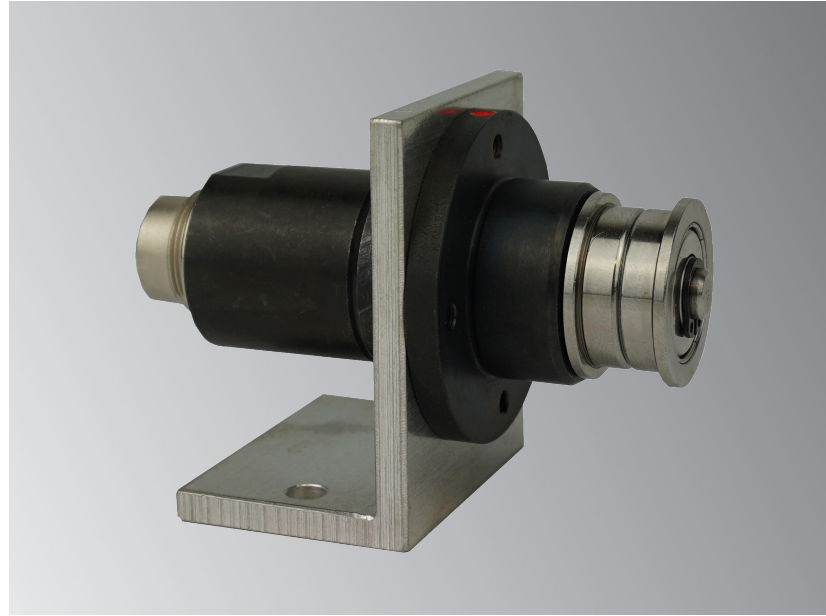


FMS Tension Control / Force Sensors

## **RMGZ100B-Series Compact force sensor for pulley**

- **Robust and durable**  
Overload protection up to 10-times nominal force
- **Precise performance even at low tension values**  
Measuring range 30:1  
Accuracy class  $\pm 0.5\%$
- **For a wide range of applications**  
Nominal forces from 6 to 300 N  
(1.4 to 67 lbf)



