

⚠ Safety precautions ⚠

EUCHNER handwheels HKD meet the EMC protection requirements according to EN 61000-6-2 and EN 61000-6-4.

Handwheels HKD must not be used for residential applications, in business or commercial areas or in small businesses.

The operator of the overall higher-level system is responsible for conformity with the national and international safety and accident prevention regulations applicable to the special application.

When designing machines and using handwheels, the national and international safety and accident prevention regulations specific to the application must be observed, e.g.:

- ▶ EN 60204, electrical equipment of machines
- ▶ EN 292, safety of machines, general design principles
- ▶ EN 954, safety-related parts of control systems

⚠ Appropriate safety measures must be taken to prevent a malfunction of the handwheel which could cause danger to human beings or damage to operating equipment.

Correct use

The EUCHNER handwheel is a universal pulse generator for manual shaft positioning.

The handwheel is primarily used for positioning NC-driven machine tools during set-up.

Handwheels are used as part of an overall higher-level control system.

Their use, installation and operation are permissible only in conformity with these Operating Instructions.

Incorrect use

Handwheels **on their own** must **not** be used as safety components for avoiding hazardous states in a machine installation.

Function

Two square-wave outputs of 100 or 25 pulses per revolution are available for the user.

A second phase-shifted output allows the connected control to detect the direction of movement.

The pulses are evaluated in the control.

The detent mechanism is magnetic and is therefore totally wear-free.

Assembly

⚠ The unit may only be assembled by authorised personnel.



Do not open the handwheels!



Do not throw or drop the handwheels!



Do not hit the handwheels!



Do not use tools on the handwheels!

The handwheel is installed with 3 M4 screws (available as accessories).

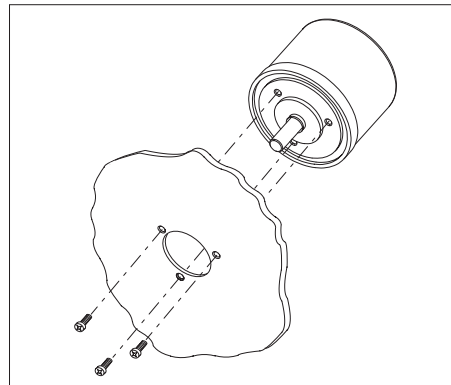


Fig. 1: Handwheel installation

Electrical connection


⚠ Electrical connection may only be performed by authorised personnel trained in EMC with **the machine switched off** and in **de-energised** state.

The machine must be safeguarded against reactivation.

If connected incorrectly, the handwheel may be damaged.

Observe electrical characteristics and the pin assignments (see technical data)

- ▶ Always shield connecting leads.
- ▶ Ground the shield at the end of the lead at a central grounding point, e.g. in the distribution board or in the control cabinet, over a large surface, with low resistance and with low inductance.
- ▶ Original connecting leads must not be shortened.
- ▶ Do not install connecting leads in the immediate vicinity of interference sources.
- ▶ When installing connections, the operator must ensure compliance with the EMC safety requirements.

Authorisation according to c _{us}: operation with power supply of UL-class 2 only, housing type UL-type 1.

Service and inspection

EUCHNER handwheels require no maintenance.

Handwheels may only be repaired by the manufacturer.

To clean the handwheels, only use solvent-free cleaning agents and a soft cloth.

Disclaimer of liability

The company does not accept liability regarding the following cases:

- ▶ if the unit is not used for its intended purpose
- ▶ if the safety instructions are not followed
- ▶ if the units are electrically connected by unauthorised personnel
- ▶ if the units are tampered with

Instructions for counting the handwheel pulses: Handwheel HKD

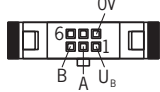
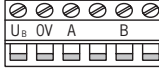
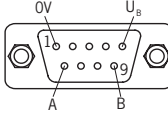
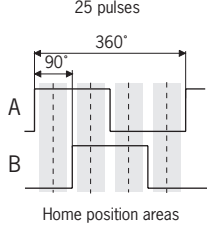
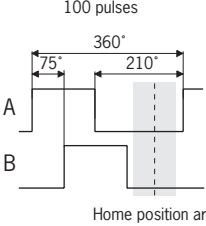
The following options are recommended for counting the handwheel pulses:

- ▶ suitable counter module
- ▶ phase discriminator

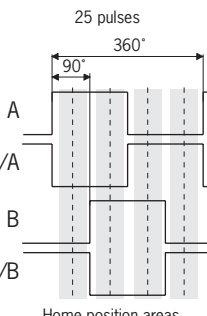
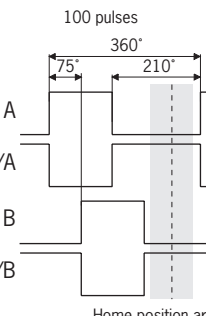
Technical data

