x M20 ²⁾ | GHG 273 2000 R0003 |
| | | 1 x M25 | GHG 273 2000 R0022 |
| Change-over switch -55 °C up to +55 °C | | 1 x M25 | GHG 273 6000 R0011 |
| | | 2 x M20 ²⁾ | GHG 273 6000 R0003 |
| | | 2 x M25 | GHG 273 6000 R0014 |
| Pushbutton | | 1 x M25 | GHG 273 4000 R0004 |
| | | 2 x M25 | GHG 273 4000 R0007 |
| | | 1 x M25 | GHG 273 4000 R0010 |

¹⁾ Base enclosure can be rotated after wards (entry from top or down)

²⁾ Threaded only

Other versions available on request

Dimension drawing



Dimensions in mm

4.2

GHG 41 Control Stations 16 A

Moulded plastic for Zone 1, 2, 21 and 22

4 Reliable control of processes

Even under the most adverse conditions, CEAG control stations can be used and operated reliably. The enclosures consist of low-temperature impact-resistant thermoplastic which fulfils the requirements of EN 60079 and provides a high resistance to chemicals. The well thought out design with low side walls allows optimum cable connection.

Modular design

Quick fixing allows up to three CEAG built-in components, such as signal lamps, pushbuttons and switches, to be snapped on a rail in the enclosure. They can be snapped out of the enclosure to facilitate cable-entry feeding. Notches in the mounting rails prevent the built-in components from being twisted out of place.

Easy to install

Wall mounting can be carried out via easily accessible fixing apertures when the enclosure cover is sealed. CEAG mounting plates offer a time-saving fixing technique. CEAG control stations feature standard M25 moulded-plastic cable entries with an 10 to 17.5 mm clamping diameter. Coupling pieces link enclosures to each other and prevent them from being twisted out of place. Alternatively, metal screws and flanges can be used for mounting – the metal flanges also enable external earthing.

Free mounting areas can be provided for retrofitting certified CEAG components. These are then factory sealed with blanking elements



Features

- Flat side walls
- Quick fixing of all built-in components
- High chemical resistance
- Different enclosures can be combined



Technical data

Ex-control stations Type 411 81 | Type 411 82 | Type 411 83

| | | |
|----------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------|
| Marking accd. to 2014/34/EU | Ⓢ II 2 G Ex ed ib m IIC T6 Ⓢ II 2 D Ex tD A21 IP66 T80 °C | |
| EC-Type Examination Certificate | PTB 00 ATEX 3117 | |
| IECEX Certificate of Conformity | IECEX BK1 04.0003 | |
| Marking accd. to IECEx | Ex e II T6, Ex e ib IIC T6, Ex ed IIC T6 or Ex ed ib IIC T6 | |
| Permissible ambient temperature | -20 °C up to +40 °C -55 °C up to +55 °C (option) | |
| Rated voltage | 690 V AC | |
| Rated current | 16 A | |
| Rated making-/rated breaking capacity accd. EN 60947-5-1 | Ex41 AC-15: U_g 250 V / I_g 6 A U_g 500 V / I_g 4 A DC-13: U_g 24 V / I_g 6 A U_g 110 V / I_g 0.5 A | Ex23 AC-15: U_g 230 V / I_g 6 A U_g 500 V / I_g 4 A DC-13: U_g 24 V / I_g 2 A U_g 230 V / I_g 0.5 A |
| Connecting terminals | 2 x 2.5 mm ² | |
| Protection class | I | |
| Degree of protection accd. to EN 60529 | IP66 (standard) | |
| Cable glands/Gland plates/Enclosure drilling | 1 x M25 cable gland or 1 x M20 thread with brass flange | |
| Enclosure material | Polyamide | |
| Enclosure colour | black | |

Type 411 81

| | |
|------------------------|-------------------|
| Dimensions (L x W x H) | 85 x 85 x 77.5 mm |
| Weight (empty) | 0.25 kg |

Type 411 82

| | |
|------------------------|--------------------|
| Dimensions (L x W x H) | 125 x 85 x 77.5 mm |
| Weight (empty) | 0.35 kg |

Type 411 83

| | |
|------------------------|--------------------|
| Dimensions (L x W x H) | 165 x 85 x 77.5 mm |
| Weight (empty) | 0.45 kg |

Type 411 82 with measuring instrument AM 72

| | | |
|-------------------------------|----------------------------------------------------------|------------------------|
| Movement | Moving iron | Moving coil |
| Marking accd. to 2014/34/EU | Ⓢ II G Ex e II | Ⓢ II G Ex ib IIC |
| Accuracy | Class 2.5 | Class 1.5 |
| Overload range | 10-fold -25 sec. 25-fold - 4 sec. 50-fold - 1 sec. | 10-fold -5 sec. |
| Measuring range | n / 1A 0 - 25 A direct | 0 - 20 mA 4 - 20 mA |
| Inductance Li | - | ≤ 0.1 mH |
| Capacitance Ci | - | ≤ 0.1 nF |
| Open circuit voltage max. Ui | - | 30 V |
| Short circuit current max. Ii | - | 150 mA |
| Connecting terminals | 2 x 1.5 - 4 mm ² | |
| Weight | 0.70 kg | |

¹⁾ Base enclosure can be rotated after wards (entry from top or down)
Other versions available on request

Ex-moulded plastic control stations GHG 411



Type 411 81...01



Type 411 81...12



Type 411 81...18



Type 411 81...04

4 Ordering details Type 411 81 with 1 built-in component

| Content | Built-in components | Weight approx. | Order No. |
|---------|-----------------------------------------------------------------------------------------------|----------------|---------------------------|
| | 1 x pushbutton DRT 1 NO + 1 NC label: "0, I, START, STOP" | 0.40 kg | GHG 411 8100 R0001 |
| | 1 x mushroom-head pushbutton SGTE 1 NO + 1 NC "Emergency stop" | 0.45 kg | GHG 411 8100 R0002 |
| | 1 x mushroom-head pushbutton SGTE 1 NO + 1 NC "Emergency stop" with key unlocking | 0.50 kg | GHG 411 8100 R0012 |
| | 1 x double pushbutton DDT 1 NO + 1 NC label: "0, I, START, STOP" | 0.45 kg | GHG 411 8100 R0009 |
| | 1 x key-operated switch SLS 2 NO SW 5 "engaging-engaging-engaging" label: "I 0 II" | 0.52 kg | GHG 411 8100 R0018 |
| | 1 x control switch SCT 1 change-over SW 6 "engaging-engaging" label: HAND – AUTO | 0.45 kg | GHG 411 8100 R0003 |
| | label: "0 – I" | 0.45 kg | GHG 411 8100 R0004 |
| | label: "I – II" | 0.45 kg | GHG 411 8100 R0005 |
| | 1 x control switch SCT 2 NO SW 5 "engaging-engaging-engaging" label: HAND – 0 – AUTO | 0.45 kg | GHG 411 8100 R0006 |
| | label: "I 0 II" | 0.45 kg | GHG 411 8100 R0007 |
| | label: "Local Remote Auto" | 0.45 kg | GHG 411 8100 R0008 |



Type 411 82...18



Type 411 82...17



Type 411 82...03



Type 411 82...01

Ordering details Type 411 82 with 2 built-in components

| Content | Built-in components | Weight approx. | Order No. |
|-------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|---------------------------|
| | 2 x pushbutton DRT 1 NO + 1 NC each label: "0, I, START, STOP" | 0.54 kg | GHG 411 8200 R0001 |
| X1—⊗—X2 | 1 x signal lamp SIL 20-250 V AC/DC coloured lens cover: „white, red, green, yellow“ 1 x double pushbutton DDT 1 NO + 1 NC label: "0, I, START, STOP" | 0.65 kg | GHG 411 8200 R0003 |
| | 1 x double pushbutton DDT 1 NO + 1 NC label: "0, I, START, STOP" 1 x mushroom-head pushbutton SGT 1 NO + 1 NC "emergency stop" | 0.57 kg | GHG 411 8200 R0016 |
| | 1 x control switch SCT 1 change-over SW 6 "engaging-engaging" label: "0 - I" 1 x mushroom-head pushbutton SGTE 1 NO + 1 NC "emergency stop" | 0.57 kg | GHG 411 8200 R0017 |
| X1—⊗—X2 | 1 x signal lamp SIL 20-250 V AC/DC coloured lens cover: „white, red, green, yellow“ 1 x key-operated switch 2 NO SW 5 "engaging-engaging-engaging" label: "I 0 II" | 0.65 kg | GHG 411 8200 R0018 |

Ex-moulded plastic control stations GHG 411



Type 411 83...01



Type 411 83...03



Type 411 83...23



Type 411 83...04

4 Ordering details Type 411 83 with 3 built-in components

| Content | Built-in components | Weight approx. | Order No. |
|----------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|---------------------------|
| <p>X1—⊗—X2</p> | <p>1 x signal lamp SIL 20-250 V AC/DC coloured lens cover: „white, red, green, yellow“ 2 x pushbutton DRT 1 NO + 1 NC each label: “0, I, START, STOP”</p> | 0.76 kg | GHG 411 8300 R0001 |
| <p>X1—⊗—X2</p> | <p>1 x signal lamp SIL 20-250 V AC/DC coloured lens cover: „white, red, green, yellow“ 1 x double pushbutton DDT 1 NO + 1 NC label: “0, I, START, STOP” 1 x mushroom-head pushbutton SGTE 1 NO + 1 NC “emergency stop”</p> | 0.80 kg | GHG 411 8300 R0003 |
| <p>1—⊗—2</p> | <p>1 x measuring instrument AM72 CT connection n/1A Scale 0 –100%/150% 1 x control switch SCT 1 NO + 1 NC SW 8 “engaging-engaging-spring return” label: “0 – I”</p> | 0.92 kg | GHG 411 8300 R0023 |
| <p>X1—⊗—X2</p> | <p>1 x signal lamp SIL 20-250 V AC/DC coloured lens cover: „white, red, green, yellow“ 1 x double pushbutton DDT 1 NO + 1 NC label: “0, I, START, STOP” 1 x control switch SCT 1 change-over SW 6 “engaging-engaging” label: “HAND - AUTO”</p> | 0.80 kg | GHG 411 8300 R0004 |



Measuring instrument AM72

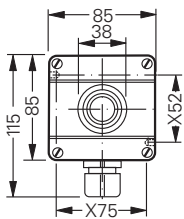
Ordering details measuring instrument AM72, Type 411 82

| Content | Movement | Weight | Order No. |
|----------------------------------------------------------------------|-------------|---------|---------------------------|
| Version direct measurement with 1 x entry and cable gland M25 | | | |
| 0 - 1 / 1.5 A | Moving iron | 0.70 kg | GHG 411 8281 R0002 |
| 0 - 2.5 / 3.75 A | Moving iron | 0.70 kg | GHG 411 8281 R0003 |
| 0 - 5 / 7.5 A | Moving iron | 0.70 kg | GHG 411 8281 R0004 |
| 0 - 10 / 15 A | Moving iron | 0.70 kg | GHG 411 8281 R0005 |
| 0 - 16 / 24 A | Moving iron | 0.70 kg | GHG 411 8281 R0007 |
| 0 - 20 / 24 mA 0-100% / 120% (Ri =320 Ω) | Moving coil | 0.80 kg | GHG 411 8285 R0033 |
| 4 - 20 / 24 mA 0-100% / 120% (Ri =320 Ω) | Moving coil | 0.80 kg | GHG 411 8286 R0035 |

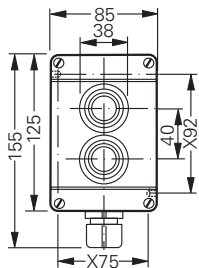
Version CT connection n/1A with 1 x entry and cable gland M25

| | | | |
|------------------|-------------|---------|---------------------------|
| 0 - 1 / 1.5 A | Moving iron | 0.70 kg | GHG 411 8282 R0002 |
| 0 - 2.5 / 3.75 A | Moving iron | 0.70 kg | GHG 411 8282 R0003 |
| 0 - 5 / 7.5 A | Moving iron | 0.70 kg | GHG 411 8282 R0004 |
| 0 - 10 / 15 A | Moving iron | 0.70 kg | GHG 411 8282 R0005 |
| 0 - 15 / 22.5 A | Moving iron | 0.70 kg | GHG 411 8282 R0007 |
| 0 - 20 / 30 A | Moving iron | 0.70 kg | GHG 411 8282 R0008 |
| 0 - 30 / 45 A | Moving iron | 0.70 kg | GHG 411 8282 R0009 |
| 0 - 40 / 60 A | Moving iron | 0.70 kg | GHG 411 8282 R0010 |
| 0 - 50 / 75 A | Moving iron | 0.70 kg | GHG 411 8282 R0011 |
| 0 - 60 / 90 A | Moving iron | 0.70 kg | GHG 411 8282 R0012 |
| 0 - 75 / 112.5 A | Moving iron | 0.70 kg | GHG 411 8282 R0013 |
| 0 - 100 / 150 A | Moving iron | 0.70 kg | GHG 411 8282 R0014 |
| 0 - 100% / 150% | Moving iron | 0.70 kg | GHG 411 8282 R0001 |

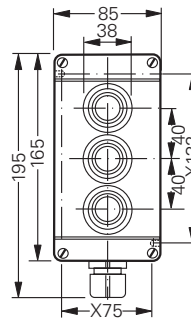
Dimension drawing



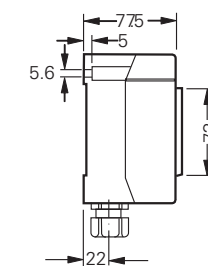
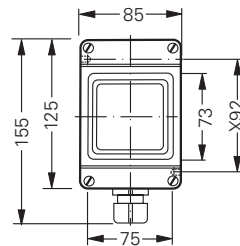
Type 411 81



Type 411 82



Type 411 83



Measuring instrument AM 72

X = fixing dimension

Accessories for Ex-control stations



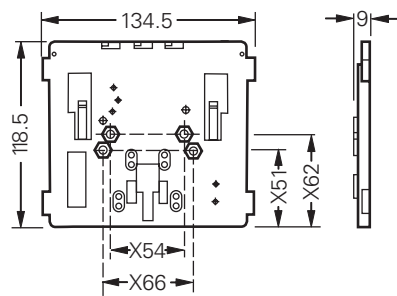
4 Accessories

| Type | Application | Fixing method | OU | Order No. |
|---------------------------------------|-----------------------|-----------------------|----|---------------------------|
| Mounting plate for type 411 81 | | | | |
| Size 1 | Wall mounting | screwless mounting | 1 | GHG 610 1953 R0101 |
| Size 1 | Pipe clamp | screwless mounting | 1 | GHG 610 1953 R0102 |
| Size 1 | Trellis-work mounting | screwless mounting | 1 | GHG 610 1953 R0103 |
| Size 4 | Wall mounting | snap-on ¹⁾ | 1 | GHG 610 1953 R0126 |
| Size 4 | Trellis-work mounting | snap-on ¹⁾ | 1 | GHG 610 1953 R0126 |
| Size 4 | Pipe clamp | snap-on ¹⁾ | 1 | GHG 610 1953 R0130 |

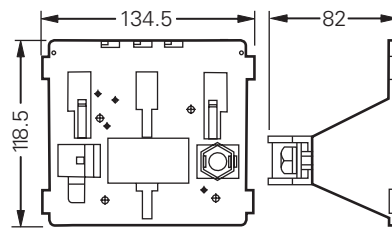
| Type | Application | Fixing method | OU | Order No. |
|------------------------------------------------------------------------------------|-----------------------|-----------------------|----|---------------------------|
| Mounting plate for type 411 82 and 411 83 | | | | |
| Size 2 | Wall mounting | screwless mounting | 1 | GHG 610 1953 R0104 |
| Size 2 | Pipe clamp | screwless mounting | 1 | GHG 610 1953 R0105 |
| Size 2 | Trellis-work mounting | screwless mounting | 1 | GHG 610 1953 R0106 |
| Size 4 | Wall mounting | snap-on ¹⁾ | 1 | GHG 610 1953 R0126 |
| Size 4 | Trellis-work mounting | snap-on ¹⁾ | 1 | GHG 610 1953 R0126 |
| Size 4 | Pipe clamp | snap-on ¹⁾ | 1 | GHG 610 1953 R0130 |
| Plug-in fastener for CEAG modules with 5.5 mm and 11 mm mounting size per 4 pieces | | | 10 | GHG 610 1953 R0041 |

¹⁾ snap-on with snap-on mounting 5.5 mm

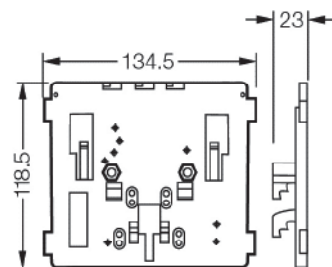
Dimension drawing



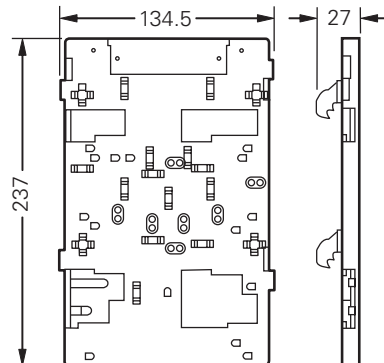
Size 1 wall mounting



Size 1 pipe mounting



Size 1 trellis-work mounting



Size 4 wall mounting

X = fixing dimension

Dimensions in mm



Type 434...



Type 432...

Technical data

Ex-control stations Type 432 I Type 434

| | | |
|----------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------|
| Marking accd. to 2014/34/EU | Ⓢ II 2 G Ex ed ib m IIC T6 Ⓢ II 2 D Ex tD A21 IP66 T80 °C | |
| EC-Type Examination Certificate | PTB 00 ATEX 3117 | |
| IECEX Certificate of Conformity | IECEX BK1 04.0003 | |
| Marking accd. to IECEx | Ex e II T6, Ex e ib IIC T6, Ex ed IIC T6 or Ex ed ib IIC T6 | |
| Permissible ambient temperature | -20 °C up to +40 °C -55 °C up to +55 °C (option) | |
| Rated voltage | 690 V AC (with control switch GHG 23 up to 500 V) | |
| Rated current | 16 A (with control switch GHG 23 max. 10 A) | |
| Rated making-/rated breaking capacity accd. EN 60947-5-1 | Ex41 AC-15: U_g 250 V / I_g 6 A U_g 500 V / I_g 4 A DC-13: U_g 24 V / I_g 6 A U_g 110 V / I_g 0.5 A | Ex23 AC-15: U_g 230 V / I_g 6 A U_g 500 V / I_g 4 A DC-13: U_g 24 V / I_g 2 A U_g 230 V / I_g 0.5 A |
| Connecting terminals | 2 x 4 mm ² | |
| Protection class | I | |
| Degree of protection accd. to EN 60529 | IP66 | |
| Cable glands/Gland plates/Enclosure drilling | 2 x M25 cable gland incl. 1 blanking plug or optional 2 x M20 thread with internal brass plate | |
| Enclosure material | Polyamide | |
| Enclosure colour | black | |

Type 432

| | |
|------------------------|-------------------|
| Dimensions (L x W x H) | 156 x 100 x 90 mm |
| Weight (empty) | 0.47 kg |

Type 434

| | |
|------------------------|-------------------|
| Dimensions (L x W x H) | 245 x 100 x 90 mm |
| Weight (empty) | 0.70 kg |

Type 434 with measuring instrument AM 72

| | | |
|----------------------------------|-------------------------------------------------------------------------------------------------|------------------------|
| Movement | Moving iron | Moving coil |
| Marking accd. to 2014/34/EU | Ⓢ II G Ex e II | Ⓢ II G Ex ib IIC |
| Accuracy | Class 2.5 | Class 1.5 |
| Overload range | 10-fold -25 sec. 25-fold - 4 sec. 50-fold - 1 sec. indicated 1:1.5, optional 1:6, 1:10 | 10-fold -5 sec. |
| Measuring range | n / 1A 0 - 25 A direct | 0 - 20 mA 4 - 20 mA |
| Inductance L_i | - | ≤ 0.1 mH |
| Capacitance C_i | - | ≤ 0.1 nF |
| Open circuit voltage max. U_i | - | 30 V |
| Short circuit current max. I_i | - | 150 mA |
| Connecting terminals | 2 x 1.5 - 4 mm ² | |
| Weight | 1.25 kg | |

¹⁾ Base enclosure can be rotated after wards (entry from top or down)

Other versions available on request

Ex-moulded plastic control stations GHG 432



Type 432...01



Type 432...02



Type 432...03



Type 432...05

4 Ordering details Type 432 with 2 built-in components

| Content | Built-in components | Weight approx. | Order No. |
|----------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|---------------------------|
| | 2 x pushbutton DRT 1 NO + 1 NC each label: "0, I, START, STOP" | 0.85 kg | GHG 432 0011 R0001 |
| X1——X2 | 1 x signal lamp SIL 20-250 V AC/DC coloured lens cover: „white, red, green, yellow“ 1 x double pushbutton DDT 1 NO + 1 NC label: "0, I, START, STOP" | 0.90 kg | GHG 432 0011 R0002 |
| | 1 x double pushbutton DDT 1 NO + 1 NC label: "0, I, START, STOP" 1 x mushroom-head pushbutton SGTE 1 NO + 1 NC "emergency stop" | 0.85 kg | GHG 432 0011 R0003 |
| 1——2 | 1 x measuring instrument AM45 CT connection n/1A Scale 0 –100%/150% 1 x double pushbutton DDT 2 NC + 1 NO label: "0, I, START, STOP" | 0.95 kg | GHG 432 0011 R0005 |



Type 432...17



Type 432...05



Type 432...03

Ordering details Type 432 with 1 control switch GHG 23

| Content | Built-in components | Weight approx. | Order No. |
|---------|---------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------|----------------------------------------------------------------|
| | 1 x control switch GHG 23 1 change-over SW 6 "engaging-engaging" label: "HAND - AUTO" label: "0 - I" | 0.70 kg 0.70 kg | GHG 432 0001 R0003 GHG 432 0001 R0004 |
| | 1 x control switch GHG 23 2 NO SW 5 "engaging-engaging-engaging" label: "HAND 0 AUTO" label: "I 0 II" | 0.70 kg 0.70 kg | GHG 432 0001 R0005 GHG 432 0001 R0006 |
| | 1 x control switch GHG 23 1 NO + 1 NC SW 8 "engaging-engaging-spring return" label: "0 - I" label: "AUS-Betrieb-EIN" label: "0 IN START" | 0.70 kg 0.70 kg 0.70 kg | GHG 432 0001 R0012 GHG 432 0001 R0013 GHG 432 0001 R0014 |
| | 1 x control switch GHG 23 2 C/O SW 6 "engaging-engaging" label: "I - II" label: "HAND - AUTO" | 0.70 kg 0.70 kg | GHG 432 0001 R0015 GHG 432 0001 R0016 |
| | 1 x control switch GHG 23 2 NO + 1 NC SW 5 "engaging-engaging-engaging" label: "I II III" | 0.86 kg | GHG 432 0001 R0017 |
| | 1 x control switch GHG 23 2 NO + 1 NC SW 8 "engaging-engaging-spring return" label: "0 - I" label: "AUS-Betrieb-EIN" label: "0 IN START" | 0.86 kg 0.86 kg 0.86 kg | GHG 432 0001 R0018 GHG 432 0001 R0019 GHG 432 0001 R0020 |

Ex-moulded plastic control stations GHG 432



Type 432...10



Type 432...09


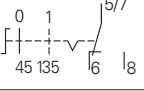

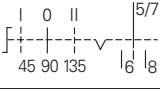

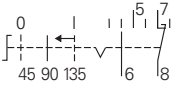


Type 432...08



Type 432...06

4 Ordering details Type 432 with 2 built-in components

| Content | Built-in components | Weight approx. | Order No. |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|---------------------------|
| 1  2  | 1 x measuring instrument AM45 CT connection n/1A Scale 0 – 100%/150% 1 x control switch GHG 23 1 change-over SW 6 "spring return-engaging" label: "0 – I" | 1.35 kg | GHG 432 0011 R0006 |
| 1  2  | 1 x measuring instrument AM45 CT connection n/1A Scale 0 – 100%/150% 1 x control switch GHG 23 2 NO SW 5 "engaging-engaging-engaging" label: "I 0 II" | 1.35 kg | GHG 432 0011 R0008 |
| 1  2  | 1 x measuring instrument AM45 CT connection n/1A Scale 0 – 100%/150% 1 x control switch GHG 23 1 NO + 1 NC SW 8 "engaging-engaging-spring return" label: "0 – I" | 1.35 kg | GHG 432 0011 R0009 |



