

Hand-held Pendant Stations/ Handwheels



EUCHNER

More than safety.

EUCHNER

More than safety.



Headquarters in Leinfelden-Echterdingen



Logistics center in Leinfelden-Echterdingen



Production location in Unterböhringen

Internationally successful – the EUCHNER company

EUCHNER GmbH + Co. KG is a world-leading company in the area of industrial safety technology. EUCHNER has been developing and producing high-quality switching systems for mechanical and systems engineering for more than 50 years.

The medium-sized family-operated company based in Leinfelden, Germany, employs more than 500 people around the world, 400 in Germany alone.

In addition to the production locations in Unterböhringen and Shanghai/China, 15 subsidiaries and other sales partners in Germany and abroad work for our international success on the market.

Quality and innovation – the EUCHNER products

A look into the past shows EUCHNER to be a company with a great inventive spirit. We take the technological and ecological challenges of the future as an incentive for extraordinary product developments.

EUCHNER safety switches monitor safety doors on machines and installations, help to minimize dangers and risks and thereby reliably protect people and processes. Today, our products range from electromechanical and electronic components to intelligent integrated safety solutions. Safety for people, machines and products is one of our dominant themes.

We define future safety technology with the highest quality standards and reliable technology. Extraordinary solutions ensure the great satisfaction of our customers. The product ranges are subdivided as follows:

- ▶ Transponder-coded Safety Switches (CES)
- ▶ Transponder-coded Safety Switches with guard locking (CET)
- ▶ Interlocking and guard locking systems (Multifunctional Gate Box MGB)
- ▶ Access management systems (Electronic-Key-System EKS)
- ▶ Electromechanical Safety Switches
- ▶ Magnetically coded Safety Switches (CMS)
- ▶ Enabling Switches
- ▶ Safety Relays
- ▶ Emergency Stop Devices
- ▶ Hand-Held Pendant Stations and Handwheels
- ▶ Safety Switches with AS-Interface
- ▶ Joystick Switches
- ▶ Position Switches



Hand-held Pendant Stations/Handwheels









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About this catalog

The *Hand-held Pendant Stations/Handwheels* catalog provides you with an overview of our HBA, HBM and HBL series hand-held pendant stations as well as our HK and HW series handwheels.

Due to their precision, their ergonomic design and their robustness, these products are the right choice for numerous applications. You will find the technical data after the product overview.

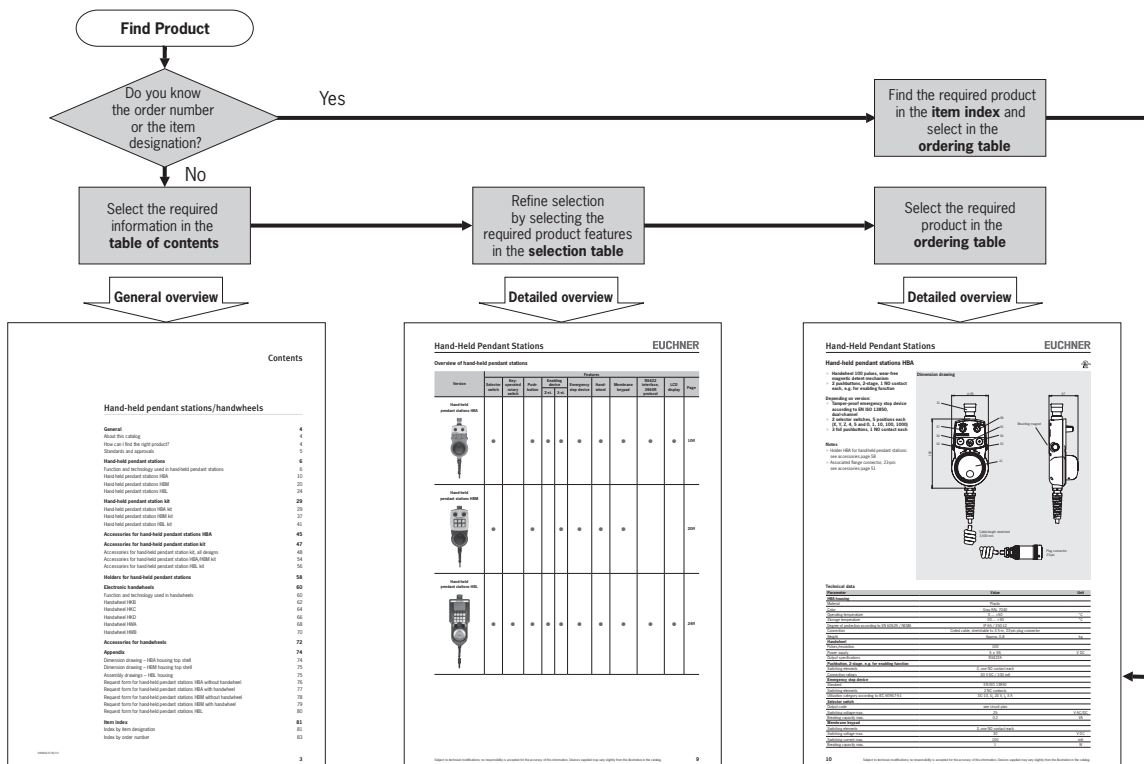
You will find the following series and accessories in this catalog:

Hand-held pendant stations/handwheels											
Hand-held pendant stations						Handwheels					
Complete devices			Kit	Accessories	Holder	Magnetic detent mechanism			Mechanical detent mechanism		Accessories
HBA	HBM	HBL				HKB	HKC	HKD	HWA	HWB	
											
See page 10	See page 20	See page 24	See page 29	See page 45	See page 58	See page 62	See page 64	See page 66	See page 68	See page 70	See page 72

How can I find the right product?

There are two ways you can find the right product:

- 1 If you know the order number or the item designation, look for the product directly in the item index (see page 81 or page 83).
- 2 If you have specific requirements, refine the selection step-by-step with the aid of the table of contents and the selection tables.



Standards and approvals

Standards

Hand-held pendant stations must comply with the requirements of the EMC directive 2004/108/EC. The EMC directive has been implemented in national law in the EU member states and, as a result, is binding for all manufacturers. Detailed requirements on EMC are defined in EN 61000 (electromagnetic compatibility EMC) part 6-2 and 6-4. If the requirements of this standard are met, conformity with the applicable laws and therefore with the EMC directive is assumed. EUCHNER hand-held pendant stations comply with the relevant standards and therefore help you to comply with the requirements during the design of your machinery.

Approvals

Many of the hand-held pendant stations given in this catalog are listed by Underwriters Laboratories (UL). The approval symbols on the individual pages of the catalog indicate which devices are approved.

This is the UL approval symbol:



Products with this symbol are approved by Underwriters Laboratories (UL, Canada and USA)

Function and technology used in hand-held pendant stations

The most important machine functions can be monitored, e.g. axis selection and axis movement, can be controlled decentrally using hand-held pendant stations. The freedom of movement of the machine operator is increased, and the operator can monitor and control processes without being tied to a fixed control panel.

In addition to the control function, hand-held pendant stations can also have a safety function. For this purpose, the hand-held pendant stations are equipped with emergency stop buttons and enabling switches.

Hand-held pendant stations with enabling function

Hand-held pendant stations with enabling function are essentially similar to classic enabling switches.

Enabling switches are manually operated control devices that, together with other control switches, enable commands related to potentially hazardous conditions to be run, as long as the enabling switches are actuated continuously. These switches are used wherever personnel must work directly in the danger area on machines and systems. This is necessary, e.g. during setting up, programming, testing or servicing work. As per annex 1 of the Machinery Directive, the protective action of movable safety guards can be disabled in these operating modes. The Machinery Directive places the condition that these operating modes must be secured using a lockable device (e.g. key-operated rotary switch) and machine operation is only allowed to be triggered by a second, separate action. To enable the operator in the danger area of a machine to trigger a machine movement, an enabling device should also be actuated.

The operator must also be able to stop the machine movement using the enabling device. This task is performed by the enabling switch. Every person who is in the hazardous area must carry an enabling device so that suitable action can be taken in case of danger.

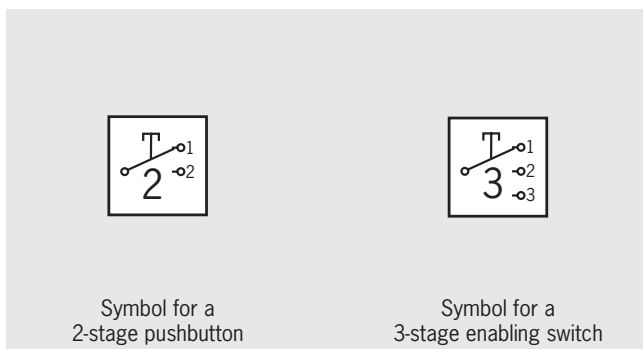
Two-stage or three-stage enabling switch?

The operator can only start a machine movement if he/she actuates the enabling device and keeps it in the actuated position. The movement is stopped again when the switch is released. All pushbuttons and all 3-stage enabling switches feature this two-stage function (OFF-ON).

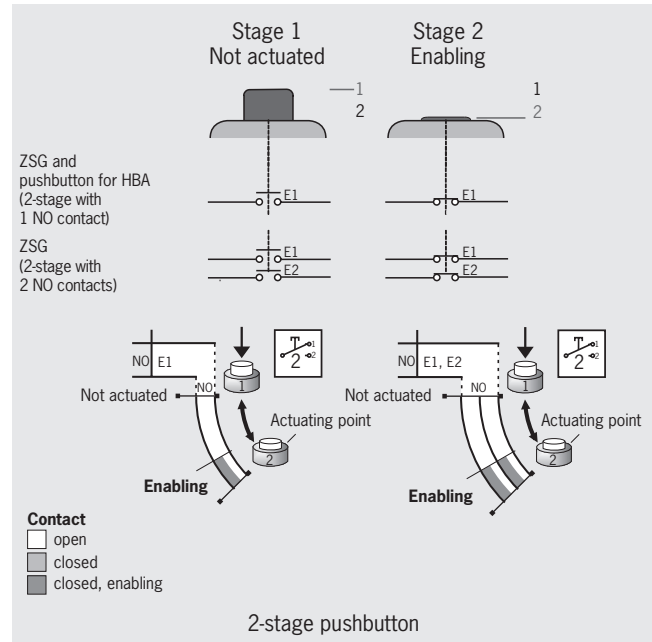
However, experience shows that the operator often clenches the enabling device in an emergency.

In this case a three-stage enabling switch is better and is specifically requested in many C standards. This switch has three switch positions (OFF-ON-OFF) and, if the operator clenches the switch, it is actuated beyond the enabling position (middle position) and the machine is shut down as a result.

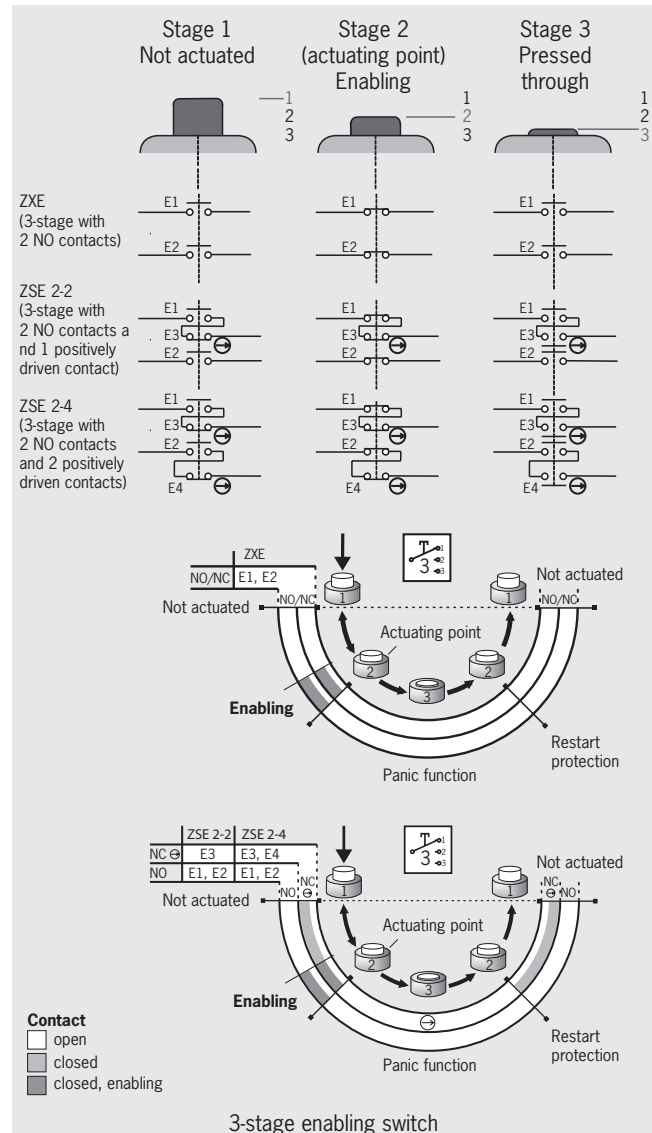
If a 2-stage pushbutton is used, it must also be ensured that, in an emergency, the operator is in a position to activate an emergency stop device in close proximity (VDI 2853). To identify the type of enabling device in the catalog, the following symbols are used:



Function sequence of two-stage pushbutton



Function sequence of three-stage enabling switch



As can be clearly seen in the figure, the enabling function can only be achieved at stage 2. This function is provided by the closing of the normally open contacts (NO = E1 and E2).

If the button is released, that is back from stage 2 to stage 1, the normally open contacts are opened again. The 2-stage pushbuttons and 3-stage enabling switches are identical in this function.

If, in this example, the button on a 3-stage enabling switch is pressed past the actuating point (stage 2) in panic (to stage 3), then not only the normally open contacts (NO) are reset, but also the safe positively driven contacts (NC ⊕) in case of the ZSE series.

The patented switch system ensures that the enabling function does not become active at stage 2 on the resetting of the pushbutton from stage 3 to stage 1. In this example, the enable can only be given if normally open and normally closed contacts are closed at the same time. This situation is only possible on actuation from stage 1 to stage 2. In the other direction, from stage 3 to stage 1, stage 2 is skipped and unintentional re-starting prevented.

Once the pushbutton has reached stage 1, the function sequence can be started again.

Due to its design, the switch unit also provides a wear-free, constant actuating point (stage 2).

Ergonomic housing

To make the operation of machines even easier and safer for the user, EUCHNER is the first manufacturer of hand-held pendant stations to have designed the housing taking into account ergonomic aspects. This means the HBA, HBM and HBL housings have been developed such that they fit optimally in the hand. Well-known manufacturers of machine tools and control systems all over the world are already using EUCHNER hand-held pendant stations. The wide product range extends from standard housings to custom-built hand-held pendant stations, e.g. with LCD displays, membrane keypads and serial communication ports.



Custom hand-held pendant stations

Customized hand-held pendant stations based on the standard devices can also be produced in small quantities. In order to use these ergonomically designed housings for the various requirements, EUCHNER offers the option of customized solutions. In the Appendix, you will find forms which can be used to describe your requirements. We will be happy to draw up a quotation based on your requirements.

Hand-held pendant stations from EUCHNER

Hand-held pendant stations from EUCHNER are characterized by their robust, ergonomic and attractive design. They are used to control axis movements of machines in setup mode, for example. The modular design of every unit permits an individual combination of safety components and functions as required by the customer. Depending on the size required and the functions to be integrated, EUCHNER offers three different types of hand-held pendant stations:

► HBA

The HBA is the smallest and handiest of the hand-held pendant stations from EUCHNER. Its compact size allows the HBA to be fastened on the machine without taking up much space. Its low weight permits comfortable working and operation, even over extended periods.

► HBM

The HBM is based on the ergonomic shape of the HBA. It additionally offers more space and greater flexibility for integrating more components and functions.

► HBL

The HBL is the largest hand-held pendant station from EUCHNER. It is especially robust and offers maximum flexibility for custom combination of components, even components with a larger depth.

Kits for hand-held pendant stations

To enable you to use ergonomically designed housings even for small quantities, e.g. prototypes or special versions, EUCHNER provides kits for hand-held pendant stations. As a result you can assemble a hand-held pendant station in a user-friendly housing to suit your requirements.

Explanation of symbols and notation

Symbols and specific notation related to the switches or the switching contact are used time and again in the catalog.




The following example is intended to explain these aspects:

► Notation 1 NC ⊕ + 1 NO

Explanation:

Normally closed contacts are termed NC, normally open contacts NO. The number indicates how many contacts are available. The symbol ⊕ behind the NC defines that the NC contact is a positively driven contact. This switch therefore has one normally closed contact and one normally open contact; the normally closed contact is a positively driven contact.

Overview of hand-held pendant stations

Version	Features										Page
	Selector switch	Key-operated rotary switch	Push-button	Enabling device		Emergency stop device	Hand-wheel	Membrane keypad	RS422 interface, 3964R protocol	LCD display	
				2-st.	3-st.						
Hand-held pendant stations HBA 	●		●	●	●	●	●	●	●	●	10ff
Hand-held pendant stations HBM 	●		●		●	●	●	●			20ff
Hand-held pendant stations HBL 	●	●	●	●	●	●	●	●	●	●	24ff

Hand-held pendant stations HBA



- ▶ Handwheel 100 pulses, wear-free magnetic detent mechanism
- ▶ 2 pushbuttons, 2-stage, 1 NO contact each, e.g. for enabling function

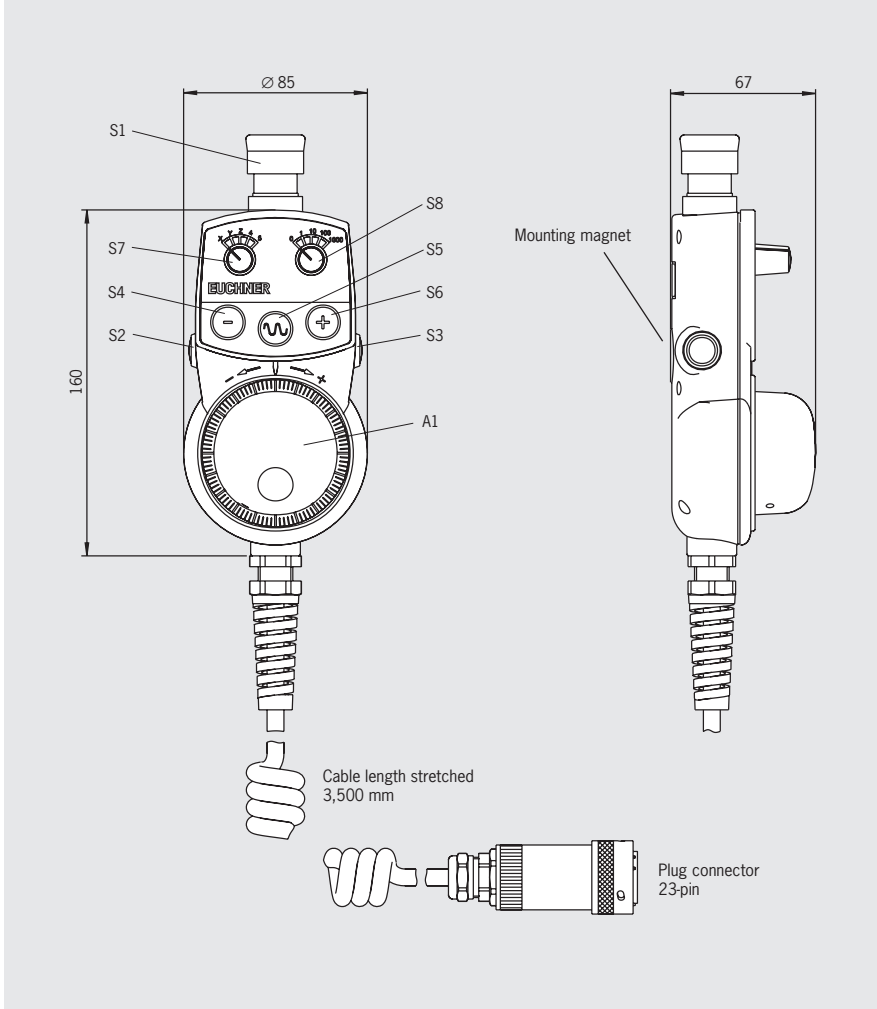
Depending on version:

- ▶ Tamper-proof emergency stop device according to EN ISO 13850, dual-channel
- ▶ 2 selector switches, 5 positions each (X, Y, Z, 4, 5 and 0, 1, 10, 100, 1000)
- ▶ 3 foil pushbuttons, 1 NO contact each

Notes

- ▶ Holder HBA for hand-held pendant stations: see accessories page 58
- ▶ Associated flange connector, 23-pin: see accessories page 51





Dimension drawing



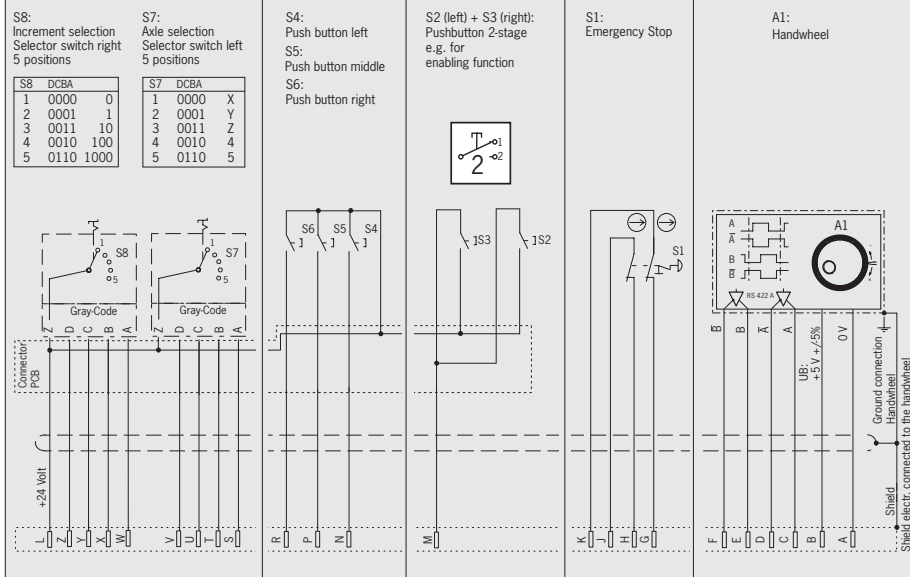
Technical data

Parameter	Value	Unit
HBA housing		
Material	Plastic	
Color	Gray RAL 7040	
Operating temperature	0 ... +50	°C
Storage temperature	-20 ... +50	°C
Degree of protection according to EN 60529 / NEMA	IP 65 / 250-12	
Connection	Coiled cable, stretchable to 3.5 m, 23-pin plug connector	
Weight	Approx. 0.8	kg
Handwheel		
Pulses/revolution	100	
Power supply	5 ± 5%	V DC
Output specifications	RS422A	
Pushbutton, 2-stage, e.g. for enabling function		
Switching elements	2, one NO contact each	
Connection ratings	30 V DC / 100 mA	
Emergency stop device		
Standard	EN ISO 13850	
Switching elements	2 NC contacts	
Utilization category according to IEC 60947-5-1	DC-13, U _e 24 V, I _e 3 A	
Selector switch		
Output code	see circuit plan	
Switching voltage max.	25	V AC/DC
Breaking capacity max.	0.2	VA
Membrane keypad		
Switching elements	3, one NO contact each	
Switching voltage max.	30	V DC
Switching current max.	100	mA
Breaking capacity max.	1	W

Ordering table

Version/item	Features					Order no.
	2 selector switches 5 positions each S7, S8	3 foil push- buttons, 1 NO contact each S4, S5, S6	2 pushbuttons 2-stage S2, S3	Emergency stop device S1	Handwheel 100 pulses A1	
HBA-079828 			●		●	079828
HBA-079826 	●		●	●	●	079826
HBA-072936 		●	●	●	●	072936
HBA-079827 	●	●	●	●	●	079827

Circuit plan



* Travel diagram
see page 6

Hand-held pendant stations HBA



- ▶ Handwheel 100 pulses, wear-free magnetic detent mechanism
- ▶ 1 enabling switch, 3-stage, 2 NO contacts each

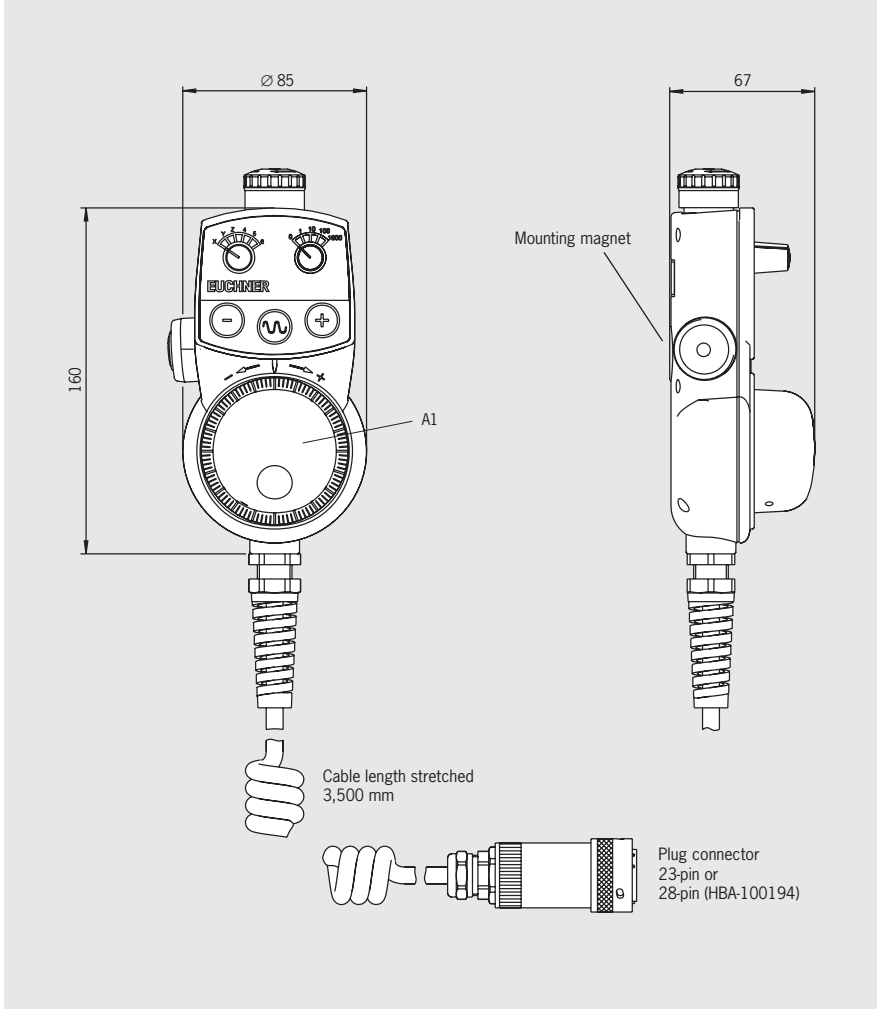
Depending on version:

- ▶ Tamper-proof emergency stop device according to EN ISO 13850, dual-channel
- ▶ 1 selector switch with 6 positions (X, Y, Z, 4, 5, 6)
- ▶ 1 selector switch with 5 positions (0, 1, 10, 100, 1000)
- ▶ 3 foil pushbuttons, 1 NO contact each

Notes

- ▶ Holder HBA for hand-held pendant stations: see accessories page 58
- ▶ Associated flange connector, 23-pin: see accessories page 51
- ▶ Associated flange connector, 28-pin: see accessories page 51





Dimension drawing



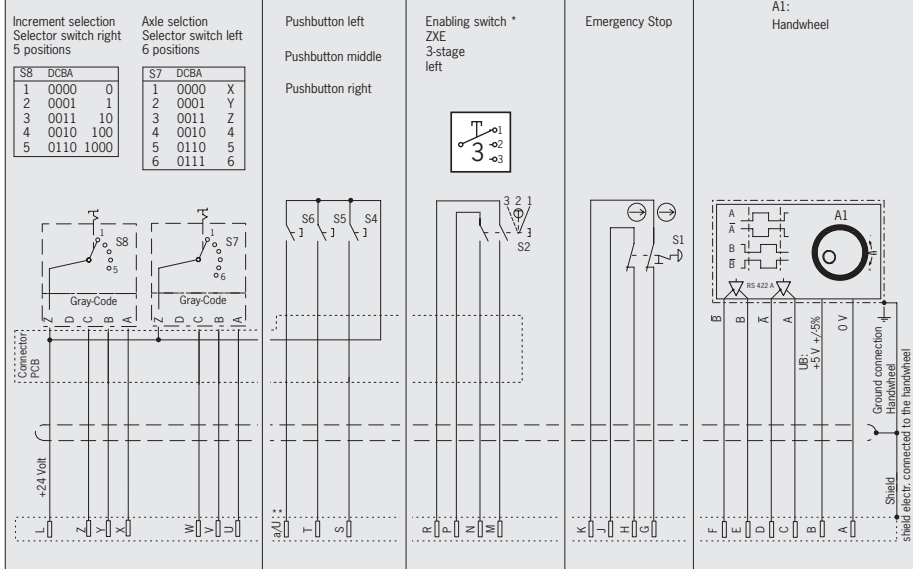
Technical data

Parameter	Value	Unit
HBA housing		
Material	Plastic	
Color	Gray RAL 7040	
Operating temperature	0 ... +50	°C
Storage temperature	-20 ... +50	°C
Degree of protection according to EN 60529 / NEMA	IP 65 / 250-12	
Connection	Spiral cable, stretchable to 3.5 m, plug connector 23-pin or 28-pin (HBA - 100 194)	
Weight	Approx. 0.8	kg
Handwheel		
Pulses/revolution	100	
Power supply	5 ± 5%	V DC
Output specifications	RS422A	
Enabling switch ZXE, 3-stage		
Switching elements	2 NO contacts	
Utilization category according to IEC 60947-5-1	DC-13, U _e 24 V, I _e 0.1 A	
Emergency stop device		
Standard	EN ISO 13850	
Switching elements	2 NC contacts	
Utilization category according to IEC 60947-5-1	DC-13, U _e 24 V, I _e 3 A	
Selector switch		
Output code	see circuit plan	
Switching voltage max.	25	V AC/DC
Breaking capacity max.	0.2	VA
Membrane keypad		
Switching elements	3, one NO contact each	
Switching voltage max.	30	V DC
Switching current max.	100	mA
Breaking capacity max.	1	W

Ordering table

Version/item	Features					Order no.
	2 selector switches, 5 and 6 positions	3 foil push-buttons, 1 NO contact each	1 enabling switch ZXE, 3-stage	Emergency stop device	Handwheel 100 pulses	
HBA-100186 			●		●	100186
HBA-100212 	●		●	●	●	100212
HBA-100213 		●	●	●	●	100213
HBA-100194 	●	●	●	●	●	100194

