

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

4

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 _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	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.			
Circuit		A	B	C1	C2
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

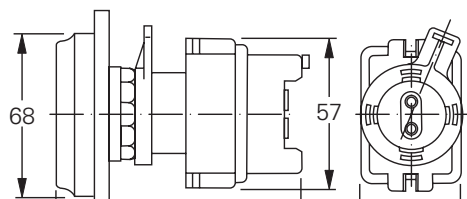


Pushbutton

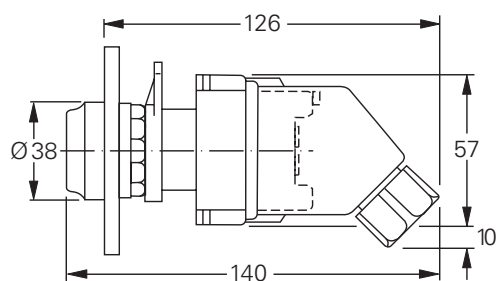


Double pushbutton

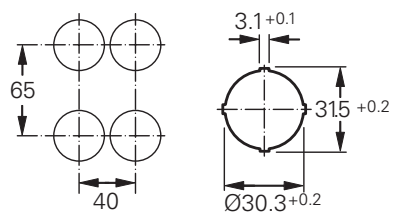
4 Dimension drawing



(Double-)pushbutton without protective cover



(Double-)pushbutton with protective cover



Minimum distances



Key-operated pushbutton

Technical data

4

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 IP66²⁾ 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				Code
A	Key-operated pushbutton				GHG 41 812
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	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

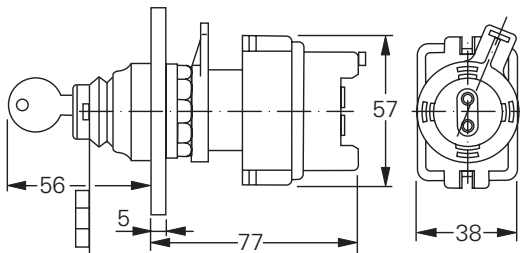
Type	OU	Order No.
Protective cover to meet IP66	5	GHG 410 1939 R0002

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

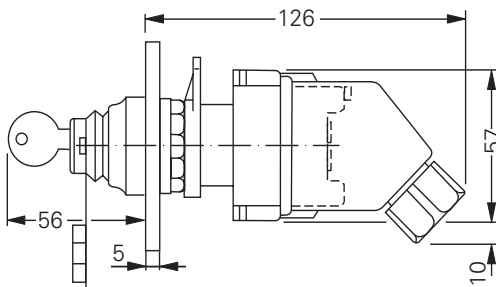


Key-operated pushbutton

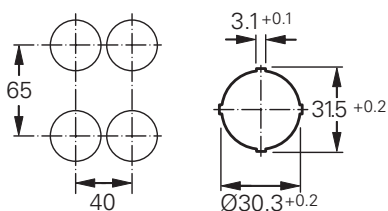
Dimension drawing



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	0.30 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.

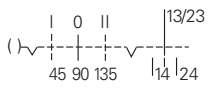
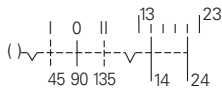


Key-operated switch

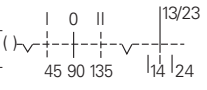
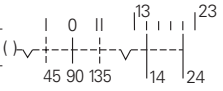
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Ordering code for components A - B - C1 - (C2)

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

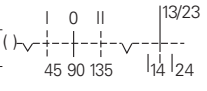
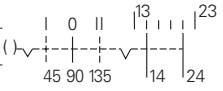
Code	Component		Code		
A	Key-operated switch		GHG 418 8195		
Code	Circuit	Contacts	Code	silver contact points	gold contact points
B	2 NC		4		7
	2 NO		5		8
Code	Inscription		Code		
C	I - 0 - II		07		
	Fern - 0 - Ort		08		
	Hand - 0 - Auto		09		

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

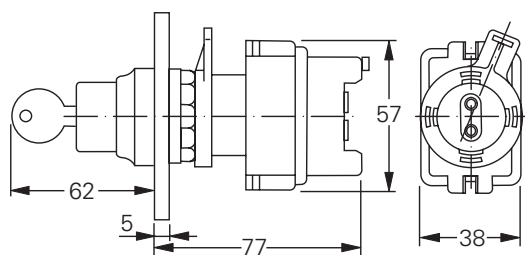
Please pay attention that only order units (OU) according to the ordering details can be delivered.

