Honeywell

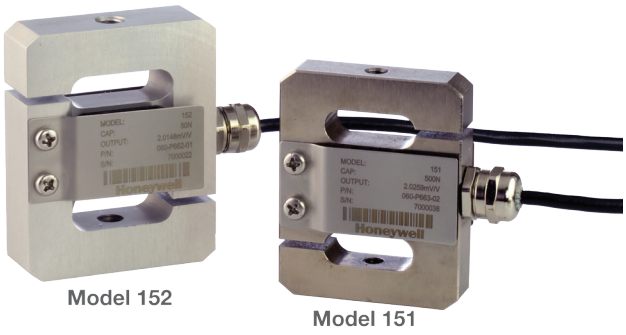
S-Beam Tension and Compression Load Cells

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 ±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 ±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: ±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.

Table 1. Electrical Specifications

Characteristic	Parameter
Strain gage type	Bonded foil
Excitation voltage (acceptable)	5 V ~10 V
Insulation resistance	>5,000 MΩ @ 50 Vdc
Bridge resistance (input)	≥385 Ω
Bridge resistance (output)	350 ±3 Ω
Zero balance	±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.)	±0.03 %FS
Hysteresis (typ.)	±0.03 %FS
Non-repeatability	±0.03 %FS
Zero balance	±1 %FS
Output @ rated capacity (FS)	2.0 mV/V ±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 °C to 80 °C [-4 °F to 176 °F]
Temperature, compensated	-10 °C to 40 °C [14 °F to 104 °F]
Temperature effect, zero	±0.003 %FS/°C
Temperature effect, span	±0.003 %reading/°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.

