

Safety in System  
Protection for man and machine

# COMMAND AND SIGNALLING DEVICES PRODUCT INFORMATION



# COMMAND AND SIGNALLING DEVICES

## H PROGRAMME

### AREA OF APPLICATION

With the H series, Schmersal presents a complete programme of new command and signalling devices for hygiene-sensitive applications – especially for food processing.

The characteristic features of the command and signalling devices in this programme include gap-free transitions between sealing elements and surfaces and the absence of protruding parts. The devices are easy to clean and are so well sealed that they can withstand regular cleaning, e.g. with high-pressure cleaners or aggressive cleaning agents.

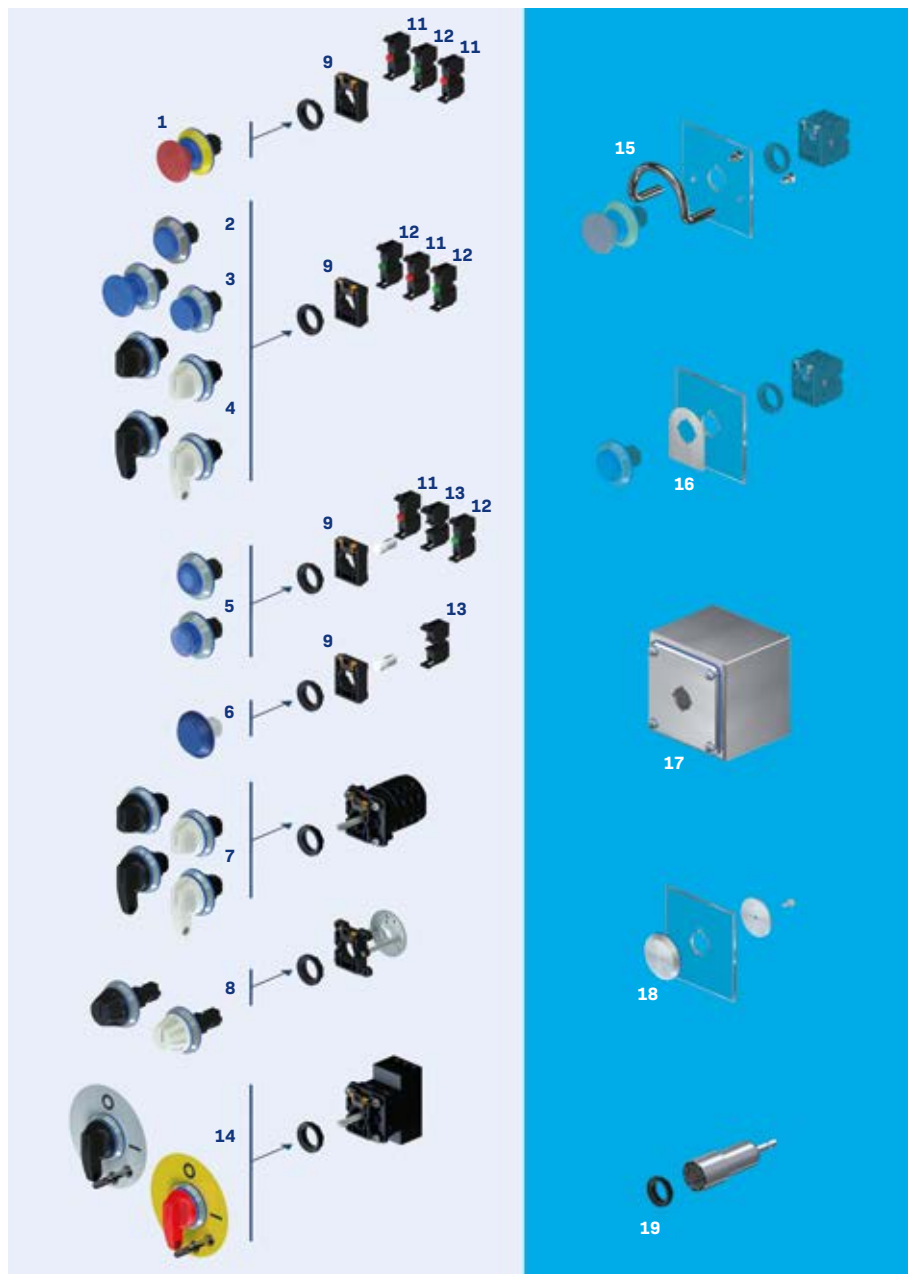
The new series fulfils the requirements of DIN EN ISO 14159 ("Safety of machinery – Hygiene requirements for the design of machinery") and the new version of EN 1672-2 ("Food processing machinery – General principles for design"). This standard specifies very precise requirements for the hygienic design of all operating elements on the human-machine interface (HMI) of food processing machines. Another regulation that formulates requirements for the selection of materials for this Area of application was also taken into account.

### DESIGN AND WAY OF FUNCTIONING

The new H programme not only meets the requirements of the standards and the "Hygienic Design" construction principle, but also has a fully modular structure. Thanks to snap-on contact carriers and individual contacts that can be combined – even in piggyback mode – this concept firstly enables very simple and quick installation, secondly a high degree of flexibility and thirdly it provides the prerequisite for pre-wiring.

There is a total of 147 different devices to choose from, including 26 mushroom pushbuttons, 24 selector switches with two or three positions and four potentiometer rotary switches. The designer of a food machine is therefore free to choose which type of operating elements of the H programme to use for the design of the HMI. With its variety of different hygiene-compliant switchgear, the H programme is unique on the market. In addition – and this is also new – the designer can order the control and signalling devices with individual laser marking, e.g. as an OEM version with a logo.

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# COMMAND AND SIGNALLING DEVICES – H PROGRAMME

## EMERGENCY STOP CONTROL DEVICES



■ HDRZ40

### Key Features

<b>General description</b>	Emergency stop command device with pull-to-unlatch mechanism by integrated snap-action mechanism
<b>Area of application</b>	Food and hygiene applications
<b>Mounting-Ø</b>	22.3 mm
<b>Housing material</b>	
<b>Material of operating element</b>	Plastic
<b>Material front ring</b>	Plastic

### Technical features

<b>Mechanical data</b>	
<b>Colour of the operating element</b>	
<b>Colour of sealing membranes</b>	
<b>Design</b>	Round
<b>Front plate thickness</b>	1.5 ... 6 mm
<b>Unlocking type</b>	Pull-to-unlatch mechanism
<b>Snap-action mechanism</b>	
<b>Integrated</b>	–
<b>Externally via additional module</b>	■
<b>Assembly</b>	
<b>Mounting flange included in delivery</b>	■
<b>Mounting position</b>	Arbitrarily
<b>Ambient conditions</b>	
<b>Ambient temperatures</b>	–25 °C ... +80 °C
<b>Degree of protection</b>	IP67 / IP69K

### Safety classification

<b>Standards</b>	IEC 60947-5-1, IEC 60947-5-5, IEC 60947-1, EN ISO 13850
<b>Mechanical life</b>	100,000 operations
<b>Certificates</b>	BG, UL, CCC (under preparation)

## COMMAND AND SIGNALLING DEVICES – H PROGRAMME

### EMERGENCY STOP CONTROL DEVICES

Type	Unlocking	Operators	Bellows	Front ring	A	B	C	Type designation	Material number
<b>Emergency stop command device</b>	Pull-to-unlatch mechanism	red	blue	yellow	38	22.3	40	<b>HDRZ40-BL-RT-GB</b>	<b>103037906</b>

All dimensions in mm.

