

# XFTC311 Miniature Load Cell



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

## DESCRIPTION

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 two male/female threads, the XFTC311 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

- Male/female M5 and M10 threaded
- Tension and/or Compression
- Optional IP rating improvement
- Extended temperature use as option
- Optional improved global accuracy

## APPLICATIONS

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

## 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>	$2.1 \times 10^6$ to $4.1 \times 10^6$	$6.9 \times 10^6$	$1.4 \times 10^8$ to $2.7 \times 10^8$
<b>Materials</b>	Aluminium	Stainless Steel	

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## 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 [0-100 lbf 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

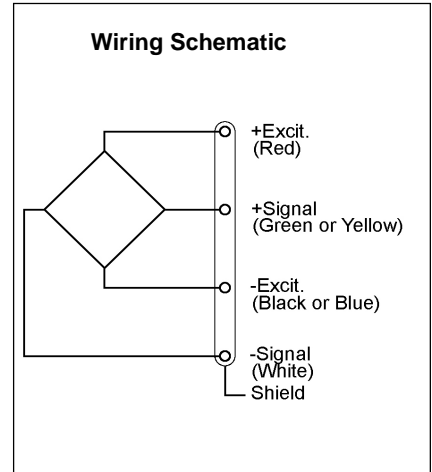
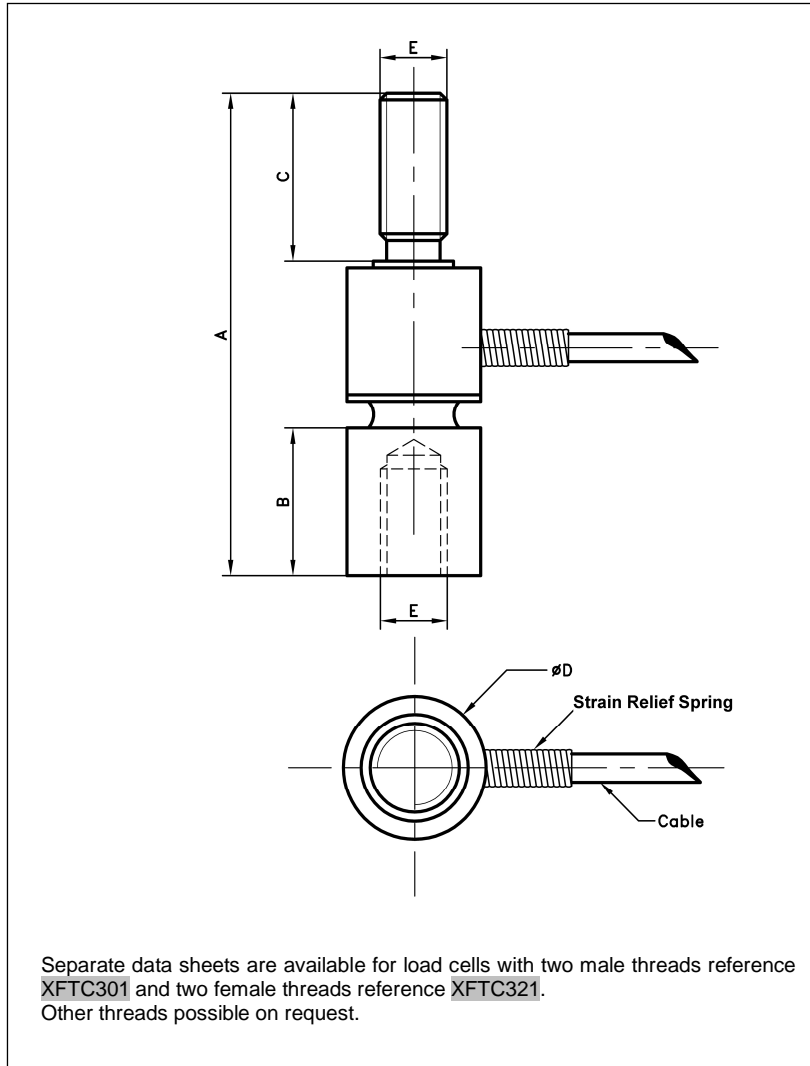
<b>Model</b>	<b>XFTC311</b>
Supply Outage	10Vdc
F.S. Output	±100mV, ±50mV for 100 lbf model
Zero Offset	<±10mV
Input Impedance/Consumption	1000 to 3000Ω
Output Impedance	500 to 1000Ω
Insulation under 50Vdc	≥100MΩ

### Notes

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

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



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	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> 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> to 2.7x10 <sup>8</sup>

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

## ORDERING INFO

XFTC311 - 10KN - /HA/ET1



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