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A division of the WIKA Group

Twistlock sensor
0 ... 23 t
Model F9205

Applications

- Cranes
- Spreader
- Twistlock

Special features

- Measurement range 0 ... 23 t
- Customized versionspossible
- Determination of the load distribution
- Easy to integrate into the crane network via CANopen® technology
- High overload capacity
- Long lifetime of the measuring spring
- High long term stability, high shock and vibration resistance

Description

tecsis twistlock sensors are designed for measurement tasks on spreaders or for the weighing of containers before loading.

The sensors of this series are often used for dynamic measuring tasks as a replacement for non measurement elements. They are used to determine tension forces. Areas of application are twistlocks on spreaders. The sensor is being integrated directly into the twistlock.

The force sensors F9205 are made of high-strength, corrosion-resistant stainless steel 1.4542, which is particularly suitable for their application areas. The output signal is a voltage output (4 ... 20 mA) and a digital output (CANopen®).

Specifications in accordance with VDI/VDE/DKD 2638

Model series	Symbol	Unit	F9205
Measurement range			
Rated force	F_{nom}	t	23
Accuracy and stability			
Relative linearity error	d_{lin}	$x\%F_{nom}$	± 0.5
Relative repeatability error in unchanged mounting position	b_{rg}	$x\%F_{nom}$	0.2
Temperature effect on zero signal	T_{K0}	%/10 K	0.2
Temperature effect on characteristic value	T_{KC}	%/10 K	0.2
Mechanical characteristics			
Force limit	F_L	$x\%F_{nom}$	150
Breaking force	F_B	$x\%F_{nom}$	depending on twistlock element
Rated displacement	s_{nom}	mm	< 0.1
Material of measuring spring			corrosion resistant stainless steel ultrasonic tested 3.1 material
Temperature ranges			
Rated temperature range	$B_{T, nom}$	°C	-20 … 60
Operating temperature range	$B_{T, G}$	°C	-40 … 60
Storage temperature range	$B_{T, S}$	°C	-40 … 60
Electrical characteristics			
Signal type	C_{nom}	mA	4 … 20, 3-wire
			SAE J1939
			CANopen® possible[1]
Supply voltage		V	DC 10 … 30 for current output DC 8 … 30 for CANopen®
Burden		Ohm	≤ (UB–10 V)/0.024 A for current output
Response time		ms	≤ 2 (within 10% up to 90% F_{nom})[2]
General data			
Protection (acc. to EN 60529)			IP67
Vibration resistance (acc. to DIN EN 60068-2-6) (acc. to DIN EN 60068-2-27) (acc. to DIN EN 60068-2-29)			20 g, 10 … 3,000 Hz 100 g 40 g
Electrical protection			Reverse voltage, overvoltage and short-circuit protection
Emission			EN 55025
Immunity			EN 45501
Electrical connection			Circular connector M 12x1, 4-pin, CANopen® 5-pin

[1] Protocol acc. CiA DS-301 V.402. Device profile DS-404 V. 1.2. [2] Other response times are available on request.
CANopen® and CiA® are registered community trade marks of CAN in Automation e.V.
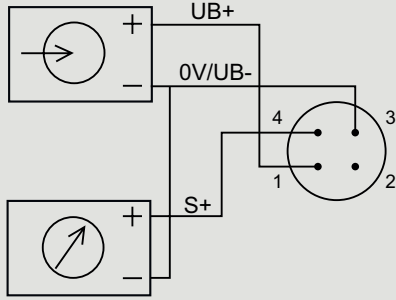
Mounting situation of twistlock sensor
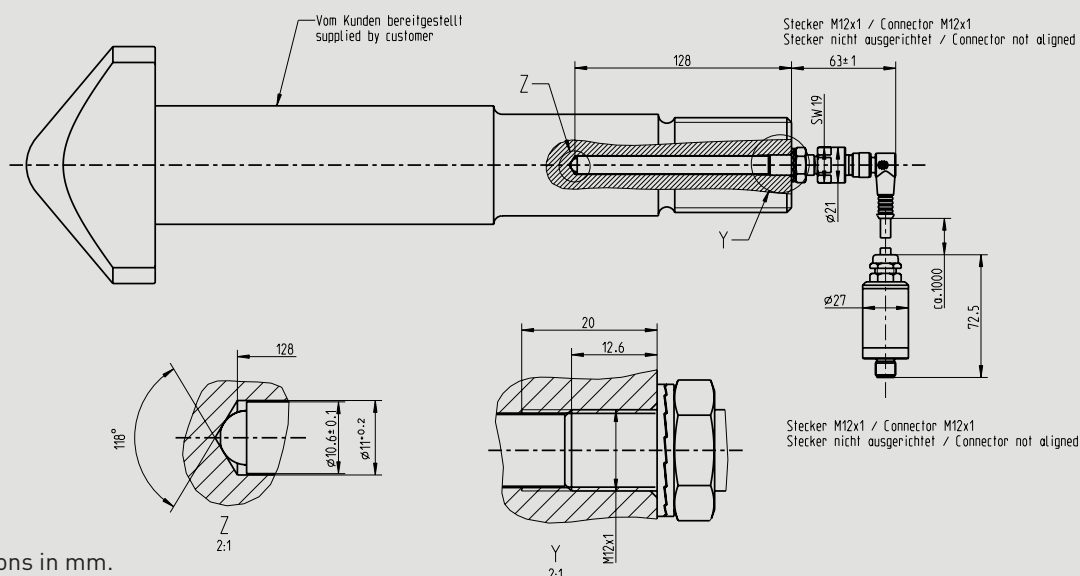
All dimensions in mm.

Pin assignment, analogue output

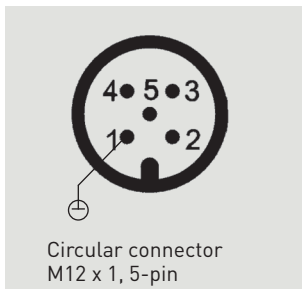**4 ... 20 mA output, 3-wire**
Circular connector M12 x 1, 4-pin

Standard version

	4 ... 20 mA, 3-wire
Supply: UB+	1
Supply: 0V/UB-	3
Signal: S+	4
Signal: S-	3
Shield ⏚	Case

Cable outlet	
Cable colour	**3-wire**
Brown	UB+
White	-
Blue	0V/S-
Black	S+

Pin assignment CANopen®

Circular connector
M12 x 1, 5-pin

Screen ⏚	1
UB+ (CAN V+)	2
UB- (CAN GND)	3
Bus signal, CAN-High	4
Bus signal, CAN-Low	5

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