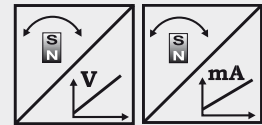


**POSITAPE®**  
**WB12**  
**Analog Output**



**Position sensor with measuring tape**

- Measurement range up to 4000 mm
- Protection class IP67/IP69K
- Stainless steel measuring tape
- Analog output



|                       |                  |    |  |
|-----------------------|------------------|----|--|
| <b>Specifications</b> | Outputs          | U2 | Voltage 0.5 ... 10 V   |
|                       |                  | U8 | Voltage 0.5 ... 4.5 V  |
|                       |                  | I1 | Current 4 ... 20 mA, 3 wire  |
|                       | Resolution       |    | <0,05 mm   |
|                       | Linearity        |    | ±0.10 % f. s.; optional ±0.05 %  |
|                       | Sensing device   |    | Magnetic absolute encoder  |
|                       | Material         |    | Plastic and stainless steel;<br>Tape: stainless steel, 10 mm wide, 0.08 mm thick |
|                       | Protection class |    | IP67/IP69K (with mating connector)   |
|                       | Connection       |    | Connector M12, 5 pin   |
|                       | Shock            |    | EN 60068-2-27:2010, 100 g/11 ms, 100 shocks                                      |
|                       | Vibration        |    | EN 60068-2-6:2008, 20 g 10 Hz-2 kHz, 10 cycles                                   |
|                       | EMC, temperature |    | Refer to output specification  |

**Order code WB12**



**Model name**

**Measurement range (in mm)**

250/375/500/750/1000/1250/1500/2000/2500/3000/3500/4000

**Output**

- U2 = 0.5 ... 10 V signal conditioner
- U8 = 0.5 ... 4.5 V signal conditioner
- I1 = 4 ... 20 mA signal conditioner

**Signal characteristics**

- A = increasing (eg. 4 ... 20 mA)
- D = decreasing (eg. 20 ... 4 mA)

**Linearity**

- L10 = ±0.10 % (standard)
- L05 = ±0.05 % (optional, only for measurement ranges ≥1000 mm)

**Connection**

M12A5 = Connector M12, 5 pin

**Dust wiper**

BAB1

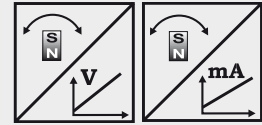
Order code connector cable see page 14

**Order example: WB12 - 1250 - U2 - A - L10 - M12A5 - BAB1**



**Position sensor with measuring tape**

- Measurement range up to 4000 mm
- Protection class IP67/IP69K
- Stainless steel measuring tape
- Analog output, programmable



|                       |                  |                            |  |
|-----------------------|------------------|----------------------------|--|
| <b>Specifications</b> | Output           | U2/PMU<br>U8/PMU<br>I1/PMU | Voltage 0.5 ... 10 V, programmable<br>Voltage 0.5 ... 4.5 V, programmable<br>Current 4 ... 20 mA, 3 wire, programmable |
|                       | Resolution       |                            | <0,05 mm   |
|                       | Linearity        |                            | ±0.10 % f. s.; optional ±0.05 %  |
|                       | Sensing device   |                            | Magnetic absolute encoder  |
|                       | Material         |                            | Aluminium, stainless steel and plastic<br>Tape: stainless steel, 10 mm wide, 0.08 mm thick                             |
|                       | Protection class |                            | IP67/IP69K (with mating connector)   |
|                       | Connection       |                            | Connector M12, 5 pin   |
|                       | Shock            |                            | EN 60068-2-27:2010, 100 g/11 ms, 100 shocks  |
|                       | Vibration        |                            | EN 60068-2-6:2008, 20 g 10 Hz-2 kHz, 10 cycles   |
|                       | EMC, temperature |                            | Refer to output specification  |

**Order code WB12**



**Model name**

**Measurement range (in mm)**

250/375/500/750/1000/1250/1500/2000/2500/3000/3500/4000

**Output**

- U2/PMU = 0.5 ... 10 V signal conditioner, programmable
- U8/PMU = 0.5 ... 4.5 V signal conditioner, programmable
- I1/PMU = 4 ... 20 mA signal conditioner, programmable

**Signal characteristics**

- A = increasing (eg. 4 ... 20 mA)
- D = decreasing (eg. 20 ... 4 mA)

**Linearity**

- L10 = ±0.10 % (standard)
- L05 = ±0.05 % (optional, only for measurement ranges ≥1000 mm)

**Connection**

- M12A5 = Connector M12, 5 pin

**Dust wiper**

BAB1

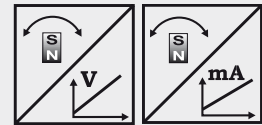
Order code connector cable see page 15

**Order example: WB12 - 2000 - U2/PMU - A - L10 - M12A5 - BAB1**



**Position sensor with measuring tape**

- Measurement range up to 4000 mm
- Protection class IP67/IP69K
- Steel measuring tape
- Analog output, redundant



|                       |                  |    |   |
|-----------------------|------------------|----|---|
| <b>Specifications</b> | Outputs          | U2 | Voltage 0.5 ... 10 V, redundant   |
|                       |                  | U8 | Voltage 0.5 ... 4.5 V, redundant  |
|                       |                  | I1 | Current 4 ... 20 mA, 3 wire, redundant  |
|                       | Resolution       |    | <0.05 mm  |
|                       | Linearity        |    | ±0.10 % f. s.; optional ±0.05 %   |
|                       | Sensing device   |    | Magnetic absolute encoder   |
|                       | Material         |    | Aluminium, stainless steel and plastic;<br>Tape: stainless steel, 10 mm wide, 0.08 mm thick |
|                       | Protection class |    | IP67/IP69K (with mating connector)  |
|                       | Connection       |    | Connector M12, 8 pin  |
|                       | Shock            |    | EN 60068-2-27:2010, 100 g/11 ms, 100 shocks   |
|                       | Vibration        |    | EN 60068-2-6:2008, 20 g 10 Hz-2 kHz, 10 cycles  |
|                       | EMC, temperature |    | Refer to output specification   |

**Order code WB12**



**Model name**

**Measurement range (in mm)**

250/375/500/750/1000/1250/1500/2000/2500/3000/3500/4000

**Output**

U2R = 0.5 ... 10 V signal conditioner, redundant

U8R = 0.5 ... 4.5 V signal conditioner, redundant

I1R = 4 ... 20 mA signal conditioner, redundant

**Signal characteristics**

A/A = Output 1 increasing, output 2 increasing

A/D = Output 1 increasing, output 2 decreasing

D/D = Output 1 decreasing, output 2 decreasing

**Linearity**

L10 = ±0.10 % (standard)

