



WST21

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



- Protection class up to IP67/IP69
- With magnetic absolute encoder
- With inclination sensor in MEMS technology
- High-performance aluminum/PBT housing
- Redundant version available

Product version



Digital output CANopen



WST21 - 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 measuring cable: stainless steel		
Protection class	IP67/IP69		
Cable fixing	M4 cable fixing Cable clip	4	M4 SB0
Connection	Connector M12, 5 pin	5	M12/CAN
Shock	DIN EN 60068-2-27:2010, 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	WST21-8000: approx. 1.5 kg WST21-10000: approx. 1.5 kg WST21-12500: approx. 2.5 kg WST21-15000: approx. 3.0 kg WST21-17500: approx. 4.2 kg WST21-20000: approx. 4.2 kg		
EMV	DIN EN 61326-1:2013		

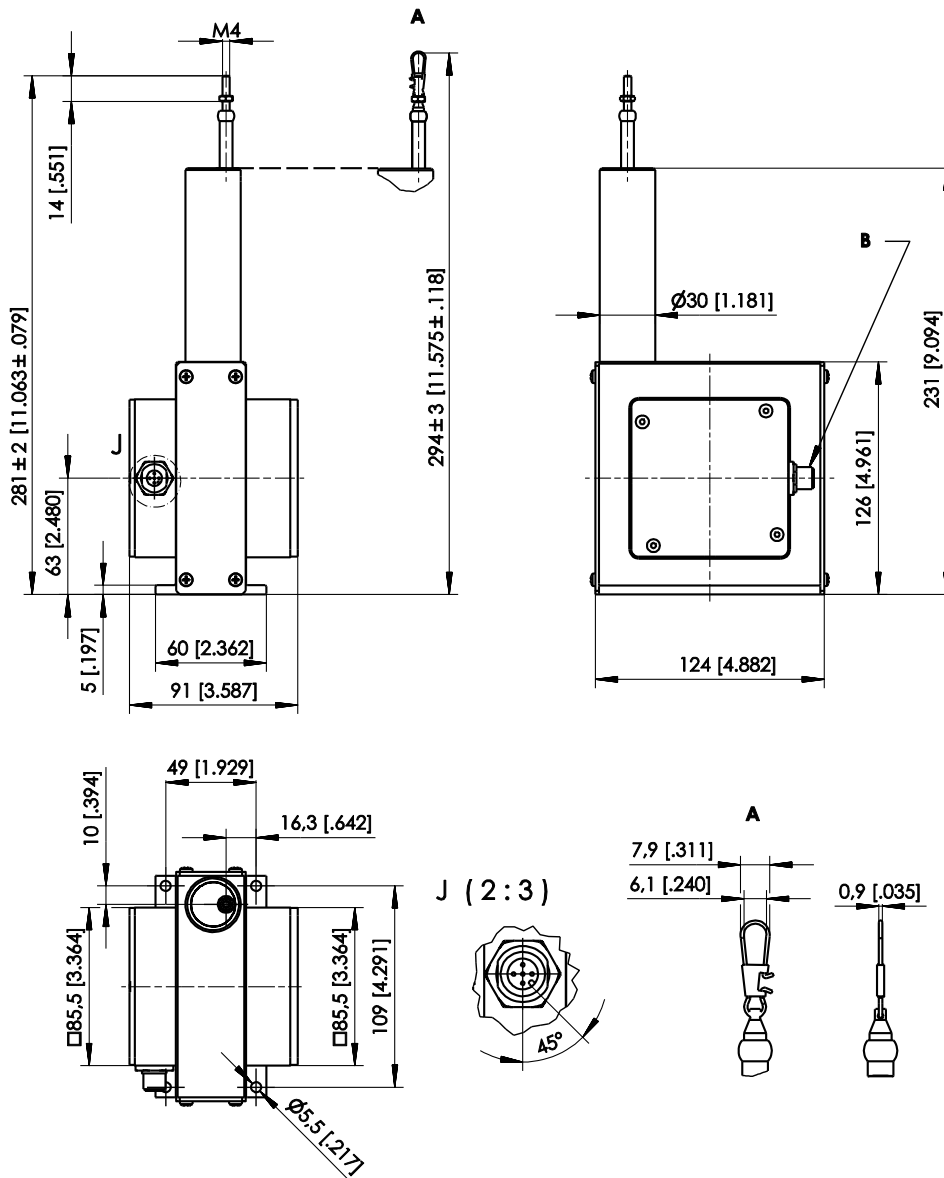
Order code

WST21	-	1	-	2	-	3	-	4	-	5
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Order example: WST21 – 15000 – MCANOP – L10 – M4 – M12/CAN

