

FN3042 Load Cell for Fatigue Testing



- Heavy duty cylindrical load cell
- Ranges from 5 to 500 kN [1 to 100 klb]
- Tension and Compression
- Suited for fatigue and crash testing
- High Level Output 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 5 kN to 500 kN and is able to undergo more than 1 000 000 cycles of full scale with very little change in zero offset stability.

The sensor housing can be supplied fully stainless steel with high IP protection level for fatigue test benches or regulation in high temperature or corrosive fluids environments.

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

- High stiffness
- Tension and Compression
- Accuracy: 0.25% F.S.
- Skydrol compatible on request
- Integrated amplifier optional

APPLICATIONS

- Crash test walls and plates
- Hydraulic cylinder regulation
- Dynamic lifetime component tests
- Aerospace structure test beds
- Laboratory and Research

STANDARD RANGES

Ranges in N	5k	10k	25k	50k	100k	200k	500k
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					

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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.)	0-5 to 0-500 kN [0-1 to 0-100 klbf]
Over-Range	
Without Damage	2 x F.S.
Without Destruction	3 x F.S.
Accuracy	
Combined non-linearity and hysteresis	±0.25%F.S.

Electrical Characteristics

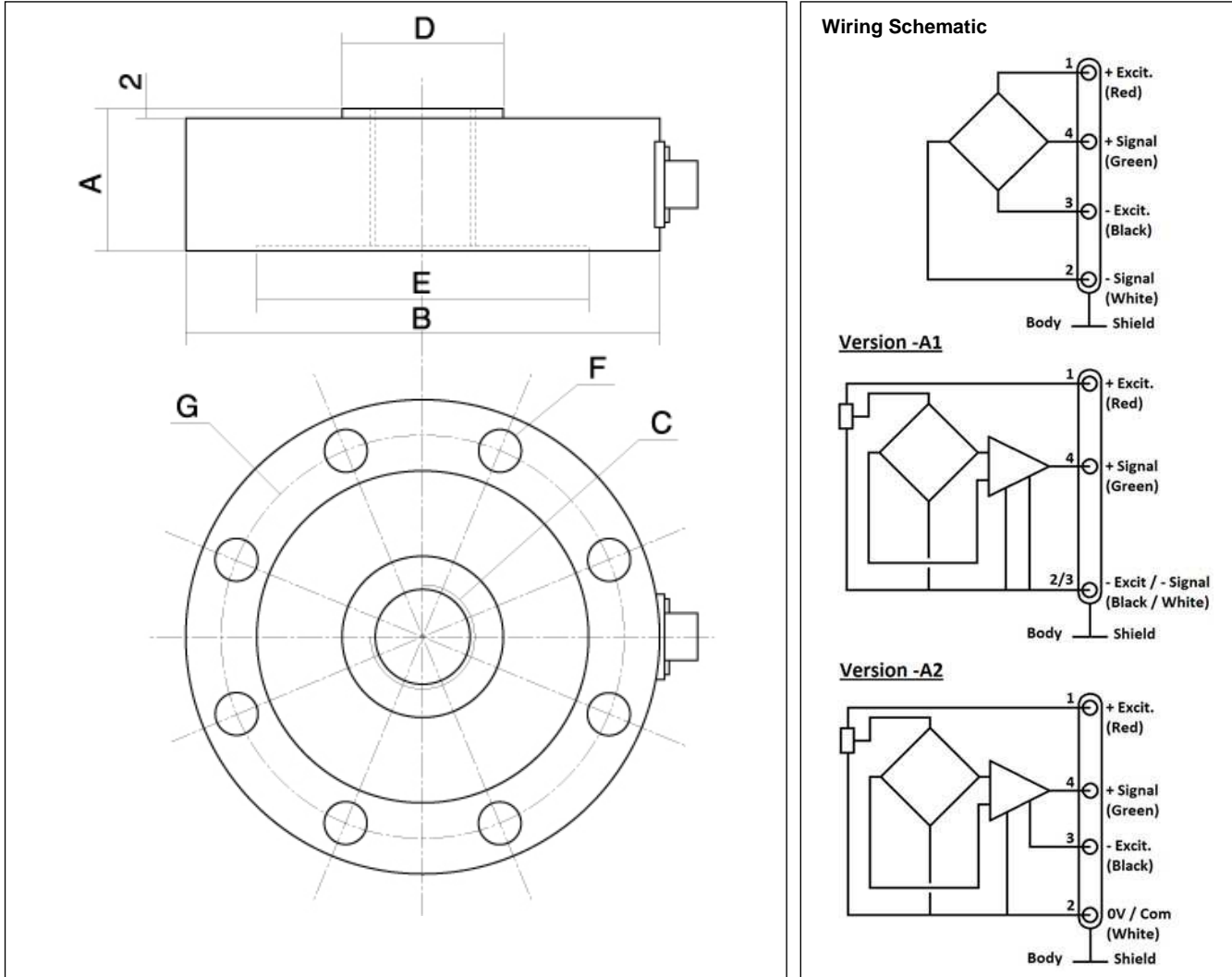
Model	FN3042	FN3042-A1	FN3042-A2
Supply Voltage	10Vdc	10 – 30Vdc	±15Vdc (±12 to ±18Vdc)
F.S. Output ⁴	±1.5mV/V	±2V ±5% F.S.	±5V ±5% F.S.
Zero Offset ⁴	±5% F.S.	2.5V ±5% F.S.	0V ±5% F.S.
Input Impedance/Consumption	350 to 700Ω	<50mA	50mA
Output Impedance	350 to 700Ω	1 kΩ ⁵	1 kΩ ⁵
Insulation under 50Vdc	≥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)



