

## FN3042 Load Cell for Fatigue Testing



- Pan Cake load cell
- Full Scale Range : from 5 to 500 kN (1 to 100 kLbf)
- Tension and Compression
- Suited for fatigue testing
- High Level Output Model with Integrated Amplifier

### DESCRIPTION

The FN3042 is highly suited for use in test benches and fatigue tests. Due to the mechanical design, the FN3042 is especially durable. It measures tension and compression in standard ranges from 0-5 kN to 0-500 kN and is able to undergo more than 1000000 cycles of full scale with very little change in zero offset stability.

With many years of experience as a designer and manufacturer of sensors, Measurement-Specialties 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

- Full Scale Range : from 0-5 kN to 0-500 kN (0-1 kLbf to 0-100 kLbf)
- Tension and Compression
- Accuracy: 0.25% F.S.
- Skydrol compatible on request
- High Level Output Model with Integrated Amplifier

### APPLICATIONS

- Process control equipment
- Weighing calibration tool
- Dynamic fatigue tests
- Aerospace test bed
- Robotics and effectors
- Laboratory and Research

### STANDARD RANGES

F.S. Ranges in N	5K	10K	25K	50K	100K	200K	500K
F.S. Ranges in Lbf	1K	2K	5K	10K	20K	40K	100K
Stiffness in N/m	1.7x10 <sup>8</sup>	3x10 <sup>8</sup>	6x10 <sup>8</sup>	1.5x10 <sup>9</sup>	2x10 <sup>9</sup>	3.5x10 <sup>9</sup>	6.5x10 <sup>9</sup>
Stiffness in Lbf/ft	1.2x10 <sup>7</sup>	2.1x10 <sup>7</sup>	4.1x10 <sup>7</sup>	1.0x10 <sup>8</sup>	1.4x10 <sup>8</sup>	2.4x10 <sup>8</sup>	4.5x10 <sup>8</sup>
Material	Aluminum	Stainless steel					

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### PERFORMANCE SPECIFICATIONS

Ambient Temperature: 20±1°C (unless otherwise specified)

#### 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	<2.10 <sup>-4</sup> / °C of reading [<1.10 <sup>-4</sup> / °F of reading]
Range (F.S.)	0-5 kN to 0-500 kN [0-1 klb to 0-100 klb]
<b>Over-Range</b>	
Without Damage	2 x F.S.
Without Destruction	3 x F.S.
<b>Accuracy</b>	
Combined Non-Linearity & Hysteresis	±0.25% F.S.

#### Electrical Characteristics

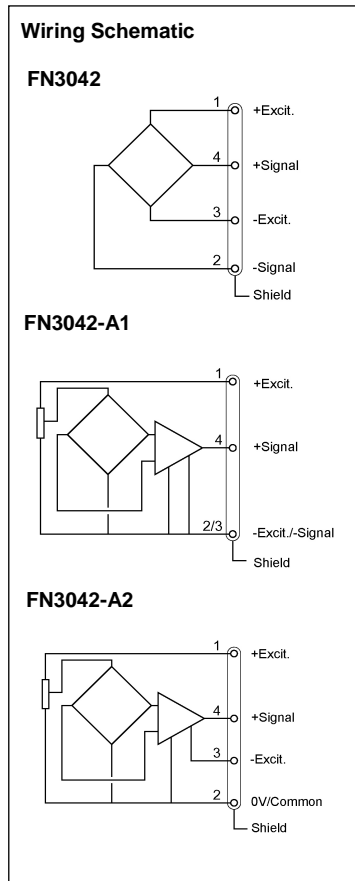
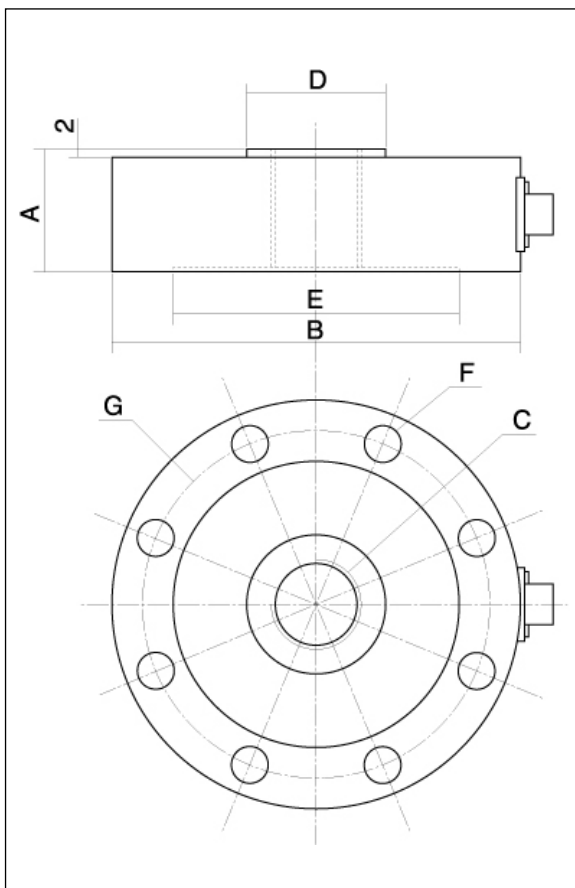
Model	FN3042	FN3042-A1	FN3042-A2
Supply Outage	10V	10-30Vdc	±15Vdc (±12 to ±18Vdc)
F.S. Output	±1.5mV/V	0.5 to 4.5V	±5V
Zero Offset	<±5% F.S.	2.5V ±5% F.S.	0V ±5% F.S.
Input Impedance/Consumption	350 to 700Ω	<50mA	<50mA
Output Impedance	350 to 700Ω	<10Ω	<10Ω
Insulation under 50Vdc	≥100MΩ	≥100MΩ	≥100MΩ

