HIDA 170

PRECISION ANGLE ENCODER

The precision angle encoder **HIDA170** 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 stainless steal case of the encoder is fixed to an object by means of screws. The angle encoder is connected to the motor shaft or spindle by coupling, optionally available.

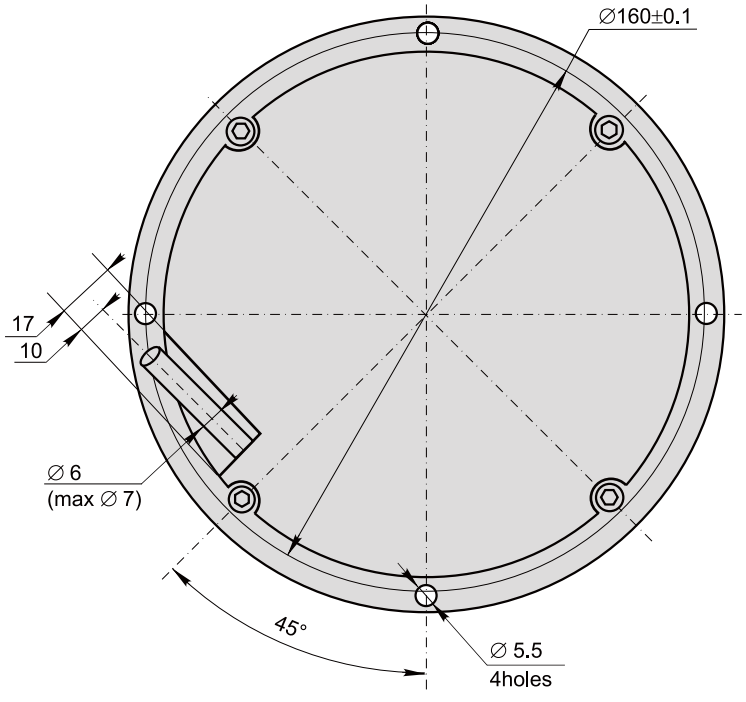
The encoder has three versions of output signals:

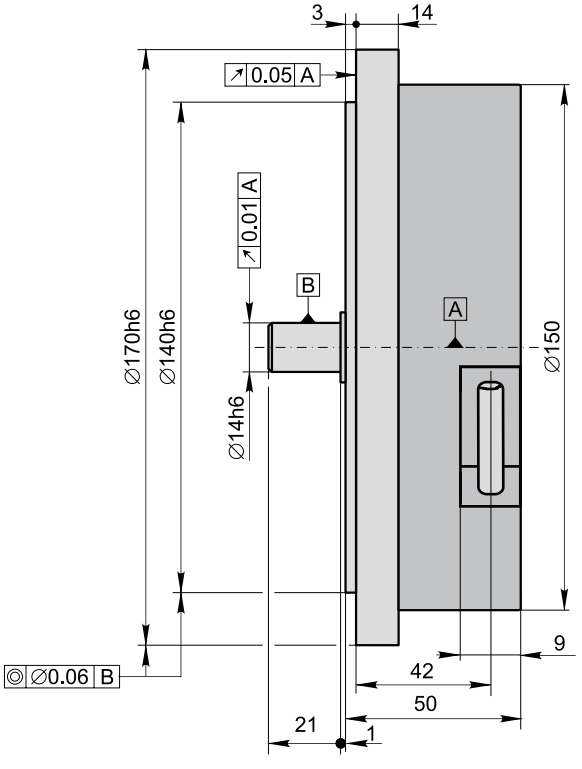
- sinusoidal signals, with amplitude approx. 11 μA_{pp};
- sinusoidal signals, with amplitude approx. 1 V_{pp};
- square-wave signals (TTL) with integrated subdividing electronics for interpolation x1, x2, x5, x10, x20, x25, x50 and x100.