Dimensions

WST21-8000, WST21-10000



A – Option SB0

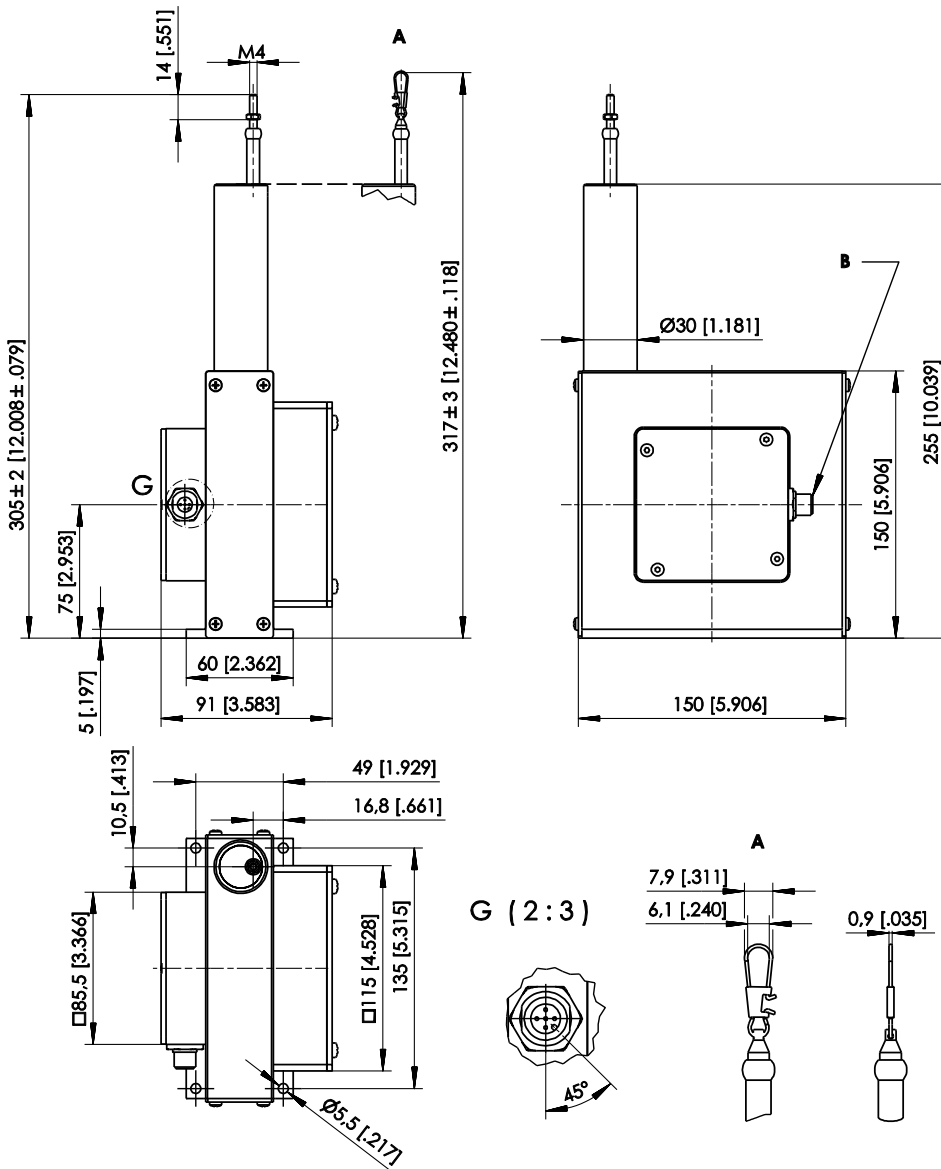
B – Connector M12

Dimensions in mm [inch]. Weight approx. 1.5 kg.

Dimensions informative only.

For guaranteed dimensions consult factory.

