



HEIDENHAIN



Product Information

HR 1120

Electronic Handwheel

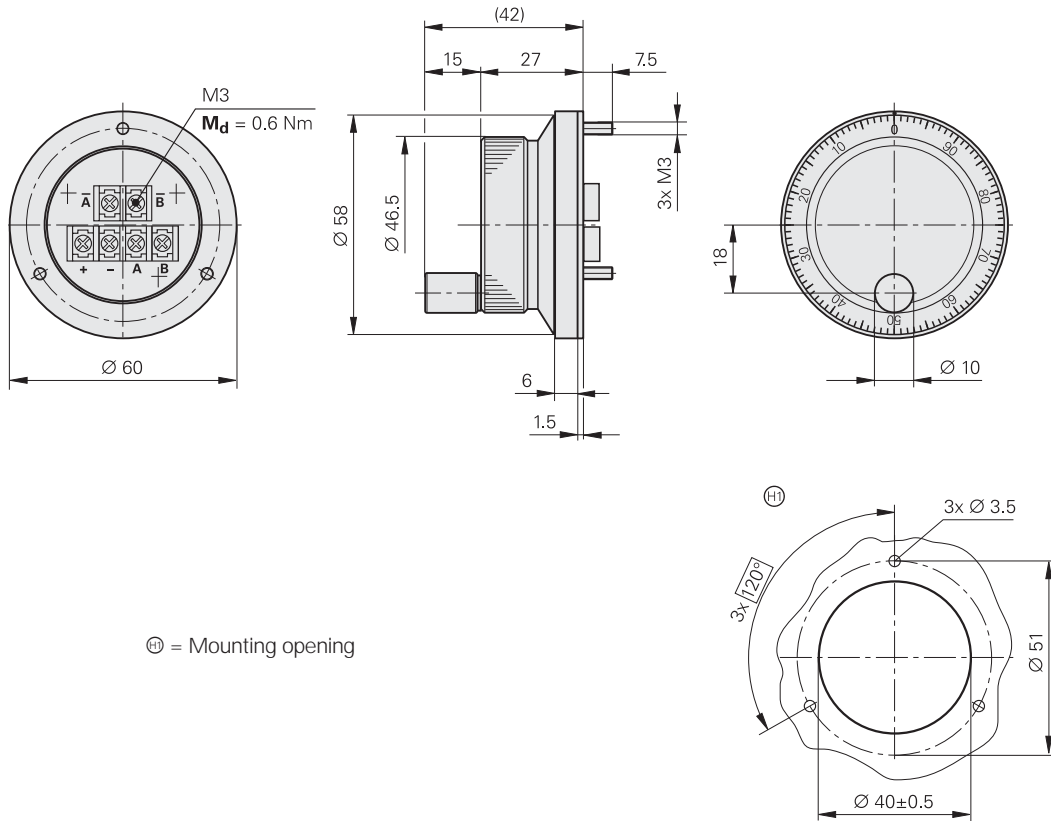
November 2009

HR 1120

Electronic handwheel

- With mechanical detent
- For general automation technology

Electronic handwheels facilitate workpiece setup on positioning units and in automation applications. Despite its compact dimensions, the HR 1120 from HEIDENHAIN is robust, making it suitable both for portable and for stationary housings. The mechanical detent with 100 positions per revolution permits very precise and exact control of the motion. The electrical output at TTL levels with differential signals as per RS 422 allows connection to many standard programmable logic controllers (PLC) and PC slot cards. Controls from HEIDENHAIN use handwheels with expanded interface functions, which is why the HR 1120 cannot be connected to them.




Dimensions in mm

⊕ = Mounting opening



 Tolerancing ISO 8015
 ISO 2768 - m H
 < 6 mm: $\pm 0.2 \text{ mm}$

	HR 1120
Incremental signals	 TTL
Line count	100
Scanning frequency	≤ 5 kHz
Signal amplitude	Differential line driver as per EIA standard RS 422 $U_H \geq 2.5 \text{ V}$ at $-I_H = 20 \text{ mA}$ $U_L \leq 0.5 \text{ V}$ at $I_L = 20 \text{ mA}$
Switching times	$t_+ / t_- \leq 100 \text{ ns}$
Power supply	$5 \text{ V} \pm 5 \%$
Current consumption	≤ 160 mA (without load)
Electrical connection	Via M3 screw terminals
Cable length	≤ 30 m (cable not included in items supplied)
Detent	Mechanical 100 detent positions per revolution
Mechanically permissible speed	≤ 200 min ⁻¹
Torque	≤ 0.1 Nm at 25 °C
Vibration (10 to 200 Hz)	≤ 20 m/s ²
Operating temperature	0 °C to 60 °C
Storage temperature	-30 °C to +70 °C
Protection (EN 60529)	IP 00 (IP 40 when mounted) No condensation permitted
Weight	Approx. 0.18 kg

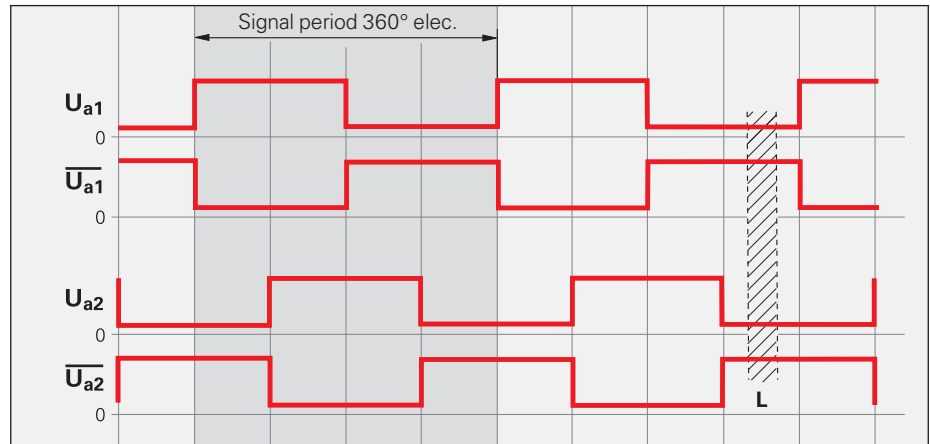
Electrical Connection

Output signals

The **incremental signals** are transmitted in TTL level as the square-wave pulse trains U_{a1} and U_{a2} , phase-shifted by 90° elec. In addition, the integrated electronics produce their **inverse signals** $\overline{U_{a1}}$ and $\overline{U_{a2}}$ for noise-proof transmission.

The signals are output as shown when the handwheel is turned clockwise.

The detent positions are defined within the range L.



Pin layout

The handwheel is connected electrically via screw terminals. The appropriate wire end sleeves must be attached to the wires.

Connecting cable

A shielded cable with a cross section of at least 0.5 mm^2 is recommended when connecting the handwheel to the power supply.

Screw-terminal connection



	Power supply		Incremental signals			
Connection	+	-	A	\overline{A}	B	\overline{B}
Signal	U_P 5 V	U_N 0 V	U_{a1}	$\overline{U_{a1}}$	U_{a2}	$\overline{U_{a2}}$

Mounting information

The HR 1120 is designed for mounting in a panel. CE compliance of the complete system must be ensured by taking the correct measures during installation.

HEIDENHAIN

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Additional information:

Rotary Encoders catalog