



perfect in sensors.



POSITAPE®

**Tape Extension
Position Sensors
Product Catalog**

POSITAPE® – Tape Extension Position Sensors

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The Company and the Products



ASM is a leading company in the development and production of linear and angular position sensors. ASM sensors are used in industrial and commercial applications, where angle, inclination, displacement or position measurements are used to automate, test or monitor processes.

Innovative Technologies that solve your Measuring Requirements

Our product range consists of various technologies to measure linear and rotative positions. With over 33 years of experience in the position sensor market, ASM offers innovative solutions for the most demanding applications.

ASM Products Represent Quality and Reliability

The quality and precision of our products ensures consistent productivity. Our continuous research and development in our laboratories as well as our DIN EN ISO 9001:2008 certified quality management system guarantee these high standards.

ASM – Global Supplier of Position Sensors

ASM products are sold world-wide through sales offices, subsidiaries and a network of 50 distributors. With this global presence we ensure being close to our customers and provide quick product availability wherever ASM sensors are needed.

The Product Range

- **POSIWIRE®** Cable Extension Position Sensors
- **POSITAPE®** Tape Extension Position Sensors
- **POSICHRON®** Magnetostrictive Position Sensors
- **POSIMAG®** Magnetic Scale Position Sensors
- **POSIROT®** Magnetic Angle Sensors
- **POSITILT®** Inclination Sensors
- **PRODIS®** Digital Process Displays

The design of a POSITAPE® sensor

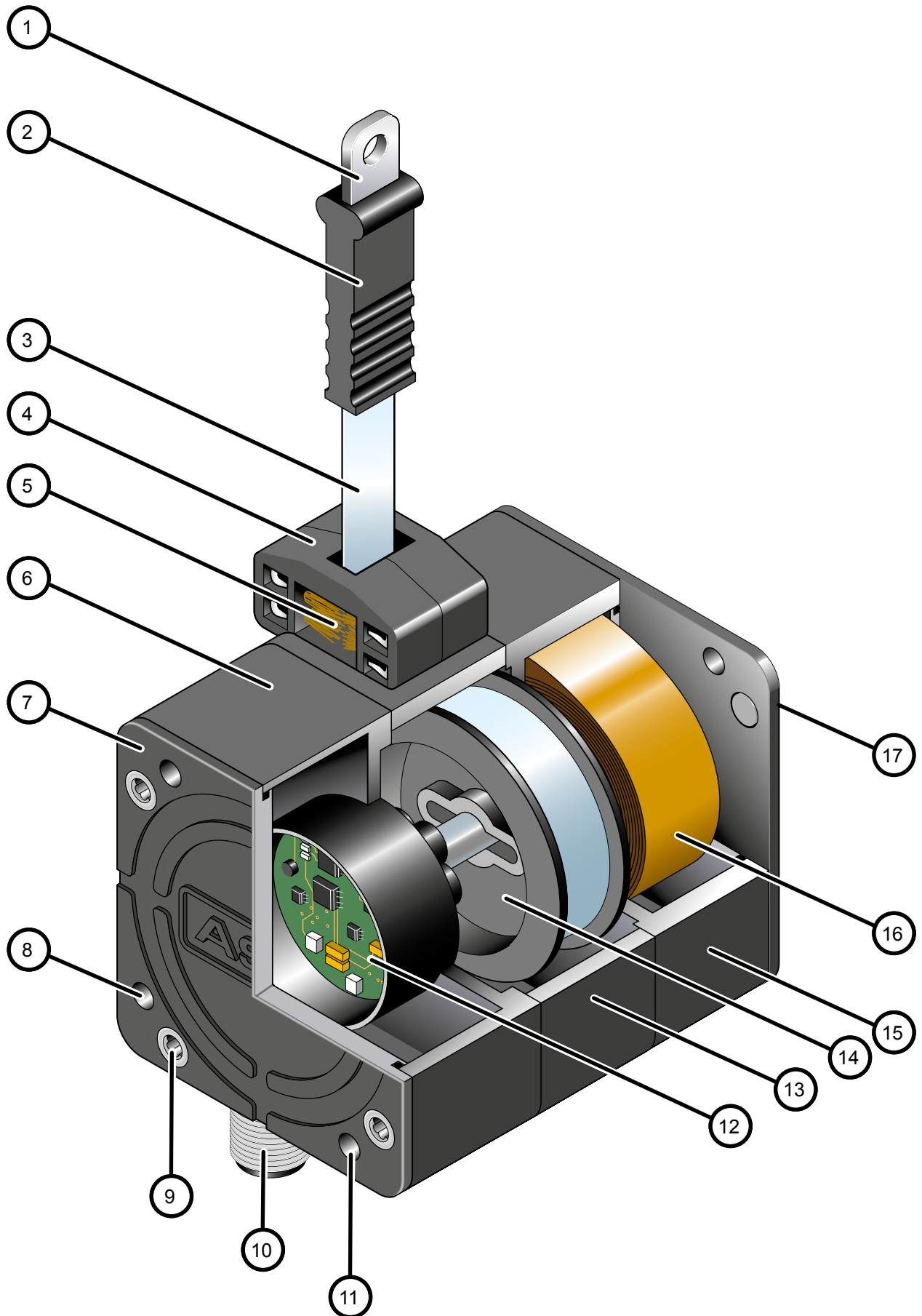
A POSITAPE® Sensor consists of a housing with dust wipers and a connector, and a moving measuring tape with a tape stopping element. The basic internal components are a drum, a flat spring, and a magnetic absolute multiturn encoder with the signal conditioner.

The measuring tape is wound onto the drum spirally in a single radial level, layer by layer without any gap. The tension element consists of a flat coil spring which is coupled coaxially to or integrated into the drum.

An angle sensing device – connected with the drum for co-rotation – counts the angle segments of the drum and sends them to the subsequent signal conditioners. The electronics determines the tape length from the retracted angle segments by considering the alternating length of a single winding according to the number of the windings on the drum.

The variable winding length is measured with the Teach-In-operation, when the measuring tape is being completely retracted from the drum in defined length segments.

- 1... Measuring tape clip
- 2... Elastic tape stopping element
- 3... Measuring tape
- 4... Tape inlet with dust wiper
- 5... Open dust wiper
- 6... Sealed encoder housing
- 7... Cover sealed with an O-ring
- 8... Drilling for mounting brackets
- 9... Clamping screws
- 10... Connector (90° rotation)
- 11... Screw passage for mounting brackets
- 12... Magnetic Absolute Multiturn Encoder
- 13... Drum housing with outlet drillings for water
- 14... Drum
- 15... Spring housing
- 16... Flat spring
- 17... Cover sealed with an O-ring



The limitations of the cable principle

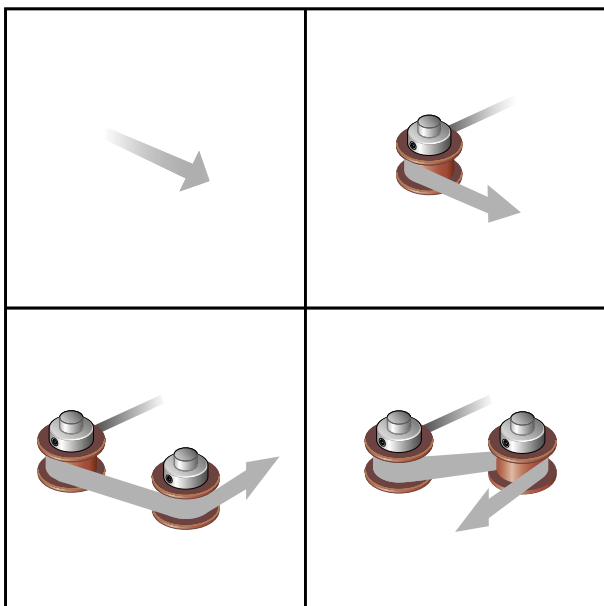
The use of the Cable Extension Position Sensors is limited by the cable lifetime (under extreme operating conditions), especially when the cable has to be guided through a single or multiple cable pulleys due to space constraints.

„Cable pulleys are cable killers“

This statement refers to the extreme reduction of the cable lifetime in case of pulleys. The logical conclusion is that the use of pulleys should be avoided whenever possible.

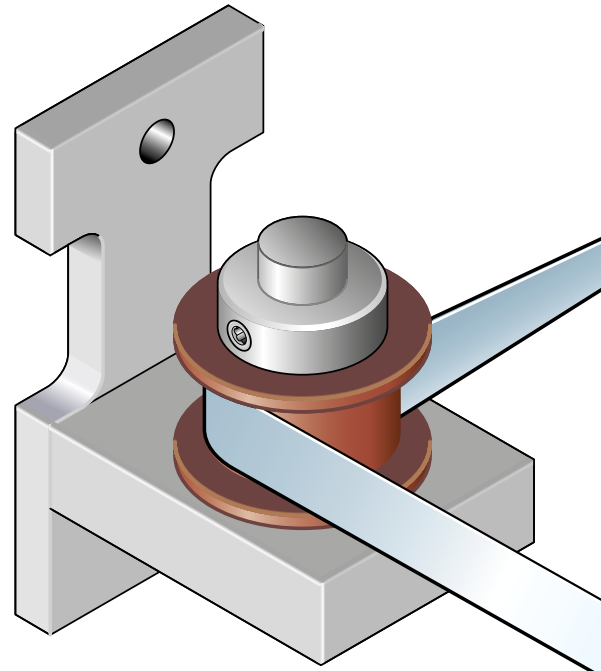
Due to the fact that the cable lifetime of the sensors based on the wire principle is limited with the use of pulleys, the Cable Extension Position Sensors are not suitable for some sorts of special applications.

The reliability of the sensors in applications, where safety is a major consideration, is of paramount importance. However, it cannot always be guaranteed in case of pulley guided cables.

**Measuring tape**

Alternatively, instead of using a cable, the measurement range can be defined by means of the pull-out length of a steel tape which is wound on a precision drum coupled to an angular sensing device. Markings placed on the measuring tape, for instance uniformly arranged perforations, can be counted by this device and converted into position values.

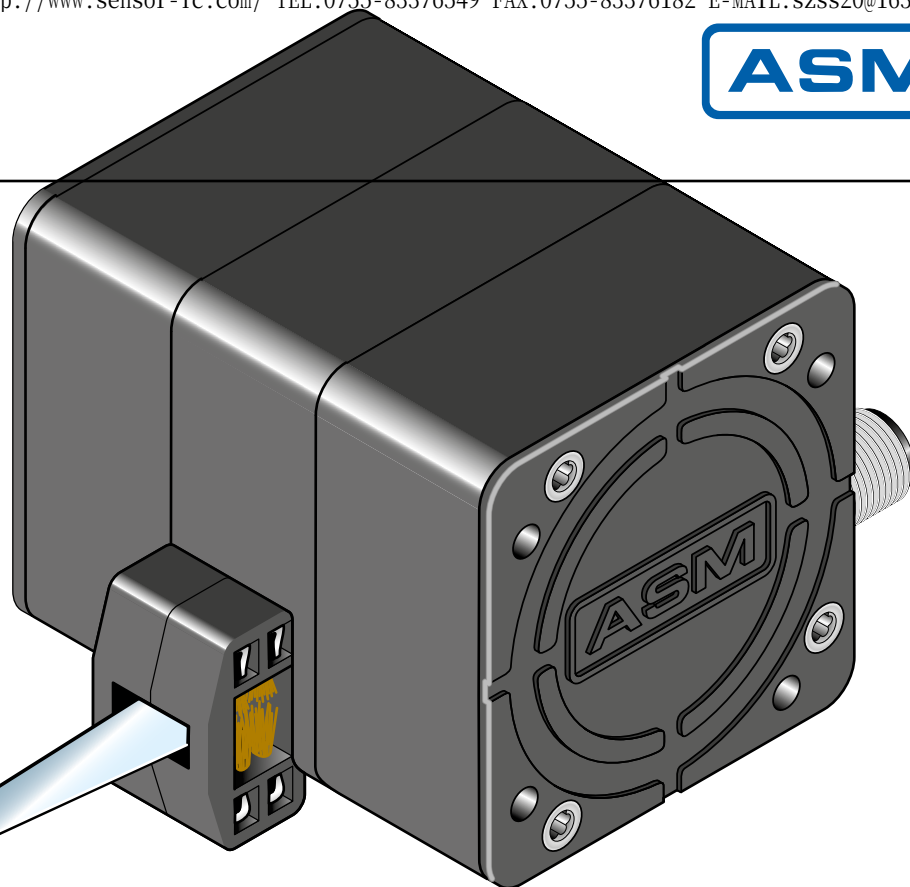
The disadvantage of this solution lies in the use of the special measuring tape furnished with markings, the structure of which must be maintained over a long time period and sustain numerous on/off windings.



However, a tape with the features described above cannot be realised at present with the required lifetime.

If some sections of the tape differ mechanically due to perforation, camber, toothing, printing etc. in/on the tape surface, they are subject to intense mechanical wear and have therefore a strongly reduced lifetime.

On the contrary, a very thin tape manufactured of an extremely tight stainless steel and without any mechanical marking, i.e. without any mechanical amendment, offers a very long lifetime.



In contrast to the tapes with integral marking, the tape length is defined by means of the analog or digital angular sensing device such as a potentiometer or encoder. This angular sensor/encoder is directly coupled to the drum and measures the angle of rotation with which the tape is being wound around the drum. The measuring tape remains unchanged, i.e. without any perforation or camber etc. and thus can neither be impaired nor destroyed by mechanical stress.

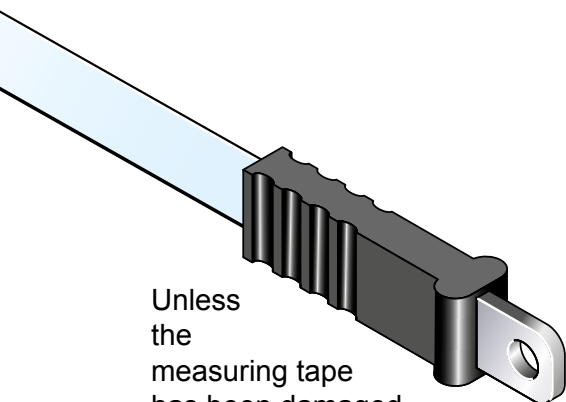
Why POSITAPE® Position Sensors?

Apart from the extreme long lifetime of the measuring tape, sensors for special application, as in harsh environments and tight locations, must have a compact narrow axial design. For such applications the POSITAPE® Position Sensors offer visible advantages.

The axial width of a tape sensor housing (POSITAPE® Sensor) can be reduced due to the fact that the tape is wound spirally on the drum in a single radial level, like an Archimedean spring, layer by layer without any gap, and not axially side by side.

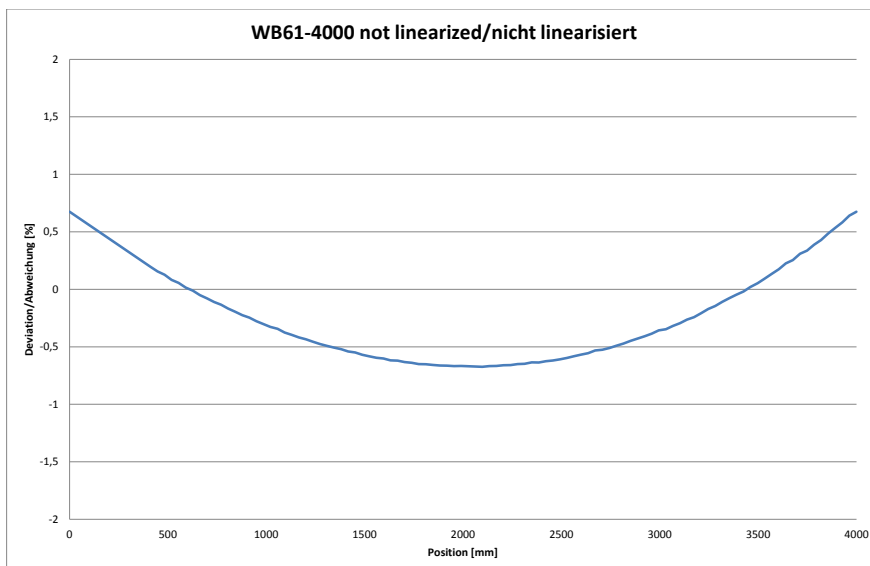
An apparently disadvantage for this design is the fact that the circumference of a 360° angle movement grows with each winding, i.e. the drum diameter increases. This effect can be easily eliminated by the use of electronics.