#### Key

- A Height                      Height of command device in front of the front panel
- B Mounting-Ø                Installation diameter for the command device head
- C Key Ø                        Width of the command device head

# COMMAND AND SIGNALLING DEVICES – H PROGRAMME

## INDICATOR LIGHTS



■ HML

### Key Features

<b>General description</b>	LED indicator light for LED illuminants
<b>Area of application</b>	Food and hygiene applications
<b>Mounting-Ø</b>	22.3 mm
<b>Housing material</b>	
<b>Material of operating element</b>	Plastic
<b>Material front ring</b>	ABS, chrome-plated

### Technical features

<b>Mechanical data</b>	
<b>Colour of the operating element</b>	
<b>Colour of seal</b>	
<b>Design</b>	All-round illuminated collar
<b>Front plate thickness</b>	1.5 ... 6 mm
<b>Integrated LED 24 V</b>	–
<b>Assembly</b>	
<b>Mounting flange included in delivery</b>	
<b>Mounting position</b>	Arbitrarily
<b>Ambient conditions</b>	
<b>Ambient temperatures</b>	–25 °C ... +80 °C
<b>Degree of protection</b>	IP67 / IP69K

### Safety classification

<b>Standards</b>	IEC 60947-5-1, IEC 60947-1
<b>Mechanical life</b>	–
<b>Certificates</b>	BG, UL, CCC (under preparation)

\* A voltage sensor CLP001 is also needed for driving. You can find the voltage sensors from page 115

## COMMAND AND SIGNALLING DEVICES – H PROGRAMME

### INDICATOR LIGHTS

Type	Operators	Bellows	A	B	C	Type	Material number
Indicator lights	blue	blue	10	22.3	45	HML-BL-BL	103039525
	yellow					HML-BL-GB	103039526
	green					HML-BL-GN	103039522
	red					HML-BL-RT	103039524
	white					HML-BL-WS	103039523

All dimensions in mm.

#### Key

A	Height	Height of command device in front of the front panel
B	Mounting-Ø	Installation diameter for the command device head
C	Key Ø	Width of the command device head

# COMMAND AND SIGNALLING DEVICES – H PROGRAMME

## PUSHBUTTONS AND ILLUMINATED PUSHBUTTONS



■ HDT



■ HDL

### Key Features

General description	Pushbuttons	Illuminated pushbutton
Area of application	Food and hygiene applications	Food and hygiene applications
Mounting-Ø	22.3 mm	22.3 mm
Housing material		
Material of operating element	Plastic	Plastic
Material front ring	Stainless steel	Stainless steel

### Technical features

Mechanical data		
Colour of the operating element		
Colour of seal		
Design	Round	Round
Front plate thickness	1.5 ... 6 mm	1.5 ... 6 mm
Assembly		
Mounting flange included in delivery		
Mounting position	Arbitrarily	Arbitrarily
Ambient conditions		
Ambient temperatures	-25 °C ... +80 °C	-25 °C ... +80 °C
Degree of protection	IP67 / IP69K	IP67 / IP69K

### Safety classification

Standards	IEC 60947-5-1, IEC 60947-1	IEC 60947-5-1, IEC 60947-1
Mechanical life	1,000,000 operations	1,000,000 operations
Certificates	BG, UL, CCC (under preparation)	BG, UL, CCC (under preparation)

# COMMAND AND SIGNALLING DEVICES – H PROGRAMME

## PUSHBUTTONS AND ILLUMINATED PUSHBUTTONS

Type	Operators	Bellows	A	B	C	Type	Material number
<b>Pushbuttons</b>	blue	blue	13	22.3	22	HDT-BL-BL	103039534
	yellow					HDT-BL-GB	103039533
	green					HDT-BL-GN	103039530
	red					HDT-BL-RT	103039535
	black					HDT-BL-SW	103039532
	white					HDT-BL-WS	103039536
<b>Illuminated pushbuttons</b>	blue	blue	13	22.3	22	HDL-BL-BL	103039540
	yellow					HDL-BL-GB	103039541
	green					HDL-BL-GN	103039537
	red					HDL-BL-RT	103039539
	white					HDL-BL-WS	103039538

All dimensions in mm.

### Key

A	Height	Height of command device in front of the front panel
B	Mounting-Ø	Installation diameter for the command device head
C	Key Ø	Width of the command device head

# COMMAND AND SIGNALLING DEVICES – H PROGRAMME

## MUSHROOM HEAD IMPACT BUTTONS



■ HDTP30



■ HDTP40

### Key Features

<b>General description</b>	Mushroom head impact button	Mushroom head impact button
<b>Area of application</b>	Food and hygiene applications	Food and hygiene applications
<b>Mounting-Ø</b>	22.3 mm	22.3 mm
<b>Housing material</b>		
<b>Material of operating element</b>	Plastic	Plastic
<b>Material front ring</b>	Stainless steel	Stainless steel

### Technical features

<b>Mechanical data</b>		
<b>Colour of the operating element</b>		
<b>Colour of sealing membranes</b>		
<b>Design</b>	Round	Round
<b>Front plate thickness</b>	1.5 ... 6 mm	1.5 ... 6 mm
<b>With latching</b>	-	-
<b>Assembly</b>		
<b>Mounting flange included in delivery</b>		
<b>Mounting position</b>	Arbitrarily	Arbitrarily
<b>Ambient conditions</b>		
<b>Ambient temperatures</b>	-25 °C ... +80 °C	-25 °C ... +80 °C
<b>Degree of protection</b>	IP67 / IP69K	IP67 / IP69K

### Safety classification

<b>Standards</b>	IEC 60947-5-1, IEC 60947-1	IEC 60947-5-1, IEC 60947-1
<b>Mechanical life</b>	1,000,000 operations	1,000,000 operations
<b>Certificates</b>	BG, UL, CCC (under preparation)	BG, UL, CCC (under preparation)



■ HDLP30



■ HDRZ40

Mushroom head impact button,  
illuminated

Emergency stop command device  
with pull-to-unlatch mechanism  
by integrated snap-action  
mechanism

Food and hygiene applications  
22.3 mm

Food and hygiene applications  
22.3 mm

Plastic

Plastic

Stainless steel

Stainless steel



Round

Round

1.5 ... 6 mm

1.5 ... 6 mm

-

-



Arbitrarily

Arbitrarily

-25 °C ... +80 °C

-25 °C ... +80 °C

IP67 / IP69K

IP67 / IP69K

IEC 60947-5-1,  
IEC 60947-1

IEC 60947-5-1,  
IEC 60947-1,

1,000,000 operations

100,000 operations

BG, UL, CCC (under preparation)

