

# SERIE 21

## INCREMENTAL SOLID SHAFT ENCODER COST OPTIMIZED FOR INDUSTRIAL APPLICATIONS

- Resolution up to 500 pulses per turn
- External diameter 40 mm
- Shaft  $\varnothing$  6 mm
- Protection class IP41 according to DIN EN 60529
- Connection by cable (other cable length available)



Optical Encoder



Incremental Encoder



Vibration and shock resistant

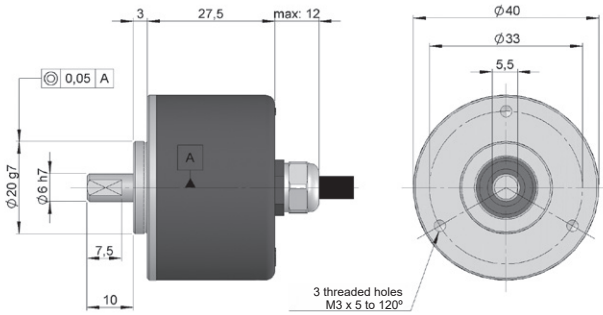


IP41

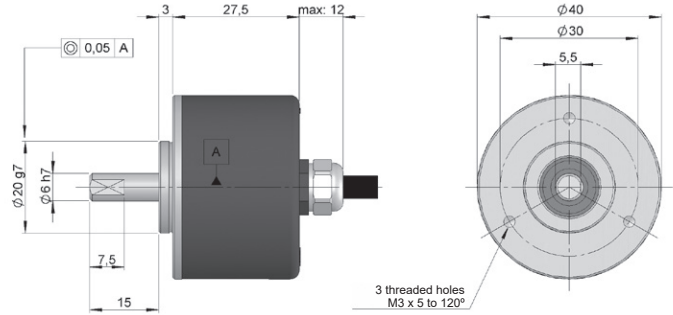


Express Delivery

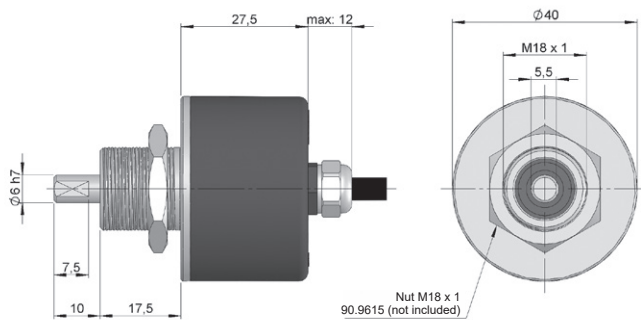
### Option A



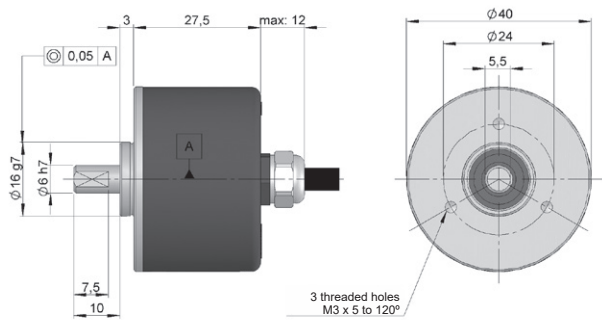
### Option B



### Option C



### Option D



## REFERENCE

Reference example: 21-111-500

Serie	Mechanical option	Output signals	Power Supply / Electronic output	Pulses number	Special customer
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	1. Option A 2. Option B 3. Option C 4. Option D	1. A 2. A+B 3. A+B+0 4. A+B+0 7. A $\tilde$ +B $\tilde$ +0 $\tilde$ 8. A $\tilde$ +B $\tilde$	0. 11...30 VDC / NPN Open collector 11...30 VDC 1. 11...30 VDC / Push-Pull 11...30 VDC 7. 5 VDC / RS422 5 VDC (compatible TTL) 9. 11...30 VDC / Line driver differential Push-Pull 11...30 VDC		