Ex-key-operated switch for panel mounting

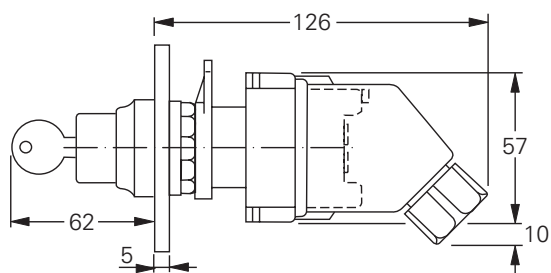


Key-operated switch

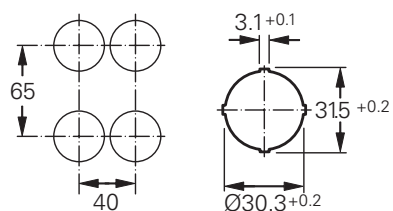
4 Dimension drawing



Key-operated switch without protective cover



Key-operated switch with protective cover



Minimum distances



Mushroom-head pushbutton



Emergency-Stop pushbutton

Technical data

4

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	I I	04	
		05	STOP	06	
	START	07	NOT-AUS1)	00	

¹⁾ only emergency stop mushroom head pushbutton

²⁾ only mushroom-head pushbutton normal version



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



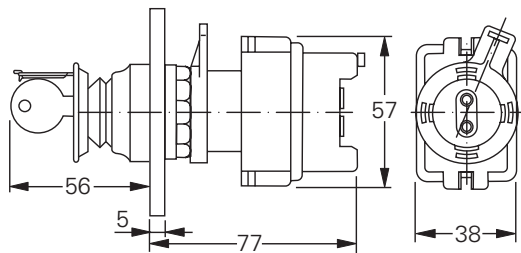
Mushroom-head pushbutton



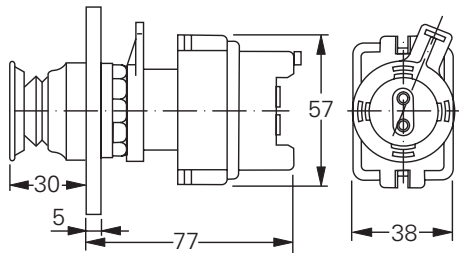
Mushroom-head pushbutton

4

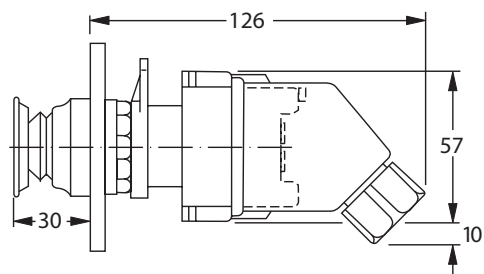
Dimension drawing



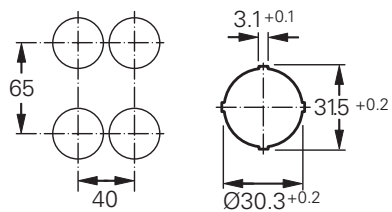
Mushroom-head pushbutton without protective cover with key release



Mushroom-head pushbutton without protective cover



Mushroom-head pushbutton with protective cover



Minimum distances

Dimensions in mm



Mini-control switch

Technical data

4

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.

