Hand-held Pendant Stations/ Handwheels





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 60 years.

The medium-sized family-operated company based in Leinfelden, Germany, employs around 700 people around the world.

16 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
- ► Transponder-coded Safety Switches with guard locking
- ► Multifunctional Gate Box MGB
- Access management systems (Electronic-Key-System EKS)
- ► Electromechanical Safety Switches
- Magnetically coded Safety Switches
- ► Enabling Switches
- Safety Relays
- ► Emergency Stop Devices
- ► Hand-Held Pendant Stations and Handwheels
- ► Safety Switches with AS-Interface
- Joystick Switches
- Position Switches



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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.

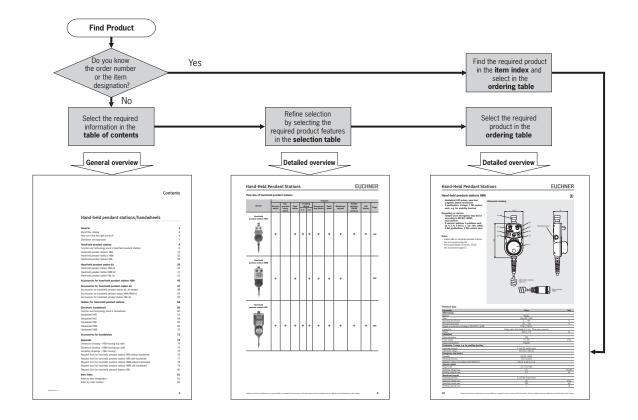
You will find the following series and accessories in this catalog:

	Hand-held pendant stations/handwheels										
	На	ınd-held pei	ndant statio	ons				Handy	vheels		
Cor	mplete devi	ces	Kit	Accesso- ries	Holder	Magnetic detent mechanism				cal detent anism	Accesso- ries
HBA	HBM	HBL				HKB	HKC	HKD	HWA	HWB	
								6			
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:

- 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.

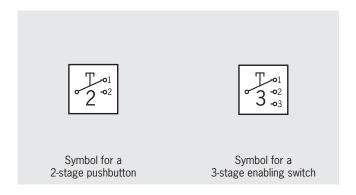
Two-stage or three-stage enabling switch?

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).

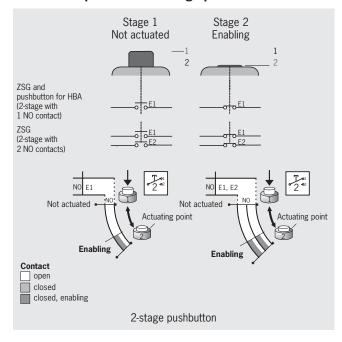
However, experience shows that the operator often clenches the enabling device in an emergency.

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.

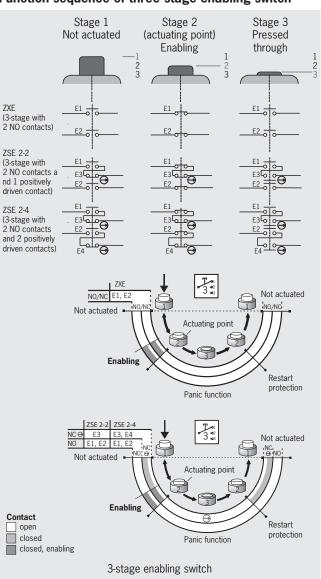
If a 2-stage pushbutton is used, it must also be ensured that, in an emergency, the operator is in a position to activate an emergency stop device in close proximity (VDI 2853). To identify the type of enabling device in the catalog, the following symbols are used:



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 \oplus) in case of the ZSE series.

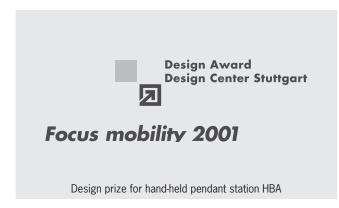
The patented switch system ensures that the enabling function does not become active at stage 2 on the resetting of the pushbutton from stage 3 to stage 1. In this example, the enable can only be given if normally open and normally closed contacts are closed at the same time. This situation is only possible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

► HBI

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 \ominus + 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

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



Hand-held pendant stations HBA

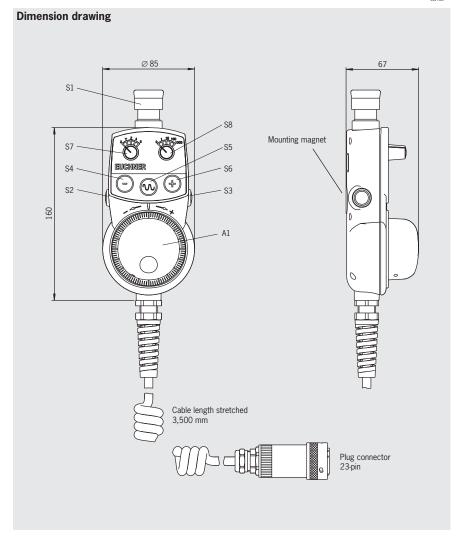
- ► Handwheel 100 pulses, wear-free magnetic detent mechanism
- ▶ 2 pushbuttons, 2-stage, 1 NO contact each, e.g. for enabling function

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



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 tab				Features			
Version/item		2 selector switches 5 positions each	3 foil push- buttons, 1 NO	2 pushbuttons 2-stage	Emergency stop device	Handwheel 100 pulses	Order no.
		\$7, \$8	contact each S4, S5, S6	S2, S3	S1	A1	
HBA-079828	EUCHNER			•		•	079828
HBA-079826	EUCHNER	•		•	•	•	079826
НВА-072936	EUCHNER O O +		•	•	•	•	072936
НВА-079827	EUCHNER	•	•	•	•	•	079827
Circuit plan		S8: S7: Axle selection Selector switch right 5 positions S7: S8	S4: Push button left S5: Push button middle S6: Push button right	S2 (left) + S3 (right): Pushbutton 2-stage e.g. for enabling function	S1: Emergency Stop	A1: Handwheel	
		\$\frac{1}{5}\$, \$\frac	\$6 \ \$5 \ \ 1	153 152		Shed Handwheel detects connected to the landwheel	
* Travel diagram see page 6			α[α[Z[≥()	×[]¬[] ±[]σ[]		



Hand-held pendant stations HBA

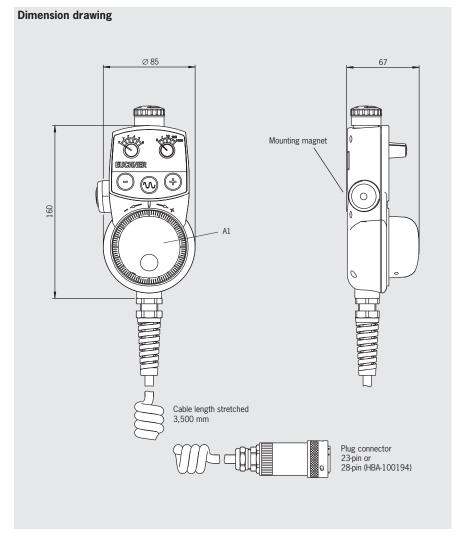
- ► Handwheel 100 pulses, wear-free magnetic detent mechanism
- ▶ 1 enabling switch, 3-stage,2 NO contacts each

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



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



		Features						
Version/item		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	Order no.	
HBA-100186	EUCHNER			•		•	100186	
HBA-100212	EUCHNER	•		•	•	•	100212	
HBA-100213	EUCHNER (-) (-) (+)		•	•	•	•	100213	
HBA-100194	EUCHMER	•	•	•	•	•	100194	
Circuit plan		Increment selection Axle selction Selector switch right Selector switch left	Pushbutton left	Enabling switch * ZXE	Emergency Stop	A1: Handwheel		
		S positions G positions S	Pushbutton middle Pushbutton right	ZXE 3-stage left				
* Travel diagram		\$\frac{1}{9}\cdot \cdot	\$6 \ S5 \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	3 2 1 (**) (**) (**) (**) (**)	S1	B B B C C C C C C C C C C C C C C C C C		
see page 6 ** Plug contact U on l (plug connector, 2: Plug contact a on l (plug connector, 28)	HBA-100194	1	30 L (30 C)	cc[]c.[] Z[]∑[]	포[] - [] 포[] 50 []	Shedd shield electr com		



Hand-held pendant stations HBA

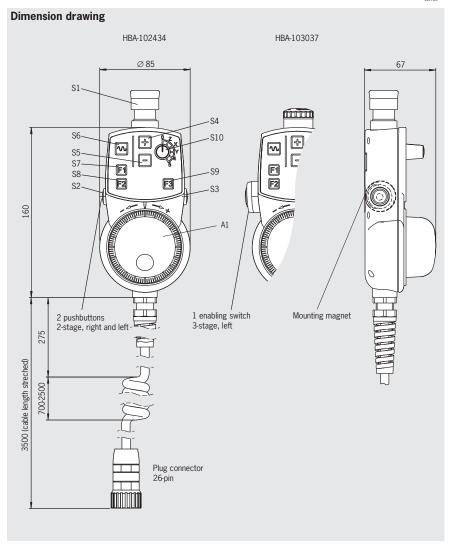
- ► Handwheel 100 pulses, wear-free magnetic detent mechanism
- Tamper-proof emergency stop device according to EN ISO 13850, dual-channel
- ▶ 1 selector switch, 6 positions (0, Z, X, Y, 4, 5)
- ▶ 6 foil pushbuttons, 1 NO contact each

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	



			Features	s			
Version/item	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	Order no.
	\$10	S4, S5, S6, S7, S8, S9	S2, S3	S2	S1	A1	
HBA-102434		•	•		•	•	102434
HBA-103037		•		•	•	•	103037
Circuit plan	\$10: \$elector switch right 6 positions \$\frac{\text{S10 CBA}}{1 110 0} 2 2010 Z 3 011 X 4 111 Y 4 6 001 5 \$\frac{\text{S10}}{0} \frac{\text{Code}}{0} \f	\$4: Push button "+" \$5: Push button "-" \$5: Push button "-" \$7: Push button "F1" \$8: Push button "F2" \$9: Push button "F3" \$9: Push button "F3" \$9: Push button "F3"	S2 (left) + S3 (right): Pushbutton 2-stage e.g. for enabling function	S2: Enabling switch ZXE 3 stage left	S1: Emergency-stop	Handwheel RS422	
* Travel diagram see page 6	www.sepimore		اً ۱ و و	~[9] s]	4[0] 4[-]	2.2.2.2.2.2.2.2.2.2.2.2.2.2.2.2.2.2.2.	



Hand-held pendant stations HBA

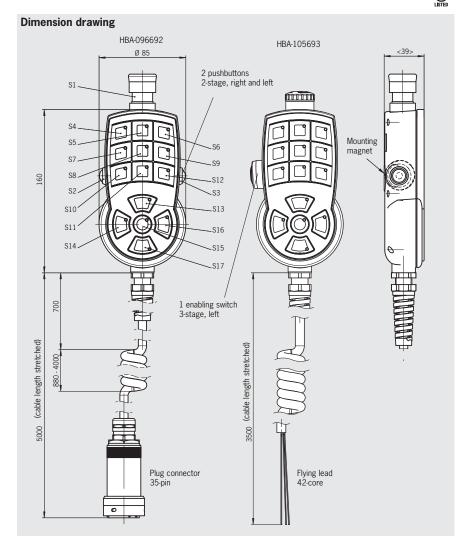
- Membrane keypad can be labeled as required using slide-in strips
- Tamper-proof emergency stop device according to EN ISO 13850, dual-channel
- ► LEDs white, color customer-specific using colored keypad membrane

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)



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	



	Features							
Version/item	Membrane keypad	Pushbutton, 2-stage	switch ZXE, 3-stage	Emergency stop device	Order no.			
	S4 - S17	S2, S3	\$2	S1				
HBA-096692	•	•		•	096692			
HBA-105693			•	•	105693			
Circuit plan	\$4 - \$17: Membrane keypad 3517 3516 3515 3514 3513 3512 3511 3510 359 358 357 366 355 354 3517 3516 3515 3514 3513 3512 3511 3510 359 358 357 366 355 354 3518 3518 3514 3513 3512 3511 3510 359 358 357 358 357 358	S2: Enabling switch* 2-stage left S3: Enabling switch* 2-stage right S3: Enabling switch* 2-stage right	S2: Enabling switch* ZXE 3-stage left	S1: Emergency Stop				
* Travel diagram see page 6				<u> </u>				



Hand-held pendant stations HBAS

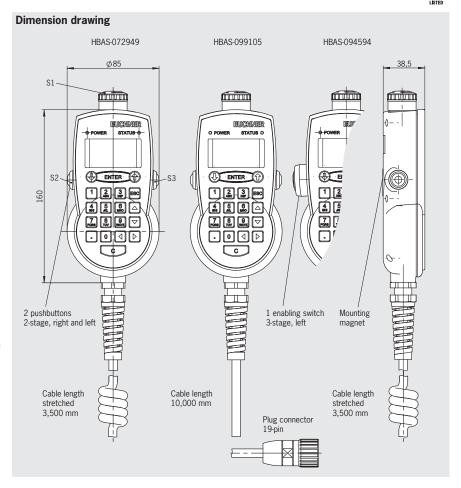
- ► Programmable pulse generator
- ► Tamper-proof emergency stop device according to EN ISO 13850, dual-channel
- Membrane keypad with 20 keys and 2 LEDs
- LCD display with LED background lighting, switchable 4-line/8-column or 8-line/16-column
- ▶ RS422 interface, 3964R protocol

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)



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	Α
Communications interface		
Туре	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	



Features				s	
Version/item	pushbuttons, 2-stage \$2, \$3	1 enabling switch ZXE, 3-stage S2	Emergency stop device \$1	stop device membrane keypad, display,	
HBAS-072949 HBAS-099105			•	•	072949 099105
HBAS-094594		•	•	•	094594
Circuit plan	S2 (left) + S3 (right): Pushbutton 2 stage e.g. for enabling function	S2: Enabling switch ZXE 3 stage left	S1: Emergency Stop	y page Display	
		7 ol o2 o2 o3		Program- memory FLASH Microcontroller Display- memory RAM	
	S3 T S2 T	22 3	-/	Interface Communication Interface RS422 RS422 RS422 Power RS422	
	NEBY NEBY NEBY NEBY NEBY NEBY NEBY NEBY		BNGN GNWH GYPK	RD BU FY VT FE GN WH HW	
* Travel diagram see page 6	10 20 20 20	19 19 19 19 19 19 19 19 19 19 19 19 19 1	51[]4[] E[]1[]		

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



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





Notes

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

S3 6 positions S2 Enabling switch 3-stage, left Mounting magnet O-A1

necillical data	W.I	11.5
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	А
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	
	, ,	

6 illuminated pushbuttons, 1 NO contact each



Ordering table

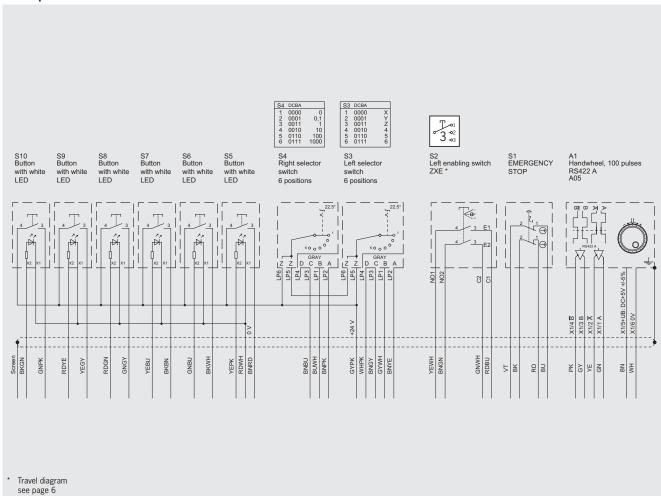
 Item
 Order no.

