



## | TCW4 CANopen

CANOPEN ABSOLUTE MULTI-TURN MODULAR



### Features

- With its two-part design, the ACW4 CANopen absolute single-turn offers maximum flexibility for installation
- Rugged and excellent resistance 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

<b>Terminations</b>	PVC Cable with SUBD9 connector
<b>Housing</b>	Macromelt PA638
<b>Weight</b>	0,150 kg

### Electrical

<b>Electrical Angle</b>	360°
<b>Output Function</b>	CANopen
<b>Minimal Cycle Time</b>	< 400µs
<b>Resolution</b>	Multi-turn 12 bits per turn and up to 16 bits of turns counting
<b>Accuracy</b>	+/-0.3% on 360°
<b>Repeatability</b>	+/-0.1% on 360°
<b>Supply Voltage</b>	5 to 30 Vdc
<b>Start-up</b>	< 1 s
<b>Current Requirements</b>	< 40mA
<b>Protection</b>	Overvoltage Protection: Yes Reverse Polarity Protection: Yes Short Circuit Protection: Yes
<b>EMC</b>	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 10kbaud (1 000m) to 1 Mbaud (25 m) ; value per default : 20 Kbaud.

**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 encoder.

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

**Games:** High and low limits.

## 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.

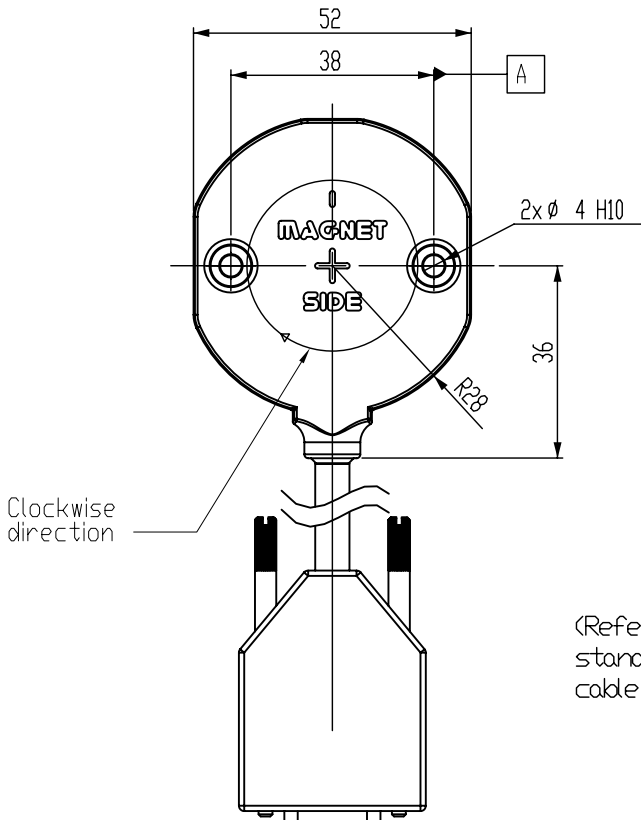
**POOLING Mode (Answer to a RTR signal) :** The sensor only answers to a request.



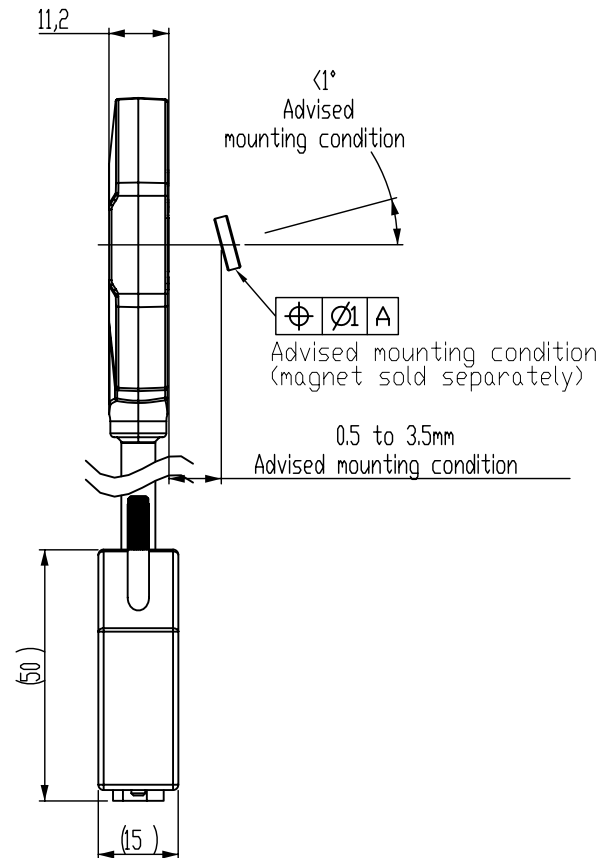
## DIMENSIONS

All Dimensions are in millimeters.

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



(Refer to the bus standards for max cable length)





### CANOPEN CONNECTION, CABLE + DB9 CONNECTOR

		N.C	CAN LOW	CAN GND / 0V	N.C.	N.C.	0V	CAN HIGH	N.C.	5/30Vdc	Ground
BB	PVC Cable + DB9	1	2	3	4	5	6	7	8	9	General Shielding

### NOTES

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



## ORDERING OPTIONS

Example : ACW4\_00//PBB//12B16//BB D

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

<b>Family</b>	TCW4	00	//	P	BB	B	//	12B16	//	BB	D
<b>TCW4:</b>	Absolute Multi-turn Sensor										
<b>Shaft Ø</b>	00: Modular										
<b>Supply</b>	P: 5 to 30 Vdc										
<b>Output Stage</b>	BB: CANopen										
<b>Code</b>	B: Binary										
<b>Resolution</b>	12B16: 12 bits by 16 bits of turns										
<b>Connection</b>	BB: 3 conductor PVC cable										
<b>Connection Orientation</b>	D: SUBD9 Connector										



## ACCESSORIES

### 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
<b>W</b>	6 H7	8 H7	10 H7	11 H7	14 H7
<b>X</b>	20	20	26	26	29
<b>Y</b>	12,5	12,5	14	14	14
<b>Z</b>	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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