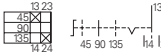
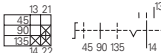
Ex-mini-control switch for panel mounting



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	
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	0	AUTO	15	
	I	II	02	AUF	AUS	ZU	16	
	STOP	START	03	HAND	AUS	AUTO	17	
	HAND	AUTO	04	0	I	II	18	
	SENKEN	HEBEN	05	AUS	AUTO	EIN	19	
	REMOTE	LOCAL	06	AUS	HAND	AUTO	20	
	I	0	II	07	ÖRTLICH	AUS	FERN	21
	AUS	BETRIEB	EIN	08	START	NORMAL	STOP	22
	AUS	0	EIN	09	OFF	0	ON	23
	AUF	0	AB	10	HAND	OFF	AUTO	24
	STOP	0	START	14	0	IN	START	25



Mini-control switch

4

Example for order No.

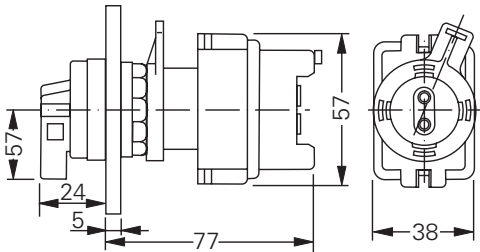
Switching mechanism	Code	Circuit	Code	Label	Order No.			
					A	B	C	D
Key-operated switch, without protective cover								
	6		0	I II	GHG 418 819	0 R 6	0	02
	6		2	0 I	GHG 418 819	0 R 6	2	01
	6		1	I II	GHG 418 819	0 R 6	1	02
	5		3	I 0 II	GHG 418 819	0 R 5	3	07
	5		5	I 0 II	GHG 418 819	0 R 5	5	07
	8	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

Accessories

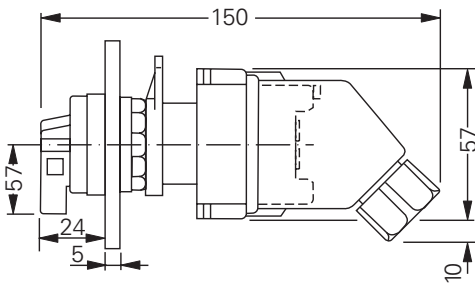
Type	OU	Order No.
Protective cover to meet IP66	5	GHG 410 1939 R0002

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

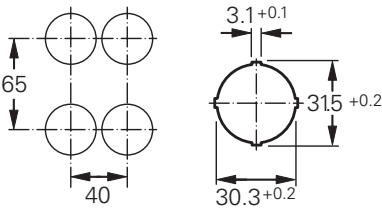
Dimension drawing



Mini-control switch without protective cover



Mini-control switch with protective cover



Minimum distances

Dimensions in mm

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

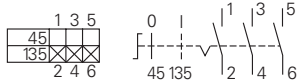
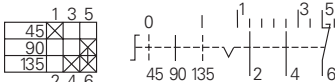
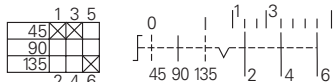
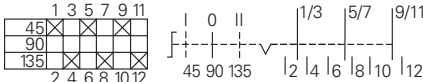
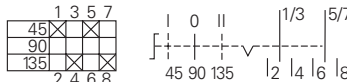
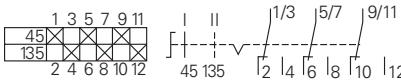
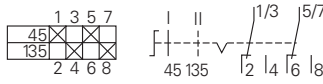
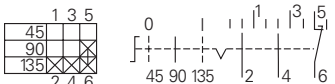
²⁾ The limits of the operating temperature range and the max. permissible temperature rise of the components have to be taken into account. See also pages 2.4.34/35.



Control switch GHG 249

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

4

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	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		26
	AUF	0	10	START		27
	Enriegelt	0	11	HEBEN		28
	OUT	OF	12	OFF		29
	LOCAL	REMOTE	13	AUS		30
	STOP	0	14	HAND		31
	HAND	0	15	ON		32
	AUF	AUS	16	I	II	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

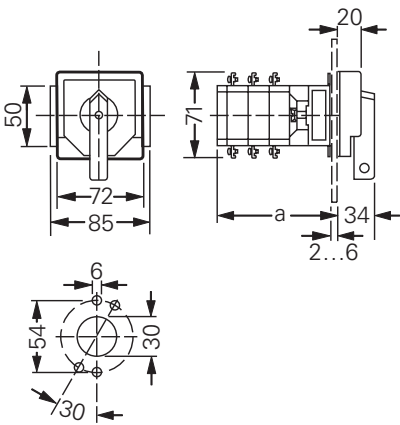


Control switch GHG 249

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

4

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)