Circuit plan





Hand-held pendant stations HBA

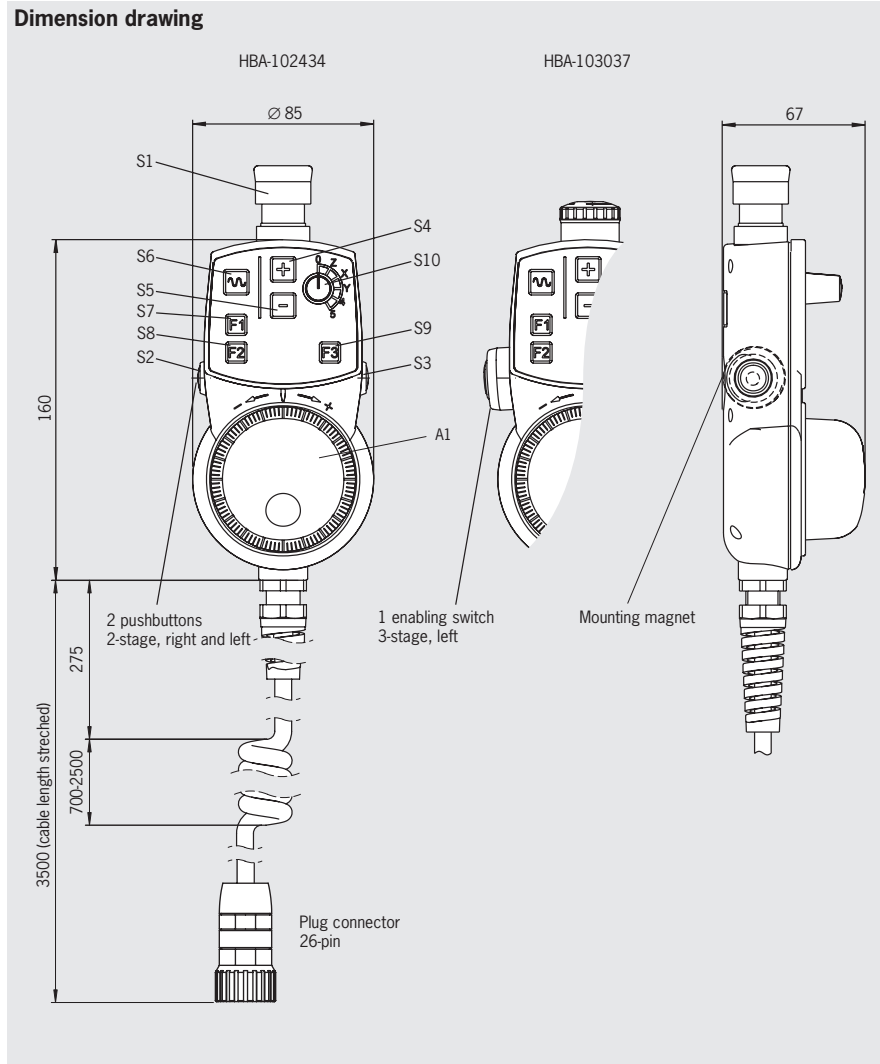
- ▶ Handwheel 100 pulses, wear-free magnetic detent mechanism
- ▶ Tamper-proof emergency stop device according to EN ISO 13850, dual-channel
- ▶ 1 selector switch, 6 positions (0, Z, X, Y, 4, 5)
- ▶ 6 foil pushbuttons, 1 NO contact each

Depending on version:

- ▶ 2 pushbuttons, 2-stage, 1 NO contact each, e.g. for enabling function
- ▶ 1 enabling switch, 3-stage, 2 NO contacts

Notes



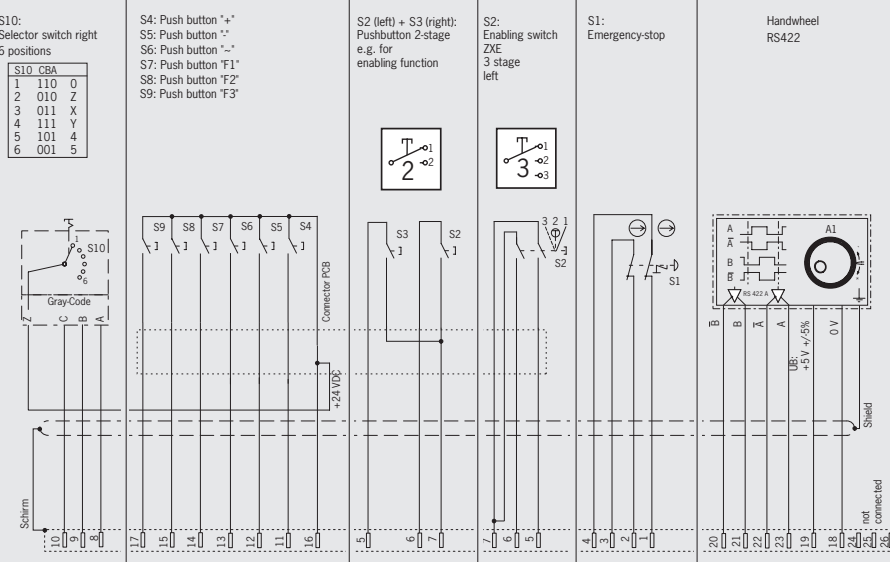
- ▶ Holder HBA for hand-held pendant stations: see accessories page 58
- ▶ Associated connection kit comprising 26-pin connection box and short-circuit plug: see accessories page 45
- ▶ Function compatible with Siemens MINI BHG



Technical data

Parameter	Value	Unit
HBA housing		
Material	Plastic	
Color	Gray RAL 7040	
Operating temperature	0 ... +50	°C
Storage temperature	-20 ... +50	°C
Degree of protection according to EN 60529 / NEMA	IP 65 / 250-12	
Connection	Coiled cable, stretchable to 3.5 m, 26-pin plug connector	
Weight	Approx. 0.8	kg
Handwheel		
Pulses/revolution	100	
Power supply	5 ± 5%	V DC
Output specifications	RS422A	
Emergency stop device		
Standard	EN ISO 13850	
Switching elements	2 NC contacts	
Utilization category according to IEC 60947-5-1	DC-13, U _e 24 V, I _e 3 A	
Selector switch		
Output code	see circuit plan	
Switching voltage max.	25	V AC/ DC
Breaking capacity max.	0.2	VA
Membrane keypad		
Switching elements	6, one NO contact each	V AC/DC
Switching voltage max.	30	V DC
Switching current max.	100	mA
Breaking capacity max.	1	W
Pushbutton, 2-stage, e.g. for enabling function		
Switching elements	2, one NO contact each	mA
Connection ratings	30 V DC / 100 mA	W
Enabling switch ZXE, 3-stage		
Switching elements	1, 2 NO contacts	
Utilization category according to IEC 60947-5-1	DC-13, U _e 24 V, I _e 0.1 A	

Ordering table

Version/item	Features						Order no.																					
	1 selector switch 6 positions	6 foil pushbuttons, 1 NO contact each	2 pushbuttons, 2-stage	1 enabling switch ZXE, 3-stage	Emergency stop device	Handwheel 100 pulses																						
	S10	S4, S5, S6, S7, S8, S9	S2, S3	S2	S1	A1																						
 <p>HBA-102434</p>	●	●	●	●	●	●	102434																					
 <p>HBA-103037</p>	●	●	●	●	●	●	103037																					
Circuit plan	<p>S10: Selector switch right 6 positions</p> <table border="1"> <thead> <tr> <th>S10</th> <th>CBA</th> <th></th> </tr> </thead> <tbody> <tr><td>1</td><td>110</td><td>0</td></tr> <tr><td>2</td><td>010</td><td>Z</td></tr> <tr><td>3</td><td>011</td><td>X</td></tr> <tr><td>4</td><td>111</td><td>Y</td></tr> <tr><td>5</td><td>101</td><td>4</td></tr> <tr><td>6</td><td>001</td><td>5</td></tr> </tbody> </table>	S10	CBA		1	110	0	2	010	Z	3	011	X	4	111	Y	5	101	4	6	001	5	<p>S4: Push button "+" S5: Push button "-" S6: Push button "~" S7: Push button "F1" S8: Push button "F2" S9: Push button "F3"</p>	<p>S2 (left) + S3 (right): Pushbutton 2-stage e.g. for enabling function</p>	<p>S2: Enabling switch ZXE 3 stage left</p>	<p>S1: Emergency-stop</p>	<p>Handwheel RS422</p>	
S10	CBA																											
1	110	0																										
2	010	Z																										
3	011	X																										
4	111	Y																										
5	101	4																										
6	001	5																										

* Travel diagram see page 6

Hand-held pendant stations HBA



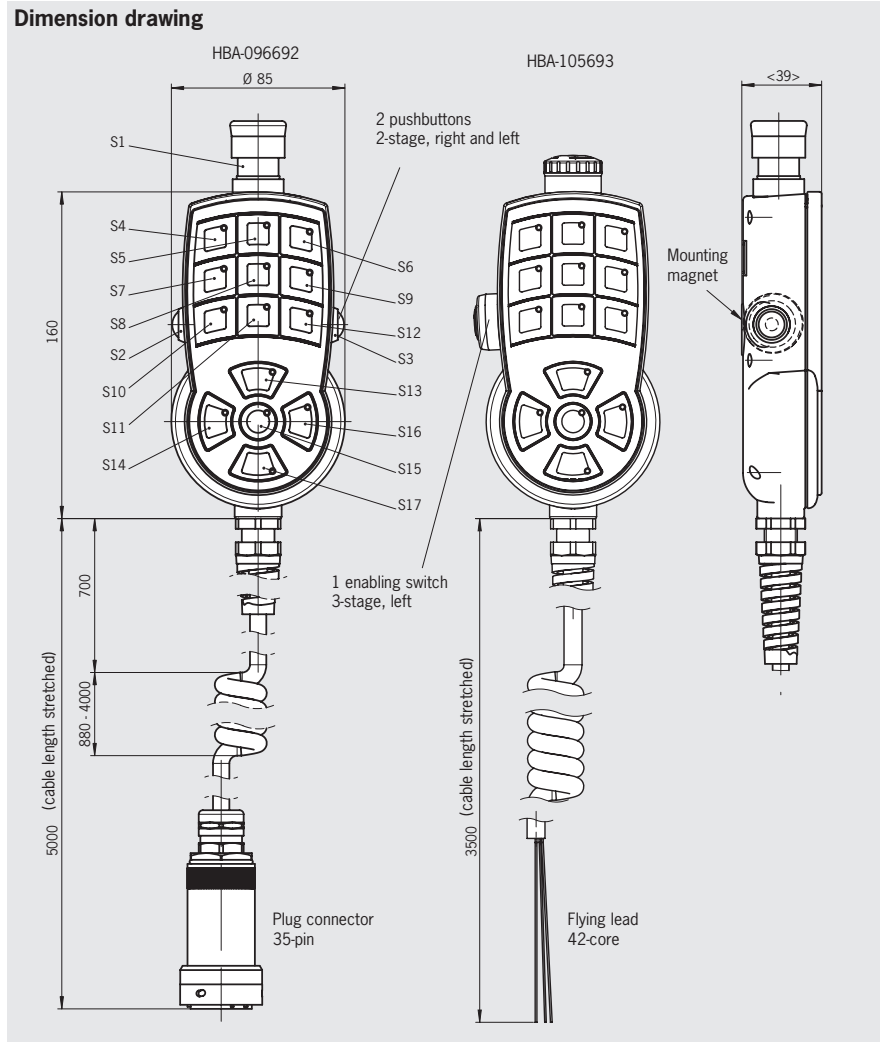
- ▶ Membrane keypad can be labeled as required using slide-in strips
- ▶ Tamper-proof emergency stop device according to EN ISO 13850, dual-channel
- ▶ LEDs white, color customer-specific using colored keypad membrane

Depending on version:

- ▶ 2 pushbuttons, 2-stage, 1 NO contact each, e.g. for enabling function
- ▶ 1 enabling switch, 3-stage,
- ▶ 2 NO contacts
- ▶ Coiled cable, stretchable to 5 m, 35-pin plug connector
- ▶ Coiled cable, stretchable to 3.5 m, 42-core, flying lead

Notes

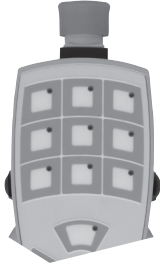

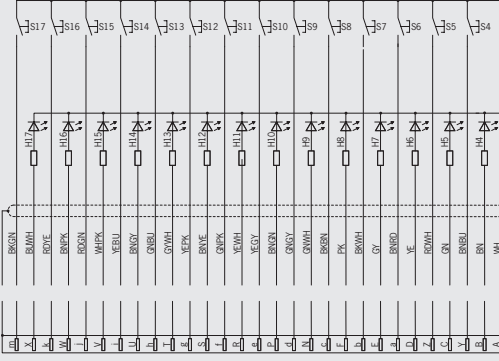

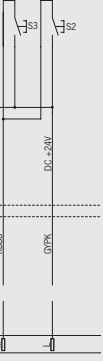



- ▶ Holder HBA for hand-held pendant stations: see accessories page 58
- ▶ Associated flange connector, 35-pin: see connection components page 51
- ▶ For template for slide-in strips, see www.euchner.de (Support)



Technical data

Parameter	Value	Unit
HBA housing		
Material	Plastic	
Color	Gray RAL 7040	
Operating temperature	0 ... +50	°C
Storage temperature	-20 ... +50	°C
Degree of protection according to EN 60529 / NEMA	IP 65 / 250-12	
Connection	Coiled cable, stretchable to 5 m, 35-pin plug connector Coiled cable, stretchable to 3.5 m, 42-core, flying lead	kg
Weight	Approx. 0.8	kg
Emergency stop device		
Standard	EN ISO 13850	V DC
Switching elements	2 NC contacts	
Utilization category according to IEC 60947-5-1	DC-13, U _e 24 V, I _e 3 A	
Membrane keypad		
Switching elements	14, one NO contact each	
Switching voltage max.	30	V DC
Switching current max.	100	mA
Breaking capacity max.	1	W
Pushbutton, 2-stage, e.g. for enabling function		
Switching elements	2, one NO contact each	
Switching voltage max.	30	V DC
Switching current max.	100	mA
Enabling switch ZXE, 3-stage		
Switching elements	1, 2 NO contacts	
Utilization category according to IEC 60947-5-1	DC-13, U _e 24 V, I _e 0.1 A	

Ordering table

Version/item	Features				Order no.
	Membrane keypad S4 - S17	Pushbutton, 2-stage S2, S3	Enabling switch ZXE, 3-stage S2	Emergency stop device S1	
 <p>HBA-096692</p>	●	●		●	096692
 <p>HBA-105693</p>	●		●	●	105693
Circuit plan	<p>S4 - S17: Membrane keypad</p> 	<p>S2: Enabling switch* 2-stage left</p> <p>S3: Enabling switch* 2-stage right</p>  	<p>S2: Enabling switch* ZXE 3-stage left</p>  	<p>S1: Emergency Stop</p> 	

* Travel diagram see page 6

Hand-held pendant stations HBAS



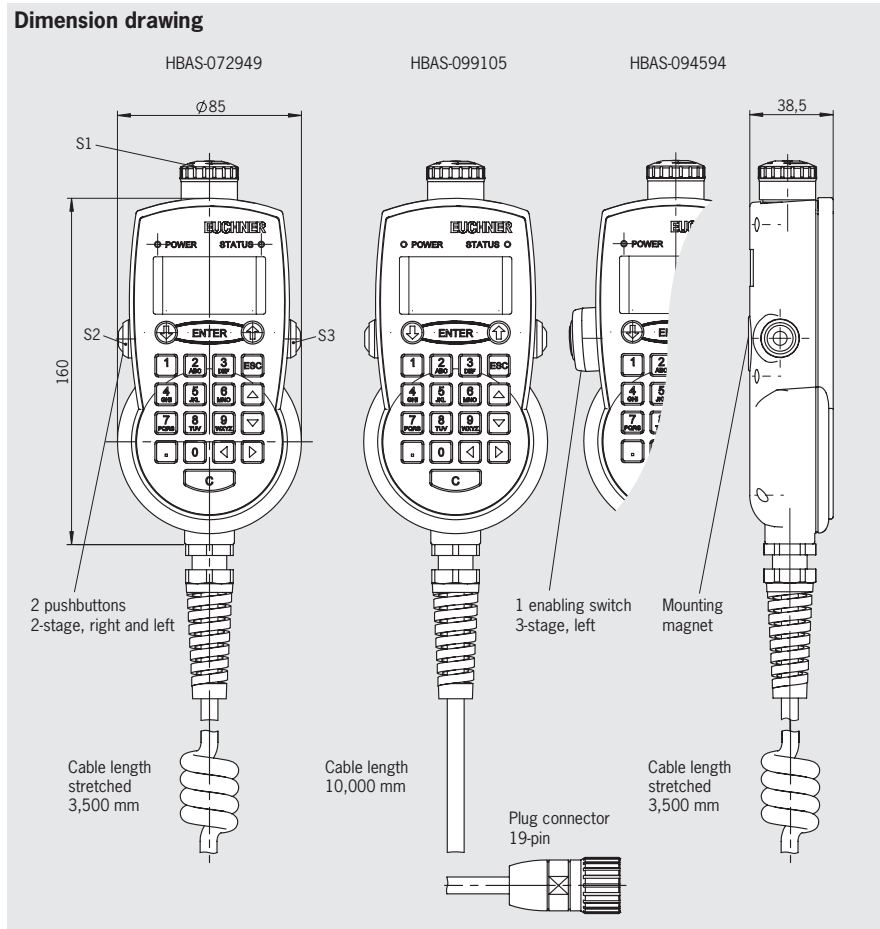
- ▶ Programmable pulse generator
- ▶ Tamper-proof emergency stop device according to EN ISO 13850, dual-channel
- ▶ Membrane keypad with 20 keys and 2 LEDs
- ▶ LCD display with LED background lighting, switchable 4-line/8-column or 8-line/16-column
- ▶ RS422 interface, 3964R protocol

Depending on version:

- ▶ 2 pushbuttons, 2-stage, 1 NO contact each, e.g. for enabling function
- ▶ 1 enabling switch, 3-stage, 2 NO contacts
- ▶ Coiled cable stretchable to 3.5 m
- ▶ Straight connection cable, length 10 m

Notes



- ▶ Holder HBA for hand-held pendant stations: see accessories page 58
- ▶ Associated male flange connector, 19-pin: see accessories page 45
- ▶ ActiveX module available for integrating the user's applications (for MS Windows®-based user programs with ActiveX support)



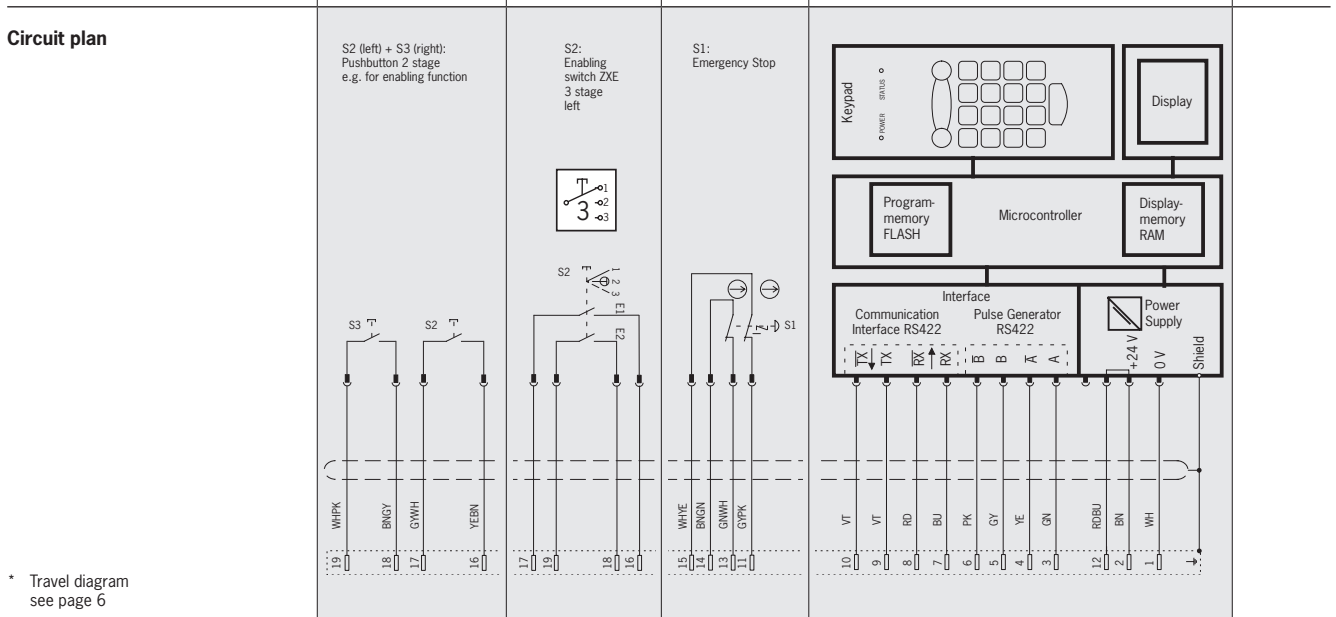
Technical data

Parameter	Value	Unit
HBA housing		
Material	Plastic	
Color	Gray RAL 7040	
Operating temperature	0 ... +50	°C
Storage temperature	-20 ... +50	°C
Degree of protection according to EN 60529 / NEMA	IP 65 / 250-12	
Connection	Spiral cable, stretchable to 3.5 m, or straight connection cable, length 10 m. Plug connector, 19-pin	
Weight	Approx. 0.85	kg
Pulse generator		
Pulses	programmable	
Output specifications	RS422A	
Emergency stop device		
Standard	EN ISO 13850	
Switching elements	2 NC contacts	
Utilization category according to IEC 60947-5-1	DC-13, U _e 24 V, I _e 3 A	A
Communications interface		
Type	Serial, RS422A (4-wire)	
Data format	8 data bits + 1 parity bit (even), 1 stop bit	
Transfer speed	9600 or 19200 baud, automatic detection	
Transfer protocol	3964R	
Electrical connection		
Power supply	24 ± 20%	V DC
Operating current, max.	100	mA
Pushbutton, 2-stage, e.g. for enabling function		
Switching elements	2, one NO contact each	
Switching voltage max.	30	V DC
Switching current max.	100	mA
Enabling switch ZXE, 3-stage		
Switching elements	1, 2 NO contacts	
Utilization category according to IEC 60947-5-1	DC-13, U _e 24 V, I _e 0.1 A	

Ordering table

Version/item	Features				Order no.
	2 pushbuttons, 2-stage S2, S3	1 enabling switch ZXE, 3-stage S2	Emergency stop device S1	Programmable pulse generator, membrane keypad, display, RS422 interface, 3964R protocol	
 HBAS-072949 HBAS-099105	●		●	●	072949 099105
 HBAS-094594		●	●	●	094594

Circuit plan



ActiveX module	093011
Software for integration into user software that supports ActiveX	
ActiveX module manual	093013
Detailed documentation on use of the software	

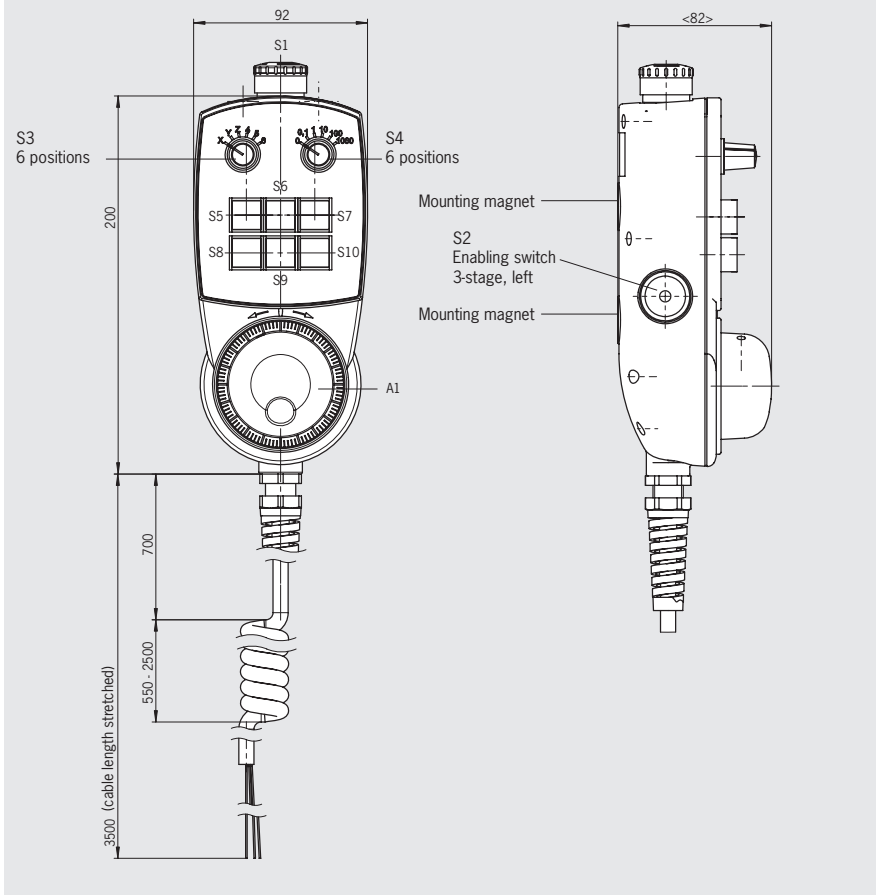
Hand-held pendant station HBM-111711



- ▶ Handwheel 100 pulses, wear-free magnetic detent mechanism
- ▶ Tamper-proof emergency stop device according to EN ISO 13850, dual-channel
- ▶ 1 enabling switch, 3-stage, 2 NO contacts
- ▶ 2 selector switches, 6 positions each (X, Y, Z, 4, 5, 6 and 0, 0.1, 1, 10, 100, 1000)
- ▶ 6 illuminated pushbuttons, can be individually labeled
- ▶ Coiled cable, stretchable to 3.5 m, 35-core, flying lead



Dimension drawing



Notes

- ▶ Holder HBM for hand-held pendant stations: see accessories page 58

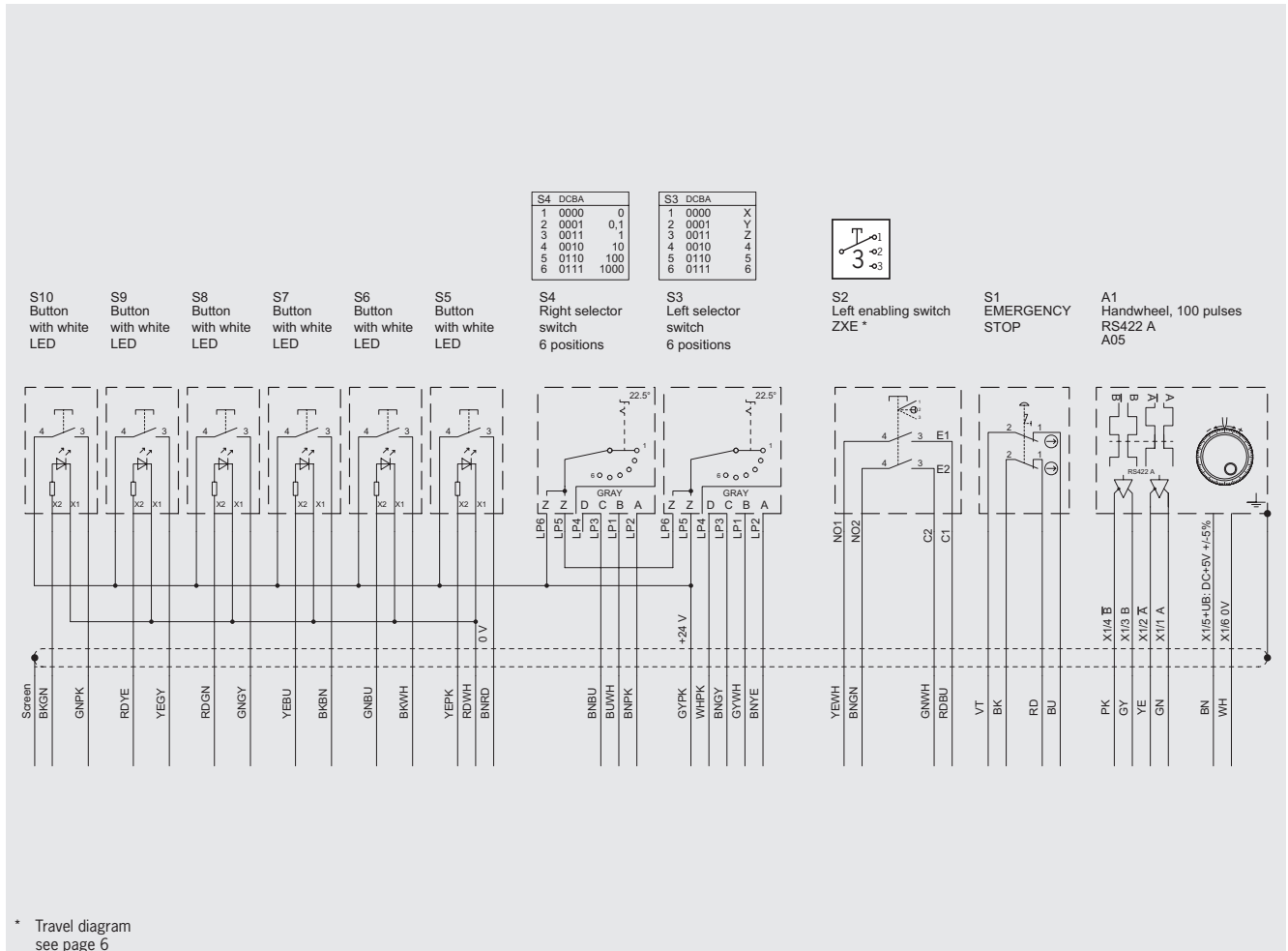
Technical data

Parameter	Value	Unit
HBM housing		
Material	Plastic	
Color	Anthracite	
Operating temperature	0 ... +50	°C
Storage temperature	-20 ... +50	°C
Degree of protection according to EN 60529 / NEMA	IP 65 / 250-12	
Connection	Coiled cable, stretchable to 3.5 m, 35-core, flying lead	
Weight	Approx. 1.1	kg
Handwheel		
Pulses/revolution	100	
Power supply	5 ± 5%	V DC
Output specifications	RS422A	
Emergency stop device		
Standard	EN ISO 13850	
Switching elements	2 NC contacts	
Utilization category according to IEC 60947-5-1	DC-13, U _e 24 V, I _e 3 A	A
Enabling switch ZXE, 3-stage		
Switching elements	1, 2 NO contacts	
Utilization category according to IEC 60947-5-1	DC-13, U _e 24 V, I _e 0.1 A	
Selector switch		
Output code	see circuit plan	
Switching voltage max.	25	V AC/DC
Breaking capacity max.	0.2	VA
Buttons		
Switching elements	3, one NO contact each	
Switching voltage max.	30	V DC
Switching current max.	100	mA
LED	I = 21 mA / U = 24 V DC	

Ordering table

Item	Order no.
Hand-held pendant station HBM-111711 with:	
▶ Handwheel 100 pulses	
▶ Tamper-proof emergency stop device according to EN ISO 13850, dual-channel	
▶ Enabling switch ZXE, 3-stage, 2 NO contacts,	
▶ 2 selector switches, 6 positions each	
▶ 6 illuminated pushbuttons, 1 NO contact each	
	111711

