FN3148 Load Cell with mechanical stops

- **S-Beam sensor with mechanical stops in tension and compression**
- **Ranges from 10 to 2 000 N [2 to 400 lbf]**
- **Combined linearity & hysteresis < 0.05% F.S.**
- **High level output with integrated amplifier**

DESCRIPTION

The FN3148 high precision load cell features accuracy of 0.05% F.S. It is available in standard ranges from 0-10 N to 0-2000 N. Integrated mechanical stops protect against accidental overloads in tension and compression. For high-level output a model with integrated amplifier is available.

For lower ranges, another sensor, model FN3280, can measure 0-1 to 0-5N [0.2 to 1 lbf].

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 accuracy
- Tension and Compression
- Integrated Mechanical Stops
- Integrated Amplifier optional
- Cable or connector output

APPLICATIONS

- Process control equipment
- Medical Instruments
- Weighing
- Laboratory and Research
- Calibration test benches

STANDARD RANGES

Ranges in N	10	50	100	200	500	1K	2K
Ranges in lbf	2	10	20	40	100	200	400
Stiffness in N/m	$2.2x10^4$	$1.8x10^5$	$3.7x10^5$	$8.3x10^5$	$2.2x10^6$	$4.5x10^6$	$9.5x10^6$
Stiffness in lbf/ft	$1.5x10^3$	$1.2x10^4$	$2.5x10^4$	$5.7x10^4$	$1.5x10^5$	$3.1x10^5$	$6.5x10^5$

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PERFORMANCE SPECIFICATIONS

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

PARAMETERS	
Operating Temperature Range (OTR)	-20 to 80° C [-4 to 176° F]
Compensated Temperature Range (CTR)	0 to 60º C [32 to 140° F]
Zero Shift in CTR	<0.5% F.S. / 50º C [100° F]
Sensitivity Shift in CTR	<0.5 % of reading / 50º C [100° F]
Range (F.S.)	0-10 to 0-2000 N [0-2 lbf to 0-400 lbf]
Over-Range	
Without Damage	5 to 100 x F.S. (see table)
Accuracy	
Combined non-linearity & hysteresis	≤±0.05% F.S.

Electrical Characteristics

Model	FN3148	FN3148-A1	FN3148-A2
Supply Outage	10Vdc	10 to 30Vdc	±15Vdc (±12 to ±18Vdc)
F.S. Output	±2mV/V typical	±2V ±5% F.S.	±5V ±5% F.S.
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: Cable gland termination, 2m cable length standard
2. Materials: Body in aluminium alloy and cover in stainless steel

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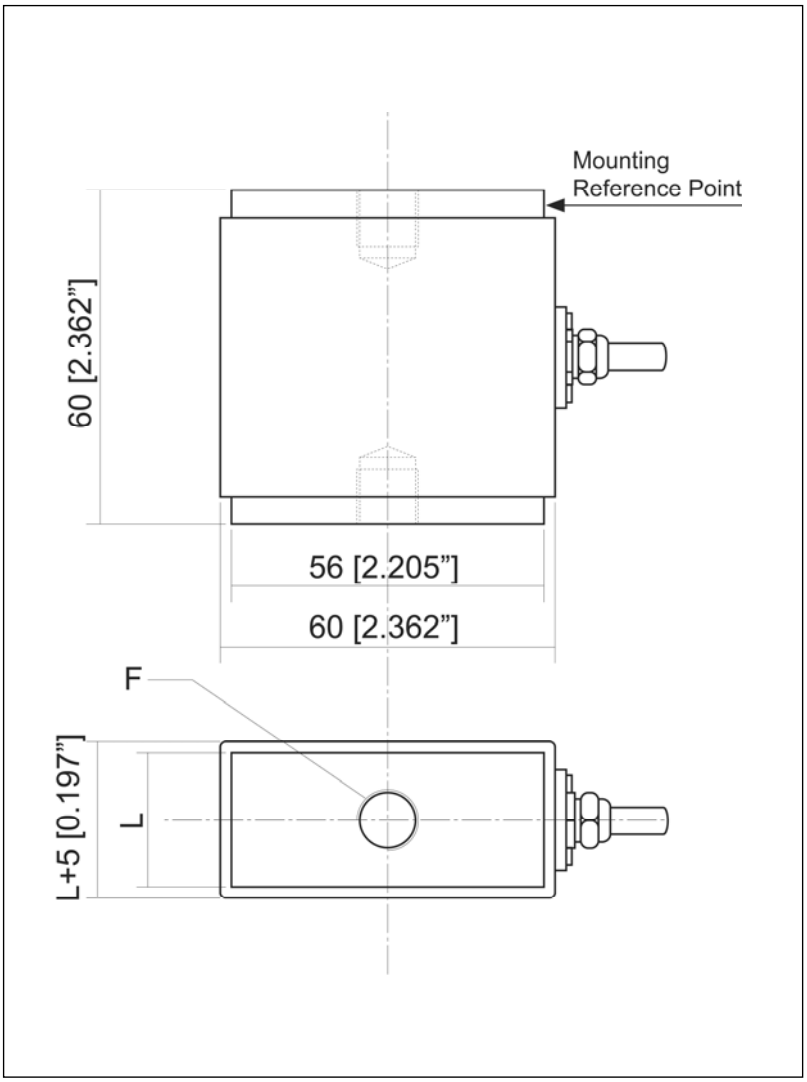
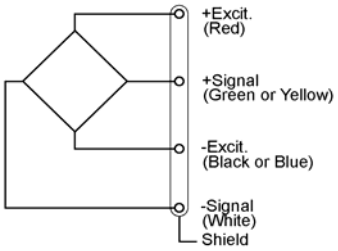
DIMENSIONS & WIRING SCHEMATIC (IN METRIC AND IMPERIAL)

