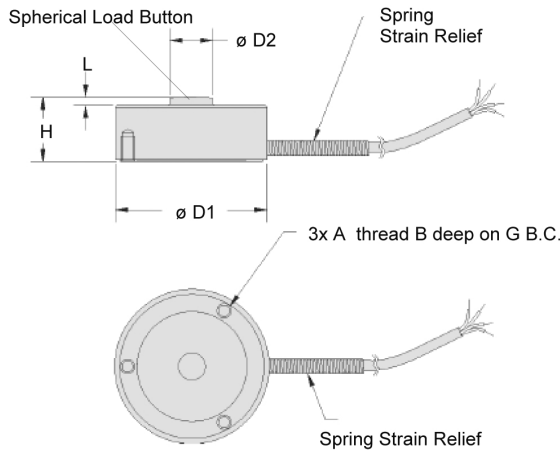


Model 53 Low Cost Load Cell

Order Code AL131

- 5 to 50,000 lb.
- Stainless Steel
- Mini Footprint
- Button Style Design
- mV/V Output



Wiring Code

Cable/ Unamplified

- Red (+) Excitation
- Black (-) Excitation
- Green (-) Output
- White (+) Output

Dimensions

Range (lb.)	D1 (in.)	D2 (in.)	H (in.)	L (in.)	A (in.)	B (in.)	G (in.)
5; 10; 25; 50; 100	1.00	0.21	0.62	0.05	#4-40 UNC	0.22	0.750
250; 500; 1000; 2000	1.25	0.32	0.39	0.07	#6-32 UNC	0.25	1.000
3000; 4000; 5000; 7500; 10,000	1.50	0.40	0.63	0.08	#6-32 UNC	0.25	1.250
15,000; 20,000; 30,000	2.00	0.60	1.00	0.12	#6-32 UNC	0.25	1.625
50,000	3.00	0.78	1.50	0.18	#6-32 UNC	0.25	2.375

Performance

- Load Ranges.....5 to 50,000 lbs.
- Linearity (max.).....+/- 0.5% Full Scale
- Hysteresis (max.).....+/- 0.3% Full Scale
- Non-Repeatability (max.).....+/- 0.1% Full Scale
- Output (tolerance).....2 mV/V (nominal)
- Operation.....Compression
- Resolution.....Infinite

Environmental

- Temperature, Operating.....-65° to 250° F
- Temperature, Compensated.....60° to 160° F
- Temperature, Effect
 - Zero.....0.005% Full Scale/° F
 - Span.....0.01% Full Scale/° F

Electrical

- Strain Gage Type.....Bonded Foil
- Excitation (calibration)
 - 5 to 100 lb.....5VDC
 - 250 to 50,000 lb.....10 VDC
- Insulation Resistance.....5000 Megohms @ 50 VDC
- Bridge Resistance (tolerance).....350 Ohms (nominal)
- Zero Balance (tolerance).....+/- 1% of Full Scale
- Shunt Calibration Data.....Included
- Electrical Termination (std).....Teflon cable (5 ft.)

Mechanical

- Weight.....See table
- Material.....17-4 PH Stainless Steel
- Maximum Allowable Load.....150% F.S. (note 1)
- Deflection Full Scale.....See table
- Natural Frequency.....See table

