

Datasheet



- Absolute Encoder: Ø36 mm
- Shaft: Ø6 mm to Ø8 mm
- Singleturn or Multiturn
- SSI Interface
- Binary or Gray Code
- Preset of Zero Position
- Choice of Counting Direction
- IP-Rating: IP65 or IP67



Mechanical Data

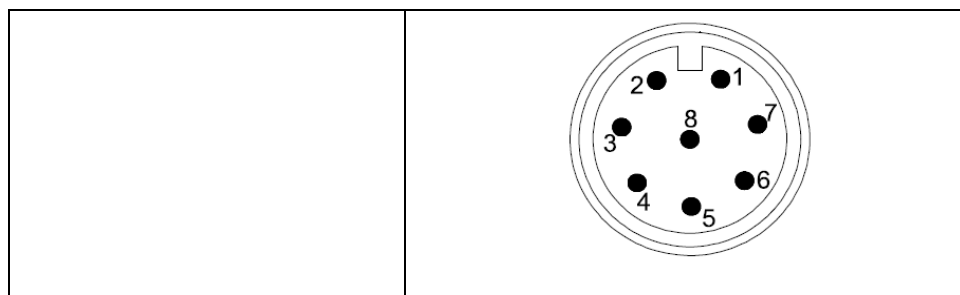
Dimension:	
Encoder	Ø36 mm
Shaft	Ø6 or Ø8 mm
Connector	M12; 8-pin
Material:	
Housing	Aluminium
Shaft	Stainless Steel (AISI 303)
Cap	Electroplated Steel or Aluminium
Cable	8-wire (0,05 mm ² , 30 AWG) – twisted pairs shielded
Wight:	
Encoder	~95 g (3,35 oz)
Cable	~50 g/m (1,76 oz/ meter)
Bearing Life	>1,9 x 10 ¹⁰ Revolution (with load)
Shaft Loads	axial <20 N (4,5 lbs) radial <20 N (4,5 lbs)
Shaft Speed	<6.000 U/min ⁻¹
Starting Torque	<0,005 Nm (0,708 OZ-in) at 25 °C
Mass Moment of Inertia	1,05 gcm ² (1,49 x 10 ⁻⁵ oz-in-sec ²)
Humidity	98% (not condensed)
Storage Temperature	-40° ... +85°C
Operating Temperature	-40° ... +85°C
Shock	100 G / 11 ms
Vibration	10-2000 Hz/ 10G
Bump	10 G / 16 ms (1000 x 3 axis)
IP-Rating	IP65 Nema4 IP67 Nema 6

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Electrical Data

Code	absolute multiturn
Supply Voltage	5 VDC \pm 5 % 9 ... 30 VDC
Consumption	30 mA -> 5 VDC 25 mA -> 10 VDC 15 mA -> 24 V
Accuracy	\pm 35 °
Resolution Singleturn	13 bits (8192 steps) pro Revolution
Number of Revolution	12 bits (4096) Revolution 16 bits (65536) Revolution 20 bits (1048576) Revolution 24 bits (16777216) Revolution
Interface	SSI (Synchronous Serial Interface)
Output Signal	Binary or Gray Code
Electrical Interface	differential (RS422 or ended (TTL))
Clock Frequency	100 kHz to 1 MHz
Counting Direction	Increasing clockwise or increasing counter clockwise seen from shaft end of encoder
Electrical Protection	Reverse polarity and output short circuit protected
Noise Imunity	Tested to EN61000-6-2: 2005 (industrial environments) Electromagnetic compatibility (EMC) an EN 61000-6-3: 2007 (residential, commercial, and light-industrial environments) for Electromagnetic compatibility (EMC)

Connector Pin Assignment



Cable 8-adrig	Connector M12; 8-polig	
Differential Input / Output	Differential Input / Output	Single Ended Input / Output

Signal	Color	Pin	
CLK+	green	3	3
CLK-	yellow	4	-
DO+	grey	5	5
DO-	pink	6	-
Direction	red	8	8
Preset	blue	7	7
V _{Sup}	brown	2	2
GND	white	1	1

