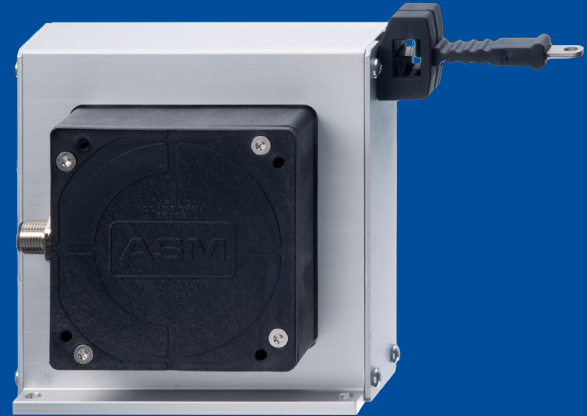




Combined displacement and inclination sensor with measurement ranges up to 20,000 mm / $\pm 180^\circ$



- Protection class up to IP67/IP69
- Robust stainless steel measurement tape
- Multiple deflections possible
- With magnetic absolute encoder
- With inclination sensor in MEMS technology
- Redundant version available

Product version



Digital output CANopen



WBT21 - Combined displacement and inclination sensor Version with digital output CANopen

Specifications

		Order options	
Measurement range (position)	8000 / 10000 / 12500 / 15000 / 17500 / 20000 mm	1	8000 / 10000 / 12500 / 15000 / 17500 / 20000
Measurement range (inclination)	±180° with 1 axis		
Inclination axis	Inclination in X axis ≤±180°		
Resolution	setting via CAN-Bus		
Output	Digital output CANopen Digital output CANopen, redundant	2	MCANOP MCANOPR
Linearity of position measurement	±0.10% f.s. (standard) ±0.05% f.s. (optional)	3	L10 L05
Linearity of inclination measurement	0.05° (±30°) 0.1° (±60°) 0.2° (±180°)		
Sensing device (position measurement)	Magnetic absolute encoder		
Sensing device (inclination measurement)	MEMS device		
Material	Aluminum, PBT Tape: stainless steel, 10 mm wide, 0,08 mm thick		
Protection class	IP67/IP69		
Connection	Connector M12, 5 pin	4	M12/CAN
Dust wiper		5	BAB1
Shock	DIN EN 60068-2-27:1993, 100 g/11 ms, 100 shocks		
Vibration	DIN EN 60068-2-6:2008, 20 g 10 Hz-2 kHz, 10 cycles		
Temperature range	-40 ... +85°C		
Weight	WBT21-8000: approx. 1.1 kg WBT21-10000: approx. 1.4 kg WBT21-12500: approx. 1.7 kg WBT21-15000: approx. 3.0 kg WBT21-17500: approx. 4.0 kg WBT21-20000: approx. 4.0 kg		
EMC	DIN EN 61326-1:2013		