Circuit plan



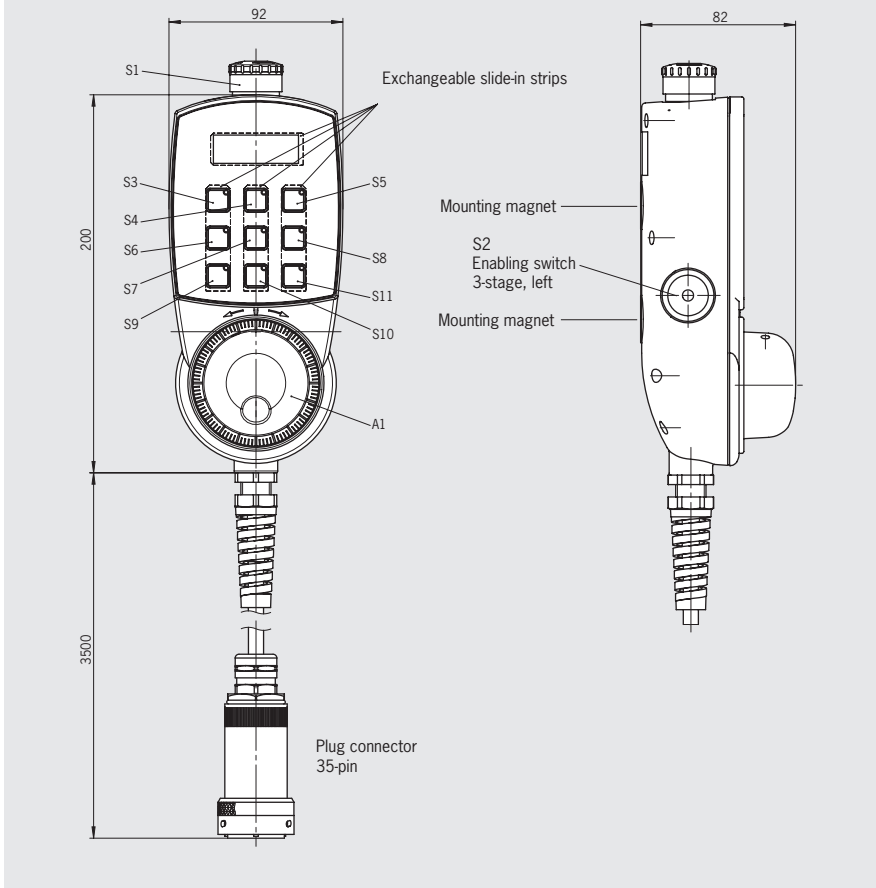
Hand-held pendant station HBM-112392



- ▶ Handwheel 100 pulses, wear-free magnetic detent mechanism
- ▶ Tamper-proof emergency stop device according to EN ISO 13850, dual-channel
- ▶ 1 enabling switch, 3-stage, 2 NO contacts
- ▶ 9 illuminated foil pushbuttons, 1 NO contact each, can be labeled as required using slide-in strips
- ▶ Straight connection cable, length 3.5 m, plug connector 35-pin



Dimension drawing



Notes

- ▶ Holder HBM for hand-held pendant stations: see accessories page 58
- ▶ Associated flange connector, 35-pin: see connection components page 51
- ▶ For template for slide-in strips, see www.euchner.de (Support)
- ▶ Replacement for hand-held pendant stations HBE-097337 and HBE-097338

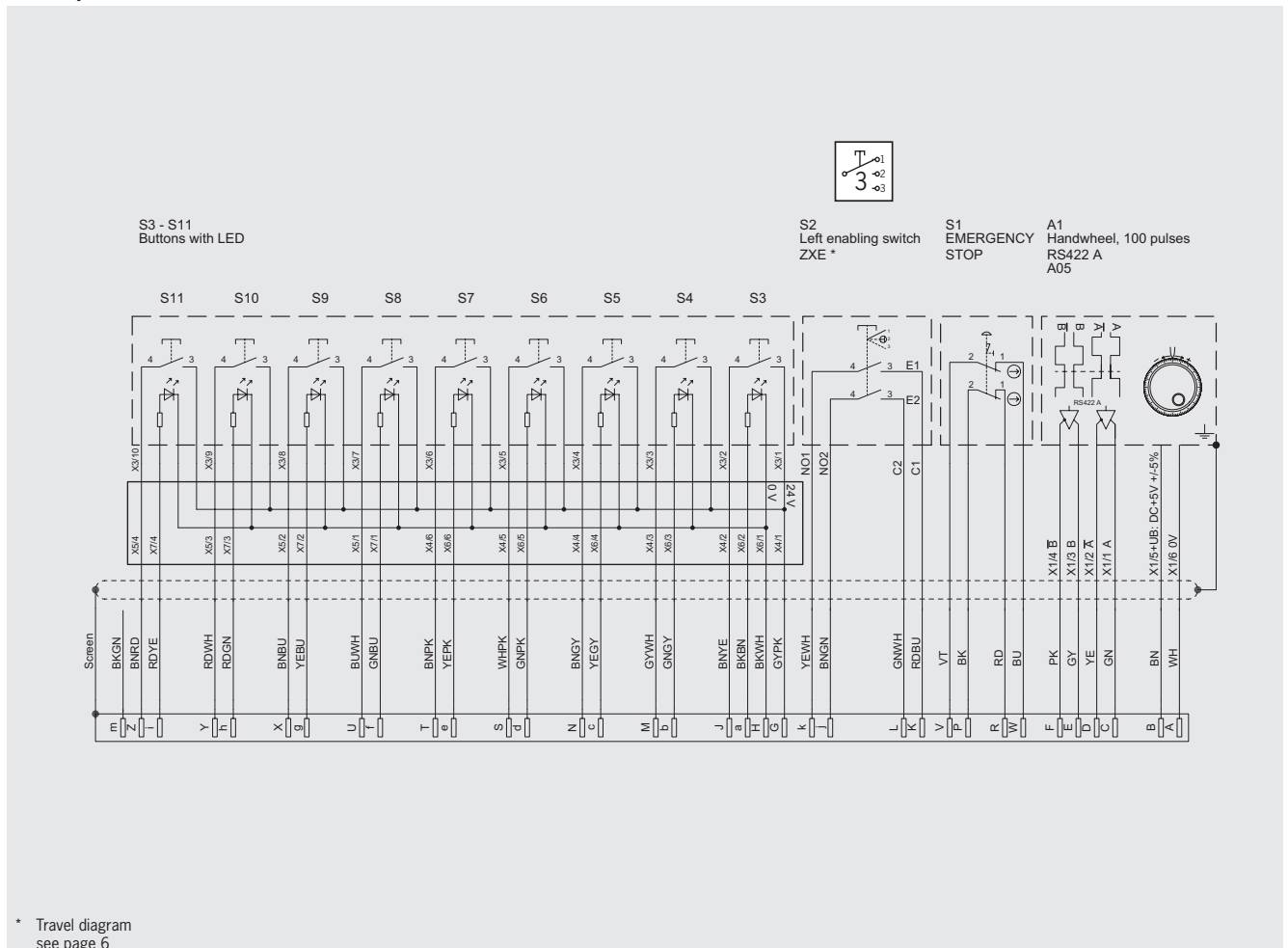
Technical data

Parameter	Value	Unit
HBM housing		
Material	Plastic	
Color	Anthracite	
Operating temperature	0 ... +50	°C
Storage temperature	-20 ... +50	°C
Degree of protection according to EN 60529 / NEMA	IP 65 / 250-12	
Connection	Straight connection cable, length 3.5 m, plug connector 35-pin	
Weight	Approx. 1.1	kg
Handwheel		
Pulses/revolution	100	
Power supply	5 ± 5%	V DC
Output specifications	RS422A	
Emergency stop device		
Standard	EN ISO 13850	
Switching elements	2 NC contacts	
Utilization category according to IEC 60947-5-1	DC-13, U _e 24 V, I _e 3 A	A
Enabling switch ZXE, 3-stage		
Switching elements	1, 2 NO contacts	
Utilization category according to IEC 60947-5-1	DC-13, U _e 24 V, I _e 0.1 A	
Membrane keypad		
Switching elements	14, one NO contact each	
Switching voltage max.	30	V DC
Switching current max.	100	mA
Breaking capacity max.	1	W

Ordering table

Item	Order no.
Hand-held pendant station HBM-112392 with:	
▶ Handwheel 100 pulses	
▶ Tamper-proof emergency stop device according to EN ISO 13850, dual-channel	
▶ Enabling switch ZXE, 3-stage, 2 NO contacts,	
▶ 9 illuminated foil pushbuttons, 1 NO contact each	
▶ Slide-in strips for logo	
	112392

Circuit plan



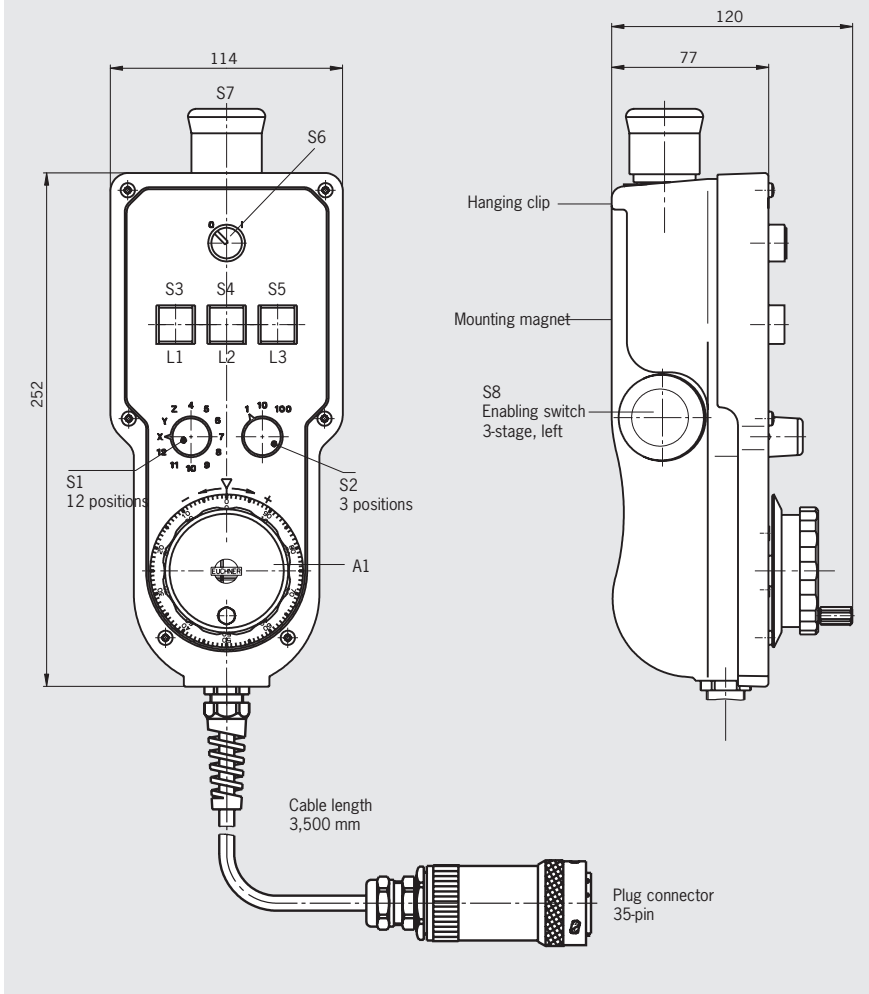
Hand-held pendant station HBL-097339



- ▶ Handwheel 100 pulses
- ▶ Tamper-proof emergency stop device according to EN ISO 13850, dual-channel
- ▶ Enabling switch, 3-stage
- ▶ 3 illuminated pushbuttons, can be individually labeled
- ▶ 2 selector switches
- ▶ Key-operated rotary switch



Dimension drawing



Notes

- ▶ Holder HBL for hand-held pendant stations: see accessories page 58
- ▶ Associated flange connector, 35-pin: see connection components page 51

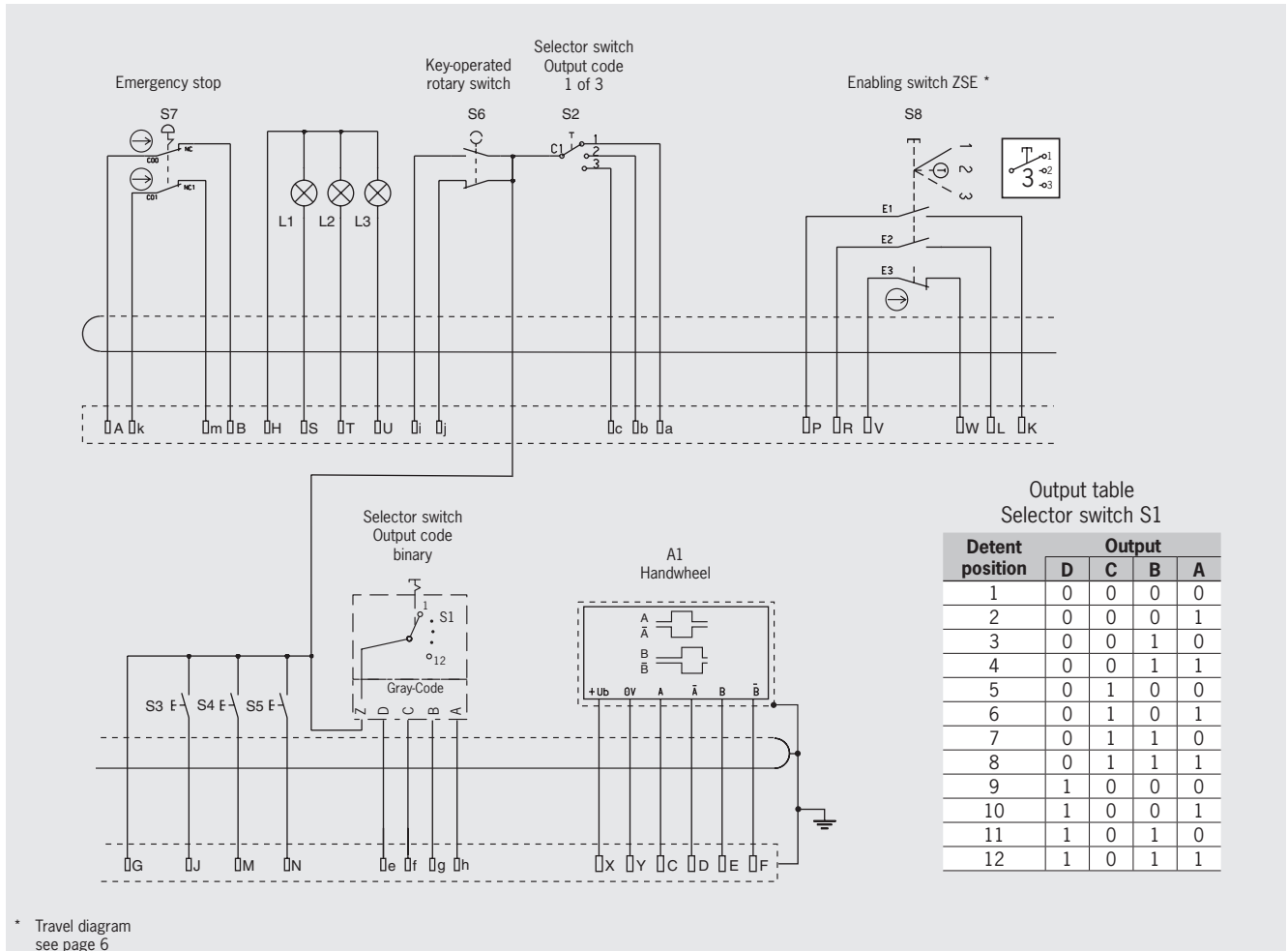
Technical data

Parameter	Value	Unit
Housing HBL		
Material	Plastic	
Color	Blue-gray RAL 7031	
Ambient temperature	0 ... +55	°C
Degree of protection according to EN 60529	IP 65	
Connection	Cable 3.5 m, 35-pin plug	
Weight	Approx. 2.1	kg
Emergency stop device		
Standard	EN ISO 13850	
Switching elements	2 NC contacts	
Utilization category according to IEC 60947-5-1	DC-13 U _e 24 V I _e 2,75 A	
Handwheel HKD		
Pulses per revolution	100	
Power supply	5 ± 5%	V DC
Output circuit	RS 422 A	
Output signals	see page 67	
Enabling switch ZSE, 3-stage		
Switching elements	2 NO contacts, 1 positively driven contact	
Utilization category according to IEC 60947-5-1	AC-15 U _e 24 V I _e 4 A DC-13 U _e 24 V I _e 3 A	
Buttons		
Switching elements	3, one NO contact each	
Switching voltage max.	30	V DC
Switching current max.	100	mA
LED	I = 21 mA / U = 24 V DC	
Selector switch		
Switching voltage max.	30	V DC
Switching current max.	100	mA
Key-operated rotary switch		
Switching voltage max.	30	V AC/DC
Switching current max.	250	mA

Ordering table

Item	Order no.
Hand-held pendant station HBL-097339 with: <ul style="list-style-type: none"> ▶ Handwheel 100 pulses ▶ Tamper-proof emergency stop device according to EN ISO 13850, dual-channel ▶ Enabling switch ZSE, 3-stage, 2 NO contacts, 1 positively driven contact ▶ 3 illuminated pushbuttons, 1 NO contact each ▶ 2 selector switches, 12 positions and 3 positions ▶ Key-operated rotary switch, 1 NO contact, 1 NC contact 	097339

Circuit plan



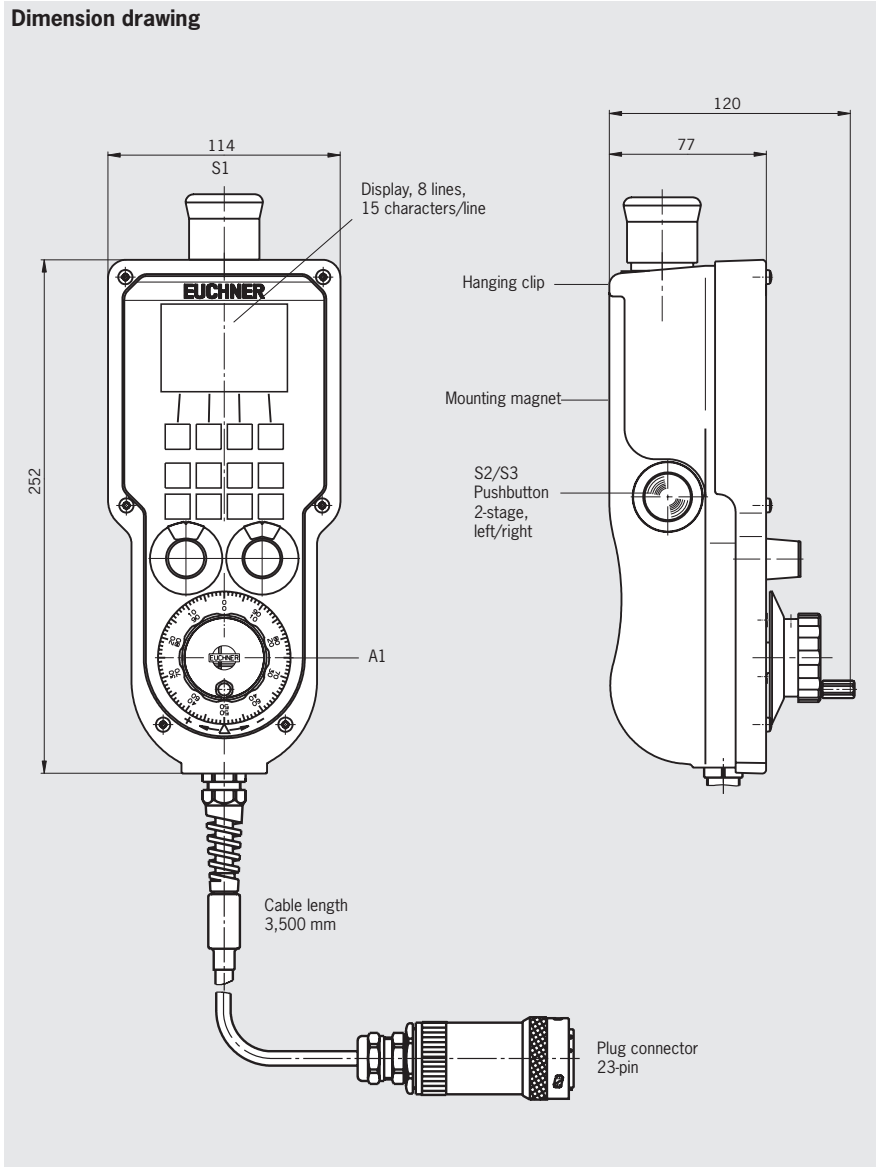
Hand-held pendant station HBL-072725



- ▶ Handwheel 100 pulses
- ▶ Tamper-proof emergency stop device according to EN ISO 13850, dual-channel
- ▶ 2 pushbuttons, 2-stage, e.g. for enabling function
- ▶ Keypad with 12 illuminated keys
- ▶ Keypad can be designed as required using slide-in film
- ▶ 2 selector switches
- ▶ LCD display (text mode)
- ▶ RS422 interface, 3964R protocol



Dimension drawing



Notes

- ▶ Holder HBL for hand-held pendant stations: see accessories page 58
- ▶ Associated flange connector, 23-pin: see connection components page 51
- ▶ ActiveX module available for integrating the user's applications (for MS Windows®-based user programs with ActiveX support)

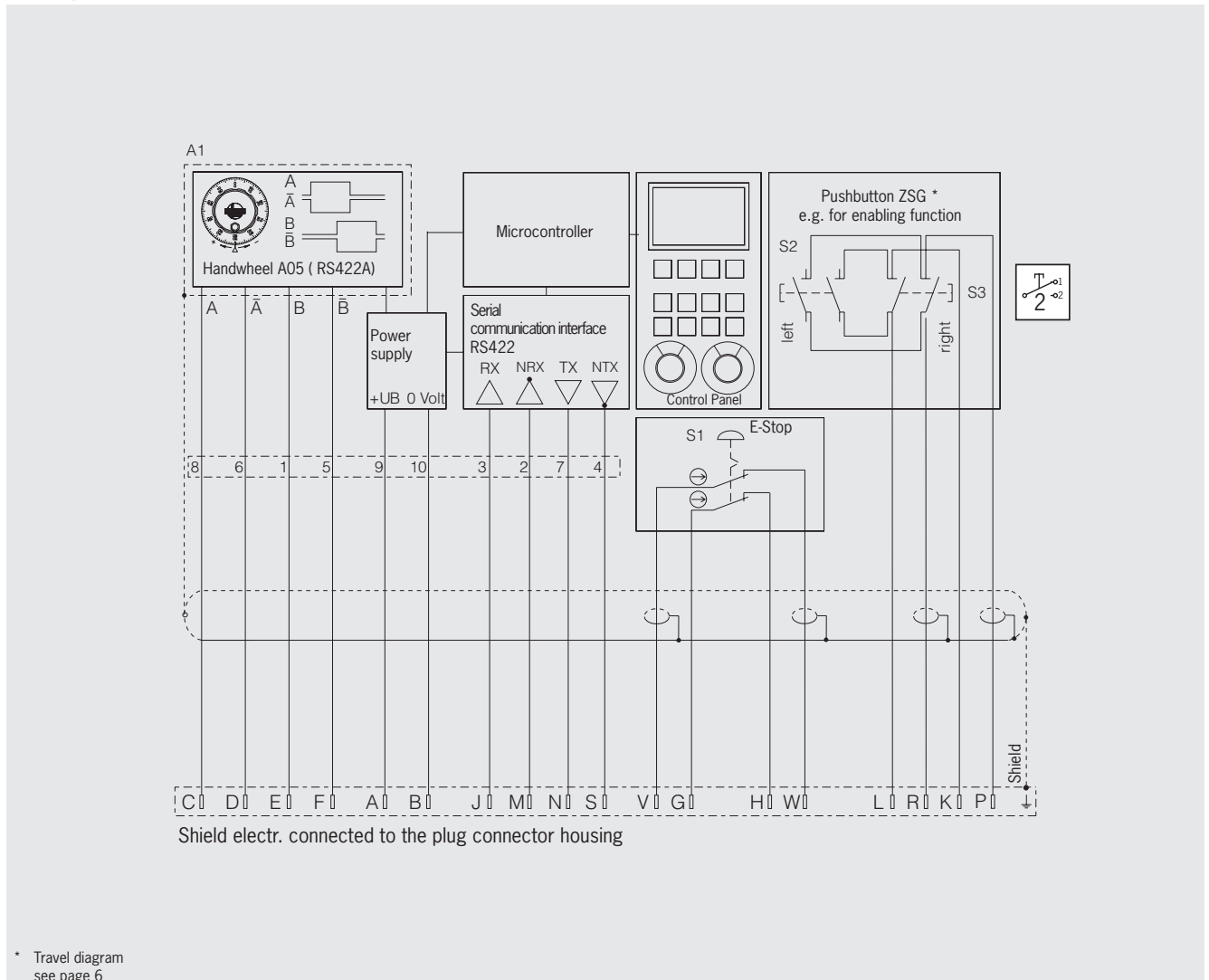
Technical data

Parameter	Value	Unit
Housing HBL		
Material	Plastic	
Color	Blue-gray RAL 7031	
Operating temperature	0 ... +50	°C
Degree of protection according to EN 60529	IP 65	
Connection	Cable 3.5 m, 23-pin plug	
Weight	2.2	kg
Emergency stop device		
Standard	EN ISO 13850	
Switching elements	2 NC contacts	
Utilization category according to IEC 60947-5-1	DC-13 U _e 24 V I _e 2.75 A	
Handwheel HKD		
Pulses per revolution	100	
Output circuit	RS 422 A	
Output signals	see page 67	
Pushbutton ZSG, 2-stage, e.g. for enabling function		
Switching elements	2, one NO contact each	
Utilization category according to IEC 60947-5-1	AC-15 U _e 24 V I _e 4 A DC-13 U _e 24 V I _e 3 A	
Interface		
Type	RS 422	
Data format	8 data bits , even parity, 1 or 2 stop bits	
Transfer speed	9600 or 19200 (setting using DIL switches)	baud
Transfer protocol	3964 R	
Electrical connection		
Power supply	24 ±20%	V DC
Operating current, max.	200	mA

Ordering table

Item	Order no.
Hand-held pendant station HBLS-072725 with: <ul style="list-style-type: none"> ▶ Handwheel 100 pulses ▶ Tamper-proof emergency stop device according to EN ISO 13850, dual-channel ▶ 2 pushbuttons ZSG 2-stage, 2 NO contacts each, e.g. for enabling function ▶ Keypad with 12 illuminated keys ▶ 2 selector switches, 12 positions each 	072725

Circuit plan



ActiveX module Software for integration into user software that supports ActiveX	067176
ActiveX module manual Detailed documentation on use of the software	067178

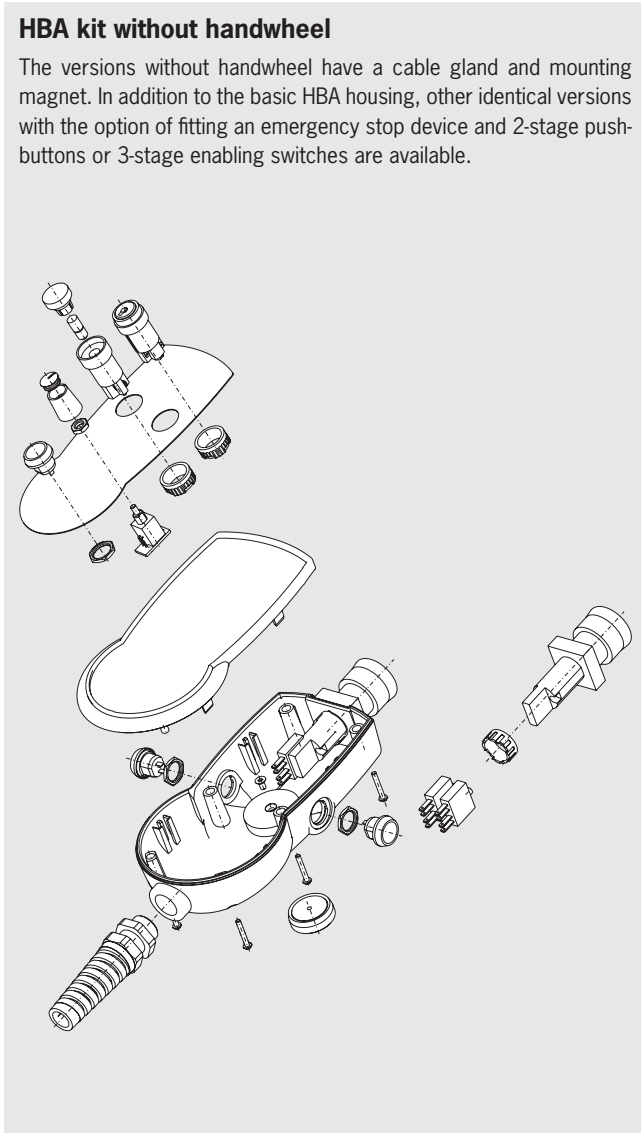
Hand-held pendant station HBA kit

The kit is designed to match individual customer specifications. Thanks to its modular configuration, you can construct prototypes and special versions in line with your requirements. To match the housings, aluminum front panels are available in silver or black anodized.

Customer-specific functionality can be achieved by using the components supplied in the kit (pushbutton, selector switch, key-operated rotary switch, handwheel, enabling switch, etc). For connection to the control system, cables with different numbers of wires, plug connectors and the relevant flange sockets are available. The type of protection IP 65 can be achieved using one of the seals included.

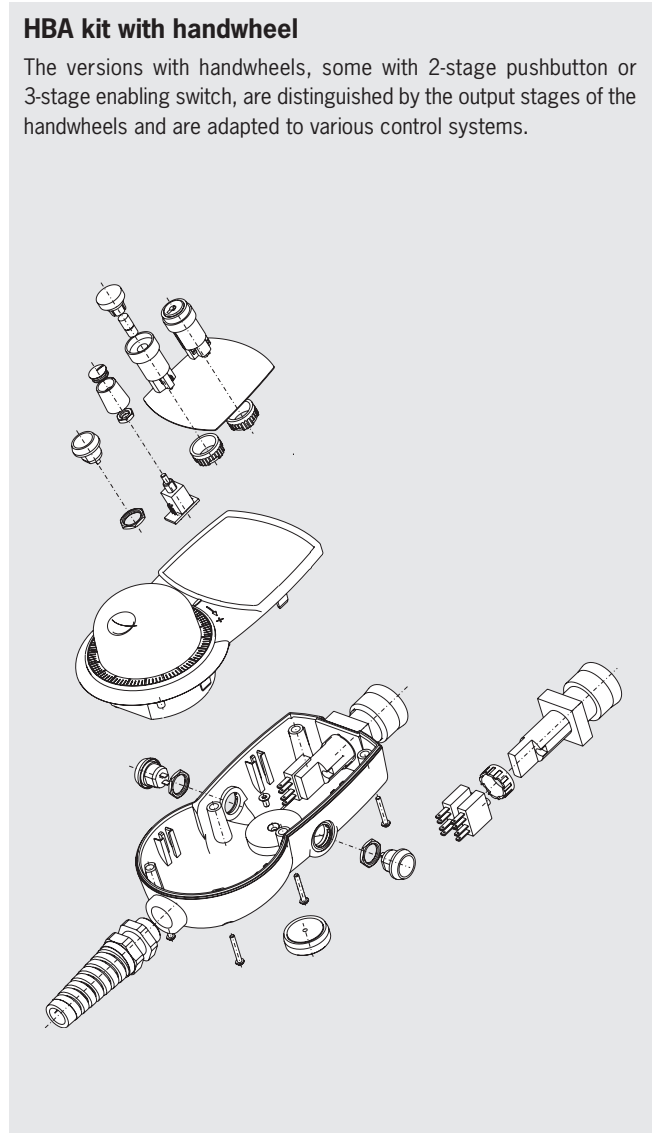
HBA kit without handwheel

The versions without handwheel have a cable gland and mounting magnet. In addition to the basic HBA housing, other identical versions with the option of fitting an emergency stop device and 2-stage push-buttons or 3-stage enabling switches are available.