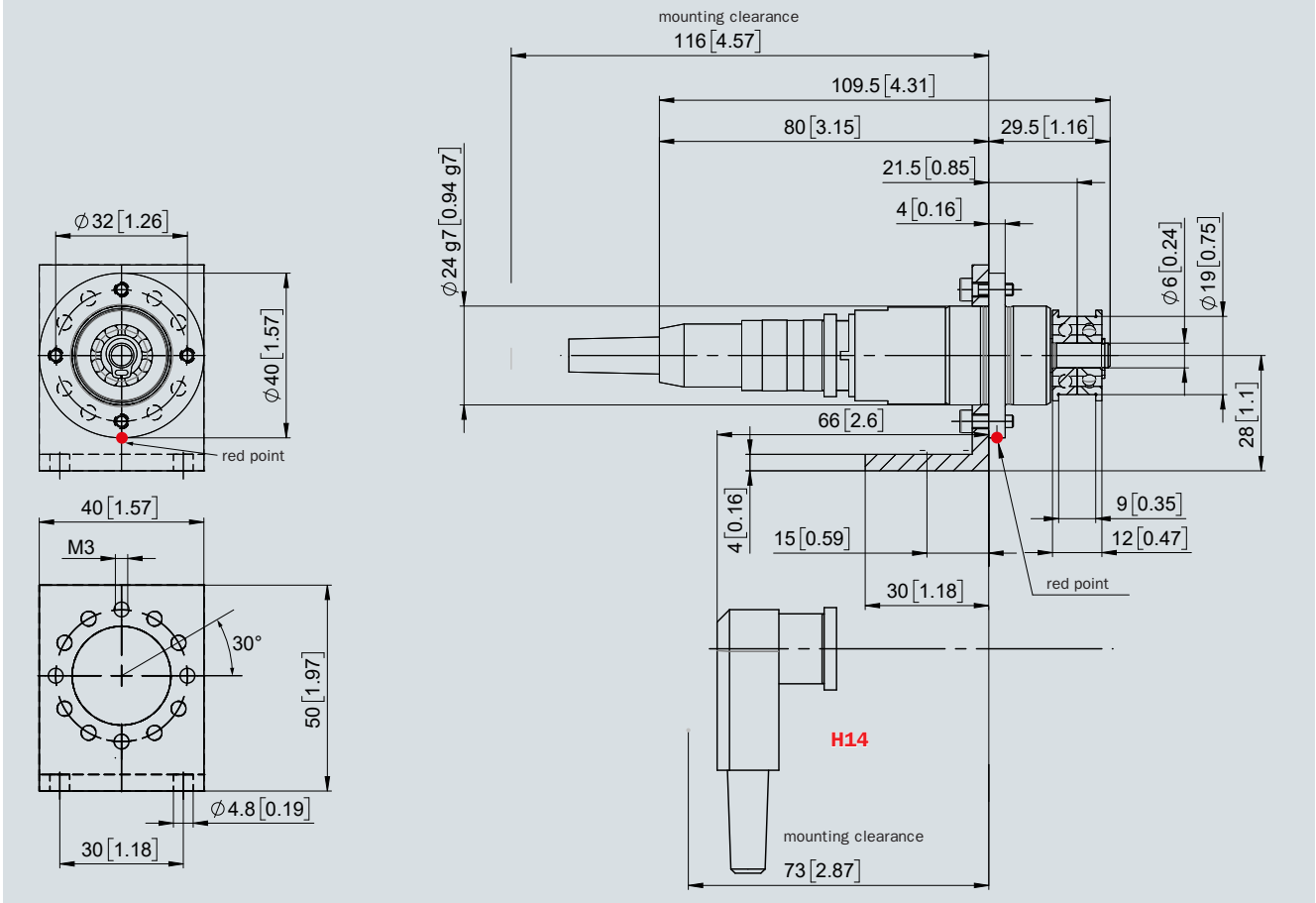
### **RMGZ100B-Series**

The RMGZ 100-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 RMGZ 100-Series can be used in static applications as well as for measurements in rotating applications (planetary or tubular stranders, bunchers, twistors, 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.

### **Functional description**

The RMGZ 100-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.

**RMGZ100B-Series : Dimensions**



**RMGZ100B-Series : Nominal forces, Deflection, Weight**

| Size Type       | Nominal force<br>N (.lbf) | Deflection<br>mm (.in) | Weight<br>kg (.lbs) |
|-----------------|---------------------------|------------------------|---------------------|
| <b>RMGZ100B</b> | 6 (1.35)                  | 0.22 (0.0087)          | 0.4 (0.88)          |
|                 | 10 (2.25)                 | 0.19 (0.0075)          | 0.4 (0.88)          |
|                 | 20 (4.50)                 | 0.22 (0.0087)          | 0.4 (0.88)          |
|                 | 50 (11.24)                | 0.22 (0.0087)          | 0.4 (0.88)          |
|                 | 100 (22.48)               | 0.18 (0.0071)          | 0.4 (0.88)          |
|                 | 200 (44.96)               | 0.22 (0.0087)          | 0.4 (0.88)          |
|                 | 300 (67.44)               | 0.11 (0.0043)          | 0.4 (0.88)          |

| RMGZ100B-Series : Technical data |  |
|----------------------------------|--|
| <b>Sensitivity</b>               | 1.8 mV / V                                     |
| <b>Tolerance of sensitivity</b>  | < ±0.2%  |
| <b>Accuracy class</b>            | ±0.5% (F <sub>Nom</sub> )                      |
| <b>Temperature coefficient</b>   | ±0.1% / 10 K                                   |
| <b>Temperature range</b>         | -10 °C to +60 °C (14 F to 140 F)               |
| <b>Input resistance</b>          | 350 Ω  |
| <b>Power supply</b>              | 1 to 10 VDC                                    |
| <b>Overload protection</b>       | 10-times nominal force F <sub>Nom</sub>        |
| <b>Material main body</b>        | Steel  |
| <b>Protection class</b>          | IP 42  |
| <b>Electrical connection</b>     | Male receptacle, flange mounting M14x1, 5-pole |
| <b>Repeatability error</b>       | 0.05%  |
| <b>Measuring range</b>           | 30:1   |