BG, UL, CCC (under preparation)

# COMMAND AND SIGNALLING DEVICES – H PROGRAMME

## MUSHROOM HEAD IMPACT BUTTONS

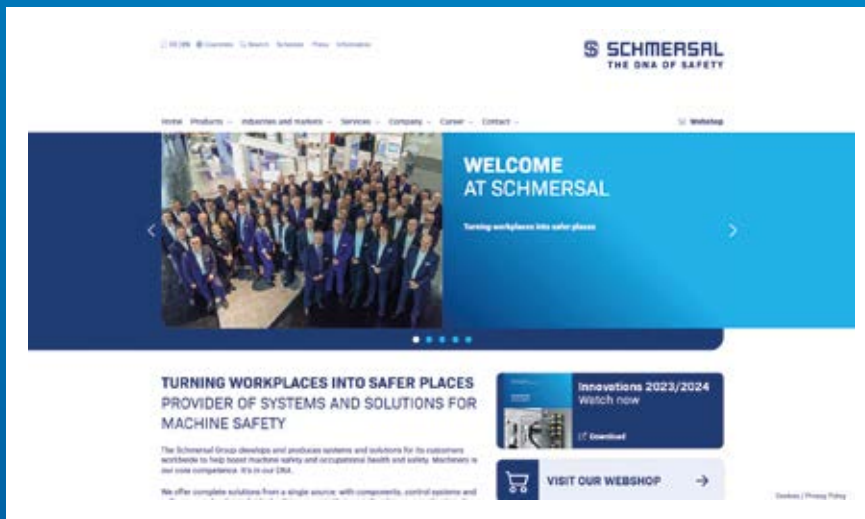
Type	Operators	Bellows	A	B	C	Type	Material number					
Mushroom head impact buttons	blue	blue	22	22.3	30	HDTP30-BL-BL	103039553					
	yellow					HDTP30-BL-GB	103039552					
	green					HDTP30-BL-GN	103039549					
	red					HDTP30-BL-RT	103043738					
	black					HDTP30-BL-SW	103039551					
	white					HDTP30-BL-WS	103039554					
	blue		38		40	HDTP40-BL-BL	103039547					
	yellow					HDTP40-BL-GB	103039545					
	green					HDTP40-BL-GN	103039542					
	red					HDTP40-BL-RT	103043737					
	black					HDTP40-BL-SW	103039544					
	white					HDTP40-BL-WS	103039548					
	Mushroom head impact buttons, illuminated					blue	blue	22	22.3	30	HDLP30-BL-BL	103039558
						yellow					HDLP30-BL-GB	103039559
green		HDLP30-BL-GN	103039555									
red		HDLP30-BL-RT	103039557									
white		HDLP30-BL-WS	103039556									
Mushroom head impact buttons with latching function	blue	blue	38	22.3	40	HDRZ40-BL-BL	103039518					
	yellow					HDRZ40-BL-GB	103039517					
	green					HDRZ40-BL-GN	103039514					
	red					HDRZ40-BL-RT	103044256					
	black					HDRZ40-BL-SW	103039516					
	white					HDRZ40-BL-WS	103039519					

All dimensions in mm.

### Key

A	Height	Height of command device in front of the front panel
B	Mounting-Ø	Installation diameter for the command device head
C	Key Ø	Width of the command device head

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# COMMAND AND SIGNALLING DEVICES – H PROGRAMME

## MAINTAINED SELECTOR SWITCHES AND SPRING RETURN SELECTOR SWITCHES



■ HWS / HWT



■ HWS.1 / HWT.1

### Key Features

<b>General description</b>	Selector switch/ spring-return selector switch with short toggle	Step selector switch with long toggle
<b>Area of application</b>	Food and hygiene applications	Food and hygiene applications
<b>Mounting-Ø</b>	22.3 mm	22.3 mm
<b>Toggle length</b>	26 mm	52.5 mm
<b>Housing material</b>		
<b>Material of operating element</b>	Plastic	Plastic
<b>Material front ring</b>	Stainless steel	Stainless steel

### Technical features

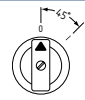

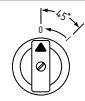
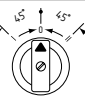

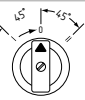
<b>Mechanical data</b>		
<b>Colour of the operating element</b>		
<b>Colour of seal</b>		
<b>Design</b>	Round	Round
<b>Front plate thickness</b>	1.5 ... 6 mm	1.5 ... 6 mm
<b>Assembly</b>		
<b>Mounting flange included in delivery</b>		
<b>Mounting position</b>	Arbitrarily	Arbitrarily
<b>Ambient conditions</b>		
<b>Ambient temperatures</b>	0 °C ... +80 °C	0 °C ... +80 °C
<b>Degree of protection</b>	IP67 / IP69K	IP67 / IP69K

### Safety classification

<b>Standards</b>	IEC 60947-5-1, IEC 60947-1	IEC 60947-5-1, IEC 60947-1
<b>Mechanical life</b>	300,000 operations	300,000 operations
<b>Certificates</b>	BG, UL, CCC (under preparation)	BG, UL, CCC (under preparation)

# COMMAND AND SIGNALLING DEVICES – H PROGRAMME

## MAINTAINED SELECTOR SWITCHES AND SPRING RETURN SELECTOR SWITCHES

Type	Maintained and momentary positions	Positions	A	B	C	Type designation						
Selector switches	2 maintained positions		31	22.3	45	HWS21 <sup>①</sup> -BL- <sup>②</sup>						
	3 maintained positions					HWS32 <sup>①</sup> -BL- <sup>②</sup>						
Selector switches	1 momentary position and automatic return to the zero position					31	22.3	45	HWT21 <sup>①</sup> -BL- <sup>②</sup>			
	1 momentary position each to the right and left of the zero position								HWT32 <sup>①</sup> -BL- <sup>②</sup>			
Spring-return selector switches	1 momentary position on the right and 2 maintained positions								31	22.3	45	HWST32 <sup>①</sup> -BL- <sup>②</sup>
	1 momentary position on the left and 2 maintained positions											HWTS32 <sup>①</sup> -BL- <sup>②</sup>

All dimensions in mm.

