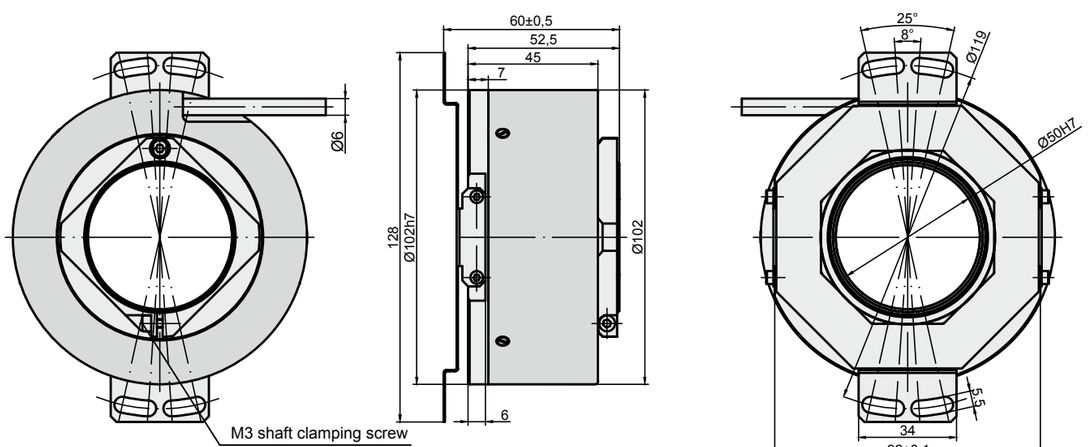
A102H

PHOTOELECTRIC ROTARY ENCODER

Analog output signals

Hollow Shaft

Photoelectric rotary encoder A102H contains 5.000 lines on disc in a standard version, but other modifications are possible on request. This wide diameter encoder has the biggest shaft available on our rotary encoders product range.



MECHANICAL DATA

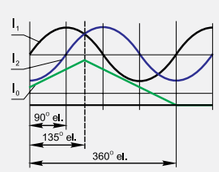
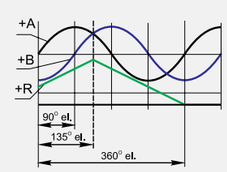
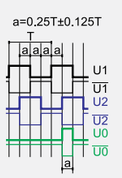
Line number on disc (z)	5000 (others optionally)
Number of output pulses per revolution for A102H-F	Z x k, where k=1,2,3,4,5,8,10, 20, 25, 50, 100 and others (k - interpolation factor)
Maximum shaft speed	8000 rpm
Permissible motion of shaft: - axial - radial (at shaft end)	±1.0 mm 0.02 mm
Accuracy (T_1-period of lines on disc in arc. sec)	±0.5T_1 arc. sec
Starting torque at 20°C	≤ 0.01 Nm

Rotor moment of inertia	< 20x10^{-4} kgm^2
Protection (housing) (IEC 529)	IP64
Maximum weight without cable	0.8 kg
Operating temperature	-20...+70 °C
Storage temperature	-30...+85 °C
Maximum humidity (non-condensing)	98 %
Permissible vibration (55 to 2000 Hz)	≤ 100 m/s^2
Permissible shock (5 ms)	≤ 300 m/s^2

ACCESSORIES

CONNECTORS FOR CABLE	C9 9-pin round connector	C12 12-pin round connector	D9 9-pin flat connector
DIGITAL READOUT DEVICES	CS3000		CS5500
EXTERNAL INTERPOLATOR		NK	

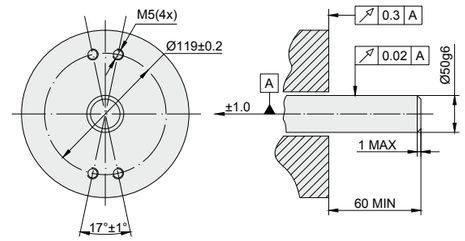
ELECTRICAL DATA

VERSION	A102H-A ∿ 11 µApp	A102H-AV ∿ 1 Vpp	A102H-F ⊓⊔ TTL; ⊓⊔ HTL
Supply voltage (U_p)	+5 V ± 5%	+5 V ± 5%	+5 V ± 5%; +(10 to 30) V
Max. supply current (without load)	100 mA	120 mA	120 mA
Light source	LED	LED	LED
Incremental signals	Two sinusoidal I_1 and I_2 Amplitude at 1 kΩ load: - I1 = 7-16 µA - I2 = 7-16 µA	Differential sine +A/-A and +B/-B Amplitude at 120 Ω load: - A = 0.6-1.2 V - B = 0.6-1.2 V	Differential square-wave U1/$\overline{U1}$ and U2/$\overline{U2}$. Signal levels at 20 mA load current: - low (logic "0") ≤ 0.5 V at U_p=+5 V - low (logic "0") ≤ 1.5 V at U_p=10 to 30 V - high (logic "1") ≥ 2.4 V at U_p=+5 V - high (logic "1") ≥ (U_p-2) V at U_p=10 to 30 V
Reference signal	One quasi-triangular I_0 peak per revolution. Signal magnitude at 1 kΩ load: -I_0 = 2-8 µA (usable component)	One quasi-triangular +R and its complementary -R per revolution. Signals magnitude at 120Ω load - R = 0.2-0.8 V (usable component)	One differential square-wave U0/U0 per revolution. Signal levels at 20 mA load current: - low (logic "0") < 0.5 V at U_p=+5 V - low (logic "0") < 1.5 V at U_p=10 to 30 V - high (logic "1") > 2.4 V at U_p=+5 V - high (logic "1") > (U_p-2) V at U_p=10 to 30 V
Maximum operating frequency	(-3 dB) ≥ 160 kHz	(-3 dB) ≥ 180 kHz	(160-1300 x k) kHz, k-interpolation factor
Direction of signals	I_2 lags I_1 for clockwise rotation	+B lags +A for clockwise rotation	U2 lags U1 with clockwise rotation
Maximum rise and fall 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
Output signals			

Note:

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

MOUNTING DIMENSIONS



ORDER FORM

A102H - X - XX - XX/X

OUTPUT SIGNAL VERSION:	PULSE NUMBER PER REVOLUTION:	CABLE LENGTH:	CONNECTOR TYPE:
A AV F	1...100 ... 1...108000	AR01 - 1m AR02 - 2m AR03 - 3m ...	W - without connector C9 -round, 9 pins C12 - round, 12 pins D9 - flat, 9 pins
ORDER EXAMPLES:	1) A58HE1-1-AV-5000-8-05V-01/C12; 2) A58HE1-2- F-10000/2500-10-30V-CR/C12		