■ Mechanical Data

♦ Line number:	18000
♦ Number of output pulses per revolution for Square-wave version:	18000, 36000, 90000 180000, 360000, 450000, 900000, 1800000
♦ Permissible mech. speed	≤ 1000 rpm
♦ Max. operating speed (depends on number of output pulses)	300 to 500 rpm
♦ Accuracy	±2.5 arc. sec.
♦ Permissible shaft load:	
- axial	≤ 30 N
- radial	≤ 30 N

♦ Starting torque at 20°C	≤ 0.012 Nm
♦ Moment of inertia of rotor	< 3.7×10^{-4} kgm^2
♦ Protection (IEC 529)	IP64
♦ Maximum weight without cable	3.5 kg
♦ Operating temperature	0...+70 °C
♦ 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

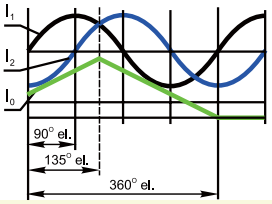


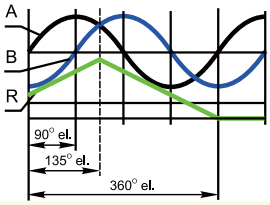


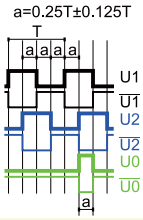
■ Electrical Data

Version	Sine 11 µApp	Sine 1 Vpp	⊓⊔ TTL
♦Power supply	+5 V ±5% / 100 mA max	+5 V ±5% / 120 mA max	+5 V ±5% / 150 mA max
♦Light source	LED	LED	LED
♦Incremental signals	Two sinusoidal I_1 and I_2. Amplitude at 1 kΩ load: - I_1 = 7...16 µA - I_2 = 7...16 µA	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 kΩ load: - I_0 = 2...8 µA (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 µs
♦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 mm^2.

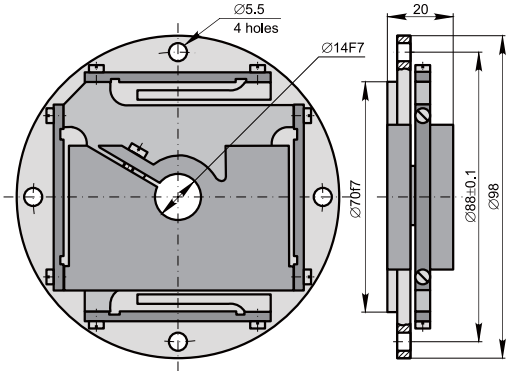




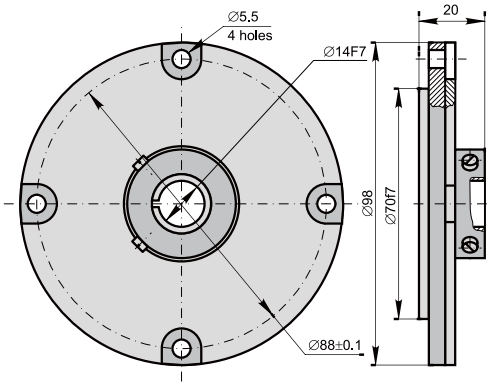


■ Accessories

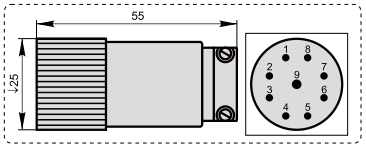
HIDA170- SC98-1
Coupling



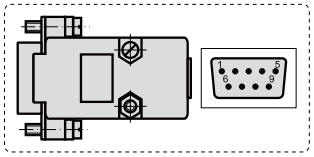
HIDA170- SC98-2
Coupling



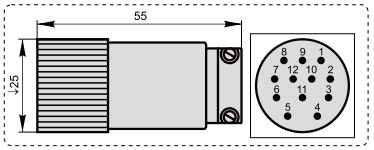
P9
9-pin round connector for **Sine 11 µApp**



D9
9-pin flat connector for all versions of **HIDA170**



P12
12-pin round connector for **Sine 1 Vpp** and **Square-wave version**



■ Order form

HIDA 170 – □□□□□ – □□ – □□ / □

Impulse number:
18000
...
1800000

Output:
05L - 5VDC Line driver TTL
5AC-5VDC,Analog current sine 11 µApp
5AV-5VDC,Analog voltage sine 1Vpp

Cable length:
01 - 1m
02 - 2m
03 - 3m
... - ...

Type of connector:
N - without conn.
D9 - flat, 9 pins
P9 - round, 9 pins
P12 - round, 12 pins

Coupling:
HIDA170 - SC98-1
HIDA170 - SC98-2