

Compression force transducer Standard version from 1 t Model F1848

WIKA data sheet FO 51.76

Applications

- Aerial platforms
- Measuring and control systems
- Safety applications

Special features

- Measuring range from 1 t
- Relative linearity error $\pm 0.15\% F_{nom}$
- Redundant output signal for safety applications
- Low installation height, easy to install
- Ingress protection: IP67



Compression force transducer standard, model F1848

Description

The force transducer model F1848 is used because of its redundant output signal very often for monitoring used by safety applications. The spherical calotte (spherical load application button) allows for a very simple force introduction.

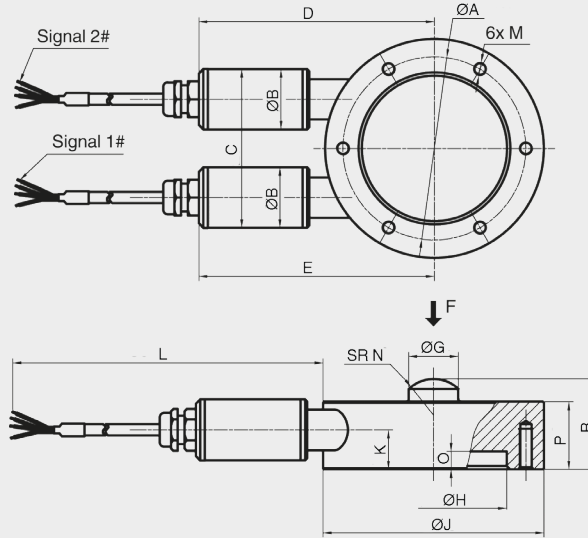
Compression force transducers are used for the determination of compression forces in a wide variety of applications and are suitable for static and dynamic measuring requirements.

Specifications per VDI/VDE/DKD 2638

| Model F1848 | |
|--|--|
| Rated load F_{nom} t / [lbs] | from 1 / [2,205 lbs] |
| Relative linearity error d_{lin} | $\pm 0.15 \% F_{nom}$ |
| Relative creep, 30 min. at F_{nom} | $\pm 0.1 \% F_{nom}$ |
| Relative reversibility error v | $\pm 0.1 \% F_{nom}$ |
| Relative span in unchanged mounting situation b_{rg} | $\pm 0.05 \% F_{nom}$ |
| Temperature effect on the zero signal TK_0 | $\pm 0.1 \% F_{nom}/10 K$ |
| Temperature effect on the characteristic value TK_C | $\pm 0.1 \% F_{nom}/10 K$ |
| Limit force F_L | |
| for 1 t / [2,205 lbs] | 200 % F_{nom} |
| from 2 t / [4,409 lbs] | 150 % F_{nom} |
| Breaking force F_B | |
| for 1 t / [2,205 lbs] | 250 % F_{nom} |
| from 2 t / [4,409 lbs] | 200 % F_{nom} |
| Material of the measuring body | Stainless steel |
| Rated temperature range $B_{T, nom}$ | -10 ... +40 °C [-50 ... +104 F] |
| Service temperature range $B_{T, G}$ | -20 ... +80 °C [-68 ... +176 F] |
| Output signal (rated characteristic value) C_{nom} | 4 ... 20 mA, 3-wire 2 x 4 ... 20 mA, redundant Redundant, in opposite directions 4 ... 20 mA / 20 ... 4 mA |
| Electrical connection | |
| Standard | Cable output, free wire Round connector M12 x 1, 4- or 5-pin |
| Option | Customer specific connector |
| Voltage supply | DC 10 ... 30 V |
| Burden | \leq (auxiliary power – 10 V) / 0.024 A for current output |
| Ingress protection (per IEC/EN 60529) | IP67 |
| Weight | 1 kg [2.2 lbs] |

Dimensions in mm [in]

Version in redundant form, with a simple output signal with just one electronics housing.



SR = spherical radius

Dimensions in mm [in]

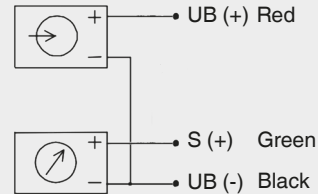
| ØA | ØB | ≤ C | ≤ D | ≤ E | ØG | ØH | ØJ | K | L | M | SR N | O | P | R |
|---------------------------|--------------|--------------|-----------------|-----------------|--------------|--------------|--------------|----------------|---------------------------|------------------|--------------|-------------|--------------|--------------|
| 82 ±0.1 [Ø3.23 ±0.004] | 27 [1.06] | 71 [2.79] | 105.5 [4.15] | 105.5 [4.15] | 22 [0.87] | 65 [2.56] | 98 [3.86] | 17.5 [0.69] | 3.000 ±100 [118 ±3.94] | M6 x 18 (EQS) | 16 [0.63] | 8 [0.31] | 30 [1.18] | 40 [1.57] |

Pin assignment

Cable output

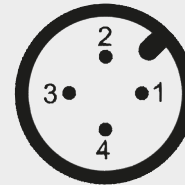
| Electrical connection | |
|-----------------------|--------------|
| Conductor | Cable Colour |
| UB (+) | Red |
| UB (-) | Black |
| S (+) | Green |
| Shield ⊕ | Yellow-green |

Output signal 4 ... 20 mA, 3-wire



Pin assignment, analogue output, redundant, opposing

| Electrical connection, M12 x 1, 4-pin | | |
|---------------------------------------|---------------------------------------|-------------|
| Conductor | 4 ... 20 mA / 20 ... 4 mA (redundant) | |
| | Connector 1 | Connector 2 |
| UB (+) | 1 | 1 |
| UB (-) | 3 | 3 |
| S (+): Kanal 1 | 4 | - |
| S (+): Kanal 2 | - | 4 |
| Shield ⊕ | Case | Case |



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