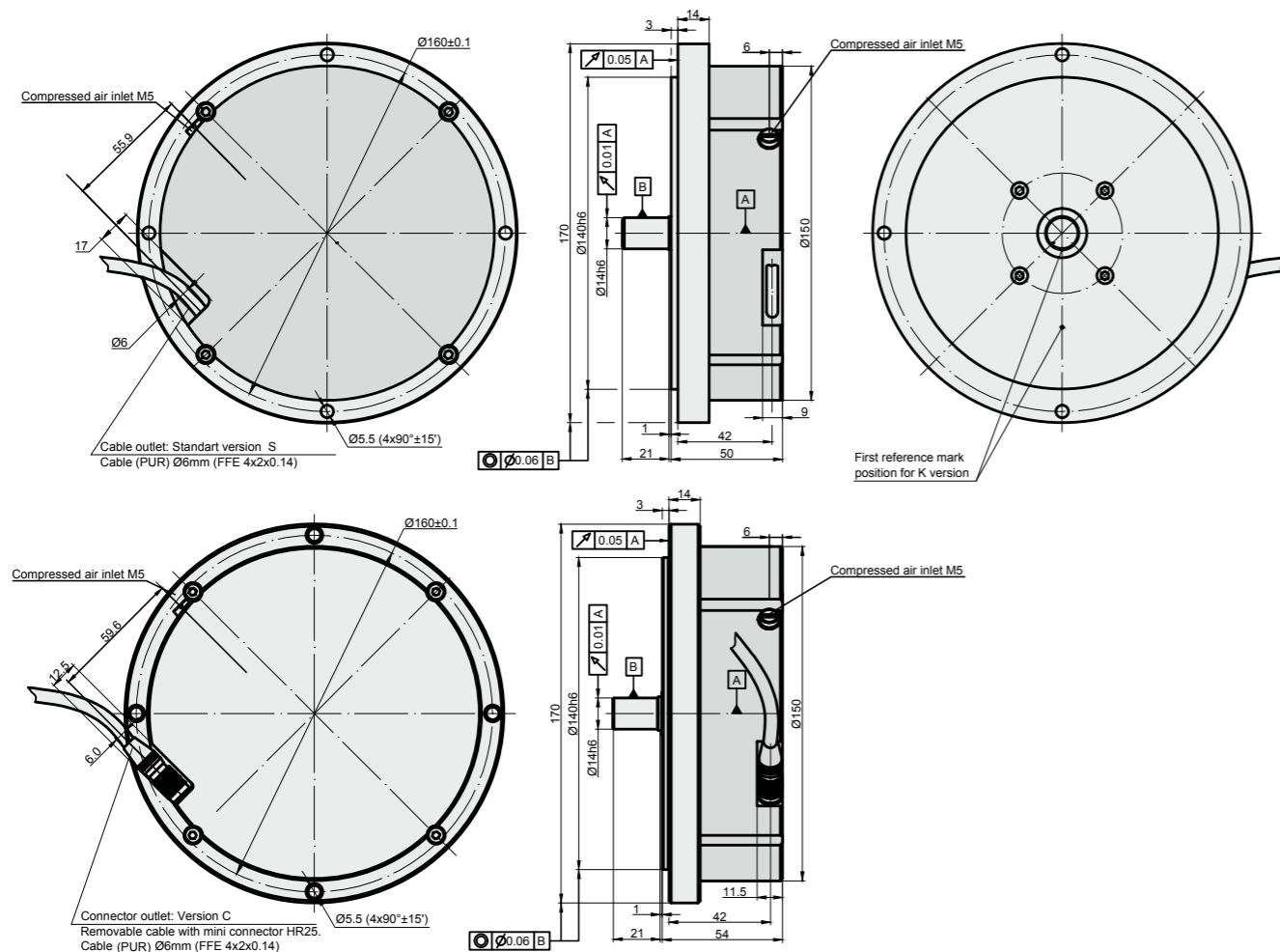


A170

PHOTOELECTRIC ANGLE ENCODER

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.

- Analog output signals
- High Resolutions
- Distance Coded reference mark
- High precision



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
Reference signal:		- radial	≤ 30 N
- standard (S)	One per shaft revolution	Starting torque at 20°C	≤ 0.012 Nm
- distance-coded (K) for z = 18000	36 per shaft revolution	Rotor moment of inertia	< 3.7×10 ⁻⁴ kgm ²
- distance-coded (K) for z = 36000	72 per shaft revolution	Protection (IEC 529)	IP64
Permissible mech. speed	≤ 1000 rpm	Maximum weight without cable	3.5 kg
Max. operating speed (depends on number of output pulses)	300 to 500 rpm	Operating temperature	0...+70 °C
Accuracy	±2.5	Storage temperature	-30...+85°C
		Maximum humidity (non condensing)	98 %
		Permissible vibration	≤ 100 m/s ²
		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/U1 and U2/U2. 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 120Ω load - R = 2...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 - high (logic "1") > 2.4 V
Maximum operating frequency	(-3 dB cutoff) ≥ 160 kHz	(-3 dB cutoff) ≥ 180 kHz	(160-2500 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
Output signals			

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

A170	- X -	XXXXXXXXXXXX	- X - X - XX/X - X				
OUTPUT SIGNAL VERSION:	PULSE NUMBER PER REVOLUTION:	OPTIONAL LINE NUMBER ON DISC (Z):	REFERENCE SIGNAL:	CABLE OR CONNECTOR OUTLET:	CABLE LENGTH:	CONNECTOR TYPE:	COUPLING:
A	1...18000	18000	S - one per revolution,	S - version S (cable outlet)	AR01 - 1m	W - without connector	0 - without coupling
AV	...	36000	K - distance-coded	C-version C (connector outlet)	AR02 - 2m	B12 - round, 12 pins	1 - SC98-1
F	1...3600000	*only for A170-F			AR03 - 3m	C9 - round, 9 pins	
						C12 - round, 12 pins	
						D9 - flat, 9 pins	
						D15 - flat, 15 pins	
						RS10 - round, 10 pins	
						ONC - round, 10 pins	

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