Hand-Held Pendant Stations/ Handwheels







More than safety.



More than safety.



company's founder and inventor of the multiple limit switch, circa 1928.





Around the world - the Swabian specialists in motion sequence control for mechanical and systems engineering.

EUCHNER's history began in 1940 with the establishment of an engineering office by Emil Euchner. Since that time, EUCHNER has been involved in the design and development of switchgear for controlling a wide variety of motion sequences in mechanical and systems engineering. In 1953, Emil Euchner founded EUCHNER + Co., a milestone in the company's history. In 1952, he developed the first multiple limit switch - to this day a symbol of the enterprising spirit of this familyowned company.

Automation - Safety - ManMachine

Today, our products range from electromechanical and electronic components to complex system solutions. With this wide range of products we can provide the necessary technologies to offer the right solution for special requirements - regardless of whether these relate to reliable and precise positioning or to components and systems for safety engineering in the automation sector.

EUCHNER products are sold through a world-wide sales network of competent partners. With our closeness to the customer and the guarantee of reliable solutions throughout the globe, we enjoy the confidence of customers all over the world.

Quality, reliability, precision

A Date The

Quality, reliability and precision are the hallmarks of our corporate philosophy. They represent concepts and values to which we feel totally committed. At EUCHNER, quality means that all our employees take personal responsibility for the company as a whole and, in particular, for their own field of work. This individual commitment to perfection results in products which are ideally tailored to the customers' needs and the requirements of the market. After all: our customers and their needs are the focus of all our efforts. Through efficient and effective use of resources, the promotion of personal initiative and courage in finding unusual solutions to the benefit of our customers, we ensure a high level of customer satisfaction. We familiarize ourselves with their needs, requirements and products and we learn from the experiences of our customers' own customers.

EUCHNER – More than safety.



Quality - made by EUCHNER

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Hand-Held Pendant Stations/Handwheels

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General

About this catalog

The Hand-held Pendant Stations/ Handwheels catalog provides you with an overview of our HBA, HBE and HBL series hand-held pendant stations as well as of our series HK and HW handwheels. Due to their precision, their ergonomic design and their robustness, these switches are the right choice for numerous applications. You will find the technical data after the product overview.

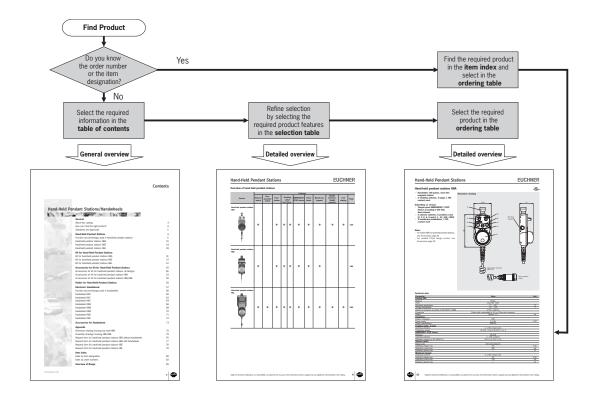
You will find the following series and accessories in this catalog:

	Hand-Held Pendant Stations / Handwheels													
	Hand	-Held Pe	ndant Sta	ations					н	andwhee	ls			
Com	plete Dev	vices	Kit	Acces- sories	Holder	Handwheels with Magnetic Detent Mechanism			-				sm	Acces- sories
HBA	HBE	HBL				HKD	НКС	HKA	HWA	HWB	HWD	HWE	HWF	
		Ģ				0	0	Ø	٢	۲	1	1	-	
see page 10	see page 18	see page 26	see page 31	see page 45	see page 56	see page 60	see page 62	see page 64	see page 66	see page 68	see page 70	see page 71	see page 72	see page 73

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 80 or page 82).
- 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 89/336/EEC. 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 handheld 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 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.

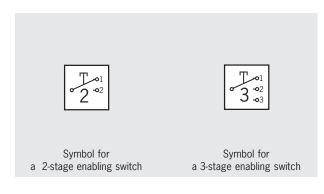
Two-stage or three-stage enabling switch?

The operator can only start a machine movement if he/she actuates the enabling switch and keeps the switch in the actuated position. The movement is stopped again when the switch is released. This two-stage function (OFF-ON) is provided by all enabling switches.

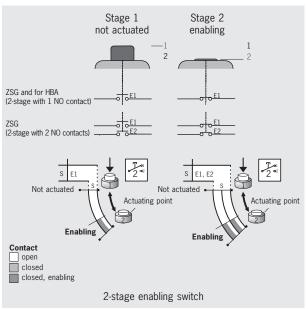
However, experience shows that the operator often clenches the enabling switch in an emergency.

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.

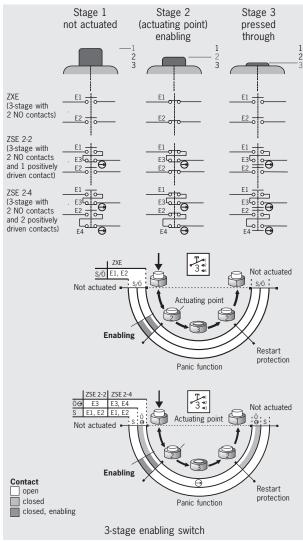
If a 2-stage enabling switch is used, it must also be ensured that, in an emergency, the operator is in a position to activate an emergency stop device in close proximity (VDI 2853). To identify the type of enabling switch in the catalog, the following symbols are used:







Function sequence for three-stage enabling switch



ÈR

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 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 \ominus) are opened.

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 positively driven 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 restarting 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 HBL, HBE and HBA housings have been developed such that they fit optimally in the hand. Well-known manufacturers of machine tools and controllers 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 pleased to draw up a quotation based on your requirements.

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 handheld 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 contact element 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 \bigcirc after the *NC* defines that the NC contact is a positively driven contact. This switch therefore has one NC contact and one NO contact; the NC contact is a positively driven contact.



Overview of hand-held pendant stations

	Features										
Version	Selector switch	Key- operated switch	Push- button	Ena sw 2-st.	bling itch 3-st.	EMERGENCY STOP device	Hand- wheel	Membrane keypad	RS422 interface, 3964R protocol	LCD display	Page
Hand-held pendant stations HBA	•		•	•	•	•	٠	•	•	•	10ff
Hand-held pendant stations HBE	•		•	•	•	•	٠	•			18ff
Hand-held pendant stations HBL	•	•	•	•	•	•	٠	•	•	•	26ff

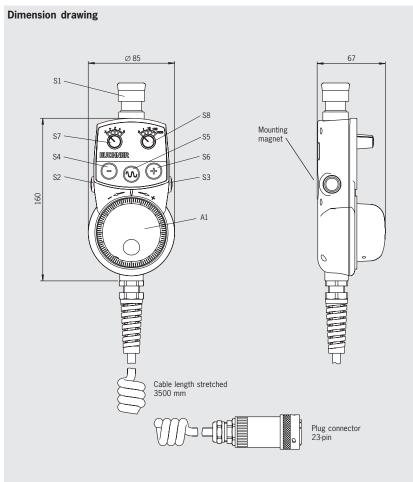


Hand-held pendant stations HBA

- Handwheel 100 pulses, wear-free magnetic detent
- 2 enabling switches, 2-stage, 1 NO contact each
- Depending on version:
- Tamper-proof EMERGENCY STOP device according to EN 418, dual-channel
- 2 selector switches, 5 positions each (X, Y, Z, 4, 5 and 0, 1, 10, 100, 1000)
- 3 membrane pushbuttons, 1 NO contact each

Notes

- For holder HBA for hand-held pendant stations, see Accessories page 56
- For related 23-pin flange socket, see Accessories page 50



Technical data

Parameter	Value	Unit
Housing HBA		
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, expandable to 3.5 m, 23-pin plug connector	
Weight	Approx. 1.3	kg
Handwheel		
Pulses / revolution	100	
Power supply	5 ± 5%	V DC
Output specifications	RS422A	
Enabling switch, 2-stage		
Switching elements	2, 1 NO contact each	
Connection ratings	30 V AC / 0.4 A; 30 V DC / 0.1 A	
EMERGENCY STOP device		
Standard	EN 418	
Switching elements	1, 2 NC contacts	
Utilization category to IEC 60947-5-1	DC-13, Ue 24 V, Ie 3 A	
Selector switch		
Output code	See wiring diagram	
Switching voltage max.	30	V DC
Switching current max.	200	mA
Breaking capacity max.	1	W
Membrane keypad		
Switching elements	3, 1 NO contact each	
Switching voltage max.	30	V DC
Switching current max.	100	mA
Breaking capacity max.	1	W

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Ordering table

Ordering table			-			
Version/item	2 selector switches 5 positions each S7, S8	3 membrane pushbuttons 1 NO contact each S4, S5, S6	Features 2 enabling switches 2-stage S2, S3	EMERGENCY STOP device S1	Handwheel 100 pulses A1	Order No.
HBA - 079 828			٠		٠	079 828
НВА - 079 826	•		٠	٠	•	079 826
HBA - 072 936		•	٠	٠	•	072 936
HBA - 079 827	•	•	•	٠	•	079 827
Wiring diagram	S8: S7: increment selection Selector switch right Avie selection Selector switch left 5 positions 5 positions S8 0000 1 1 0000 1 3 0011 1 20001 4 0010 10 30011 5 0110 1001 4 5 0110 100 5	S4: Push button left S5: Push button middle S6: Push button right	S2: Enabling switch left * S3: Enabling switch right *	S1: Emergency Stop	A1: Handwheel	
					Bield Bield Connection	
 Travel diagram see page 6 	+	∝[] ≏[] Z[]		×[]¬[] エ[]ʊ[]	F F F F F F F F F F F F F F F F F F F	

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Hand-held pendant stations HBA

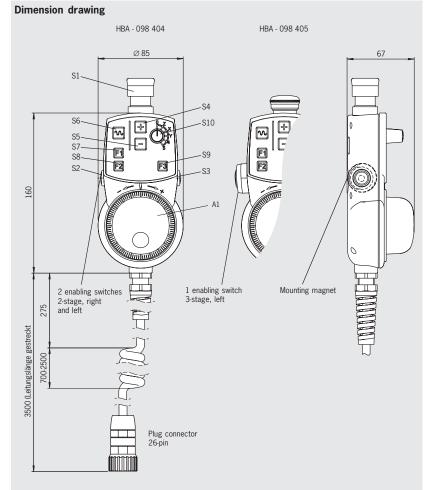
- Handwheel 100 pulses, wear-free magnetic detent
- Tamper-proof EMERGENCY STOP device according to EN 418, dual-channel
- 1 selector switch, 6 positions (0, Z, X, Y, 4, 5)
- 6 membrane pushbuttons, 1 NO contact each

Depending on version:

- 2 enabling switches, 2-stage, 1 NO contact each
- 1 enabling switch, 3-stage, 2 NO contacts

Notes

- For holder HBA for hand-held pendant stations, see Accessories page 56
- For related connection kit comprising 26-pin flange socket and short-circuit plug, see Accessories page 53
- ► Function compatible with Siemens MINI BHG



Technical data

Parameter	Value	Unit
Housing HBA		
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, expandable to 3.5 m, 24-pin plug connector	
Weight	Approx. 1.3	kg
Handwheel		
Pulses / revolution	100	
Power supply	$5 \pm 5\%$	V DC
Output specifications	RS422A	
EMERGENCY STOP device		
Standard	EN 418	
Switching elements	1, 2 NC contacts	
Utilization category to IEC 60947-5-1	DC-13, Ue 24 V, Ie 3 A	
Selector switch		
Output code	See wiring diagram	
Switching voltage max.	25	V DC
Switching current max.	50	mA
Breaking capacity max.	0.4	W
Membrane keypad		
Switching elements	6, 1 NO contact each	
Switching voltage max.	30	V DC
Switching current max.	100	mA
Breaking capacity max.	1	W
Enabling switch, 2-stage		
Switching elements	2, 1 NO contact each	
Connection ratings	30 V AC / 0.4 A; 30 V DC / 0.1 A	
Enabling switch ZXE, 3-stage		
Switching elements	1, 2 NO contacts	
Utilization category to IEC 60947-5-1	DC-13, Ue 24 V, Ie 0.1 A	

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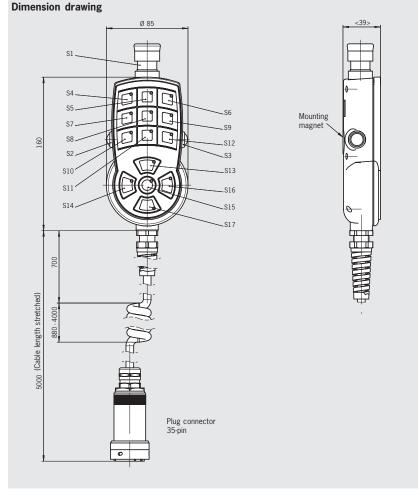
Ordering table

				Features			
Version/item	1 selector switch 6 positions	6 membrane pushbuttons 1 NO contact each	2 enabling switches	1 enabling switch ZXE	EMERGENCY STOP device	Handwheel 100 pulses	Order No.
	\$10	04 05 00 07 00 00	2-stage S2, S3	3-stage S2	S 1	A1	
HBA - 098 404	•	\$4, \$5, \$6, \$7, \$8, \$9	•	JL	•	•	098 404
HBA - 098 405	٠	•		٠	٠	٠	098 405
Wiring diagram	S10: Selector switch right 6 0 1 1 0 0 1 0 0 1 0 0 1 0 0 1 0 0 1 0 0 1 0 0 1 1 0 0 1 1 0 0 1 1 1 0 1 1 1 0 1 <th1< th=""> 1 1 1<td>S4: Push button "+" S5: Push button "-" S6: Push button "-" S7: Push button "F1" S8: Push button "F2" S9: Push button "F3"</td><td>S2: Enabling switch 2 stage left S3: Enabling switch 2 stage right</td><td>S2: * Enabling switch ZXE 3 stage left $3 = \frac{1}{3} = \frac{1}{3} = \frac{1}{3}$</td><td>S1: Emergency-stop</td><td>Handwheel RS422</td><td></td></th1<>	S4: Push button "+" S5: Push button "-" S6: Push button "-" S7: Push button "F1" S8: Push button "F2" S9: Push button "F3"	S2: Enabling switch 2 stage left S3: Enabling switch 2 stage right	S2: * Enabling switch ZXE 3 stage left $3 = \frac{1}{3} = \frac{1}{3} = \frac{1}{3}$	S1: Emergency-stop	Handwheel RS422	
 Travel diagram see page 6 	: AUTU U				10 10 10 0		

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Hand-held pendant station HBA - 096 692

- Membrane keypad can be labeled as required using slide-in strips
- Tamper-proof EMERGENCY STOP device according to EN 418, dual-channel
- 2 enabling switches, 2-stage, 1 NO contact each
- LEDs white, color customer-specific using colored keypad membrane



Notes

- For holder HBA for hand-held pendant stations, see Accessories page 56
- ▶ For related 35-pin flange socket, see connection components page 50
- For template for slide-in strips see www.euchner.de

Technical data

Parameter	Value	Unit
Housing HBA		
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, expandable to 3.5 m, 24-pin plug connector	
Weight	Approx. 1.3	kg
EMERGENCY STOP device		
Standard	EN 418	
Switching elements	2 NC contacts	
Utilization category to IEC 60947-5-1	DC-13, Ue 24 V, Ie 3 A	
Membrane keypad		
Switching elements	14, 1 NO contact each	
Switching voltage max.	30	V DC
Switching current max.	100	mA
Breaking capacity max.	1	W
Enabling switch, 2-stage		
Switching elements	2, 1 NO contact each	
Connection ratings	30 V AC / 0.4 A; 30 V DC / 0.1 A	

Order No.

096 692

Ordering table

Item

Hand-held pendant station HBA - 096 692 with:

Membrane keypad that can be labeled as required

Tamper-proof EMERGENCY STOP device according to EN 418, dual-channel
 2 enabling switches, 2-stage, 1 NO contact each

► LEDs white, color customer-specific using colored keypad membrane

Wiring diagram

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S2: Enabling switch left * S2	EMERGENCY STOP			RD	rt H	l l
S2: Image: switch left				BK	sw _J	
Enabling switch left * S3 Enabling switch right * S4 S4 S3 Enabling switch right * S4 S3 Enabling switch right * S4 S3 S3 S3 S3 S3 S3 S3 S3 S3 S3		\ominus		VT	vt K	
Endong switch right * S3 Enabling switch right * S4 - S17: Membrane keypad		<u>S2</u>				
Enabling switch right * S4 - S17: Membrane keypad S4 - S17: S4 - S17: S4 - S17: S57:	Enabling switch left *		DC +24V	GYPK	grrs L	I.
Enabling switch right * S4 - S17: Membrane keypad S4 - S17: S4 - S17: S4 - S17: S57:	S3 [.]					
S4 - S17: WH ws A 4 4 3 WH 6 BNBU brbi 4 53 WH6 GN gn C 4 55 WH6 PE ge D 4 56 WH6 PE ge D 4 56 WH7 GY gr E 4 57 WH7 GY gr E 4 58 WH8 PK rs F 57 WH8 PK rs F 4 58 BK0N brsw C 59 GNW4 Wsgn N 4 GNW4 GNW4 S 4 GNW4						
S4 - 517: Membrane keypad MH4 BN br B 4 4 3 HH4 BN br B 4 55 GN gn C GN gn C 4 55 GN gn C GN gn C 4 55 GN gn C GN gn C 4 56 BNR0 brt a B BNR0 brt a 4 57 GY gr F F B						I.
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$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	Membrane keypad	S4				1
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4 3 HB PK rs F 4 3 HB GNWH wsgn N 4 3 GNGY grgn d 4 3 H10 BNGN brgn P 4 3 YEGY gegr e 511 H11 YEWH wsge R 4 3 GNPK rsgn f 512 H11 YEPK gers B 513 H13 GNBU gnb1 h 4 3 GNBU gnb1 h 4 3 YEBU geb1 U 4 3 H14 BNGY grbr U 4 3 H16 BNPK rsbr W 4 3 H16 BNPK rsbr W 4 3 H17 BUWH wsb1 A 4 3 H17 BKGN gnsw </td <td></td> <td>4 3</td> <td></td> <td>BNRD</td> <td></td> <td>1</td>		4 3		BNRD		1
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4 3 GNGY grgn d 4 3 H10 BNGN brgn P 4 3 YEGY gegr e 4 3 GNPK rsgn f 511 H11 YEWH wsge R 4 3 GNPK rsgn f 512 H12 BNYE gebr S 4 3 GNBU gnbl h 4 3 H14 BNGY grbr U 4 3 RDGN gnrt U J 4 3 RDGN gnrt U J 4 3 RDGN gnrt U J 516 RDYE gert K K K 4 3 H17 BUWH wsbl X 4 3 RDYE grsw A A		<u>4 3</u>		BKBN	brsw <u>c</u>	
4 3 GNGY grgn d 4 3 H10 BNGN brgn P 4 3 YEGY gegr e 4 3 GNPK rsgn f 511 H11 YEWH wsge R 4 3 GNPK rsgn f 512 H12 BNYE gebr S 4 3 GNBU gnbl h 4 3 H14 BNGY grbr U 4 3 RDGN gnrt U J 4 3 RDGN gnrt U J 4 3 RDGN gnrt U J 516 RDYE gert K K K 4 3 H17 BUWH wsbl X 4 3 RDYE grsw A A		02	Н9	GNW	Hwsgn N	
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43YEGY gegr e 511 $H11$ YEWH wsgeR 4 3 $GNPK$ rsgnf 512 $H12$ $BNYE$ gebrS 4 3 $YEPK$ gersg 513 $H13$ $GYWH$ wsgrI 4 3 $GNBU$ gnblh 4 3 $GNBU$ grbrU 4 3 $H14$ $BNGY$ grbrU 4 3 $H14$ $BNGY$ grbrU 514 $H15$ $WHPK$ wsrs V 4 3 $RDGN$ grrt i 516 $H16$ $BNPK$ rsbr W 4 3 $RDYE$ gert k 517 $H17$ $BUWH$ wsbl X 4 3 $BKGN$ gnsw m			H10-	BNGN	brgn P	
S11 4YEWH H11YEWH WSge GNPK YEPK gebr YEPK gers GNBU GNBU ghl13R F S S S S GNBU GNBU ghl14S12 F S				YEGY	gegr e	
4 3 GNPK rsgn 1 S12 H12 BNYE gebr S 4 3 YEPK gers g 513 GNBU gnbl h 4 3 GNBU gnbl h 514 GNBU grbr U U 4 3 YEBU gebl i 515 H15 WHPK wsrs V 4 3 RDGN gnrt i 516 H16 BNPK rsbr W 4 3 RDYE gert k 517 H17 BUWH wsbl X 4 3 BKGN gnsw M			10 H11	YEWH		
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4 3 YEPK gers g 513 GYWH wsgr I 4 3 GNBU gnbl h 514 GNBU gebl i 4 3 YEBU gebl i 515 H15 WHPK wsrs V 4 3 RDGN gnrt i 515 H16 BNPK rsbr W 4 3 RDYE gert k 516 H17 BUWH wsbl X 517 H17 BUWH wsbl X 4 3 BKGN gnsw M			12H12			
S13 4 3 S14 4 3 S14 4 3 S15 S15 S15 S16 S17 S17 S17 S17 S17 S17 S17 S17						
4 3 GNBU gnbl h S14 H14 BNGY grbr U 4 3 YEBU gebl i S15 H15 WHPK wsrs V S15 RDGN gnrt i S16 H16 BNPK rsbr W S17 H17 BUWH wsbl X BKGN gnsw M All cores 0.14 mm ²			113 H13	i i		
S14 BNGY grbr U 4 3 YEBU gebl i S15 H15 WHPK wsrs V A 3 RDGN gnrt i S16 H16 BNPK rsbr W S16 H16 BNPK gert k S17 H17 BUWH wsbl X BKGN gnsw M All cores 0.14 mm²		S13		1.1		
4 3 YEBU gebl i \$15 H15 WHPK wsrs V 8 RDGN gnrt i 8 H16 BNPK rsbr W 8 RDYE gert k 8 H17 BUWH wsbl X 8 H17 BKGN gnsw M			N.u.A			
S15 4 3 S16 4 3 S17 4 3 S17 4 3 S17 4 3 S17 4 3 S17 4 3 S17 4 3 S17 4 3 S16 S17 S17 S17 S17 S17 S17 S17 S17		S14				
4 3 RDGN gnrt \$16 BNPK rsbr W 4 3 RDYE gert 4 3 BUWH wsbl \$17 BUWH wsbl X 4 3 BKGN gnsw M			<u> </u>	i i	5001	l .
S16 4 3 S17 4 3 S17 4 3 S17 S17 S17 S17 S17 S17 S17 S17		S15				I.
4 3 RDYE gert k \$17 BUWH wsbl X 4 3 BKGN gnsw m		4 3				i l
S17 4 3 BKGN gnsw m All cores 0.14 mm ²		<u>\$16</u>				i
4 3 BKGN gnsw m All cores 0.14 mm ²		4 3				I
		<u>§</u> 17		BUWH	wsbl X	J
		4 3		1 1		All cores 0.14 mm ²
					Screen	J

