

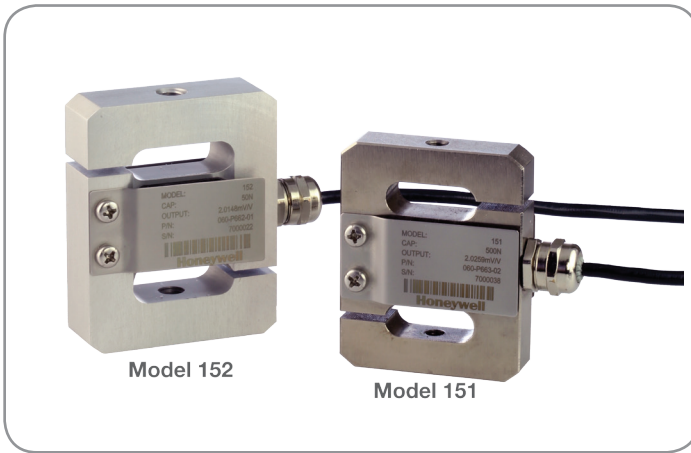
S-Beam Tension and Compression Load Cells

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.

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 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.

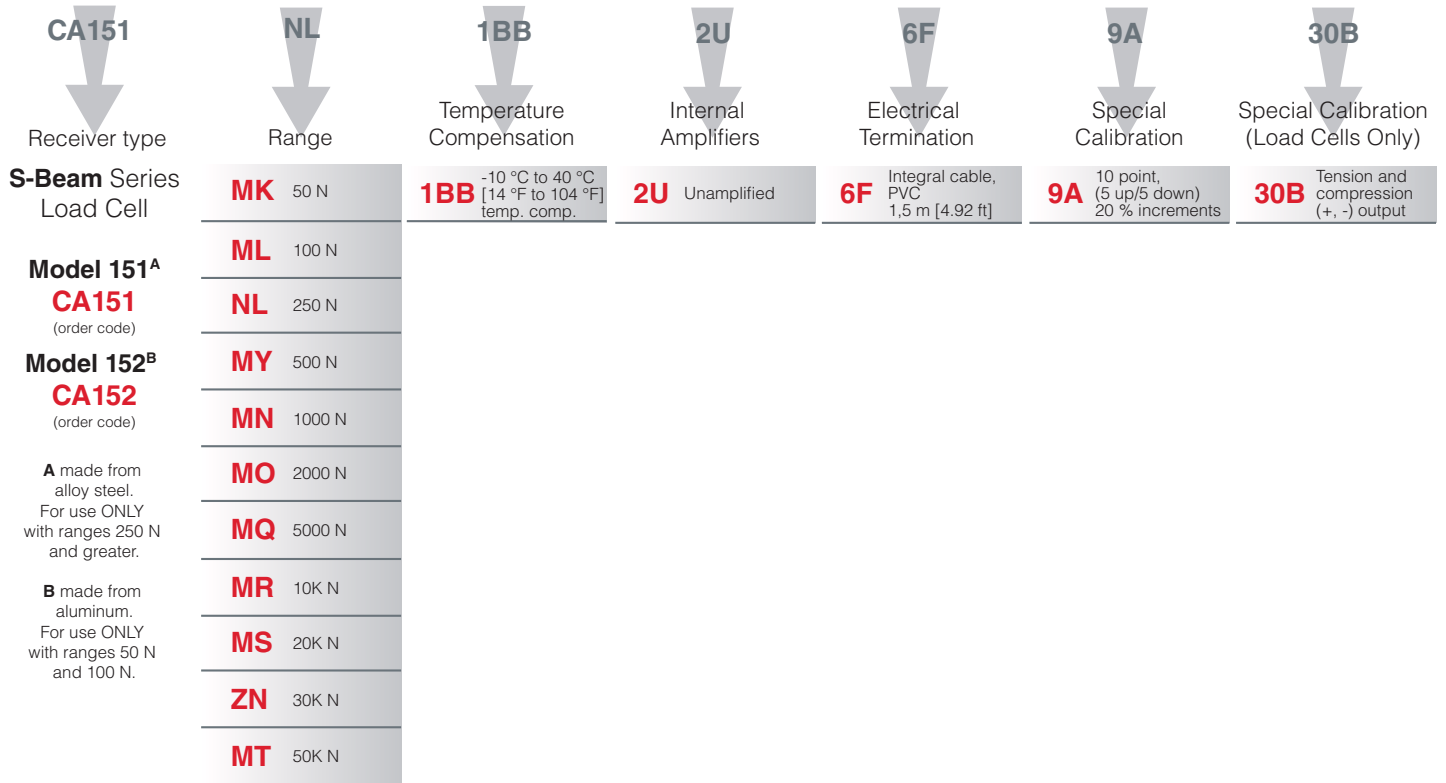