To exactly define the retraction length of the measuring tape, the sensor applies the subsequent electronics which assigns a (not always equal) tape length to a defined rotation angle of the drum, also taking into consideration the instantaneous number of windings. Thus the actual measurement range is defined by the electronic linearization.

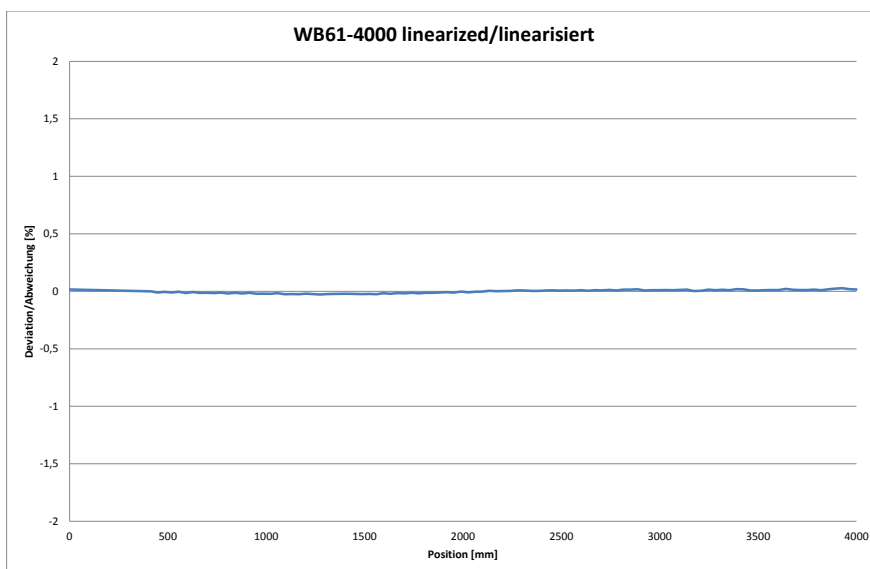


Unless the measuring tape has been damaged by external influence like e.g. bending or notches, its lifetime will be significantly longer as that of a cable, even when using multiple pulleys.

Example of a WB61 sensor (not linearized)



Example of a WB61 sensor (linearized)



Advantages of Tape Extension Position Sensors

Very low wear of the measuring tape due to the lack of internal abrasion (as in case of cables). Due to the **virtually unlimited life** of the metal tape the use of (multiple) pulleys is possible. **Compact design** in comparison to cable actuated sensors – the tape is wound in only a single layer around a cable drum.

Easy cleaning - external brushes wipe off debris from the measuring tape. **Low risk of ice build up** and ice accumulation due to the extremely smooth surfaces of the tape. No plastic jacket necessary for tape protection (plastic jacket of measuring cables deteriorates due to water absorption). The measuring

tape cannot skip on the drum (important when exceeding the acceleration values). **Low danger** of injury due to the **rounded tape edges**. High stability / weight ratio: advantageous for almost all applications and an imperative requirement in case of a minor deflection/deformation. **Resistant against extreme** temperatures,

corrosive media and humidity. The wear of the steel tape can be easily monitored, which means the **reduced necessity of the maintenance** of the sensor.

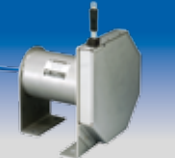
Clean: as opposed to cable actuated sensors, steel tapes make **no abrasion** and are thus **ideal** for applications in food industry, pharmaceutical industry and clean-room technology. **Precise performance**: the steel tape features very

close tolerances. This precision is crucial for linearity and repeatability.

POSITAPE® - Tape Extension Position Sensors**Guide of selection**

Selection features	Model			
		WB10ZG	WB61	WB85
Measurement range 0 to ... [mm]				
250		●		
375		●		
500		●		
750		●		
1,000		●		
1,250		●		
1,500		●	●	
2,000		●	●	
2,500			●	
3,000			●	
3,500			●	
4,000			●	
5,000				●
6,000				●
7,500				
8,000				
10,000				
12,500				
15,000				
17,500				
20,000				
Analog outputs, absolute				
Voltage 0.5 ... 10 V		●	●	●
Voltage 0.5 ... 4.5 V		●	●	●
Current 4 ... 20 mA		●	●	●
Redundant version (optional)			●	●
Digital outputs, absolute				
SSI		●	●	●
CANopen		●	●	●
CAN SAE J1939		●	●	●
Linearity				
standard		±0.10 %	±0.10 %	±0.10 %
optional (for meas. ranges ≥ 1000 mm)		±0.05 %	±0.05 %	±0.05 %
Protection class				
standard		IP65	IP67	IP67
optional		—	IP67/IP69K*	IP67/IP69K*

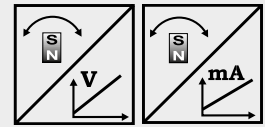
* = with a suitable IP67/IP69K connector

  			Model
WB21	WB12	WB100M	Selection features
Measurement range 0 to ... [mm]			
	•		250
	•		375
	•		500
	•		750
	•		1,000
	•		1,250
	•		1,500
	•	•	2,000
	•		2,500
	•		3,000
	•	•	3,500
	•		4,000
			5,000
			6,000
		•	7,500
•			8,000
•		•	10,000
•			12,500
•			15,000
•			17,500
•			20,000
Analog outputs, absolute			
•	•	•	Voltage 0.5 ... 10 V
•	•	•	Voltage 0.5 ... 4.5 V
•	•	•	Current 4 ... 20 mA
•	•	•	Redundant version (optional)
Digital outputs, absolute			
•	•	•	SSI
•	•	•	CANopen
•	•	•	CAN SAE J1939
Linearity			
±0.10 %	±0.10 %	±0.10 %	standard
±0.05 %	±0.05 %	±0.05 %	(for meas. ranges ≥ 1000 mm) optional
Protection class			
IP67	IP67	IP68/IP69K	standard
IP67/IP69K*	IP67/IP69K*	—	optional

* = with a suitable IP67/IP69K connector

WB10ZG**Analog output****Position sensor with measuring tape**

- Measurement range up to 2000 mm
- Protection class IP65
- Stainless steel measuring tape
- Analog output

**Specifications**

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		Zinc diecast, aluminium, plastic and stainless steel; Tape: stainless steel, 10 mm wide, 0.08 mm thick
Protection class		IP65 (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
Temperature range		-20 ... +85 °C

Order code WB10ZG

WB10ZG - [] - [] - [] - [] - [] - [] - BAB1

Model name**Measurement range (in mm)**

250 / 375 / 500 / 750 / 1000 / 1250 / 1500 / 2000

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 %

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 62

Order example: WB10ZG - 1250 - U2 - A - L10 - M12A5 - BAB1

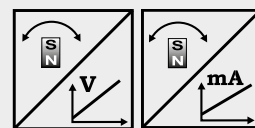
WB10ZG

Analog output, programmable



Position sensor with measuring tape

- Measurement range up to 2000 mm
- Protection class IP65
- Stainless steel measuring tape
- Analog output, programmable



Specifications

Output	U2/PMU U8/PMU I1/PMU	Voltage 0.5 ... 10 V, programmable Voltage 0.5 ... 4.5 V, programmable 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		Zinc diecast, aluminium, plastic and stainless steel; Tape: stainless steel, 10 mm wide, 0.08 mm thick
Protection class		IP65 (with mating connector only)
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
Temperature range		-20 ... +85 °C

Order code WB10ZG

WB10ZG - [] - [] - [] - [] - [] - [] - BAB1

Model name

Measurement range (in mm)

250 / 375 / 500 / 750 / 1000 / 1250 / 1500 / 2000

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 %

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

Connection

M12A5 = Connector M12, 5 pin

Dust wiper

BAB1

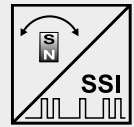
Order code connector cable see page 63

Order example: WB10ZG - 2000 - U2/PMU - A - L10 - M12A5 - BAB1



Position sensor with measuring tape

- Measurement range up to 2000 mm
- Protection class IP65
- Stainless steel measuring tape
- Digital output SSI



Specifications

Outputs	Synchronous serial interface (SSI)
Resolution	up to 10 µm
Linearity	±0.10 % f. s.; optional ±0.05 %
Sensing device	Magnetic absolute encoder
Material	Zinc diecast, aluminium and plastic Tape: stainless steel, 10 mm wide, 0.08 mm thick
Protection class	IP65 (with mating connector only)
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
Temperature range	-20 ... +85 °C

Order code WB10ZG

	WB10ZG - [] - [] - [] - [] - [] - BAB1
Model name	
Measurement range (in mm)	1000 / 2000
Resolution (in µm)	10 / 50 / 100
Outputs	MSSI = SSI synchronous serial interface
Linearity	L10 = ±0.10% L05 = ±0.05% (optional)
Connection	M12A8 = Connector M12, 8 pin
Dust wiper	BAB1

Order code connector cable see page 64

Order example: WB10ZG - 2000 - 100 - MSSI - L10 - M12A8 - BAB1

WB10ZG

Digital output CANopen



Position sensor with measuring tape

- Measurement range up to 2000 mm
- Protection class IP65
- Stainless steel measuring tape
- Digital output CANopen or CAN SAE J1939



Specifications

Outputs	CANopen or CAN SAE J1939
Resolution	setting via CAN Bus
Linearity	±0.10 % f. s.; optional ±0.05 %
Sensing device	Magnetic absolute encoder
Material	Zinc diecast, aluminium, plastic and stainless steel; Tape: stainless steel, 10 mm wide, 0.08 mm thick
Protection class	IP65 (with mating connector only)
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
Temperature range	-20 ... +85 °C

Order code WB10ZG

WB10ZG - [] - [] - [] - [] - BAB1

Model name

Measurement range (in mm)

1000 / 2000

Output

MCANOP = CANopen

MCANJ1939 = CAN SAE J1939

Linearity

L10 = 0.10%

L05 = 0.05% (optional)

Connection

M12/CAN = Connector M12, 5 pin

Dust wiper

BAB1

Order code connector cable see page 65

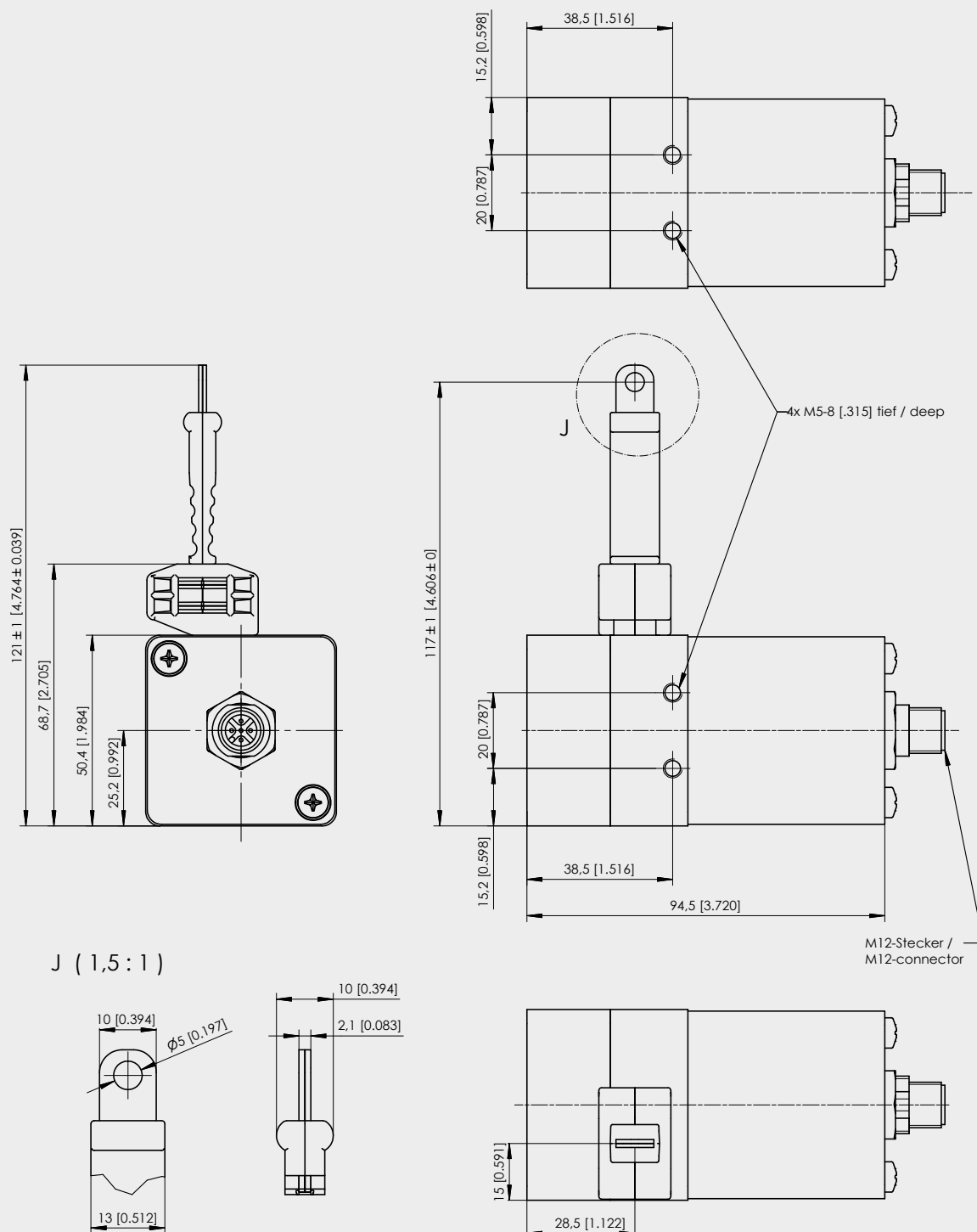
Order example: WB10ZG - 2000 - MCANOP - L10 - M12/CAN - BAB1

WB10ZG

Analog or digital output

Outline drawing WB10ZG

up to 1000 mm



Dimensions in mm [inch]

Dimensions informative only.