L05 = ±0.05 % (optional, only for measurement ranges ≥1000 mm)

**Connection**

M12R8 = Connector M12, 8 pin

**Dust wiper**

BAB1

Order code connector cable see page 16

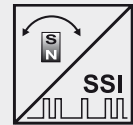
**Order example: WB12 - 3000 - I1R - A/D - L10 - M12R8 - BAB1**

**POSITAPE®**  
**WB12**  
**Digital Output SSI**



**Position sensor with measuring tape**

- Measurement range up to 4000 mm
- Protection class IP67/IP69K
- Stainless steel measuring tape
- Digital output SSI



|                       |                  |  |
|-----------------------|------------------|--|
| <b>Specifications</b> | Outputs          | Synchronous serial interface (SSI)   |
|                       | Resolution       | up to 10 µm  |
|                       | Linearity        | up to ±0.05 % f.s.   |
|                       | Sensing device   | Magnetic absolute encoder  |
|                       | Material         | Aluminium, Stainless steel and plastic<br>Tape: stainless steel, 10 mm wide, 0.08 mm thick |
|                       | Protection class | IP67/IP69K (with mating connector)   |
|                       | Connection       | Connector M12, 8 pin   |
|                       | Shock            | EN 60068-2-27:2010, 100 g/11 ms, 100 shocks  |
|                       | Vibration        | EN 60068-2-6:2008, 20 g 10 Hz-2 kHz, 10 cycles   |
|                       | EMC, temperature | Refer to output specification  |

**Order code WB12**

WB12 - [ ] - [ ] - [ ] - [ ] - [ ] - [ ] - BAB1

**Model name**

**Measurement range (in mm)**

2000 / 4000

**Resolution (in µm)**

10 / 50 / 100

**Outputs**

MSSI = SSI synchronous serial interface

**Linearity**

L10 = ±0.10% (standard)

L05 = ±0.05% (optional)

**Connection**

M12A8 = Connector M12, 8 pin

**Dust wiper**

BAB1

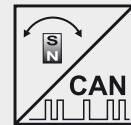
Order code connector cable see page 16

**Order example: WB12 - 2000 - 100 - MSSI - L10 - M12A8 - BAB1**



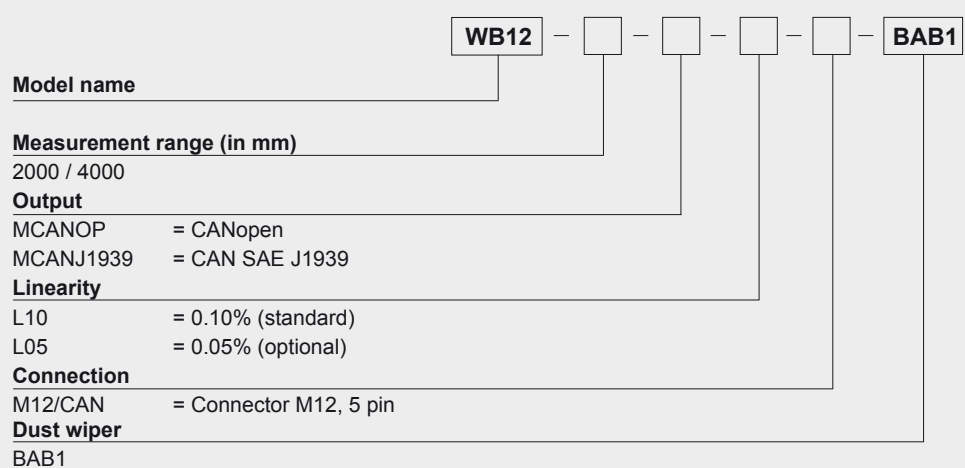
**Position sensor with measuring tape**

- Measurement range up to 4000 mm
- Protection class IP67/IP69K
- Stainless steel measuring tape
- Digital output CANopen or CAN SAE J1939



|                       |                  |  |
|-----------------------|------------------|--|
| <b>Specifications</b> | Outputs          | CANopen or CAN SAE J1939   |
|                       | Resolution       | setting via CAN Bus  |
|                       | Linearity        | up to ±0,05 % f.s.   |
|                       | Sensing device   | Magnetic absolute encoder  |
|                       | Material         | Plastic and stainless steel;<br>Tape: stainless steel, 10 mm wide, 0.08 mm thick |
|                       | Protection class | IP67/IP69K (with mating connector)   |
|                       | Connection       | Connector M12, 5 pin   |
|                       | Shock            | EN 60068-2-27:2010, 100 g/11 ms, 100 shocks                                      |
|                       | Vibration        | EN 60068-2-6:2008, 20 g 10 Hz-2 kHz, 10 cycles                                   |
|                       | EMC, temperature | Refer to output specification  |