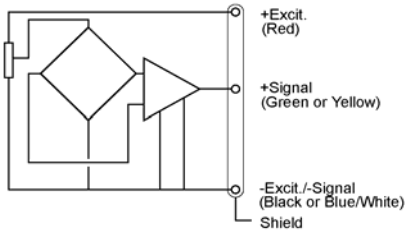


Wiring Schematic

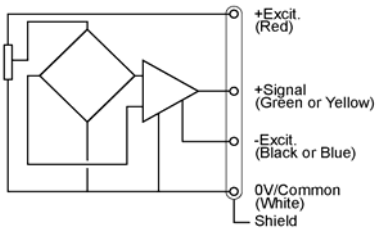
FN3148



FN3148-A1



FN3148-A2



Dimensions in mm [inch]

Range in N [in lbf]	10 [2]	50 [10]	100 [20]	200 [40]	500 [100]	1K [200]	2K [400]
F (Thread)	M6			M10			
L	20 [0.79"]	25 [0.98"]					
Over-range (compression)	20 kN [4 klbf]						
Over-range (tension)	1 kN [200 lbf]			2 kN [400 lbf]	5 kN [1 klbf]	10 kN [2klbf]	
Stiffness in N/m [in lbf/ft]	$2.2x10^4$ $[1.5x10^3]$	$1.8x10^5$ $[1.2x10^4]$	$3.7x10^5$ $[2.5x10^4]$	$8.3x10^5$ $[5.7x10^4]$	$2.2x10^6$ $[1.5x10^5]$	$4.5x10^6$ $[3.1x10^5]$	$9.5x10^6$ $[6.5x10^5]$

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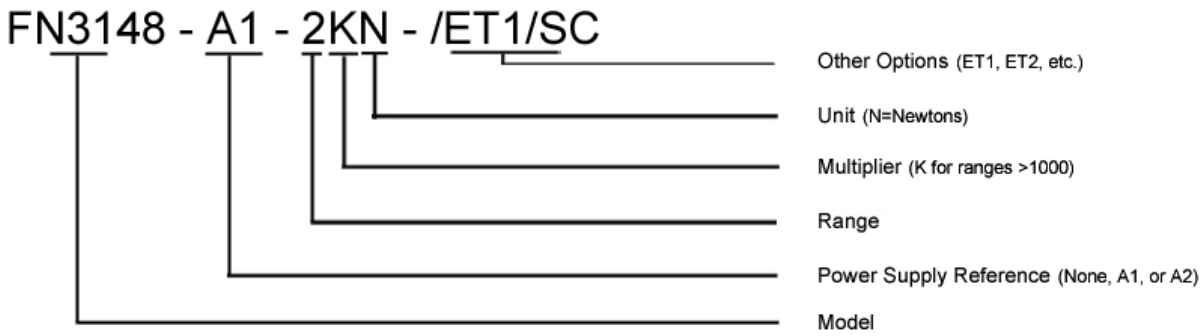
OPTIONS

A1: Unipolar tension
A2 : Bipolar Tension
ET1 : CTR -20 to 100º C [-4 to 212° F] OTR = CTR
ET2 : CTR -40 to 120º C [-40 to 248° F] OTR = CTR
SC : Connector output (Jaeger 4b mini)
LC"x": Additional cable length to standard length (in m) (Note : "X" = Custom value)

ORDERING INFO



RECOMMENDED ACCESSORIES

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