

Function and technology used in handwheels

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

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





Magnetic detent mechanism

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

With 100 detent positions (100 or 25 pulses)

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

There are three different designs available:

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



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



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



Mechanical detent mechanism

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

With 100 detent positions (100 or 25 pulses)

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

There are two different designs available:

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



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





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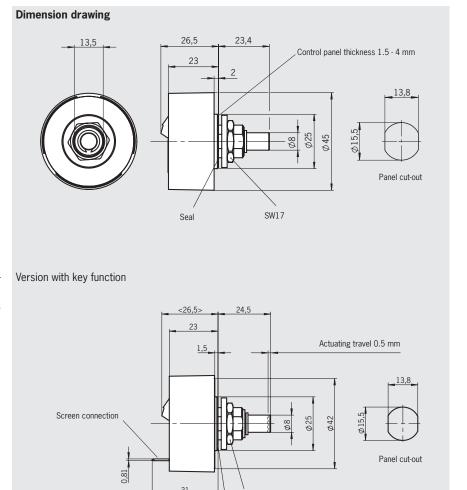
Handwheel HKB

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



Notes

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



Series	Number of pulses per revolution	Connection	Detent positions	Outputs	Order No./item
	25	S Screw terminal	100	G12 Push-pull 5 V U _B = 10 30 V DC	105137 HKB025S7G12
НКВ	100			A05 RS422A U _B = 5 V DC	105134 HKB100S7A05
		S Screw terminal	100	A12 RS422A U _B = 10 30 V DC	105135 HKB100S7A12
	100			G05 5 V push-pull U _B = 5 V DC	105136 HKB100S7G05
				G24 Push-pull 1030 V U _B = 10 30 V DC	105138 HKB100S7G24
HKB with key function	100	S Screw terminal	100	A05 RS422A U _B = 5 V DC	109429 HKB100S7A05K



