

XFTC300 Miniature Load Cell



- 0-2N to 0-2kN [0.4 lbf to 400 lbf]
- Tension and/or Compression
- High Stiffness
- For Static and Dynamic Applications
- Threaded Male Mechanical Fitting
- High Level Output Model with Integrated Amplifier
- High Overload Capacity

DESCRIPTION

The XFTC300 series has been specifically developed to measure tension and/or compression in static and dynamic applications. The miniature size and light-weight facilitate testing where these conditions are necessary.

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. For sensors with a range of between 2 and 2kN, a high-level output model is available. With two male threads, the XFTC300 is easily installed in industrial or OEM applications. A strain relief spring strengthens the cable output.

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 design easy to mount
- Tension and/or Compression
- Heavy duty
- Wide temperature range in option
- Easy to customize signal and design

APPLICATIONS

- Dynamic strain cylinder regulation
- Miniature press-fit device
- Fatigue test benches
- Robotics regulation
- Small size actuators

STANDARD RANGES

F.S. Ranges in N	2 - 5 - 10 - 20 - 50	100 - 200	500 - 1k	2k
F.S. Ranges in lbf	0.4 - 1 - 2 - 4 - 10	20 - 40	100 - 200	400
Stiffness in N/m	3.8×10^5 to 4.7×10^7	7.9×10^7 to 2.2×10^8	3.4×10^8 to 9.6×10^8	2.7×10^9
Stiffness in lbf/ft	2.6×10^4 to 3.2×10^5	5.4×10^5 to 1.5×10^7	2.3×10^7 to 6.6×10^7	1.9×10^8
Material	Aluminum	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.)	0-2N to 0-2kN [0-0.4 lbf to 0-400 lbf]
Over-Range	
Without Damage	2 to 4 x F.S.
Without Destruction	3 to 6 x F.S.
Accuracy	
Linearity	≤±0.5% F.S.
Hysteresis	≤±0.5% F.S.

