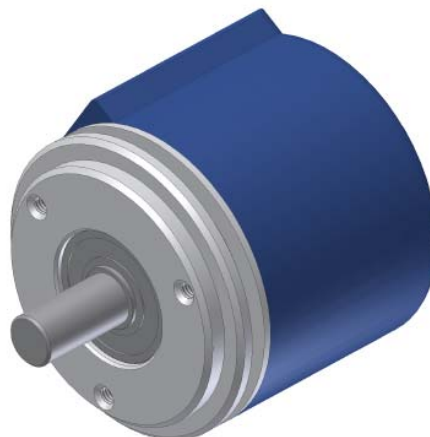


Code <b>ST01</b>	Project <b>A33</b>	Release <b>B</b>	Title <b>TECHNICAL DATASHEET</b>
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## OPTICAL ENCODER EN500

### GENERAL FEATURES

- Optical rotary encoder.
- Bi-directional signals with zero pulse.
- Flange and body made of aluminium.
- Output by connector or cable (with sealing fairlead), radial or axial.



### MECHANICAL AND ELECTRICAL FEATURES

<b>MECHANICAL</b> <ul style="list-style-type: none"> <li>• Flange and body made of aluminium.</li> <li>• Shaft made of stainless steel.</li> <li>• Ball bearings with special high-sealed screens.</li> <li>• High protection even in harsh environmental conditions.</li> </ul> <b>ELECTRICAL</b> <ul style="list-style-type: none"> <li>• Protection against short-circuits.</li> <li>• Protection against inversion of polarity.</li> <li>• High stability of output signals.</li> <li>• Reading device with an infra-red light emitter and receiving photodiodes.</li> <li>• A and B output signals with phase displacement of 90° electrical.</li> </ul>	<b>Code EN500</b>	<b>PP</b>	<b>LD</b>	<b>OC</b>
	<b>Pulses per revolution</b>	5 to 64000 ppr		
	<b>Max. rotating speed</b>	momentary	12000 rpm	
		permanent	8000 rpm	
	<b>Max. load on shaft</b>	100 N (radial) – 100 N (axial)		
	<b>Shaft (diameter A x length L) mm</b>	ø6x10 -ø8x20 -ø9.52x20 -ø10x20 others on request		
	<b>Protection class</b>	IP65 (standard) * IP67 (optional)		
	<b>Operating temperature</b>	0 ÷ 70°C		
	<b>Storage temperature</b>	-20 ÷ 80°C		
	<b>Humidity</b>	20 ÷ 90% (not condensed)		
	<b>Power supply</b>	5 V ± 5% 5 ÷ 28 V ± 5%		
	<b>Max. consumption at 5V (with no load)</b>	25 mA		
	<b>Max. output current (each channel)</b>	30 mA		
	<b>Max. frequency</b>	300 kHz		
	<b>Output</b>	Push-Pull	Line Driver	Open Collector
	<b>Standard length of cable</b>	1 m		
<b>Electrical connections</b>	see rel. table			
<b>Electrical protection</b>	inversion of power supply polarity and short-circuits on output port			
<b>Weight (according to model)</b>	280 ÷ 340 g			

\* It is important to note that shaft rotates more freely in the version with protection class IP65.

### ORDERING CODE

MODEL	CABLE/ CONN. OUTPUT	ACCURACY	PPR	POWER SUPPLY	SHAFT Ø	CABLE / CONN.	OUTPUT	CONNECTION	OPTIONS
<b>EN500</b>	<b>HR</b>	<b>S</b>	<b>xxxxx</b>	<b>05V</b>	<b>D06</b>	<b>CE</b>	<b>PP</b>	<b>2</b>	<b>V2</b>

HR = radial  
HA = axial

No code = standard  
S = special

05V = 5V  
0528 = 5÷28V

D06 = ø6 mm  
D08 = ø8 mm  
9.52 = ø9.52 mm  
D10 = ø10 mm

M.5 = 0.5m  
M01 = 1m  
CE = 7P Amph.  
CF = 10P Amph.  
CG = 12P Connei

LD = LINE DRIVER  
PP = PUSH-PULL  
ON = OC NPN  
OP = OC PNP

C = cable  
n = no. wiring

No code = . standard configuration  
V2 = protection class IP67

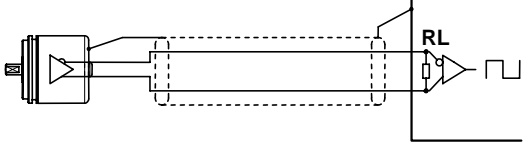
Example  **OPTICAL ENCODER EN500 HRS 01000 05V D06CE PP2 V2**

