

Code ST02	Project E08-A	Release B	TECHNICAL DATASHEET
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OPTICAL ENCODER EN53SC

GENERAL FEATURES

- Optical rotary encoder.
- Bidirectional signals with zero pulse.
- Aluminium flange and housing.
- Radial output by cable.
- Compact design.
- Suitable for motor feedback.



MECHANICAL AND ELECTRICAL CHARACTERISTICS

MECHANICAL <ul style="list-style-type: none"> • Flange and housing made of aluminium. • Stainless steel shaft. • Ball bearings with special high-sealed screens. • High protection even in harsh environmental conditions. ELECTRICAL <ul style="list-style-type: none"> • Protection against short circuits. • Protection against inversion of polarity. • High stability of output signals. • Reading device with infra-red light emitter and receiving photodiodes. • SinCos A and B output signals, with phase displacement of 90° electrical. 	Cod. EN53SC	
	Pulses per revolution	2048 ppr
	Max. rotating speed	continuous 12000 rpm momentary 15000 rpm
	Max. shaft load	20 N (axial) - 90 N (radial)
	Shaft diameter (mm)	tapered semi-hollow shaft Ø 10 (10/1) semi-hollow shaft Ø 12.7
	Operating temperature	-15 °C ÷ 120 °C
	Storage temperature	-20 °C ÷ 80 °C
	Vibration resistance (EN 60068-2-6)	≤ 100 m/s ² (10 ÷ 2000 Hz)
	Shock resistance (EN 60068-2-27)	≤ 1000 m/s ² (6 ms)
	Protection class (EN 60529)	IP 40
	Torque	≤ 1 Ncm
	Output	SinCos 1 Vpp
	Power supply	5 V ± 10%
	Max. frequency	500 kHz
	Max. current consumption (no load)	120 mA
Standard cable length	1 m	
Electrical connections	see related table	
Protections	inversion of polarity and short circuits	
Weight	450 g	

ORDERING CODE

MODEL	CABLE OUTPUT	PPR	POWER SUPPLY	Ø SHAFT	CABLE	OUTPUT	CONNECTION	OPTIONS
EN53SC	HR	2048	05V	D12.7	M01	SW	C	

HR = radial 2048 = 2048 ppr 05V = 5 V D10 = ø10 mm tapered 10/1 M.5 = 0.5 m SW = 1 Vpp C = cable No cod.= standard
 D12.7 = ø12.7 mm M01 = 1 m

Example  **OPTICAL ENCODER EN53SC HR 2048 05V D12.7 M01 SW C**

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CABLE AND ELECTRICAL CONNECTIONS

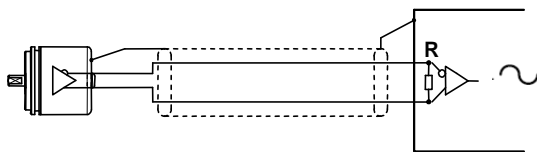
Cable 8 wires $\varnothing = 6.0$ mm, PVC external sheath

Conductors section:
 - power supply: 0.35 mm^2
 - signals: 0.14 mm^2

NOTE
 The cable's bending radius should not be lower than 60 mm.

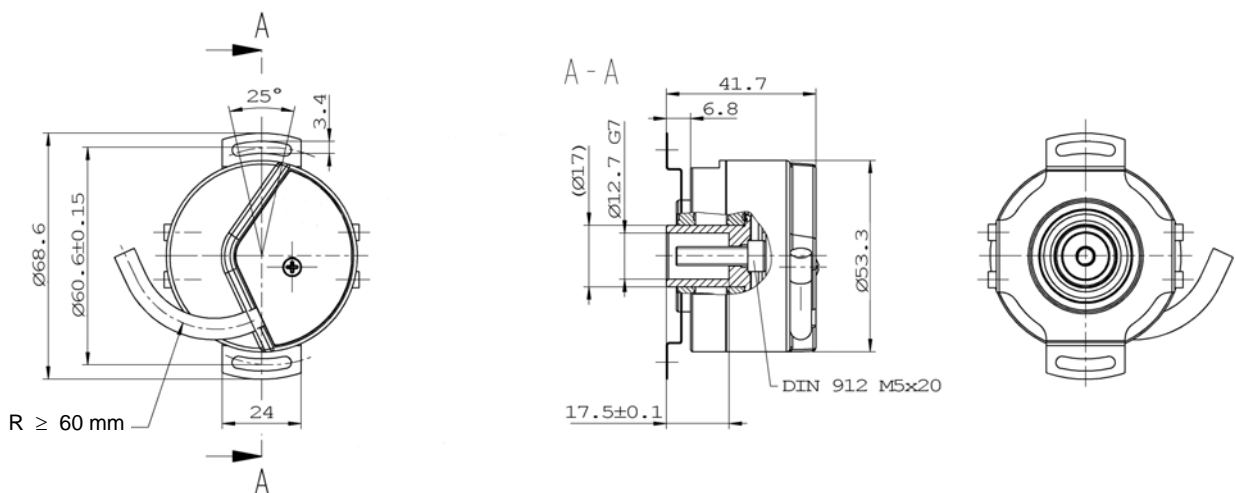
SINE WAVE (1 Vpp)		
PIN No. ON TERMINAL BLOCK	CONDUCTOR COLOR	SIGNAL
Row a - 1		n.c.
Row a - 2	Orange	\bar{A}
Row a - 3	Blue	0 V
Row a - 4	Yellow	\bar{Z}
Row a - 5	Light blue	\bar{B}
Row a - 6		n.c.
Row a - 7	Red	+5 V
Row b - 1		n.c.
Row b - 2		n.c.
Row b - 3	White	B
Row b - 4	Brown	Z
Row b - 5	Shield	GND
Row b - 6	Green	A
Row b - 7		n.c.

SHIELDED CABLE



POWER SUPPLY	R
5 V 1 Vpp	120 Ω

DIMENSIONS AND RECOMMENDED FIXING



WHAT TO AVOID

- Any mechanical working (cutting, drilling, milling, etc.).
- Any modification of the encoder body or shaft.
- Any improper use, not complying with the technical instructions provided by the Manufacturer.
- External shocks or stresses.

