

## Model RGH

### Rod End In-line Compression/Tension Load Cell



#### DESCRIPTION

The Model RGH 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
- Male/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 approved<sup>10</sup>

# Model RGH

## PERFORMANCE SPECIFICATIONS

Characteristic	Measure
Load ranges <sup>11</sup>	2000, 3000, 4000, 5000, 10000, 15000, 25000, 50000 lb
Accuracy	±0.25 % full scale <sup>1</sup>
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 <sup>1</sup>
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
DP	4000 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]
4000	0.038 [0.0015]	13000	0,59 [1.3]
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	4,3 [9.5]

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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) <sup>4</sup>	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 <sup>4,5,6</sup>	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

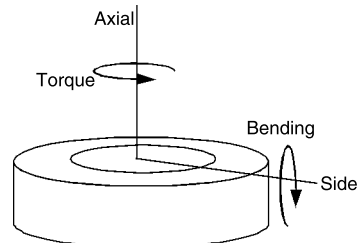
\* Black and green wires are internally connected.

\*\* 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 LOADS<sup>2</sup>

Capacity (lb)	Side load (lb) (% of load capacity)	Torque (lb-in) (% of load capacity)
2000	20 %	20 %
3000	20 %	20 %
4000	20 %	20 %
5000	20 %	20 %
10000	20 %	20 %
15000	20 %	20 %
25000	20 %	20 %
50000	20 %	20 %



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## OPTION CODES

	<b>Many range/option combinations are available.</b> <b>Please visit our website at <a href="http://measurementsensors.honeywell.com">http://measurementsensors.honeywell.com</a>.</b>	
<b>Load ranges</b>	2K, 3K, 4K, 5K, 10K, 15K, 25K, 50K lb	
<b>Temperature compensation</b>	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 <sup>8</sup> 1h. 70 °F to 400 °F <sup>8</sup> 1i. -65 °F to 250 °F <sup>8</sup> 1j. 0 °C to 50 °C 1k. -20 °C to 85 °C 1m. -25 °C to 110 °C
<b>Internal amplifiers</b>	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) <sup>13</sup> 2t. 0 Vdc to 10 Vdc output
<b>Internal amp enhancements</b>	3a. Input/output isolation <sup>7</sup> 3d. Remote buffered shunt calibration	
<b>Electrical termination</b>	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) <sup>6</sup> 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
<b>Shunt calibration</b>	8a. Precision internal resistor <sup>8</sup>	
<b>Bridge type</b>	11a. Square bridge <sup>8</sup> 11b. Symmetrical bridge <sup>8</sup> 11c. Square and symmetrical bridge <sup>8</sup>	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
<b>Bridge resistance</b>	12b. 5000 ohm (foil) (max. 250 °F)	
<b>Zero and span adjustment</b>	14a. No access to zero and span adjustment	
<b>Electrical connector orientation</b>	15a. Horizontal electrical exit port orientation 15b. Vertical electrical exit port orientation 15c. Radial electrical exit port orientation 15d. Connector on end of cable	
<b>Special calibration</b>	30a. Calibrate positive in compression 30b. Calibrate in tension and compression 30c. Calibrate negative in compression	
<b>Shock and vibration</b>	44a. Shock and vibration resistance	
<b>Interfaces</b>	53e. Signature calibration <sup>8</sup> 53t. TEDS IEEE 1451.4 module <sup>9</sup>	

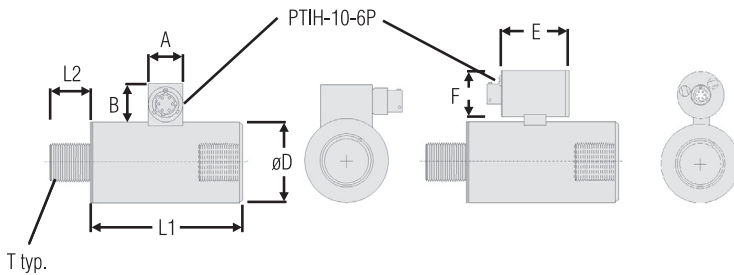
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### MOUNTING DIMENSIONS

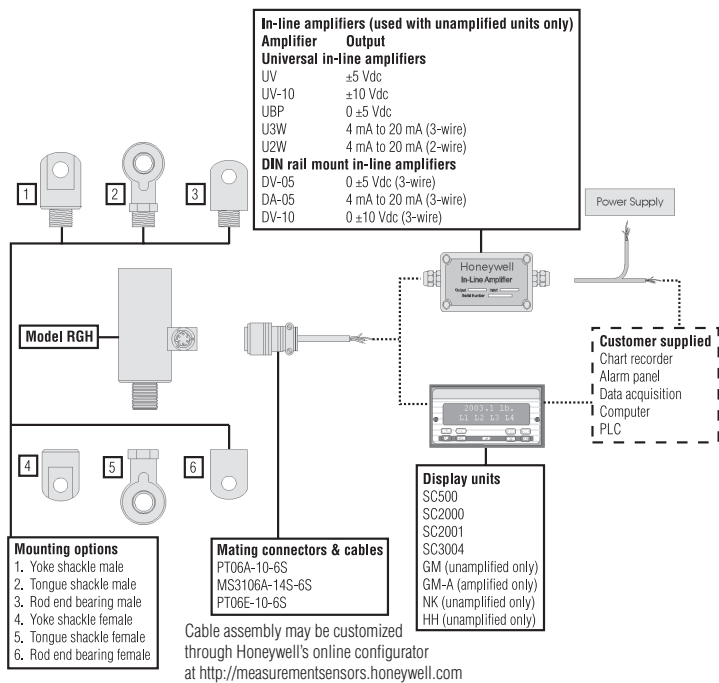
Range (lb)	D mm [in]	T	L2 mm [in]	L1 mm [in]	Unamplified only		Amplified only	
					A mm [in]	B mm [in]	E mm [in]	F mm [in]
2000 to 5000	44,45 [1.75]	3/4-16 UNF	24,13 [0.95]	66,80 [2.63]	19,05 [0.75]	20,82 [0.82]	49,53 [1.95]	38,1 [1.50]
10000 to 15000	63,5 [2.50]	1 1/2-12 UNF	44,45 [1.75]	114,3 [4.50]	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]	146,05 [5.75]	19,05 [0.75]	20,82 [0.82]	49,53 [1.95]	38,1 [1.50]

#### Unamplified

#### Amplified



### TYPICAL SYSTEM DIAGRAM



## NOTES

1. Allowable maximum loads – maximum load to be applied without damage.<sup>2</sup>
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 use 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

Honeywell serves its customers through a worldwide network of sales offices, representatives and distributors. For application assistance, current specifications, pricing or name of the nearest Authorized Distributor, contact your local sales office. To learn more about Honeywell's test and measurement products, call **+1-614-850-5000**, visit **[www.honeywell.com/sensotec](http://www.honeywell.com/sensotec)**, or e-mail inquiries to **[info.tm@honeywell.com](mailto:info.tm@honeywell.com)**

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Honeywell  
1985 Douglas Drive North  
Golden Valley, MN 55422  
**[www.honeywell.com](http://www.honeywell.com)**

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While we provide application assistance personally, through our literature and the Honeywell web site, it is up to the customer to determine the suitability of the product in the application.

### **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.**

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