

# FN3000 Load Cell Tension and Compression



- Heavy duty Pan-cake load cell
- Standard ranges 10 to 1000 kN [2 to 200 klb]
- Very high stability
- Aluminum or Stainless steel
- High IP protection available
- High Level Output Model with Integrated Amplifier

## DESCRIPTION

The FN3000 measures tension and compression in standard ranges from 0-10 kN to 0-1000 kN. The mechanical design and gauge placement minimizes transverse effects. Depending on the range, the FN3000 is constructed in aluminium alloy or stainless steel and is available with numerous options. It is suitable for test bench applications and used in many hostile environments and can be customized for increased protection.

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
- Linearity 0.1% F.S.
- Integrated Amplifier optional
- IP65 optional

## APPLICATIONS

- Process control equipment
- Weighing calibration tool
- Fatigue tests benches
- Hydraulic press regulation
- Laboratory and Research

## STANDARD RANGES

<b>Ranges in N</b>	10k	25k	50k	100k	200k	500k	1000k
<b>Ranges in lbf</b>	2k	5k	10k	20k	40k	100k	200k
<b>Stiffness in N/m</b>	$2.5 \times 10^8$	$5 \times 10^8$	$1 \times 10^9$	$2 \times 10^9$	$3 \times 10^9$	$5 \times 10^9$	$7 \times 10^9$
<b>Stiffness in lbf/ft</b>	$1.7 \times 10^7$	$3.4 \times 10^7$	$6.9 \times 10^7$	$1.4 \times 10^8$	$2.1 \times 10^8$	$3.4 \times 10^8$	$4.8 \times 10^8$
<b>Material</b>	Aluminum	Stainless steel					

# FN3000 Load Cell Tension and Compression

## 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	1% of reading / 50° C [100° F]
Range (F.S.)	0-10 to 0-1000 kN [0-2 to 0-200 klb <sub>f</sub> ]
Over-Range	
Without Damage	1.5 x F.S.
Without Destruction	3 x F.S.
Accuracy	
Linearity	±0.1%F.S.
Hysteresis	±0.1%F.S.

### Electrical Characteristics

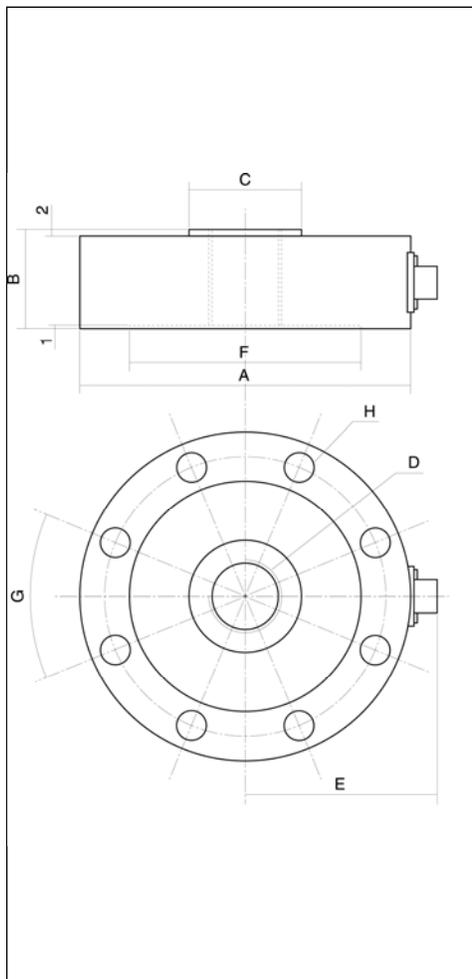
Model	FN3000	FN3000-A1	FN3000-A2
Supply Outage	10Vdc	10 – 30Vdc	±15Vdc (±12 to ±18Vdc)
F.S. Output	±2mV/V typical	±2V ±5% F.S.	±5V ±5% F.S.
Zero Offset	±5% F.S.	2.5V ±5% F.S.	0V ±5% F.S.
Input Impedance/Consumption	350 to 700Ω	<50mA	50mA
Output Impedance	350 to 700Ω	<10Ω	<10Ω
Insulation under 50Vdc	≥100MΩ	≥100MΩ	≥100MΩ