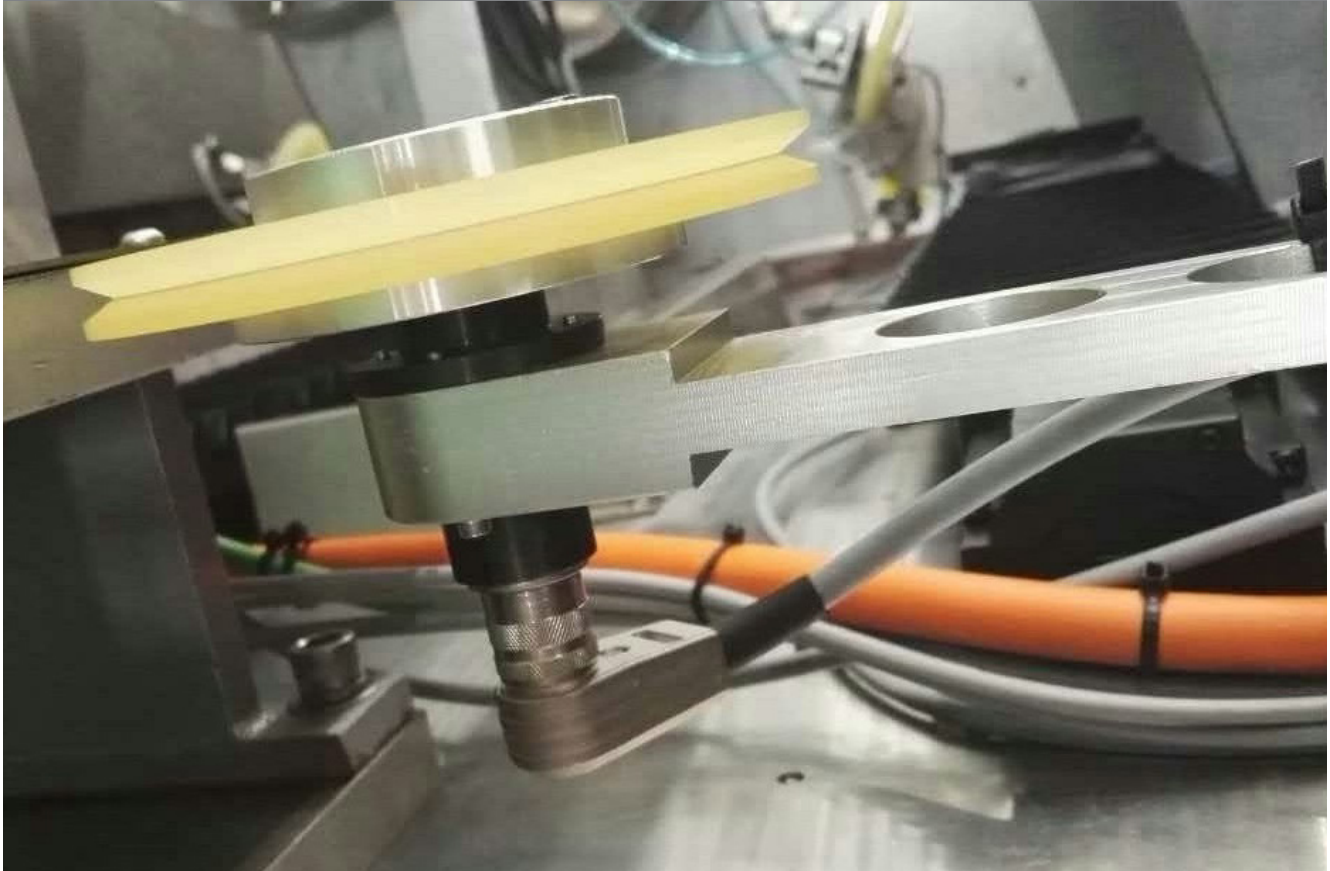
| RMGZ100B-Series : Order code |                           |
|------------------------------|---------------------------|
| <b>RMGZ1</b>                 | <b>00B</b>                |
|                              | <b>.20</b>                |
|                              | <b>.H14</b>               |
|                              | Options                   |
|                              | Nominal force rating in N |
|                              | Size, design revision B   |
|                              | Series                    |

| RMGZ100B-Series : Options |   |
|---------------------------|---|
| <b>H14</b>                | right-angle connector in scope of supply, replaces straight connector |
| <b>H16</b>                | temperature range up to 120°C (248°F)                                 |

| RMGZ100B-Series : Scope of supply   |  |
|---|--|
| <ul style="list-style-type: none"> <li>● force sensor ● straight connector (female) ● clip ring ● installation bracket, incl. screw set (4 pcs. M3 x 10)</li> </ul> |  |

| RMGZ100B-Series : Accessories  |  |
|--|--|
| <ul style="list-style-type: none"> <li>● cable, 1 m (3.25 ft.) without connector ● cable, 10 m (32.8 ft.) without connector ● cable, 5 m (16.4 ft.) without connector ● cable, 2 m (6.5 ft.) without connector ● connector M14 x 1, 5-pole, straight ● connector M14 x 1, 4-pole, right angle</li> </ul> |  |

**RMGZ100B-Series** : Typical application



**Other products** : Tension Control

| Measuring Amplifiers  | Tension Controllers   | Intrinsically Safe Barrier  |
|---|---|---|
|  |  |  |

**About us**

FMS Force Measuring Systems AG is the market leader in the field of web tension measurement, control and specialist for web guiding solutions. For the wire industry we are the only manufacturer offering a complete range of technologies for force measurement, data processing and radio transmission of signals.

Our in house developed products are used in the manufacturing industry, converting, metals, paper, textiles, as well as in cable and wire rope production. Utilising the latest technology, high quality components and a firm understanding of customer applications, FMS supports customers worldwide in the effort to maximize the productivity of their machines. Since 1993, our highly qualified employees have been creating high-end solutions for machine builders and plant operators. As an owner-managed company, we pride ourselves on being personal and approachable with the ability to make decisive moves fast.

**World Headquarters: FMS Force Measuring Systems AG**

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