Type 434...11



Type 434...10



Type 434...02

Ordering details Type 434 with 4 built-in components

| Content | Built-in components | Weight approx. | Order No. |
|-----------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|---------------------------|
| <p>1 — — 2</p> | <p>1 x measuring instrument AM72 CT connection n/1A Scale 0 –100%/150% 1 x double pushbutton DDT 1 NO + 1 NC label: "0, I, START, STOP" 1 x mushroom-head pushbutton SGT 1 NO + 1 NC "emergency stop"</p> | 1.40 kg | GHG 434 0111 R0002 |
| <p>1 — — 2</p> | <p>1 x measuring instrument AM72 CT connection n/1A Scale 0 –100%/150% 1 x mushroom-head pushbutton SGTE 1 NO + 1 NC "emergency stop" 1 x control switch GHG 23 1 change-over SW 6 "engaging-engaging" label: "0 – I"</p> | 1.55 kg | GHG 434 0111 R0010 |
| <p>1 — — 2</p> | <p>1 x measuring instrument AM72 CT connection n/1A Scale 0 –100%/150% 1 x mushroom-head pushbutton SGTE 1 NO + 1 NC "emergency stop" 1 x control switch GHG 23 1 NO + 1 NC SW 8 "engaging-engaging-spring return" label: "0 – I"</p> | 1.55 kg | GHG 434 0111 R0011 |

Ex-moulded plastic control stations GHG 434



Type 434...04



Type 434...05



Type 434...09

4 Ordering details Type 434 with 4 built-in components

| Content | Built-in components | Weight approx. | Order No. |
|----------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|---------------------------|
| <p>X1—⊗—X2</p> | <p>1 x signal lamp SIL 20-250 V AC/DC coloured lens cover: „white, red, green, yellow“ 2 x pushbutton DRT 1 NO + 1 NC label: “O, I, START, STOP” 1 x mushroom-head pushbutton SGTE 1 NO + 1 NC “emergency stop”</p> | 1.45 kg | GHG 434 1111 R0004 |
| <p>X1—⊗—X2</p> | <p>2 x signal lamp SIL 20-250 V AC/DC coloured lens cover: „white, red, green, yellow“ 2 x double pushbutton DDT 1 NO + 1 NC label: “O, I, START, STOP”</p> | 1.45 kg | GHG 434 1111 R0005 |
| <p>X1—⊗—X2</p> | <p>1 x signal lamp SIL 20-250 V AC/DC coloured lens cover: „white, red, green, yellow“ 1 x double pushbutton DDT 1 NO + 1 NC label: “O, I, START, STOP” 1 x mushroom-head pushbutton SGTE 1 NO + 1 NC “emergency stop” 1 x key-operated switch 2 NO SW 5 “engaging-engaging-engaging” label: “I 0 II”</p> | 1.55 kg | GHG 434 1111 R0009 |

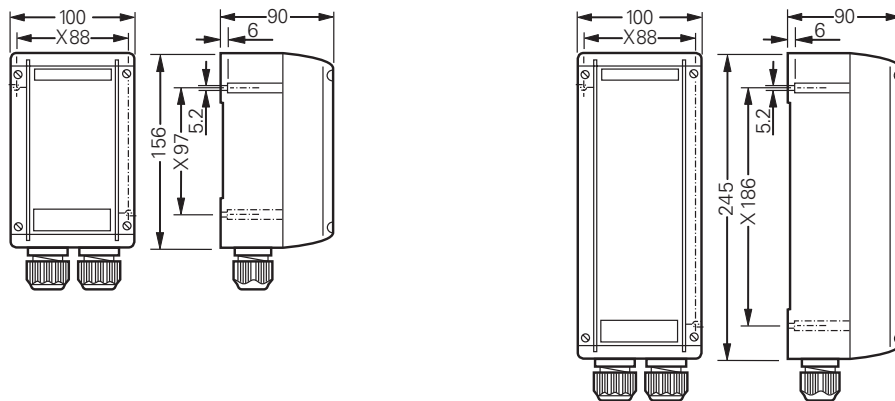


Accessories

| Type | Application | Fixing method | OU | Order No. |
|------------------------------------------------------------------------------------|-----------------------|--------------------|----|--------------------|
| Mounting plate for type 432 | | | | |
| Size 2 | Wall mounting | screwless mounting | 1 | GHG 610 1953 R0104 |
| Size 2 | Pipe clamp | screwless mounting | 1 | GHG 610 1953 R0105 |
| Size 2 | Trellis-work mounting | screwless mounting | 1 | GHG 610 1953 R0106 |
| Size 5 | Wall mounting | snap on * | 1 | GHG 610 1953 R0128 |
| Size 5 | Trellis-work mounting | snap on * | 1 | GHG 610 1953 R0128 |
| Size 5 | Pipe clamp | snap on * | 1 | GHG 610 1953 R0132 |
| Mounting plate for type 434 | | | | |
| Size 3 | Wall mounting | screwless mounting | 1 | GHG 610 1953 R0118 |
| Size 3 | Pipe clamp | screwless mounting | 1 | GHG 610 1953 R0110 |
| Size 3 | Trellis-work mounting | screwless mounting | 1 | GHG 610 1953 R0118 |
| Size 5 | Wall mounting | snap on * | 1 | GHG 610 1953 R0128 |
| Size 5 | Trellis-work mounting | snap on * | 1 | GHG 610 1953 R0128 |
| Size 5 | Pipe clamp | snap on * | 1 | GHG 610 1953 R0132 |
| Plug-in fastener for CEAG modules with 5.5 mm and 11 mm mounting size per 4 pieces | | | 10 | GHG 610 1953 R0041 |

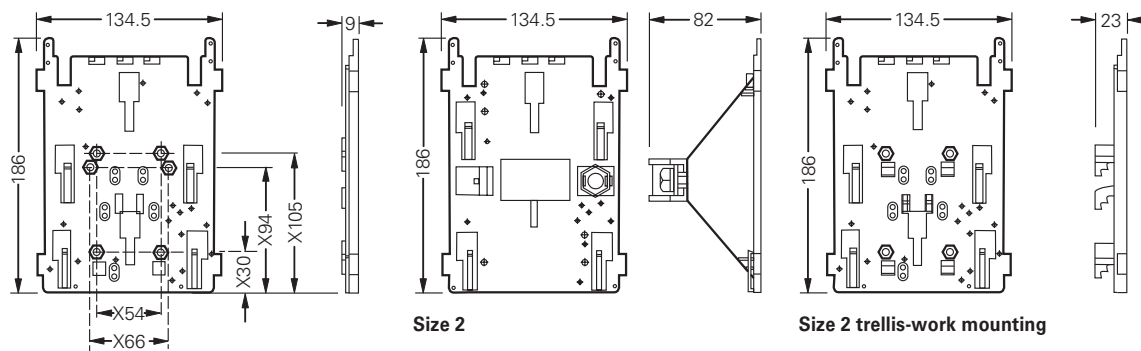
* snap-on with snap-on mounting 5.5 mm

Dimension drawing



Type 432

Type 434



Size 2 wall mounting

Size 2

Size 2 trellis-work mounting

X = fixing dimension

Dimensions in mm

4.3

GHG 413 Control Stations 16 A

Light alloy version for Zone 1, 2, 21 and 22

4 Light-alloy control stations in explosion-protected design are equipped with up to four components. These control stations are made of high-quality cast aluminium-silicon (AlSi). A robust plastic powder coating according to RAL 7031 protects the CEAG control stations against aggressive atmospheres and chemicals. Cover screws as well as all internal and external metal parts are made of stainless steel. CEAG flameproof built-in components, such as signal lamps, pushbuttons and switches, provide snap-on mounting on rails screwed into the enclosures.

To facilitate insertion of cables into the entries, the built-in components can be snapped out of the enclosures. Notches in the mounting rails define the position of the built-in components and prevent them from being twisted out of place.

Free mounting areas can be provided for retrofitting certified CEAG components. These are then factory sealed with blanking elements.



Features

- High mechanical, chemical and thermal resistance
- Individual configuration
- Impact-resistant plastic powder coating



Measuring instrument AM72



Type 413 85



Type 413 84

Technical data

Ex-control stations Type 413 84 | Type 413 85

| | | |
|----------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------|
| Marking accd. to 2014/34/EU | Ⓢ II 2 G Ex ed ibm IIC T6 Ⓢ II 2 D Ex tD A21 IP66 T80 °C | |
| EC-Type Examination Certificate | PTB 00 ATEX 3117 | |
| IECEX Certificate of Conformity | IECEX BKI 04.0003 | |
| Marking accd. to IECEx | Ex e II T6, Ex e ib IIC T6, Ec ed IIC T6 or Ex ed ib IIC T6 | |
| Permissible ambient temperature | -20 °C up to +40 °C -55 °C up to +55 °C (option) | |
| Rated voltage | 690 V AC (with control switch GHG 23 to 500 V) | |
| Rated current | 16 A (with control switch GHG 23 max. 10 A) | |
| Rated making-/rated breaking capacity accd. EN 60947-5-1 | Ex41 AC-15: U_g 250 V / I_g 6 A U_g 500 V / I_g 4 A DC-13: U_g 24 V / I_g 6 A U_g 110 V / I_g 0.8 A | Ex23 AC-15: U_g 230 V / I_g 6 A U_g 500 V / I_g 4 A DC-13: U_g 24 V / I_g 2 A U_g 230 V / I_g 0.5 A |
| Connecting terminals | 2 x 4 mm ² | |
| Protection class | I | |
| Degree of protection accd. to EN 60529 | IP66 | |
| Cable glands/Gland plates/Enclosure drilling | 1 x M20 threaded entry | |
| Enclosure material | High quality cast aluminium (AlSi) | |
| Enclosure colour | grey RAL 7031 | |

Type 413 84

| | |
|------------------------|-------------------|
| Dimensions (L x W x H) | 122 x 120 x 81 mm |
| Weight (empty) | 0.85 kg |

Type 413 85

| | |
|------------------------|-------------------|
| Dimensions (L x W x H) | 220 x 120 x 81 mm |
| Weight (empty) | 1.45 kg |

Type 413 84 with measuring instrument AM 72

| | | |
|----------------------------------|-------------------------------------------------------------------------------------------------|------------------------|
| Movement | Moving iron | Moving coil |
| Marking accd. to 2014/34/EU | Ⓢ II G Ex e II | Ⓢ II G Ex ib IIC |
| Accuracy | Class 2.5 | Class 1.5 |
| Overload range | 10-fold -25 sec. 25-fold - 4 sec. 50-fold - 1 sec. indicated 1:1.5, optional 1:6, 1:10 | 10-fold -5 sec. |
| Measuring range | n / 1A 0 - 25 A direct | 0 - 20 mA 4 - 20 mA |
| Inductance L_i | - | ≤ 0.1 mH |
| Capacitance C_i | - | ≤ 0.1 nF |
| Open circuit voltage max. U_i | - | 30 V |
| Short circuit current max. I_i | - | 150 mA |
| Connecting terminals | 2 x 1.5 - 4 mm ² | |
| Weight | 1.25 kg | |

¹⁾ Base enclosure can be rotated after wards (entry from top or down)

Other versions available on request

Ex-light metal control stations GHG 413 84



Type 413 84...01



Type 413 84...02



Type 413 84...03



Type 413 84...04

4 Ordering details Type 413 84 with 2 built-in components

| Content | Built-in components | Weight approx. | Order No. |
|--------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|---------------------------|
| | 2 x pushbutton DRT 1 NO + 1 NC each label: "0, I, START, STOP" | 1.25 kg | GHG 413 8400 R0001 |
| X1 — — X2 | 1 x signal lamp SIL 20-250 V AC/DC coloured lens cover: „white, red, green, yellow“ 1 x double pushbutton DDT 1 NO + 1 NC label: "0, I, START, STOP" | 1.30 kg | GHG 413 8400 R0002 |
| | 1 x double pushbutton DDT 1 NO + 1 NC label: "0, I, START, STOP" 1 x mushroom-head pushbutton SGTE 1 NO + 1 NC "emergency stop" | 1.30 kg | GHG 413 8400 R0003 |
| 1 — — 2 | 1 x measuring instrument AM45 CT connection n/1A Scale 0 –100%/150% 1 x double pushbutton DDT 1 NO + 1 NC label: "0, I, START, STOP" | 1.35 kg | GHG 413 8400 R0004 |



Type 413 85...03



Type 413 85...02



Type 413 85...01

Ordering details Type 413 85 with 4 built-in components

| Content | Built-in components | Weight approx. | Order No. |
|------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|--------------------|
| <p>X1—⊗—X2</p> | <p>1 x signal lamp SIL 20-250 V AC/DC coloured lens cover: „white, red, green, yellow“ 2 x pushbutton DRT 1 NO + 1 NC label: “0, I, START, STOP” 1 x mushroom-head pushbutton SGTE 1 NO + 1 NC “emergency stop”</p> | 2.10 kg | GHG 413 8500 R0001 |
| <p>X1—⊗—X2</p> | <p>2 x signal lamp SIL 20-250 V AC/DC coloured lens cover: „white, red, green, yellow“ 2 x double pushbutton DDT 1 NO + 1 NC label: “0, I, START, STOP”</p> | 2.10 kg | GHG 413 8500 R0002 |
| <p>X1—⊗—X2</p> <p>() I 0 II 13 14 23 24</p> | <p>1 x signal lamp SIL 20-250 V AC/DC coloured lens cover: „white, red, green, yellow“ label: “I 0 II” 1 x double pushbutton DDT 1 NO + 1 NC label: “0, I, START, STOP” 1 x mushroom-head pushbutton SGTE 1 NO + 1 NC “emergency stop” 1 x key-operated switch 2 NO SW 5 “engaging-engaging-engaging” label: “I 0 II”</p> | 2.20 kg | GHG 413 8500 R0003 |

Ex-light metal control stations GHG 413 84



Measuring instrument AM72

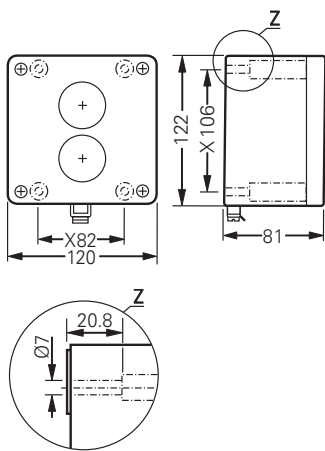
4 Ordering details Type 413 84 with measuring instrument AM72

| Content | Movement | Weight approx. | Order No. |
|---------------------------------------------------------------|-------------|----------------|---------------------------|
| Version direct measurement with 1 x threaded entry M20 | | | |
| 0 – 1 / 1.5 A | Moving iron | 1.25 kg | GHG 413 8481 R0002 |
| 0 - 2.5 / 3.75 A | Moving iron | 1.25 kg | GHG 413 8481 R0003 |
| 0 - 5 / 7.5 A | Moving iron | 1.25 kg | GHG 413 8481 R0004 |
| 0 - 10 / 15 A | Moving iron | 1.25 kg | GHG 413 8481 R0005 |
| 0 - 16 / 24 A | Moving iron | 1.25 kg | GHG 413 8481 R0007 |
| 0 - 20 / 24 mA 0-100% / 120% (Ri =320 Ω) | Moving coil | 1.35 kg | GHG 413 8481 R0033 |
| 4 - 20 / 24 mA 0-100% / 120% (Ri =320 Ω) | Moving coil | 1.35 kg | GHG 413 8481 R0035 |

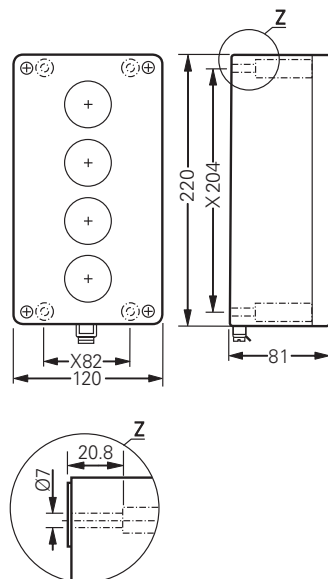
Version CT connection n/1A with 1 x threaded entry M20

| | | | |
|------------------|-------------|---------|---------------------------|
| 0 – 1 / 1.5 A | Moving iron | 1.25 kg | GHG 413 8482 R0002 |
| 0 - 2.5 / 3.75 A | Moving iron | 1.25 kg | GHG 413 8482 R0003 |
| 0 - 5 / 7.5 A | Moving iron | 1.25 kg | GHG 413 8482 R0004 |
| 0 - 10 / 15 A | Moving iron | 1.25 kg | GHG 413 8482 R0005 |
| 0 - 15 / 22.5 A | Moving iron | 1.25 kg | GHG 413 8482 R0007 |
| 0 - 20 / 30 A | Moving iron | 1.25 kg | GHG 413 8482 R0008 |
| 0 - 30 / 45 A | Moving iron | 1.25 kg | GHG 413 8482 R0009 |
| 0 - 40 / 60 A | Moving iron | 1.25 kg | GHG 413 8482 R0010 |
| 0 - 50 / 75 A | Moving iron | 1.25 kg | GHG 413 8482 R0011 |
| 0 - 60 / 90 A | Moving iron | 1.25 kg | GHG 413 8482 R0012 |
| 0 - 75 / 112.5 A | Moving iron | 1.25 kg | GHG 413 8482 R0013 |
| 0 - 100 / 150 A | Moving iron | 1.25 kg | GHG 413 8482 R0014 |
| 0 – 100% / 150% | Moving iron | 1.25 kg | GHG 413 8482 R0033 |

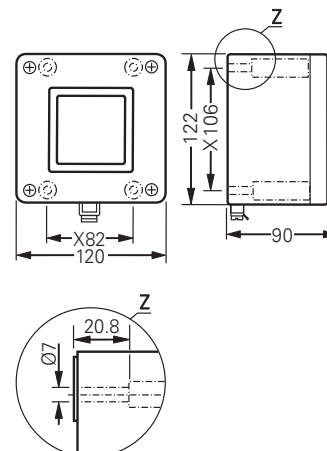
Dimension drawing



Type 413 84



Type 413 85



Type 413 84

X = fixing dimension

Dimensions in mm



4.4

GHG 414 Control Stations 16 A

Stainless steel version for Zone 1, 2, 21 and 22

4 CEAG explosion-protected control stations made of high-grade 316L stainless steel are designed to accommodate up to four built-in components. These stainless-steel control stations with electro-polished surfaces offer protection for applications in the off-shore industry and at sites with especially severe mechanical, chemical and climatic conditions.

CEAG flameproof built-in components, such as signal lamps, pushbuttons and switches, provide snap-on mounting on rails screwed into the enclosures. To facilitate insertion of cables into the entries, the built-in components can be snapped out of

the enclosures. Notches in the mounting rails define the position of the built-in components and prevent them from being twisted out of place.

Free mounting areas can be provided for retrofitting certified CEAG components. These are then factory sealed with blanking elements.



Features

- High mechanical, chemical and thermal resistance
- Individual configuration



Type 414 81..



Type GHG 414 82



Type GHG 414 81

Technical data

Ex-control stations Type 414 81 | Type 414 82

| | | |
|----------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------|
| Marking accd. to 2014/34/EU | Ⓢ II 2 G Ex ed ib m IIC T6 Ⓢ II 2 D Ex tD A21 IP66 T80 °C | |
| EC-Type Examination Certificate | PTB 00 ATEX 3117 | |
| IECEX Certificate of Conformity | IECEX BKI 04.0003 | |
| Marking accd. to IECEx | Ex e II T6, Ex e ib IIC T6, Ec ed IIC T6 or Ex ed ib IIC T6 | |
| Permissible ambient temperature | -20 °C up to +40 °C -55 °C up to +55 °C (option) | |
| Rated voltage | 690 V AC (with control switch GHG 23 up to 500 V) | |
| Rated current | 16 A (with control switch GHG 23 max. 10 A) | |
| Rated making-/rated breaking capacity accd. EN 60947-5-1 | Ex41 AC-15: U_g 250 V / I_g 6 A U_g 500 V / I_g 4 A DC-13: U_g 24 V / I_g 6 A U_g 220 V / I_g 1 A with gold contact points max. 0.4 A | Ex23 AC-15: U_g 230 V / I_g 6 A U_g 500 V / I_g 4 A DC-13: U_g 24 V / I_g 2 A U_g 230 V / I_g 0.5 A |
| Connecting terminals | 2 x 4 mm ² | |
| Protection class | I | |
| Degree of protection accd. to EN 60529 | IP66 | |
| Cable glands/Gland plates/Enclosure drilling | 1 x thread Ø 21 mm for cable gland M20 | |
| Enclosure material | Stainless steel AISI 316 L | |

Type 414 81

| | |
|------------------------|-------------------|
| Dimensions (L x W x H) | 166 x 140 x 76 mm |
| Weight (empty) | 1.40 kg |

Type 414 82

| | |
|------------------------|-------------------|
| Dimensions (L x W x H) | 286 x 140 x 76 mm |
| Weight (empty) | 2.10 kg |

Type 414 81 with measuring instrument AM 72

| | | |
|----------------------------------|-----------------------------------------------------------------------------|------------------------|
| Movement | Moving iron | Moving coil |
| Marking accd. to 2014/34/EU | Ⓢ II G Ex e II | Ⓢ II G Ex ib IIC |
| Accuracy | Class 2.5 | Class 1.5 |
| Overload range | 10-fold -25 sec. 25-fold - 4 sec. 50-fold - 1 sec. indicated 1:1.5 | 10-fold -5 sec. |
| Measuring range | n / 1A 0 - 25 A direct | 0 - 20 mA 4 - 20 mA |
| Inductance L_i | - | ≤ 0.1 mH |
| Capacitance C_i | - | ≤ 0.1 nF |
| Open circuit voltage max. U_i | - | 30 V |
| Short circuit current max. I_i | - | 150 mA |
| Connecting terminals | 2 x 1.5 - 4 mm ² | |
| Weight | 1.25 kg | |

¹⁾ Base enclosure can be rotated after wards (entry from top or down)

Other versions available on request

Ex-stainless steel control stations GHG 414 81



Type 414 81...01



Type 414 81...02



Type 414 81...03



Type 414 81...04

4 Ordering details Type 414 81 with 2 built-in components

| Content* | Built-in components | Weight approx. | Order No. |
|--------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|---------------------------|
| | 2 x pushbutton DRT NO + 1 NC each label: "0, I, START, STOP" | 1.80 kg | GHG 414 8100 R0001 |
| X1 — — X2 | 1 x signal lamp SIL 20-250 V AC/DC coloured lens cover: „white, red, green, yellow“ 1 x double pushbutton DDT 1 NO + 1 NC label: "0, I, START, STOP" | 1.85 kg | GHG 414 8100 R0002 |
| | 1 x double pushbutton DDT 1 NO + 1 NC label: "0, I, START, STOP" 1 x mushroom-head pushbutton SGTE 1 NO + 1 NC "emergency stop" | 1.85 kg | GHG 414 8100 R0003 |
| 1 — — 2 | 1 x measuring instrument AM45 CT connection n/1A Scale 0 – 100%/150% 1 x double pushbutton DDT 1 NO + 1 NC label: "0, I, START, STOP" | 1.85 kg | GHG 414 8100 R0004 |

*Without external fixing lugs (see accessories NO. 9.30)



Type 414 82...03



Type 414 82...02



Type 414 82...01

Ordering details Type 414 82 with 4 built-in components

| Content* | Built-in components | Weight approx. | Order No. |
|----------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|--------------------|
| <p>X1 ⊗ X2</p> | <p>1 x signal lamp SIL 20-250 V AC/DC coloured lens cover: „white, red, green, yellow“ 2 x pushbutton DRT 1 NO + 1 NC label: “0, I, START, STOP” 1 x mushroom-head pushbutton SGT 1 NO + 1 NC “emergency stop”</p> | 2.80 kg | GHG 414 8200 R0001 |
| <p>X1 ⊗ X2</p> | <p>2 x signal lamp SIL 20-250 V AC/DC coloured lens cover: „white, red, green, yellow“ 2 x double pushbutton DDT 1 NO + 1 NC label: “0, I, START, STOP”</p> | 2.80 kg | GHG 414 8200 R0002 |
| <p>X1 ⊗ X2</p> | <p>1 x signal lamp SIL 20-250 V AC/DC coloured lens cover: „white, red, green, yellow“ 1 x double pushbutton DDT 1 NO + 1 NC label: “0, I, START, STOP” 1 x mushroom-head pushbutton SGT 1 NO + 1 NC “emergency stop” 1 x key-operated switch 2 NO SW 5 “engaging-engaging-engaging” label: “I 0 II”</p> | 2.90 kg | GHG 414 8200 R0003 |

*Without external fixing lugs (see accessories NO. 9.30)

Ex-stainless steel control stations GHG 414 81



Type 414 81..

