

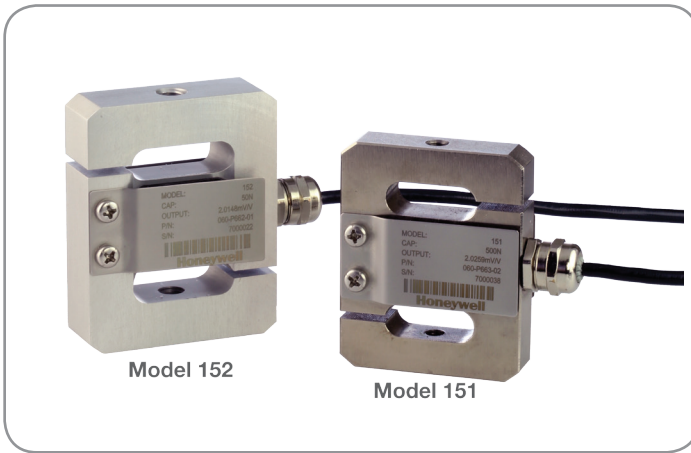
## S-Beam Tension and Compression Load Cells

Models 151 and 152

32314675

Issue 1

Datasheet



### DESCRIPTION

Honeywell Models 151/152 S-Beam Load Cells combine compact structure with enhanced precision and rigorous testing to form a reliable and durable tension and compression force transducer. The one-piece design achieves an accuracy of  $\pm 0.03\%$  full scale. The lower capacity (50 N and 100 N) Models 152 (Order Code CA152) are constructed from aluminum; whereas higher capacity load cells Models 151 (250 N to 50K N) are made with alloy steel (Order Code CA151). (See page 3 for Order Guide information.)

Models 151/152 load cells help keep equipment and specimens safe, as well as minimize test time and maintenance through reliable force measurement.

### VALUE TO CUSTOMERS

- Wide capacity range: 50 N to 50K N
- Standard accuracy of  $\pm 0.03\%$  FS
- 5-points calibration in tension and compression

### DIFFERENTIATION

- Tension and compression calibration
- 5-points calibration data
- Mechanical shock tested 50 g peak to IEC 60068-2-27
- Vibration tested to IEC 60068-2-6

### FEATURES

- Tension and compression load/force measurement
- Wide capacity range: 50 N to 50K N
- Accuracy:  $\pm 0.03\%$  FS
- Metric thread
- One-piece, nickel-plated alloy steel or aluminum construction
- Overload capacity: 150 %FS
- IP67 sealing
- Integrated cable: 1,5 m [4.92 ft]

### POTENTIAL APPLICATIONS

- Medical
  - Needle and syringe testing
- Industrial
  - Universal test machine
  - Material test machine

### PORTFOLIO

Honeywell offers a wide portfolio of load cell platform designs constructed of stainless steel, carbon steel, or aluminum. These platforms include low profile/pancake, miniature and subminiature, fatigue rated, canister, donut thru-hole style, rod-end, beam style, and loadpin load cells.

## S-Beam Tension and Compression Load Cell, Models 151 & 152

Table 1. Electrical Specifications

Characteristic	Parameter
Strain gage type	Bonded foil
Excitation voltage (acceptable)	5 V ~10 V
Insulation resistance	>5,000 M $\Omega$ @ 50 Vdc
Bridge resistance (input)	$\geq 385 \Omega$
Bridge resistance (output)	350 $\pm$ 3 $\Omega$
Zero balance	$\pm 1$ %FS
Cable length	1,5 m [4.92 ft]

Table 2. Performance Specifications

Characteristic	Parameter
Rated capacity	50 N ~ 50K N
Non-linearity (typ.)	$\pm 0.03$ %FS
Hysteresis (typ.)	$\pm 0.03$ %FS
Non-repeatability	$\pm 0.03$ %FS
Zero balance	$\pm 1$ %FS
Output @ rated capacity (FS)	2.0 mV/V $\pm 1.0$ %
Operation	Tension and compression
Standard calibration	Tension (+) and compression (-)
Calibration report	5-points calibration data
Vibration	IEC 60068-2-6
Shock	IEC 60068-2-27
Safe overload	150 % of rated capacity

