

# Twistlock sensor system up to 25 t

## Model TWLMS

WIKA data sheet FO 54.16

### Applications

- Container weighing directly on the spreader
- Determination of the load distribution in the container
- For Reachstacker, Straddle Carrier, Rubber Tired Gantry Crane (RTG), Ship to Shore Cranes (STS)

### Special features

- Measuring ranges 0 ... 6 t up to 0 ... 25 t (others possible)
- Relative linearity error  $< 0.5 \% F_{nom}$
- Type tested in accordance with OIML R60 (certificate R60/2000-A-NL-18.05) with D175
- Optimal for retrofitting with simple integration into the crane network through CANopen® and CAN SAE J1939 technologies
- High overload capacity, long service life of the measuring spring, large shock and vibration resistance



Twistlock sensor system, model TWLMS

### Description

The twistlock sensor system is used for weight measurement on spreaders and, with that, the weighing of containers prior to loading and also the determination of the weight distribution in the container.

The non-measuring twistlocks in the spreader are replaced by the twistlock sensor system (TWLMS). The system consists of the model F9205 twistlock sensor, fully assembled in the factory in the customer-supplied and pre-drilled twistlock, including adjustment and temperature compensation.

The twistlock sensor of this system is made of high-strength, corrosion-resistant 1.4542 stainless steel, whose properties are particularly suitable for the transducer's application area. As output signals, there is a choice of active current output (4 ... 20 mA) and CANopen® and CAN SAE J1939 digital outputs.

## Specifications per VDI/VDE/DKD 2638

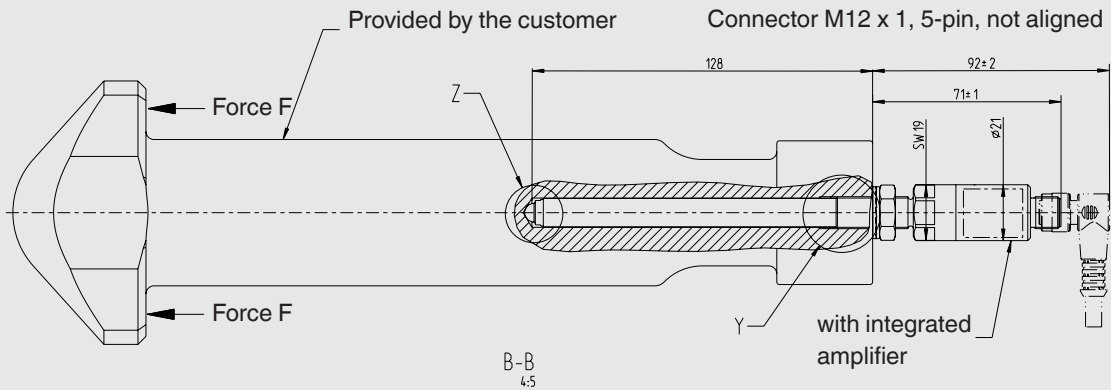
| Model TWLMS   |   |
|---|---|
| Rated load $F_{nom}$  | up to 25 t (others on request)  |
| Relative linearity error $d_{lin}$  | $\pm 0.5 \% F_{nom}$ (OIML, accuracy class D)                               |
| Relative span in unchanged mounting situation $b_{rg}$  | $0.2 \% F_{nom}$  |
| Temperature effect on the zero signal $TK_0$  | $\leq \pm 0.2 \% / 10 K$  |
| Temperature effect on the characteristic value $TK_C$   | $\leq \pm 0.2 \% / 10 K$  |
| Limit force $F_L$   | $150 \% F_{nom}$  |
| Breaking force $F_B$  | depending on twistlock  |
| Rated displacement $s_{nom}$  | $< 0.1 \text{ mm}$  |
| Material of the measuring body  | 1.4542 stainless steel, ultrasonically tested 3.1 material                  |
| Rated temperature range $B_{T, nom}$  | $-20 \dots +60 \text{ }^\circ\text{C}$                                      |
| Service temperature range $B_{T, G}$  | $-40 \dots +60 \text{ }^\circ\text{C}$                                      |
| Storage temperature range $B_{T, S}$  | $-40 \dots +60 \text{ }^\circ\text{C}$                                      |
| Electrical connection   | Circular connector M12 x 1, 4-pin / CANopen <sup>®</sup> 5-pin              |
| Output signal (rated characteristic value) $C_{nom}$  | 4 ... 20 mA, 3-wire<br>CAN SAE J1939<br>CANopen <sup>®1)</sup>              |
| Supply voltage  | DC 10 ... 30 V for current output<br>DC 9 ... 36 V for CANopen <sup>®</sup> |
| Load  | $\leq (U_B - 10 \text{ V}) / 0.024 \text{ A}$ for current output            |
| Response time   | $\leq 2 \text{ ms}$ (within 10 % to 90 % $F_{nom}$ ) <sup>2)</sup>          |
| Ingress protection (per IEC/EN 60529)   | IP67  |
| Vibration resistance<br>(to DIN EN 60068-2-6)<br>(to DIN EN 60068-2-27)<br>(to DIN EN 60068-2-29) | 20 g, 10 ... 2,000 Hz<br>100 g<br>40 g                                      |
| Wiring protection   | Reverse polarity, overvoltage and short-circuit resistance                  |
| Interference emission   | EN 55025  |
| Immunity  | EN 45501  |

