PRECIZIKA METROLOGY

A58C

PHOTOELECTRIC ROTARY ENCODER

(A58C-A, A58C-AV, A58C-F)

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ISO 9001:2000

The photoelectric rotary encoder **A58C** is used to establish an informational link between the key components of machines, industrial robots, comparators and NC or Digital Readout units. It gives the information about the value and direction of the motion of components. The encoder is used in automatic, control, on-line gauging, in process monitoring systems, etc.

The encoder consists of three parts: mechanical, optical and electronic.

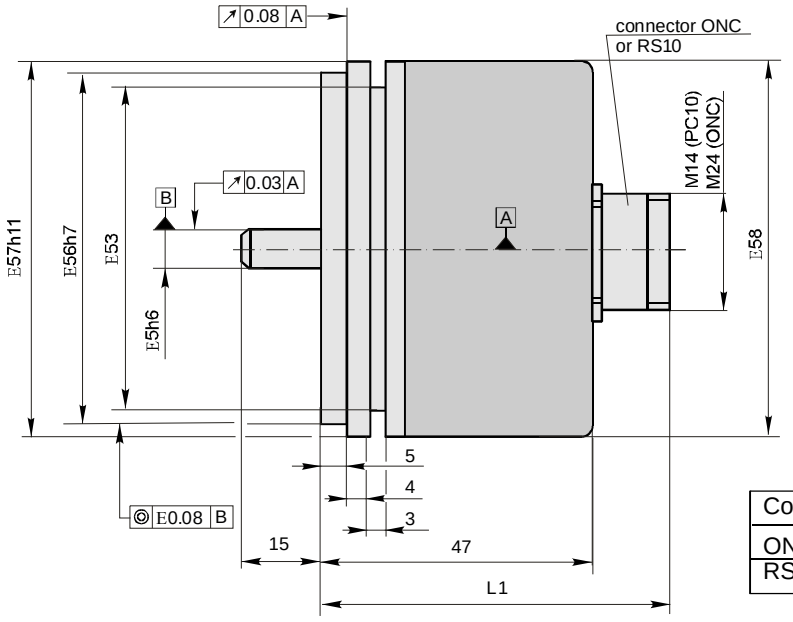
The case of the encoder is fixed to an object by means of screws. The shaft of the encoder is connected with an object shaft by virtue of a compensating coupling.

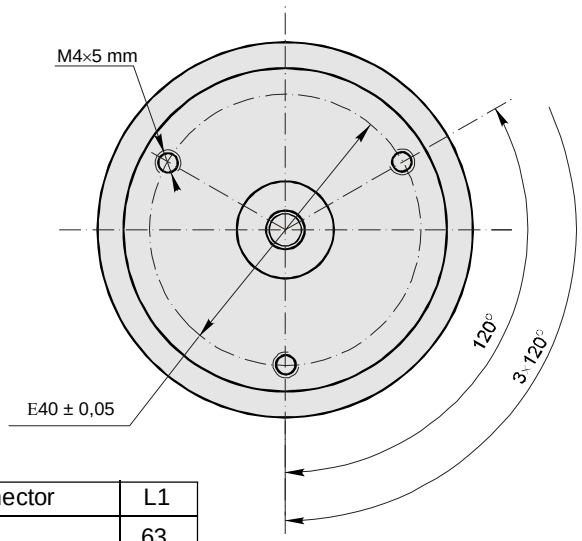
The encoder has three versions by its output signals:

A58C-A - sinusoidal signals, with amplitude approx. 11 μA_{pp};
A58C-AV - sinusoidal signals, with amplitude approx. 1 V_{pp};
A58C-F - 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 A58-F	Z x 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 gcm²
•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



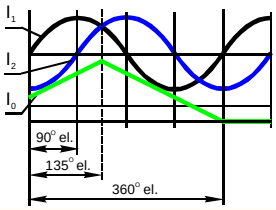


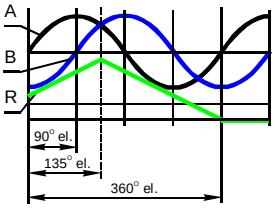
Connector	L1
ONC	63
RS10	55

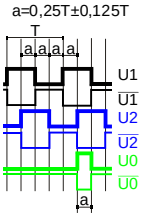
■ Electrical Data

Version	**A58C-A** ∿ 11 µApp	**A58C-AV** ∿ 1 Vpp	**A58C-F** ⊓ TTL; ⊓ HTL
? Power supply (U_P)	+5 V ±5%	+5 V ±5%	+5 V ±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 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
? Max. extension 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.

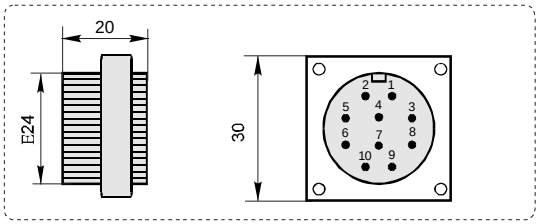






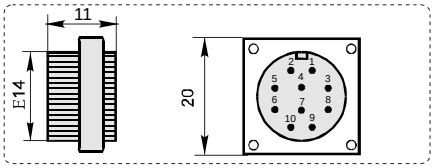
■ Accessories standard

ONC
Round 10-pins connector

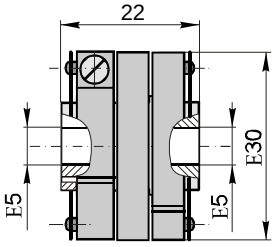


■ Accessoires on option

RS10
Round 10-pins connector



• Coupling



• Cable armour Ø10

■ Order form

A58C –XX – X X X X X – X X X – XX/XXX - X

- **Version by output signals:** **A**, **AV** or **F**
- **Pulse number per revolution:** **100**... **10800...**
- **Power supply:** **05V** - +5V; **30V** - +(10 to 30) V* *only for A58C-F with HTL output signals
- **Place of connector:** **CA** - connector on housing axial; **CR-** connector on housing radial
- **Type of connector:** ONC - round, 10 pins; RS10 - round, 10 pins
- **Coupling:** **0** - without coupling; **1** - with coupling

CE

January 2009