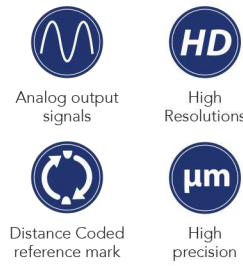


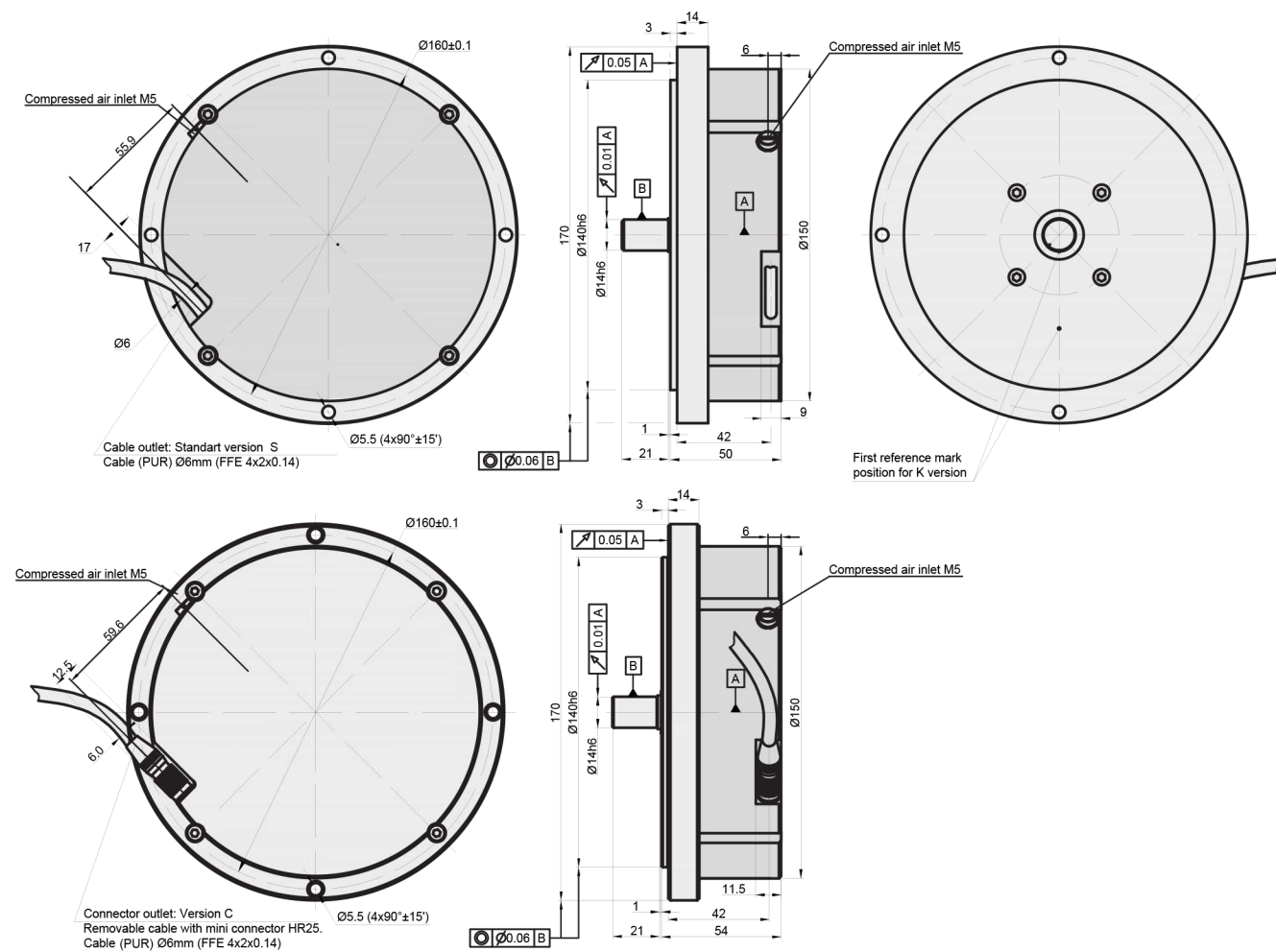
PHOTOELECTRIC ANGLE ENCODER

A170



Phototelectric angle encoder A170 is a wide diameter solid shaft high end encoder that produces up to 3.600.000 output pulses per

revolution and can reach accuracy of up to ±2.5 arc. sec.

