



FC23

Compression Load Cell

SPECIFICATIONS

- ◆ 50 – 2000 lbf Ranges
- ◆ High Level or mV
- ◆ Interchangeable
- ◆ Compact Load Button Design
- ◆ Industry Standard Packaging
- ◆ CE Compliance

The **FC23** is a high compression force sensor that creates new markets previously unrealizable due to cost and performance constraints. The FC23 offers normalized zero and span for interchangeability and is thermally compensated for changes in zero and span with respect to temperature.

The FC23 incorporates MEAS' proprietary Microfused™ technology which employs micromachined silicon piezoresistive strain gages fused with high temperature glass to a high performance stainless steel substrate. Microfused™ technology eliminates age-sensitive organic epoxies used in traditional load cell designs providing excellent long term span and zero stability. The FC23 measures direct force and is therefore not subject to lead-die fatigue failure common with competitive designs which use a pressure capsule embedded within a silicone gel-filled cavity. Operating at very low strains, Microfused™ technology provides an essentially unlimited cycle life expectancy, superior resolution, and high over-range capabilities.

The FC23 brings your OEM product to life whether you need thousands or millions of load cells annually. Although the standard model is ideal for a wide range of applications, our dedicated design team at our Load Cell Engineering Center is ready to provide you with custom designs for your OEM applications.

Please refer to models FS20 and FC22 for lower force applications.

FEATURES

- ◆ Interchangeable
- ◆ Low Noise
- ◆ Robust: High Over-Range Capability
- ◆ High Reliability
- ◆ Low Deflection
- ◆ Low Off Center Errors
- ◆ Fast Response Time
- ◆ Long Cycle Life Expectancy

APPLICATIONS

- ◆ Batch Weighing
- ◆ Robotics End-Effectors
- ◆ Variable Force Control
- ◆ Load and Compression Sensing
- ◆ Assembly Line Force Measurement
- ◆ Pumps
- ◆ Hoist and Winch Loads
- ◆ Weighing

STANDARD RANGES

| Range | lbf |
|-----------|-----|
| 0 to 0050 | * |
| 0 to 0100 | * |
| 0 to 0250 | * |
| 0 to 0500 | * |
| 0 to 1000 | * |
| 0 to 2000 | * |

PERFORMANCE SPECIFICATIONS

Supply Voltage: 5.0V, Ambient Temperature: 25°C (unless otherwise specified)

| PARAMETERS | MIN | TYP | MAX | UNITS | NOTES |
|---|------|-------|------|-------|-------|
| Span (Uncompensated) | 95 | 100 | 105 | mV | 1 |
| Span (Unamplified) | 95 | 100 | 105 | mV | 1 |
| Span (Amplified) | 3.8 | 4.0 | 4.2 | V | 1 |
| Zero Force Output (Uncompensated) | -50 | 0 | 50 | mV | 1 |
| Zero Force Output (Unamplified) | -20 | 0 | 20 | mV | 1 |
| Zero Force Output (Amplified) | 0.3 | 0.5 | 0.7 | V | 1 |
| Accuracy (non linearity, hysteresis, and repeatability) | -1 | | 1 | %Span | 2 |
| Input Resistance (Unamplified) | | 3 | | kΩ | |
| Input Resistance (Uncompensated) | | 2.2 | | kΩ | |
| Output Resistance (Unamplified & Uncompensated) | | 2.2 | | kΩ | |
| Temperature Error – Span (Amplified & Unamplified) | -2.5 | ±1 | 2.5 | %Span | 3 |
| Temperature Error – Zero (Amplified & Unamplified) | -2.5 | ±1 | 2.5 | %Span | 3 |
| Supply Voltage (Uncompensated) | 2 | 3.3 | 6.7 | V | 1 |
| Supply Voltage (Unamplified) | 2 | 5 | 10 | V | 1 |
| Supply Voltage (Amplified) | 4.5 | 5 | 5.5 | V | 1 |
| Response Time (10% to 90%) | | 1.0 | | ms | |
| Long Term Stability (1 year) | | ±1 | | %Span | |
| Maximum Overload | | | 2.5X | Rated | |
| Compensated Temperature | 0 | | 50 | °C | |
| Operating Temperature | -40 | | +85 | °C | |
| Storage Temperature | -40 | | +85 | °C | |
| Isolation Resistance (250Vdc) | 50 | | | MΩ | |
| Deflection at Rated Load | | | 0.05 | mm | |
| Humidity | 0 | | 90 | %RH | |
| Weight | | 47.23 | | grams | |