* Travel diagram

see page 6

35-pin plug connector



Hand-held pendant stations HBAS

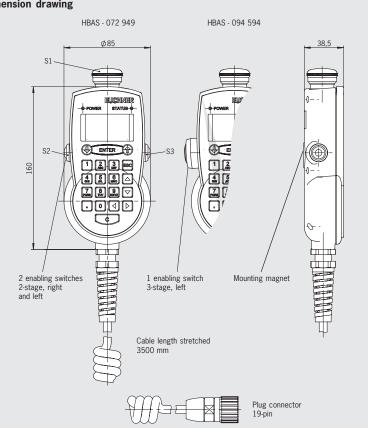
- Programmable pulse generator
- Tamper-proof EMERGENCY STOP device according to EN 418, dual-channel
- Membrane keypad with 20 keys and Þ. 2 LEDs
- LCD display with LED background ► lighting, switchable 4-line/8-column or 8-line/16-column
- ▶ RS422 interface, 3964R protocol

Depending on version:

- 2 enabling switches, 2-stage, 1 NO contact each
- 1 enabling switch, 3-stage, 2 NO ► contacts

Notes

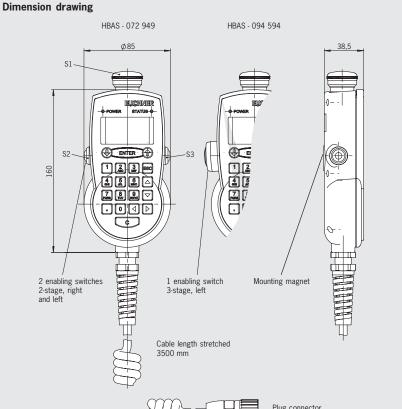
- ▶ For holder HBA for hand-held pendant stations, see Accessories page 56
- ▶ For related 19-pin flange socket, see Accessories page 53
- ActiveX modules available for integrating the user's application (for MS Windows®-based user programs with ActiveX support)



Technical data

Parameters	Value	Unit
Housing HBA		
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, expandable to 3.5 m, 19-pin plug connector	
Weight	Approx. 0.85	kg
Pulse generator		
Pulses	Programmable	
Output specifications	RS422A	
EMERGENCY STOP device		
Standard	EN 418	
Switching elements	1, 2 NC contacts	
Utilization category to IEC 60947-5-1	DC-13, Ue 24 V, Ie 3 A	А
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
Enabling switch, 2-stage		
Switching elements	2, 1 NO contact each	
Switching voltage max.	30	V DC
Switching current max.	0.1	А
Enabling switch ZXE, 3-stage		
Switching elements	1, 2 NO contacts	
Utilization category to IEC 60947-5-1	DC-13, Ue 24 V, Ie 0.1 A	
1) Approval pending		

1) Approval pending



Ordering table

Ordering table			Feature	9S	
Version/item	2 enabling switches 2-stage S2, S3	1 enabling switch ZXE, 3-stage S2	EMERGENCY STOP device S1	Programmable pulse generator, membrane keypad, display, RS422 interface, 3964R protocol	Order No
HBAS - 072 949	•		٠	•	072 949
HBAS - 094 594		٠	٠	•	094 594
Viring diagram	S3: S2: Enabling Enabling switch switch 2 stage 2 stage right left	S2: Enabling switch ZXE * 3 stage left	S1: Emergency Stop		
				Program- memory FLASH Microcontroller Display- memory RAM	
				Interface Communication Interface RS422 Supply Supp	
* Travel diagram				The Dilg connected to the Dilg con	
see page 6					

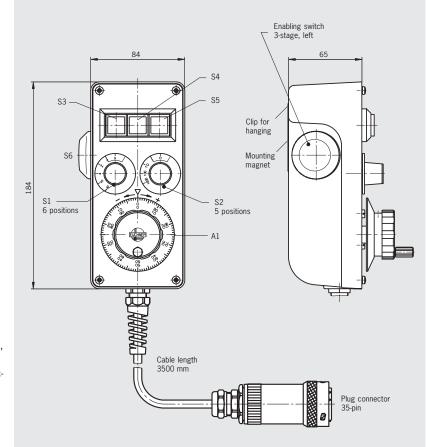
ActiveX modules	093 011
Software for integration into user software that supports ActiveX	000 011
Manual ActiveX modules	093 013
Detailed documentation on use of the software	

17 🗉

Hand-held pendant station HBE - 097 335

Dimension drawing

- Handwheel 100 pulses
 Enabling switch 3-stage
- Row of three buttons, illuminated, ►
- can be individually labeled
- 2 selector switches



Notes

- ▶ For holder HBE for hand-held pendant stations, see Accessories page 56
- ▶ For related 35-pin flange socket, see connection components page 50

Parameter	Value	Unit
Housing HBE		
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. 1.8	kg
Handwheel HKD		
Pulses per revolution	100	
Power supply	$5 \pm 5\%$	V DC
Output circuit	RS 422 A	
Output signals with clockwise rotation	See page 57	
Enabling switch ZSE, 3-stage		
Switching elements	1, 2 NO contacts, 1 positively driven contact	
Utilization category to IEC 947-5-1	AC-15 Ue 24 V Ie 4 A	
	DC-13 Ue 24 V le 3 A	
Buttons		
Switching elements	3, 1 NO contact each	
Switching voltage max.	30	V DC
Switching current max.	100	mA
Breaking capacity max.	1	W
LED	$I = 4.7 \text{ mA} / \text{U} = 24 \text{ V DC} / \text{R}_{v} = 4.7 \text{ k}\Omega$	
Selector switch		
Switching voltage max.	30	V DC
Switching current max.	100	mA
Breaking capacity max.	2	W

Order No.

097 335

Ordering table

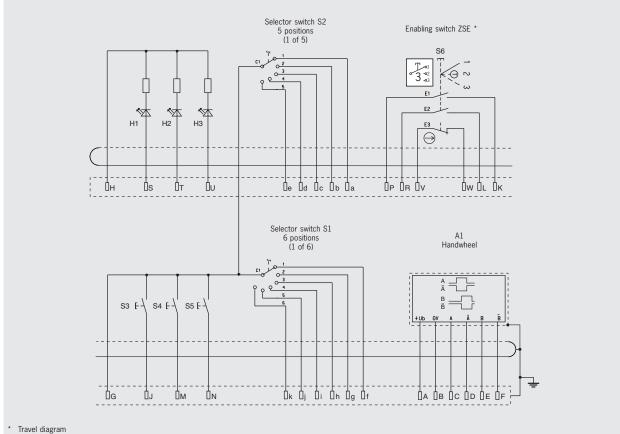
ltem

Hand-held pendant station HBE - 097 335 with:

- ▶ Handwheel 100 pulses
- ▶ Enabling switch ZSE 3-stage, 2 NO contacts, 1 positively driven contact

Row of three pushbuttons, illuminated, 1 NO contact each
 2 selector switches, 6 positions (X, Y, Z, 4, 5, 6) and 5 positions (0, 1, 10, 100, 1000)

Wiring diagram



see page 6

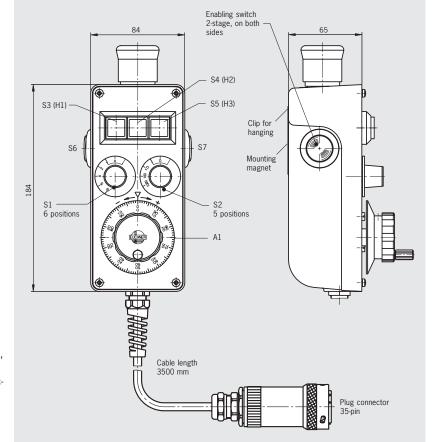


Hand-held pendant station HBE - 097 336

Dimension drawing

- Handwheel 100 pulses
 Tamper-proof EMERGENCY STOP device according to EN 418, dual-channel
- 2 enabling switches 2-stage
 Row of three pushbuttons, illuminated, can be individually labeled
- 2 selector switches ►





Notes

- ▶ For holder HBE for hand-held pendant stations, see Accessories page 56
- ▶ For related 35-pin flange socket, see connection components page 50

_			
Tec	hnic	al d	lata

Parameters	Value	Unit
Housing HBE		
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. 1.8	kg
Handwheel HKD		
Pulses per revolution	100	
Power supply	5 ± 5%	V DC
Output circuit	RS 422 A	
Output signals with clockwise rotation	See page 57	
EMERGENCY STOP device		
Standard	EN 418	
Switching elements	1, 2 NC contacts	
Utilization category to IEC 60947-5-1	DC-13, Ue 24 V, le 2.75 A	
Enabling switch ZSG, 2-stage		
Switching elements	2, 1 NO contact each	
Utilization category to IEC 947-5-1	AC-15 Ue 24 V Ie 4 A	
	DC-13 Ue 24 V Ie 3 A	
Buttons		
Switching elements	3, 1 NO contact each	
Switching voltage max.	30	V DC
Switching current max.	100	mA
Breaking capacity max.	1	W
LED	$I = 4.7 \text{ mA} / \text{U} = 24 \text{ V} \text{DC} / \text{R}_{v} = 4.7 \text{ kW}$	
Selector switch	· · · ·	
Switching voltage max.	30	V DC
Switching current max.	100	mA
Breaking capacity max.	2	W



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c(UL)us

Order No.

097 336

Ordering table

Item

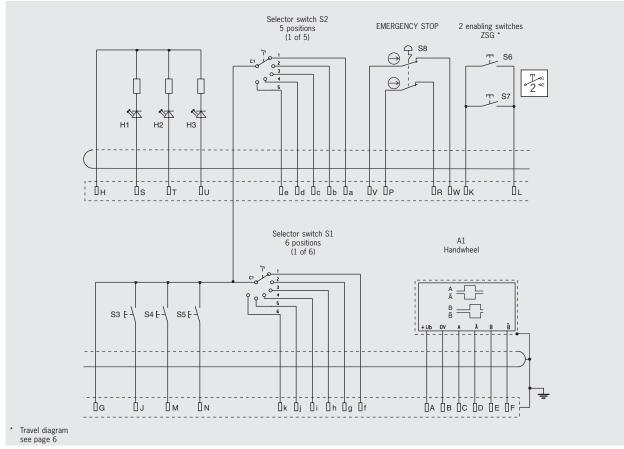
Hand-held pendant station HBE - 097 336 with:

► Handwheel 100 pulses

Tamper-proof emergency stop device according to EN 418, dual-channel
 2 enabling switches ZSG 2-stage, 1 NO contact each

- ▶ Row of three buttons, illuminated, 1 NO contact each
- ▶ 2 selector switches, 6 positions (X, Y, Z, 4, 5, 6) and 5 positions (0, 1, 10, 100, 1000)

Wiring diagram



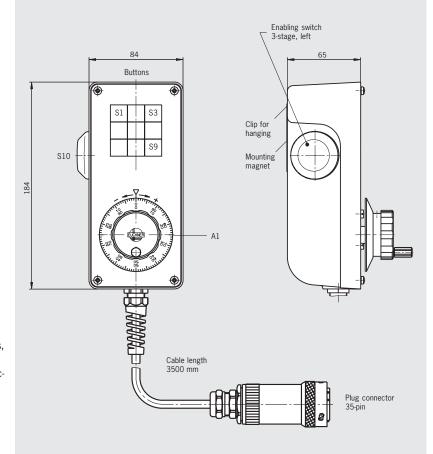


c (UL) us

Hand-held pendant station HBE - 097 337

Dimension drawing

- Handwheel 100 pulses
 Enabling switch 3-stage
- 9 illuminated buttons
- Buttons can be designed as required using slide-in film



Notes

- ▶ For holder HBE for hand-held pendant stations, see Accessories page 56
- ▶ For related 35-pin flange socket, see connection components page 50

Tec	hnica	ıl data

Parameters	Value	Unit
Housing HBE		
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. 1.8	kg
Handwheel HKD		
Pulses per revolution	100	
Power supply	$5 \pm 5\%$	V DC
Output circuit	RS 422 A	
Output signals	See page 57	
Enabling switch ZSE, 3-stage		
Switching elements	1, 2 NO contacts, 1 positively driven contact	
Utilization category to IEC 947-5-1	AC-15 Ue 24 V Ie 4 A	
	DC-13 Ue 24 V Ie 3 A	
Buttons		
Switching elements	9, 1 NO contact each	
Switching voltage max.	30	V DC
Switching current max.	100	mA
Breaking capacity max.	2	W
LED	$I = 14.5 \text{ mA} / \text{U} = 24 \text{ V DC} / \text{R}_{\text{v}} = 1.4 \text{ kW}$	

Order No.

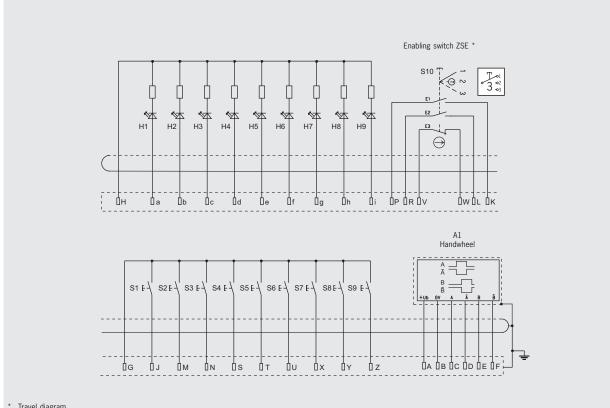
097 337

Ordering table

ltem

- Hand-held pendant station HBE 097 337 with: Handwheel 100 pulses
- Enabling switch ZSE 3-stage, 2 NO contacts, 1 positively driven contact
 9 illuminated buttons, 1 NO contact each

Wiring diagram



Travel diagram see page 6



c(UL)us

Hand-held pendant station HBE - 097 338

Dimension drawing

- Handwheel 100 pulses
 Tamper-proof EMERGENCY STOP device according to EN 418, dual-channel
- 2 enabling switches 2-stage
- ▶ 9 illuminated buttons
- Buttons can be designed as required using slide-in film



Enabling switch 2-stage, on both sides 84 Buttons S12 ۲ ۲ Clip for hanging S11 S10 Mounting magnet 184 A1 ۲ ۲ ψ Cable length 3500 mm П Plug connector 35-pin

Notes

- ▶ For holder HBE for hand-held pendant stations, see Accessories page 56
- ▶ For related 35-pin flange socket, see connection components page 50

Technical data

Parameters	ameters Value	
Housing HBE		
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. 1.8	kg
Handwheel HKD		
Pulses per revolution	100	
Power supply	$5 \pm 5\%$	V DC
Output circuit	RS 422 A	
Output signals	See page 57	
EMERGENCY STOP device		
Standard	EN 418	
Switching elements	1, 2 NC contacts	
Utilization category to IEC 60947-5-1	DC-13, Ue 24 V, le 2.75 A	
Enabling switch ZSG, 2-stage		
Switching elements	2, 1 NO contact each	
Utilization category to IEC 947-5-1	AC-15 Ue 24 V Ie 4 A	
	DC-13 Ue 24 V Ie 3 A	
Buttons		
Switching elements	9, 1 NO contact each	
Switching voltage max.	30	V DC
Switching current max.	100	mA
Breaking capacity max.	2	W
LED	$I = 14.5 \text{ mA} / \text{U} = 24 \text{ V DC} / \text{R}_{\text{V}} = 1.4 \text{ kW}$	

Order No.

097 338

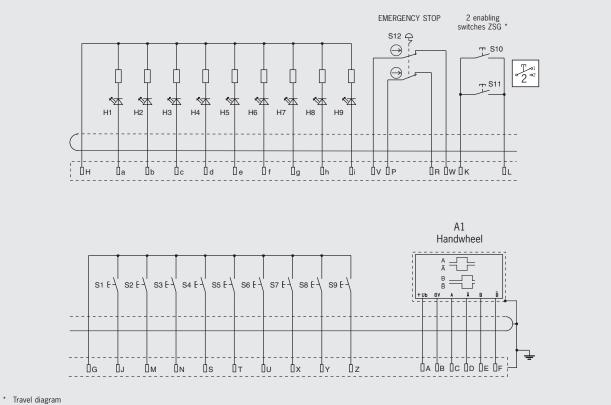
Ordering table

ltem

Hand-held pendant station HBE - 097 338 with:

- ► Handwheel 100 pulses
- Tamper-proof emergency stop device according to EN 418, dual-channel
 2 enabling switches ZSG 2-stage, 1 NO contact each
- ▶ 9 illuminated buttons, 1 NO contact each

Wiring diagram



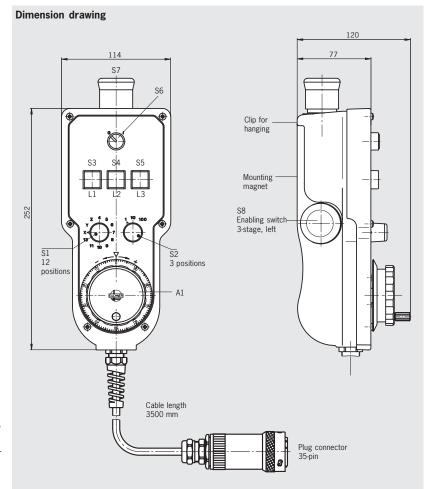
see page 6



Hand-held pendant station HBL - 097 339

- Handwheel 100 pulses
 Tamper-proof EMERGENCY STOP device according to EN 418, dual-channel
- Enabling switch 3-stage
 3 illuminated pushbuttons, can be individually labeled
- 2 selector switches
- Key-operated switch





Notes

- ▶ For holder HBL for hand-held pendant stations, see Accessories page 56
- ▶ For related 35-pin flange socket, see connection components page 50

Technical data

Parameters	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 418	
Switching elements	1, 2 NC contacts	
Utilization category to IEC 947-5-1	DC-13 Ue 24 V le 2.75 A	
Handwheel HKD		
Pulses per revolution	100	
Power supply	5 ± 5%	V DC
Output circuit	RS 422 A	
Output signals	See page 57	
Enabling switch ZSE, 3-stage		
Switching elements	1, 2 NO contacts, 1 positively driven contact	
Utilization category to IEC 947-5-1	AC-15 Ue 24 V Ie 4 A	
	DC-13 Ue 24 V Ie 3 A	
Buttons		
Switching elements	3, 1 NO contact each	
Switching voltage max.	30	V DC
Switching current max.	200	mA
Incandescent lamp	I = 21 mA / U = 24 V DC	
Selector switch		
Switching voltage max.	30	V DC
Switching current max.	100	mA
Breaking capacity max.	2	W
Key-operated switch		
Switching voltage max.	30	V DC
Switching current max.	250	mA

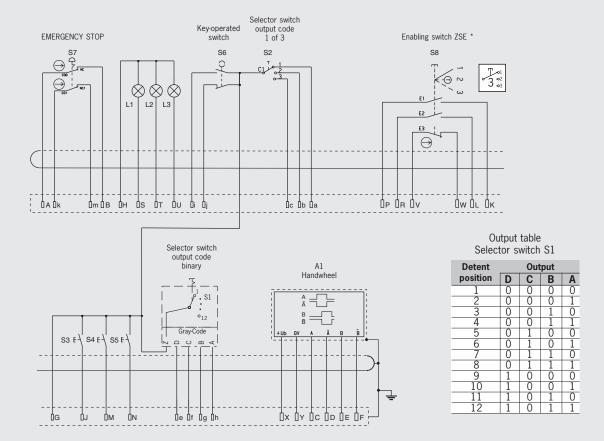
c(UL)us

Ordering table

Item

- Hand-held pendant station HBL 097 339 with:
- ► Handwheel 100 pulses
- ▶ Tamper-proof emergency stop device according to EN 418, 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 contacts, 1 NC contact

Wiring diagram



* Travel diagram see page 6

Order No.