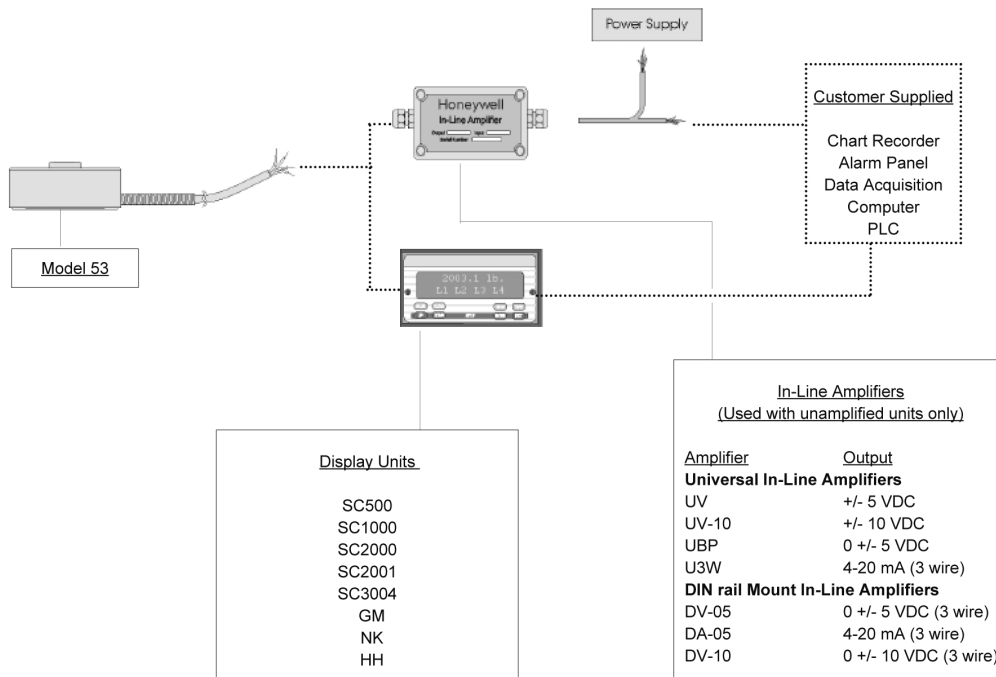
Model 53

Force

Deflections and Ringing Frequencies

Capacity (lb.)	Deflection @ Full Scale (in.)	Ringling Frequency (Hz)	Weight with Cable (g)
5	.001	2,000	59
10	.001	3,000	59
25	.001	16,000	62
50	.001	21,000	63
100	.001	28,000	64
250	.001	25,000	72
500	.001	32,000	72
1,000	.001	42,000	75
2,000	.001	53,000	77
3,000	.001	27,000	137
4,000	.001	31,000	138
5,000	.001	34,000	140
7,500	.001	41,000	142
10,000	.001	47,000	145
15,000	.002	24,000	368
20,000	.002	28,000	372
30,000	.002	33,000	377
50,000	.003	24,000	1,270

Typical System Diagram



Model 53

Force

Range Codes	Range	Range Code	Special Customer Requirements (Consult Factory)
	5 lb.	AT	OEM labels
	10 lb.	AV	Radiation rated
	25 lb.	BL	Different cable lengths
	50 lb.	BN	Increased fatigue life
	100 lb.	BR	Custom cable exit
	250 lb.	CN	Alternate cable material
	500 lb.	CR	Thru mounting holes
	1,000 lb.	CV	Integral connector
	2,000 lb.	DL	
	3,000 lb.	DN	
	4,000 lb.	DP	
	5,000 lb.	DR	
	7,500 lb.	DT	
	10,000 lb.	DV	
	15,000 lb.	EJ	
	20,000 lb.	EL	
	30,000 lb.	EN	
	50,000 lb.	EP	

Options

	Same Day Ship	Fast track manufacture	Build to order	Build from scratch
Load Range	500, 1000, 2000, 5000, 10,000, 20,000, 50,000 lb			5, 10, 25, 50, 100, 250, 3000, 4000, 7500, 15,000, 30,000 lb
Temperature Compensation	1a. 60° to 160° F	1b. 30° to 130° F 1c. 0° to 185° F 1d. -20° to 130° F 1e. -20° to 200° F 1j. 0° to 50° C 1k. -20° to 85° C 1m. -25° to 110° C	1f. 70° to 250° F 1g. 70° to 325° F 1h. 70° to 400° F 1i. -65° to 250° F	
Internal Amplifiers	2u. Unamplified, mV/V output			
Electrical Termination	6e. Integral cable: Teflon	6d. Microtec DR-4S-4H 4 pin Phoenix connector on end of cable	6f. Integral cable: PVC 6g. Integral cable: Neoprene 6h. Integral cable: Silicone 6i. Integral underwater cable (note 3)	
Special Calibration		9a. 10 point (5 up/5 down) 20% increments @ 68° F 9b. 20 point (10 up/10 down) 10% increments @ 68° F		
Shock & Vibration		44a. Shock and vibration resistance		
Interfaces (note 4)		53e. Signature Calibration 53t. T.E.D.S. IEEE 1451.4 Module		

Supplied as standard

Notes

- Allowable Maximum Loads - Maximum load to be applied without damage (note 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.
- Dimension "H" may increase with option 6i. Consult factory. Maximum temperature is 180° F.
- TEDS available with integral cable units only.

How to Order

Combine the order code, the range code and the options code.

Sample Code:
Order Code Range Code Options Code

Model 41 Precision Low Profile Load Cell

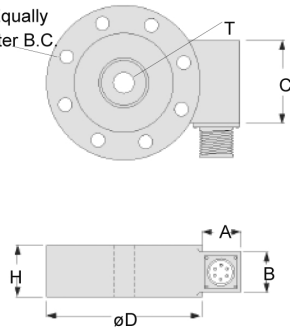
Order Code AL111

- 5 to 500,000 lb.
- mV/V Output
- Double Diaphragm Design



Force

F Clearance Holes Equally Spaced on G Diameter B.C
K Diameter thru



Wiring Code

Connector/ Unamplified (Std.)

- A (+) Excitation
- B (+) Excitation
- C (-) Excitation
- D (-) Excitation
- E (-) Output
- F (+) Output

Dimensions

Ranges (lb.)	D (in.)	H (in.)	F#	øG (in.) øK (in.)		T	A (in.)	A* (in.)	B (in.)	B* (in.)	C (in.)
				B.C.	thru						
5; 10; 25	2.50	0.80	6	2.000	0.19	1/4-28 UNF	0.82	2.5	0.75	0.9	1.25
50; 100; 250; 500; 1000	3.00	1.00	6	2.250	0.28	3/8-24 UNF	0.82	2.5	0.75	0.9	1.25
2000; 3000; 4000; 5000	3.50	1.00	6	2.625	0.34	1/2-20 UNF	0.82	2.5	0.75	0.9	1.25
7500; 10,000; 15,000	5.50	1.80	8	4.500	0.40	1-14 UNS	1.25	2.3	1.50	1.5	2.00
20,000; 30,000; 50,000	6.00	1.80	8	4.875	0.53	1 1/2-12 UNF	1.25	2.3	1.50	1.5	2.00
75,000; 100,000	9.00	2.50	12	7.750	0.66	2-12 UN	1.25	2.3	1.50	1.5	2.00
150,000; 200,000	11.00	2.50	12	9.500	0.78	2 1/2-12 UN	1.25	2.3	1.50	1.5	2.00
300,000; 400,000; 500,000	14.00	4.25	12	11.750	1.03	3 1/2-12 UN	1.25	2.3	1.50	1.5	**

