

TCW4 CANopen

CANOPEN ABSOLUTE MULTI-TURN MODULAR SENSOR

Sensata-BEI Sensors' TCW4 sensors provide absolute multi-turn measurement with a CANopen output in an over-molded, modular package that offers design flexibility and protection from the environment.



Features

- With its two-part design, the TCW4 CANopen absolute multi-turn offers maximum flexibility for installation
- Rugged and excellent resistant to shock and vibration
- Robust, proven magnetic technology
- Environmentally resistant, IP 67 standard (IP69K option)
- Extended operating range from -30° C to 85° C
- Uses universal supply 5 to 30 VDC – CAN open output
- Available resolution 12 bits per turn by 16 bits of turns counting
- Variety of magnet holders available
- Standard PVC cable with SUBD9 connector

Applications

- Factory Automation
- Process Automation



SPECIFICATIONS

Mechanical

Terminations	PVC Cable with SUBD9 connector
Housing	Macromelt PA638
Weight	0,150 kg

Electrical

Output Function	CANopen
Minimal Cycle Time	< 400µs
Resolution	Multi-turn 12 bits per turn and up to 16 bits of turns counting
Accuracy	+/-0.3% on 360°
Repeatability	+/-0.1% on 360°
Supply Voltage	5 to 30 Vdc
Start-up	< 1 s
Current Requirements	< 40mA
Protection	Overvoltage Protection: Yes Reverse Polarity Protection: Yes Short Circuit Protection: Yes
EMC	IEC 61000-4-2 Electrostatic discharge (ESD) 4 kV, 8 kV IEC 61000-4-3 Electromagnetic fields 10 V/m (80MHz - 1GHz), 3V/m (1.4GHz - 2GHz), 1V/m (2GHz - 2.7GHz) IEC 61000-4-4 Electrical fast transients (burst) 1 kV IEC 61000-4-6 Conducted disturbances, induced by RF-fields 10 Veff.

Programmable Parameters

Resolution: Defines the resolution per revolution (0 to 4 096).

Transmission Speed: Programmable from 10kBaude (1 000m) to 1 Mbaude (25 m) ; value per default : 20 Kbaude.

Address: Defines the software address of the encoder on the bus (1 to 127, Value per default : id = 1).

Direction: Defines the direction of count of the sensor.

RAX: Defines the value of the current position (with the shaft held stationary)

Communication Modes

Sensor configuration : Reading/Writing of the sensor objects dictionary (SDO mode).

3 modes are available to interrogate the encoder position/speed:

CYCLIC Mode: The sensor transmits its position in an asynchronous manner. The frequency of the transmission is defined by the programmable cyclic timer register from 0 to 65 535 ms,

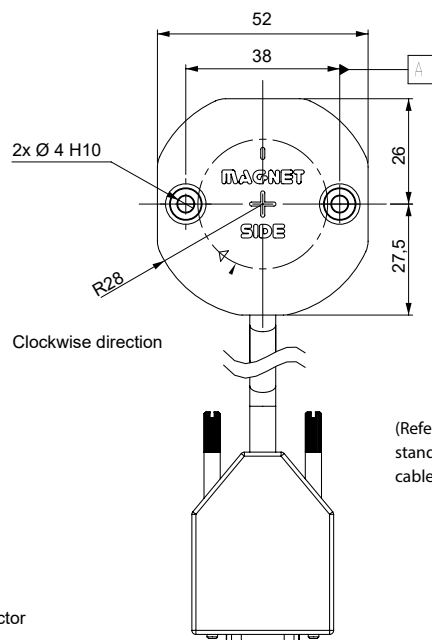
SYNCHRO Mode: The Sensor transmits its position on a synchronous demand by the master.



