

# XFTC301 Miniature Load Cell



- 0-500 N to 0-10kN [0-100lbf to 0-2klbf]
- Tension and/or Compression
- High Stiffness
- For Static and Dynamic Applications
- Threaded Male Mechanical Fitting
- Strain Relief Spring

## DESCRIPTION

The XFTC301 series has been specifically developed to measure tension and compression in static and dynamic applications. The miniature size facilitates testing where space is at a premium.

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 the load cell's performance at low ranges and frequencies. A strain relief spring strengthens the cable output. With two threaded male studs, the XFTC301 is easily installed in industrial or OEM applications.

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

- Very small size
- Aluminum and stainless steel version
- For static and dynamic applications
- Other threads in option

## APPLICATIONS

- Micro mechanic equipment
- Robotics and effectors
- Laboratory
- Spring testing device

## STANDARD RANGES

<b>F.S. Ranges in N</b>	500 - 1k	2k	5k – 10k
<b>F.S. Ranges in lbf</b>	100 - 200	400	1k – 2k
<b>Stiffness in N/m</b>	$3 \times 10^7$	$1 \times 10^8$	$2 \times 10^9$ to $4 \times 10^9$
<b>Stiffness in lbf/ft</b>	$2.10 \times 10^6$ to $4.1 \times 10^6$	$6.9 \times 10^6$	$1.4 \times 10^8$ to $2.7 \times 10^8$
<b>Materials</b>	Aluminum Alloy	Stainless Steel	

# XFTC301 Miniature Load Cell

## PERFORMANCE SPECIFICATIONS

Ambient Temperature: 20±1° C (unless otherwise specified)

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.)	0-500N to 0-10kN [0-100lbf to 0-2klbf]
Over-Range	
Without Damage	2 x F.S.
Without Destruction	3 x F.S.
Accuracy	
Linearity	≤±0.5% F.S.
Hysteresis	≤±0.5% F.S.

### Electrical Characteristics

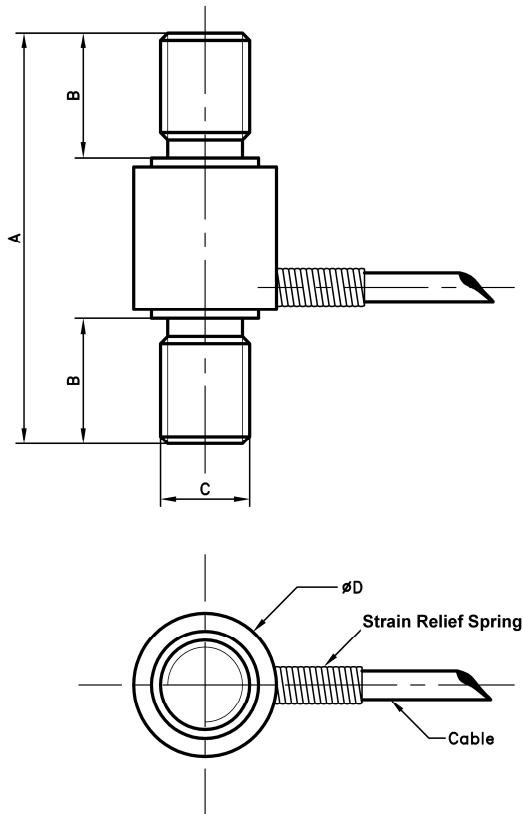
<b>Model</b>	<b>XFTC301</b>
Supply Outage	10Vdc
F.S. Output	±100mV, ±50mV for 500N; 100lbf Model
Zero Offset	<±10mV
Input Impedance/Consumption	1000 to 3000Ω
Output Impedance	500 to 1000Ω
Insulation under 50Vdc	≥100MΩ

### Notes

1. Shielded cable with 4 Teflon wires (AWG36/28), standard length 2m [6.5 ft] with strain relief spring
2. Material: Body in stainless steel or aluminum alloy depending on F.S., ; Two male threads M5 or [10-32 UNF], M10 or [3/8-24 UNF] depending on F.S. (metric thread is standard)
3. Protection Index: IP50 (other levels available on request)

