



## FEATURES

- ◆ Male/female M5 and M10 threaded
- ◆ Optional IP rating improvement
- ◆ Extended temperature use as option

## APPLICATIONS

- ◆ Strain measurement on finger-like command
- ◆ Small size actuators
- ◆ Miniature press-fit device
- ◆ Robotics control measurement
- ◆ Laboratory

# XFTC311

## Miniature Load Cell

### SPECIFICATIONS

- ◆ Range from 0-500N to 0-10kN  
[0-100lbf to 2klbf]
- ◆ Tension and Compression
- ◆ Linearity  $\leq \pm 0.5\%$  FS

The **XFTC311** 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 male/female threads, the **XFTC311** is easily installed in industrial or OEM applications.

On request, Instruction documents can be provided to ease the selection and use of our sensors and provide helpful tips.

**STANDARD RANGES**

Ranges in N (FS)	500 - 1k	2k	5k - 10k
Ranges in lbf (FS)	100 - 200	400	1k - 2k
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	$2.1 \times 10^6$ to $4.1 \times 10^6$	$6.9 \times 10^6$	$1.4 \times 10^8$ to $2.7 \times 10^8$
Materials	Aluminium	Stainless Steel	

**PERFORMANCE SPECIFICATIONS (typical values at temperature 23±3°C)**

<b>PARAMETERS</b>	
Operating Temperature Range (OTR)	-40 to 120° C [-40 to 248° F]
Compensated Temperature Range (CTR)	0 to 60° C [32 to 140° F]
Thermal Zero Shift in CTR	<2% F.S. / 50° C [100° F]
Thermal Sensitivity Shift in CTR	<2% of reading / 50° C [100° F]
<b>Over-Range</b>	
Without Damage	2 x F.S.
Without Destruction	3 x F.S.
<b>Accuracy</b>	
Linearity	≤±0.5% F.S.
Hysteresis	≤±0.5% F.S.

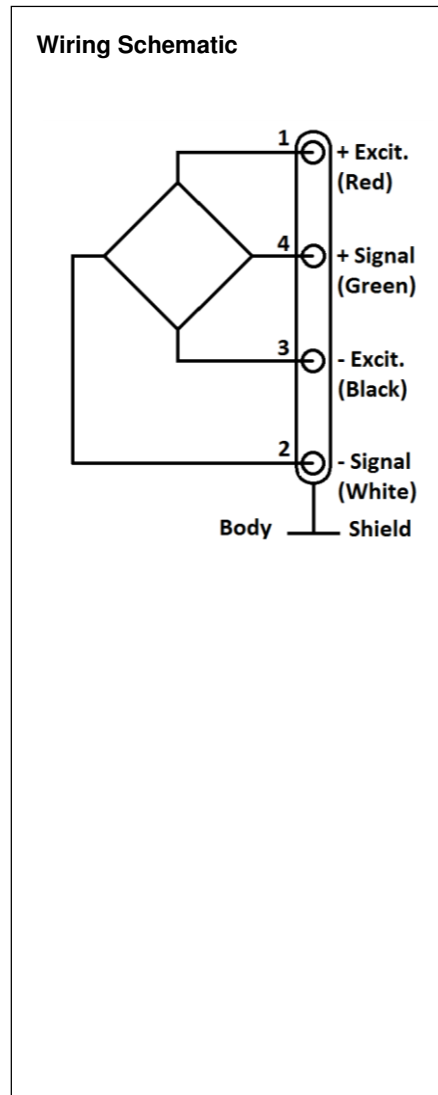
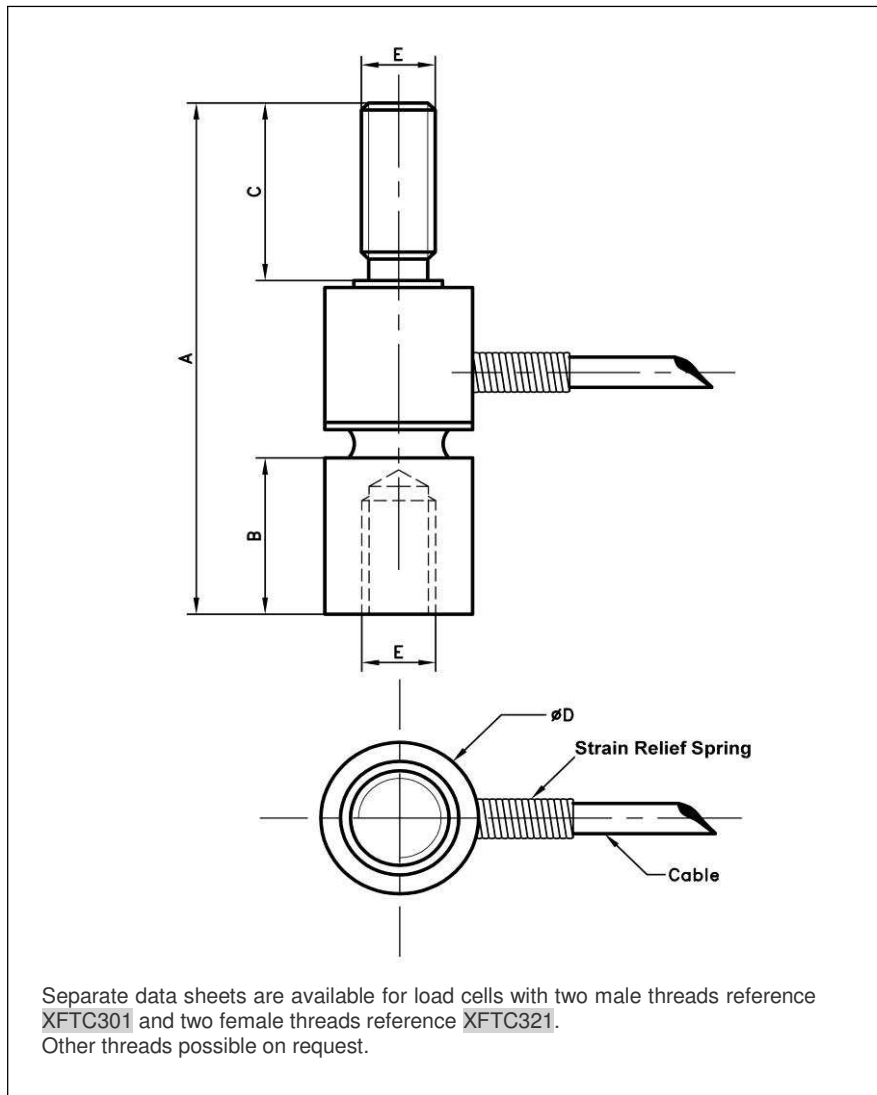
**Electrical Characteristics**