### Notes

1. Electrical Termination: 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)

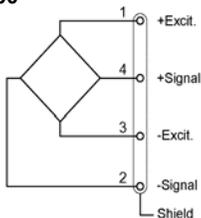
# FN3000 Load Cell Tension and Compression

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

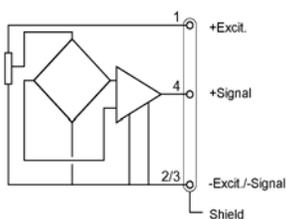


### Wiring Schematic

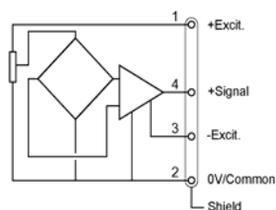
#### FN3000



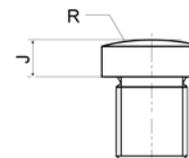
#### FN3000-A1



#### FN3000-A2



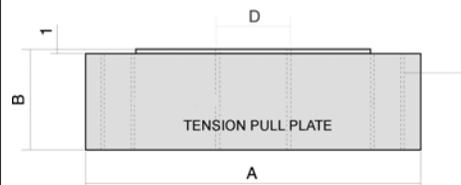
### EH: Hemispherical Load Button



### Dimensions in mm

F.S.	J	R
10 KN	12	80
25 KN	12	80
50 KN	12	80
100 KN	20	250
200 KN	20	250
500 KN	30	400
1000 KN	60	400

### FF: Tension pull plate



### Dimensions in mm [inch]

Ranges in N [in lbf]	10k [2k]	25k [5k]	50k [10k]	100k [20k]	200k [40k]	500k [100k]	1000k [200k]
A	100 [3.94]			150 [5.91]		195 [7.68]	272 [10.71]
B	30 [1.18]			40 [1.57]		60 [2.36]	80 [3.15]
C	34 [1.34]			65 [2.56]		87 [3.43]	120 [4.72]
D (Thread)	M20x1.5			M32x2		M56x2	M80x3
E	65 [2.56]			90 [3.54]		106 [4.17]	150 [5.91]
F	70 [2.76]			100 [3.94]		143 [5.63]	186 [7.32]
G	45°			30°		22.5°	
H	8x8.2 /Φ85			12x10.4 /Φ125		16x16.2 /Φ169	16x24.5 /Φ229
I	M8 /Φ85			M10 /Φ125		M16 /Φ169	M24 /Φ229
Screw-down (m.kg)	2.2	2.5	2.5	5	5	15	50
Screw-down in lbf/ft	15.9	18.1	18.1	36.2	36.2	108.5	361.7

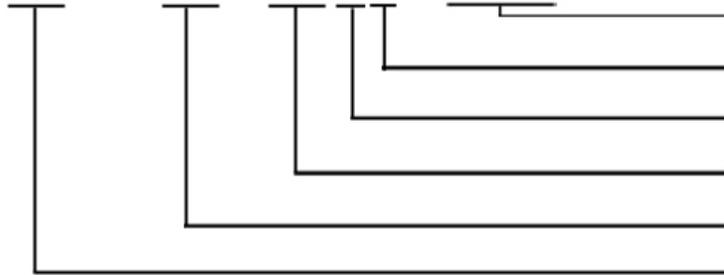
# FN3000 Load Cell Tension and Compression

## 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 (Note : ET3 not available with A1 and A2 options)
<b>PE</b> : Cable Gland Termination with 2 m [6.5 ft] cable
<b>PE/LC"x"</b> : Additional cable length to standard length (in m) with PE option (Note : "X" = Custom value)

## ORDERING INFO

FN3000 - A1 - 100KN -/PE/ET1



Other Options (ET1, ET2, etc.)  
Unit (N=Newtons)  
Multiplier (K for ranges >1000)  
Range  
Power Supply Reference (None, A1, or A2)  
Model

## RECOMMENDED ACCESSORIES

<b>EH</b> : Hemispherical load button
<b>FF</b> : Tension pull plate

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