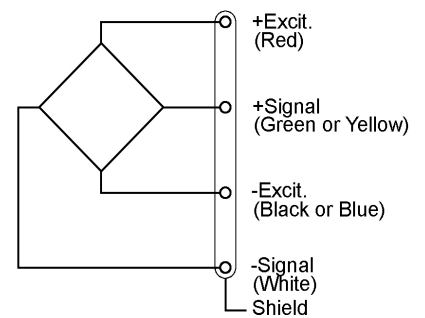
# XFTC301 Miniature Load Cell

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



Separate data sheets are available for load cells with two male/female threads reference [XFTC311](#) and two female threads reference [XFTC321](#). Other threads possible on request.

### Wiring Schematic



### Dimensions in mm [inch]

Full Scale Range in N in [lbf]	500 – 1000 [100 – 200]	2000 [400]	5000 – 10000 [1000 – 2000]
A	36 [1.42]		46 [1.81]
B	12.5 [0.49]		14 [0.55]
C (Thread)	M5		M10
Ø D	10 [0.39]		16 [0.63]
Material	Aluminum Alloy	Stainless Steel	
Stiffness in N/m	$3 \times 10^7$	$1 \times 10^8$	$2 \times 10^9$ to $4 \times 10^9$
Stiffness in lbf/ft	$2.10^6$ to $4.1 \times 10^6$	$6.9 \times 10^6$	$1.4 \times 10^8$ to $2.7 \times 10^8$

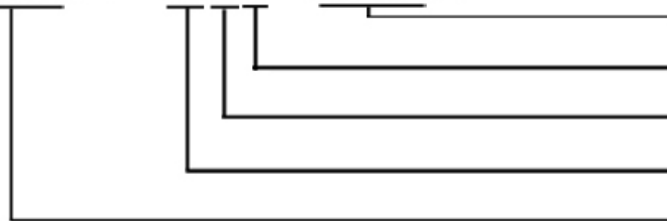
# XFTC301 Miniature Load Cell

## 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>HA</b>	: Accuracy (CNL&H) ±0.5% F.S.
<b>LC"x"</b>	: Additional cable length to standard length (in m) ( <b>Note</b> : "X" = Custom value)

## ORDERING INFO

XFTC301 - 10KN - /HA/ET1



Other Options (HA, ET1, ET2, etc.)

Unit (N=Newtons)

Multiplier (K for ranges >1000)

Range

Model

### NORTH AMERICA

Measurement Specialties, Inc.  
1000 Lucas Way  
Hampton, VA 23666  
USA  
Tel: 1-757-766-1500  
Fax: 1-757-766-4297  
[pvg.cs.amer@meas-spec.com](mailto:pvg.cs.amer@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

Joint Sensor Instruments Ltd.  
Lane 1 Anhua Industrial Zone  
Shenzhen, PN 518000  
China  
Tel: +86(0) 755 2744 3931  
Fax: +86(0) 755 8311 6697  
[sensor@szjoint.com](mailto:sensor@szjoint.com)

The information in this sheet has been carefully reviewed and is believed to be accurate; however, no responsibility is assumed for inaccuracies. Furthermore, this information does not convey to the purchaser of such devices any license under the patent rights to the manufacturer. Measurement Specialties, Inc. reserves the right to make changes without further notice to any product herein. Measurement Specialties, Inc. makes no warranty, representation or guarantee regarding the suitability of its product for any particular purpose, nor does Measurement Specialties, Inc. assume any liability arising out of the application or use of any product or circuit and specifically disclaims any and all liability, including without limitation consequential or incidental damages. Typical parameters can and do vary in different applications. All operating parameters must be validated for each customer application by customer's technical experts. Measurement Specialties, Inc. does not convey any license under its patent rights nor the rights of others.