 Hand-held pendant station HBM-111711 with:
 ► Handwheel 100 pulses

 ► Tamper-proof emergency stop device according to EN ISO 13850, dual-channel
 111711

 ► Enabling switch ZXE, 3-stage, 2 NO contacts,
 2 selector switches, 6 positions each

Circuit plan





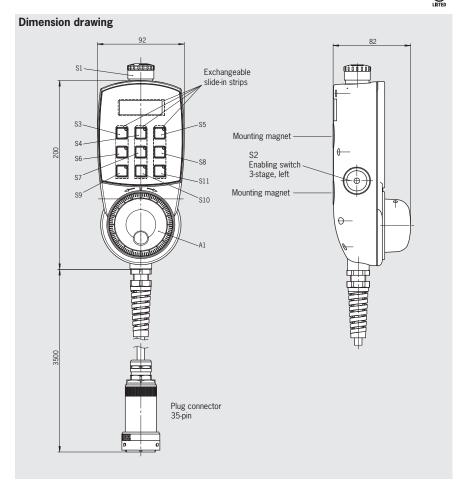
Hand-held pendant station HBM-112392

- ► 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



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



lecnnical data	W-1	1124
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	А
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



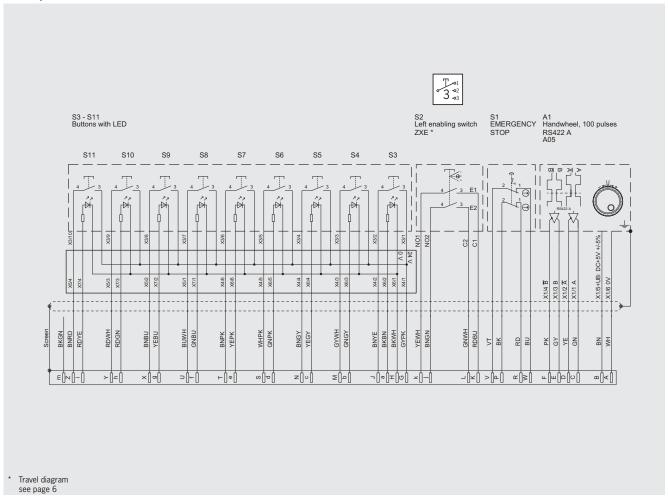
Item Order no.

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





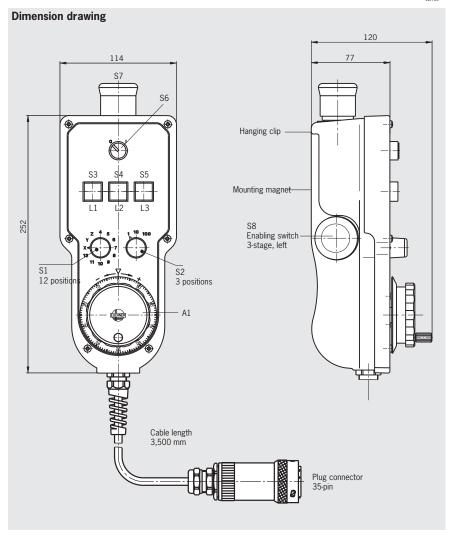
Hand-held pendant station HBL-097339

- ► 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



Notes

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



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



097339

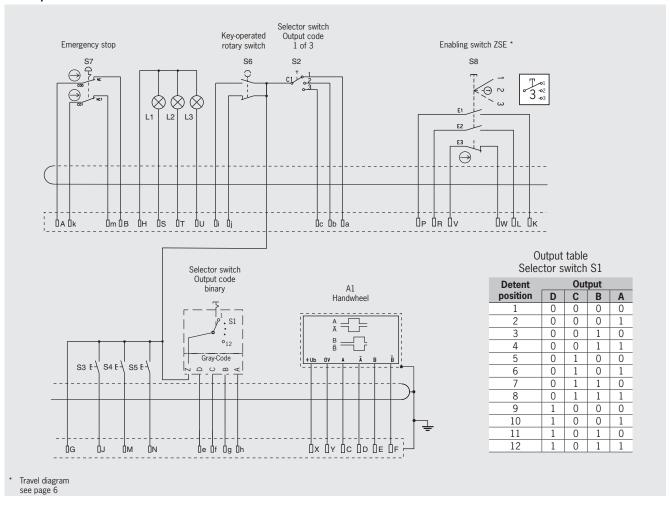
Ordering table

Item Order no.

Hand-held pendant station HBL-097339 with:

- ► 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

Circuit plan



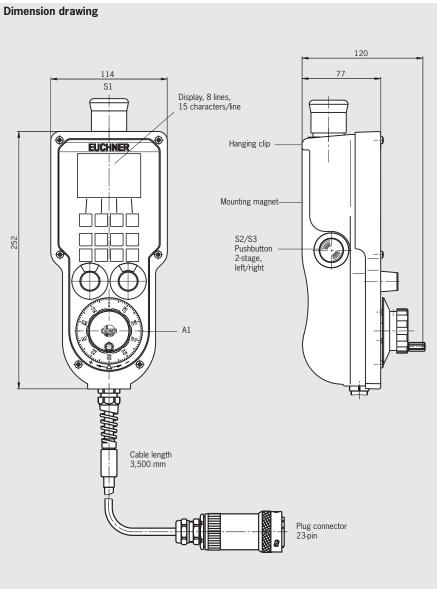
Hand-held pendant station HBLS-072725

- ► 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



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)



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		
Туре	RS 422	
Data format	8 data bits, even parity, 1 or 2 stop bits	
Transfer speed	fer speed 9600 or 19200 (setting using DIL switches)	
Transfer protocol	3964 R	
Electrical connection		
Power supply	24 ±20%	V DC
Operating current, max.	200	mA



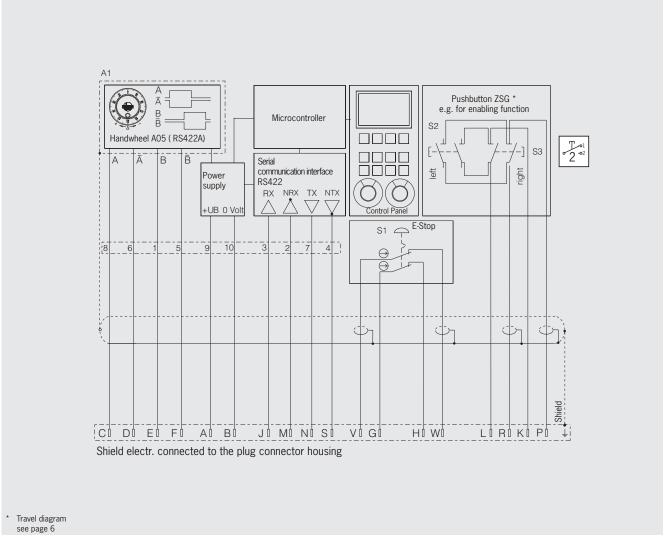
Item Order no.

Hand-held pendant station HBLS-072725 with:

- ► 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





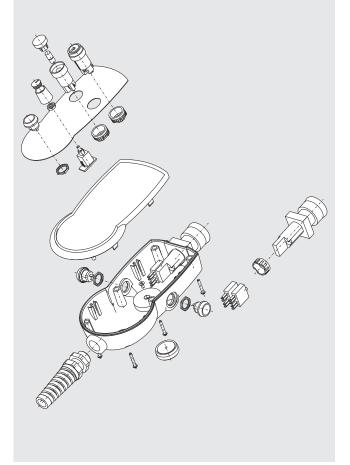
Hand-held pendant station HBA kit

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.

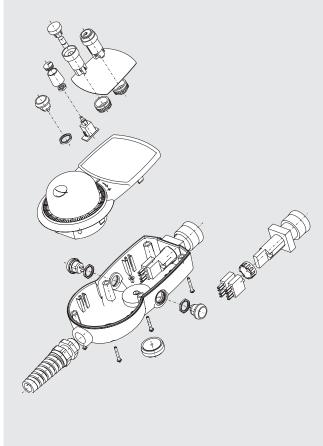
HBA kit without handwheel

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 pushbuttons 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

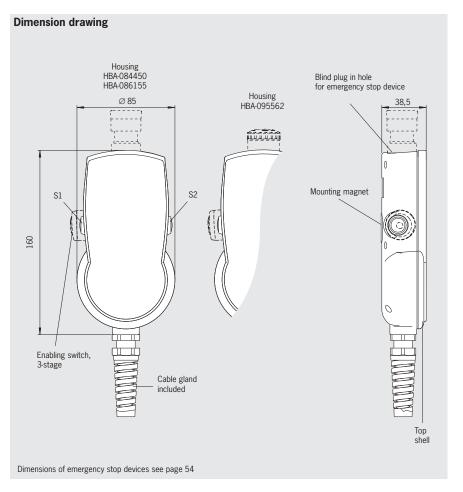
- Cable gland for cable diameter 5-10 mm
- Rubber-coated mounting magnet on the rear of housing
- 6 fixing domes for printed circuit board installation in top shell

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.



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	



		Features		
Version/item	Hole for emergency stop device	2 pushbuttons * 2-stage, pre-assembled with 1 NO contact each, e.g. for enabling function \$1, \$2	1 enabling switch ZXE ** 3-stage, 2 NO contacts pre-assembled \$1	Order no.
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
		2 02	3 %	

^{*} 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:

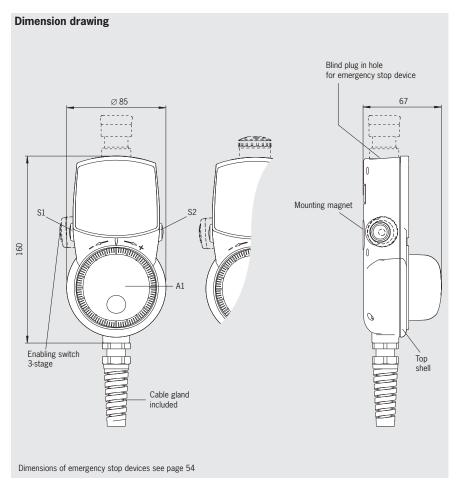
- ▶ 2 pushbuttons, 2-stage, 1 NO contact each, e.g. for enabling function
- ▶ 1 enabling switch, 3-stage, 2 NO contacts
- ► Various handwheel output stages

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 pushbuttons or 1 three-stage enabling switch.



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 enal	oling 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 6	50947-5-1	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 (UB = 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	030 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	·



				Features				
_	Out the cold	Handwhe	el		_	2 pushbuttons *	1 enabling	
Version/item RS422	t stage Push-pull	Power supply	Pulses per revolution	Hole for emergency stop	2-stage, 1 NO contact each pre-assembled	switch ** ZXE, 3-stage, 2 NO contacts pre-assembled	Order no.	
		U _A	U _B			S1, S2	S1	
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
	A1 Handwheel RS422A OV O Us O	A1 Handwheel push pull Us O Vo A T A A A A A A A A A A A				2 02	3 °2 °3	

^{*} Travel diagram see page 6

^{**} Travel diagram see page 55



Top shell HBA

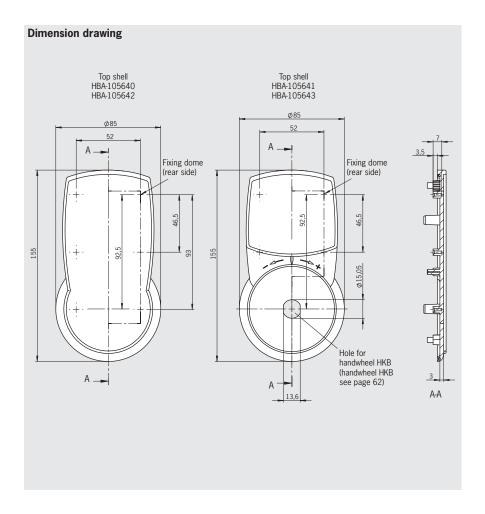
- ► Material plastic
- ▶ Color gray or black

Depending on version:

► Hole for handwheel HKB

Notes

▶ Suitable front panels see page 36



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

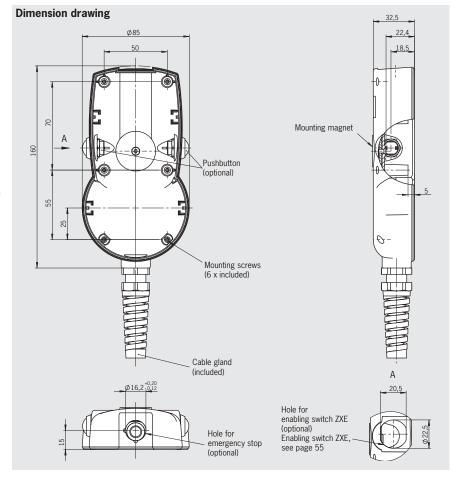
- ► Material plastic
- ► Color gray or black

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



Version/item	Features			
	Hole for emergency stop device	2 pushbuttons, * 2-stage, 1 NO contact each pre-assembled, e.g. for enabling function \$1, \$2	Hole for enabling switch ZXE ** 3-stage, 2 NO contacts \$1	Order no.
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