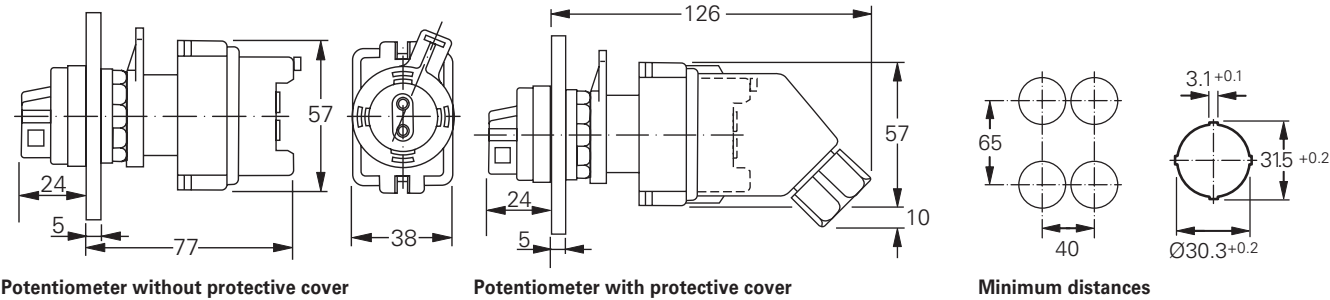
Content	Order No.
	A B
Potentiometer 1 W 25 % tolerance, without protective cover	
0 - 100 Ohm	GHG 418 8131 R00 11
0 - 470 Ohm	GHG 418 8131 R00 12
0 - 4700 Ohm	GHG 418 8131 R00 15

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



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) (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	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 up to 250 V) (LED) (10 V up to 30 V Ex d ia IIC) (12 V up to 24 V) DC	
	approx. 4 - 15 mA max. 25 mA max. 24 mA	max. 25 mA max. 24 mA
max. value for Ex ia	Ui = 30 V DC, Ii = 100 mA, Pi = 750 mW	Ui = 30 V DC, Ii = 100 mA, Pi = 750 mW
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)	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	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-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

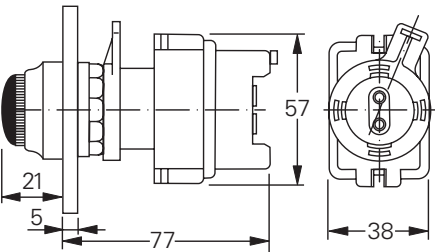
¹⁾ Supply by valve-driver components, e.g., with data
U_o = 20 V – 28 V DC with R_i = 200 Ω – 500 Ω or U_o = 10 V – 18 V DC with R_i = 100 Ω – 200 Ω
No effective Ci and Li values.

Accessories

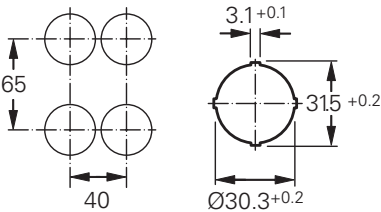
Type	OU	Order No.
Protective cover to meet IP66	5	GHG 410 1939 R0002

