

HIDA 58S

PRECISION ROTARY ENCODER



The precision rotary encoder **HIDA58S** is used to establish an informational link between the key components of machines, industrial robots, comparators and 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 encoder has three versions of output signals:

- sinusoidal signals, with amplitude approx. 11 μ A_{pp};
- sinusoidal signals, with amplitude approx. 1 V_{pp};
- square-wave signals TTL or HTL.

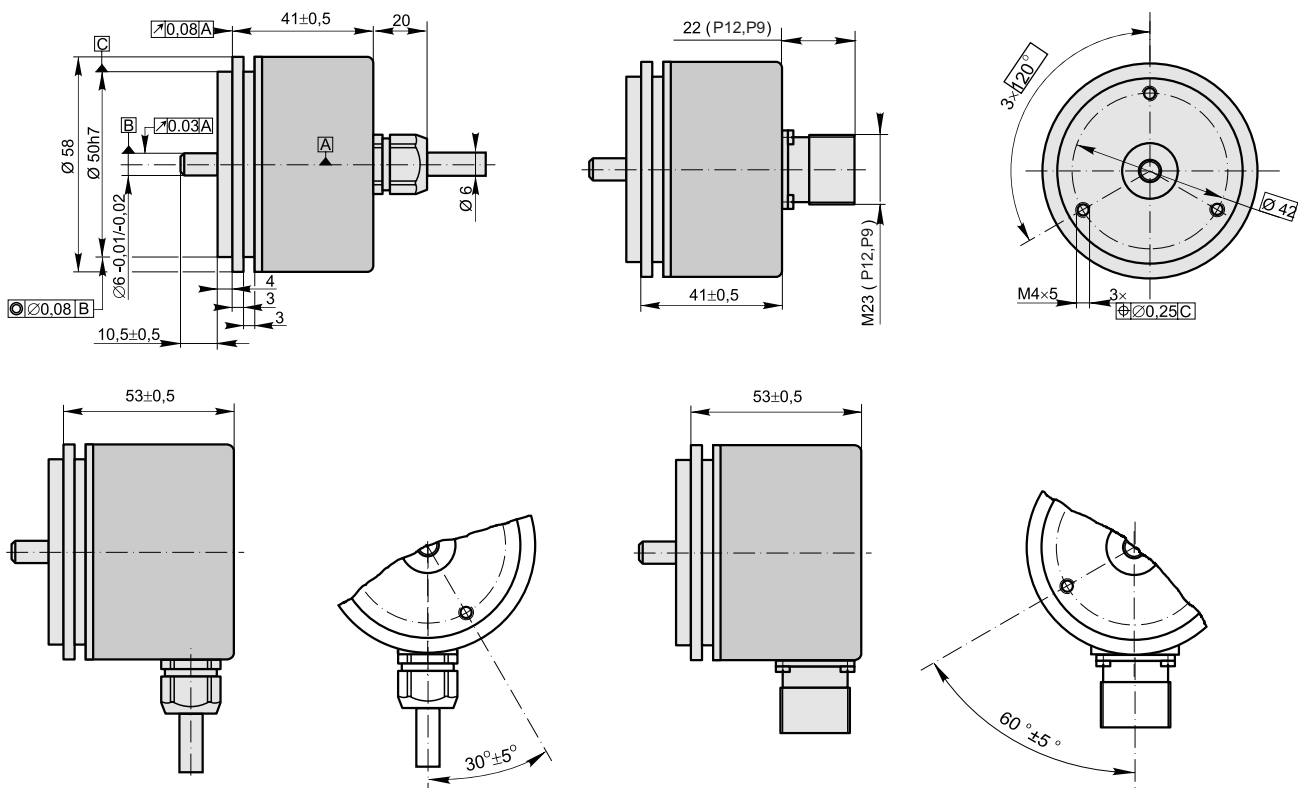
■ Mechanical Data

- Line number on disc (Z):

| | | | | | |
|------|------|------|------|------|-------|
| 100 | 250 | 500 | 600 | 800 | 1000 |
| 1024 | 1125 | 1250 | 1500 | 2000 | 2500 |
| 3000 | 3600 | 4000 | 5000 | 9000 | 10800 |
- Pulse number per shaft revolution for Square-wave version: $Z \times k$, where $k=1, 2, 3, 4, 5, 8, 10$
- Maximum shaft speed: 12000 rpm
- Maximum shaft load:

| | |
|-------------------------|------|
| - axial | 10 N |
| - radial (at shaft end) | 20 N |
- Accuracy (T_1 -period of lines on disc): $\pm 0.1T_1$ arc. sec