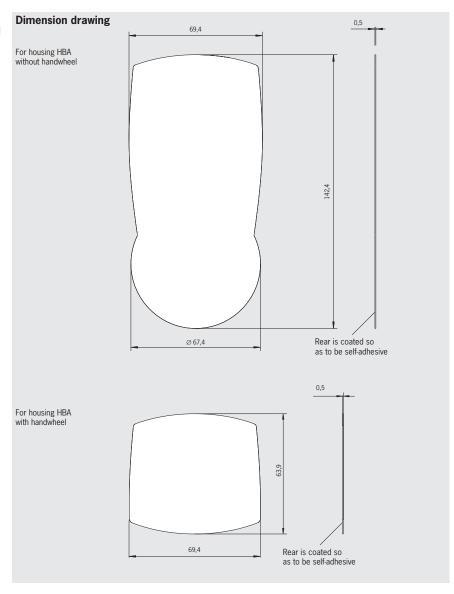
^{**} Travel diagram see page 55



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	

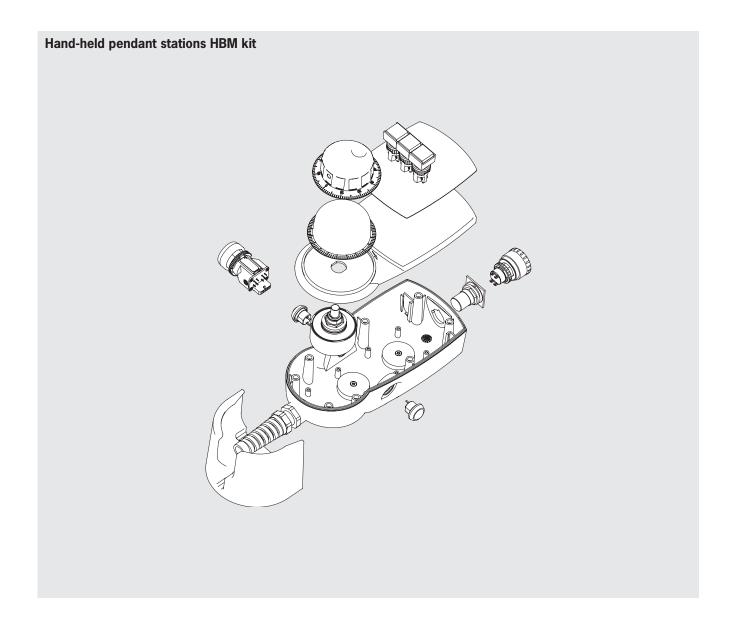
Item	Order no.
Front panel for housing HBA without handwheel, silver anodized	084395
Front panel for housing HBA without handwheel, black anodized	084396
Front panel for housing HBA with handwheel, silver anodized	083635
Front panel for housing HBA with handwheel, black anodized	083636



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.





Top shell HBM

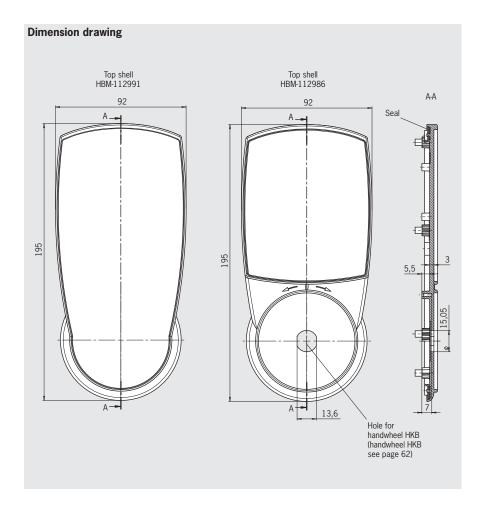
- ► Material plastic
- ► Color anthracite

Depending on version:

► Hole for handwheel HKB

Notes

▶ Suitable front panels see page 40



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

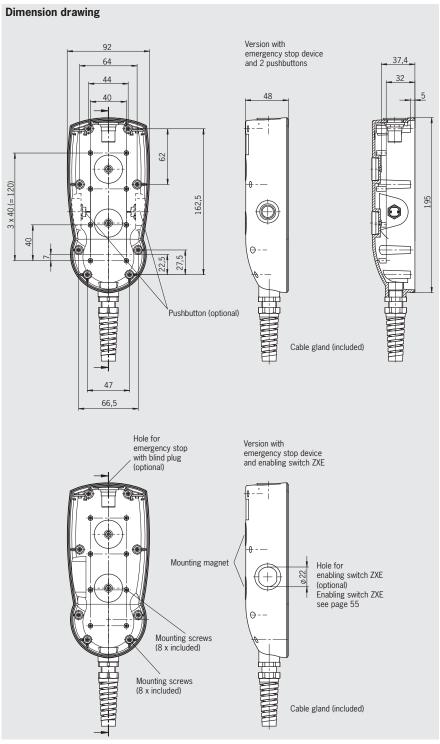
- ► Material plastic
- ► Color anthracite

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



		Features			
Version/item	Hole for emergency stop device	2 pushbuttons, * 2-stage, 1 NO contact each pre-assembled, e.g. for enabling function	Hole for enabling switch ZXE **	Order no.	
		S1, S2	S1		
Bottom shell HBM-112949				112949	
(without holes, without pushbutton)				112545	
Bottom shell HBM-112954	•			112954	
Bottom shell HBM-112958	•	•		112958	
Bottom shell HBM-112955	•			112955	
		Tol	Tol		
		2 02	3 3 3		

^{*} Travel diagram see page 6

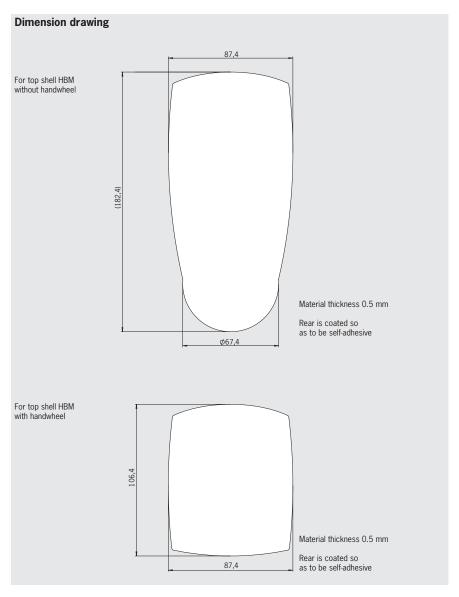
^{**} Travel diagram see page 55



Front panels for top shell HBM with and without handwheel

Notes

▶ Suitable for top shell HBM (see page 38)



Technical data

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

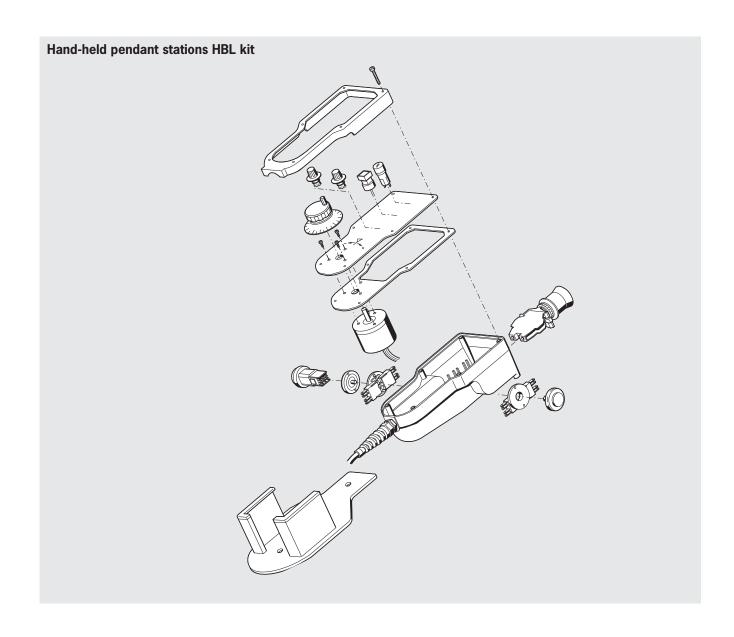
Item	Order no.
Front panel for top shell HBM without handwheel, silver anodized	113060
Front panel for top shell HBM without handwheel, black anodized	113438
Front panel for top shell HBM with handwheel, silver anodized	113061
Front panel for top shell HBM with handwheel, black anodized	113440



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.





Housing HBL

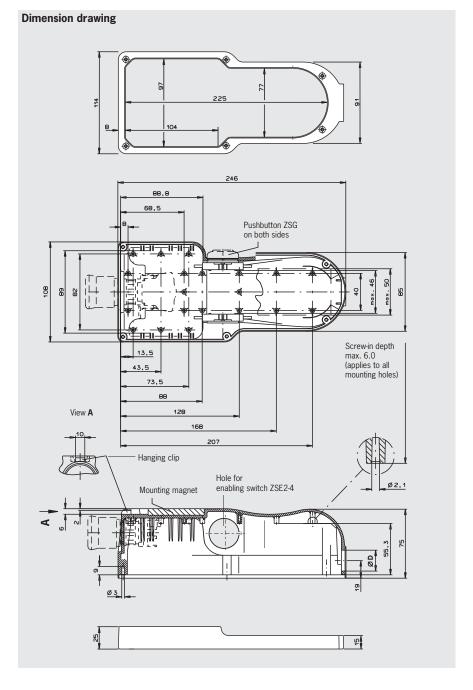
- Rubber-coated mounting magnet on the rear of housing
- Hanging clip
- ▶ 6 screws for front panel fastening
- ► Cover frame for front panel
- Fixing domes for printed circuit board installation

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



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	

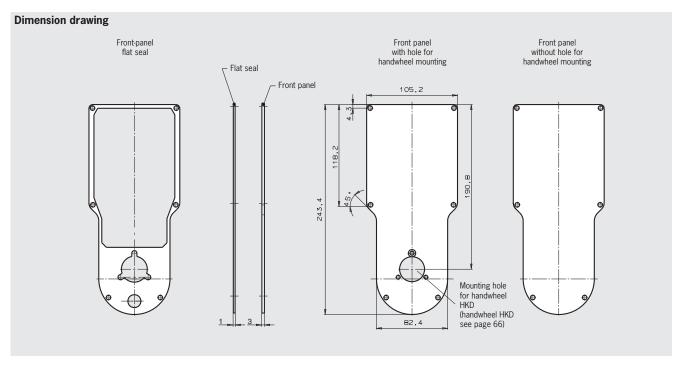


	Features						
Version/item	for cab	g nut le gland gland age 53)	Hole for emergency stop * (emergency stop	Hole for enabling switch ZSE2-2 C1692, 3-stage	Hole for enabling switch ZSE2-4 C1943, 3-stage	2 pushbuttons ZSG, 2-stage, 2 NO contacts each pre-assembled,	Order no.
	Pg 11	Pg 13.5	see page 56)	2 NO + 1 NC → (enabling switch page 57)	2 NO + 2 NC → (enabling switch page 57)	e.g. for enabling function	
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

 $^{^{\}star}$ Blind plug \varnothing 22 for emergency stop device hole included



Front panel for housing HBL



Technical data

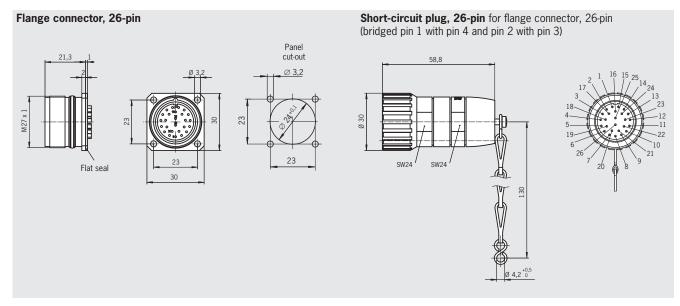
Parameter	Value	
Front-panel material	Electrically anodized aluminum, black, NBR, self-adhesive on one side	

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



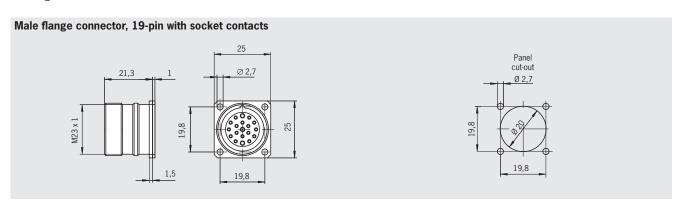
Technical data

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	
Connection	Crimp connection	

Ordering table

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

Male flange connector for designs HBAS-072949 and HBAS-094594



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	

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



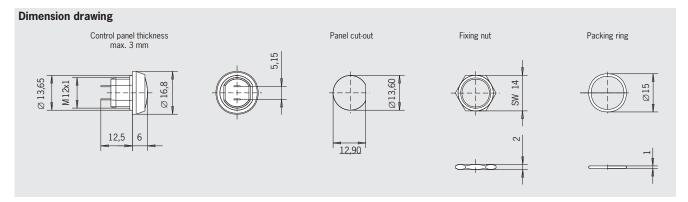


Overview of accessories for hand-held pendant station kits

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



Pushbutton



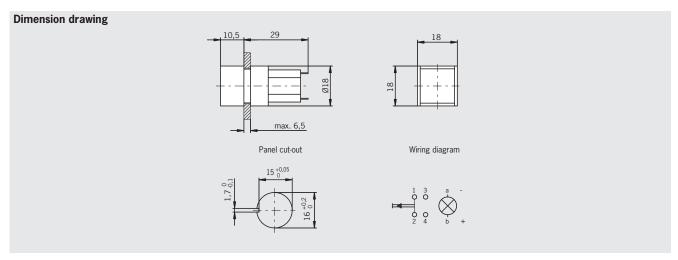
Technical data

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)



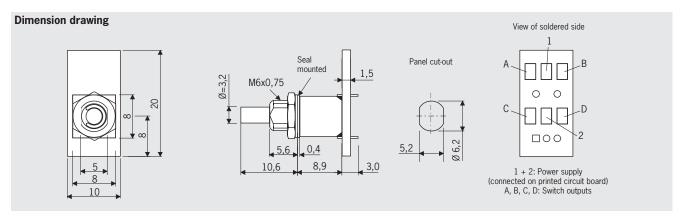
Technical data

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	

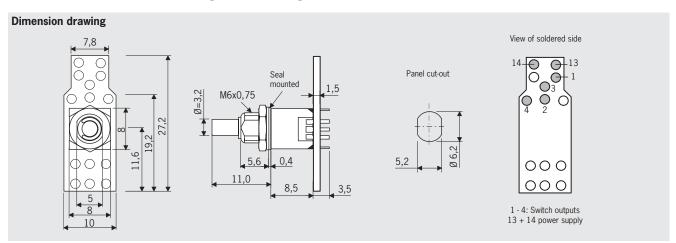
Item	Order no.
Pushbutton, illuminated, can be individually labeled (yellow LED)	074991
Pushbutton, illuminated, can be individually labeled (white LED)	098045