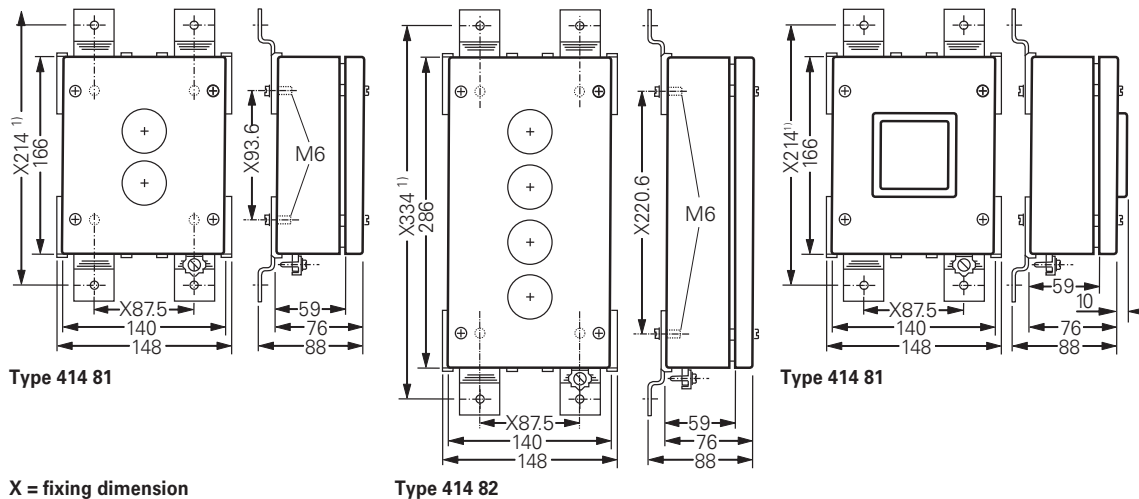
4 Ordering details Type 414 81 with measuring instrument AM72

| Content | Movement | Weight approx. | Order No. |
|--------------------------------------------------------------------------------------------------|-------------|----------------|---------------------------|
| Version direct measurement with 1 x threaded entry Ø 21 mm (without external fixing lugs) | | | |
| 0 - 1 / 1.5 A | Moving iron | 1.25 kg | GHG 414 8181 R0002 |
| 0 - 2.5 / 3.75 A | Moving iron | 1.25 kg | GHG 414 8181 R0003 |
| 0 - 5 / 7.5 A | Moving iron | 1.25 kg | GHG 414 8181 R0004 |
| 0 - 10 / 15 A | Moving iron | 1.25 kg | GHG 414 8181 R0005 |
| 0 - 16 / 24 A | Moving iron | 1.25 kg | GHG 414 8181 R0007 |
| 0 - 20 / 24 mA 0-100% / 120% (Ri =320 Ω) | Moving coil | 1.35 kg | GHG 414 8181 R0033 |
| 4 - 20 / 24 mA 0-100% / 120% (Ri =320 Ω) | Moving coil | 1.35 kg | GHG 414 8181 R0035 |
| Version CT connection n/1A with 1 x threaded entry Ø 21 mm (without external fixing lugs) | | | |
| 0 - 1 / 1.5 A | Moving iron | 1.25 kg | GHG 414 8182 R0002 |
| 0 - 2.5 / 3.75 A | Moving iron | 1.25 kg | GHG 414 8182 R0003 |
| 0 - 5 / 7.5 A | Moving iron | 1.25 kg | GHG 414 8182 R0004 |
| 0 - 10 / 15 A | Moving iron | 1.25 kg | GHG 414 8182 R0005 |
| 0 - 15 / 22.5 A | Moving iron | 1.25 kg | GHG 414 8182 R0007 |
| 0 - 20 / 30 A | Moving iron | 1.25 kg | GHG 414 8182 R0008 |
| 0 - 30 / 45 A | Moving iron | 1.25 kg | GHG 414 8182 R0009 |
| 0 - 40 / 60 A | Moving iron | 1.25 kg | GHG 414 8182 R0010 |
| 0 - 50 / 75 A | Moving iron | 1.25 kg | GHG 414 8182 R0011 |
| 0 - 60 / 90 A | Moving iron | 1.25 kg | GHG 414 8182 R0012 |
| 0 - 75 / 112.5 A | Moving iron | 1.25 kg | GHG 414 8182 R0013 |
| 0 - 100 / 150 A | Moving iron | 1.25 kg | GHG 414 8182 R0014 |
| 0 - 100% / 150% | Moving iron | 1.25 kg | GHG 414 8182 R0033 |

Accessories

| Type | Order No. |
|------------------------------|---------------------------|
| External fixing lugs (2 pcs) | GHG 610 1941 R0013 |

Dimension drawing



¹⁾ Scope of delivery without fixing lugs



4.5

Ex Control Stations for Individual Configuration

Moulded-plastic version for Zone 1, 21, 2 and 21

4 CEAG control stations can be combined according to customers' specifications. Quick fixing allows up to three CEAG built-in components, such as signal lamps, pushbuttons and switches, to be snapped on a rail in the enclosure. The enclosures consist of low-temperature impact-resistant thermoplastic which fulfils the requirements of EN 60079 and provides a high resistance to chemicals. The well thought out design with low side walls allows optimum cable connection. The components can be snapped out of the enclosure to facilitate cable-entry feeding. Notches in the mounting rails prevent the

built-in components from being twisted out of place.

CEAG's optional mounting plates offer a time-saving fixing technique. Coupling pieces link enclosures to each other and prevent them from being twisted out of place. Alternatively, metal screws and flanges can be used for mounting – the metal flanges also enable external earthing.

The built-in components differ in size. The diverse enclosure types allow variable combinations of these components. Example diagrams of the enclosure types show the placement options for the built-in components with numbers or predefined positions.

Free mounting areas can be provided for retrofitting certified CEAG components. These are then factory sealed with blanking elements.



Features

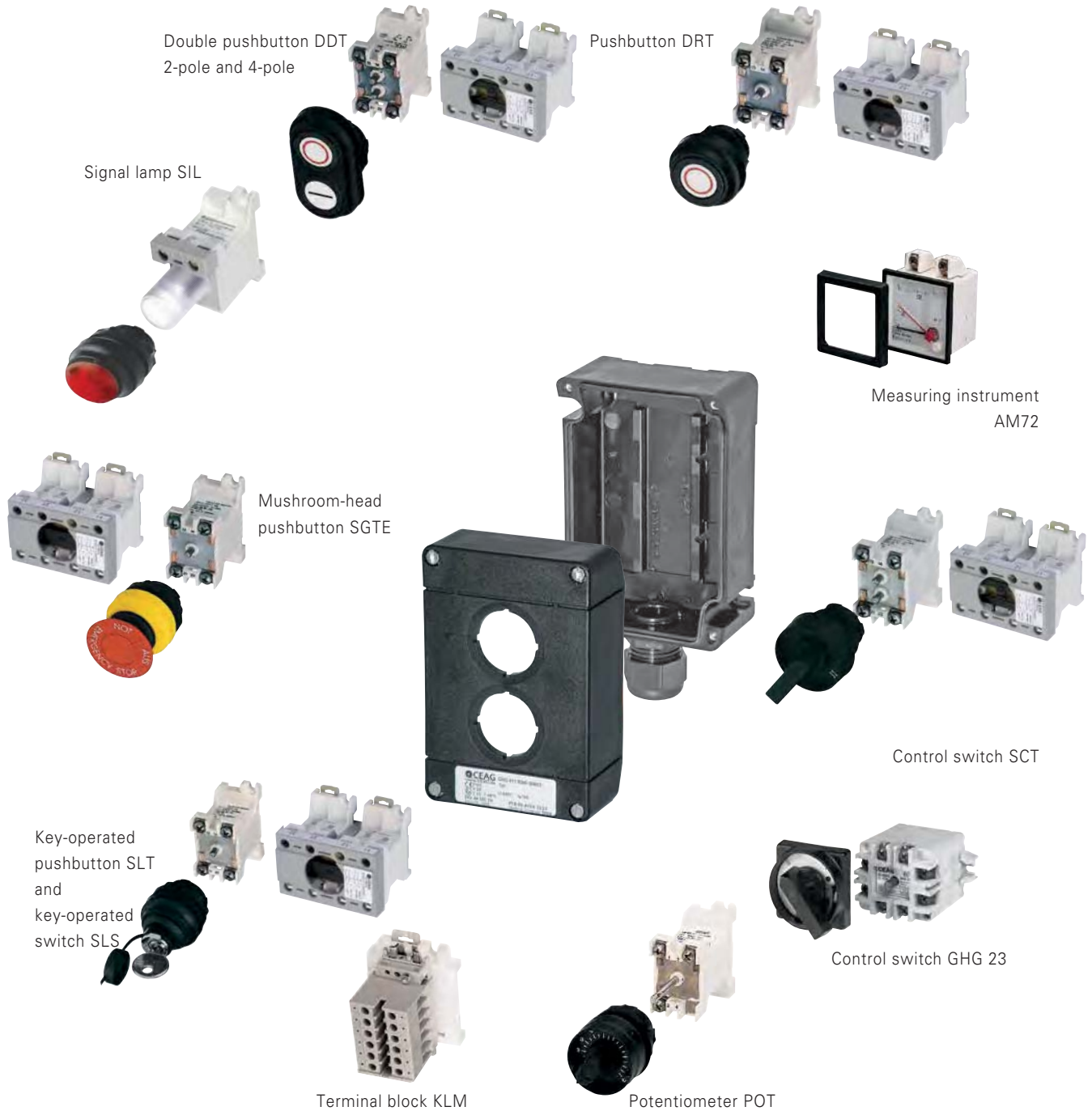
- Flat side walls
- Quick fixing for all built-in components
- High chemical resistance
- Different enclosures can be combined

Customised control stations, 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. The sum of the code numbers designates a complete control station.

For the selection of control units and components, please see page 2.4.36 pp.



For an easy selection of certified components two temperature information are provided:

1. Operating temperature range

This defines the max. permitted temperature range of component in the installed state. This has to be considered when configuring

2. Ambient temperature range

These temperature range defines the expected ambient temperature range for a fully planned equipment and is based on the experiences of configured devices at normal installation conditions. However, it must be observed in any case, the conditions of the type examination certificate. These temperatures are purely based on explosion protection. Mechanical and electrical function based on the installation situation (e.g. self-heating) have to be considered. For binding function ambient temperatures please refer to the product manual.

Order code for individual control units

Individual control units can be defined by 4 groups of components:

1. Empty Enclosure
2. Components per mounting area
3. Accessories
4. Cable glands

Code 1: Empty enclosure



Code for enclosure

| | | |
|----|--|--------|
| MA | | 411 81 |
| MA | | 411 82 |
| MA | | 411 83 |
| MA | | 432 |
| MA | | 434 |
| MA | | 414 81 |
| MA | | 414 82 |
| MA | | 413 84 |
| MA | | 413 85 |

Code 2: Components per mounting area (max. 4)

| | | | | | | |
|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|-----------------|
| A | C | D(1) | (D2) | E | F | Mounting area 1 |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | MA1 |
| A | C | D(1) | (D2) | E | F | Mounting area 2 |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | MA2 |
| A | C | D(1) | (D2) | E | F | Mounting area 3 |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | MA3 |
| A | C | D(1) | (D2) | E | F | Mounting area 4 |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | MA4 |



Order code for individual control units

Example: Enclosure Type 434, Code 1: 434..
 Pushbutton (MA4), Code 2 MA4: DRT 14 001
 Signal lamp (MA3) Code 2 MA3: SIL 1 10
 Emergency stop Code 2 MA2 SGTE 13 1 1 2
 Mushroom head pushbutton (MA2) Code 2 MA1: DDT15 001 007
 Double pushbutton (MA1)

Code 3 MA1: ZUB 19
 Code 3 MA2: ZUB 19
 Code 3 MA3: ZUB 02
 Code 3 MA4: --
 Code 4: GEH 1 GK M25 2

Code 3: Labels and padlocking facility

| | | | |
|--------------------------|--------------------------|--------------------------|------------------------|
| A | B | C | Mounting area 1 MA1 |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| A | B | C | Mounting area 2 MA2 |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| A | B | C | Mounting area 3 MA3 |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |
| A | B | C | Mounting area 4 MA4 |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | |



Label with holder
ZUB 20



Padlocking facility mushroom-head
pushbutton ZUB 14



Padlocking facility with hammer
ZUB 05



Padlocking facility mushroom-head
pushbutton ZUB 22



Padlocking facility double pushbutton
ZUB 17

Code 4: Cable entries and flanges

| | | | | |
|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| A | B | C | D | E |
| <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |



Metal flange plate
FLM



Plastic cable gland GK



Plastic trumpet-shaped
cable gland TR



Position for
drilling/gland

Ex-control stations - enclosures moulded plastic GHG 41 / 43



Type 411 81



Type 411 82



Type 432



Type 434

4 Technical data

Ex-control stations Type 41. and 43. for individual configuration

| | |
|----------------------------------------|----------------------------------------------------------------------------|
| Marking accd. to 2014/34/EU | ⊕ II 2 G Ex ed ib m IIC T6 ¹⁾ ⊕ II 2 D Ex tD A21 IP66 T80 °C |
| EC-Type Examination Certificate | PTB 00 ATEX 3117 ¹⁾ |
| IECEX Certificate of Conformity | IECEX BK1 04.0003 ¹⁾ |
| Marking accd. to IECEx | Ex e II T6, Ex e ib IIC T6, Ex ed IIC T6 or Ex ed ib IIC T6 ¹⁾ |
| Permissible ambient temperature | -20 °C up to +40 °C ¹⁾ -55 °C up to +55 °C (option) |
| Rated voltage | 690 V AC |
| Rated current | 16 A |
| Connecting terminals | 2 x 4 mm ² |
| Protection class | I |
| Degree of protection accd. to EN 60529 | IP66 (standard) |
| Enclosure material | Polyamide |
| Enclosure colour | black |

Type 411 81

| | |
|----------------------------------------------|------------------------------------------------|
| Cable glands/Gland plates/Enclosure drilling | Ex e cable glands max. 2 x M25; 2 x M20 thread |
| Dimensions (L x W x H) | 85 x 85 x 77.5 mm |
| Weight (empty) | 0.25 kg |
| Components arrangement | 1 mounting area |

Type 411 82

| | |
|----------------------------------------------|------------------------------------------------|
| Cable glands/Gland plates/Enclosure drilling | Ex e cable glands max. 2 x M25; 2 x M20 thread |
| Dimensions (L x W x H) | 125 x 85 x 77.5 mm |
| Weight (empty) | 0.35 kg |
| Components arrangement | 2 mounting areas |

Type 411 83

| | |
|----------------------------------------------|------------------------------------------------|
| Cable glands/Gland plates/Enclosure drilling | Ex e cable glands max. 2 x M25; 2 x M20 thread |
| Dimensions (L x W x H) | 165 x 85 x 77.5 mm |
| Weight (empty) | 0.45 kg |
| Components arrangement | 3 mounting areas |

Type 432

| | |
|----------------------------------------------|------------------------------------------------|
| Cable glands/Gland plates/Enclosure drilling | Ex e cable glands max. 2 x M25; 3 x M20 thread |
| Dimensions (L x W x H) | 156 x 100 x 90 mm |
| Weight (empty) | 0.47 kg |
| Components arrangement | 2 mounting areas |

Type 434

| | |
|----------------------------------------------|------------------------------------------------|
| Cable glands/Gland plates/Enclosure drilling | Ex e cable glands max. 2 x M25; 3 x M20 thread |
| Dimensions (L x W x H) | 245 x 100 x 90 mm |
| Weight (empty) | 0.70 kg |
| Components arrangement | 4 mounting areas |

¹⁾Data for ready configured product



Type 434



Type 432



Type 411 82



Type 411 81

Ordering codes (Code 1)

| 1. Enclosure | 2. Components arrangement/terminals | | | | 3. Labels/ padlocking facility | 4. Cable glands |
|----------------------|-------------------------------------|--------------------|--------------------|--------------------|-----------------------------------|-----------------|
| | Mounting area 1 | Mounting area 2 | Mounting area 3 | Mounting area 4 | | |
| 411 81 ¹⁾ | X | - | - | - | X | X |
| 411 82 | X | X | - | - | X | X |
| 411 83 | X | X | X | - | X | X |
| 432 | X | X | - | - | X | X |
| 434 | X | X | X | X | X | X |

Possible components (Code 1)

| Component | Code | Component | Code |
|------------------------------------------------------------|----------------------|-------------------------------------|--------------------|
| Pushbutton (2-pole or 4-pole ²⁾) | DRT | Measuring instrument | AM72 ²⁾ |
| Double pushbutton (2-pole or 4-pole ²⁾) | DDT | Measuring instrument | AM45 |
| Key-operated pushbutton (2-pole or 4-pole ²⁾) | SLT | Signal lamp | SIL |
| Key-operated switch (2-pole or 4-pole ²⁾) | SLS | Potentiometer | POT |
| Control switch (2-pole or 4-pole ²⁾) | SCT | Terminal block (4 mm ²) | KLM |
| Mushroom-head pushbutton (2-pole or 4-pole ²⁾) | SGT | Blanking element | BLV |
| Control switch | GHG 23 ³⁾ | | |

¹⁾ 4-pole component not possible

²⁾ 2 mounting areas are needed

³⁾ only for type 43., 2 mounting areas are needed

Ex-control stations - enclosures GHG 41 / 43



Type 411 81



Type 411 82

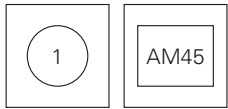


Type 432

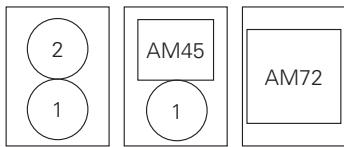
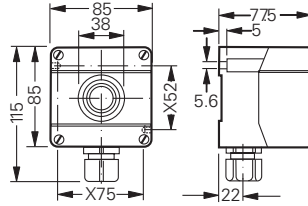


Type 434

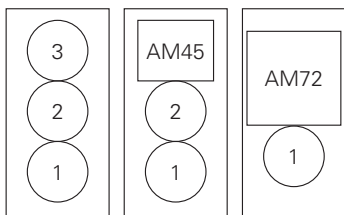
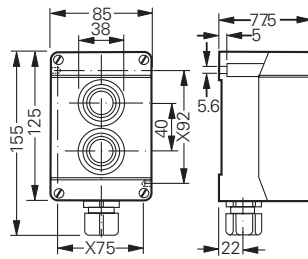
4 Mounting areas | Dimension drawing



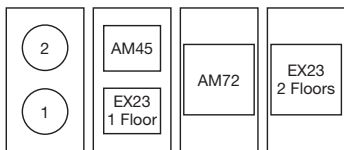
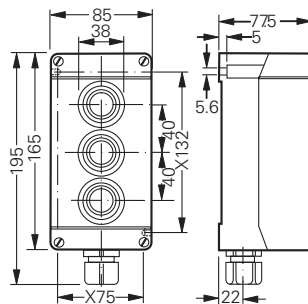
Type 411 81



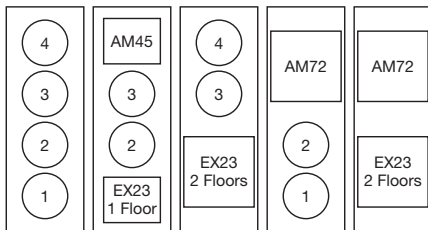
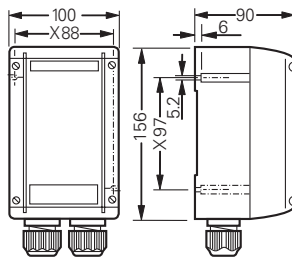
Type 411 82



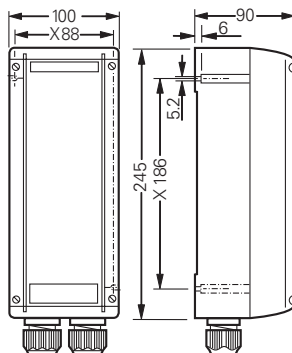
Type 411 83



Type 432



Type 434



X = fixing dimension

Dimensions in mm



Type 414 82



Type 414 81



Type 413 85



Type 413 84

Technical data

Ex-control stations type 413. and 414. for individual configuration

| | |
|----------------------------------------|----------------------------------------------------------------------------|
| Marking accd. to 2014/34/EU | ⊕ II 2 G Ex ed ib m IIC T6 ¹⁾ ⊕ II 2 D Ex tD A21 IP66 T80 °C |
| EC-Type Examination Certificate | PTB 00 ATEX 3117 ¹⁾ |
| IECEX Certificate of Conformity | IECEX BK1 04.0003 ¹⁾ |
| Marking accd. to IECEx | Ex e II T6, Ex e ib IIC T6, Ex ed IIC T6 or Ex ed ib IIC T6 ¹⁾ |
| Permissible ambient temperature | -20 °C up to +40 °C ¹⁾ -55 °C up to +55 °C (option) |
| Rated voltage | 690 V AC |
| Rated current | 16 A |
| Connecting terminals | see technical data for built-in components |
| PE-connecting terminals | 2 x 4 mm ² |
| Protection class | I |
| Degree of protection accd. to EN 60529 | IP66 (standard) |

| | Type 413 84 | Type 413 85 |
|----------------------------------------------|-------------------------------|-------------------------------|
| Cable glands/Gland plates/Enclosure drilling | max. 2 x M25; 2 x M20 | max. 2 x M25; 2 x M20 |
| Dimensions (L x W x H) | 122 x 120 x 81 mm | 122 x 120 x 81 mm |
| Weight (empty) | 0.85 kg | 1.45 kg |
| Enclosure material | cast aluminium-silicon (AlSi) | cast aluminium-silicon (AlSi) |
| Enclosure colour | grey RAL 7031 | grey RAL 7031 |
| Components arrangement | 2 mounting areas | 4 mounting areas |

| | Type 414 81 | Type 414 82 |
|----------------------------------------------|--------------------------------------------------------------------------|--------------------------------------------------------------------------|
| Cable glands/Gland plates/Enclosure drilling | max. 3 x Ø 21 for cable gland M20 max. 2 x Ø 25.5 for cable gland M25 | max. 4 x Ø 21 for cable gland M20 max. 2 x Ø 25.5 for cable gland M25 |
| Dimensions (L x W x H) | 166 x 140 x 76 mm | 286 x 140 x 76 mm |
| Weight (empty) | 1.40 kg | 2.10 kg |
| Enclosure material | stainless steel AISI 316 L | stainless steel AISI 316 L |
| Enclosure colour | polished | polished |
| Components arrangement | 2 mounting areas | 4 mounting areas |

¹⁾Data for ready configured product

Ex-control stations - enclosures GHG 413 / 414



Type 413 84



Type 413 85



Type 414 81



Type 414 82

4 Ordering codes (Code 1)

| 1. Enclosure | 2. Components arrangement/terminals | | | | 3. Labels/ padlocking facility | 4. Cable glands |
|---------------|-------------------------------------|--------------------|--------------------|--------------------|-----------------------------------|-----------------|
| | Mounting area 1 | Mounting area 2 | Mounting area 3 | Mounting area 4 | | |
| 413 84 | X | X | – | – | X | X |
| 413 85 | X | X | X | X | X | X |
| 414 81 | X | X | – | – | X | X |
| 414 82 | X | X | X | X | X | X |

Possible components (Code 1)

| Component | Code | Component | Code |
|------------------------------------------------------------|----------------------|-------------------------------------|--------------------|
| Pushbutton (2-pole or 4-pole ¹⁾) | DRT | Measuring instrument | AM72 ¹⁾ |
| Double pushbutton (2-pole or 4-pole ¹⁾) | DDT | Measuring instrument | AM45 |
| Key-operated pushbutton (2-pole or 4-pole ¹⁾) | SLT | Signal lamp | SIL |
| Key-operated switch (2-pole or 4-pole ¹⁾) | SLS | Potentiometer | POT |
| Control switch (2-pole or 4-pole ¹⁾) | SCT | Terminal block (4 mm ²) | KLM |
| Mushroom-head pushbutton (2-pole or 4-pole ¹⁾) | SGT | Blanking element | BLV |
| Control switch | GHG 23 ¹⁾ | | |

¹⁾ 2 mounting areas are needed



Type 414 82



Type 414 81

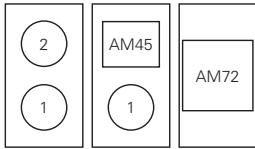


Type 413 85

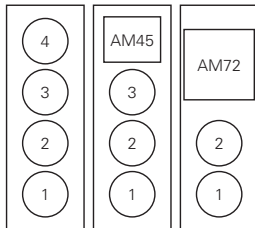
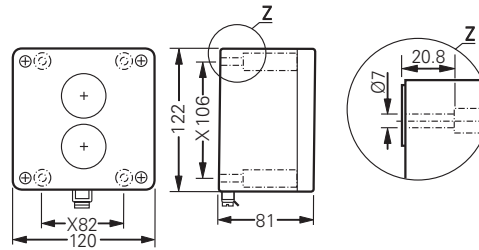


Type 413 84

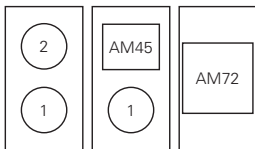
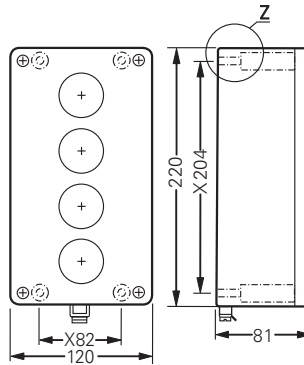
Mounting areas I Dimension drawing



