XFTC320 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 Female Mechanical Fitting**
- **High Level Output Model with Integrated Amplifier**
- **High Overload Capacity**

DESCRIPTION

The XFTC320 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 optimises the load cell's performance at low ranges and frequencies. For sensors with a range of between 500 N and 2 kN [100 and 400 Lbf], a high-level output model is available. With two female threads, the XFTC320 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

- Built-in amplifier in option
- Tension and/or Compression
- Sealed version available as option
- Heavy duty
- Other threads available

APPLICATIONS

- Strain measurement on finger-like command
- Underwater robots control command
- Miniature press-fit device
- Fatigue tests benches
- Small size actuators

STANDARD RANGES

F.S. Ranges in N	2 - 5 - 10 - 20 - 50	100 to 200	500 to 1k	2k
F.S. Ranges in Lbf	0.4 - 1 - 2 - 4 - 10	20 to 40	100 to 200	400
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	$2.6x10^4$ to $3.2x10^5$	$5.4x10^5$ to $1.5x10^7$		2.3x107 to 6.6x107
Materials	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. /60° C [108 °F]
Sensitivity Shift in CTR	<2% of reading / 60° C [108 °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	XFTC320	XFTC320-A1	XFTC320-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 female 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 2 kN

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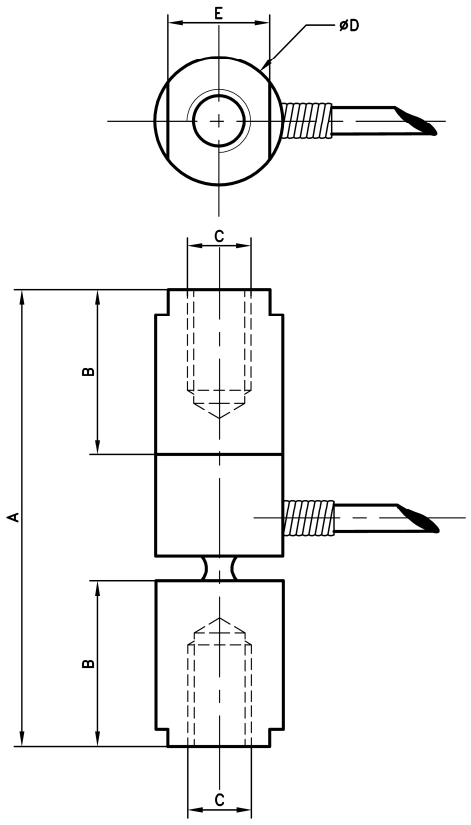
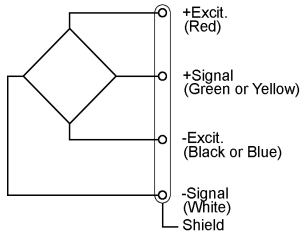
DIMENSIONS & WIRING SCHEMATIC (IN METRIC AND IMPERIAL)



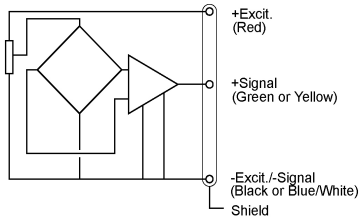
Separate data sheets are available for load cells with two male threads reference XFTC300 and two male/female threads reference XFTC310.
Other threads possible on request.

Wiring Schematic

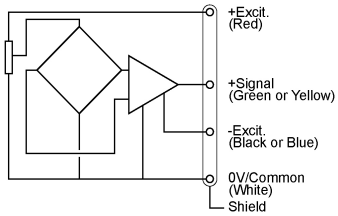
XFTC320



XFTC320-A1



XFTC320-A2



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]		47 [1.85]	
B	13 [0.51]		14 [0.55]	
C (Thread)	M5		M10	
Φ D	10 [0.39]		16 [0.63]	20 [0.79]
E	8 [0.31]		12 [0.47]	16 [0.63]
Stiffness in N/m	$3.8x10^5$ to $4.7x10^7$	$7.9x10^7$ to $2.2x10^8$	$3.4x10^8$ to $9.6x10^8$	$2.7x10^9$
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OPTIONS

A1 : Unipolar tension
A2 : Bipolar Tension
ET1 : CTR -20 to 100 º C [-4 to 212 °F]
ET2 : CTR -40 to 120 º C [-40 to 248 °F] OTR = CTR
ET3 : CTR -40 to 150 º C [-40 to 302 °F] OTR=CTR sta inless steel only and without A1 or A2 version
HA : Accuracy (CNL&H) ±0.5% F.S. (for models ≥20 Lbf)
TS : Tolerance on F.S. output ≤±2% F.S.
LC"x": Additional cable length to standard length (in m) (**Note** : "X" = Custom value)

ORDERING INFO