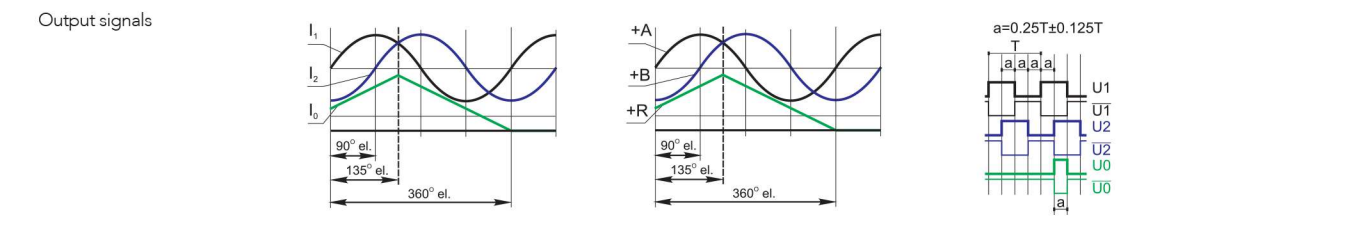


MECHANICAL DATA

Line number on disc (Z)	18000, 36000	Permissible shaft load:	
Number of output pulses per revolution for A170-F	Z x k, where k = 1, 2, 3, 4, 5, 8, 10, 20, 25, 50, 100	- axial	≤ 30 N
		- radial	≤ 30 N
Starting torque at 20°C	≤ 0.012 Nm	Rotor moment of inertia	< 3.7 × 10 ⁻⁴ kgm ²
Reference signal:		Protection (IEC 529)	IP64
- standard (S)	One per shaft revolution	Maximum weight without cable	3.5 kg
- distance-coded (K) for z = 18000	36 per shaft revolution	Operating temperature	0...+70 °C
- distance-coded (K) for z = 36000	72 per shaft revolution	Storage temperature	-30...+85°C
Permissible mech. speed	≤ 1000 rpm	Maximum humidity (non condensing)	98 %
Max. operating speed (depends on number of output pulses)	300 to 500 rpm	Permissible vibration	≤ 100 m/s ²
Accuracy	±2.5	Permissible shock (6 ms)	≤ 300 m/s ²

ELECTRICAL DATA

Version	A170-A ~ 11 µApp	A170-AV ~ 1 Vpp	A170-F TTL
Supply voltage (U _p)	+5 V ± 5% 100 mA max.	+5 V ± 5% 120 mA max.	+5 V ± 5%; 150 mA max.
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	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/Ū1 and U2/Ū2. Signal levels at 20 mA load current: - low (logic "0") ≤ 0.5 V - high (logic "1") ≥ 2.4 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 120 Ω load - R = 0.2...0.8 V (usable component)	One differential square-wave U0/Ū0 per revolution. Signal levels at 20 mA load current: - low (logic "0") < 0.5 V - high (logic "1") > 2.4 V
Maximum operating frequency	(-3 dB cutoff) ≥ 160 kHz	(-3 dB cutoff) ≥ 180 kHz	160-2000 kHz (depends on interpolation factor)
Direction of signals	I ₂ lags I ₁ for clockwise rotation (viewed from encoder mounting side)	+B lags +A for clockwise rotation (viewed from encoder mounting side)	U2 lags U1 with clockwise rotation (viewed from encoder mounting side)
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



- Note:
- 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 mm².

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	
COUPLING			SC98-1			SC98-2	
EXTERNAL INTERPOLATOR					NK		

ORDER FORM

Output signal version (X1):	Pulse number per revolution (X2):	Optional line number on disc (z) (X3):	Reference signal (X4):	Cable or Connector Outlet (X5):	Cable Length (X6):	Connector type (X7):
A AV F	18000 ... 3600000*	18000 36000	S - one per revolution, K - distance-coded	S - version S (cable outlet) C - version C (connector outlet)	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 RS10 - round, 10 pins ONC - round, 10 pins

*only for F signal version for >36000 pulses

ORDER EXAMPLES: 1) A170-F-360000/36000-K-C-AR01/C12
2) A170-F-360000-K-S-AR01/C12