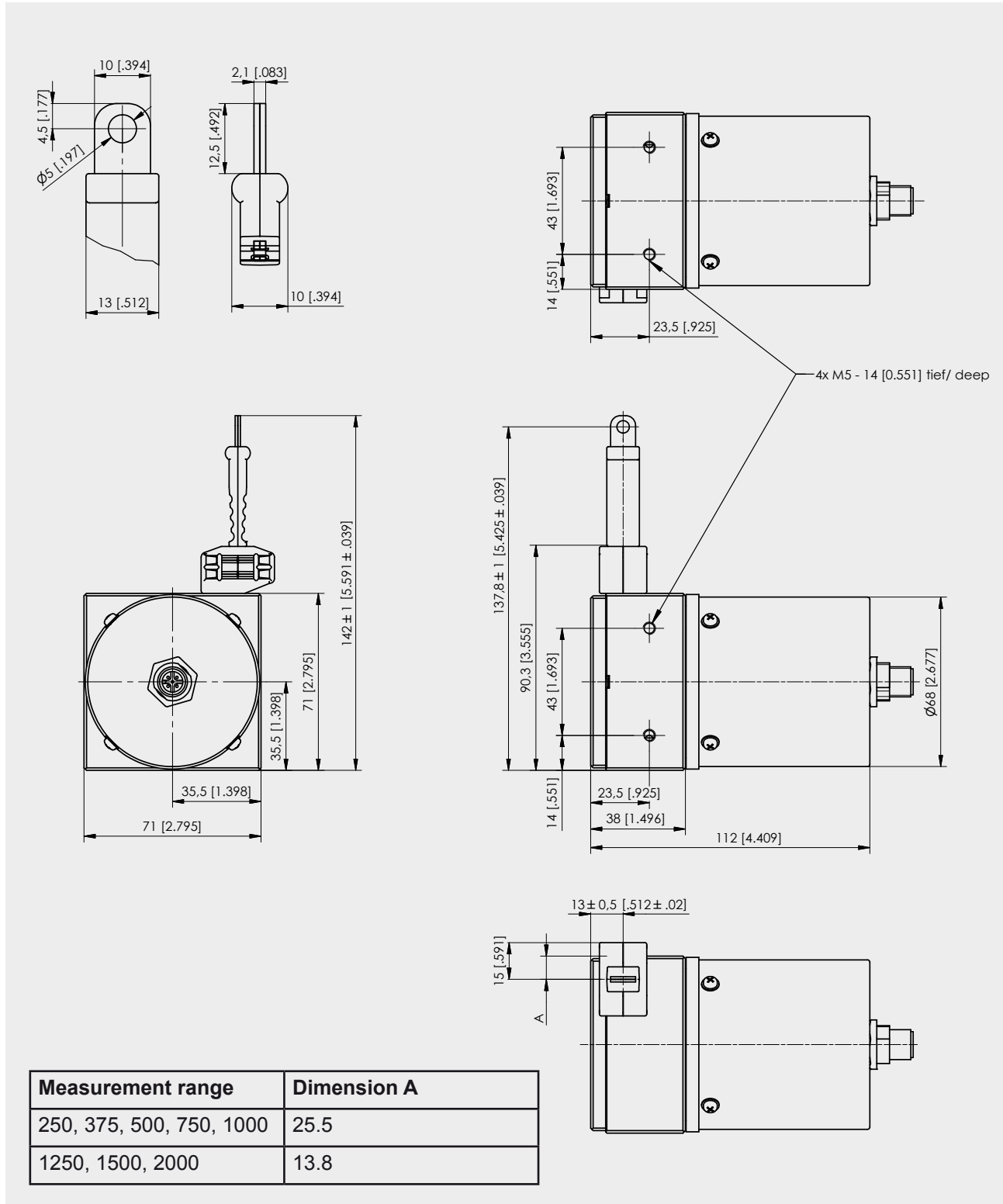
**Order code WB12**



Order code connector cable see page 17

**Order example: WB12 - 2000 - MCANOP - L10 - M12/CAN - BAB1**

Outline drawing WB12  
up to 2000 mm

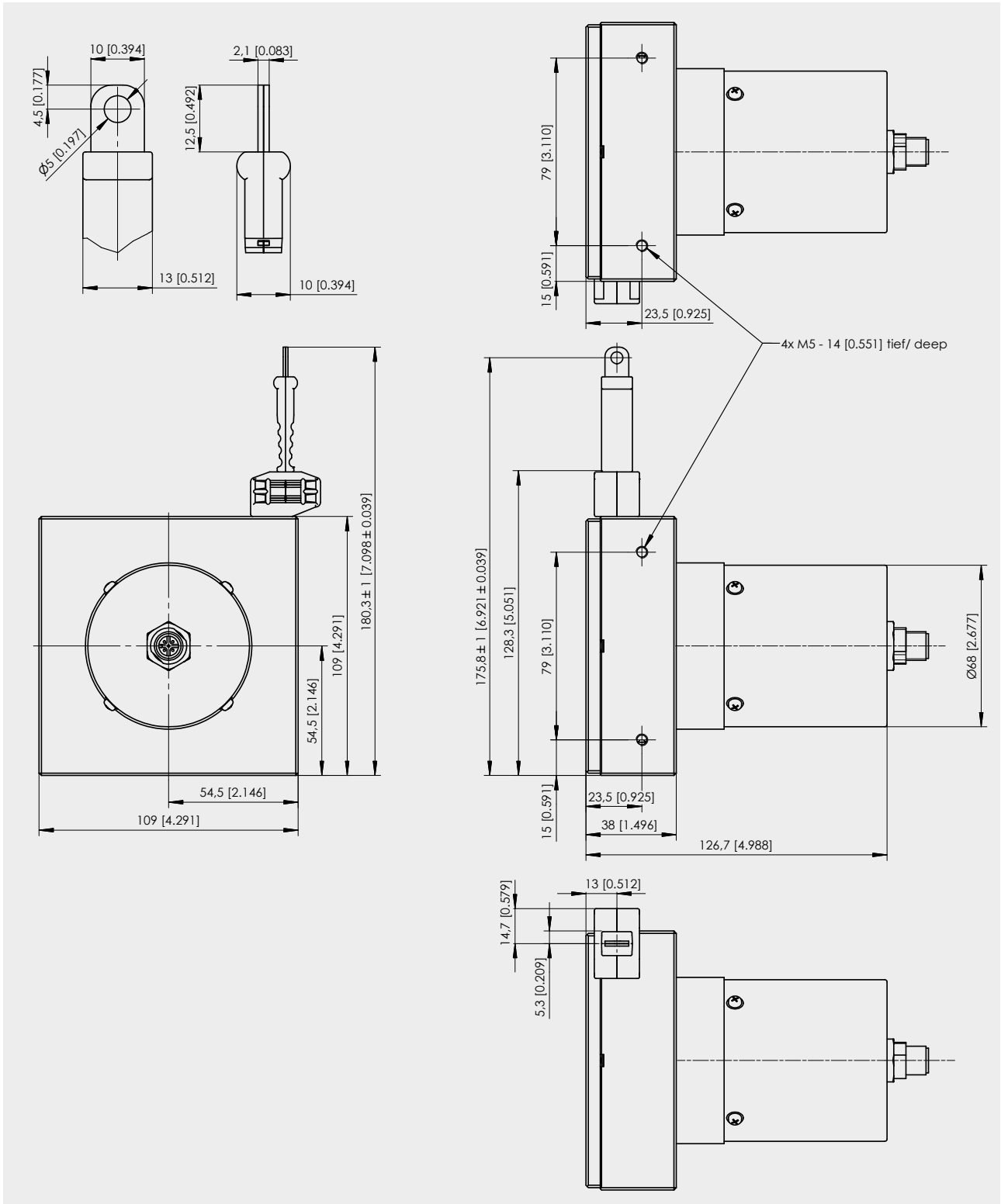


Dimensions in mm [inch]

Dimensions informative only.  
For guaranteed dimensions consult factory.

Outline drawing WB12

2500 ... 4000 mm



Dimensions in mm [inch]

Dimensions informative only.

For guaranteed dimensions consult factory.

