

FN3002 Load Cell Tension and Compression



- Harsh industrial environment
- Standard ranges 10kN to 2000kN [2 to 400 klb]
- Very high stability
- Stainless steel or aluminum
- High IP protection available
- High level output with integrated amplifier

DESCRIPTION

The **FN3002** is suitable for measuring cable tension and for use in test benches and in many industrial applications. The **FN3002** with its compact dimensions and measures tension and compression in standard ranges from 10 kN to 2 000 kN [2 to 400 klb].

Numerous options are available for adaptation to severe environments, for example, **IP67** or **IP68** protection. A model with integrated amplifier for high-level output is also available.

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

- Static and dynamic applications
- Tension and Compression
- Rod end available in option
- Integrated Amplifier optional
- IP65 and IP67 optional

APPLICATIONS

- Process control equipment
- Cable stress tests benches
- Shock absorbers tests benches
- Structure fatigue tests
- Laboratory and Research

STANDARD RANGES

Ranges in N	10k	20k	50k	100k	200k	500k	1000k	2000k
Ranges in lbf	2k	4k	10k	20k	40k	100k	200k	400k
Stiffness in N/m	6×10^7	1×10^8	3×10^8	7×10^8	8.5×10^8	1.5×10^9	2×10^9	3.5×10^9
Stiffness in lbf/ft	4.1×10^6	6.9×10^6	2.1×10^7	4.8×10^7	5.8×10^7	1.0×10^8	1.4×10^8	2.4×10^8
Material	Aluminum	Stainless steel						

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PERFORMANCE SPECIFICATIONS

All values are typical at temperature: 20±1° C

PARAMETERS	
Operating Temperature Range (OTR)	-20 to 80° C [-4 to 176° F]
Compensated Temperature Range (CTR)	0 to 60° C [32 to 140° F]
Zero Shift in CTR	<0.5% F.S. /50° C [/100° F]
Sensitivity Shift in CTR	<1% of reading / 50° C [/100° F]
Range (F.S.)	0-10 to 0-2000 kN [0-2 to 0-400 klbf]
Over-Range	
Without Damage	1.5 x F.S.
Without Destruction	3 x F.S.
Accuracy	
Combined Non-Linearity & Hysteresis	±0.25% F.S.

Electrical Characteristics

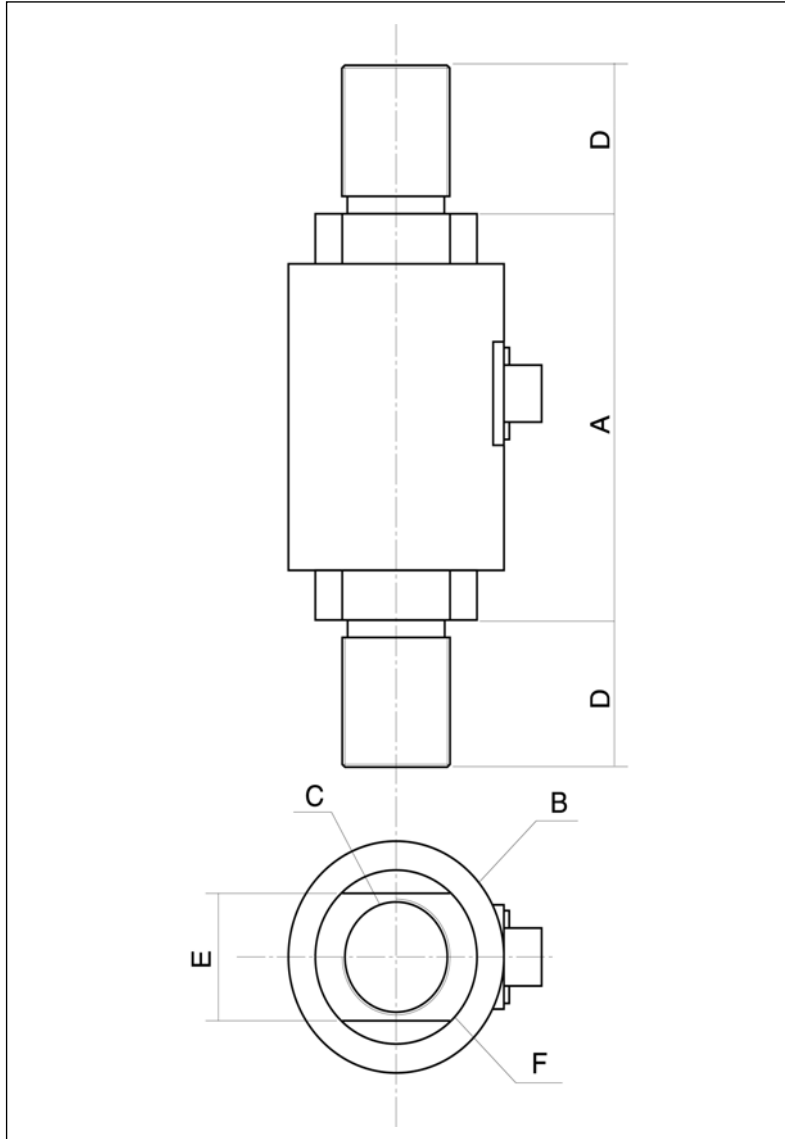
Model	FN3002	FN3002-A1	FN3002-A2
Supply Voltage	10Vdc	10 à 30Vdc	±15Vdc (±12 to ±18Vdc)
F.S. Output ⁴	±2mV/V	±2V ±5% F.S	±5V ±5% F.S
Zero Offset ⁴	±5% F.S.	2.5V ±5% F.S.	0V ±5% F.S.
Input Impedance/Consumption	350 to 700Ω	<50mA	50mA
Output Impedance	350 to 700Ω	1 kΩ ⁵	1 kΩ ⁵
Insulation under 50Vdc	≥100MΩ	≥100MΩ	≥100MΩ

