

HIDA 90H PRECISION ROTARY ENCODER



The precision rotary encoder **HIDA90H** is used to measure angular position of the key components of machines, industrial robots, comparators, rotary tables and to establish an informational link with DCC, NC or Digital Readout units. It gives information about the value and direction of the motion components. The encoder is used in automatic control, on-line gauging, in process monitoring systems, etc.

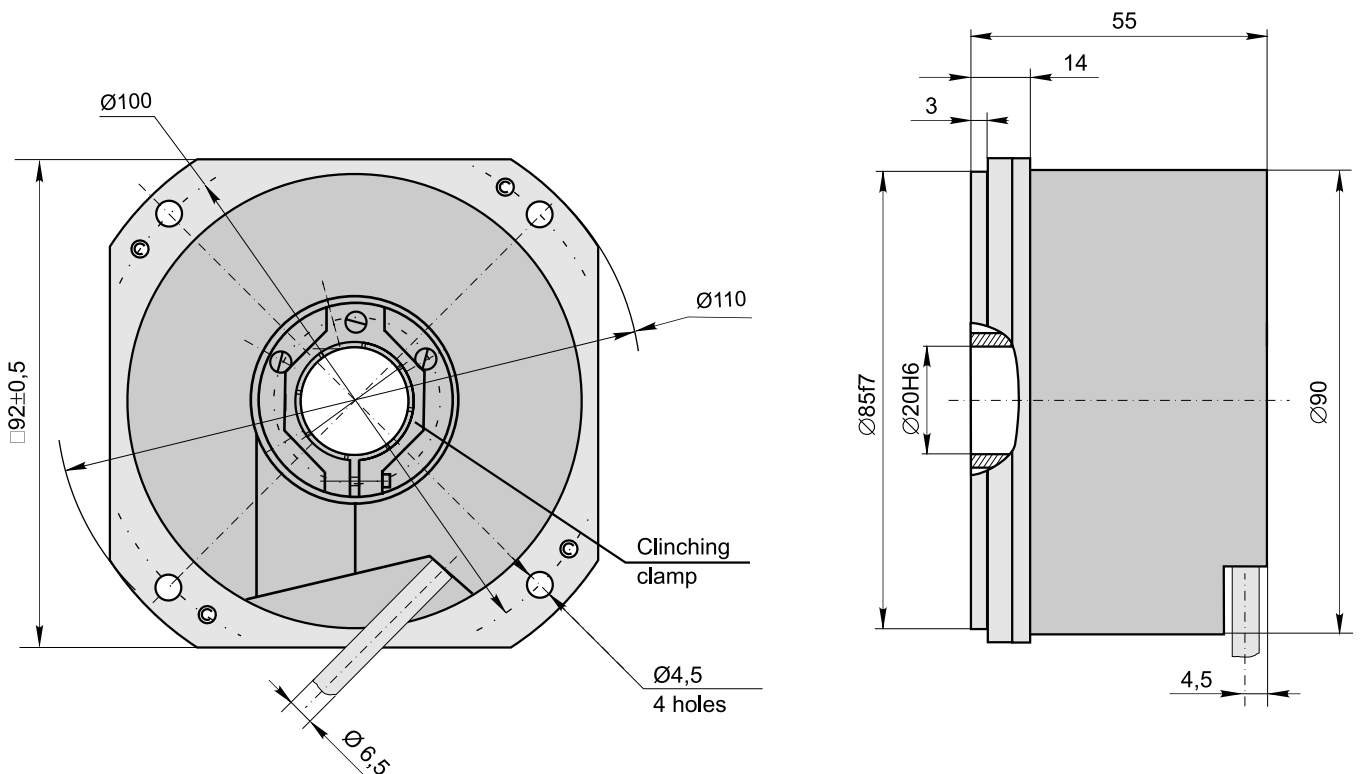
The case of the encoder is fixed to an object by means of four screws M4. The hollow shaft of the encoder is connected with an object shaft by means of clinching clamp.

The encoder has three versions of output signals:

- sinusoidal signals, with amplitude approx. 11 μ App;
- sinusoidal signals, with amplitude approx. 1 Vpp;
- square-wave signals (TTL) with integrated subdividing electronics for interpolation x1, x2, x5, x10, x20, x25, x50 and 100.

Mechanical Data

◆ Line number:	9000	◆ Accuracy grades:	5.0 arc. sec ; ± 7.5 arc. sec
◆ Number of output pulses per revolution for Square-wave version:	9000, 18000, 45000 90000, 180000, 225000, 450000, 900000	◆ Starting torque at 20°C	≤ 0.07 Nm
◆ Permissible mech. speed	≤ 3000 rpm	◆ Moment of inertia of rotor	$< 0.6 \times 10^{-4}$ kgm ²
◆ Max. operating speed (depends on number of output pulses)	600 to 1000 rpm	◆ Protection (IEC 529)	IP64
◆ Permissible motion of shaft:		◆ Maximum weight without cable	1.0 kg
- axial	0.02 mm	◆ Operating temperature	0...+70 °C
- radial	± 0.02 mm	◆ Storage temperature	-30...+85 °C
		◆ Maximum humidity (without condensation of moisture)	98 %
		◆ Permissible vibration (55 to 2000 Hz)	≤ 100 m/s ²
		◆ Permissible shock (5 ms)	≤ 300 m/s ²