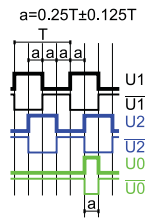
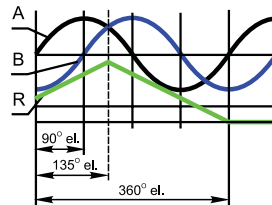
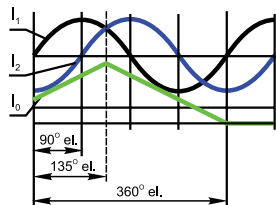
- Starting torque at 20°C: ≤ 0.2 Ncm
- Moment of inertia of rotor: < 15 gm²
- Protection (IEC 529): IP64
- Maximum weight without cable: 0.25 kg
- Operating temperature: -10...+70 °C
- Storage temperature: -30...+80 °C
- Maximum humidity (without condensation of moisture): 98 %
- Permissible vibration (55 to 2000 Hz): ≤ 100 m/s²
- Permissible shock (11 ms): ≤ 1000 m/s²



Electrical Data

| Version | Sine 11 μ App | Sine 1 Vpp | TTL; HTL |
|--|---|--|---|
| •Power supply (U_p) | +5 V \pm 5% | +5 V \pm 5% | +5 V \pm 5%; +(10 to 30) V |
| •Maximum consumed current (without load) | 80 mA | 120 mA | 120 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 at $U_p=+5$ V - low ("0" logic) ≤ 1.5 V at $U_p=10$ to 30 V - high ("1" logic) ≥ 2.4 V at $U_p=+5$ V - high ("1" logic) $\geq (U_p-2)$ V at $U_p=10$ to 30 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 at $U_p=+5$ V - low ("0" logic) ≤ 1.5 V at $U_p=10$ to 30 V - high ("1" logic) ≥ 2.4 V at $U_p=+5$ V - high ("1" logic) $\geq (U_p-2)$ V at $U_p=10$ to 30 V |
| •Maximum operating frequency | (-3dB cutoff) ≥ 160 kHz | (-3dB cutoff) ≥ 160 kHz | 160 kHz |
| •Direction of signals | I_2 lags I_1 with clockwise rotation (viewed from shaft side) | B lags A with clockwise rotation (viewed from shaft side) | $U2$ lags $U1$ with clockwise rotation (viewed from shaft side) |
| •Maximum rising and falling time | | | < 0.5 μ 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.

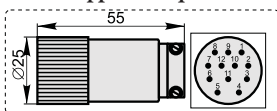


Accessories

Connectors

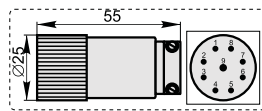
P12

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



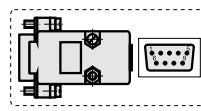
P9

9-pin round connector for Sine 11 μ App



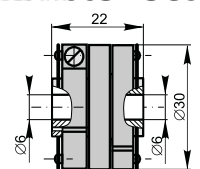
D9

9-pin flat connector for all version of HIDA58S



Coupling

HIDA58S - SC30



Cable armour Ø10

Order form

HIDA 58S - - - /

Pulse number per revolution:

100...

10800...

Output:

05L - 5VDC Line driver TTL

24H-10...30VDC Line driver HTL

5AC-5VDC, Analog current sine 11 μ App

5AV-5VDC, Analog voltage sine 1Vpp

Cable length and outlet:

401 - 1m (4-axial outlet)

402 - 2m

503 - 3m (5-radial outlet)

... - ...

or

H5 - connector on housing axial

H4 - connector on housing radial

Type of connector:

N - without connector

D9 - flat, 9 pins

P9 - round, 9 pins

P12 - round, 12 pins

Coupling:

HIDA58S - SC30