HBA kit with handwheel

The versions with handwheels, some with 2-stage pushbutton or 3-stage enabling switch, are distinguished by the output stages of the handwheels and are adapted to various control systems.



HBA housing without handwheel

- ▶ Cable gland for cable diameter 5-10 mm
- ▶ Rubber-coated mounting magnet on the rear of housing
- ▶ 6 fixing domes for printed circuit board installation in top shell

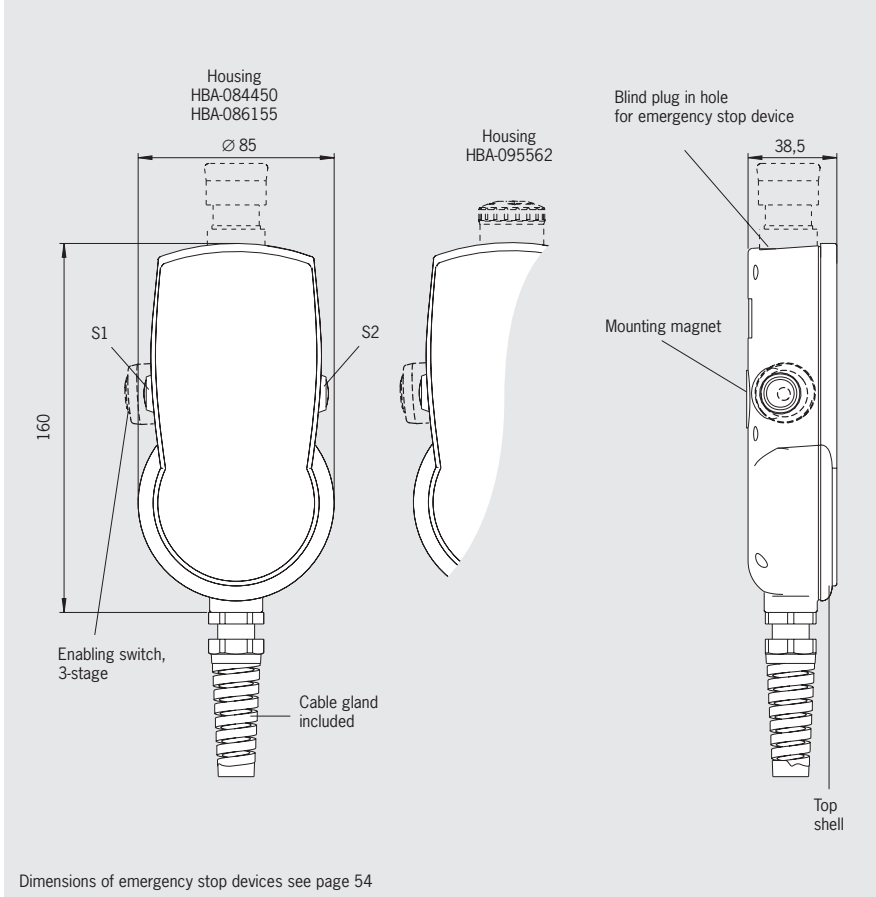
Depending on version:

- ▶ Hole for emergency stop device (sealed with blind plug)
- ▶ 2 pushbuttons, 2-stage, 1 NO contact each, e.g. for enabling function
- ▶ 1 enabling switch, 3-stage, 2 NO contacts

Notes

- ▶ Suitable front panels see page 36
- ▶ Suitable emergency stop device (turn or pull to reset) see page 54
- ▶ **Attention:** Housing HBA-095562 is suitable only for emergency stop device 106435 with short design.
- ▶ Depending on version with 2 2-stage pushbuttons or 1 3-stage enabling switch.

Dimension drawing





Dimensions of emergency stop devices see page 54

Technical data

Parameter	Value	Unit
HBA housing		
Material	Plastic	
Color	Gray RAL 7040	
Operating temperature	0 ... +50	°C
Storage temperature	-20 ... +50	°C
Degree of protection according to EN 60529 / NEMA	IP 65 / 250-12	
Weight	0.3	kg
Pushbutton, 2-stage, e.g. for enabling function		
Switching elements	2, one NO contact each	
Connection ratings	DC 30 V / 100 mA	
Enabling switch ZXE, 3-stage		
Switching elements	2 NO contacts	
Utilization category according to IEC 60947-5-1	DC-13, U _e 24 V, I _e 0.1 A	

Ordering table

Version/item	Features			Order no.
	Hole for emergency stop device	2 pushbuttons * 2-stage, pre-assembled with 1 NO contact each, e.g. for enabling function S1, S2	1 enabling switch ZXE ** 3-stage, 2 NO contacts pre-assembled S1	
Housing HBA-084445 (without hole, without enabling switch)				084445
Housing HBA-084450	● for emergency stop short and long designs			084450
Housing HBA-086155	● for emergency stop short and long designs	●		086155
Housing HBA-095562	● for emergency stop short design		●	095562
				

* Travel diagram see page 6

** Travel diagram see page 55

HBA housing with handwheel

- ▶ Handwheel 100 or 25 pulses, wear-free magnetic detent mechanism
- ▶ Hole for emergency stop device (sealed with blind plug)
- ▶ Cable gland for cable diameter 5-10 mm
- ▶ Rubber-coated mounting magnet on the rear of housing
- ▶ 6 fixing domes for printed circuit board installation in top shell

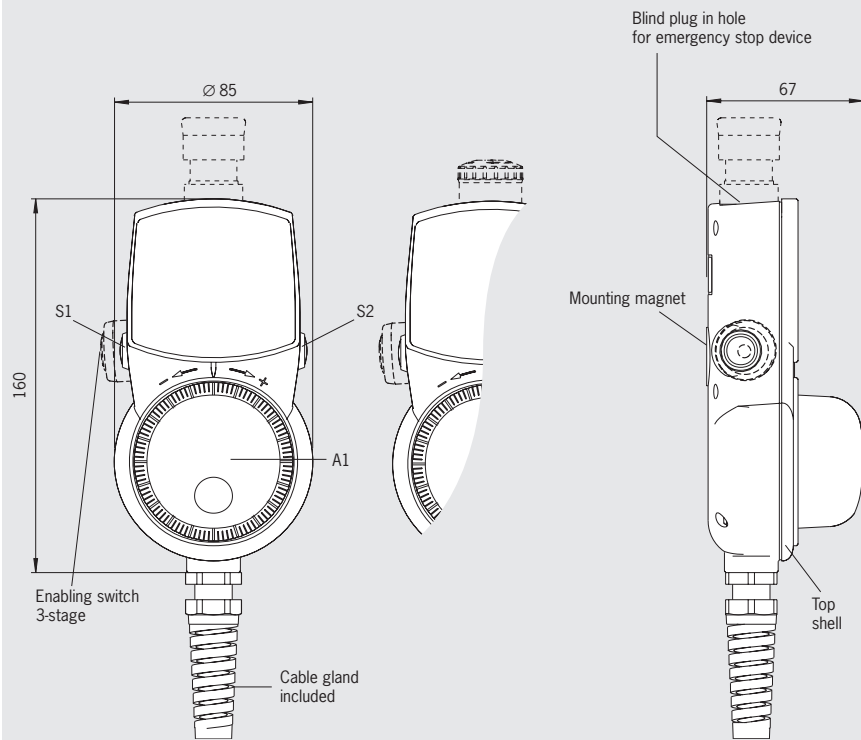
Depending on version:

- ▶ 2 pushbuttons, 2-stage, 1 NO contact each, e.g. for enabling function
- ▶ 1 enabling switch, 3-stage, 2 NO contacts
- ▶ Various handwheel output stages

Notes

- ▶ Suitable front panels see page 36
- ▶ Suitable emergency stop device (turn or pull to reset) see page 54
- ▶ **Attention:**
- ▶ Housings HBA-095561, HBA-095573, HBA-095572 and HBA-095574 suitable only for emergency stop device 106435 short design.
- ▶ Depending on version with 2 two-stage push-buttons or 1 three-stage enabling switch.

Dimension drawing



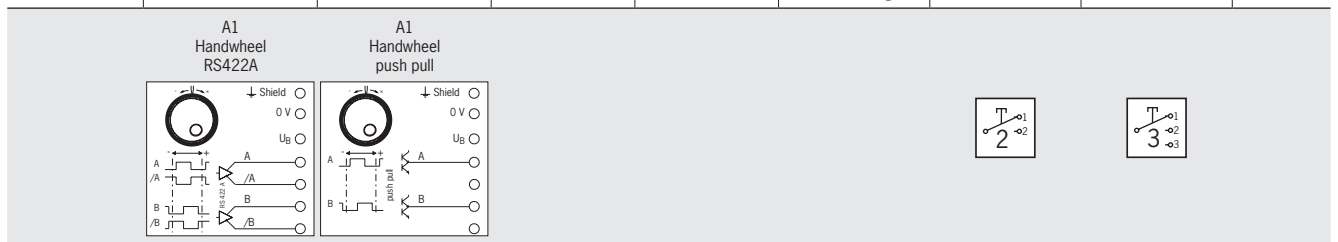
Dimensions of emergency stop devices see page 54

Technical data

Parameter	Value	Unit
HBA housing		
Material	Plastic	
Color	Gray RAL 7040	
Operating temperature	0 ... +50	°C
Storage temperature	-20 ... +50	°C
Degree of protection according to EN 60529 /NEMA	IP 65 / 250-12	
Weight	0.3	kg
Pushbutton, 2-stage, e.g. for enabling function		
Switching elements	2, one NO contact each	
Connection ratings	30 V DC / 100 mA	
Enabling switch ZXE, 3-stage		
Switching elements	1, 2 NO contacts	
Utilization category according to IEC 60947-5-1	DC-13, U _e 24 V, I _e 0.1 A	
Handwheel RS422A (U_B = 5 V DC)		
Pulses/revolution	100	
Power supply	5 ± 5%	V DC
Output specifications	RS422A	
Handwheel push-pull 5 V (U_B = 5 V DC)		
Pulses/revolution	100	
Power supply	5 ± 5%	V DC
Output circuit	5 V push-pull	
Output voltage / output current	HIGH, min. 4.0 V at 0 mA / 3.4 V at 5 mA / 3.0 V at 20 mA LOW, max. 1.3 V at 15 mA	
Handwheel push-pull 5 V (U_B = 10...30 V DC)		
Pulses/revolution	25	
Power supply	10 ... 30	V DC
Output circuit	5 V push-pull	
Output voltage / output current	HIGH, min. 4.9 V at 0 mA / 3.9 V at 5 mA / 3.6 V at 20 mA LOW, max. 1.3 V at 15 mA	
Handwheel push-pull 24 V (U_B = 10...30 V DC)		
Pulses/revolution	100	
Power supply	10 ... 30	V DC
Output circuit	24 V push-pull	
Output voltage / output current	HIGH, min. U _B - 3 V at 20 mA LOW, max. 3 V at 20 mA	

Ordering table

Version/item	Features							Order no.
	Handwheel				Hole for emergency stop	2 pushbuttons * 2-stage, 1 NO contact each pre-assembled S1, S2	1 enabling switch ** ZXE, 3-stage, 2 NO contacts pre-assembled S1	
	Output stage		Power supply U _B	Pulses per revolution				
RS422	Push-pull U _A							
Housing HBA-083449	● A05		5 V DC	100	● for emergency stop short and long designs	●		083449
Housing HBA-095561	● A05		5 V DC	100	● for emergency stop short design		●	095561
Housing HBA-083499		● 5 V G12	10 ... 30 V DC	25	● for emergency stop short and long designs	●		083499
Housing HBA-095573		● 5 V G12	10 ... 30 V DC	25	● for emergency stop short design		●	095573
Housing HBA-083495		● U _B - 3 V G24	10 ... 30 V DC	100	● for emergency stop short and long designs	●		083495
Housing HBA-095572		● U _B - 3 V G24	10 ... 30 V DC	100	● for emergency stop short design		●	095572
Housing HBA-086762		● 5 V G05	5 V DC	100	● for emergency stop short and long designs	●		086762
Housing HBA-095574		● 5 V G05	5 V DC	100	● for emergency stop short design		●	095574



* Travel diagram see page 6

** Travel diagram see page 55

Top shell HBA

- ▶ Material plastic
- ▶ Color gray or black

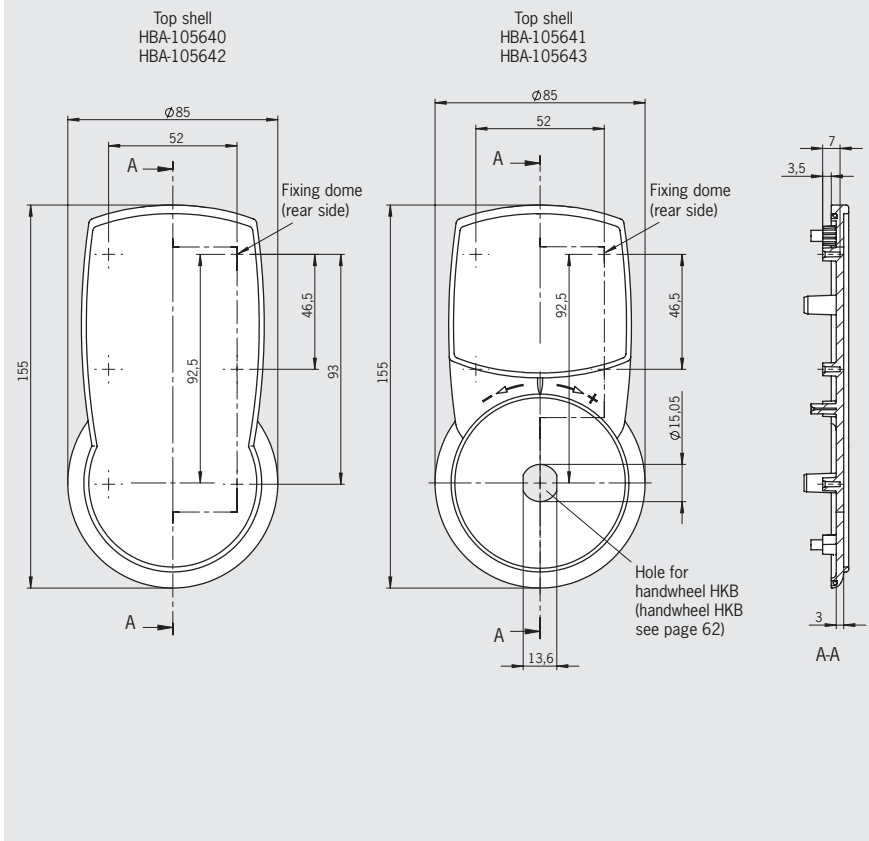
Depending on version:

- ▶ Hole for handwheel HKB

Notes

- ▶ Suitable front panels see page 36

Dimension drawing



Ordering table

Item	Order no.
Top shell HBA-105640, gray, without hole for handwheel HKB	105640
Top shell HBA-105641, gray, with hole for handwheel HKB	105641
Top shell HBA-105642, black, without hole for handwheel HKB	105642
Top shell HBA-105643, black, with hole for handwheel HKB	105643

Bottom shell HBA

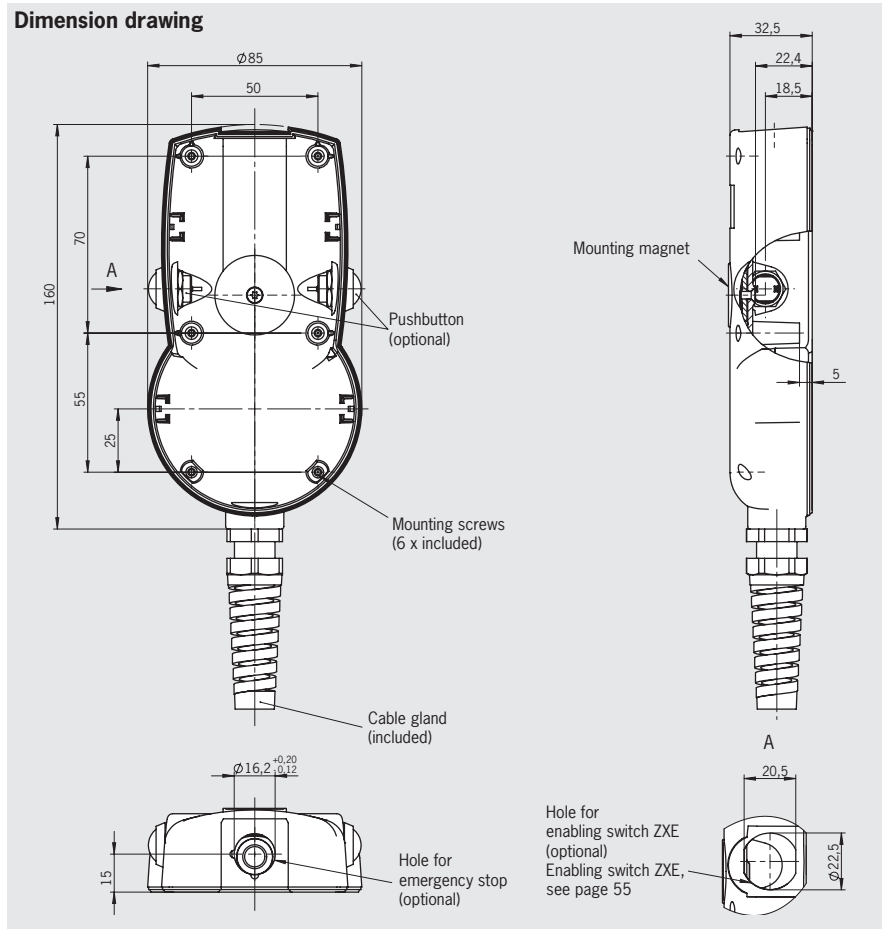
- ▶ Material plastic
- ▶ Color gray or black

Depending on version:

- ▶ Hole for emergency stop device
- ▶ Hole for enabling switch ZXE (3-stage, 2 NO contacts)
- ▶ 2 pushbuttons, 2-stage, 1 NO contact each, e.g. for enabling function

Notes

- ▶ Suitable emergency stop device (turn or pull to reset) see page 54
- ▶ Suitable enabling switch ZXE (3-stage, 2 NO contacts) see page 55
- ▶ Technical data of pushbutton see page 48



Ordering table

Version/item	Features			Order no.
	Hole for emergency stop device	2 pushbuttons, * 2-stage, 1 NO contact each pre-assembled, e.g. for enabling function S1, S2	1 enabling switch ZXE, ** 3-stage, 2 NO contacts pre-assembled S1	
Bottom shell HBA-105503, color gray (without holes, without pushbutton)				105503
Bottom shell HBA-105504, color gray	● for emergency stop short and long designs			105504
Bottom shell HBA-114213, color gray	● for emergency stop short and long designs	●		114213
Bottom shell HBA-105506, color gray	● for emergency stop short design		●	105506
Bottom shell HBA-105507, color black (without holes, without pushbutton)				105507
Bottom shell HBA-105508, color black	● for emergency stop short and long designs			105508
Bottom shell HBA-114215, color black	● for emergency stop short and long designs	●		114215
Bottom shell HBA-105510, color black	● for emergency stop short design		●	105510

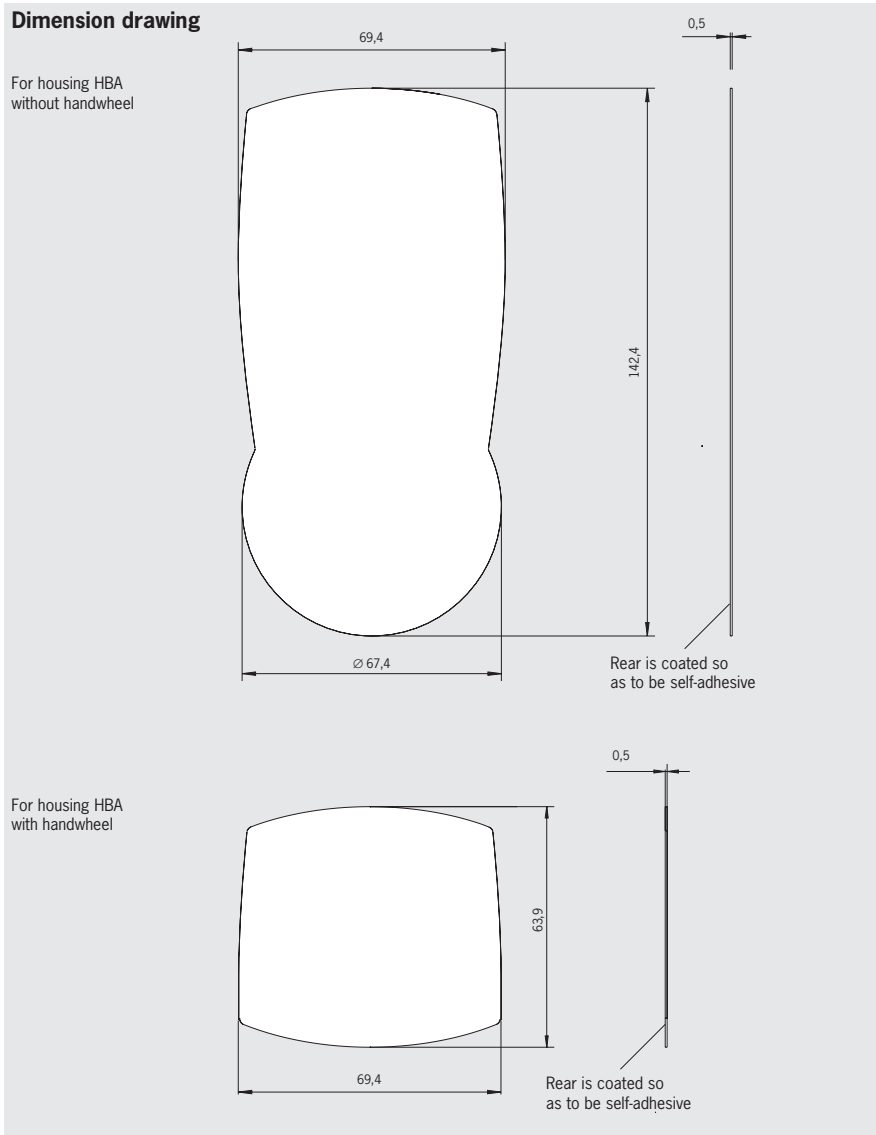
* Travel diagram see page 6

** Travel diagram see page 55

Front panels for housing and top shell HBA with and without handwheel

Notes

- Suitable for housing HBA (see page 30 and page 32) and top shell HBA (see page 34)



Technical data

Parameter	Value	Unit
Front-panel material	Electrically anodized aluminum, black or silver, rear side with self-adhesive coating	

Ordering table

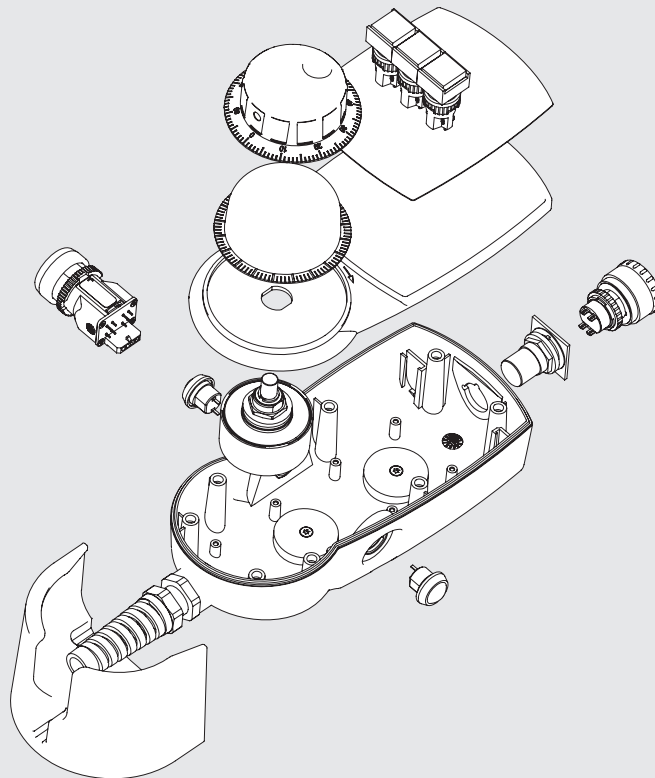
Item	Order no.
Front panel for housing HBA without handwheel, silver anodized	084395
Front panel for housing HBA without handwheel, black anodized	084396
Front panel for housing HBA with handwheel, silver anodized	083635
Front panel for housing HBA with handwheel, black anodized	083636

Hand-held pendant stations HBM kit

The kit is designed to match individual customer specifications. Thanks to its modular configuration, you can construct prototypes and special versions in line with your requirements. To match the housings, aluminum front panels are available in silver or black anodized.

Customer-specific functionality can be achieved by using the components supplied in the kit (pushbutton, selector switch, key-operated switch, handwheel, enabling switch, KE joystick, etc). For connection to the control system, cables with different numbers of wires, plug connectors and the relevant flange sockets are available. The type of protection IP 65 can be achieved using one of the seals included.

Hand-held pendant stations HBM kit



Top shell HBM

- ▶ Material plastic
- ▶ Color anthracite

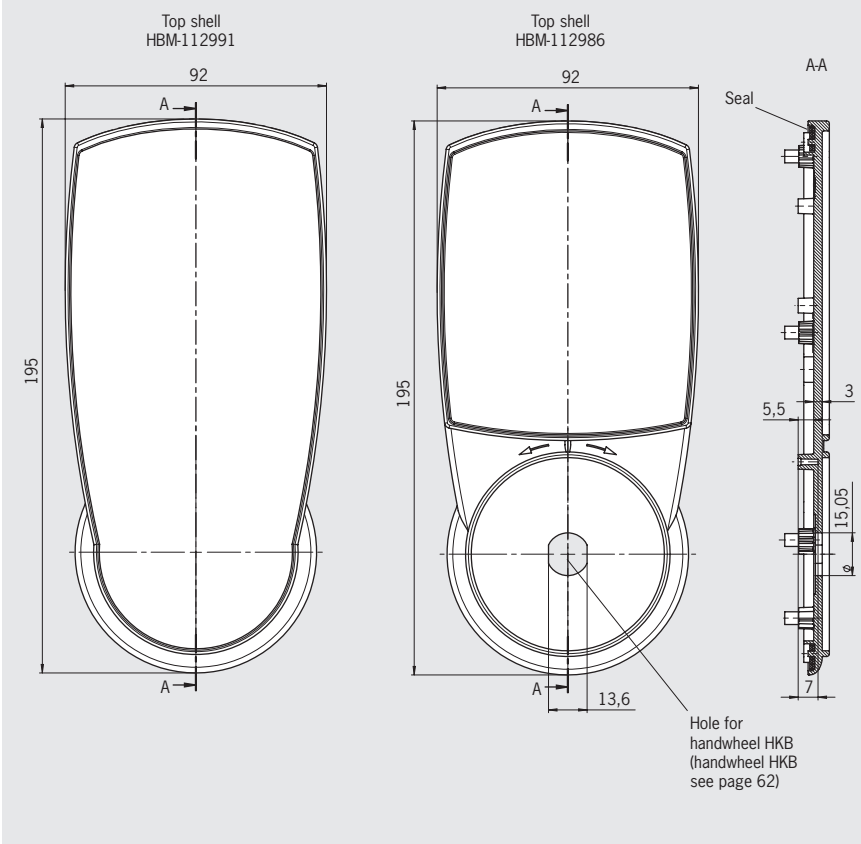
Depending on version:

- ▶ Hole for handwheel HKB

Notes

- ▶ Suitable front panels see page 40

Dimension drawing



Ordering table

Item	Order no.
Top shell HBM-112991 without hole for handwheel HKB	112991
Top shell HBM-112986 with hole for handwheel HKB	112986

Bottom shell HBM

- ▶ Material plastic
- ▶ Color anthracite

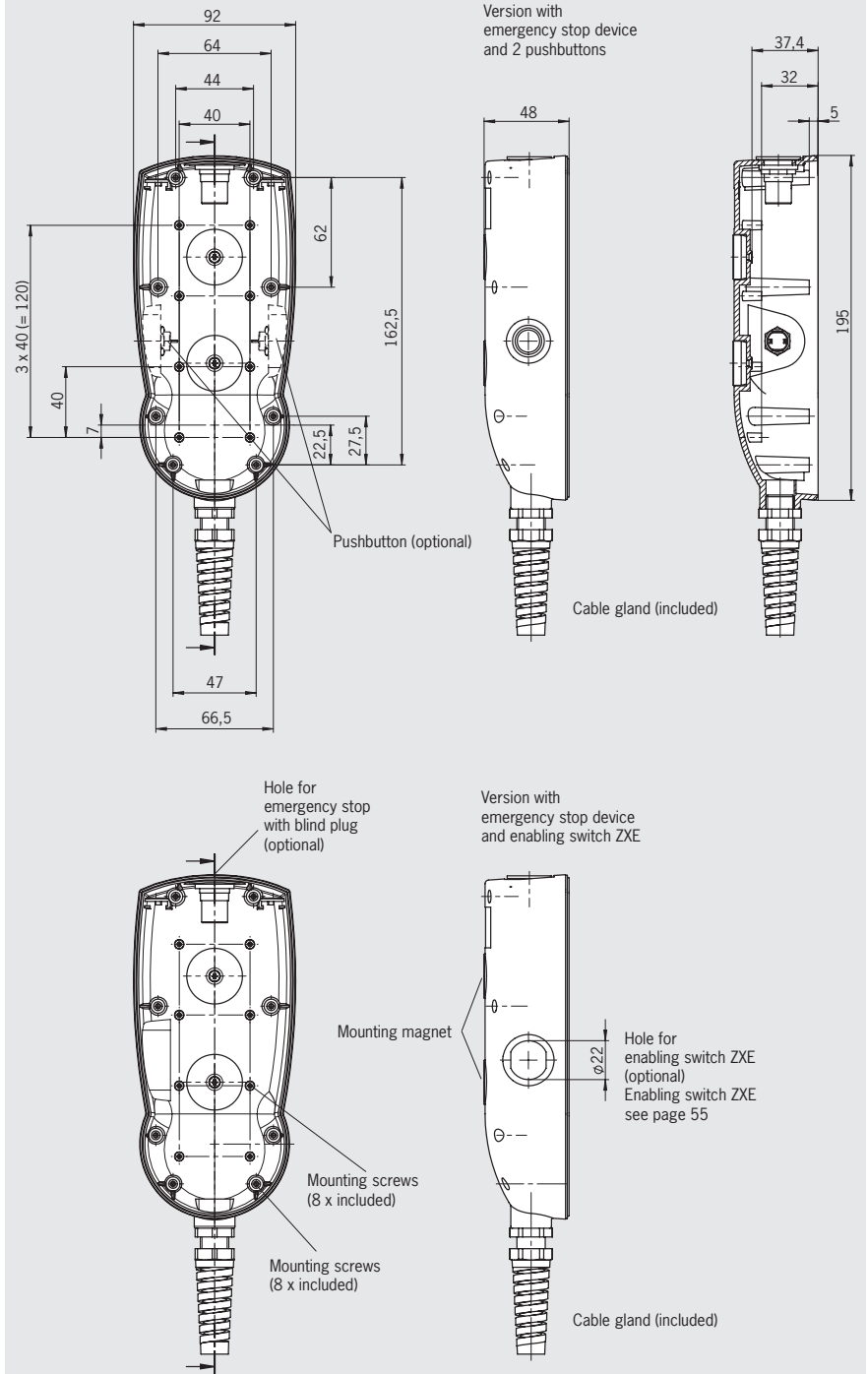
Depending on version:

- ▶ Hole for emergency stop device (sealed with blind plug)
- ▶ Hole for enabling switch ZXE (3-stage, 2 NO contacts)
- ▶ 2 pushbuttons, 2-stage, 1 NO contact each, e.g. for enabling function

Notes

- ▶ Suitable emergency stop device (turn or pull to reset) see page 54
- ▶ Suitable enabling switch ZXE (3-stage, 2 NO contacts) see page 55
- ▶ Technical data of pushbutton see page 48

Dimension drawing



Ordering table

Version/item	Features			Order no.
	Hole for emergency stop device	2 pushbuttons, * 2-stage, 1 NO contact each pre-assembled, e.g. for enabling function S1, S2	Hole for enabling switch ZXE ** S1	
Bottom shell HBM-112949 (without holes, without pushbutton)				112949
Bottom shell HBM-112954	●			112954
Bottom shell HBM-112958	●	●		112958
Bottom shell HBM-112955	●		●	112955

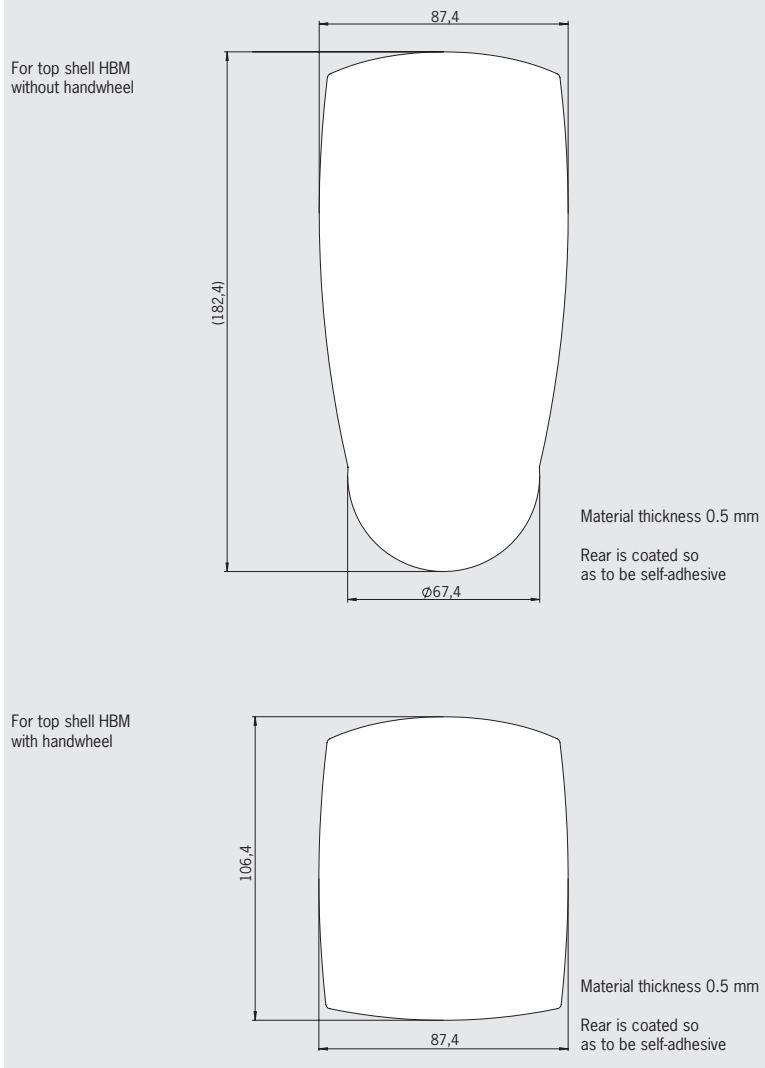
* Travel diagram see page 6
 ** Travel diagram see page 55

Front panels for top shell HBM with and without handwheel

Notes

- Suitable for top shell HBM (see page 38)

Dimension drawing



Technical data

Parameter	Value	Unit
Front-panel material	Electrically anodized aluminum, black or silver, rear side with self-adhesive coating	

Ordering table

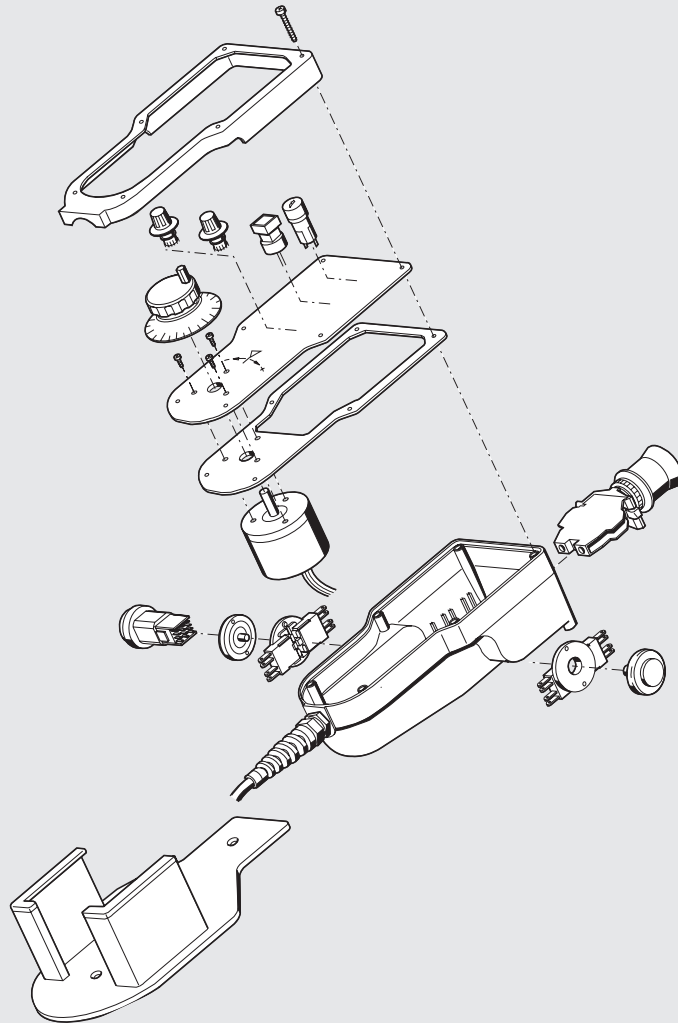
Item	Order no.
Front panel for top shell HBM without handwheel, silver anodized	113060
Front panel for top shell HBM without handwheel, black anodized	113438
Front panel for top shell HBM with handwheel, silver anodized	113061
Front panel for top shell HBM with handwheel, black anodized	113440

Hand-held pendant stations HBL kit

The kit is designed to match individual customer specifications. Thanks to its modular configuration, you can construct prototypes and special versions in line with your requirements. The HBL housings are shaped differently, depending on the safety components to be integrated. Depending on the version, front panels are available for use with or without handwheel.

Customer-specific functionality can be achieved by using the components supplied in the kit (pushbutton, selector switch, enabling switch, handwheel, key-operated rotary switch, KE joystick, etc). The type of protection IP 65 can be achieved using an included seal. For connection to the control system, cables with different numbers of wires, plug connectors and the relevant flange sockets are available.

Hand-held pendant stations HBL kit



Housing HBL

- ▶ Rubber-coated mounting magnet on the rear of housing
- ▶ Hanging clip
- ▶ 6 screws for front panel fastening
- ▶ Cover frame for front panel
- ▶ Fixing domes for printed circuit board installation

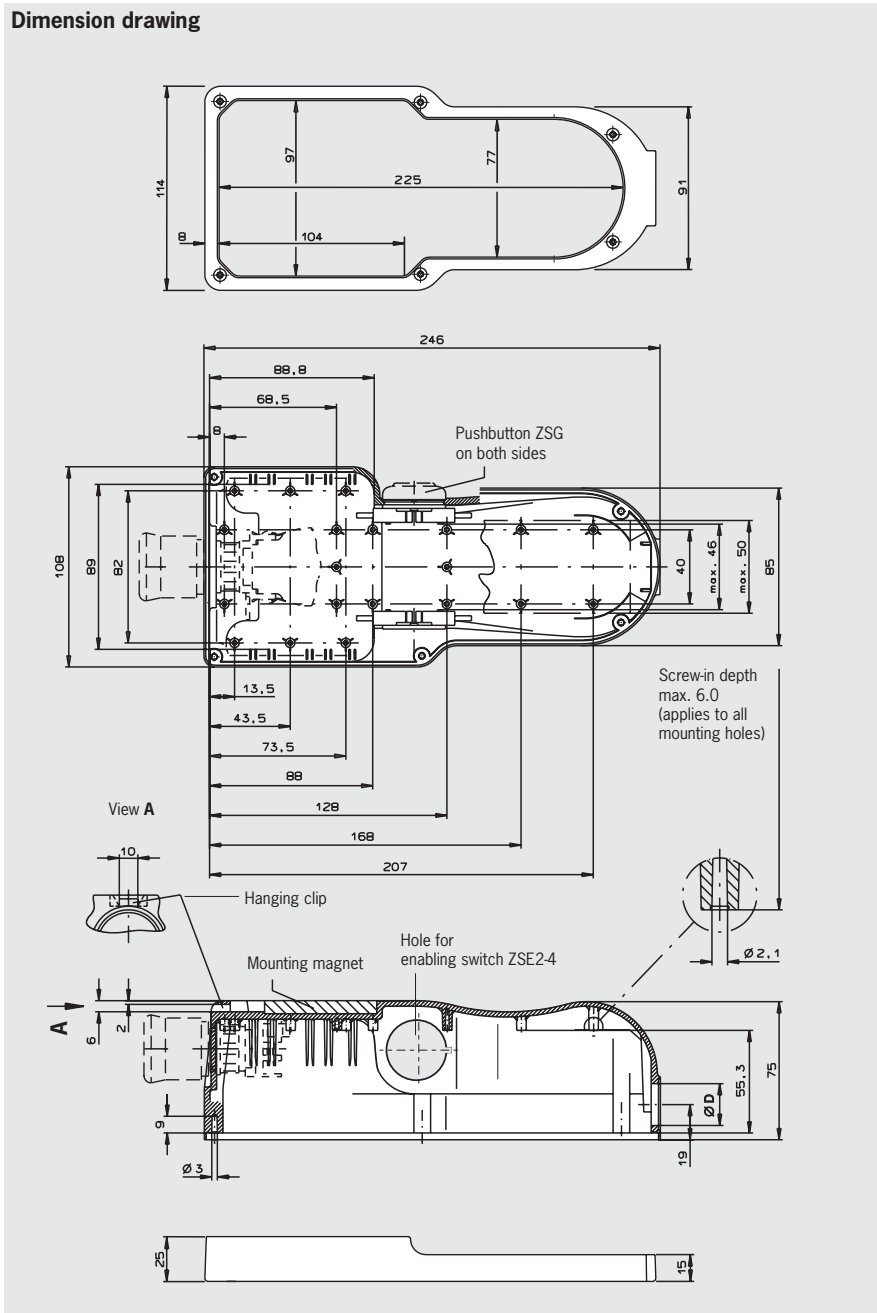
Depending on version:

- ▶ Fastening nut for cable gland Pg 11 or Pg 13.5
- ▶ Hole for emergency stop device
- ▶ 2 pushbuttons ZSG, 2-stage, 2 NO contacts each, e.g. for enabling function
- ▶ Hole on left for enabling switch ZSE

Notes

- ▶ Emergency stop devices see page 56
- ▶ Enabling switch ZSE see page 57
- ▶ Cable glands see page 53
- ▶ Assembly drawings see page 75
- ▶ Pg 11 for cable diameter 5 ... 10 mm
- ▶ Pg 13.5 for cable diameter 6 ... 12 mm



Dimension drawing



Technical data

Parameter	Value	Unit
Housing HBL		
Material	Plastic	
Color	Blue-gray RAL 7031	
Ambient temperature	0 ... +55	°C
Degree of protection according to EN 60529 / NEMA	IP 65 / 250-12	
Pushbutton ZSG, 2-stage, e.g. for enabling function		
Switching elements	2, 2 NO contacts each	
Utilization category according to IEC 947-5-1	AC-15 U _e 24 V I _e 4 A	
	DC-13 U _e 24 V I _e 3 A	

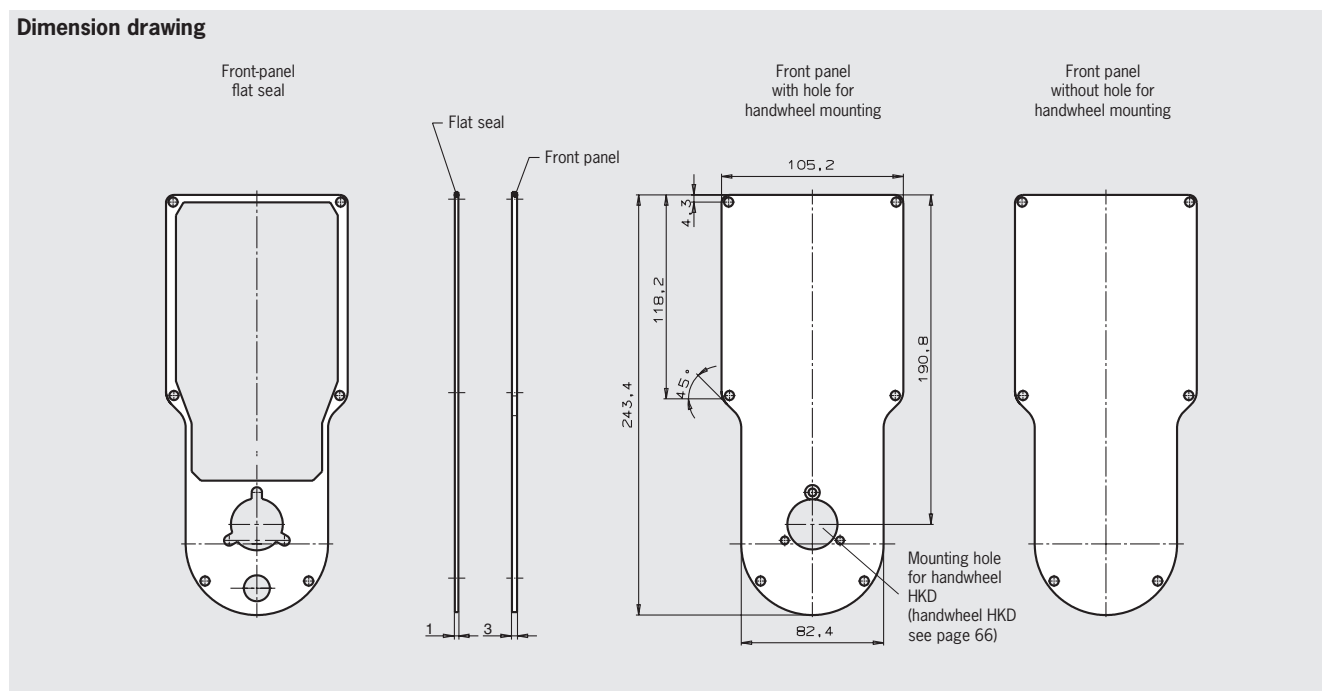
Ordering table

Version/item	Features					Order no.	
	Fixing nut for cable gland (cable gland see page 53)		Hole for emergency stop * (emergency stop see page 56)	Hole for enabling switch ZSE2-2 C1692, 3-stage 2 NO + 1 NC  (enabling switch page 57)	Hole for enabling switch ZSE2-4 C1943, 3-stage 2 NO + 2 NC  (enabling switch page 57)		2 pushbuttons ZSG, 2-stage, 2 NO contacts each pre-assembled, e.g. for enabling function
	Pg 11	Pg 13.5					
Housing HBL-073098	●					073098	
Housing HBL-072630		●				072630	
Housing HBL-073113	●		●			073113	
Housing HBL-072631		●	●			072631	
Housing HBL-073109	●			●		073109	
Housing HBL-072632		●		●		072632	
Housing HBL-072983	●		●		●	072983	
Housing HBL-083484		●	●		●	083484	

* Blind plug \varnothing 22 for emergency stop device hole included

Front panel for housing HBL

Dimension drawing



Technical data

Parameter	Value	Unit
Front-panel material	Electrically anodized aluminum, black, NBR, self-adhesive on one side	

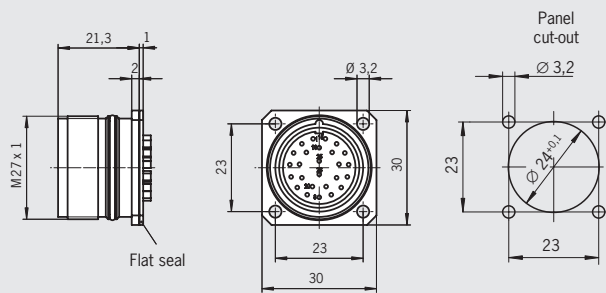
Ordering table

Item	Order no.
HBL front panel, with seal	073138
HBL front panel, with hole for handwheel HKD and seal	073139
Front seal for HBL front panel	072641

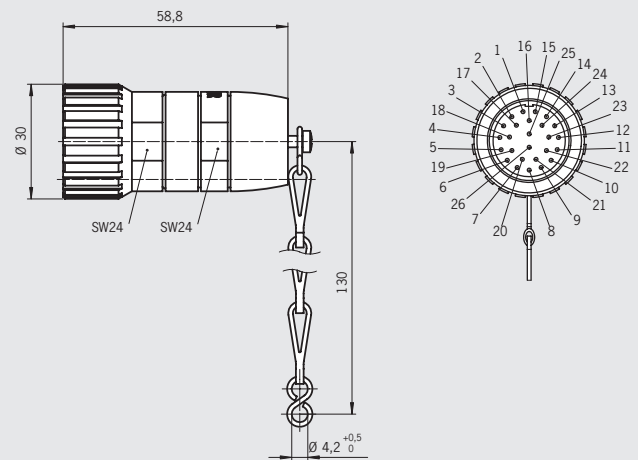
Connection kit

for designs HBA-102434 and HBA-103037, consisting of 26-pin flange connector and short-circuit plug

Flange connector, 26-pin



Short-circuit plug, 26-pin for flange connector, 26-pin (bridged pin 1 with pin 4 and pin 2 with pin 3)



Technical data

Parameter	Value
Flange connector	
Housing material	Metal
Degree of protection according to EN 60529 (inserted)	IP 67
Contact material	Copper alloy
Connection	Soldered connection
Short-circuit plug	
Housing material	Metal
Number of pins	26
Degree of protection according to EN 60529 (inserted)	IP 67
Contact material	Copper alloy

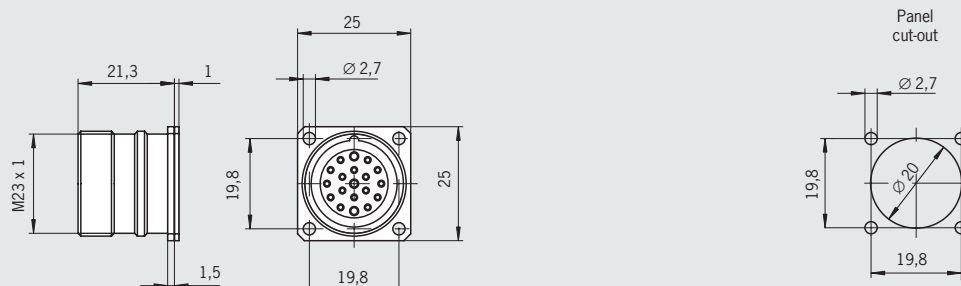
Ordering table

Item	Order no.
Flange connector and short-circuit plug	103042

Male flange connector

for designs HBAS-072949 and HBAS-094594

Male flange connector, 19-pin with socket contacts



Technical data

Parameter	Value
Housing material	Metal
Number of pins	19
Degree of protection according to EN 60529 (inserted)	IP 65
Contact material	Copper alloy
Connection	Soldered connection

Ordering table

Item	Order no.
Male flange connector, 19-pin with socket contacts	092374

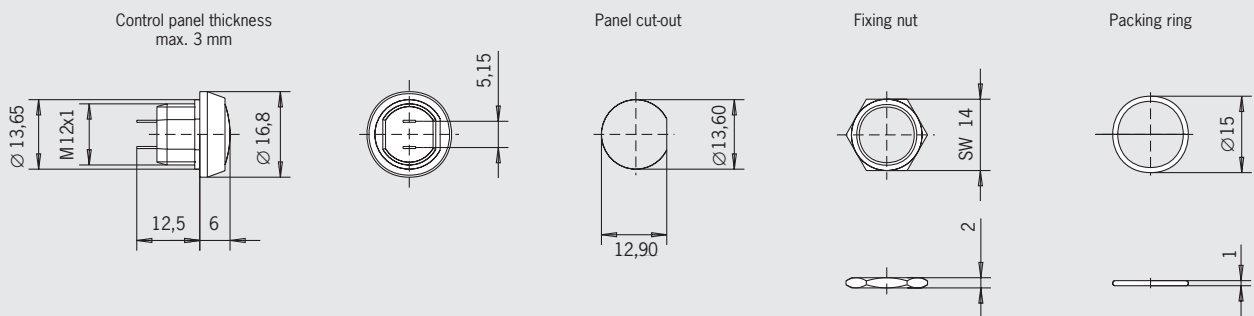
Accessory Kit for all Designs of Hand-held Pendant Station **EUCHNER**

Overview of accessories for hand-held pendant station kits

Accessories for kit	Accessories							Page
	EMERGENCY-STOP device	Pushbutton	Selector switch	Key-operated rotary switch	Enabling switch, 3-stage	Plug connector	Connection cables	
Suitable for all designs		●						48
			●					49/50
				●				50
						●		51
							●	52/53
Hand-held pendant stations HBA/HBM	●							54
					●			55
Hand-held pendant stations HBL	●							56
					●			57

Pushbutton

Dimension drawing



Technical data

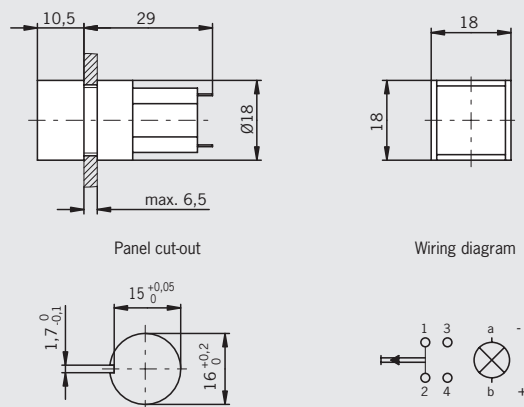
Parameter	Value	Unit
Ambient temperature	-25 ... +70	°C
Front degree of protection (integrated in front panel)	IP 67	
Switching principle	Button, snap-action switching element	
Switching elements	1 NO contact	
Switching voltage	30	V DC
Switching current max.	100	mA
Connection	Soldered connection	

Ordering table

Item	Order no.
Pushbutton, black button	083640
Pushbutton, red button	086753
Pushbutton, green button	086754
Pushbutton, blue button	086757
Pushbutton, white button	086755
Pushbutton, yellow button	086756

Illuminated pushbutton (can be individually labeled)

Dimension drawing



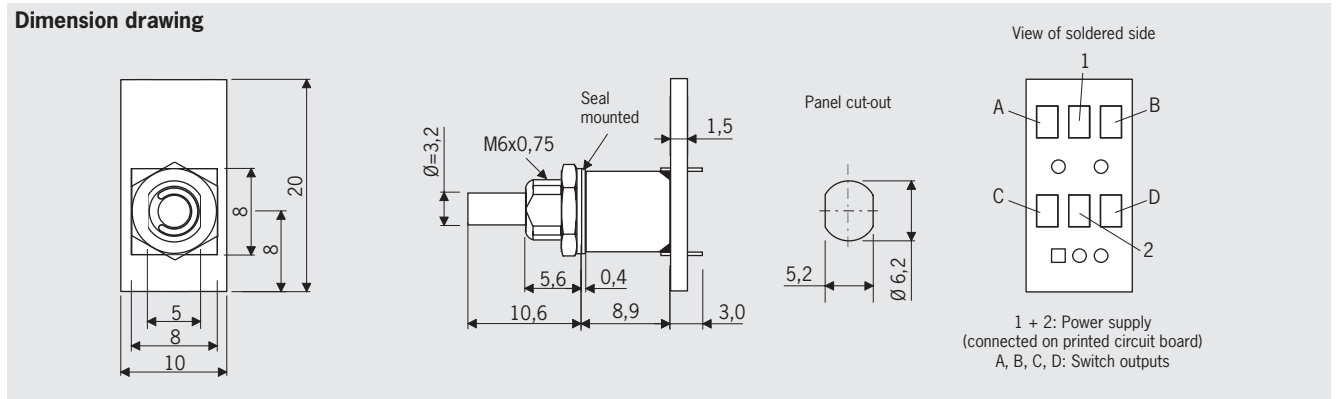
Technical data

Parameter	Value	Unit
Ambient temperature	-25 ... +55	°C
Front degree of protection (integrated in front panel)	IP 65	
Switching principle	Button, snap-action switching element	
Switching elements	1 NO contact, 1 NC contact	
Switching current max.	100	mA
Switching voltage max.	30	V AC/DC
LED	24 V / 14 mA	
Connection	Soldered connection	

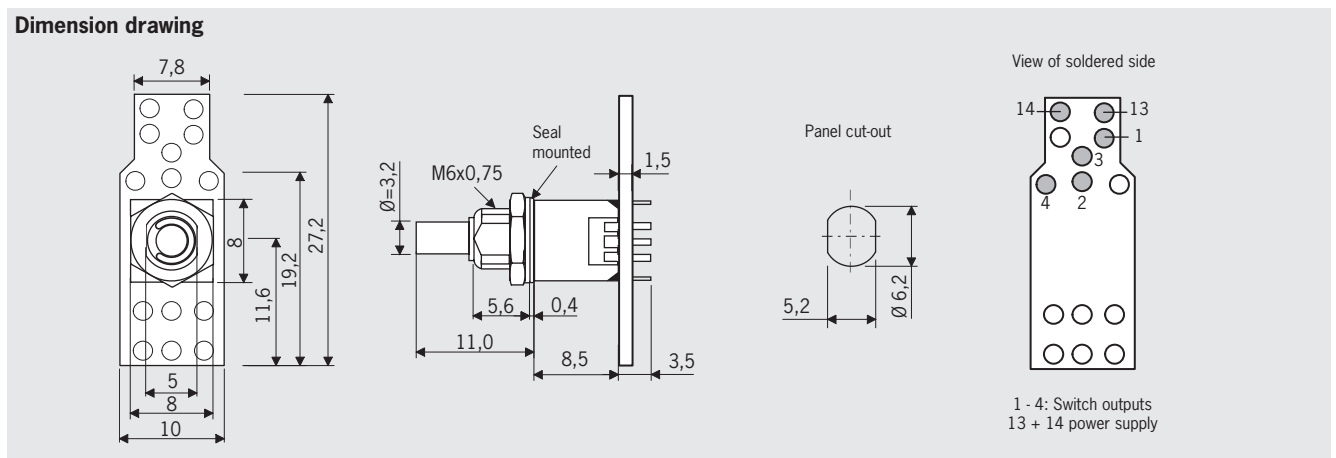
Ordering table

Item	Order no.
Pushbutton, illuminated, can be individually labeled (yellow LED)	074991
Pushbutton, illuminated, can be individually labeled (white LED)	098045

Gray code selector switch (ordering table see page 50)



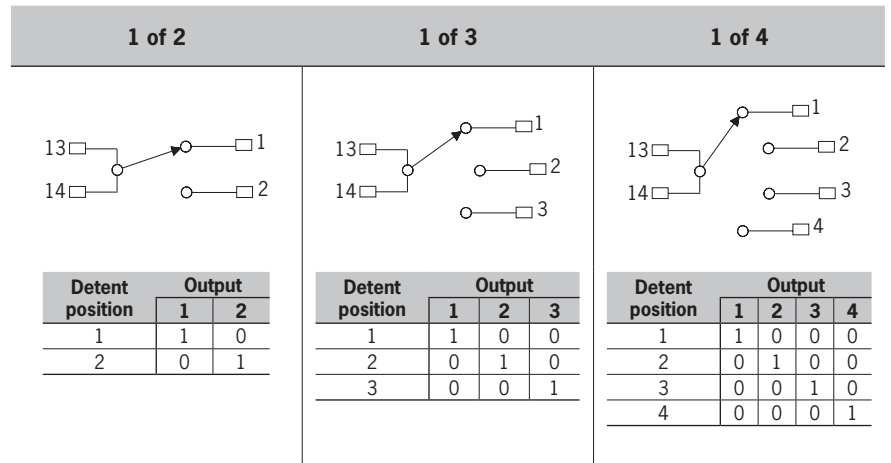
Selector switch 1 of X (ordering table see page 50)



Code table switch with Gray code

Detent position	Output			
	D	C	B	A
1	0	0	0	0
2	0	0	0	1
3	0	0	1	1
4	0	0	1	0
5	0	1	1	0
6	0	1	1	1
7	0	1	0	1
8	0	1	0	0
9	1	1	0	0
10	1	1	0	1
11	1	1	1	1
12	1	1	1	0
13	1	0	1	0
14	1	0	1	1
15	1	0	0	1
16	1	0	0	0

Circuit diagrams switch 1 of X



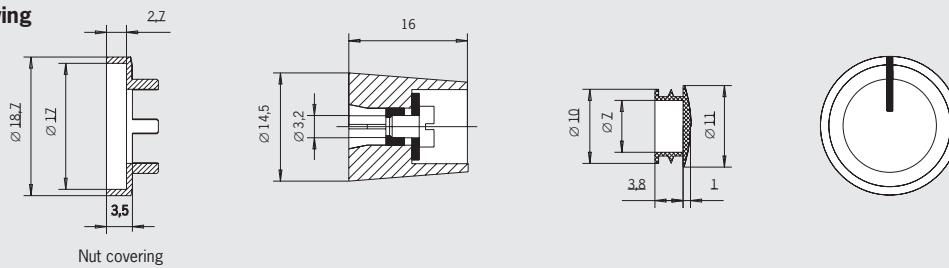
Connections A - D: Switch outputs
Connections 1 - 3: Power supply

Technical data

Parameter	Value	Unit
Front degree of protection (integrated in front panel)	IP 67	
Center point fixing	M6 x 0.75	
Detent positions	2, 3, 4, 5, 6, 7, 8, 12 or 16 depending on item	
Detent angle	Gray code 22.5° / 1 of X: 30°	
Output code	1 of 2, 1 of 3, 1 of 4 or Gray code depending on item	
Breaking capacity max.	0.2	VA
Switching voltage max.	25	V AC/DC
Connection	Soldered connection on printed circuit board	
Max. soldering time	≤ 5 (at t ≤ 260 °C)	s

Rotary knob

Dimension drawing



Ordering table

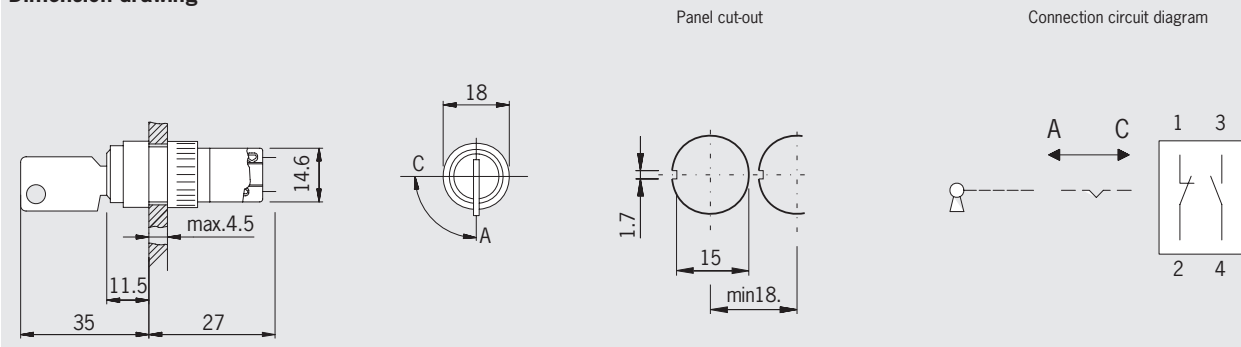
Item	Detent angle	Order no.
Selector switch, 2 detent positions, 1 of 2, break-before-make ¹⁾	30°	097026
Selector switch, 3 detent positions, 1 of 3, break-before-make ¹⁾	30°	097027
Selector switch, 4 detent positions, 1 of 4, break-before-make ¹⁾	30°	097028
Selector switch, 5 detent positions, Gray code, short circuited ²⁾	22.5°	097029
Selector switch, 6 detent positions, Gray code, short circuited ²⁾	22.5°	097030
Selector switch, 7 detent positions, Gray code, short circuited ²⁾	22.5°	097031
Selector switch, 8 detent positions, Gray code, short circuited ²⁾	22.5°	097032
Selector switch, 12 detent positions, Gray code, short circuited ²⁾	22.5°	097033
Selector switch, 16 detent positions, Gray code, short circuited ²⁾	22.5°	097034
Rotary knob, matt black with a marking, collet mounting for axis 3.2 mm	–	097141

1) break-before-make: all outputs are open between the switch positions.

