

ASSEMBLY GUIDE

Magnetic Scales Series MXS2

For further information please see the data sheet at www.waycon.biz/products/magnetic-scales/

FIRST STEPS

WayCon Positionsmesstechnik GmbH would like to thank you for the trust you have placed in us and our products. This guide will make you familiar with the installation of our magnetic scale sensors. Please read this guide carefully before initial operation!

Unpacking and checking:

Carefully lift the device out of the box by grabbing the housing. After unpacking the device, check it for any visible damage as a result of rough handling during the shipment. Check the delivery for completeness.

If necessary consult the transportation company, or contact WayCon directly for further assistance.

SAFETY

- Installation and maintenance have to be carried out by qualified personnel only.
- During installation and maintenance make sure that the machine is not running and the power supply is OFF.
- The sensor must be used only for the purpose appropriate to its design. The use for purposes other than those for which it has been designed could result in serious personal and/or environment damage.
- High current, voltage and moving mechanical parts can cause serious or fatal injury.
- Do not use the sensor in explosive or flammable areas!
- Do not open the sensor housing!
- Make sure, that sensor and magnetic scale are not jammed by chips, filings or liquids.
- Failure to comply with these precautions or with specific warnings elsewhere in this guide violates safety standards of design, manufacture and intended use of the equipment.
- WayCon assumes no liability for the customer's failure to comply with these requirements.

MAINTENANCE

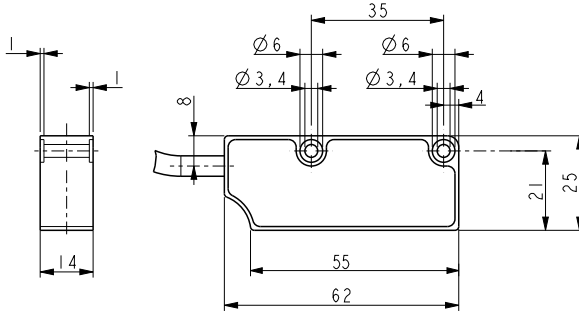
The magnetic measurement system does not need any particular maintenance. Please always consider that it is sensitive electronic equipment and therefore must be handled with care. From time to time we recommend the following operations:

- Periodically check the proper installation of the sensor system and make sure that there are no loose screws. Tighten them if necessary.
- Check the mounting tolerances between the sensor and the magnetic tape all along the measuring length. Wear of the machine may increase the tolerances.
- The surface of the magnetic tape should be cleaned periodically using a soft cloth to remove dust, chips, moisture etc.

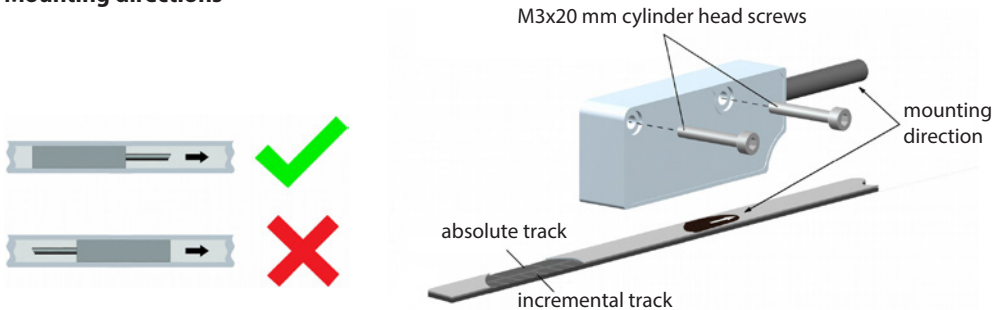
MOUNTING THE SENSOR

- Only use the WBA2 type magnetic tape. The arrow indicates the mounting direction.
- Fix the sensor by means of two M3x20 mm cylinder head screws. Please check the sensor - tape mounting direction shown in the figure.
- Always comply with the mounting tolerances indicated in the figures below.
- Recommended minimum bend radius of the cable: $R \geq 42$ mm.
- After installing the sensor on the tape as well as after replacing the sensor and/or the scale a zero-setting operation is compulsorily required.