### Ordering code

#### ① Toggle length:

Without                      Short toggle  
 .1                                Long toggle

#### ② Colour of toggle

BK                                Black  
 WS                                White

### Key

A    Height                      Height of command device in front of the front panel  
 B    Mounting-Ø                Installation diameter for the command device head  
 C    Key Ø                        Width of the command device head

# COMMAND AND SIGNALLING DEVICES – H PROGRAMME

## MAIN SWITCHES



■ HHS16



■ HHS40

### Key Features

General description	Main switch 16A	Main switch 40A
Area of application	Food and hygiene applications	Food and hygiene applications
Mounting	Ø 22.3 mm	110 × 110 mm or Ø 22.3 mm
Housing material		
Material of operating element	Plastic	Plastic
Material front ring	Stainless steel	Stainless steel

### Other versions are available

Emergency stop design	■	■
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### Technical features

Mechanical data		
Colour of the operating element		
Colour of seal		
Design	Round	Square
Front plate thickness	1 ... 6 mm	1 ... 6 mm
Maintained switching positions	2 positions	2 positions
Assembly		
Mounting flange included in delivery	-	-
Integrated mounting plate	■	■
Mounting position	Arbitrarily	Arbitrarily
Ambient temperatures		
Pushbutton	0 °C ... +80 °C	0 °C ... +80 °C
Contact element, open	-25 °C ... +50 °C	-25 °C ... +50 °C
Contact element, enclosed	-25 °C ... +40 °C	-25 °C ... +40 °C
Degree of protection	IP67 / IP69K	IP67 / IP69K

### Safety classification

Standards	IEC EN 60947, IEC EN 60204	IEC EN 60947, IEC EN 60204
Mechanical life	1,000,000 operations	100,000 operations
Certificates	BG, UL, CCC (under preparation)	BG, UL, CCC (under preparation)



■ HHS63



■ HHS125

Main switch 63A

Food and hygiene applications

110 × 110 mm  
or Ø 22.3 mm

Plastic

Stainless steel

Main switch 125A

Food and hygiene applications

110 × 110 mm  
or Ø 22.3 mm

Plastic

Stainless steel



Square

1 ... 6 mm

2 positions

-



Arbitrarily

0 °C ... +80 °C

-25 °C ... +50 °C

-25 °C ... +40 °C

IP67 / IP69K



Square

1 ... 6 mm

2 positions

-



Arbitrarily

0 °C ... +80 °C

-25 °C ... +50 °C

-25 °C ... +40 °C

IP67 / IP69K

IEC EN 60947,  
IEC EN 60204

100,000 operations

BG, UL, CCC (under preparation)

IEC EN 60947,  
IEC EN 60204

25,000 operations

BG, UL, CCC (under preparation)

# COMMAND AND SIGNALLING DEVICES – H PROGRAMME

## MAIN SWITCHES

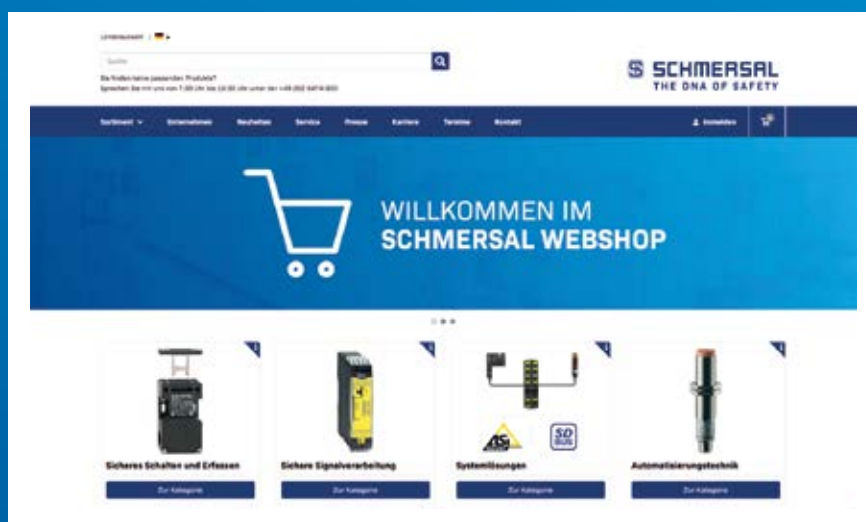
Type	Description		A	B	C	Type designation	Material number	
Main switches	16 A, 2-pole	Included in standard version	With black grip	32	22.3	70 × 80	HHS16-BL-SW-2-POL	103044285
			With black grip + mounting plate	37	-	110 × 110	HHS16-BL-SW-2-POL-MP	103044286
		Emergency stop	With red grip + yellow background	32	22.3	70 × 80	HHSNH16-BL-RT-2-POL	103044289
			With red grip, yellow background + mounting plate	37	-	110 × 110	HHSNH16-BL-RT-2-POL-MP	103044290
	16 A, 4-pole	Included in standard version	With black grip	32	22.3	70 × 80	HHS16-BL-SW-4-POL	103044287
			With black grip + mounting plate	37	-	110 × 110	HHS16-BL-SW-4-POL-MP	103044288
		Emergency stop	With red grip + yellow background	32	22.3	70 × 80	HHSNH16-BL-RT-4-POL	103044291
			With red grip, yellow background + mounting plate	37	-	110 × 110	HHSNH16-BL-RT-2-POL-MP	103044290
	40 A, 3-pole	Included in standard version	With black grip	32	22.3	Ø 100	HHS40-BL-SW	103044293
			With black grip + mounting plate	37	-	110 × 110	HHS40-BL-SW-MP	103044294
		Emergency stop	With red grip + yellow background	32	22.3	Ø 100	HHSNH40-BL-RT	103044295
			With red grip, yellow background + mounting plate	37	-	110 × 110	HHSNH40-BL-RT-MP	103044296
	63 A, 3-pole	Included in standard version	With black grip	32	22.3	Ø 100	HHS63-BL-SW	103044297
			With black grip + mounting plate	37	-	110 × 110	HHS63-BL-SW-MP	103044298
		Emergency stop	With red grip + yellow background	32	22.3	Ø 100	HHSNH63-BL-RT	103044299
			With red grip, yellow background + mounting plate	37	-	110 × 110	HHSNH63-BL-RT-MP	103044300
	125 A, 3-pole	Included in standard version	With black grip	32	22.3	Ø 100	HHS125-BL-SW	103044301
			With black grip + mounting plate	37	-	110 × 110	HHS125-BL-SW-MP	103044302
		Emergency stop	With red grip + yellow background	32	22.3	Ø 100	HHSNH125-BL-RT	103044303
			With red grip, yellow background + mounting plate	37	-	110 × 110	HHSNH125-BL-RT-MP	103044304

All dimensions in mm.