2) short circuited: the related outputs are connected between the switch positions.

Key-operated rotary switch

Dimension drawing



Technical data

Parameter	Value	Unit
Ambient temperature	-25 ... +55	°C
Front degree of protection (integrated in front panel) / NEMA	IP 65 / 250-12	
Switching principle	Snap-action switching element	
Switching element	1 NO contact, 1 NC contact	
Switching voltage max.	30	V AC/DC
Switching current max.	250	mA
Connection	Soldered connection	

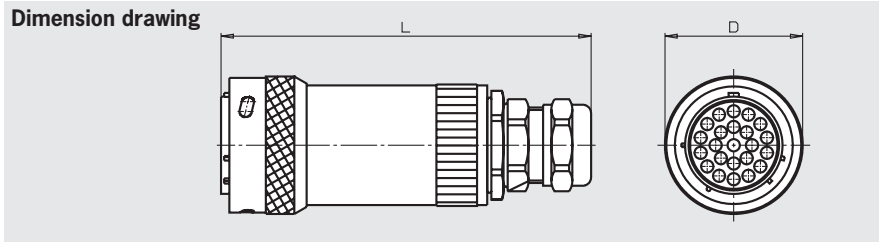
Ordering table

Item	Order no.
Key-operated rotary switch	083639
Replacement key	092386

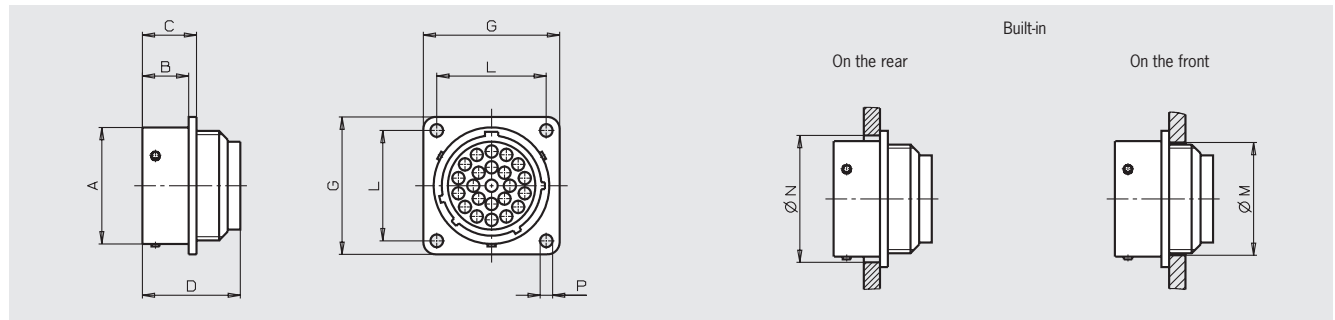
Plug connector

Number of pins	D	L	Cable Ø
35	40.2	103	8.0 - 12.0
28	37.2	97	8.0 - 12.0
23	33.9	91	6.0 - 10.0
12	27.5	81	5.5 - 9.5

Dimension drawing



Flange connectors

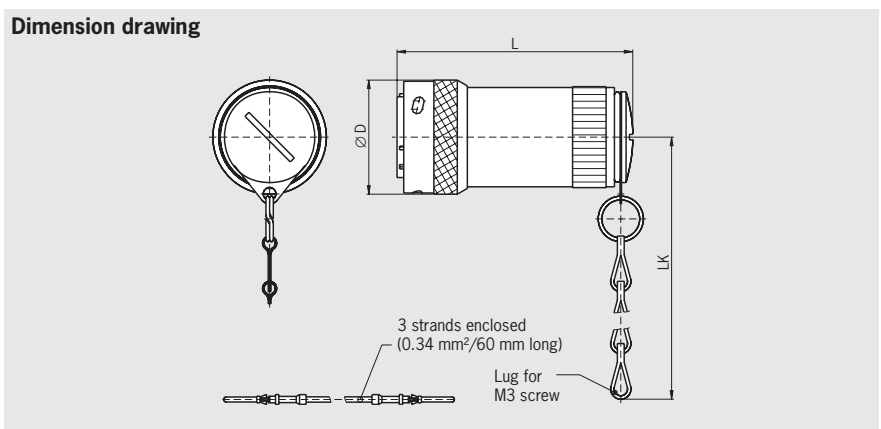


Number of pins	A	B _{max}	C _{max}	D _{max}	G _{max}	L	M	N	P
35	34.9	14.6	17.3	25.7	39.9	31.8	34.1	37.7	3.1
28	31.7	14.6	17.3	25.7	36.8	29.4	30.9	34.5	3.1
23	28.5	11.4	13.3	24.1	33.6	27	27.8	31.3	3.1
12	22.2	11.4	13.3	24.1	28.8	22.9	21.4	25	3.1

Short-circuit plug

Number of pins	D	L	LK
35	40.2	84	255
28	37.2	78	255
23	33.9	72	252
12	27.5	59.4	251

Dimension drawing



Technical data

Parameter	Value	Unit
Connecting plug/flange socket		
Housing material	Metal	
Number of pins	12 / 23 / 28 / 35	
Degree of protection according to EN 60529 (inserted) / NEMA	IP 65 / 250-12	

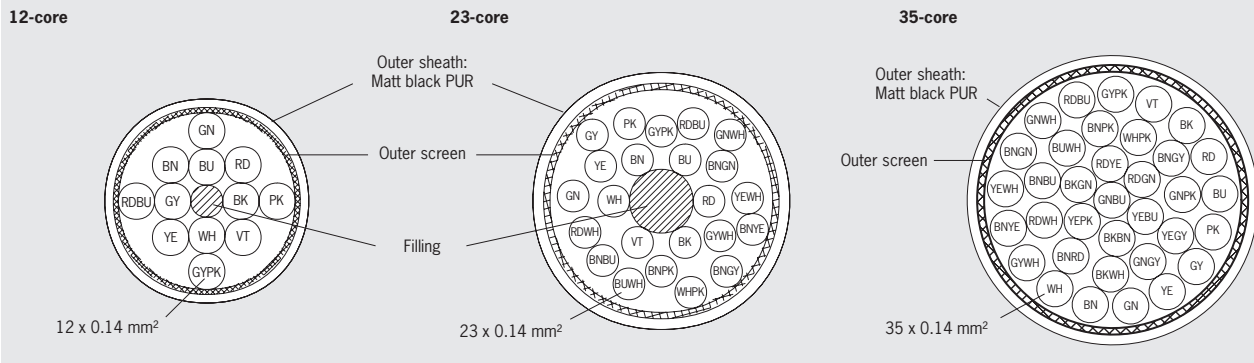
Ordering table

Item	Connection	Order no.
Plug connector, 35-pin with pin contacts	Crimp contacts (included) *	074395
Plug connector, 28-pin with pin contacts	Crimp contacts (included) *	074394
Plug connector, 23-pin with pin contacts	Crimp contacts (included) *	074393
Plug connector, 12-pin with pin contacts	Crimp contacts (included) *	086748
Flange socket, 35-pin with socket contacts	Crimp contacts (included) *	074386
Flange socket, 28-pin with socket contacts	Crimp contacts (included) *	074385
Flange socket, 23-pin with socket contacts	Crimp contacts (included) *	074384
Flange socket, 12-pin with socket contacts	Crimp contacts (included) *	086749
Short-circuit plug with chain, 35-pin	Crimp contacts (included) *	083459
Short-circuit plug with chain, 28-pin	Crimp contacts (included) *	083458
Short-circuit plug with chain, 23-pin	Crimp contacts (included) *	083457
Short-circuit plug with chain, 12-pin	Crimp contacts (included) *	087802

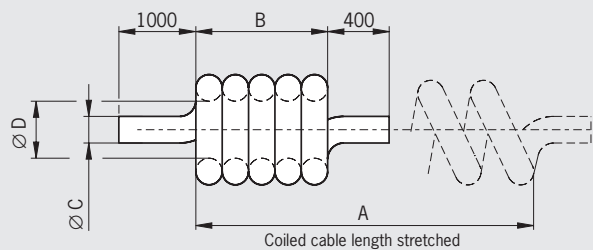
* Suitable crimping tool Burndy (www.burndy.com) Y16RCM Crimping tool for machined contacts
 Suitable extraction tool Burndy (www.burndy.com) RX2025GE1 Extraction tool

Cable coiled and straight

View of cable cross-section



Dimensions of coiled version



Technical data

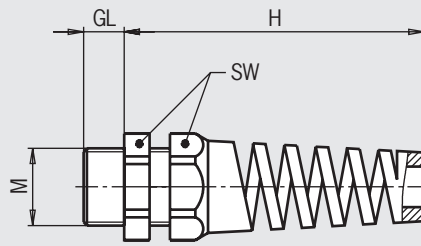
Parameter	Value	Unit	
Cable resistance	≤ 145	Ω/km	
Test voltage core / core	1.0	kVrms	
Test voltage core / screen	1.0	kVrms	
Insulation resistance	12-core and 23-core 35-core	≥ 200 ≥ 20	MΩ
Operating temperature	-10 ... +70	°C	
Bending radius	once several times	≥ 10 x cable diameter ≥ 15 x cable diameter	

Ordering table

Item	Cable length [mm]	A [mm]	B [mm]	∅ C [mm]	∅ D [mm]	Order no.
12-core, coiled cable	3,900	Approx. 2,500	550 ± 20	6 ± 0.3	8 ± 2	086721
12-core, coiled cable	5,400	Approx. 4,000	880 ± 20	6 ± 0.3	8 ± 2	086722
12-core, straight cable	3,500	-	-	-	-	087379
12-core, straight cable	5,000	-	-	-	-	087380
12-core, straight cable	10,000	-	-	-	-	087381
23-core, coiled cable	3,900	Approx. 2,500	550 ± 20	7.5 ± 0.3	10 ± 2	087408
23-core, coiled cable	5,400	Approx. 4,000	880 ± 20	7.5 ± 0.3	10 ± 2	087409
23-core, straight cable	3,500	-	-	-	-	087382
23-core, straight cable	5,000	-	-	-	-	087383
23-core, straight cable	10,000	-	-	-	-	087384
35-core, coiled cable	3,900	Approx. 2,500	550 ± 20	8 ± 0.5	10 ± 2	097190
35-core, coiled cable	5,400	Approx. 4,000	880 ± 20	8 ± 0.5	10 ± 2	097191
35-core, straight cable	3,500	-	-	-	-	097189
35-core, straight cable	5,000	-	-	-	-	097188
35-core, straight cable	10,000	-	-	-	-	097187

Cable gland with anti-kink spiral

Dimension drawing



Ordering table

Thread M	Use	Cable diameter	SW	GL	H
M16x1.5	Kit HBA/HBM	5 - 10	22	8	71
Pg 11	Kit HBL	5 - 10	22	11	71
Pg 13.5	Kit HBL	6 - 12	24	12.5	81

Ordering table

Item	Order no.
Cable gland M16x1.5 with anti-kink spiral, color black	083641
Cable gland Pg 11 with anti-kink spiral and fixing nut, color black	073982
Cable gland Pg 13.5 with anti-kink spiral and fixing nut, color black	073983

EMERGENCY STOP devices according to EN ISO 13850

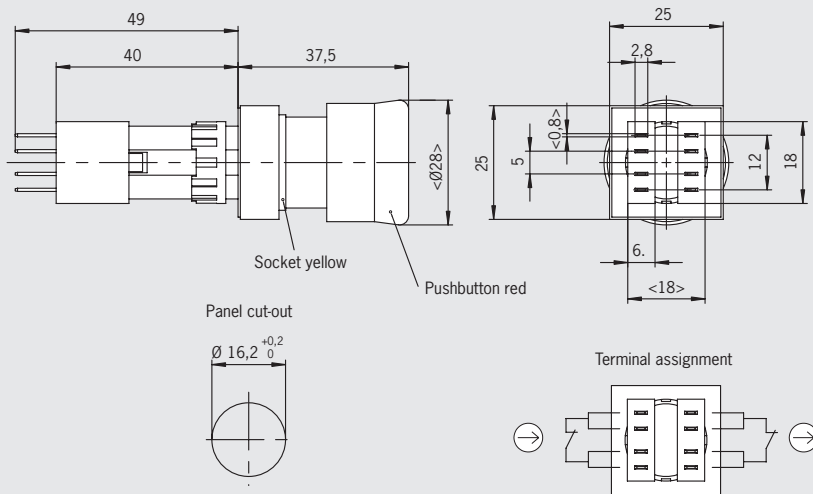


- ▶ With pull-to-reset button
- ▶ EMERGENCY STOP device for housing HBA/HBM without enabling switch ZXE, 3-stage

Notes

- ▶ The EMERGENCY STOP device engages when actuated by pressing, unlocks when pulled, and is overload-proof
- ▶ Do not use with housing HBA/HBM with 3-stage enabling switch ZXE

Dimension drawing



Technical data

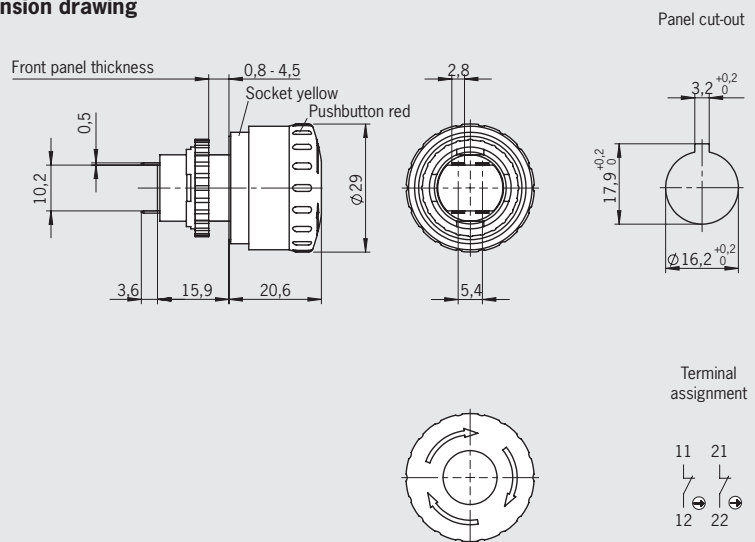
Parameter	Value	Unit
Actuating element		
Color of actuating button	Red	
Color of bottom part	Yellow	
Switching elements	2, one positively driven contact each	
Degree of protection	IP 65	
Utilization category according to IEC 947-5-1	DC-13 U _e 24 V I _e 3 A	

- ▶ With turn-to-reset button
- ▶ EMERGENCY STOP device for housing HBA/HBM
- ▶ Bottom of housing yellow

Notes

- ▶ The EMERGENCY STOP device engages when actuated by pressing, unlocks when turned or pulled, and is tamper proof

Dimension drawing



Technical data

Parameter	Value	Unit
Actuating element		
Color of actuating button	Red	
Color of bottom part	Yellow	
Switching elements	2 positively driven contacts	
Degree of protection	IP 65	
Connection ratings	24 V DC / 3 A	

Ordering table

Item	Order no.
EMERGENCY STOP device (pull-to-reset button) with 2 switching elements, 1 positively driven contact each, long design	096298
EMERGENCY STOP device (pull-to-reset button and turn-to-reset button), 2 positively driven contacts, short design	106435
Blind plug for EMERGENCY STOP device mounting hole	083653



Enabling switch ZXE-091336, 3-stage, 2 NO contacts

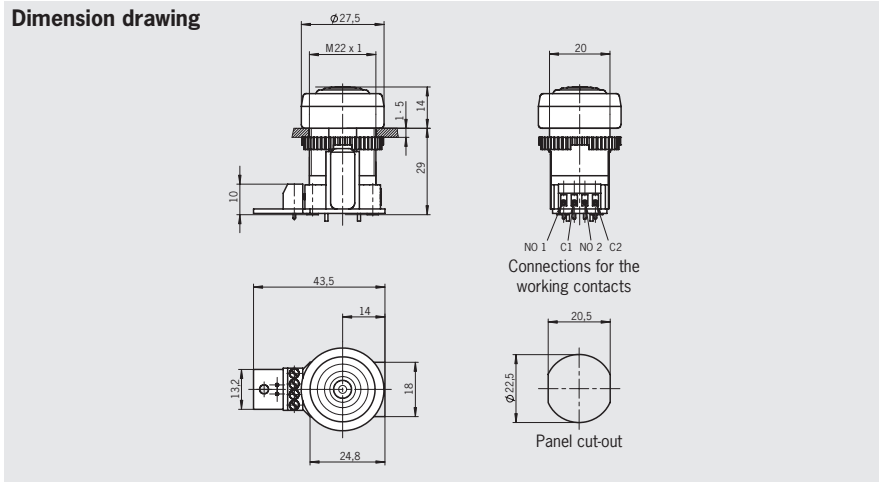
Notes

- ▶ Enabling switch ZXE-091336 for use in housing HBA/HBM (see page 31/33/35/39)

Switching elements

- ▶ **2202** 2 NO

Dimension drawing



Enabling switch ZXE-104833 with click, 3-stage, 2 NO contacts

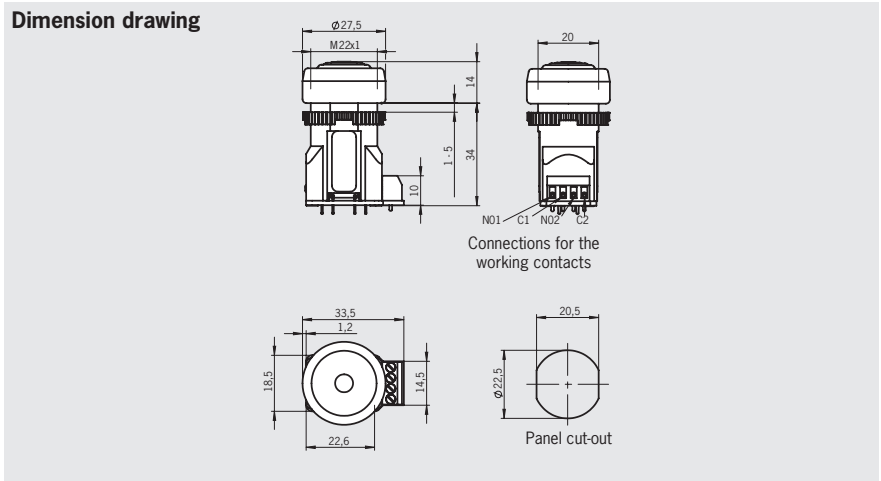
Notes

- ▶ Enabling switch ZXE-104833 for use in housing HBA/HBM (see page 31/33/35/39)
- ▶ A click sounds during the change from stage 1 to stage 2 and during the return from stage 2 to stage 1.

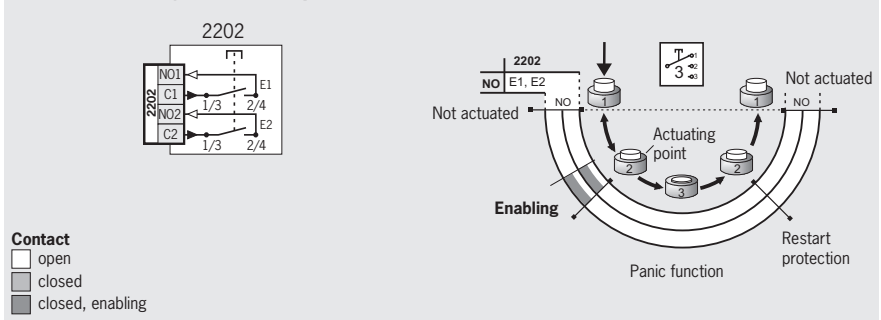
Switching elements

- ▶ **2202** 2 NO

Dimension drawing



Wiring diagrams/function sequence ZXE



Technical data

Parameter	Value	Unit
Housing material	Polyamide, black	
Protective cap material	CR (neoprene), black	
Degree of protection according to IEC 529	IP65 on front	
Ambient temperature	- 5 ... + 60	°C
Switching principle	Slow-action contact element	
Utilization category according to IEC 947-5-1	DC-13 U _e 24 V I _e 0.1 A	
Weight	Approx. 0.03	kg

Ordering table

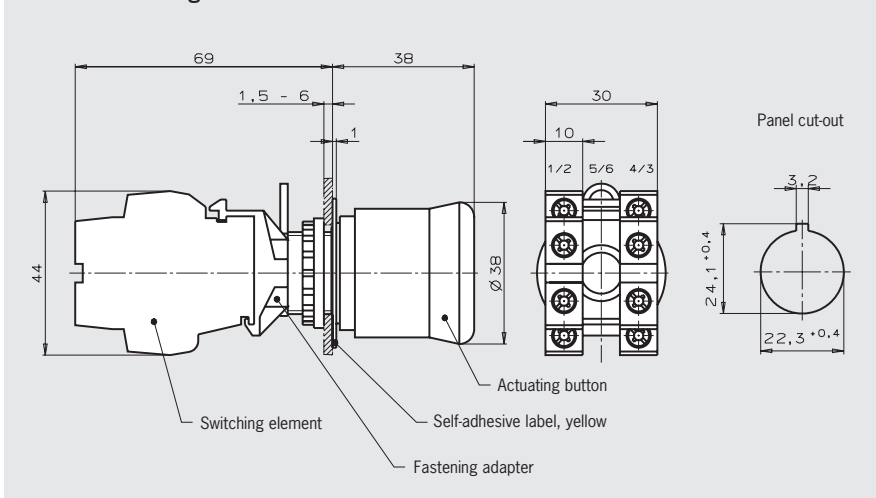
Item	Particularity	Switching contacts	Switch type	Order no.
ZXE-091336	-	2 NO contacts	Dual-channel	091336
ZXE-104833	Click noise on operation	2 NO contacts	Dual-channel	104833

EMERGENCY STOP device, 22 mm with pull-to-reset button according to EN ISO 13850

Notes

- ▶ The EMERGENCY STOP device engages when actuated by pressing, unlocks when pulled, and is overload-proof
- ▶ Usage only for the following housings:
- ▶ HBL-072631
- ▶ HBL-072983
- ▶ HBL-073113
- ▶ HBL-083484

Dimension drawing



Technical data

Parameter	Value	Unit
Color of actuating button	Red	
Color self-adhesive label	Yellow	
Switching element	2 NC contacts	
Utilization category according to IEC 947-5-1	DC-13 U _e 24 V I _e 2.75 A	

Ordering table

Item	Order no.
EMERGENCY STOP device, complete with switching elements (2 x NC contacts), pull-to-reset button	073985
Blind plug for EMERGENCY STOP device mounting hole	059622



Enabling switch ZSE2-2, 3-stage, 1 positively driven contact

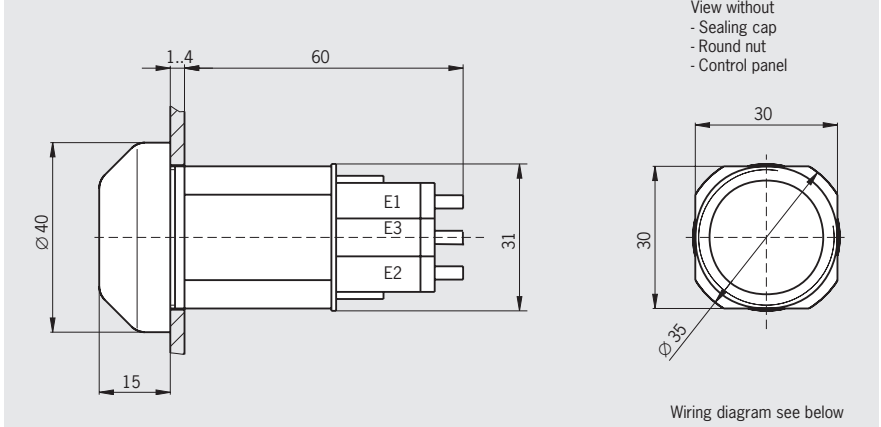
Notes

- ▶ Enabling switch ZSE2-2 C1692 for use in housings HBL-073109 and HBL-072632 (see page 42)

Switching elements

- ▶ **210** 2 NO + 1 NC ⊕

Dimension drawing



Enabling switch ZSE2-4, 3-stage, 2 positively driven contacts

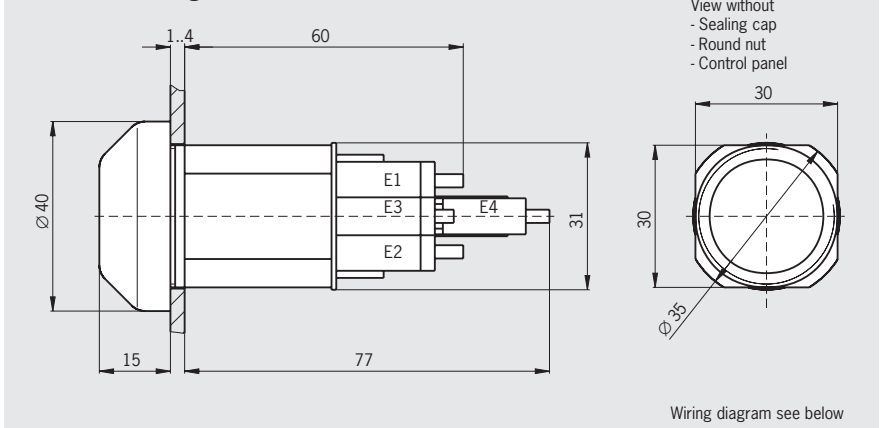
Notes

- ▶ Enabling switch ZSE2-4 C1943 for use in housings HBL-072983 and HBL-083484 (see page 42)

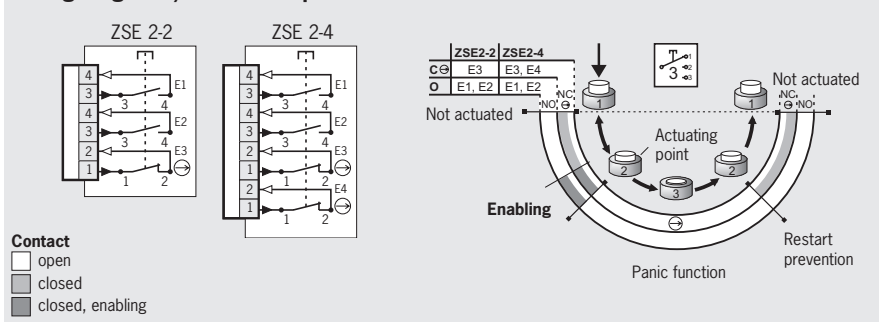
Switching elements

- ▶ **220** 2 NO + 2 NC ⊕

Dimension drawing



Wiring diagrams/function sequence ZSE 2-2 and ZSE 2-4



Technical data

Parameter	Value	Unit
Housing material	Plastic	
Fastening hole	∅ 30.5 ^{+0.5}	mm
Degree of protection according to IEC 529	IP65 on front	
Ambient temperature	- 5 ... + 60	°C
Switching principle	Slow-action contact element	
Utilization category according to IEC 947-5-1	AC-15 U _e 24 V I _e 4 A DC-13 U _e 24 V I _e 3 A	
Weight	Approx. 0.1	kg

Ordering table

Item	Switching contacts	Switch type	Order no.
ZSE2-2 C 1692	2 NO contacts + 1 pos. driven contact	Single-channel	070752
ZSE2-4 C 1943	2 NO contacts + 2 pos. driven contact	Dual-channel	083477

Holder HBA

Technical data

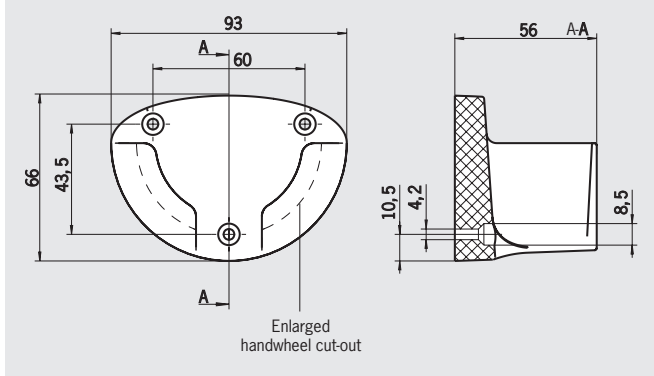
Parameter	Value	Unit
Housing material	Plastic	
Fixing system	Screws	
Ambient temperature	-5 to +60	°C
Weight	Approx. 0.1	kg

Ordering table

Item	Order no.
Holder HBA gray	072828
Holder HBA black	100221
Holder HBA gray, enlarged handwheel cut-out *	072935
Holder HBA black, enlarged handwheel cut-out *	109979

* Operation of the handwheel in the holder possible

Dimension drawing



Holder HBM

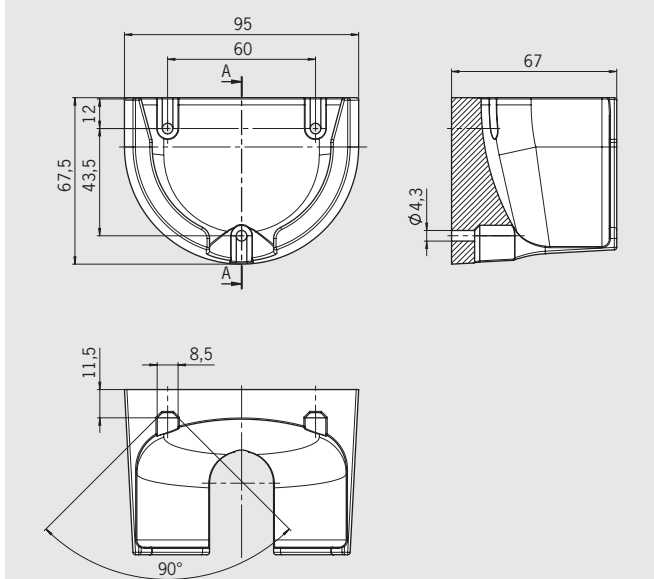
Technical data

Parameter	Value	Unit
Housing material	Plastic	
Fixing system	Screws	
Ambient temperature	-5 to +60	°C
Weight	Approx. 0.1	kg

Ordering table

Item	Order no.
Holder HBM	112335

Dimension drawing



Holder HBL

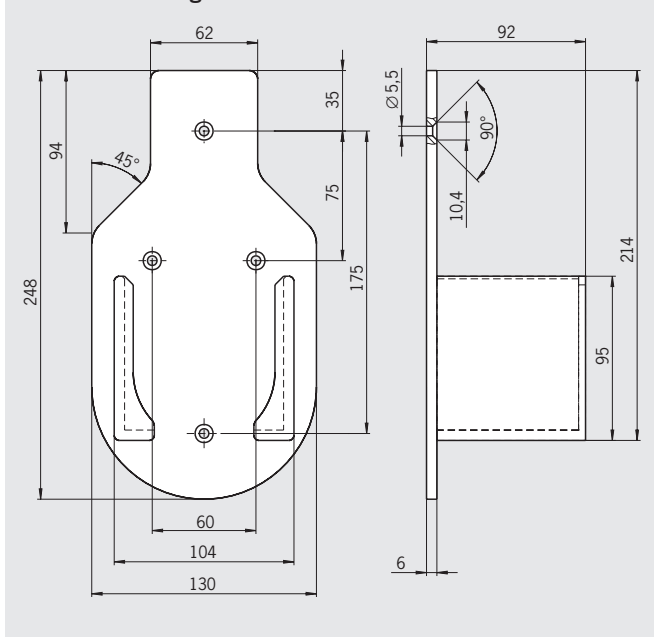
Technical data

Parameter	Value	Unit
Housing material	Plastic	
Fixing system	Screws	
Ambient temperature	-5 to +60	°C
Weight	Approx. 0.1	kg

Ordering table

Item	Order no.
Holder HBL	084397

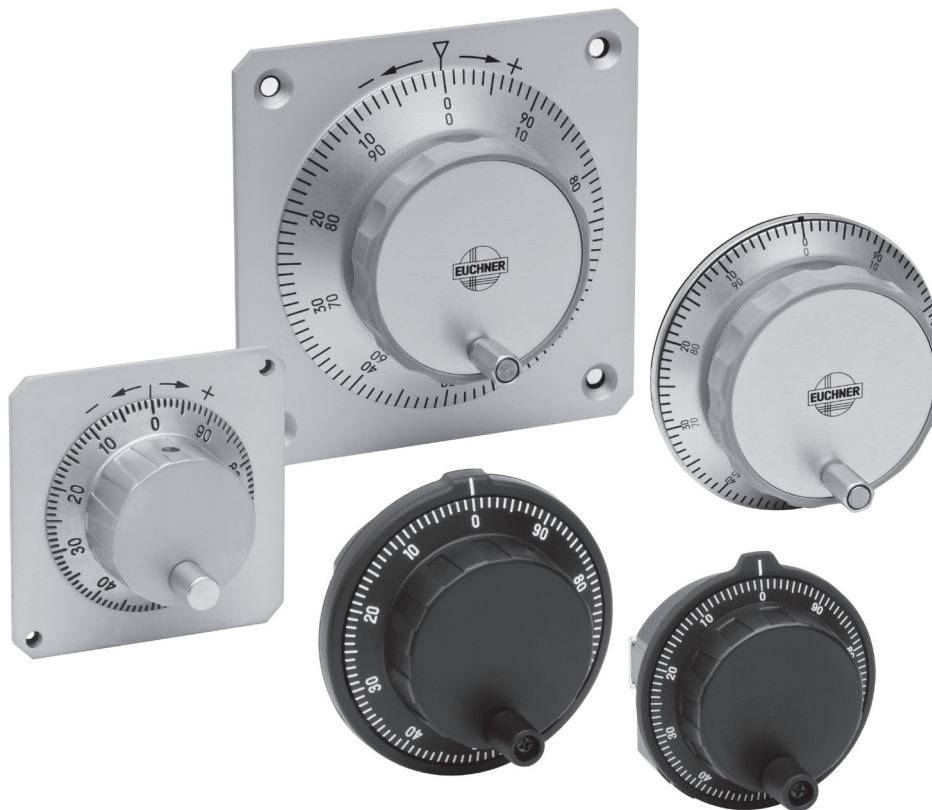
Dimension drawing



Function and technology used in handwheels

The change from a handwheel directly coupled to the spindle or axes to CNC-controlled axes has meant dramatic new developments for the handwheels. The rotation of the handwheel generates square-wave outputs. The CNC axis controller evaluates the pulses and so signals the axis to move. With over 20 years of handwheel experience, EUCHNER provides a wide selection of handwheels built with the finest quality and highest possible reliability.

