Honeywell

Model UG

Ultra Precision Universal Canister Load Cell

DESCRIPTION

Model UG Ultra Precision Universal load cell achieves scale quality and performance standards.The Model UG achieves ±0.03 % non-linearity with very little deflection (typically .0045 in). It utilizes a four arm strain gage bridge which is bonded and tested for high precision and dependability. Female threads on both ends facilitate mounting in any position for tension, compression, or universal force measurements. Model UG load cells can be used in both static and dynamic applications. Stainless steel construction ensures high reliability.

FEATURES

- 5 lb to 50000 lb
- 0.03 % non-linearity and hysteresis, respectively
- Stainless steel
- Mini footprint
- Button-style design
- mV/V output

Model UG

PERFORMANCE SPECIFICATIONS

Characteristic	Measure
Load ranges[12]	100 lb to 150000 lb
Non-linearity	±0.03 % full scale[1]
Hysteresis	±0.03 % full scale[1]
Non-repeatability	±0.02 % full scale
Output (tolerance)	3 mV/V ±1 %
Load direction	Tension/compression[4]
Resolution	Infinite
Creep (max.)	0.02 % (20 min.)

ENVIRONMENTAL SPECIFICATIONS

Characteristic	Measure
Temperature, operating	-34 °C to 85 °C [-30 °F to 185 °F][5]
Temperature, compensated	15 °C to 71 °C [60 °F to 160 °F][5]
Temperature, storage	-73 °C to 121 °C [-100 °F to 250 °F]
Temperature effect, zero	0.0015 % full scale/°F
Temperature effect, span	0.0008 % full scale/°F

ELECTRICAL SPECIFICATIONS

Characteristic	Measure
Strain gage type	Bonded foil
Excitation (calibration)	10 Vdc
Insulation resistance	5000 mOhm @ 50 Vdc
Bridge resistance	350 ohm
Zero balance	1 % of full scale
Electrical termination (std)	MS3102E-14S-6P
Mating connector (not included)	MS3106A-14S-6S (AA121)

MECHANICAL SPECIFICATIONS

Characteristic	Measure
Maximum allowable load	150 % FS [2]
Material	Stainless steel

WIRING CODES

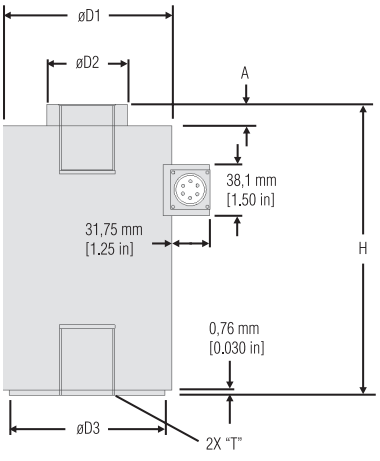
Connector	Unamplified
A	(+) excitation
B	(+) excitation
C	(-) excitation
D	(-) excitation
E	(-) output
F	(+) output

RANGE CODES

Range Code	Available ranges	Range Code	Available ranges
BR	100 lb	**DV**	10000 lb
CN	250 lb	**EJ**	15000 lb
CR	500 lb	**EL**	20000 lb
CV	1000 lb	**EN**	30000 lb
DL	2000 lb	**EP**	50000 lb
DN	3000 lb	**ER**	75000 lb
DP	4000 lb	**ET**	100000 lb
DR	5000 lb	**FJ**	150000 lb
DT	7500 lb		