EUCHNER

097 339



Hand-held pendant station HBLS - 072 725

Dimension drawing

- ► Handwheel 100 pulses
- Tamper-proof EMERGENCY STOP device according to EN 418, dual-channel
- 2 enabling switches 2-stage
- 12 illuminated buttons
- Buttons can be designed as required ► using slide-in film
- 2 selector switches
- High resolution LCD display (text mode)
 RS422 interface, 3964R protocol
- 77 114 S1 Display, 8 lines, 15 characters/line Clip for ۲ EUCHNER hanging Mounting magnet S2/S3 252 Enabling switch 2-stage, left/right A1 ŪŪ Cable length 3500 mm Plug connector 23-pin

Notes

- ▶ For holder HBL for hand-held pendant stations, see Accessories page 56
- ▶ For related 23-pin flange socket, see connection components page 50
- ActiveX modules available for integrating the user's application (for MS Windows®-based user programs with ActiveX support)

Technical data

Parameters	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 418	
Switching elements	1, 2 NC contacts	
Utilization category to IEC 947-5-1	DC-13 Ue 24 V Ie 2.75 A	
Handwheel HKD		
Pulses per revolution	100	
Output circuit	RS 422 A	
Output signals	See page 57	
Enabling switch ZSG, 2-stage		
Switching elements	2, 2 NO contacts each	
Utilization category to IEC 947-5-1	AC-15 Ue 24 V Ie 4 A	
	DC-13 Ue 24 V Ie 3 A	
Interface		
Туре	RS 422	
Data format	8 data bits , even parity, 1 or 2 stop bits	
Transfer speed	9600 or 19200 (setting using DIL switches)	baud
Transfer protocol	3964 R	
Electrical connection		
Power supply	24 ±20%	V DC
Operating current, max.	200	mA



120

Ordering table Order No. Item Hand-held pendant station HBLS - 072 725 with: ► Handwheel 100 pulses Tamper-proof emergency stop device according to EN 418, dual-channel 2 enabling switches ZSG 2-stage, 2 NO contacts each 072 725 ▶ 12 illuminated buttons ▶ 2 selector switches, 12 positions each Wiring diagram A1 Enabling Switche ZSG * 2°2 B Microcontroller S2 Handwheel A05 (RS422A) S3 Ē Ā В А Serial communication interface RS422 left right Power supply TX NTX RX NRX \bigcirc () \bigtriangledown +UB 0 Volt Control Panel E-Stop S1 \subset 2 7 4 8 6 ___1 9 10 ____3 \ominus \ominus Ф-¢ ¢ \oplus Shield CODOEOFOAOBO JI MI NI SI VIGI нi wi LOROKOPO Shield electr. connected to the plug connector housing Travel diagram see page 6

ActiveX modules	007 170
Software for integration into user software that supports ActiveX	067 176
Manual ActiveX modules	007 170
_Detailed documentation on use of the software	067 178

Subject to technical modifications; no responsibility is accepted for the accuracy of this information. Devices supplied may vary slightly from the illustration in the catalog.

29 👳



Kit for hand-held pendant stations HBA

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.

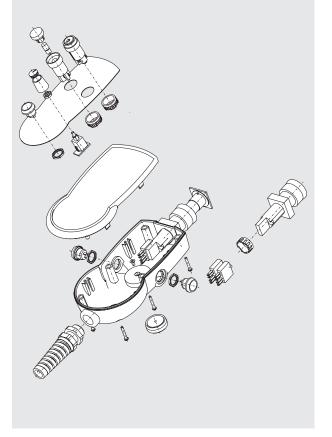
Aluminum front plates are available in silver or black anodized to match the housings.

Customer-specific functionality can be achieved by using the components supplied in the kit (pushbuttons, selector switches, key-operated rotary switches, etc).

For connection to the control system, cables with different numbers of cores, plug connectors and the relevant flange sockets are available.

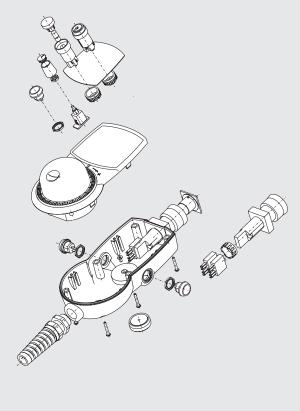
Kit HBA without handwheel

The designs without handwheel have a cable gland and mounting magnet. In addition to the basic housing HBA, other identical designs with the option of fitting an EMERGENCY STOP and 2-stage or 3-stage enabling switches are available.



Kit HBA with handwheel

The designs with handwheels, some with 2-stage or 3-stage enabling switches, differ in the output stages on the handwheels and are adapted to various control systems.



Dimension drawing

EUCHNER

Housing HBA without handwheel

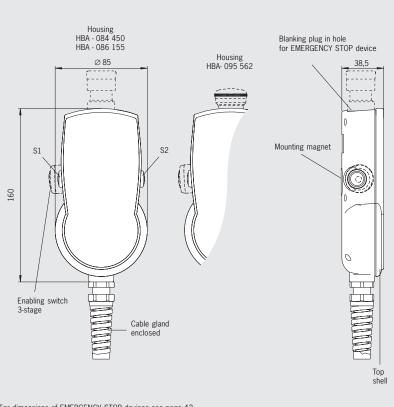
- Cable gland for cable diameter 5-10 mm
- Rubber-coated mounting magnet on the rear of housing
- 6 fixing points for printed circuit board in top shell

Depending on version:

- Hole for EMERGENCY STOP device (sealed with blanking plug)
- 2 enabling switches, 2-stage, 1 NO contact each
- 1 enabling switch, 3-stage, 2 NO contacts

Notes

- Matching front plate, see page 36
- Matching EMERGENCY STOP device (rotary or pull release) see page 46
- Attention: housing HBA 095 562 only suitable for EMERGENCY STOP device with rotary release.
- Depending on version with two 2-stage enabling switches or one 3-stage enabling switch.



For dimensions of EMERGENCY STOP devices see page 42

Technical data

Parameter	Value	Unit
Housing HBA		
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
Enabling switch, 2-stage		
Switching elements	2, 1 NO contact each	
Connection ratings	AC 30 V / 0.4 A; DC 30 V / 0.1 A	
Enabling switch ZXE, 3-stage		
Switching elements	2 NO contacts	
Utilization category to IEC 60947-5-1	DC-13, U _e 24 V, I _e 0.1 A	

Ordering table

		Features		
Version/item	Hole for EMERGENCY STOP device	2 enabling switches*, 2-stage, 1 NO contact each S1, S2	1 enabling switch ZXE*, 3-stage, 2 NO contacts \$1	Order No.
Housing HBA - 084 445 (without hole, without enabling switch)				084 445
Housing HBA - 084 450	for EMERGENCY STOP with pull release			084 450
Housing HBA - 086 155	for EMERGENCY STOP with pull release	•		086 155
Housing HBA - 095 562	for EMERGENCY STOP with rotary release		•	095 562
• T aurah <i>B</i> ang ang		$\begin{bmatrix} 3 \\ S1 \\ 4 \end{bmatrix}$	$\begin{bmatrix} 1 & 2 & 3 \\ 0 & 7 \\ 1 & 7 \\ 1 & 7 \\ 2 \\ 1 \\ 1 \\ 1 \\ 1 \\ 1 \\ 1 \\ 1 \\ 1 \\ 1$	
* Travel diagram see page 6				



Housing HBA with handwheel

- Handwheel 100 pulses, wear-free magnetic detent
- Hole for EMERGENCY STOP device (sealed with blank plug)
- Cable gland for cable diameter 5-10 mm
- Rubber-coated mounting magnet on the rear of housing
- 6 fixing points for printed circuit board in top shell

Depending on version:

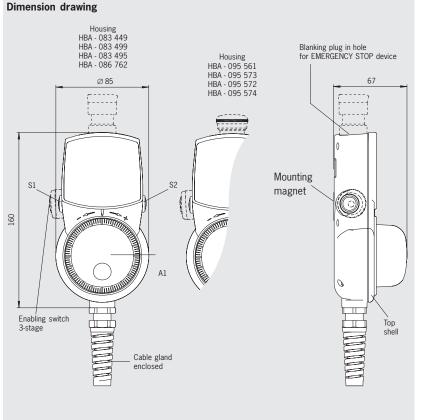
- 2 enabling switches, 2-stage, 1 NO contact each
- 1 enabling switch, 3-stage, 2 NO contacts
- Various handwheel output stages

Notes

- Matching front plate, see page 36
- Matching EMERGENCY STOP device (rotary or pull release) see page 46
- ▶ Warning:

Housing HBA - 095 561, HBA - 095 573, HBA-095 572 and HBA-095 574 only suitable for EMERGENCY STOP device with rotary release.

Depending on version with two 2-stage enabling switches or one 3-stage enabling switch.



For dimensions of EMERGENCY STOP devices see page 46

Technical data

Parameter		Value	Unit
Housing HBA		Value	Unit
Material		Plastic	
Color		Gray RAL 7040	
Operating temperature		0 +50	°C
Storage temperature		-20 +50	
Degree of protection according to	EN 60529 /NEMA	IP 65 / 250-12	0
Weight		0.3	kg
Enabling switch, 2-stage		0.0	Νg
Switching elements		2.1 NO contact each	
Utilization category to IEC 60947-5	5-1	30 V AC / 0.4 A; 30 V DC / 0.1 A	
Enabling switch ZXE, 3-stage	-	00 110 / 0.11, 00 1 20 / 0.11	
Switching elements		1, 2 NO contacts	
Utilization category to IEC 60947-5	5-1	DC-13, Ue 24 V, le 0.1 A	
Handwheel RS422A ($U_B = 5 V D$			
Pulses / revolution	- 1	100	
Power supply		$5 \pm 5\%$	V DC
Output specifications		RS422A	
Handwheel push-pull 5 V (U _B = 1	1030 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 =	1030 V DC)		
Pulses / revolution		100	
Power supply		10 30	V DC
Output circuit		Push-pull 24 V	
Output voltage / output current	HIGH, min.	U _B - 3 V at 20 mA	
	LOW, max.	3 V at 20 mA	
Handwheel push-pull 5 V ($U_B = 5$	5 V DC)		
Pulses / revolution		100	
Power supply		$5 \pm 5\%$	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	

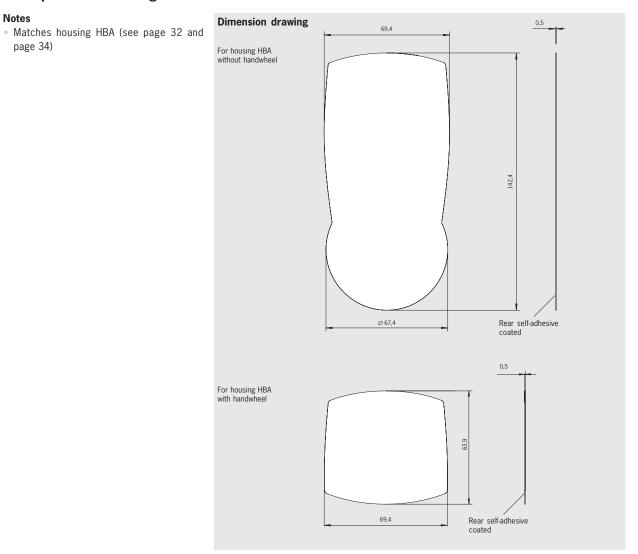
R 34

				Features				
Version/	Handwheel				Hole for	2 enabling	1 enabling	1
item	Output circuit		Power supply Pulses per		EMERGENCY	switches* 2-stage 1 NO	switch*ZXE, 3-stage 2 NO	Order No.
	RS422	Push-pull UA	UB	revolution	STOP	contact each S1, S2	contacts S1	
Housing	•		5 V DC	100	for EMERGENCY			083 449
HBA - 083 449					STOP with			
					pull release			
Housing					for EMERGENCY			
HBA - 095 561	•		5 V DC	100	STOP with		•	095 561
					rotary release			
		_			•			
Housing		•	10 30 V DC	25	for EMERGENCY	•		083 499
HBA - 083 499		5 V	10 00 7 20	20	STOP with	•		
					pull release			
Housing		•			for EMERGENCY			
HBA - 095 573		5 V	10 30 V DC	25	STOP with		•	095 573
					rotary release			
					•			
Housing		•	10 00 1/ 50	100	for EMERGENCY			
HBA - 083 495		UB - 3 V	10 30 V DC	100	STOP with	•		083 495
					pull release			
					•			
Housing			10 30 V DC	100	for EMERGENCY		•	095 572
HBA - 095 572		UB - 3 V			STOP with rotary release			
Housing		•			for EMERGENCY	_		
-IBA - 086 762		5 V	5 V DC	100	STOP with	•		086 762
					pull release			
					•			
Housing		•	5 V DC	100	for EMERGENCY			095 574
HBA - 095 574		5 V	3100	100	STOP with			033 374
					rotary release			
	A1 Handwheel RS422A	A1 Handwheel push pull					3 °2 3 °3	
	+ Shield O	+ Shield O						
(3		
						S1 [4	123	
рика В 11		╞┶┯╪┋				L		
/8 J		0				3	2 4	
						S2 [}	S1	
 Travel diagram see page 6 						4		

Ordering table / wiring diagram

Subject to technical modifications; no responsibility is accepted for the accuracy of this information. Devices supplied may vary slightly from the illustration in the catalog.

Front plates for housing HBA with and without handwheel



Technical data

	Material
Front plate	Electrically anodized aluminum, black or silver Self-adhesive coating on rear

Ordering table

Item	Order No.
Front plate for housing HBA without handwheel, silver anodized	084 395
Front plate for housing HBA without handwheel, black anodized	084 396
Front plate for housing HBA with handwheel, silver anodized	083 635
Front plate for housing HBA with handwheel, black anodized	083 636

The kit is designed to match individual customer specifications.

The housings differ in the safety elements that can be integrated:

- ▶ Housing without holes and without safety-related components
- Housing with dual-channel enabling switch on both sides and hole for EMERGENCY STOP
- Housing with single-channel enabling switch on both sides and hole for EMERGENCY STOP
- Housing with 3-stage enabling switch (1 positively driven contact, 2 NO contacts) without EMERGENCY STOP
- ► Housing with 3-stage enabling switch (2 positively driven contacts, 2 NO contacts) with hole for EMERGENCY STOP

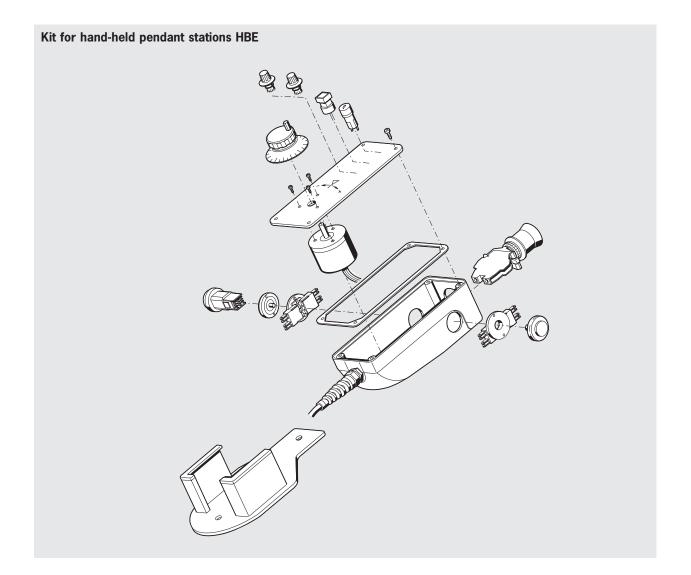
Various versions of front plate are available:

- ▶ Front plate for applications with handwheel
- Front plate for applications without handwheel

With the related seal, degree of protection IP 65 is achieved.

Customer-specific functionality can be created by using the components supplied as accessories (pushbuttons, selector switches, key-operated rotary switches) and/or other components.

For connection to the control system, cables with or without plug connectors and with different numbers of cores and the relevant flange sockets are also available as accessories.





Housing HBE

- Rubber-coated mounting magnet on the rear of housing
- Hanging clip ►
- 4 screws for front plate fastening ► Þ.
- Fixing points for fitting printed circuit board

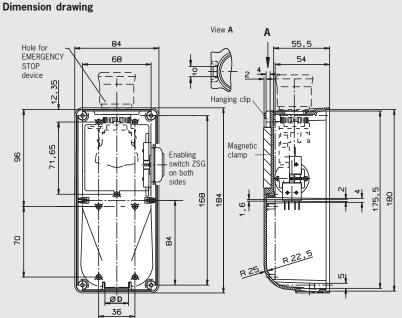
Depending on version:

- Fastening nuts for cable gland Pg 11 or Pg 13.5
- ▶ Hole for EMERGENCY STOP device
- 2 enabling switches ZSG 2-stage, ►
- 2 NO contacts each Hole on left for enabling switch ZSE

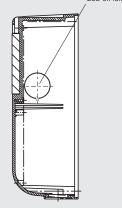
Notes

- ▶ For EMERGENCY STOP devices see page 46 and 54
- For enabling switches ZSE see page 55
- ▶ For cable glands see page 52
- ▶ For assembly drawing see page 75
- ▶ Pg 11 for cable diameter 5 ... 10 mm
- ▶ Pg 13.5 for cable diameter 6 ... 12 mm

Number of cores in cable	Pg	ØD
23	11	19
35	13.5	20.8



Hole for enabling switch ZSE on left



Parameter	Value	Unit
Housing HBE		
Material	Plastic	
Color	Blue-gray RAL 7031	
Ambient temperature	0 +55	°C
Degree of protection according to EN 60529 / NEMA	IP 65 / 250-12	
Weight	0.3	kg
Enabling switches ZSG, 2-stage		
Switching elements	2, 2 NO contacts each	
Utilization category to IEC 947-5-1	AC-15 Ue 24 V Ie 4 A	
	DC-13 Ue 24 V Ie 3 A	

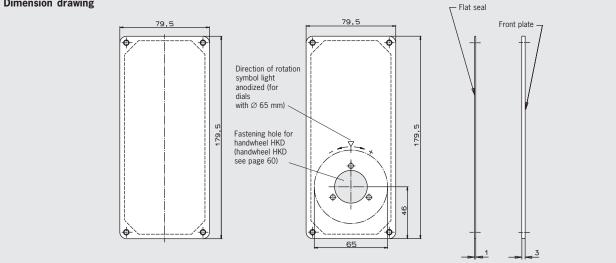
	Features										
Version/ item	Fastening nut for cable gland		nut for		nut for		Hole for EMERGENCY STOP	Hole for enabling switch ZSE2-2 C1692	Hole for enabling switch ZSE2-4 C1943	2 enabling switches ZSG 2-stage	Order No.
	Pg 11	Pg 13.5		(enabling switch page 55)	(enabling switch page 55)	2 NO contacts each					
Housing HBE - 048 429	•						048 429				
Housing HBE - 072 626							072 626				
Housing HBE - 054 982	•		•			•	054 982				
Housing HBE - 072 627		•	•			•	072 627				
Housing HBE - 074 973	•			•			074 973				
Housing HBE - 072 629		•		•			072 629				
Housing HBE - 072 984	•				•		072 984				
Housing HBE - 083 489		•			•		083 489				

Ordering table / wiring diagram



Front plate for housing HBE

Dimension drawing



Technical data

	Material	
Front plate	Electrically anodized aluminum, black	
Seal	NBR, self-adhesive on one side	

Item	Order No.
HBE front plate, with seal	052 954
HBA front plate, with seal and hole for handwheel HKD	052 955
Front seal for HBE front plate	072 642

The kit is designed to match individual customer specifications.