Daily use of handwheels places high demands on the mechanical functioning. With twin bearings and a wear-free detent mechanism, the EUCHNER handwheels are the optimum choice for trouble-free operation. The detent moment maintains position even in the event of machine vibration. The detent moment and 100 or 25 pulses per revolution allow a desired value to be set quickly, reliably and accurately. In addition to the manual positioning of axes with CNC-controlled machines, EUCHNER also offers handwheels used for medical and telecommunication applications. EUCHNER also offers handwheels for these applications.



Magnetic detent mechanism

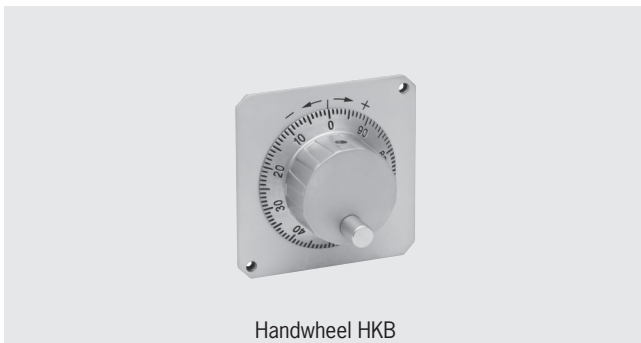
Handwheels with magnetic detent are characterized by their absolutely wear-free and noiseless detent mechanism.

With 100 detent positions (100 or 25 pulses)

The detent mechanism is generated by a magnetic field. A combination of 100 magnetic north/south positions is generated by the opposing magnetic fields with one revolution of the handwheel. Thanks to an air gap, the detent mechanism has no wear and is absolutely maintenance-free. With two ball bearings, the bearing assembly of the handwheel can withstand high axial and radial forces. Different circuit outputs are available for all current control systems.

There are three different designs available:

- ▶ Design HKB
 - Ideal for flat machine panels and small, light hand-held pendant stations.



- ▶ Design HKC
 - Suitable for installation in operator panels
 - Its design makes it particularly suitable for flat operator panels



- ▶ Design HKD
 - Suitable for installation in operator panels and EUCHNER hand-held pendant stations from series HBL
 - Suitable for installation in universal turning and milling machines for axis movement, for example



Mechanical detent mechanism

Handwheels with mechanical detent are characterized by their light weight and shallow mounting depth.

With 100 detent positions (100 or 25 pulses)

A toothed rotor working in conjunction with a roller creates the detent mechanism. The roller is pushed between the teeth of the rotor by a spring and dial. The detent moment is produced by the movement of the roller over the teeth.

There are two different designs available:

- ▶ Design HWA
 - Suitable for installation in operator panels.
 - Suitable for installation in EUCHNER hand-held pendant stations
 - With center point fixing



- ▶ Design HWB
 - Suitable for installation in operator panels
 - With 3-point fixing



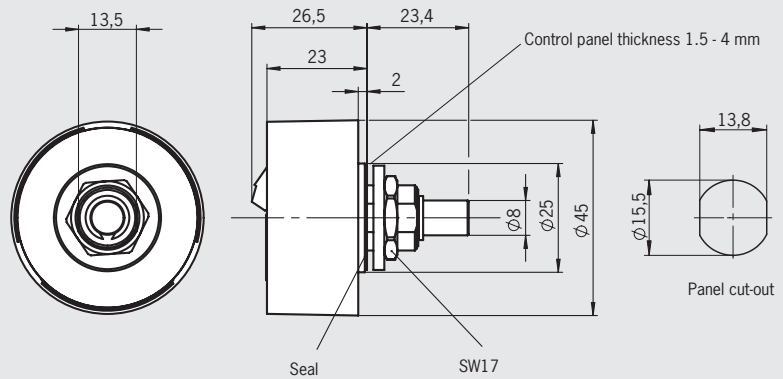
Handwheel HKB



- ▶ 100 detent positions per revolution
- ▶ Wear-free magnetic detent mechanism
- ▶ 100 or 25 pulses per revolution
- ▶ Key function in axial direction optional
- ▶ Ideal for flat operator panels and small, light hand-held pendant stations like HBA/HBM



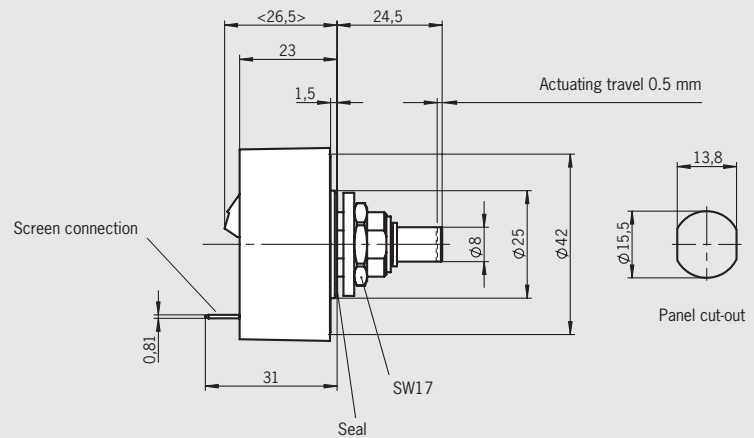
Dimension drawing



Notes

- ▶ Output A05 suitable for Siemens control systems with RS422 input
- ▶ Output G05 suitable for Fanuc control systems
- ▶ Dial: see accessories page 72
- ▶ Front panel: see accessories page 72

Version with key function



Ordering table

Series	Number of pulses per revolution	Connection	Detent positions	Outputs	Order No./item
HKB	25	S Screw terminal	100	G12 Push-pull 5 V $U_B = 10 \dots 30$ V DC	105137 HKB025S7G12
	100	S Screw terminal	100	A05 RS422A $U_B = 5$ V DC	105134 HKB100S7A05
				A12 RS422A $U_B = 10 \dots 30$ V DC	105135 HKB100S7A12
				G05 5 V push-pull $U_B = 5$ V DC	105136 HKB100S7G05
				G24 Push-pull 10...30 V $U_B = 10 \dots 30$ V DC	105138 HKB100S7G24
HKB with key function	100	S Screw terminal	100	A05 RS422A $U_B = 5$ V DC	109429 HKB100S7A05K

Technical data

Parameter	Value		Unit
Pulses per revolution	2 x 25 or 2 x 100		
Detent positions	100		
Housing material	Aluminum		
Weight	0.095		kg
Detent mechanism	Magnetic		
Shaft loading, axial, max.	25		N
Shaft loading, radial, max.	40		N
Mechanical life, min.	5 x 10 ⁶		Rev.
Operating temperature	0 ... +50		°C
Storage temperature	-20 ... +50		°C
Atmospheric humidity, max.	80% (condensation not permissible)		
Front degree of protection	acc. to EN 60529/IEC 529	IP 65	
	acc. to NEMA 250	250-12	
Resistance to vibration			
Vibrations (3 axes)	DIN/IEC 68-2-6		
Shock (3 axes)	DIN/IEC 68-2-7		
EMC protection requirements in accordance with CE	EN 61000-6-2, EN 61000-6-4		
Key function			
Mechanical life, min.	1 x 10 ⁶ actuations		
Actuating travel	0.3 ... 0.7 mm		
Specification output OUT			
	Output stage		
	A05/G05	A12/G12/G24	
Operating voltage U _B	DC 5 V ± 5 %		DC 10 ... 30 V
Output voltage	HIGH (1), min.	4.0 V/0 mA	-
		3.4 V/5 mA	-
		3.0 V/20 mA	U _B - 3 V/20 mA
		1.3 V/15 mA	3 V/20 mA
LOW (0), max.			
Output circuit RS422A			
Output stage	A05		A12
Output signals	A, /A, B, /B		
Operating voltage U _B	5 ± 5 %		10 ... 30
Operating current, no load, max.	80		
Output circuit	According to RS422A, use RS422 differential receiver module		
Output signals cw (clockwise rotation)			
Terminal assignment	Screw terminal, 7-pin, conductor cross-section 0.08 ² ... 1.5 ² (AWG 22 ... 16) Tightening torque, max. 0.5 Nm		
	without key function	with key function	
Output circuit, push-pull			
Output stage	G05	G12	G24
Output signals	A, B		
Operating voltage U _B	5 ± 5 %		10 ... 30
Operating current, no load, max.	80		
Output voltage	HIGH (1), min.	4.0 V / 0 mA	4.9 V / 0 mA
		3.4 V / 5 mA	3.9 V / 5 mA
		3.0 V / 20 mA	3.6 V / 20 mA
		1.3 V / 15 mA	3 V / 20 mA
LOW (0), max.			
Output current per output, max.	20		
Output signals cw (clockwise rotation)			
Terminal assignment	Screw terminal, 7-pin, conductor cross-section 0.08 ² ... 1.5 ² (AWG 22 ... 16) Tightening torque, max. 0.5 Nm		
	without key function	with key function	

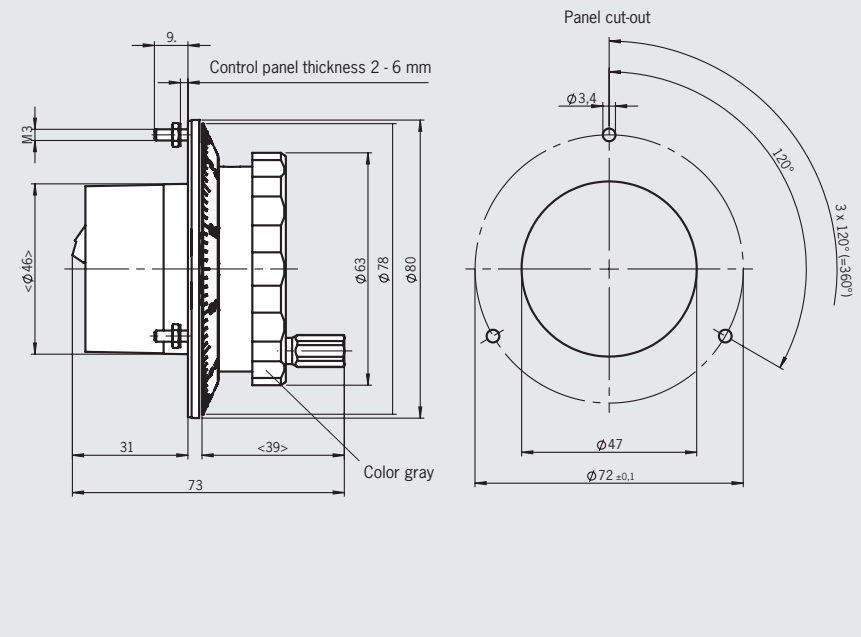
Handwheel HKC



- ▶ 100 detent positions per revolution
- ▶ Wear-free magnetic detent mechanism
- ▶ 100 or 25 pulses per revolution
- ▶ Flat design



Dimension drawing



Notes

- ▶ Output A05 suitable for Siemens control systems with RS422 input
- ▶ Output G05 suitable for Fanuc control systems

Ordering table

Series	Number of pulses per revolution	Connection	Detent positions	Outputs	Order No./item
HKC	25	S Screw terminal	100	G12 Push-pull 5 V $U_B = 10 \dots 30 \text{ V DC}$	072940 HKC025S100G12
	100	S Screw terminal	100	A05 RS422A $U_B = 5 \text{ V DC}$	087733 HKC100S100A05
				G05 Push-pull 5 V $U_B = 5 \text{ V DC}$	082573 HKC100S100G05
				G24 Push-pull 10...30 V $U_B = 10 \dots 30 \text{ V DC}$	087739 HKC100S100G24

Technical data

Parameter	Value	Unit
Pulses per revolution	2 x 25 or 2 x 100	
Detent positions	100	
Housing material	Plastic/metal	
Weight	0.25	kg
Detent mechanism	Magnetic	
Shaft loading, axial, max.	25	N
Shaft loading, radial, max.	40	N
Mechanical life, min.	5 x 10 ⁶	Rev.
Operating temperature	0 ... +50	°C
Storage temperature	-20 ... +50	°C
Atmospheric humidity, max.	80% (condensation not permissible)	
Front degree of protection	acc. to EN 60529/IEC 529 acc. to NEMA 250	IP 65 250-12
Resistance to vibration		
Vibrations (3 axes)	DIN/IEC 68-2-6	
Shock (3 axes)	DIN/IEC 68-2-7	
EMC protection requirements in accordance with CE	EN 61000-6-2, EN 61000-6-4	
Output circuit RS422A		
Output stage	A05	
Output signals	A, /A, B, /B	
Operating voltage U _B	5 ± 5 %	V DC
Operating current, no load, max.	80	mA
Output circuit	According to RS422A, use RS422 differential receiver module	
Output signals cw (clockwise rotation)		
Terminal assignment	Screw terminal S 	
Output circuit, push-pull		
Output stage	G05	G12 G24
Output signals		A, B
Operating voltage U _B	5 ± 5 %	10 ... 30
Operating current, no load, max.		80
Output voltage	HIGH (1), min.	4.0 V / 0 mA
		4.9 V / 0 mA
		3.4 V / 5 mA
		3.9 V / 5 mA
		3.0 V / 20 mA
		3.6 V / 20 mA
		U _B - 3 V / 20 mA
	LOW (0), max.	1.3 V / 15 mA
		1.3 V / 15 mA
		3 V / 20 mA
Output current per output, max.		20
Output signals cw (clockwise rotation)		
Terminal assignment	Screw terminal S 	

Handwheel HKD



- ▶ 100 detent positions per revolution
- ▶ Wear-free magnetic detent mechanism
- ▶ 100 or 25 pulses per revolution
- ▶ Installation in operator panels and EUCHNER hand-held pendant stations HBL



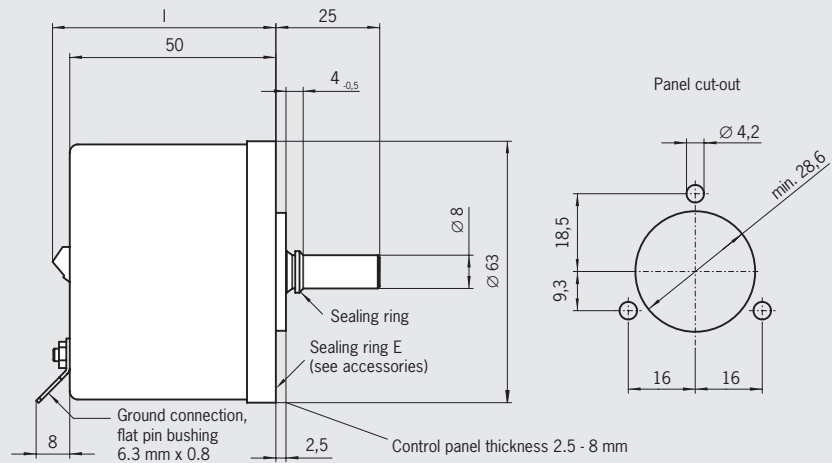
Notes

- ▶ Output A05 suitable for Siemens control systems with RS422 input
- ▶ Output G05 suitable for Fanuc control systems
- ▶ Dial: see accessories page 72
- ▶ Front panel: see accessories page 72

Mounting depth I

Connection	I [mm]
Screw terminal S	55
Ribbon cable, 6-pin V	53

Dimension drawing



Ordering table

Series	Number of pulses per revolution	Connection	Detent positions	Outputs	Order No./item
HKD	25	S Screw terminal	100	G12 Push-pull 5 V $U_B = 10 \dots 30 \text{ V DC}$	091525 HKD025S100G12
		V Ribbon cable 6-pin with plug	100	G12 Push-pull 5 V $U_B = 10 \dots 30 \text{ V DC}$	091526 HKD025V100G12
	100	S Screw terminal	100	A05 RS422A $U_B = 5 \text{ V DC}$	054866 HKD100S100A05
				G05 Push-pull 5 V $U_B = 5 \text{ V DC}$	083354 HKD100S100G05
				G24 Push-pull 10...30 V $U_B = 10 \dots 30 \text{ V DC}$	054868 HKD100S100G24
		V Ribbon cable 6-pin with plug	100	A05 RS422A $U_B = 5 \text{ V DC}$	057036 HKD100V100A05
				G05 Push-pull 5 V $U_B = 5 \text{ V DC}$	091527 HKD100V100G05
				G24 Push-pull 10...30 V $U_B = 10 \dots 30 \text{ V DC}$	057037 HKD100V100G24

Technical data

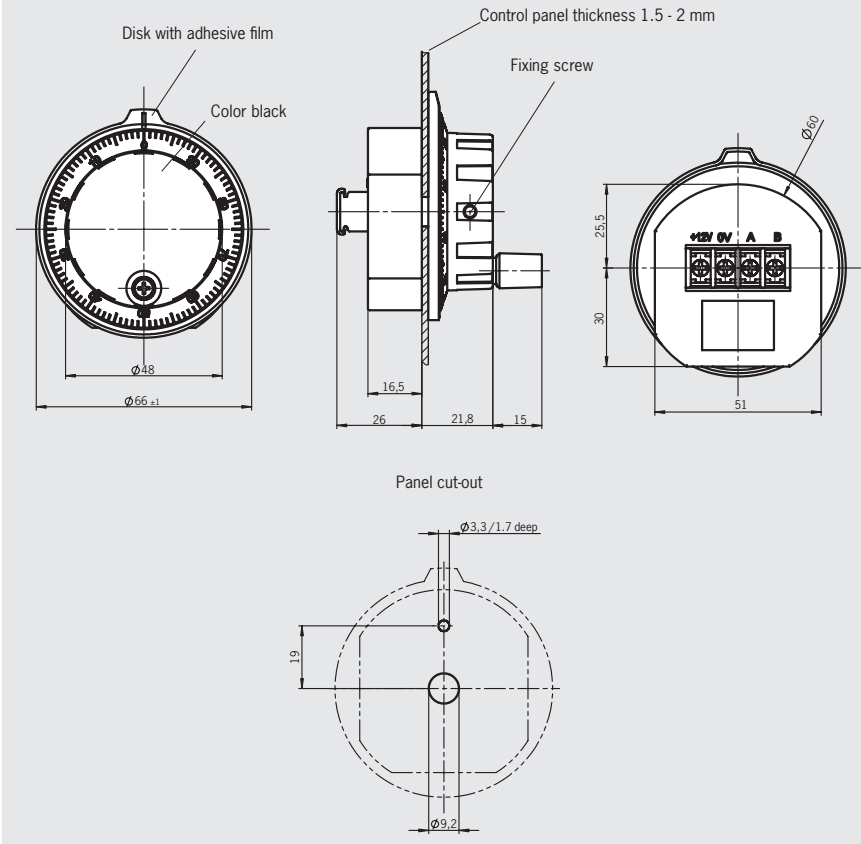
Parameter	Value		Unit
Pulses per revolution	2 x 25 or 2 x 100		
Detent positions	100		
Housing material	Aluminum		
Weight	0.5		kg
Detent mechanism	Magnetic		
Shaft loading, axial, max.	25		N
Shaft loading, radial, max.	40		N
Mechanical life, min.	20 x 10 ⁶		Rev.
Operating temperature	0 ... +70		°C
Storage temperature	-25 ... +85		°C
Atmospheric humidity, max.	80% (condensation not permissible)		
Front degree of protection	acc. to EN 60529/IEC 529	IP 65	
	acc. to NEMA 250	250-12	
Resistance to vibration			
Vibrations (3 axes)	DIN/IEC 68-2-6		
Shock (3 axes)	DIN/IEC 68-2-27		
EMC protection requirements in accordance with CE	EN 61000-6-2, EN 61000-6-4		
Output circuit RS422A			
Output stage	A05		
Output signals	A, /A, B, /B		
Operating voltage U _B	5 ± 5 %		V DC
Operating current, no load, max.	80		mA
Output circuit	According to RS422A, use RS422 differential receiver module		
Output signals cw (clockwise rotation)	<div style="display: flex; justify-content: space-around;"> <div style="text-align: center;"> <p>25 pulses</p> <p>Detent position areas</p> </div> <div style="text-align: center;"> <p>100 pulses</p> <p>Detent position area</p> </div> </div>		
Terminal assignment	<div style="display: flex; justify-content: space-around;"> <div style="text-align: center;"> <p>Ribbon cable V</p> </div> <div style="text-align: center;"> <p>Screw terminal S</p> </div> </div>		
Output circuit, push-pull			
Output stage	G05	G12	G24
Output signals	A, B		
Operating voltage U _B	5 ± 5 %	10 ... 30	
Operating current, no load, max.	80		
Output voltage			
HIGH (1), min.	4.0 V / 0 mA	4.9 V / 0 mA	-
	3.4 V / 5 mA	3.9 V / 5 mA	-
	3.0 V / 20 mA	3.6 V / 20 mA	U _B - 3 V / 20 mA
LOW (0), max.	1.3 V / 15 mA	1.3 V / 15 mA	3 V / 20 mA
Output current per output, max.	20		
Output signals cw (clockwise rotation)	<div style="display: flex; justify-content: space-around;"> <div style="text-align: center;"> <p>25 pulses</p> <p>Detent position areas</p> </div> <div style="text-align: center;"> <p>100 pulses</p> <p>Detent position area</p> </div> </div>		
Terminal assignment	<div style="display: flex; justify-content: space-around;"> <div style="text-align: center;"> <p>Ribbon cable V</p> </div> <div style="text-align: center;"> <p>Screw terminal S</p> </div> </div>		

Handwheel HWA

- ▶ 100 detent positions per revolution
- ▶ Mechanical detent mechanism
- ▶ 100 or 25 pulses per revolution
- ▶ Center point fixing



Dimension drawing



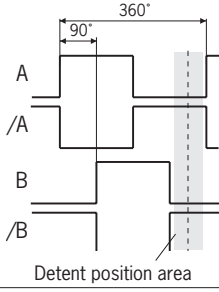

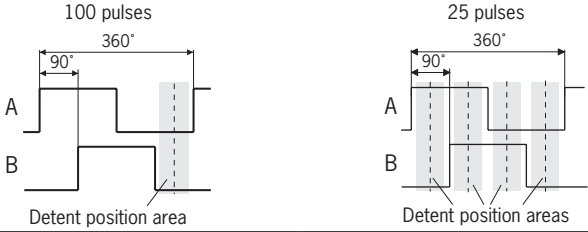

Notes

- ▶ Output A05 suitable for Siemens control systems with RS422 input
- ▶ Output G05 suitable for Fanuc control systems
- ▶ Packaging unit 10 pieces

Ordering table

Series	Number of pulses per revolution	Connection	Detent positions	Outputs	Order No./item
HWA Packaging unit 10 ea.	25	T Screw terminal	100	G12 Push-pull 5 V U _B = 12 V DC	072972 HWA025T100G12/V10 (10 ea.)
	100	T Screw terminal	100	A05 RS422A U _B = 5 V DC	072970 HWA100T100A05/V10 (10 ea.)
				G05 Push-pull 5 V U _B = 5 V DC	072971 HWA100T100G05/V10 (10 ea.)

Technical data

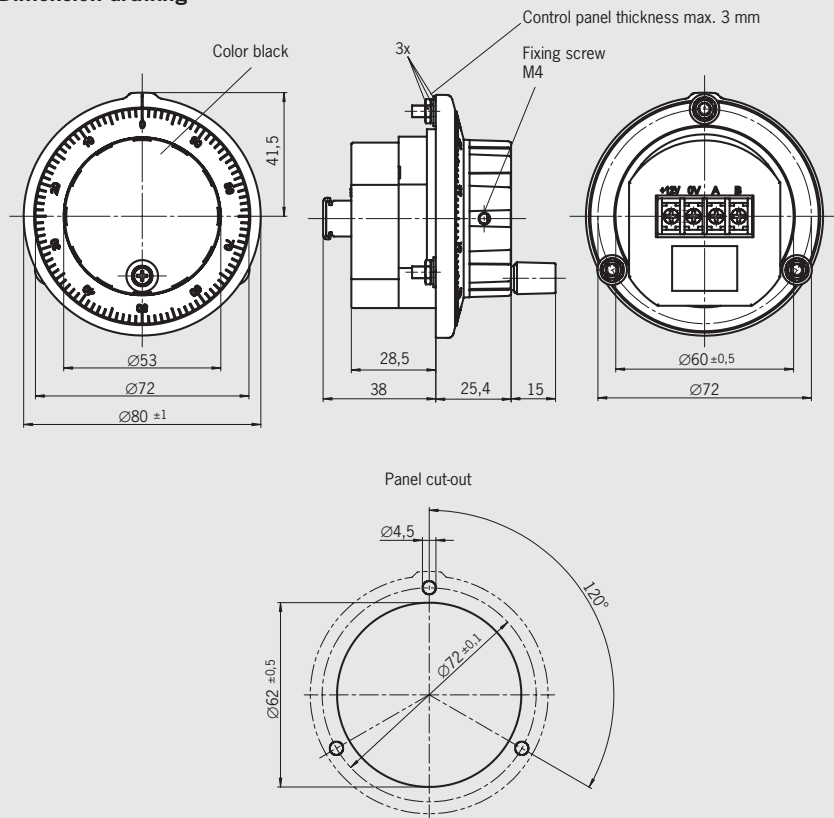
Parameter	Value	Unit
Pulses per revolution	2 x 25 or 2 x 100	
Detent positions	100	
Housing material	Plastic/metal	
Weight	0.1	kg
Detent mechanism	Mechanical	
Shaft loading, axial, max.	25	N
Shaft loading, radial, max.	40	N
Mechanical life, min.	1 x 10 ⁶	Rev.
Operating temperature	0 ... +50	°C
Storage temperature	-20 ... +50	°C
Atmospheric humidity, max.	80% (condensation not permissible)	
Front degree of protection	acc. to EN 60529/IEC 529 acc. to NEMA 250	IP65 250-12
Output circuit RS422A		
Output stage	A05	
Output signals	A, /A, B, /B	
Operating voltage U _B	5 ± 10 %	V DC
Operating current, no load, max.	80	mA
Output specifications	According to RS422A, use RS422 differential receiver module	
Output signals CW (clockwise rotation)	100 pulses  <p>Detent position area</p>	
Terminal assignment	Screw terminal T +5V 0V A /A B /B 	
Output circuit, push-pull		
Output stage	G05	G12
Output signals	A, B	
Operating voltage U _B	5 ± 10 %	12 ± 10 %
Operating current, no load, max.	20	
Output voltage	4.0 V / 20 mA	
LOW (0), max.	0.5 V / 20 mA	
Output current per output, max.	20	
Output signals CW (clockwise rotation)	 <p>Detent position area</p> <p>Detent position areas</p>	
Terminal assignment	Screw terminal T +U _B 0V A B 	

Handwheel HWB

- ▶ 100 detent positions per revolution
- ▶ Mechanical detent mechanism
- ▶ 100 or 25 pulses per revolution
- ▶ 3-point fixing



Dimension drawing



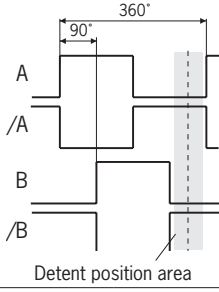

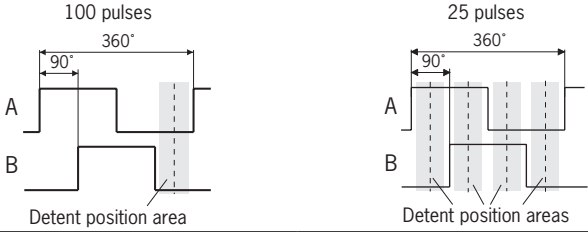

Notes

- ▶ Output A05 suitable for Siemens control systems with RS422 input
- ▶ Output G05 suitable for Fanuc control systems

Ordering table

Series	Number of pulses per revolution	Connection	Detent positions	Outputs	Order No./item
HWB Packaging unit 5 ea.	25	T Screw terminal	100	G12 Push-pull 5 V U _B = 12 V DC	072975 HWB025T100G12/V05 (5 ea.)
	100	T Screw terminal	100	A05 RS422A U _B = 5 V DC	072973 HWB10T100A05/V05 (5 ea.)
				G05 Push-pull 5 V U _B = 5 V DC	072974 HWB100T100G05/V05 (5 ea.)