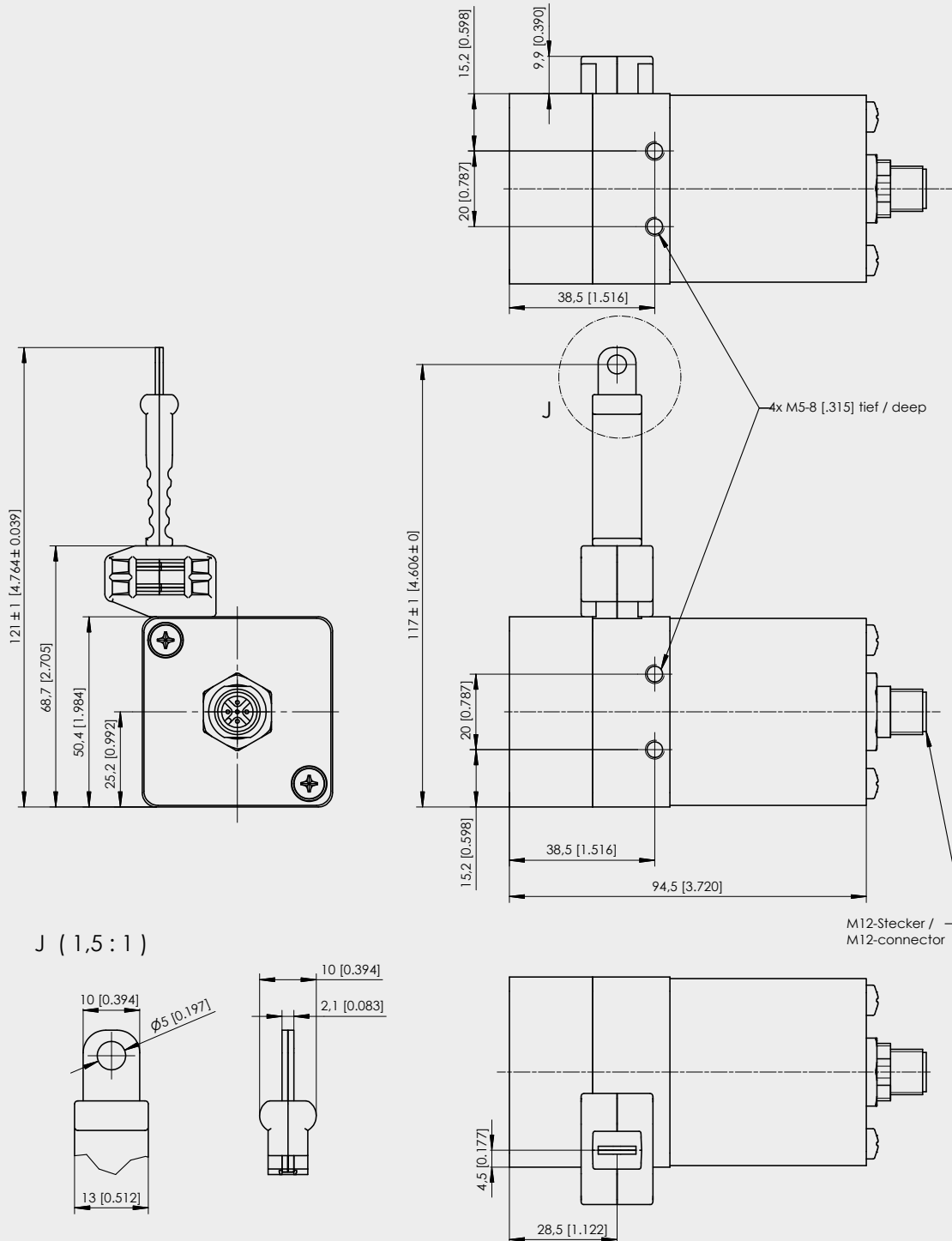
For guaranteed dimensions consult factory.

WB10ZG

Analog or digital output

Outline drawing WB10ZG

1250 ... 2000 mm



Dimensions in mm [inch]

Dimensions informative only.

For guaranteed dimensions consult factory.

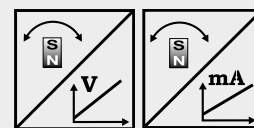
WB61

Analog output



Position sensor with measuring tape

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



Specifications

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; 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
Temperature range		-40 ... +85 °C

Order code WB61

WB61 - [] - [] - [] - [] - [] - [] - BAB1

Model name

Measurement range (in mm)

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)

Connection

M12R5 = Connector M12, 5 pin

Dust wiper

BAB1

Order code connector cable see page 62

Order example: WB61 - 4000 - I1 - A - L10 - M12R5 - BAB1

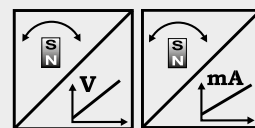
WB61

Analog output, programmable



Position sensor with measuring tape

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



Specifications

Outputs	U2/PMU U8/PMU I1/PMU	Voltage 0.5 ... 10 V, programmable Voltage 0.5 ... 4.5 V, programmable 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		Plastic and stainless steel; 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
Temperature range		-40 ... +85 °C

Order code WB61

WB61 - [] - [] - [] - [] - [] - [] - BAB1

Model name

Measurement range (in mm)

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)

Connection

M12R5 = Connector M12, 5 pin

Dust wiper

BAB1

Order code connector cable see page 63

Order example: WB61 - 4000 - U2/PMU - A - L10 - M12R5 - BAB1

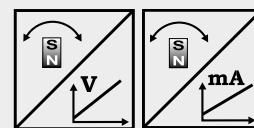
WB61

Analog output, redundant



Position sensor with measuring tape

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



Specifications

Outputs	U2R U8R I1R	Voltage 0.5 ... 10 V, redundant Voltage 0.5 ... 4.5 V, redundant 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		Plastic and stainless steel; 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
Temperature range		-40 ... +85 °C

Order code WB61

WB61 - [] - [] - [] - [] - [] - [] - BAB1

Model name

Measurement range (in mm)

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)

Connection

M12R8 = Connector M12, 8 pin

Dust wiper

BAB1

Order code connector cable see page 64

Order example: WB61 - 4000 - I1R - A/D - L10 - M12R8 - BAB1

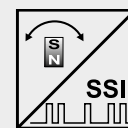
WB61

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



Specifications

Output	Synchronous serial interface (SSI)
Resolution	0.05 mm
Linearity	±0.10 % f.s; optional ±0.05 %
Sensing device	Magnetic absolute encoder
Material	Plastic and stainless steel; 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
Temperature range	-40 ... +85 °C

Order code WB61

Model name	WB61 - [] - [] - [] - [] - [] - [] - BAB1
Measurement range (in mm)	4000
Resolution (in µm)	50 (other resolutions on demand)
Output	MSSI = SSI synchronous serial interface
Linearity	L10 = ±0.10% (standard) L05 = ±0.05% (optional)
Connection	M12R8 = Connector M12, 8 pin
Dust wiper	BAB1

Order code connector cable see page 64

Order example: WB61 - 4000 - 50 - MSSI - L10 - M12R8 - BAB1

WB61

Digital output CANopen



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
- Optional redundant CAN Bus (on demand)



Specifications

Output	CANopen or CAN SAE J1939
Resolution	setting via CAN Bus
Linearity	±0.10 % f.s.; optional ±0.05 %
Sensing device	Magnetic absolute encoder
Material	Plastic and stainless steel; 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
Temperature range	-40 ... +85 °C

Bestellcode WB61

WB61 - [] - [] - [] - [] - BAB1

Model name

Measurement range (in mm)

4000

Output

MCANOP = CANopen

MCANJ1939 = CAN SAE J1939

Linearity

L10 = 0.10% (standard)

L05 = 0.05% (optional)

Connection

M12/CAN = Connector M12, 5 pin

Dust wiper

BAB1

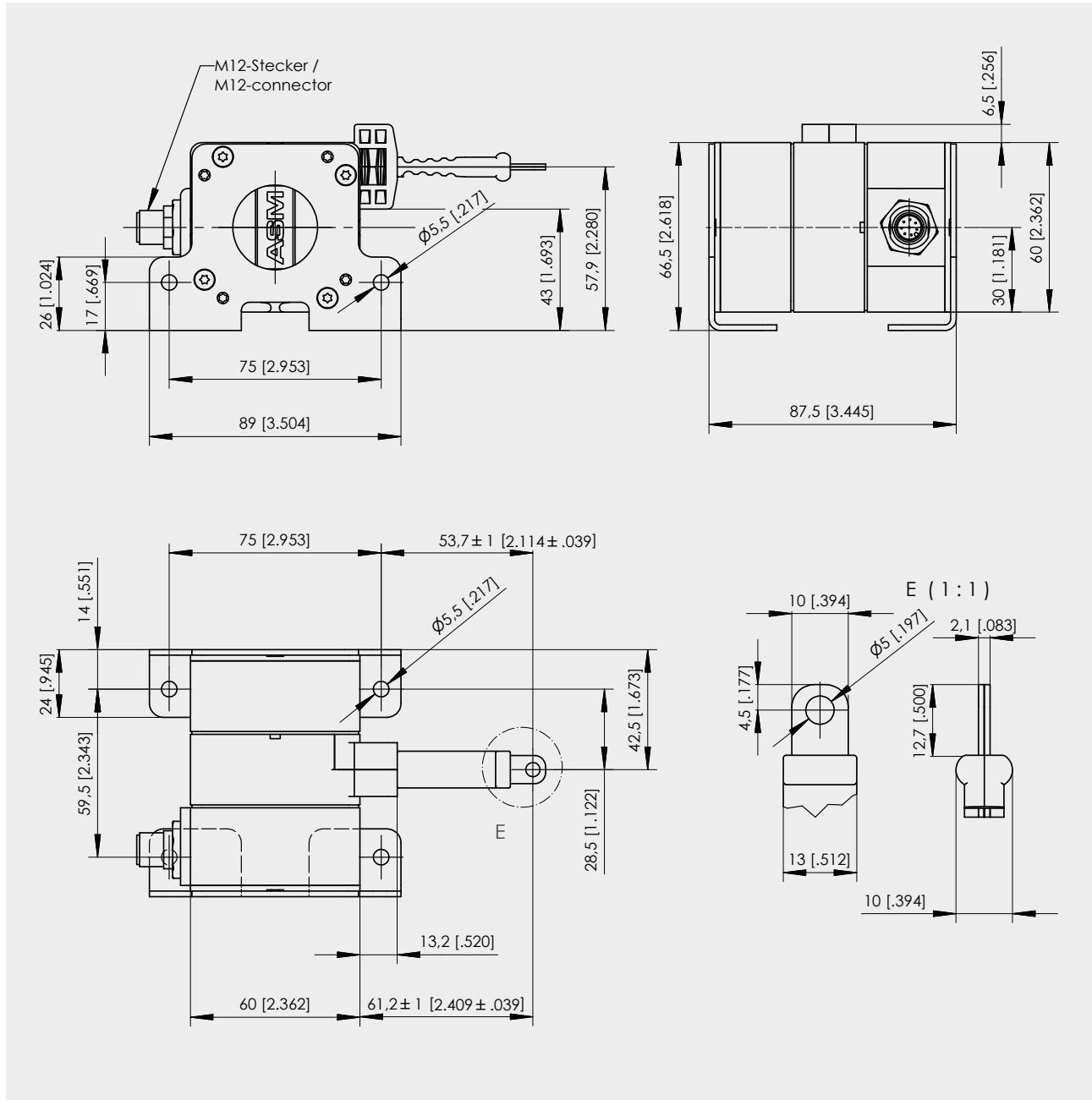
Order code connector cable see page 65

Order example: WB61 - 4000 - MCANOP - L10 - M12/CAN - BAB1

WB61

Analog or digital output

Dimensions WB61



Dimensions in mm [inch]

Dimensions informative only.

For guaranteed dimensions consult factory.

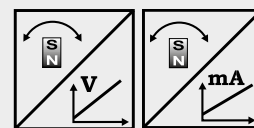
WB85

Analog output



Position sensor with measuring tape

- Measurement range up to 6000 mm
- Protection class IP67/IP69K
- Stainless steel measuring tape
- Analog output



Specifications

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; 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
Temperature range		-40 ... +85 °C

Order code WB85

WB85 - [] - [] - [] - [] - [] - [] - BAB1

Model name

Measurement range (in mm)

5000 / 6000

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)

Connection

M12R5 = Connector M12, 5 pin

Dust wiper

BAB1

Order code connector cable see page 62

Order example: WB85 - 6000 - I1 - A - L10 - M12R5 - BAB1

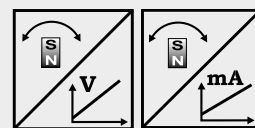
WB85

Analog output, programmable



Position sensor with measuring tape

- Measurement range up to 6000 mm
- Protection class IP67/IP69K
- Stainless steel measuring tape
- Analog output, programmable



Specifications

Outputs	U2/PMU U8/PMU I1/PMU	Voltage 0.5 ... 10 V, programmable Voltage 0.5 ... 4.5 V, programmable 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		Plastic and stainless steel; 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
Temperature range		-40 ... +85 °C

Order code WB85

WB85 - [] - [] - [] - [] - [] - [] - BAB1

Model name

Measurement range (in mm)

5000 / 6000

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)

Connection

M12R5 = Connector M12, 5 pin

Dust wiper

BAB1

Order code connector cable see page 63

Order example: WB85 - 6000 - U2/PMU - A - L10 - M12R5 - BAB1

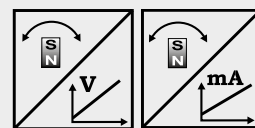
WB85

Analog output, redundant



Position sensor with measuring tape

- Measurement range up to 6000 mm
- Protection class IP67/IP69K
- Stainless steel measuring tape
- Analog output, redundant



Specifications

Outputs	U2R U8R I1R	Voltage 0.5 ... 10 V, redundant Voltage 0.5 ... 4.5 V, redundant 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		Plastic and stainless steel; 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
Temperature range		-40 ... +85 °C

Order code WB85

WB85 - [] - [] - [] - [] - [] - [] - BAB1

Model name

Measurement range (in mm)

5000 / 6000

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)

Connection

M12R8 = Connector M12, 8 pin

Dust wiper

BAB1

Order code connector cable see page 64

Order example: WB85 - 6000 - I1R - A/D - L10 - M12R8 - BAB1

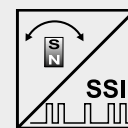
WB85

Digital output SSI



Position sensor with measuring tape

- Measurement range up to 6000 mm
- Protection class IP67/IP69K
- Stainless steel measuring tape
- Digital output SSI



Specifications

Output	Synchronous serial interface (SSI)
Resolution	0.05 mm
Linearity	±0.10 % f.s; optional ±0.05 %
Sensing device	Magnetic absolute encoder
Material	Plastic and stainless steel; 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
Temperature range	-40 ... +85 °C

Order code WB85

WB85 - [] - [] - [] - [] - [] - BAB1

Model name

Measurement range (in mm)

6000

Resolution (in µm)

50 (other resolutions on demand)

Output

MSSI = SSI synchronous serial interface

Linearity

L10 = ±0.10% (standard)

L05 = ±0.05% (optional)

Connection

M12R8 = Connector M12, 8 pin

Dust wiper

BAB1

Order code connector cable see page 64

Order example: WB85 - 6000 - 50 - MSSI - L10 - M12R8 - BAB1

WB85

Digital output CANopen



Position sensor with measuring tape

- Measurement range up to 6000 mm
- Protection class IP67/IP69K
- Stainless steel measuring tape
- Digital output CANopen or CAN SAE J1939
- Optional redundant CAN Bus (on demand)



Specifications

Output	CANopen or CAN SAE J1939
Resolution	setting via CAN Bus
Linearity	±0.10 % f.s.; optional ±0.05 %
Sensing device	Magnetic absolute encoder
Material	Plastic and stainless steel; 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
Temperature range	-40 ... +85 °C

Bestellcode WB85

WB85 - [] - [] - [] - [] - BAB1

Model name

Measurement range (in mm)

6000

Output

MCANOP = CANopen

MCANJ1939 = CAN SAE J1939

Linearity

L10 = 0.10% (standard)

L05 = 0.05% (optional)

Connection

M12/CAN = Connector M12, 5 pin

Dust wiper

BAB1

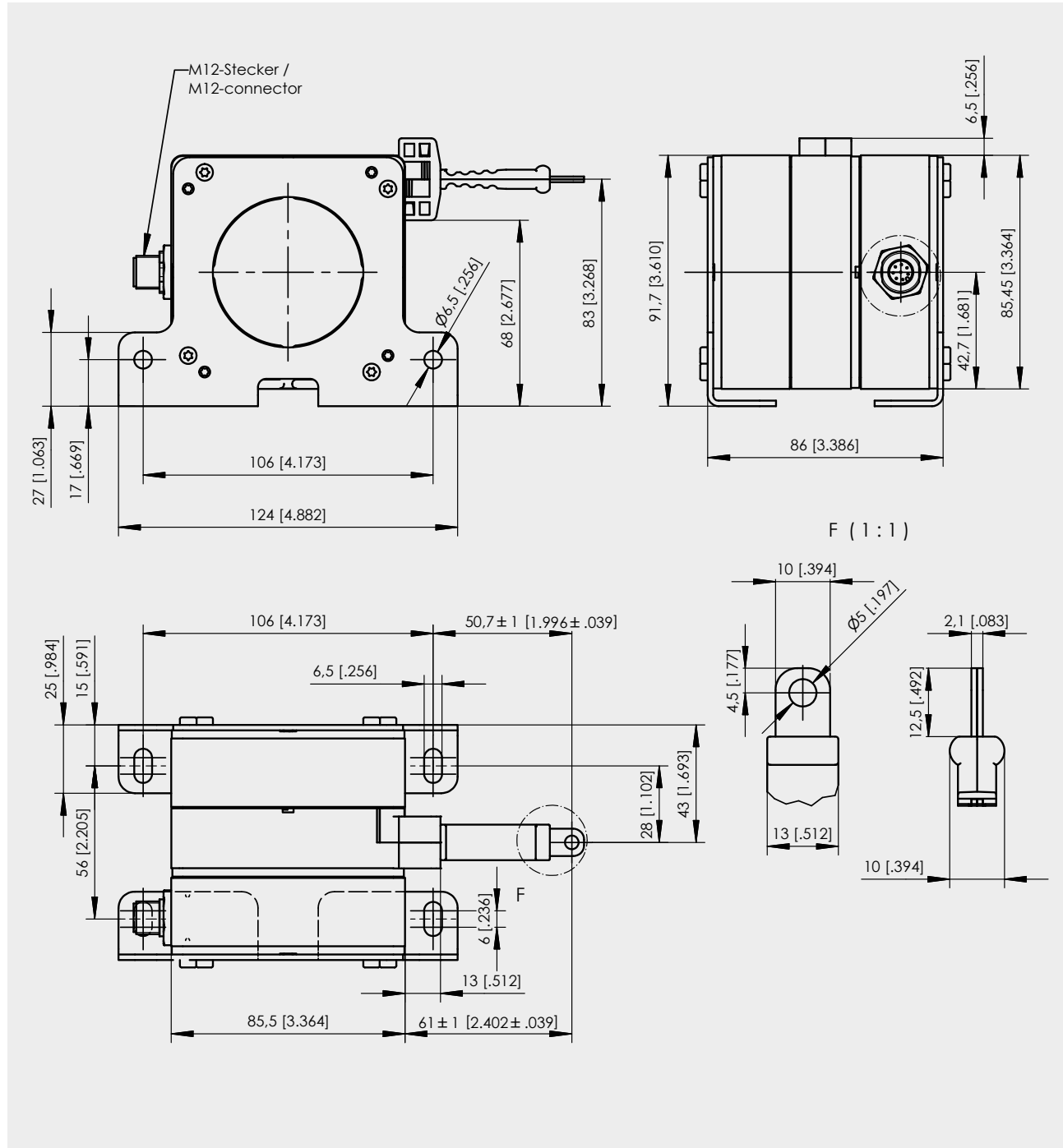
Order code connector cable see page 65

Order example: WB85 - 6000 - MCANOP - L10 - M12/CAN - BAB1

WB85

Analog or digital output

Dimensions WB85



Dimensions in mm [inch]

Dimensions informative only.
For guaranteed dimensions consult factory.