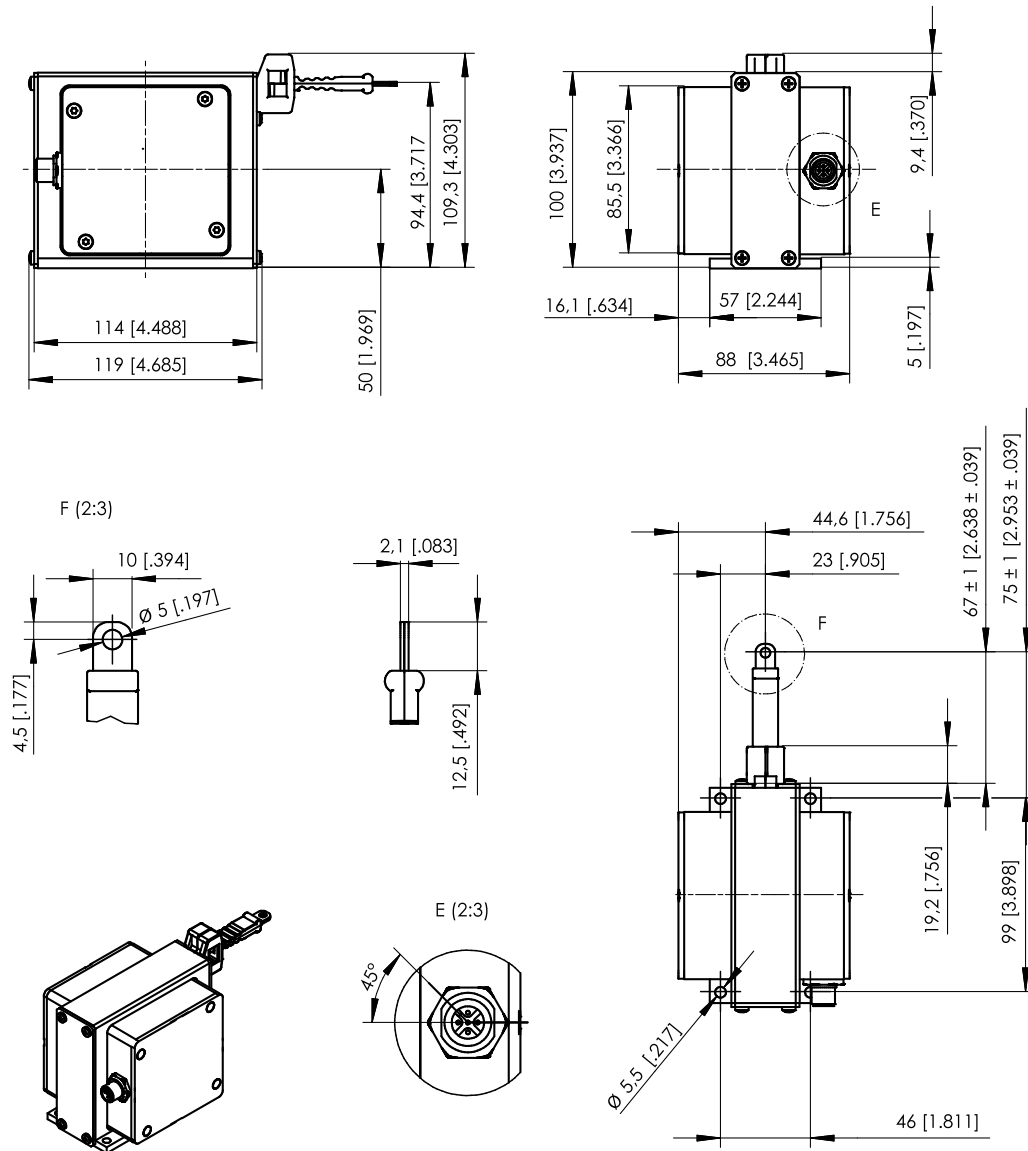
Order code

WBT21 – **1** – **2** – **3** – **4** – **5**

Order example: WBT21 – 20000 – MCANOP – L10 – M12/CAN – BAB1

Dimensions