Pulses per revolution			Value	Unit
Datant manitiana		2 x 25 or 2 x 100		
Detent positions			100	
Housing material			Aluminum	
Weight			0.095	kg
Detent mechanism			Magnetic	
Shaft loading, axial, max.			25	N
Shaft loading, radial, max.			40	N
Mechanical life, min.			5 x 10 ⁶	Rev.
Operating temperature			0 +50	°C
Storage temperature			-20 +50	°C
Atmospheric humidity, max.		80% (cc	ondensation not permissible)	
Front degree of protection	acc. to EN 60529/IEC 529		IP 65	
	acc. to NEMA 250		250-12	
Resistance to vibration				
Vibrations (3 axes)			DIN/IEC 68-2-6	
Shock (3 axes)			DIN/IEC 68-2-27	
EMC protection requirement	ts in accordance with CE	EN 6	1000-6-2, EN 61000-6-4	
Key function				
Mechanical life, min.			1 x 10 ⁶ actuations	
Actuating travel			0.3 0.7 mm	
Specification output OUT			Output stage	
		A05/G05	A12/G12/G2	4
Operating voltage U _B		DC 5 V ± 5 %	DC 10 30 '	/
Output voltage	HIGH (1), min.	4.0 V/0 mA	_	
=		3.4 V/5 mA	_	
		3.0 V/20 mA	U _B - 3 V/20 m	A
	LOW (0), max.	1.3 V/15 mA	3 V/20 mA	
Output circuit RS422A		- ,	, ,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	
Output stage		A05	A12	
Output signals			A, /A, B, /B	
Operating voltage U _B		5 ± 5 %	10 30	V DC
Operating current, no load,	max.	0 = 0 %	80	mA
Output circuit		According to RS422	A, use RS422 differential receiver module	
Output signals cw (clockwise	e rotation)	25 pulses	100 pulses	
Sutput Signals on (Glockwis-	c rotation,	360°	Too paises	_
		* 90°.	Α	
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		В	/В	
		В	/B 200 µs 400 µs	
		/B	/B 200 µs 400 µs 800 µs	
Terminal assignment		/B Screw terminal, 7-pin, condu	/B 200 µs 400 µs 800 µs ctor cross-section 0.082 1.52 (AWG 2.	2 16)
Terminal assignment		/B Screw terminal, 7-pin, condu	Ctor cross-section 0.082 1.52 (AWG 2. sning torque, max. 0.5 Nm	
Terminal assignment		/B Screw terminal, 7-pin, condu	/B 200 µs 400 µs 800 µs ctor cross-section 0.082 1.52 (AWG 2.	
Terminal assignment		/B Screw terminal, 7-pin, condu	Ctor cross-section 0.082 1.52 (AWG 2. sning torque, max. 0.5 Nm	on
Terminal assignment		Screw terminal, 7-pin, condu. Tighte without key function U O O O O O U U O O A /A B /B	ctor cross-section 0.08^2 1.5^2 (AWG 2 ming torque, max. 0.5 Nm with key function 0.08^2 0.0	on out
Terminal assignment		Screw terminal, 7-pin, condu- Tighte without key function	AB 200 µs 400 µs 800 µs 1.52 (AWG 2.15) Nm with key function with	on Out
_		Screw terminal, 7-pin, condu. Tighte without key function U O O O O O U U O O A /A B /B	ctor cross-section 0.08^2 1.5^2 (AWG 2 ming torque, max. 0.5 Nm with key function 0.08^2 0.0	on Out
Output circuit, push-pull		Screw terminal, 7-pin, conducting the without key function Us OV A /A B /B	AB 200 µs 400 µs 800 µs 200 µs 400 µ	on ② ② Out
Output circuit, push-pull Output stage		Screw terminal, 7-pin, condu. Tighte without key function U O O O O O U U O O A /A B /B	AB 200 µs 400 µs 800 µs 1.52 (AWG 2. ning torque, max. 0.5 Nm with key function $0.08^2 \dots 0.5 \times $	on Out
Output circuit, push-pull Output stage Output signals		Screw terminal, 7-pin, condu. Tighte without key function Us OV A /A B /B Us OV A /A B /B	ctor cross-section 0.08^2 1.5^2 (AWG 2 ming torque, max. 0.5 Nm with key function 0.08^2 0.0	On Out
Output circuit, push-pull Output stage Output signals Operating voltage U _B	may	Screw terminal, 7-pin, conducting the without key function Us OV A /A B /B	ctor cross-section 0.08^2 1.5^2 (AWG 2 ming torque, max. 0.5 Nm with key function 0.08^2 0.0	On Out Ut
Output circuit, push-pull Output stage Output signals Operating voltage U _B Operating current, no load,		Screw terminal, 7-pin, conducting the without key function O O O O O O O O O O O O O O O O O O	ctor cross-section 0.08^2 1.5^2 (AWG 2 ming torque, max. 0.5 Nm with key function with key function 0.08^2	On Out
Output circuit, push-pull Output stage Output signals Operating voltage U _B	max. HIGH (1), min.	Screw terminal, 7-pin, conducting the without key function O O O O O O O O O O O O O O O O O O	ctor cross-section 0.08 ² 1.5 ² (AWG 2 ening torque, max. 0.5 Nm with key function with key func	On Out Ut Ut DC
