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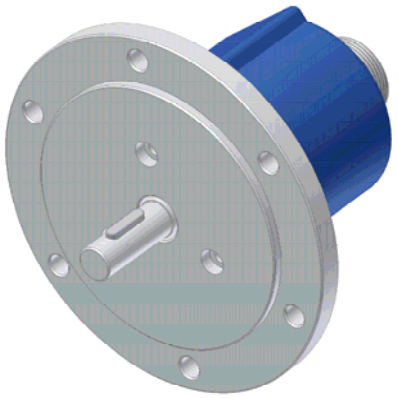
Code	Project	Release	Title
ST12	*A33*	*B*	*TECHNICAL DATASHEET*

OPTICAL ENCODER EN515

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

MECHANICAL
- Flange and body made of aluminium.
- Shaft made of stainless steel.
- Ball bearings with special high-sealed screens.
- High protection even in harsh environmental conditions.

ELECTRICAL
- Protection against short-circuits.
- Protection against inversion of polarity.
- High stability of output signals.
- Reading device with an infra-red light emitter and receiving photodiodes.
- A and B output signals with phase displacement of 90° electrical.

Code. EN515	PP	LD	OC
Pulses per revolution	5 to 64000 ppr		
Max. rotating speed	momentary 12000 rpm permanent 8000 rpm		
Max. load on shaft	100 N (radial) – 100 N (axial)		
Shaft (diameter x length) mm	Ø11x30		
Protection class	IP65 (standard) * IP67 (optional)		
Operating temperature	0 ÷ 70°C		
Storage temperature	-20 ÷ 80°C		
Humidity	20 ÷ 90% (not condensed)		
Power supply	5V ± 5% 5 ÷ 28V ± 5%		
Max. consumption at 5V (with no load)	25 mA		
Max. output current (each channel)	30 mA		
Max. frequency	300 kHz		
Output	Push-Pull	Line Driver	Open Collector
Standard length of cable	1 m		
Electrical connections	see rel. table		
Electrical protection	inversion of power supply polarity and short-circuits on output port		
Weight (according to model)	520 ÷ 580 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
EN515	**HR**	**S**	**xxxxx**	**05V**	**D11**	**CE**	**PP**	**2**	**V2**
	HR = radial **HA** = axial	**No code** = standard **S** = special		**05V** = 5V **0528** = 5÷28V	**D11** = ø11 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 EN515 HRS 01000 05V D11CE PP2 V2**

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CABLE AND ELECTRICAL CONNECTIONS

Cable 8 cores ∅ = 6.5 mm, PVC external sheath

Wires section:
- for power supply: 0.5 mm^2
- for signals: 0.14 mm^2

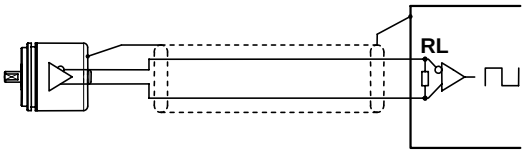
Cable 5 cores ∅ = 5.4 mm, PVC external sheath

Wires section:
- for power supply: 0.22 mm^2
- for signals: 0.14 mm^2

NOTES.
Do not exceed the minimum cable bending radius of 30 mm.

PP / OC		LD	
SIGNAL	**WIRE COLOUR**	**SIGNAL**	**WIRE COLOUR**
A	Green	A	Green
B	White	B	White
Z	Brown	Z	Brown
		$\overline{A}$	Orange
		$\overline{B}$	Light Blue
		$\overline{Z}$	Yellow
V+	Red	V+	Red
GND	Blue	GND	Blue
	Shield		Shield

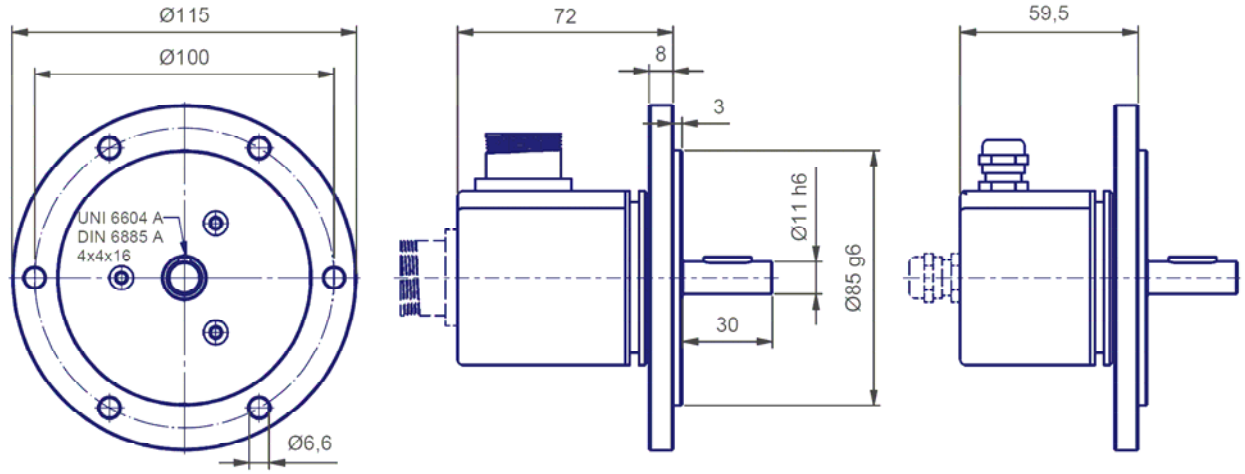
SHIELDED CABLE



LINE DRIVER CONNECTION	
POWER SUPPLY	**RL**
5 V	120 Ω
12 V	330 Ω
24 V	1000 Ω

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

DIMENSIONS AND RECOMMENDED FIXING



WHAT TO AVOID

- Any type of mechanical working (cut, drill, mill, etc.)
- Any modification either on the body or on the shaft of the encoder
- Any kind of bad usage
- External hits or stresses.