### Key

A	Height	Height of command device in front of the front panel
B	Mounting-Ø	Installation diameter for the command device head
C	Panel size	Dimensions of panel (if present)

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[PRODUCTS.SCHMERSAL.COM](https://products.schmersal.com)

# COMMAND AND SIGNALLING DEVICES – H PROGRAMME

## SPECIAL DEVICES



■ HWSE







■ HDAN6

### Key Features

<b>General description</b>	Step selector switch	Potentiometer drive
<b>Area of application</b>	Food, hygiene and outdoor applications	Food, hygiene and outdoor applications
<b>Mounting-Ø</b>	22.3 mm	22.3 mm
<b>Housing material</b>		
<b>Material of operating element</b>	Plastic	Plastic
<b>Material front ring</b>	Stainless steel	Stainless steel

### Technical features

<b>Electrical data</b>		
<b>Cam-operated switch</b>	Sälzer cam switch, M200 product series, M220 series	–
<b>Contacts</b>	One NO contact per stage	–
<b>Insulation voltage <math>U_i</math></b>	690 V	–
<b>Operating current <math>I_o</math>, AC-21A</b>	20 A	–
<b>Rated impulse withstand voltage. <math>U_{imp}</math></b>	4 kV	–
<b>Rated continuous current <math>I_{the}</math></b>	20 A	–
<b>Fuse rating</b>	20 A gL	–
<b>Cable section</b>	max. 2.5 mm <sup>2</sup> *	–
<b>Mechanical data</b>		
<b>Color</b>		
<b>Operating element</b>		
<b>Front ring</b>	Silver	Silver
<b>Front plate thickness</b>	1.5 ... 6 mm	1.5 ... 6 mm
<b>Maintained switching positions</b>	2 ... 12 positions	Infinite
<b>Assembly</b>		
<b>Integrated mounting plate</b>		
<b>Mounting position</b>	Arbitrarily	Arbitrarily
<b>Ambient conditions</b>		
<b>Ambient temperatures of the device head</b>	0 °C ... +80 °C	0 °C ... +80 °C
<b>Degree of protection (device head)</b>	IP67 / IP69K	IP67 / IP69K

### Safety classification

<b>Standards</b>	EN 60947, EN 60204, ANSI/UL 60947-1, ANSI/UL 60947-4-1	–
<b>Mechanical life</b>	Load-dependent	–
<b>Certificates</b>	BG, cULus, CCC (under preparation)	BG, cULus, CCC (under preparation)

\* Use copper conductors only

# COMMAND AND SIGNALLING DEVICES – H PROGRAMME

## SPECIAL DEVICES

Type	Circuit diagram and connecting terminals	Switching angle	L	LE	A	B	C	Type designation
Cam switching design step switches with latching mechanism, 1-pole no zero position		60°	40.7	60	31	22.3	45	HWSE3①-BL-②
		60°	40.7	60	31	22.3	45	HWSE4①-BL-②
		60°	50.2	69.5	31	22.3	45	HWSE5①-BL-②
		60°	50.2	69.5	31	22.3	45	HWSE6①-BL-②
		45°	59.7	78	31	22.3	45	HWSE7①-BL-②
		45°	59.7	78	31	22.3	45	HWSE8①-BL-②
		30°	69.2	87.5	31	22.3	45	HWSE9①-BL-②
		30°	69.2	87.5	31	22.3	45	HWSE10①-BL-②
		30°	78.7	97	31	22.3	45	HWSE11①-BL-②
		30°	78.7	97	31	22.3	45	HWSE12①-BL-②

Type	Description	LE	A	B	C	Type designation
Potentiometer drive	for 6 mm shaft Ø, shaft length 30 ... 40 mm, control unit black	63	31	22.3	45	HDAN6-BL-SW-③
	for 6 mm shaft Ø, shaft length 30 ... 40 mm, control unit white					HDAN6-BL-WS-③

### Key

A	Height	Height of command device in front of the front panel
B	Mounting-Ø	Installation diameter for the command device head
C	Key Ø	Width of the command device head
L	Length	Length of step switch block
LE	Installation depth	Length between command device head and bottom edge of switch when mounted

### Ordering code

- ① **Switching stages:**  
 2                      2 switching stages  
 ...                     ...  
 12                     12 switching stages
- ② **Colour of toggle**  
 BK                     Black  
 WS                     White
- ③ **End stop:**  
 250                    End stop at 250°

# CONTACT AND LIGHT TERMINAL BLOCKS

## TECHNICAL DATA – RANGE AF



■ CLP001

### Key Features

<b>General description</b>	Light terminal block
<b>Can be used with</b>	H programme

### Technical features

<b>Design</b>	CLP
<b>Material</b>	
<b>Material of the housings</b>	Plastic, self-extinguishing
<b>Material of the contacts</b>	
<b>Utilisation category AC-15; DC-13</b>	
<b>Rated insulation voltage <math>U_i</math></b>	
<b>Rated impulse withstand voltage. <math>U_{imp}</math></b>	
<b>Thermal test current <math>I_{the}</math></b>	
<b>Max. fuse rating</b>	Appropriate to the respective version
<b>Switching frequency</b>	
<b>Mechanical life</b>	
<b>Resistance to shock</b>	30 g / 18 ms
<b>Resistant to vibration</b>	
<b>Ambient temperature</b>	-25 °C ... +60 °C
<b>Termination</b>	
<b>Screw connection</b>	■
<b>Cable section</b>	
<b>Solid wire</b>	2 × 1.5 mm <sup>2</sup>
<b>Stranded wire</b>	2 × 1.5 mm <sup>2</sup>
<b>Degree of protection terminals ** / switch rooms</b>	IP20 / IP40

### Safety classification

<b>Standards</b>	IEC 60947-5-1, IEC 60947-1
<b>B<sub>1,00</sub></b>	
<b>Certificates</b>	cULus

\* For actuating heads with higher mass, appropriately lower  
 \*\* With plug-in connectors, depends on the connector plug used