Output circuit, push-pull Output stage Output signals Operating voltage U _B Operating current, no load,		Screw terminal, 7-pin, conducting the without key function Withou	Coo ps 400 ps 800 ps 800 ps 1.52 (AWG 2 ming torque, max. 0.5 Nm with key function w	Out
Output circuit, push-pull Output stage Output signals Operating voltage U _B Operating current, no load,	HIGH (1), min.	Screw terminal, 7-pin, conducting the without key function Withou	G12 A, B 10 30 80 4.9 V / 0 mA 3.9 V / 5 mA 3.6 V / 20 mA	On Out
Output circuit, push-pull Output stage Output signals Operating voltage U _B Operating current, no load, Output voltage	HIGH (1), min. LOW (0), max.	Screw terminal, 7-pin, conducting the without key function Withou	G12 A, B 10 30 80 4.9 V / 0 mA 3.9 V / 5 mA 3.6 V / 20 mA 1.3 V / 15 mA	On Out
Output circuit, push-pull Output stage Output signals Operating voltage U _B Operating current, no load, Output voltage Output current per output, n	HIGH (1), min. LOW (0), max. max.	Screw terminal, 7-pin, condu. Tighte without key function Us OV A /A B /B Us OV A /A A /B Us OV A /A A /B /B Us OV	G12 A, B G12 A, B 10 30 80 4.9 V / 0 mA 3.6 V / 20 mA 1.3 V / 15 mA 20 A 0 µs 400 µs 400 µs 400 µs 800 µs 10 1.5² (AWG 2) With key function With key function 0	On Out
Output circuit, push-pull Output stage Output signals Operating voltage U _B Operating current, no load, Output voltage Output current per output, n	HIGH (1), min. LOW (0), max. max.	Screw terminal, 7-pin, conducting the without key function Withou	G12 A, B 10 30 80 4.9 V / 0 mA 3.9 V / 5 mA 3.6 V / 20 mA 1.3 V / 15 mA	On Out
Output circuit, push-pull Output stage Output signals Operating voltage U _B Operating current, no load, Output voltage Output current per output, n	HIGH (1), min. LOW (0), max. max.	Screw terminal, 7-pin, condu. Tighte without key function Us OV A /A B /B Us OV A /A A /B Us OV A /A A /B /B Us OV	G12 A, B G12 A, B 10 30 80 4.9 V / 0 mA 3.6 V / 20 mA 1.3 V / 15 mA 20 A 0 µs 400 µs 400 µs 400 µs 800 µs 10 1.5² (AWG 2) With key function With key function 0	On Out
Output circuit, push-pull Output stage Output signals Operating voltage U _B Operating current, no load,	HIGH (1), min. LOW (0), max. max.	Screw terminal, 7-pin, conducting the without key function Gos 4.0 V A B B B Without A B B Witho	G12 A, B 10 30 80 4.9 V / 0 mA 3.9 V / 5 mA 3.6 V / 20 mA 1.3 V / 15 mA 20 100 pulses	On Out
Output circuit, push-pull Output stage Output signals Operating voltage U _B Operating current, no load, Output voltage Output current per output, n	HIGH (1), min. LOW (0), max. max.	Screw terminal, 7-pin, conducting the without key function Gos 4.0 V A A B /B Without A B /B Wit	G12 A, B 10 30 80 4.9 V / 0 mA 3.9 V / 5 mA 3.6 V / 20 mA 1.3 V / 15 mA 20 100 pulses A	On Out
Output circuit, push-pull Output stage Output signals Operating voltage U _B Operating current, no load, Output voltage Output current per output, n	HIGH (1), min. LOW (0), max. max.	Screw terminal, 7-pin, conducting the without key function Gos 4.0 V A B B B Without A B B Witho	G12 A, B 10 30 80 4.9 V / 0 mA 3.9 V / 5 mA 3.6 V / 20 mA 1.3 V / 15 mA 20 100 pulses	On Out
Output circuit, push-pull Output stage Output signals Operating voltage U _B Operating current, no load, Output voltage Output current per output, n	HIGH (1), min. LOW (0), max. max.	Screw terminal, 7-pin, condu. Tighte without key function Us OV A /A B /B Us Us A /A B /B Us Us A /A B /B Us Us A /A B /B Us OV A /A B /B Us Us A /A B /B Us Us A /A B /B Us Us A /A B /B Us A /B Us A /B 4.0 V / 0 mA 3.4 V / 5 mA 3.0 V / 20 mA 1.3 V / 15 mA	G12 A, B 10 30 80 4.9 V / 0 mA 3.6 V / 20 mA 1.3 V / 15 mA 20 100 pulses A B 10 30 100 pulses A B	On Out