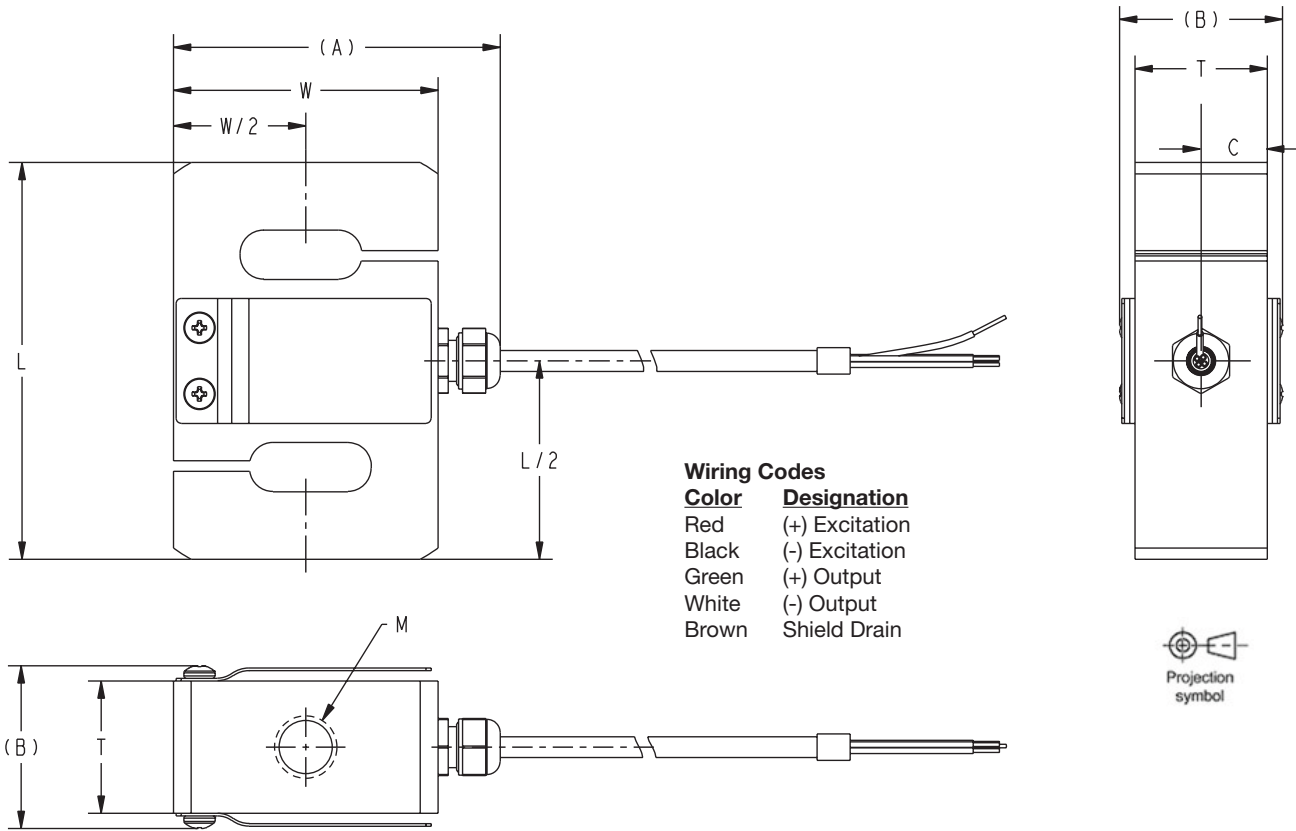
Table 6. Order Guide

| 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 |

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:

- 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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