PHOTOELECTRIC ROTARY ENCODER

A58HE

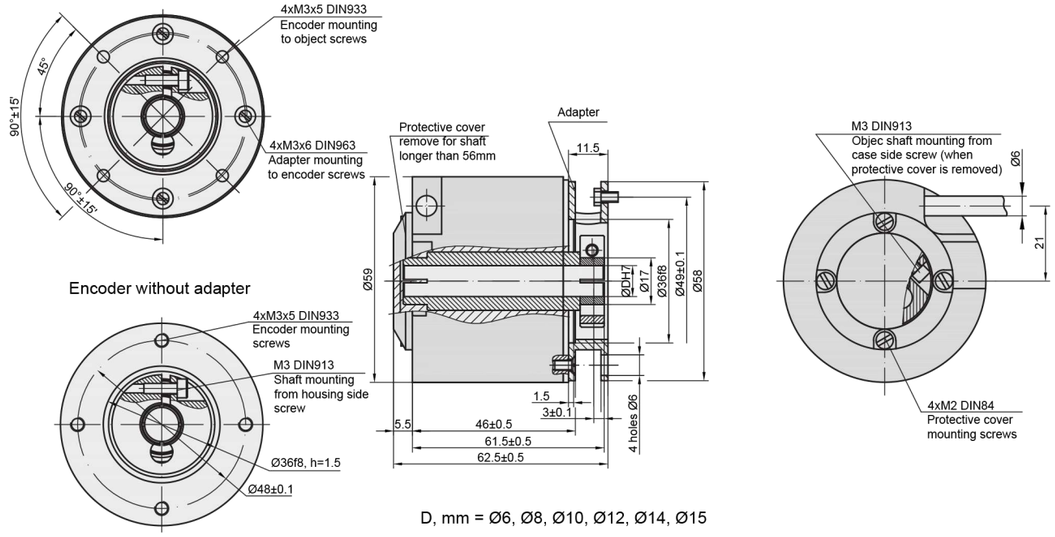
High Resolutions

Analog output signals

Hollow Shaft

Photoelectric rotary encoder A58HE can produce up to 108.000 output pulses per revolution and has different signal options: 11 µApp, 1Vpp, TTL or HTL.

Encoder with adapter



Encoder without adapter

D, mm = Ø6, Ø8, Ø10, Ø12, Ø14, Ø15

MECHANICAL DATA

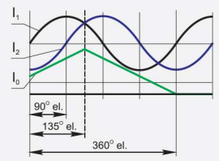
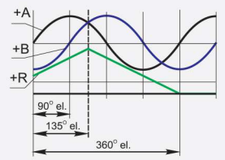
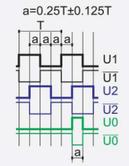
Line number on disc (z)	100; 250; 500; 600; 800; 1000; 1024; 1125; 1250; 1500; 2000; 2048; 2500; 3000; 3600; 4000; 5000; 9000; 10800
Pulse number per shaft revolution for A58-F	Z x k, where k=1,2,3,4,5,8,10 (k - interpolation factor)
Maximum shaft speed	10000 rpm
Permissible motion of shaft: - axial - radial (at shaft end)	±0.03 mm 0.05 mm
Accuracy (T_1-period of lines on disc in arc. sec) - on option for z < 5000 - on option for z > 5000	±0.1T_1 arc. sec ±0.05T_1 arc. sec ±12.0 arc. sec

Starting torque at 20°C	≤ 0.025 Nm
Rotor moment of inertia	< 1.5x10^{-4} kgm^2
Protection (housing) (IEC 529)	IP64
Protection (shaft side) (IEC 529)	IP64
Maximum weight without cable	0.35 kg
Operating temperature	0...+70 °C
Storage temperature	-30...+80 °C
Maximum humidity (non-condensing)	98 %
Permissible vibration (55 to 2000 Hz)	≤ 100 m/s^2
Permissible shock (11 ms)	≤ 300 m/s^2

ACCESSORIES

CONNECTORS FOR CABLE	B12 12-pin round connector	C9 9-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			CS5500		
EXTERNAL INTERPOLATOR				NK			

ELECTRICAL DATA

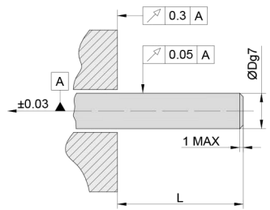
Version	A58HE-A ∿ 11 µApp	A58HE-AV ∿ 1 Vpp	A58HE-F ⊓⊔ TTL; ⊓⊔ HTL
Supply voltage (U_p)	+5 V ± 5%	+5 V ± 5%	+5 V ± 5%; +(10 to 30) V
Max. supply current (without load)	80 mA	120 mA	120 mA
Light source	LED	LED	LED
Incremental signals	Two sinusoidal I_1 and I_2 Amplitude at 1 kΩ load: - I1 = 7-16 µA - I2 = 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/$\overline{U0}$ 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 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:

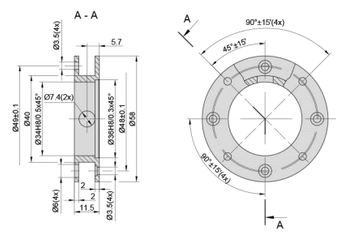
1. Maximum working rotation speed (with proper encoder counting) is limited by maximum operating frequency and maximum mechanical rotation speed.
2. If cable extension is used, power supply conductor cross-section should not be smaller than 0.5 mm^2

MOUNTING REQUIREMENTS

L, mm
11 min for one side fixation
56 min for both side fixation
56 max for version with protective cover
11 min for version without protective cover



ADAPTER



ORDER FORM

A58HE - X1 - X2/X3 - X4 - X5 - X6/X7 - X8

Output signal version (X1):	Pulse number per Revolution (X2):	Optional line number on disc (z) (X3):	Shaft hole Diameter (X4):	Supply Voltage (X5):	Cable length (X6):	Connector type (X7):	Adapter (X8):
A **AV** **F**	**100** ... **108000*** *only F signal version for >18000 pulses	**100** ... **10800**	**6, 8, 10, 12,14,15** - mm	**05V** - +5V **30V** - +(10 to 30) V* *only for A58HE-F with HTL output	**AR01** - 1m **AR02** - 2m **AR03** - 3m ...	**W** - without connector **B12** - round, 12 pins **C9** -round, 9 pins **C12** - round, 12 pins **D9** - flat, 9 pins **D15** - flat, 15 pins **R510** - round, 10 pins **ONC** - round, 10 pins	**W** - without adapter **S** - with adapter

ORDER EXAMPLES:
1) A58HE-AV-1024-6-05V-AR01/W-W
2) A58HE-F-4000-8-30V-AR06/C12-S
3) A58HE-F-4000/500-8-30V-AR06/C12-S