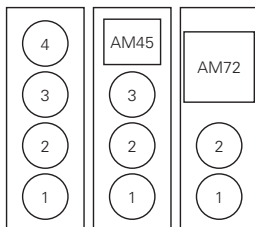
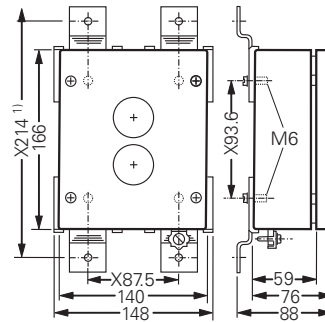
Type 413 84



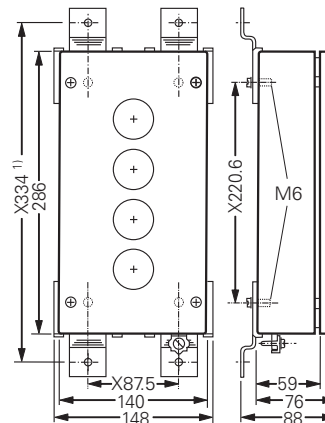
Type 413 85



Type 414 81



Type 414 82



X = fixing dimension

Dimensions in mm

Ex-control stations - enclosures GHG 44



Type 444 23



Type 448 23



Type 449 23



Type 447 23

4 Technical data

Ex-control stations Typ 444, 448, 449, and 447 for individual configuration

| | |
|----------------------------------------------|--------------------------------------------------------------------------------------------|
| Marking accd. to 2014/34/EU | ⊕ II 2 G Ex de ia/ib m [ia/ib] IIC T6 ¹⁾ ⊕ II 2 D Ex tD A21 IP66/IP65 T80 °C |
| EC-Type Examination Certificate | PTB 99 ATEX 1044 ¹⁾ |
| IECEX Certificate of Conformity | IECEX BK1 07.0023 ¹⁾ |
| Marking accd. to IECEx | Ex de ia/ib m [ia/ib] IIC T4 .. T6 ¹⁾ Ex tD A21 IP66 T80 °C |
| Permissible ambient temperature | -20 °C up to +40 °C ¹⁾ -55 °C up to +55 °C (option) |
| Rated voltage | 690 V AC |
| Rated current | 40 A |
| Connecting terminals | see technical data for built-in components |
| PE-Connecting terminals | 2 x 4 mm ² |
| Protection class | I |
| Degree of protection accd. to EN 60529 | IP66 (standard) |
| Cable glands/Gland plates/Enclosure drilling | as ordered accd. to manufacturer's specification |
| Enclosure material | glass-fibre reinforced polyester |
| Enclosure colour | black |

Type 444 23

| | |
|------------------------|--------------------------------|
| Connecting terminals | max. 20 terminals UT 4 |
| Dimensions (L x W x H) | 271 x 134 x 136 mm |
| Weight (empty) | 1.5 kg with mounting framework |
| Components arrangement | 6 mounting areas |

Type 448 23

| | |
|------------------------|-------------------------------------------------------------------------------------------------------------------------|
| Connecting terminals | max. 30 terminals UT 4 |
| Dimensions (L x W x H) | 271 x 271 x 136 mm |
| Weight (empty) | 2.5 kg with mounting framework |
| Components arrangement | distance 40 mm max. 18 mounting areas distance 50 mm max. 15 mounting areas distance 60 mm max. 12 mounting areas |

Type 449 23

| | |
|------------------------|-------------------------------------------------------------------------------------------------------------------------|
| Connecting terminals | max. 60 terminals UT 4 |
| Dimensions (L x W x H) | 544 x 271 x 136 mm |
| Weight (empty) | 4.5 kg with mounting framework |
| Components arrangement | distance 40 mm max. 36 mounting areas distance 50 mm max. 30 mounting areas distance 60 mm max. 24 mounting areas |

Type 447 23

| | |
|------------------------|-------------------------------------------------------------------------------------------------------------------------|
| Connecting terminals | max. 90 terminals UT 4 |
| Dimensions (L x W x H) | 817 x 271 x 136 mm |
| Weight (empty) | 6.5 kg with mounting framework |
| Components arrangement | distance 40 mm max. 64 mounting areas distance 50 mm max. 45 mounting areas distance 60 mm max. 36 mounting areas |

¹⁾ Data for ready configured product



Type 447 23



Type 449 23



Type 448 23



Type 444 23

Ordering codes (Code 1)

| 1. Enclosure | 2. Components arrangement/terminals | | | | 3. Labels/ padlocking facility | 4. Cable glands |
|--------------|-------------------------------------|----------------------|-----------------------|-----------------------|-----------------------------------|-----------------|
| | Mounting 1 ... 6 | Mounting 7 ... 18 | Mounting 19 ... 27 | Mounting 37 ... 64 | | |
| 444 23 | X | - | - | - | X | X |
| 448 23 | X | X | - | - | X | X |
| 449 23 | X | X | X | - | X | X |
| 447 23 | X | X | X | X | X | X |

Possible components (Code 1)

| Component | Code | Component | Code |
|------------------------------------------------------------|----------------------|-------------------------------------|-------------------------|
| Pushbutton (2-pole or 4-pole ²⁾) | DRT | Measuring instrument | AM72 ¹⁾ |
| Double pushbutton (2-pole or 4-pole ²⁾) | DDT | Measuring instrument | AM45 |
| Key-operated pushbutton (2-pole or 4-pole ²⁾) | SLT | Signal lamp | SIL |
| Key-operated switch (2-pole or 4-pole ²⁾) | SLS | Potentiometer | POT |
| Control switch (2-pole or 4-pole ²⁾) | SCT | Terminal block (4 mm ²) | KLM ... A ²⁾ |
| Mushroom-head pushbutton (2-pole or 4-pole ²⁾) | SGT | Terminal block (4 mm ²) | KLM ... B |
| Control switch | GHG 23 ¹⁾ | Blanking element | BLV |

¹⁾ 2 mounting areas are needed

²⁾ Serial terminals and PE-Terminal are mounted on a rail below the hinged frame

Ex-control stations - enclosures GHG 44



Type 444 23



Type 448 23

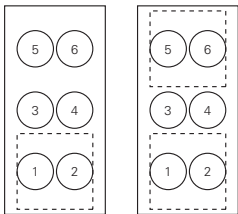
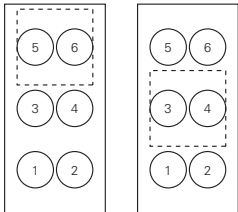


Type 449 23

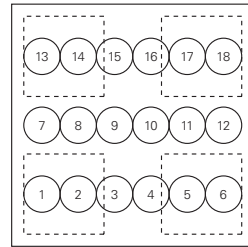
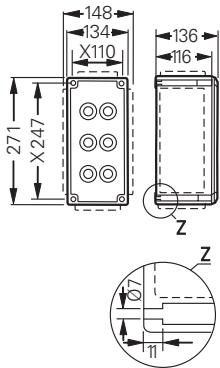


Type 447 23

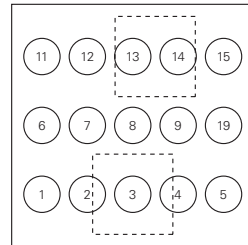
4 Mounting areas I Dimension drawing



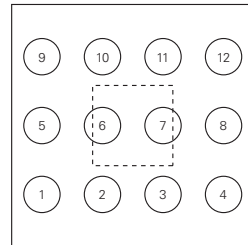
Distance between centres 40, 50 and 60 mm for positioning of built-in components



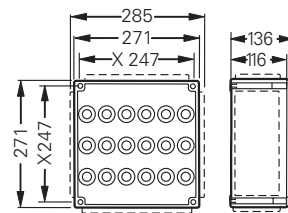
Distance between centres 40 mm



Distance between centres 50 mm



Distance between centres 60 mm



Type 448 23

X = fixing dimension

○ = mounting space for switch, pushbutton (2-pole) or signal lamp

□ = mounting space for switch, pushbutton (4-pole) ampere- or voltmeter

Dimensions in mm



Type 447 23



Type 449 23

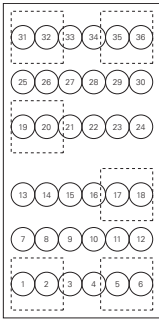


Type 448 23

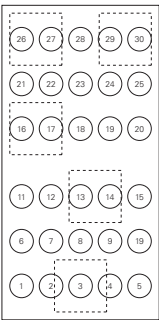


Type 444 23

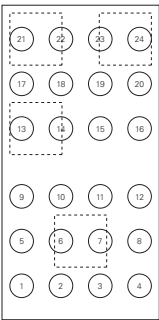
Mounting areas | Dimension drawing



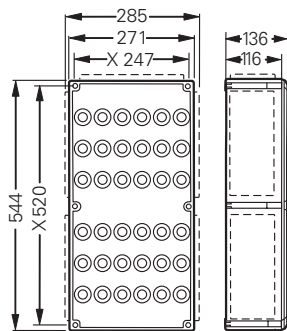
Distance between centres 40 mm



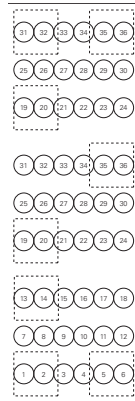
Distance between centres 50 mm



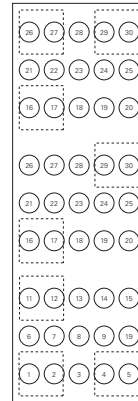
Distance between centres 60 mm



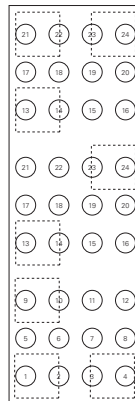
Type 449 23



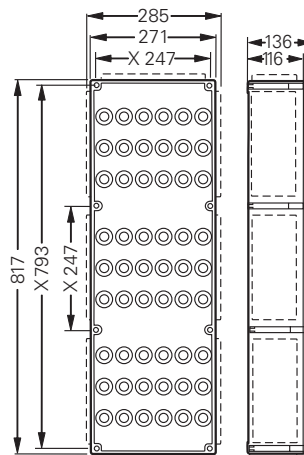
Distance between centres 40 mm



Distance between centres 50 mm



Distance between centres 60 mm



Type 447 23

X = fixing dimension

Ex-control stations - enclosures GHG 443



Type 443 34

4 Technical data

Ex-control stations Typ 443 34 for individual configuration

| | |
|----------------------------------------------|-------------------------------------------------------------------------------|
| Marking accd. to 2014/34/EU | Ⓢ II 2 G Ex ed ia/ib m IIC T6 ¹⁾ Ⓢ II 2 D Ex tD A21 IP66 T80 °C |
| EC-Type Examination Certificate | PTB 01 ATEX 1115 ¹⁾ |
| Permissible ambient temperature | -20 °C up to +40 °C ¹⁾ -55 °C up to +55 °C (option) |
| Rated voltage | 690 V AC |
| Rated current | 63 A |
| Connecting terminals | as ordered accd. to manufacturer's specification |
| PE-Connecting terminals | 2 x 4 mm ² |
| Protection class | I |
| Degree of protection accd. to EN 60529 | IP66 |
| Cable glands/Gland plates/Enclosure drilling | as ordered accd. to manufacturer's specification |
| Dimensions (L x W x H) | 280 x 180 x 90 mm |
| Weight | 2.3 kg with mounting framework |
| Enclosure material | cast aluminium-silicon (AlSi) |
| Enclosure colour | grey RAL 7031 |
| Components arrangement | max. 9 mounting areas |

¹⁾Data for ready configured product

Ordering codes (Code 1)

| 1. Enclosure | 2. Components arrangement/terminals | | | 3. Labels/ padlocking facility | 4. Cable glands |
|---------------|-------------------------------------|---------------------|---------------------|-----------------------------------|-----------------|
| | Mounting 1 ... 3 | Mounting 4 ... 6 | Mounting 7 ... 9 | | |
| 443 34 | X | X | X | X | X |

Possible components (Code 1)

| Component | Code | Component | Code |
|------------------------------------------------------------|----------------------|-------------------------------------|-------------------------|
| Pushbutton (2-pole or 4-pole ²⁾) | DRT | Measuring instrument | AM72 ¹⁾ |
| Double pushbutton (2-pole or 4-pole ²⁾) | DDT | Measuring instrument | AM45 |
| Key-operated pushbutton (2-pole or 4-pole ²⁾) | SLT | Signal lamp | SIL |
| Key-operated switch (2-pole or 4-pole ²⁾) | SLS | Potentiometer | POT |
| Control switch (2-pole or 4-pole ²⁾) | SCT | Terminal block (4 mm ²) | KLM ... A ²⁾ |
| Mushroom-head pushbutton (2-pole or 4-pole ²⁾) | SGT | Terminal block (4 mm ²) | KLM ... B |
| Control switch | GHG 23 ¹⁾ | Blanking element | BLV |

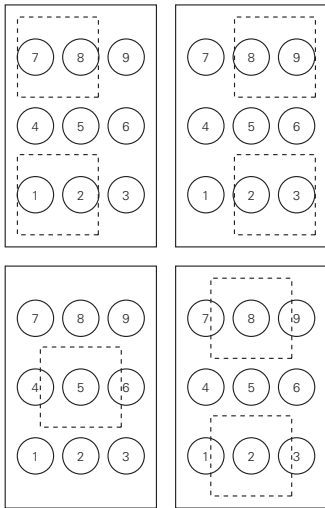
¹⁾ 2 mounting areas are needed

²⁾ Serial terminals and PE-Terminal are mounted on a rail below the hinged frame

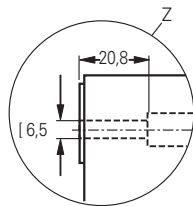
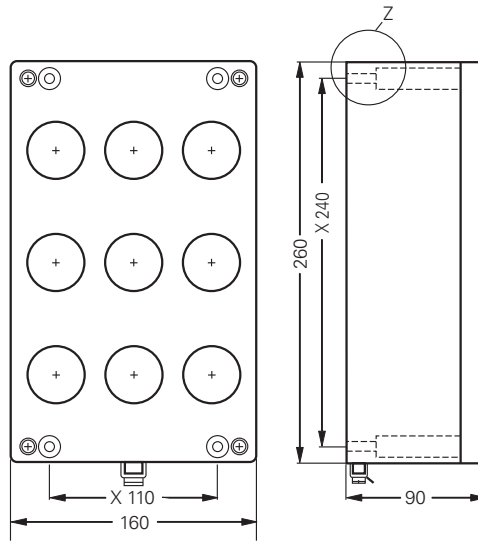


Type 443 34

Mounting areas | Dimension drawing





Distance between centres 40, 50 and 60 mm for positioning of built-in components



Type 443 34

X = fixing dimension

 = mounting space for switch, pushbutton (2-pole) or signal lamp

 = mounting space for switch, pushbutton (4-pole) ampere- or voltmeter

Ex-control stations - enclosures GHG 44. 33



Type 444 33



Type 448 33



Type 449 33



Type 447 33

4 Technical data

Ex-control stations Typ 444, 448, 449, and 447 stainless steel for individual configuration

| | |
|----------------------------------------------|--------------------------------------------------------------------------------------------|
| Marking accd. to 2014/34/EU | ⊕ II 2 G Ex de ia/ib m [ia/ib] IIC T6 ¹⁾ ⊕ II 2 D Ex tD A21 IP66/IP65 T80 °C |
| EC-Type Examination Certificate | PTB 99 ATEX 1044 ¹⁾ |
| IECEX Certificate of Conformity | IECEX BK1 07.0023 ¹⁾ |
| Marking accd. to IECEx | Ex de ia/ib m [ia/ib] IIC T4 .. T6 ¹⁾ Ex tD A21 IP66 T80 °C |
| Permissible ambient temperature | -20 °C up to +40 °C ¹⁾ -55 °C up to +55 °C (option) |
| Rated voltage | 690 V AC |
| Rated current | 40 A |
| Connecting terminals | see technical data for built-in components |
| PE-Connecting terminals | 2 x 4 mm ² |
| Protection class | I |
| Degree of protection accd. to EN 60529 | IP66 (standard) |
| Cable glands/Gland plates/Enclosure drilling | as ordered accd. to manufacturer's specification |
| Enclosure material | Stainless steel AISI 316 L |
| Enclosure colour | polished |

Type 444 33

| | |
|------------------------|--------------------------------|
| Connecting terminals | max. 20 terminals UT 4 |
| Dimensions (L x W x H) | 312.5 x 175 x 135 mm |
| Weight (empty) | 3.5 kg with mounting framework |
| Components arrangement | 6 mounting areas |

Type 448 33

| | |
|------------------------|-------------------------------------------------------------------------------------------------------------------------|
| Connecting terminals | max. 30 terminals UT 4 |
| Dimensions (L x W x H) | 312.5 x 312.5 x 135 mm |
| Weight (empty) | 7.5 kg with mounting framework |
| Components arrangement | distance 40 mm max. 18 mounting areas distance 50 mm max. 15 mounting areas distance 60 mm max. 12 mounting areas |

Type 449 33

| | |
|------------------------|-------------------------------------------------------------------------------------------------------------------------|
| Connecting terminals | max. 60 terminals UT 4 |
| Dimensions (L x W x H) | 627 x 312.5 x 135 mm |
| Weight (empty) | 11.5 kg with mounting framework |
| Components arrangement | distance 40 mm max. 36 mounting areas distance 50 mm max. 30 mounting areas distance 60 mm max. 24 mounting areas |

Type 447 33

| | |
|------------------------|-------------------------------------------------------------------------------------------------------------------------|
| Connecting terminals | max. 90 terminals UT 4 |
| Dimensions (L x W x H) | 941.5 x 312.5 x 135 mm |
| Weight (empty) | 16.5 kg with mounting framework |
| Components arrangement | distance 40 mm max. 54 mounting areas distance 50 mm max. 45 mounting areas distance 60 mm max. 36 mounting areas |

¹⁾Data for ready configured product



Type 447 33



Type 449 33



Type 448 33



Type 444 33

Ordering codes (Code 1)

| 1. Enclosure | 2. Components arrangement/terminals | | | | 3. Labels/ padlocking facility | 4. Cable glands |
|--------------|-------------------------------------|----------------------|-----------------------|-----------------------|-----------------------------------|-----------------|
| | Mounting 1 ... 6 | Mounting 7 ... 18 | Mounting 19 ... 27 | Mounting 37 ... 64 | | |
| 444 33 | X | – | – | – | X | X |
| 448 33 | X | X | – | – | X | X |
| 449 33 | X | X | X | – | X | X |
| 447 33 | X | X | X | X | X | X |

Possible components (Code 1)

| Component | Code | Component | Code |
|------------------------------------------------------------|----------------------|-------------------------------------|-------------------------|
| Pushbutton (2-pole or 4-pole ²⁾) | DRT | Measuring instrument | AM72 ¹⁾ |
| Double pushbutton (2-pole or 4-pole ²⁾) | DDT | Measuring instrument | AM45 |
| Key-operated pushbutton (2-pole or 4-pole ²⁾) | SLT | Signal lamp | SIL |
| Key-operated switch (2-pole or 4-pole ²⁾) | SLS | Potentiometer | POT |
| Control switch (2-pole or 4-pole ²⁾) | SCT | Terminal block (4 mm ²) | KLM ... A ²⁾ |
| Mushroom-head pushbutton (2-pole or 4-pole ²⁾) | SGT | Terminal block (4 mm ²) | KLM ... B |
| Control switch | GHG 23 ¹⁾ | Blanking element | BLV |

¹⁾ 2 mounting areas are needed

²⁾ Serial terminals and PE-Terminal are mounted on a rail below the hinged frame

Ex-control stations - enclosures GHG 44. 33



Type 444 33



Type 448 33

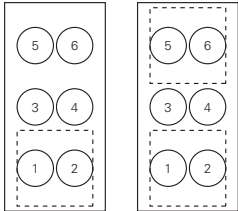
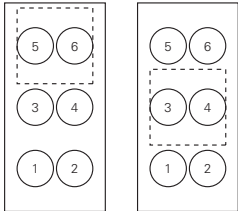


Type 449 33

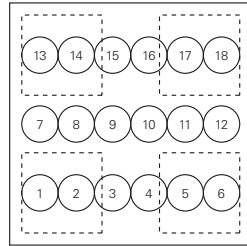
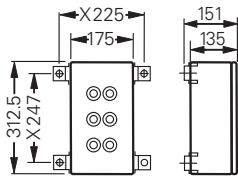


Type 447 33

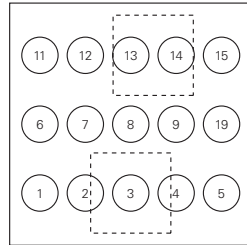
4 Mounting area I Dimension drawing



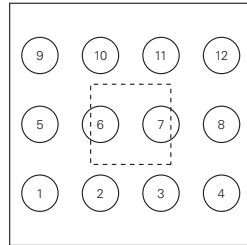
Distance between centres 40, 50 and 60 mm



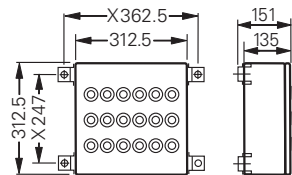
Distance between centres 40 mm



Distance between centres 50 mm



Distance between centres 60 mm



Type 448 33

X = fixing dimension

○ = mounting space for switch, pushbutton (2-pole) or signal lamp

┌ ─ ─ ─ ┐
| | = mounting space for switch, pushbutton (4-pole) ampere- or voltmeter
└ ─ ─ ─ ┘

Dimensions in mm



Type 447 33



Type 449 33

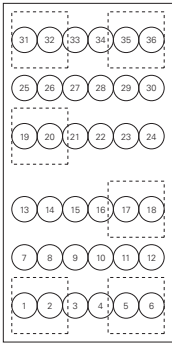


Type 448 33

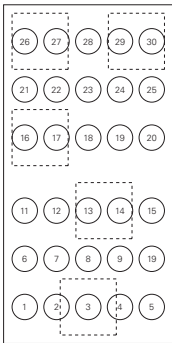


Type 444 33

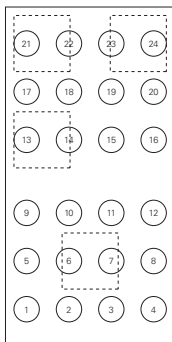
Mounting area | Dimension drawing



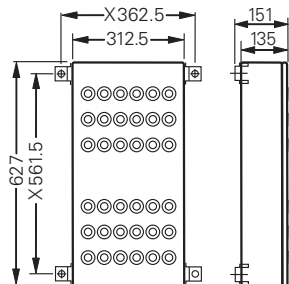
Distance between centres 40 mm



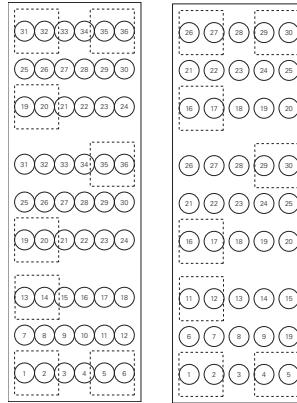
Distance between centres 50 mm



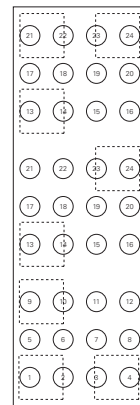
Distance between centres 60 mm



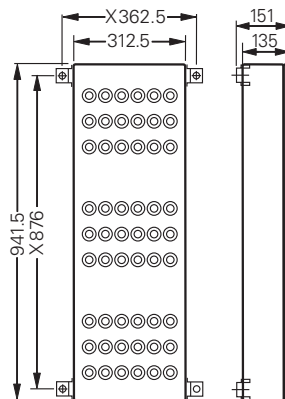
Type 449 33



Distance between centres 40 mm 50 mm



Distance between centres 60 mm



Type 447 33

X = fixing dimension

Built-in components pushbutton



DRT 1 x 2-pole



DRT 4 x 1-pole



DDT 2 x 1-pole



DDT 2 x 2-pole

4 Technical data

Ex-pushbutton DRT and double pushbutton DDT

| | |
|----------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Marking accd. to 2014/34/EU | ⊕ II 2 G Ex de IIC/IIB Gb / ⊕ I M2 Ex de I Mb |
| EC-Type Examination Certificate | IBExU 14 ATEX 1030 U |
| IECEX Certificate of Conformity | IECEX IBE 14.0005U |
| Marking accd. to IECEx | Ex de IIC Gb Ex de IIB Gb Ex de I Mb |
| Operating temperature | -45 °C up to +80 °C (IIC) -60 °C up to +80 °C (IIB) |
| Application temperature ¹⁾ | -45 °C up to +55 °C (IIC) -60 °C up to +55 °C (IIB) |
| Rated voltage | 500 V AC |
| Rated current | 16 A |
| Rated current with gold contact points | 0.4 A |
| Rated making-/rated breaking capacity accd. EN 60947-5-1 | AC-15: U _b 250 V / I _b 6 A U _b 500 V / I _b 4 A DC-13: U _b 24 V / I _b 6 A U _b 220 V / I _b 1 A |
| Degree of protection accd. to EN 60529 | IP66 (installed condition) |
| Type of mounting | DIN rail mounting |
| Enclosure colour | grey |
| Gasket material | Neoprene (standard), Fluorsilikon or Viton on request |

2-pole version

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

4-pole version²⁾

| | |
|------------------------|-------------------------|
| Connecting terminals | 4 x 2.5 mm ² |
| Dimensions (L x W x H) | 59 x 73 x 45 mm |
| Weight | 0.35 kg |

¹⁾ The limits of the operating temperature range and the max. permissible temperature rise of the components have to be taken into account. See also pages 2.4.34/35.