1) Protocol in accordance with CiA 301, instrument profile 404, communication service LSS (CiA 305). 2) Other response times possible upon request. CANopen<sup>®</sup> and CiA<sup>®</sup> are registered community trademarks of CAN in Automation e. V.

# Dimensions in mm

## Standard version with integrated amplifier

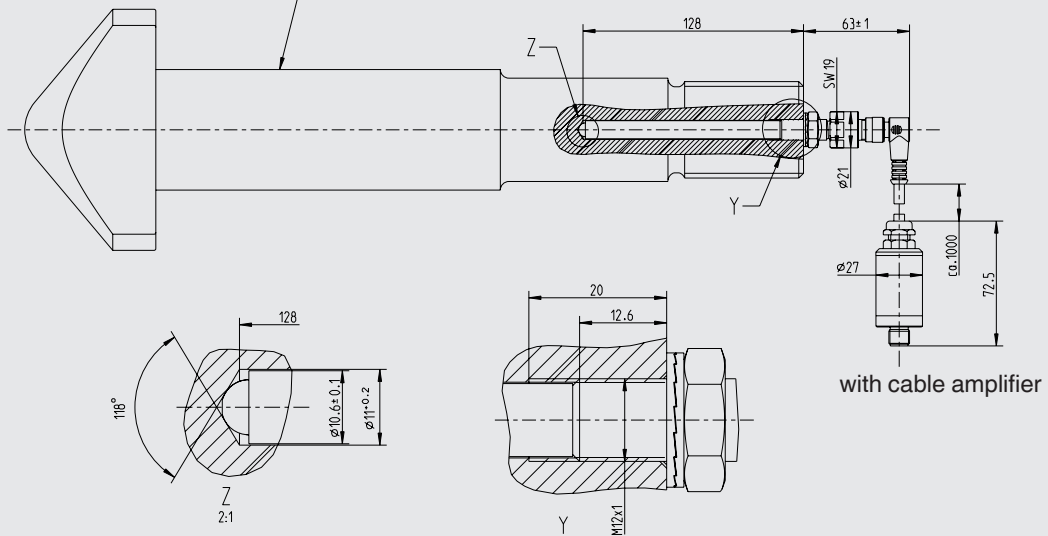
only for CAN SAE J1939 and CANopen®



## Compact version with cable amplifier

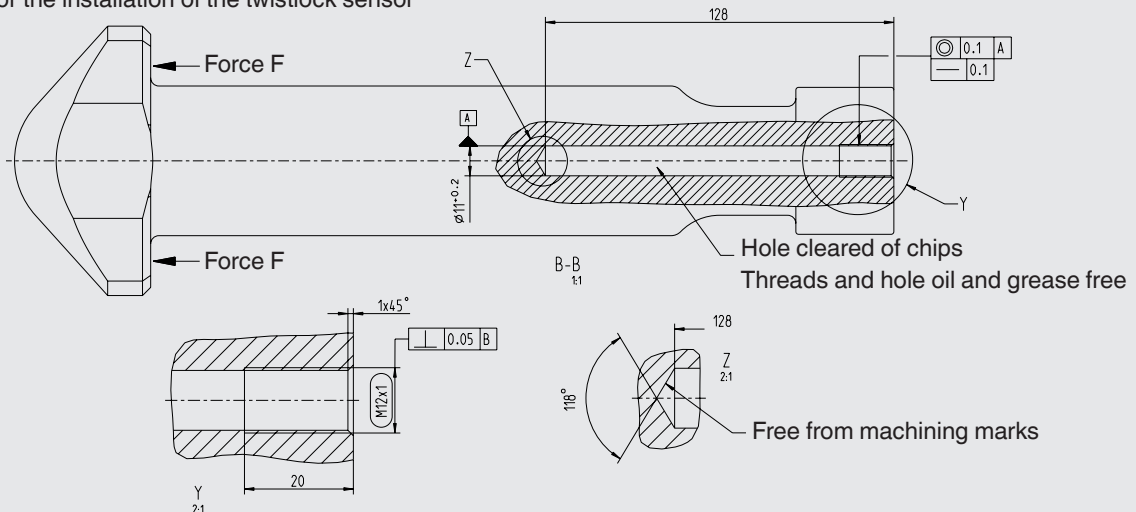
Provided by the customer

Connector M12 x 1, connector not aligned

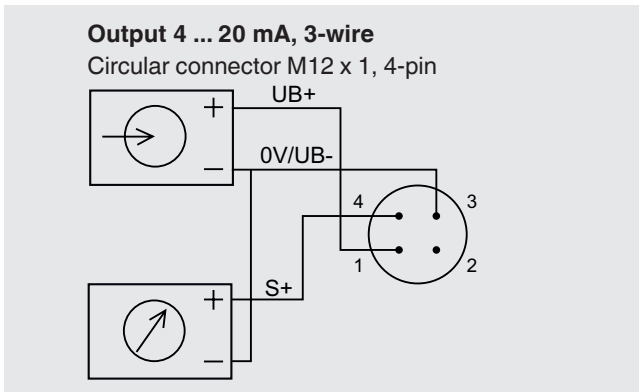


## Hole pattern for the twistlock

for the installation of the twistlock sensor



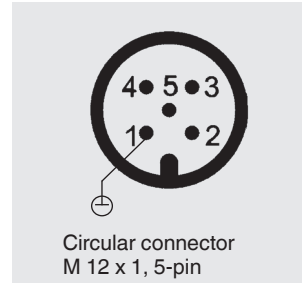
## Pin assignment, analogue output



| 4 ... 20 mA<br>3-wire | Pin assignment | Cable assignment |
|-----------------------|----------------|------------------|
| Supply UB+            | 1              | Brown            |
| Supply 0V/UB-         | 3              | Blue             |
| Signal S+             | 4              | Black            |
| Signal S-             | 3              | Blue             |
| Shield ⊕              | Case           | Case             |

## Pin assignment, CANopen®/CAN SAE J1939

| Pin assignment       |   |
|----------------------|---|
| Shield               | 1 |
| UB+ (CAN V+)         | 2 |
| UB- (CAN GND)        | 3 |
| Bus signal, CAN-High | 4 |
| Bus signal, CAN-Low  | 5 |



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