MOUNTING DIMENSIONS

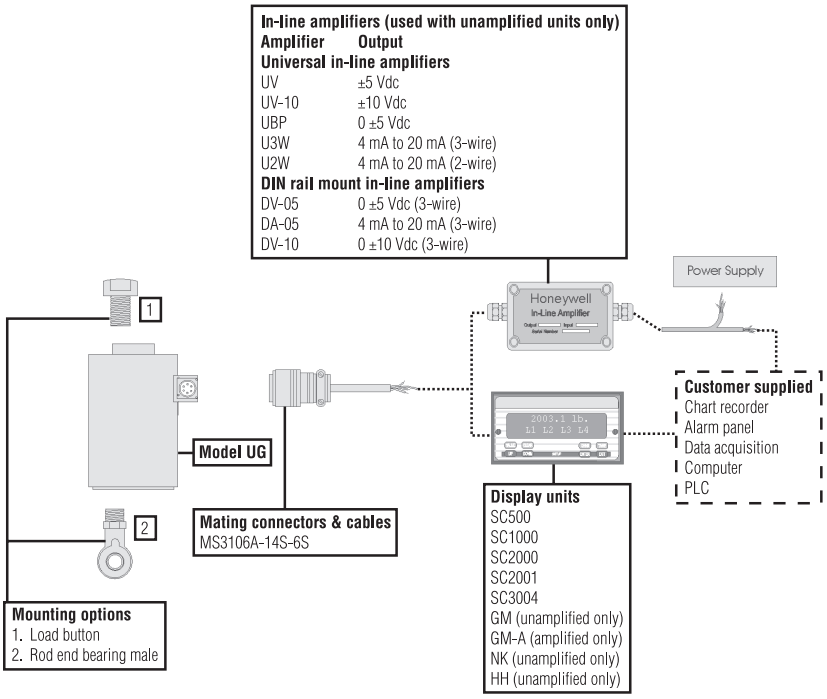
Ranges lb	H mm [in]	ØD1 mm [in]	ØD2 mm [in]	ØD3 mm [in]	A mm [in]	T
100	69,85 [2.75]	50,8 [2.00]	16,00 [0.63]	48,26 [1.9]	2,29 [0.09]	3/8-24 UNF x 7/16 in
250, 500	69,85 [2.75]	50,8 [2.00]	16,00 [0.63]	48,26 [1.9]	4,57 [0.18]	3/8-24 UNF x 7/16 in
1000, 2000, 3000, 4000	104,90 [4.13]	63,5 [2.50]	19,05 [0.75]	50,8 [2.00]	4,57 [0.18]	1/2-20 UNF x 5/8 in
5000, 7500, 10000	149,35 [5.88]	88,9 [3.50]	39,62 [1.56]	76,2 [3.00]	4,83 [0.19]	1-14 UNF x 1 1/8 in
15000, 20000, 30000	215,9 [8.50]	127 [5.00]	60,45 [2.38]	109,22 [4.3]	16,00 [0.63]	1 1/2-12 UNF x 2 in
50000, 75000	304,8 [12.00]	152,4 [6.00]	92,20 [3.63]	139,7 [5.5]	17,53 [0.69]	2-12 UNF x 2 1/2 in
100000, 150000	401,32 [15.80]	190,5 [7.5]	121,92 [4.8]	172,72 [6.8]	17,53 [0.69]	3-8 UNF x 4 1/2 in



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)	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[5,6,7]	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

TYPICAL SYSTEM DIAGRAM



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OPTION CODES

	Many range/option combinations are available in our quick-ship and fast-track manufacture programs. Please see http://sensing.honeywell.com/TMsensor-ship for updated listings.	
Load ranges	100, 250, 500, 1000, 2000, 3000, 4000, 5000, 7500, 10000, 15000, 20000, 30000, 50000, 75000, 100000, 150000 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 200 °F 1e. -20 °F to 200 °F 1f. 70 °F to 250 °F	1g. 70 °F to 325 °F[14] 1h. 70 °F to 400 °F[14] 1i. -65 °F to 250 °F[14] 1j. 0 °C to 50 °C 1k. -20 °C to 85 °C 1m. -25 °C to 110 °C
Internal amplifiers	2b. ±5 Vdc 2c. 0 Vdc to 5 Vdc output 2j. 4 mA to 20 mA (three-wire) out 2k. 4 mA to 20 mA (two-wire)[13]	2n (2N) 4 mA to 20 mA (wire) intrinsically safe[13] 2t. 0 Vdc to 10 Vdc 2u. Unamplified, mV/V output
Electrical termination	6a. Bendix PTIH-10-6P (or equivalent) 6-pin (max. 250 °F) 6b. MS connector MS3102E-14S-6P (mates with MS3106E-14S-6S) (max 160 °F)[16] 6e. Integral cable: Teflon	6g. Integral cable: Neoprene 6i. Submersible cable[15] 6j. 1/2-14 conduit fitting with 5 ft of 4 conductor PVC cable 6q. Integral cable: Polyurethane
Shunt calibration	8a. Precision internal resistor[14]	
Bridge resistance	12b. 5000 ohm (foil) 11a. Square bridge[14] 11b. Symmetrical bridge[14] 11c. Square and symmetrical bridge[14]	
Special calibration	30a. Compression only calibration, positive in compression 30b. Tension and compression calibration, positive in tension 30c. Compression only calibration, negative in compression	
Shock and vibration	44a. Shock and vibration resistance	
Interfaces	53e. Signature calibration[14] 53t. TEDS IEEE 1451.4 module[9]	

NOTES

1. ±0.05% full scale less than or equal to 250 lb and greater than or equal to 75000 lb.
2. Allowable maximum loads - maximum load to be applied without damage.[3]
3. 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.
4. Standard calibration for tension/ compression load cells is in tension only.
5. 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 2b, 2c, 2t and 2j.
6. 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.
7. No mating connector necessary for cable option.
8. Consult factory for extended temperature ranges.
9. Consult factory for TEDS availability with amplified models.
10. Range dependent; consult factory. Termination dependent; consult factory.
11. Internal amp and termination dependent; consult factory.
12. This unit calibrated to Imperial (non-Metric) units.
13. 5000 ohm bridge required
14. Not available with amplified options.
15. Temperature 82 °C [180 °F] max., non-shielded standard, shielded available.
16. Cannot be used with options 1c, 1e, 1f, 1g, 1h, or 1i.

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⚠ WARNING

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- 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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