

HIDA 170H PRECISION ANGLE ENCODER



The precision angle encoder **HIDA170H** is used for very precise position measurement of rotary tables, dividers, comparators, antennas and other high precision equipment. 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.

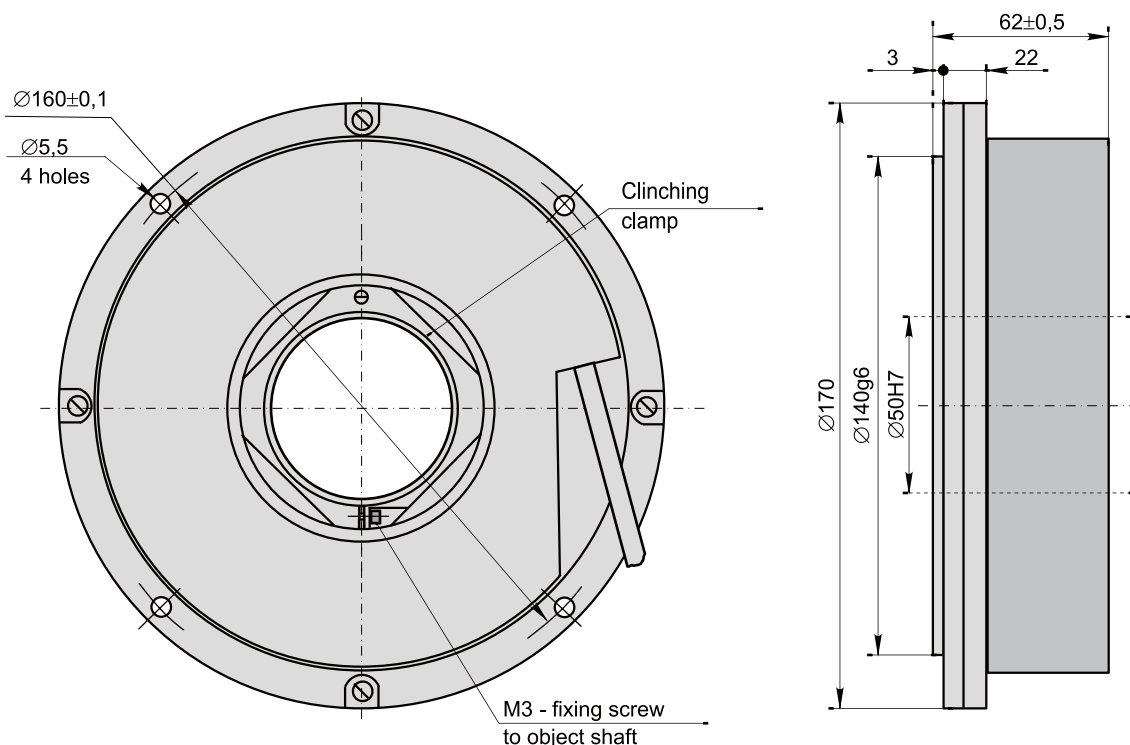
The encoder has a rigid stainless steel construction and an internal coupling. Hollow shaft of encoder is connected with an object shaft by screws.

The encoder has three versions of output signals:

- sinusoidal signals, with amplitude approx. $11 \mu A_{pp}$;
- sinusoidal signals, with amplitude approx. $1 V_{pp}$;
- square-wave signals (TTL) with integrated subdividing electronics for interpolation x1, x2, x5, x10, x20, x25, x50 and x100.

Mechanical Data

◆ Line number:	18000	◆ Accuracy	$\pm 2.5; \pm 5.0$ arc. sec.
◆ Number of output pulses per revolution for Square-wave version:	18000, 36000, 90000 180000, 360000, 450000, 900000, 1800000	◆ Starting torque at 20°C	$\leq 0,5$ Nm
□ Permissible mech. speed	≤ 1000 rpm	◆ Moment of inertia of rotor	$< 0,9 \times 10^{-3}$ kgm ²
◆ Max. operating speed (depends on number of output pulses)	300 to 500 rpm	◆ Protection (housing) (IEC 529)	IP64
◆ Permissible motion of shaft:		◆ Maximum weight without cable	3,5 kg
- axial	0,02 mm	◆ Operating temperature	0...+50 °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

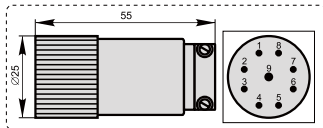
Version	Sine 11 μ App	Sine 1 Vpp	TTL
◆ Power supply	+5 V \pm 5%	+5 V \pm 5%	+5 V \pm 5%
◆ Max. consumed current (without load)	100 mA	120 mA	150 mA
◆ Light source	LED	LED	LED
◆ Incremental signals	Two sinusoidal I_1 and I_2 . Amplitude at 1 k Ω load: - $I_1 = 7...16 \mu$ A - $I_2 = 7...16 \mu$ A	Two 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 $\overline{U1}$, $\overline{U2}$. 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 $\overline{U0}$ 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	150-4500 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			$< 0.5 \mu$ 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

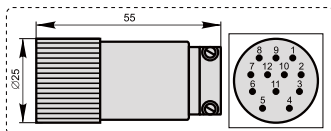
P9

9-pin round connector for Sine 11 μ App



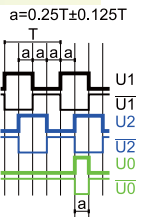
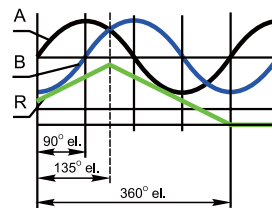
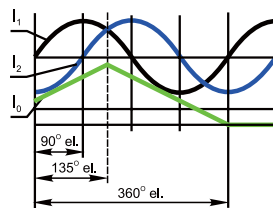
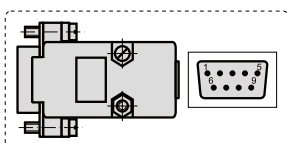
P12

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

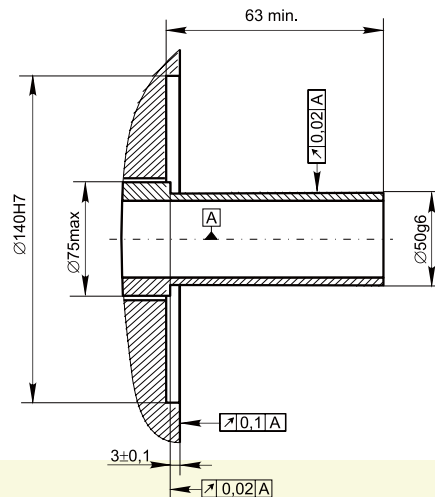


D9

9-pin flat connector for all versions of HIDA170H



Required mating dimensions



Order form

HIDA 170H - - - /

Impulse number: Output:

18000... 05L - 5VDC Line driver TTL
5AC-5VDC, Analog current sine 11 μ App
900000... 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