WBT21-8000



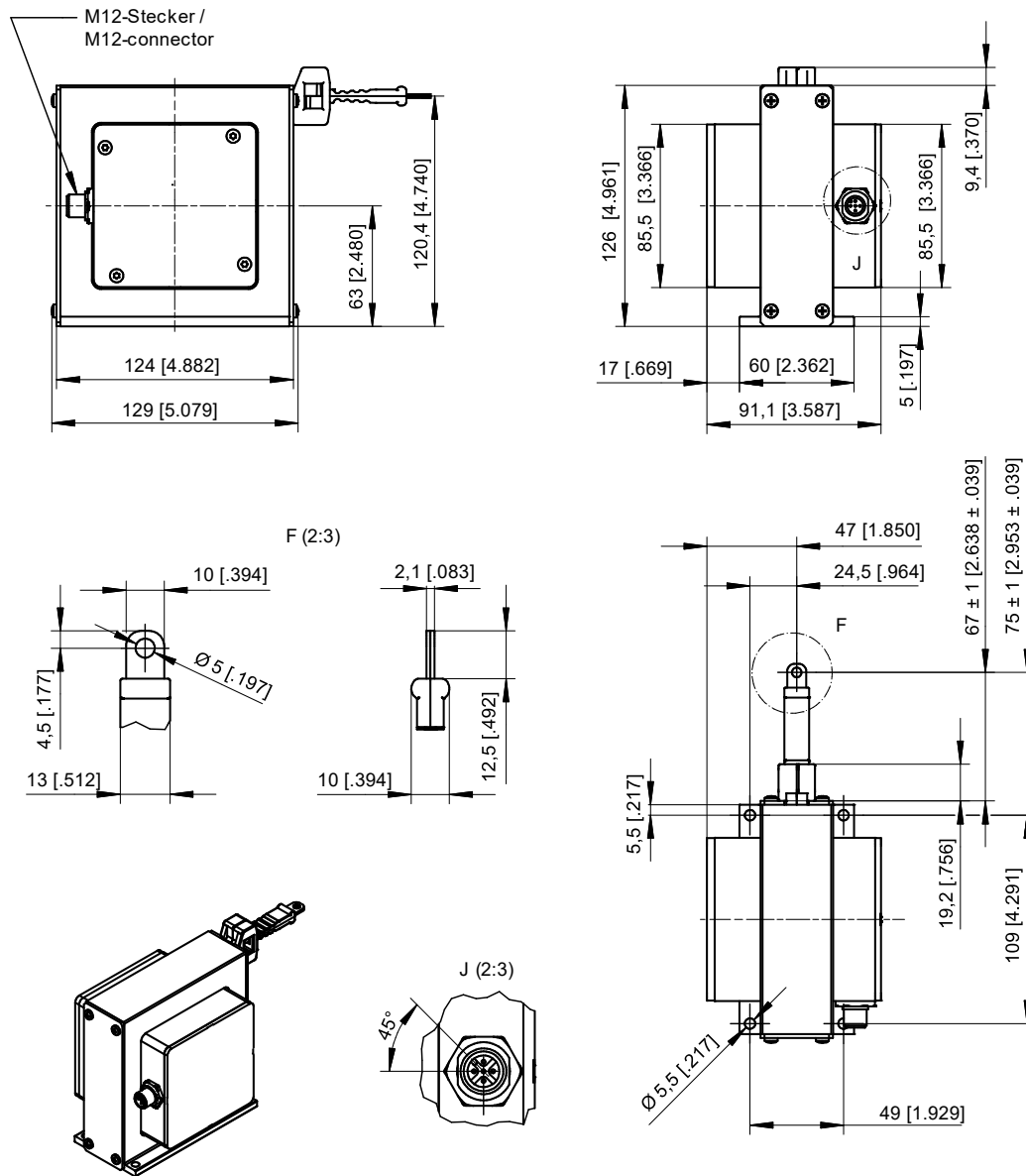
A – Connector M12

Dimensions in mm [inch].

Dimensions informative only.

For guaranteed dimensions consult factory.