* Length of load cell with amplified option (see options chart)
**C* dimension varies on high ranges. Consult Factory

Performance

Load Ranges.....	5 to 500,000 lb.
Non-linearity	
5 to 25 lb.....	+/- 0.2% Full Scale
50 to 500,000 lb.....	+/- 0.1% Full Scale
Hysteresis	
5 to 25 lb.....	+/- 0.1% Full Scale
50 to 500,000 lb.....	+/- 0.08% Full Scale
Non-Repeatability	
5 to 25 lb.....	+/- 0.1% Full Scale
50 to 500,000 lb.....	+/- 0.03% Full Scale
Output (tolerance)	
5 to 25 lb.....	2 mV/V +/- 0.5% Full Scale
50 to 500,000 lb.....	3 mV/V +/- 0.5% Full Scale
Operation.....	Compression/ Tension (note 13)
Resolution.....	Infinite
Standard Calibration.....	5 point calibration: 0%, 50% and 100% of Full Scale in tension only

Environmental

Temperature, Operating.....	-65° to 250° F
Temperature, Compensated.....	60° to 160° F
Temperature, Effect	
Zero.....	0.002% Full Scale/ °F
Span.....	0.002% Full Scale/ °F

Electrical

Strain Gage Type.....	Bonded Foil
Excitation (calibration).....	10 VDC
Insulation Resistance.....	5000 Megohms @ 50 VDC
Bridge Resistance (tolerance).....	350 Ohms (nominal)
Zero Balance (tolerance).....	+/- 1% Full Scale
Shunt Calibration Data.....	Included
Electrical Termination (std)	
5 to 5,000 lb.....	PTIH-10-6P
7,500 to 500,000 lb.....	MS3102A-14S-6P

Model 41

Force

Electrical (continued)

Mating Connector (not included)	
5 to 5,000 lb.....	PT06A-10-6S
7,500 to 500,000 lb.....	MS3106A-14S-6S

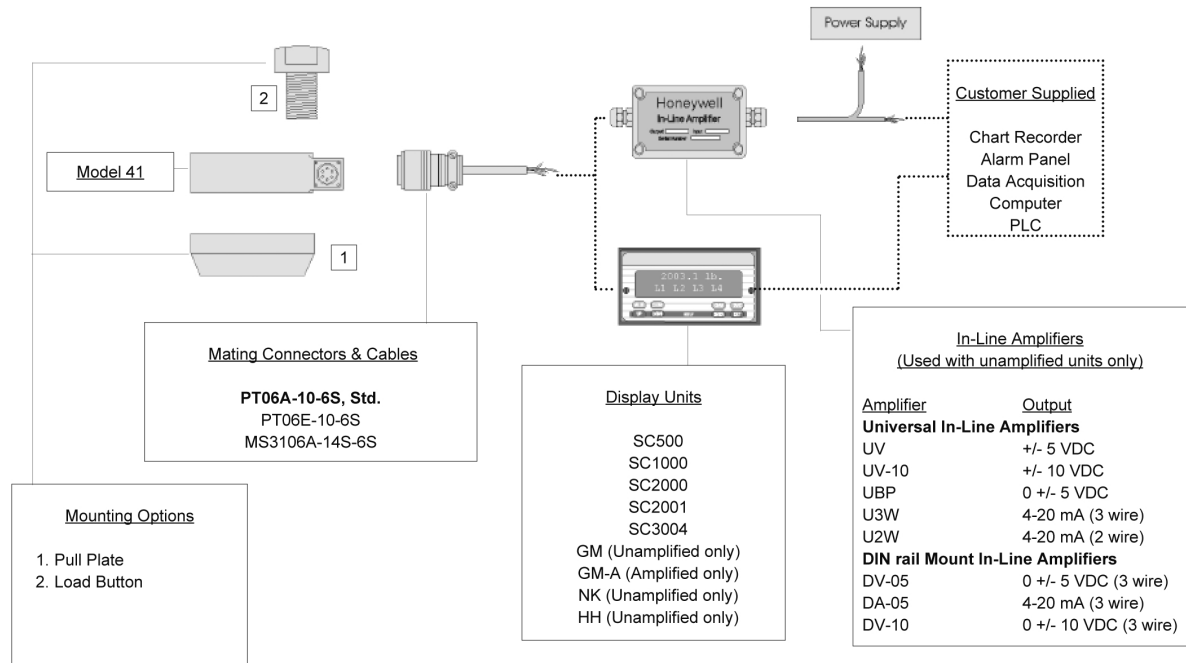
Mechanical

Maximum Allowable Load.....	150% F.S. (note 1)
Weight.....	See table
Material	
Less than 200,000 lb.....	17-4PH Stainless Steel
Greater than or equal to 300,000 lb.....	Carbon Steel
Deflection.....	See table
Natural Frequency.....	See table

Deflections and Ringing Frequencies

Capacity (lb.)	Deflection @ Full Scale (in.)	Natural Ringing Frequency (Hz)	Weight (lbs.)
5 to 25	0.001	2,000	0.8
50 to 1,000	0.002	4,600	1.5
2,000 to 5,000	0.002	10,000	2.0
7,500 to 15,000	0.003	6,000	8.8
20,000 to 50,000	0.004	8,000	11.0
75,000 to 100,000	0.006	5,500	30.9
150,000 to 200,000	0.010	4,500	46.3
300,000 to 500,000	0.010	4,100	130.1

