brown & sharpe
précizika

A58D PHOTOELECTRIC ROTARY ENCODER

(A58D-A, A58D-AV, A58D-F)

*The encoder **A58D** is similar to the "Heidenhain" ROD 420, ROD 430, ROD 450 and ROD480 type encoders in electrical parameters, mounting and overall dimensions.*

Brown&Sharpe-Precizika
Zirmunu 139
09120 Vilnius
Lithuania
t 3705 2363600
f 3705 2363609
http://www.bsp.Lt
E-mail:info@bsp.Lt

ISO 9001:2000

The photoelectric rotary encoder **A58D** 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 case of the encoder is fixed to an object by means of screws. The shaft of the encoder is connected with an object shaft by virtue of a compensating coupling.

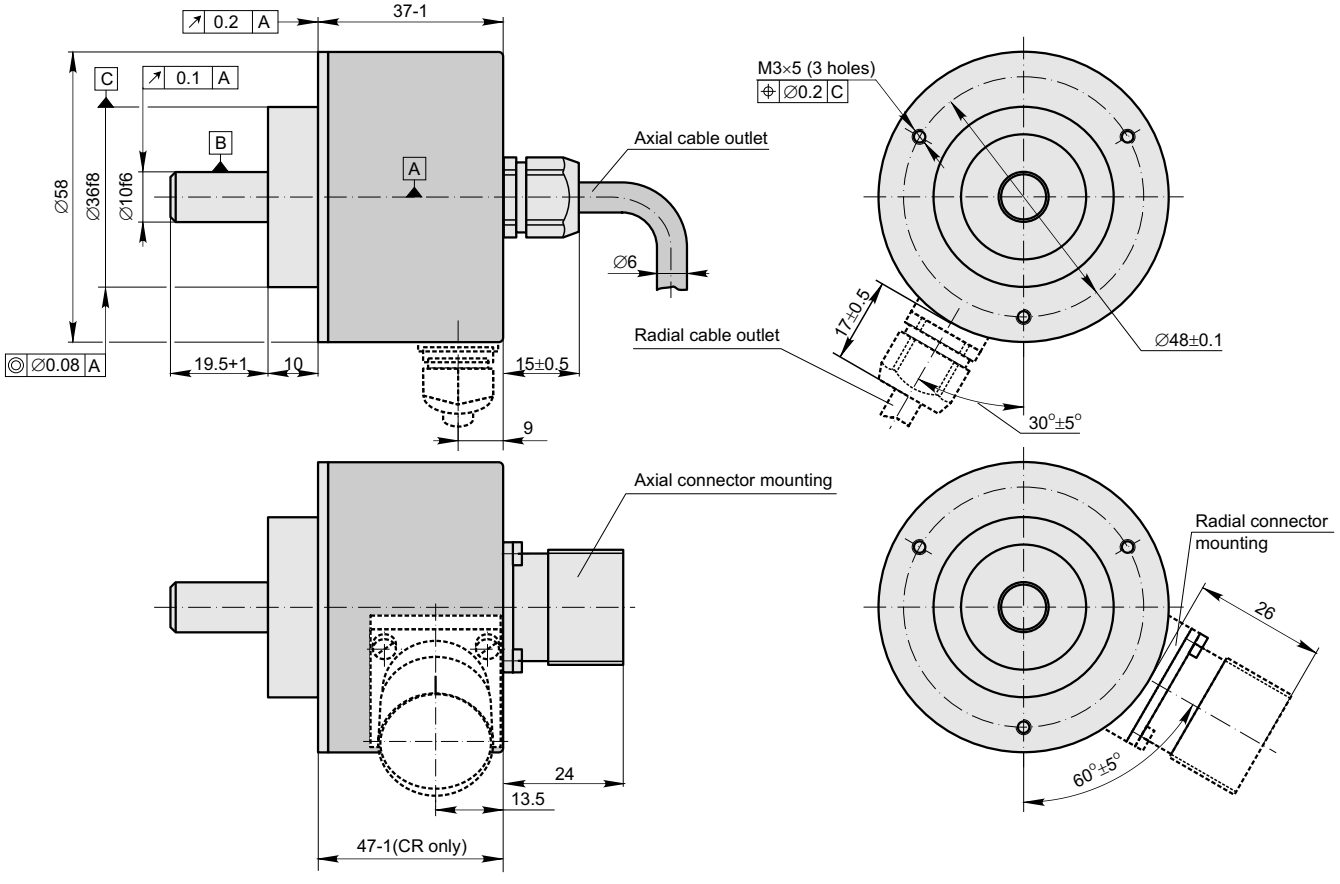
The encoder has three versions by its output signals:

A58D-A - sinusoidal signals, with amplitude approx. 11 μA_{pp};
A58D-AV - sinusoidal signals, with amplitude approx. 1 V_{pp};
A58D-F - square-wave signals TTL or HTL.