For custom configurations, consult factory.

Notes

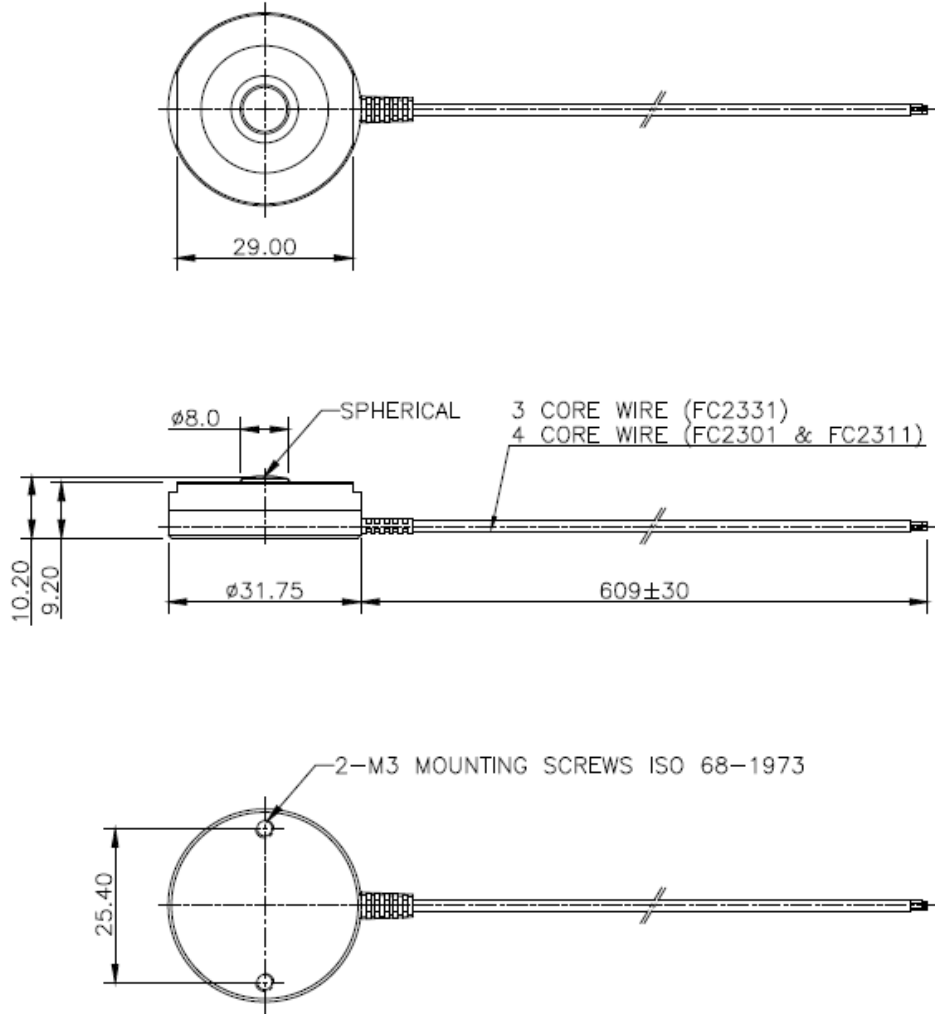
1. Ratiometric to supply.
2. Best fit straight line.
3. Maximum temperature error over compensated range with respect to 25°C.