Typical System Diagram



Model 41

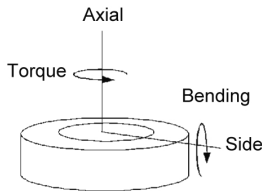
Force

Range Codes

Range	Range Code	Range	Range Code
5 lb.	AT	10,000 lb.	DV
10 lb.	AV	15,000 lb.	EJ
25 lb.	BL	20,000 lb.	EL
50 lb.	BN	30,000 lb.	EN
100 lb.	BR	50,000 lb.	EP
250 lb.	CN	75,000 lb.	ER
500 lb.	CR	100,000 lb.	ET
1000 lb.	CV	150,000 lb.	FJ
2000 lb.	DL	200,000 lb.	FL
3000 lb.	DN	300,000 lb.	FN
4000 lb.	DP	400,000 lb.	FP
5000 lb.	DR	500,000 lb.	FR
7500 lb.	DT		

Allowable Maximum Loads

(note 2)



Capacity (lb.)	Side Load (lb.)	Bending (lb.-in.)	Torque (lb.-ft.)
5 to 25	50%	40%	25%
50 to 1,000	45%	35%	25%
2,000 to 5,000	30%	25%	25%
7,500 to 30,000	20%	20%	15%
50,000 to 100,000	20%	20%	15%
150,000 to 200,000	20%	20%	15%
300,000	20%	20%	10%
400,000	20%	20%	10%
500,000	20%	20%	10%

Internal Amplifiers

Amplifier Specifications	Voltage Output Option 2b	Voltage Output Option 2c	Voltage Output Option 2t	Current 3 Wire Option 2j	Current 2 Wire Option 2k	Intrinsically Safe Option 2n (2N)***
Output Signal	+/- 5V	0-5V or +/- 5V @ 45mA	0-10V or +/- 10V @ 45mA	4-20 mA	4-20 mA	4-20 mA
Input Power (Voltage)	+/-15V or 26-32VDC	11-28 VDC	15-28 VDC	22-32 VDC	15-40 VDC	9-28 VDC
Input Power (Current)	45 mA	40 mA	40 mA	65 mA	4-28 mA	4-24 mA
Frequency Response	3000 Hz	3000 Hz	3000 Hz	2500 Hz	300 Hz	2000 Hz
Power Supply Rejection	60 db	60 db	60 db	60 db	60 db	60 db
Operating Temperature	-20° to 185° F	-20° to 185° F	-20° to 185° F	0° to 185° F	0° to 185° F	-20° to 185° F
Reverse Voltage Protection	Yes	Yes	Yes	Yes	Yes	Yes
Short Circuit Protection	Momentary	Momentary	Momentary	Yes	Yes	Yes
Wiring Code: Connector (Std.) (note 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 (note 4) (note 5) (note 6)	R (+) Supply BI Output Common/ G Supply Return W (+) Output B Shunt Cal 1 Br Shunt Cal 2	R (+) Supply BI*Output Common/ G*Supply Return W (+) Output B Shunt Cal 1 Br Shunt Cal 2	R (+) Supply BI*Output Common/ G*Supply Return W (+) Output B Shunt Cal 1 Br Shunt Cal 2	R (+) Supply BI*Output Common/ G*Supply Return W (+) Output B Shunt Cal 1 Br Shunt Cal 2	R (+) Supply BI (+) Output W Case Ground	R (+) Supply BI (+) Output W Case Ground

* Black and Green wires are internally connected.

** Pins B and C are internally connected.

*** See Sensotec website for most up-to-date information regarding Intrinsically Safe approvals ref. #008-0547-00.

Model 41

Options

	Same Day Ship	Fast track manufacture	Build to order	Build from scratch
Load Range	50, 100, 500, 1000, 2000, 5000, 10,000, 20,000, 50,000 lb		5, 10, 25, 250, 3000, 4000, 7500, 15,000, 30,000 lb	75,000, 100,000, 150,000, 200,000, 300,000, 400,000, 500,000 lb
Temperature Compensation	1a. 60° to 160° F	1b. 30° to 130° F 1c. 0° to 185° F 1d. -20° to 130° F 1e. -20° to 200° F 1f. 70° to 250° F 1i. -65° to 250° F 1j. 0° to 50° C 1k. -20° to 85° C 1m. -25° to 110° C	1g. 70° to 325° F 1h. 70° to 400° F	
Internal Amplifiers	2u. Unamplified, mV/V output	2c. 0-5 VDC 2j. 4-20 mA (3-wire) 2t. 0-10 VDC	2b. 4 wire +/- 5 VDC 2k. 4-20 mA (2-wire) 2n(2N). 4-20 mA (2-wire) Intrinsically Safe	
Internal Amp Enhancements			3a. Input/output isolation 3d. Remote Buffered Shunt Calibration (note 8)	
Overload Stops			4a. Overload stops	
Electrical Termination	6a. Bendix PTIH-10-6P-6 pin connector (ranges to 5000 lbs.) 6b. MS3102A-14S-6P connector (ranges 7500 lbs. and up) (note 9)	6e. Integral cable: Teflon 6q. Molded Integral Cable: Polyurethane (note 9) 6f. Integral cable: PVC	6g. Integral cable: Neoprene (note 9) 6h. Integral cable: Silicone 6i. Integral underwater cable (note 9) 6j. 1/2-14 conduit fitting with 5' of 4 conductor PVC cable 6v. Phoenix connector on end of cable	
Shunt Calibration			8a. Precision Internal Resistor (note 14)	
Special Calibration			9a. 10 point (5 up/5 down) 20% increments @ 68° F 9b. 20 point (10 up/10 down) 10% increments @ 68° F 9c. A.S.T.M. E-74 calibration	
Bridge Resistance			12b. 5,000 ohm (foil)	
Potentiometers			14a. No access to pots 14b. Top access to pots	
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. Compression only calibration, Positive in compression 30b. Tension and Compression calibration, Positive in tension 30c. Compression only calibration, Negative in compression 30d. Tension and Compression calibration, Positive in compression	
Bridge Type			31a. Dual bridge	
Shock & Vibration			44a. Shock and vibration resistance	
Interfaces			53e. Signature Calibration 53t. T.E.D.S. IEEE 1451.4 Module (note 15)	