The housings differ in the integrated safety element:

- ► Housing without holes and without safety-related components
- \blacktriangleright Housing with dual-channel enabling switch on both sides and hole for
- EMERGENCY STOP
 Housing with 3-stage enabling switch (1 positively driven contact, 2 NO contacts) without EMERGENCY STOP
- ► Housing with 3-stage enabling switch (2 positively driven contacts, 2 NO contacts) with hole for EMERGENCY STOP

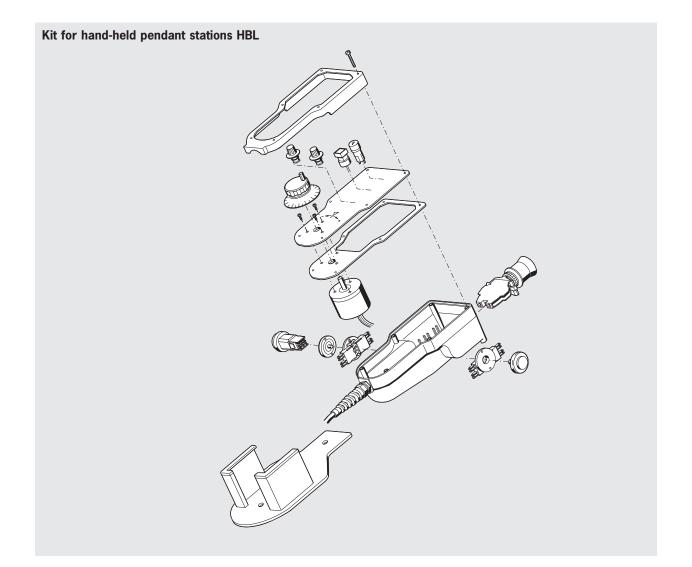
Various versions of front plate are available:

- ▶ Front plate for applications with handwheel
- Front plate for applications without handwheel

With the related seal, degree of protection IP 65 is achieved.

Customer-specific functionality can be created by using the components supplied as accessories (pushbuttons, selector switches, key-operated rotary switches) and/or other components.

For connection to the control system, cables with or without plug connectors and with different numbers of cores and the relevant flange sockets are also available as accessories.



Housing HBL

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

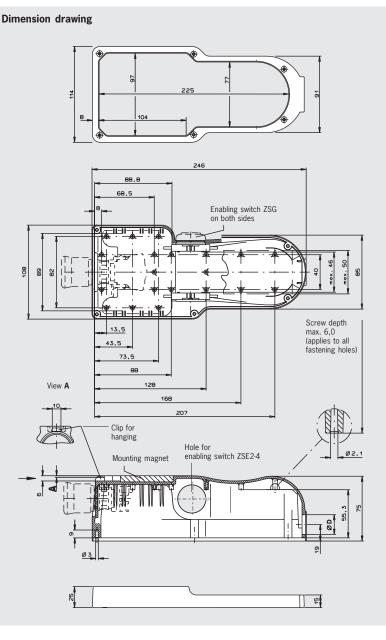
Depending on version:

- Fastening nuts for cable gland Pg 11 or Pg 13.5
- ▶ Hole for EMERGENCY STOP device
- 2 enabling switches ZSG 2-stage, 2 NO contacts each
- Hole on left for enabling switch ZSE

Notes

- For EMERGENCY STOP devices see page 46 and 54
- ▶ For enabling switches ZSE see page 55
- For cable glands see page 52
- ▶ For assembly drawing see page 75
- ▶ Pg 11 for cable diameter 5 ... 10 mm
- ▶ Pg 13.5 for cable diameter 6 ... 12 mm

Number of cores in cable	Pg	ØD
23	11	19
35	13,5	20,8



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	
Enabling switch ZSG, 2-stage		
Switching elements	2, 2 NO contacts each	
Direct opening travel	2 x 1.25 mm, redundant, per NO contact	
Utilization category to IEC 947-5-1	AC-15 Ue 24 V Ie 4 A	
	DC-13 Ue 24 V Ie 3 A	

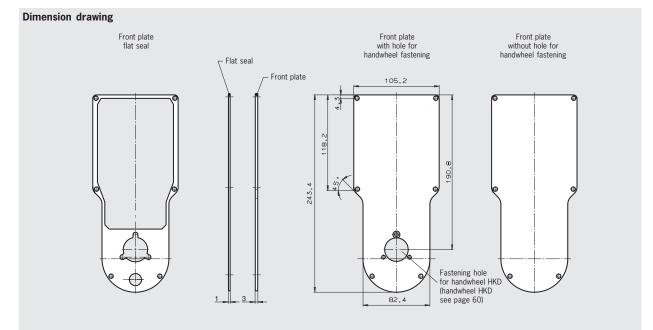
				Feat	tures		
	Fast	ening		Hole for	Hole for	2 enabling switches	
Version	nu	t for	Hole for	enabling switch	enabling switch	ZSG	Order No.
	cable	gland	EMERGENCY STOP	ZSE2-2 C1692	ZSE2-4 C1943	2-stage	
	Pg 11	Pg 13.5		(enabling switch page 55)	(enabling switch page 55)	2 NO contacts each	
Housing HBL - 073 098	•						073 098
Housing HBL - 072 630		•					072 630
Housing HBL - 073 113	•		٠			٠	073 113
Housing HBL - 072 631		•	٠			٠	072 631
Housing HBL - 073 109	•			٠			073 109
Housing HBL - 072 632		•		٠			072 632
Housing HBL - 072 983	•		٠		٠		072 983
Housing HBL - 083 484		•	٠		٠		083 484

Ordering table / wiring diagram

1) Blanking plug \varnothing 22 supplied for hole for EMERGENCY STOP device



Front plate for housing HBL



	Material				
Front plate	Electrically anodized aluminum, black				
Seal	NBR, self-adhesive on one side				
Ordering table					

Item	Order No.
HBL front plate, with seal	073 138
HBL front plate, with hole for handwheel HKD and seal	073 139
Front seal for HBL front plate	072 641

	Accessories							
Accessories for kit	EMERGENCY STOP device	Pushbutton	Key-operated switch	Selector switch	Enabling switch 3-stage	Plug connector	Connection cables	Page
								46
								47
Suitable for all								48
designs								48/49
								50
								51
Hand-held pendant stations HBA						•		53
Hand-held pendant								54
stations HBE/HBL								55

Overview of accessories for kits for hand-held pendant stations



EMERGENCY STOP devices according to EN 418

With pull release

EMERGENCY STOP device for housing HBA without handwheel design 2/3 and all housings HBA with handwheel but not including enabling switch ZXE 3-stage

.



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

Dimension drawing
49 40 37,5 25 2,8 2,8
Socket yellow Pushbutton red
Front panel cut-out

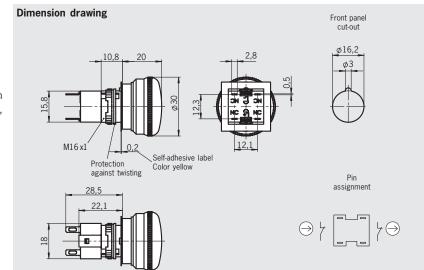
Technical data

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

- With rotary release
- EMERGENCY STOP device for housing HBA

Notes

The EMERGENCY STOP device engages when actuated by pressing, unlocks when rotated, and is overload-proof



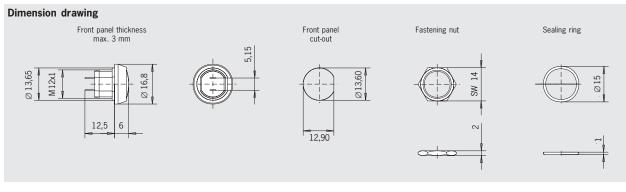
Technical data

Value	Unit
Red	
Black	
1, 2 positively driven contacts	
IP 65	
30 V DC / 3 A	
	Red Black 1, 2 positively driven contacts IP 65

Ordering table

Item	Order No.
EMERGENCY STOP device (pull release) with 2 switching elements, 1 positively driven contact each	096 298
EMERGENCY STOP device (rotary release) 2 positively driven contacts	096 292
Blanking plug for fastening hole for EMERGENCY STOP device	083 653

Pushbutton



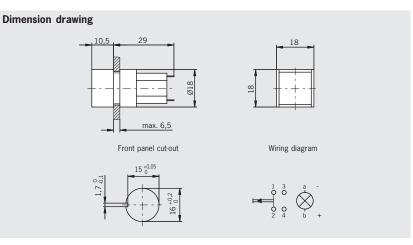
Technical data

Parameter	Value	Unit
Ambient temperature	-25 +70	°C
Front degree of protection (integrated in front plate)	IP 67	
Switching principle	Button, snap-action switching element	
Switching elements	1 NO contact	
Switching current max.	0.1	A
Switching voltage	30	V DC
Connection type	Soldered connection	

Illuminated pushbutton (can be individually labeled)

Notes

Installation in the front plate in the area of the EMERGENCY STOP switch and the enabling switch ZSE is not possible on hand-held pendant stations HBE

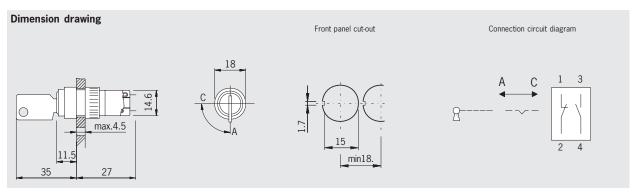


Technical data

Parameter	Value	Unit
Ambient temperature	-25 +55	°C
Front degree of protection (integrated in front plate)	IP 65	
Switching principle	Button, snap-action switching element	
Switching elements	1 NC contact, 1 NO contact	m
Switching current max.	5	A
Switching voltage max.	250	V AC/DC
Connection type	Soldered connection	

Item	Order No.
Pushbutton, black button	083 640
Pushbutton, red button	086 753
Pushbutton, green button	086 754
Pushbutton, blue button	086 757
Pushbutton, white button	086 755
Illuminated pushbutton, can be individually labeled	074 991

Key-operated switch



Technical data

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

Order No.

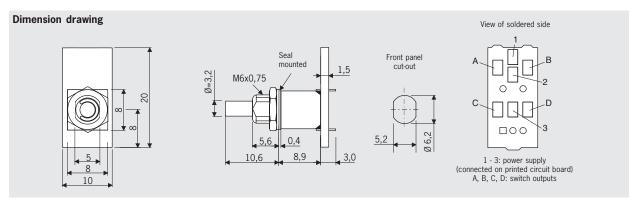
083 639

Ordering table

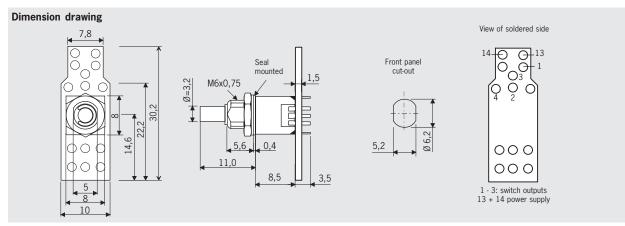
Item

Key-operated switch

Gray code selector switch



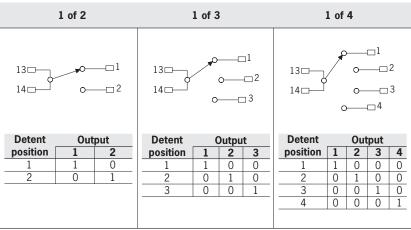
Selector switch 1 of X



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						

Circuit diagrams switch 1 of X

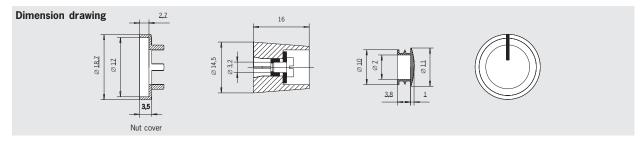


Connections A - D: switch outputs Connections 1 - 3: power supply

Technical data

Parameter	Value	Unit
Front degree of protection (integrated in front plate)	IP 67	
Single-hole bushing mounting	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.	0.4	VA
Switching current max.	0.05	A
Switching voltage max.	25	V AC/DC
Connection type	Soldered connection on printed circuit board	
Maximum soldering time.	\leq 5 (at t \leq 260 °C)	S

Rotary knob



Ordering table

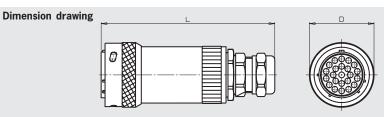
Item	Detent angle	Order No.
Selector switch, 2 detent positions, 1 of 2, break-before-make ¹⁾	30°	097 026
Selector switch, 3 detent positions, 1 of 3, break-before-make ¹⁾	30°	097 027
Selector switch, 4 detent positions, 1 of 4, break-before-make ¹⁾	30°	097 028
Selector switch, 5 detent positions, Gray code, make-before-break ²⁾	22.5°	097 029
Selector switch, 6 detent positions, Gray code, make-before-break ²⁾	22.5°	097 030
Selector switch, 7 detent positions, Gray code, make-before-break ²⁾	22.5°	097 031
Selector switch, 8 detent positions, Gray code, make-before-break ²⁾	22.5°	097 032
Selector switch, 12 detent positions, Gray code, make-before-break ²⁾	22.5°	097 033
Selector switch, 16 detent positions, Gray code, make-before-break ²⁾	22.5°	097 034
Rotary knob, matt black with a marking, collet fastening for shaft 3.2 mm	-	097 141

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

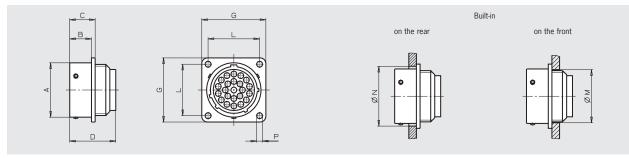
2) Make-before-break: the related outputs are connected between the switch positions.

Plug connectors

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



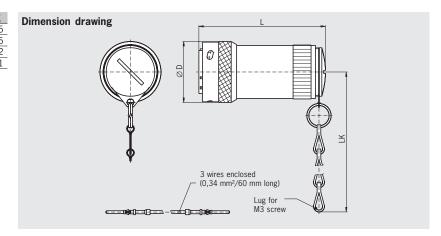
Flange sockets



Number of pins	Α	B _{max}	C _{max}	D _{max}	G _{max}	L	М	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 plugs

Number of	fpins 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

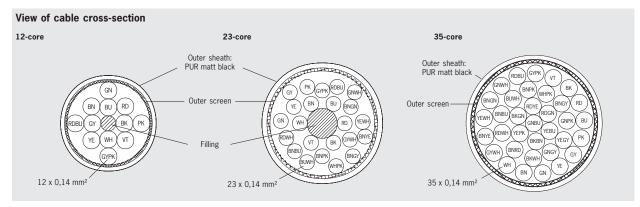
Parameter	Value	Unit
Connecting plug/Flange socket		
Housing material	Metal	
Number of pins	12 / 23 / 28 / 35	
Degree of protection according to EN 60529 (inserted) / NEMA	IP 65 / 250-12	
Contact material	Gold-plated	

Ordering table

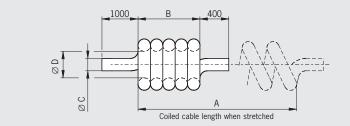
Item	Order No.
Plug connector, 35-pin with pin contacts	074 395
Plug connector, 28-pin with pin contacts	074 394
Plug connector, 23-pin with pin contacts	074 393
Plug connector, 12-pin with pin contacts	086 748
Flange socket, 35-pin with socket contacts	074 386
Flange socket, 28-pin with socket contacts	074 385
Flange socket, 23-pin with socket contacts	074 384
Flange socket, 12-pin with socket contacts	086 749
Short-circuit plug with chain, 35-pin	083 459
Short-circuit plug with chain, 28-pin	083 458
Short-circuit plug with chain, 23-pin	083 457
Short-circuit plug with chain, 12-pin	087 802



Cable, coiled and straight



Dimensions of coiled design



Technical data

Parameter		Value	Unit
Cable resistance		≤ 145	Ω/km
Test voltage core / core		1.0	kV _{eff}
Test voltage core / screen		1.0	kV _{eff}
Insulation resistance	12-core and 23-core	≥ 200	
	35-core	≥ 20	ΜΩ
Operating temperature		-10 +70	0°
Bending radius	once	≥ 10 x cable diameter	
	several times	\geq 15 x cable diameter	

Ordering table

ltem	Cable length [mm]	A [mm]	B [mm]	Ø C [mm]	Ø D [mm]	Order No.
Cable, 12-core, coiled	3900	Approx. 2500	550 ± 20	6 ± 0.3	8 ± 2	086 721
Cable, 12-core, coiled	5400	Approx. 4000	880 ± 20	6 ± 0.3	8 ± 2	086 722
Cable, 12-core, straight	3500	-	-	-	-	087 379
Cable, 12-core, straight	5000	-	-	-	-	087 380
Cable, 12-core, straight	10000	-	-	-	-	087 381
Cable, 23-core, coiled	3900	Approx. 2500	550 ± 20	7.5 ± 0.3	10 ± 2	087 408
Cable, 23-core, coiled	5400	Approx. 4000	880 ± 20	7.5 ± 0.3	10 ± 2	087 409
Cable, 23-core, straight	3500	-	-	-	-	087 382
Cable, 23-core, straight	5000	-	-	-	-	087 383
Cable, 23-core, straight	10000	-	-	-	-	087 384
Cable, 35-core, coiled	3900	Approx. 2500	550 ± 20	8 ± 0.5	10 ± 2	097 190
Cable, 35-core, coiled	5400	Approx. 4000	880 ± 20	8 ± 0.5	10 ± 2	097 191
Cable, 35-core, straight	3500	-	-	-	-	097 189
Cable, 35-core, straight	5000	-	-	-	-	097 188
Cable, 35-core, straight	10000	-	-	-	-	097 187

Cable gland with anti-kink spiral

Dimension drawing		SW S			
Thread M	Use	Cable diameter	SW	GL	н

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

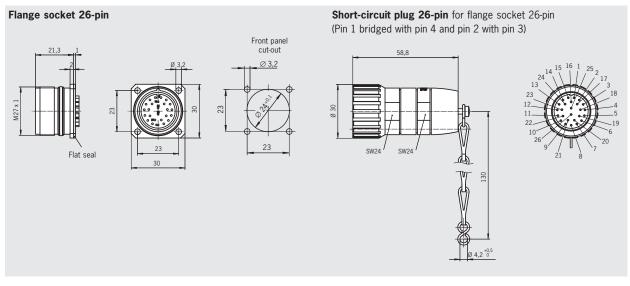
Item	Order No.
Cable gland M16x1.5 with anti-kink spiral, color black	083 641
Cable gland Pg 11, with anti-kink spiral and fastening nut, color black	073 982
Cable gland Pg 13.5, with anti-kink spiral and fastening nut, color black	073 983

Order No.

