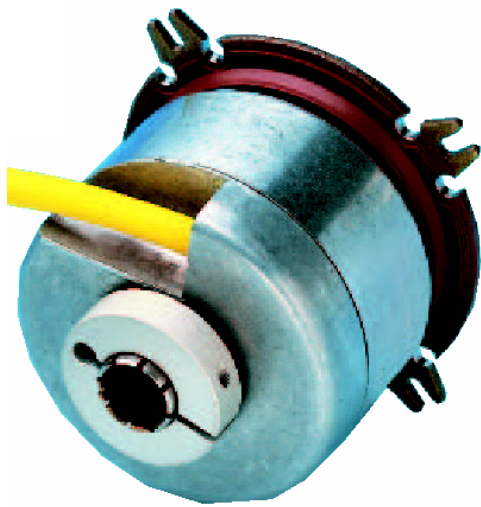


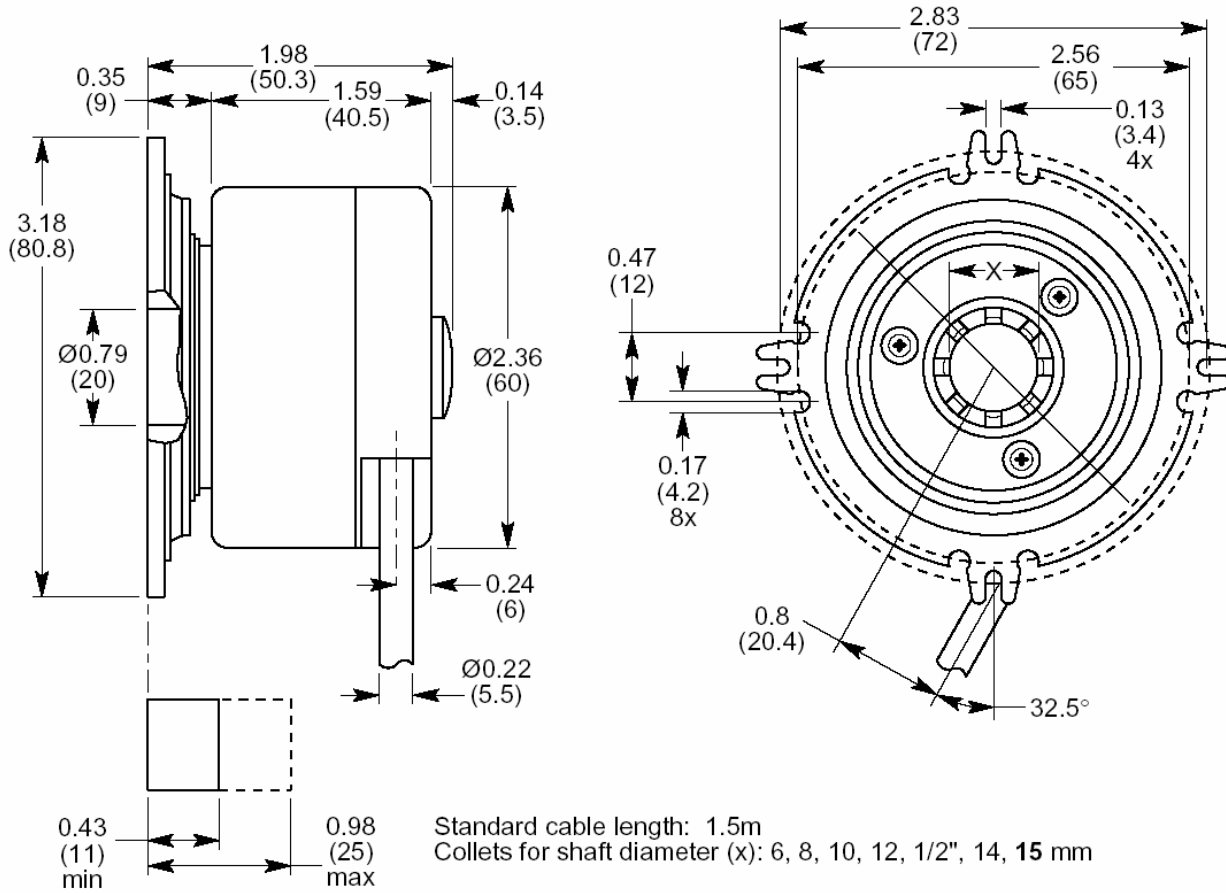


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60 OP ENCODER BROCHURE

60 OP 1024 INCREMENTAL ENCODER



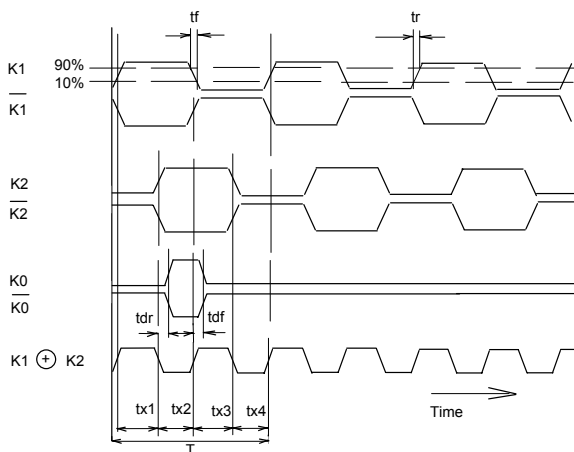
- Hollow-shaft incremental encoder with an outer diameter of 60mm.
- External coupling with ample compensation for play.
- Simple mounting.
- 1024 Pulses per rotation.
- High protection class
- Quadrature output with reference marker.
- Square wave output signals 5VRs422 300kHz.
- Power supply 5-12 Vdc.

Connection Details

Cable lead allocations (cable exit 1 m 8 core) 4 x 0,15 mm ² twisted pair; overall screen	Colour of cable	Signal	Explanation
	red	+ Us	power supply positive
	blue	0V	power supply negative
	white	K1	Signals
	brown	$\overline{K1}$	
	pink	K2	
	black	$\overline{K2}$	
	violet	K0	
	yellow	$\overline{K0}$	
	screen	-	encoder housing

Pulse Time Graph

For constant speed clockwise rotation, viewed looking towards direction "A"



By combining the K1 and K2 signals an output signal is produced with varying periods: x1, tx2, tx3, tx4.

The differences are determined

- 1) by the tolerance of the on/off ratio of each channel
- 2) by the tolerance in the 90° phase difference between K1 & K2
- 3) by the frequency

Ideally, the periods tx1 - tx4 should be ¼ of the period T.

The typical output frequency is defined so that the maximum time tx < 1,5 x T/4.