# POSITAPE®

## U2, U8 and I1

### Analog output

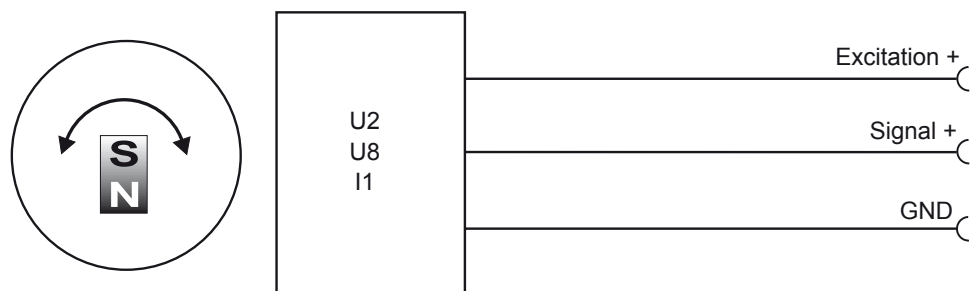


|   |                         |  |
|---|-------------------------|--|
| <b>U2</b><br>Voltage output<br>0.5 ... 10 V<br> | Excitation voltage      | 10 ... 36 V DC   |
|   | Excitation current      | typ. 20 mA at 24 V DC<br>typ. 20 mA at 24 V DC<br>max. 60 mA |
|   | Output voltage          | 0,5 ... 10 V DC  |
|   | Output current          | 2 mA max.  |
|   | Measuring rate          | 1 kHz standard   |
|   | Stability (temperature) | $\pm 50 \times 10^{-6}/^{\circ}\text{C}$ f.s. (typ.)         |
|   | Protection              | Reverse polarity, short circuit                              |
|   | Operating temperature   | -40 ... +85 °C   |
|   | EMC                     | EN 61326-1:2013  |

|  |                         |   |
|--|-------------------------|---|
| <b>U8</b><br>Voltage output<br>0.5 ... 4.5 V<br> | Excitation voltage      | 10 ... 36 V DC  |
|  | Excitation current      | typ. 17 mA at 24 V DC<br>typ. 32mA at 12 V DC<br>max. 60 mA |
|  | Output voltage          | 0,5 ... 4,5 V DC  |
|  | Output current          | 2 mA max.   |
|  | Measuring rate          | 1 kHz standard  |
|  | Stability (temperature) | $\pm 50 \times 10^{-6}/^{\circ}\text{C}$ f.s. (typ.)        |
|  | Protection              | Reverse polarity, short circuit                             |
|  | Operating temperature   | -40 ... +85 °C  |
|  | EMC                     | EN 61326-1:2013   |

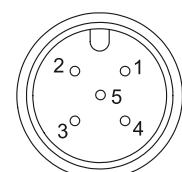
|  |                         |   |
|--|-------------------------|---|
| <b>I1</b><br>Current output<br>4 ... 20 mA, 3 wire<br> | Excitation voltage      | 10 ... 36 V DC  |
|  | Excitation current      | typ. 36 mA at 24 V DC<br>typ. 70 mA at 12 V DC<br>max. 100 mA |
|  | Load $R_L$              | 500 $\Omega$ max.   |
|  | Output current          | 4 ... 20 mA   |
|  | Measuring rate          | 1 kHz standard  |
|  | Stability (temperature) | $\pm 50 \times 10^{-6}/^{\circ}\text{C}$ f.s. (typ.)          |
|  | Protection              | Reverse polarity, short circuit                               |
|  | Operating temperature   | -40 ... +85 °C  |
|  | EMC                     | EN 61326-1:2013   |

### Output signals

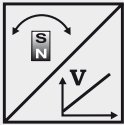
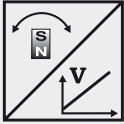
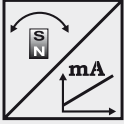


| Signal wiring/<br>connection | Output signal   | Connector<br>pin | Cable wire<br>color |
|------------------------------|-----------------|------------------|---------------------|
|                              | Excitation +    | 1                | brown               |
|                              | Signal          | 2                | white               |
|                              | GND             | 3                | blue                |
|                              | Do not connect! | 4                | black               |
|                              | Do not connect! | 5                | (grey)              |

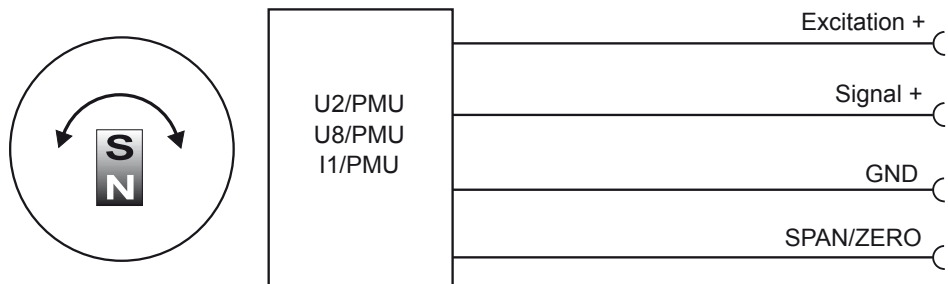
View to sensor  
connector



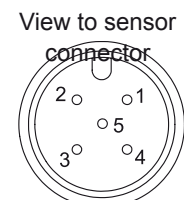


|   |   |   |
|---|---|---|
| <p><b>U2/PMU</b><br/>Voltage output<br/>0.5 ... 10 V</p>           | Excitation voltage  | 10 ... 36 V DC  |
|   | Excitation current  | typ. 20 mA at 24 V DC, typ. 38 mA at 12 V DC<br>max. 60 mA  |
|   | Output voltage  | 0,5 ... 10 V DC   |
|   | Output current  | 2 mA max.   |
|   | Measuring rate  | 1 kHz standard  |
|   | Stability (temperature)   | ±50 x 10 <sup>-6</sup> /°C f.s. (typ.)                      |
|   | Protection  | Reverse polarity, short circuit                             |
|   | Operating temperature   | -40 ... +85 °C  |
|   | EMC   | EN 61326-1:2013   |
|   | <p><b>U8/PMU</b><br/>Voltage output<br/>0.5 ... 4.5 V</p>  | Excitation voltage  |
| Excitation current  |   | typ. 17 mA at 24 V DC, typ. 32 mA at 12 V DC<br>max. 60 mA  |
| Output voltage  |   | 0,5 ... 4,5 V DC  |
| Output current  |   | 2 mA max.   |
| Measuring rate  |   | 1 kHz standard  |
| Stability (temperature)   |   | ±50 x 10 <sup>-6</sup> /°C f.s. (typ.)                      |
| Protection  |   | Reverse polarity, short circuit                             |
| Operating temperature   |   | -40 ... +85 °C  |
| EMC   |   | EN 61326-1:2013   |
| <p><b>I1/PMU</b><br/>Current output<br/>4 ... 20 mA, 3 wire</p>  |   | Excitation voltage  |
|   | Excitation current  | typ. 36 mA at 24 V DC, typ. 70 mA at 12 V DC<br>max. 100 mA |
|   | Load R <sub>L</sub>   | 500 Ω max.  |
|   | Output current  | 4 ... 20 mA   |
|   | Measuring rate  | 1 kHz standard  |
|   | Stability (temperature)   | ±50 x 10 <sup>-6</sup> /°C f.s. (typ.)                      |
|   | Protection  | Reverse polarity, short circuit                             |
|   | Operating temperature   | -40 ... +85 °C  |
|   | EMC   | EN 61326-1:2013   |

