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# POSIWIRE®

Cable Extension Position Sensors

**WS61 with internal magnetic encoder  
Position Sensor**

Datasheet



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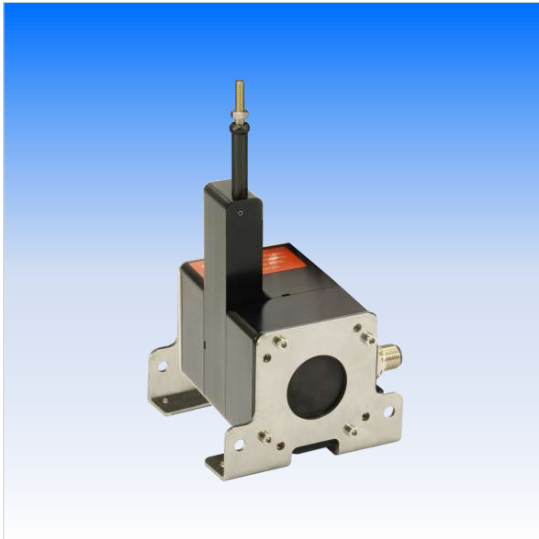
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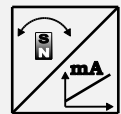
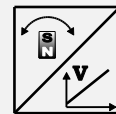
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## Magnetic encoder, analog output



### Sensor features

- With magnetic absolute encoder
- Measurement range up to 3000 mm
- Protection class IP67/IP69 (with mating connector only)
- Analog output
- Absolute measurement



### Specifications

<b>Output</b>	<b>U2</b> <b>U8</b> <b>I1</b>	= Voltage 0.5 ... 10 V = Voltage 0.5 ... 4.5 V = Current 4 ... 20 mA, 3 wire
<b>Resolution</b>	<0.002% f.s.	
<b>Linearity</b>	±0.10% f.s. (standard) ±0.05% f.s. (optional)	
<b>Sensing device</b>	Magnetic absolute encoder	
<b>Housing material</b>	Plastic and stainless steel measuring cable: stainless steel	
<b>Protection class</b>	IP67/IP69 (with mating connector only)	
<b>Connection</b>	Connector M12, 5 pin	
<b>Shock</b>	DIN EN 60068-2-27:2010, 100 g/11 ms, 100 shocks	
<b>Vibration</b>	DIN EN 60068-2-6:2008, 20 g 10 Hz-2 kHz, 10 cycles	
<b>Temperature range</b>	-40 ... +85 °C	
<b>Weight</b>	Approx. 700 g	
<b>EMC</b>	DIN EN 61326-1:2013	

Cable forces typical at = 20 °C	Measurement range	Maximum pull-out force	Minimum pull-in force
	[mm]	[N]	[N]
	1500	3.6	2.8
	2000	3.7	2.8
	2500	3.8	2.8
	3000	3.8	2.8

**Order code**

WS61 – 1 – 2 – 3 – 4 – 5 – 6

**1 Measurement range (in mm)**

1500 / 2000 / 2500 / 3000

**2 Output**

**U2** = Voltage 0.5 ... 10 V  
**U8** = Voltage 0.5 ... 4.5 V  
**I1** = Current 4 ... 20 mA, 3 wire

**3 Signal characteristics**

**A** = increasing signal (e.g. 4 ... 20 mA)  
**D** = decreasing signal (e.g. 20 ... 4 mA)

**4 Linearity**

**L10** = ±0.10% f.s. (standard)  
**L05** = ±0.05% f.s. (optional)

**5 Cable fixing**

**M4** = M4 cable fixing  
**SB0** = cable clip

**6 Connection**

**M12R5** = Connector M12, 5 pin

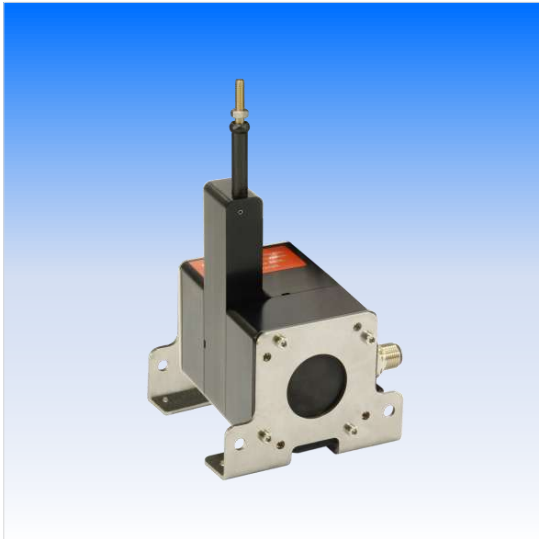
**Order example**

WS61 – 3000 – U2 – A – L10 – M4 – M12R5

**Accessories:**

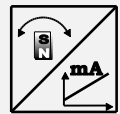
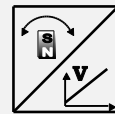
Connector cable (see page 25)

## Magnetic encoder, analog output, programmable



### Sensor features

- With magnetic absolute encoder
- Measurement range up to 3000 mm
- Protection class IP67/IP69 (with mating connector only)
- Analog output, programmable
- Absolute measurement