Output circuit, push-pull Output stage Output signals Operating voltage U _B Operating current, no load, Output voltage Output current per output, n	HIGH (1), min. LOW (0), max. max.	Screw terminal, 7-pin, conducting the without key function Without key function Without key function GOS S ± 5 % 4.0 V / 0 mA 3.4 V / 5 mA 3.0 V / 20 mA 1.3 V / 15 mA 25 pulses A B 90°	G12 A, B 10 30 80 4.9 V / 0 mA 3.6 V / 20 mA 1.3 V / 15 mA 20 100 pulses A B 10 30 100 pulses	On Out
Output circuit, push-pull Output stage Output signals Operating voltage U _B Operating current, no load, Output voltage Output current per output, no Output signals cw (clockwise	HIGH (1), min. LOW (0), max. max.	Screw terminal, 7-pin, condu. Tighte without key function Without key function GO5 5 ± 5 % 4.0 V / 0 mA 3.4 V / 5 mA 3.0 V / 20 mA 1.3 V / 15 mA 25 pulses A B 90° 360°	G12 A, B 10 30 80 4.9 V / 0 mA 3.6 V / 20 mA 1.3 V / 15 mA 20 100 pulses A B 10 30 100 pulses A B 100 pulses A B 100 pulses A	On Out
Output circuit, push-pull Output stage Output signals Operating voltage U _B Operating current, no load, Output voltage Output current per output, no Output signals cw (clockwise	HIGH (1), min. LOW (0), max. max.	Screw terminal, 7-pin, condularing the without key function GOS GOS 5 ± 5 % 4.0 V / 0 mA 3.4 V / 5 mA 3.0 V / 20 mA 1.3 V / 15 mA 25 pulses A B GOS Screw terminal, 7-pin, condularing the substitution of the substit	G12 A, B 10 30 80 4.9 V / 0 mA 3.9 V / 5 mA 1.3 V / 15 mA 20 100 pulses A B 10 30 100 pulses A B 1	On Out
Output circuit, push-pull Output stage Output signals Operating voltage U _B Operating current, no load, Output voltage Output current per output, no Output signals cw (clockwise	HIGH (1), min. LOW (0), max. max.	Screw terminal, 7-pin, conducting the without key function Without key function Without key function Without key function GO5 GO5 5 ± 5 % 4.0 V / 0 mA 3.4 V / 5 mA 3.0 V / 20 mA 1.3 V / 15 mA 25 pulses A B Screw terminal, 7-pin, conducting the	G12 A, B 10 30 80 4.9 V / 0 mA 3.9 V / 5 mA 3.6 V / 20 mA 1.3 V / 15 mA 20 100 pulses A B 200 µs 400 µs 800 µs 4.9 V / 0 mA 3.9 V / 5 mA 3.6 V / 20 mA 1.3 V / 15 mA 20 100 pulses A B Cotor cross-section 0.08² 1.5² (AWG 2 aning torque, max. 0.5 Nm	On Out
Output circuit, push-pull Output stage Output signals Operating voltage U _B Operating current, no load, Output voltage Output current per output, n	HIGH (1), min. LOW (0), max. max.	Screw terminal, 7-pin, condularing the without key function GOS GOS 5 ± 5 % 4.0 V / 0 mA 3.4 V / 5 mA 3.0 V / 20 mA 1.3 V / 15 mA 25 pulses A B GOS Screw terminal, 7-pin, condularing the substitution of the substit	G12 A, B 10 30 80 4.9 V / 0 mA 3.9 V / 5 mA 1.3 V / 15 mA 20 100 pulses A B 10 30 100 pulses A B 1	On Out
Output circuit, push-pull Output stage Output signals Operating voltage U _B Operating current, no load, Output voltage Output current per output, no Output signals cw (clockwise	HIGH (1), min. LOW (0), max. max.	Screw terminal, 7-pin, conducting the without key function GOS GOS 5 ± 5 % 4.0 V / 0 mA 3.4 V / 5 mA 3.0 V / 20 mA 1.3 V / 15 mA 25 pulses A B Screw terminal, 7-pin, conducting the without key function	G12 A, B 10 30 80 4.9 V / 0 mA 3.9 V / 5 mA 3.6 V / 20 mA 1.3 V / 15 mA 20 100 pulses A B 200 µs 400 µs 800 4.9 V / 0 mA 3.9 V / 5 mA 3.6 V / 20 mA 1.3 V / 15 mA 20 100 pulses A B 200 µs 400 µs 800 100 pulses A B 200 µs 400 µs 800 100 pulses A B 200 µs 800 100 pulses A B 200 µs 800 100 pulses A B 200 µs 800 µs	On Out
Output circuit, push-pull Output stage Output signals Operating voltage U _B Operating current, no load, Output voltage Output current per output, no Output signals cw (clockwise	HIGH (1), min. LOW (0), max. max.	Screw terminal, 7-pin, conducting the without key function Without key function Without key function Without key function GO5 GO5 5 ± 5 % 4.0 V / 0 mA 3.4 V / 5 mA 3.0 V / 20 mA 1.3 V / 15 mA 25 pulses A B Screw terminal, 7-pin, conducting the	G12 A, B 10 30 80 4.9 V / 0 mA 3.9 V / 5 mA 3.6 V / 20 mA 1.3 V / 15 mA 20 100 pulses A B 200 µs 400 µs 800 µs 4.9 V / 0 mA 3.9 V / 5 mA 3.6 V / 20 mA 1.3 V / 15 mA 20 100 pulses A B Cotor cross-section 0.08² 1.5² (AWG 2 aning torque, max. 0.5 Nm	On Out