Dimensions in mm [inch]

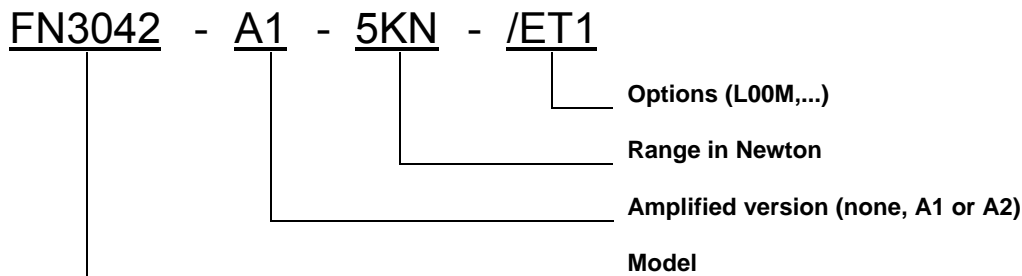
Ranges in N [in lbf]	5k [1k]	10k [2k]	25k [5k]	50k [10k]	100k [20k]	200k [40k]	500k [100k]
A	30 [1.18]	30 [1.18]	40 [1.57]	50 [1.97]	50 [1.97]	50 [1.97]	70 [2.76]
B	101 [3.98]	101 [3.98]	119 [4.69]	144 [5.67]	168 [6.61]	168 [6.61]	228 [8.98]
C (Thread)	M16 x 2	M20 x 1.5	M24 x 2	M36 x 3	M45 x 4	M45 x 4	M64 x 4
D	34 [1.34]	34 [1.34]	49 [1.93]	66 [2.60]	72 [2.83]	72 [2.83]	102 [4.02]
E	70 [2.76]	70 [2.76]	83 [3.27]	104 [4.09]	118 [4.65]	118 [4.65]	152 [5.98]
F	8x 8.2 [0.32]	8x 8.2 [0.32]	8x 10.2 [0.40]	8x 12.2 [0.48]	8x 12.2 [0.48]	8x 16.2 [0.64]	16x 20.2 [0.8]
G	85 [3.35]	85 [3.35]	101 [3.98]	124 [4.88]	124 [4.88]	143 [5.63]	190 [7.48]
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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 : ET3 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



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