

## Model 3161

### Tension/Compression In-Line Load Cell



#### DESCRIPTION

The small-diameter, cost-efficient, fatigue-resistant load cells are designed to be used in applications that require an ability to mount in an existing system with restricted working area. They are commonly used in fluid power transfer systems. Their low cost and ease of mounting allow simultaneous testing of multi-element systems.

They may be directly attached to the piston rod of a hydraulic cylinder. Side-mounted cable connectors allow cable assemblies to be supported without affecting movement of the cell during tension or compression loading.

#### FEATURES

- 2000 lb to 25000 lb range
- 0.15 % linearity
- 0.1 % hysteresis
- Fatigue resistant
- Adapts directly to hydraulic cylinder
- Small diameter allows mounting in restricted areas
- Low deflection

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## PERFORMANCE SPECIFICATIONS

| Characteristic          | Measure                         |
|-------------------------|---------------------------------|
| Load range <sup>1</sup> | 2000, 5000, 10000, 25000 lb     |
| Non-linearity           | ±0.15 % of rated output         |
| Hysteresis              | ±0.1 % of rated output          |
| Repeatability           | ±0.05 % of rated output         |
| Output @ rated capacity | ±2 mV/V (nominal)               |
| Operation               | Tension/compression             |
| Resolution              | Infinite                        |
| Standard calibration    | Tension (+) and compression (-) |

## ENVIRONMENTAL SPECIFICATIONS

| Characteristic             | Measure                            |
|----------------------------|------------------------------------|
| Temperature, operating     | -54 °C to 93 °C [-65 °F to 200 °F] |
| Temperature, compensated   | 21 °C to 77 °C [70 °F to 170 °F]   |
| Temperature effect, zero   | ±0.002 % of rated output/°F        |
| Temperature effect, output | ±0.002 % of reading/°F             |

## ELECTRICAL SPECIFICATIONS

| Characteristic                | Measure              |
|-------------------------------|----------------------|
| Strain gage type              | Foil                 |
| Excitation (maximum)          | 20 Vdc or Vac RMS    |
| Insulation resistance         | > 5000 mOhm @ 50 Vdc |
| Bridge resistance (tolerance) | 350 ohm              |
| Number of bridges             | 1 or 2               |
| Zero balance                  | ±1.0 %               |

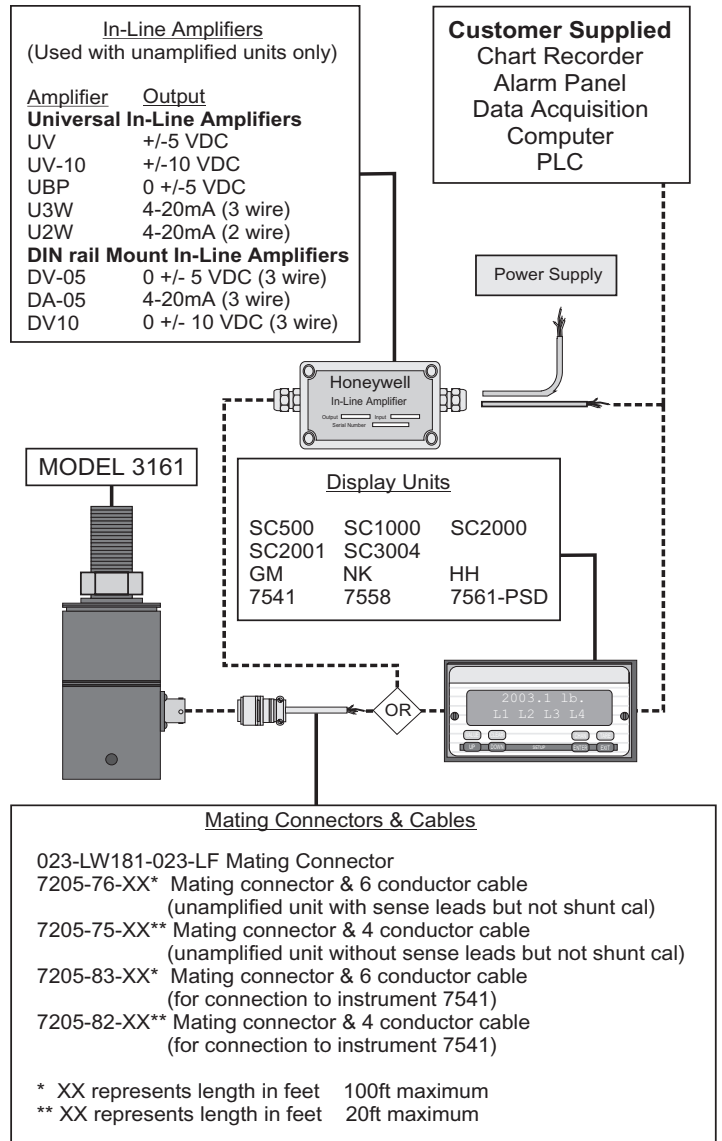
## MECHANICAL SPECIFICATIONS

| Characteristic           | Measure                   |
|--------------------------|---------------------------|
| Static overload capacity | 150 % of nominal capacity |
| Material                 | Carbon steel              |
| Natural frequency        | See table                 |