Parameters	Value	
Pulses per revolution	2 x 25 or 2 x 100	
Detent positions	100	
Housing material	Aluminium	
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 service life, min.	20 x 10 ⁶ U	
Operating temperature	0 °C ... +70 °C	
Storage temperature	-25 °C ... +85 °C	
Humidity, max.	80 % (condensation not permissible)	
Degree of protection to the front	In accordance with EN 60529 / IEC 529	IP 65
	In accordance with NEMA	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 acc. with CE	EN 61000-6-2, EN 61000-6-4	

Output circuit

Push-pull				Pin assignment			
Output stage	G05	G12	G24	Flat cable with Socket connector DIN 41651, 6-pin Length approx. 250 mm	Screw terminal 6-pole Wire cross-section 0.08 ² ... 2.5 ² (AWG 28 ... 12) Tightening torque max. 0.5 Nm It is necessary to use copper conductors with temperature resistance of 75°C	D-SUB 9-pole Pin contacts Slide locking	
Output signals	A, B						
Operating voltage U _b	DC 5 V ± 5 %	DC 10 ... 30 V					
Operating current, no load, max.	80 mA						
Output specifications							
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							

Output circuit

RS422				Pin assignment		
Output stage	A05	A12		Flat cable with Socket connector DIN 41651, 6-pin Length approx. 250 mm	Screw terminal 6-pole Wire cross-section 0.08 ² ... 2.5 ² (AWG 28 ... 12) Tightening torque max. 0.5 Nm It is necessary to use copper conductors with temperature resistance of 75°C	D-SUB 9-pole Pin contacts Slide locking
Output signals	A, /A, B, /B					
Operating voltage U _b	DC 5 V ± 5 %	DC 10 ... 30 V				
Operating current, no load, max.	80 mA					
Output specifications	In accordance with RS422A					
Output signals						

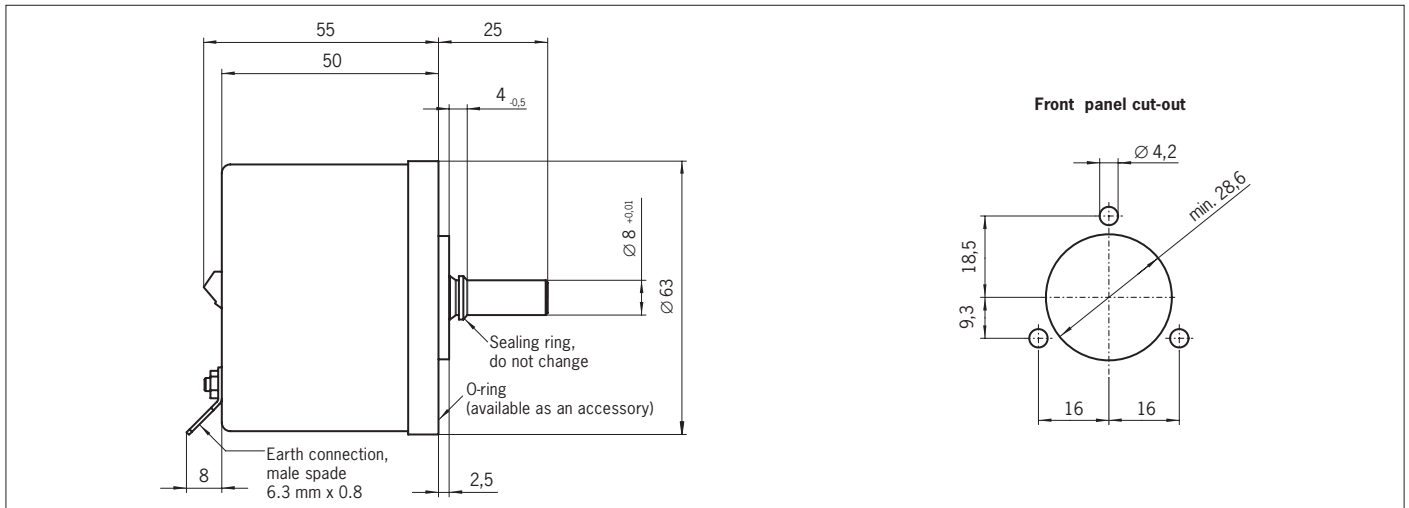


Fig. 2: Dimension drawing of handwheel HKD