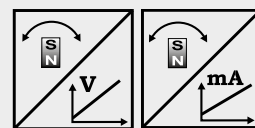
WB21

Analog output



Position sensor with measuring tape

- Measurement range up to 20,000 mm
- Protection class IP67/IP69K
- Stainless steel measuring tape
- Analog output



Specifications

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		Aluminium, plastic and stainless steel; 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
Temperature range		-40 ... +85 °C

Order code WB21

WB21 - - - - - - - **BAB1**

Model name

Measurement range (in mm)

8000 / 10000 / 12500 / 15000 / 17500 / 20000

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)

Connection

M12R5 = Connector M12, 5 pin

Dust wiper

BAB1

Order code connector cable see page 62

Order example: WB21 - 8000 - I1 - A - L10 - M12R5 - BAB1

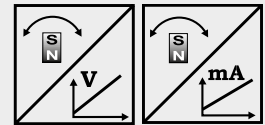
WB21

Analog output, programmable



Position sensor with measuring tape

- Measurement range up to 20,000 mm
- Protection class IP67/IP69K
- Stainless steel measuring tape
- Analog output, programmable



Specifications

Output	U2/PMU U8/PMU I1/PMU	Voltage 0.5 ... 10 V, programmable Voltage 0.5 ... 4.5 V, programmable 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, plastic and stainless steel; 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
Temperature range		-40 ... +85 °C

Order code WB21

WB21 - [] - [] - [] - [] - [] - BAB1

Model name

Measurement range (in mm)

8000 / 10000 / 12500 / 15000 / 17500 / 20000

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)

Connection

M12R5 = Connector M12, 5 pin

Dust wiper

BAB1

Order code connector cable see page 63

Order example: WB21 - 8000 - U2/PMU - A - L10 - M12R5 - BAB1

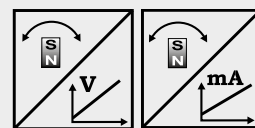
WB21

Analog output, redundant



Position sensor with measuring tape

- Measurement range up to 20,000 mm
- Protection class IP67/IP69K
- Stainless steel measuring tape
- Analog output, redundant



Specifications

Output	U2R U8R I1R	Voltage 0.5 ... 10 V, redundant Voltage 0.5 ... 4.5 V, redundant 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, plastic and stainless steel; 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
Temperature range		-40 ... +85 °C

Order code WB21

WB21 - - - - - - - **BAB1**

Model name

Measurement range (in mm)

8000 / 10000 / 12500 / 15000 / 17500 / 20000

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)

Connection

M12R8 = Connector M12, 8 pin

Dust wiper

BAB1

Order code connector cable see page 64

Order example: WB21 - 8000 - I1R - A/D - L10 - M12R8 - BAB1

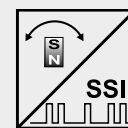
WB21

Digital output SSI



Position sensor with measuring tape

- Measurement range up to 20,000 mm
- Protection class IP67/IP69K
- Stainless steel measuring tape
- Digital output SSI



Specifications

Output	Synchronous serial interface (SSI)
Resolution	0.05 mm
Linearity	±0.10 % f.s; optional ±0.05 %
Sensing device	Magnetic absolute encoder
Material	Aluminium, plastic and stainless steel; 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
Temperature range	-40 ... +85 °C

Order code WB21

WB21 - [] - [] - [] - [] - [] - BAB1

Model name

Measurement range (in mm)

8000 / 10000 / 12500 / 15000 / 20000

Resolution (in µm)

50 (other resolutions on demand)

Output

MSSI = SSI synchronous serial interface

Linearity

L10 = ±0.10% (standard)

L05 = ±0.05% (optional)

Connection

M12R8 = Connector M12, 8 pin

Dust wiper

BAB1

Order code connector cable see page 64

Order example: WB21 - 8000 - 50 - MSSI - L10 - M12R8 - BAB1

WB21

Digital output CAN



Position sensor with measuring tape

- Measurement range up to 20,000 mm
- Protection class IP67/IP69K
- Stainless steel measuring tape
- Digital output CANopen or CAN SAE J1939
- Optional redundant CAN Bus (on demand)



Specifications

Output	CANopen or CAN SAE J1939
Resolution	setting via CAN Bus
Linearity	±0.10 % f.s.; optional ±0.05 %
Sensing device	Magnetic absolute encoder
Material	Aluminium, plastic and stainless steel; 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
Temperature range	-40 ... +85 °C

Bestellcode WB21

WB21 - [] - [] - [] - [] - BAB1

Model name

Measurement range (in mm)

8000 / 10000 / 12500 / 15000 / 20000

Output

MCANOP = CANopen

MCANJ1939 = CAN SAE J1939

Linearity

L10 = 0.10% (standard)

L05 = 0.05% (optional)

Connection

M12/CAN = Connector M12, 5 pin

Dust wiper

BAB1

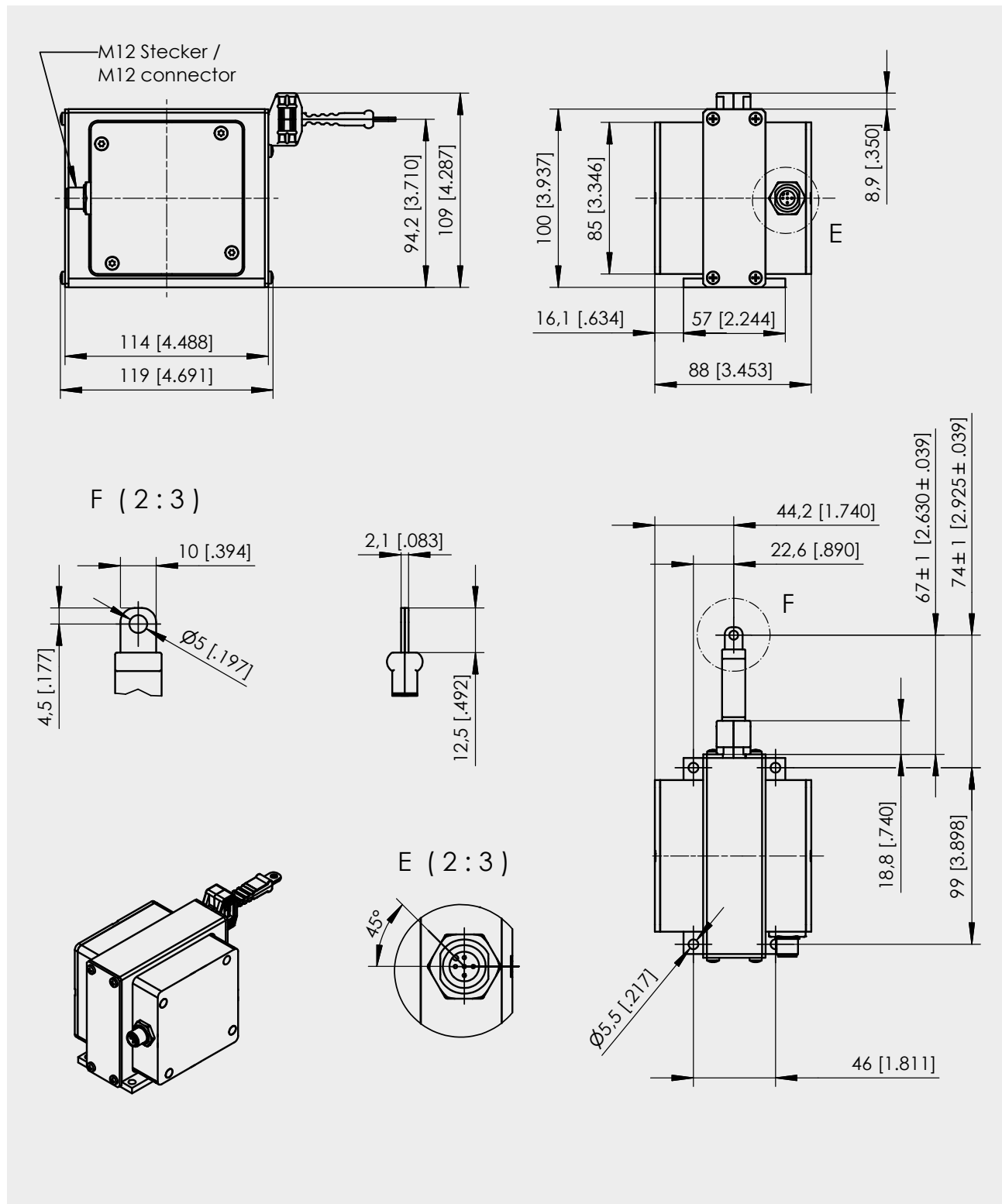
Order code connector cable see page 65

Order example: WB21 - 8000 - MCANOP - L10 - M12/CAN - BAB1

WB21

Analog or digital output

Dimensions WB21-8000



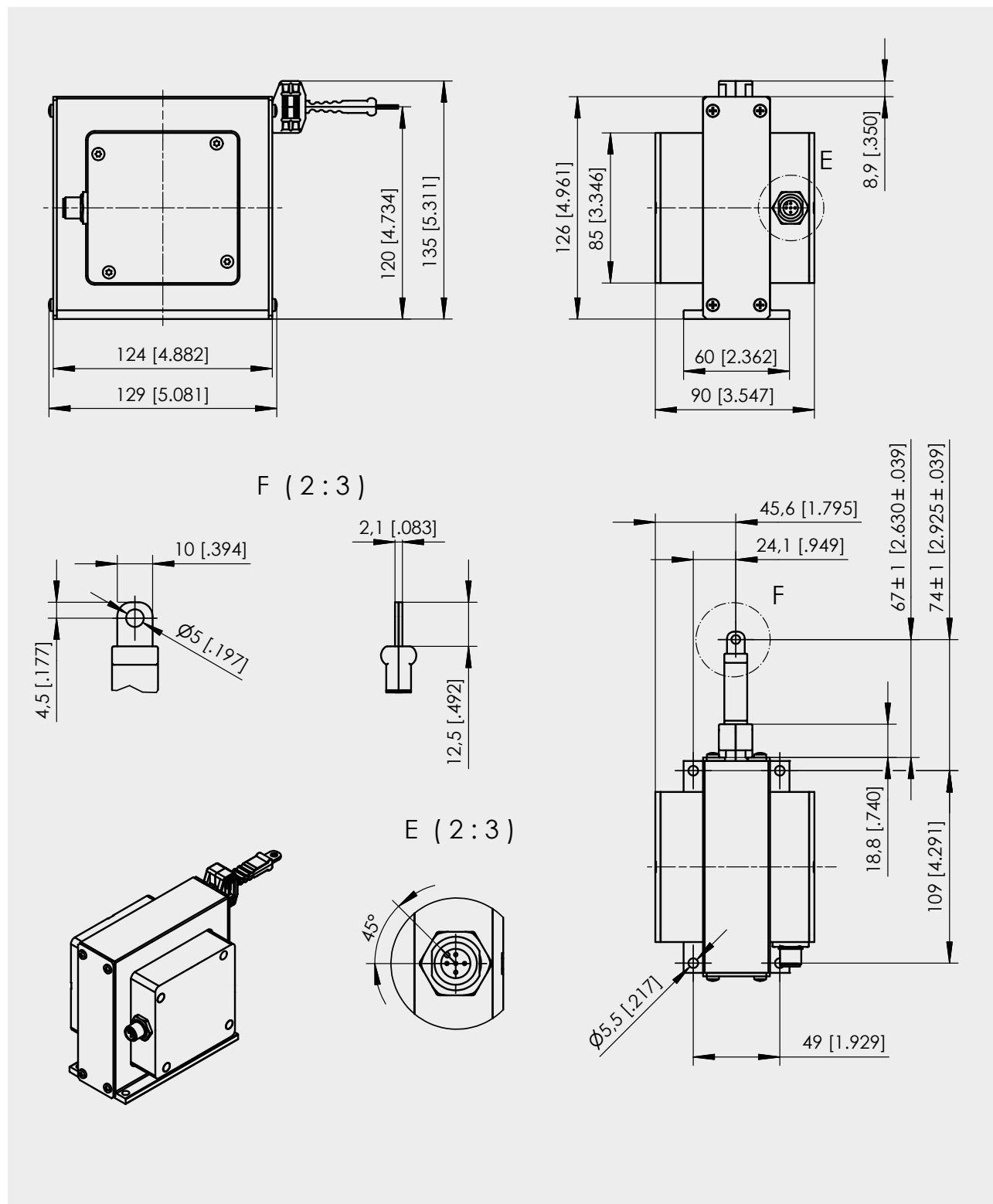
Dimensions in mm [inch]

Dimensions informative only.
For guaranteed dimensions consult factory.