WBT21-10000



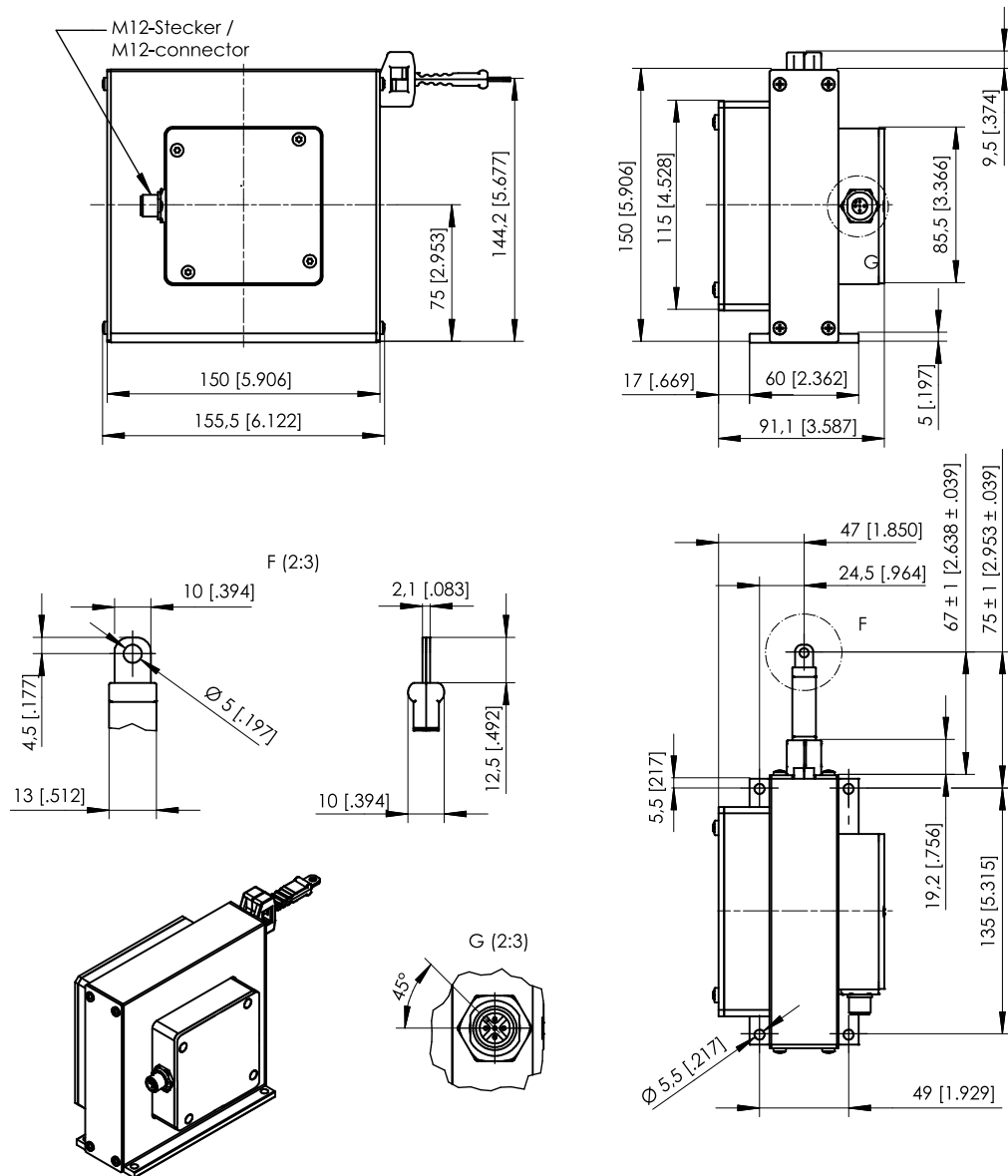
A – Connector M12

Dimensions in mm [inch].

Dimensions informative only.

For guaranteed dimensions consult factory.