Shield connected to case ground

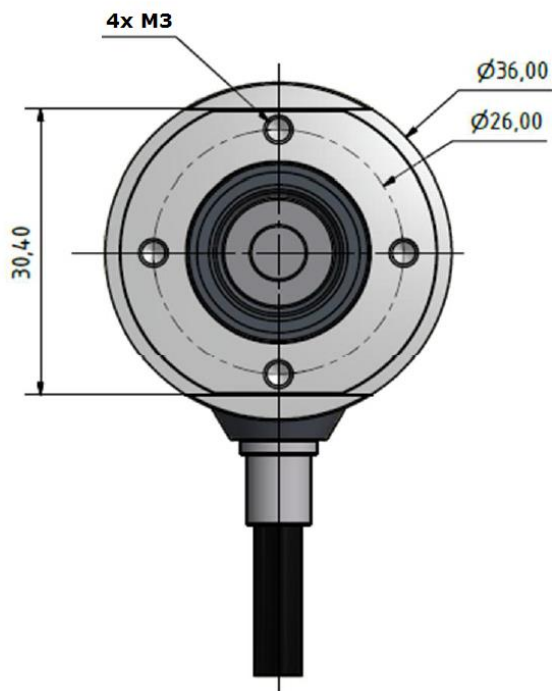
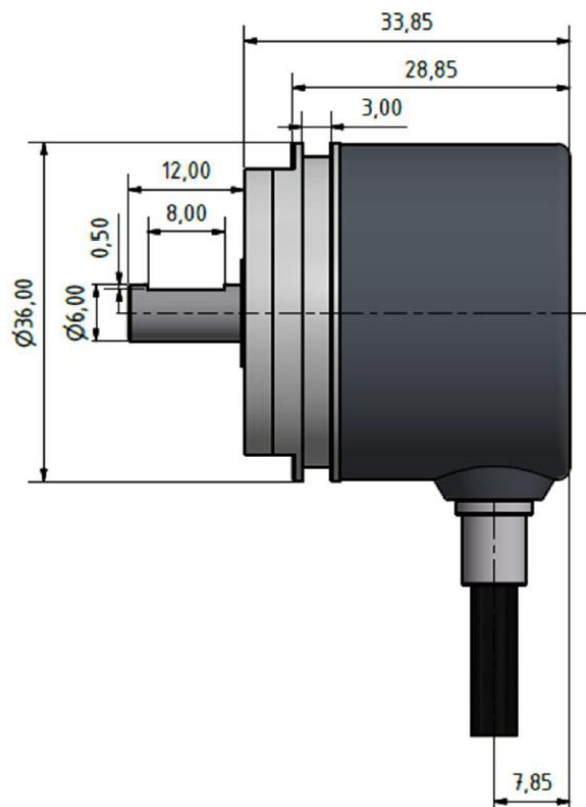
Shield must be connected to connector housing

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Dimensions

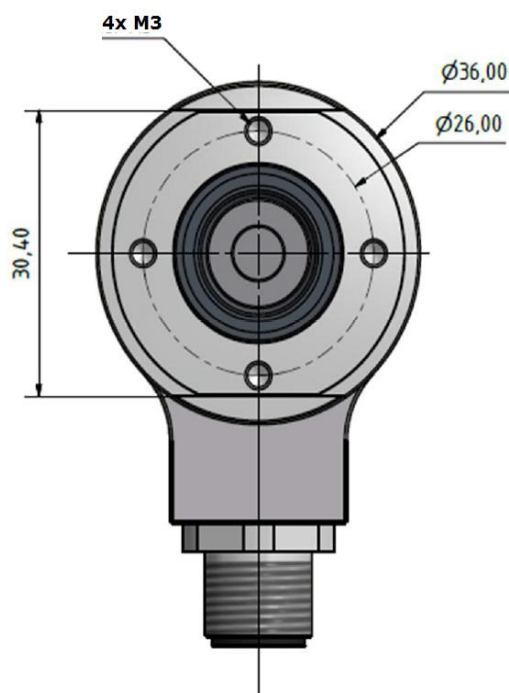
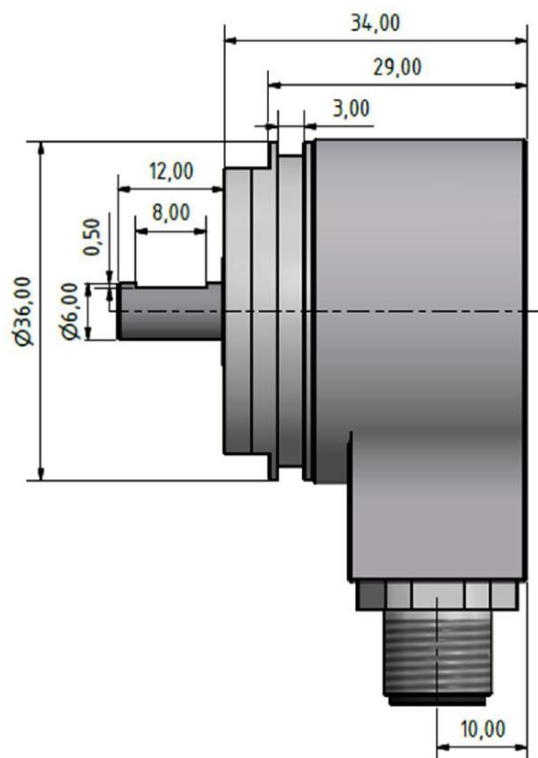
Standard Cable Gland