WB21

Analog or digital output

Dimensions WB21-10000



Dimensions in mm [inch]

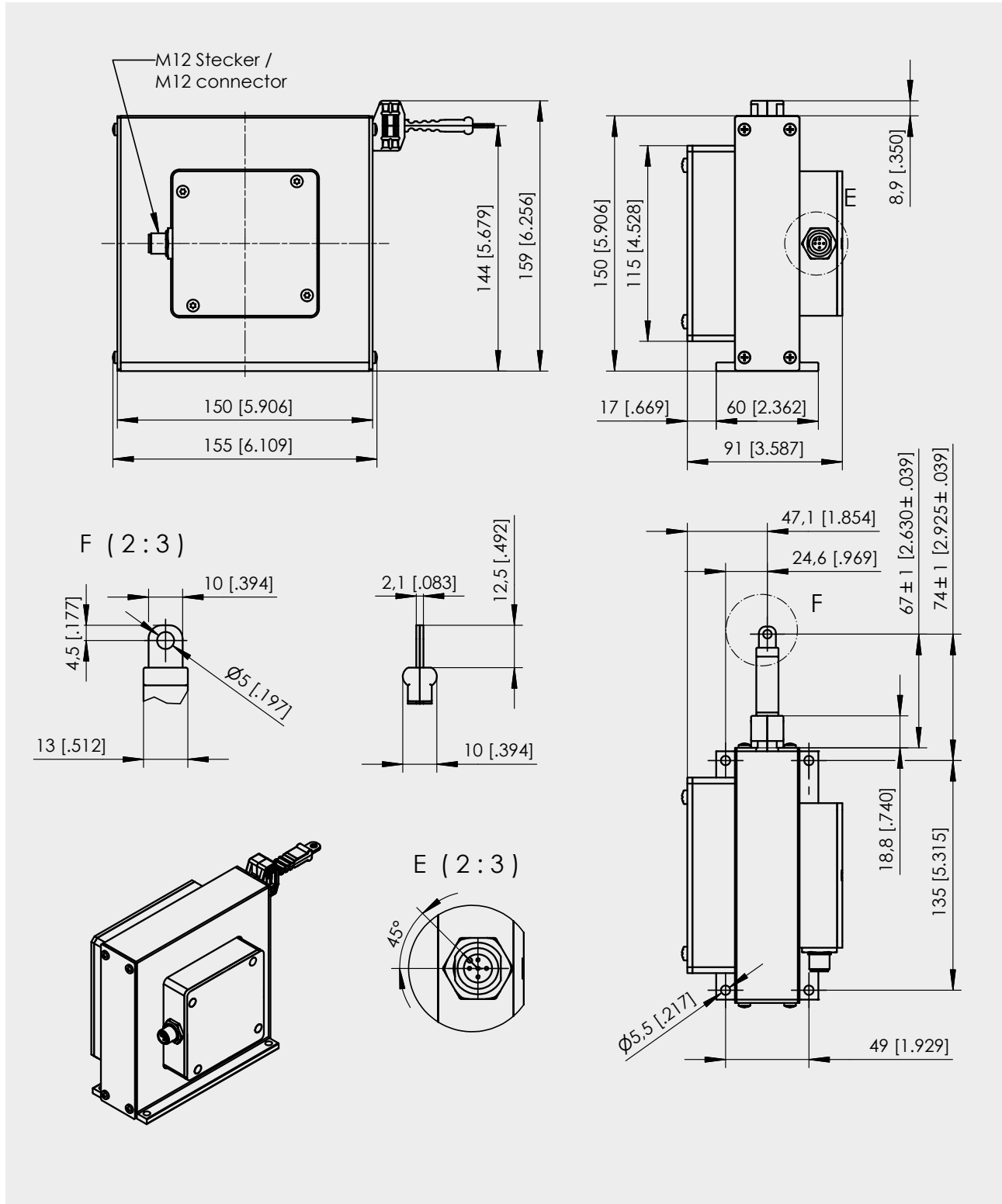
Dimensions informative only.

For guaranteed dimensions consult factory.

WB21

Analog or digital output

Dimensions WB21-12500



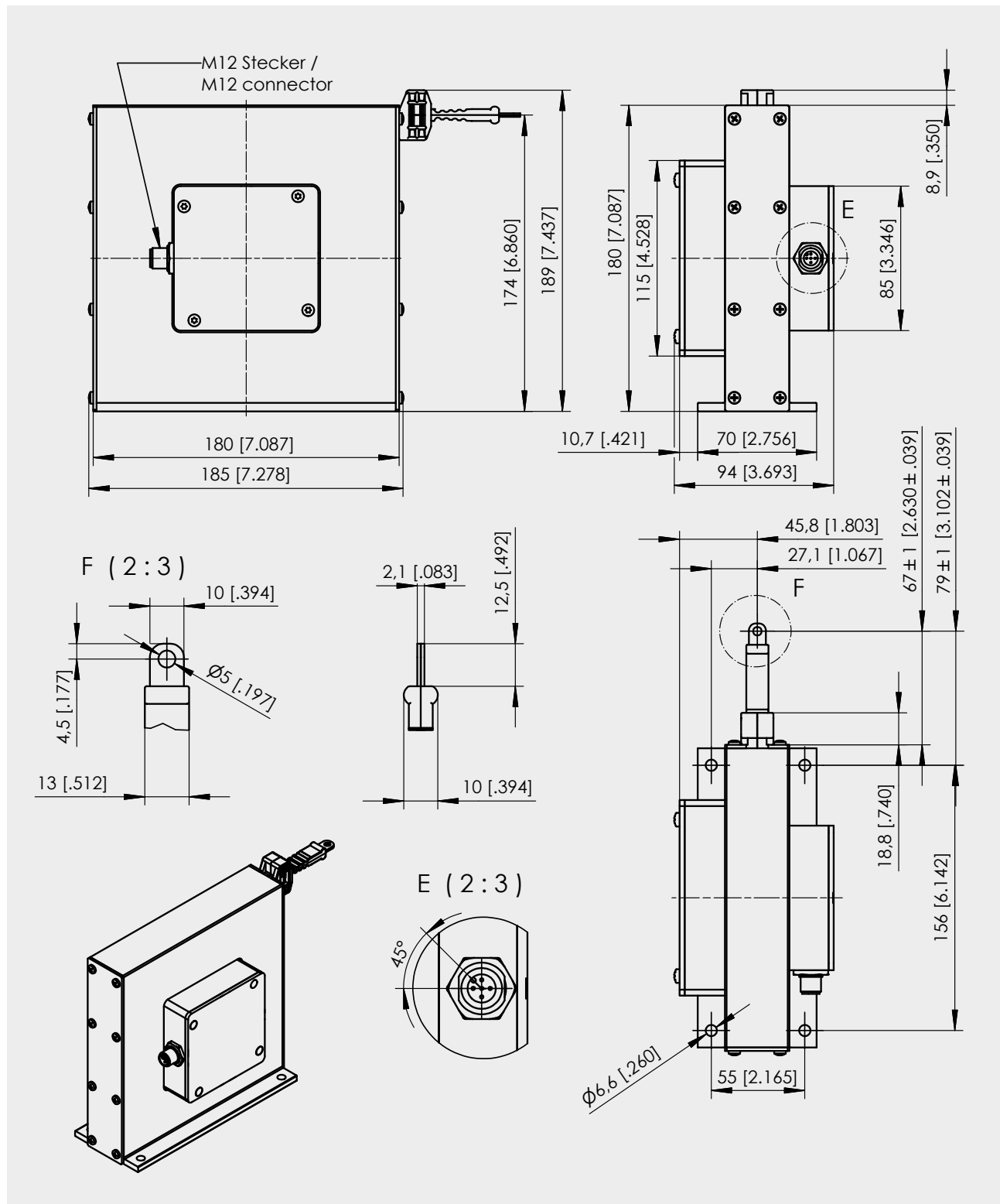
Dimensions in mm [inch]

Dimensions informative only.
For guaranteed dimensions consult factory.

WB21

Analog or digital output

Dimensions WB21-15000



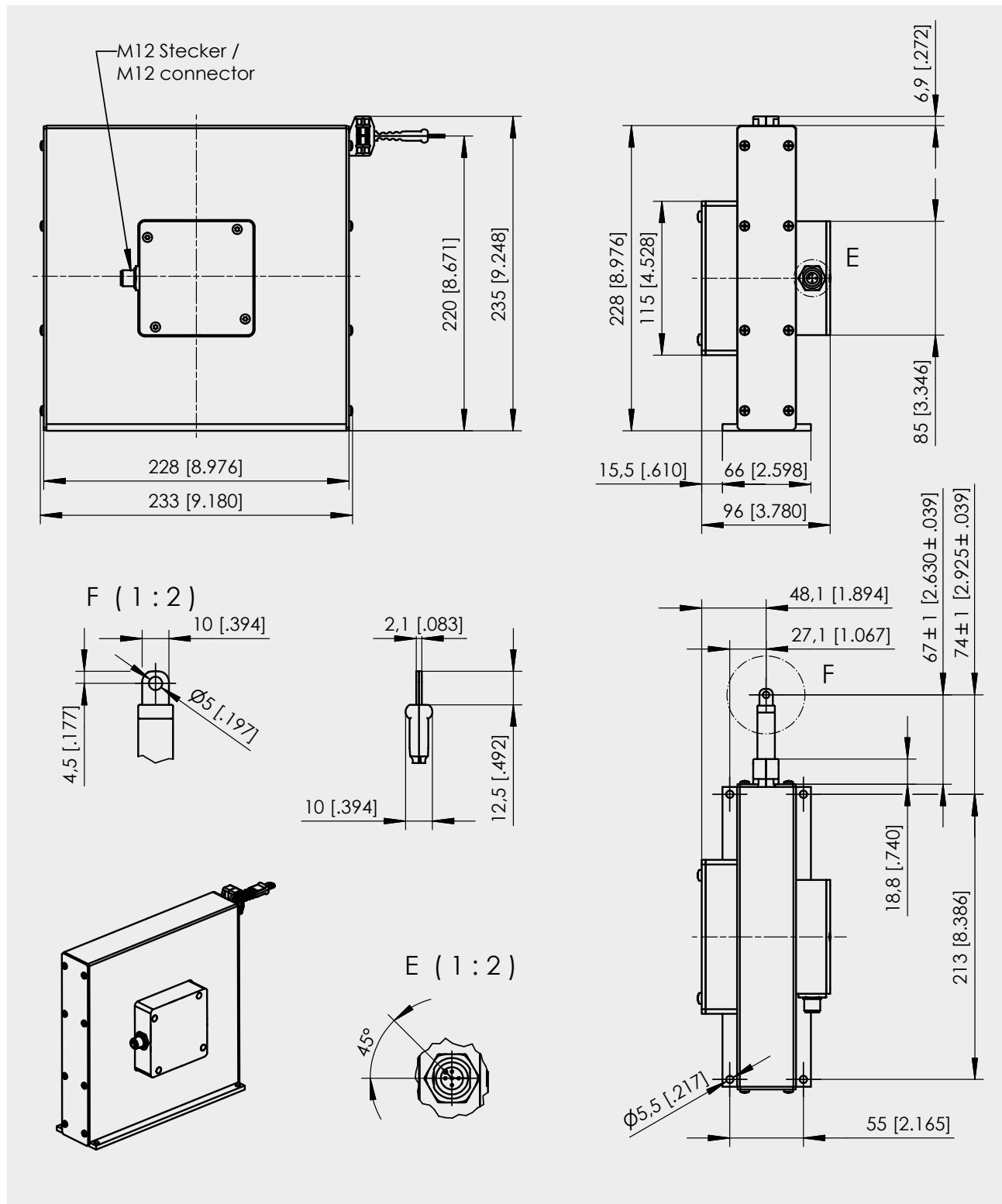
Dimensions in mm [inch]

Dimensions informative only.
For guaranteed dimensions consult factory.

WB21

Analog or digital output

Dimensions WB21-17500, WB21-20000



Dimensions in mm [inch]

Dimensions informative only.
For guaranteed dimensions consult factory.

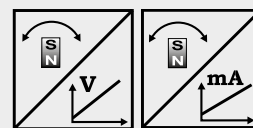
WB12

Analog output



Position sensor with measuring tape

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



Specifications

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		Aluminium, stainless steel and plastic; 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
Temperature range		-40 ... +85 °C

Order code WB12

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

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 62

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

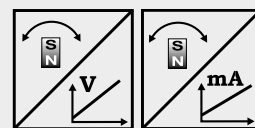
WB12

Analog output, programmable



Position sensor with measuring tape

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



Specifications

Output	U2/PMU U8/PMU I1/PMU	Voltage 0.5 ... 10 V, programmable Voltage 0.5 ... 4.5 V, programmable 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 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
Temperature range		-40 ... +85 °C

Order code WB12

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

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 63

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

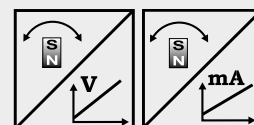
WB12

Analog output, redundant



Position sensor with measuring tape

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



Specifications

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; 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
Temperature range		-40 ... +85 °C

Order code WB12

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

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 64

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

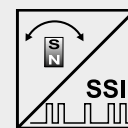
WB12

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



Specifications

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 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
Temperature range	-40 ... +85 °C

Order code WB12

Model name	WB12 - [] - [] - [] - [] - [] - BAB1
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 64

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

WB12

Digital output CANopen



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



Specifications

Outputs	CANopen or CAN SAE J1939
Resolution	setting via CAN Bus
Linearity	up to $\pm 0,05$ % f.s.
Sensing device	Magnetic absolute encoder
Material	Aluminium, stainless steel and plastic; 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
Temperature range	-40 ... +85 °C

Order code WB12

Model name	WB12	-		-		-		-		-	BAB1
Measurement range (in mm)											
2000 / 4000											
Output											
MCANOP = CANopen											
MCANJ1939 = CAN SAE J1939											
Linearity											
L10 = 0.10% (standard)											
L05 = 0.05% (optional)											
Connection											
M12/CAN = Connector M12, 5 pin											
Dust wiper											
BAB1											

Order code connector cable see page 65

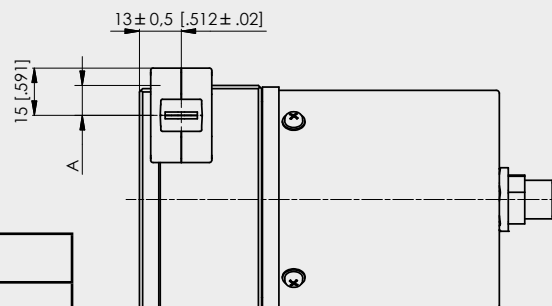
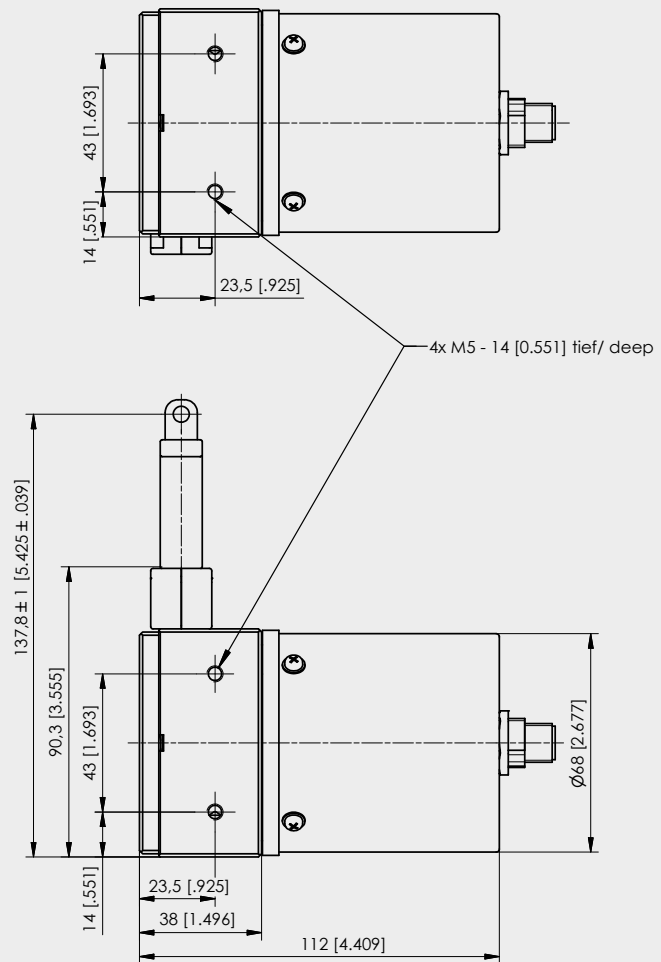
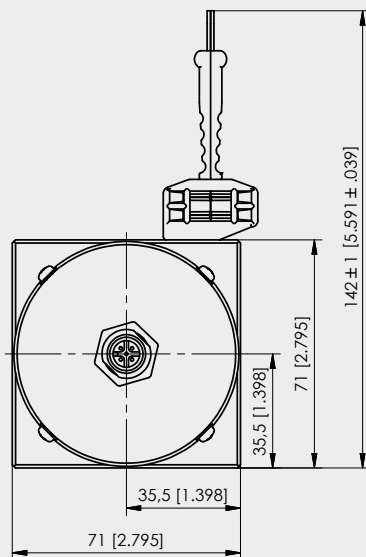
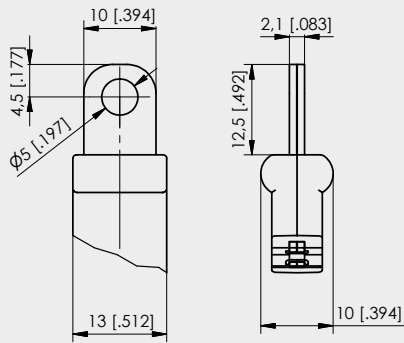
Order example: WB12 - 2000 - MCANOP - L10 - M12/CAN - BAB1

WB12

Analog or digital output

Outline drawing WB12

up to 2000 mm



Measurement range	Dimension A
250, 375, 500, 750, 1000	25.5
1250, 1500, 2000	13.8

Dimensions in mm [inch]

Dimensions informative only.