²⁾ The 4-pole pushbutton needs two mounting areas. The actuator will be in the middle of the two mounting areas.



DDT 2 x 2-pole



DDT 2 x 1-pole



DRT 4 x 1-pole



DRT 1 x 2-pole

Ordering code for component (Code 2)

| Code | Component | Code |
|------|-------------------------------------------|------------|
| A | Pushbutton, for enclosure mounting | DRT |
| | Double pushbutton, for enclosure mounting | DDT |

| Code | Circuit | Contacts | | Code | |
|------|-------------|----------|-----|-----------------------|---------------------|
| | | DRT | DDT | silver contact points | gold contact points |
| C | 2 NC | | | 13 | 16 |
| | 2 NO | | | 14 | 17 |
| | 1 NO + 1 NC | | | 15 | 18 |
| | 4 NC | | | 20 | 25 |
| | 1 NC + 3 NO | | | 21 | 26 |
| | 2 NC + 2 NO | | | 22 | 27 |
| | 3 NC + 1 NO | | | 23 | 28 |
| | 4 NO | | | 24 | 29 |

Built-in components pushbutton



DRT 1 x 2-pole



DRT 4 x 1-pole



DDT 2 x 1-pole



DDT 2 x 2-pole

4 Ordering code for component (Code 2)

| Code | Label | Inscription | Code | Inscription | Code |
|--------|-------|---------------------|------|----------------|------|
| D1, D2 | | 0, I, Start, Stop | 001 | 0 | 002 |
| | | I | 003 | I I | 004 |
| | | 💡 | 005 | STOP | 006 |
| | | START | 007 | emergency stop | 008 |
| | | LANGSAM | 009 | SCHNELL | 010 |
| | | EMERG.STOP | 011 | ➔ | 012 |
| | | ARRET | 014 | MARCHE | 015 |
| | | AUF | 016 | AB | 017 |
| | | Neutral white | 018 | Neutral green | 019 |
| | | 0, I, Arret, Marche | 020 | UP | 024 |
| | | DOWN | 025 | ZU | 026 |
| | | ON | 027 | OFF | 028 |
| | | + | 030 | - | 031 |
| | | Neutral rot | 033 | Neutral yellow | 034 |
| | | EIN | 036 | AUS | 037 |
| | | AUTO | 039 | HAND | 050 |
| | | SENKEN | 051 | HEBEN | 052 |
| | | LINKS | 053 | RECHTS | 054 |
| | | FAST | 055 | SLOW | 056 |
| | | RESET | 057 | OPEN | 058 |



DDT 2 x 2-pole



DDT 2 x 1-pole



DRT 4 x 1-pole



DRT 1 x 2-pole

Ordering code for component (Code 2)

| Content | Circuit | Code | Ordering code | | | | |
|---------|---------|------|---------------|---|---|----|----|
| | | | A | B | C | D1 | D2 |

Pushbutton with silver contact points
Version with standard label (0, I, START, STOP)

| | | | | | | | |
|-------------|-------------|----|-----|---|----|-----|-----|
| 2 NC | 2 NC | 13 | DRT | 0 | 13 | 001 | --- |
| 2 NO | 2 NO | 14 | DRT | 0 | 14 | 001 | --- |
| 1 NO + 1 NC | 1 NO + 1 NC | 15 | DRT | 0 | 15 | 001 | --- |
| 4 NC | 4 NC | 20 | DRT | 0 | 20 | 001 | --- |
| 3 NO + 1 NC | 3 NO + 1 NC | 21 | DRT | 0 | 21 | 001 | --- |
| 2 NO + 2 NC | 2 NO + 2 NC | 22 | DRT | 0 | 22 | 001 | --- |
| 1 NC + 3 NO | 1 NC + 3 NO | 23 | DRT | 0 | 23 | 001 | --- |
| 4 NO | 4 NO | 24 | DRT | 0 | 24 | 001 | --- |

Double pushbutton with gold contact points
Version with standard label (0, I, START, STOP)

| | | | | | | | |
|-------------|-------------|----|-----|---|----|-----|-----|
| 2 NC | 2 NC | 16 | DDT | 0 | 16 | 001 | 001 |
| 2 NO | 2 NO | 17 | DDT | 0 | 17 | 001 | 001 |
| 1 NO + 1 NC | 1 NO + 1 NC | 18 | DDT | 0 | 18 | 001 | 001 |
| 4 NC | 4 NC | 25 | DRT | 0 | 25 | 001 | 001 |
| 3 NO + 1 NC | 3 NO + 1 NC | 26 | DRT | 0 | 26 | 001 | 001 |
| 2 NO + 2 NC | 2 NO + 2 NC | 27 | DRT | 0 | 27 | 001 | 001 |
| 1 NC + 3 NO | 1 NC + 3 NO | 28 | DRT | 0 | 28 | 001 | 001 |
| 4 NO | 4 NO | 29 | DRT | 0 | 29 | 001 | 001 |

Built-in components - key-operated pushbutton



SLT 1 x 2-pole



SLT 1 x 4-pole

Technical data

Ex-key-operated pushbutton SLT

| | |
|----------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Marking accd. to 2014/34/EU | ⊕ II 2 G Ex de IIC/IIB Gb / ⊕ I M2 Ex de I Mb |
| EC-Type Examination Certificate | IBExU 14 ATEX 1030 U |
| IECEX Certificate of Conformity | IECEX IBE 14.0005U |
| Marking accd. to IECEx | Ex de IIC Gb / Ex de IIB Gb / Ex de I Mb |
| Operating temperature range | -45 °C up to +80 °C (IIC) / -60 °C up to +80 °C (IIB) |
| Application temperature ¹⁾ | -45 °C up to +55 °C (IIC) / -60 °C up to +55 °C (IIB) |
| Rated voltage | 500 V AC |
| Rated current | 16 A |
| Rated current with gold contact points | 0.4 A |
| Rated making-/rated breaking capacity accd. EN 60947-5-1 | AC-15: U _b 250 V / I _b 6 A / U _b 500 V / I _b 4 A DC-13: U _b 24 V / I _b 6 A / U _b 220 V / I _b 1 A |
| Degree of protection accd. to EN 60529 | IP66 (installed condition) |
| 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 mm ² |
| Dimensions (L x W x H) | 59 x 31 x 45 mm |
| Weight | 0.15 kg |

4-pole version¹⁾

| | |
|------------------------|-------------------------|
| Connecting terminals | 4 x 2.5 mm ² |
| Dimensions (L x W x H) | 59 x 73 x 45 mm |
| Weight | 0.35 kg |

¹⁾ The limits of the operating temperature range and the max. permissible temperature rise of the components have to be taken into account. See also pages 2.4.34/35.

²⁾ The 4-pole pushbutton needs two mounting areas. The actuator will be in the middle of the two mounting areas.

Ordering code for component (Code 2)

| Content | Circuit | Code | Ordering code | | | | |
|---------|---------|------|---------------|---|---|----|----|
| | | | A | B | C | D1 | D2 |

Key-operated pushbutton with silver contact points

Version with contact function: lockable/removable/lockable/removable (Code 10)

| | | | | | | | |
|-------------|-------------|----|-----|---|----|----|-----|
| 2 NC | 2 NC | 13 | SLT | 0 | 13 | 10 | --- |
| 2 NO | 2 NO | 14 | SLT | 0 | 14 | 10 | --- |
| 1 NO + 1 NC | 1 NO + 1 NC | 15 | SLT | 0 | 15 | 10 | --- |
| 2 NO + 2 NC | 2 NO + 2 NC | 22 | SLT | 0 | 22 | 10 | --- |
| 4 NC | 4 NC | 20 | SLT | 0 | 20 | 10 | --- |
| 4 NO | 4 NO | 24 | SLT | 0 | 24 | 10 | --- |
| 3 NO + 1 NC | 3 NO + 1 NC | 21 | SLT | 0 | 21 | 10 | --- |
| 1 NO + 3 NC | 1 NO + 3 NC | 23 | SLT | 0 | 23 | 10 | --- |

Key-operated pushbutton with gold contact points

Version with contact function: lockable/removable/lockable/removable (Code 10)

| | | | | | | | |
|-------------|-------------|----|-----|---|----|----|-----|
| 2 NO + 2 NC | 2 NO + 2 NC | 27 | SLT | 0 | 27 | 10 | 001 |
| 4 NC | 4 NC | 25 | SLT | 0 | 25 | 10 | 001 |
| 4 NO | 4 NO | 29 | SLT | 0 | 29 | 10 | 001 |
| 3 NO + 1 NC | 3 NO + 1 NC | 26 | SLT | 0 | 26 | 10 | 001 |
| 1 NO + 3 NC | 1 NO + 3 NC | 28 | SLT | 0 | 28 | 10 | 001 |

Built-in components key-operated pushbutton



Ordering code for component (Code 2)

| Code | Component | Code | | |
|------|-------------------------|----------|-----------------------|---------------------|
| A | Key-operated pushbutton | SLT | | |
| Code | Circuit | Contacts | Code | Code |
| | | | silver contact points | gold contact points |
| C | 2 NC | | 13 | 16 |
| | 2 NO | | 14 | 17 |
| | 1 NO + 1 NC | | 15 | 18 |
| | 4 NC | | 20 | 25 |
| | 1 NC + 3 NO | | 21 | 26 |
| | 2 NC + 2 NO | | 22 | 27 |
| | 3 NC + 1 NO | | 23 | 28 |
| | 4 NO | | 24 | 29 |

| Code | Function | Pushbutton not pressed | Key | Pushbutton pressed | Key | Code |
|------|----------|------------------------|---------------|--------------------|---------------|------|
| D | | lockable | removable | lockable | removable | 10 |
| | | lockable | removable | lockable | not removable | 11 |
| | | lockable | removable | not lockable | not removable | 12 |
| | | lockable | not removable | lockable | removable | 13 |
| | | not lockable | not removable | lockable | removable | 14 |
| | | not lockable | removable | auto lockable | removable | 15 |

Built-in components - key-operated switch



SLS 1 x 2-pole



SLS 1 x 4-pole

4 Technical data

Key-operated switch SLS

| | |
|----------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Marking accd. to 2014/34/EU | Ⓔ II 2 G Ex de IIC/IIB Gb / Ⓔ I M2 Ex de I Mb |
| EC-Type Examination Certificate | IBExU 14 ATEX 1030 U |
| IECEX Certificate of Conformity | IECEX IBE 14.0005U |
| Marking accd. to IECEX | Ex de IIC Gb Ex de IIB Gb Ex de I Mb |
| Operating temperature range | -45 °C up to +80 °C (IIC) -60 °C up to +80 °C (IIB) |
| Application temperature ¹⁾ | -45 °C up to +55 °C (IIC) -60 °C up to +55 °C (IIB) |
| Rated voltage | 500 V AC |
| Rated current | 16 A |
| Rated current with gold contact points | 0.4 A |
| Rated making-/rated breaking capacity accd. EN 60947-5-1 | AC-15: U _e 250 V / I _e 6 A U _e 500 V / I _e 4 A DC-13: U _e 24 V / I _e 6 A U _e 60 V / I _e 0.8 A U _e 110 V / I _e 0.5 A |
| Switching system | engaging – engaging – engaging |
| Degree of protection accd. to EN 60529 | IP66 (installed condition) |
| 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 mm ² |
| Dimensions (L x W x H) | 59 x 31 x 45 mm |
| Weight | 0.15 kg |

4-pole version¹⁾

| | |
|------------------------|-------------------------|
| Connecting terminals | 4 x 2.5 mm ² |
| Dimensions (L x W x H) | 59 x 73 x 45 mm |
| Weight | 0.35 kg |

¹⁾ The limits of the operating temperature range and the max. permissible temperature rise of the components have to be taken into account. See also pages 2.4.34/35.

²⁾ The 4-pole pushbutton needs two mounting areas. The actuator will be in the middle of the two mounting areas.

Built-in components -key-operated switch



SLS 1 x 4-pole



SLS 1 x 2-pole

Ordering code for component (Code 2)

| Code | Component | | Code | |
|-------------|------------|----------|-----------------------|---------------------|
| A | Key-switch | | SLS | |
| Code | Circuit | Contacts | Code | |
| | | | silver contact points | gold contact points |
| 2 NO | | | 04 | 14 |
| 2 NO | | | 18 | 18 |
| 4 NO | | | 29 | 25 |
| 2 NC + 2 NO | | | 26 | 26 |
| 4 NO | | | 27 | 27 |

| Code | Contact label | Inscription | Code |
|------|---------------|-------------|------|
| D | I 0 II | | 01 |
| | Fern 0 Ort | | 02 |
| | Hand 0 Auto | | 03 |

Example for ordering code (Code 2)

| Contact system | Ordering code | | |
|---------------------------------------------------------|---------------|----|----|
| | A | C | D |
| Key switch with silver contact points and label „I 0 II | | | |
| 04 | SLS 5 | 04 | 01 |
| 05 | SLS 5 | 05 | 01 |

Built-in components - mushroom-head pushbutton



SGTE 1 x 2-pole



SGTE 1 x 4-pole



SGT 1 x 2-pole



SGT 1 x 4-pole

4 Technical data

Ex-mushroom-head pushbutton (emergency stop „SGTE“ and normal version „SGT“)

| | |
|----------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Marking accd. to 2014/34/EU | Ⓔ II 2 G Ex de IIC/IIB Gb / Ⓔ I M2 Ex de I Mb |
| EC-Type Examination Certificate | IBExU 14 ATEX 1030 U |
| IECEX Certificate of Conformity | IECEX IBE 14.0005U |
| Marking accd. to IECEx | Ex de IIC Gb Ex de IIB Gb Ex de I Mb |
| Operating temperature range | -45 °C up to +80 °C (IIC) -60 °C up to +80 °C (IIB) |
| Application temperature ¹⁾ | -45 °C up to +55 °C (IIC) -60 °C up to +55 °C (IIB) |
| Rated voltage | 500 V AC |
| Rated current | 16 A |
| Rated current with gold contact points | 0.4 A |
| Rated making-/rated breaking capacity accd. EN 60947-5-1 | AC-15: U _b 250 V / I _b 6 A U _b 500 V / I _b 4 A DC-13: U _b 24 V / I _b 6 A U _b 220 V / I _b 1 A |
| Degree of protection accd. to EN 60529 | IP66 (installed condition) |
| 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 mm ² |
| 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 mm ² |
| Dimensions (L x W x H) | 59 x 73 x 45 mm |
| Weight | 0.35 kg |

¹⁾ The limits of the operating temperature range and the max. permissible temperature rise of the components have to be taken into account. See also pages 2.4.34/35.

²⁾ The 4-pole pushbutton needs two mounting areas. 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.

Built-in components - mushroom-head pushbutton



SGT 1 x 4-pole



SGT 1 x 2-pole



SGTE 1 x 4-pole



SGTE 1 x 2-pole

Ordering code for component (Code 2)

| Code | Component | | Code | |
|------|-------------------------------------------|----------|-----------------------|---------------------|
| A | Mushroom-head pushbutton | | SGT | |
| | Mushroom-head pushbutton (emergency stop) | | SGTE | |
| Code | Circuit | Contacts | Code | |
| | | | silver contact points | gold contact points |
| C | 2 NC | | 13 | 16 |
| | 2 NO | | 14 | 17 |
| | 1 NO + 1 NC | | 15 | 18 |
| | 4 NC | | 20 | 25 |
| | 1 NC + 3 NO | | 21 | 26 |
| | 2 NC + 2 NO | | 22 | 27 |
| | 3 NC + 1 NO | | 23 | 28 |
| | 4 NO | | 24 | 29 |

Built-in components - mushroom-head pushbutton



SGTE 1 x 2-pole



SGTE 1 x 4-pole



SGT 1 x 2-pole



SGT 1 x 4-pole

4 Ordering code for component (Code 2)

| Code | Label | Inscription | Code | Inscription | Code |
|------|-------|--------------------------------------------------|-----------|----------------|------|
| D | | emergency stop (German - Englisch) ¹⁾ | 1 | 0 | 002 |
| | | emergency stop (German - French) ¹⁾ | 4 | I I | 004 |
| | | 0, I, START, STOP | 01 | STOP | 006 |
| | | 0 | 02 | emergency stop | 008 |
| | | I | 03 | SCHNELL | 010 |
| | | I I | 04 | - | 012 |
| | | 💡 | 05 | MARCHE | 015 |
| | | STOP | 06 | AB | 017 |
| | | START | 07 | Neutral green | 019 |
| | | LANGSAM | 09 | UP | 024 |
| | | SCHNELL | 10 | ZU | 026 |
| | | - | 12 | OFF | 028 |
| | | ARRET | 14 | - | 031 |
| | | MARCHE | 15 | Neutral yellow | 034 |
| | | 0, I, Arret, Marche | 20 | AUS | 037 |
| | | UP | 24 | HAND | 050 |
| | | DOWN | 25 | HEBEN | 052 |
| | | ZU | 26 | RECHTS | 054 |
| | | ON | 27 | SLOW | 056 |
| | | OFF | 28 | OPEN | 058 |
| | | + | 30 | | |
| | | - | 31 | | |

| Code | Mushroom head inscription | Colour | Code |
|------|---------------------------|----------------------|------|
| E | | red | 1 |
| | | yellow ²⁾ | 2 |
| | | black ²⁾ | 3 |

pushbutton

| Code | Function | released | engaged | unlocking | Code |
|------|----------|--------------|--------------|---------------------------|-----------------|
| F | | not lockable | not lockable | n/a (pushbutton function) | 1 ²⁾ |
| | | not lockable | lockable | hand released | 2 |
| | | not lockable | lockable | key released | 3 |

1) only SGTE

2) only SGT

Built-in components - mushroom-head pushbutton



SGT 1 x 4-pole



SGT 1 x 2-pole



SGTE 1 x 4-pole



SGTE 1 x 2-pole

Ordering code for component (Code 2)

Circuit

Ordering code

A

C

D

E

F

EMERGENCY STOP mushroom-head pushbutton red, with silver contact points

Version with inscription D/E, hand released

| | | | | | |
|-------------|--------|----|---|---|---|
| 2 NC | SGTE 0 | 13 | 1 | 1 | 2 |
| 2 NO | SGTE 0 | 14 | 1 | 1 | 2 |
| 1 NO + 1 NC | SGTE 0 | 15 | 1 | 1 | 2 |
| 2 NO + 2 NC | SGTE 0 | 22 | 1 | 1 | 2 |
| 4 NC | SGTE 0 | 20 | 1 | 1 | 2 |
| 4 NO | SGTE 0 | 24 | 1 | 1 | 2 |
| 3 NO + 1 NC | SGTE 0 | 21 | 1 | 1 | 2 |
| 1 NO + 3 NC | SGTE 0 | 23 | 1 | 1 | 2 |

Mushroom-head pushbutton with silver contact points, without locking, mushroom head, black

Version with standard label (0, I, START, STOP)

| | | | | | |
|-------------|-------|----|----|---|---|
| 2 NC | SGT 0 | 13 | 01 | 3 | 1 |
| 2 NO | SGT 0 | 14 | 01 | 3 | 1 |
| 1 NO + 1 NC | SGT 0 | 15 | 01 | 3 | 1 |
| 2 NO + 2 NC | SGT 0 | 22 | 01 | 3 | 1 |
| 4 NC | SGT 0 | 20 | 01 | 3 | 1 |
| 4 NO | SGT 0 | 24 | 01 | 3 | 1 |
| 3 NO + 1 NC | SGT 0 | 21 | 01 | 3 | 1 |
| 1 NO + 3 NC | SGT 0 | 23 | 01 | 3 | 1 |

Built-in components - mini-control switch



SCT 1 x 2-pole



SCT 1 x 4-pole

4 Technical data

Ex-Mini-control switch SCT

| | |
|----------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Marking accd. to 2014/34/EU | Ⓔ II 2 G Ex de IIC/IIB Gb / Ⓔ I M2 Ex de I Mb |
| EC-Type Examination Certificate | IBExU 14 ATEX 1030 U |
| IECEX Certificate of Conformity | IECEX IBE 14.0005U |
| Marking accd. to IECEx | Ex de IIC Gb Ex de IIB Gb Ex de I Mb |
| Operating temperature range | -45 °C up to +80 °C (IIC) -60 °C up to +80 °C (IIB) |
| Application temperature ¹⁾ | -45 °C up to +55 °C (IIC) -60 °C up to +55 °C (IIB) |
| Rated voltage | 500 V AC |
| Rated current | 16 A |
| Rated current with gold contact points | 0.4 A |
| Rated making-/rated breaking capacity accd. EN 60947-5-1 | AC-15: U _b 250 V / I _b 6 A U _b 500 V / I _b 4 A DC-13: U _b 24 V / I _b 6 A U _b 220 V / I _b 1 A |
| Degree of protection accd. to EN 60529 | IP66 (installed condition) |
| Type of mounting | DIN rail mounting |
| Enclosure colour | grey |

2-pole version

| | |
|------------------------------|-------------------------|
| Connecting terminals | 2 x 2.5 mm ² |
| Dimensions in mm (L x W x H) | 59 x 31 x 45 |
| Weight | 0.15 kg |

4-pole version¹⁾

| | |
|------------------------|-------------------------|
| Connecting terminals | 4 x 2.5 mm ² |
| Dimensions (L x W x H) | 59 x 73 x 45 mm |
| Weight | 0.35 kg |

¹⁾ The limits of the operating temperature range and the max. permissible temperature rise of the components have to be taken into account. See also pages 2.4.34/35.

²⁾ The 4-pole pushbutton needs two mounting areas. The actuator will be in the middle of the two mounting areas.

Built-in components - mini-control switch









SCT 1 x 4-pole



SCT 1 x 2-pole

Ordering code for component (Code 2) Code A - C - D - E

| Code | Component | Ordering code | |
|------|---------------------|-------------------------------------------------------------------------------------|------|
| A | Mini Control switch | SCT | |
| Code | Switching system | Version | Code |
| C | 4 | spring – engaging – spring | 4 |
| | |  | |
| | 5 | engaging – engaging – engaging | 5 |
| | |  | |
| | 6 | engaging – engaging | 6 |
| | |  | |
| | 7 | spring – engaging – engaging | 7 |
| | |  | |
| | 8 | engaging – engaging – spring | 8 |
| | |  | |
| | 9 | engaging – spring | 9 |
| | |  | |

Built-in components - mini-control switch



SCT 1 x 2-pole

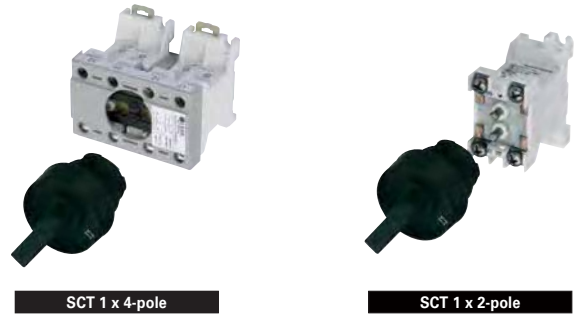


SCT 1 x 4-pole

4 Ordering code for component (Code 2) Code A - C - D - E

| Code | Circuit | Contacts | Code | |
|------|---------|----------|-----------------------|---------------------|
| | | | silver contact points | gold contact points |
| D | | | 01 | 11 |
| | | | 02 | 12 |
| | | | 03 | 13 |
| | | | 04 | 14 |
| | | | 05 | 15 |
| | | | 07 | 17 |
| | | | 22 | 32 |
| | | | 23 | 33 |
| | | | 21 | 31 |
| | | | 26 | 36 |
| | | | 25 | 35 |
| | | | 27 | 37 |
| | | | 24 | 34 |

Built-in components - mini-control switch



Ordering code for component (Code 2)

| Code | Inscription | Code | Inscription | Code | Inscription | Code |
|------|-------------|---------|-------------|---------|-------------|------|
| E | 0 | I | 01 | 0 | I | 18 |
| | I | II | 02 | AUS | AUTO | 19 |
| | STOP | START | 03 | AUS | HAND | 20 |
| | HAND | AUTO | 04 | ÖRTLICH | AUS | 21 |
| | SENKEN | HEBEN | 05 | START | NORMAL | 22 |
| | REMOTE | LOCAL | 06 | OFF | 0 | 23 |
| | I | 0 | 07 | HAND | OFF | 24 |
| | AUS | BETRIEB | 08 | 0 | IN | 25 |
| | AUS | 0 | 09 | MAN | AUTO | 26 |
| | AUF | 0 | 10 | START | STOP | 27 |
| | Enriegelt | 0 | 11 | HEBEN | SENKEN | 28 |
| | OUT | OF | 12 | OFF | ON | 29 |
| | LOCAL | REMOTE | 13 | AUS | EIN | 30 |

Other lables on request

Example for ordering code (Code 2)

| Circuit | Switching system | Contacts Code | Ordering code | | | |
|--------------------------------------------------|------------------|---------------|---------------|---|----------|----|
| | | | A | C | D | E |
| Control switch with silver contact points | | | | | | |
| Switch can be locked in all positions | | | | | | |
| I II | 6 | 01 | SCT | 6 | 01 or 21 | 02 |
| 0 I | 6 | 03 | SCT | 6 | 03 or 23 | 01 |
| I II | 6 | 02 | SCT | 6 | 02 or 22 | 02 |
| I 0 II | 4 | 04 | SCT | 4 | 04 or 24 | 07 |
| I 0 II | 5 | 05 | SCT | 5 | 05 or 26 | 07 |
| 0 I | 7 | 07 | SCT | 7 | 07 or 27 | 01 |

Built-in components - potentiometer



Potentiometer

4 Technical data

Ex-potentiometer POT

| | |
|----------------------------------------|--------------------------------------------------------|
| Marking accd. to 2014/34/EU | Ⓔ II 2 G Ex de IIC/IIB Gb / Ⓔ I M2 Ex de I Mb |
| EC-Type Examination Certificate | IBExU 14 ATEX 1030 U |
| IECEX Certificate of Conformity | IECEX IBE 14.0005U |
| Marking accd. to IECEX | Ex de IIC Gb Ex de IIB Gb Ex de I Mb |
| Operating temperature range | -45 °C up to +80 °C (IIC) -60 °C up to +80 °C (IIB) |
| Application temperature ¹⁾ | -45 °C up to +55 °C (IIC) -60 °C up to +55 °C (IIB) |
| Rated voltage | up to 250 V |
| Power consumption (VA) | max. 1 W |
| Resistance range | 100 – 10000 Ohm |
| Tolerance | ± 20 % |
| Connecting terminals | 2 x 2.5 mm ² |
| Degree of protection accd. to EN 60529 | IP66 (installed condition) |
| 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 % |

¹⁾ The limits of the operating temperature range and the max. permissible temperature rise of the components have to be taken into account. See also pages 2.4.34/35.

