

Model RGF

Rod End In-line Compression/Tension Load Cell



DESCRIPTION

The Model RGF In-Line load cells are high quality, stainless steel rugged load cells capable of withstanding significant off-axis loads, making them an ideal choice for in-line compression measurement or tension measurement where side loading cannot be

completely controlled. The flexible mounting options make applications easier to implement, and the all stainless steel, hermetic construction is well suited to corrosive and very high humidity environments.

FEATURES

- 2000 lb to 50000 lb range
- Female/female threads
- Stainless steel, all-welded construction
- 1 mV/V nominal (standard); 0 Vdc to 5 Vdc or 4 mA to 20 mA outputs (optional)
- Compression/tension
- 0.25 % accuracy
- CE approved¹⁰

Model RGF

PERFORMANCE SPECIFICATIONS

| Characteristic | Measure |
|---------------------------|---|
| Load ranges ¹¹ | 2000, 3000, 5000, 10000, 15000, 25000, 50000 lb |
| Accuracy | ±0.25 % full scale ¹ |
| Linearity | ±0.25 % full scale |
| Hysteresis | ±0.25 % full scale |
| Non-repeatability | ± 0.05 % full scale |
| Output (tolerance) | 1 mV/V (nominal) |
| Operation | Tension/compression |
| Resolution | Infinite |

ENVIRONMENTAL SPECIFICATIONS

| Characteristic | Measure |
|--------------------------|-------------------------------------|
| Temperature, operating | -54 °C to 121 °C [-65 °F to 250 °F] |
| Temperature, compensated | 15 °C to 71 °C [60 °F to 160 °F] |
| Temperature effect, zero | 0.005 % full scale/°F |
| Temperature effect, span | 0.005 % full scale/°F |

ELECTRICAL SPECIFICATIONS

| Characteristic | Measure |
|-------------------------------|---|
| Strain gage type | Bonded foil |
| Excitation (calibration) | 10 Vdc |
| Excitation (acceptable) | Up to 15 Vdc or Vac |
| Insulation resistance | 5000 mOhm @ 50 Vdc |
| Bridge resistance (tolerance) | 700 ohm |
| Shunt calibration data | Included |
| Electrical termination (std) | PTIH-10-6P or equivalent (hermetic stainless) |

MECHANICAL SPECIFICATIONS

| Characteristic | Measure |
|------------------------|-----------------------|
| Maximum allowable load | 150 % FS ¹ |
| Case material | Stainless steel |
| Life cycles (approx) | >10 million cycles |
| Deflection full scale | 0,076 mm [0.003 in] |

RANGE CODES

| Range Code | Available ranges |
|------------|------------------|
| DL | 2000 lb |
| DN | 3000 lb |
| DR | 5000 lb |
| DV | 10000 lb |
| EJ | 15000 lb |
| EM | 25000 lb |
| EP | 50000 lb |

WIRING CODES

| Connector | Unamplified (Std.) |
|-----------|--------------------|
| A | (+) excitation |
| B | (+) excitation |
| C | (-) excitation |
| D | (-) excitation |
| E | (-) output |
| F | (+) output |

DEFLECTIONS AND RINGING FREQUENCIES

| Capacity (lb) | Deflection at full scale mm [in] | Ringling frequency (Hz) | Weight kg [lb] |
|---------------|----------------------------------|-------------------------|----------------|
| 2000 | 0,025 [0.001] | 10000 | 0,55 [1.2] |
| 3000 | 0,025 [0.001] | 12000 | 0,55 [1.2] |
| 5000 | 0,050 [0.002] | 15000 | 0,63 [1.4] |
| 10000 | 0,050 [0.002] | 10000 | 1,3 [2.9] |
| 15000 | 0,050 [0.002] | 10000 | 1,3 [2.9] |
| 25000 | 0,050 [0.002] | 6500 | 4,3 [9.5] |
| 50000 | 0,076 [0.003] | 7000 | 4,49 [9.9] |