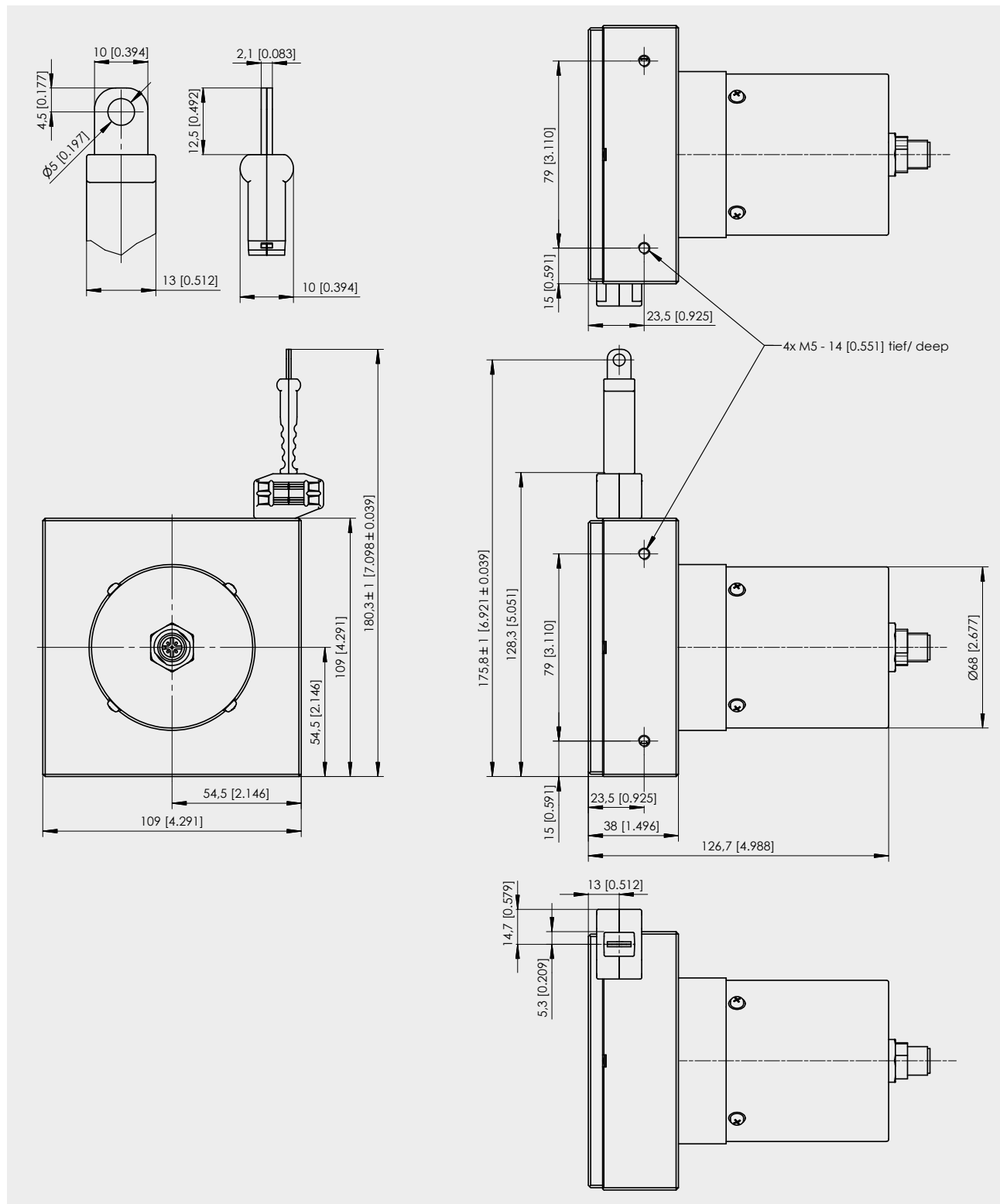
For guaranteed dimensions consult factory.

WB12

Analog or digital output

Outline drawing WB12

2500 ... 4000 mm



Dimensions in mm [inch]

Dimensions informative only.

For guaranteed dimensions consult factory.

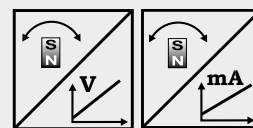
WB100M

Analog output



Position sensor with measuring tape

- Measurement range up to 10000 mm
- Protection class IP68/IP69K
- Stainless steel measuring tape
- Analog output



Specifications

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. (standard); ±0.05 % (optional)
Sensing device		Magnetic absolute encoder
Material		Stainless steel and plastic; Tape: stainless steel, 10 mm wide, 0.08 mm thick
Protection class		IP68/IP69K
Connection		cable output, standard length 2 m
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
Temperature range		-20 ... +85 °C

Order code WB100M

WB100M - [] - [] - [] - [] - [] - BAB1

Model name

Measurement range (in mm)

2000 / 3500 / 7500 / 10000

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)

Connection

KAB2M = cable output, standard length 2 m

Dust wiper

BAB1

Order example: WB100M - 2000 - I1 - A - L10 - KAB2M - BAB1

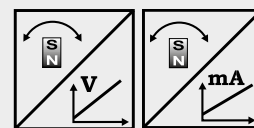
WB100M

Analog output, programmable



Position sensor with measuring tape

- Measurement range up to 10000 mm
- Protection class IP68/IP69K
- Stainless steel measuring tape
- Analog output, programmable



Specifications

Outputs	U2/PMU U8/PMU I1/PMU	Voltage 0.5 ... 10 V, programmable Voltage 0.5 ... 4.5 V, programmable Current 4 ... 20 mA, 3 wire, programmable
Resolution		<0.05 mm
Linearity		±0.10 % f. s. (standard); ±0.05 % (optional)
Sensing device		Magnetic absolute encoder
Material		Stainless steel and plastic; Tape: stainless steel, 10 mm wide, 0.08 mm thick
Protection class		IP68/IP69K
Connection		Cable output, standard length 2 m
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
Temperature range		-20 ... +85 °C

Order code WB100M

WB100M - [] - [] - [] - [] - [] - [] - BAB1

Model name

Measurement range (in mm)

2000 / 3500 / 7500 / 10000

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)

Connection

KAB2M = cable output, standard length 2 m

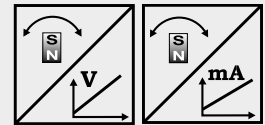
Dust wiper

BAB1

Order example: WB100M - 2000 - U2/PMU - A - L10 - KAB2M - BAB1

WB100M**Analog output, redundant****Position sensor with measuring tape**

- Measurement range up to 10000 mm
- Protection class IP68/IP69K
- Stainless steel measuring tape
- Analog output, redundant

**Specifications**

Outputs	U2R U8R I1R	Voltage 0.5 ... 10 V, redundant Voltage 0.5 ... 4.5 V, redundant Current 4 ... 20 mA, 3 wire, redundant
Resolution		<0.05 mm
Linearity		±0.10 % f. s. (standard); ±0.05 % (optional)
Sensing device		Magnetic absolute encoder
Material		Stainless steel and plastic; Tape: stainless steel, 10 mm wide, 0.08 mm thick
Protection class		IP68/IP69K
Connection		Cable output, standard length 2 m
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
Temperature range		-20 ... +85 °C

Order code WB100M

WB100M - [] - [] - [] - [] - [] - BAB1

Model name**Measurement range (in mm)**

2000 / 3500 / 7500 / 10000

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)

Connection

KAB2M = cable output, standard length 2 m

Dust wiper

BAB1

Order example: WB100M - 2000 - I1R - A/D - L10 - KAB2M - BAB1

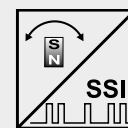
WB100M

Digital output SSI



Position sensor with measuring tape

- Measurement range up to 10000 mm
- Protection class IP68/IP69K
- Stainless steel measuring tape
- Digital output SSI



Specifications

Output	Synchronous serial interface (SSI)
Resolution	0.05 mm
Linearity	±0.10 % f. s. (standard); ±0.05 % (optional)
Sensing device	Magnetic absolute encoder
Material	Stainless steel and plastic; Tape: stainless steel, 10 mm wide, 0.08 mm thick
Protection class	IP68/IP69K
Connection	Cable output, standard length 2 m
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
Temperature range	-20 ... +85 °C

Order code WB100M

WB100M - [] - [] - [] - [] - [] - BAB1

Model name

Measurement range (in mm)

2000 / 3500 / 7500 / 10000

Resolution (in µm)

50 (other resolutions on demand)

Output

MSSI = SSI synchronous serial interface

Linearity

L10 = ±0.10% (standard)

L05 = ±0.05% (optional)

Connection

KAB2M = cable output, standard length 2 m

Dust wiper

BAB1

Order example: WB100M - 2000 - 50 - MSSI - L10 - KAB2M - BAB1

WB100M

Digital output CANopen



Position sensor with measuring tape

- Measurement range up to 10000 mm
- Protection class IP68/IP69K
- Stainless steel measuring tape
- Digital output CANopen or CAN SAE J1939
- Optional redundant CAN Bus (on demand)



Specifications

Output	CANopen or CAN SAE J1939
Resolution	setting via CAN Bus
Linearity	±0.10 % f. s. (standard); ±0.05 % (optional)
Sensing device	Magnetic absolute encoder
Material	Stainless steel and plastic; Tape: stainless steel, 10 mm wide, 0.08 mm thick
Protection class	IP68/IP69K
Connection	Cable output, standard length 2 m
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
Temperature range	-20 ... +85 °C

Bestellcode WB100M

WB100M - [] - [] - [] - [] - BAB1

Model name

Measurement range (in mm)

2000 / 3500 / 7500 / 10000

Output

MCANOP = CANopen

MCANJ1939 = CAN SAE J1939

Linearity

L10 = 0.10% (standard)

L05 = 0.05% (optional)

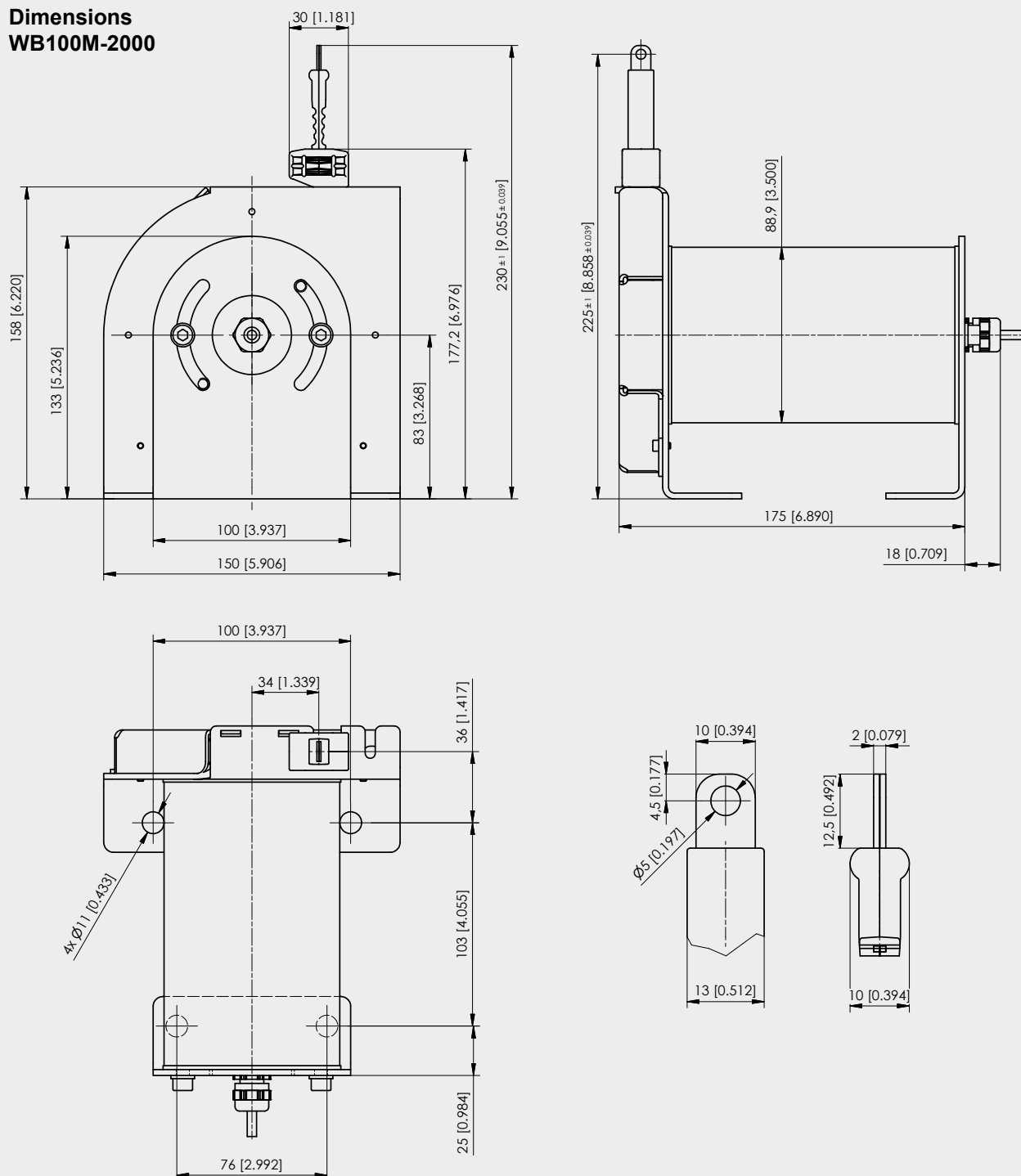
Connection

KAB2M = cable output, standard length 2 m

Dust wiper

BAB1

Order example: WB100M - 2000 - MCANOP - L10 - KAB2M - BAB1

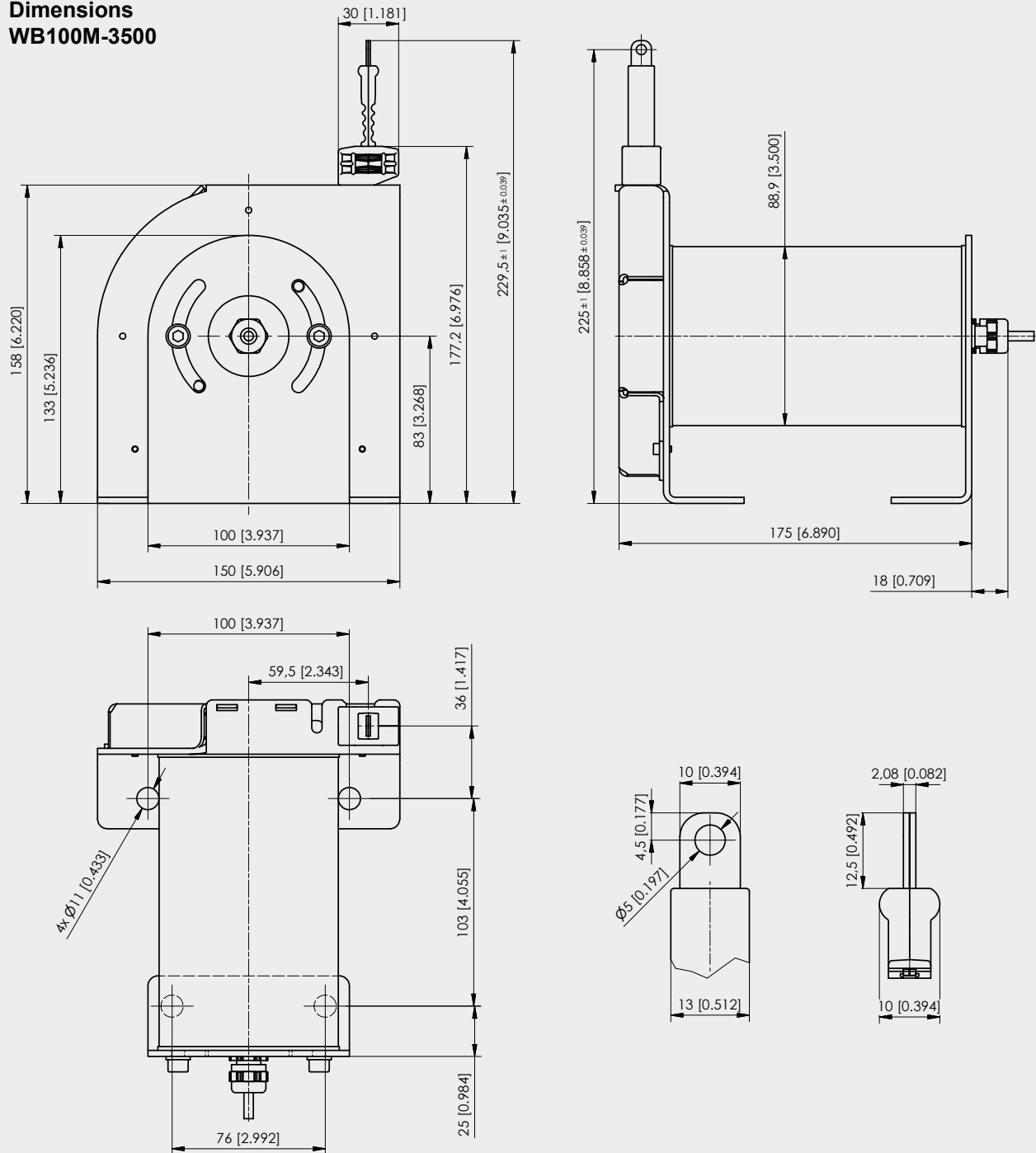
WB100M**Analog or digital output****Dimensions
WB100M-2000**

Dimensions in mm [inch]

Dimensions informative only.

