

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

F.S. Ranges in N	500 - 1k	2k	5k – 10k
F.S. Ranges in lbf	100 - 200	400	1k – 2k
Stiffness in N/m	3×10^7	1×10^8	2×10^9 to 4×10^9
Stiffness in lbf/ft	2.10×10^6 to 4.1×10^6	6.9×10^6	1.4×10^8 to 2.7×10^8
Materials	Aluminum Alloy	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 [0-100lbf 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

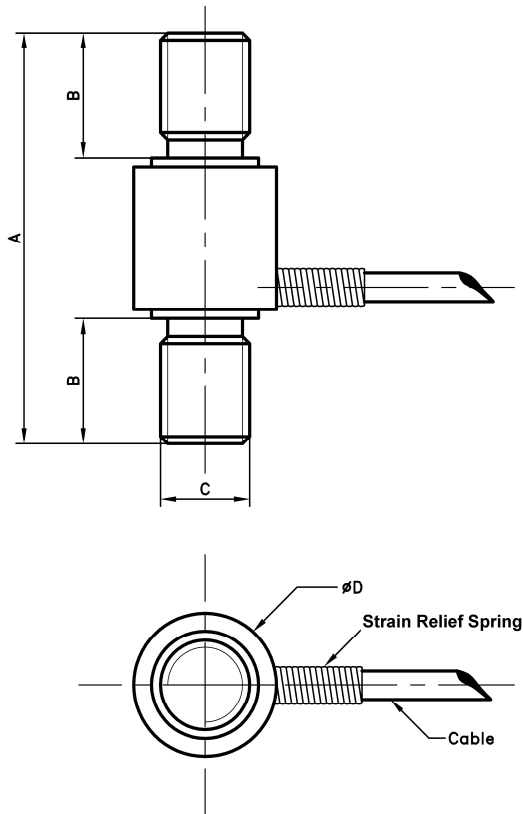
Model	XFTC301
Supply Outage	10Vdc
F.S. Output	±100mV, ±50mV for 500N; 100lbf Model
Zero Offset	<±10mV
Input Impedance/Consumption	1000 to 3000Ω
Output Impedance	500 to 1000Ω
Insulation under 50Vdc	≥100MΩ

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)

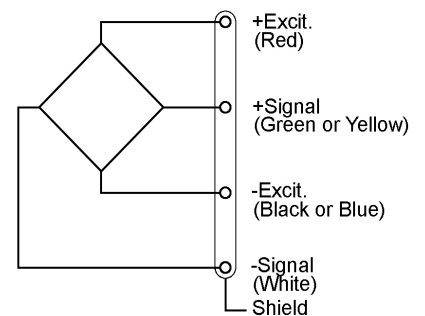
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DIMENSIONS & WIRING SCHEMATIC (IN METRIC AND IMPERIAL)



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	3×10^7	1×10^8	2×10^9 to 4×10^9
Stiffness in lbf/ft	2.10^6 to 4.1×10^6	6.9×10^6	1.4×10^8 to 2.7×10^8

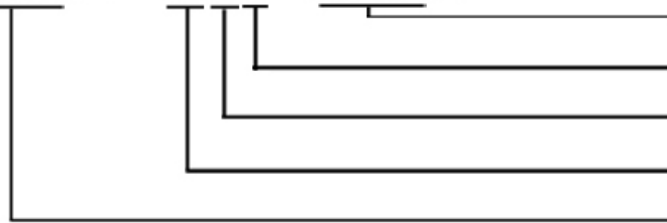
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OPTIONS

ET1	: CTR -20 to 100° C [-4 to 212° F]
ET2	: CTR -40 to 120° C [-40 to 248° F]
ET3	: CTR -40 to 150° C [-40 to 302° F] OTR=CTR
HA	: Accuracy (CNL&H) ±0.5% F.S.
LC"x"	: Additional cable length to standard length (in m) (Note : "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

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