Code	Project	Release	Title
<b>ST01</b>	<b>A33</b>	<b>B</b>	<b>TECHNICAL DATASHEET</b>

### CABLE AND ELECTRICAL CONNECTIONS

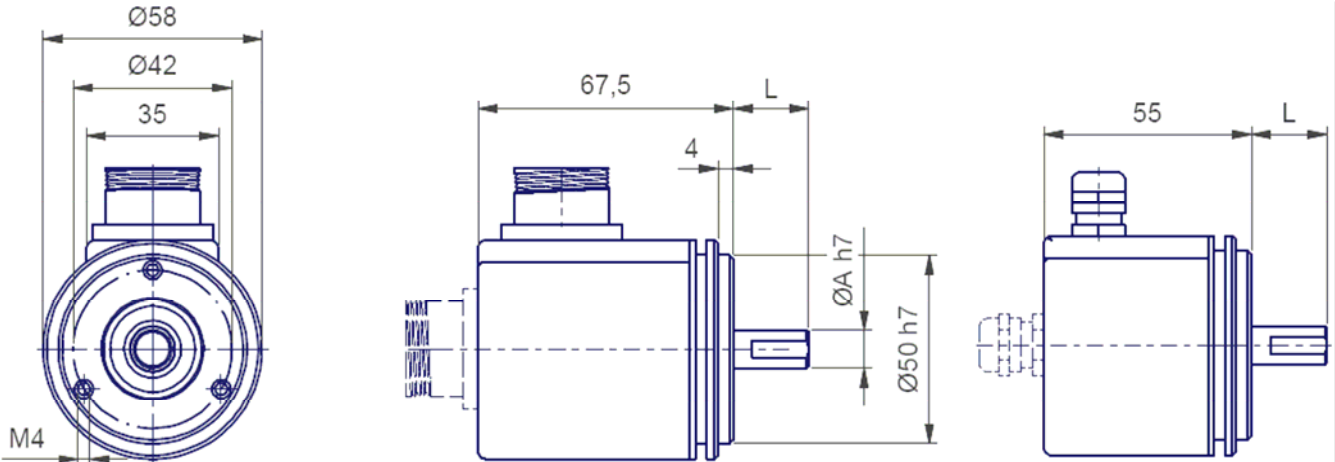
<b>Cable 8 cores <math>\varnothing = 6.5</math> mm, PVC external sheath</b> <b>Wires section:</b> - for power supply: $0.5 \text{ mm}^2$ - for signals: $0.14 \text{ mm}^2$ <b>Cable 5 cores <math>\varnothing = 5.4</math> mm, PVC external sheath</b> <b>Wires section:</b> - for power supply: $0.22 \text{ mm}^2$ - for signals: $0.14 \text{ mm}^2$  NOTES: Do not exceed the minimum cable bending radius of 30 mm.	<b>PP / OC</b>		<b>LD</b>	
	<b>SIGNAL</b>	<b>WIRE COLOUR</b>	<b>SIGNAL</b>	<b>WIRE COLOUR</b>
	A	Green	A	Green
	B	White	B	White
	Z	Brown	Z	Brown
			$\bar{A}$	Orange
			$\bar{B}$	Light Blue
			$\bar{Z}$	Yellow
	V+	Red	V+	Red
	GND	Blue	GND	Blue
$\perp$	Shield	$\perp$	Shield	

### SHIELDED CABLE


	<b>LINE DRIVER CONNECTION</b>	
	<b>POWER SUPPLY</b>	<b>RL</b>
	5 V	120 $\Omega$
	12 V	330 $\Omega$
	24 V	1000 $\Omega$

In case of cable extension, the electrical connection between the body of connectors must be ensured.

### DIMENSIONS AND RECOMMENDED FIXING


<ul style="list-style-type: none"> <li>Use an elastic coupling for shaft junction.</li> <li>For fixing through brackets, drill on the mounting surface no. 3 holes M4 on a diameter of 68 mm.</li> </ul>

### WHAT TO AVOID

<ul style="list-style-type: none"> <li>Any type of mechanical working (cut, drill, mill, etc.)</li> <li>Any modification either on the body or on the shaft of the encoder</li> <li>Any kind of bad usage</li> <li>External hits or stresses</li> </ul>	
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