<b>Model</b>	<b>XFTC311</b>
Supply Voltage	1 to 10 Vdc regulated
Sensitivity "FSO" <sup>2</sup>	±5 mV/V for 500N model ±10 mV/V for models ≥ 1kN
Zero Offset	<±10mV
Input Impedance/Consumption	1000 to 3000Ω
Output Impedance	500 to 1000Ω
Insulation under 50Vdc	≥100MΩ

**Notes**

1. Sensors are calibrated with 10Vdc power supply as standard.
2. Signal goes positive in tension with standard wiring configuration.
3. Shielded cable with 4 wires (AWG36/28), standard length 2 m [6.5 ft] with strain relief spring
4. Material: Body in stainless steel or aluminum alloy depending on F.S.
5. Protection Index: IP50 (other levels available on request)
6. CE conformance according to EN 61010-1, EN 50081-1, EN 50082-1

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



**Dimensions in mm [inch]**

Range in N [in lbf]	500 – 1000 [100 – 200]	2000 [400]	5000 – 10000 [1000 – 2000]
A	36 [1.42]		46 [1.81]
B	11 [0.43]		13 [0.51]
C	12.5 [0.49]		14 [0.55]
Ø D	10 [0.39]		16 [0.63]
E Thread	M5		M10
Internal depth	8 [0.31]		10 [0.39]
Material	Aluminum Alloy	Stainless Steel	
Stiffness in N/m	3x10 <sup>7</sup>	1x10 <sup>8</sup>	2x10 <sup>9</sup> to 4x10 <sup>9</sup>
Stiffness in lbf/ft	2.1x10 <sup>6</sup> to 4.1x10 <sup>6</sup>	6.9x10 <sup>6</sup>	1.4x10 <sup>8</sup> to 2.7x10 <sup>8</sup>

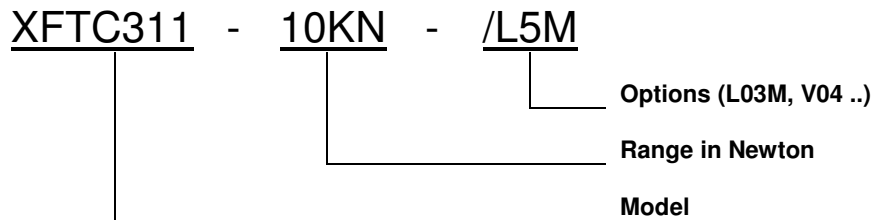
## XFTC311

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>HA</b> : Accuracy (CNL&H) $\leq \pm 0.5\%$ F.S.
<b>V00</b> : Non-standard power supply calibration, replace "00" with value in Volt
<b>L00M</b> : special cable length, replace "00" with total length in meters

### ORDERING INFO



#### NORTH AMERICA

Measurement Specialties, Inc.,  
a TE Connectivity Company  
Tel: 1-800-522-6752  
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