### Specifications

<b>Output</b>	<b>U2/PMU</b> = Voltage 0.5 ... 10 V, programmable <b>U8/PMU</b> = Voltage 0.5 ... 4.5 V, programmable <b>I1/PMU</b> = Current 4 ... 20 mA, 3 wire, programmable
<b>Resolution</b>	<0.002% f.s.
<b>Linearity</b>	±0.10% f.s. (standard) ±0.05% f.s. (optional)
<b>Sensing device</b>	Magnetic absolute encoder
<b>Housing material</b>	Plastic and stainless steel measuring cable: stainless steel
<b>Protection class</b>	IP67/IP69 (with mating connector only)
<b>Connection</b>	Connector M12, 5 pin
<b>Shock</b>	DIN EN 60068-2-27:2010, 100 g/11 ms, 100 shocks
<b>Vibration</b>	DIN EN 60068-2-6:2008, 20 g 10 Hz-2 kHz, 10 cycles
<b>Temperature range</b>	-40 ... +85 °C
<b>Weight</b>	Approx. 700 g
<b>EMC</b>	DIN EN 61326-1:2013

Cable forces typical at = 20 °C	Measurement range	Maximum pull-out force	Minimum pull-in force
	[mm]	[N]	[N]
	1500	3.6	2.8
	2000	3.7	2.8
	2500	3.8	2.8
	3000	3.8	2.8

**Order code**

WS61 – 1 – 2 – 3 – 4 – 5 – 6

**1 Measurement range (in mm)**

1500 / 2000 / 2500 / 3000

**2 Output**

**U2/PMU** = Voltage 0.5 ... 10 V, programmable

**U8/PMU** = Voltage 0.5 ... 4.5 V, programmable

**I1/PMU** = Current 4 ... 20 mA, 3 wire, programmable

**3 Signal characteristics**

**A** = increasing signal (e.g. 4 ... 20 mA)

**D** = decreasing signal (e.g. 20 ... 4 mA)

**4 Linearity**

**L10** = ±0.10% f.s. (standard)

**L05** = ±0.05% f.s. (optional)

**5 Cable fixing**

**M4** = M4 cable fixing

**SB0** = cable clip

**6 Connection**

**M12R5** = Connector M12, 5 pin

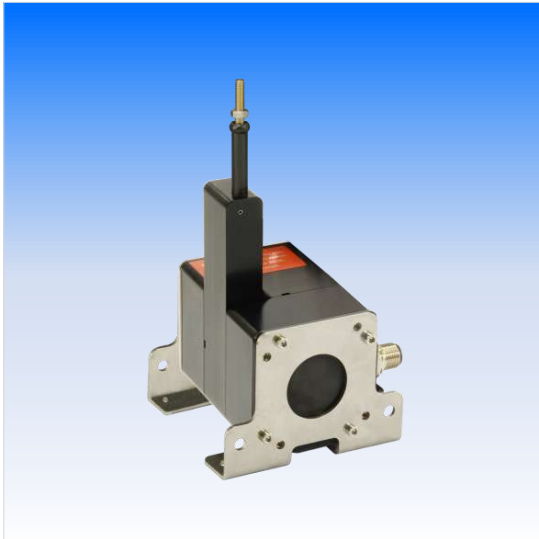
**Order example**

WS61 – 3000 – U2/PMU – A – L10 – M4 – M12R5

**Accessories:**

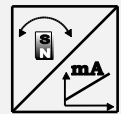
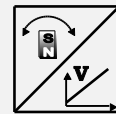
Connector cable (see page 26)

## Magnetic encoder, analog output, redundant



### Sensor features

- With magnetic absolute encoder
- Measurement range up to 3000 mm
- Protection class IP67/IP69 (with mating connector only)
- Analog output, redundant
- Absolute measurement



### Specifications

<b>Output</b>	<b>U2R</b> = Voltage 0.5 ... 10 V, redundant <b>U8R</b> = Voltage 0.5 ... 4.5 V, redundant <b>I1R</b> = Current 4 ... 20 mA, 3 wire, redundant
<b>Resolution</b>	<0.002% f.s.
<b>Linearity</b>	±0.10% f.s. (standard) ±0.05% f.s. (optional)
<b>Sensing device</b>	Magnetic absolute encoder
<b>Housing material</b>	Plastic and stainless steel measuring cable: stainless steel
<b>Protection class</b>	IP67/IP69 (with mating connector only)
<b>Connection</b>	Connector M12, 8 pin
<b>Shock</b>	DIN EN 60068-2-27:2010, 100 g/11 ms, 100 shocks
<b>Vibration</b>	DIN EN 60068-2-6:2008, 20 g 10 Hz-2 kHz, 10 cycles
<b>Temperature range</b>	-40 ... +85 °C
<b>Weight</b>	Approx. 700 g
<b>EMC</b>	DIN EN 61326-1:2013

Cable forces typical at = 20 °C	Measurement range	Maximum pull-out force	Minimum pull-in force
	[mm]	[N]	[N]
	1500	3.6	2.8
	2000	3.7	2.8
	2500	3.8	2.8
	3000	3.8	2.8