**Output signals**



| Signal wiring/ connection | Signal          | Connector pin | Cable wire color |
|---------------------------|-----------------|---------------|------------------|
|                           | Excitation +    | 1             | brown            |
|                           | Signal          | 2             | white            |
|                           | GND             | 3             | blue             |
|                           | Do not connect! | 4             | black            |
|                           | SPAN/ZERO       | 5             | grey             |



**Option -PMU**

**Programming of the start and end value by the customer**

Teach-In of start and end value for the options U2/PMU, I1/PMU, U8/PMU is provided by a binary signal SPAN/ZERO. At the start position connect signal SPAN/ZERO for a period of 2 ... 3 seconds to GND via push button. At the end position connect signal SPAN/ZERO for a period of 5 ... 6 seconds to GND via a push button. The taught positions will be stored non-volatile.

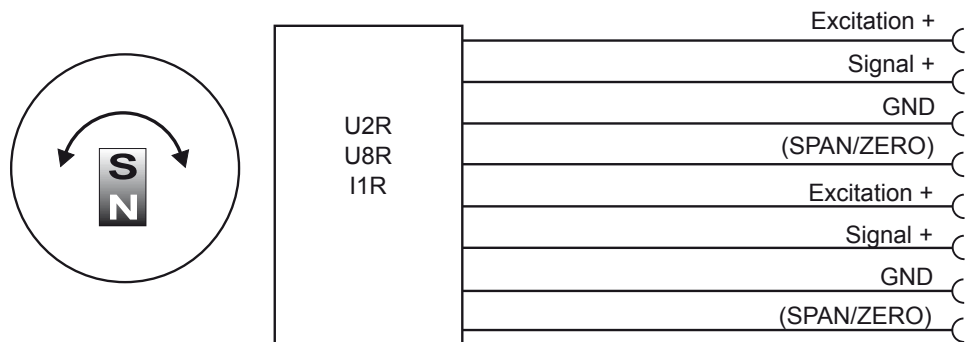
To reset the sensor to factory default signal ZERO/END must be connected to ground while powering up the sensor for 2 ... 3 seconds.

|   |                         |   |
|---|-------------------------|---|
| <p><b>U2R</b><br/>                 Voltage output<br/>                 0.5 ... 10 V</p> | Excitation voltage      | 10 ... 36 V DC  |
|   | Excitation current      | typ. 22 mA at 24 V<br>typ. 43mA at 12 V<br>max. 60 mA per channel |
|   | Output voltage          | 0,5 ... 10 V DC   |
|   | Output current          | 2 mA max.   |
|   | Measuring rate          | 1 kHz standard  |
|   | Stability (temperature) | $\pm 50 \times 10^{-6}/^{\circ}\text{C}$ f.s. (typ.)              |
|   | Protection              | Reverse polarity, short circuit                                   |
|   | Operating temperature   | -40 ... +85 °C  |
| EMC   | EN 61326-1:2013         |   |

|  |                         |  |
|--|-------------------------|--|
| <p><b>U8R</b><br/>                 Voltage output<br/>                 0.5 ... 4,5 V</p> | Excitation voltage      | 10 ... 36 V DC   |
|  | Excitation current      | typ. 20mA at 24 V<br>typ. 38mA at 12 V<br>max. 60 mA per channel |
|  | Output voltage          | 0,5 ... 4,5 V DC   |
|  | Output current          | 2 mA max.  |
|  | Measuring rate          | 1 kHz standard   |
|  | Stability (temperature) | $\pm 50 \times 10^{-6}/^{\circ}\text{C}$ f.s. (typ.)             |
|  | Protection              | Reverse polarity, short circuit                                  |
|  | Operating temperature   | -40 ... +85 °C   |
| EMC  | EN 61326-1:2013         |  |

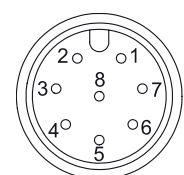
|  |                         |   |
|--|-------------------------|---|
| <p><b>I1R</b><br/>                 Current output<br/>                 4 ... 20 mA, 3 wire</p> | Excitation voltage      | 10 ... 36 V DC  |
|  | Excitation current      | typ. 39 mA at 24 V<br>typ. 76 mA at 12 V<br>max. 100 mA per channel |
|  | Load $R_L$              | 500 $\Omega$ max.   |
|  | Output current          | 4 ... 20 mA   |
|  | Measuring rate          | 1 kHz standard  |
|  | Stability (temperature) | $\pm 50 \times 10^{-6}/^{\circ}\text{C}$ f.s. (typ.)                |
|  | Protection              | Reverse polarity, short circuit                                     |
|  | Operating temperature   | -40 ... +85 °C  |
| EMC  | EN 61326-1:2013         |   |

**Output signals**

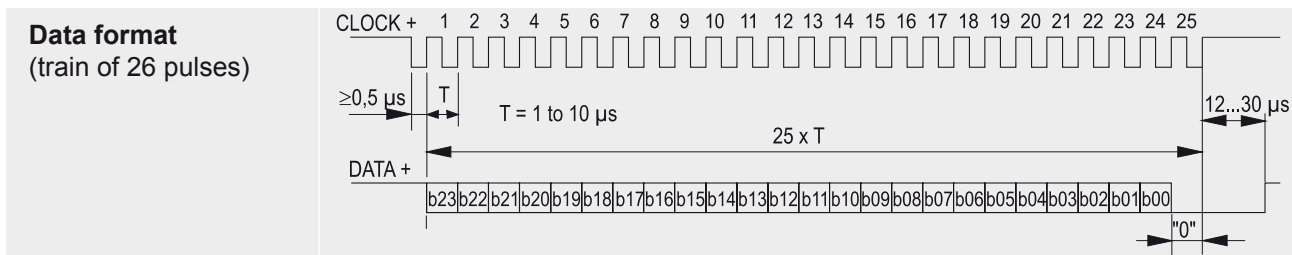


| Signal wiring/ connection | Channel | Signal          | Connector Pin | Cable wire color |
|---------------------------|---------|-----------------|---------------|------------------|
|                           | 1       | Excitation +    | 1             | white            |
|                           | 1       | Signal          | 2             | brown            |
|                           | 1       | GND             | 3             | green            |
|                           | 1       | Do not connect! | 4             | yellow           |
|                           | 2       | Excitation +    | 5             | grey             |
|                           | 2       | Signal          | 6             | pink             |
|                           | 2       | GND             | 7             | blue             |
|                           | 2       | Do not connect! | 8             | red              |