## RANGE CODES

| Range Code | Available ranges |
|------------|------------------|
| DL         | 2000 lb          |
| DR         | 5000 lb          |
| DV         | 10000 lb         |
| EM         | 25000 lb         |

## TYPICAL SYSTEM DIAGRAM



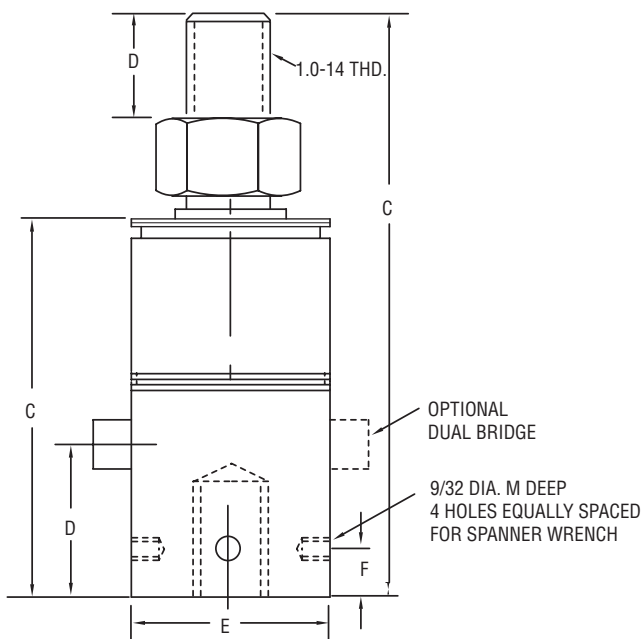
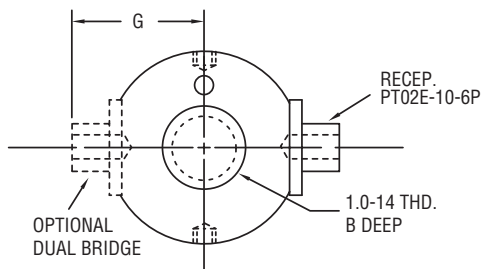
## Tension/Compression In-Line Load Cell

### NATURAL FREQUENCY

| Nominal load limit capacity $F_z$ |      | Static extraneous load limits                    |  |                           |                                |                      |                                       |                     |
|-----------------------------------|------|--|--|---------------------------|--------------------------------|----------------------|---------------------------------------|---------------------|
| lb                                | N    | Static overload capacity (% of nominal capacity) | Fatigue capacity (% of nominal capacity) | Shear $F_x$ or $F_y$ (lb) | Bending $M_x$ or $M_y$ (lb-in) | Torque $M_z$ (lb-in) | Deflection at nominal load limit (in) | Ring frequency (Hz) |
| 2K                                | 10K  | 150  | 100                                      | 850                       | 3800                           | 3500                 | 0.003                                 | 5000                |
| 5K                                | 20K  | 150  | 100                                      | 850                       | 3800                           | 3500                 | 0.003                                 | 6200                |
| 10K                               | 50K  | 150  | 100                                      | 850                       | 3800                           | 3500                 | 0.003                                 | 7100                |
| 25K                               | 125K | 150  | 100                                      | 2040                      | 6750                           | 9600                 | 0.003                                 | 11000               |

### MOUNTING DIMENSIONS

| Model | A cm [in]    | B cm [in]  | C cm [in]    | D cm [in]   | E cm [in]   | F cm [in]   | G cm [in]   | H cm [in]   |
|-------|--------------|------------|--------------|-------------|-------------|-------------|-------------|-------------|
| 3161  | 17,48 [6.88] | 2,54 [1.0] | 11,28 [4.44] | 4,29 [1.69] | 6,05 [2.38] | 1,27 [0.50] | 4,14 [1.63] | 0,64 [0.25] |



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## NOTES

1. This unit calibrated to Imperial (non-Metric) units.

**Warranty.** 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 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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### **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 catalogue is for reference only. DO NOT USE this document as product installation information.
- 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.**

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