■ Supplied as standard



Approved Intrinsically Safe Amp

Special Customer Requirements (Consult Factory)

- Operating temperature -60° to 400°F
- Lightning protection
- OEM labels
- Case pressure
- Radiation resistant
- Cable orientation
- Fatigue rating
- Different cable lengths
- Venting
- Different materials
- Electro-static discharge immunity
- Different threads
- Special wiring codes

Notes

1. Allowable Maximum Loads- Maximum load to be applied without damage (note 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% (4-20mA 3-wire units) or 80% (voltage amplified units) of full scale output for quick calibration. Shunt Calibration comes standard with internal amplifier options 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. Adding any internal amplifiers on 5 to 25 lb. ranges will increase delivery time.
7. Option 2n (2N) on 5 to 5,000 lb. ranges will typically take 12 weeks for delivery.
8. Option 3d is not available with option 2n (2N) or 2k.
9. Not available with options 1c, 1e, 1f, 1g, 1h or 1i.
10. Consult factory.
11. Availability varies with range, consult factory.
12. Option only pertinent when option 2n (2N) selected.
13. Standard calibration for tension/compression load cells is in tension only.
14. Not available with amplified output.
15. Consult factory for TEDS availability with amplified models.

How to Order

Combine the order code, the range code and the options code.

Sample Code: **AL111** **CV** **6h**
Order Code Range Code Options Code

Model RM Rod End In-Line Tension Load Cell

Order Code (see table below)

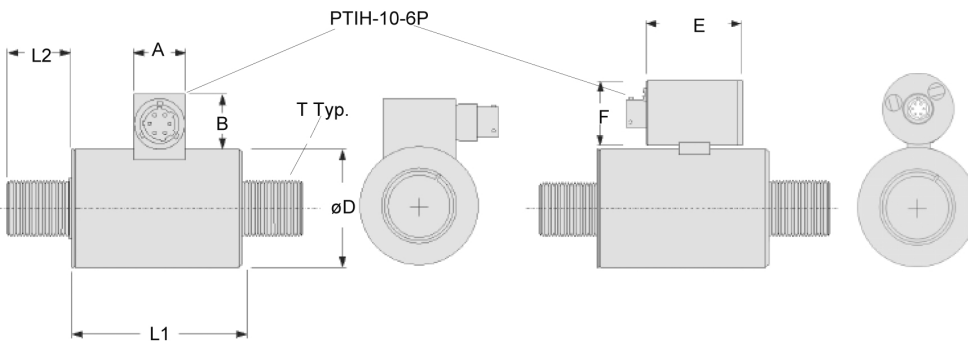
- 2000 to 200,000 lb.
- Hermetically Sealed
- 0-5 VDC or 4-20 mA Output Options
- 0.2% Linearity



Force

Unamplified

Amplified



Wiring Code

Connector/ Unamplified (Std.)

- A (+) Excitation
- B (+) Excitation
- C (-) Excitation
- D (-) Excitation
- E (-) Output
- F (+) Output

Dimensions

Order Code (Amplified/Unamp)	D (in.)	L1 (in.)	Unamplified only		L2 (in.)	Amplified only	
			A (in.)	B (in.)		E (in.)	F (in.)
AL413/AL613	1.50	2.60	0.75	0.82	see below	1.95	1.50
AL415/AL615	1.75	2.60	0.75	0.82	see below	1.95	1.50
AL417/AL617	2.50	3.05	0.75	0.82	see below	1.95	1.50

Range (lb.)