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INTERNAL AMPLIFIERS

| Amplifier specifications | Voltage output: Option 2b | Voltage output: Option 2c | Voltage output: Option 2t | Current three-wire: Option 2j | Current two-wire: Option 2k | Intrinsically safe amp: Option 2n (2N)*** |
|---|--|---|--|--|--|--|
| Output signal | ±5 V | 0 V to 5 V or ±5 V @ 45 mA | 0 V to 10 V or ±10 V @ 45 mA | 4 mA to 20 mA | 4 mA to 20 mA | 4 mA to 20 mA |
| Input power (voltage) | ±15 V or 26 Vdc to 32 Vdc | 11 Vdc to 28 Vdc | 15 Vdc to 28 Vdc | 22 Vdc to 32 Vdc | 15 Vdc to 40 Vdc | 9 Vdc to 28 Vdc |
| Input power (current) | 45 mA | 40 mA | 40 mA | 65 mA | 4 mA to 28 mA | 4 mA to 24 mA |
| Freq. resp (amp) | 3000 Hz | 3000 Hz | 3000 Hz | 2500 Hz | 300 Hz | 2000 Hz |
| Power supply rej. | 60 db | 60 db | 60 db | 60 db | 60 db | 60 db |
| Operating temp. | -20 °F to 185 °F | -20 °F to 185 °F | -20 °F to 185 °F | 0 °F to 185 °F | 0 °F to 185 °F | -20 °F to 185 °F |
| Reverse voltage protection | Yes | Yes | Yes | Yes | Yes | Yes |
| Short cir. protection | Momentary | Momentary | Momentary | Yes | Yes | Yes |
| Wiring code: connector (std) ⁴ | A (+) Supply B Output common C Supply return D (+) Output E Shunt cal 1 F Shunt cal 2 | A (+) Supply B Output common** C Supply return ** D (+) Output E Shunt cal 1 F Shunt cal 2 | A (+) Supply B Output common** C Supply return** D (+) Output E Shunt cal 1 F Shunt cal 2 | A (+) Supply B Output common** C Supply return** D (+) Output E Shunt cal 1 F Shunt cal 2 | A (+) Supply B No connection C No connection D (+) Output E Case ground F No connection | A (+) Supply B No connection C No connection D (+) Output E Case ground F No connection |
| Wiring code: cable ^{4,5,6} | R (+) Supply Bl Output common G Supply return W (+) Output B Shunt cal 1 Br Shunt cal 2 | R (+) Supply Bl Output common* G Supply return* W (+) Output B Shunt cal 1 Br Shunt cal 2 | R (+) Supply Bl Output common* G Supply return* W (+) Output B Shunt cal 1 Br Shunt cal 2 | R (+) Supply Bl Output common* G Supply return* W (+) Output B Shunt cal 1 Br Shunt cal 2 | R (+) Supply Bl (+) Output W Case ground | R (+) Supply Bl (+) Output W Case ground |

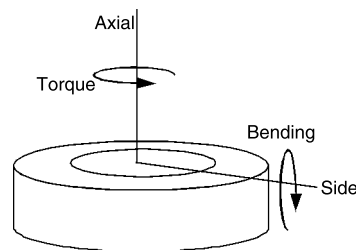
* Black and green wires are internally connected.

** Pins B and C are internally connected.

*** See our Web site for the most up-to-date information regarding intrinsically safe approvals, ref. #008-0547-00.

ALLOWABLE MAXIMUM LOADS²

| Capacity (lb) | Side load (lb) (% of load capacity) | Torque (lb-in) (% of load capacity) |
|---------------|-------------------------------------|-------------------------------------|
| 2000 | 20 % | 20 % |
| 3000 | 20 % | 20 % |
| 5000 | 20 % | 20 % |
| 10000 | 20 % | 20 % |
| 15000 | 20 % | 20 % |
| 25000 | 20 % | 20 % |
| 50000 | 20 % | 20 % |