■ CLP101



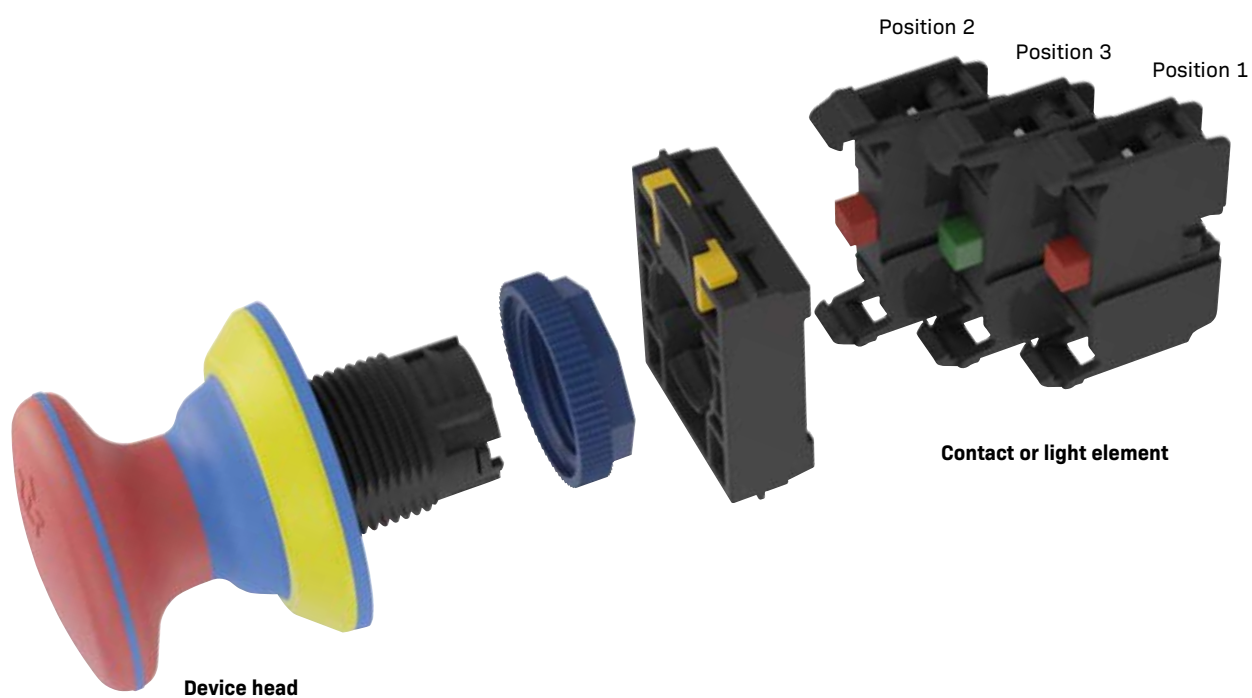
■ CLP110

Contact element H programme	Contact element H programme
CLP	CLP
Plastic, self-extinguishing Carrier made from fine silver, Phosphor bronze or brass	Plastic, self-extinguishing Carrier made from fine silver, Phosphor bronze or brass
250 V / 6 A; 24 V / 3 A	250 V / 6 A; 24 V / 3 A
500 V	500 V
2.5 kV	2.5 kV
6 A	6 A
gG 6 A	gG 6 A
1,200 s/h	1,200 s/h
5,000,000 operations	5,000,000 operations
30 g / 18 ms	30 g / 18 ms
20 g / 10 ... 150 Hz *	20 g / 10 ... 150 Hz *
-25 °C ... +60 °C	-25 °C ... +60 °C
■	■
2 × 0.5 ... 1.5 mm <sup>2</sup>	2 × 0.5 ... 1.5 mm <sup>2</sup>
2 × 0.5 ... 1.5 mm <sup>2</sup>	2 × 0.5 ... 1.5 mm <sup>2</sup>
IP20 / IP40	IP20 / IP40
IEC 60947-5-1, IEC 60947-1	IEC 60947-5-1, IEC 60947-1
100,000 operations cULus	100,000 operations cULus

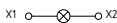
# CONTACT AND LIGHT TERMINAL BLOCKS TYPE CLP

Device head	Position 1	Position 3	Position 2
Emergency stop command device	Contact element CLP101 or CLP110	Contact element CLP101 or CLP110	Contact element CLP101 or CLP110
Pushbutton			
Mushroom button			
Selector switch/key button			
Illuminated pushbutton	Contact element CLP101 or CLP110	Light element CLP001	Contact element CLP101 or CLP110
Indicator light	-	Light element CLP001	-

## Assembly example



## CONTACT AND LIGHT TERMINAL BLOCKS TYPE CLP

Type	Application	Function	Position	Connector	Plunger colour	Contact labelling	Type designation	Material number
Contact element	Standard and emergency stop	1 NC	1, 2 and 3	Screw connection	Red	1, 2	<b>CLP101</b>	<b>103040378</b>
		1 NO	1, 2 and 3	Screw connection	Green	3, 4	<b>CLP110</b>	<b>103040379</b>
Type	Illuminant	Diagram	Position	Connector	Contact labelling	Type designation	Material number	
Light terminal block	Without *		3	Screw connection	X1 - X2	<b>CLP001</b>	<b>103040380</b>	

\* The right lamp with the size Ba9S has to be ordered separately.




\* Illuminant not included in delivery!

# COMMAND AND SIGNALLING DEVICES ACCESSORIES

Type	Description	Type	Recommended for product portfolio				
			E	N	H	R	A
Emergency stop label	Installation Ø for 22.3 mm, 53 mm external Ø	MDP-8	■			■	
	Mounting-Ø for 22.3 mm, external Ø 53 mm, plastic	MDP-8.2					■
	Installation Ø for 22.3 mm, 100 mm external Ø	MDP-6	■			■	
	Installation Ø for 30.5 mm, 53 mm external Ø	DPF-9	■			■	
	Installation Ø for 30.5 mm, 100 mm external Ø	DPF-7	■			■	
	External Ø 70 mm, V4A version, colour yellow, self-adhesive, no labelling	NDP-70	■	■		■	
	External Ø 65 mm plastic – as adhesive foil	NDP-65	■	■		■	
Protective collar	Emergency stop protective collar, installation Ø for 22.3 mm operating element Ø 38.5 mm	EDRR-1 SET	■				
	Emergency stop protective collar, installation Ø for 22.3 mm operating element Ø 49 mm	EDRR-2 SET	■			■	
	Emergency stop protective collar, installation Ø for 30.5 mm operating element Ø 38.5 mm	EDRR-1.1 SET	■				
	Emergency stop protective collar, installation Ø for 30.5 mm operating element Ø 49 mm	EDRR-2.1 SET	■			■	
	Emergency stop protective collar, material 1.4550, incl. fastening screws	NSK/V4A/GB		■			
	Protective collar to prevent accidental touching for pushbuttons and illuminated pushbuttons	NSK-GR		■			
Selector switch lock	Selector switch lock for two-position selector switch	NWSP21GR		■			
	Selector switch lock for three-position selector switch	NWSP32GR		■			
Blanking plug	Blanking plug, metallised	NB		■			
	Blanking plug, stainless steel	NB/VA		■			
	Blanking plug, installation Ø 22.3 mm	MBN	■				
	Blanking plug, installation Ø 30.5 mm	BN	■			■	
	Blanking plug, installation Ø 22.3 mm	ABN					■
Dust shield cap	Blanking plug, stainless steel, mounting diameter 22.3 mm	HB-BL			■		
	Dust shield cap for lamps and push buttons	AMT					■
Identification plate	Identification label, small	NZSO/V4A		■			
	Identification label, large	NZSO2/V4A		■			
	Identification plate	HZSO/V4A			■		
	Identification label, small	RZSO				■	
	Identification label, medium	RZSO1				■	
	Identification label, large	RZSO2				■	
	Identification label, aluminium	MZSO	■				
	Identification label, plastic	KZSO	■				
	Identification label, 30.5 mm, small	ZSO2	■				
	Identification label, 30.5 mm, large	ZSO	■				
	Identification label, 30.5 mm, large	ZSNO	■				
Adapter ring	Identification plate	AZSO					■
	Adapter ring with gasket for using Ø 22 mm operating buttons to 30.5 mm drilled holes	NUE		■			
	Adapter ring with gasket for using Ø 22 mm operating buttons to 30.5 mm drilled holes	RUE				■	
Spare key	Adapter ring with gasket for using Ø 22 mm operating buttons to 30.5 mm drilled holes	MUE	■				
	Spare key for key selector switch	SDS1/SDS2	■			■	
	Spare key for key selector switch	A-S					■

