

# XFL212R Miniature Load Cell



- 0-5 to 0-500N [0-1 to 100 lbf]
- Compression
- Extremely Flat 3,5 mm [0.14"]
- Diameter Only 12 mm [0.49"]
- Integrated Spherical Load Button
- For Static and Dynamic Applications

## DESCRIPTION

The XFL212R series is an extraordinarily thin miniature load cell with a temperature compensation module integrated into the output cable. This design allows Measurement Specialties, Inc. to manufacture extremely small sensors without sacrificing thermal zero and sensitivity performance. The XFL212R measures strain during compression in static and dynamic applications. Unlike sensors with flat force application surfaces, the XFL212R incorporates a spherical load button, which assures more precise loading and in return more accurate measurements.

The sensing element is fitted with a fully temperature compensated Wheatstone bridge equipped with high stability micro-machined silicon strain gages. The use of silicon strain gages optimizes its performance at low ranges and frequencies. The sensor is available in aluminum alloy or stainless steel, depending on the full scale range and can withstand considerable overloads.

With many years of experience as a designer and manufacturer of sensors, Measurement Specialties, Inc. often works with customers to design or customize sensors for specific uses and testing environments. To meet your needs we also offer complete turnkey systems. The matched components (sensor, power, amplifier and digital display) are formatted, calibrated and ready for immediate use.

## FEATURES

- Small size
- Flat sensor
- High Stiffness
- Integrated Spherical Load Button
- Other designs available on request

## APPLICATIONS

- Strain table measurement
- Micro component assembly tools
- Mechanical switches control
- Laboratory
- Robotic

## STANDARD RANGES

<b>F.S. Ranges in N</b>	5 - 10 - 20 - 50 - 100	200 - 500
<b>F.S. Ranges in lbf</b>	1 - 2 - 4 - 10 - 20	40 - 100
<b>Stiffness in N/m</b>	$1.3 \times 10^5$ to $1.2 \times 10^8$	$1.9 \times 10^8$ to $7.6 \times 10^8$
<b>Stiffness in lbf/ft</b>	$8.9 \times 10^4$ to $8.2 \times 10^5$	$1.3 \times 10^7$ to $5.2 \times 10^7$
<b>Material</b>	Aluminium	Stainless Steel

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## PERFORMANCE SPECIFICATIONS

All values are typical at temperature  $20 \pm 1^\circ \text{C}$

PARAMETERS	
Operating Temperature Range (OTR)	-40 to 120° C [-40 to 248° F]
Compensated Temperature Range (CTR)	0 to 60° C [32 to 140° F]
Zero Shift in CTR	<2% F.S. / 50° C [100° F]
Sensitivity Shift in CTR	<2% of reading / 50° C [100° F]
Range (F.S.)	0-5 to 0-500 N [0-1 to 0-100 lbf]
Over-Range	
Without Damage	2 x F.S.
Without Destruction	3 x F.S.
Accuracy	
Linearity	$\leq \pm 1\%$ F.S.
Hysteresis	$\leq \pm 1\%$ F.S.