Ordering code for component (Code 2) - code A - C

| Code | Component | Code |
|------|---------------|------|
| A | Potentiometer | POT |
| Code | Resistance | Code |
| C | 0 - 100 Ohm | 01 |
| | 0 - 220 Ohm | 02 |
| | 0 - 470 Ohm | 03 |
| | 0 - 1000 Ohm | 04 |
| | 0 - 2200 Ohm | 07 |
| | 0 - 4700 Ohm | 05 |
| | 0 - 10000 Ohm | 06 |

Example for ordering code (Code 2)

| Content | Code |
|-----------------------------------------|--------|
| Potentiometer 1 W 25 % tolerance | |
| 0 - 100 Ohm | POT 01 |
| 0 - 470 Ohm | POT 03 |
| 0 - 4700 Ohm | POT 05 |



Signal lamp

Technical data

| | | Ex-signal lamp SIL |
|-----------------------------------------------------------|-------------------------------------------------------------------|----------------------------------------------------------------------------|
| Marking accd. to 2014/34/EU | | ⊕ II 2 G Ex d e IIC/IIB Gb / ⊕ II 2 G Ex d ia IIC/IIB Gb |
| EC-Type Examination Certificate | | IBExU 12 ATEX 1047 U |
| IECEX Certificate of Conformity | | IECEX IBE 13.0031U |
| Marking accd. to IECEx | | Ex de IIC/IIB Gb Ex d ia IIC/IIB Gb |
| Operating temperature range | | -45 °C up to +68 °C (IIC) -60 °C up to +68 °C (IIB) |
| Application temperature ¹⁾ | | -45 °C up to +60 °C (IIC) -60 °C up to +60 °C (IIB) |
| Rated voltage (Ex ed IIC) (Ex d ia IIC) (Ex ed IIC) | | 20 V up to 254 V AC/DC 10 V up to 30 V DC 12 V up to 24 V AC/DC |
| Rated current | 20 V to 254 V 10 V up to 30 V (Ex d ia IIC) 12 V up to 24 V | approx. 4 - 15 mA max. 25 mA max. 24 mA |
| Max. values for Ex ia | | U _i = 30 V DC, I _i = 100 mA, P _i = 750 mW |
| Connecting terminals | | 2 x 2.5 mm ² |
| Degree of protection accd. to 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 |

¹⁾ The limits of the operating temperature range and the max. permissible temperature rise of the components have to be taken into account. See also pages 2.4.34/35.

Ordering code for component (Code 2) - code A - C - D

| Code | Component | Code |
|------|-------------------------|------|
| A | Signal lamp | SIL |
| Code | Colour of the lens | Code |
| C | white | 1 |
| | yellow | 2 |
| | red | 3 |
| | blue | 4 |
| | green | 5 |
| Code | Voltage | Code |
| D | 20 V - 254 V AC/DC | 10 |
| | 10 V - 30 V DC (Ex-i)1) | 34 |
| | 12 V - 24 V AC/DC | 11 |

¹⁾ Supply by valve-driver components, e. gl., with data: U_o = 20 V - 18 V DC with R_i = 200 Ω - 500 Ω or U_o = 10 V - 18 V DC with R_i = 100 Ω - 200 Ω
No effective C_i and L_i values.

Example for ordering code (Code 2)

| Content | Ordering code | | |
|---------------------------------------------------------|---------------|---|----|
| | A | C | D |
| Signal lamp SIL (examples) | | | |
| Universal voltage 20 V - 254 V AC/DC white | SIL | 1 | 10 |
| For intrinsically safe circuits 18 V up to 30 V DC blue | SIL | 4 | 34 |
| Low voltage 12 V up to 24 V AC/DC red | SIL | 3 | 11 |

Built-in components - measuring instrument AM 45/AM 72



AM 45



AM 72

4 Technical data

| Ex-measuring instrument AM 45/AM 72 | Moving iron | Moving coil |
|----------------------------------------|----------------------------------------------------------------------------------------------------|---------------------------------------|
| Marking accd. to 2014/34/EU | ⊕ II 2 G Ex e II / ⊕ II 2 G Ex e mb II ⊕ I M 2 Ex e I | ⊕ II 2 G Ex ib IIC ⊕ I M 2 Ex ib I |
| EC-Type Examination Certificate | PTB 99 ATEX 2032 U | |
| Application temperature | -20 °C up to +40 °C -55 °C up to +55 °C (option) | |
| Rated voltage | up to 420 V (AM 45) up to 750 V (AM 72) | |
| Power consumption (VA) | max. 0.31 A | |
| Overload range | 10 fold - 25 sec. 25 fold - 4 sec. 50 fold - 1 sec. indicated 1 : 1.5, optional 1:6, 1:10 | 10 fold - 5 sec. |
| 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 |
| Connecting terminals max. Ii | | 150 mA |
| Accuracy | Class 2.5 | Class 1.5 |
| Movement | Moving iron | Moving coil |
| Connecting terminals | 2 x 1.5 - 4 mm ² | |
| Degree of protection accd. to EN 60529 | IP66 (installed condition) | |
| Display size | 40 x 40 mm (AM 45) 68 x 68 mm (AM 72) | |
| Weight | 0.35 kg | |
| Type of mounting | DIN rail mounting | |
| Enclosure material | Polycarbonate | |



Ordering code for component (Code 2) Code A - C - D

| Code | Component | Code |
|------|----------------------------|--------------|
| A | Measuring instrument AM 45 | AM 45 |
| | Measuring instrument AM 72 | AM 72 |

| Code | Movement | Code |
|------|----------------------------------------------------------------------------|------|
| C | Direct connection | 1 |
| | CT connection n/1 A | 2 |
| | CT connection n/5 A | 3 |
| | Power connection 0 - 20/24 mA (Scale 0-100% / 120%) ¹⁾ | 5 |
| | Power connection 4 - 20/24 mA (Scale 0-100% / 120%) ¹⁾ | 6 |
| | Moving-coil connection 0 - 20/24 mA (Scale 0-100% / 120%) ^{1) 3)} | 7 |
| | Moving-coil connection 4 - 20/24 mA (Scale 0-100% / 120%) ^{1) 3)} | 8 |

| Code | Measuring range | Code | Measuring range | Code |
|------|--------------------------------|------|------------------|------|
| D | 0 - 1 | 02 | 0 - 75 / 112.5 A | 13 |
| | 0 - 2.5 / 3.75 A ²⁾ | 03 | 0 - 100 / 150 A | 14 |
| | 0 - 5 / 7.5 A ²⁾ | 04 | 0 - 150 / 225 A | 15 |
| | 0 - 10 / 15 A ²⁾ | 05 | 0 - 200 / 300 A | 16 |
| | 0 - 15 / 22.5 A | 06 | 0 - 250 / 375 A | 17 |
| | 0 - 20 / 30 A ²⁾ | 08 | 0 - 300 / 450 A | 18 |
| | 0 - 30 / 45 A | 09 | 0 - 400 / 600 A | 19 |
| | 0 - 40 / 60 A | 10 | 0 - 500 / 750 A | 20 |
| | 0 - 50 / 75 A | 11 | 0 - 600 / 900 A | 21 |
| | 0 - 60 / 90 A | 12 | 0 - 100% / 150% | 33 |

¹⁾ Movements 0 - 20 mA / 4 - 20 mA and with moving-coil connection are only available with scale 0 - 100 %/120 %v

²⁾ Version for direct connection or with CT connection n/1 A possible.

³⁾ Moving coil only for Ex-i or Ex-d flameproof applications - Other interchangeable scales available on request

Example for ordering code (Code 2)

| Movement | Measuring range | Ordering code | | |
|-----------------------------------------------------------------------|-----------------|---------------|---|----|
| | | A | C | D |
| Measuring instrument AM 45 | | | | |
| Version with direct connection | | | | |
| Direct (moving iron) | 0 - 1 / 1.5 A | AM45 | 1 | 02 |
| Direct (moving iron) | 0 - 10 / 15 A | AM45 | 1 | 05 |
| 0 - 20 / 24 mA (moving coil) | 0-100% / 120% | AM45 | 5 | 33 |
| 4 - 20 / 24 mA (moving coil) | 0-100% / 120% | AM45 | 6 | 33 |
| Moving iron measuring instrument AM 72 | | | | |
| Version with CT connection n/1A | | | | |
| Converter n / 1A | 0 - 100% / 150% | AM72 | 2 | 33 |
| Moving-coil measuring instrument AM 45 (Ex-i application only) | | | | |
| Version with direct connection | | | | |
| 0 - 20 / 24 mA | 0-100% / 120% | AM45 | 7 | 33 |
| 4 - 20 / 24 mA | 0-100% / 120% | AM45 | 8 | 33 |

Built-in components - control switch Ex 23 and Ex 29



Ex 23



Ex 29

4

Technical data

Ex-Built-in components for individual control stations Control switch Ex 23 and Ex 29

| | Ex 23 | Ex 29 |
|----------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Marking accd. to 2014/34/EU | <ul style="list-style-type: none"> ⊕ I M2 Ex d e I Mb ⊕ II 2G Ex d e IIB/IIC Gb ⊕ II 2G Ex d ia/ib IIB/IIC Gb | ⊕ II 2 G Ex de IIC |
| IECEX Certificate of Conformity | IECEX IBE 13.0108 U | |
| Marking accd. to IECEx | <ul style="list-style-type: none"> Ex d e I Mb Ex d e IIB/IIC Gb Ex d ia/ib IIB/IIC Gb | |
| EC-Type Examination Certificate | BVS 13 ATEX E 107U | PTB 98 ATEX 1118 U |
| Operating temperature range | <ul style="list-style-type: none"> -45 °C up to +80 °C (IIC) -60 °C up to +80 °C (IIB) | |
| Application temperature ¹⁾ | <ul style="list-style-type: none"> -45 °C up to +55 °C (IIC) -60 °C up to +55 °C (IIB) | <ul style="list-style-type: none"> -20 °C up to +40 °C -55 °C up to +55 °C (option) |
| Rated voltage | up to 500 V | up to 500 V |
| Rated current | 10 A | 16 A ²⁾ |
| Rated current with gold contact points | 0.4 A | 0.4 A |
| Rated making-/rated breaking capacity accd. EN 60947-5-1 | <ul style="list-style-type: none"> AC-15: U_e 230 V / I_e 6 A U_e 500 V / I_e 4 A DC-13: U_e 24 V / I_e 6 A U_e 230 V / I_e 0.5 A | <ul style="list-style-type: none"> AC-15: U_e 230 V / I_e 6 A U_e 400 V / I_e 4 A DC-13: U_e 24 V / I_e 2 A U_e 230 V / I_e 0.3 A |
| Connecting terminals | 2 x 0.5 - 2.5 mm ² | 2 x 0.5 - 2.5 mm ² or 1 x 1.0 - 6.0 mm ² |
| Weight | <ul style="list-style-type: none"> 1 level: approx. 0.2 kg 2 level: approx. 0.35 kg 3 level: - | <ul style="list-style-type: none"> approx. 0.25 kg approx. 0.40 kg approx. 0.55 kg |
| Type of mounting | DIN rail mounting | |
| Enclosure colour | grey | black |

¹⁾ The limits of the operating temperature range and the max. permissible temperature rise of the components have to be taken into account. See also pages 2.4.34/35.

²⁾ min. cross section of used cable ≥ 12 A: 2.5 mm²



Ordering code for component (Code 2) Code A - C - D - E - F

| Code | Component | Code | | |
|------|--------------------------------|-------|--------------------------------|------|
| A | Ex 23 | Ex 23 | | |
| | Ex 29 | Ex 29 | | |
| Code | Switching system | Code | | |
| C | spring – engaging – spring | 4 | | |
| | engaging – engaging – engaging | 5 | | |
| | engaging – engaging | 6 | | |
| | spring – engaging – engaging | 7 | | |
| | engaging – engaging – spring | 8 | | |
| D | Contacts Silver contact points | Code | Contacts Silver contact points | Code |
| | | 060 | | 034 |
| | | 062 | | 037 |
| | | 065 | | 049 |
| | | 061 | | 023 |
| | | 063 | | 019 |
| | | 067 | | 033 |
| | | 011 | | 024 |

Versions with gold contact points are available on request.
 Versions with compulsory NO are possible.

Built-in components - control switch Ex 23 and Ex 29



Ex 23

Ex 29

4 Ordering code for component (Code 2) Code A - C - D - E - F

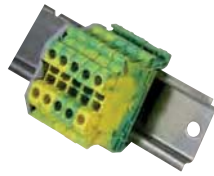
| Code | Inscription (labels) | | Code | Inscription (labels) | | | Code |
|------|----------------------|------------|------|----------------------|--------|--------|------|
| E | 0 | I | 01 | 0 | I | II | 18 |
| | I | II | 02 | AUS | AUTO | EIN | 19 |
| | STOP | START | 03 | AUS | HAND | AUTO | 20 |
| | HAND | AUTO | 04 | ÖRTLICH | AUS | FERN | 21 |
| | SENKEN | HEBEN | 05 | START | NORMAL | STOP | 22 |
| | REMOTE | LOCAL | 06 | OFF | 0 | ON | 23 |
| | I 0 | II | 07 | HAND | OFF | AUTO | 24 |
| | AUS BETRIEB | EIN | 08 | 0 | IN | START | 25 |
| | AUS 0 | EIN | 09 | MAN | | AUTO | 26 |
| | AUF 0 | AB | 10 | START | | STOP | 27 |
| | Entriegelt 0 | Verriegelt | 11 | HEBEN | | SENKEN | 28 |
| | OUT OF | HAND | 12 | OFF | | ON | 29 |
| | LOCAL REMOTE | AUTO | 13 | AUS | | EIN | 30 |
| | STOP 0 | START | 14 | HAND | | AUTO | 31 |
| | HAND 0 | AUTO | 15 | ON | | OFF | 32 |
| | AUF AUS | ZU | 16 | I | II | III | 33 |

| Code | Padlocking facility | | Code |
|------|---------------------|-------------------------------------|------|
| F | none | <input type="checkbox"/> | 0 |
| | centre | <input type="checkbox"/> | 1 |
| | right | <input checked="" type="checkbox"/> | 2 |
| | left | <input checked="" type="checkbox"/> | 3 |

Example for ordering code (Code 2)

| Content | Component | Contacts | Label | Code | Code | Code | Code | Code | Code | Code | Code | Code | Code | Code |
|---------|-----------|----------|----------------|------|--------|-------------------------------------|------|-------|------|------|------|------|------|------|
| A | B | C | D | E | F | G | H | I | J | K | L | M | N | O |
| Ex 23 | 6 | | 060 - II | 02 | none | <input type="checkbox"/> | 0 | Ex 23 | 6 | 060 | 02 | 0 | | |
| Ex 23 | 5 | | 034 - 0 - II | 07 | centre | <input type="checkbox"/> | 1 | Ex 23 | 5 | 034 | 07 | 1 | | |
| Ex 29 | 6 | | 060 - II | 02 | left | <input checked="" type="checkbox"/> | 3 | Ex 29 | 6 | 060 | 02 | 3 | | |
| Ex 29 | 6 | | 065 0 - I | 01 | right | <input checked="" type="checkbox"/> | 2 | Ex 29 | 6 | 065 | 01 | 2 | | |

Other combination available on request



UT4 PE



UT4



MKX 4

Technical data

Ex-Built-in components for individual control stations
Terminals

| | MXK 4-Ex | UT 4 / UT 4 PE |
|---------------------------------|-------------------------|------------------------------------------------------------------------------------------------------------|
| Marking accd. to 2014/34/EU | ⊕ II 2 G Ex e II | ⊕ II 2 G Ex e II ⊕ II 2 D Ex e II |
| EC-Type Examination Certificate | PTB 99 ATEX 3132U | KEMA 04 ATEX 2048 U |
| IECEX Certificate of Conformity | IECEX KEMA 06.0027U | |
| Marking accd. to IECEx | Ex e II | |
| Application temperature | -50 °C up to +55 °C | -50 °C up to +55 °C |
| Rated voltage | up to 420 V | up to 690 V |
| Rated current | max. 27 A | max. 30 A |
| Connecting terminals | 4 mm ² | 0.14 mm ² - 4 mm ² multi-wire 0.14 mm ² - 6 mm ² solid-wire |
| Dimensions (L x W x H) | 6.2 mm width | 47.7 mm x 6.2 mm |
| Weight | 0.01 kg | 0.01 kg |
| Type of mounting | NS 35 DIN rail mounting | NS 35 DIN rail mounting |
| Enclosure colour | grey | grey |

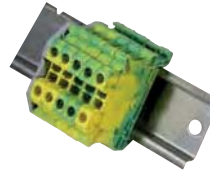
Built-in components - terminals



MKX 4



UT4



UT4 PE

4 Ordering code for component (Code 2) Code A - C - D - E - F

| Code | Component | Code |
|------|-----------------------------------------|------|
| A | KLM | KLM |
| Code | Content | Code |
| C | Ex-e | 1 |
| | Ex-i | 2 |
| Code | Terminal type | Code |
| D | Terminal block MXK4-Ex max. 6 terminals | B |
| | Terminal insert max. 3 terminals | E |
| | Terminals UT 4 / UT 4 PE | A |
| Code | Number of terminals | Code |
| E | 1 | 001 |
| | 2 | 002 |
| | 3 | 003 |
| | ect. | ect. |

Other variants, e.g. modules with resistors or fine-wire fuses, available on request.

Example for ordering code (Code 2)

| Content | Number | Ordering code | | | | |
|---------------------------------------------------------------------------------------------|--------|---------------|----------|----------|------------|-----------|
| | | A | C | D | E | F |
| Terminal block MXK 4-EX 6 x Ex-e terminals MXK 4 + 1 PE-terminal, Ex-e connection terminals | 6 | KLM | 1 | B | 006 | 01 |
| Terminal UK 4 12 x Ex-e terminals UT 4 + 2 PE-terminals, Ex-e terminals | 12 | KLM | 1 | A | 012 | 02 |



ZUB 17



ZUB 31



ZUB 22



ZUB 20

Ordering code for labels and locking facilities (Code 3) Code A - B - C - D

| Code | Label | | | Code |
|------|---------------------------------|---------------------------------------|-----------------|---------|
| A | 52.0 x 13 mm | | | ZUB 19 |
| | 37.0 x 17 mm with holder | | | ZUB 20 |
| Code | Inscription | | | Code |
| B | text to be determined | | | 1 ... 4 |
| Code | Padlocking facility | for operating element | Material | Code |
| C | with flap (blank) | pushbutton | stainless steel | ZUB 12 |
| | with flap (red) | pushbutton | stainless steel | ZUB 13 |
| | with flap without „0“ activated | double pushbutton | stainless steel | ZUB 16 |
| | with flap with „0“ activated | double pushbutton | stainless steel | ZUB 17 |
| | with flap (blank) | mushroom-head pushbutton | stainless steel | ZUB 02 |
| | with flap (red) | mushroom-head pushbutton | stainless steel | ZUB 01 |
| | with bolt and chain | mushroom-head pushbutton | stainless steel | ZUB 14 |
| | Fire alarm (red) with hammer | mushroom-head pushbutton | stainless steel | ZUB 15 |
| | Fire alarm (red) with hammer | activates alarm when broken | stainless steel | ZUB 05 |
| | with flap, not activated | pushbutton | plastic | ZUB 23 |
| | with flap, with activated | pushbutton | plastic | ZUB 24 |
| | with flap, with activated | mushroom-head pushbutton | plastic | ZUB 22 |
| | with flap, not activated | mushroom-head pushbutton | plastic | ZUB 21 |
| | protective collar yellow | pushbutton / mushroom-head pushbutton | light alloy | ZUB 30 |
| | protective collar red | pushbutton / mushroom-head pushbutton | light alloy | ZUB 31 |
| Code | Mounting area | | | Code |
| D | | | | 1 ... 4 |

Example for ordering code

| Content | Number | Ordering code | | | |
|---------------------------------------------|--------|---------------|---|--------|---|
| | | A | B | C | D |
| Protective collar yellow at mounting area 3 | X | - | - | ZUB 30 | 3 |

Built-in components - accessories



Metal flange FLM



Cable gland GK



Trumpet shaped cable gland TR



Screw plug SV

4 Ordering code for cable glands and flanges (Code 4) Code A - B - C - D - E

| Code | Content | Component | Code |
|-------------|-------------------|----------------------------------------|-------------|
| A | Entry type | Entry direct in enclosure | GEH |
| | | Entry via plastic flange | FLK |
| | | Entry via metal flange | FLM |
| Code | Content | Component | Code |
| B | Entry side | Entry side on bottom (left or right) | 1, 2 |
| | Position | Entry side on top (left or right) | 3, 4 |
| Code | Content | Component | Code |
| C | Entry element | Only entry | OE |
| | | Threaded entry | BO |
| | | Screw plug | SV |
| | | Cable plastic gland | GK |
| | | Cable metal* gland | GM* |
| | | Cable entry with plastic plug | GV |
| | | Trumpet-shaped plastic gland | TR |
| Code | Content | Component | Code |
| D | Size | M12, M16, M20, M25, M32, M40, M50, M63 | M.. |
| | | Ø21, Ø26 | d.. |
| Code | Content | Component | Code |
| E | Number | Number of entries | ..(No) |

Example for ordering code

| Content | Number | Ordering code | | | | |
|------------------------------------------------------------------------------------------------|--------|---------------|---|----|-----|----|
| | | A | B | C | D | E |
| 2 cable entries M25 moulded plastic, Version without plug direct from below into the enclosure | 2 | GEH | 1 | GK | M25 | 02 |



4.6

Ex-Control and Signal Units for Panel Mounting

Certified products for individual designed panels

4 CEAG control and indicating elements can be integrated in panels with a wall thickness of up to 5 mm.

The CEAG components for panel mounting, such as signal lamps, pushbuttons and switches, can be instantly plugged into the control and indicating elements on the panel via bayonet-ring fitting. The single-wire installation is clear and simple.

All panel-mounted apparatus can be retrofitted for cable connection with a slip-on strain relief and protective cover and is then completely certified. Planning and procurement of panel-mounted apparatus with different cable lengths is a thing of the past.

The completely certified measuring instruments for direct and indirect measurement are available for different amperage ranges. The instruments are equipped with a transformer for easy adaptation to other ranges on the interchangeable scales.