098 412

Connection kit

for design HBA - 098 404 and HBA - 098 405, comprising flange socket 26-pin and short-circuit plug



Technical data

Parameter	Value	
Flange socket		
Housing material	Plastic	
Number of pins	26	
Degree of protection according to EN 60529 (inserted)	IP 67	
Contact material	Copper alloy	
Short-circuit plug		
Housing material	Plastic	
Number of pins	26	
Degree of protection according to EN 60529 (inserted)	IP 67	
Contact material	Copper alloy	

Ordering table

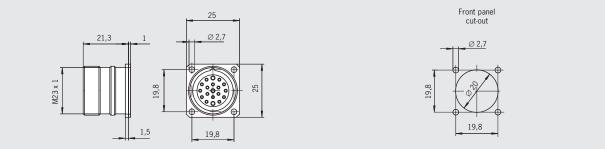
Item

Flange socket and short-circuit plug

Flange plug

for design HBAS - 072 949 and HBAS - 094 594

Flange plug, 19-pin with socket contacts



Technical data

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

Ordering table

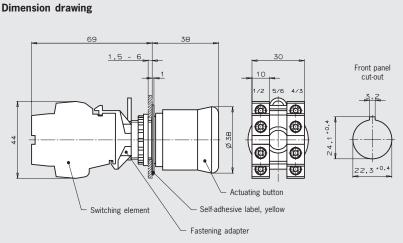
Item	Order No.
Flange plug, 19-pin with socket contacts	092 374



EMERGENCY STOP device, 22 mm with pull release according to EN 418

Notes

- ▶ The EMERGENCY STOP device engages when actuated by pressing, unlocks when pulled, and is overload-proof
- ▶ Use only for housing HBE 054 982 and HBE - 072 627 (see page 38)



Technical data Unit Parameter Value Color of actuating button Red Color self-adhesive label Switching element Yellow 2 NC contacts Utilization category to IEC 947-5-1 DC-13 Ue 24 V le 2.75 A

Item	Order No.
EMERGENCY STOP device, complete with switching elements (2 x NC contacts), 1 pull release	073 985
Blanking plug for fastening hole for EMERGENCY STOP device	059 622

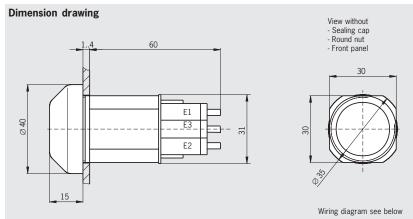
Enabling switch ZSE2-2, 3-stage, 1 positively driven contact

Notes

Switching elements

 Enabling switch ZSE2-2 C1692 for use in housing HBE - 074 973 and HBE - 072 629 (see page 38)

210 2 NO contacts + 1 NC contact ⊖



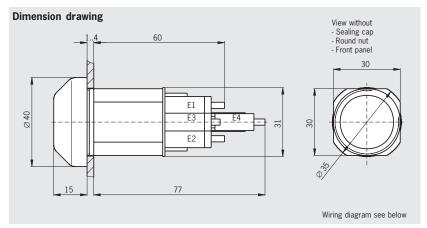
Enabling switch ZSE2-4, 3-stage, 2 positively driven contacts

Notes

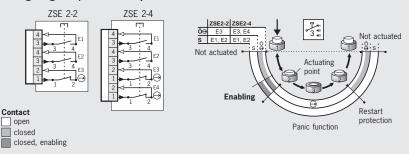
 Enabling switch ZSE2-4 C1943 for use in housing HBE - 072 984 and HBE - 083 489 (see page 38)

Switching elements

▶ 220 2 NO contacts + 2 NC contacts ⊖



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



Technical data

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 to IEC 947-5-1	AC-15 Ue 24 V le 4 A	
	DC-13 Ue 24 V le 3 A	
Weight	Approx. 0.1	kg

Ordering table

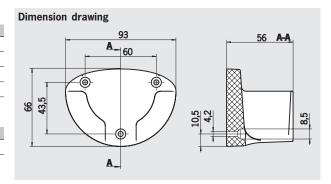
or doring table			
Item	Contact elements	Switch type	Order No.
ZSE2-2 C 1692	2 NO contacts + 1 positively driven contact	Single-channel	070 752
ZSE2-4 C 1943	2 NO contacts + 2 positively driven contacts	Dual-channel	083 477

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

ltem	Order No.
Holder HBA	072 828



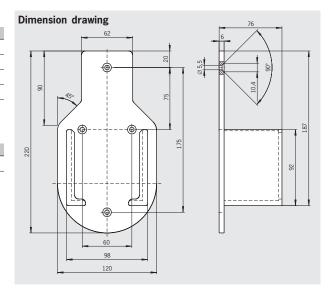
Holder HBE

Technical data

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

Ordering table

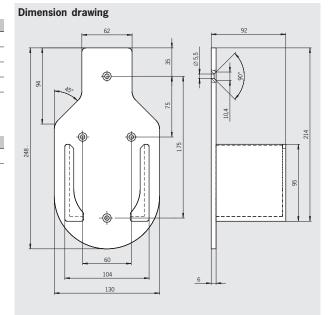
Designation	Order No.
Holder HBE	083 445



Holder HBL

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

Designation	Order No.
Holder HBL	084 397







Function and technology used in handwheels

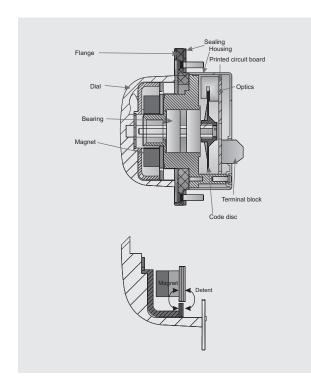
The change from a handwheel directly coupled to the spindle or axes to CNC-controlled axes has meant dramatic new developments for the handwheels. Along with the rotary movement and the visual indication of the position, the rotation of the handwheel generates square-wave pulses that are evaluated by the CNC axis controller and initiate the movement of the axis. With over 20 years of handwheel experience, EUCHNER provides a wide selection of handwheels that meet the high requirements on quality, reliability and safe signal generation in the machine tool sector. The daily use of handwheels places high demands on the mechanical design. With twin bearings and a wear-free detent, the handwheels are the optimum choice for trouble-free operation. The detent moment prevents undesired movement even in the event of machine vibration. The detent moment and the 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 on CNC-controlled machines, handwheels are also 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 position is generated by a magnetic field. A combination of 100 magnetic north/south poles is generated by the opposing magnetic fields creating 100 detent positions per 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 handwheel's bearing assembly can withstand high axial and radial forces. Different circuit outputs are available for all common controllers.



Three different designs are available:

- Design HKD
 - Suitable for installation in control panels and EUCHNER HBE and HBL series hand-held pendant stations
 - Suitable for integration in universal turning and milling machines for axis movement



Handwheel HKD

- Design HKC
 - Suitable for installation in control panels
 - The design is particularly suitable for flat operating panels



- Design HKA
 - Ergonomically shaped dial

- The dial design is the same as on the built-in version in the handheld pendant station HBA

- Ideally suited for simultaneous use as a handwheel on the operating panel and in the hand-held pendant station



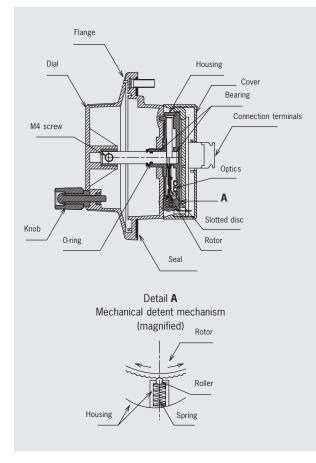
Handwheel HKA

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 mechanical detent position. The roller is pushed between the teeth of the rotor by a spring and the dial fixed in position. 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 control panels.
 - Suitable for installation in EUCHNER hand-held pendant stations
 - With single-hole bushing mounting

- Design HWB
- Suitable for installation in control panels
- With 3-point fastening



With 20, 25 or 50 detent positions (pulses)

This lower number of pulses per revolution is sufficient for many applications. Handwheels with a small number of positions can be used on control devices with a display and indication of the position as a value. The user obtains the position information via the value displayed. The position is changed by turning the handwheel. Other uses include menu-based applications. The handwheel can be used, e.g. to scroll forwards/backwards or to change or accept default values. Due to the low number of pulses the handwheels are very small. They are ideal for portable applications or for integration in control panels on electronic equipment, e.g. in instruments or in medical and communications technology.

Three different designs are available:

- Design HWD
 - Suitable for integration in control panels or stand-alone devices
 - For printed circuit board installation
- With 50 pulses per revolution
- Small installation dimensions
- With metal shaft
- Design HWE
 - Suitable for integration in control panels or stand-alone devices
 - For printed circuit board installation
 - With 20 pulses per revolution
 - Small installation dimensions
 - Cost optimized due to use of plastic shaft
- Design HWF
 - Suitable for integration in control panels or stand-alone devices
 - For printed circuit board installation
 - With 25 pulses per revolution
 - Small installation dimensions
 - With pushbutton function as acknowledgement signal



Handwheel HKD

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



25 50 4_.0,5 Front panel cut-out Ĥ 80 Ø 18,5 Ø 63 9,3 Sealing ring

Sealing ring E (see Accessories)

2,5

Notes

- A05 output suitable for Siemens controllers with RS422 input
- G05 output suitable for Fanuc control systems and Allen-Bradley control systems with push-pull inputs
- For dial, see Accessories page 73
- ▶ For front plate, see Accessories page 73

Mounting depth I

Connection type	l [mm]
Screw terminal S	55
Ribbon cable, 6-core V	53
D-Sub-min, 9-pin X	60

Ordering table

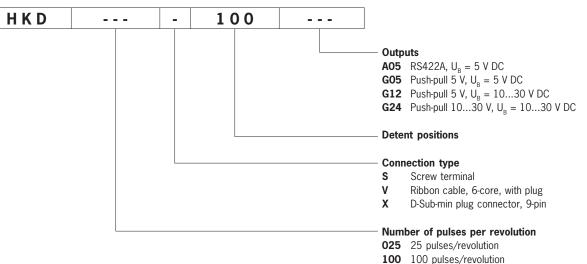
Item	Order No.
HKD025S100G12	091 525
HKD100S100A05	054 866
HKD100S100G05	083 354
HKD100S100G24	054 868
HKD025V100G12	091 526
HKD100V100A05	057 036
HKD100V100G05	091 527
HKD100V100G24	057 037
HKD100X100G12	083 359
HKD100X100A05	054 867
HKD100X100G24	093 433

Earth connection,

male spade 6,3 mm x 0,8

8

Ordering code



Dimension drawing

Ø4.2

16

16

GAL[®]US

28.6 min

Technical data		Value		Unit
Parameter Pulses per revolution		Value 2 x 25 or 2 x 100		Unit
Detent positions		100		-
Housing material		Aluminum		
Weight		0.5		kg
Magnetic detent mechanism		0.04 0.06		Nm
Shaft loading, axial, max.		25		N
Shaft loading, radial, max.		40		N
Mechanical life, min.		20 x 10 ⁶		rev.
Operating temperature		0 +70		°C
Storage temperature		-25 +85		°C
Atmospheric humidity, max.	80 %	(condensation not allowed	(b	
Front degree of protection EN 60529 / IEC 529		IP 65		
NEMA 250		250-12		
Resistance to vibration				
Vibrations (3 axes)		DIN/IEC 68-2-6		
Shock (3 axes)		DIN/IEC 68-2-27		
EMC protection requirements in accordance with CE	EN	61000-6-2, EN 61000-6-4		
Output circuit RS422A				
Output circuit		A05		
Output signals		A, /A, B, /B		
Operating voltage U _B		<u>5 ± 5 %</u>		V DC
Operating current, no load, max.	A	80 N DC422 view differential		mA
Output circuit		2A, RS422 use differential		+
Output signals cw (clockwise rotation)	25 pulses		100 pulses	
	A A A B B B C B C Detent position areas	A /A B /B	75° 210° 75° 20° 75° 20° 75° 20° 75° 20° 75° 20° 75° 20° 75° 20° 75° 20° 75° 20° 75° 20° 75° 20° 75° 20° 75° 20° 20° 75° 20° 20° 20° 20° 20° 20° 20° 20° 20° 20	
Pin assignment	Ribbon cable V	Screw terminal S	D-Sub-min X	
		0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0	$ \overbrace{A / A / B B}^{OV \qquad U_{B}} $	
Output circuit, push-pull				
Output circuit	G05	G12	G24	
Output signals	E E 0/	A, B		
Operating voltage U _B	5 ± 5 %		30	V DC
Operating current, no load, max. Output voltage HIGH (1), min.		80 4.9 V / 0 mA		mA
Output voltage HIGH (1), min.	4.0 V / 0 mA 3.4 V / 5 mA	3.9 V / 5 mA	-	-
—	3.0 V / 20 mA	3.6 V / 20 mA	U _B - 3 V / 20 mA	-
LOW (0), max.	1.3 V / 15 mA	1.3 V / 15 mA	3 V / 20 mA	-
Output current per output, max.	1.5 V/ 15 IIA	20	5 V / 20 IIIA	mA
Output signals cw (clockwise rotation)	25 pulses	20	100 pulses	110/
	20 pulses		100 puises	
	A B Detent position areas	A B	360° 75° 210° Detent position area	
Pin assignment	Ribbon cable V	Screw terminal S	D-Sub-min X	
, a doganon		$\begin{array}{c c} & & & \\ \hline \\ & & \\ & \\ & \\ & \\ & \\ & \\ &$	$ \begin{array}{c} $	

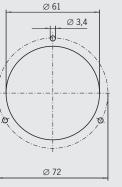


GN[°]us

Handwheel HKC

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

Dimension drawing



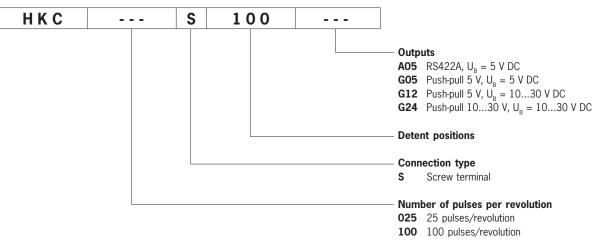
Front panel cut-out

Notes

- A05 output suitable for Siemens controllers with RS422 input
- G05 output suitable for Fanuc control systems and Allen-Bradley control systems with pushpull inputs

Item Order No. HKC025S100G12 072 940 HKC100S100A05 087 733 HKC100S100G05 082 573 HKC100S100G24 087 739

Ordering code

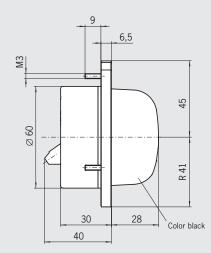


Technical data Parameter		Value	Unit
Pulses per revolution	2 x	25 or 2 x 100	
Detent positions		100	
Housing material	Т	hermoplastic	
Weight		0.25	kg
Detent		Magnetic	
Shaft loading, axial, max.		25	N
Shaft loading, radial, max.		40	N
Mechanical life, min.		20 x 10 ⁶	rev.
Operating temperature		0 +50	°C
Storage temperature		-20 +50	°C
Atmospheric humidity, max.	80 % (con	densation not allowed)	
Front degree of protection EN 60529 / IEC 529		IP 65	
NEMA 250		250-12	
Resistance to vibration			
Vibrations (3 axes)		IN/IEC 68-2-6	
Shock (3 axes)		N/IEC 68-2-27	
EMC protection requirements in accordance with CE	EN 6100	0-6-2, EN 61000-6-4	
Output circuit RS422A		405	
Output circuit		A05	
Output signals		A, /A, B, /B	V D0
Operating voltage U _B		5 ± 5 %	V DC
Operating current, no load, max. Output specifications	According to DO4004 DC	80	mA
Output specifications Output signals cw (clockwise rotation)	According to RS422A, RS 25 pulses	5422 use differential receiver module 100 pulses	
	25 puises	100 puises	
Pin assignment		/A B /B Detent position area	
Output circuit, push-pull Output circuit	G05	G12 G24	
Output circuit Output signals		A, B	
Output signals Operating voltage U _B	5 ± 5 %	А, В 10 30	V DC
Operating current, no load, max.	5 ± 5 /0	80	mA
Output voltage HIGH (1), min.	4.0 V / 0 mA 4	1.9 V / 0 mA -	
		3.9 V / 5 mA -	
		8.6 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°	
		90°	
	A B Detent position areas	A B Detent position area	
Din conignment	A B Detent position areas	A B Detent position area	
Pin assignment	A B Detent position areas		
Pin assignment	A B Detent position areas	A B Detent position area	
Pin assignment	A B Detent position areas	A J Detent position area	

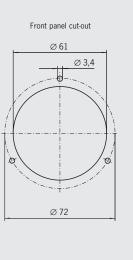
GN[°]us

Handwheel HKA

- 100 detent positions per revolution
- ▶ Wear-free magnetic detent mechanism
- 100 or 25 pulses per revolution
- Haptic handwheel



Dimension drawing



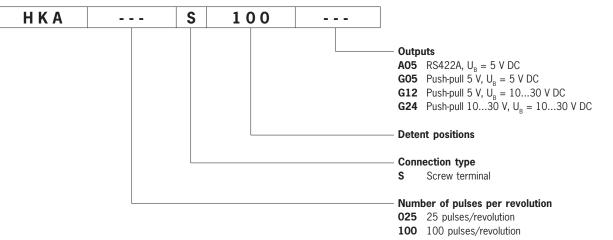
Notes

- A05 output suitable for Siemens controllers with RS422 input
- G05 output suitable for Fanuc control systems and Allen-Bradley control systems with push-pull inputs

Ordering table

Item	Order No.
HKA025S100G12	072 956
HKA100S100A05	072 885
HKA100S100G05	072 955
HKA100S100G24	072 967

Ordering code

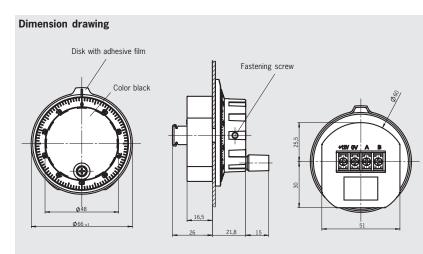


Parameter		Value	Unit
Pulses per revolution	2:	x 25 or 2 x 100	
Detent positions		100	
Housing material		Thermoplastic	
Weight		0.25	kg
Detent		Magnetic	
Shaft loading, axial, max.		25	N
Shaft loading, radial, max.		40	N
Mechanical life, min.		20 x 10 ⁶	rev.
Operating temperature		0 +50	°C
Storage temperature		-20 +50	°C
Atmospheric humidity, max.	80 % (co	ndensation not allowed)	
Front degree of protection EN 60529 / IEC 529		IP 65	
NEMA 250		250-12	
Resistance to vibration			
Vibrations (3 axes)	Γ	DIN/IEC 68-2-6	
Shock (3 axes)	D	N/IEC 68-2-27	
EMC protection requirements in accordance with CE	EN 610	00-6-2, EN 61000-6-4	
Output circuit RS422A		ii	
Output circuit		A05	
Output signals		A, /A, B, /B	
Operating voltage U _B		5 ± 5 %	V DC
Operating current, no load, max.		80	mA
Output specifications	According to RS422A, R	S422 use differential receiver module	
Output signals cw (clockwise rotation)	25 pulses	100 pulses	
Pin assignment		/A B /B Detent position a	rea
Output circuit, push-pull			
Output circuit	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
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°	[₹] 90°	
		A	
	B	B	
		Detent position a	
	Detent position areas		
Pi i i	Ç.	crew terminal S	
Pin assignment			
Pin assignment	EE		
Pin assignment			

Handwheel HWA

- ▶ 100 detent positions per revolution
- Mechanical detent mechanism
- 100 or 25 pulses per revolution
- Single-hole bushing mounting

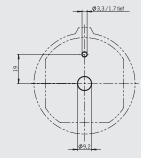
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Notes

- A05 output suitable for Siemens controllers with RS422 input
- G05 output suitable for Fanuc control systems and Allen-Bradley control systems with push-pull inputs

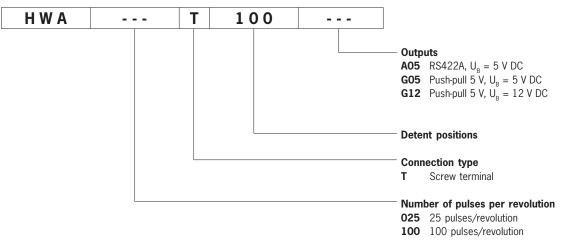




Ordering table

Item	Packaging unit	Order No.
HWA025T100G12/V10	10 pcs.	072 972
HWA100T100A05/V10	10 pcs.	072 970
HWA100T100G05/V10	10 pcs.	072 971

Ordering code



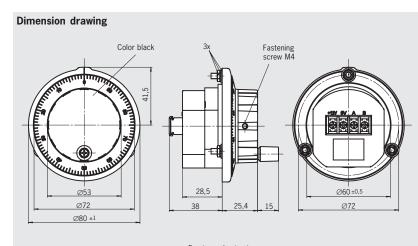
Technical data

Technical data			
Parameter		Value	Unit
Pulses per revolution	2 x 25	5 or 2 x 100	
Detent positions		100	
Housing material	Pla	stic/metal	
Weight		0.1	kg
Detent	Μ	echanical	
Shaft loading, axial, max.		25	N
Shaft loading, radial, max.		40	N
Mechanical life, min.		1 x 10 ⁶	rev.
Operating temperature		+50	°C
Storage temperature		0 +50	
Atmospheric humidity, max.	80 % (conde	nsation not allowed)	
Front degree of protection EN 60529 / IEC 529		IP65	
NEMA 250		250-12	
Output circuit RS422A			
Output circuit		A05	
Output signals	А,	/A, B, /B	
Operating voltage U _B		± 10 %	V DC
Operating current, no load, max.		80	mA
Output specifications	According to RS422A RS42	22 use differential receiver module	
Output signals cw (clockwise rotation)		10 pulses	
	10	o puises	
		2001	
	⁴ 90°.	360°	
	<u>→ →</u>		
	A		
	n		
	(a		
	/A		
	В		
	/В		
	/D		
	_		
	Detent	position area	
Pin assignment	Screv	v terminal T	
	· E) (0) (
	+50.00	AABB	
Output circuit, push-pull			
	005	010	
Output circuit	G05	G12	
Output signals		A, B	
Operating voltage U _B	5 ± 10 %	12 ± 10 %	V DC
Operating current, no load, max.		80	mA
Output voltage HIGH (1), min.	4.0	V / 20 mA	
LOW (0), max.	0.5	V / 20 mA	
Output current per output, max.		20	mA
Output signals CW (clockwise rotation)	100 pulses	25 pulses	110.
output signals off (clockinge lotation)	100 puises		
	360°	360°	
	[●] 90°.	¶90°.	
	A	A	
	В	B	
	Detent position area	Detent position areas	
	Detent position area	Detent position areas	
Dia anaimmanat	<u>^</u>	······································	
Pin assignment	Screv	w terminal T	
	+U _B	OV A B	
		9619	