tf	< 180 ns	
tr	< 150 ns	measured with a
tdf	< 50 ns	load of 1kΩ 1nF.
tdr	< 30 ns	

Technical Specification

Technical data and features as per DIN 32 878		Units
Number of pulses per rotation	1024	
Interface	RS 422	
Dimensions	See drawing	mm
Mass	ca. 0,3	kg
Moment of inertia of rotor	45	gcm ²
Measurement step	0,088	Degrees
Reference signal	1	
- Number	90° electrically & logically interlocked with K1 and K2	
- Position		
Error limits	0,09	Degrees
Measurement step deviation	0,04	Degrees
Max. output frequency	300	kHz
Max. operating speed	6000	min ⁻¹
Friction torque	0,1	Ncm
Starting torque	0,2	Ncm
Permissible movement of drive shaft		
- Radial movement	Static	mm
	Dynamic	mm
- Axial movement	Static	mm
	Dynamic	mm
Service life of bearings	3,6 x 10 ¹⁰	Revolutions
Working temperature range	-20 ... +70	°C
Operating temperature range	-20 ... +85	°C
Storage temperature range	-30 ... +85	°C
Permissible relative humidity (condensation not permissible)	90	%
Shock resistance when mounted to DIN IEC 68 Part 2-27	30/11	g/ms
Vibration resistance when mounted to DIN IEC 68 Part 2-6	20/10 ... 150	g/Hz
Degree of protection to DIN VDE 0470 Part 1	IP 65	
Working voltage range	5 - 12	VDC
Working current at no load	120	mA
Signal cable (power supply is isolated from housing. Screen is at housing potential).		
- Diameter	6	mm
- Min. bending radius	30	mm