■ Mechanical Data

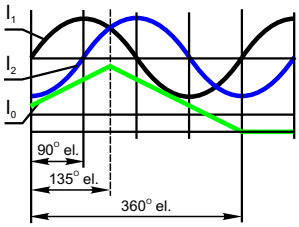
- Line number on disc: 100, 250, 500, 600, 800, 1000, 1024, 1125, 1250, 1500, 2000, 2500, 3000,3600, 4000, 5000
- Pulse number per shaft revolution: 100 200 250 500 600 800 1000 1024 1125 1200 1250 1500 1600 2000 2048 2500 3000 3600 4000 5000 6000 6250 7500 8000 9000 10000 10240 12500 15000 18000 20000 20480 21600 25000 30000 40000 45000 50000 54000 90000 10800
- Maximum shaft speed 12000 rpm
- Maximum shaft load:
  - - axial 40 N
  - - radial (at shaft end) 60 N
- Accuracy (T_1-period of lines on disc) $\pm 0.1T_1$ arc. sec

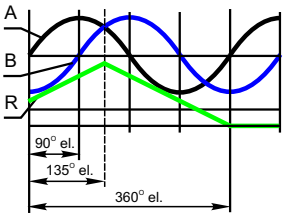
♦Starting torque at 20°C	≤ 0.2 Ncm
♦Moment of inertia of rotor	< 15 gcm^2
♦Protection (IEC 529)	IP64
♦Maximum weight without cable	0.25 kg
♦Operating temperature	-10...+70 °C
♦Storage temperature	-30...+80 °C
♦Maximum humidity (without condensation of moisture)	98 %
♦Permissible vibration (55 to 2000 Hz)	≤ 100 m/s^2
♦Permissible shock (11 ms)	≤ 1000 m/s^2

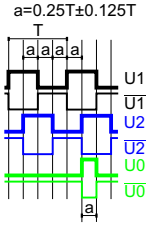


■ Electrical Data

Version	**A58D-A** ∿ 11 µApp	**A58D-AV** ∿ 1 Vpp	**A58D-F** ⊓⊔ TTL; ⊓⊔ HTL
♦ Power supply (U_P)	+5 V ±5% /<80 mA	+5 V ±5% /<120 mA	+5 V ±5%; +(10 to 30) V /<120 mA
♦ 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 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) ≥ (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 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 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) ≥ (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 µs
♦ Standard cable length	1 m, without connector	1 m, without connector	1 m, without connector
♦ Type of connector mounted on the encoder	Round 9-pin	Round 12-pin	Round 12-pin
♦ Maximum cable length	5 m	15 m	30 m for TTL, 100 m for HTL

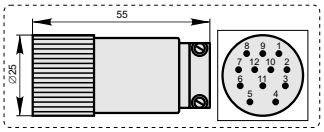




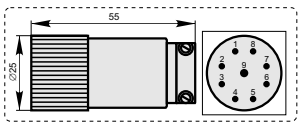


■ Accessories

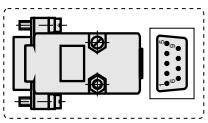
C12
12-pin round connector for **A58D-F and A58D-AV**



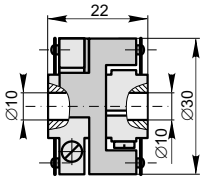
C9
9-pin round connector for **A58D-A**



D9
9-pin flat connector for all versions of **A58D**



SC30
Coupling



■ Order form

A58D – X – XXXXX – XXX – XXXX/X – X

- Version by output signals: **A**, **AV** or **F**
- Line number: **100**... **5000**
- Power supply: **05V** - +5V; **30V** - +(10 to 30) V* (*only for A58D-F with HTL output signals)
- Cable length: **A01** - 1m (A-axial outlet); **A02** - 2m; **R03** - 3m (R-radial outlet); ... - ...
- Type of connector: **W** - without conn.; **D9** - flat, 9 pins; **C9** - round, 9 pins; **C12** - round, 12 pins
- Coupling: **0** - without coupling; **1** - with coupling

or

CA - connector axially mounted on the encoder
CR - connector radially mounted on the encoder

CE