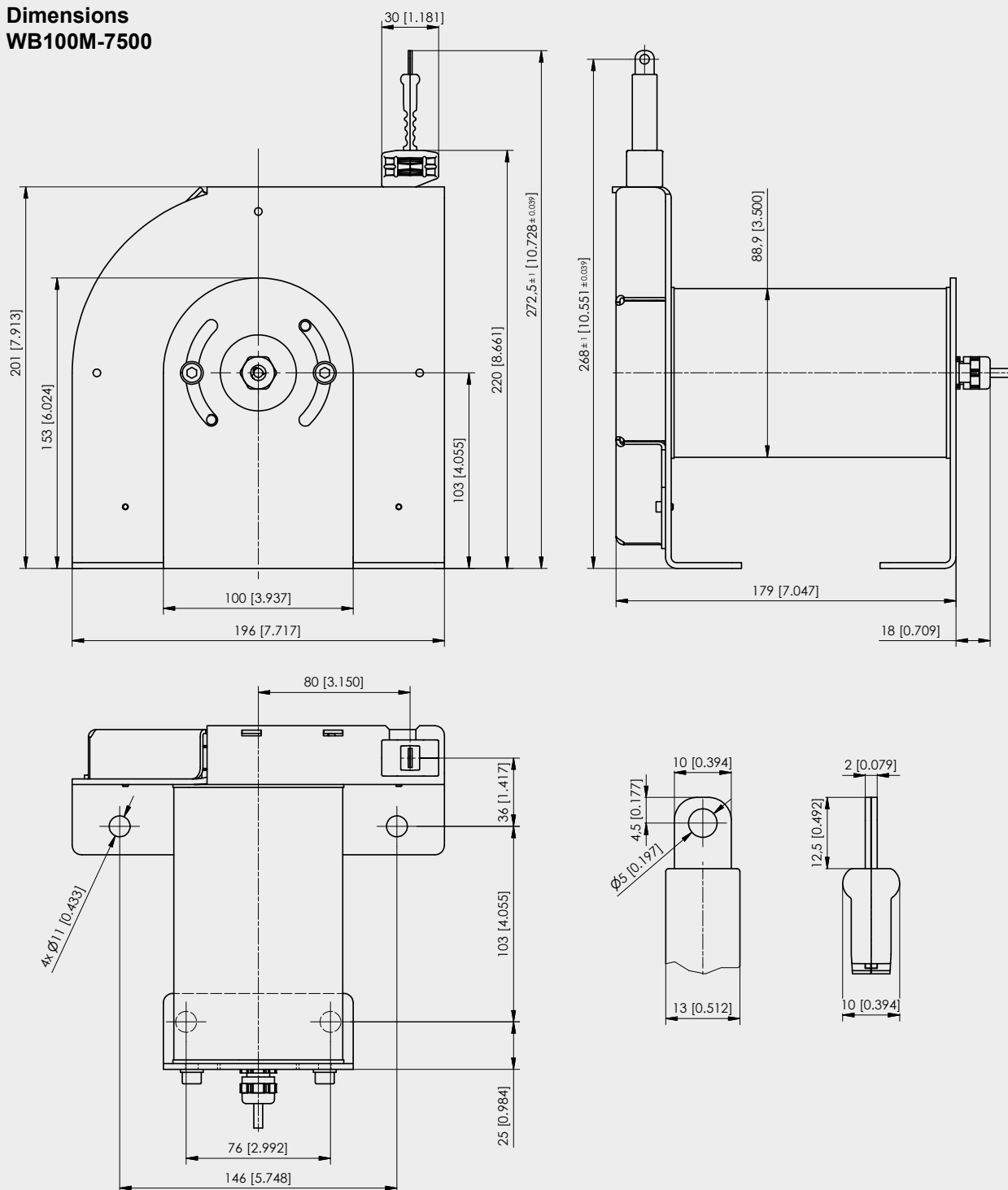
For guaranteed dimensions consult factory.

Dimensions WB100M-3500



Dimensions in mm [inch]

Dimensions informative only.
For guaranteed dimensions consult factory.

WB100M**Analog or digital output****Dimensions
WB100M-7500**

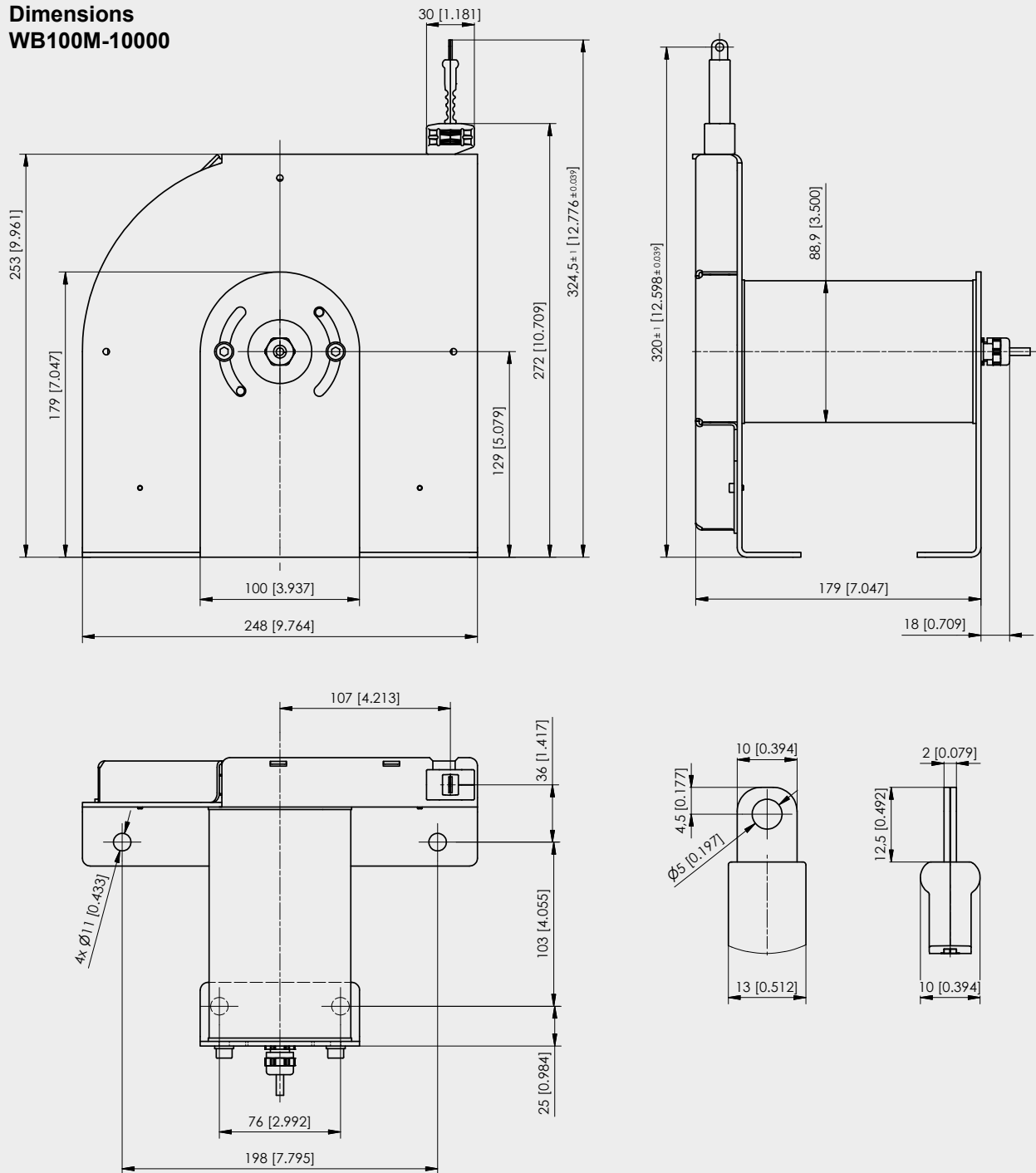
Dimensions in mm [inch]

Dimensions informative only.

For guaranteed dimensions consult factory.

Dimensions

WB100M-10000



Dimensions in mm [inch]

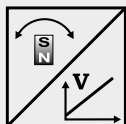
Dimensions informative only.
For guaranteed dimensions consult factory.

U2, U8 and I1

Analog output

U2

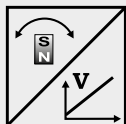
Voltage output
0.5 ... 10 V



Excitation voltage	10 ... 36 V DC
Excitation current	typ. 20 mA at 24 V DC typ. 38 mA at 12 V DC 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	See specification of the respective sensor
EMC	EN 61326-1:2013

U8

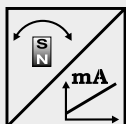
Voltage output
0.5 ... 4.5 V



Excitation voltage	10 ... 36 V DC
Excitation current	typ. 17 mA at 24 V DC typ. 32 mA at 12 V DC 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	See specification of the respective sensor
EMC	EN 61326-1:2013

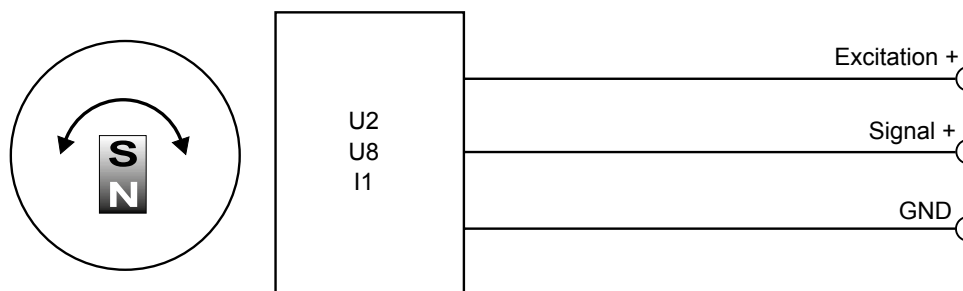
I1

Current output
4 ... 20 mA, 3 wire



Excitation voltage	10 ... 36 V DC
Excitation current	typ. 36 mA at 24 V DC typ. 70 mA at 12 V DC max. 100 mA
Load R_L	500 Ω 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	See specification of the respective sensor
EMC	EN 61326-1:2013

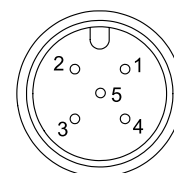
Output signals



Signal wiring/ connection

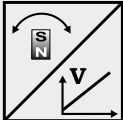
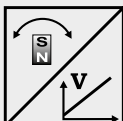
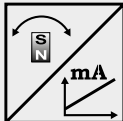
Output signal	Connector pin	Cable wire color
Excitation +	1	brown
Signal	2	white
GND	3	blue
Do not connect!	4	black
Do not connect!	5	(grey)

View to sensor
connector

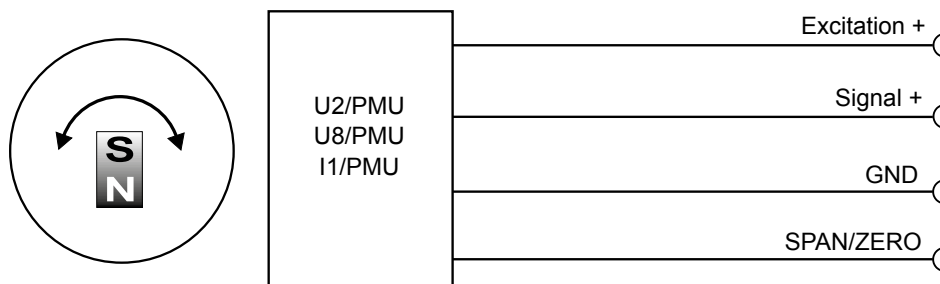


U2/PMU, U8/PMU and I1/PMU

Analog output, programmable

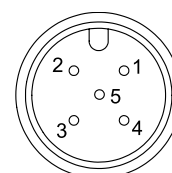
U2/PMU Voltage output 0.5 ... 10 V 	Excitation voltage	10 ... 36 V DC
	Excitation current	typ. 20 mA at 24 V DC, typ. 38 mA at 12 V DC max. 60 mA
	Output voltage	0.5 ... 10 V DC
	Output current	2 mA max.
	Measuring rate	1 kHz standard
	Stability (temperature)	$\pm 50 \times 10^{-6}/^{\circ}\text{C}$ f.s. (typ.)
	Protection	Reverse polarity, short circuit
U8/PMU Voltage output 0.5 ... 4.5 V 	Excitation voltage	10 ... 36 V DC
	Excitation current	typ. 17 mA at 24 V DC, typ. 32 mA at 12 V DC 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
I1/PMU Current output 4 ... 20 mA, 3 wire 	Excitation voltage	10 ... 36 V DC
	Excitation current	typ. 36 mA at 24 V DC, typ. 70 mA at 12 V DC max. 100 mA
	Load R_L	500 Ω 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		See specification of the respective sensor
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

View to sensor
connector



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.

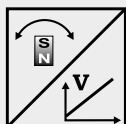
To reset the sensor to factory default signal ZERO/END must be connected to ground while powering up the sensor for 2 ... 3 seconds.