WBT21-12500



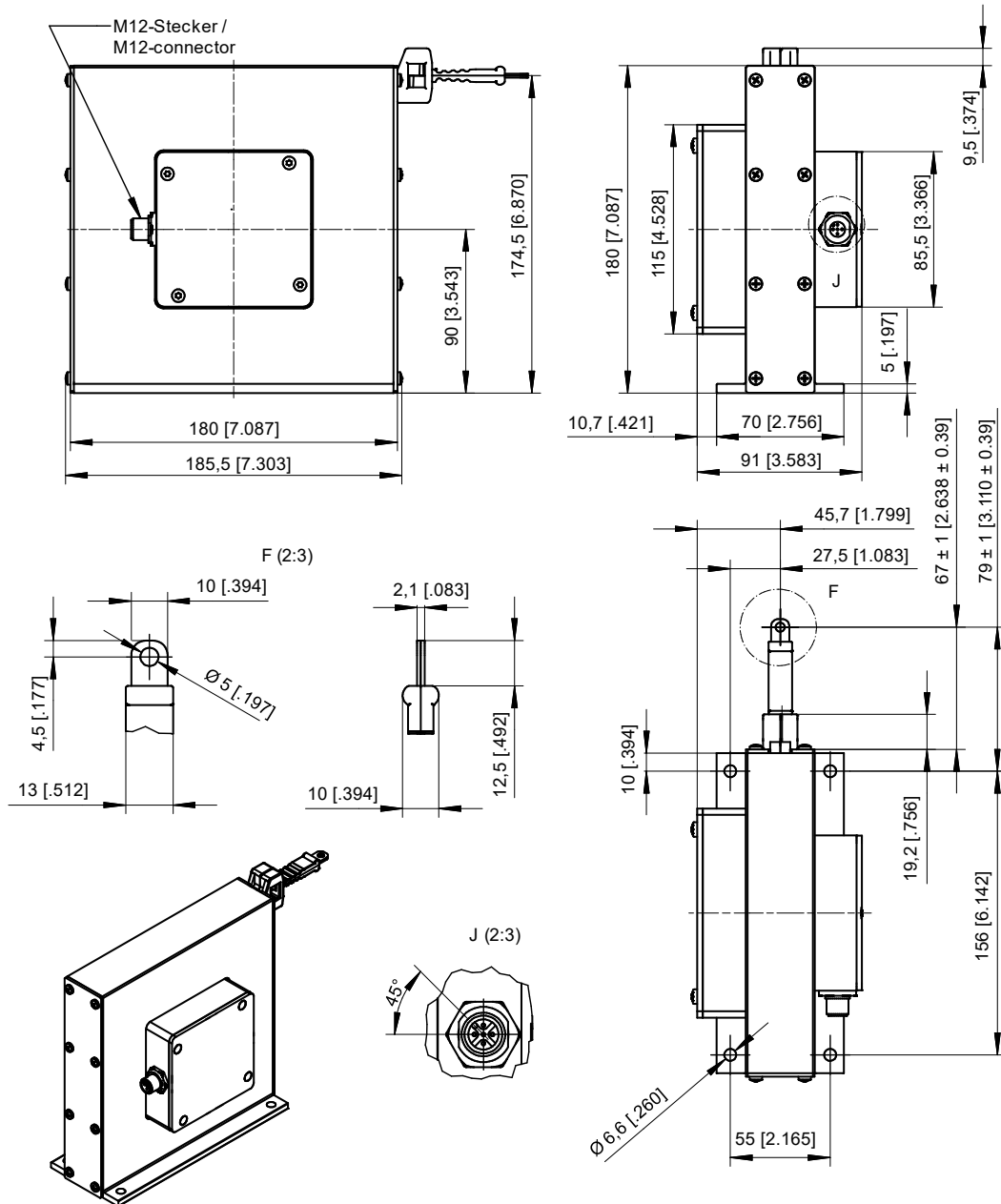
A – Connector M12

Dimensions in mm [inch].

Dimensions informative only.

For guaranteed dimensions consult factory.

WBT21-15000



A – Connector M12

Dimensions in mm [inch].

Dimensions informative only.

For guaranteed dimensions consult factory.

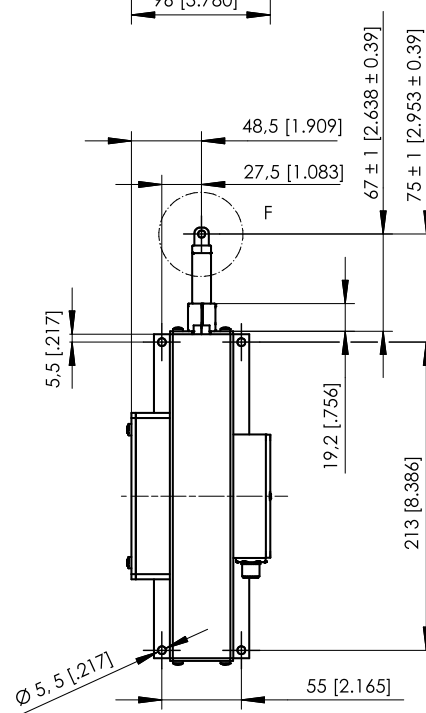
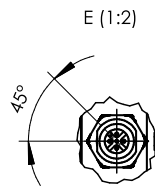
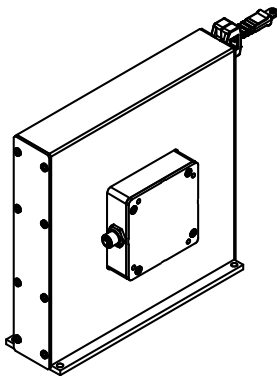
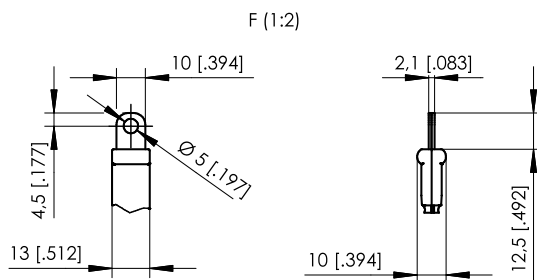
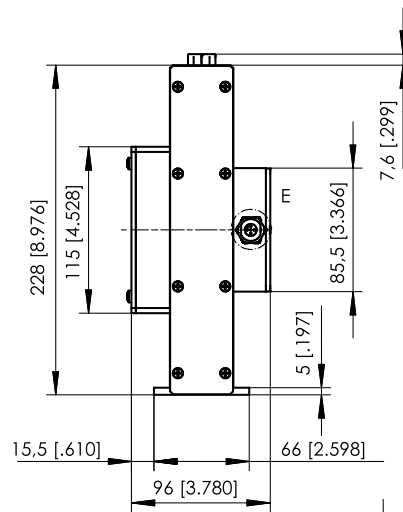
M12 Stecker /
M12 connector

