



## FS20

### Low Force Compression Load Cell

#### SPECIFICATIONS

- 500 to 5000 Grams-Force
- Amplified Output
- Interchangeable
- Industry Standard Packaging
- CE Compliance

The FS20 is a low compression force sensor that creates new markets previously unrealizable due to cost and performance constraints. The FS20 offers normalized zero and span for interchangeability and is thermally compensated for changes in zero and span with respect to temperature.

The FS20 incorporates TE's 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 FS20 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 FS20 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 the FC22 and FC23 for higher force applications.

#### FEATURES

- Small Size, Low Noise
- Robust, High Reliability
- High Over-Range Capability
- Low Deflection
- Essentially Unlimited Cycle Life Expectancy
- Low Off Center Errors
- Fast Response Time
- Industry Standard Packaging
- 500 to 5000 Grams-Force Range
- Reverse Polarity Protected

#### APPLICATIONS

- Robotics End-Effectors
- Variable Force Control
- Load and Compression Sensing
- Medical Pumps
- Contact Sensing
- Weighing
- Household Appliances

## STANDARD RANGES

Range	Grams-Force
0 to 0500	•
0 to 0750	•
0 to 1000	•
0 to 1500	•
0 to 2000	•
0 to 3000	•
0 to 5000	•

## PERFORMANCE SPECIFICATIONS

Supply Voltage: 5.0V, Ambient Temperature: 25°C (unless otherwise specified). TE Connectivity reserves the right to update and change these specifications without notice.

PARAMETERS	MIN	TYP	MAX	UNITS	NOTES
Excitation Voltage	4.975	5	5.025	Vdc	
Zero Output (FS2030)	0.45	0.5	0.55	Vdc	
Zero Output (FS2050)	0.95	1	1.05	Vdc	
Output Span (FS2030)	3.9	4	4.1	Vdc	
Output Span (FS2050)	2.9	3	3.1	Vdc	
Non-Linearity	-1		1	%FSO	
Zero Return	-0.80		0.80	%FSO	
Span Repeat	-0.80		0.80	%FSO	
Hysteresis	-0.80		0.80	%FSO	
Thermal Zero Shift	-0.05		0.05	%FSO/°C	1
Thermal Sensitivity Shift	-0.05		0.05	%FSO/°C	1
Zero Drift	-0.5		0.5	%FSO	3 minutes
Creeping	-0.5		0.5	%FSO	3 minutes
Isolation Resistance (250Vdc)	50			MΩ	
Safe Load Limit	2.5X			Rated	
Operating Temperature	-40		+85	°C	
Storage Temperature	-40		+85	°C	
Compensated Temperature	0		50	°C	
Humidity	0		90	%RH	
Deflection at Rated Load			0.05	mm	
Endurance		1.0 E+6		FS cycles	

For custom configurations, consult factory.

## Notes

1. Maximum temperature error over compensated range with respect to 25°C

## CE Compliance

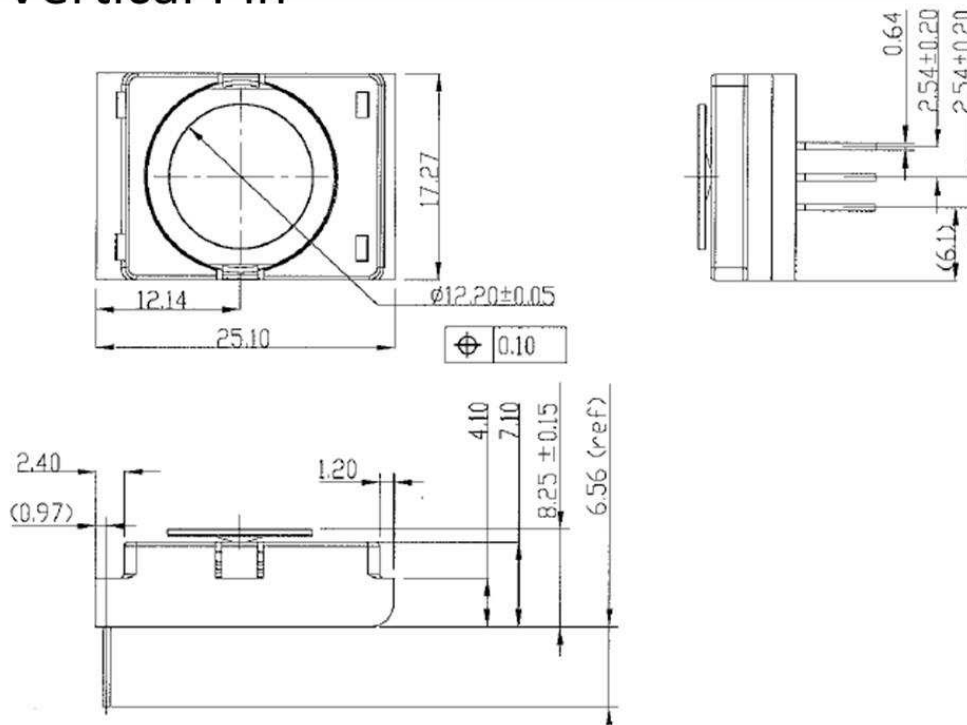
IEC61000-4-2 [4 KV/4 KV (Air/Contact)]

IEC61000-4-3 (3 V/m)