**Order code**

WS61 - 1 - 2 - 3 - 4 - 5 - 6

**1 Measurement range (in mm)**

1500 / 2000 / 2500 / 3000

**2 Output**

U2R = Voltage 0.5 ... 10 V, redundant  
 U8R = Voltage 0.5 ... 4.5 V, redundant  
 I1R = Current 4 ... 20 mA, 3 wire, redundant

**3 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

**4 Linearity**

L10 = ±0.10% f.s. (standard)  
 L05 = ±0.05% f.s. (optional)

**5 Cable fixing**

M4 = M4 cable fixing  
 SB0 = cable clip

**6 Connection**

M12R8 = Connector M12, 8 pin

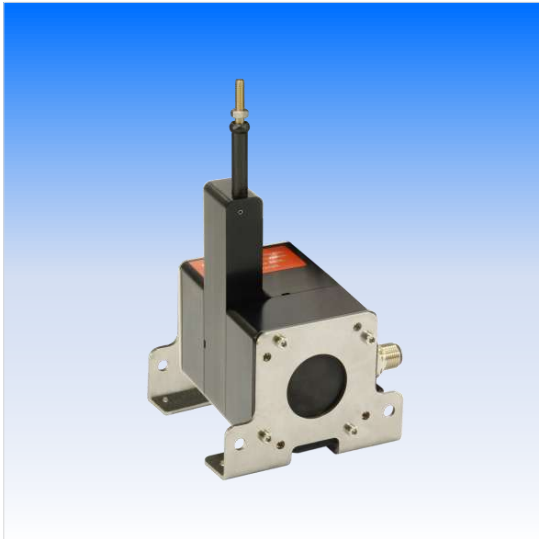
**Order example**

WS61 - 3000 - I1R - A/D - L10 - M4 - M12R8

**Accessories:**

**Connector cable (see page 27)**

## Magnetic encoder, digital output SSI



### Sensor features

- With magnetic absolute encoder
- Measurement range up to 3000 mm
- Protection class IP67/IP69 (with mating connector only)
- Digital output SSI
- Absolute measurement



### Specifications

<b>Output</b>	<b>MSSI</b> = SSI synchronous serial interface
<b>Resolution</b>	10 / 50 / 100
<b>Linearity</b>	±0.10% f.s. (standard) ±0.05% f.s. (optional)
<b>Sensing device</b>	Magnetic absolute encoder
<b>Housing material</b>	Plastic and stainless steel measuring cable: stainless steel
<b>Protection class</b>	IP67/IP69 (with mating connector only)
<b>Connection</b>	Connector M12, 8 pin
<b>Shock</b>	DIN EN 60068-2-27:2010, 100 g/11 ms, 100 shocks
<b>Vibration</b>	DIN EN 60068-2-6:2008, 20 g 10 Hz-2 kHz, 10 cycles
<b>Temperature range</b>	-40 ... +85 °C
<b>Weight</b>	Approx. 700 g
<b>EMC</b>	DIN EN 61326-1:2013

Cable forces typical at = 20 °C	Measurement range	Maximum pull-out force	Minimum pull-in force
	[mm]	[N]	[N]
	1500	3.6	2.8
	2000	3.7	2.8
	2500	3.8	2.8
	3000	3.8	2.8

**Order code**

**WS61** – **1** – **2** – **3** – **4** – **5** – **6**

**1 Measurement range (in mm)**

1500 / 2000 / 2500 / 3000

**2 Resolution (in µm)**

10 / 50 / 100

**3 Output**

**MSSI** = SSI synchronous serial interface

**4 Linearity**

**L10** = ±0.10% f.s. (standard)  
**L05** = ±0.05% f.s. (optional)

**5 Cable fixing**

**M4** = M4 cable fixing  
**SB0** = cable clip

**6 Connection**

**M12R8** = Connector M12, 8 pin

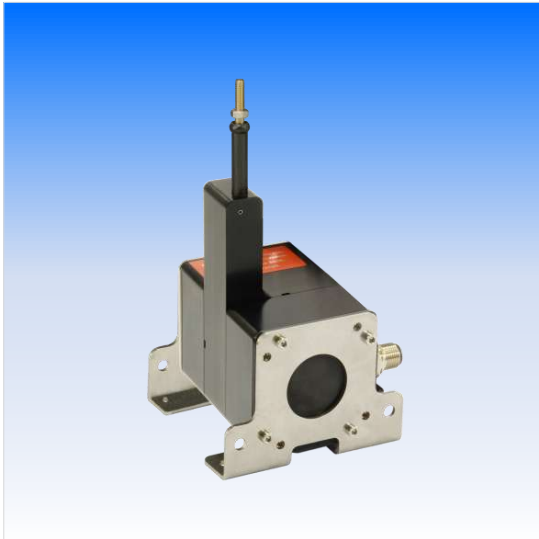
**Order example**

**WS61 – 3000 – 50 – MSSI – L10 – M4 – M12R8**

**Accessories:**

**Connector cable (see page 27)**

## Magnetic encoder, digital output CAN Bus



### Sensor features

- With magnetic absolute encoder
- Measurement range up to 3000 mm
- Protection class IP67/IP69 (with mating connector only)
- Digital output CAN Bus
- Absolute measurement
- Optional redundant CAN Bus