WST21-12500



A - Option SB0

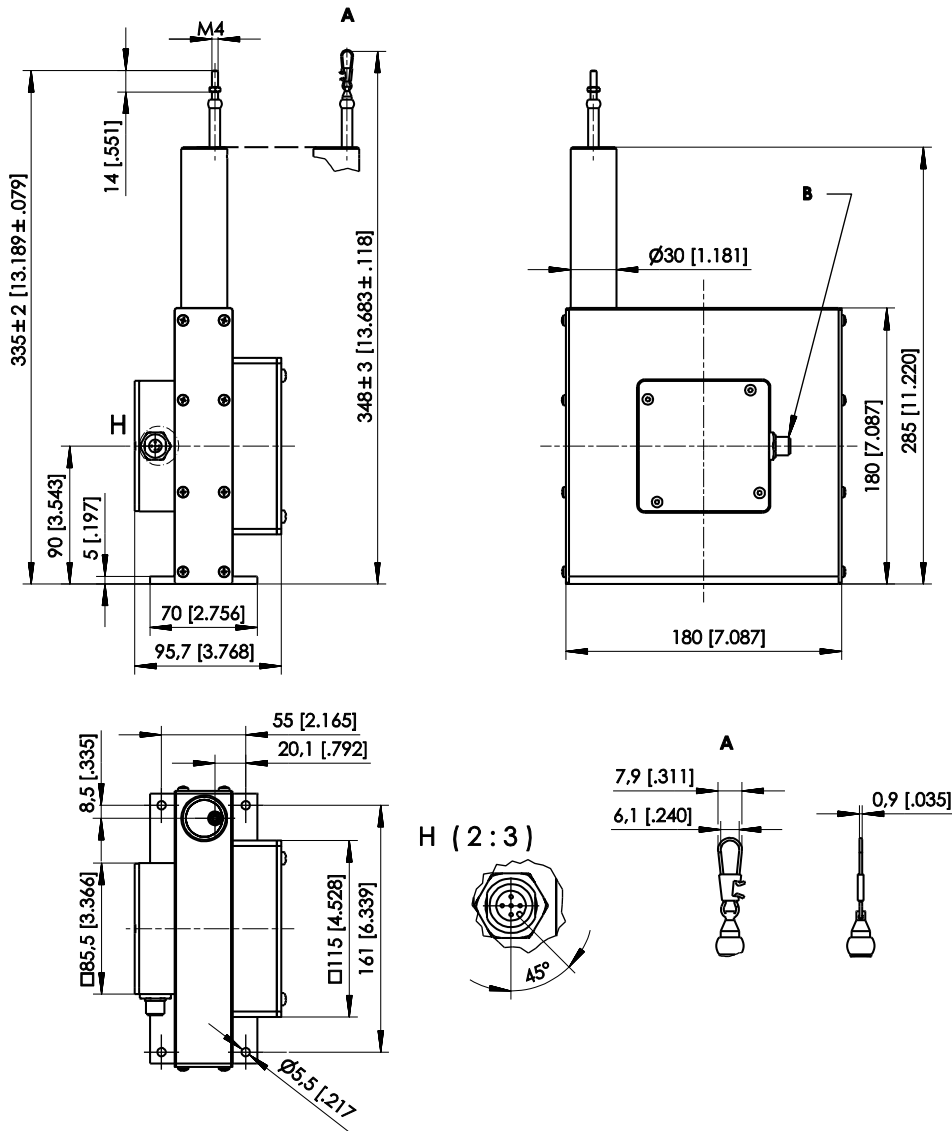
B - Connector M12

Dimensions in mm [inch]. Weight approx. 2.5 kg.

Dimensions informative only.

For guaranteed dimensions consult factory.