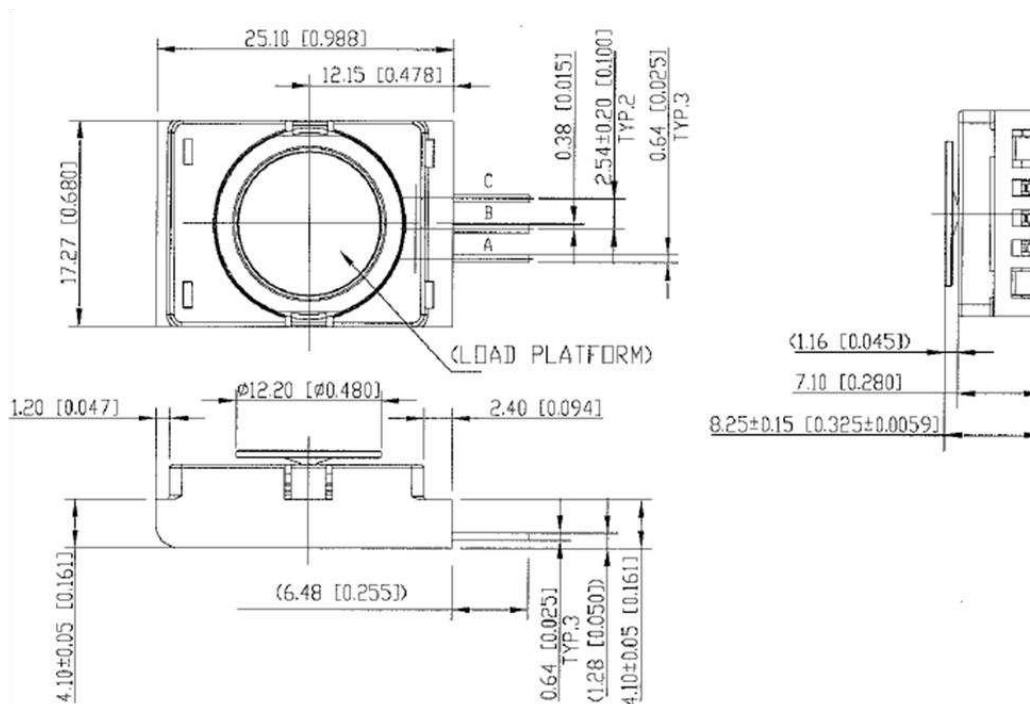
IEC55022 Class A

## DIMENSIONS

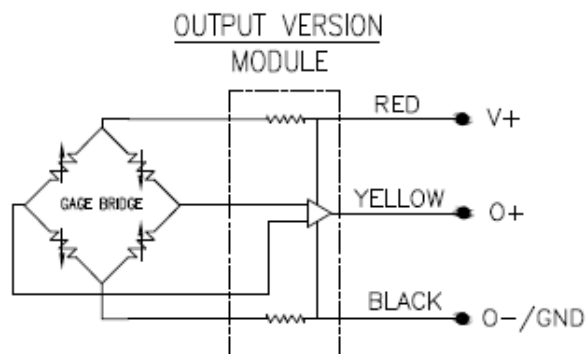
### Vertical Pin



### Horizontal Pin

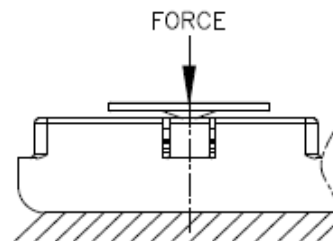


## CONNECTIONS



### PIN OUT NOTES:

A: O-/GROUND  
B: O+  
C: V+



## ORDERING INFORMATION

FS20	5	0	-	0000	-	1000	-	G
Model	Output	Connection	-	Specials	-	Force Range	Multiplier	Units
<b>FS20</b>	<b>3</b> = 0.5 – 4.5V <b>5</b> = 1 – 4V	<b>0</b> = Pin output	-	<b>0000</b> <b>000X</b> (see below clarification)	-	<b>0500</b> <b>0750</b> <b>1000</b> <b>1500</b> <b>2000</b> <b>3000</b> <b>5000</b>	- = None	<b>G</b> = Gram-Force

Clarification:

Code 0000 means that the pin configuration is horizontal

Code 000X means that the pin configuration is vertical.

### NORTH AMERICA

Measurement Specialties, Inc.,  
a TE Connectivity company  
45738 Northport Loop West  
Fremont, CA 94538  
Tel: +1 800 767 1888  
Fax: +1 510 498 1578  
[customercare.frmt@te.com](mailto:customercare.frmt@te.com)

### EUROPE

MEAS France SAS,  
a TE Connectivity company  
26 Rue des Dames  
78340 Les Clayes-sous-Bois, France  
Tel: +33 (0) 130 79 33 00  
Fax: +33 (0) 134 81 03 59  
[customercare.lcsb@te.com](mailto:customercare.lcsb@te.com)

### ASIA

Measurement Specialties (China) Ltd.,  
a TE Connectivity company  
No. 26 Langshan Road  
Shenzhen High-Tech Park (North) Nanshan District,  
Shenzhen, 518057  
China  
Tel: +86 755 3330 5088  
Fax: +86 755 3330 5099  
[customercare.shzn@te.com](mailto:customercare.shzn@te.com)

### [TE.com/sensorsolutions](http://TE.com/sensorsolutions)

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