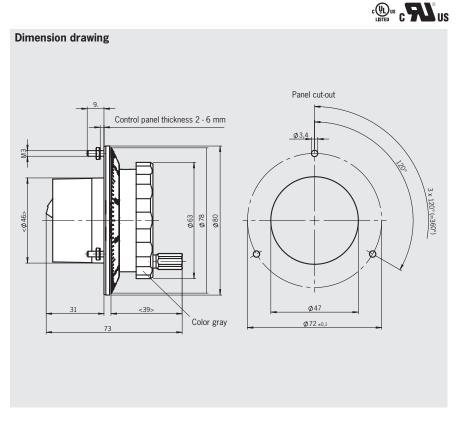
Handwheel HKC

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



Notes

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



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



Parameter		Value		Unit
Pulses per revolution		2 x 25 or 2 x 100		
Detent positions		100		
Housing material		Plastic/metal		
Weight		0.25		kg
Detent mechanism		Magnetic		
Shaft loading, axial, max.		25		N
Shaft loading, radial, max.		40		N
Mechanical life, min.		5 x 10 ⁶		Rev.
Operating temperature		0 +50		°C
Storage temperature		-20 +50		°C
Atmospheric humidity, max.	8	0% (condensation not permissib	le)	
Front degree of protection acc. to EN 60529/IEC 529		IP 65		
acc. to NEMA 250		250-12		
Resistance to vibration				
Vibrations (3 axes)		DIN/IEC 68-2-6		
Shock (3 axes)		DIN/IEC 68-2-27		
EMC protection requirements in accordance with CE		EN 61000-6-2, EN 61000-6-4		
Output circuit RS422A				
Output stage		A05		
Output signals		A, /A, B, /B		
Operating voltage U _B		5 ± 5 %		V DC
Operating current, no load, max.		80		mA
Output circuit	According to R	S422A, use RS422 differential	receiver module	
Output signals cw (clockwise rotation)	25 pulses		100 pulses	
output eignate on (electrines retailer)	360°	_		
	90°	— → A		
	4		-	
	A	/A		
		,		
	/A	В		
	, LHH II	L		
	В	=	$\overline{}$	
	P	/B		
		1	200 μs 400 μs	
	/B		♦ ♦ ♦ 800 μs	
Toursinglessimment		Causer taumainal C	H	
Terminal assignment		Screw terminal S		
		Ø Ø Ø Ø Ø Ø ↓ U _B OV A /A B /B		
Output circuit, push-pull				
Output stage	G05	G12	G24	
Output signals		A, B	•	
Operating voltage U _B	5 ± 5 %	10	30	V DC
Operating current, no load, max.		80		mA
Output voltage HIGH (1), min.	4.0 V / 0 mA	4.9 V / 0 mA	_	
	3.4 V / 5 mA	3.9 V / 5 mA	_	1
	3.0 V / 20 mA	3.6 V / 20 mA	U _B - 3 V / 20 mA	1
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	
,				
	Α	A		
			1 <u> </u>	
	В	В		
			 	