Gray code selector switch (ordering table see page 50)



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

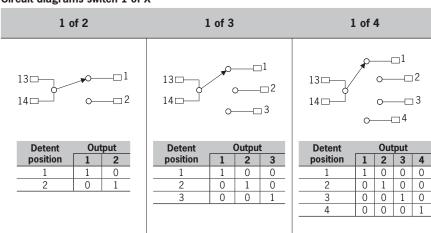


Code table switch with Gray code

Detent	Output				
position	D	С	В	Α	
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	

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

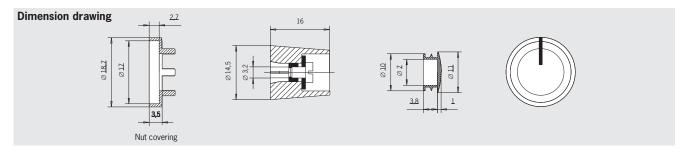
Circuit diagrams switch 1 of X



recimioai 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

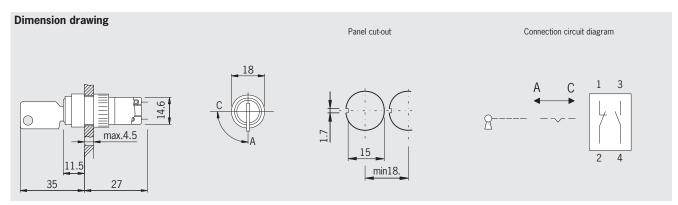


Ordering table

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



Technical data

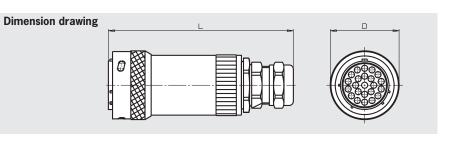
Parameter	Value	Unit
Ambient temperature	-25 +55	°C
Front degree of protection (integrated in front panel) / NEMA	IP 65 / 250-12	
Switching principle	Snap-action switching element	
Switching element	1 NO contact, 1 NC contact	
Switching voltage max.	30	V AC/DC
Switching current max.	250	mA
Connection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

Item		Order no.
Key-operated rotary switch	Key removable in both positions	083639
Replacement key		092386

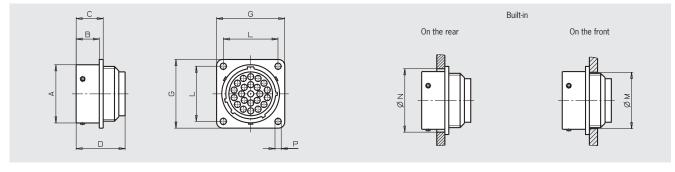


Plug connector

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



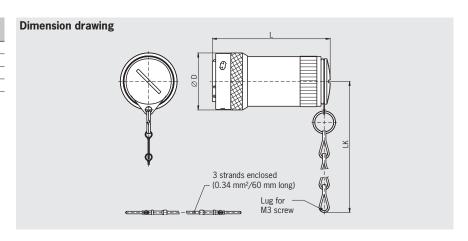
Flange connectors



Number of pins	Α	\mathbf{B}_{max}	C _{max}	D _{max}	\mathbf{G}_{\max}	L	M	N	Р
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



Technical data

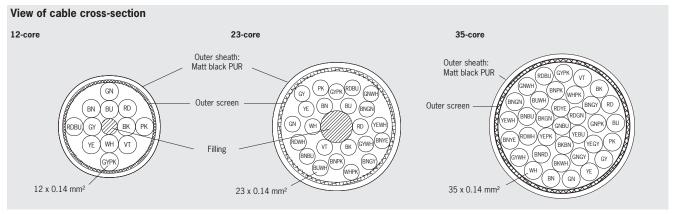
Parameter	Value	Unit
Connecting plug/flange socket		
Housing material	Metal	
Number of pins	12 / 23 / 28 / 35	
Degree of protection according to EN 60529 (inserted) / NEMA	IP 65 / 250-12	

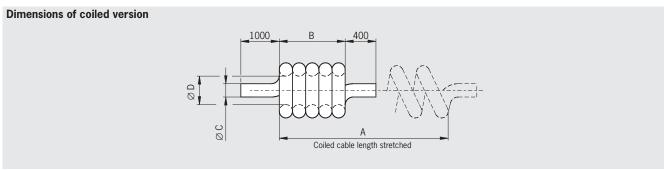
Item	Connection	Order no.
Plug connector, 35-pin with pin contacts	Crimp contacts (included) *	074395
Plug connector, 28-pin with pin contacts	Crimp contacts (included) *	074394
Plug connector, 23-pin with pin contacts	Crimp contacts (included) *	074393
Plug connector, 12-pin with pin contacts	Crimp 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 S16RCM20 Crimping tool for machined contacts Suitable extraction tool Burndy RX2025GE1 Extraction tool



Cable coiled and straight





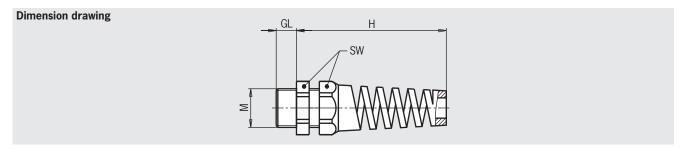
Technical data

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	≥ 200	Mo	
	35-core	≥ 20		
Operating temperature		-10 +70	°C	
Bending radius	once	≥ 10 x cable diameter		
	several times	≥ 15 x cable diameter		

Item	Cable length [mm]	A [mm]	B	∅ C [mm]	Ø D	Order no.
10 "		<u> </u>	[mm]		[mm]	000701
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



Ordering table

Thread M	Use	Cable diameter	SW	GL	Н
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

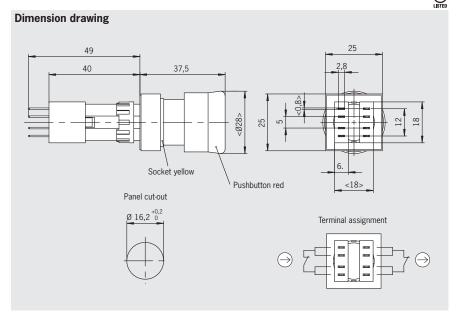
Item	Order no.
Cable gland M16x1.5 with anti-kink spiral, color black	083641
Cable gland Pg 11 with anti-kink spiral and fixing nut, color black	073982
Cable gland Pg 13.5 with anti-kink spiral and fixing nut, color black	073983

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



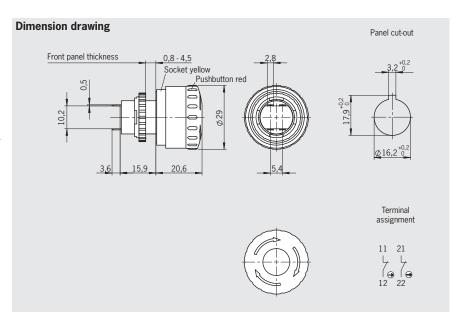
Technical data

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



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	

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

Accessory Kit for Hand-held Pendant Stations HBA/HBM



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

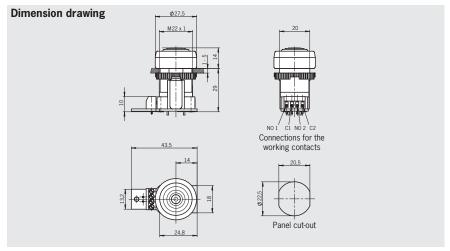


Notes

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

Switching elements

2202 2 NO



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

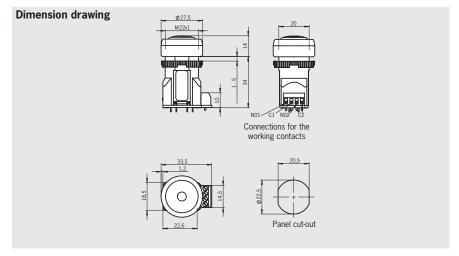


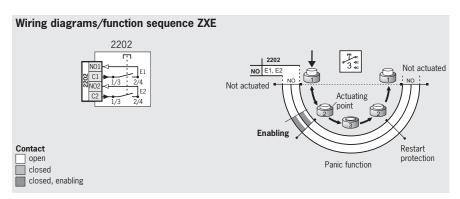
Notes

- ► 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





Technical data

recillical 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

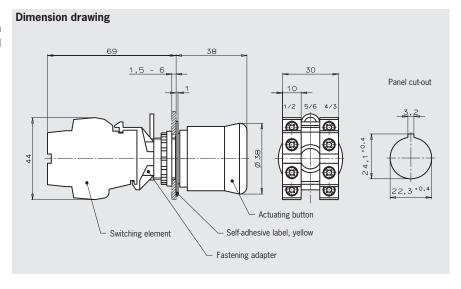
Item	Particularity	Switching contacts	Switch type	Order no.
ZXE-091336	-	2 NO contacts	Dual-channel	091336
ZXE-104833	Click noise on operation	2 NO contacts	Dual-channel	104833



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



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	

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

Accessory Kit for Hand-held Pendant Stations HBL



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

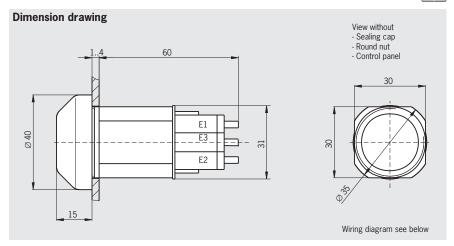


Notes

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

Switching elements

210 2 NO + 1 NC ⊖



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

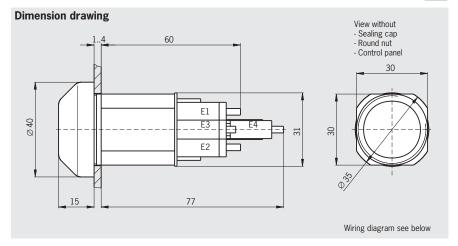


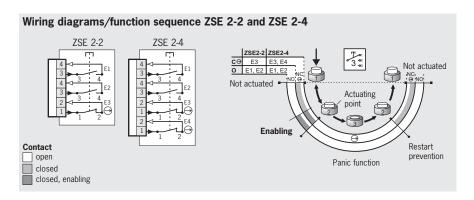
Notas

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

Switching elements

▶ **220** 2 NO + 2 NC ⊖





Technical data

lecinical uata		
Parameter	Value	Unit
Housing material	Plastic	
Fastening hole	Ø 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

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 Dual-channel	083477



Holder HBA

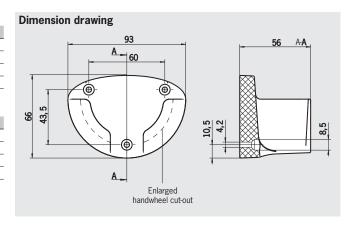
Technical data

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

 $^{^{\}star}$ Operation of the handwheel in the holder possible



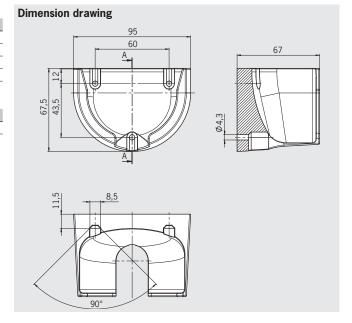
Holder HBM

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

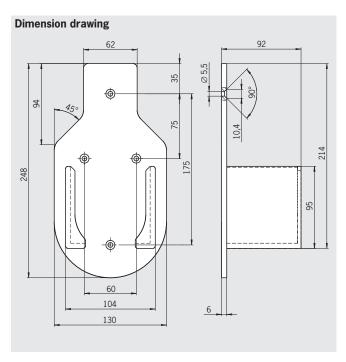


Holder HBL

Technical data

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

Item	Order no.
Holder HBL	084397







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 handheld 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





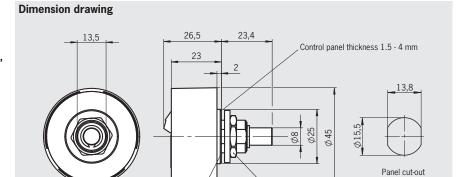
Handwheel HKB

- ▶ 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



Notes

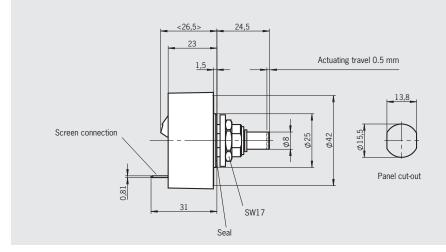
- ▶ Output A05 suitable for Siemens control systems with RS422 input
- ▶ Output G05 suitable for Fanuc control systems
- ▶ Dial: see accessories page 72
- ▶ Front panel: see accessories page 72



Seal

SW17

Version with key function



Series	Number of pulses per revolution	Connection	Detent positions	Outputs	Order No./item																	
	25	S Screw terminal	100	G12 Push-pull 5 V U _B = 10 30 V DC	105137 HKB025S7G12																	
HKB 100 S Screw terminal		A05 RS422A U _B = 5 V DC	105134 HKB100S7A05																			
	100	_	100	A12 RS422A U _B = 10 30 V DC	105135 HKB100S7A12																	
	100		Screw terminal	Screw terminal	Screw terminal	Screw terminal	Screw terminal	Screw terminal	Screw terminal	Screw terminal	Screw terminal	Screw terminal	Screw terminal	Screw terminal	Screw terminal	Screw terminal	Screw terminal	Screw terminal	Screw terminal	Screw terminal	100	G05 5 V push-pull $U_B = 5 \text{ V DC}$
			G24 Push-pull 1030 V U _B = 10 30 V DC	105138 HKB100S7G24																		
HKB with key function	100	S Screw terminal	100	A05 RS422A U _B = 5 V DC	109429 HKB100S7A05K																	