# COMMAND AND SIGNALLING DEVICES ACCESSORIES

Type	Description	Type	Recommended for product portfolio				
			E	N	H	R	A
Mounting flange	Mounting flange	EFM	■	■			
	Mounting flange	ELM	■	■			
	Mounting flange for position switch	EFMH	■	■			
	Mounting flange	RLM				■	
	Driver for contact elements	R-F				■	
	Mounting flange	SMF			■		
	Mounting flange for special devices	SMF-SG			■		
Mounting tool	Mounting tool for mounting flange	RMW				■	
	Mounting tool for central nut	HMW			■		
	Installation tool for knurled nut	A-14					■
Disassembly tool	Removal tool for contact elements	A-DW					■
Multi LED	Multi LED white Ba9S, 24 VDC	LE24/9WS	■	■		■	■
	Multi LED white Ba9S, 230 VDC	LE230/9WS	■	■		■	■
Lamp	Lamp 24V/1.9W	L24/9	■			■	

Emergency stop label	Emergency stop label	EMERGENCY STOP protective collar
 <ul style="list-style-type: none"> <li>■ NDP-70</li> <li>■ Material V4A</li> <li>■ Yellow powder-coated</li> </ul>	 <ul style="list-style-type: none"> <li>■ MDP-8.2</li> <li>■ EMERGENCY STOP Sign Plastic</li> </ul>	 <ul style="list-style-type: none"> <li>■ EDRR-1 SET</li> <li>■ Aluminium die-cast</li> <li>■ Yellow powder-coated</li> </ul>

EMERGENCY STOP protective collar	Protective collar	Selector switch lock
 <ul style="list-style-type: none"> <li>■ NSK/V4A/GB</li> <li>■ Bracket material 1.4550 plate V4A powder-coated</li> </ul>	 <ul style="list-style-type: none"> <li>■ NSK-GR</li> <li>■ Protective collar to prevent accidental touching</li> <li>■ For pushbuttons and illuminated N product portfolio pushbuttons and illuminated pushbuttons</li> <li>■ Command device not included in delivery</li> </ul>	 <ul style="list-style-type: none"> <li>■ NWSP21GR / NWSP32GR</li> <li>■ Replacement measure for key-operated selector switch</li> <li>■ For selector switches with long toggle</li> <li>■ Padlock not included in the delivery</li> </ul>




# COMMAND AND SIGNALLING DEVICES ACCESSORIES

<p><b>Blanking plug</b></p>  <ul style="list-style-type: none"> <li>■ NB</li> <li>■ Plastic, metallised</li> <li>■ For installation diameter 22.3 mm</li> </ul>	<p><b>Blanking plug</b></p>  <ul style="list-style-type: none"> <li>■ ABN</li> <li>■ Plastic</li> <li>■ For installation diameter 22.3 mm</li> </ul>	<p><b>Blanking plug</b></p>  <ul style="list-style-type: none"> <li>■ HB-BL</li> <li>■ Stainless steel</li> <li>■ For installation diameter 22.3 mm</li> </ul>
<p><b>Dust shield cap</b></p>  <ul style="list-style-type: none"> <li>■ AMT</li> <li>■ Dust shield cap for lamps and push buttons</li> </ul>	<p><b>Identification plate</b></p>  <ul style="list-style-type: none"> <li>■ RZSO2</li> <li>■ Aluminium plate with black anodised labelling area</li> <li>■ Depending on version, 1 to 3 lines can be written</li> </ul>	<p><b>Identification plate</b></p>  <ul style="list-style-type: none"> <li>■ NZSO...</li> <li>■ Stainless-steel plate V4A</li> <li>■ Depending on version, 1 to 3 lines can be written</li> </ul>
<p><b>Identification plate</b></p>  <ul style="list-style-type: none"> <li>■ MZSO</li> <li>■ Aluminium plate with black anodised labelling area</li> </ul>	<p><b>Identification plate</b></p>  <ul style="list-style-type: none"> <li>■ AZSO</li> <li>■ Aluminium plate with black anodised labelling area</li> <li>■ Depending on version, 1 to 2 lines can be written</li> </ul>	<p><b>Adapter ring</b></p>  <ul style="list-style-type: none"> <li>■ RUE</li> <li>■ Plastic</li> <li>■ Adapter ring from installation diameter of 30.5 mm to 22.3 mm</li> </ul>

# COMMAND AND SIGNALLING DEVICES ACCESSORIES

Replacement key	Mounting flange	Mounting flange
 <ul style="list-style-type: none"> <li>■ SDS1/SDS2 and A-S</li> <li>■ Spare key for key selector switch with EKM locking</li> <li>■ Note: You must state the locking number too</li> </ul>	 <ul style="list-style-type: none"> <li>■ ELM</li> <li>■ Mounting flange for E and N product portfolio illuminated pushbuttons</li> </ul>	 <ul style="list-style-type: none"> <li>■ EFM</li> <li>■ Mounting flange for E and N product portfolio pushbuttons</li> </ul>
Mounting flange	Mounting flange	Mounting flange
 <ul style="list-style-type: none"> <li>■ EX-RLM</li> <li>■ Mounting flange for EX-R product portfolio with contact carrier and driver</li> </ul>	 <ul style="list-style-type: none"> <li>■ SMF</li> <li>■ Standard mounting flange for H programme</li> </ul>	 <ul style="list-style-type: none"> <li>■ SMF-SG</li> <li>■ Mounting flange for special devices for H programme</li> </ul>
Mounting flange	Position switch	Mounting tool
 <ul style="list-style-type: none"> <li>■ EFMH</li> <li>■ Mounting flange for E and N product portfolio position switches PS116</li> <li>■ Depending on the version, with position switch included in delivery too</li> </ul>	 <ul style="list-style-type: none"> <li>■ PS116-...-S200</li> <li>■ Thermoplastic enclosure</li> <li>■ Symmetrical casing</li> <li>■ Degree of protection IP66, IP67</li> <li>■ Connector plug M12 or cable</li> </ul>	 <ul style="list-style-type: none"> <li>■ RMW</li> <li>■ Mounting tool for EX-R product portfolio mounting flange</li> </ul>

## COMMAND AND SIGNALLING DEVICES ACCESSORIES

Mounting tool	Disassembly tool	Multi LED
 <ul style="list-style-type: none"><li>■ A-14</li><li>■ Installation tool for knurled nut</li></ul>	 <ul style="list-style-type: none"><li>■ A-DW</li><li>■ Removal tool for contact elements</li></ul>	 <ul style="list-style-type: none"><li>■ LE24/9WS</li><li>■ LED white</li><li>■ For Ba9S socket</li><li>■ 24VAC/DC</li><li>■ Also available as 230V version</li></ul>

# COMMAND AND SIGNALLING DEVICES ASSEMBLY HOUSING

## ENCLOSURE MBGAC/MBGHAC

The aluminium housings of the MBGAC series enjoy universal application owing to their simple and functional design. They offer the user a high level of sturdiness and a sealing concept that has proven its worth over many years. A special emergency stop enclosure MBGHAC with an integrated protective collar is available in this range and has been coordinated exactly with the emergency stop command devices of product portfolios E and R. This protects the emergency stop from being actuated accidentally and has the advantage for the plant owner of reducing undesirable downtimes.