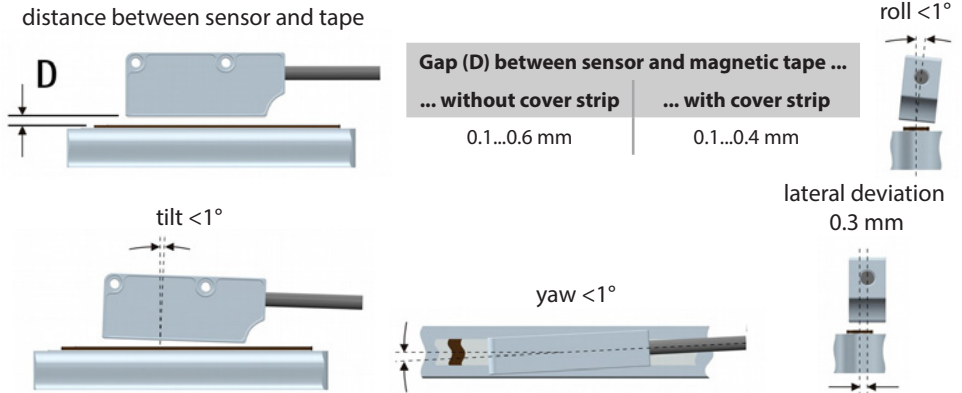
Dimensions



Mounting directions



Mounting tolerances



ELECTRICAL CONNECTION

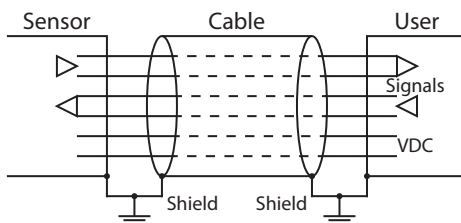
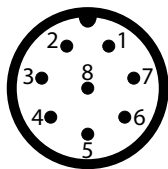
| Signals | Cable colour | Pins |
|--------------------|--------------|---------|
| GND | BK | 1 |
| +5 VDC ±5 % | RD | 2 |
| Clock IN + / MA + | YE | 3 |
| Clock IN - / MA - | BU | 4 |
| Data OUT + / SLO + | GN | 5 |
| Data OUT - / SLO - | OG | 6 |
| A ¹⁾ | WH | 7 |
| B ¹⁾ | GY | 8 |
| Shield | Shield | Housing |

Cable specifications

| | |
|------------------|--|
| Type | HI-FLEX M8 |
| Wires | 2 x 0.22 mm ² + 6 x 0.14 mm ² |
| Shield | Tinned copper braid |
| External Ø | 5.3...5.6 mm |
| Impedance | <90 Ω/Km (0.22 mm ²), <148 Ω/Km (0.14 mm ²) |
| Min. bend radius | ≥42 mm |

¹⁾ output SSII and BISS only, see order code

connector output M12 (male)



GND connections

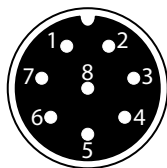
Minimize electronic noise by connecting the shield and/or the connector housing and/or the sensor to GND. Make sure that GND is not affected by electronic noise. The connection point to GND can be situated both on the device side and/or on user's side. The best solution to minimize the interference must be carried out by the user.

ACCESSORY CABLE

Cable with mating connector M12 (female), 8-poles

K8PXM-S-M12 X m, straight connector, IP67, shielded

K8PXM-SW-M12 X m, angular connector, IP67, shielded



| Pins | Cable colour |
|------|--------------|
| 1 | WH |
| 2 | BN |
| 3 | GN |
| 4 | YE |
| 5 | GY |
| 6 | PK |
| 7 | BU |
| 8 | RD |



TROUBLESHOOTING

The following table shows some typical problems that may occur during installation and operation of the magnetic measurement system:

| Problem | Possible cause | Possible solution |
|--|---|--|
| The system does not work (no output pulse). | Sensor or tape have been mounted incorrectly. | Check the installation of sensor and tape. The active side of the tape must match the active side of the sensor. |
| | Magnetic material is between sensor and tape. | Remove any magnetic material. Only non-magnetic material are allowed between sensor and tape. |
| | Sensor touches tape. Mounting tolerances are not met. | Make sure that all mounting tolerances are met. |
| | Sensor has been damaged by short circuit or wrong connection. | Contact WayCon repair service. |
| The measured values are inaccurate or not provided along the whole length. | Mounting tolerances are not met along the whole length. | Make sure that all mounting tolerances are met. |
| | Sensor or tape have been mounted incorrectly. | Check the installation of sensor and tape. |
| | Connection cable runs near high voltage cables or the shield is not connected properly. | Check the connection and installation of the cable. |
| | The sensor is travelling too fast. | Make sure the maximal travel speed is not exceeded. |
| | A section of the magnetic tape has been damaged. | Contact WayCon repair service. |
| | The error is caused by torsion in the machine structure. | Check parallelism and symmetry in the movement of the machine. |

SSI INTERFACE

For information about the sensors SSI interface please refer to the manual. The manual can be found at www.waycon.biz/products/magnetic-scales/.