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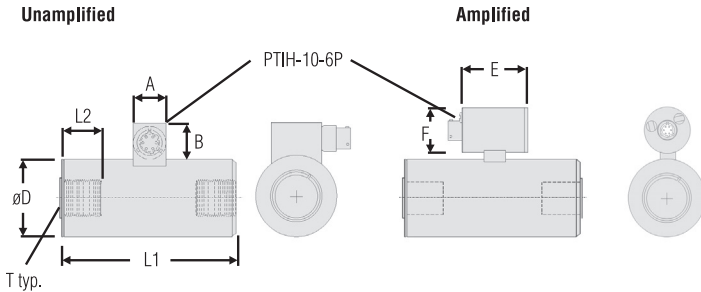
OPTION CODES

| | Many range/option combinations are available. Please visit our website at http://measurementsensors.honeywell.com . | |
|---|---|---|
| Load ranges | 2K, 3K, 5K, 10K, 15K, 25K, 50K lb | |
| Temperature compensation | 1a. 60 °F to 160 °F 1b. 30 °F to 130 °F 1c. 0 °F to 185 °F 1d. -20 °F to 130 °F 1e. -20 °F to 200 °F 1f. 70 °F to 250 °F | 1g. 70 °F to 325 °F ⁸ 1h. 70 °F to 400 °F ⁸ 1i. -65 °F to 250 °F ⁸ 1j. 0 °C to 50 °C 1k. -20 °C to 85 °C 1m. -25 °C to 110 °C |
| Internal amplifiers | 2u. Unamplified, mV/V output 2b. 4 wire, ±5 Vdc output 2c. 0 Vdc to 5 Vdc 2j. 4 mA to 20 mA (three-wire) output | 2n. 4 mA to 20 mA (two-wire), intrinsically safe, 9 Vdc to 28 Vdc supply, freq. response: 2000 Hz, CE approved 2k. 4 mA to 20 mA (two-wire) ¹² 2t. 0 Vdc to 10 Vdc output |
| Internal amp enhancements | 3a. Input/output isolation ⁷ 3d. Remote buffered shunt calibration | |
| Electrical termination | 6a. Bendix PTIH-10-6P (or equivalent) 6-pin, (max. 250 °F) (ranges 50000 lb and below) 6b. MS connector MS3102E-14S-6P (mates with MS3106E-14S-6), (max. 160 °F) (ranges above 50000 lb) ⁶ 6e. Integral cable: Teflon 6f. Integral cable: PVC | 6g. Integral cable: Neoprene 6h. Integral cable: Silicone 6i. Integral underwater cable 6j. 1/2-14 conduit fitting with 5 ft of 4 conductor PVC cable 6q. Integral cable: Polyurethane 6v. Phoenix connector on end of cable |
| Shunt calibration | 8a. Precision internal resistor ⁸ | |
| Bridge type | 11a. Square bridge ⁸ 11b. Symmetrical bridge ⁸ 11c. Square and symmetrical bridge ⁸ | 31a. Dual bridge 31b. Dual bridge for diameters greater than 3.5 inches, and up to/including 6 inches 31c. Dual bridge for diameters greater than 6 inches |
| Bridge resistance | 12b. 5000 ohm (foil) (max. 250 °F) | |
| Zero and span adjustment | 14a. No access to zero and span adjustment | |
| Electrical connector orientation | 15a. Horizontal electrical exit port orientation 15b. Vertical electrical exit port orientation 15c. Radial electrical exit port orientation | |
| Special calibration | 30a. Calibrate positive in compression 30b. Calibrate in tension and compression 30c. Calibrate negative in compression | |
| Shock and vibration | 44a. Shock and vibration resistance | |
| Interfaces | 53e. Signature calibration ⁸ 53t. TEDS IEEE 1451.4 module ⁹ | |