CE Compliance

IEC61000-4-2: [4kV/ 4 kV (Air/Contact)]

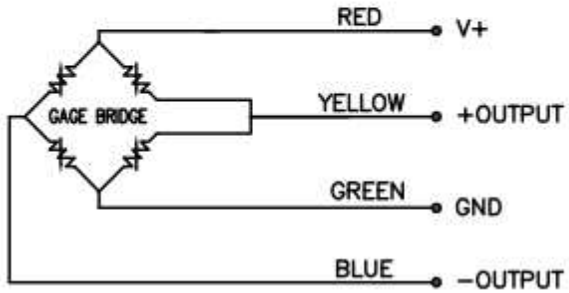
IEC61000-4-3: (3 V/m)

DIMENSIONS

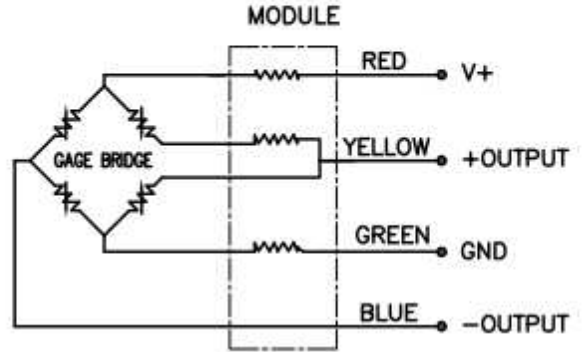


CONNECTIONS

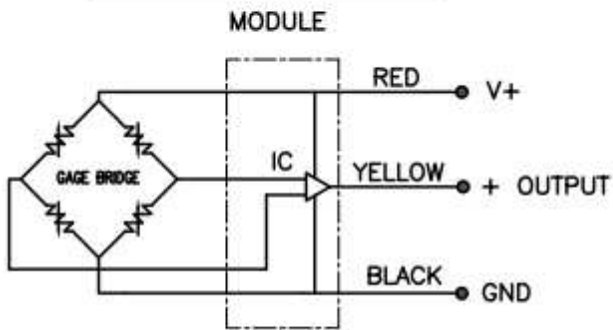
FC2301:
MILLIVOLT OUTPUT VERSION



FC2311:
MILLIVOLT OUTPUT VERSION

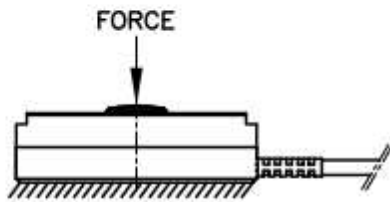


FC2331:
AMPLIFIED OUTPUT VERSION



WIRE NOTE:

| P/N | WIRE CONNECTIONS |
|------------------|--|
| FC2301 FC2311 | 4 CORE WIRE (AWG32 OR AWG34, 125°C, 300V) YELLOW: +OUTPUT BLUE: -OUTPUT RED: V+ GREEN: GND |
| FC2331 | 3 CORE WIRE (AWG32 OR AWG34, 125°C, 300V) RED: V+ YELLOW: +OUTPUT BLACK: GND |



ORDERING INFORMATION

| | | | | | | |
|--------------------|-----------|----------|---------------|--------------|----------|----------|
| FC23 | 3 | 1 | - 0000 | - 500 | - | L |
| Model Name | | | | | | |
| Output | | | | | | |
| 0=Uncompensated | 3=0-100mV | | | | | |
| 3=0.5-4.5V | | | | | | |
| Connection | | | | | | |
| 1=2ft Cable | | | | | | |
| Specials | | | | | | |
| 0000 | | | | | | |
| Force Range | | | | | | |
| 0050 | 0100 | 0250 | | | | |
| 0500 | 1000 | 2000 | | | | |
| Multiplier | | | | | | |
| "-"=None | K=x1000 | | | | | |
| Units | | | | | | |
| L=lbf | N=Newtons | | | | | |

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