**BEI Sensors SAS**
Espace Européen de l'Entreprise
9, rue de Copenhague
B.P. 70044 Schiltigheim
F 67013 Strasbourg Cedex

Tél : +33 (0)3 88 20 80 80
Fax : +33 (0)3 88 20 87 87
Mail : info@beisensors.com
Web : www.beisensors.com

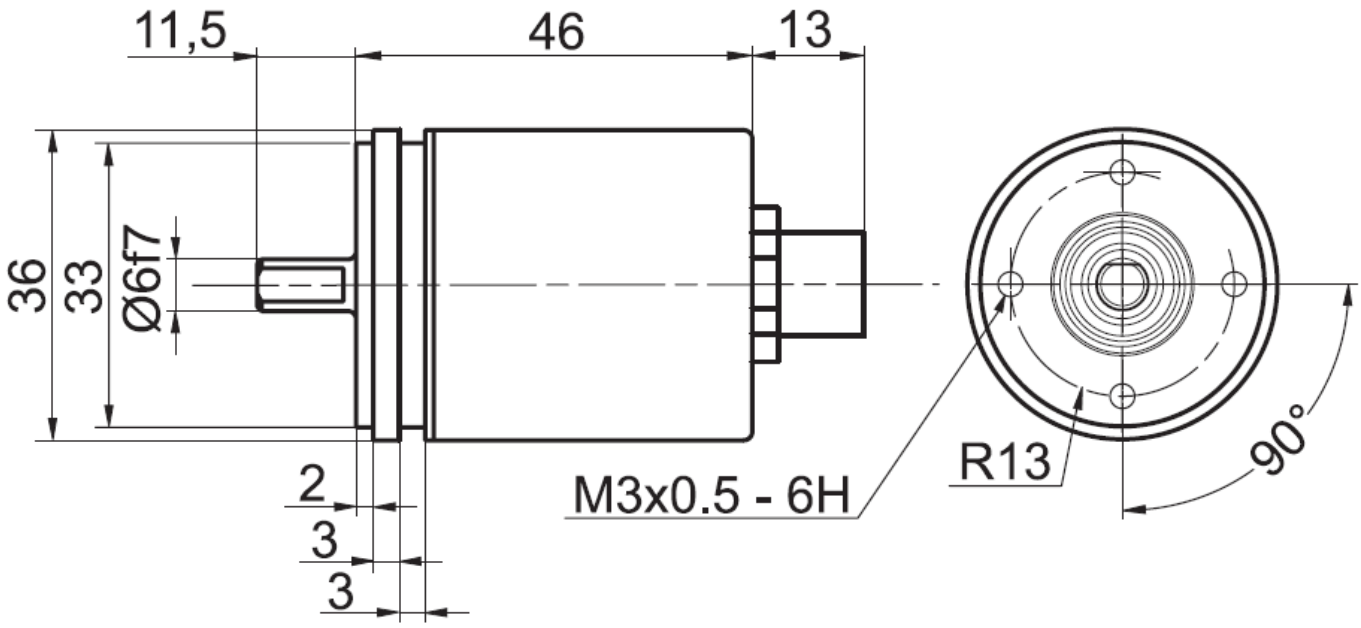
# THM4

## MAGNETIC ENCODERS - CANOPEN ABSOLUTE MULTI TURN - THM4 RANGE

THM4 is a Ø36mm multiturn encoder with CANopen interface :

- Compact and robust design.
- Solid shaft Ø 6 mm version.
- Precision sealed bearings.
- High temperature performance –30°C to 70°C.
- Hall effect technology.
- Multiturn encoding based on magnetic pulse counter. No batteries used.
- CANopen interface, binary code.
- 12 bits resolution = 4096 steps / turn.
- Number of turns : 12 bits = 4096 turns.
- Polarity inversions and surges protections.
- High integration SMD technology.