Thread Sizes and Option Codes

	13a	13b	13c	13d	13e
	1/2-20 UNF	3/4-16 UNF	7/8-14 UNF	1-14 UNF	1 1/2-12 UNF
2000 to 5000	AL413	AL413	AL413		
7500 to 15,000		AL415	AL415	AL415	AL417
20,000			AL415	AL415	AL417
30,000 to 50,000					AL417
L2 (in.)	0.95	0.95	0.95	1.25	1.5

Non-standard Ranges Order Code AL411

Range (lb.)	Thread Type	D (in.)	L1 (in.)	L2 (in.)
75,000 to 100,000	2 1/2-12 UNF	3.50	4.00	3.00
150,000 to 200,000	3 1/2-8 UNF	4.50	5.00	4.00

Performance

Load Ranges	2000 to 200,000 lb. (note 1)
Linearity	
100 to 1000 lb.	+/- 0.2% Full Scale
2000 to 50,000 lb.	+/- 0.15% Full Scale
75,000 to 200,000 lb.	+/- 0.2% Full Scale
Hysteresis	
100 to 1000 lb.	+/- 0.2% Full Scale
2000 to 50,000 lb.	+/- 0.15% Full Scale
75,000 to 200,000 lb.	+/- 0.2% Full Scale
Non-Repeatability	+/- 0.05% Full Scale
Output	2mV/V
Operation	Tension
Resolution	Infinite

Environmental

Temperature, Operating	-65° to 250° F
Temperature, Compensated	60° to 160° F
Temperature, Effect	
Zero	0.005% Full Scale/° F
Span	0.005% Full Scale/° F

Model RM

Force

Electrical

Strain Gage Type.....	Bonded Foil
Excitation (calibration).....	10 VDC
Excitation (acceptable).....	up to 15 VDC or AC
Insulation Resistance.....	5000 Megohms @ 50 VDC
Bridge Resistance (tolerance).....	350 Ohms
Zero Balance (tolerance).....	+/- 1% Full Scale
Shunt Calibration Data.....	Included
Electrical Termination (std)	
2000 to 50,000 lb.....	PTIH-10-6P or equivalent (Hermetic stainless)
75,000 to 200,000 lb.....	MS3102E-14S-6P
Mating Connector (not incl.)	
2000 to 50,000 lb.....	PT06A-10-6S or equivalent
75,000 to 200,000 lb.....	MS3106A-14S-6S or equivalent

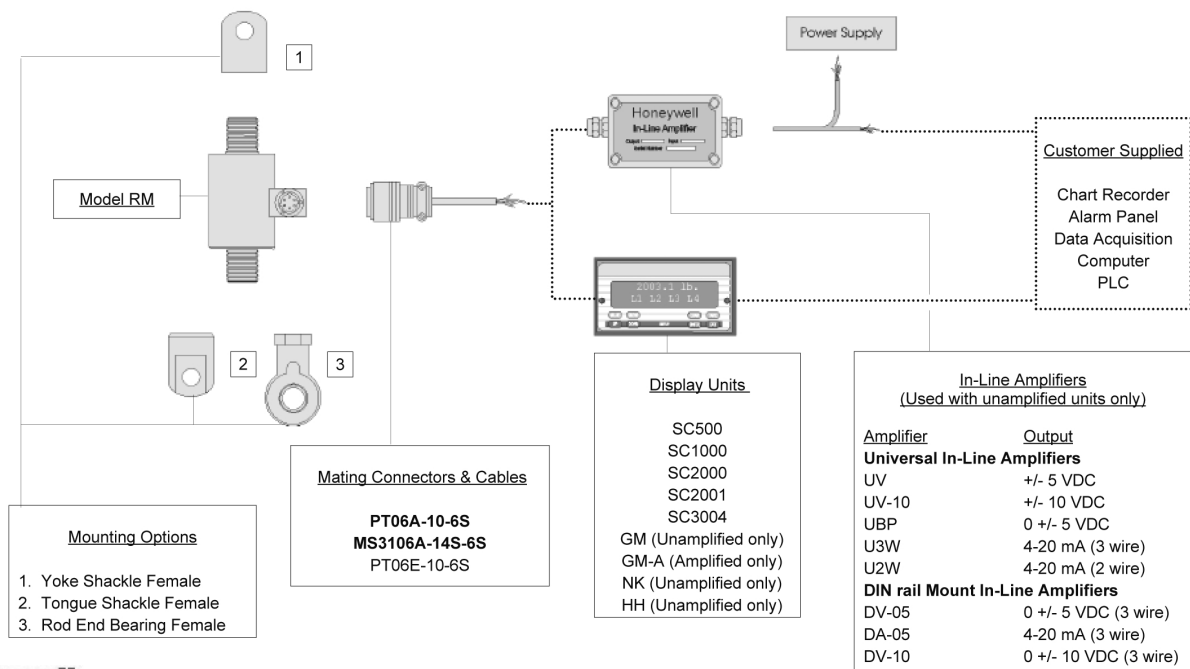
Mechanical

Maximum Allowable Load.....	150% F.S. (note 1)
Weight.....	See table
Material.....	Stainless Steel
Deflection.....	See table
Natural Frequency.....	See table

Deflections and Ringing Frequencies

Capacity (lb.)	Deflection @ Full Scale (in.)	Ringling Frequency (Hz)	Weight (lb)
2,000	0.003	5,000	1.0
3,000	0.003	5,000	1.0
4,000	0.003	5,100	1.0
5,000	0.003	5,200	1.0
7,500	0.004	7,500	1.5
10,000	0.004	7,600	1.5
15,000	0.005	8,000	1.5
20,000	0.005	9,800	1.5
30,000	0.005	8,000	4.2
50,000	0.005	8,200	4.2
75,000 to 100,000	0.006	5,000	16.5
150,000 to 200,000	0.007	4,200	35.3