228 [8.976]

233.5 [9.193]

115.5 [4.547]

220.6 [8.685]



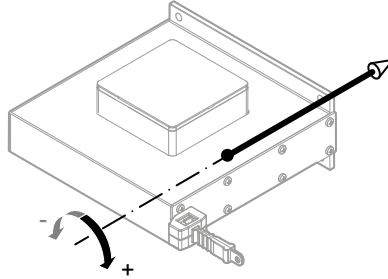
7

Mounting options for inclination measurement for WBT21 sensors

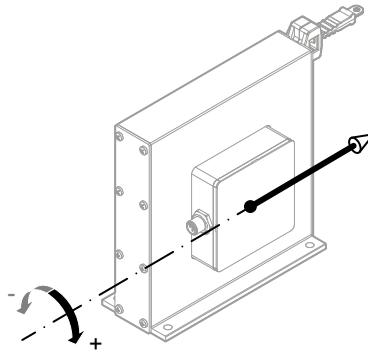
The mounting option can be set by the user via software. Sensor position as shown equals 0°.

WBT21

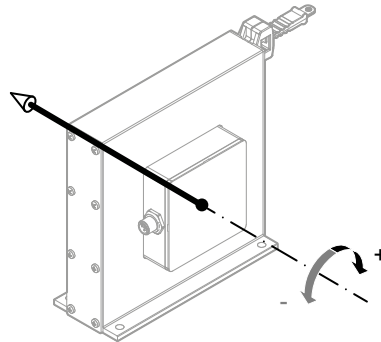
Mounting option 1



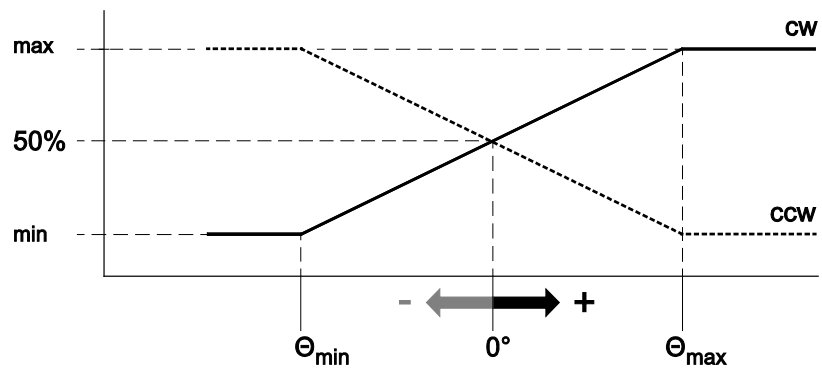
Mounting option 2



Mounting option 3



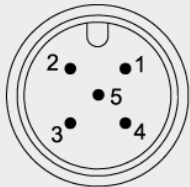
Output signal



Interface CANopen

MCANOP, CANOPR 	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 or SDO, 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 or SDO, default: 125 kBit
	Bus connection	M12 connector, 5 pin
	Integrated bus terminating resistor	120Ω adjustable by the customer
	Bus, galvanic isolated	no

Specifications	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	0.5 kHz
	Stability (temperature)	±50 x 10 ⁻⁶ /°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	Output signals	Connector pin no.
Connector M12, 5 pin 	Shield	1
	Excitation +	2
	GND	3
	CAN-H	4
	CAN-L	5

View to the sensor connector

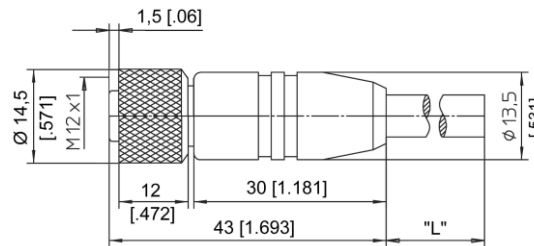
Accessories

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-connector for bus cable M12, 5 pin CAN-Bus