#### Notes

1. Electrical Termination: Connector output including mate
2. Materials: Body in stainless steel or aluminium alloy depending on F.S.; aluminum alloy cover

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



Dimensions in mm [inch]

F.S. Ranges in N [Lbf]	5K [1K]	10K [2K]	25K [5K]	50K [10K]	100K [20K]	200K [40K]	500K [100K]
A	30 [1.18]	30 [1.18]	30 [1.18]	40 [1.57]	50 [1.97]	50 [1.97]	70 [2.76]
B	101 [3.98]	101 [3.98]	101 [3.98]	119 [4.69]	144 [5.67]	168 [6.61]	228 [8.98]
C (Thread)	M16 x 2	M20 x 1.5	M20 x 1.5	M24 x 2	M36 x 3	M45 x 4	M64 x 4
D	34 [1.34]	34 [1.34]	34 [1.34]	49 [1.93]	66 [2.60]	72 [2.83]	102 [4.02]
E	70 [2.76]	70 [2.76]	70 [2.76]	83 [3.27]	104 [4.09]	118 [4.65]	152 [5.98]
F	8 x 8.2 [0.32]	8 x 8.2 [0.32]	8 x 8.2 [0.32]	8 x 10.2 [0.40]	8 x 12.2 [0.48]	8 x 16.2 [0.64]	16 x 20.2 [0.8]
G	85 [3.35]	85 [3.35]	85 [3.35]	101 [3.98]	124 [4.88]	143 [5.63]	190 [7.48]
Material	Aluminum	Stainless steel					

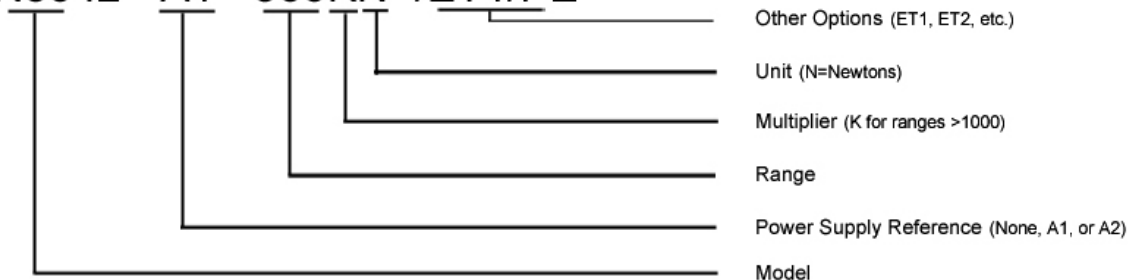
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### OPTIONS

<b>A1</b> : Unipolar Tension
<b>A2</b> : Bipolar Tension
<b>ET1</b> : CTR -20 to 100 °C [-4 to 212 °F] OTR = CTR
<b>ET2</b> : CTR -40 to 120 °C [-40 to 248 °F] OTR = CTR
<b>ET3</b> : CTR -40 to 150 °C [-40 to 302 °F] OTR = CTR ( <b>Note</b> : ET3 not available with A1 and A2 options)
<b>PE</b> : Cable Gland Termination with 2 m [6.5 ft] cable
<b>PE/LC</b> “x”: Additional cable length to standard length (in m) with PE option ( <b>Note</b> : “X” = Custom value)

### ORDERING INFO

FN3042 - A1 - 500KN -/ET1/PE



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