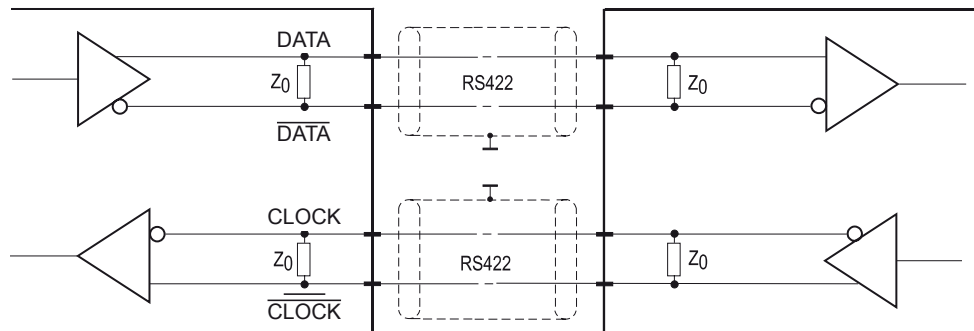
View to sensor connector



|   |                            |  |
|---|----------------------------|--|
| <b>MSSI</b><br>Synchronous serial SSI<br> | Interface                  | EIA RS-422   |
|   | Excitation voltage         | 8 ... 36 V DC  |
|   | Excitation current         | typ. 19 mA at 24 V<br>typ. 35 mA at 12 V<br>max. 80 mA |
|   | Clock frequency            | 100 kHz ... 500 kHz                                    |
|   | Code                       | Gray-Code, continuous progression                      |
|   | Delay between pulse trains | 20 µs min.   |
|   | Stability (temperature)    | $\pm 50 \times 10^{-6}$ / °C f.s. (typ.)               |
|   | Operating temperature      | -40 ... +85 °C   |
|   | Protection                 | Short circuit  |
|   | EMC                        | EN 61326-1:2013  |



**Recommended processing circuit**

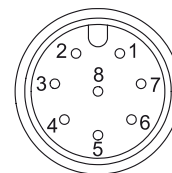



| Transmission rate | Cable length | Baud rate   |
|-------------------|--------------|-------------|
|                   | 50 m         | 100-400 kHz |
| 100 m             | 100-300 kHz  |             |

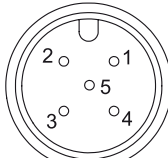
**Note:**  
 Extension of the cable length will reduce the maximum transmission rate.

| Signal wiring/ connection | Signal name    | Connector pin |
|---------------------------|----------------|---------------|
|                           | Excitation +   | 1             |
|                           | Excitation GND | 2             |
|                           | CLOCK          | 3             |
|                           | CLOCK          | 4             |
|                           | DATA           | 5             |
|                           | DATA           | 6             |
|                           | -              | 7             |
|                           | -              | 8             |

View to sensor connector




|  |                                     |  |
|--|-------------------------------------|--|
| <b>MCANOP</b><br><b>CANopen</b><br> | Communication profile               | CANopen CiA 301 V 4.02, Slave                              |
|  | Encoder profile                     | Encoder CiA 406 V 3.2                                      |
|  | Error Control                       | Node Guarding, Heartbeat, Emergency Message                |
|  | Node ID                             | Adjustable via LSS; default: 127                           |
|  | PDO                                 | 3 TxPDO, 0 RxPDO, no linking, static mapping               |
|  | PDO Modes                           | Event-/Time triggered, Remote-request, Sync cyclic/acyclic |
|  | SDO                                 | 1 server, 0 client   |
|  | CAM                                 | 2 cams   |
|  | Certified                           | Yes  |
|  | Transmission rates                  | 50 kbit to 1 Mbit, adjustable via LSS; default: 125 kbit   |
|  | Bus connection                      | M12 connector, 5 pins                                      |
|  | Integrated bus terminating resistor | 120Ω adjustable by the customer                            |
|  | Bus, galvanic isolated              | No   |
| <b>Specifications</b>  | Excitation voltage                  | 8 ... 36 V DC  |
|  | Excitation current                  | typ. 20 mA at 24 V<br>ttyp. 40 mA at 12 V<br>max. 80 mA    |
|  | Measuring rate                      | 1 kHz (asynchronous)                                       |
|  | Stability (temperature)             | ±50 x 10 <sup>-6</sup> / °C f.s. (typ)                     |
|  | Repeatability                       | 1 LSB  |
|  | Operating temperature               | -40 ... +85 °C   |
|  | Protection                          | Reverse polarity, short circuit                            |
|  | Dielectric strength                 | 1 kV (V AC, 50 Hz, 1 min.)                                 |
|  | EMC                                 | EN 61326-1:2013  |

| <b>Signal wiring/<br/>                     connection</b> | Signal name  | Connector pin no. | View to sensor<br>connector<br> |
|---|--------------|-------------------|---|
|   | Shield       | 1                 |   |
|   | Excitation + | 2                 |   |
|   | GND          | 3                 |   |
|   | CAN-H        | 4                 |   |
|   | CAN-L        | 5                 |   |

**POSITAPE®**  
**MMCANJ1939**  
**Output CAN SAE J1939**



|  |                                     |                                     |
|--|-------------------------------------|-------------------------------------|
| <b>MCANJ1939</b><br>CAN SAE J1939<br> | CAN specification                   | ISO 11898, Basic and Full CAN 2.0 B |
|  | Transceiver                         | 24V-compliant, not isolated         |
|  | Communication profile               | SAE J1939                           |
|  | Baud rate                           | 250 kbit/s                          |
|  | Integrated bus terminating resistor | 120Ω adjustable by the customer     |
|  | Address                             | Default 247d, configurable          |