Order code

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



Terminating resistor M12, 5 pin CAN-Bus

Order code

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

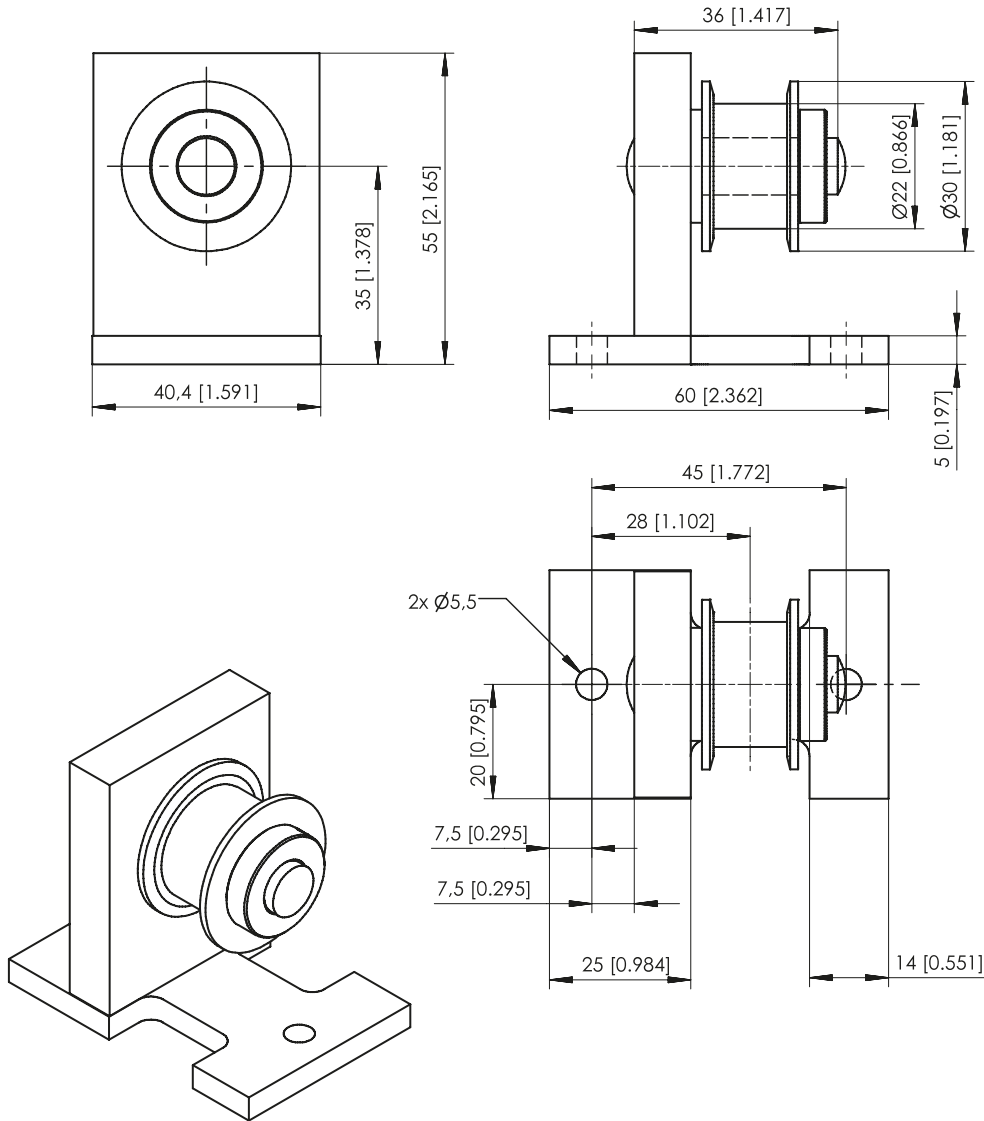


Applicable for cable carriers

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

Tape pulley WBR1

Order code: WBR1



Dimensions in mm [inch]

Dimensions informative only.

For guaranteed dimensions consult factory.