

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 ⁸	3x10 ⁸	6x10 ⁸	1.5x10 ⁹	2x10 ⁹	3.5x10 ⁹	6.5x10 ⁹
Stiffness in Lbf/ft	1.2x10 ⁷	2.1x10 ⁷	4.1x10 ⁷	1.0x10 ⁸	1.4x10 ⁸	2.4x10 ⁸	4.5x10 ⁸
Material	Aluminum	Stainless steel					

FN3042 Load Cell for Fatigue Testing

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

Electrical Characteristics

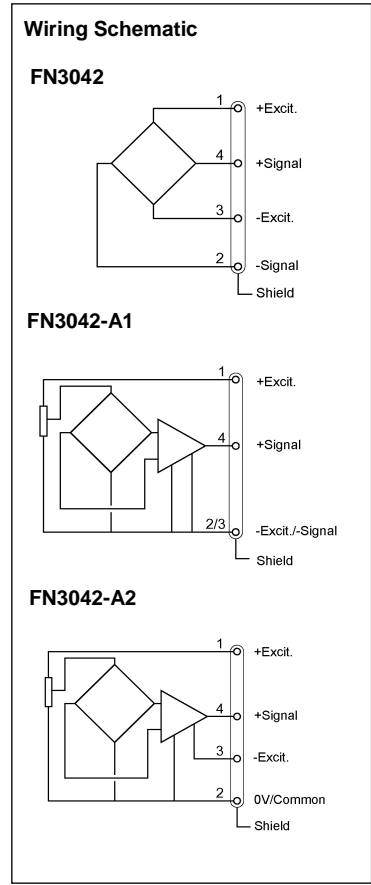
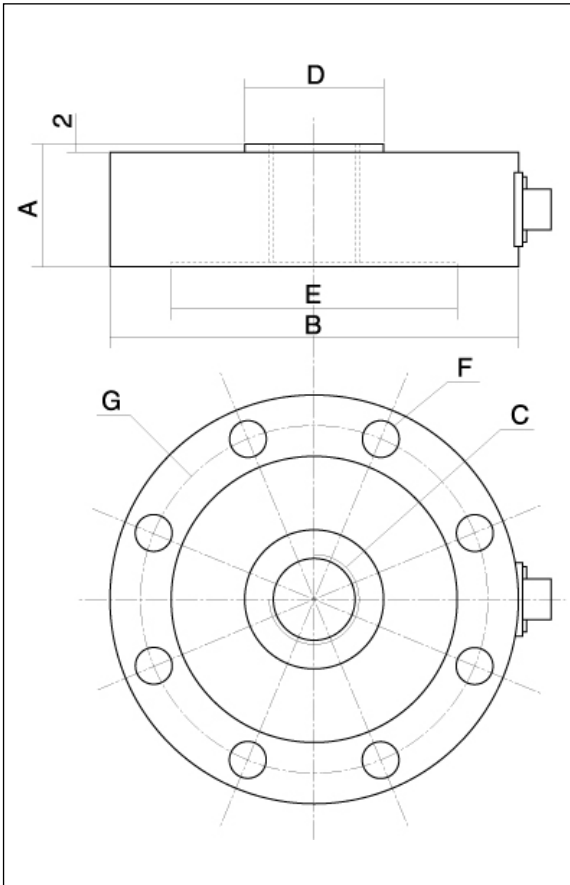
Model	FN3042	FN3042-A1	FN3042-A2
Supply Outage	10V	10–30Vdc	±15Vdc (±12 to ±18Vdc)
F.S. Output	±1.5mV/V	0.5 to 4.5V	±5V
Zero Offset	<±5% F.S.	2.5V ±5% F.S.	0V ±5% F.S.
Input Impedance/Consumption	350 to 700Ω	<50mA	<50mA
Output Impedance	350 to 700Ω	<10Ω	<10Ω
Insulation under 50Vdc	≥100MΩ	≥100MΩ	≥100MΩ

Notes

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

FN3042 Load Cell for Fatigue Testing

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					

FN3042 Load Cell for Fatigue Testing

OPTIONS

A1 : Unipolar Tension
A2 : Bipolar Tension
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 : ET3 not available with A1 and A2 options)
PE : Cable Gland Termination with 2 m [6.5 ft] cable
PE/LC “x”: Additional cable length to standard length (in m) with PE option (Note : “X” = Custom value)

ORDERING INFO

FN3042 - A1 - 500KN -/ET1/PE



NORTH AMERICA

Measurement Specialties
45738 Northport Loop West
Fremont, CA 94538
USA
Tel: 1-800-767-1888
Fax: 1-510-498-1578
Sales: pfg.cs.amer@meas-spec.com

EUROPE

Measurement Specialties
(Europe), Ltd.
26 Rue des Dames
78340 Les Clayes-sous-Bois,
France
Tel: +33 (0) 130 79 33 00
Fax: +33 (0) 134 81 03 59
Sales: pfg.cs.emea@meas-spec.com

ASIA

北京赛斯维测控技术有限公司
北京市朝阳区望京西路48号
金隅国际C座1002
电话 : +86 010 8477 5646
传真 : +86 010 5894 9029
邮箱 : sales@sensorway.cn
<http://www.sensorway.cn>

The information in this sheet has been carefully reviewed and is believed to be accurate; however, no responsibility is assumed for inaccuracies. Furthermore, this information does not convey to the purchaser of such devices any license under the patent rights to the manufacturer. Measurement Specialties, Inc. reserves the right to make changes without further notice to any product herein. Measurement Specialties, Inc. makes no warranty, representation or guarantee regarding the suitability of its product for any particular purpose, nor does Measurement Specialties, Inc. assume any liability arising out of the application or use of any product or circuit and specifically disclaims any and all liability, including without limitation consequential or incidental damages. Typical parameters can and do vary in different applications. All operating parameters must be validated for each customer application by customer's technical experts. Measurement Specialties, Inc. does not convey any license under its patent rights nor the rights of others.