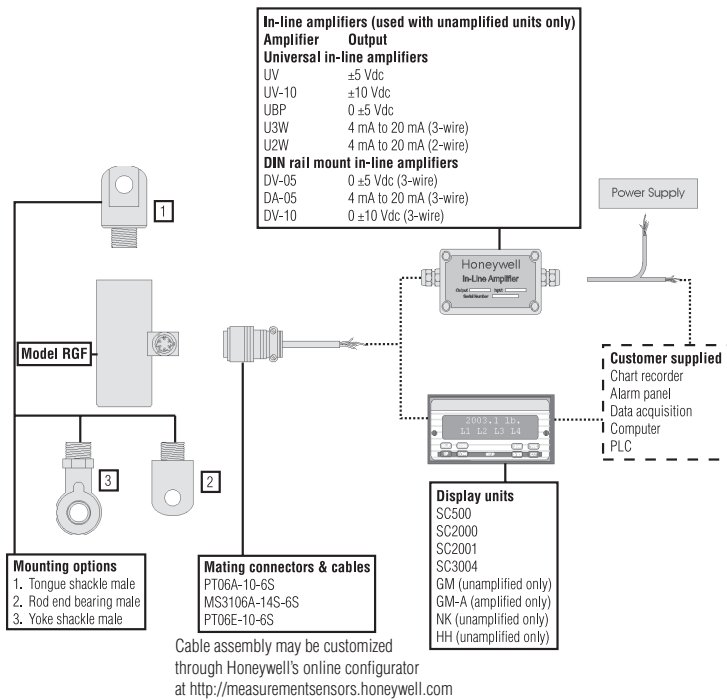
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MOUNTING DIMENSIONS

| Range (lb) | D mm [in] | T | L2 mm [in] | L1 mm [in] | Unamplified only | | Amplified only | |
|----------------|--------------|--------------|--------------|---------------|------------------|--------------|----------------|-------------|
| | | | | | A mm [in] | B mm [in] | E mm [in] | F mm [in] |
| 2000 to 5000 | 44,45 [1.75] | 3/4-16 UNF | 24,13 [0.95] | 90,42 [3.56] | 19,05 [0.75] | 20,82 [0.82] | 49,53 [1.95] | 38,1 [1.50] |
| 10000 to 15000 | 63,5 [2.50] | 1 1/2-12 UNF | 44,45 [1.75] | 155,54 [6.12] | 19,05 [0.75] | 20,82 [0.82] | 49,53 [1.95] | 38,1 [1.50] |
| 25000 to 50000 | 88,9 [3.50] | 2-12 UNF | 57,15 [2.25] | 203,2 [8.00] | 19,05 [0.75] | 20,82 [0.82] | 49,53 [1.95] | 38,1 [1.50] |



TYPICAL SYSTEM DIAGRAM



NOTES

1. Allowable maximum loads – maximum load to be applied without damage.²
2. Without damage - loading to this level will not cause excessive zero shift or performance degradation. The user must consider fatigue life for long term use and structural integrity. All structurally critical applications (overhead loading, etc.) should always be designed with safety redundant load paths.
3. Interconnecting shunt cal. 1 terminal with shunt cal. 2 terminal provides 50 % (unamplified units), 75 % (4 mA to 20 mA three-wire units) or 80 % (voltage amplified units) of full scale output for quick calibration. Shunt calibration comes standard with internal amplifier option 2a, 2b, 2c, 2t and 2j.
4. O=Orange; Y=Yellow; B=Blue; Bl=Black; R=Red; Br=Brown; W=White; G=Green. Color specifying cable and number or letter specifying connector.
5. No mating connector necessary for cable option.
6. Cannot be used with options 1c, 1e, 1f, 1g, 1h, or 1i.
7. Only available with option 2b or 2c.
8. Not available with amplified option.
9. Consult factory for TEDS availability with amplified models.
10. Termination dependent; consult factory.
11. This unit calibrated to Imperial (non-Metric) units.
12. 5000 ohm bridge required.

Find out more

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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 datasheet 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.