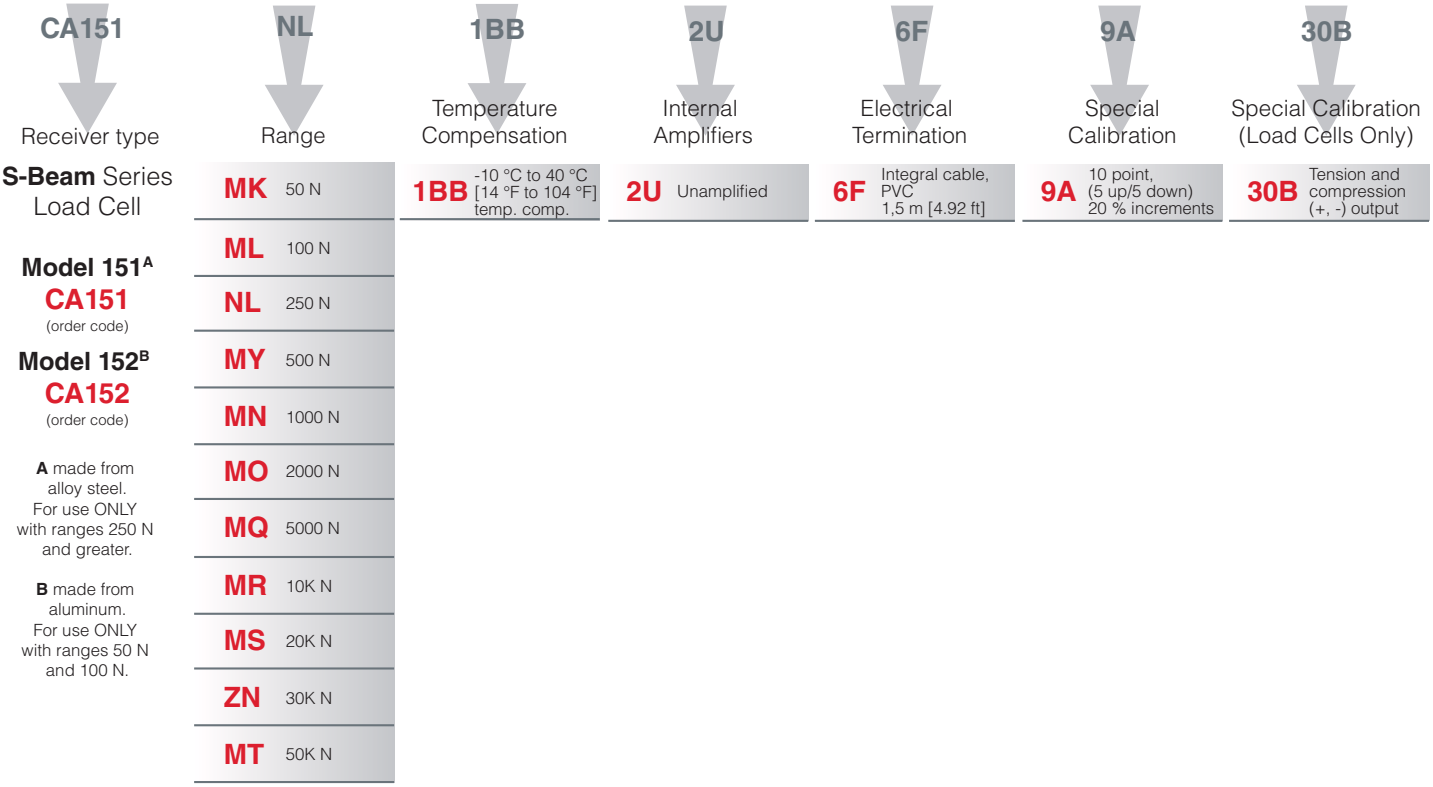
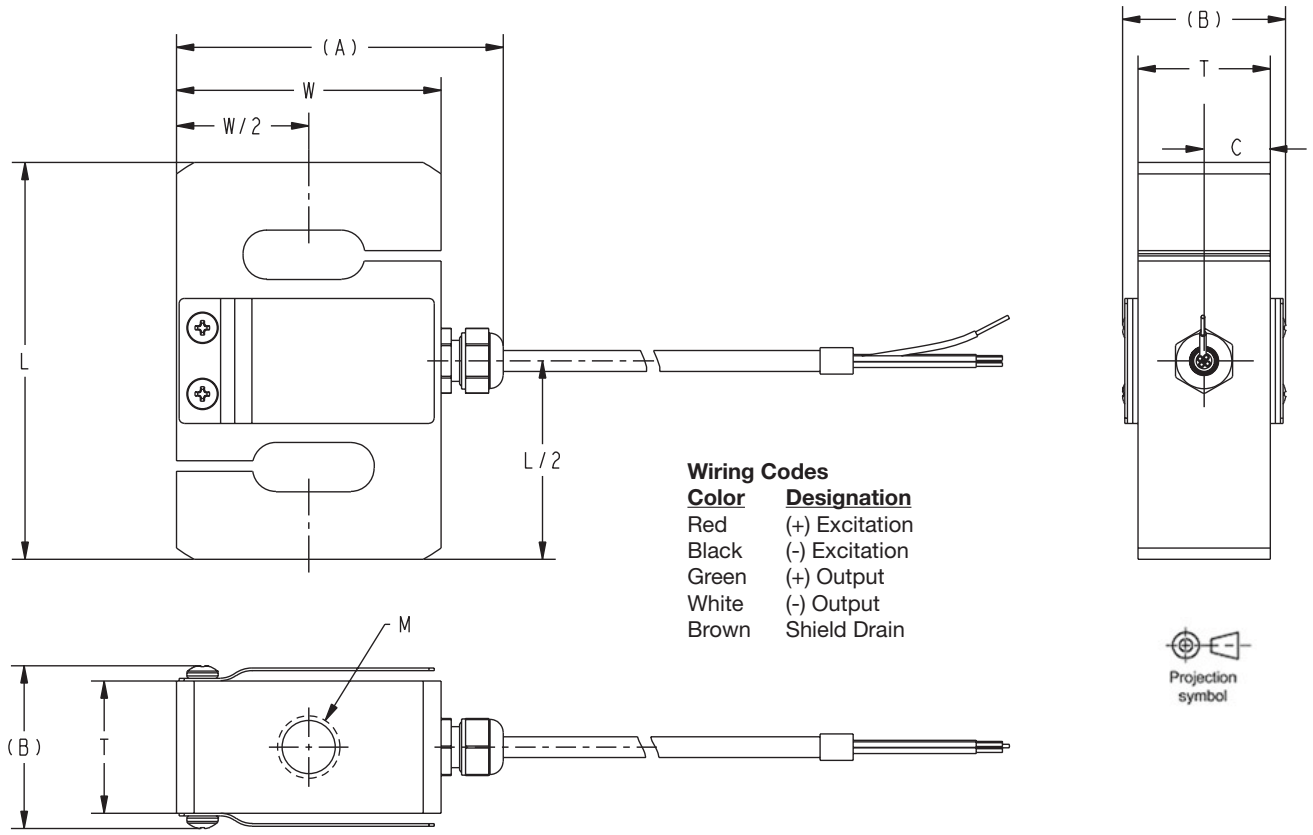


Table 6. Order Guide

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

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:

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

⚠ WARNING
PERSONAL INJURY

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

Honeywell warrants goods of its manufacture as being free of defective materials and faulty workmanship. Honeywell's standard product warranty applies unless agreed to otherwise by Honeywell in writing; please refer to your order acknowledgement or consult your local sales office for specific warranty details. If warranted goods are returned to Honeywell during the period of coverage, Honeywell will repair or replace, at its option, without charge those items it finds defective. **The foregoing is buyer's sole remedy and is in lieu of all other warranties, expressed or implied, including those of merchantability and fitness for a particular purpose. In no event shall Honeywell be liable for consequential, special, or indirect damages.**

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Specifications may change without notice. The information we supply is believed to be accurate and reliable as of this printing. However, we assume no responsibility for its use.

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