Typical System Diagram



Model RM

Force

Internal Amplifiers

Amplifier Specifications	Voltage Output Option 2b	Voltage Output Option 2c	Voltage Output Option 2t	Current 3 Wire Option 2j	Current 2 Wire Option 2k	Intrinsically Safe Option 2n (2N)***
Output Signal	+/- 5V	0-5V or +/- 5V @ 45mA	0-10V or +/- 10V @ 45mA	4-20 mA	4-20 mA	4-20 mA
Input Power (Voltage)	+/-15V or 26-32VDC	11-28 VDC	15-28 VDC	22-32 VDC	15-40 VDC	9-28 VDC
Input Power (Current)	45 mA	40 mA	40 mA	65 mA	4-28 mA	4-24 mA
Frequency Response	3000 Hz	3000 Hz	3000 Hz	2500 Hz	300 Hz	2000 Hz
Power Supply Rejection	60 db	60 db	60 db	60 db	60 db	60 db
Operating Temperature	-20° to 185° F	-20° to 185° F	-20° to 185° F	0° to 185° F	0° to 185° F	-20° to 185° F
Reverse Voltage Protection	Yes	Yes	Yes	Yes	Yes	Yes
Short Circuit Protection	Momentary	Momentary	Momentary	Yes	Yes	Yes
Wiring Code: Connector (Std.) (note 5)	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 (note 6) (note 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

* Black and Green wires are internally connected.

** Pins B and C are internally connected.

*** See Sensotec website for most up-to-date information regarding Intrinsically Safe approvals ref. #008-0547-00.

Range Codes

Range	Range Code
2,000 lb.	DJ
3,000 lb.	DN
4,000 lb.	DP
5,000 lb.	DR
7,500 lb.	DT
10,000 lb.	DV
15,000 lb.	EJ
20,000 lb.	EL
30,000 lb.	EN
50,000 lb.	EP
75,000 lb.	ER
100,000 lb.	ET
150,000 lb.	FJ
200,000 lb.	FL

Model RM

Options

	Build from Scratch
Load Range	2k, 3k, 4k, 5k, 7.5k, 10k, 15k, 20k, 30k, 50k, 75k, 100k, 150k, 200k lbs.
Temperature Compensation	1a. 60° to 160° F 1b. 30° to 130° F 1c. 0° to 185° F 1d. -20° to 130° F 1e. -20° to 200° F 1f. 70° to 250° F 1g. 70° to 325° F 1h. 70° to 400° F 1i. -65° to 250° F 1j. 0° to 50° C 1k. -20° to 85° C 1m. -25° to 110° C
Internal Amplifiers	2u. Unamplified, mV/V output 2b. 4 wire +/- 5VDC output 2c. 0-5VDC 2j. 4-20mA (3-wire) output 2k. 4-20mA (2-wire) 2t. 0-10 VDC output 2n (2N). 4-20mA (2-wire) Intrinsically safe
Internal Amp Enhancements	3a. Input/ Output Isolation (note 7) 3d. Remote Buffered Shunt Calibration
Electrical Termination	6b. MS type connector mates with MS3106- 14S 6 pin (max. 160°F) 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. Molded Integral cable: Polyurethane 6v. Phoenix connector on end of cable
Shunt Calibration	8a. Precision Internal Resistor (note 8)
Bridge Type	11a. Square Bridge 11c. Square and Symmetrical Bridge 31a. Dual bridge
Bridge Resistance	12b. 5,000 Ohms (foil) (max. 250°F)
Potentiometers	14a. No access to pots
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
Shock & Vibration	44a. Shock and vibration resistance
Interfaces	53e. Signature Calibration 53t. T.E.D.S. IEEE 1451-4 Module (note 9)

■ Supplied as standard

Notes

1. Allowable Maximum Loads- Maximum load to be applied without damage (note 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% (4-20mA 3-wire units) or 80% (voltage amplified units) of full scale output for quick calibration. Shunt Calibration comes standard with internal amplifier options 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. Not available with options 1c, 1e or 1f.
7. Only available with options 2b or 2c.
8. Not available with amplified options.
9. Consult factory for TEDS availability with amplified models.

How to Order

Combine the order code, the range code and the options code.

Sample Code: AL413 DJ 6g
 Order Code Range Code Options Code

Special Customer Requirements (Consult Factory)

Cable Orientation
 Different Cable Lengths
 Different Electrical Connectors
 Different Materials
 Different Threads
 Dual Bridge
 ESD
 Fatigue Rating
 High Resistance Bridges
 Lightning Protection
 OEM Labels
 Enhanced Operational Temp
 Radiation Resistant
 Special Electrical O/P
 Special TC

Model 31 Low Range Precision Miniature Load Cell

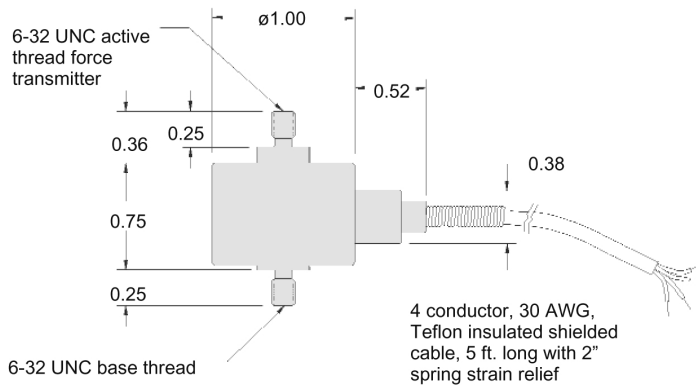
Order Code AL311

- 50 g to 500 g
- mV/V Output
- Stainless Steel
- Miniature Design
- Double Diaphragm Construction