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

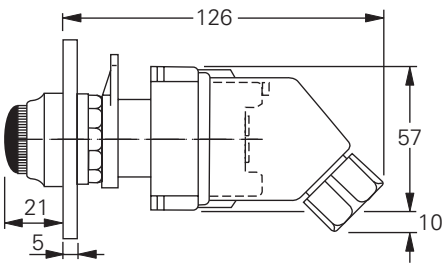
Dimension drawing



Signal lamp without protective cover



Minimum distances



Signal lamp with protective cover



Interchangeable scales



Measuring instrument

Technical data

4

Type 412 82 with measuring instrument 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	II 2 G Ex ib IIC
EC-Type Examination Certificate	PTB 00 ATEX 3117	PTB 00 ATEX 3117
Permissible ambient temperature	–20 °C up to +40 °C –55 °C up to +55 °C (option)	–20 °C up to +40 °C –55 °C up to +55 °C (option)
Rated voltage	up to 690 V AC	up to 690 V AC
Power consumption (VA)	max. 0.31 VA	max. 0.31 VA
Overload range	10 fold - 25 sec. 25 fold - 4 sec. 50 fold - 1 sec. indicated 1 : 1.5, optional 1:6	10-fold - 5 sec.
Measuring range	max. 0 - 25 A direct / n / 1A	0/4 - 24 mA
Winding specification of moving coil		26.5 windings
Internal resistance		2.5 Ω ± 30 %
Inductance Li		< 0.1 mH
Capacitance Ci		< 0.1 nF
Open circuit voltage Ui		≤ 30 V
Short circuit current max. li		≤ 150 mA
Accuracy	Class 2.5	Class 1.5
Connecting terminals	2 x 1.5 - 4 mm ²	
Degree of protection accd. to EN 60529	IP66	
Cable glands/Gland plates/Enclosure drilling	1 x M25 cable gland	
Dimensions (L x W x H)	160 x 95 x 62 mm	
Display size AM 72	72 x 72 mm	
Weight	0.8 kg	
Type of mounting	DIN rail mounting	
Enclosure colour	grey	

Ex-measuring instrument AM 72 for panel mounting



Measuring instrument



Interchangeable scales

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

Code A B C
Order No. GHG 412 828 — R0 —

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

Code	Component	Code		
A	Measuring instrument AM 72	GHG 412 828		
Code	Voltage	Code		
B	Direct connection	1		
	CT connection 1 /A	2		
	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/Scale	Code C	Measuring range/Scale	Code C
C	0 - 1	002	0 - 75 /112.5 A	013
	0 - 2.5 / 3.75 A ²⁾	003	0 - 100 / 150 A	014
	0 - 5 / 7.5 A ²⁾	004	0 - 150 / 225 A	015
	0 - 10 / 15 A ²⁾	005	0 - 200 / 300 A	016
	0 - 15 / 22.5 A	006	0 - 250 / 375 A	017
	0 - 20 / 30 A ²⁾	008	0 - 300 / 450 A	018
	0 - 30 / 45 A	009	0 - 400 / 600 A	019
	0 - 40 / 60 A	010	0 - 500 / 750 A	020
	0 - 50 / 75 A	011	0 - 600 / 900 A	021
	0 - 60 / 90 A	012	0 - 100% / 150%	033

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

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.



Interchangeable scales

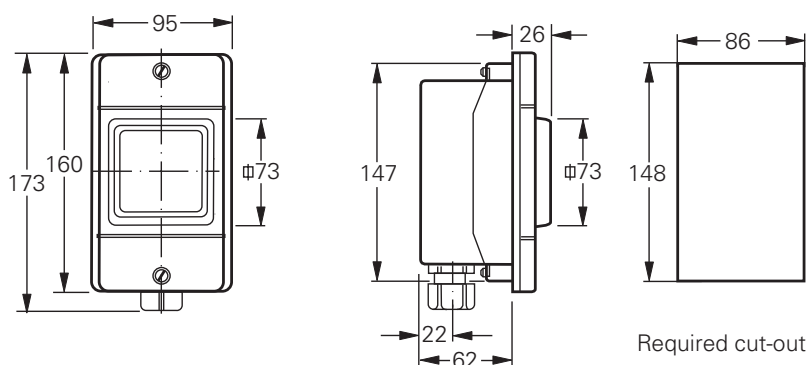


Measuring instrument

Example for order No.

