



Installation Instructions

RMGZ100C

Compact force sensor for pulley

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**Diese Montageanweisung ist auch in Deutsch erhältlich.
Bitte kontaktieren Sie die nächstgelegene FMS Vertretung.**

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2 Safety Information

All safety information, operating and installation regulations listed here ensure proper function of the device. Safe operation of the system requires compliance at all times. Noncompliance with the safety information or using the device outside of the specified performance data can endanger the safety and health of persons.

Work with respect to operation, maintenance, retrofit, repair, or setting the device described here must only be performed by expert personnel.

2.1 Presentation of Safety Information

2.1.1 Danger that Could Result in Minor or Moderate Injuries



Danger, warning, caution

Type of danger and its source

Possible consequences of nonobservance

Measure for danger prevention

2.1.2 Note Regarding Proper Function



Note

Note regarding proper operation

Simplification of operation

Ensuring function

2.2 General Safety Information



The force sensors may not be subjected to loads outside of the specified values during installation and operation later



The fastening points for supporting the force sensor must be designed correctly. Pay attention to correct installation of the pillow blocks.

3 Product Information

3.1 Product description

The RMGZ100-Series force sensor is designed for the measurement of tension on continuous material processing lines for filament materials. A large variety of standard pulleys can be mounted on the supplied 19mm ball bearings. The installation of the force sensor to the machine frame is realized by means of a universal flange and included bracket. The force sensors of the RMGZ100-Series can be used in static applications as well as for measurements in rotating applications (planetary or tubular stranders, bunchers, twisters, etc.). The special design of the sensor body will in this case compensate for centrifugal and Coriolis forces. Standard pulleys are not supplied by FMS.

3.2 Functional description

The RMGZ100-Series force measuring sensor combines the bearing seat of the pulley and the force sensor within the same housing, thus minimizing the required installation space. The substantial overload protection translates to eliminated / minimized calibration issues due to machine upset conditions. The design includes dual bending beams, and this serves to eliminate the load specific influence of torque. The movement of the bending beams, which is proportional to the applied force, is detected by strain gauges arranged in a full bridge circuit and then converted into an electrical signal. This simple measurement principle delivers precise results even with low material tension and small web wrap angles. The Red Point, as located on the sensor body, should be aligned with the direction of the resultant force due to material tension.

3.3 Designations

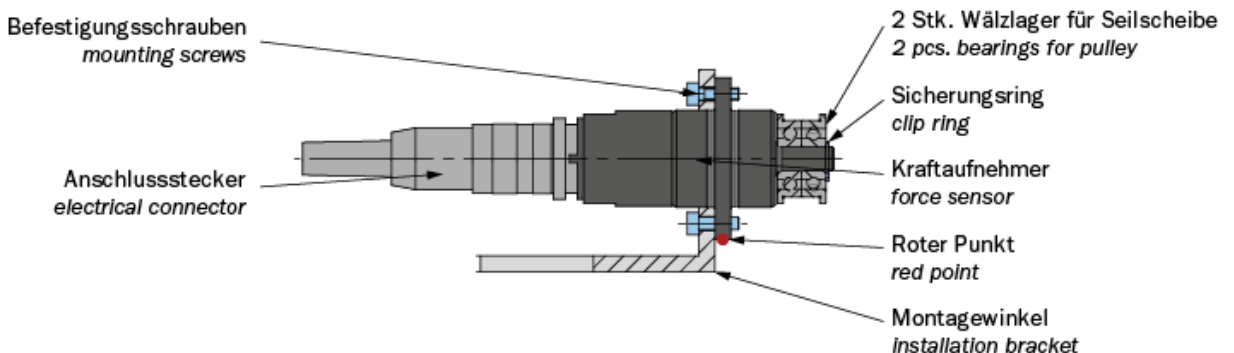


Figure 1: Designations

3.4 Scope of delivery

Included in scope of delivery

force sensor, straight connector (female), 2 pcs. Bearings, clip ring, installation bracket, incl. screw set (4 pcs. M3 x 10)

Options

H14 right-angle connector in scope of supply, replaces straight connector

H16 temperature range up to 120 °C (248 °F)

Accessories

Prefabricated cable (specify length) with connector (straight or right-angle)

3.5 Order code

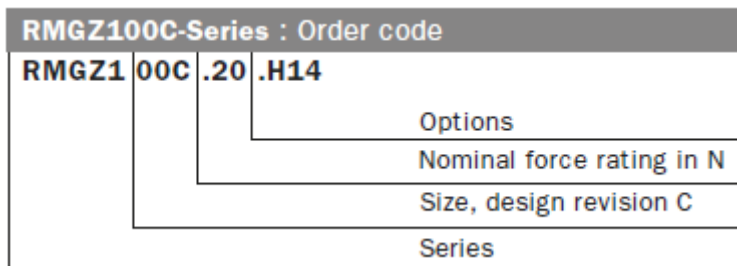


Figure 1: order code

4 Installation

4.1 Preparation

The force sensors are defined as “incomplete machine” in line with EC Directive 2006/42/EC, Article 2. When installing the force sensors, the following conditions must be met to ensure proper function and installation in a machine without negative impact on safety and health of persons:



The force sensors may not be subjected to loads outside of the specified values during installation and operation later



The fastening points for supporting the force sensor must be designed correctly. Pay attention to correct installation of the pillow blocks.