### Specifications

<b>Output</b>	<b>MCANOP</b> = CANopen <b>MCANJ1939</b> = CAN SAE J1939 <b>MCANOPR</b> = CANopen redundant <b>MCANJ1939R</b> = CAN SAE J1939 redundant
<b>Resolution</b>	setting via CAN Bus
<b>Linearity</b>	±0.10% f.s. (standard) ±0.05% f.s. (optional)
<b>Sensing device</b>	Magnetic absolute encoder
<b>Housing material</b>	Plastic and stainless steel measuring cable: stainless steel
<b>Protection class</b>	IP67/IP69 (with mating connector only)
<b>Connection</b>	Connector M12, 5 pin
<b>Temperature range</b>	-40 ... +85 °C
<b>Weight</b>	Approx. 700 g
<b>EMC</b>	DIN EN 61326-1:2013

Cable forces typical at = 20 °C	Measurement range	Maximum pull-out force	Minimum pull-in force
	[mm]	[N]	[N]
	1500	3.6	2.8
	2000	3.7	2.8
	2500	3.8	2.8
	3000	3.8	2.8

**Order code**

WS61 - 1 - 2 - 3 - 4 - 5

**1 Measurement range (in mm)**

1500 / 2000 / 2500 / 3000

**2 Output**

**MCANOP** = CANopen  
**MCANJ1939** = CAN SAE J1939  
**MCANOPR** = CANopen redundant  
**MCANJ1939R** = CAN SAE J1939 redundant

**3 Linearity**

**L10** = ±0.10% f.s. (standard)  
**L05** = ±0.05% f.s. (optional)

**4 Cable fixing**

**M4** = M4 cable fixing  
**SB0** = cable clip

**5 Connection**

**M12/CAN** = Connector M12, 5 pin

**Order example**

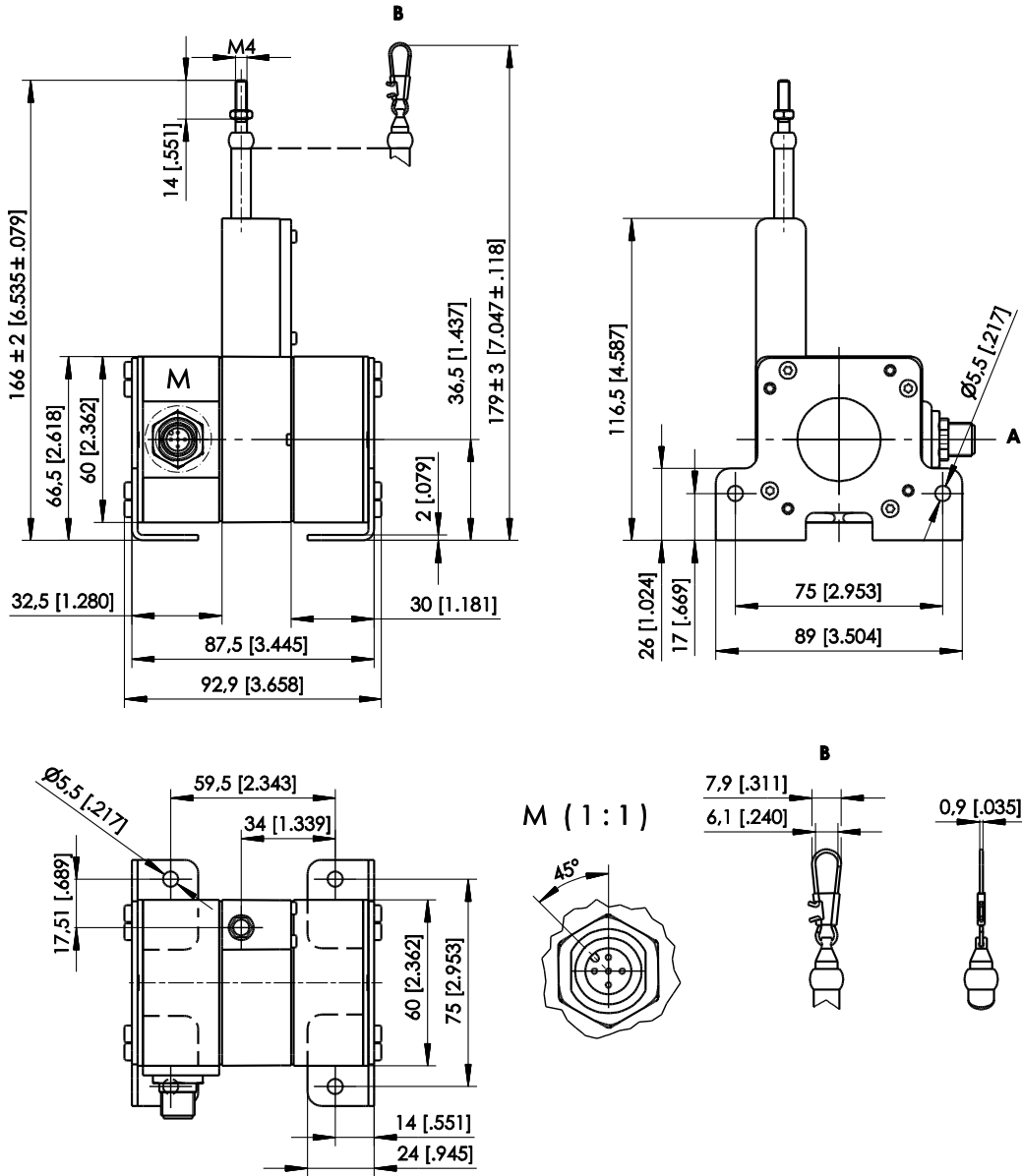
WS61 - 3000 - MCANOP - L10 - M4 - M12/CAN