			Value	Unit
			2 x 25 or 2 x 100	
lousing material	Detent positions		100	
lousing material	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
				0°C
Storage temperature		000/	-20 +50	
Atmospheric humidity, max.		80%	(condensation not permissible)	
ront degree of protection	acc. to EN 60529/IEC 529 acc. to NEMA 250		IP 65 250-12	
Resistance to vibration /ibrations (3 axes)			DIN/IEC 68-2-6	
Shock (3 axes)			DIN/IEC 68-2-27	
MC protection requirement	s in accordance with CE	E	N 61000-6-2, EN 61000-6-4	
Key function	S II GOOTGATIO WAT OF			
Mechanical life, min.			1 x 10 ⁶ actuations	
ctuating travel			0.3 0.7 mm	
pecification output OUT		105 (005	Output stage	
		A05/G05	A12/G12/G24	
perating 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	
	LOW (0), max.	1.3 V/15 mA	3 V/20 mA	
Output circuit RS422A		. ,, ==	, ,,==	
Output stage		A05	A12	1
Output signals		noo	A, /A, B, /B	
Operating voltage U _B		5 ± 5 %	10 30	V DO
		3 ± 3 %		
Operating current, no load,	max.	A 1: 1 DOA	80	mA
Output circuit Output signals cw (clockwis		According to RS4 25 pulses	22A, use RS422 differential receiver module 100 pulses	
		A	/A B /B 200 µs 400 µs 300 µs	
erminal assignment Dutput circuit, push-pull		Screw terminal, 7-pin, co Tig without key function W O O O O U U _s OV A /A B /E	U _B OV A B Out	
Output stage		G05	G12 G24	
Output signals			A, B	
perating voltage U _B		5 ± 5 %	10 30	V DO
perating current, no load,	max	0 = 0 70	80	mA
Output voltage	HIGH (1), min.	4.0 V / 0 mA	4.9 V / 0 mA –	111/
outhur soliage	THOLE (1), IIIII.	3.4 V / 5 mA	3.9 V / 5 mA –	
	1.01// (0) =====	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, n			20	mA
Output signals cw (clockwis	e rotation)	25 pulses A B 90° 360°	100 pulses A B 200 μs 800 μs	
		Scrow terminal 7 nin as	nductor cross-section 0.082 1.52 (AWG 22 16)	
Tamasia at a saisa	Terminal assignment		nductor cross-section 0.084 L.54 (AWG 22 16)	
Ferminal assignment				
Ferminal assignment			thening torque, max. 0.5 Nm with key function	



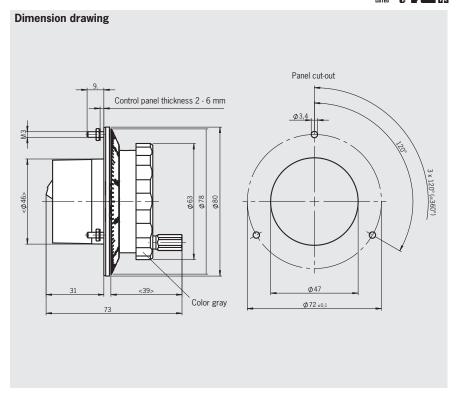
Handwheel HKC

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



Notes

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



Series	Number of pulses per revolution	Connection	Detent positions	Outputs	Order No./item
	25	S Screw terminal	100	G12 Push-pull 5 V U _B = 10 30 V DC	072940 HKC025S100G12
НКС	100	S Screw terminal		A05 RS422A U _B = 5 V DC	087733 HKC100S100A05
HKC			100	G05 Push-pull 5 V U _B = 5 V DC	082573 HKC100S100G05
				G24 Push-pull 1030 V U _B = 10 30 V DC	087739 HKC100S100G24



Parameter Value	kg N N Rev. °C °C
Detent positions 100	N N Rev.
Plastic/metal Plastic/meta	N N Rev.
Detent mechanism	N N Rev.
Detent mechanism Shaft loading, axial, max. Shaft loading, radial, max. Mechanical life, min. Deparating temperature Storage tempe	N N Rev.
Shaft loading, axial, max. Shaft loading, radial, max. All dechanical life, min. Baylerating themperature All dechanical life, min. All dechanical life, min. Baylerating themperature Baylera	N Rev. °C
Shaft loading, radial, max. Mechanical life, min. Mechanical life,	N Rev. °C
Mechanical life, min. 5 x 106 Operating temperature 0 +50 Storage temperature -20 +50	Rev.
Operating temperature	°C
Storage temperature -20 +50 Atmospheric humidity, max. ront degree of protection acc. to EN 60529/IEC 529 acc. to NEMA 250 Resistance to vibration (ibrations (3 axes) Chock (3 axes) DIN/IEC 68-2-6 DIN/IEC 68-2-7 EMC protection requirements in accordance with CE Dutput circuit RS422A Dutput stage A05 Author to signals Diperating voltage UB Diperating voltage UB Diperating current, no load, max. According to RS422A, use RS422 differential receiver module	
thmospheric humidity, max. ront degree of protection acc. to EN 60529/IEC 529 acc. to NEMA 250 Besistance to vibration ribrations (3 axes) Chock (4 axes) Chock (5 axes) Chock (6 axes) Chock (6 axes) Chock (7 axes) Chock (8 axes) Chock (8 axes) Chock (8 axes) Chock (9 axes) Chock (1 axes) Chock (2 axes) Chock (3 axes) Chock (1 axes) C	00
According to RS422A	
acc. to NEMA 250 Resistance to vibration Res	
Resistance to vibration Aribrations (3 axes) Another Celevition requirements in accordance with CE Dity/IEC 68-2-7 EMC protection requirements in accordance with CE EN 61000-6-2, EN 61000-6-4 Dutput circuit RS422A Dutput stage AO5 Dutput signals A, /A, B, /B Deparating voltage U _B Deparating voltage U _B Deparating current, no load, max. 80 Dutput circuit According to RS422A, use RS422 differential receiver module	
ADDUPT CIPICAL STATES AND ACCORDING TO RESIDENCE TO SHOULD AND ACCORDING TO RESIDENCE AND ACCORDING TO SHOULD AND ACCORDING TO SHOULD THE SHOULD AND ACCORDING TO SHO	
DIN/IEC 68-2-27	
EMC protection requirements in accordance with CE Dutput circuit RS422A Dutput stage A05 Dutput signals Deperating voltage U _B Deperating current, no load, max. According to RS422A, use RS422 differential receiver module	
Output circuit RS422A Output stage A05 Output signals A, /A, B, /B Operating voltage U_B $5 \pm 5 \%$ Operating current, no load, max. 80 Output circuit According to RS422A, use RS422 differential receiver module	
Output stage A05 Output signals A, /A, B, /B Operating voltage U_B $5 \pm 5 \%$ Operating current, no load, max. 80 Output circuit According to RS422A, use RS422 differential receiver module	
Output stage A05 Output signals A, /A, B, /B Operating voltage U_B $5 \pm 5 \%$ Operating current, no load, max. 80 Output circuit According to RS422A, use RS422 differential receiver module	
Output signals A, /A, B, /B Operating voltage U_B $5 \pm 5 \%$ Operating current, no load, max. 80 Output circuit According to RS422A, use RS422 differential receiver module	
perating voltage U_B $5 \pm 5 \%$ perating current, no load, max. 80 putput circuit According to RS422A, use RS422 differential receiver module	
perating current, no load, max. 80 Putput circuit According to RS422A, use RS422 differential receiver module	V DC
output circuit According to RS422A, use RS422 differential receiver module	mA
	1107
Author signals CM (Clockwise Intation) 23 pulses 100 pulses	
	_
360° A A	
A TITLE (A)	
A /A	
	_
/A	
	_
B	-
B /B /B	
/B	
/B 200 µs 400 µs 800 µs	
Ferminal assignment Screw terminal S	
00000	
L U B OV A /A B /B	
Output circuit, push-pull	
Output stage G05 G12 G24	
1 0	
Output signals A, B	
Operating voltage U_B $5 \pm 5 \%$ $10 \dots 30$	V DC
Operating current, no load, max. 80	mA_
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 n	
Output current per output, max. 20	mA
Putput signals cw (clockwise rotation) 25 pulses 100 pulses	111/1
ratput signals ew (clockwise rotation)	_
A A A	
B B B B	
000	-
90° 200 µs 400 µs	
360°	
orminal againment	
erminal assignment 5	
Ferminal assignment Screw terminal S	
erminal assignment Screw terminal S	



CULUSTED CENTRAL US

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 HRI

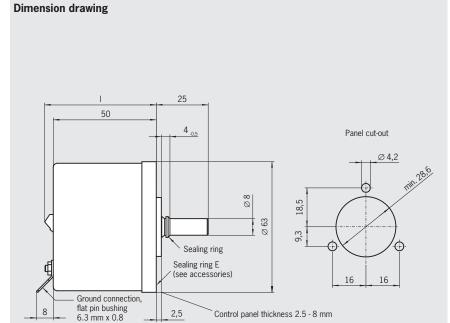


Notes

- ▶ 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	l [mm]
Screw terminal S	55
Ribbon cable, 6-pin V	53



Series	Number of pulses per revolution	Connection	Detent positions	Outputs	Order No./item
	25	S Screw terminal	100	G12 Push-pull 5 V U _B = 10 30 V DC	091525 HKD025S100G12
HKD	25	V Ribbon cable 6-pin with plug	100	G12 Push-pull 5 V U _B = 10 30 V DC	091526 HKD025V100G12
				A05 RS422A U _B = 5 V DC	054866 HKD100S100A0
		S Screw terminal	100	G05 Push-pull 5 V U _B = 5 V DC	083354 HKD100S100G0
	100			G24 Push-pull 1030 V U _B = 10 30 V DC	054868 HKD100S100G2
	100	V Ribbon cable 6-pin with plug		A05 RS422A U _B = 5 V DC	057036 HKD100V100A0
			100	G05 Push-pull 5 V U _B = 5 V DC	091527 HKD100V100G0
				G24 Push-pull 1030 V U _B = 10 30 V DC	057037 HKD100V100G24