Features

- Bayonet-ring catch for quick one-hand mounting
- Complete certification of built-in apparatus
- Connection terminals for variable, low-cost wiring
- Standard actuator-element size of Ø 30.5 mm



Double pushbutton

Pushbutton

Technical data

Pushbutton Typ 418 811 and double pushbutton Typ 418 814

| | Complete certificate ¹⁾ | Component certificate |
|----------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Marking accd. to 2014/34/EU | II 2 G Ex de IIC T6 | II 2 G Ex de IIC/IIB Gb I M2 Ex de I Mb |
| EC-Type Examination Certificate | PTB 99 ATEX 1034 | IBExU 14 ATEX 1030 U |
| IECEX Certificate of Conformity | | IECEX IBE 14.0005 U |
| Marking accd. to IECEx | | Ex de IIC/IIB Gb Ex de I Mb |
| Operating temperature range | -55 °C up to + 80 °C | -45 °C up to +80 °C (IIC) -60 °C up to +80 °C (IIB) |
| Permissible ambient temperature | -55 °C up to + 50 °C | |
| Application temperature ²⁾ | | -45 °C up to +55 °C (IIC) -60 °C up to +55 °C (IIB) |
| Rated voltage | 400 V AC | 500 V AC |
| Rated current | 16 A | 16 A |
| Rated current with gold contact points | 0.4 A | 0.4 A |
| Rated making-/rated breaking capacity accd. EN 60947-5-1 | AC-15: U _e 250 V / I _e 6 A U _e 400 V / I _e 4 A DC-13: U _e 24 V / I _e 6 A U _e 220 V / I _e 1 A | AC-15: U _e 250 V / I _e 6 A U _e 500 V / I _e 4 A DC-13: U _e 24 V / I _e 6 A U _e 220 V / I _e 1 A |
| Connecting terminals | 2 x 2.5 mm ² | 2 x 2.5 mm ² |
| Degree of protection accd. to EN 60529 | IP66 ¹⁾ / IP65 ¹⁾ (double pushbutton) | IP00 |
| Dimensions (L x W x H) | approx. 140 x 38 x 67 mm | approx. 91 x 38 x 57 mm |
| Weight | 0.25 kg | 0.20 kg |
| Cable gland | M25x1.5 Ø 6- 15 mm | -- |
| Type of mounting | Ø 30.3 mm fixing hole | Ø 30.3 mm fixing hole |
| Enclosure colour | grey | grey |
| Gasket material | Neoprene (standard), Fluoric Silicone or Viton on request | |

¹⁾ with protective cover IP66 / IP65

²⁾ The limits of the operating temperature range and the max. permissible temperature rise of the components have to be taken into account. See also pages 2.4.34/35.

Ex-pushbutton for panel mounting



Pushbutton



Double pushbutton

4 Ordering code for components Code A - B - C1 - (C2)

Code **A** **B** **C2** **C1**
 Order No. **GHG 418 81__** **R** **—** **—**

| Code | Component | Code |
|------|-------------------|-------------|
| A | Pushbutton | GHG 418 811 |
| | Double pushbutton | GHG 418 814 |

| Code | Circuit | Contacts | Code | |
|------|-------------|----------|-----------------------|---------------------|
| | | | silver contact points | gold contact points |
| B | 2 NC | | 3 | 6 |
| | 2 NO | | 4 | 7 |
| | 1 NO + 1 NC | | 5 | 8 |

| Code | Inscription (label) | Code | Inscription | Code |
|--------|---------------------|------|----------------|------|
| C1, C2 | 0, I, Start, Stop | 01 | 0 | 02 |
| | I | 03 | I I | 04 |
| | | 05 | STOP | 06 |
| | START | 07 | LANGSAM | 09 |
| | SCHNELL | 10 | EMERG.STOP | 11 |
| | | 12 | | 13 |
| | ARRET | 14 | MARCHE | 15 |
| | AUF | 16 | AB | 17 |
| | Neutral white | 18 | Neutral grün | 19 |
| | 0, I, Arret, Marche | 20 | UP | 24 |
| | DOWN | 25 | ZU | 26 |
| | ON | 27 | OFF | 28 |
| | + | 30 | - | 31 |
| | Neutral rot | 33 | Neutral yellow | 34 |
| | EIN | 36 | AUS | 37 |
| | Neutral black | 38 | AUTO | 39 |
| | Neutral blau | 40 | HAND | 50 |
| | SENKEN | 51 | HEBEN | 52 |
| | LINKS | 53 | RECHTS | 54 |
| | FAST | 55 | SLOW | 56 |
| | RESET | 57 | OPEN | 58 |



Double pushbutton



Pushbutton

Example for order No

| Content | Label | Order No. | | | |
|-----------------------------------------------------------------------------|---------------------|----------------------|--------------|-----------|----|
| | | A | B | C1 | C2 |
| Circuit | | | | | |
| Pushbutton without protective cover, silver contact points | | | | | |
| 2 NC | (0, I, START, STOP) | GHG 418 811 3 | R0001 | – | |
| 2 NO | (0, I, START, STOP) | GHG 418 811 4 | R0001 | – | |
| 1 NO + 1 NC | (0, I, START, STOP) | GHG 418 811 5 | R0001 | – | |
| Double pushbutton without protective cover, with gold contact points | | | | | |
| 2 NC | (0, I, START, STOP) | GHG 418 814 6 | R00 | 01 | |
| 2 NO | (0, I, START, STOP) | GHG 418 814 7 | R00 | 01 | |
| 1 NO + 1 NC | (0, I, START, STOP) | GHG 418 814 8 | R00 | 01 | |

Accessories

| Type | OU | Order No. |
|-------------------------------|----|---------------------------|
| Protective cover to meet IP66 | 5 | GHG 410 1939 R0002 |

Please pay attention that only order units (OU) according to the ordering details can be delivered.

Ex-pushbutton for panel mounting

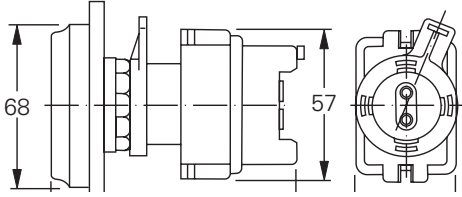


Pushbutton

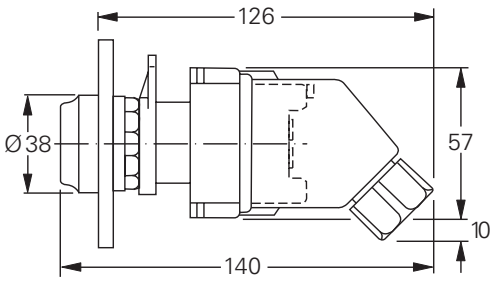


Double pushbutton

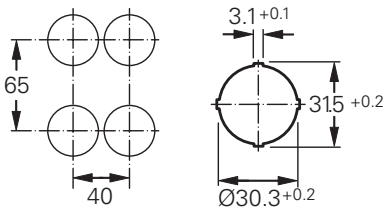
4 Dimension drawing



(Double-)pushbutton without protective cover



(Double-)pushbutton with protective cover



Minimum distances



Key-operated pushbutton

Technical data

Key-operated pushbutton Typ 418 812

| | Complete certificate ¹⁾ | Component certificate |
|----------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Marking accd. to 2014/34/EU | II 2 G Ex de IIC T6 | II 2 G Ex de IIC/IIB Gb I M2 Ex de I Mb |
| EC-Type Examination Certificate | PTB 99 ATEX 1034 | IBExU 14 ATEX 1030 U |
| IECEX Certificate of Conformity | | IECEX IBE 14.0005 U |
| Marking accd. to IECEx | | Ex de IIC/IIB Gb Ex de I Mb |
| Operating temperature range | -55 °C up to + 80 °C | -45 °C up to +80 °C (IIC) -60 °C up to +80 °C (IIB) |
| Permissible ambient temperature | -55 °C up to + 50 °C | |
| Application temperature ²⁾ | | -45 °C up to +55 °C (IIC) -60 °C up to +55 °C (IIB) |
| Rated voltage | 400 V AC | 500 V AC |
| Rated current | 16 A | 16 A |
| Rated current with gold contact points | 0.4 A | 0.4 A |
| Rated making-/rated breaking capacity accd. EN 60947-5-1 | AC-15: U _b 250 V / I _b 6 A U _b 400 V / I _b 4 A DC-13: U _b 24 V / I _b 6 A U _b 220 V / I _b 1 A | AC-15: U _b 250 V / I _b 6 A U _b 500 V / I _b 4 A DC-13: U _b 24 V / I _b 6 A U _b 220 V / I _b 1 A |
| Connecting terminals | 2 x 2.5 mm ² | 2 x 2.5 mm ² |
| Degree of protection accd. to EN 60529 | IP661) | IP00 |
| Dimensions (L x W x H) | approx. 182 x 38 x 67 mm | approx. 133 x 38 x 57 mm |
| Weight | 0.30 kg | 0.3 kg |
| Cable gland | M25x1.5 Ø 6 - 15 mm | -- |
| Type of mounting | Ø 30.3 mm fixing hole | Ø 30.3 mm fixing hole |
| Enclosure colour | grey | grey |
| Gasket material | Neoprene (standard), Fluoric Silicone or Viton on request | |

¹⁾ with protective cover IP66

²⁾ The limits of the operating temperature range and the max. permissible temperature rise of the components have to be taken into account. See also pages 2.4.34/35.

Ex-key-operated pushbutton for panel mounting



Key-operated pushbutton

4 Ordering code for components Code A - B - C1 - (C2)

Code A B C
 Order No. GHG 418 812 _ R00 _

| Code | Component | Contacts | | Code | Code |
|------|-------------------------|---------------|-----------------|-----------------------|---------------------|
| Code | Circuit | | | silver contact points | gold contact points |
| A | Key-operated pushbutton | | | | GHG 41 812 |
| B | 2 NC | | 3 | | 6 |
| | 2 NO | | 4 | | 7 |
| | 1 NO + 1 NC | | 5 | | 8 |
| Code | released | Key | engaged | Key | Code |
| C | lockable | removable | lockable | removable | 10 |
| | lockable | removable | lockable | not removable | 11 |
| | lockable | removable | not lockable | not removable | 12 |
| | lockable | not removable | lockable | removable | 13 |
| | not lockable | not removable | lockable | removable | 14 |
| | not lockable | removable | autom. lockable | removable | 15 |

Example for order No.

| Content | Label | | Order No. | | |
|---------------------------------------------------------------------------------|-------------------------|---------------------------------|-------------|-------|----|
| | released | engaged | A | B | C |
| Key-operated switch with silver contact points, without protective cover | | | | | |
| 1 NO + 1 NC | lockable, Key removable | lockable, Key removable | GHG 418 812 | 5 R00 | 10 |
| 2 NC | lockable, Key removable | lockable, Key not removable | GHG 418 812 | 3 R00 | 11 |
| 2 NO | lockable, Key removable | not lockable, Key not removable | GHG 418 812 | 4 R00 | 12 |
| Key-operated switch with gold contact points, without protective cover | | | | | |
| 1 NO + 1 NC | lockable, Key removable | lockable, Key removable | GHG 418 812 | 8 R00 | 10 |
| 2 NC | lockable, Key removable | lockable, Key not removable | GHG 418 812 | 6 R00 | 11 |
| 2 NO | lockable, Key removable | not lockable, Key not removable | GHG 418 812 | 7 R00 | 12 |

Accessories

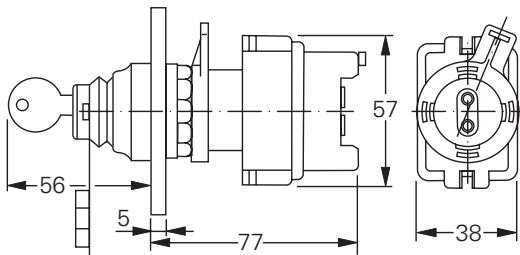
| Type | OU | Order No. |
|-------------------------------|----|--------------------|
| Protective cover to meet IP66 | 5 | GHG 410 1939 R0002 |

Please pay attention that only order units (OU) according to the ordering details can be delivered.

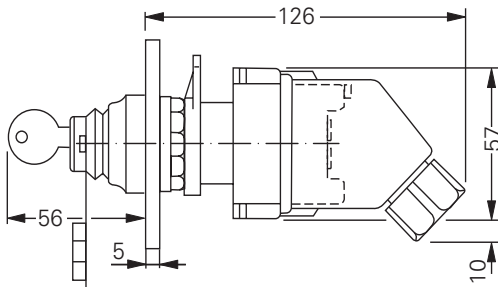


Key-operated pushbutton

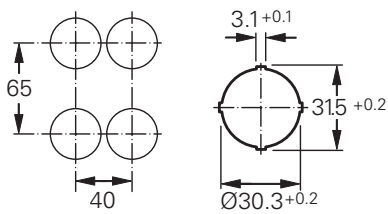
Dimension drawing



Key-operated switch without protective cover



Key-operated switch with protective cover



Minimum distances

Ex-key-operated switch for panel mounting



Key-operated switch

4 Technical data

Key-operated switch Type 418 8195

| | Complete certificate ¹⁾ | Component certificate |
|----------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Marking accd. to 2014/34/EU | ⊕ II 2 G Ex de IIC T6 | ⊕ II 2 G Ex de IIC/IIB Gb ⊕ I M2 Ex de I Mb |
| EC-Type Examination Certificate | PTB 99 ATEX 1034 | IBExU 14 ATEX 1030 U |
| IECEX Certificate of Conformity | | IECEX IBE 14.0005 U |
| Marking accd. to IECEx | | Ex de IIC/IIB Gb Ex de I Mb |
| Operating temperature range | -55 °C up to + 80 °C | -45 °C up to +80 °C (IIC) -60 °C up to +80 °C (IIB) |
| Permissible ambient temperature | -25 °C up to + 50 °C | |
| Application temperature ²⁾ | | -45 °C up to +55 °C (IIC) -60 °C up to +55 °C (IIB) |
| Rated voltage | 400 V AC | 500 V AC |
| Rated current | 16 A | 16 A |
| Rated current with gold contact points | 0.4 A | 0.4 A |
| Rated making-/rated breaking capacity accd. EN 60947-5-1 | AC-15: U _e 250 V / I _e 6 A U _e 400 V / I _e 4 A DC-13: U _e 24 V / I _e 6 A U _e 220 V / I _e 1 A | AC-15: U _e 250 V / I _e 6 A U _e 500 V / I _e 4 A DC-13: U _e 24 V / I _e 6 A U _e 220 V / I _e 1 A |
| Connecting terminals | 2 x 2.5 mm ² | 2 x 2.5 mm ² |
| Degree of protection accd. to EN 60529 | IP66 ¹⁾ | IP00 |
| Dimensions (L x W x H) | approx. 188 x 38 x 67 mm | approx. 139 x 38 x 57 mm |
| Weight | 0.30kg | 0.25 kg |
| Cable gland | M25x1.5 Ø 6 - 15 mm | -- |
| Type of mounting | Ø 30.3 mm fixing hole | Ø 30.3 mm fixing hole |
| Enclosure colour | grey | grey |
| Gasket material | Neoprene (standard), Fluoric Silicone or Viton on request | |

¹⁾ with protective cover IP66

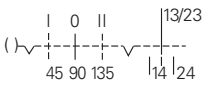
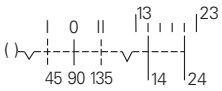
²⁾ The limits of the operating temperature range and the max. permissible temperature rise of the components have to be taken into account. See also pages 2.4.34/35.



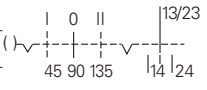
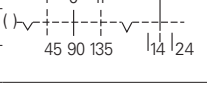
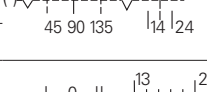
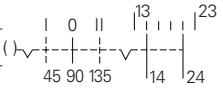
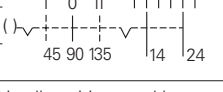
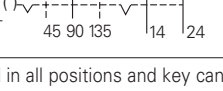
Key-operated switch

Ordering code for components A - B - C1 - (C2)

Code A B C
 Order No. GHG 418 8195 R5 _ _

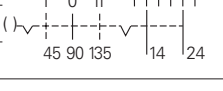
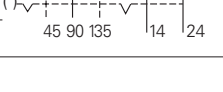
| Code | Component | Code | |
|------|---------------------|-----------------------------------------------------------------------------------|------------------------------------------------------|
| A | Key-operated switch | GHG 418 8195 | |
| Code | Circuit | Contacts | Code silver contact points gold contact points |
| B | 2 NC |  | 4 7 |
| | 2 NO |  | 5 8 |
| Code | Inscription | Code | |
| C | I - 0 - II | 07 | |
| | Fern - 0 - Ort | 08 | |
| | Hand - 0 - Auto | 09 | |

Example for order No.

| Switching mechanism | Contact-system | Label | Order No. | | |
|------------------------------------------------------|-------------------------------------------------------------------------------------|-------------|--------------|-------|----|
| | | | A | C | D |
| Key-operated switch, without protective cover | | | | | |
| 4 |  | I 0 II | GHG 418 8195 | R 5 4 | 07 |
| 4 |  | FERN 0 ORT | GHG 418 8195 | R 5 4 | 08 |
| 4 |  | HAND 0 AUTO | GHG 418 8195 | R 5 4 | 09 |
| 5 |  | I 0 II | GHG 418 8195 | R 5 5 | 07 |
| 5 |  | FERN 0 ORT | GHG 418 8195 | R 5 5 | 08 |
| 5 |  | HAND 0 AUTO | GHG 418 8195 | R 5 5 | 09 |

Switch can be locked in all positions and key can be removed in all positions

Key-operated switch with gold contact points, without protective cover

| | | | | | |
|---|-------------------------------------------------------------------------------------|-------------|--------------|-------|----|
| 4 |  | I 0 II | GHG 418 8195 | R 5 7 | 07 |
| 4 |  | FERN 0 ORT | GHG 418 8195 | R 5 7 | 08 |
| 4 |  | HAND 0 AUTO | GHG 418 8195 | R 5 7 | 09 |
| 5 |  | I 0 II | GHG 418 8195 | R 5 8 | 07 |
| 5 |  | FERN 0 ORT | GHG 418 8195 | R 5 8 | 08 |
| 5 |  | HAND 0 AUTO | GHG 418 8195 | R 5 8 | 09 |

Accessories

| Type | OU | Order No. |
|-------------------------------|----|--------------------|
| Protective cover to meet IP66 | 5 | GHG 410 1939 R0002 |

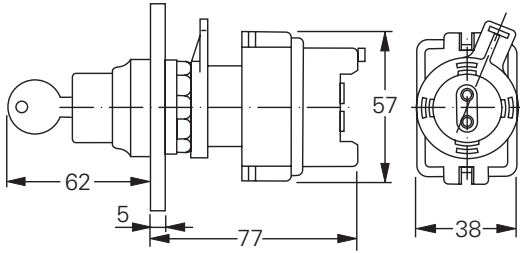
Please pay attention that only order units (OU) according to the ordering details can be delivered.

Ex-key-operated switch for panel mounting

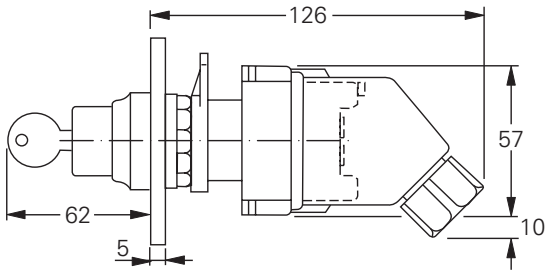


Key-operated switch

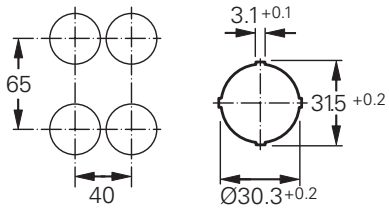
4 Dimension drawing



Key-operated switch without protective cover



Key-operated switch with protective cover



Minimum distances



Mushroom-head pushbutton



Emergency-Stop pushbutton

Technical data

Mushroom-head pushbutton (Emergency stop and normal version)

| | Complete certificate ¹⁾ | Component certificate |
|----------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Marking accd. to 2014/34/EU | II 2 G Ex de IIC T6 | II 2 G Ex de IIC/IIB Gb I M2 Ex de I Mb |
| EC-Type Examination Certificate | PTB 99 ATEX 1034 | IBExU 14 ATEX 1030 U |
| IECEX Certificate of Conformity | | IECEX IBE 14.0005 U |
| Marking accd. to IECEx | | Ex de IIC/IIB Gb Ex de I Mb |
| Operating temperature range | -55°C up to + 80 °C | -45 °C up to +80 °C (IIC) -60 °C up to +80 °C (IIB) |
| Permissible ambient temperature | -25 °C up to + 50 °C | |
| Application temperature ²⁾ | | -45 °C up to +55 °C (IIC) -60 °C up to +55 °C (IIB) |
| Rated voltage | 400 V AC | 500 V AC |
| Rated current | 16 A | 16 A |
| Rated current with gold contact points | 0.4 A | 0.4 A |
| Rated making-/rated breaking capacity accd. EN 60947-5-1 | AC-15: U _b 250 V / I _b 6 A U _b 400 V / I _b 4 A DC-13: U _b 24 V / I _b 6 A U _b 220 V / I _b 1 A | AC-15: U _b 250 V / I _b 6 A U _b 500 V / I _b 4 A DC-13: U _b 24 V / I _b 6 A U _b 220 V / I _b 1 A |
| Connecting terminals | 2 x 2.5 mm ² | 2 x 2.5 mm ² |
| Degree of protection accd. to EN 60529 | IP661) | IP00 |
| Dimensions (L x W x H) | approx. 156 x 38 x 67 mm | approx. 139 x 38 x 57 mm |
| Weight | 0.30 kg | 0.25 kg |
| Cable gland | M25x1.5 Ø 6 - 15 mm | -- |
| Type of mounting | Ø 30.3 mm fixing hole | Ø 30.3 mm fixing hole |
| Enclosure colour | grey | grey |
| Gasket material | Neoprene (standard), Fluoric Silicone or Viton on request | |

¹⁾ with protective cover IP66

²⁾ The limits of the operating temperature range and the max. permissible temperature rise of the components have to be taken into account. See also pages 2.4.34/35.

Ex-mushroom-head pushbutton for panel mounting



Emergency-Stop pushbutton

Mushroom-head pushbutton

4 Ordering code for components Code A - B - C - D - E

Code **A** **B** **C** **D** **E**
 Order No. **GHG 418 815** _ **R** _ _ _

| Code | Component | Code | | | |
|------|----------------------------------------------------------------|-----------------|---------------------------|-----------------------|---------------------|
| A | Mushroom-head pushbutton | GHG 418 815 | | | |
| Code | Circuit | Contacts manual | Code key released | silver contact points | gold contact points |
| B | 2 NC | | | 3 | 6 |
| | 2 NO | | | 4 | 7 |
| | 1 NO + 1 NC | | | 5 | 8 |
| Code | Mushroom-head pushbutton inscription and colour | | | | Code |
| C | emergency stop EMERGENCY STOP (German - English) ¹⁾ | | | | 1 |
| | emergency stop ARRET D'URGENCE (German - French) ¹⁾ | | | | 4 |
| | red | | | | 1 |
| | yellow ¹⁾ | | | | 2 |
| | black ²⁾ | | | | 3 |
| Code | released | engaged | unlocking | Code | |
| D | not lockable | not lockable | n/a (pushbutton function) | 1 ²⁾ | |
| | not lockable | lockable | hand released | 2 ¹⁾ | |
| | not lockable | lockable | key released | 3 ¹⁾ | |
| Code | Inscription (label) | Code | Inscription | Code | |
| E | 0, I, Start, Stop | 01 | 0 | 02 | |
| | I | 03 | II | 04 | |
| | | 05 | STOP | 06 | |
| | START | 07 | NOT-AUS1) | 00 | |

¹⁾ only emergency stop mushroom head pushbutton

²⁾ only mushroom-head pushbutton normal version

Ex-mushroom-head pushbutton for panel mounting



Mushroom-head pushbutton



Emergency-Stop pushbutton

Example for order No.

| Contact system | Pushbutton colour | Inscription | Order No. | | | | |
|----------------------------------------------------------------------------------------------------------|-------------------|-------------------|----------------------|------------|----------|-----------|---|
| | | | A | B | C | D | E |
| EMERGENCY STOP mushroom-head pushbutton red, with silver contact points, without protective cover | | | | | | | |
| content with inscription D/E, hand released | | | | | | | |
| 2 NC | red | German/English | GHG 418 815 3 | R 1 | 2 | 00 | |
| 2 NC | red | German/French | GHG 418 815 3 | R 4 | 2 | 00 | |
| 2 NO | red | German/English | GHG 418 815 4 | R 1 | 2 | 00 | |
| 2 NO | red | German/French | GHG 418 815 4 | R 4 | 2 | 00 | |
| 1 NO + 1 NC | red | German/English | GHG 418 815 5 | R 1 | 2 | 00 | |
| 1 NO + 1 NC | red | German/French | GHG 418 815 5 | R 4 | 2 | 00 | |
| Version with inscription D/E, key released | | | | | | | |
| 2 NC | red | German/English | GHG 418 815 3 | R 1 | 3 | 00 | |
| 2 NC | red | German/French | GHG 418 815 3 | R 4 | 3 | 00 | |
| 2 NO | red | German/English | GHG 418 815 4 | R 1 | 3 | 00 | |
| 2 NO | red | German/French | GHG 418 815 4 | R 4 | 3 | 00 | |
| 1 NO + 1 NC | red | German/English | GHG 418 815 5 | R 1 | 3 | 00 | |
| 1 NO + 1 NC | red | German/French | GHG 418 815 5 | R 4 | 3 | 00 | |
| Mushroom-head pushbutton, with silver contact points, without protective cover | | | | | | | |
| version with inscription D/E, pushbutton function only | | | | | | | |
| 2 NC | black | 0, I, START, STOP | GHG 418 815 3 | R 3 | 1 | 01 | |
| 2 NC | yellow | 0, I, START, STOP | GHG 418 815 3 | R 2 | 1 | 01 | |
| 2 NO | black | 0, I, START, STOP | GHG 418 815 4 | R 3 | 1 | 01 | |
| 2 NO | yellow | 0, I, START, STOP | GHG 418 815 4 | R 2 | 1 | 01 | |
| 1 NO + 1 NC | black | 0, I, START, STOP | GHG 418 815 5 | R 3 | 1 | 01 | |
| 1 NO + 1 NC | yellow | 0, I, START, STOP | GHG 418 815 5 | R 2 | 1 | 01 | |

Accessories

| Type | OU | Order No. |
|-------------------------------|----|---------------------------|
| Protective cover to meet IP66 | 5 | GHG 410 1939 R0002 |

Please pay attention that only order units (OU) according to the ordering details can be delivered.