Measuring range	Movement	Order No.
Measuring instrument AM 72, direct measurement		
Version with 1 x cable gland M25		
0 – 1 / 1.5 A	Moving iron	GHG 412 8281 R0002
0 - 2.5 / 3.75 A	Moving iron	GHG 412 8281 R0003
0 - 5 / 7.5 A	Moving iron	GHG 412 8281 R0004
0 - 10 / 15 A	Moving iron	GHG 412 8281 R0005
0 - 16 / 24 A	Moving iron	GHG 412 8281 R0007
0 - 20 / 24 mA 0-100% / 120% (Ri = 320 Ω)	Moving coil	GHG 412 8285 R0033
4 - 20 / 24 mA 0-100% / 120% (Ri = 320 Ω)	Moving coil	GHG 412 8286 R0035
Measuring instrument AM 72, CT connection n/1A		
Version with 1 x cable gland M25		
0 – 1 / 1.5 A	Moving iron	GHG 412 8282 R0002
0 - 2.5 / 3.75 A	Moving iron	GHG 412 8282 R0003
0 - 5 / 7.5 A	Moving iron	GHG 412 8282 R0004
0 - 10 / 15 A	Moving iron	GHG 412 8282 R0005
0 - 15 / 22.5 A	Moving iron	GHG 412 8282 R0006
0 - 20 / 30 A	Moving iron	GHG 412 8282 R0008
0 - 30 / 45 A	Moving iron	GHG 412 8282 R0009
0 - 40 / 60 A	Moving iron	GHG 412 8282 R0010
0 - 50 / 75 A	Moving iron	GHG 412 8282 R0011
0 - 60 / 90 A	Moving iron	GHG 412 8282 R0012
0 - 75 / 112.5 A	Moving iron	GHG 412 8282 R0013
0 - 100 / 150 A	Moving iron	GHG 412 8282 R0014
0 - 150 / 225 A	Moving iron	GHG 412 8282 R0015
0 - 200 / 300 A	Moving iron	GHG 412 8282 R0016
0 - 250 / 375 A	Moving iron	GHG 412 8282 R0017
0 - 300 / 450 A	Moving iron	GHG 412 8282 R0018
0 - 400 / 600 A	Moving iron	GHG 412 8282 R0019
0 - 500 / 750 A	Moving iron	GHG 412 8282 R0020
0 - 600 / 900 A	Moving iron	GHG 412 8282 R0021
0 - 100% / 150%	Moving iron	GHG 412 8282 R0031

Dimension drawing



Required cut-out

Dimensions in mm



Interchangeable scales

4 Ordering details

Scale	Order unit	Order No. AM45	Order No. AM72
Interchangeable scales for measuring instrument, CT connection n/1A for AM 45/AM 72			
0 - 1 / 1.5 A	10 pieces	GHG 410 1926 R0001	GHG 410 1928 R0001
0 - 2.5 / 3.75 A	10 pieces	GHG 410 1926 R0002	GHG 410 1928 R0002
0 - 5 / 7.5 A	10 pieces	GHG 410 1926 R0003	GHG 410 1928 R0003
0 - 10 / 15 A	10 pieces	GHG 410 1926 R0004	GHG 410 1928 R0004
0 - 15 / 22.5 A	10 pieces	GHG 410 1926 R0005	GHG 410 1928 R0005
0 - 20 / 30 A	10 pieces	GHG 410 1926 R0006	GHG 410 1928 R0006
0 - 25 / 37.5 A	10 pieces	GHG 410 1926 R0021	GHG 410 1928 R0021
0 - 30 / 45 A	10 pieces	GHG 410 1926 R0007	GHG 410 1928 R0007
0 - 40 / 60 A	10 pieces	GHG 410 1926 R0008	GHG 410 1928 R0008
0 - 50 / 75 A	10 pieces	GHG 410 1926 R0009	GHG 410 1928 R0009
0 - 60 / 90 A	10 pieces	GHG 410 1926 R0010	GHG 410 1928 R0010
0 - 75 / 112.5 A	10 pieces	GHG 410 1926 R0011	GHG 410 1928 R0011
0 - 100 / 150 A	10 pieces	GHG 410 1926 R0012	GHG 410 1928 R0012
0 - 150 / 225 A	10 pieces	GHG 410 1926 R0013	GHG 410 1928 R0013
0 - 200 / 300 A	10 pieces	GHG 410 1926 R0014	GHG 410 1928 R0014
0 - 250 / 375 A	10 pieces	GHG 410 1926 R0015	GHG 410 1928 R0015
0 - 300 / 450 A	10 pieces	GHG 410 1926 R0016	GHG 410 1928 R0016
0 - 400 / 600 A	10 pieces	GHG 410 1926 R0017	GHG 410 1928 R0017
0 - 500 / 750 A	10 pieces	GHG 410 1926 R0018	GHG 410 1928 R0018
0 - 600 / 900 A	10 pieces	GHG 410 1926 R0019	GHG 410 1928 R0019
0 - 100% / 150%	10 pieces	GHG 410 1926 R0020	GHG 410 1928 R0051