The force sensors must be connected electrically correctly.

4.1.1 Installation pulley

- The clip ring and the two bearings are not installed on the force sensor. They are packed separately.
- Press the pulley onto the bearings
- Slide the bearings with the pulley onto the shaft
- Install clip ring

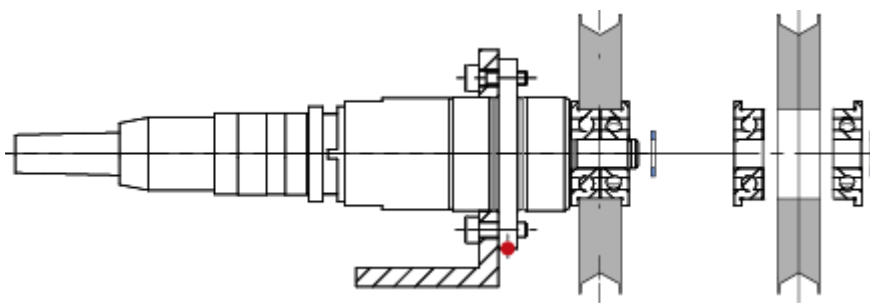


Figure 2: installation pulley

Use circlip pliers for external clip rings



Incorrect assembly (e.g. with a screw driver) may lead to damage of the clip ring and the force sensor.

NOTE: only deform the clip ring as much as required to fit over the shaft.

4.2 Electrical Connection

The connection between force sensor and measuring amplifier is realized using a 2x2x0.25mm² [AWG 23] cable. The cable must be routed separately from the power cable.

The cable shielding must only be connected on the side of the measuring amplifier.

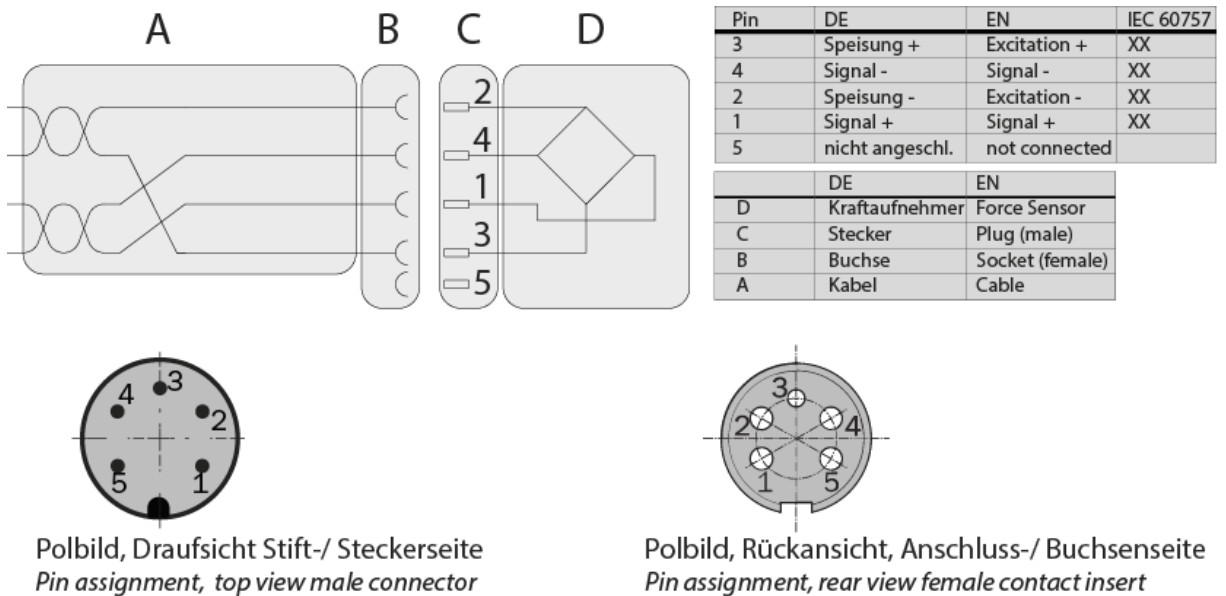


Figure 2: Electrical Connection



Replacement of RMGZ100A

When replacing an RMGZ100A with a RMGZ100C, the excitation lines must be swapped. (excitation + and excitation -)

5 Technical Data

Designations	
Sensitivity	1.8 mV/V
Sensitivity tolerance	$\pm 0.2\%$
Accuracy class	$\pm 0.5\%$ (F _{Nom})
Temperature coefficient	$\pm 0.1\%$ / 10 K
Temperature range	-10 to +60 °C
Input resistance	350 Ω
Excitation voltage	1 to 10 VDC
Overload protection	10 times the nominal force F _{Nom}
Material	Stainless steel
Protection class	IP42
Measuring range	30:1
Repeatability	0.05%

Table 1: Technical Data



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