

## | ACW4 CANopen

CANOPEN ABSOLUTE SINGLE 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 up to 12 bits per revolution
- 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>           | Single –turn, 12 bits                                                                                                                                                                                                                                                                            |
| <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<br>Reverse Polarity Protection: Yes<br>Short Circuit Protection: Yes                                                                                                                                                                                                 |
| <b>EMC</b>                  | IEC 61000-4-2 Electrostatic discharge (ESD) 4 kV, 8 kV<br>IEC 61000-4-3 Electromagnetic fields 10 V/m (80MHz - 1GHz), 3V/m (1.4GHz - 2GHz), 1V/m (2GHz - 2.7GHz)<br>IEC 61000-4-4 Electrical fast transients (burst) 1 kV<br>IEC 61000-4-6 Conducted disturbances, induced by RF-fields 10 Veff. |

**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)  
**CAmes:** High and low limits.

Encoder configuration : Reading/Writing of the encoder 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.

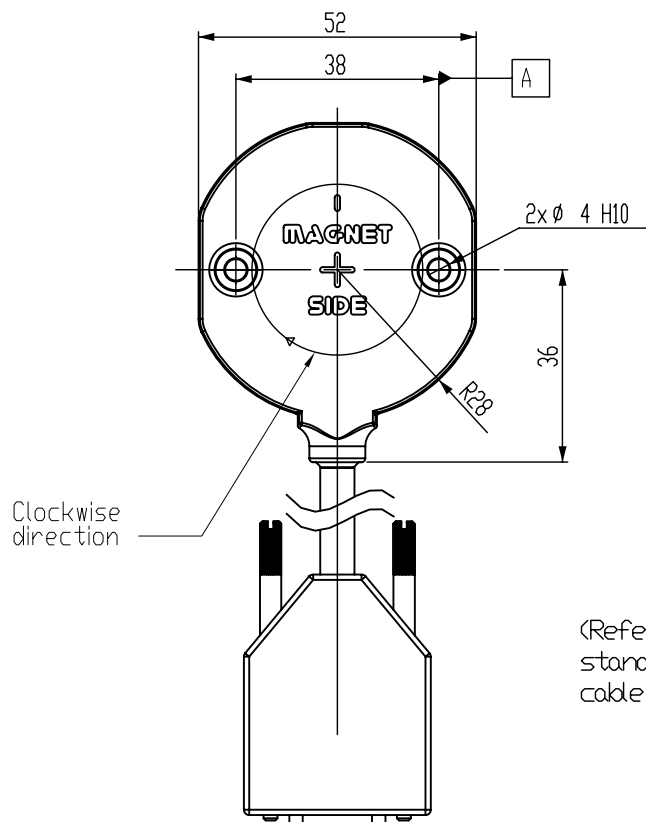
**SYNCHRO Mode:** The Sensor transmits its position on a synchronous demand by the master.