## Electrical Characteristics

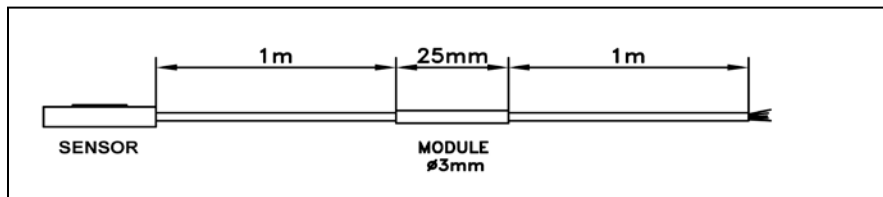
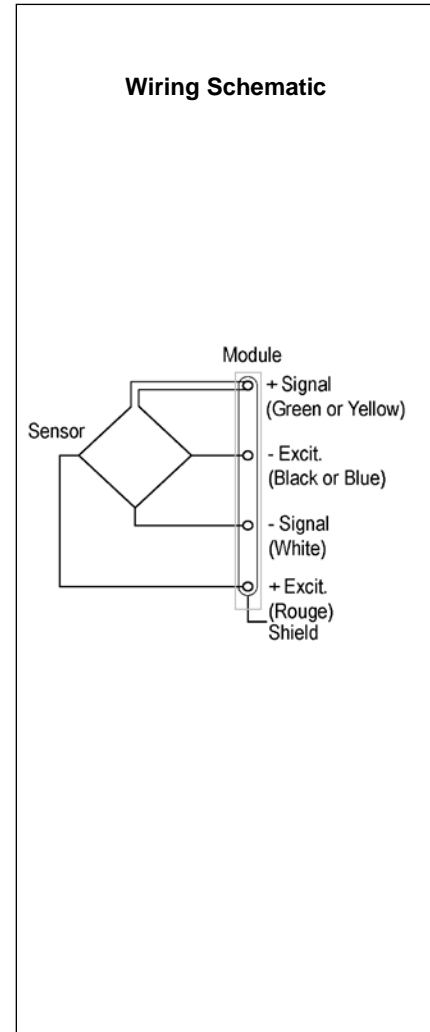
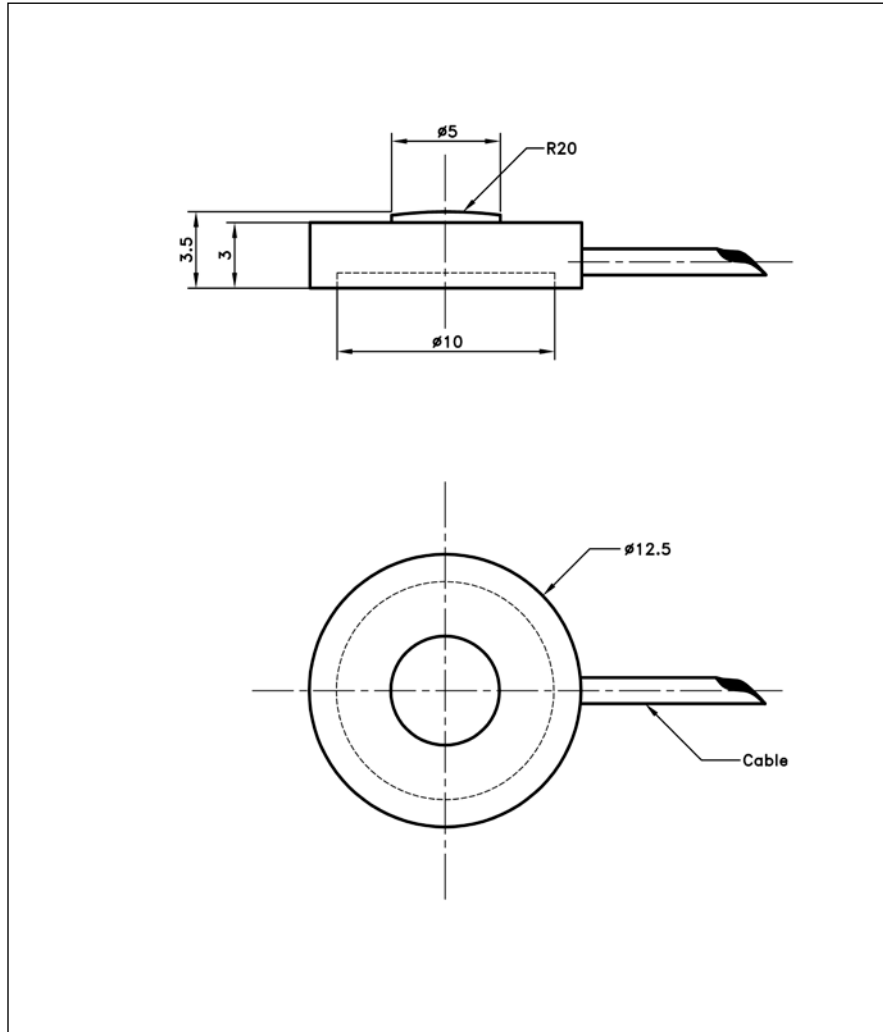
Model	XFL212R
Supply Outage	10Vdc
F.S. Output	100 mV
Zero Offset	$< \pm 10 \text{ mV}$
Input Impedance/Consumption	1000 to 3000Ω
Output Impedance	500 to 1000Ω
Insulation under 50Vdc	$\geq 100 \text{ M}\Omega$

## Notes

1. Electrical Termination: Cable: Shielded cable with 4 Teflon wires (AWG36), standard length 2 m [6.5 ft] ; Compensation module at 1 m [3.25 ft] from transducer
2. Material: Body in stainless steel or aluminum alloy
3. Protection Index: IP50

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## DIMENSIONS & WIRING SCHEMATIC (IN METRIC AND IMPERIAL)



Dimensions in mm [inch]

### Mechanical Characteristics

F. S. Ranges In N [in lbf]	5 - 10 - 20 - 50 - 100 [1 - 2 - 4 - 10 - 20]	200 - 500 [40 - 100]
Material	Aluminum	Stainless steel
Stiffness in N/m	$1.3 \times 10^5$ to $1.2 \times 10^8$	$1.9 \times 10^8$ to $7.6 \times 10^8$
Stiffness in lbf/ft	$8.9 \times 10^4$ to $8.2 \times 10^5$	$1.3 \times 10^7$ to $5.2 \times 10^7$

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## OPTIONS

<b>ET1</b>	: CTR -20 to 100° C [-4 to 212° F]
<b>ET2</b>	: CTR -40 to 120° C [-40 to 248° F]
<b>ET3</b>	: CTR -40 to 150° C [-40 to 302° F] OTR=CTR
<b>L00M</b>	: special cable length, replace "00" with total length in meters
* Order Flat Force application surface with reference <b>XFL212</b> .	

## ORDERING INFO

XFL212R - 500N - /ET1



Other Options (ET1, ET2, etc.)

Unit (N=Newtons)

Range

Model

### NORTH AMERICA

Measurement Specialties, Inc.  
Vibration Design Center  
32 Journey - Suite 150  
Aliso Viejo, CA 92656  
United States USA  
Tel: 1-949-716-0877  
Fax: 1-949-916-5677  
[t&m@meas-spec.com](mailto:t&m@meas-spec.com)

### EUROPE

Measurement Specialties  
(Europe), Ltd.  
26 Rue des Dames  
78340 Les Clayes-Sous-Bois,  
France  
Tel: +33 (0) 130 79 33 00  
Fax: +33 (0) 134 81 03 59  
[pfg.cs.emea@meas-spec.com](mailto:pfg.cs.emea@meas-spec.com)

### ASIA

Measurement Specialties  
(China), Ltd.  
No. 26 Langshan Road  
Shenzhen High-Tech Park (North)  
Nanshan District, Shenzhen  
518057  
China  
Tel: +86 755 3330 5088  
Fax: +86 755 3330 5099  
[pfg.cs.asia@meas-spec.com](mailto:pfg.cs.asia@meas-spec.com)

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