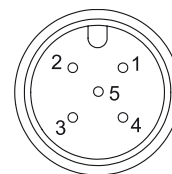
|                    |                           |             |                      |
|--------------------|---------------------------|-------------|----------------------|
| <b>NAME Fields</b> | Arbitrary address capable | 1           | Yes                  |
|                    | Industry group            | 0           | Global               |
|                    | Vehicle system            | 7Fh (127d)  | Non specific         |
|                    | Vehicle system instance   | 0           |                      |
|                    | Function                  | FFh (255d)  | Non specific         |
|                    | Function instance         | 0           |                      |
|                    | ECU instance              | 0           |                      |
|                    | Manufacturer              | 145h (325d) | Manufacturer ID      |
|                    | Identity number           | 0nnn        | Serial number 21 bit |

|                                      |                    |           |   |
|--------------------------------------|--------------------|-----------|---|
| <b>Parameter Group Numbers (PGN)</b> | Configuration data | PGN EF00h | Proprietary-A (PDU1 peer-to-peer)                                       |
|                                      | Process data       | PGN FFnnh | Proprietary-B (PDU2 broadcast);<br>nn Group Extension (PS) configurable |

|                       |                         |  |
|-----------------------|-------------------------|--|
| <b>Specifications</b> | Excitation voltage      | 8 ... 36 V DC  |
|                       | Excitation current      | typ. 20 mA at 24 V<br>typ. 40 mA at 12 V<br>max. 80 mA |
|                       | Measuring rate          | 1 kHz (asynchronous)                                   |
|                       | Stability (temperature) | ±50 x 10 <sup>-6</sup> / °C f.s.                       |
|                       | Repeatability           | 1 LSB  |
|                       | Operating temperature   | -20 ... +105 °C  |
|                       | Protection              | Reverse polarity, short circuit                        |
|                       | Dielectric strength     | 1 kV (V AC, 50 Hz, 1 min.)                             |
| EMC                   | EN 61326-1:2013         |  |

| <b>Signal wiring / connection</b> | <b>Signal name</b> | <b>Connector pin no.</b> |
|-----------------------------------|--------------------|--------------------------|
|                                   | Shield             | 1                        |
|                                   | Excitation +       | 2                        |
|                                   | GND                | 3                        |
|                                   | CAN-H              | 4                        |
|                                   | CAN-L              | 5                        |

View to sensor connector



**Connector cable**  
M12, 4 pin  
Suitable for 5-pin  
sensor connectors

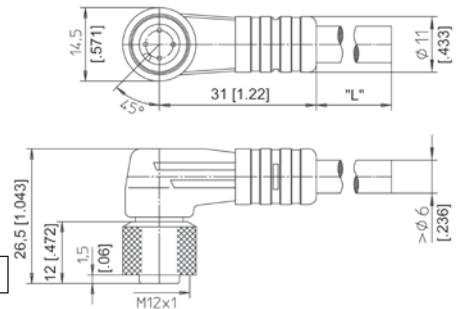
The 4-lead shielded cable is supplied with a mating 4-pin 90° M12 connector at one end and 4 wires at the other end. Available lengths are 2 m, 5 m and 10 m. Wire: cross sectional area 0.34 mm<sup>2</sup>.

Order code:

**KAB - XM - M12/4F/W - LITZE**

IP69K: **KAB - XM - M12/4F/W/69K - LITZE**

Length in m



**Connector cable**  
M12, 4 pin  
Suitable for 5-pin  
sensor connectors

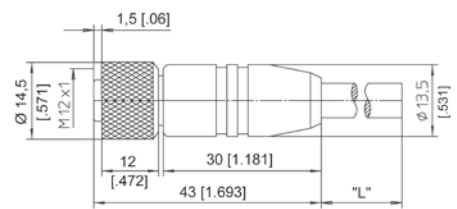
The 4-lead shielded cable is supplied with a mating 4-pin M12 connector at one end and 4 wires at the other end. Available lengths are 2 m, 5 m and 10 m. Wire: cross sectional area 0.34 mm<sup>2</sup>.

Order code:

**KAB - XM - M12/4F/G - LITZE**

IP69K: **KAB - XM - M12/4F/G/69K - LITZE**

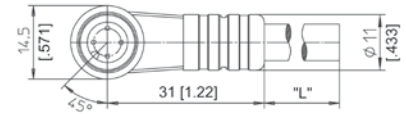
Length in m



| Signal wiring<br>M12, 4 pin | Connector pin / cable color |       |      |       |
|-----------------------------|-----------------------------|-------|------|-------|
|                             | 1                           | 2     | 3    | 4     |
|                             | brown                       | white | blue | black |

**Connector cable**  
M12, 5 pin

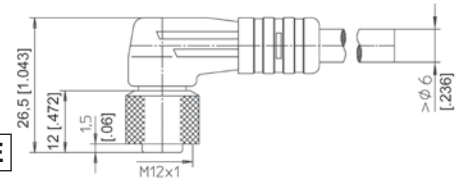
The 5-lead shielded cable is supplied with a mating 5-pin 90° M12 connector at one end and 5 wires at the other end. Available lengths are 2 m, 5 m and 10 m. Wire: cross sectional area 0.34 mm<sup>2</sup>.  
Order code:



**KAB - XM - M12/5F/W - LITZE**

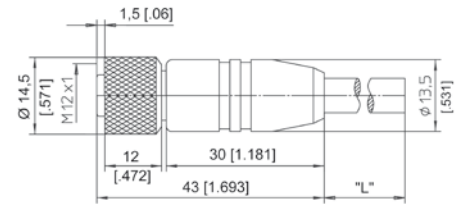
IP69K: **KAB - XM - M12/5F/W/69K - LITZE**

Length in m



**Connector cable**  
M12, 5 pin

The 5-lead shielded cable is supplied with a mating 5-pin M12 connector at one end and 5 wires at the other end. Available lengths are 2 m, 5 m and 10 m. Wire: cross sectional area 0.34 mm<sup>2</sup>.  
Order code:



**KAB - XM - M12/5F/G - LITZE**

IP69K: **KAB - XM - M12/5F/G/69K - LITZE**

Length in m

| Signal wiring<br>M12, 5 pin | Connector pin / cable color |       |      |       |      |
|-----------------------------|-----------------------------|-------|------|-------|------|
|                             | 1                           | 2     | 3    | 4     | 5    |
|                             | brown                       | white | blue | black | grey |

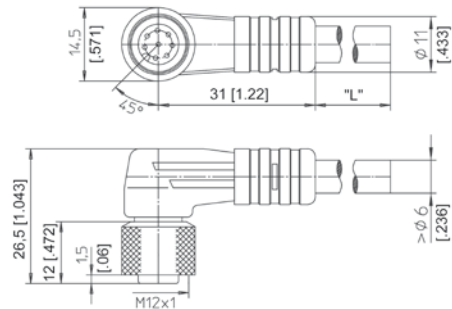
**Connector cable**  
M12, 8 pin

The 8-lead shielded cable is supplied with a mating 8-pin 90° M12 connector at one end and 8 wires at the other end. Available lengths are 2 m, 5 m and 10 m. Wire: cross sectional area 0.25 mm<sup>2</sup>.  
Order code:

**KAB - XM - M12/8F/W - LITZE**

IP69K: **KAB - XM - M12/8F/W/69K - LITZE**

Length in m



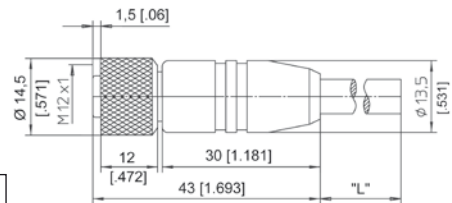
**Connector cable**  
M12, 8 pin

The 8-lead shielded cable is supplied with a mating 8-pin M12 connector at one end and 8 wires at the other end. Available lengths are 2 m, 5 m and 10 m. Wire: cross sectional area 0.25 mm<sup>2</sup>.  
Order code:

**KAB - XM - M12/8F/G - LITZE**

IP69K: **KAB - XM - M12/8F/G/69K - LITZE**

Length in m



**Signal wiring**  
**M12, 8 pin**

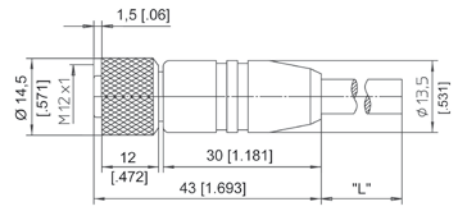
**Connector pin / cable color**

| 1     | 2     | 3     | 4      | 5    | 6    | 7    | 8   |
|-------|-------|-------|--------|------|------|------|-----|
| white | brown | green | yellow | grey | pink | blue | red |



**Connector/bus cable**  
M12, 5 pin  
CAN bus

The 5-lead shielded cable is supplied with a female 5-pin M12 connector at one end and a male 5-pin M12 connector at the other end. Available lengths are 0.3, 2, 5 and 10 m.



Order code:

**KAB - XM - M12/5F/G - M12/5M/G - CAN**

IP69K: **KAB - XM - M12/5F/G/69K - M12/5M/G/69K - CAN**

Length in m

**T-piece for bus cable**  
M12, 5 pin  
CAN bus

Order code:

**KAB - TCONN - M12/5M - 2M12/5F - CAN**



**Terminating resistance**  
5 pin M12  
CAN bus

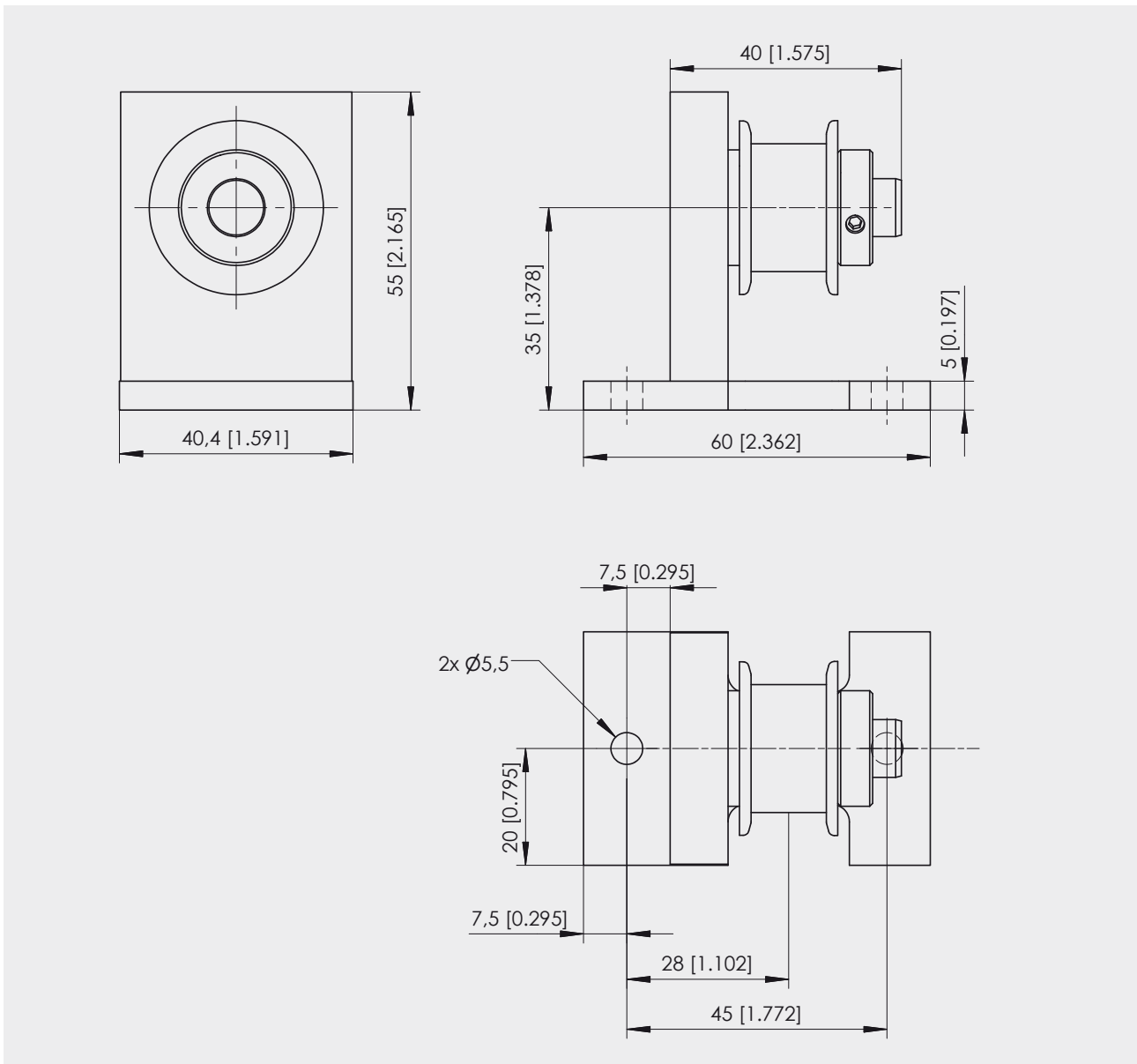
Order code:

**KAB - RTERM - M12/5M/G - CAN**



**Tape pulley WBR1**

Order code: **WBR1**



Dimensions in mm [inch]

Dimensions informative only.  
For guaranteed dimensions consult factory.