Table 3. Environmental Specifications

Characteristic	Parameter
Temperature, operating	-20 $^{\circ}$ C to 80 $^{\circ}$ C [-4 $^{\circ}$ F to 176 $^{\circ}$ F]
Temperature, compensated	-10 $^{\circ}$ C to 40 $^{\circ}$ C [14 $^{\circ}$ F to 104 $^{\circ}$ F]
Temperature effect, zero	$\pm 0.003$ %FS/ $^{\circ}$ C
Temperature effect, span	$\pm 0.003$ %reading/ $^{\circ}$ C
Protection level	IP67

Table 4. Mechanical Specifications

Characteristic	Parameter
Static overload capacity	150 % of rated capacity
Material (order code)	Alloy steel (CA151) or aluminum (CA152)

Table 5. Wiring Color/Codes

Color	Designation
Red	(+) Excitation
Black	(-) Excitation
Green	(+) Output
White	(-) Output
Brown	Shield drain

# S-Beam Tension and Compression Load Cell, Models 151 & 152

Figure 1. Product Nomenclature

For example, **CA151NL,1BB,2U,6F,9A,30B** defines a Model 151 S-Beam Load Cell, 250 N range, -10 °C to 40 °C [14 °F to 104 °F] temperature compensation, unamplified, integral PVC cable, 10 point, tension and compression output.