Deleted prosistors	Parameter		Value		Unit
Houseign autorial Weight 0.5 kg Detert mechanism	Pulses per revolution	2	x 25 or 2 x 100		
Meghet D. 5	Detent positions		100		
Detent mechanism Magnetic Shart loading, avail, max. \$25	Housing material		Aluminum		
Shift blading, axial, max. 25					kg
Shift blanding, radial, max.					
Mechanical life, min. 20 x 10° Rev.					N
Operating temperature					
Storage temperature 25 +85 °C					
Almospheric humidity, max. 80% (condensation not permissible)					
Front degree of protection acc. to N 60529/IEC 529 P 65					°C
Resistance to vibration Vibrations (3 axes)		80% (cond			
Nitrations (3 axes)					
Shock (3 axes)	Resistance to vibration				
EMC protection requirements in accordance with CE Output stage Output	Vibrations (3 axes)				
Output circuit RS422A A05 Output stage A, /A, B, /B Operating voltage Us 5 ± 5 % VDC Operating current, no load, max. 80 mA Output signals cw (clockwise rotation) According to RS422A, use RS422 differential receiver module. 100 puts signals cw (clockwise rotation) Terminal assignment Ribbon cable V Screw terminal S A					
Output stage Determination areas Determination ar		EN 610	00-6-2, EN 61000-6-4		
Output signals	Output circuit RS422A				
Operating current, no load, max. Output circuit Detent position area Terminal assignment Output signals cw (clockwise rotation) Detent position area Terminal assignment Output circuit, push-pull Output signals Operating current, no load, max. Output voltage HGH (1), min. 4,0 y/0 mA 4,9 y/0 mA 3,4 y/5 mA 3,9 y/5 mA 3,0 y/20 mA 4,0 y/0					
Output signals cw (clockwise rotation) Output circuit, push-pull Output signals Output circuit, push-pull Output signals Output signals Output signals Output circuit, push-pull Output signals Output signals cw (clockwise rotation)					
Output circuit, push-pull Output signals cw (clockwise rotation) Detent position areas Terminal assignment Ribbon cable V Screw terminal S A A B Output circuit, push-pull Output signals Output signals Output circuit, push-pull Output signals Output circuit, push-pull Output signals Output signals Output signals Output circuit, push-pull Output signals Output signals Output circuit, push-pull Output signals Output voltage HGH (1), min. 4.0 V / 0 mA 3.4 V / 5 mA 3.9 V / 5 mA Dutput signals cw (clockwise rotation) Detent position area Terminal assignment Ribbon cable V Screw terminal S A B Output signals cw (clockwise rotation) Detent position area	Operating voltage U _B				
Output signals cw (clockwise rotation) 25 pulses 100 pulses 360° 360° 4A A B B B B B B B B B B B B B B B B B B B B B B B B B B B B B B B B B B Output stage G05 G12 G24 Output stage B Operating current, no load, max. B Output voltage HGH (1), min. 4,0 V/0 mA 4,9 V/0 mA A 3,3 V/2 0 mA 3,6 V/2 0 mA 18-3 V/2 0 mA Output current per output, max. 20 0 mA Output signals cw (clockwise rotation) 25 pulses 360° 360° </td <td></td> <td></td> <td></td> <td></td> <td>mA</td>					mA
Detent position areas Detent position area					
Detent position areas Detent position area Detent position areas Detent position area	Output signals cw (clockwise rotation)	·	1	•	
Detent position areas Detent position area Ribbon cable V Screw terminal S A A V Dutput stage Go5 G12 G24 Output stage Output stage Operating voltage Us Output voltage HIGH (1), min. 4.0 V / 0 mA 3.4 V / 5 mA 3.9 V / 5 mA 1.0 W (0), max. Dutput signals CW (clockwise rotation) Detent position areas Detent position area Screw terminal S A A OV Detent position area Detent position area Detent position area Screw terminal S A A OV Detent position area			H—		
Detent position areas Detent position area Ribbon cable V Screw terminal S A A B Output circuit, push-pull Output stage Q05 Q12 Q24 Output stage Q05 Q12 Q24 Output stage Q05 Q12 Q24 Output stage Q05 Q12 Q24 Output signals Q12 Q24 Output stage Q05 Q12 Q24 Output stage Q12 Q24 Output voltage Us Q12 Q24 Q14 Q15 Q15 Q15 Q16 Q17		190° ▼ → 1	√ 7:	5° 210°	
Detent position areas Detent position area Ribbon cable V Screw terminal S A A B Output circuit, push-pull Output stage Q05 Q12 Q24 Output stage Q05 Q12 Q24 Output stage Q05 Q12 Q24 Output stage Q05 Q12 Q24 Output signals Q12 Q24 Output stage Q05 Q12 Q24 Output stage Q12 Q24 Output voltage Us Q12 Q24 Q14 Q15 Q15 Q15 Q16 Q17			Λ <u></u>		
Detent position areas Detent position area		A	A		
Detent position areas Detent position area		"= 	, -		
Detent position areas Terminal assignment Detent position areas Ribbon cable V Screw terminal S Ribbon cable V Screw		/A	/A		
Detent position areas Terminal assignment Detent position areas Ribbon cable V Screw terminal S Ribbon cable V Screw					
Detent position areas Ribbon cable V Screw terminal S A, A, D, Output circuit, push-pull Output signals Output signals Operating current, no load, max. Output voltage HIGH (1), min. 4.0 V/0 mA 3.4 V/5 mA 3.9 V/20 mA LOW (0), max. 1.3 V/15 mA 1.3 V/15 mA 1.3 V/15 mA Output signals cw (clockwise rotation) Detent position areas Detent position area Detent position areas Detent position area Detent position area Detent position area Detent position area Ribbon cable V Screw terminal S A B Detent position area Detent position area		В	В		
Detent position areas Ribbon cable V Screw terminal S A, A, D, Output circuit, push-pull Output signals Output signals Operating current, no load, max. Output voltage HIGH (1), min. 4.0 V/0 mA 3.4 V/5 mA 3.9 V/20 mA LOW (0), max. 1.3 V/15 mA 1.3 V/15 mA 1.3 V/15 mA Output signals cw (clockwise rotation) Detent position areas Detent position area Detent position areas Detent position area Detent position area Detent position area Detent position area Ribbon cable V Screw terminal S A B Detent position area Detent position area				1	
Detent position areas Ribbon cable V Screw terminal S A, A, D, Output circuit, push-pull Output signals Output signals Operating current, no load, max. Output voltage HIGH (1), min. 4.0 V/0 mA 3.4 V/5 mA 3.9 V/20 mA LOW (0), max. 1.3 V/15 mA 1.3 V/15 mA 1.3 V/15 mA Output signals cw (clockwise rotation) Detent position areas Detent position area Detent position areas Detent position area Detent position area Detent position area Detent position area Ribbon cable V Screw terminal S A B Detent position area Detent position area		/B	/B		
Terminal assignment Ribbon cable V RAM OV RIBBO Cable V RAM OV			, =		
Terminal assignment Ribbon cable V RAM OV RIBBO Cable V RAM OV		\ \ / /			
Output circuit, push-pull Output stage G05 G12 G24 Output signals A, B Operating voltage U _B 5 ± 5 % 10 30 V DC Operating current, no load, max. 80 mA Output voltage HIGH (1), min. 4.0 V / 0 mA 4.9 V / 0 mA - A. SOV / 20 mA 3.4 V / 5 mA 3.9 V / 5 mA - B. LOW (0), max. 1.3 V / 15 mA 3.0 V / 20 mA 3.6 V / 20 mA Cutput signals cw (clockwise rotation) 25 pulses 100 pulses 360° 360° 360° A. B.		Detent position areas	Deten	t position area	
Output circuit, push-pull Output stage G05 G12 G24 Output signals A, B Operating voltage U _B 5 ± 5 % 10 30 V DC Operating current, no load, max. 80 mA mA Output voltage HIGH (1), min. 4.0 V / 0 mA 4.9 V / 0 mA - 3.0 V / 20 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 Output current per output, max. 20 mA Output signals cw (clockwise rotation) 25 pulses 100 pulses 360° 360° 360° A B B Detent position areas Detent position area Terminal assignment Ribbon cable V Screw terminal S R/A OV R/A OV R/A OV	Terminal assignment	Ribbon cable V	Scre	ew terminal S	
Output circuit, push-pull Output stage G05 G12 G24 Output signals A, B Operating voltage U _B 5 ± 5 % 10 30 V DC Operating current, no load, max. 80 mA Output voltage HIGH (1), min. 4.0 V / 0 mA 4.9 V / 0 mA - 3.0 V / 20 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 mA Output signals cw (clockwise rotation) 25 pulses 100 pulses 360° 360° 360° 4 4 4 B B B B B B B B B B B B B B B B B B B B B B B B <					
Output circuit, push-pull Output stage G05 G12 G24 Output signals A, B Operating voltage U _B 5 ± 5 % 10 30 V DC Operating current, no load, max. 80 mA Output voltage HIGH (1), min. 4.0 V / 0 mA 4.9 V / 0 mA - 3.0 V / 20 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 mA Output signals cw (clockwise rotation) 25 pulses 100 pulses 360° 360° 75° 210° A B B B B B B B Detent position areas Detent position area Crew terminal S Ribbon cable V Ribbon cable V Company terminal S Ribbon cable V Company terminal S Company terminal S Company terminal S			00	0000	
Output circuit, push-pull Output stage G05 G12 G24 Output signals A, B Operating voltage U _B 5 ± 5 % 10 30 V DC Operating current, no load, max. 80 mA 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 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 mA Output signals cw (clockwise rotation) 25 pulses 100 pulses 360° 360° 360° A B B B B B B B B B B B B B B B B B B B B B B B B B <t< td=""><td></td><td></td><td>U_B OV</td><td>/ A /A B /B</td><td></td></t<>			U _B OV	/ A /A B /B	
Output stage G05 G12 G24 Output signals A, B Operating voltage U _B 10 30 V DC Operating voltage U _B 80 mA 30 v DC Operating current, no load, max. 80 mA 30 v / 20 mA 4.9 v / 0 mA 3.9 v / 5 mA 3.0 v / 20 mA 3.0 v /		в́ДÙв			
Output stage G05 G12 G24 Output signals A, B Operating voltage U _B 10 30 V DC Operating voltage U _B 80 mA 30 v DC Operating current, no load, max. 80 mA 30 v / 20 mA 4.9 v / 0 mA 3.9 v / 5 mA 3.0 v / 20 mA 3.0 v /	Output circuit, push-pull	···			
Output signals A, B Operating voltage UB 5 ± 5 % 10 30 V DC Operating current, no load, max. 80 mA Output voltage HIGH (1), min. 4.0 V / 0 mA 4.9 V / 0 mA - 3.0 V / 20 mA 3.0 V / 20 mA UB - 3 V / 20 mA UB - 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 mA Output signals cw (clockwise rotation) 25 pulses 360° 360° A B B B B Detent position area Terminal assignment Ribbon cable V Screw terminal S		G05	G12	G24	
Operating voltage U _B 5 ± 5 % 10 30 V DC Operating current, no load, max. 80 mA Output voltage HIGH (1), min. 4.0 V / 0 mA 4.9 V / 0 mA - 3.0 V / 20 mA 3.9 V / 5 mA - - 3.0 V / 20 mA 1.3 V / 15 mA 3 V / 20 mA U _B - 3 V / 20 mA Output current per output, max. 20 mA Output signals cw (clockwise rotation) 25 pulses 360° 360° A B 360° 360° 360° A B 360° 360° 360° A B 360° 360° 360° 360° A B 360°		400		GE-7	
Operating current, no load, max. Output voltage HIGH (1), min. 4.0 V / 0 mA 3.4 V / 5 mA 3.0 V / 20 mA LOW (0), max. 1.3 V / 15 mA 1.3 V / 15 mA 3.0 V / 20 mA 1.3 V / 15 mA 3.0 V / 20 mA 1.3 V / 15 mA 3.0 V / 20 mA 1.3 V / 15 mA 3.0 V / 20 mA 1.3 V / 15 mA 3.0 V / 20 mA 1.3 V / 15 mA 3.0 V / 20 mA 1.3 V / 15 mA 3.0 V / 20 mA 1.3 V / 15 mA 3.0 V / 20 mA 1.3 V / 15 mA 3.0 V / 20 mA 1.3 V / 15 mA 3.0 V / 20 mA 1.3 V / 15 mA 3.0 V / 20 mA 1.3 V / 15 mA 3.0 V / 20 mA 1.3 V / 15 mA 3.0 V / 20 mA 1.3 V / 15 mA 3.0 V / 20 mA Detent position area Terminal assignment Ribbon cable V Ribb	Operating voltage Up	5 + 5 %	10 30	<u> </u>	V DC
Output voltage HIGH (1), min. 4.0 V / 0 mA 3.4 V / 5 mA 3.9 V / 5 mA LOW (0), max. 1.3 V / 15 mA 1.3 V / 15 mA 20 mA Output current per output, max. Output signals cw (clockwise rotation) 25 pulses 360° A Detent position area Terminal assignment Ribbon cable V Ribbon cable V Ribbon cable V Screw terminal S Us 0 V / 0 mA		3 ± 3 /0		J	
3.4 V / 5 mA 3.9 V / 5 mA		4 0 V / 0 m/			IIIA
A B Detent position areas Terminal assignment 3.0 V / 20 mA	Output voitage IIIdiT (1), IIIIII.				-
LOW (0), max. Output current per output, max. Output signals cw (clockwise rotation) 25 pulses 360° A Detent position areas Terminal assignment 1.3 V / 15 mA 1.3 V / 15 mA 1.3 V / 15 mA 3 V / 20 mA MA Detent position areas Detent position area Screw terminal S (B) A OV (Us OV A B)	-	2.0 V / 20 m/			
Output current per output, max. Output signals cw (clockwise rotation) 25 pulses 360° A B Detent position area Terminal assignment Ribbon cable V 8 /8 /A 0V 0 /8 /A	LOW (O) may	1.2 V / 15 mA	1.2 V / 15 m/	2 V / 20 mV	-
Output signals cw (clockwise rotation) 25 pulses 360° A B Detent position areas Detent position area Terminal assignment Ribbon cable V Screw terminal S B A Detent position area Ribbon cable V Screw terminal S Detent position area		1.5 V / 15 IIIA	1.5 V / 15 IIIA	3 V / 20 IIIA	- m A
Detent position areas Detent position areas Detent position area Terminal assignment Ribbon cable V Screw terminal S ### A DV ###		25 pulsos		00 pulsos	IIIA
Detent position areas Terminal assignment Ribbon cable V Screw terminal S B Detent position area Screw terminal S Detent position area	Output signals cw (clockwise rotation)	•	1		
Detent position areas Terminal assignment Ribbon cable V Screw terminal S B Detent position area Screw terminal S Detent position area			M=750		
Detent position areas Detent position area Terminal assignment Ribbon cable V Screw terminal S //// // // // // // // // // // // //		90	4 ⁷⁵	 210 	
Detent position areas Detent position area Terminal assignment Ribbon cable V Screw terminal S //// // // // // // // // // // // //		^ 	^		
Detent position areas Detent position area Terminal assignment Ribbon cable V Screw terminal S /B /A 0V Us 0V A B		^	A		
Detent position areas Detent position area Terminal assignment Ribbon cable V Screw terminal S /B /A 0V Us 0V A B			_		
Terminal assignment Ribbon cable V Screw terminal S /B/A 0V GRIPP GR		B ; ; ; ;	В		
Terminal assignment Ribbon cable V Screw terminal S /B/A 0V GRIPP GR					
Terminal assignment Ribbon cable V Screw terminal S /B/A 0V GRIPP GR		\ \/ /		/	
Terminal assignment Ribbon cable V Screw terminal S /B/A 0V GRIPP GR		Detent position areas			
/B /A OV □ 6 □ 0 □ 1 □ □ U ₈ OV A B	Terminal assignment		Scre	ew terminal S	
			<u> </u>		
β μ ὑς ΕΕΕΕΕΕΕΙ			U _B OV	A B	
		βÃὑв			



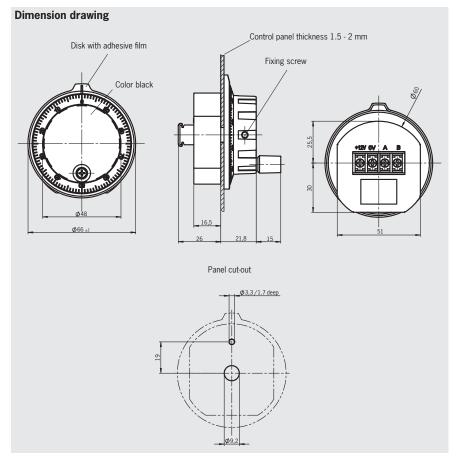
Handwheel HWA

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



Notes

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



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



meter	V	/alue	Unit	
s per revolution		or 2 x 100	Oint	
nt positions		100		
ng material		tic/metal		
ng material		0.1	kg	
nt mechanism		chanical	ng ng	
loading, axial, max.	ivie	25	N	
loading, radial, max.		40	N N	
anical life, min.	1 x 10 ⁶			
ating temperature		+50	Rev.	
ge temperature		+50	°C	
		ion not permissible)	C	
spheric humidity, max.		P65		
degree of protection acc. to EN 60529/IEC 529 acc. to NEMA 250		50-12		
ut circuit RS422A				
ıt stage		A05		
ıt signals	A, /	A, B, /B		
ating voltage U _B	5 :	± 10 %	V DC	
ating current, no load, max.		80	mA	
ut specifications		S422 differential receiver module		
it signals cw (clockwise rotation)) pulses		
		360°		
	90°			
	Α			
	= =			
	/A			
	<u> </u>			
	В			
	/B			
	, 5			
	B	/		
	·	position area		
nal assignment		terminal T		
	+5V 0V A	A A B B		
		4545454		
ut circuit, push-pull				
ıt stage	G05	G12		
ıt signals		A, B		
ating voltage U _B	5 ± 10 %	12 ± 10 %	V DC	
ating current, no load, max.		20	mA	
rt voltage HIGH (1), min.	4.0 V	/ 20 mA		
LOW (0), max.		/ 20 mA		
it current per output, max.		20	mA	
it signals CW (clockwise rotation)	100 pulses	25 pulses		
	360°	360°		
	90°	90°.		
	A	A		
	_			
	B	В : [] : []		
		\ \ / /		
	Detent position area	Detent position areas		
nal assignment				
400.6				
	+U _B 0	V A B		
nal assignment	Screw	Detent position areas terminal T V A B		



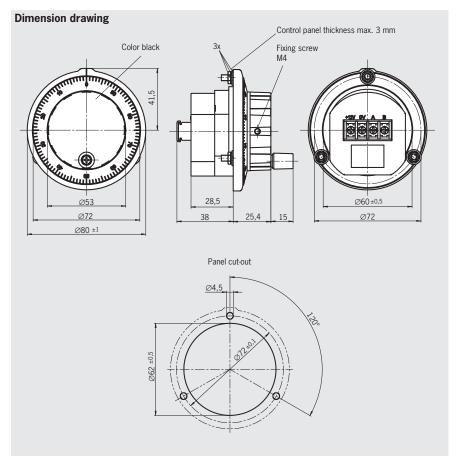
Handwheel HWB

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



Notes

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



Series	Number of pulses per revolution	Connection	Detent positions	Outputs	Order No./item
	25	T Screw terminal	100	$\begin{array}{c} \textbf{G12} \\ \text{Push-pull 5 V} \\ \text{U}_{\text{B}} = 12 \text{ V DC} \end{array}$	072975 HWB025T100G12/V05 (5 ea.)
HWB Packaging unit 5 ea.	100	Т	100	A05 RS422A U _B = 5 V DC	072973 HWB10T100A05/V05 (5 ea.)
	100	Screw terminal	100	G05 Push-pull 5 V U _B = 5 V DC	072974 HWB100T100G05/V05 (5 ea.)