	90°		200 μs 400 μs	
	360°		800 μs	
Terminal assignment	4.5	Screw terminal S		
acoignment				



Handwheel HKD

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



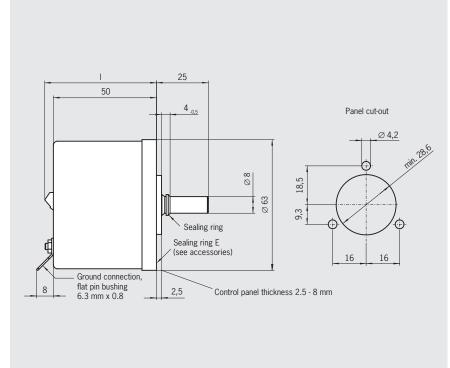
Notes

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

Mounting depth I

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

Dimension drawing



Series	Number of pulses per revolution	Connection	Detent positions	Outputs	Order No./item
	25	S Screw terminal	100	G12 Push-pull 5 V U _B = 10 30 V DC	091525 HKD025S100G12
	25	V Ribbon cable 6-pin with plug	100	G12 Push-pull 5 V U _B = 10 30 V DC	091526 HKD025V100G12
				A05 RS422A U _B = 5 V DC	054866 HKD100S100A05
нкр	100	S Screw terminal	100	G05 Push-pull 5 V U _B = 5 V DC	083354 HKD100S100G05
				G24 Push-pull 1030 V U _B = 10 30 V DC	054868 HKD100S100G24
		V Ribbon cable 6-pin with plug	100	A05 RS422A U _B = 5 V DC	057036 HKD100V100A05
				G05 Push-pull 5 V U _B = 5 V DC	091527 HKD100V100G05
				G24 Push-pull 1030 V U _B = 10 30 V DC	057037 HKD100V100G24



Parameter	Va	ılue	Unit
Pulses per revolution		r 2 x 100	
Detent positions	1	00	
Housing material	Alun	ninum	
Weight	C	0.5	kg
Detent mechanism	Mag	gnetic	
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.		on not permissible)	
Front degree of protection acc. to EN 60529/IEC 529		65	
acc. to NEMA 250	250	0-12	
Resistance to vibration			
Vibrations (3 axes)		C 68-2-6	
Shock (3 axes)		68-2-27	
EMC protection requirements in accordance with CE	EN 61000-6-2	, EN 61000-6-4	
Output circuit RS422A			
Output stage		05	
Output signals		, B, /B	
Operating voltage U _B		: 5 %	V DC
Operating current, no load, max.		30	mA
Output circuit		422 differential receiver module	
Output signals cw (clockwise rotation)	25 pulses	100 pulses	
Terminal assignment	A B Detent position areas Ribbon cable V /B/A 0V B A Us	Detent position area Screw terminal S Us OV A /A B /B Us OV A /A B /B	
Output circuit, push-pull			
Output stage	<u> </u>	12 G24	
Output signals		, В	
Operating voltage U _B	5 ± 5 %	10 30	V DC
Operating current, no load, max.		30	mA
Output voltage HIGH (1), min.		/ 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.		/ 15 mA 3 V / 20 mA	
Output current per output, max.		20	mA
Output signals cw (clockwise rotation)	25 pulses	100 pulses	
	A B Detent position areas	A Detent position area	
Terminal assignment	Ribbon cable V	Screw terminal S	
adoughment	/B/A 0V	Us OV A B	