**Accessories:**

**Connector cable (see page 28)**

## Dimensions

Measurement range 1500 ... 3000 mm, magnetic encoder output



A – Connector M12

B – Option SB0

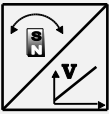
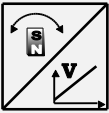
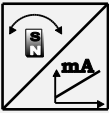
Dimensions in mm [inch]

Dimensions informative only.


For guaranteed dimensions consult factory.

## Output specification

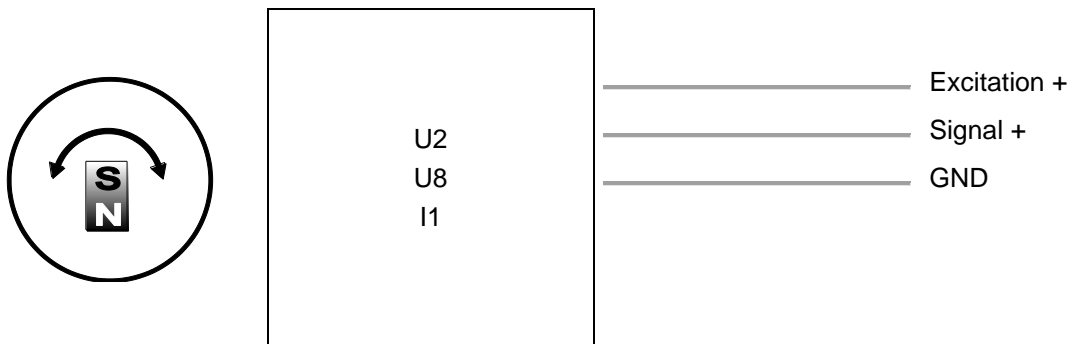
### Analog output

<b>U2</b> Voltage output 0.5 ... 10 V 	Excitation voltage	8 ... 36 V DC
	Excitation current	20 mA typical at 24 V DC 38 mA typical at 12 V DC max. 50 mA
	Output voltage	0.5 ... 10 V DC
	Output current	2 mA max.
	Measuring rate	1 kHz standard
	Stability (temperature)	$\pm 50 \times 10^{-6}$ / °C f.s. (typical)
	Protection	Reverse polarity, short circuit
	Operating temperature	See specification of the respective sensor
	EMC	DIN EN 61326-1:2013
<b>U8</b> Voltage output 0.5 ... 4.5 V 	Excitation voltage	8 ... 36 V DC
	Excitation current	17 mA typical at 24 V DC 32 mA typical at 12 V DC 50 mA max.
	Output voltage	0.5 ... 4.5 V DC
	Output current	2 mA max.
	Measuring rate	1 kHz standard
	Stability (temperature)	$\pm 50 \times 10^{-6}$ / °C f.s. (typical)
	Protection	Reverse polarity, short circuit
	Operating temperature	See specification of the respective sensor
	EMC	DIN EN 61326-1:2013
<b>I1</b> Current output 4 ... 20 mA, 3 wires 	Excitation voltage	8 ... 36 V DC
	Excitation current	typical 36 mA at 24 V DC typical 70 mA at 12 V DC 120 mA max.
	Load R <sub>L</sub>	500 Ω max.
	Output current	4 ... 20 mA
	Measuring rate	1 kHz standard
	Stability (temperature)	$\pm 50 \times 10^{-6}$ / °C f.s. (typical)
	Protection	Reverse polarity, short circuit
	Operating temperature	See specification of the respective sensor
	EMC	DIN EN 61326-1:2013

**Signal wiring**

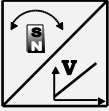
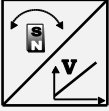
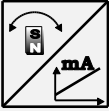
Signal	Connector pin no.	Cable connection	View to the sensor connector
Excitation +	1	brown	
Signal	2	white	
GND	3	blue	
Do not connect!	4	black	
Do not connect!	5	(grey)	