Handwheel HWB

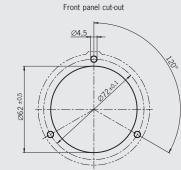
- ▶ 100 detent positions per revolution
- Mechanical detent mechanism
- ▶ 100 or 25 pulses per revolution
- 3-point fixing

A Marine Contraction of the second se



Notes

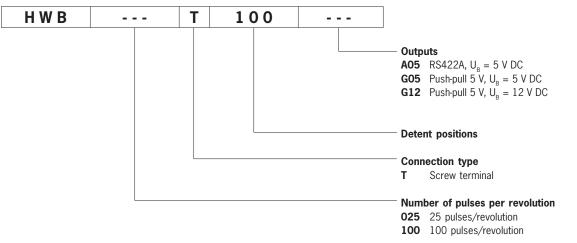
- A05 output suitable for Siemens controllers with RS422 input
- G05 output suitable for Fanuc control systems and Allen-Bradley control systems with push-pull inputs



Ordering table

Item	Packaging unit	Order No.
HWB025T100G12/V05	5 pcs.	072 975
HWB100T100A05/V05	5 pcs.	072 973
HWB100T100G05/V05	5 pcs.	072 974

Ordering code



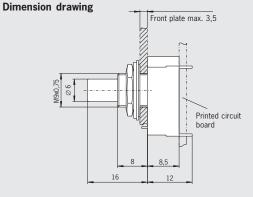
Technical data			
Parameter		Value	Unit
Pulses per revolution	2 x 2	5 or 2 x 100	
Detent positions		100	
Housing material	Pla	stic/metal	
Weight		0.125	kg
Detent		lechanical	16
Shaft loading, axial, max.	N	25	N
Shaft loading, radial, max.		40	
			N
Mechanical life, min.		1 x 10 ⁶	rev.
Operating temperature		+50	O°
Storage temperature	-20	0 +50	°C
Atmospheric humidity, max.	80 % (conde	ensation not allowed)	
Front degree of protection EN 60529 / IEC 529		IP65	
NEMA 250		250-12	
Output circuit RS422A		20012	
Output circuit	<u> </u>	A05	
	Δ.		
Output signals		/A, B, /B	
Operating voltage U _B	5	± 10 %	V DC
Operating current, no load, max.		80	mA
Output specifications	According to RS422A, RS42	22 use differential receiver module	
Output signals cw (clockwise rotation)	10	00 pulses	
		360°	
	90*.	1	
	A		
	/A		
	/A		
	В		
	/В		
	78		
	_		
	Detent	position area	
Pin assignment	Screv	w terminal T	
-	- 5) (0) (
	+5V 0V	AĀBB	
	[연면]	엄면면면	
Output circuit, push-pull			
Output circuit	G05	G12	
Output signals		A, B	
Operating voltage U _B	5 ± 10 %	12 ± 10 %	V DC
Operating current, no load, max.	0 1 10 %	80	mA
Output voltage HIGH (1), min.	10	V / 20 mA	1101
	4.0	V / 20 IIIA	
LOW (0), max.	0.5	V / 20 mA	
Output current per output, max.		20	mA
Output signals CW (clockwise rotation)	100 pulses	25 pulses	
	360°	360°	
	<u>360°</u>	90°	
	< 3 0	4	
	A	A	
	В	В	
	/		
	Detent position area	Detent position areas	
		·	
Pin assignment	Scre	w terminal T	
	+U_=	OV A B	
	10. 101		
		~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~	

# Handwheel HWD

- ▶ 50 detent positions per revolution
- Mechanical detent mechanism
- ►
- 50 pulses per revolution For printed circuit board installation ►
- Metal shaft



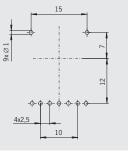
▶ For dial, see Accessories page 73





Printed circuit board drilling pattern View from assembly side

Front panel cut-out



0 Ø 3,2

#### Technical data

Notes

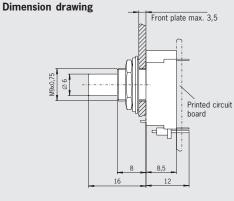
Parameter	Value	Unit
Pulses per revolution	50	
Detent positions	50	
Housing material	Plastic/metal	
Weight	20	g
Mechanical detent mechanism	7 14 x 10 ⁻³	Nm
Mechanical life, min.	0.25 x 10 ⁶	rev.
Operating temperature	0 +70	C°
Storage temperature	-10 +80	C°
Front degree of protection EN 60529 / IEC 529	IP 65	
NEMA 250	250-12	
Output circuit		
Output circuit	Transistor open collector, 4.7 kΩ pull-up	
Output signals	A, B	
Operating voltage U _B	5 ±10%	V DC
Operating current, no load, max.	20	mA
Output voltage HIGH (1), min.	UB - 0.5 V (no load)	
LOW (0), max.	0.4 V (no load)	
Output current per output, max.	8	mA
Open collector U _{max}	7	V
Open collector I _{max}	8	mA
Cable length > 300 mm	Amplifier required	
Output signals		
Pin assignment	cw©5 < 5∨	
Output circuit		
	1 □ □ □ □ □ □ □ □ 02 B	
	Detent position area $R = 4,7k\Omega$ $\rightarrow$ $\odot 1$ OV	

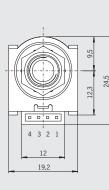
Item	Packaging unit	Order No.
HWD-072988/V10	10 pcs.	072 988

### Handwheel HWE

- ▶ 20 detent positions per revolution
- Mechanical detent mechanism
- 20 pulses per revolution
- ► For printed circuit board installation
- Plastic shaft





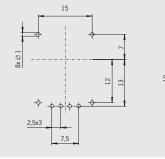


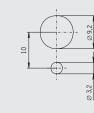
Printed circuit board drilling pattern View from assembly side

Front panel cut-out



▶ For dial, see Accessories page 73





#### **Technical data**

Parameter		Value		Unit
Pulses per revolution		20		
Detent positions		20		
Housing material		Plastic/metal		
Weight		15		g
Mechanical detent mechanism		3 10 x 10 ^{.3}		Nm
Mechanical life, min.		1 x 10 ⁶		rev.
Operating temperature		0 +60		°C
Storage temperature		-10 +80		°C
Front degree of protection EN 60529 / IEC 529		IP 65		
NEMA 250		250-12		
Output circuit				
Output circuit		CMOS level		
Output signals	A, B			
Operating voltage UB	5 ±10%			V DC
Operating current, no load, max.	40			mA
Output voltage HIGH (1), min.	U _B - 0.5 V (no load)			
LOW (0), max.	0.5 V (no load)			
Cable length > 300 mm	Amplifier required			
Output signals				
Pin assignment		©4	5V	
Output circuit	CW	*4	50	
		$\sim$		
	A	- 1>⊚3	В	
			D	
	č	74HC14		
	1	12→02	А	
	B			
	0	_		
	Detent position area	© 1	0V	
	bottent position area			

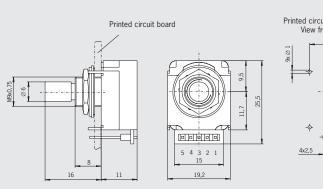
Item	Packaging unit	Order No.
HWE-072989/V10	10 pcs.	072 989



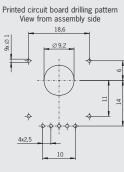
# Handwheel HWF

- ▶ 25 detent positions per revolution
- Mechanical detent mechanism
- ▶ 25 pulses per revolution
- For printed circuit board installation
- Pushbutton function





**Dimension drawing** 



### Notes

▶ For dial, see Accessories page 69

Parameter Value		Unit
Pulses per revolution	25	
Detent positions	25	
Housing material	Plastic/metal	
Weight	20	g
Mechanical detent mechanism	3 7 x 10 ³	Nm
Mechanical life, min.	1 x 10 ⁶	rev.
Mechanical life pushbutton, min.	500 x 10 ³ actuations	
Pushbutton stroke	1.2	mm
Operating temperature	0 +60	°C
Storage temperature	-10 +80	°C
Front degree of protection EN 60529 / IEC 529	IP 65	
NEMA 250	250-12	
Resistance to vibration		
/ibrations (3 axes)	DIN/IEC 68-2-6	
Shock (3 axes)	DIN/IEC 68-2-27	
Dutput circuit		
Dutput circuit	Transistor open collector, 10 k $\Omega$ pull-up	
Dutput signals	A, B	
Derating voltage U _B	5 ±10%	V DC
Derating current, no load, max.	10	mA
Dutput voltage HIGH (1), min.	U _R - 0.5 V (no load)	
LOW (0), max.	0.4 V (no load)	
Cable length > 300 mm	Amplifier required	
Pushbutton U _{max}	12	V DC
Pushbutton Imax (resistive load)	20	mA
Dutput signals		1103
Pin assignment	$\frac{cw}{2}$ > $\frac{cw}{2}$ = $\frac{1}{2}$	
Dutput circuit		
	№ 0 В	
	Detent position area $R = 10 \text{ k}\Omega$	
Soldering		
Manual soldering	Max. 350 °C / max. 3 s	
Reflow soldering	Not possible	

Item	Packaging unit	Order No.
HWF-072990/V10	10 pcs.	072 990

#### **Accessories**

#### Front plate for handwheel HKD

- Front plate with bonded seal
- Seal handwheels without front plate using sealing ring E

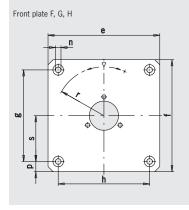
#### Dimensions

Dimension										
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
Н	114.3	127	101.6	89	-	-	5.2	12.7	49.5	R48

#### Ordering table

Item	Order No.
Sealing ring E	054 861
Front plate F with seal	028 760
Front plate G with seal	028 761
Front plate H with seal	028 762

#### **Dimension drawing**



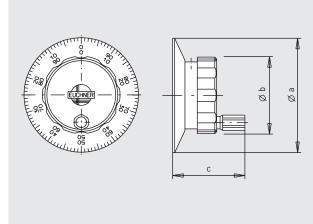
#### **Dials for handwheel HKD**

#### Dimensions

Design	Øa	Øb	С
Dial 90 mm	90	63	41
Dial 78 mm	78	63	39
Dial 65 mm	65	44	42
Dial 58 mm	58	44	40

#### **Ordering table**

Item	Order No.
Dial 90 mm black	057 266
Dial 90 mm silver	057 268
Dial 78 mm black	057 280
Dial 78 mm silver	057 272
Dial 65 mm black	057 318
Dial 65 mm silver	057 314
Dial 58 mm black	059 276



#### Dials for handwheels HWD/HWE/HWF

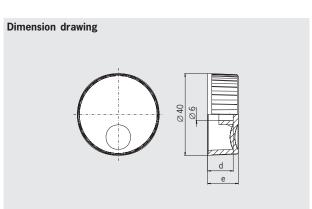
Material plastic, color gray (similar RAL 7032)

#### Dimensions

Design	d	е
Dial GD 60	7.5	10
Dial GE 60	12.5	15

#### Ordering table

Item	Packaging unit	Order No.
Dial GD60/V10	10 pcs.	072 991
Dial GE60/V10	10 pcs.	072 992

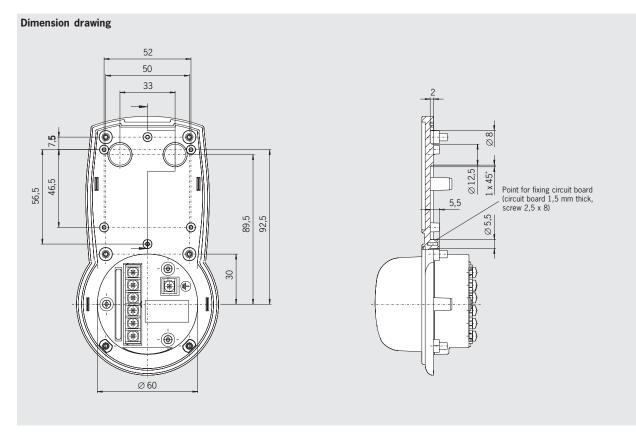


**Dimension drawing** 

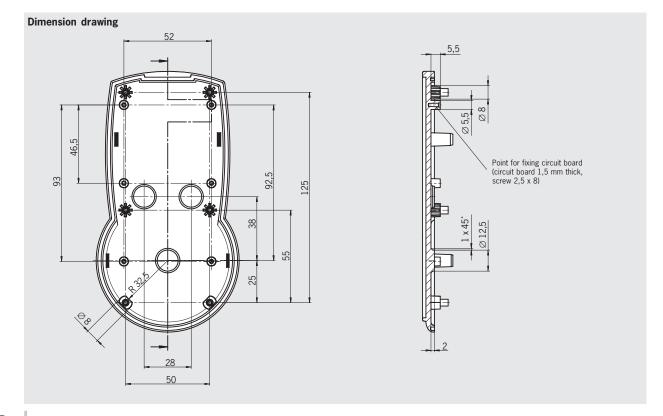


### Dimension drawing hand-held pendant stations HBA

#### Top shell HBA with handwheel



#### Top shell HBA without handwheel

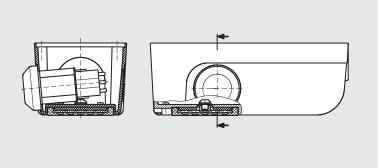


#### Assembly drawings

#### Housing HBE - 074 973 and HBE - 072 629

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

#### Dimension drawing

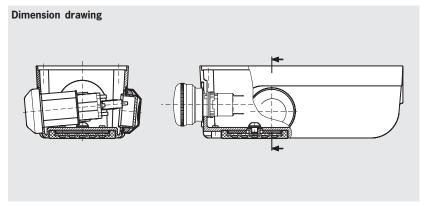


#### Housing HBE - 072 984 and HBE - 083 489 $\,$

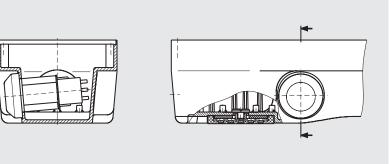
- Mounting enabling switch ZSE2-4 C1943
- (2 NO contacts, 2 positively driven contacts)

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

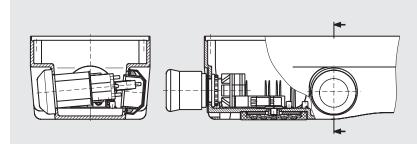
▶ Mounting EMERGENCY STOP device 096 292



#### Housing HBL - 073 109 and HBL - 072 632 Dimension drawing



Housing HBL - 072 983 and HBL - 083 484 ► Mounting enabling switch ZSE2-4 C1943 (2 NO contacts, 2 positively driven contacts) ► Mounting EMERGENCY STOP device 073 985



**Dimension drawing** 

## Appendix

## **EUCHNER**

#### Request form for hand-held pendant stations HBA without handwheels

Customer							1			
Company						elephone				
Address						ax				
					E	-mail				
Name					C	epartment				
First name						)ate				
Housing	With ho With ho With ho and 3-s	housing ble for EMERGENCY S ble for EMERGENCY S ble for EMERGENCY S tage enabling switch IER standard colors her-specific as per att	TOP and 2 enabli TOP left	ng switches			NCY STOP		OMRON (only with enabling st <b>Moeller (pull release)</b> Without EMERGENCY STOP <b>2 NC contacts</b> 1 NC contacts	
Logo	None		.acii.			Enabling	switch		1 NO contact each right and 1 NO contact each/NC conta Without enabling switch	
Pushbutton	None	ner-specific as per at				Selector	switch 1		Positions Gray code     Positions 1 of X     Labeling	
	Individu	ane keys, quantity: _ ıal keys, quantity: _ minated ıted				Selector	switch 2		Positions Gray code Positions 1 of X Labeling	
Key-operated	None With					Labeling selector s	switches		On front foil as per attach. None	
Lamps/LED	None Custon	ner-specific as per at	ach.							
Cable	Coiled	can be stretched to 3 can be stretched to 5 t: m								
Plug connector	Coninv Other:	y metal ers metal t plug connector								
Special require	ements									
Quotation				·	. T					
Quantity				ject requireme	ent	Serie	s productio	on rec	uirement per year	
Delivery date r	request	ed	Week							
Date						Sign	ature			

## Appendix

## **EUCHNER**

#### Request form for hand-held pendant stations HBA with handwheels

Customer							
Company					Telephone		
Address					Fax		
					E-mail		
Name					Department		
First name					Date		
					EMERGENC	Y STOP	OMRON (only with enabling switch ZXE Moeller (pull release) Without EMERGENCY STOP
.ED	Wit	hout LED					2 NC contacts
	Gre	en					1 NC contact
	Othe	er color:		0 1 10 100 ℃ Y Z 4 5	Selector swi	itch	Positions Gray code
			_		left	itten	Positions 1 of X
ront foil	EUC	CHNER standard					Without selector switch
	Bac	kground color:	_/		\ \		Labeling
		/			)		-
_ogo	EUC	CHNER standard			Selector swi	ritch	Positions Gray code
	Cus	tomer-specific as per att	ach.		right		Positions 1 of X
							Without selector switch
					/		Labeling
Pushbuttons	3 m	embrane buttons 1)			Enabling sw	/itch	Enabling switch ZXE left
	Oth	er: 1)					1 NO contact each right and left
	14/:+1	out buttons		'trans'			1 NO contact each/NC contact right a
		out buttons					Without enabling switch
	Wit	hout LEDs			Handwheel		
	With	1 LEDs			Handwheel		Operating voltage $U_b = DC 5 V$
	1) Lai	beling of the buttons as per attach	ment				Operating voltage $U_b = DC 10 - 30 V$
							RS422 output
				5			Output push-pull 5 V
				8			Output push-pull +Ub
				$\square$			100 pulses
				$\sim$			25 pulses 2)
							2) Only for Mitsubishi control system
				$\square$	On which		Siemens
				کیا	control syst the handwh		Fanuc
				Π	be operated		Mitsubishi
Plug connector	Bur	ndy metal					Allen Bradley
	Con	invers metal			0-11-		
	Oth	er:			Cable		Coiled can be stretched to 3.5 m
	With	nout plug connector					Coiled can be stretched to 5.0 m
							Straight: m
				٩			
Consister -	KO KO K						
Special requi	rements						
Quotation							
Quantity			One-off projec	t requirement	Series	productio	ion requirement per year
Delivery date	request	ed	Week				
			1			_	
Date					Signa	ture	



