

# A28

## PHOTOELECTRIC ROTARY ENCODER



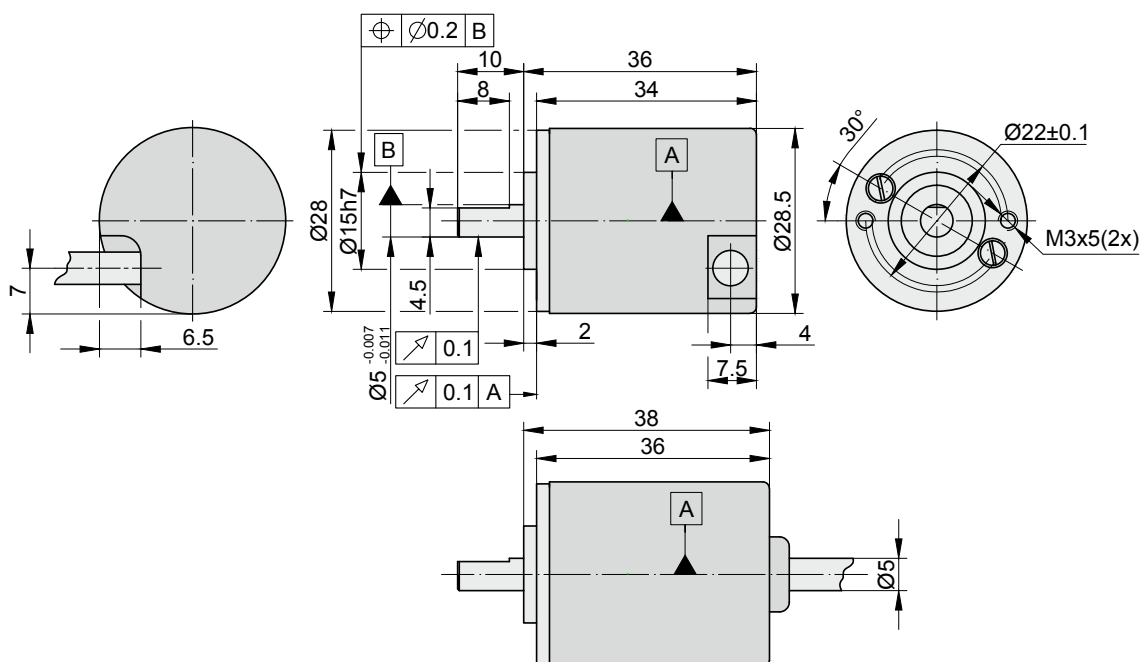
Photoelectric rotary encoder A28 is used to establish an informational link between the key machine components, industrial robots, comparators and DCC, NC or Digital Readout Units. It provides information about the

value and direction of motion. The encoder is used in automatic control, on-line gauging, process monitoring systems, etc.

### MECHANICAL DATA

Line number on disc (z)	60; 100; 200; 250; 360; 500; 1000; 1024; 1500; 2000; 2500
Number of output pulses per revolution	Z x k, where k=1,2,3,4,5,8,10
Maximum shaft speed	6000 rpm
Maximum shaft load: - axial - radial (at shaft end)	5N 10N
Accuracy (T <sub>1</sub> -period of lines on disc in arc. sec)	±0.1T <sub>1</sub> arc. sec
Starting torque at 20°C	≤ 0.015 Nm
Rotor moment of inertia	< 2 gcm <sup>2</sup>

Protection (IEC 529) - for axial cable outlet - for radial cable outlet	IP54 IP64
Maximum weight without cable	0.045 kg
Operating temperature	-10...+70 °C
Storage temperature	-30...+80 °C
Maximum humidity (non-condensing)	98 %
Permissible vibration (55 to 2000 Hz)	≤ 100 m/s <sup>2</sup>
Permissible shock (11 ms)	≤ 300 m/s <sup>2</sup>



## ELECTRICAL DATA

VERSION	A28-F □ □ TTL
Supply voltage	+5 V ± 5%
Max. supply current (without load)	120 mA
Light source	LED
Incremental signals	Differential square - wave U1/ $\overline{U1}$ and U2/ $\overline{U2}$ . Signal levels at 20 mA load current: - low (logic "0") ≤ 0.5 V - high (logic "1") ≥ 2.4 V
Reference signal	One differential square-wave U0/ $\overline{U0}$ per revolution. Signal levels at 20 mA load current : - low (logic "0") ≤ 0.5 V - high (logic "1") ≥ 2.4 V
Maximum operating frequency	(160 × k) kHz , k-interpolation factor

Direction of signals

U2 lags U1 for clockwise rotation (viewed from shaft side)

Maximum rise and fall time

< 0.5 μs

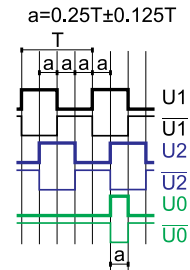
Standard cable length

0.5 m; without connector

Maximum cable length

25 m

Output signals



## ACCESSORIES

CONNECTORS FOR CABLE	B12 12-pin round connector	C12 12-pin round connector	D9 9-pin flat connector	D15 15-pin flat connector	RS10 10-pin round connector	ONC 10-pin round connector
DIGITAL READOUT DEVICES	CS3000			CS5000		
COUPLING	SC30					

Notes:

- Maximum working rotation speed (with proper encoder counting) is limited by maximum operating frequency and maximum mechanical rotation speed.
- If cable extension is used, power supply conductor cross-section should not be smaller than 0.5 mm<sup>2</sup>.

**A28** - F - XXXX/XXXX - XXX / X - X

PULSE NUMBER PER REVOLUTION:	(OPTIONAL) LINE NUMBER ON DISC (Z):	CABLE LENGTH AND OUTLET:	CONNECTOR TYPE:	COUPLING:
1...60 ... 1...25000	60 ... 2500	R01 - 1m (R-radial outlet) R02 - 2m ... A01 - 1m (A-axial outlet) A02 - 2m ...	W - without connector B12 - round, 12 pins C12 - round, 12 pins D9 - flat, 9 pins D15 - flat, 15 pins RS10 - round, 10 pins ONC - round, 10 pins	0 - without coupling 1 - with coupling
ORDER EXAMPLES:	1) A28-F-2500-R01/W-0 2) A28-F-2500/250-R01/W-0			