**Signal diagram**






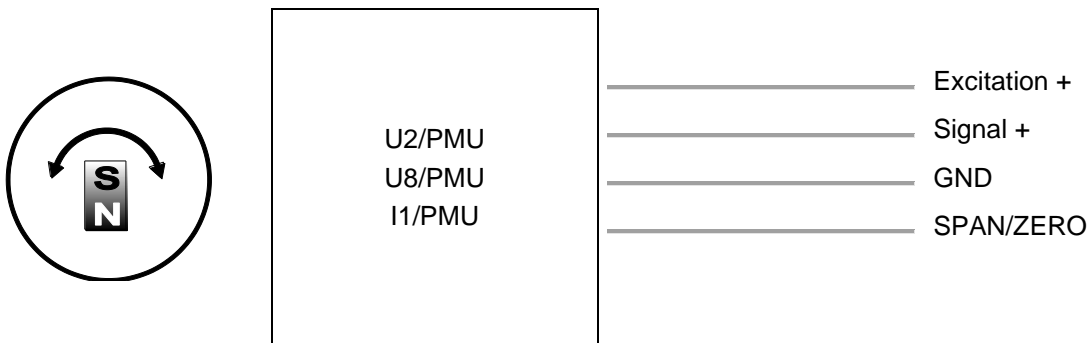
**Analog output, programmable**

<p><b>U2/PMU</b></p> <p>Voltage output 0.5 ... 10 V</p> 	Excitation voltage	8 ... 36 V DC
	Excitation current	20 mA typical at 24 V DC 38 mA typical at 12 V DC max. 50 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. (typical)
	Protection	Reverse polarity, short circuit
	Operating temperature	See specification of the respective sensor
	EMC	EN 61326-1:2013
	<p><b>U8/PMU</b></p> <p>Voltage output 0.5 ... 4.5 V</p> 	Excitation voltage
Excitation current		17 mA typical at 24 V DC 32 mA typical at 12 V DC max. 50 mA
Output voltage		0.5 ... 4.5 V DC
Output current		2 mA max.
Measuring rate		1 kHz standard
Stabilität (Temperatur)		$\pm 50 \times 10^{-6} / ^\circ\text{C}$ f.s. (typical)
Protection		Reverse polarity, short circuit
Operating temperature		See specification of the respective sensor
EMC		DIN EN 61326-1:2013
<p><b>I1/PMU</b></p> <p>Current output 4 ... 20 mA, 3 wires</p> 		Excitation voltage
	Excitation current	typical 36 mA at 24 V DC typical 70 mA at 12 V DC max. 120 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. (typical)
	Protection	Reverse polarity, short circuit
	Operating temperature	See specification of the respective sensor
	EMC	DIN EN 61326-1:2013

**Signal wiring**

Signal	Connector pin no.	Cable color	View to sensor connector
Excitation +	1	brown	
Signal	2	white	
GND	3	blue	
Do not connect!	4	black	
SPAN/ZERO	5	grey	

**Signal diagram**



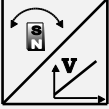
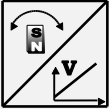
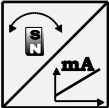
**Option -PMU**

**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 scaling taught in that way 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. For the option PMZ only teach-in of ZERO position is possible.

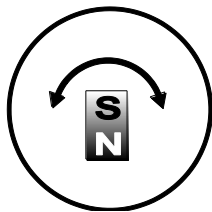
**Analog output, redundant**

<p><b>U2R</b></p> <p>Voltage output 0.5 ... 10 V</p> 	Excitation voltage	8 ... 36 V DC
	Excitation current	20 mA typical at 24 V DC 38 mA typical at 12 V DC max. 50 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. (typical)
	Protection	Reverse polarity, short circuit
	Operating temperature	See specification of the respective sensor
	EMC	DIN EN 61326-1:2013
<p><b>U8R</b></p> <p>Voltage output 0.5 ... 4.5 V</p> 	Excitation voltage	8 ... 36 V DC
	Excitation current	17 mA typical at 24 V DC 32 mA typical at 12 V DC max. 50 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. (typical)
	Protection	Reverse polarity, short circuit
	Operating temperature	See specification of the respective sensor
	EMC	DIN EN 61326-1:2013
<p><b>I1R</b></p> <p>Current output 4 ... 20 mA, 3 wires</p> 	Excitation voltage	8 ... 36 V DC
	Excitation current	36 mA typical at 24 V DC 76 mA typical at 12 V DC max. 120 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. (typical)
	Protection	Reverse polarity, short circuit
	Operating temperature	See specification of the respective sensor
	EMC	DIN EN 61326-1:2013