#### Hand-held pendant stations HBE request form

NER Standard anodized labeling s with membrane mer-specific as per attach. her-specific as per attach. er of NO contacts er of NO contacts luminated ated ol plate labeling as per attach. plate labeling as per attach.		Telephone         Fax         E-mail         Department         Date         EMERGENCY         STOP         Enabling switc         Selector switch         left	ZSE 2-2, 2 NO contacts + 1 positively driven co           ZSE 2-4, 2 NO contacts + 2 positively driven co           Without enabling switch
anodized labeling s with membrane mer-specific as per attach. her-specific as per attach. er of NO contacts er of NC contacts luminated ated ol plate labeling as per attach.		E-mail Department Date EMERGENCY STOP Enabling switc Selector switch	Without EMERGENCY STOP 2 NC contacts 1 NC contact 2SG, 2 NC contacts each, on both side ZSE 2-2, 2 N0 contacts + 1 positively driven co ZSE 2-4, 2 N0 contacts + 2 positively driven co Without enabling switch  Without selector switch left Positions Gray code
anodized labeling s with membrane mer-specific as per attach. her-specific as per attach. er of NO contacts er of NC contacts luminated ated ol plate labeling as per attach.		Department Date EMERGENCY STOP Enabling switc Selector switch	Without EMERGENCY STOP 2 NC contacts 1 NC contact 2SG, 2 NC contacts each, on both side ZSE 2-2, 2 N0 contacts + 1 positively driven co ZSE 2-4, 2 N0 contacts + 2 positively driven co Without enabling switch  Without selector switch left Positions Gray code
anodized labeling s with membrane mer-specific as per attach. her-specific as per attach. er of NO contacts er of NC contacts luminated ated ol plate labeling as per attach.		Date EMERGENCY STOP Enabling switc Selector switch	Without EMERGENCY STOP 2 NC contacts 1 NC contact 2SG, 2 NC contacts each, on both side ZSE 2-2, 2 N0 contacts + 1 positively driven co ZSE 2-4, 2 N0 contacts + 2 positively driven co Without enabling switch  Without selector switch left Positions Gray code
anodized labeling s with membrane mer-specific as per attach. her-specific as per attach. er of NO contacts er of NC contacts luminated ated ol plate labeling as per attach.		Date EMERGENCY STOP Enabling switc Selector switch	Without EMERGENCY STOP 2 NC contacts 1 NC contact 2SG, 2 NC contacts each, on both side ZSE 2-2, 2 N0 contacts + 1 positively driven co ZSE 2-4, 2 N0 contacts + 2 positively driven co Without enabling switch  Without selector switch left Positions Gray code
anodized labeling s with membrane mer-specific as per attach. her-specific as per attach. er of NO contacts er of NC contacts luminated ated ol plate labeling as per attach.		Date EMERGENCY STOP Enabling switc Selector switch	Without EMERGENCY STOP 2 NC contacts 1 NC contact 2SG, 2 NC contacts each, on both side ZSE 2-2, 2 N0 contacts + 1 positively driven co ZSE 2-4, 2 N0 contacts + 2 positively driven co Without enabling switch  Without selector switch left Positions Gray code
anodized labeling s with membrane mer-specific as per attach. her-specific as per attach. er of NO contacts er of NC contacts luminated ated ol plate labeling as per attach.		Date EMERGENCY STOP Enabling switc Selector switch	Without EMERGENCY STOP 2 NC contacts 1 NC contact 2SG, 2 NC contacts each, on both side ZSE 2-2, 2 N0 contacts + 1 positively driven co ZSE 2-4, 2 N0 contacts + 2 positively driven co Without enabling switch  Without selector switch left Positions Gray code
anodized labeling s with membrane mer-specific as per attach. her-specific as per attach. er of NO contacts er of NC contacts luminated ated ol plate labeling as per attach.		Date EMERGENCY STOP Enabling switc Selector switch	Without EMERGENCY STOP 2 NC contacts 1 NC contact 2SG, 2 NC contacts each, on both side ZSE 2-2, 2 N0 contacts + 1 positively driven co ZSE 2-4, 2 N0 contacts + 2 positively driven co Without enabling switch  Without selector switch left Positions Gray code
anodized labeling s with membrane mer-specific as per attach. her-specific as per attach. er of NO contacts er of NC contacts luminated ated ol plate labeling as per attach.		EMERGENCY STOP Enabling switc Selector switch	Without EMERGENCY STOP 2 NC contacts 1 NC contact 2SG, 2 NC contacts each, on both side ZSE 2-2, 2 N0 contacts + 1 positively driven co ZSE 2-4, 2 N0 contacts + 2 positively driven co Without enabling switch  Without selector switch left Positions Gray code
anodized labeling s with membrane mer-specific as per attach. her-specific as per attach. er of NO contacts er of NC contacts luminated ated ol plate labeling as per attach.		STOP Enabling switc Selector switch	Without EMERGENCY STOP 2 NC contacts 1 NC contact 2SG, 2 NC contacts each, on both side ZSE 2-2, 2 N0 contacts + 1 positively driven co ZSE 2-4, 2 N0 contacts + 2 positively driven co Without enabling switch  Without selector switch left Positions Gray code
anodized labeling s with membrane mer-specific as per attach. her-specific as per attach. er of NO contacts er of NC contacts luminated ated ol plate labeling as per attach.		STOP Enabling switc Selector switch	Without EMERGENCY STOP 2 NC contacts 1 NC contact 2SG, 2 NC contacts each, on both side ZSE 2-2, 2 N0 contacts + 1 positively driven co ZSE 2-4, 2 N0 contacts + 2 positively driven co Without enabling switch  Without selector switch left Positions Gray code
s with membrane mer-specific as per attach. her-specific as per attach. er of NO contacts er of NC contacts luminated ated ol plate labeling as per attach.		Selector switch	2 NC contacts     1 NC contacts     1 NC contacts     2SG, 2 NC contacts each, on both side     ZSE 2-2, 2 NO contacts + 1 positively driven co     ZSE 2-4, 2 NO contacts + 2 positively driven co     Without enabling switch     Without selector switch left     Positions Gray code
mer-specific as per attach. her-specific as per attach. er of NO contacts er of NC contacts <b>luminated</b> ated ol plate labeling as per attach.		Selector switch	Ch     ZSG, 2 NC contacts each, on both side     ZSE 2-2, 2 NO contacts + 1 positively driven co     ZSE 2-4, 2 NO contacts + 2 positively driven co     Without enabling switch     Without selector switch left     Positions Gray code
ner-specific as per attach. er of NO contacts er of NC contacts luminated ated ol plate labeling as per attach.		Selector switch	Ch     ZSG, 2 NC contacts each, on both side     ZSE 2-2, 2 NO contacts + 1 positively driven co     ZSE 2-4, 2 NO contacts + 2 positively driven co     Without enabling switch     Without selector switch left     Positions Gray code
er of NO contacts er of NC contacts luminated ated ol plate labeling as per attach.		Selector switch	ZSE 2-2, 2 NO contacts + 1 positively driven cc ZSE 2-4, 2 NO contacts + 2 positively driven cc Without enabling switch     Without selector switch left Positions Gray code
er of NO contacts er of NC contacts luminated ated ol plate labeling as per attach.			ZSE 2-4, 2 NO contacts + 2 positively driven co Without enabling switch     Without selector switch left     Positions Gray code
er of NO contacts er of NC contacts luminated ated ol plate labeling as per attach.			Without enabling switch Without selector switch left Positions Gray code
er of NO contacts er of NC contacts Iuminated ated ol plate labeling as per attach.			Without selector switch left
er of NO contacts er of NC contacts Iuminated ated ol plate labeling as per attach.			Positions Gray code
er of NC contacts Iuminated ated J plate labeling as per attach.		lett	
<b>luminated</b> ated ol plate labeling as per attach.			Positions 1 of X
ated ol plate labeling as per attach.		$\backslash$	
ol plate labeling as per attach.			Labeling
	E ee V	<b>A</b> -1	
piare iabelling as per attacti.		Selector switch right	°
			Positions Gray code
	Muuluuluu		Positions 1 of X
		$\backslash$	Labeling
	╘┲═┯┲┙╴∖	Labeling	Through scale wheels
		selector switche	On front plate
mer-specific as per attach		\	
mer-specific as per attach.		Andwheel	Operating voltage Ub = DC 5 V
		$\setminus$	Operating voltage $U_b = DC \ 10 - 30 V$
			RS422 output
	21		Output push-pull 5 V Output push-pull +Ub
			100 pulses
	$\Box$		25 pulses 2)
d can be stretched from 1.5 to 2	5		2) Only for Mitsubishi control system
	$\sim$	Dial	EUCHNER logo
			Customer-specific logo as per attach.
	ñ		Silver 65 mm
	<u>⊢</u>		Black 65 mm
			Silver 78 mm
ly metal			Black 78 mm
vers metal		On which	Siemens
		control system	
ut plug connector	¢	will	
-	· · · · ·	the handwheel be operated?	
	I can be stretched from 2.0 to 5. ht: m y metal ers metal	al data:	al data: Dial

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#### Hand-held pendant stations HBL request form

Company Address Name First name front plate	EUCHNER Standard black anodized silver labeling Customer-specific as pr Customer-specific as pr Customer-specific as pr None Number of NO contacts Number of NO contacts Number of NC contacts Not illuminated			Telephone         Fax         E-mail         Department         Date         EMERGENCY         STOP	Moeller (pull release, EN418) Without EMERGENCY STOP 2 NC contacts 1 NC contacts
Name First name front plate ogo	black anodized silver labeling Customer-specific as pr Customer-specific as pr Customer-specific as pr None Number of NO contacts Number of NO contacts Number of NC contacts			E-mail Department Date EMERGENCY STOP	Without EMERGENCY STOP 2 NC contacts
First name ront plate ogo	black anodized silver labeling Customer-specific as pr Customer-specific as pr Customer-specific as pr None Number of NO contacts Number of NO contacts Number of NC contacts			Department     Date     EMERGENCY     STOP	Without EMERGENCY STOP 2 NC contacts
First name ront plate ogo	black anodized silver labeling Customer-specific as pr Customer-specific as pr Customer-specific as pr None Number of NO contacts Number of NO contacts Number of NC contacts			Date EMERGENCY STOP	Without EMERGENCY STOP 2 NC contacts
First name ront plate ogo	black anodized silver labeling Customer-specific as pr Customer-specific as pr Customer-specific as pr None Number of NO contacts Number of NO contacts Number of NC contacts			Date EMERGENCY STOP	Without EMERGENCY STOP 2 NC contacts
First name ront plate ogo	black anodized silver labeling Customer-specific as pr Customer-specific as pr Customer-specific as pr None Number of NO contacts Number of NO contacts Number of NC contacts			Date EMERGENCY STOP	Without EMERGENCY STOP 2 NC contacts
First name ront plate ogo	black anodized silver labeling Customer-specific as pr Customer-specific as pr Customer-specific as pr None Number of NO contacts Number of NO contacts Number of NC contacts			Date EMERGENCY STOP	Without EMERGENCY STOP 2 NC contacts
First name ront plate ogo	black anodized silver labeling Customer-specific as pr Customer-specific as pr Customer-specific as pr None Number of NO contacts Number of NO contacts Number of NC contacts			Date EMERGENCY STOP	Without EMERGENCY STOP 2 NC contacts
ront plate ogo	black anodized silver labeling Customer-specific as pr Customer-specific as pr Customer-specific as pr None Number of NO contacts Number of NO contacts Number of NC contacts			EMERGENCY STOP	Without EMERGENCY STOP 2 NC contacts
ogo	black anodized silver labeling Customer-specific as pr Customer-specific as pr Customer-specific as pr None Number of NO contacts Number of NO contacts Number of NC contacts			STOP	Without EMERGENCY STOP 2 NC contacts
	silver labeling Customer-specific as pr Customer-specific as pr Customer-specific as pr Customer-specific as pr None Number of NO contacts Number of NC contacts				2 NC contacts
	Customer-specific as provide the specific				
	Customer-specific as per None Number of NO contacts Number of NC contacts Number of NC contacts	er attach.			1 NC contacts
	Customer-specific as per None Number of NO contacts Number of NC contacts Number of NC contacts	er attach.			
'ushbutton	None Number of NO contacts Number of NC contacts	er attach.		Enabling switch	ZSG, 2 NC contacts each, on both sides
ushbutton	Number of NO contacts Number of NC contacts				ZSE 2-2, 2 NO contacts + 1 positively driven conta
ushbutton	Number of NO contacts Number of NC contacts				ZSE 2-4, 2 NO contacts + 2 positively driven conta
	Number of NC contacts				Without enabling switch
				Selector switch	Without selector switch left
	I NOT IIIUMINATED	·	$\sim$	left	Positions Gray code
	Illuminated	6)	$\gamma \rightarrow \gamma \rightarrow$	۵)	Positions 1 of X
				(	Labeling
	Symbol plate labeling as				
	Front plate labeling as p	ber attach.		Selector switch right	Without selector switch right
ey-operated	None				Positions Gray code
witch	With				Positions 1 of X
	WILLI				Labeling
amp/LED	None	(		Labeling	Through scale wheels
• • •	Customer-specific as pe	er attach.		selector switches	On front plate
				Handwheel	Operating voltage U _b = 5 V
otentiometer	None				Operating voltage $U_b = 10 - 30 V$
	Technical data:			$\backslash$	RS422 output
					Output push-pull 5 V
					Output push-pull +U₀
					100 pulses
			J		25 pulses 2)
ahla		d from 1 E to 2 E		\ <u>-</u>	2) Only for Mitsubishi control system
able	Coiled can be stretche Coiled can be stretche			\ Dial	EUCHNER logo
					Customer-specific logo as per attach.
	Straight:	_ 111	R		Silver 65 mm
					Black 65 mm Silver 78 mm
			ц П		Black 78 mm
	_				
lug connector	H · ·			On which	Siemens
	Coninvers metal			control system will	Fanuc
	Other:			the handwheel	Mitsubishi
	Without plug connector			be operated?	Allen Bradley
			e .		
0			ن <del>ر بر</del>		
Special requi	irements				
Quotation					
Quantity			oject requirement	Series produ	iction requirement per year
Delivery date	e requested	Week			
Date				Signature	