DIMENSIONS

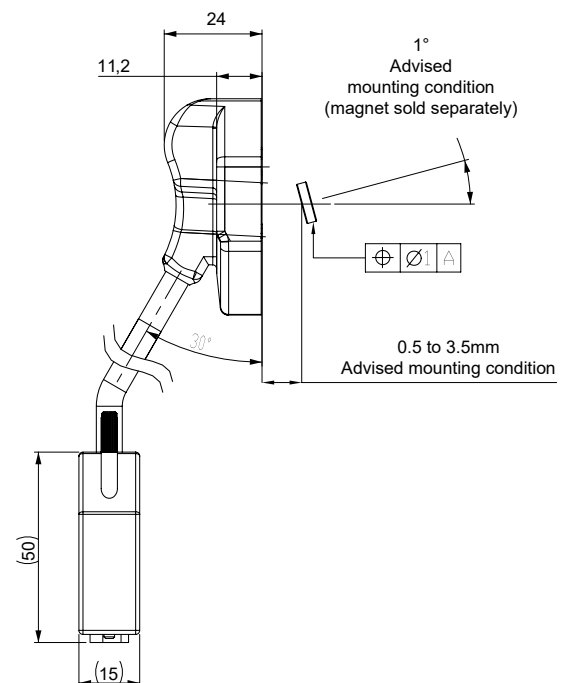
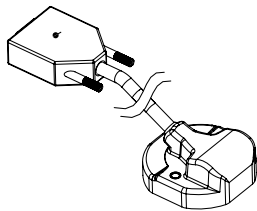
All Dimensions are in millimeters.

Shaft system with magnet to be ordered separately (see Accessories).



(Refer to the bus standards for max. cable length)

D-Sub 9 Connector





CONNECTIONS

	N.C	CAN LOW	CAN GND / 0V	N.C.	N.C.	0V	CAN HIGH	N.C.	5/30Vdc	Ground
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NOTES

Stray magnetic fields can interfere with accuracy and repeatability of the signal.



ORDERING OPTIONS

Example : TCW4_00//PBBB//12B16//BBD020

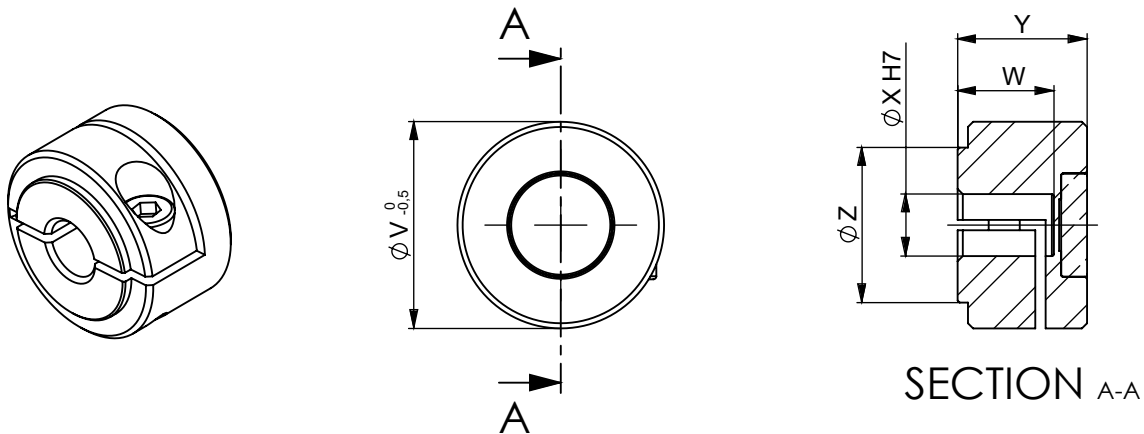
(Contact the factory for special versions, ex : dimensions, connections...)