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

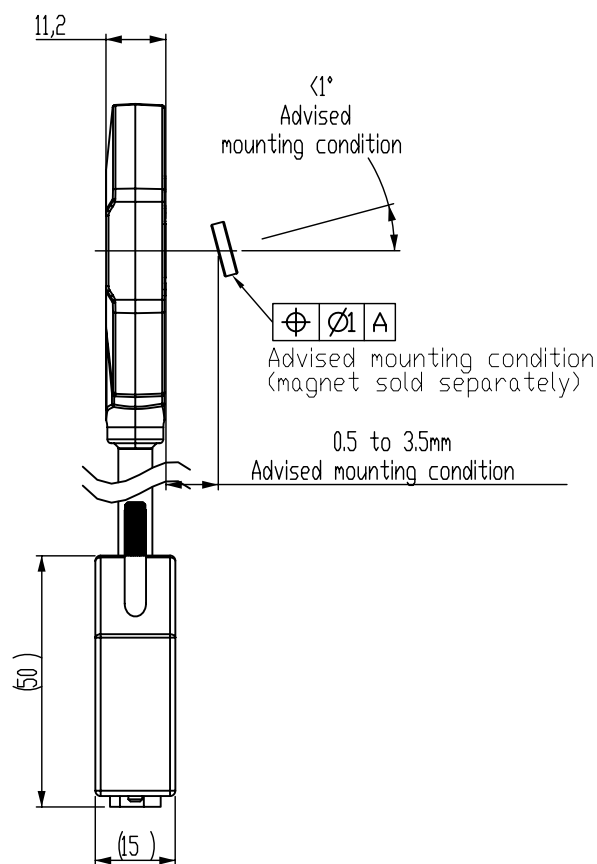


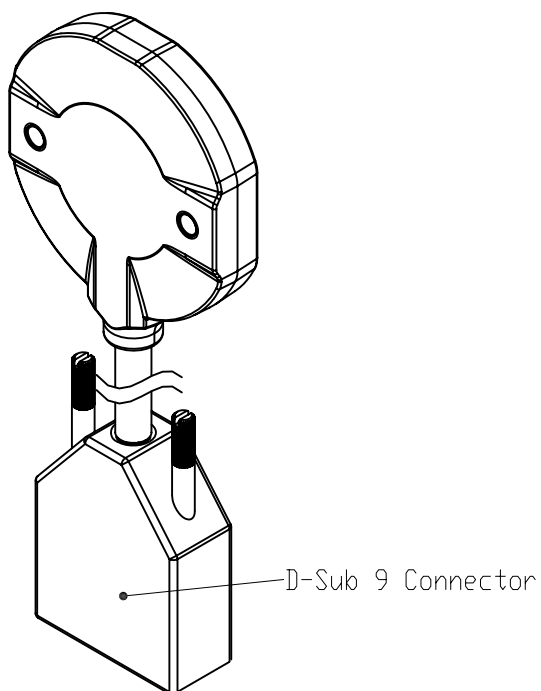
All Dimensions are in millimeters.

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//PBBB//12//BBR 020

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

|                                                 | ACW4 | 00 | // | P | BB | B | // | 12 | // | BBR | 020 |
|-------------------------------------------------|------|----|----|---|----|---|----|----|----|-----|-----|
| <b>Family</b>                                   |      |    |    |   |    |   |    |    |    |     |     |
| <b>ACW4:</b> Absolute Single-Turn Sensor        |      |    |    |   |    |   |    |    |    |     |     |
| <b>Shaft Ø</b>                                  |      |    |    |   |    |   |    |    |    |     |     |
| <b>00:</b> Modular                              |      |    |    |   |    |   |    |    |    |     |     |
| <b>Supply</b>                                   |      |    |    |   |    |   |    |    |    |     |     |
| <b>P:</b> 5 to 30 Vdc                           |      |    |    |   |    |   |    |    |    |     |     |
| <b>Output Stage</b>                             |      |    |    |   |    |   |    |    |    |     |     |
| <b>BB:</b> CANopen                              |      |    |    |   |    |   |    |    |    |     |     |
| <b>Code</b>                                     |      |    |    |   |    |   |    |    |    |     |     |
| <b>B:</b> Binary                                |      |    |    |   |    |   |    |    |    |     |     |
| <b>Resolution</b>                               |      |    |    |   |    |   |    |    |    |     |     |
| <b>12:</b> 12 bits                              |      |    |    |   |    |   |    |    |    |     |     |
| <b>Connection</b>                               |      |    |    |   |    |   |    |    |    |     |     |
| <b>BBR:</b> Side PVC cable with SUBDG connector |      |    |    |   |    |   |    |    |    |     |     |
| <b>Cable Length</b>                             |      |    |    |   |    |   |    |    |    |     |     |
| <b>020:</b> 2 meters                            |      |    |    |   |    |   |    |    |    |     |     |

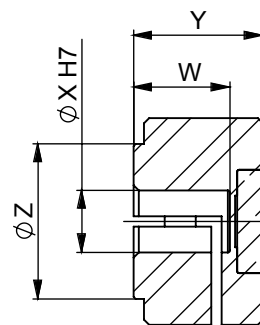
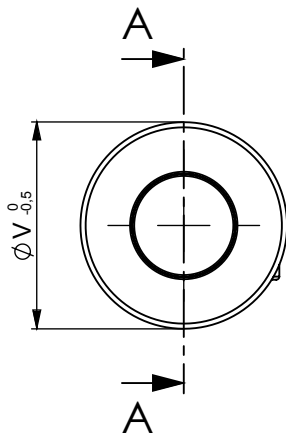
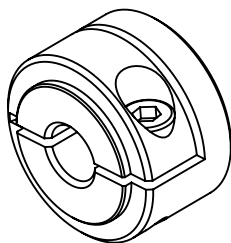