## **EUCHNER**

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Cable, L2core, straight, 5000 mm         087 379         51         HBA. 095 574         095 574         095 574         095 574         095 574         095 574         095 574         095 574         095 574         095 574         095 574         095 574         095 574         095 574         095 574         095 574         095 574         095 574         095 574         095 574         095 574         095 574         095 574         095 574         095 574         095 574         095 574         095 574         095 574         095 574         095 574         095 574         095 574         095 574         095 574         095 574         055 564           Cable, 22core, coiled, 3000 mm         087 382         51         HKA1005100051         072 2855         64           Cable, 35core, coiled, 5400 mm         097 187         51         HKA1005100052         072 985         64           Cable, 35core, coiled, 5400 mm         097 189         51         HKC1005100052         082 573         62           Cable, 35core, coiled, 5400 mm         097 189         51         HKC1005100062         082 573         62           Cable, 35core, coiled, 5400 mm         097 190         51         HKC10051000612         091 52         66         00         083 54         60						
Cable, 12-core, straight, 5000 mm         087 380         51         HBE front plate         052 954         40           Cable, 12-core, colled, 3900 mm         086 721         51         HBE front plate         073 139         44           Cable, 23-core, straight, colle, 3000 mm         087 382         51         HBE front plate         073 139         44           Cable, 23-core, straight, colle, 3000 mm         087 383         51         HKA100S100005         072 956         64           Cable, 23-core, colled, 5400 nm         087 408         51         HKA100S100026         072 957         64           Cable, 33-core, straight, 5000 nm         097 187         51         HKC100S100026         082 733         62           Cable, 33-core, straight, 5000 nm         097 188         51         HKC100S100005         082 733         62           Cable, 33-core, straight, 5000 nm         097 191         51         HKC100S100026         082 738         62           Cable, 33-core, straight, 5000 nm         097 191         51         HKC100S100025         052 86         60           Dial 65 nm black         059 726         73         HKD100S100025         054 866         60           Dial 78 nm black         057 286         73         HKD100S100025         051 8						
Cable, 12-core, colled, 3900 mm         086 721         51         HBE front plate         052 955         40           Cable, 23-core, straight, 10000 mm         087 384         51         HBL front plate         073 138         44           Cable, 23-core, straight, cable, 3000 mm         087 384         51         HBL front plate         073 138         44           Cable, 23-core, colled, 3900 mm         087 384         51         HKA100S100005         072 985         64           Cable, 23-core, colled, 5400 mm         097 108         51         HKA100S1000624         072 967         64           Cable, 33-core, straight, 10000 mm         097 1187         51         HKC100S1000625         082 773         62           Cable, 33-core, straight, 10000 mm         097 1189         51         HKC100S1000626         082 773         62           Cable, 35-core colled, 5400 mm         097 118         51         HKC100S1000624         097 138         62           Cable, 35-core, straight, 1500 mm         097 118         51         HKC100S1000624         087 336         62           Cable, 35-core colled, 5400 mm         097 191         51         HKD100S100625         084 356         60           Dial 65 mm black         057 218         73         HKD100S100625						
Cabbe, 12-core, colled, 5400 mm         086 722         51         HBL front plate         073 139         44           Cabbe, 23-core, straight, collo, mm         087 382         51         HBL front plate         073 139         44           Cabbe, 23-core, straight, collo, mm         087 382         51         HBL front plate         073 139         44           Cabbe, 23-core, colled, 5400 mm         087 383         51         HRA100S100025         072 985         64           Cabbe, 33-core, straight, 5000 mm         097 187         51         HRA100S100024         072 967         64           Cabbe, 33-core, straight, 5000 mm         097 188         51         HRC100S100024         087 739         62           Cabbe, 33-core, straight, 5000 mm         097 189         51         HRC100S100624         087 739         62           Cabbe, 33-core, straight, 5000 mm         097 187         51         HRC100S100624         087 739         62           Cabbe, 33-core, straight, 5000 mm         097 187         51         HRC100S100625         091 526         60           Dial 58 mm black         057 286         73         HRD100S100625         091 527         60           Dial 78 mm slaver         057 266         73         HRD100V100605         054 866						-
Cable, 23-core, straight, 10000 mm         087         384         51.         HBL front plate         073         138         44           Cable, 23-core, straight, cable, 5000 mm         087         382         51.         HKA20S100G12         072         956         64           Cable, 23-core, colled, 3000 mm         087         483         51.         HKA100S100G25         072         956         64           Cable, 33-core, straight, 10000 mm         097         189         51.         HKA100S100G24         072         967         64           Cable, 33-core, straight, 5000 mm         097         189         51.         HKC100S100A05         087         733         52           Cable, 33-core, colled, 5400 mm         097         190         51.         HKC100S100A05         084         66         60           Dial 55 mm black         059         738         73         HKD100S100A05         064         866         60           Dial 78 mm black         057         738         73         HKD100S100A05         064         866         60           Dial 97 mm black         057         728         73         HKD100X100A05         064         866         60           Dial 97 mm black         057<						
Cable, 23-core, straight cable, 5000 mm         087 382         51         HKA025S100G12         072 956         64           Cable, 23-core, coiled, 3900 mm         087 408         51         HKA100S100A05         072 955         64           Cable, 23-core, coiled, 4900 mm         087 408         51         HKA100S100A05         072 955         64           Cable, 33-core, straight, 1300 mm         097 187         51         HKC100S100A05         087 733         62           Cable, 33-core, straight, 1300 mm         097 188         51         HKC100S100A05         087 733         62           Cable, 33-core, straight, 1300 mm         097 191         51         HKC100S100C05         082 573         62           Cable, 33-core, coiled, 5400 mm         097 191         51         HKD10S100C05         083 544         60           Dial 55 mm black         059 276         73         HKD10S100A05         054 866         60           Dial 45 mm sliver         057 280         73         HKD10S100A05         054 866         60           Dial 78 mm sliver         057 266         73         HKD10V100A05         057 035         057 235           Dial 78 mm sliver         057 266         73         HKD10V100C05         057 037         60				· · · · · · · · · · · · · · · · · · ·		
Cable, 23-core, straight cable, 5000 mm         087 383         51         HKA100S100A05         072 885         64           Cable, 23-core, coiled, 5400 mm         087 408         51         HKA100S100G24         072 967         64           Cable, 33-core, straight, 10000 mm         097 189         51         HKC100S100A05         087 733         62           Cable, 33-core, straight, 5000 mm         097 189         51         HKC100S100A05         087 733         62           Cable, 33-core, straight, 5000 mm         097 189         51         HKC100S100C05         082 573         62           Cable, 33-core, coiled, 5400 mm         097 190         51         HKC100S100C05         088 739         62           Cable, 33-core, coiled, 5400 mm         097 190         51         HKD02S100G12         091 526         60           Dial 55 mm black         057 218         73         HKD10S1100C05         083 854         60           Dial 78 mm black         057 266         73         HKD10V100005         091 927         60           Dial 78 mm black         057 268         73         HKD10V100005         091 827         60           Dial 65 mm black         057 289         74         HKD10V10005         091 8359         60						
Cable, 23-core, colled, 3900 mm         087 408         51         HKA100S100G05         072 955         64           Cable, 33-core, straight, 10000 mm         097 187         51         HKA100S100G24         072 967         64           Cable, 33-core, straight, 10000 mm         097 187         51         HKC100S100G05         082 573         62           Cable, 33-core, straight, 3500 mm         097 188         51         HKC100S100G05         082 573         62           Cable, 33-core, colled, 3900 mm         097 191         51         HKD02S100G12         091 525         60           Dial 56 mm black         059 276         73         HKD02S100G12         091 525         60           Dial 56 mm black         057 314         73         HKD02S100G12         091 525         60           Dial 78 mm black         057 280         73         HKD10S100G05         057 036         60           Dial 90 mm black         057 286         73         HKD10V100G05         091 527         60           Dial GbG/V10         072 991         73         HKD10V100G05         091 627         60           Dial GbG/V10         072 991         73         HKD10V100G02         093 433         60           Dial GbG/V10         072 991 <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>						
Cable, 35-core, straight, 1000 mm         097 187         51         HK010S100C24         072 967         64           Cable, 35-core, straight, 3000 mm         097 187         51         HK0255100612         072 940         62           Cable, 35-core, straight, 5000 mm         097 188         51         HK010S100C95         082 573         62           Cable, 35-core colled, 3000 mm         097 190         51         HK010S100C24         087 733         62           Cable, 35-core colled, 3000 mm         097 190         51         HK010S100C24         091 525         60           Dial 56 mm black         057 318         73         HKD10S100C35         083 846         60           Dial 78 mm black         057 280         73         HKD10S100C34         057 886         60           Dial 78 mm black         057 272 73         HKD100X100A05         057 086         60           Dial 90 mm black         057 272 73         HKD100V100A05         057 086         60           Dial GBO/V10         072 991         73         HKD100V100A05         057 087         60           Dial GBO/V10         072 992         73         HKD100X100A05         054 867         60           Dial GBO/V10         072 982         54         Hold						
Cable, 35-core, straight, 10000 mm         097 189         51         HKC1005100G12         072 940         62           Cable, 35-core, straight, 3500 mm         097 189         51         HKC1005100G24         087 733         62           Cable, 35-core colled, 5400 mm         097 190         51         HKC1005100G24         087 739         62           Cable, 35-core colled, 5400 mm         097 191         51         HKC1005100G12         091 525         60           Dal 35 mm black         057 218         73         HKD1005100G12         091 525         60           Dal 45 mm black         057 218         73         HKD1005100G12         091 525         60           Dal 78 mm silver         057 226         73         HKD1005100G24         054 866         60           Dal 78 mm silver         057 226         73         HKD100V100055         091 527         60           Dal 30 mm silver         057 226         73         HKD100V1000624         057 037         60           Dal GbG/V10         072 991         73         HKD100V100624         093 433         60           HMERCENCY STOP device (pull release)         079 855         4         Holder HBA         072 828         56           Enage pulg 19pin         09						
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Cable, 35-core, straight, 5000 mm         097 188         51           Cable, 35-core, coiled, 3400 mm         097 190         51           HKC100S100624         087 739         62           Cable, 35-core coiled, 5400 mm         097 191         51           HKD02S5100612         091 526         60           Dial 55 mm black         057 218         73         HKD02S5100612         091 526         60           Dial 65 mm black         057 218         73         HKD100S100005         048 686         60           Dial 78 mm silver         057 226         73         HKD100S100005         094 866         60           Dial 90 mm silver         057 226         73         HKD100V100005         091 527         60           Dial 90 mm silver         057 226         73         HKD100V100005         094 868         60           Dial 90 mm silver         057 226         73         HKD100V1000024         093 39         60           Dial 4060/V10         072 991         73         HKD100X100012         093 343         60           EMERGENCY STOP device (pull release)         073 985         54         Holder HBA         072 828         56           Flange socket, 28pin         074 385         50						
Cable, 35-core coiled, 3900 mm         097 190         51           Cable, 35-core coiled, 5400 mm         097 191         51           Dial 56 mm black         057 273         HK00255100G12         091 525         60           Dial 56 mm black         057 318         73         HK01005100A05         054 866         60           Dial 65 mm silver         057 318         73         HK01005100A05         054 866         60           Dial 78 mm black         057 226         73         HK01005100G05         051 827         60           Dial 90 mm black         057 226         73         HK0100100005         051 227         60           Dial 90 mm black         057 268         73         HK0100100005         054 867         60           Dial GE0/V10         072 991         73         HK0100X100G24         093 433         60           EMERCENCY STOP device (unil release)         096 292         46         Holder HBA         072 282         56           Enage socket, 12-pin         092 374         53         Holder HBA         072 282         56           Flange socket, 12-pin         074 385         50         Housing HBA - 084 445         084 445         33           Flange socket, 35-pin         074 385						
Cable, 35-core coiled, 5400 mm         097 191         51           Dial 58 mm black         059 276         73           Dial 65 mm black         057 318         73           HKD1005100A05         054 866         60           Dial 65 mm black         057 318         73           HKD1005100A05         054 866         60           Dial 78 mm black         057 272         73           HKD1005100A05         057 086         60           Dial 90 mm black         057 276         73           Dial 90 mm black         057 276         73           Dial 90 mm black         057 268         73           HK0100V100A05         054 867         60           Dial 90 mm black         057 268         73           Dial 90 mm black         057 268         73           HK0100V100024         053 389         60           EMRERCENCY STOP device (ratry release)         073 985         54           EMREGENCY STOP device (pull release)         096 292         46           Holder HBA         072 828         56           Flange socket, 12-pin         074 385         50           Flange socket, 23-pin         074 386         50           Flange socket, 35-						
Dal 38 mm black         059 276         73         HK0025V100G12         091 526         60           Dial 65 mm silver         057 318         73         HKD100S100A05         054 866         60           Dial 78 mm silver         057 314         73         HKD100S100G05         083 354         60           Dial 78 mm silver         057 226         73         HKD100V100A05         057 036         60           Dial 90 mm black         057 268         73         HKD100V100A05         054 867         60           Dial 40 Ge0/V10         072 991         73         HKD100V100A05         054 867         60           Dial 40 GE0/V10         072 992         73         HKD100X100A05         054 867         60           Dial 40 GE0/V10         072 992         73         HKD100X100A05         054 867         60           Dial 65 mm biack         096 292         46         HKD100X100G12         083 359         60           EMERCENCY STOP device full release         096 294         46         Holder HBL         084 397         56           Flange socket, 12-pin         074 385         50         Housing HBA - 084 455         084 445         33           Flange socket, 13-pin         074 386         50 <t< td=""><td></td><td></td><td></td><td></td><td></td><td></td></t<>						
Dial 65 mm black         057 318         73         HKD100S100A05         054 866         60           Dial 78 mm black         057 280         73         HKD100S100G05         053 384         60           Dial 78 mm black         057 280         73         HKD100S100G05         057 036         60           Dial 90 mm black         057 266         73         HKD100V100A05         057 036         60           Dial 90 mm black         057 266         73         HKD100V100A05         054 868         60           Dial 90 mm black         072 291         73         HKD100V100A05         054 867         60           Dial 660/V10         072 992         73         HKD100X100A05         054 867         60           EMRCRENCY STOP device (rotary release)         096 292         46         HKD100X100G24         093 433         60           EMRCRENCY STOP device (pull release)         073 385         54         Holder HBL         083 445         56           Flange socket, 12-pin         074 384         50         Housing HBA - 084 450         084 455         33           Flange socket, 28-pin         074 384         50         Housing HBA - 084 455         086 155         086 155         38         33           Fro	· · ·					
Dial 65 mm silver         057 314         73         HKD100S100G05         083 354         60           Dial 78 mm black         057 280         73         HKD100S100G24         054 868         60           Dial 90 mm silver         057 266         73         HKD100V100G25         091 527         60           Dial 90 mm silver         057 268         73         HKD100V100G25         091 527         60           Dial GE60/V10         072 992         73         HKD100V100G24         057 336         60           Dial GE60/V10         072 992         73         HKD100X100G24         093 433         60           EMERCENCY STOP device (pull release)         096 292         46         HKD100X100G24         093 433         60           EMERGENCY STOP device (pull release)         096 298         46         Holder HBA         072 282         56           Flange socket, 12pin         092 374         53         Housing HBA -084 445         084 445         33           Flange socket, 35pin         074 386         50         Housing HBA -084 445         084 445         33           Front plate for housing HBA with handwheel         083 53         56         Housing HBA -084 445         084 429         39           Front plate for housi						
Dial 78 mm black         057 280         73         HKD100S100G24         054 88         60           Dial 78 mm silver         057 272         73         HKD100V100A05         057 036         60           Dial 90 mm black         057 266         73         HKD100V100G24         057 036         60           Dial GE60/V10         072 991         73         HKD100V100G24         057 036         60           Dial GE60/V10         072 992         73         HKD100V100G24         053 359         60           EMERGENCY STOP device (rotary release)         076 292         46         HKD100X100G12         083 345         56           EMERGENCY STOP device (pull release)         072 928         46         Holder HBE         083 445         56           Flange socket, 28pin         074 385         50         Housing HBA - 084 445         084 445         33           Front plate F or housing HBA with handwheel         083 636         50         Housing HBA - 095 562         095 562         33           Front plate F or housing HBA without handwheel         083 636         36         Housing HBE - 072 629         072 628         43           Front plate F or housing HBA without handwheel         082 762         73         Housing HBE - 072 629         072 627						
Dial 78 mm silver         057 272         73         HKD100V100A05         057 036         60           Dial 90 mm black         057 266         73         HKD100V100G24         057 036         60           Dial 90 mm silver         057 266         73         HKD100V100G24         057 036         60           Dial GE60/V10         072 991         73         HKD100V100G24         083 359         60           Dial GE60/V10         072 992         73         HKD100V100G24         093 433         60           EMERGENCY STOP device (rotary release)         096 292         46         Holtoer HBA         072 828         56           EIMage Dig 19pin         092 374         53         Holder HBL         084 345         56           Flange socket, 28-pin         074 385         50         Housing HBA - 084 445         084 445         33           Flange socket, 28-pin         074 386         50         Housing HBE - 072 622         095 562         33           Front plate for housing HBA with handwheel         083 635         36         Housing HBE - 072 626         072 627         39           Front plate for housing HBA without handwheel         083 635         36         Housing HBE - 072 631         072 631         33 <td< td=""><td></td><td></td><td></td><td></td><td></td><td></td></td<>						
Dial 90 mm black         057 266         73         HKD100V100G05         091 527         60           Dial 900 mm silver         057 268         73         HKD100V100G24         057 037         60           Dial G60/V10         072 992         73         HKD100V100G24         057 037         60           Dial GE60/V10         072 992         73         HKD100V100G24         093 433         60           EMERCENCY STOP device (pull release)         073 985         F4         Holder HBA         072 828         56           EMERCENCY STOP device (pull release)         096 298         46         Holder HBE         083 445         56           Flange socket, 12-pin         086 749         50         Housing HBA - 084 445         084 445         33           Flange socket, 23-pin         074 385         50         Housing HBA - 084 50         084 445         33           Flange socket, 35-pin         074 385         50         Housing HBA - 086 155         086 155         33           Front plate for housing HBA with handwheel         083 63         66         Housing HBE - 072 627         072 627         39           Front plate for housing HBA with handwheel         083 63         66         Housing HBE - 072 629         072 623         39 <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>						
Dial 90 mm silver         057 268         73         HKD100V100G24         057 037         60           Dial GE60/V10         072 991         73         HKD100X100A05         054 867         60           Dial GE60/V10         072 992         73         HKD100X100G12         083 359         60           EMERGENCY STOP device (pull release)         073 985         54         Holder HBA         072 828         56           Flange plug 19-pin         092 374         53         Holder HBE         083 445         56           Flange socket, 12-pin         086 749         50         Housing HBA -084 455         084 445         33           Flange socket, 28-pin         074 385         50         Housing HBA -086 155         086 155         33           Flange socket, 35-pin         074 385         50         Housing HBA -086 155         086 155         33           Front plate for housing HBA with handwheel         083 635         36         Housing HBE -072 626         072 627         39           Front plate for housing HBA without handwheel         084 395         36         Housing HBE -072 627         072 627         39           Front plate for housing HBA without handwheel         084 395         36         Housing HBE -072 649         072 843						
Dial Gb60/V10         072 991         73           Dial Gb60/V10         072 992         73           HKD100X100A05         054 867         60           EMERGENCY STOP device (rotary release)         096 292         46           HKD100X100G24         093 335         60           HKD100X100G24         093 433         60           EMERGENCY STOP device (pull release)         096 293         46           Flange socket, 12:pin         096 749         50           Flange socket, 12:pin         074 384         50           Flange socket, 28:pin         074 385         50           Flange socket, 35:pin         074 386         50           Front plate for housing HBA with handwheel         083 635         66           Housing HBA - 084 4450         084 4450         33           Front plate for housing HBA with handwheel         083 635         66           Front plate for housing HBA with handwheel         083 635         66           Front plate for housing HBA with handwheel         083 635         66           Front plate for housing HBA with handwheel         084 395         36           Front plate for housing HBA with handwheel         084 396         36           Front plate for housing HBA without handwheel <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>						
Dial GE60/V10         072         992         73           EMERGENCY STOP device (rotary release)         096         292         46         HKD100X100G12         093         433         60           EMERGENCY STOP device (pull release)         073         985         54         Holder HBA         072         828         56           EMERGENCY STOP device (pull release)         096         294         46         Holder HBE         083         445         56           Flange socket, 12-pin         086         749         50         Housing HBA - 084         450         084         445         33           Flange socket, 23-pin         074         385         50         Housing HBA - 086         155         086         155         33           Front plate for housing HBA with handwheel         083         635         36         Housing HBE - 072         626         072         629         39           Front plate for housing HBA with handwheel         083         636         36         Housing HBE - 072         627         072         627         39           Front plate for housing HBA with handwheel         084         396         Housing HBE - 072         629         39         140         140         140						
EMERGENCY STOP device (rotary release)         096 292         46           EMERGENCY STOP device (pull release)         073 985         54           Holder HBA         072 828         56           Flange pulg 19pin         092 374         53           Flange socket, 12-pin         086 749         50           Flange socket, 23-pin         074 384         50           Flange socket, 35-pin         074 385         50           Flange socket, 35-pin         074 386         50           Front plate for housing HBA vith seal         028 760         73           Front plate for housing HBA with handwheel         083 635         36           Front plate for housing HBA with handwheel         083 635         36           Front plate for housing HBA with handwheel         083 635         36           Front plate for housing HBA with handwheel         083 635         36           Front plate for housing HBA with handwheel         084 396         36           Front plate for housing HBA with handwheel         084 396         36           Front plate for housing HBA without handwheel         084 396         36           Front plate for housing HBA without handwheel         082 762         73           Front plate for housing HBA ovit plate         072 642 </td <td></td> <td></td> <td></td> <td></td> <td></td> <td></td>						
EMERGENCY STOP device (pull release)         073 985         54           EMERGENCY STOP device (pull release)         096 298         46           Flange plug 19-pin         092 374         53           Flange socket, 12-pin         086 749         50           Flange socket, 23-pin         074 384         50           Flange socket, 28-pin         074 385         50           Flange socket, 35-pin         074 386         50           Flange socket, 35-pin         074 386         50           Front plate F with seal         028 760         73           Front plate for housing HBA with handwheel         083 635         36           Front plate for housing HBA with handwheel         083 636         36           Front plate for housing HBA without handwheel         084 396         36           Front plate for housing HBA without handwheel         084 396         36           Front plate for housing HBA without handwheel         084 396         36           Front plate for housing HBA without handwheel         084 396         36           Front seal for HBE front plate         072 642         40           Housing HBE -072 02         072 627         072 630         072 631         43           Front seal for HBE front plate	· · ·					
EMERGENCY STOP device (pull release)         096 298         46           Flange plug 19-pin         092 374         53           Flange socket, 12-pin         086 749         50           Flange socket, 23-pin         074 384         50           Flange socket, 23-pin         074 386         50           Flange socket, 35-pin         074 386         50           Flange socket, 35-pin         074 386         50           Front plate for housing HBA with handwheel         083 635         36           Front plate for housing HBA with handwheel         083 635         36           Front plate for housing HBA withun thandwheel         083 636         36           Front plate for housing HBA withun thandwheel         083 636         36           Front plate for housing HBA without handwheel         083 636         36           Front plate for housing HBA without handwheel         084 395         36           Front plate for housing HBA without handwheel         084 395         36           Front plate for housing HBA without handwheel         084 395         36           Front plate for housing HBA without handwheel         084 396         36           Front plate for husing HBA without handwheel         082 761         73           Housing HBE - 072 627						
Flange plug 19-pin         092 374         53           Flange socket, 12-pin         086 749         50           Flange socket, 23-pin         074 384         50           Flange socket, 28-pin         074 385         50           Flange socket, 35-pin         074 385         50           Flange socket, 35-pin         074 385         50           Front plate F with seal         028 760         73           Front plate for housing HBA with handwheel         083 635         36           Front plate for housing HBA without handwheel         083 635         36           Front plate for housing HBA without handwheel         083 636         36           Front plate for housing HBA without handwheel         083 636         36           Front plate for housing HBA without handwheel         083 636         36           Front plate for housing HBA without handwheel         083 636         36           Front plate for housing HBA without handwheel         084 395         36           Front plate for housing HBA without handwheel         084 396         36           Front plate for housing HBA without handwheel         084 396         36           Front plate for housing HBA without handwheel         084 396         36           Housing HBE - 072 629         <						
Flange socket, 12-pin       086 749       50         Flange socket, 23-pin       074 384       50         Flange socket, 28-pin       074 385       50         Flange socket, 35-pin       074 386       50         Flange socket, 35-pin       074 386       50         Front plate for housing HBA with handwheel       083 635       36         Front plate for housing HBA with handwheel       083 636       36         Front plate for housing HBA without handwheel       083 636       36         Front plate for housing HBA without handwheel       083 762       73         Front plate for housing HBA without handwheel       084 395       36         Front plate for housing HBA without handwheel       084 395       36         Front plate for housing HBA without handwheel       084 395       36         Front plate for housing HBA without handwheel       084 395       36         Front plate for housing HBA without handwheel       084 395       36         Front plate for housing HBA without handwheel       084 395       36         Front plate for housing HBA without handwheel       083 762       73         Front plate for housing HBA - 072 936       72 641       40         Handheld pendant station HBA - 079 827       79 827       11	· · · · · · · · · · · · · · · · · · ·					
Flange socket, 23-pin       074 384       50         Flange socket, 28-pin       074 385       50         Flange socket, 28-pin       074 386       50         Flange socket, 35-pin       074 386       50         Flange socket, 35-pin       074 386       50         Flange socket, and short-circuit plug       098 412       53         Front plate for housing HBA with handwheel       083 635       36         Front plate for housing HBA without handwheel       083 636       36         Front plate for housing HBA without handwheel       084 395       36         Front plate for housing HBA without handwheel       084 396       36         Front plate for housing HBA without handwheel       084 396       36         Front plate for housing HBA without handwheel       084 396       36         Front plate for housing HBA without handwheel       084 396       36         Front plate for housing HBA without handwheel       084 396       36         Front plate for housing HBA without handwheel       084 396       36         Front plate for housing HBA without handwheel       084 396       36         Front plate for housing HBA 028       072 642       40         Handheld pendant station HBA - 079 826       079 827       11						
Flange socket, 28-pin       074 385 50       Housing HBA · 086 155       086 155 33         Flange socket, 35-pin       074 386 50       Housing HBA · 095 562       095 562 33         Flange socket, ad short-circuit plug       098 412 53       Housing HBE · 048 429       048 429 39         Front plate F with seal       028 760 73       Housing HBE · 054 982       054 982 39         Front plate for housing HBA with handwheel       083 635 36       Housing HBE · 072 627       072 627 39         Front plate for housing HBA without handwheel       084 395 36       Housing HBE · 072 627       072 627 39         Front plate for housing HBA without handwheel       084 396 36       Housing HBE · 072 627       072 629 39         Front plate for housing HBA without handwheel       084 396 36       Housing HBE · 072 984       072 984 39         Front plate for huse for						
Flange socket, 35-pin       074 386       50         Flange socket and short-circuit plug       098 412       53         Front plate F with seal       028 760       73         Front plate for housing HBA with handwheel       083 635       36         Front plate for housing HBA with handwheel       083 635       36         Front plate for housing HBA with handwheel       083 635       36         Front plate for housing HBA without handwheel       083 635       36         Front plate for housing HBA without handwheel       084 395       36         Front plate for housing HBA without handwheel       084 395       36         Front plate for housing HBA without handwheel       084 396       36         Front plate G with seal       028 761       73         Front plate G with seal       028 762       73         Front seal for HBE front plate       072 642       40         Housing HBE -072 630       072 630       43         Handheld pendant station HBA -079 826       079 826       11         Handheld pendant station HBA -079 828       079 827       11         Handheld pendant station HBA -079 828       079 828       11         Handheld pendant station HBA -072 936       072 942       107         Handheld pendant						
Flange socket and short-circuit plug       098 412       53       Housing HBE - 048 429       048 429       39         Front plate F with seal       028 760       73       Housing HBE - 054 982       054 982       39         Front plate for housing HBA with handwheel       083 635       36       Housing HBE - 072 626       072 626       39         Front plate for housing HBA with handwheel       083 636       36       Housing HBE - 072 627       072 627       39         Front plate for housing HBA without handwheel       084 395       36       Housing HBE - 072 629       072 629       39         Front plate G with seal       028 761       73       Housing HBE - 072 984       072 984       39         Front plate G with seal       028 762       73       Housing HBE - 072 630       072 630       43         Front seal for HBE front plate       072 641       44       Housing HBL -072 631       072 631       43         Handheld pendant station HBA - 079 826       079 826       11       Housing HBL -073 098       073 098       43         Handheld pendant station HBA - 079 826       079 828       11       Housing HBL -073 109       073 109       43         Handheld pendant station HBA - 098 404       098 405       13       Housing HBL -073 109       073 113	<b>o i i</b>					
Front plate F with seal       028 760       73       Housing HBE · 054 982       054 982       39         Front plate for housing HBA with handwheel       083 635       36       Housing HBE · 072 626       072 626       39         Front plate for housing HBA without handwheel       083 636       36       Housing HBE · 072 627       072 627       39         Front plate for housing HBA without handwheel       084 395       36       Housing HBE · 072 629       072 629       39         Front plate for housing HBA without handwheel       084 395       36       Housing HBE · 072 629       072 629       39         Front plate for housing HBA without handwheel       084 395       36       Housing HBE · 072 629       072 629       39         Front plate for housing HBA without handwheel       084 396       36       Housing HBE · 072 629       072 629       39         Front plate for housing HBA without handwheel       084 396       36       Housing HBE · 072 630       074 973       39         Front seal for HBE front plate       072 641       44       Housing HBL · 072 631       072 631       43         Handheld pendant station HBA · 079 826       079 826       11       Housing HBL · 072 983       072 983       43         Handheld pendant station HBA · 079 828       079 828						
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