**Signal wiring**

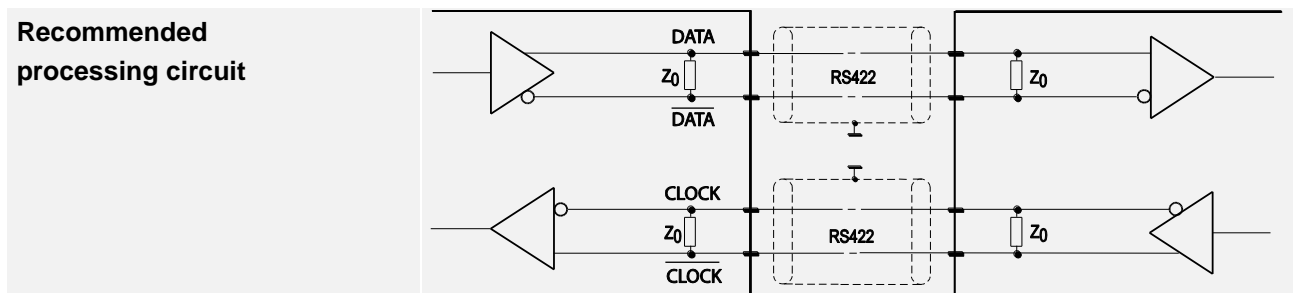
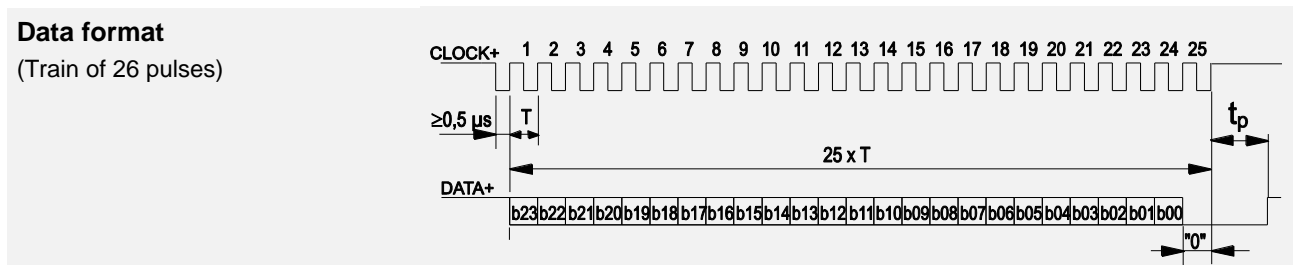
Channel	Signal	Connector pin no.	Cable color	View to the sensor connector
1	Excitation +	1	white	
1	Signal	2	brown	
1	GND	3	green	
1	Do not connect!	4	yellow	
2	Excitation +	5	grey	
2	Signal	6	pink	
2	GND	7	blue	
2	Do not connect!	8	red	

**Signal diagram**



### Digital output SSI


<b>MSSI</b> Synchronous serial SSI 	Interface	EIA RS-422
	Excitation voltage	8 ... 36 V DC
	Excitation current	19 mA typical at 24 V DC 35 mA typical at 12 V DC max. 80 mA
	Clock frequency	100 kHz ... 500 kHz
	Code	Gray-Code, continuous progression
	Delay between pulse trains ( $t_p$ )	30 $\mu$ s min.
	Stability (temperature)	$\pm 50 \times 10^{-6}$ / °C f.s. (typical)
	Operating temperature	See specification of the respective sensor
	Protection	Reverse polarity, short circuit
	EMC	DIN EN 61326-1:2013




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**

Signal	Connector pin no.	Cable color	View to sensor connector
Excitation +	1	white	
Excitation GND	2	brown	
CLOCK	3	green	
$\overline{\text{CLOCK}}$	4	yellow	
DATA	5	grey	
$\overline{\text{DATA}}$	6	pink	
-	7	blue	
-	8	red	

## Digital output CANopen

<b>MCANOP, CANOPR</b> CANopen 	CAN specification	ISO 11898, Basic and Full CAN 2.0 B
	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	8 cams
	Certified	Yes
	Transmission rate	50 kBit bis 1 Mbit, adjustable via LSS, default: 125 kBit
	Bus connection	M12 connector, 5 pin
	Integrated bus terminating resistor	120Ω adjustable by the customer
	Bus, galvanic isolated	no

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

Signal wiring	Signal	Connector pin no.	View to the sensor connector
	Shield	1	
	Excitation +	2	
	GND	3	
	CAN-H	4	
	CAN-L	5	


### Digital output CAN SAE J1939

<b>MCANJ1939/R</b> CAN SAE J1939 	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
	Internal termination resistor	120 Ω 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); nn Group Extension (PS) configurable

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

Signal wiring	Signal	Connector pin no.	View to the sensor connector
	Shield	1	
	Excitation +	2	
	GND	3	
	CAN-H	4	
	CAN-L	5	



## Accessories

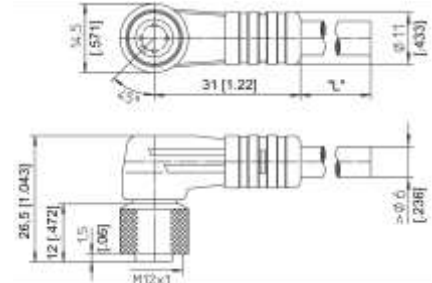
### Connector cable M12, 4 pin

#### (angular coupling)

shielded connector

Suitable for 5-pin sensor connectors

The 4-core screened cable is supplied with a mating 4-pin 90° M12 connector at one end and 4 wires at the other end. Available lengths are 2m, 5m and 10m. Wire: cross sectional area 0.34mm<sup>2</sup> Cable diameter: 5.6 ±0.2 mm



#### Order code

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

IP69: **KAB - xM - M12/4F/W/69K - LITZE**

xM = length in m

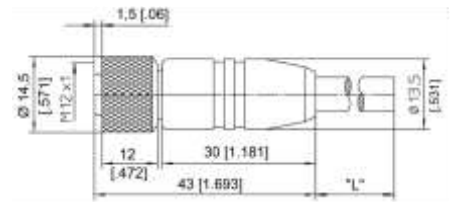
### Connector cable M12, 4 pin

#### (straight coupling)

shielded connector

Suitable for 5-pin sensor connectors

The 4-core screened cable is supplied with a mating 4-pin M12 connector at one end and 4 wires at the other end. Available lengths are 2m, 5m and 10m. Wire: cross sectional area 0.34mm<sup>2</sup> Cable diameter: 5.6 ±0.2 mm