Order your reference  
Step file 3D

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service available in 24 h



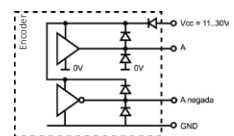
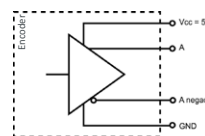
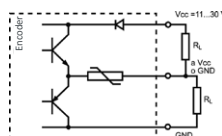
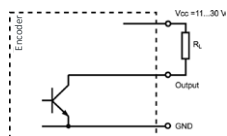
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## INCREMENTAL SOLID SHAFT ENCODER COST OPTIMIZED FOR INDUSTRIAL APPLICATIONS

### MECHANICAL SPECIFICATIONS

Materials	Cover: Plastic Housing: Aluminium Shaft: Stainless Steel
Bearings	Ballraces
Bearings lifetime	1x10 <sup>10</sup> rev.
Maximum number of revolutions permitted mechanically	5000 rpm
Protection against dust and splashes according to DIN EN 60529	IP41
Rotor inertia moment	10 gcm <sup>2</sup>
Starting torque at 20°C (68°F)	≤ 0,004 Nm
Maximum load permitted on axial shaft	5 N
Maximum load permitted on radial shaft	5 N
Weight aprox.	0,2 Kg
Operating temperature range	-20°C to +60°C
Vibration according to DIN EN 60068-2-6	100 m/s <sup>2</sup> (10Hz...2000Hz)
Shock according to DIN EN 60068-2-27	1000 m/s <sup>2</sup> (6ms)
Maximum pulses per turn	500
Axial connection	1 meter cable (other cable lengths available or connector mounted at the end of the cable, upon request)

### OUTPUT SIGNALS



OUTPUT CIRCUIT	NPN Open Collector	Push-Pull	RS422 (TTL compatible)	Push-Pull Differential
Reference code	0	1	7	9
Power supply	11...30 VDC	11...30 VDC	5 VDC ±10%	11...30 VDC
Output voltage	11...30 VDC	11...30 VDC	5 VDC	11...30 VDC
Consumption	40 mA	Typical: 45 mA Max: 150 mA	Typical: 70 mA Max: 150 mA	Typical: 45 mA Max: 150 mA
Max. load capability / channel	40 mA	±30 mA	±20 mA	±30 mA
Length of cable allowed	50 m (24 VDC)	50 m	1200 m	100 m
"Low" signal level	VOL < 0,4 VDC (24 VDC)	VOL < 2.5 VDC	VOL < 0,5 VDC	VOL < 2.5 VDC
"High" signal level	VOH > 22 VDC (24 VDC)	VOH > Vcc - 3 VDC	VOH > 2.5 VDC	VOH > VCC - 3 VDC
Frequency	100 kHz	200 kHz	300 kHz	200 kHz
Short circuit protection	Not permanent	Yes	Yes	Yes
Protection polarity inversion	Yes	Yes	No	Yes

Channel B leads (90° electric) channel A, view from the shaft, shaft rotating clockwise

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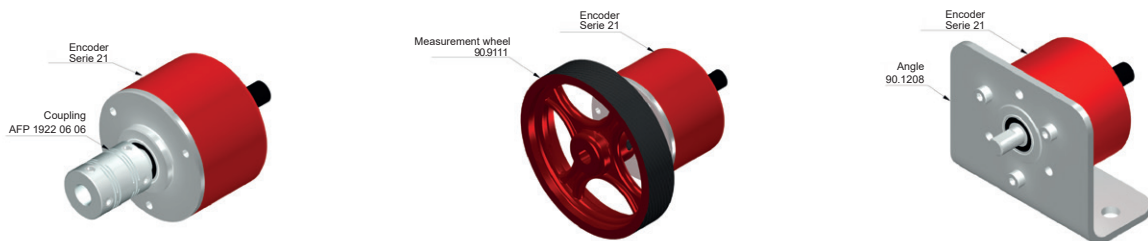
## CONNECTION



	95.0008002 Cable 2x2x0,14+1x0,14	95.0008003 (* Cable 3x2x0,14+2x0,34
GND	Yellow	Black
VCC	White	Red
A	Brown	Yellow
B	Green	Green
$\tilde{A}$		Brown
$\tilde{B}$		Blue
0 (reference)	Grey	Grey
$\tilde{0}$	Grey	Orange

Cable 3x2x0,14+2x0,34 only for encoders with inverted signals.

## ACCESSORIES EXAMPLES



All the accessories available in the section "MOUNTING ACCESSORIES".