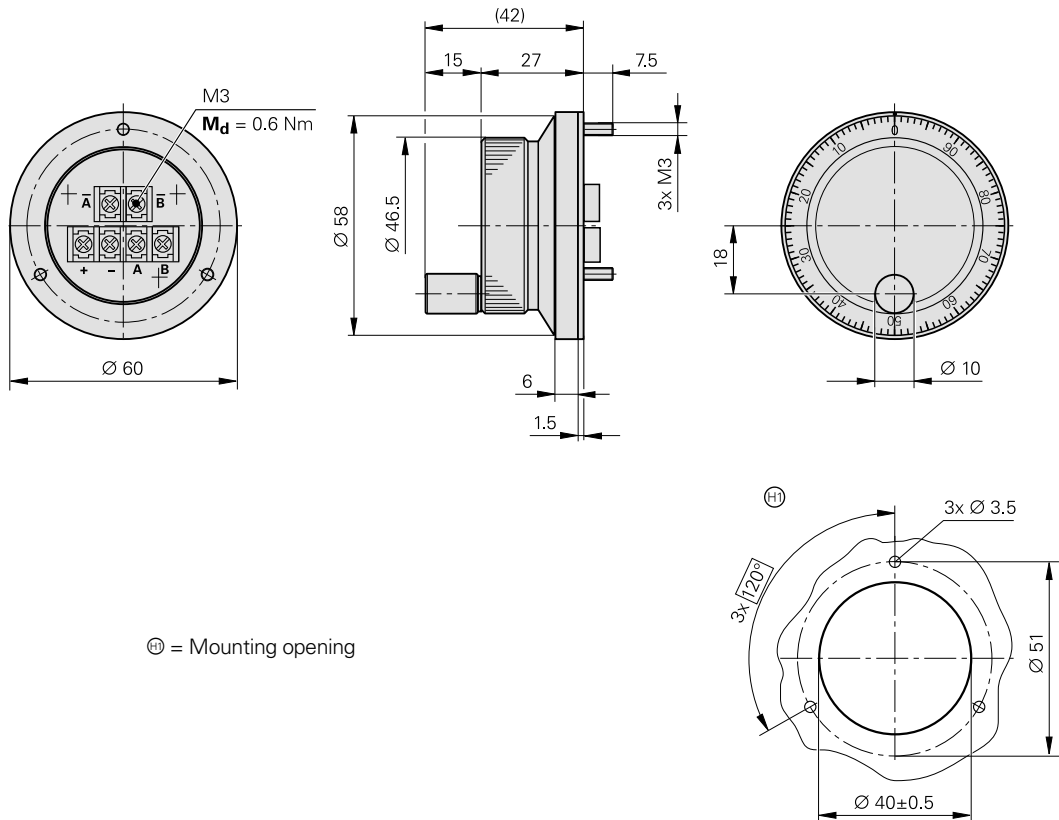


HR 1100 series

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 1100 series from HEIDENHAIN are 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 various output signals allow 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 1100 series cannot be connected to them.




Dimensions in mm

⊕ = Mounting opening



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

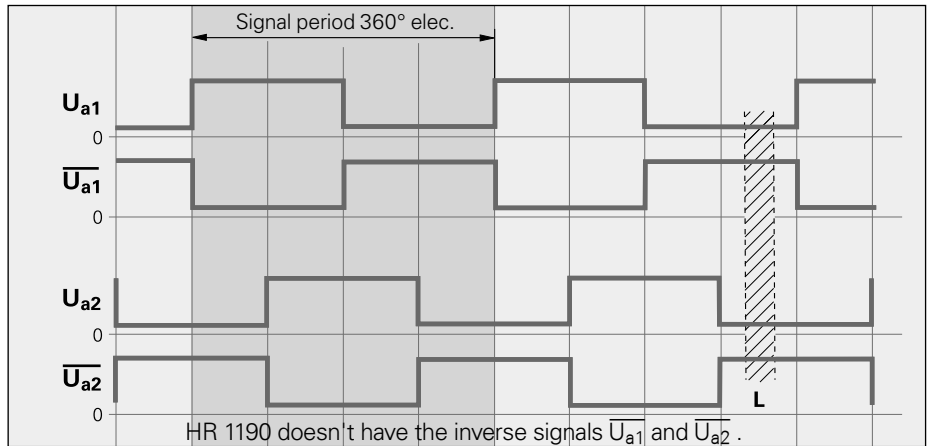
	HR 1120	HR 1190	
Incremental signals	 TTL	Voltage	Open Collectors
Line count	100		
Scanning frequency	≤ 5 kHz		
Signal amplitude	Differential line driver as per EIA standard RS 422 $U_H \geq 2.5 \text{ V}$ at $-I_H = 20 \text{ mA}$ $U_L \leq 0.5 \text{ V}$ at $I_L = 20 \text{ mA}$	$U_H \geq (4.5 \sim 16) \times 0.7 \text{ V}$ $U_L \leq 0.5 \text{ V}$	–
Output current	–	≤ 35mA	≤ 35mA
Max. applied voltage	–	–	50V
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		
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. (only HR 1120)

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	$\overline{A}^{2)}$	B	$\overline{B}^{2)}$
Signal	U_P 5V	U_N 0V	U_{a1}	$\overline{U_{a1}}^{2)}$	U_{a2}	$\overline{U_{a2}}^{2)}$

U_P = power supply

¹⁾HR 1120's photo

²⁾Only HR 1120

Mounting information

The HR 1100 series are 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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