WST21-15000



A – Option SB0

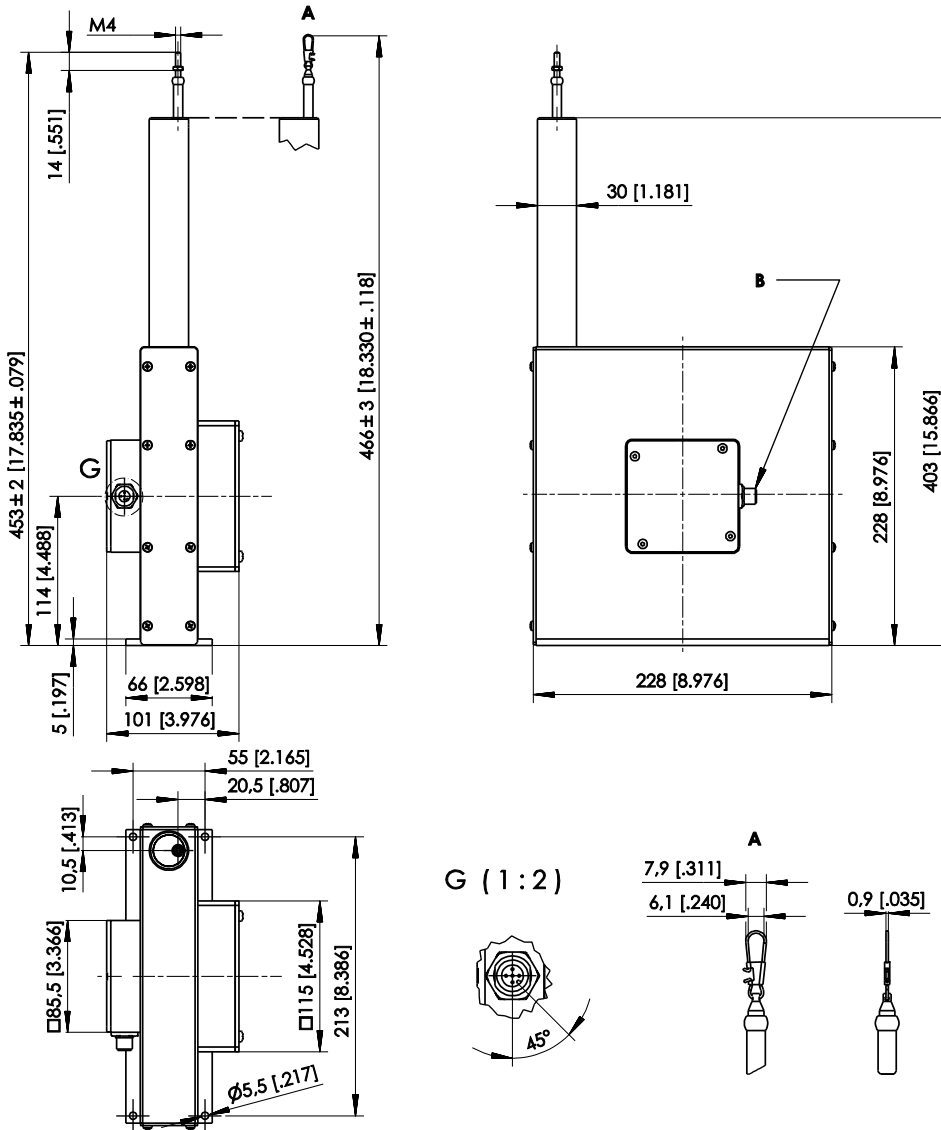
B – Connector M12

Dimensions in mm [inch]. Weight approx. 3.0 kg.

Dimensions informative only.

For guaranteed dimensions consult factory.

WST21-17500, WST21-20000



- A – Option SB0
- B – Connector M12

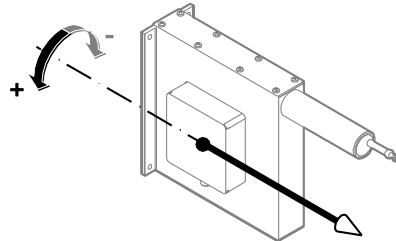
Dimensions in mm [inch]. Weight approx. 4.2 kg.
Dimensions informative only.
For guaranteed dimensions consult factory.

Mounting options for inclination measurement for WST21 sensors

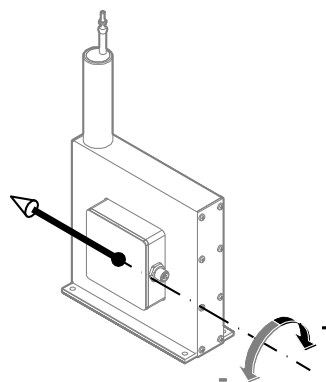
The mounting option can be set by the user via software. Sensor position as shown equals 0°.

WST21

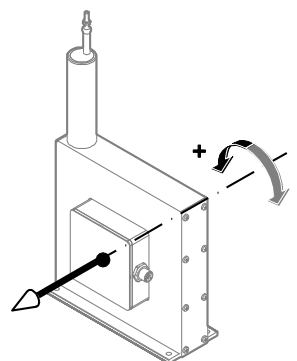
Mounting option 1



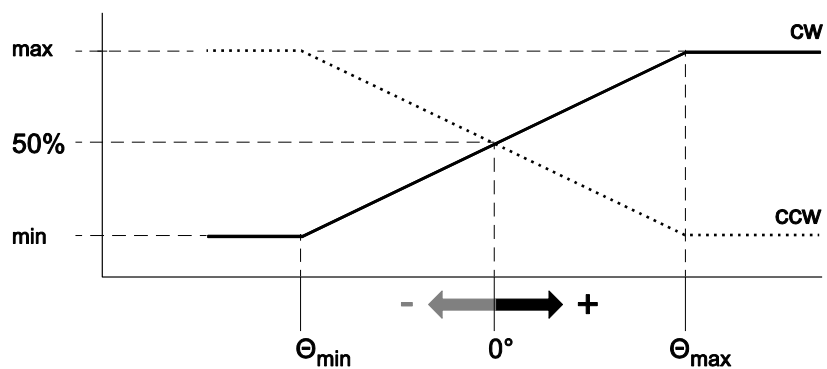
Mounting option 2




Mounting option 3



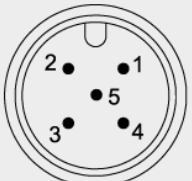
Output signal



Digital 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  View to the sensor connector	Shield	1
	Excitation +	2
	GND	3
	CAN-H	4
	CAN-L	5

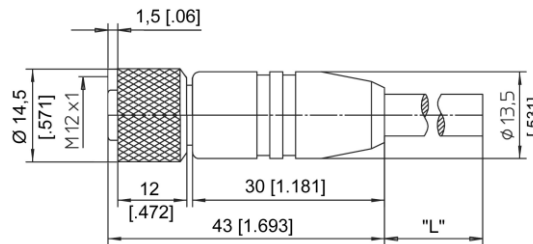
Accessories

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