Electrical Characteristics

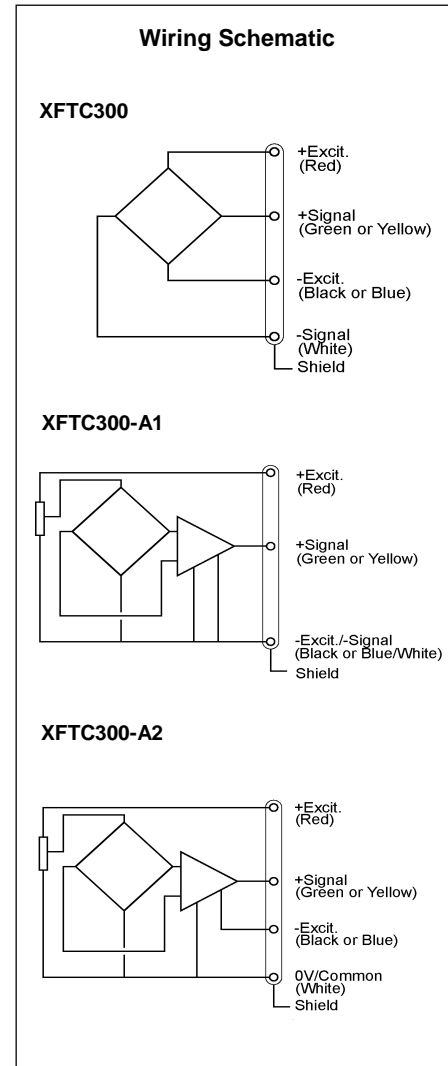
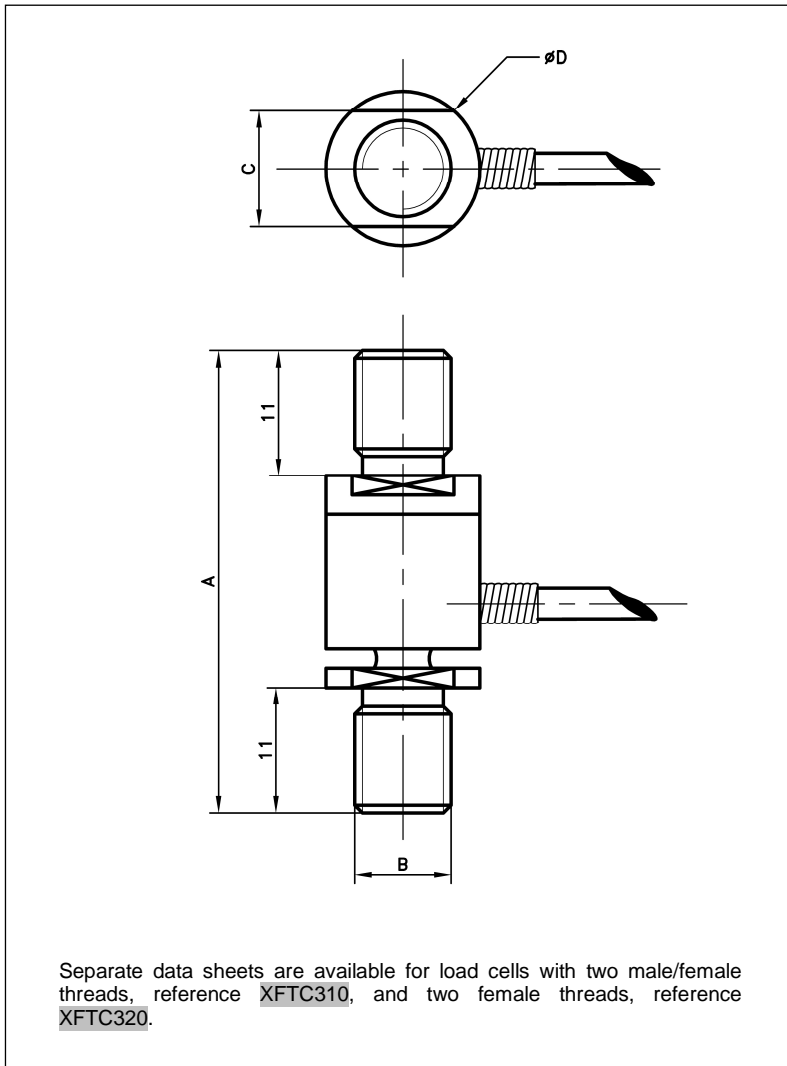
Model	XFTC300	XFTC300-A1	XFTC300-A2
Supply Outage	10Vdc	10 – 30Vdc	±15Vdc (±12 to ±18Vdc)
F.S. Output	±100mV	±2V ±5% F.S.	±5V ±5% F.S.
Zero Offset	<±10mV	2.5V ±5% F.S.	0V ±5% F.S.
Input Impedance/Consumption	1000 to 3000Ω	<30mA	30mA
Output Impedance	500 to 1000Ω	<10Ω	<10Ω
Insulation under 50Vdc	≥100MΩ	≥100MΩ	≥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 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)
4. A1 and A2 options are only available for ranges 500N, 1kN and 2kN

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DIMENSIONS & WIRING SCHEMATIC (IN METRIC AND IMPERIAL)



Dimensions in mm [inch]

Full Scale Range in N [in lbf]	2 - 5 - 10 - 20 - 50 [0.4 - 1 - 2 - 4 - 10]	100 - 200 [20 - 40]	500 - 1000 [100 - 200]	2000 [400]
A	36 [1.42]	36 [1.42]	46 [1.81]	46 [1.81]
B (Thread)	M5	M5	M10	M10
C	8 [0.31]	8 [0.31]	12 [0.47]	16 [0.63]
Ø D	10 [0.39]	10 [0.39]	16 [0.63]	20 [0.79]
Material	Aluminum Alloy	Stainless Steel		
Stiffness in N/m	3.8x10 ⁵ to 4.7x10 ⁷	7.9x10 ⁷ to 2.2x10 ⁸	3.4x10 ⁸ to 9.6x10 ⁸	2.7x10 ⁹
Stiffness in lbf/ft	2.4x10 ⁴ to 3.2x10 ⁶	5.4x10 ⁶ to 1.5x10 ⁷	2.3x10 ⁷ to 6.6x10 ⁷	1.9x10 ⁸
Over-range	x4	x3	x3	x2

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OPTIONS

A1	: Mono-tension (only available for ranges 500N, 1kN and 2kN)
A2	: Bipolar-tension (only available for ranges 500N, 1kN and 2kN)
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 (option not compatible with A1 and A2 versions)
HA	: Accuracy (CNL&H) $\pm 0.5\%$ F.S. (for models $\geq 100\text{N}$; 20lbf)
TS	: Tolerance on F.S. output $\leq \pm 2\%$ F.S.
LC"x"	: Additional cable length to standard length (in m) (Note : "X" = Custom value)

ORDERING INFO

XFTC300 - A1 - 2KN - /HA/ET1



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