## ACCESSORIES

### 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.

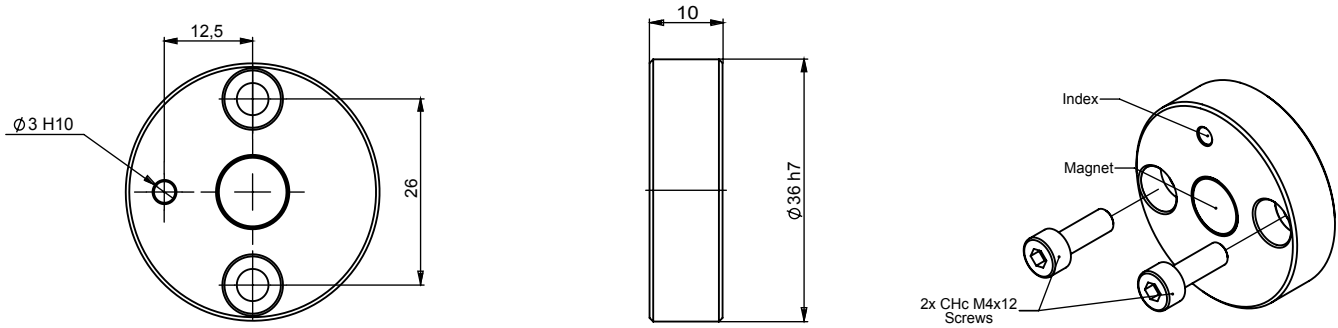


SECTION A-A

|          | 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        |

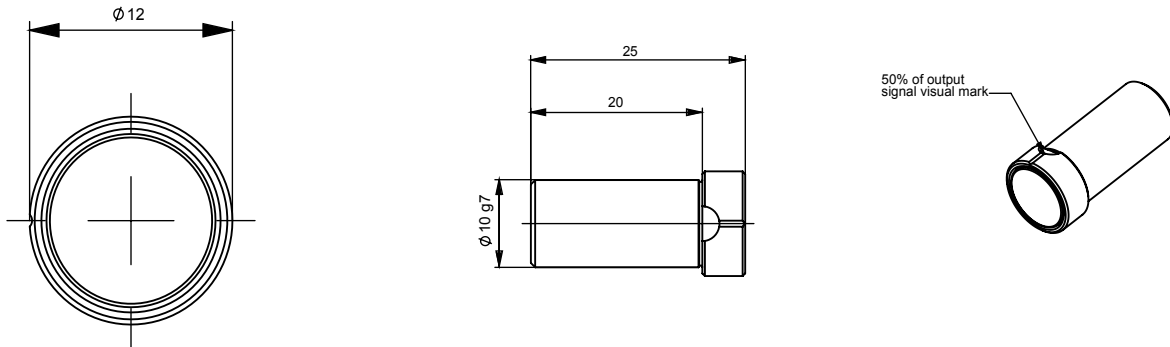
## Frontal magnet support + Magnet 8810/013

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



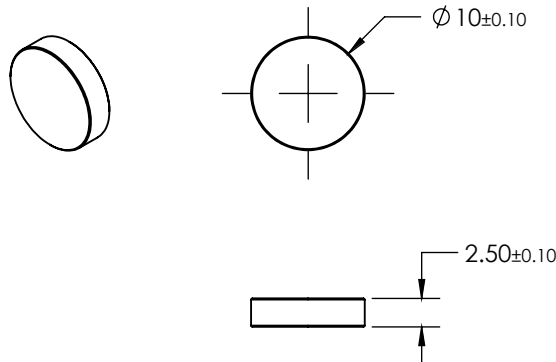
## Male magnet support + Magnet 8810/013

Ordering p/n : **M9105/M10-01**



## Magnet

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



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