## ENCLOSURE MBK

MBK enclosures are manufactured from a very high-quality plastic. This makes it possible for the user to use the housings under extreme conditions, such as temperatures from  $-40^{\circ}\text{C}$  to  $+100^{\circ}\text{C}$ . Furthermore, very few chemicals are capable of causing damage to this plastic. These housings have the glass fibre reinforced plastic to thank for their extreme sturdiness. Users have two knock-out drilled holes available for M20 cable glands to route cables in.

## ENCLOSURE KG

The KG-series features ABS plastic housings for simple applications that do not require the highest level of sturdiness. The cable outlets are already mounted on these enclosures, which means that plant manufacturers only need to mount the command devices.

## ENCLOSURE NBG/EBG/EX-EBG

Series NBG / EBG / EX-EBG assembly housings are made of high-quality stainless steel using a special deep-drawing process; they have been specially developed for hygiene and heavy-duty applications. The special ribbed gasket that surrounds the base of the enclosure on which the enclosure cover is forged, makes it possible to implement the particularly high IP 69K degree of protection. The EX-EBG enclosures have an additional integrated reinforcement panel that exceeds the extreme requirements for explosion protection.

## ENCLOSURE NBGLC

The assembly housings in the NBGLC series have been developed in accordance with the requirements of DIN EN 1672-2 for hygiene-sensitive areas. The housings consist of a welded base box and a solid housing cover. The sealing elements are specially designed in blue for the hygiene sector.

**MBGHAC**

- Enclosure material, alloy
- For emergency stop with protective collar

**MBGAC**

- Enclosure material, alloy

**MBK**

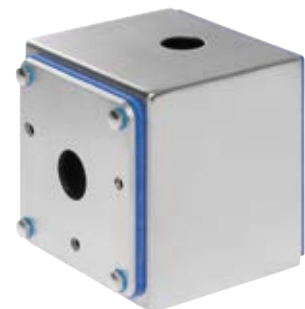
- Housing material, plastic

**KG**

- Housing material, plastic

**NBG/EBG/EX-EBG**

- Enclosure material, stainless steel

**NBGLC**

- Enclosure material, stainless steel

## COMMAND AND SIGNALLING DEVICES ASSEMBLY HOUSING

Type	Description	Housing material	Number of drilled holes	Middle spacing of drilled holes (mm)	Length of enclosure (mm)
MBGAC / MBGHAC	Assembly housing for emergency stop	Alloy	1	–	100
			1	–	100
	Assembly housing		1	–	100
			2	40	160
			3	40	200
			4	40	245
			5	40	305
			6	40	305
			2	50	160
			3	50	200
			4	50	245
			5	50	305
			0	–	100
			0	–	160
			0	–	200
			0	–	245
0	–	305			
MBK	Assembly housing	Plastic	1	40	85
	Assembly housing for emergency stop		1	40	85
KG	Assembly housing	Plastic	1	40	82
			2	40	120
			3	40	160
			2	40	120
			3	40	160
NBG/EBG	Assembly housing	Stainless steel	1	–	110
			0	–	154
			0	–	324
			2	60	154
			3	60	154
			4	60	324
			5	60	324
	5		65 / 55 / 55 / 55	324	
	Assembly housing for emergency stop		3	54 / 50	154
			3	54 / 50	154
Assembly housing	1	–	110		
	3	60	154		
	5	60	324		
EX-EBG	Assembly housing	Stainless steel	1	–	110
			3	60	154
			5	60	324
NBGLC	Assembly housing	Stainless steel	1	–	100
			1	–	100
			2	65	195
			2	65	195
			3	60	195
			3	60	195
			4	60	315
			4	60	315
			5	60	315
			5	60	315
			Assembly housing for protective collar mounting	1	–
	2			65	195
	2			65	195
	3			60	195
	3			60	195
	4			60	315
	4			60	315

Width of enclosure (mm)	Height of enclosure (mm)	Drilled hole for cable gland	Type designation	Recommended command device range		
				"E" programme	"N" programme	"R" programme
100	80	M20	MBGHAC311YE	■		■
100	80	M20	MBGAC311YE	■		■
100	80	M20	MBGAC311	■		■
100	80	M20	MBGAC422	■		■
100	80	M20	MBGAC433	■		■
100	80	M25	MBGAC444	■		■
100	80	M25	MBGAC455	■		■
100	80	M25	MBGAC466	■		■
100	80	M20	MBGAC532	■		■
100	80	M20	MBGAC543	■		■
100	80	M25	MBGAC554	■		■
100	80	M25	MBGAC565	■		■
100	80	-	MBGAC310	■		■
100	80	-	MBGAC420	■		■
100	80	-	MBGAC430	■		■
100	80	-	MBGAC440	■		■
100	80	-	MBGAC450	■		■
85	84	M20	MBK311	■		■
85	84	M20	MBK311GB	■		■
80	85	M20	KG411-A	■		Suitable only to a limited extent
80	85	M20	KG422-A	■		
80	85	M20	KG433-B	■		
80	85	M20	KG432-A	■		
80	85	M20	KG443-A	■		
110	88	M20	NBG311	■		
110	88	M20	NBG630		■	
110	88	2x M20	NBG660		■	
110	88	M20	NBG632/NM		■	
110	88	M20	NBG633		■	
110	88	2x M20	NBG664/NM		■	
110	88	2x M20	NBG665		■	
110	88	2x M20	NBG665/65.55		■	
110	88	M20	NBG633/54.50/NSK		■	
110	88	M20	NBG633/54.50		■	
110	88	M20	EBG311.0	■	■	■
110	88	M20	EBG633.0	■	■	■
110	88	M20	EBG665.0	■	■	■
110	88	M20	EX-EBG311.0			■
110	88	M25	EX-EBG633.0			■
110	88	2x M25	EX-EBG665.0			■
100	94	M20	NBGLC11.1		■	
100	94	M20	NBGLC11.3		■	
100	94	M20	NBGLC32.1		■	
100	94	M20	NBGLC32.3		■	
100	94	M20	NBGLC33.1		■	
100	94	M20	NBGLC33.3		■	
100	94	M20	NBGLC54.1		■	
100	94	M20	NBGLC54.3		■	
100	94	M20	NBGLC55.1		■	
100	94	M20	NBGLC55.3		■	
100	94	M20	NBGLC11.1/NSK		■	
100	94	M20	NBGLC32.1/NSK		■	
100	94	M20	NBGLC32.3/NSK		■	
100	94	M20	NBGLC33.1/NSK		■	
100	94	M20	NBGLC33.3/NSK		■	
100	94	M20	NBGLC54.1/NSK		■	
100	94	M20	NBGLC54.3/NSK		■	