## DIMENSIONS THM4S10 M12 AXIAL




## MECHANICAL CHARACTERISTICS

| | |
|---|---|
| Material | Cover : nickel, steel plated |
| | Body : aluminum |
| | Shaft: stainless steel |
| Max. shaft loading | Axial : 40 N |
| | Radial : 110 N |
| Shaft Inertia | ≤ 30 g.cm² |
| Torque | ≤ 3 N.cm |
| RPM (continuous operation) | 12 000 rpm |
| Shock (EN 60068-2-27)) | ≤ 100 g (half-sine, 6 ms) |
| Shock (EN 60028-2-29) | ≤ 10 g (half-sine, 16ms) |

| | |
|---|---|
| Vibrations (EN 60068-2-6) | ≤ 10 g (10Hz... 1 000Hz) |
| Weight | 150 g |
| Operating temperature | - 30 ... + 70°C |
| Storage temperature | - 30 ... + 70°C |
| Humidity | 98 % without condensation |
| Protection class (EN 60529) | IP 54: body |
| | IP 54: shaft |

| Lifetime in $10^8$ revolutions with $F_a$ / $F_r$ (axial / radial) | | |
|---|---|---|
| 40 N / 60 N | 40 N / 80 N | 40 N / 110 N |
| 216 | 91 | 35 |

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CE

## ELECTRICAL CHARACTERISTICS

| | |
|---|---|
| Interface | According to ISO 11898 |
| Transmission | Max 1 MBauds |
| Internal cycle time | <600 µs |
| Supply | 10 – 30Vdc |

| | |
|---|---|
| Consumption | max 0,5W |
| Accuracy | +/- 1,5° |
| EMC | EN 61000-6-4 EN 61000-6-2 |
| Electrical life-time | > $10^5$ h |

## TRANSMISSION MODES

| | |
|---|---|
| POLLED mode | By a remote-transmission-request telegram the connected host calls for the current process value. The absolute rotary encoder reads the current position value, calculates eventually set-parameters and sends back the obtained process value by the same identifier |
| CYCLIC mode | The absolute rotary encoder transmits cyclically - without being called by the host - the current process value. The cycle time can be programmed in milliseconds for values between 1 ms and 65536 ms |
| SYNC mode | After receiving a sync telegram by the host, the absolute rotary encoder answers with the current process value. If more than one node number (encoder) shall answer after receiving a sync telegram, the answer telegrams of the nodes will be received by the host in order of their node numbers. The programming of an offset-time is not necessary. If a node should not answer after each sync telegram on the CAN network, the parameter sync counter can be programmed to skip a certain number of sync telegrams before answering again. |

## PROGRAMMABLE PARAMETERS

| | |
|---|---|
| Operating Parameters | This parameter determines the counting direction, in which the output code increases or decreases. As an important operating parameter the code sequence (complement) can be programmed |
| Resolution per turn | Value between 1 and 4096 can be programmed |
| Total resolution ''Max range'' | This parameter is used to program the desired number of measuring units over the total measuring range. This value may not exceed the total resolution of the absolute rotary encoder. |
| Preset Value | The preset value is the desired position value, which should be reached at a certain physical position of the axis |
| Limit Switch, Min. and Max | Two position values can be programmed as limit switches. By reaching these values one bit of the 32 bit process value is set to high level |

## CONFIGURATION

The standard configuration is : node number = 32 and Baurate = 125kBaud. These configurations can be modified with SDO frames. The Baudrate can be modified from 20kBaud to 1MBaud. The node number can de programmed between 0 and 89.

## CANopen CONNECTION

| Type | GND | +Ub = 10-30Vdc | CAN-High | CAN-Gnd | CAN-Low |
|---|---|---|---|---|---|
| B7 | 3 | 2 | 4 | 1 | 5 |

## ORDERING REFERENCE (specific manufacture on demand. ex: flange / specific connection...)

| THM4_ | 06 // | 5 | BB | B // | 12B12 // | B7A |
|---|---|---|---|---|---|---|
| Absolute multiturn encoder | Solid shaft Ø6mm | Supply : 11 to 30Vdc | CANopen | Binary code | 12bits : resolution<br>13 bits : number of turns | M12 5 pinouts axial output |