mm (inch)



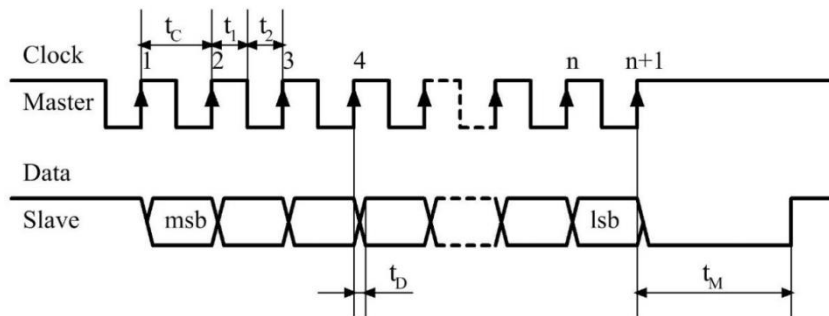
M12 Connector

mm (inch)



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SSI Interface



msb	= Most Significant Bit	
lsb	= Least Significant Bit	
t_C	= Clock Period	1 ... 10 μ Second (100 kHz bis 1 MHz)
t_1	= Clock High	50% \pm 15% of Clock Period
t_2	= Clock Low	50% \pm 15% of Clock Period
t_D	= Clock to Data Valid	< 100 n Second
t_M	= Monflop Time	20 \pm 3 μ Second

Implementation

During the initial set-up and installation of the encoder, it is possible to set the direction of rotation and preset the encoder to zero.

Setting of Direction

The connection designated "Direction" is used to set the direction of rotation. If the line is open or connected to 5 VDC, the value will increase when the shaft is rotated clockwise when seen from the shaft end. If the line is connected to GND the value will increase when the shaft is rotated counter clockwise when seen from the shaft end.

Notice also, that the encoder must not be powered when the direction of rotation is set/changed. Notice also, that the encoder will change its position value when the direction of rotation is changed.

Preset to Zero

The connection designated "Preset" is used to preset the encoder to zero. If the line is open or connected to 5 VDC, the encoder will not be preset to zero. If the line is connected to GND, the encoder will be preset to zero. The encoder will be held at zero as long at the line is connected to GND, even though the shaft is turned. The line must be connected to GND for at least 100 mSec. for the preset to take effect. The new zero point will be stored permanently in the encoder.

Notice that the encoder must be powered when it is preset to zero.

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Ordering Example

Type **SCA36NA-SSI** - **0013** - **5** - **B** - **D** - **06-12** - **65** - **01** - **S** - **00**

Resolution

Singleturn

0013 = 13

Multiturn

12XX = 12 bits

16XX = 16 bits

20XX = 20 bits

24XX = 24 bits

Supply Voltage

5 = 5 VDC

9 = 9-30VDC

Code

B = Binary

G = Gray

Electrical Interface

D = differential (RS422)

S = single ended (TTL)

(with connector only)

Shaft Diameter/ Length

06-12 = 6 x 12 mm

IP-Rating

65 = IP65

67 = IP67

Cable Length

01 = 1 m (standard)

XX = specify length

00 = no cable

Cable Exit

S = side

Connector

M12 = M12; 8-polig
(only without cable)

00 = no connector