	TCW4	00	//	P	BB	B	//	12B16	//	BB	D	020
Family												
TCW4: Absolute Multi-turn Sensor												
Shaft Ø												
00: Modular												
Supply												
P: 5 to 30 Vdc												
Output Stage												
BB: CANopen												
Code												
B: Binary												
Resolution												
12B16: 12 bits by 16 bits of turns												
Connection												
BB: PVC cable												
Connection Orientation												
D: SUBD9 Connector												
Cable Length												
020: 2 meters of cable												

Female magnet support + Magnet 8810/013

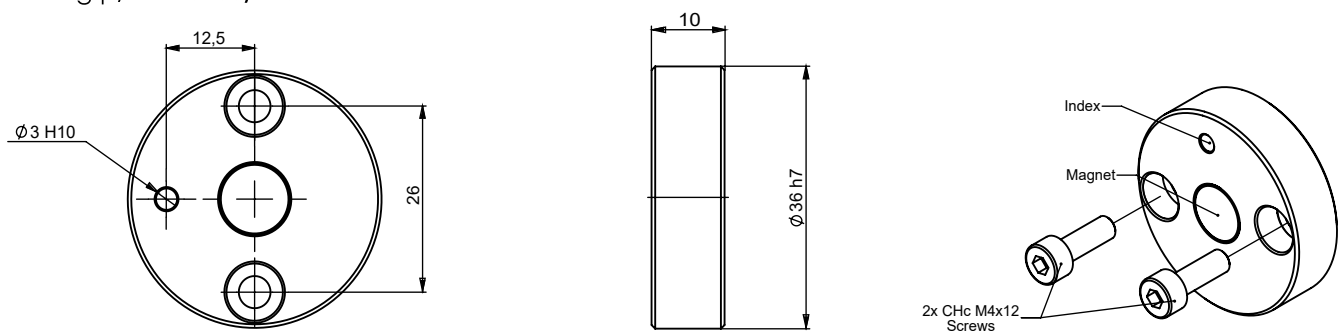
 Ordering p/n : **M9105/Kxx**

KXX: Where XX is the shaft mounting diameter in mm. Standards are 06, 08, 10, 11, and 14 mm. i.e M9105/K10 mounts to a 10 mm shaft.

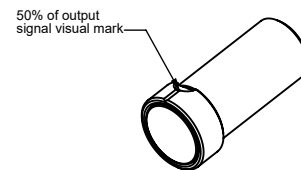
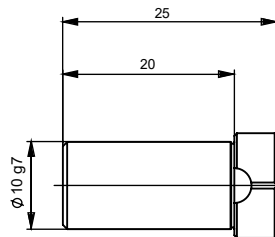
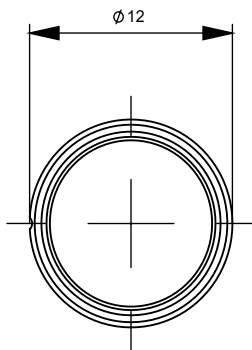


	M9105/K06	M9105/K08	M9105/K10	M9105/K11	M9105/K14
X	06 H7	08 H7	10 H7	11 H7	14 H7
V	20	20	26	26	29
W	9,3	9,3	10	10	10
Y	12,5	12,5	14	14	14
Z	15	15	15	15	18

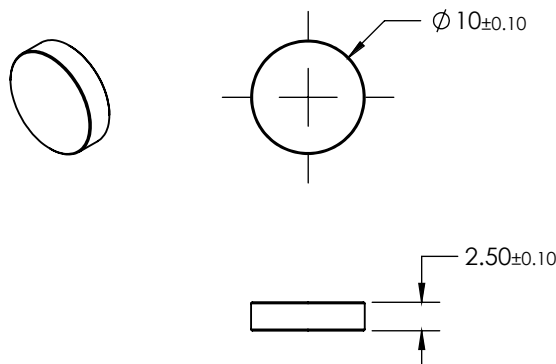
Frontal magnet support + Magnet 8810/013

 Ordering p/n : **M9105/F26**


Male magnet support + Magnet 8810/013
Ordering p/n : **M9105/M10-01**



Magnet
Ordering p/n : **8810/013**



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