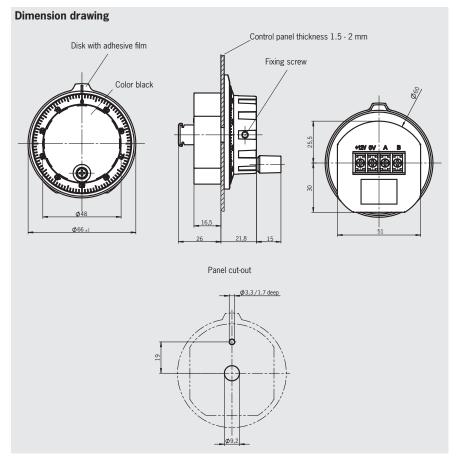
Handwheel HWA

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



Notes

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



Series	Number of pulses per revolution	Connection	Detent positions	Outputs	Order No./item
	25	T Screw terminal	100	$\begin{array}{c} \textbf{G12} \\ \text{Push-pull 5 V} \\ \text{U}_{\text{B}} = 12 \text{ V DC} \end{array}$	072972 HWA025T100G12/V10 (10 ea.)
HWA Packaging unit 10 ea.	100	т	100	A05 RS422A U _B = 5 V DC	072970 HWA100T100A05/V10 (10 ea.)
	100	Screw terminal	100	G05 Push-pull 5 V U _B = 5 V DC	072971 HWA100T100G05/V10 (10 ea.)



Parameter	V	alue	Unit
Pulses per revolution		or 2 x 100	
Detent positions		100	
Housing material		c/metal	
Weight		0.1	kg
Detent mechanism		chanical	ng ng
Shaft loading, axial, max.		25	N
		40	N N
Shaft loading, radial, max.			_
Mechanical life, min.		x 10 ⁶	Rev.
Operating temperature		. +50	
Storage temperature		+50	°C
Atmospheric humidity, max.		on not permissible)	
Front degree of protection acc. to EN 60529/IEC 529		P65	
acc. to NEMA 250	25	50-12	
Output circuit RS422A			
Output stage	, and the second se	105	
Output signals	A, //	A, B, /B	
Operating voltage U _B		: 10 %	V DC
Operating current, no load, max.		80	mA
Output specifications		3422 differential receiver module	
Output signals cw (clockwise rotation)		pulses	
Terminal assignment	Detent position area Screw terminal T +5V OV A Ā B B		
Output circuit, push-pull			
Output stage	G05	G12	
Output signals		Д, B	
Operating voltage U _B	5 ± 10 %	12 ± 10 %	V DC
Operating current, no load, max.		20	mA
Output voltage HIGH (1), min.		/ 20 mA	
LOW (0), max.		/ 20 mA	
Output current per output, max.		20	mA
Output signals CW (clockwise rotation)	100 pulses	25 pulses	1101
	A J J J J J J J J J J J J J J J J J J J	A Joseph	
Terminal assignment	Screw	terminal T	