Ex-mushroom-head pushbutton for panel mounting



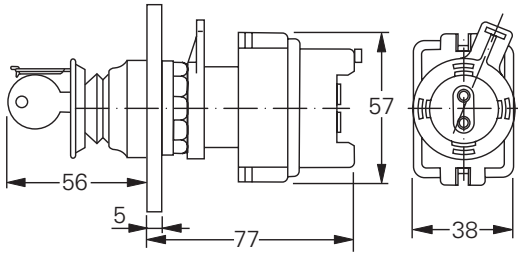
Mushroom-head pushbutton



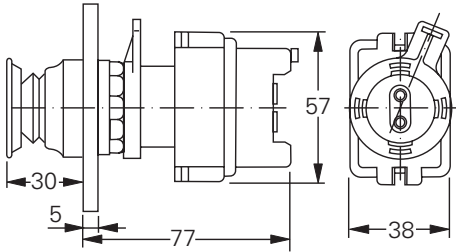
Mushroom-head pushbutton

4

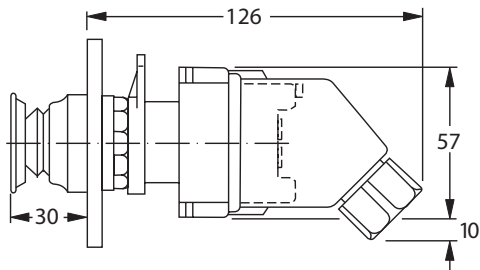
Dimension drawing



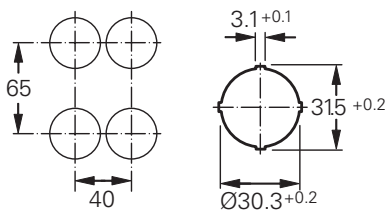
Mushroom-head pushbutton without protective cover with key release



Mushroom-head pushbutton without protective cover



Mushroom-head pushbutton with protective cover



Minimum distances



Mini-control switch

Technical data

Mini-control switch Type 418 8190

| | Complete certificate ¹⁾ | Component certificate |
|----------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Marking accd. to 2014/34/EU | II 2 G Ex de IIC T6 | II 2 G Ex de IIC/IIB Gb I M2 Ex de I Mb |
| EC-Type Examination Certificate | PTB 99 ATEX 1034 | IBExU 14 ATEX 1030 U |
| IECEX Certificate of Conformity | | IECEX IBE 14.0005 U |
| Marking accd. to IECEx | | Ex de IIC/IIB Gb Ex de I Mb |
| Operating temperature range | -55 °C up to + 80 °C | -45 °C up to +80 °C (IIC) -60 °C up to +80 °C (IIB) |
| Permissible ambient temperature | -55 °C up to + 50 °C | |
| Application temperature ²⁾ | | -45 °C up to +55 °C (IIC) -60 °C up to +55 °C (IIB) |
| Rated voltage | 400 V AC | 500 V AC |
| Rated current | 16 A | 16 A |
| Rated current with gold contact points | 0.4 A | 0.4 A |
| Rated making-/rated breaking capacity accd. EN 60947-5-1 | AC-15: U _b 250 V / I _b 6 A U _b 400 V / I _b 4 A DC-13: U _b 24 V / I _b 6 A U _b 220 V / I _b 1 A | AC-15: U _b 250 V / I _b 6 A U _b 500 V / I _b 4 A DC-13: U _b 24 V / I _b 6 A U _b 220 V / I _b 1 A |
| Connecting terminals | 2 x 2.5 mm ² | 2 x 2.5 mm ² |
| Degree of protection accd. to EN 60529 | IP661) | IP00 |
| Dimensions (L x W x H) | approx. 150 x 38 x 67 mm | approx. 101 x 38 x 57 mm |
| Weight | 0.25 kg | 0.20kg |
| Cable gland | M25x1.5 Ø 6- 15 mm | -- |
| Type of mounting | Ø 30.3 mm fixing hole | Ø 30.3 mm fixing hole |
| Enclosure colour | grey | grey |
| Gasket material | Neoprene (standard), Fluoric Silicone or Viton on request | |

¹⁾ with protective cover IP66

²⁾ The limits of the operating temperature range and the max. permissible temperature rise of the components have to be taken into account. See also pages 2.4.34/35.

Ex-mini-control switch for panel mounting



Mini-control switch

4 Ordering code for components Code A - B - C - D - E

Code **A** **B** **C** **D** **E**
 Order No. **GHG 418 819** _ **R** _ _ _

| Code | Component | Code |
|------|--------------------------------|-------------|
| A | Mini-control switch | GHG 418 819 |
| Code | Contact material | Code |
| B | silver | 0 |
| | gold | 1 |
| Code | Switching system | Code |
| C | spring – engaging – spring | 4 |
| | engaging – engaging – engaging | 5 |
| | engaging – engaging | 6 |
| | spring – engaging – engaging | 7 |
| | engaging – engaging – spring | 8 |
| Code | Contacts | Code |
| D | | 0 |
| | | 1 |
| | | 2 |
| | | 3 |
| | | 5 |
| | | 7 |

¹⁾ only emergency stop mushroom head pushbutton

²⁾ only mushroom-head pushbutton normal version

| Code | Inscription (label) | Code | Inscription (label) | Code |
|------|---------------------|---------|---------------------|---------|
| E | 0 | I | 01 | HAND |
| | I | II | 02 | AUF |
| | STOP | START | 03 | HAND |
| | HAND | AUTO | 04 | 0 |
| | SENKEN | HEBEN | 05 | AUS |
| | REMOTE | LOCAL | 06 | AUS |
| | I 0 | II | 07 | ÖRTLICH |
| | AUS | BETRIEB | 08 | START |
| | AUS | 0 | 09 | OFF |
| | AUF | 0 | 10 | HAND |
| | STOP | 0 | 14 | 0 |
| | | | | IN |
| | | | | START |
| | | | | 15 |
| | | | | 16 |
| | | | | 17 |
| | | | | 18 |
| | | | | 19 |
| | | | | 20 |
| | | | | 21 |
| | | | | 22 |
| | | | | 23 |
| | | | | 24 |
| | | | | 25 |



Mini-control switch

Example for order No.

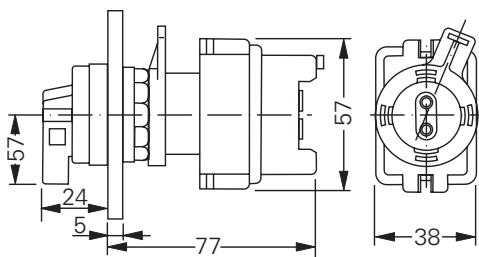
| Switching mechanism | Code | Circuit | Code | Label | Order No. | | | |
|------------------------------------------------------|------|---------|------|--------|--------------------|--------------|----------|-----------|
| | | | | | A | B | C | D |
| Key-operated switch, without protective cover | | | | | | | | |
| | 6 | | 0 | I II | GHG 418 819 | 0 R 6 | 0 | 02 |
| | 6 | | 2 | 0 I | GHG 418 819 | 0 R 6 | 2 | 01 |
| | 6 | | 1 | I II | GHG 418 819 | 0 R 6 | 1 | 02 |
| | 5 | | 3 | I 0 II | GHG 418 819 | 0 R 5 | 3 | 07 |
| | 5 | | 5 | I 0 II | GHG 418 819 | 0 R 5 | 5 | 07 |
| | 8 | | 7 | 0 I | GHG 418 819 | 0 R 8 | 7 | 01 |

Accessories

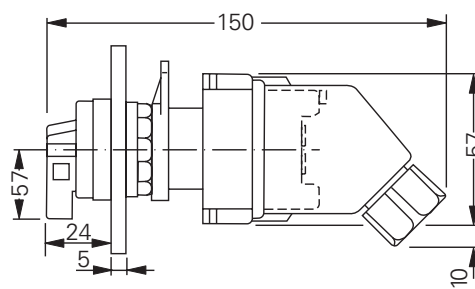
| Type | OU | Order No. |
|-------------------------------|----|---------------------------|
| Protective cover to meet IP66 | 5 | GHG 410 1939 R0002 |

Please pay attention that only order units (OU) according to the ordering details can be delivered.

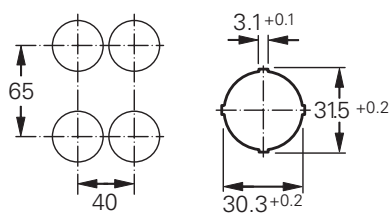
Dimension drawing



Mini-control switch without protective cover



Mini-control switch with protective cover



Minimum distances

Ex-control switch GHG 249 for panel mounting



Control switch GHG 249

4 Technical data

Control switch GHG 249

| | |
|----------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Marking accd. to 2014/34/EU | Ⓢ II 2 G Ex de IIC/IIB Gb Ⓢ II G Ex de ib [ia/ib] IIC/IIB Gb |
| EC-Type Examination Certificate | BVS 14 ATEX E 076 U ¹⁾ |
| Operating temperature range | -45 °C up to +80 °C (IIC) -55 °C up to +80 °C (IIB) |
| Application temperature ²⁾ | -45 °C up to +80 °C (IIC) -55 °C up to +80 °C (IIB) |
| IECEX Certificate of Conformity | IECEX BVS 14.0047 U |
| Marking accd. to IECEx | Ex de IIC Gb Ex de IIB Gb |
| Rated voltage | up to 690 V AC |
| Rated current | up to 20 A |
| Rated current with gold contact points | up to 0.4 A |
| Rated making-/rated breaking capacity accd. EN 60947-5-1 | AC-3: U _e 230 V / I _e 8 A U _e 400 V / I _e 6 A AC-11: U _e 24 V / I _e 6 A U _e 230 V / I _e 0.4 A |
| Connecting terminals | 2 x 2.5 mm ² flexibel, 6 mm ² starr |
| Weight | 0.55 kg |
| Type of mounting | Ø 30.3 mm fixing hole |
| Enclosure colour | grey |

¹⁾ Must be installed in a certified enclosure

²⁾ The limits of the operating temperature range and the max. permissible temperature rise of the components have to be taken into account. See also pages 2.4.34/35.



Control switch GHG 249

Ordering code for component (Code 2) Code A - B - C - D ¹⁾

| Code | Component | | Code | | | | |
|-------------|---------------------------------------|-------------|---------------------------------------|-------------|--------|--------|----|
| A | Control switch GHG 249 | | 249 | | | | |
| Code | Switching system | | Code | | | | |
| B | spring – engaging – spring | | 4 | | | | |
| | engaging – engaging – engaging | | 5 | | | | |
| | engaging – engaging | | 6 | | | | |
| | spring – engaging – engaging | | 7 | | | | |
| | engaging – engaging – spring | | 8 | | | | |
| D | Contacts Silver contact points | Code | Contacts Silver contact points | Code | | | |
| | | 019 | | 037 | | | |
| | | 021 | | 038 | | | |
| | | 024 | | 039 | | | |
| | | 033 | | 049 | | | |
| Code | Inscription (labels) | Code | Inscription (labels) | Code | | | |
| E | 0 | I | 01 | 0 | I | II | 18 |
| | I | II | 02 | AUS | AUTO | EIN | 19 |
| | STOP | START | 03 | AUS | HAND | AUTO | 20 |
| | HAND | AUTO | 04 | ÖRTLICH | AUS | FERN | 21 |
| | SENKEN | HEBEN | 05 | START | NORMAL | STOP | 22 |
| | REMOTE | LOCAL | 06 | OFF | 0 | ON | 23 |
| | I | 0 | 07 | HAND | OFF | AUTO | 24 |
| | AUS | BETRIEB | 08 | 0 | IN | START | 25 |
| | AUS | 0 | 09 | MAN | | AUTO | 26 |
| | AUF | 0 | 10 | START | | STOP | 27 |
| | Enriegelt | 0 | 11 | HEBEN | | SENKEN | 28 |
| | OUT | OF | 12 | OFF | | ON | 29 |
| | LOCAL | REMOTE | 13 | AUS | | EIN | 30 |
| | STOP | 0 | 14 | HAND | | AUTO | 31 |
| | HAND | 0 | 15 | ON | | OFF | 32 |
| | AUF | AUS | 16 | I | II | III | 33 |

Versions with gold contact points are available on request.

¹⁾ The code will represent only a selected part of configuration.

Ex-control switch GHG 249 for panel mounting

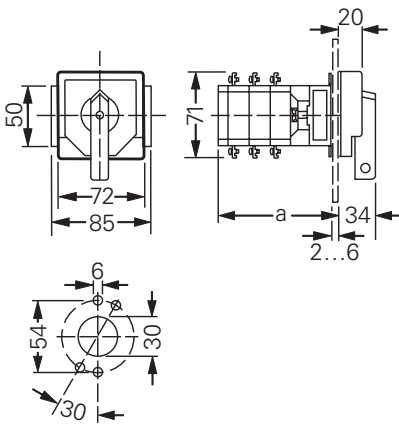


Control switch GHG 249

4 Example for ordering code (Code 2)

| Content A | Switching system | Code B | Contact | Code C | Label | Code D | Order code |
|--------------|---------------------|-----------|---------|-----------|------------------|-----------|--------------------|
| GHG 249 | | 6 | | 019 | 0 - I | 01 | GHG 249 0004 R0056 |
| GHG 249 | | 6 | | 037 | STOP - 0 - START | 14 | GHG 249 0004 R0039 |
| GHG 249 | | 6 | | 033 | I - II | 02 | GHG 249 0004 R0084 |

Dimension drawing



| Control switch with | dimension a |
|-----------------------|-------------|
| 1 switch compartment | 63 mm |
| 2 switch compartments | 81 mm |
| 3 switch compartments | 99 mm |



Potentiometer

Technical data

Potentiometer Type 418 8131

| | Complete certificate ¹⁾ | Component certificate |
|----------------------------------------|------------------------------------|--------------------------------------------------------|
| Marking accd. to 2014/34/EU | II 2 G Ex de IIC T6 | II 2 G Ex de IIC/IIB Gb I M2 Ex de I Mb |
| EC-Type Examination Certificate | PTB 99 ATEX 1034 | IBExU 14 ATEX 1030 U |
| IECEX Certificate of Conformity | | IECEX IBE 14.0005 U |
| Marking accd. to IECEx | | Ex de IIC/IIB Gb Ex de I Mb |
| Operating temperature range | -55 °C up to + 80 °C | -45 °C up to +80 °C (IIC) -60 °C up to +80 °C (IIB) |
| Permissible ambient temperature | -55 °C up to + 50 °C | |
| Application temperature ²⁾ | | -45 °C up to +55 °C (IIC) -60 °C up to +55 °C (IIB) |
| Rated voltage | up to 250 V AC | up to 250 V AC |
| Power consumption (VA) | max. 1 W | max. 1 W |
| Resistance range | 100 - 10000 Ω | 100 - 10000 Ω |
| Tolerance | ± 20 % | ± 20 % |
| Connecting terminals | 2 x 2.5 mm ² | 2 x 2.5 mm ² |
| Degree of protection accd. to EN 60529 | IP661) | IP00 |
| Dimensions (L x W x H) | 101 x 38 x 57 mm | 150 x 38 x 57 mm |
| Weight | 0.20 kg | 0.15 kg |
| Type of mounting | Ø 30.3 mm fixing hole | Ø 30.3 mm fixing hole |
| Enclosure colour | grey | grey |
| Angle of rotation | 270° | 270° |
| Scale | 0 - 100 % | 0 - 100 % |

¹⁾ with protective cover IP66

²⁾ The limits of the operating temperature range and the max. permissible temperature rise of the components have to be taken into account. See also pages 2.4.34/35.

Ex-potentiometer for panel mounting



Potentiometer

4 Ordering code for component (Code 2) - code A - B

| Code | A | B |
|-----------|------------------|---|
| Order No. | GHG 481 8131 R00 | — |

Ordering code for component (Code 2) - code A - B

| Code | Component | Code |
|------|---------------|------------------|
| A | Potentiometer | GHG 418 8131 R00 |
| Code | Resistance | Code |
| C | 0 - 100 Ohm | 11 |
| | 0 - 220 Ohm | 12 |
| | 0 - 470 Ohm | 13 |
| | 0 - 1000 Ohm | 14 |
| | 0 - 2200 Ohm | 17 |
| | 0 - 4700 Ohm | 15 |
| | 0 - 10000 Ohm | 16 |

Example for ordering code (Code 2)

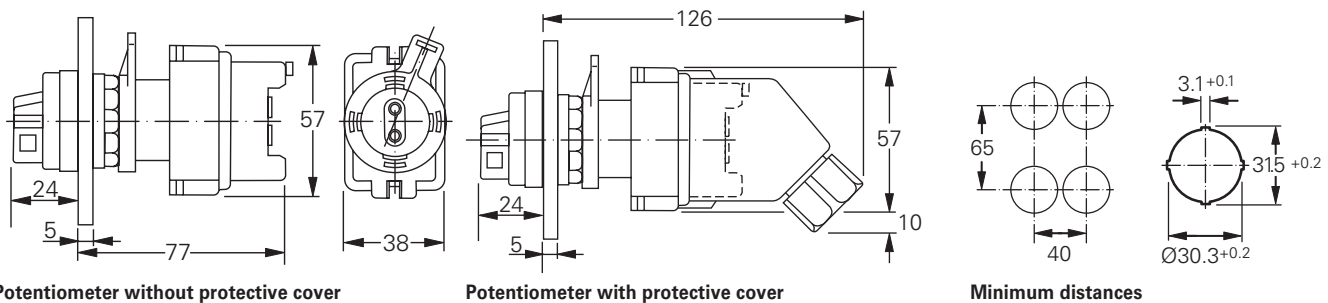
| Content | Order No. | |
|-------------------------------------------------------------------|-------------------------|-----------|
| | A | B |
| Potentiometer 1 W 25 % tolerance, without protective cover | | |
| 0 - 100 Ohm | GHG 418 8131 R00 | 11 |
| 0 - 470 Ohm | GHG 418 8131 R00 | 12 |
| 0 - 4700 Ohm | GHG 418 8131 R00 | 15 |

Accessories

| Type | OU | Order No. |
|-------------------------------|----|---------------------------|
| Protective cover to meet IP66 | 5 | GHG 410 1939 R0002 |

Please pay attention that only order units (OU) according to the ordering details can be delivered.

Dimension drawing



Potentiometer without protective cover

Potentiometer with protective cover

Minimum distances

Dimensions in mm



Signal lamp

Technical data

4

Signal lamp Type 418 8170

| | | Complete certificate ¹⁾ | Component certificate |
|----------------------------------------|-------------------------------|----------------------------------------------------------------------------|----------------------------------------------------------------------------|
| Marking accd. to 2014/34/EU | | Ⓢ II 2 G Ex de IIC T6 Ⓢ II 2G Ex d ia IIC/IIB Gb | Ⓢ II 2 G Ex de IIC/IIB Gb Ⓢ I M2 Ex d e IIC/IIB Gb |
| EC-Type Examination Certificate | | PTB 99 ATEX 1034 | IBExU 12 ATEX 1047 U |
| IECEX Certificate of Conformity | | IECEX IBE 14.0005 U | |
| Marking accd. to IECEx | | Ex de IIC/IIB Gb Ex de I Mb | |
| Operating temperature range | | -45 °C up to +68 °C (IIC) -60 °C up to +68 °C (IIB) | |
| Permissible ambient temperature | | -55 °C up to +50 °C | |
| Application temperature ²⁾ | | -45 °C up to +60 °C (IIC) -60 °C up to +60 °C (IIB) | |
| Rated voltage | Ex ed IIC) (LED) | 20 V up to 254 V AC/DC | 20 V up to 254 V AC/DC |
| | (Ex d ia IIC) | 10 V up to 30 V DC | 10 V up to 30 V DC |
| | (Ex ed IIC) | 12 V up to 24 V AC/DC | 12 V up to 24 V AC/DC |
| Rated current | (20 V up to 250 V) (LED) | approx. 4 - 15 mA | max. 25 mA |
| | (10 V up to 30 V Ex d ia IIC) | max. 25 mA | max. 24 mA |
| | (12 V up to 24 V) DC | max. 24 mA | |
| max. value for Ex ia | | U _i = 30 V DC, I _i = 100 mA, P _i = 750 mW | U _i = 30 V DC, I _i = 100 mA, P _i = 750 mW |
| Connecting terminals | | 2 x 2.5 mm ² | |
| Degree of protection accd. to EN 60529 | | IP66 ¹⁾ | IP00 |
| Dimensions (L x W x H) | | 147 x 38 x 67 mm | 99 x 38 x 57 mm |
| Weight | | 0.20 kg | 0.15 kg |
| Type of mounting | | Ø 30.3 mm fixing hole | |
| Enclosure colour | | grey | |
| Angle of rotation | | 270° | |
| Scale | | 0 - 100 % | |

¹⁾ with protective cover IP66

²⁾ The limits of the operating temperature range and the max. permissible temperature rise of the components have to be taken into account.
See also pages 2.4.34/35.

Ex-signal lamp for panel mounting



Signal lamp

4 Ordering code for component (Code 2) - code A - B

Code A B
 Order No. GHG 481 81710 R00 —

Ordering code for component (Code 2) - code A - B

| Code | Component | Code |
|------|--------------------------------------|------------------|
| A | Signal lamp | GHG 418 8170 R00 |
| Code | Voltage | Code |
| B | 20 V - 254 V AC/DC | 51 |
| | 10 V - 30 V DC (Ex-i ¹⁾) | 52 |
| | 12 V - 24 V AC/DC | 53 |

Example for ordering code (Code 2)

| Content | Order No. | |
|--------------------------------------------------------------------------------------|--------------------------|-----------|
| | A | B |
| Version without protective cover with lens cover yellow, red, green and white | | |
| Universal voltage 20 V - 254 V AC/DC | GHG 418 81 70 R00 | 51 |
| For intrinsically safe circuits (10 V up to 30 V DC)1) | GHG 418 81 70 R00 | 52 |
| Low voltage 12 V up to 24 V AC/DC | GHG 418 81 70 R00 | 53 |

¹⁾ Supply by valve-driver components, e.g., with data

$U_o = 20\text{ V} - 28\text{ V DC}$ with $R_i = 200\ \Omega - 500\ \Omega$ or $U_o = 10\text{ V} - 18\text{ V DC}$ with $R_i = 100\ \Omega - 200\ \Omega$

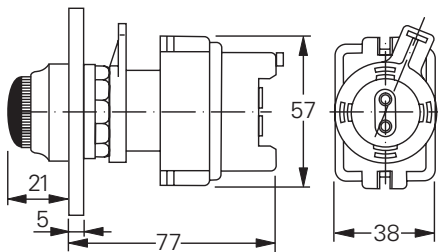
No effective Ci and Li values.

Accessories

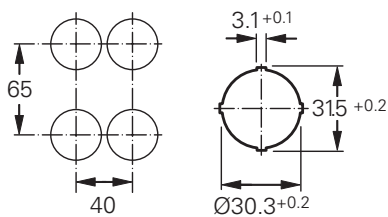
| Type | OU | Order No. |
|-------------------------------|----|---------------------------|
| Protective cover to meet IP66 | 5 | GHG 410 1939 R0002 |

Please pay attention that only order units (OU) according to the ordering details can be delivered.

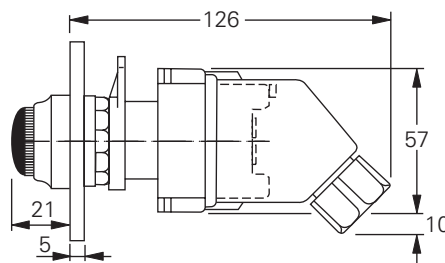
Dimension drawing



Signal lamp without protective cover



Minimum distances



Signal lamp with protective cover

Dimensions in mm