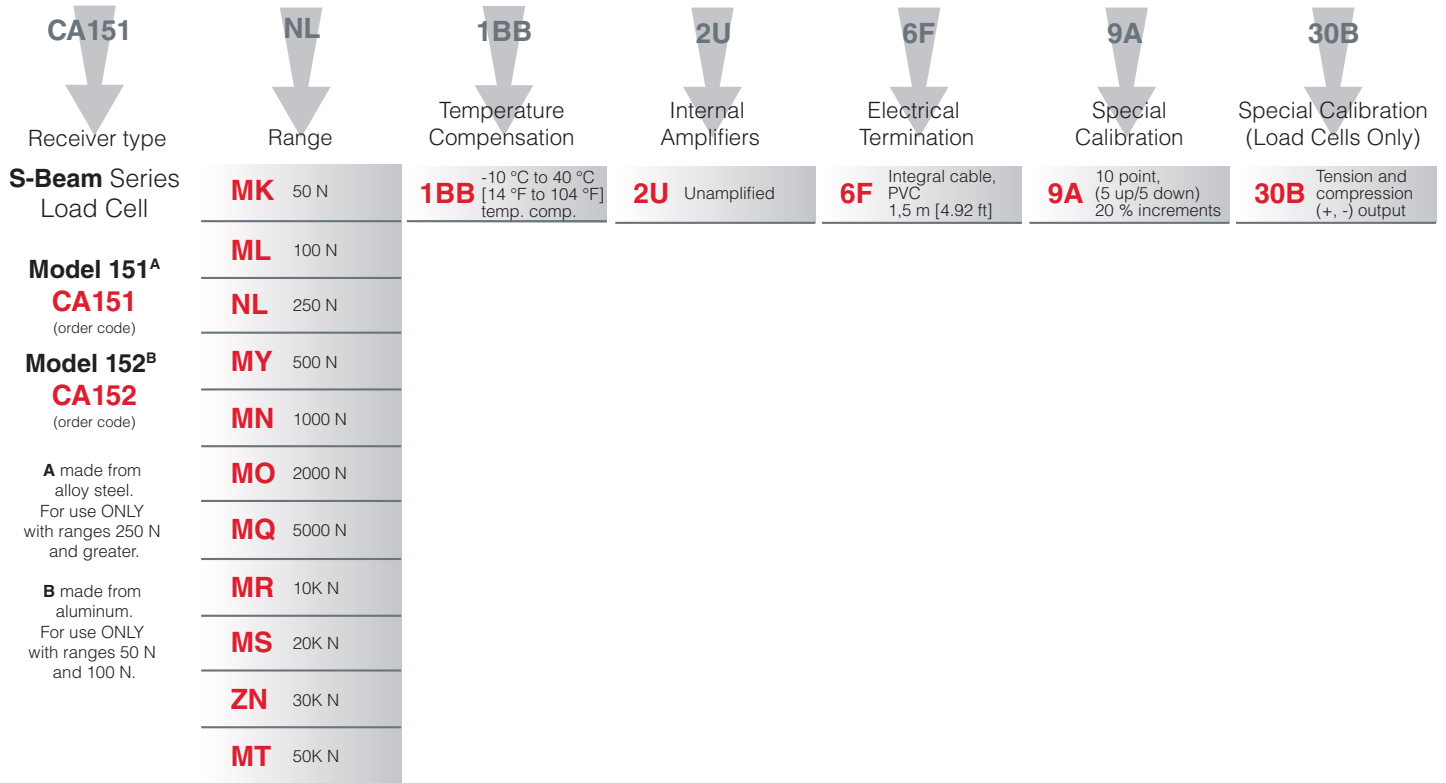


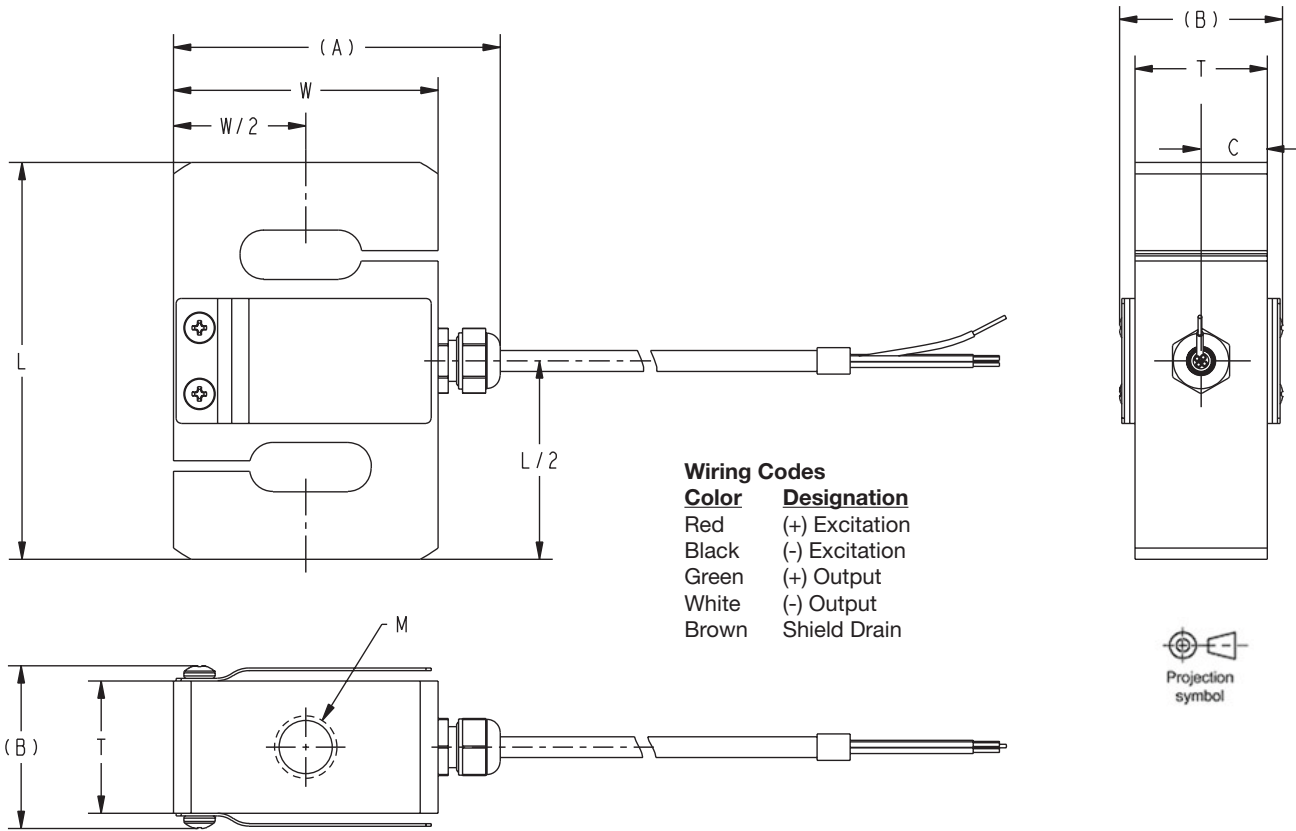
Table 6. Order Guide

Range	Description	Order Code	Honeywell Part Number
50 N	Model 152 50 N	CA152MK,1BB,2U,6F,30B	060-P662-01
100 N	Model 152 100 N	CA152ML,1BB,2U,6F,30B	060-P662-02
250 N	Model 151 250 N	CA151NL,1BB,2U,6F,30B	060-P663-01
500 N	Model 151 500 N	CA151MY,1BB,2U,6F,30B	060-P663-02
1000 N	Model 151 1,000 N	CA151MN,1BB,2U,6F,30B	060-P664-01
2000 N	Model 151 2,000 N	CA151MO,1BB,2U,6F,30B	060-P665-01
5000 N	Model 151 5,000 N	CA151MQ,1BB,2U,6F,30B	060-P665-02
10K N	Model 151 10,000 N	CA151MR,1BB,2U,6F,30B	060-P665-03
20K N	Model 151 20,000 N	CA151MS,1BB,2U,6F,30B	060-P666-01
30K N	Model 151 30,000 N	CA151ZN,1BB,2U,6F,30B	060-P666-02
50K N	Model 151 50,000 N	CA151MT,1BB,2U,6F,30B	060-P666-03