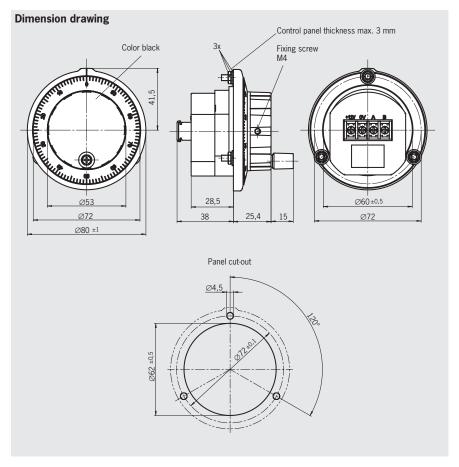
Handwheel HWB

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



Notes

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



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



Parameter	Va	lue	Unit
Pulses per revolution		r 2 x 100	
Detent positions		00	
Housing material		c/metal	
Weight		125	kg
Detent mechanism		nanical	ng ng
Shaft loading, axial, max.		25	N
		10	N N
Shaft loading, radial, max.			
Mechanical life, min.		106	Rev.
Operating temperature		+50	°C
Storage temperature	-20	°C	
Atmospheric humidity, max.		on not permissible)	
Front degree of protection acc. to EN 60529/IEC 529		65	
acc. to NEMA 250	250	0-12	
Output circuit RS422A			
Output stage	A	05	
Output signals	A, /A,	, B, /B	
Operating voltage U _B		10 %	V DC
Operating current, no load, max.		30	mA
Output specifications		422 differential receiver module	1101
Output signals cw (clockwise rotation)		pulses	
Terminal assignment	Detent position area Screw terminal T +5V OV A Ā B B		
Output circuit, push-pull			
Output stage	G05	G12	
Output signals	A,	, B	
Operating voltage U _B	5 ± 10 %	12 ± 10 %	V DC
Operating current, no load, max.	2	20	mA
Output voltage HIGH (1), min.	4.0 V /	′ 20 mA	
LOW (0), max.	0.5 V /	⁷ 20 mA	
Output current per output, max.		20	mA
Output signals CW (clockwise rotation)	100 pulses	25 pulses	
	A J 360° B Detent position area	A B Detent position areas	
Terminal assignment		erminal T	



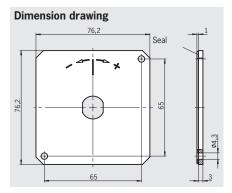
Accessories

Front panel for handwheel HKB

► Front panel with bonded seal

Ordering table

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



Front panel for handwheel HKD

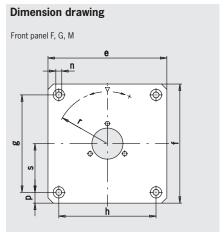
- Front panel with bonded seal
- ▶ Seal handwheels without front panel with sealing ring E

Dimensions

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

Ordering table

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

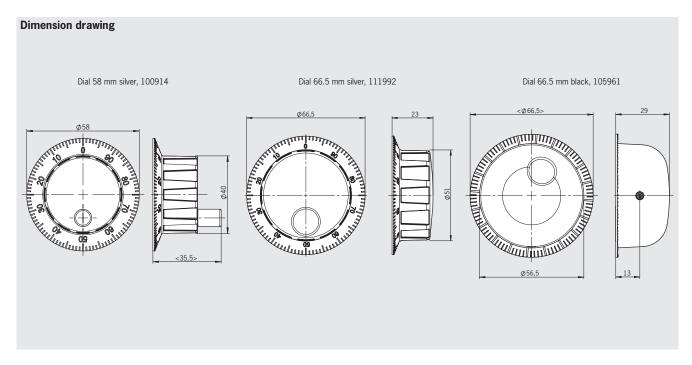


Dials for handwheel HKB

Item	Order no.
Dial 58 mm silver, metal with crank 1)	100914
Dial 66.5 mm silver, metal with finger recess 11.21	111992
Dial 66.5 mm black, plastic with finger recess ²⁾	105961

¹⁾ Suitable for installation in operator panels

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





Dials for handwheel HKD

Dimensions

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

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