U2R, U8R and I1R

Analog output, redundant

U2R

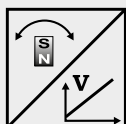
Voltage output
0.5 ... 10 V



Excitation voltage	10 ... 36 V DC
Excitation current	typ. 22 mA at 24 V DC typ. 43mA at 12 V DC 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	See specification of the respective sensor
EMC	EN 61326-1:2013

U8R

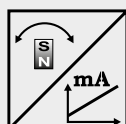
Voltage output
0.5 ... 4.5 V



Excitation voltage	10 ... 36 V DC
Excitation current	typ. 20mA at 24 V DC typ. 38mA at 12 V DC 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	See specification of the respective sensor
EMC	EN 61326-1:2013

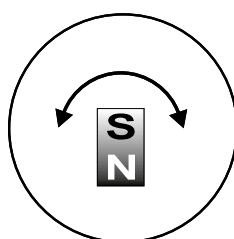
I1R

Current output
4 ... 20 mA, 3 wire



Excitation voltage	10 ... 36 V DC
Excitation current	typ. 39 mA at 24 V DC typ. 76 mA at 12 V DC max. 100 mA per channel
Load R_L	500 Ω 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	See specification of the respective sensor
EMC	EN 61326-1:2013

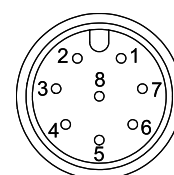
Output signals



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

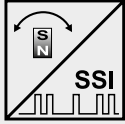


MSSI

Digital output SSI

MSSI

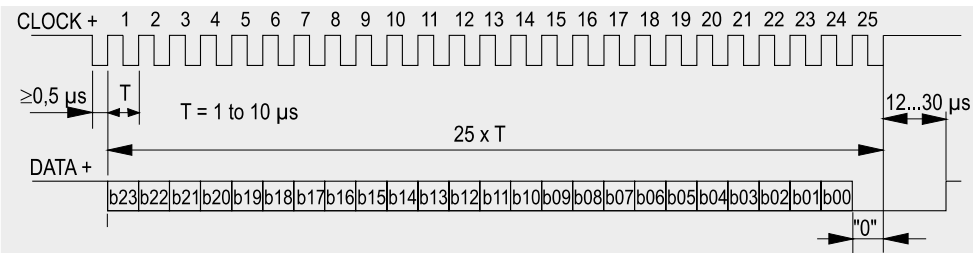
Synchronous serial SSI



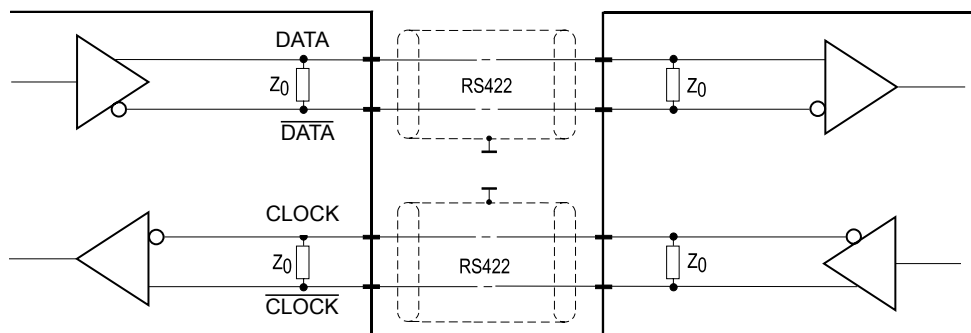
Interface	EIA RS-422
Excitation voltage	8 ... 36 V DC
Excitation current	typ. 19 mA at 24 V DC typ. 35 mA at 12 V DC max. 80 mA
Clock frequency	100 kHz ... 500 kHz
Code	Gray-Code, continuous progression
Delay between pulse trains	20 µs min.
Stability (temperature)	$\pm 50 \times 10^{-6} / ^\circ\text{C}$ f.s. (typ.)
Operating temperature	See specification of the respective sensor
Protection	Short circuit
EMC	EN 61326-1:2013

Data format

(train of 26 pulses)



Recommended processing circuit



Transmission rate

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

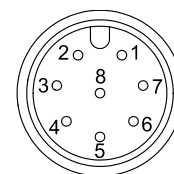
Signal wiring/ connection

Signal	Connector Pin	Cable wire color
Excitation +	1	white
Excitation GND	2	brown
CLOCK	3	green
CLOCK	4	yellow
DATA	5	grey
DATA	6	pink
—	7	blu
—	8	red

Note:

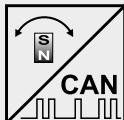
Extension of the cable length will reduce the maximum transmission rate.

View to sensor connector



MCANOP Output CANopen

MCANOP CANopen



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

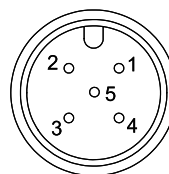
Specifications

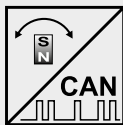
Excitation voltage	8 ... 36 V DC
Excitation current	typ. 20 mA at 24 V DC typ. 40 mA at 12 V DC max. 80 mA
Measuring rate	1 kHz (asynchronous)
Stability (temperature)	$\pm 50 \times 10^{-6} / ^\circ\text{C f.s.}$
Repeatability	1 LSB
Operating temperature	See specification of the respective sensor
Protection	Reverse polarity, short circuit
Dielectric strength	1 kV (V AC, 50 Hz, 1 min.)
EMC	EN 61326-1:2013

Signal wiring/ connection

Signal name	Connector pin no.
Shield	1
Excitation +	2
GND	3
CAN-H	4
CAN-L	5

View to sensor
connector



MCANJ1939
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

NAME Fields

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

**Parameter Group
Numbers (PGN)**

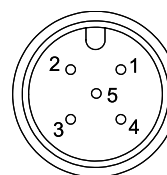
Configuration data	PGN EF00h	Proprietary-A (PDU1 peer-to-peer)
Process data	PGN FFnnh	Proprietary-B (PDU2 broadcast); nn Group Extension (PS) configurable

Specifications

Excitation voltage	8 ... 36 V DC
Excitation current	typ. 20 mA at 24 V, DC typ. 40 mA at 12 V DC max. 80 mA
Measuring rate	1 kHz (asynchronous)
Stability (temperature)	$\pm 50 \times 10^{-6}$ / °C f.s.
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 /
connection**

Signal name	Connector pin no.
Shield	1
Excitation +	2
GND	3
CAN-H	4
CAN-L	5

View to sensor
connector


POSITAPE®

Accessories

Connectors



Connector cable

M12, 4 pin

Suitable for 5-pin sensor connectors

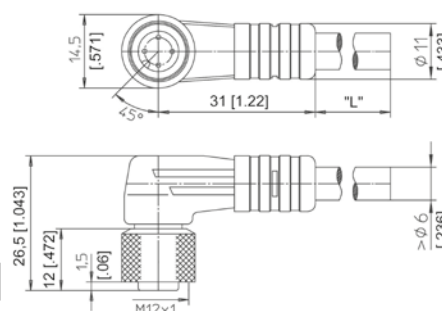
The 4-lead shielded cable is supplied with a mating 4-pin 90° M12 connector at one end and 4 wires at the other end. Available lengths are 2 m, 5 m and 10 m. Wire: cross sectional area 0.34 mm².

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

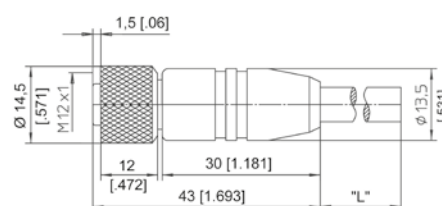
The 4-lead shielded cable is supplied with a mating 4-pin M12 connector at one end and 4 wires at the other end. Available lengths are 2 m, 5 m and 10 m. Wire: cross sectional area 0.34 mm².

Order code:

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

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

Length in m



Signal wiring

M12, 4 pin

Connector pin / cable color

1	2	3	4
brown	white	blue	black

POSITAPE®

Accessories

Connectors



Connector cable

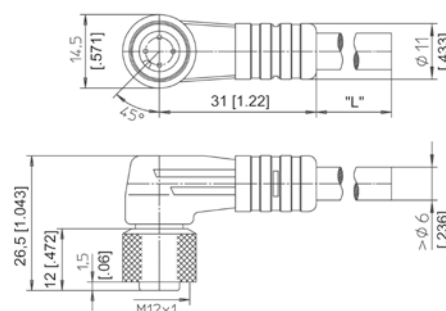
M12, 5 pin

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 mm².
Order code:

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

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

Length in m



Connector cable

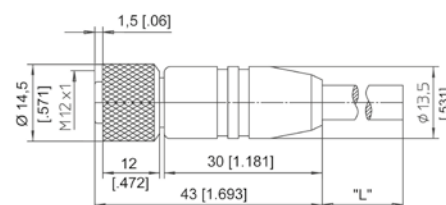
M12, 5 pin

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 mm².
Order code:

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

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

Length in m



Signal wiring

M12, 5 pin

Connector pin / cable color

1	2	3	4	5
brown	white	blue	black	grey

POSITAPE®

Accessories

Connectors

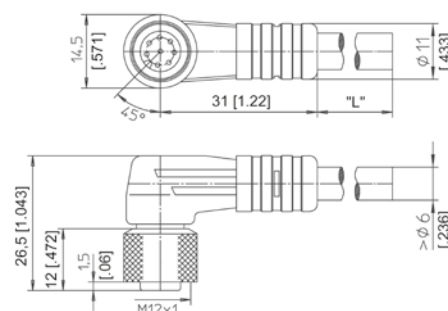


Connector cable

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 mm².
Order code:

KAB - XM - M12/8F/W - LITZE
IP69K: **KAB - XM - M12/8F/W/69K - LITZE**
Length in m ↑

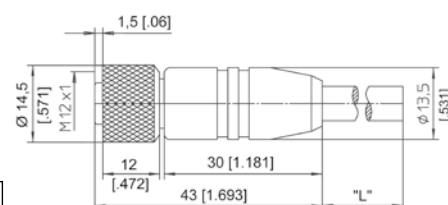


Connector cable

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 mm².
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

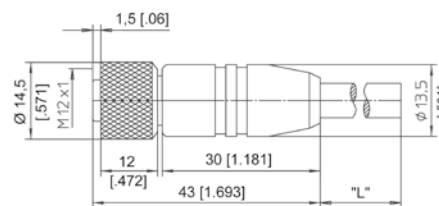
Accessories Connectors



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

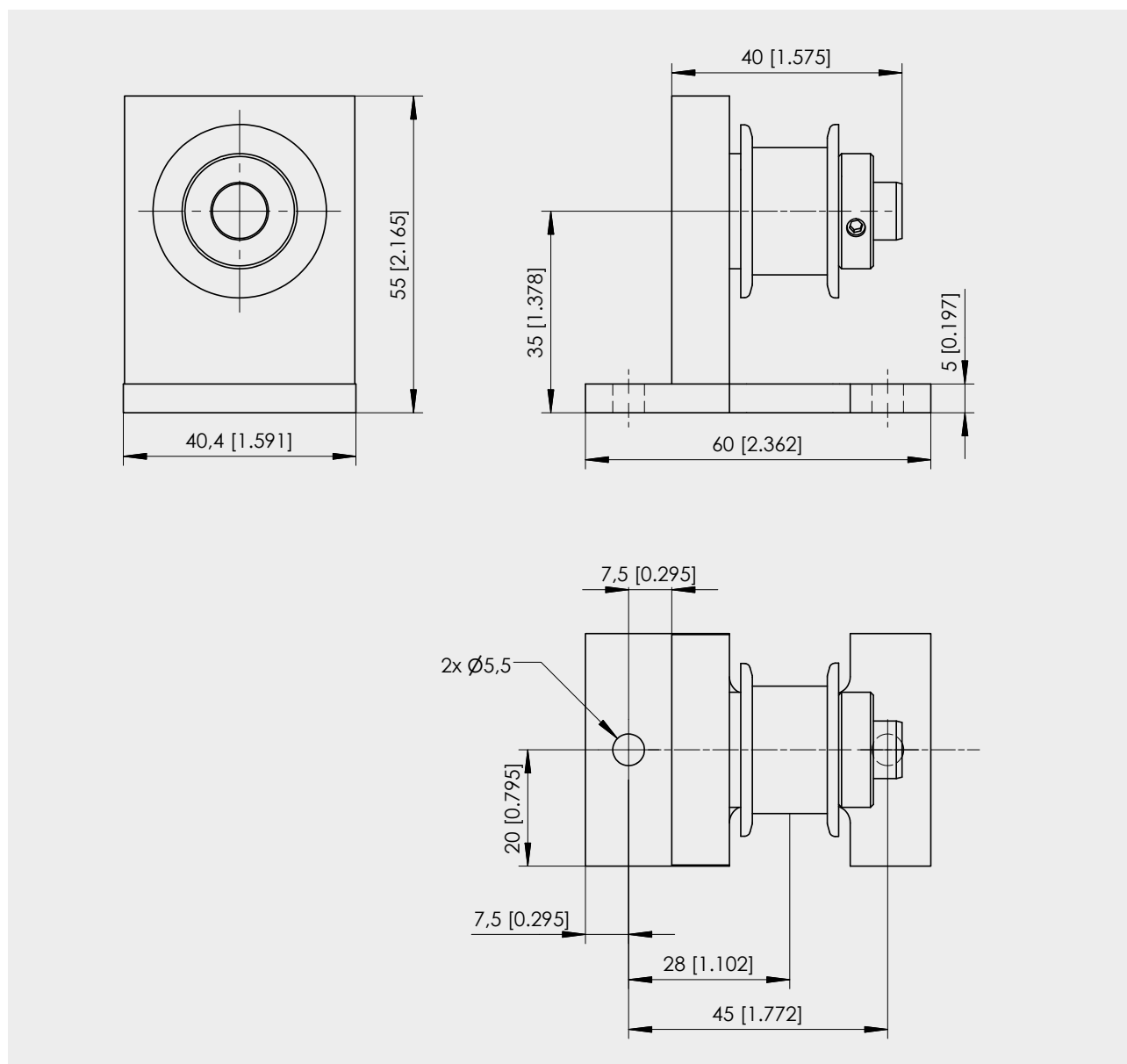
Order code:

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



Tape pulley WBR1

Order code: **WBR1**



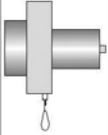
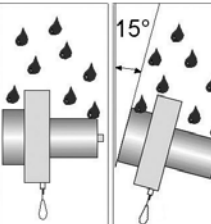
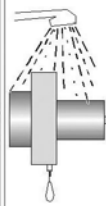
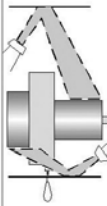
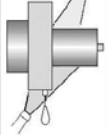
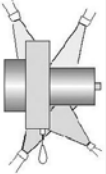
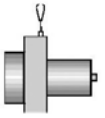
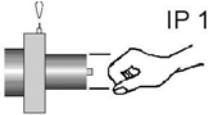
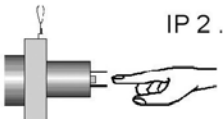
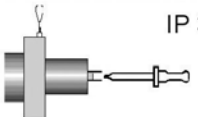
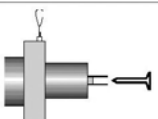
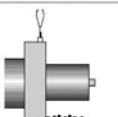
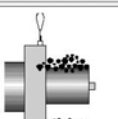
Dimensions in mm [inch]

Dimensions informative only.

For guaranteed dimensions consult factory.

Protection Classes According to EN 60529



2nd char. numeral: Protection against ingress of water 1st char.numeral: Protection against solid foreign objects									
Protection against ...	Non protected	Falling water drops vertical / 15°	Spraying water	Splashing water	Water jets	Powerful water jets	Temporary immersion	Continuous Immersion	
EN 60529	IP .. 0	IP .. 1	IP .. 2	IP .. 3	IP .. 4	IP .. 5	IP .. 6	IP .. 7	IP .. 8
 IP 0 .. Non protected	IP 00								
 IP 1 .. Solid foreign objects diameter ≥ 50 mm	IP 10	IP 11	IP 12						
 IP 2 .. Solid foreign objects diameter ≥ 12,5 mm	IP 20	IP 21	IP 22	IP 23					
 IP 3 .. Solid foreign objects diameter ≥ 2,5 mm	IP 30	IP 31	IP 32	IP 33	IP 34				
 IP 4 .. Solid foreign objects diameter ≥ 1 mm	IP 40	IP 41	IP 42	IP 43	IP 44				
 IP 5 .. Dust-protected	IP 50		IP 52	IP 53	IP 54	IP 55	IP 56		
 IP 6 .. Dust-tight	IP 60				IP 64	IP 65	IP 66	IP 67	IP 68

* Depth and duration of immersion must be specified!

IP69K - Water at high pressure / steam jet cleaning

Note: IP67 / IP69K does not include IP68



perfect in sensors.

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