Special scales available on request.



Ordering code

Labels for pushbutton

Inscription	Code	Inscription	Code
0, I, Start, Stop	001	0	002
I	003	I I	004
D	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 grün	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
HALT	069	I I I	070
VOR	073	ZURÜCK	074
FIRE ALARM	094	FORWARD	095
REVERSE	096	RUN	100
HIGH	101	LOW	102
LP	151	HQ	152
LQ	157	STÖR. QUITT	162
SPERREN	163	ENTSPERREN	164
ENTRIEGELN	165	VERRIEGELN	166

Accessories for panel mounting



Flap with 0-activation



Plastic flap



Combination piece



Labels

4 Ordering code

Content	Operating element	OU	Order No.
Padlocking facility			
with flap (blank)	Mushroom-head pushbutton	1	GHG 410 1901 R0124
with flap (red)	Mushroom-head pushbutton	1	GHG 410 1901 R0125
with bolt and chain (blank)	Mushroom-head pushbutton	1	GHG 410 1901 R0126
Fire alarm (red) ¹⁾ with hammer	Mushroom-head pushbutton	1	GHG 410 1901 R0128
Fire alarm (red) with hammer	Mushroom-head pushbutton	1	GHG 410 1901 R0141
with plastic flap	Mushroom-head pushbutton activated		GHG 410 1994 R0001
with plastic flap	Mushroom-head pushbutton non-activated		GHG 410 1994 R0002
with plastic flap	Pushbutton activated		GHG 410 1994 R0003
with plastic flap	Pushbutton non-activated		GHG 410 1994 R0004
with plastic flap	Emergency Stop		GHG 410 1994 R0005
with flap (blank)		1	GHG 410 1901 R0132
with flap (red)	Pushbutton Pushbutton	1	GHG 410 1901 R0133
with lap without „0“-activation (blank)	Double pushbutton	1	GHG 410 1901 R0134
with lap with „0“-activation (blank)	Double pushbutton	1	GHG 410 1901 R0135
with bracket (1 set)	Switch GHG 23/28	5	GHG 440 1917 R0001

¹⁾ released when window is broken – select appropriate activation element.

Type	Content	OU	Order No.
Protective collar			
Protective collar (yellow)	for pushbutton and mushroom-head pushbutton	1	GHG 410 1901 R1033
Protective collar (yellow)	for pushbutton and mushroom-head pushbutton	5	GHG 410 1901 R1034
Protective collar (yellow)	for pushbutton and mushroom-head pushbutton	10	GHG 410 1901 R1035
Protective collar (red)	for pushbutton and mushroom-head pushbutton	1	GHG 410 1901 R1036
Protective collar (red)	for pushbutton and mushroom-head pushbutton	5	GHG 410 1901 R1037
Protective collar (red)	for pushbutton and mushroom-head pushbutton	10	GHG 410 1901 R1038

Type	Content	OU	Order No.
Labels and tools for control switches			
Labels with label holder	Blank (can be engraved)	10	GHG 410 1953 R0001
Combination piece for control station type 411	incl. twist protection and sealing	1	GHG 410 1921 R0001
Mounting and dismantling tool for lock nuts on operating elements	Spanner	1	GHG 410 1914 R0001
Blanking element for control units	incl. seal and lock nut	10	GHG 410 1920 R0001
Protective cap	for panel-mounted operating elements	5	GHG 410 1939 R0002

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