Parameter	V	alue	Unit	
Pulses per revolution	2 x 25 c	or 2 x 100		
Detent positions	1	.00		
Housing material	Plasti	c/metal		
Weight		125	kg	
Detent mechanism	Mechanical			
Shaft loading, axial, max.		25	N	
Shaft loading, radial, max.	40			
Mechanical life, min.		x 10 ⁶	N Rev.	
Operating temperature		. +50	°C	
Storage temperature		+50	°C	
Atmospheric humidity, max.		on not permissible)		
Front degree of protection acc. to EN 60529/IEC 529		P65		
acc. to NEMA 250		0-12		
Output circuit RS422A		00-12		
		05		
Output stage				
Output signals		A, B, /B	1/100	
Operating voltage U _B		10 %	V DC	
Operating current, no load, max.		80	mA	
Output specifications		422 differential receiver module		
Output signals cw (clockwise rotation)	100	pulses		
	н	360°		
	90°			
	^			
	Α			
	" =			
	/A			
	В			
	/B			
	, L			
		/		
	·	osition area		
Terminal assignment	Screw	terminal T		
	+5V 0V A	ĀBB		
	<u> </u>	· [전전전]		
Output circuit, push-pull				
Output stage	G05	G12		
Output signals		A, B		
Operating voltage U _B	5 ± 10 %	12 ± 10 %	V DC	
Operating current, no load, max.		20	mA	
Output voltage HIGH (1), min.		/ 20 mA	ША	
LOW (0), max.	4.0 V	/ 20 mA		
		20 ma	A	
Output current per output, max.			mA	
Output signals CW (clockwise rotation)	100 pulses	25 pulses		
	360°	360° ▼ 90°		
	4 90 ↑	490		
	Α 🗔	Α 🗔 🗎		
		^_		
	В ;	B		
	—— 			
	Dotant position area	Dotont position areas		
	Detent position area	Detent position areas		
T : 1 : 1		terminal I		
Terminal assignment	Screw		1	
Terminal assignment		/ A B		
Terminal assignment				
Terminal assignment				



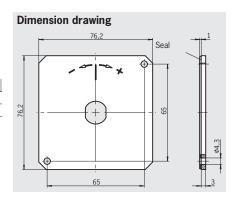
Accessories

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



Front panel for handwheel HKD

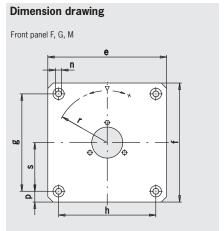
- ► Front panel with bonded seal
- ▶ Seal handwheels without front panel with sealing ring E

Dimensions

Design	е	f	g	h	k	m	n	р	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

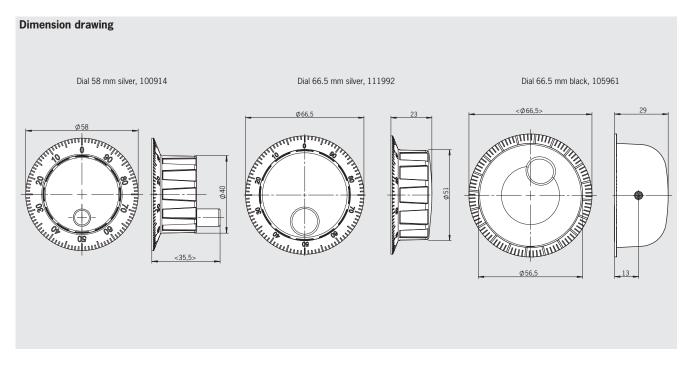


Dials for handwheel HKB

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

Suitable for installation in operator panels

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





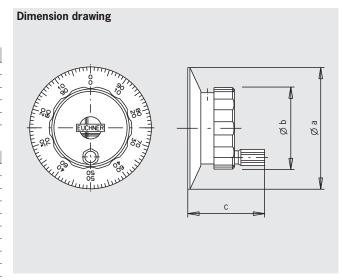
Dials for handwheel HKD

Dimensions

Design	∅ a	∅ b	С
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

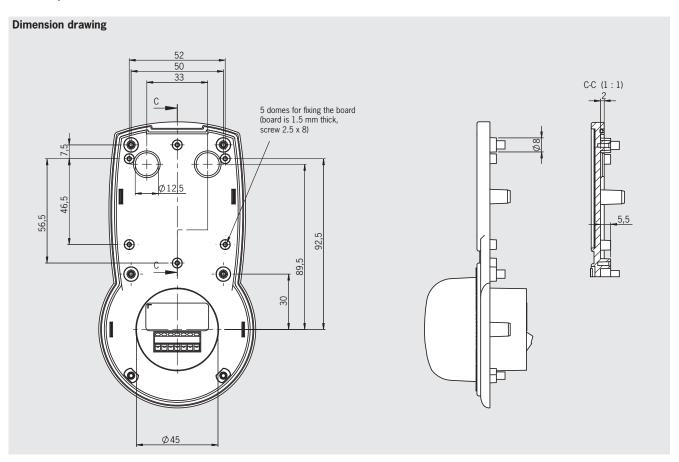
Ordering table

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

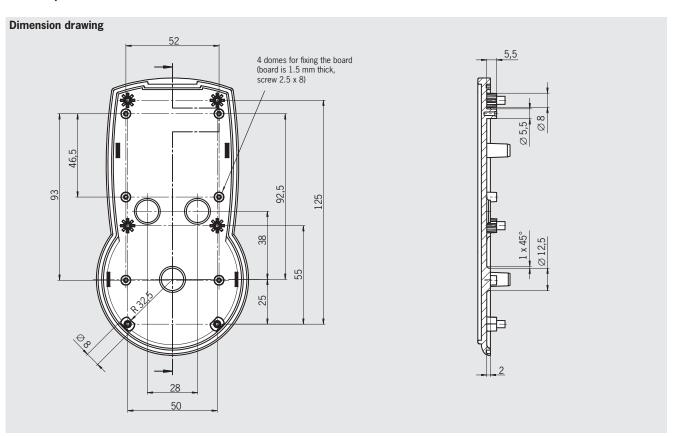


Dimension drawing - HBA housing top shell

► HBA top shell with handwheel



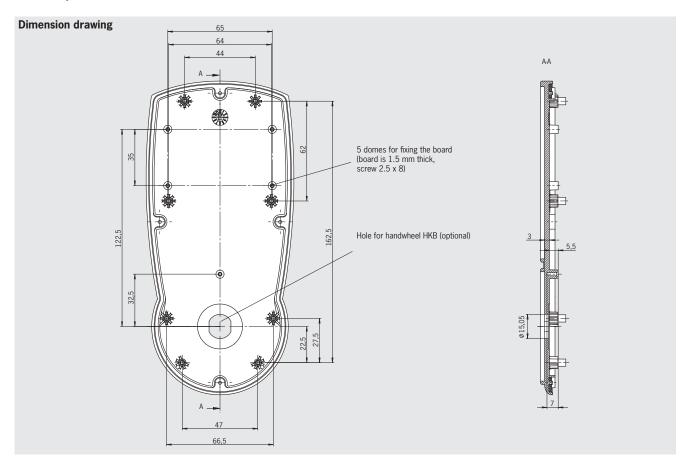
► HBA top shell without handwheel





Dimension drawing - HBM housing top shell

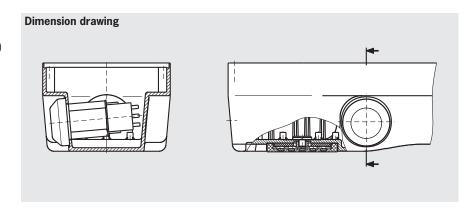
► HBM top shell with and without handwheel



Assembly drawings

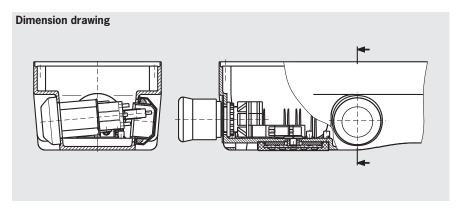
Housings HBL-073109 and HBL-072632

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



Housings HBL-072983 and HBL-083484

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



Request form for hand-held pendant stations HBA without handwheels

Customer			Ι-	Talanhana	I	
Company Address				Telephone		
Address			_	Fax E-mail		
			-	L-IIIaii		
Name			<u> </u>	Department		
First name				Date		
	I		L		I	
Housing	Gray			EMERGE	NCY 2	NC contacts
	Black			STOP		
Front foil	EUCHNER Standard	I		Selector	switch V	Vithout
	Customer-specific as	per attachment		left		positions Gray code
					<u> </u>	positions 1 of X
Pushbuttons	Without		l I)	L	abeling:
	3 membrane buttons	V	₩	V		
	single button	/		Selector :		Vithout
		(()		rigiit		positions Gray code
LED	Without))	<u> </u>	positions 1 of X
	With	//		//		abeling:
	□uru .					era .
Key-operated switch	Without			Enabling		Vithout
	With					-stage, each 1 NO, right and left
Togglo owitch	Without				3	-stage, 2 NO, left
Toggle switch						
	With:					
Joystick	Without					
Joystick	With KE					
	Warks					
Cable	Coiled 1.5 m. can b	e streched to 3.5 m	\Rightarrow			
	Coiled 2.0 m, can be					
	Straight: m					
			\Rightarrow			
Plug connector	Burndy metal		LJ C			
	Coninvers metal		\perp			
	Other:					
	Without plug connecte	or				
			©			
		Further compo	nents and versions o	on request		
Special require	ements					
opoolal roquit						
O. at-ti-						
Quotation		0				
Quantity		One-off project req	uirement	Series	production req	uirement per year
Delivery date r	requestea	Week				
Date				Signa	ature	
				-		

Appendix



Request form for hand-held pendant stations HBA with handwheels

0						
Customer				Tolombono		
Company Address				Telephone		
Audress				Fax E-mail		
				E-IIIali		
Name				Department		
First name				Date		
			l			
Housing	Gray			EMERGEN	NCY	2 NC contacts
	Black			STOP		_
			1 10 100 Y Z 4 8	Selector s	switch	Without
Front foil	EUCHNER Standard			left		positions Gray code
	Customer-specific as p	er attachment				positions 1 of X
		,				Labeling:
Pushbuttons	Without	(7
	3 membrane buttons			Selector s right	witch	Without
	single button	/				positions Gray code
LED	Without					positions 1 of X
LED	With	//				Labeling:
	With			Enabling of	device	Without
Key-operated	Without					2-stage, each 1 NO, right and left
switch	With					3-stage, 2 NO, left
Toggle switch	Without			Handwhee	el	Without
	With:			See catalog	gue	magnetic
			Ħ	page 33		mechanical
Joystick	Without) 			A05, 100 pulses, RS422
	With KE					G05, 100 pulses
			\bowtie			G12, 25 pulses
Cable	Coiled 1.5 m, can be		\searrow			G24, 100 pulses
	Coiled 2.0 m, can be s	treched to 5.0 m				7
	Straight: m		\Rightarrow	On which control sy		Siemens, type:
Plug connector	Burndy metal		LJ	will the	_	Fanuc, type:
riug connector	Coninvers metal		\perp	handwhee be operat		Mitsubishi, type: Other / brand:
	Other:			во орогис		Other / brand.
	Without plug connector					
			0			
		Further com	ponents and versions	on request		
		i di diei com	policiits aliu versiolis	on request		
Special require	am anta					
Special require	silients					
O						
Quotation		One-off project r	oquiroment	Carica	production	requirement per year
Quantity Delivery date r	requested	Week	equirerrient	Series	production	requirement per year
	cyucsicu	vvccr				
Date				Signa	ture	

Request form for hand-held pendant stations HBM without handwheels

Customer					Tala		
Company Address						phone	
Address					Fax E-m		
					E-111	Idii	
Name					Den	artment	
First name					Date		
Front foil	E	UCHNER Standard				EMERGENCY	Y 2 NC contacts
	Cı	ustomer-specific as p	er attachment			STOP	
					7		
Pushbuttons	-	ithout			1	Selector swit	
	-	membrane buttons			1	left	positions Gray code
	Ш-	single button					positions 1 of X
. ==	П						Labeling:
LED	-	lithout				0 - 1 1	Mal
	vv	ith				Selector swit right	itch Without positions Gray code
Key-operated	□ w	/ithout		1		0	positions Gray code
switch	-	ith		1	/		Labeling:
	ш"	iui		Λ	M		Lubeling.
Toggle switch	W	/ithout))	Enabling dev	vice Without
	\vdash	ith:			/		2-stage, each 1 NO, right and left
	ш						3-stage, 2 NO, left
Joystick	W	/ithout					
	W	ith KE					
Cable	_		streched to 3.5 m				
	_	oiled 2.0 m, can be s	treched to 5.0 m	\Box			
	St	traight: m		4			
Plug connector	$\overline{}$	urndy metal		→			
	$\overline{}$	oninvers metal ther:					
		ithout plug connector		Ď			
	vv	itilout plug connector		ñ			
				0			
			Further com	ponents and versions	on ro	auoct	
			i ui ui ei coii	ipolielits allu versiolis	OII I C	equest	
Special require	monto						
Special require	illelits						
Oughatian							
Quotation			One off project	roquiromont		Corios	raduation requirement now year
Quantity Delivery date r	oanoc _e	od.	One-off project	requirement	H	series pr	roduction requirement per year
	equest	.cu	VVEEK				
Date						Signatu	ire