Electrical Data

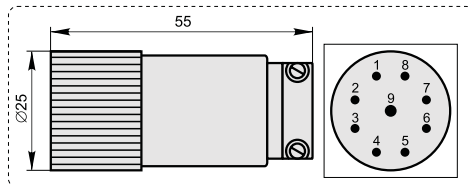
Version	Sine 11 μ App	Sine 1 Vpp	TTL
◆ Power supply	+5 V \pm 5%	+5 V \pm 5%	+5 V \pm 5%
◆ Max. consumed current (without load)	100 mA	120 mA	150 mA
◆ Light source	LED	LED	LED
◆ Incremental signals	Two sinusoidal I_1 and I_2 . Amplitude at 1 k Ω load: - $I_1 = 7...16 \mu$ A - $I_2 = 7...16 \mu$ A	Two sinusoidal A and B. Amplitude at 120 Ω load: - A = 0.6...1.2 V - B = 0.6...1.2 V	Square-wave $U1$, $U2$ and their inverted $\bar{U}1$, $\bar{U}2$. Signal levels at 20 mA load current: - low ("0" logic) ≤ 0.5 V - high ("1" logic) ≥ 2.4 V
◆ Reference signal	One quasi-triangle I_0 peak per revolution. Signal magnitude at 1 k Ω load: - $I_0 = 2...8 \mu$ A (usable component)	One quasi-triangle R per revolution. Signal magnitude at 120 Ω load: - R = 0.2...0.8 V (usable component)	One square-wave $U0$ and its inverted $\bar{U}0$ per revolution. Signal levels at 20 mA load current: - low ("0" logic) ≤ 0.5 V - high ("1" logic) ≥ 2.4 V
◆ Max. operating frequency	(-3dB cutoff) ≥ 160 kHz	(-3dB cutoff) ≥ 180 kHz	160-900 kHz (depends on interpolation factor)
◆ Direction of signals	I_2 lags I_1 with clockwise rotation (viewed from encoder mounting side)	B lags A with clockwise rotation (viewed from encoder mounting side)	$U2$ lags $U1$ with clockwise rotation (viewed from encoder mounting side)
◆ Max. rising and falling time			$\leq 0.2 \mu$ s
◆ Standard cable length	1 m, without connector	1 m, without connector	1 m, without connector
◆ Maximum cable length	5 m	25 m	25 m

Note: If cable extension is used the power supply conductor section should be not smaller than 0.5 mm².

Accessories

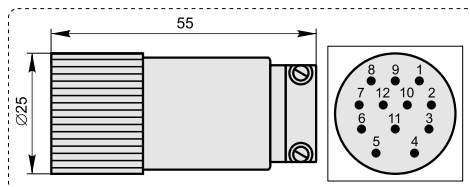
P9

9-pin round connector for **Sine 11 μ App**



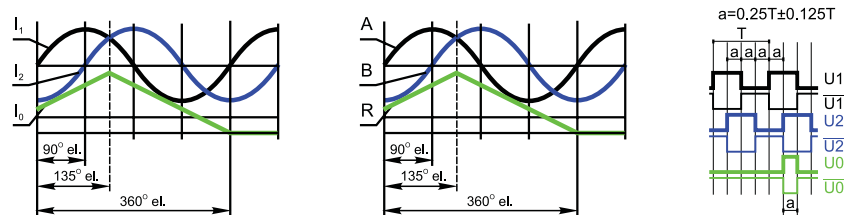
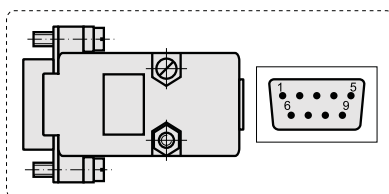
P12

12-pin round connector for **Sine 1 Vpp and Square-wave version**

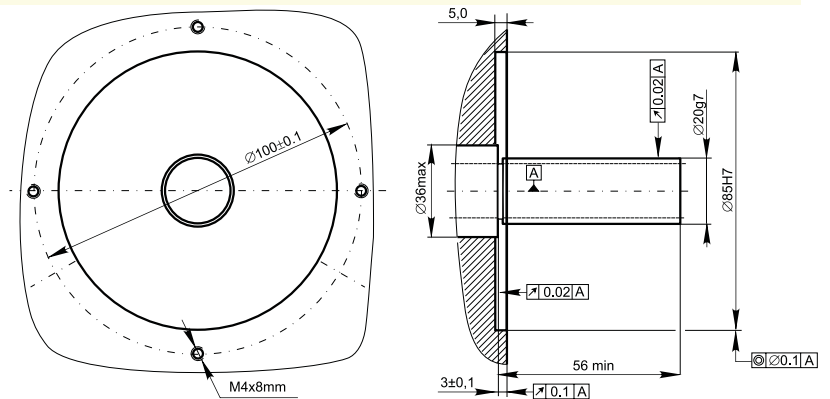


D9

9-pin flat connector for all versions of **HIDA90H**



Required mating dimensions



Order form

HIDA 90H - - - - /

Accuracy grade: 50 - ± 5.0 arc. sec. 75 - ± 7.5 arc. sec.	Pulse number per revolution: 9000 ... 900000	Output: 05L - 5VDC Line driver TTL 5AC-5VDC, Analog current sine 11 μ App 5AV-5VDC, Analog voltage sine 1Vpp	Cable length: 01 - 1m 02 - 2m 03 - 3m ... - ...	Type of connector: N - without connector D9 - flat, 9 pins P9 - round, 9 pins P12 - round, 12 pins
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