Technical data

Parameter	Value	Unit
Pulses per revolution	2 x 25 or 2 x 100	
Detent positions	100	
Housing material	Plastic/metal	
Weight	0.125	kg
Detent mechanism	Mechanical	
Shaft loading, axial, max.	25	N
Shaft loading, radial, max.	40	N
Mechanical life, min.	1 x 10 ⁶	Rev.
Operating temperature	0 ... +50	°C
Storage temperature	-20 ... +50	°C
Atmospheric humidity, max.	80% (condensation not permissible)	
Front degree of protection	acc. to EN 60529/IEC 529 acc. to NEMA 250	IP65 250-12
Output circuit RS422A		
Output stage	A05	
Output signals	A, /A, B, /B	
Operating voltage U _B	5 ± 10 %	V DC
Operating current, no load, max.	80	mA
Output specifications	According to RS422A, use RS422 differential receiver module	
Output signals CW (clockwise rotation)	100 pulses  Detent position area	
Terminal assignment	Screw terminal T +5V 0V A /A B /B 	
Output circuit, push-pull		
Output stage	G05	G12
Output signals	A, B	
Operating voltage U _B	5 ± 10 %	12 ± 10 %
Operating current, no load, max.	20	
Output voltage	4.0 V / 20 mA	
	0.5 V / 20 mA	
Output current per output, max.	20	
Output signals CW (clockwise rotation)	 Detent position area	
Terminal assignment	Screw terminal T +U _B 0V A B 	

Accessories

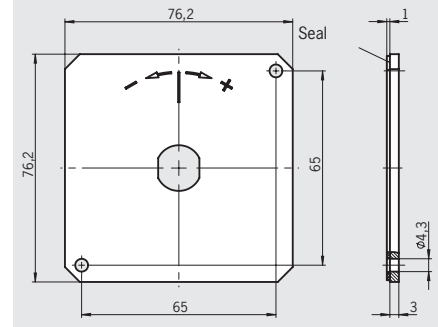
Front panel for handwheel HKB

- ▶ Front panel with bonded seal

Ordering table

Item	Order no.
Front panel for handwheel HKB with dial 100914, anodized silver	105072
Front panel for handwheel HKB with dial 100914, anodized black	105073

Dimension drawing



Front panel for handwheel HKD

- ▶ Front panel with bonded seal
- ▶ Seal handwheels without front panel with sealing ring E

Dimensions

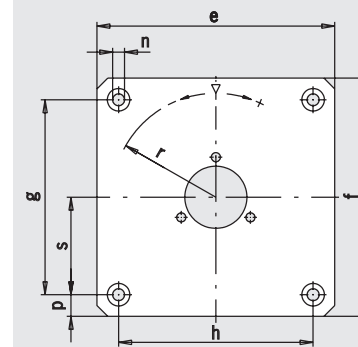
Design	e	f	g	h	k	m	n	p	s	r
F	110	110	90	90	-	-	DIN74-Am5	-	-	R48
G	108	108	89	89	-	-	5.2	-	-	R48
M	76.2	76.2	-	-	65	65	4.2	-	-	R35.5

Ordering table

Item	Order no.
Sealing ring E	054861
Front panel F with seal	028760
Front panel G with seal	028761
Front panel M with seal	041758

Dimension drawing

Front panel F, G, M



Dials for handwheel HKB

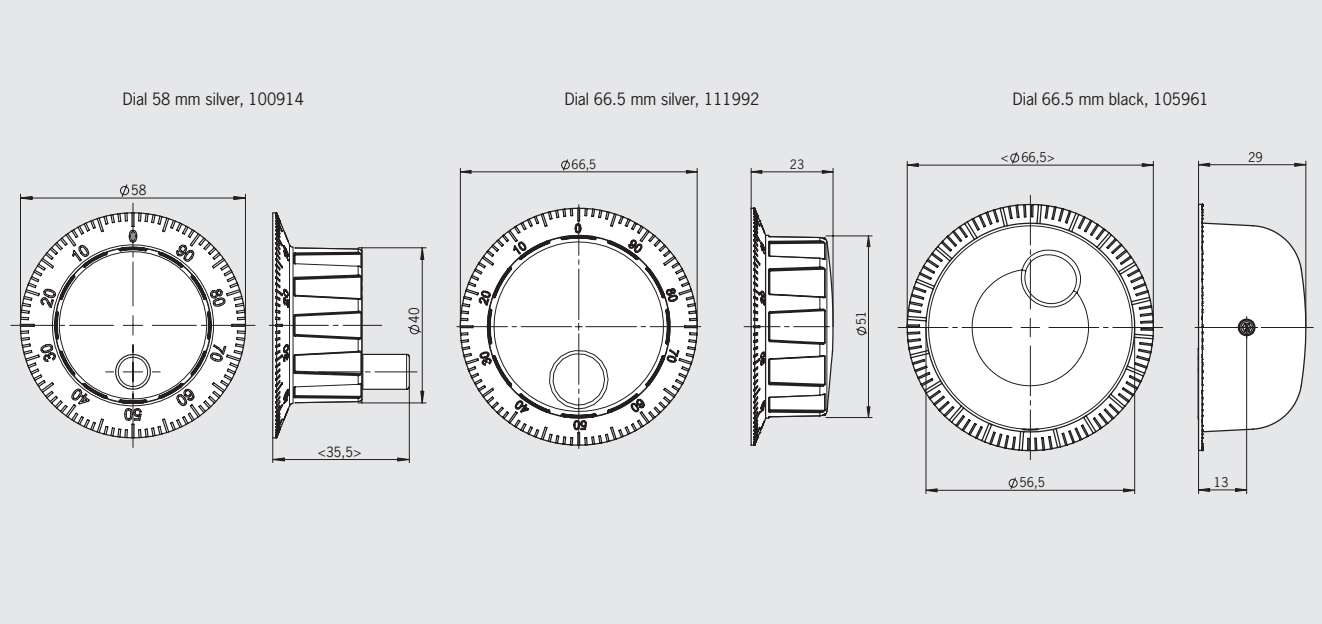
Ordering table

Item	Order no.
Dial 58 mm silver, metal with crank ¹⁾	100914
Dial 66.5 mm silver, metal with finger recess ^{1) 2)}	111992
Dial 66.5 mm black, plastic with finger recess ²⁾	105961

1) Suitable for installation in operator panels

2) For use of handwheel HKB in the kits for hand-held pendant stations HBA and HBM

Dimension drawing



Dials for handwheel HKD

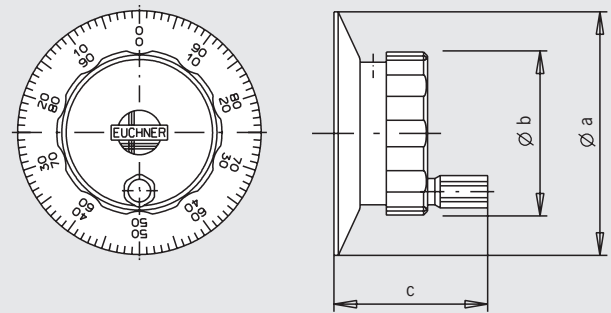
Dimensions

Design	∅ a	∅ b	c
Dial 90 mm	90	63	41
Dial 78 mm	78	63	39
Dial 75 mm	75	63	39
Dial 65 mm	65	44	42
Dial 58 mm	58	44	40

Ordering table

Item	Order no.
Dial 90 mm black	057266
Dial 90 mm silver	057268
Dial 78 mm black	057280
Dial 78 mm silver	057272
Dial 75 mm black	072633
Dial 75 mm silver	072597
Dial 65 mm black, for HBL kit	057318
Dial 65 mm silver, for HBL kit	057314
Dial 58 mm black	059276

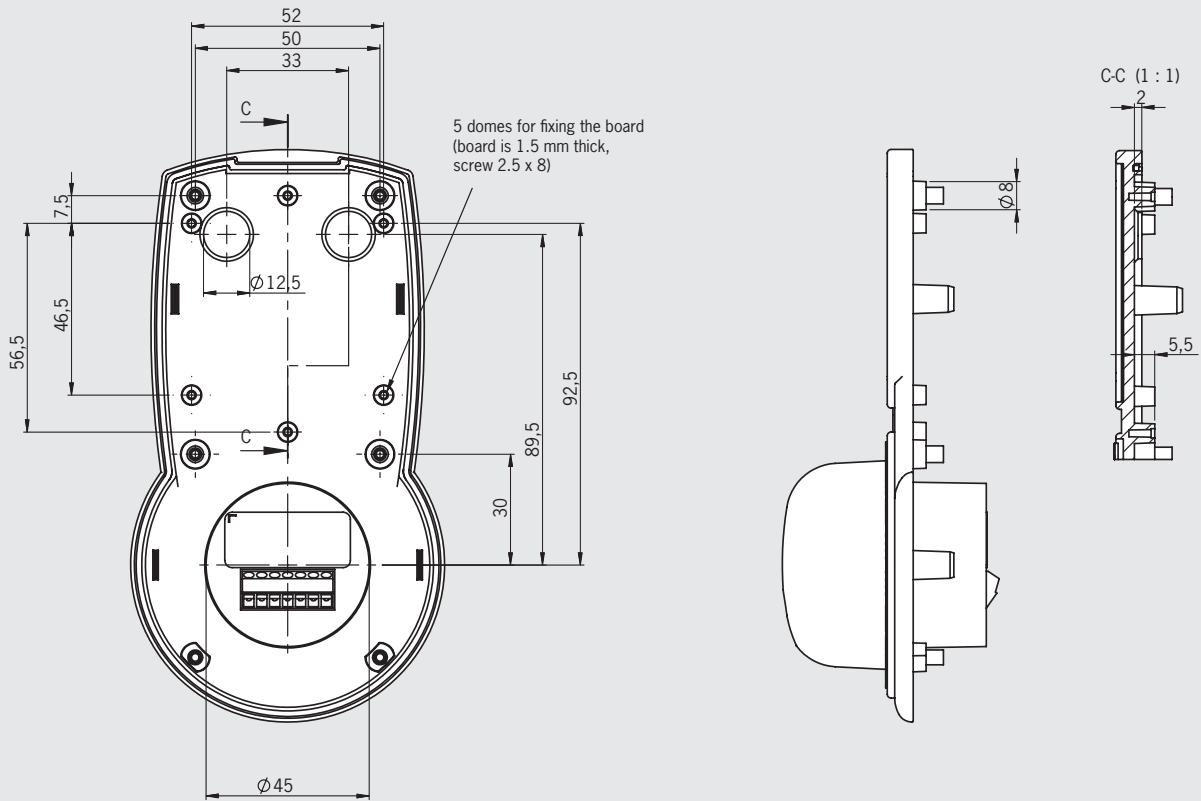
Dimension drawing



Dimension drawing – HBA housing top shell

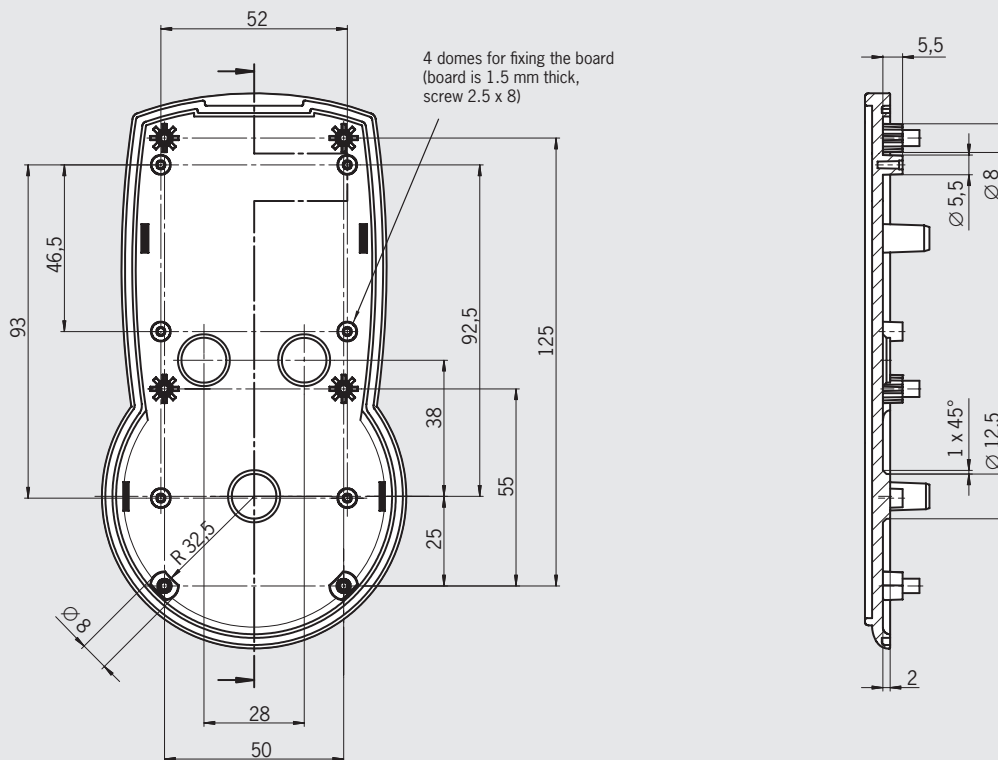
► HBA top shell with handwheel

Dimension drawing



► HBA top shell without handwheel

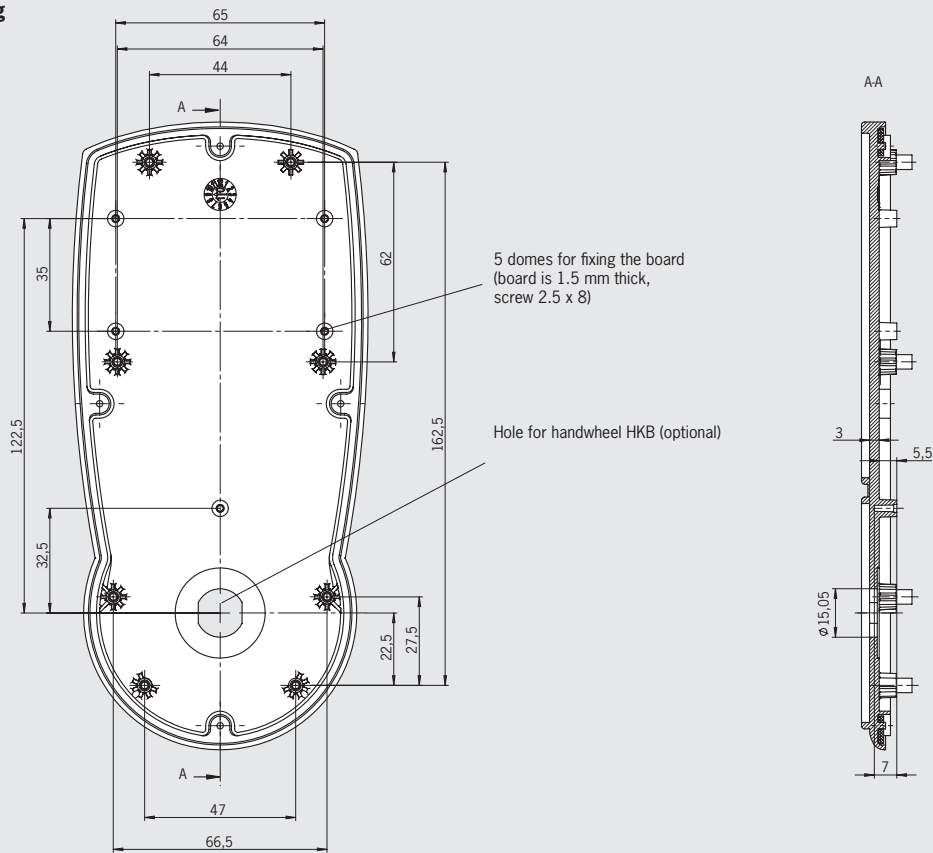
Dimension drawing



Dimension drawing – HBM housing top shell

- ▶ HBM top shell with and without handwheel

Dimension drawing

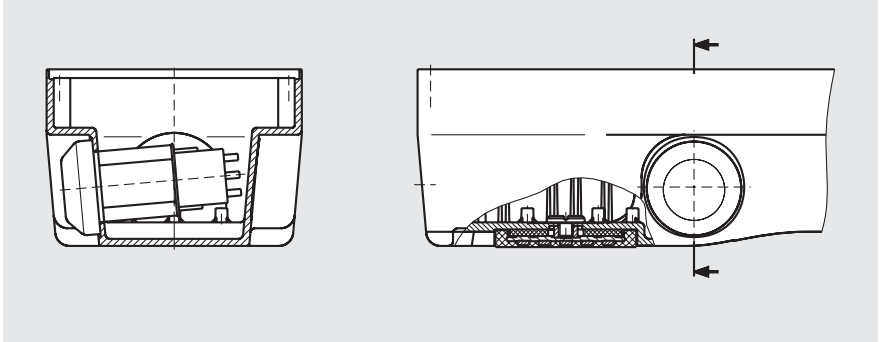


Assembly drawings

Housings HBL-073109 and HBL-072632

- ▶ Mounting enabling switch ZSE2-2 C1692
(2 NO contacts, 1 positively driven contact)
- ▶ No hole for EMERGENCY STOP device

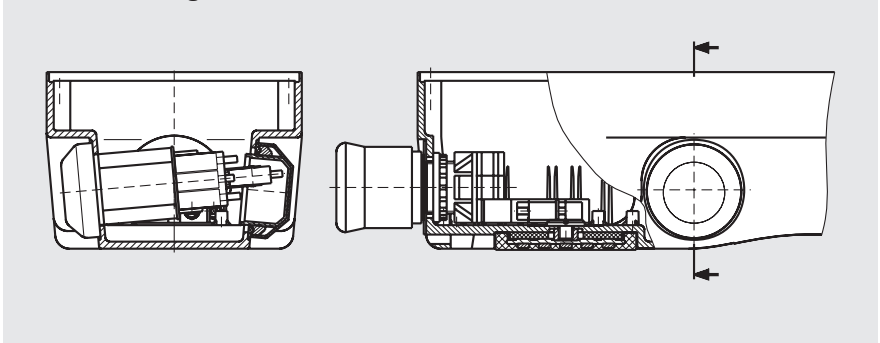
Dimension drawing



Housings HBL-072983 and HBL-083484

- ▶ Mounting enabling switch ZSE2-4 C1943
(2 NO contacts, 2 positively driven contacts)
- ▶ Mounting EMERGENCY STOP device 073985

Dimension drawing



Request form for hand-held pendant stations HBA without handwheels

Customer			
Company		Telephone	
Address		Fax	
		E-mail	
Name		Department	
First name		Date	

Housing Gray
 Black

Front foil EUCHNER Standard
 Customer-specific as per attachment

Pushbuttons Without
 3 membrane buttons
 ___ single button

LED Without
 With

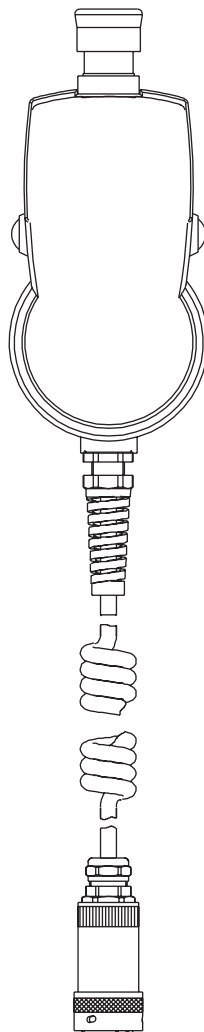
Key-operated switch Without
 With

Toggle switch Without
 With: _____

Joystick Without
 With KE

Cable Coiled 1.5 m, can be stretched to 3.5 m
 Coiled 2.0 m, can be stretched to 5.0 m
 Straight: ___ m

Plug connector Burndy metal
 Coninvers metal
 Other: _____
 Without plug connector



EMERGENCY STOP 2 NC contacts

Selector switch left Without
 ___ positions Gray code
 ___ positions 1 of X
 Labeling: _____

Selector switch right Without
 ___ positions Gray code
 ___ positions 1 of X
 Labeling: _____

Enabling device Without
 2-stage, each 1 NO, right and left
 3-stage, 2 NO, left

Further components and versions on request

Special requirements	

Quotation			
Quantity	One-off project requirement	Series production requirement per year	
Delivery date requested	Week		

Date	Signature

Request form for hand-held pendant stations HBA with handwheels

Customer			
Company		Telephone	
Address		Fax	
		E-mail	
Name		Department	
First name		Date	

<p>Housing</p> <input type="checkbox"/> Gray <input type="checkbox"/> Black <p>Front foil</p> <input type="checkbox"/> EUCHNER Standard <input type="checkbox"/> Customer-specific as per attachment <p>Pushbuttons</p> <input type="checkbox"/> Without <input type="checkbox"/> 3 membrane buttons <input type="checkbox"/> ___ single button <p>LED</p> <input type="checkbox"/> Without <input type="checkbox"/> With <p>Key-operated switch</p> <input type="checkbox"/> Without <input type="checkbox"/> With <p>Toggle switch</p> <input type="checkbox"/> Without <input type="checkbox"/> With: _____ <p>Joystick</p> <input type="checkbox"/> Without <input type="checkbox"/> With KE <p>Cable</p> <input type="checkbox"/> Coiled 1.5 m, can be stretched to 3.5 m <input type="checkbox"/> Coiled 2.0 m, can be stretched to 5.0 m <input type="checkbox"/> Straight: ___ m <p>Plug connector</p> <input type="checkbox"/> Burndy metal <input type="checkbox"/> Coninvers metal <input type="checkbox"/> Other: _____ <input type="checkbox"/> Without plug connector		<p>EMERGENCY STOP</p> <input type="checkbox"/> 2 NC contacts <p>Selector switch left</p> <input type="checkbox"/> Without <input type="checkbox"/> ___ positions Gray code <input type="checkbox"/> ___ positions 1 of X <input type="checkbox"/> Labeling: _____ <p>Selector switch right</p> <input type="checkbox"/> Without <input type="checkbox"/> ___ positions Gray code <input type="checkbox"/> ___ positions 1 of X <input type="checkbox"/> Labeling: _____ <p>Enabling device</p> <input type="checkbox"/> Without <input type="checkbox"/> 2-stage, each 1 NO, right and left <input type="checkbox"/> 3-stage, 2 NO, left <p>Handwheel See catalogue page 33</p> <input type="checkbox"/> Without <input type="checkbox"/> magnetic <input type="checkbox"/> mechanical <input type="checkbox"/> A05, 100 pulses, RS422 <input type="checkbox"/> G05, 100 pulses <input type="checkbox"/> G12, 25 pulses <input type="checkbox"/> G24, 100 pulses <p>On which control system will the handwheel be operated?</p> <input type="checkbox"/> Siemens, type: _____ <input type="checkbox"/> Fanuc, type: _____ <input type="checkbox"/> Mitsubishi, type: _____ <input type="checkbox"/> Other / brand: _____
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Further components and versions on request

Special requirements	

Quotation			
Quantity	One-off project requirement	Series production requirement per year	
Delivery date requested	Week		

Date	Signature

Request form for hand-held pendant stations HBM without handwheels

Customer			
Company		Telephone	
Address		Fax	
		E-mail	
Name		Department	
First name		Date	

Front foil EUCHNER Standard
 Customer-specific as per attachment

Pushbuttons Without
 3 membrane buttons
 ____ single button

LED Without
 With

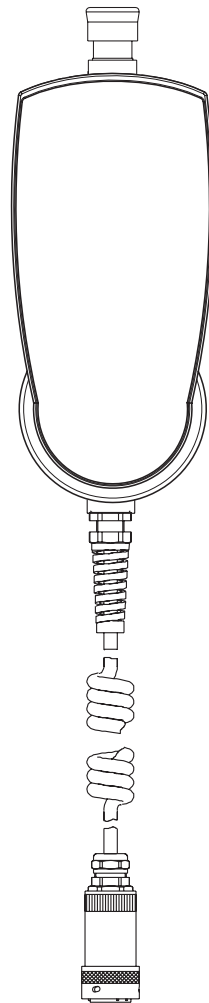
Key-operated switch Without
 With

Toggle switch Without
 With: _____

Joystick Without
 With KE

Cable Coiled 1.5 m, can be stretched to 3.5 m
 Coiled 2.0 m, can be stretched to 5.0 m
 Straight: ____ m

Plug connector Burndy metal
 Coninvers metal
 Other: _____
 Without plug connector



EMERGENCY STOP 2 NC contacts

Selector switch left Without
 ____ positions Gray code
 ____ positions 1 of X
 Labeling: _____

Selector switch right Without
 ____ positions Gray code
 ____ positions 1 of X
 Labeling: _____

Enabling device Without
 2-stage, each 1 NO, right and left
 3-stage, 2 NO, left

Further components and versions on request

Special requirements	

Quotation			
Quantity	One-off project requirement	Series production requirement per year	
Delivery date requested	Week		

Date	Signature

Request form for hand-held pendant stations HBM with handwheels

Customer			
Company		Telephone	
Address		Fax	
		E-mail	
Name		Department	
First name		Date	

Front foil EUCHNER Standard
 Customer-specific as per attachment

Pushbuttons Without
 3 membrane buttons
 ___ single button

LED Without
 With

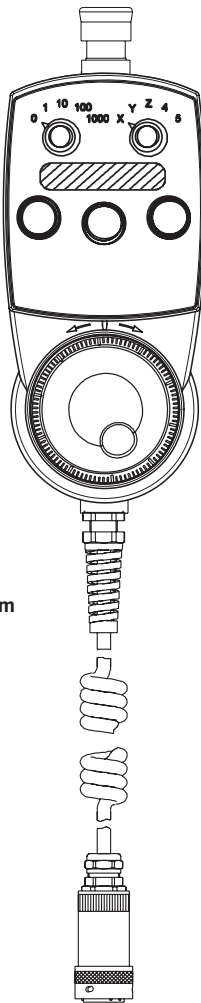
Key-operated switch Without
 With

Toggle switch Without
 With: _____

Joystick Without
 With KE

Cable Coiled 1.5 m, can be stretched to 3.5 m
 Coiled 2.0 m, can be stretched to 5.0 m
 Straight: _____ m

Plug connector Burndy metal
 Coninvers metal
 Other: _____
 Without plug connector



EMERGENCY STOP 2 NC contacts

Selector switch left Without
 ___ positions Gray code
 ___ positions 1 of X
 Labeling: _____

Selector switch right Without
 ___ positions Gray code
 ___ positions 1 of X
 Labeling: _____

Enabling device Without
 2-stage, each 1 NO, right and left
 3-stage, 2 NO, left

Handwheel Without
 See catalogue page 33
 magnetic
 mechanical
 A05, 100 pulses, RS422
 G05, 100 pulses
 G12, 25 pulses
 G24, 100 pulses

On which control system will the handwheel be operated?
 Siemens, type: _____
 Fanuc, type: _____
 Mitsubishi, type: _____
 Other / brand: _____

Further components and versions on request

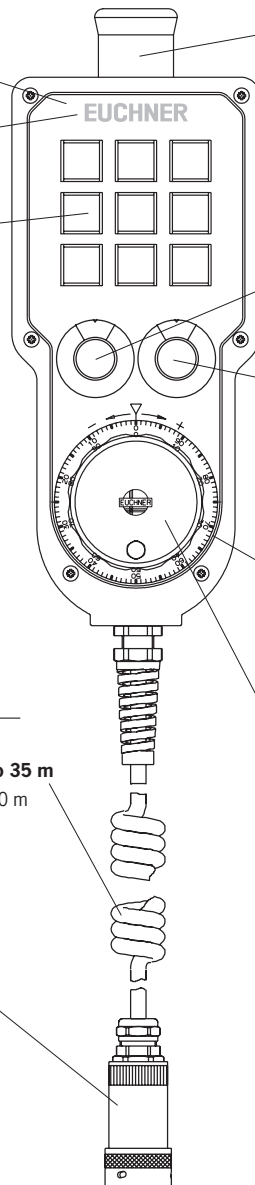
Special requirements	

Quotation			
Quantity	One-off project requirement	Series production requirement per year	
Delivery date requested	Week		

Date	Signature

Hand-held pendant stations HBL request form

Customer			
Company		Telephone	
Address		Fax	
		E-mail	
Name		Department	
First name		Date	



Front plate

- EUCHNER Standard black anodized silver labeling
- Customer-specific as per attachment

Logo

- Without
- Customer-specific as per attachment

Pushbutton

- Without
- Number of NO contacts
- Number of NC contacts
- Not illuminated
- Illuminated
- Symbol plate labeling as per attachment
- Front plate labeling as per attachment

Key-operated switch

- Without
- With

Lamp/LED

- Without
- Customer-specific as per attachment

Potentiometer

- Without
- Technical specification: _____

Cable

- Coiled 1.5 m, can be stretched to 35 m
- Coiled 2.0 m, can be stretched to 5.0 m
- Straight: _____ m

Plug connector

- Burndy metal
- Coninvers metal
- Other: _____
- Without plug connector

EMERGENCY STOP

- 2 NC contacts
- 1 NC contacts
- Without

Enabling device

- 2-tage, ZSG, each 1 NO, right + left
- 3-stage, ZSE 2-2 (2 NO + 1 NC) only left
- 3-stage, ZSE 2-4 (2 NO + 2 NC) only left
- Without enabling device

Selector switch left

- Without
- ___ Positions Gray code
- ___ Positions 1 of X
- Labeling: _____

Selector switch right

- Without
- ___ Positions Gray code
- ___ Positions 1 of X
- Labeling: _____

Labeling selector switches

- Through scale wheels
- On front plate

Handwheel
see catalogue page 60 - 72

- without
- Magnetic
- Mechanical
- A05, 100 pulses, RS422
- G05, 100 pulses
- G12, 25 pulses
- G24, 100 pulses

Dial

- EUCHNER Logo
- Customer-specific logo as per attachment
- Silver 65 mm
- Black 65 mm
- Silver 75 mm
- Black 75 mm

On which control system will the handwheel be operated?

- Siemens, type: _____
- Fancu, type: _____
- Mitsubishi, type: _____
- Other / brand: _____

Further components and versions on request

Special requirements

Quotation			
Quantity	One-off project requirement	Series production requirement per year	
Delivery date requested	Week		

Date	Signature

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Bottom shell HBA-105506	105506	35	Front panel for top shell HBM with handwheel	113440	40
Bottom shell HBA-105507	105507	35	Front panel for top shell HBM without handwheel	113060	40
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Dial 78 mm silver	057272	73	Handwheel HKD100S100G05	083354	66
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