Honeywell

Model RGM

Rod End In-line Tension/Compression Load Cell

DESCRIPTION

The Model RGM 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/male 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[10]

Model RGM

PERFORMANCE SPECIFICATIONS

Characteristic	Measure
Load ranges[11]	2000, 3000, 4000, 5000, 10000, 15000, 25000, 50000 lb
Accuracy	±0.25 % full scale
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
Zero balance (tolerance)	±3 % full scale
Shunt calibration data	Included
Electrical termination (std)	PTIH-10-6P or equivalent (hermetic stainless)

MECHANICAL SPECIFICATIONS

Characteristic	Measure
Maximum allowable load	150 % FS[1]
Weight	See table
Material	Stainless steel
Life cycles (approx)	>10 million cycles
Deflection full scale	See table
Natural frequency	See table

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]	Ringing 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]

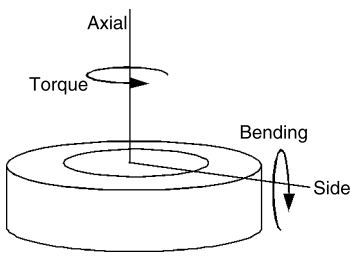
INTERNAL AMPLIFIERS

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 LOADS[2]

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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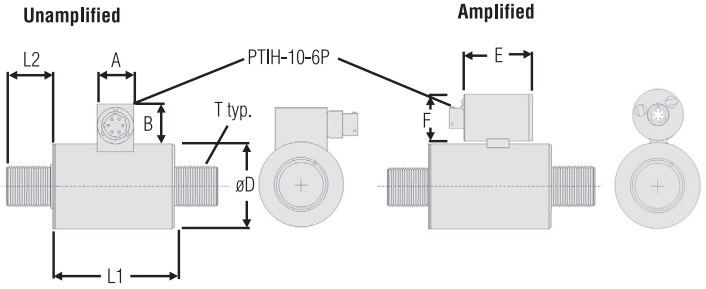
OPTION CODES

	Many range/option combinations are available. **Please visit our website at http://measurementsensors.honeywell.com.**	
Load ranges	2K, 3K, 4K, 5K, 10K, 15K, 25K, 50K	
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 15d. Connector on end of cable	
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]	

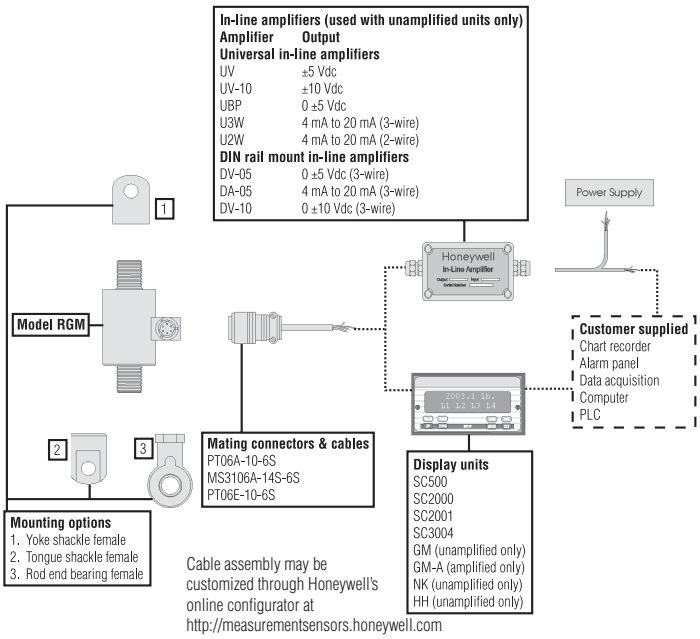
Rod End In-Line Compression/Tension Load Cell

MOUNTING DIMENSIONS

					Unamplified only		Amplified only	
Range (lb)	**D mm [in]**	**T**	**L2 mm [in]**	**L1 mm [in]**	**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]	88,9 [3.50]	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]	88,9 [3.50]	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.

⚠ 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.

Find out more

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