Notes

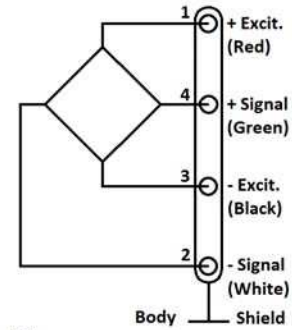
1. Electrical Termination: Connector output including mate
2. Materials: Body in stainless steel or aluminium alloy depending on F.S ; aluminum cover
3. Protection Index: IP50 (other protection levels on request)
4. Other signal output on request
5. Output impedance < 100Ω on request
6. CE conformance according to EN 61010-1, EN 50081-1, EN 50082-1

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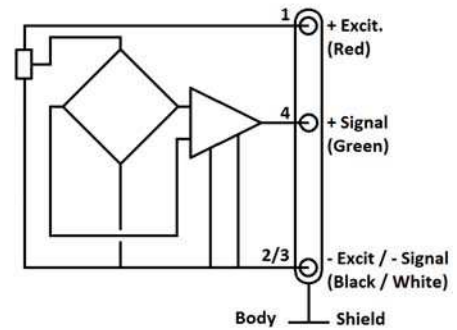
DIMENSIONS & WIRING SCHEMATIC (IN METRIC AND IMPERIAL)



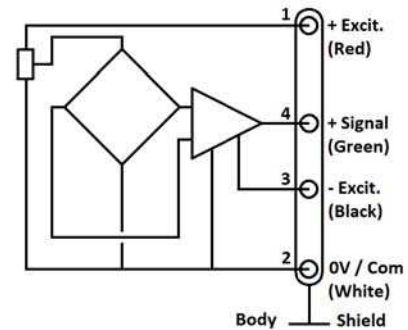
Wiring Schematic



Version -A1



Version -A2



Dimensions in mm [inch]

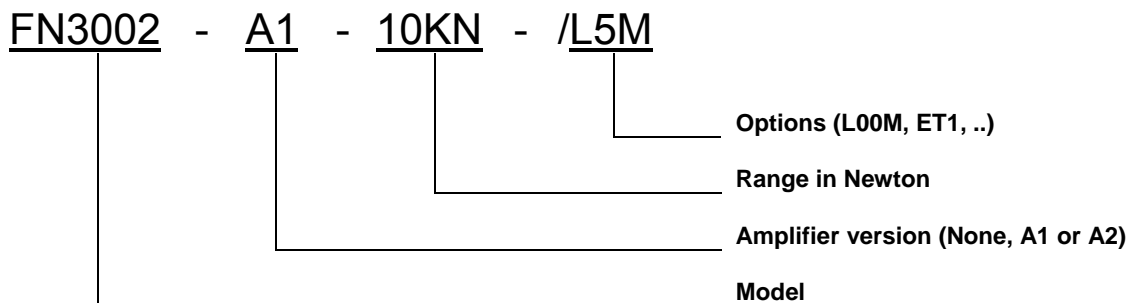
Ranges in N [in lbf]	10k [2k]	20k [4k]	50k [10k]	100k [20k]	200k [40k]	500k [100k]	1000k [200k]	2000k [400k]
A	70 [2.76]		75 [2.95]	80 [3.15]	85 [3.35]	105 [4.13]	140 [5.51]	160 [6.30]
B	40 [1.57]		50 [1.97]	55 [2.17]	65 [2.56]	85 [3.35]	115 [4.53]	150 [5.91]
C (Thread)	M20x1.5		M22x1.5	M35x1.5	M45x1.5	M64x4	M80x2	M110x2
D	25 [0.98]		25 [0.98]	32 [1.26]	40 [1.57]	70 [2.76]	100 [3.94]	115 [4.53]
E	22 [0.87]		30 [1.18]	36 [1.42]	48 [1.89]	66 [2.60]	85 [3.35]	120 [4.72]
F	30 [1.18]		40 [1.57]	45 [1.77]	55 [2.17]	75 [2.95]	95 [3.74]	130 [5.12]
G	Aluminum		Stainless steel					

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OPTIONS

A1 : Amplified Tension output with unipolar power supply
A2 : Amplified Tension output with bipolar power supply
ET1 : CTR -20 to 100° C [-4 to 212° F] OTR = CTR
ET2 : CTR -40 to 120° C [-40 to 248° F] OTR = CTR
ET3 : CTR -40 to 150° C [-40 to 302° F] OTR = CTR (Note : Not available with A1 and A2 options)
PE : Cable Gland Termination with 2 m [6.5 ft] cable
PE/L00M : Additional cable length with PE option, replace "00" with total length in meters

ORDERING INFO



RECOMMENDED ACCESSORIES

ER : Rod Ends

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