Appendix



Customer-specific as per attachment Without 3 membrane buttons single button Without Without Without Without With With With With Without Without With With With With Without With With With Without With With With With With With Without With With With With With With With Without With With With With With Without With With With With With Without With With With With Without With With With Without See catalogue page 33 Without magnetic mechanical A05, 100 pulses, RS422 G05, 100 pulses, RS422 G05, 100 pulses G12, 25 pulses G24, 100 pulses G24, 100 pulses	Request to	rm for nand-neid	pendant stations l	HBIVI WITH NANGWN	eeis	
Fax E-mail	Customer	_				
E-mail	Company			Telephone	•	
Front foil EUCHNER Standard Customer-specific as per attachment Customer-specific as per attachment Customer-specific as per attachment Selector switch Without positions Gray code positions Gray code positions Gray code positions I of X Labeling:	Address					
Front foil EUCHNER Standard Customer-specific as per attachment Pushbuttons Without Without Decisions Gray code Decisi						
Front foil					ent	
Customer-specific as per attachment Customer-specific as per attachment	rirst name			Date		
Pushbuttons Without positions Gray code positions Gray code positions J of X Labeling: Lab	Front foil		er attachment	STOP		1
Without With KE Without With	Pushbuttons	3 membrane buttons	0 1 10 100	Select left	tor switch	positions Gray code positions 1 of X
Toggle switch Without With With With: Joystick Without With KE Handwheel See catalogue page 33 Mithout Mith KE Mith Mith Mith KE Mith Mith Mith Mith Mith Mith Mith Mith		With	0 (right	tor switch	positions Gray code positions 1 of X
With with 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 Guerral Coninvers metal Coninvers metal Coninvers metal On which control system will the handwheel be operated? Without plug connector Further components and versions on request Special requirements Quotation Quantity Delivery date requested Without	switch	With		Enabli	ing device	Without
With KE		With:				3-stage, 2 NO, left
Plug connector Burndy metal Coninvers metal Other: Without plug connector Siemens, type: Fanue, type: Mitsubishi, type: Other / brand:		With KE Coiled 1.5 m, can be Coiled 2.0 m, can be st		See ca	atalogue	magnetic mechanical A05, 100 pulses, RS422 G05, 100 pulses G12, 25 pulses
Further components and versions on request Special requirements Quotation Quantity Delivery date requested Purther components and versions on request Special requirements Series production requirement per year Week	Plug connector	Coninvers metal Other:		contro will th handy	ol system le wheel	Siemens, type: Fanuc, type: Mitsubishi, type:
Quotation Quantity One-off project requirement Series production requirement per year Delivery date requested Week			ي.			
Quotation Quantity One-off project requirement Series production requirement per year Delivery date requested Week	Special require	ements				
Quantity One-off project requirement Series production requirement per year Delivery date requested Week						
Quantity One-off project requirement Series production requirement per year Delivery date requested Week	Quotation					
Delivery date requested Week			One-off project requires	ment Se	ries production	requirement per vear
		requested				
			1			



Hand-held pendant stations HBL request form

Customer						
Company				Telephone		
Address				Fax		
				E-mail		
Name				Department		
First name				Date		
Front plate	FIIC	HNER Standard		EMERGE	NCV [2 NC contacts
Tonic plate		k anodized		STOP	NO I	_
		r labeling			-	1 NC contacts
	Cust	omer-specific as per attachmen)		Without
			EUCHNER	Enabling	device	2-tage, ZSG, each 1 NO, right + left
Logo	With	out		/		3-stage, ZSE 2-2 (2 NO + 1 NC) only left
8-	—	omer-specific as per attachmen		/		3-stage, ZSE 2-4 (2 NO + 2 NC) only left
	oust	omer speeme as per attachmen		/	-	Without enabling device
Pushbutton	\A/:eL	out —		/	L	- Maiout chabiling device
i usiibulluii	H .			Selector	switch	Without
	H '	ber of NO contacts		left		Positions Gray code
	$\overline{}$	ber of NC contacts			F	Positions 1 of X
	\vdash	illuminated		J	F	Labeling:
		inated		_	L	
	Syml	ool plate labeling		Selector	switch	Without
		er attachment	The state of the s	right		Positions Gray code
		plate labeling				Positions 1 of X
	as pe	er attachment				Labeling:
Key-operated	With	out	E (1 1 1 1 1 1 1 1 1		L	
switch	With			Labeling		Through scale wheels
	vvidi			selector s	witches	On front plate
Lamp/LED	With	out		Handrika	Г	
Lamp/ LED				Handwhe see catalo		without
	L	omer-specific as per attachmen		page 60 -		Magnetic
						Mechanical
Potentiometer	With			\		A05, 100 pulses, RS422
	Tech	nical specification:				G05, 100 pulses
						G12, 25 pulses
Cable	Coi	led 1.5 m, can be streched t	o 35 m			G24, 100 pulses
	Coil	ed 2.0 m, can be streched to 5	0 m \	Dial	Г	FUCUNED Laws
	Stra	night:m	\	[∖] Dial	-	EUCHNER Logo
			\ \		-	Customer-specific logo as per attachment
Plug connector	Burr	ndy metal 🔍				Silver 65 mm
	Coni	nvers metal				Black 65 mm
	Othe	r:				Silver 75 mm
	_	out plug connector	T			Black 75 mm
		Sat bing commotor	ñ	On which	, г	Siemens, type:
				control s		Fanuc, type:
				will the	· -	Mitsubishi, type:
				handwhe		-
Further compon	ents and	versions on request	†	be opera	iteur	Other / brand:
			0			
Special requi	rements					
Quotation						
Quantity		One-	off project requirement	Series	producti	on requirement per year
Delivery date	request					
	4.55	1 1.1001				
Date				Signa	ature	

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Order no.



Representatives

Austria

EUCHNER GmbH Süddruckgasse 4 2512 Tribuswinkel Tel. +43 2252 42191 Fax +43 2252 45225 info@euchner.at

EUCHNER (BENELUX) BV Visschersbuurt 23 3356 AE Papendrecht Tel. +31 78 615-4766 Fax +31 78 615-4311 info@euchner.nl

EUCHNER Com.Comp. Eletronicos Ltda. Av. Prof. Luiz Ignácio Anhaia Mello, no. 4387 Vila Graciosa São Paulo - SP - Brasil CEP 03295-000 Tel. +55 11 29182200 Fax +55 11 23010613 euchner@euchner.com.br

Canada

IAC & Associates Inc. 2105 Fasan Drive Oldcastle, ON NOR 1L0 Tel. +1 519 737-0311 Fax +1 519 737-0314 sales@iacnassociates.com

China

EUCHNER (Shanghai) Trading Co., Ltd. No. 15 building, No. 68 Zhongchuang Road, Songjiang Shanghai, 201613, P.R.C Tel. +86 21 5774-7090 Fax +86 21 5774-7599

Czech Republic

EUCHNER electric s.r.o. Trnkova 3069/117h 628 00 Brno Tel. +420 533 443-150 Fax +420 533 443-153 info@euchner.cz

Denmark

Duelco A/S Systemvej 8 - 10 9200 Aalborg SV +45 7010 1007 +45 7010 1008 info@duelco.dk

Finland

Sähkölehto Oy Holkkitie 14 00880 Helsinki +358 9 7746420 office@sahkolehto.fi

EUCHNER France S.A.R.L. Parc d'Affaires des Bellevues Allée Rosa Luxembourg Bâtiment le Colorado 95610 ERAGNY sur OISE Tel. +33 1 3909-9090 Fax +33 1 3909-9099

Hungary EUCHNER Ges.mbH Magyarországi Fióktelep ESD Park 2 2045 Törökbálint Tel. +36 2342 8374 Fax +36 2342 8375 info@euchner.hu

EUCHNER (India) Pvt. Ltd. 401, Bremen Business Center, City Survey No. 2562, University Road Aundh, Pune - 411007 Tel. +91 20 64016384 Fax +91 20 25885148 info@euchner.in

llan & Gavish Automation Service Ltd. 26 Shenkar St. Qiryat Arie 49513 P.O. Box 10118 Petach Tikva 49001 +972 3 9221824 Fax +972 3 9240761 mail@ilan-gavish.com

Italy

TRITECNICA SpA Viale Lazio 26 20135 Milano Tel. +39 02 541941 Fax +39 02 55010474 info@tritecnica.it

Japan

EUCHNER Co., Ltd. 1662-3 Komakiharashinden Komaki-shi, Aichi-ken 485-0012, Japan Tel. +81 568 42 0157 Fax +81 568 42 0159 info@euchner.jp

Korea

EUCHNER Korea Co., Ltd. 115 Gasan Digital 2 - Ro (Gasan-dong, Daery ung Technotown 3rd Rm 810) 153 - 803 Kumchon-Gu, Seoul. Tel. +82 2 2107-3500 Fax +82 2 2107-3999 info@euchner.co.kr

EUCHNER México S de RL de CV Conjunto Industrial PK Co. Carretera Estatal 431 km. 1+300 Eiido El Colorado, El Marqués 76246 Querétaro, México Tel. +52 442 402 1485 Fax +52 442 402 1486 info@euchner.mx

ELTRON Pl Wolności 7R 50-071 Wrocław Tel. +48 71 3439755 Fax +48 71 3441141 eltron@eltron.pl

Republic of South Africa RUBICON

ELECTRICAL DISTRIBUTORS
4 Reith Street, Sidwell 6061 Port Elizabeth Tel. +27 41 451-4359 Fax +27 41 451-1296 sales@rubiconelectrical.com

Romania

First Electric SRL Str. Ritmului Nr. 1 Bis Ap. 2, Sector 2 021675 Bucuresti Tel. +40 21 2526218 Fax +40 21 3113193 office@firstelectric ro

VALEX electro Uliza Karjer dom 2, Str. 9, Etash 2 117449 Moskwa Tel. +7 495 41196-35 Fax +7 495 41196-36 info@valex-electro.ru

Singapore

BM Safety Singapore Pte Ltd. Blk 3, Ang Mo Kio Industrial Park 2A #05-06 Singapore 568050 Tel. +65 6744 8018 Fax +65 6744 1929 sales@bmsafety.com.sg

Slovakia

EUCHNER electric s.r.o. Trnkova 3069/117h 628 00 Brno Tel. +420 533 443-150 Fax +420 533 443-153 info@euchner.cz

Slovenia

SMM proizvodni sistemi d.o.o. 2000 Maribor Tel. +386 2 4502326 Fax +386 2 4625160 franc.kit@smm.si

Snain

EUCHNER, S.L. Gurutzegi 12 - Local 1 Polígono Belartza 20018 San Sebastian Tel. +34 943 316-760 Fax +34 943 316-405 info@euchner.es

Sweden

Censit AB Box 331 33123 Värnamo Tel. +46 370 691010 Fax +46 370 18888 info@censit.se

Switzerland

EUCHNER AG Falknisstrasse 9a 7320 Sargans Tel. +41 81 720-4590 Fax +41 81 720-4599 info@euchner.ch

Daybreak Int'l (Taiwan) Corp. 3F, No. 124, Chung-Cheng Road Shihlin 11145, Taipei
Tel. +886 2 8866-1234
Fax +886 2 8866-1239 dav111@ms23.hinet.net

EUCHNER Endüstriyel Emniyet Teknolojileri Ltd. Şti. Hattat Bahattin Sok. Ceylan Apt. No. 13/A Göztepe Mah. 34730 Kadıköy / Istanbul Tel. +90 216 359-5656 Fax +90 216 359-5660 info@euchner.com.tr

United Kingdom

EUCHNER (UK) Ltd. Unit 2 Petre Drive, Sheffield South Yorkshire S4 7PZ Tel. +44 114 2560123 Fax +44 114 2425333 Fax sales@euchner.co.uk

EUCHNER USA Inc. 6723 Lyons Street East Syracuse, NY 13057 Tel. +1 315 701-0315 Fax +1 315 701-0319 info@euchner-usa.com

FLICHNER LISA Inc. Detroit Office 130 Hampton Circle Rochester Hills, MI 48307 Tel. +1 248 537-1092 Fax +1 248 537-1095 info@euchner-usa.com

Augsburg

EUCHNER GmbH + Co. KG Ingenieur- und Vertriebsbürg Julius-Spokojny-Weg 8 86153 Augsburg Tel. +49 821 56786540 Fax +49 821 56786541 peter.klopfer@euchner.de

Berlin

EUCHNER GmbH + Co. KG Ingenieur- und Vertriebsbüro Ulmenstraße 115a 12621 Berlin Tel. +49 30 50508214 Fax +49 30 56582139 alexander.walz@euchner.de

Chemnitz

EUCHNER GmbH + Co. KG Ingenieur- und Vertriebsbüro Am Vogelherd 2 O9627 Bobritzsch-Hilbersdorf Tel. +49 37325 906000 Fax +49 37325 906004 jens.zehrtner@euchner.de

Düsseldorf

EUCHNER GmbH + Co. KG Ingenieur- und Vertriebsbüro Tippgarten 3 59427 Unna Tel. +49 2308 9337284 +49 2308 9337285 christian.schimke@euchner.de

Thomas Kreißl fördern - steuern - regeln Hackenberghang 8a 45133 Essen Tel. +49 201 84266-0 Fax +49 201 84266-66 info@kreissl-essen.de

Freiburg

EUCHNER GmbH + Co. KG Ingenieur- und Vertriebsbüro 79206 Breisach Tel. +49 7664 403833 Fax +49 7664 403834 peter.seifert@euchner.de

Lübeck

EUCHNER GmbH + Co. KG Ingenieur- und Vertriebsbijro Am Stadtrand 13 23556 Lübeck Tel. +49 451 88048371 Fax +49 451 88184364 martin.pape@euchner.de

Nürnberg

EUCHNER GmbH + Co. KG Ingenieur- und Vertriebsbüro Steiner Straße 22a 90522 Oberasbach Tel. +49 911 6693829 Fax +49 911 6696722 ralf.paulus@euchner.de

Stuttgart

EUCHNER GmbH + Co. KG Ingenieur- und Vertriehshijro Kohlhammerstraße 16 70771 Leinfelden-Echterdingen Tel. +49 711 7597-0 Fax +49 711 7597-303 oliver.laier@euchner.de uwe.kupka@euchner.de

Wieshaden

EUCHNER GmbH + Co. KG Ingenieur- und Vertriebsbüro Adolfsallee 3 65185 Wiesbaden Tel. +49 611 98817644 Fax +49 611 98895071 giancarlo.pasquesi@euchner.de











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Kohlhammerstraße 16 70771 Leinfelden-Echterdingen Germany Tel. +49 711 7597-0 Fax +49 711 753316 info@euchner.de www.euchner.com