#### Order code

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

IP69: **KAB - xM - M12/4F/G/69K - LITZE**

xM = length in m

Signal wiring M12, 4 pin	Plug connection / cable color			
	1	2	3	4
	brown	white	blue	black

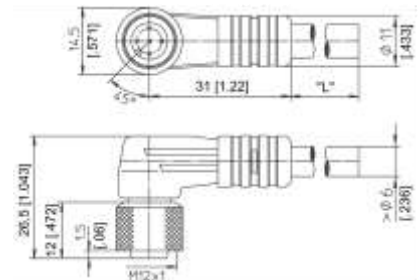
#### Applicable for cable carriers

Maximum movement speed	3 m/s
Maximum acceleration	5 m/s <sup>2</sup>
Minimum bending radius	10 x cable diameter

**Connector cable M12, 5 pin  
(angular coupling)**

shielded connector

The 5-core screened cable is supplied with a mating 5-pin 90° M12 connector at one end and 4 wires at the other end. Available lengths are 2m, 5m and 10m. Wire: cross sectional area 0.34mm<sup>2</sup> Cable diameter: 5.6 ±0.2mm



**Order code**

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

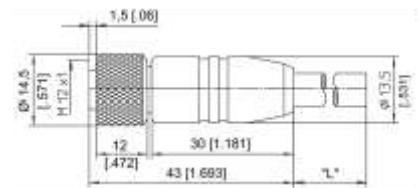
IP69: **KAB - xM - M12/5F/W/69K - LITZE**

xM = length in m

**Connector cable M12, 5 pin  
(straight coupling)**

shielded connector

The 5-core screened cable is supplied with a mating 5-pin M12 connector at one end and 4 wires at the other end. Available lengths are 2m, 5m and 10m. Wire: cross sectional area 0.34mm<sup>2</sup> Cable diameter: 5.6 ±0.2mm



**Order code**

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

IP69: **KAB - xM - M12/5F/G/69K - LITZE**

xM = length in m

Signal wiring	Plug connection / Cable color				
	1	2	3	4	5
M12, 5 pin	brown	white	blue	black	grey

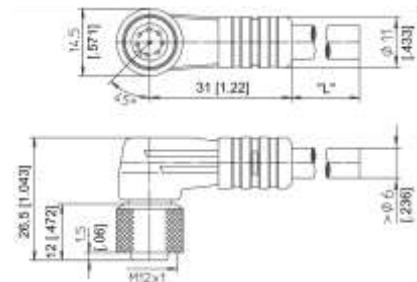
**Applicable for cable carriers**

Maximum movement speed	3 m/s
Maximum acceleration	5 m/s <sup>2</sup>
Minimum bending radius	10 x cable diameter

**Connector cable M12, 8 pin  
(angular coupling)**

shielded connector

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 2m, 5m and 10m. Wire: cross sectional area 0.25mm<sup>2</sup> Cable diameter: 6.3 ±0.2mm



**Order code**

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

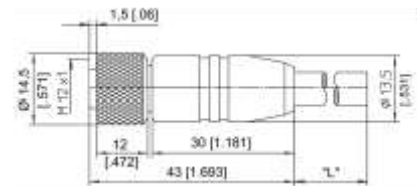
IP69: **KAB - xM - M12/8F/W/69K - LITZE**

xM = length in m

**Connector cable M12, 8 pin  
(straight coupling)**

shielded connector

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 2m, 5m and 10m. Wire: cross sectional area 0.25mm<sup>2</sup> Cable diameter: 6.3 ±0.2mm



**Order code**

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

IP69: **KAB - xM - M12/8F/G/69K - LITZE**

xM = length in m

Signal wiring	Plug connection / cable color							
	1	2	3	4	5	6	7	8
M12, 8 pin	white	brown	green	yellow	grey	pink	blue	red

**Applicable for cable carriers**

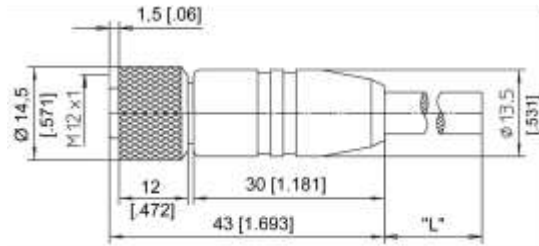
Maximum movement speed	3 m/s
Maximum acceleration	5 m/s <sup>2</sup>
Minimum bending radius	10 x cable diameter

### 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 m, 2 m, 5 and 10 m.

Cable diameter: 6.7 ±0.2 mm



Order code:

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

IP69: **KAB - xM - M12/5F/G/69K - M12/5M/G/69K - CAN**

xM = length in m

### T-piece for bus cable M12, 5 pin CAN-Bus

Order code:

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



### Terminating resistance M12, 5 pin CAN-Bus

Order code:

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



### Applicable for cable carriers

Maximum movement speed	3 m/s
Maximum acceleration	5 m/s <sup>2</sup>
Minimum bending radius	10 x cable diameter