# S-Beam Tension and Compression Load Cell, Models 151 & 152

## DIMENSIONAL DRAWINGS

Figure 2. Model 151 & 152 Dimensions



Capacity (N)	Model	Case Material	A (Reference)	B (Reference)	C	T	L	M	W
50	152	aluminum	68 mm [2.68 in]	24,5 mm [0.96 in]	9 mm [0.35 in]	18 mm [0.71 in]	70 mm [2.76 in]	M8 x 1.25/ thru	56 mm [2.20 in]
100	152	aluminum	68 mm [2.68 in]	24,5 mm [0.96 in]	9 mm [0.35 in]	18 mm [0.71 in]	70 mm [2.76 in]	M8 x 1.25/ thru	56 mm [2.20 in]
250	151	alloy steel	62,5 mm [2.46 in]	18,5 mm [0.73 in]	6,35 mm [0.25 in]	12,7 mm [0.50 in]	63,5 [2.5 in]	M6 x 1/thru	50,8 mm [2.0 in]
500	151	alloy steel	62,5 mm [2.46 in]	18,5 mm [0.73 in]	6,35 mm [0.25 in]	12,7 mm [0.50 in]	63,5 [2.5 in]	M6 x 1/thru	50,8 mm [2.0 in]
1000	151	alloy steel	62,5 mm [2.46 in]	25,4 mm [1.0 in]	9,5 mm [0.37 in]	19 mm [0.75]	76,2 mm [3.0 in]	M10 x 1.5/ thru	50,8 mm [2.0 in]
2000	151	alloy steel	62,5 mm [2.46 in]	25,4 mm [1.0 in]	9,5 mm [0.37 in]	19 mm [0.75]	76,2 mm [3.0 in]	M12 x 1.75/ thru	50,8 mm [2.0 in]
5000	151	alloy steel	62,5 mm [2.46 in]	25,4 mm [1.0 in]	9,5 mm [0.37 in]	19 mm [0.75]	76,2 mm [3.0 in]	M12 x 1.75/ thru	50,8 mm [2.0 in]
10k	151	alloy steel	62,5 mm [2.46 in]	31,5 mm [1.24 in]	12,7 mm [0.50 in]	25,4 mm [1.0 in]	76,2 mm [3.0 in]	M12 x 1.75/ thru	50,8 mm [2.0 in]
20k	151	alloy steel	86 mm [3.39 in]	31,5 mm [1.24 in]	19 mm [0.74 in]	25,4 mm [1.0 in]	108 mm [4.25 in]	M18 x 1.5/ thru	76,2 mm [3.0 in]
30k	151	alloy steel	86 mm [3.39 in]	31,5 mm [1.24 in]	19 mm [0.74 in]	25,4 mm [1.0 in]	108 mm [4.25 in]	M18 x 1.5/ thru	76,2 mm [3.0 in]
50k	151	alloy steel	86 mm [3.39 in]	37,5 [1.48 in]	25,4 mm [1.0 in]	31,8 mm [1.25 in]	108 mm [4.25 in]	M18 x 1.5/ thru	76,2 mm [3.0 in]

## ADDITIONAL MATERIALS

The following associated literature is available on the Honeywell web site at [sensing.honeywell.com](http://sensing.honeywell.com):

- Product line guide
- Product range guide
- Application note: Tension and Compression S-Beam Load Cells in Industrial and Medical Applications

### Find out more

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DO NOT USE these products as safety or emergency stop devices or in any other application where failure of the product could result in personal injury.

**Failure to comply with these instructions could result in death or serious injury.**

## **WARNING** **MISUSE OF DOCUMENTATION**

- The information presented in this product sheet is for reference only. Do not use this document as a product installation guide.
- Complete installation, operation, and maintenance information is provided in the instructions supplied with each product.

**Failure to comply with these instructions could result in death or serious injury.**

### Warranty/Remedy

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