Force

Dimensions



Wiring Code

Cable/ Unamplified

- Red (+) Excitation
- Black (-) Excitation
- Green (-) Output
- White (+) Output

Performance

- Load Ranges.....50; 150; 250; 500 g
- Linearity.....+/- 0.15% Full Scale
- Hysteresis.....+/- 0.15% Full Scale
- Non-Repeatability.....+/- 0.1% Full Scale
- Tolerance on Output
 - 50 to 150 g.....0.1 mV/V/g max.
 - 250 to 500 g.....20 mV/V
- Operation.....Tension/ Compression (note 3)
- Resolution.....Infinite

Environmental

- Temperature, Operating.....-65° to 250° F
- Temperature, Compensated.....60° to 160° F
- Storage Temperature.....-100° to 300° F
- Temperature, Effect
 - Zero.....0.015% Full Scale/° F
 - Span.....0.015% Full Scale/° F

Electrical

- Strain Gage Type.....Semiconductor
- Excitation (calibration).....5 VDC
- Insulation Resistance.....5000 Megohms @ 50 VDC
- Bridge Resistance.....500 Ohms
- Zero Balance.....1% max.
- Electrical Termination (std).....Teflon Cable (5 ft.)

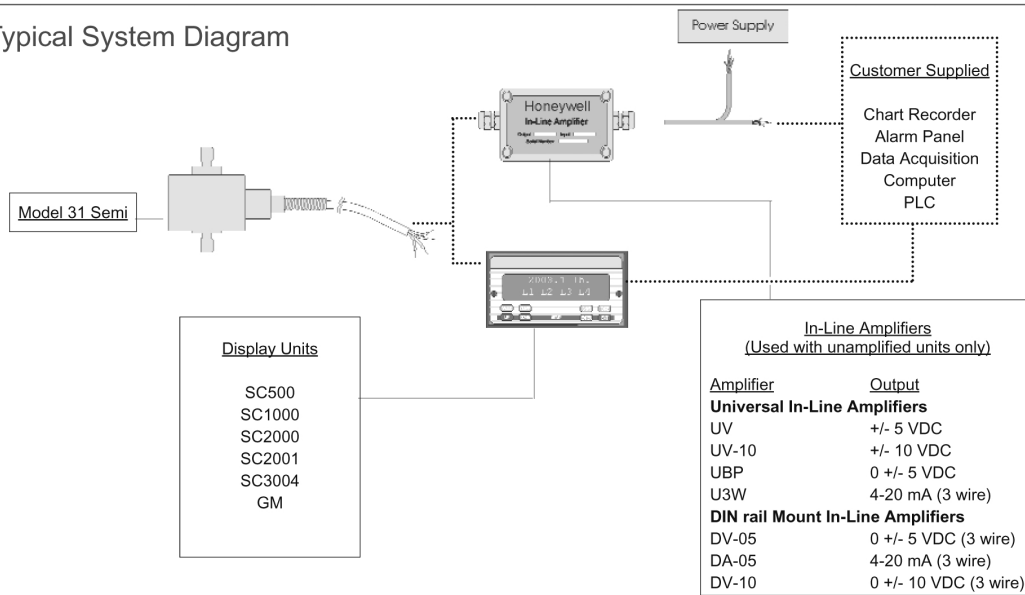
Mechanical

- Allowable Maximum Load.....5 lb. (note 1)
- Weight.....90 grams
- Material.....17-4 PH Stainless Steel
- Deflection Full Scale.....11 kg/ mm
- Natural Frequency.....740 Hz

Model 31- Low

Force

Typical System Diagram



Options

	Same Day Ship	Fast track manufacture	Build to Order
Load Range	250 grams		50,150,500 grams
Temperature Compensation	1a. 60° to 160° F	1b. 30° to 130° F 1c. 0° to 185° F 1d. -20° to 130° F 1e. -20° to 200° F 1j. 0° to 50° C 1k. -20° to 85° C 1m. -25° to 110° C	
Internal Amplifiers	2u. Unamplified, mV/V output	3d. Remote Buffered Shunt Cal.	
Electrical Termination	6e. Integral cable: Teflon	6d. Microtec DR-4S-4H 4 pin 6v. Phoenix connector on end of cable	6f. Integral cable: PVC 6g. Integral cable: Neoprene (max. 180° F) 6h. Integral cable: Silicone 6i. Integral underwater cable (max. 180° F) 15d. Connector on end of cable
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 & Vibration			44a. Shock and vibration resistance
Interfaces (note 4)		53e. Signature Calibration 53t. T.E.D.S. IEEE 1451.4 Module	

■ Supplied as standard

Range Codes

Range	Range Code
50 g	AJ
150 g	AL
250 g	AN
500 g	AP

Special Customer Requirements (Consult Factory)

OEM Labels
Radiation proof
Different cable lengths

Notes

1. Allowable Maximum Loads- Maximum load to be applied without damage (note 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. Standard calibration for tension/ compression load cells is in tension only
4. TEDS available with integral cable units only.

How to Order

Combine the order code, the range code and the options code.

Sample Code: **AL311** **AJ** **1b, 30a**
Model Code Range Code Options Code

Model 31 Mid-Range Precision Miniature Load Cell

Order Code AL311

- 1000 g to 1,000 lb.
- mV/V Output
- Stainless Steel
- Miniature Design

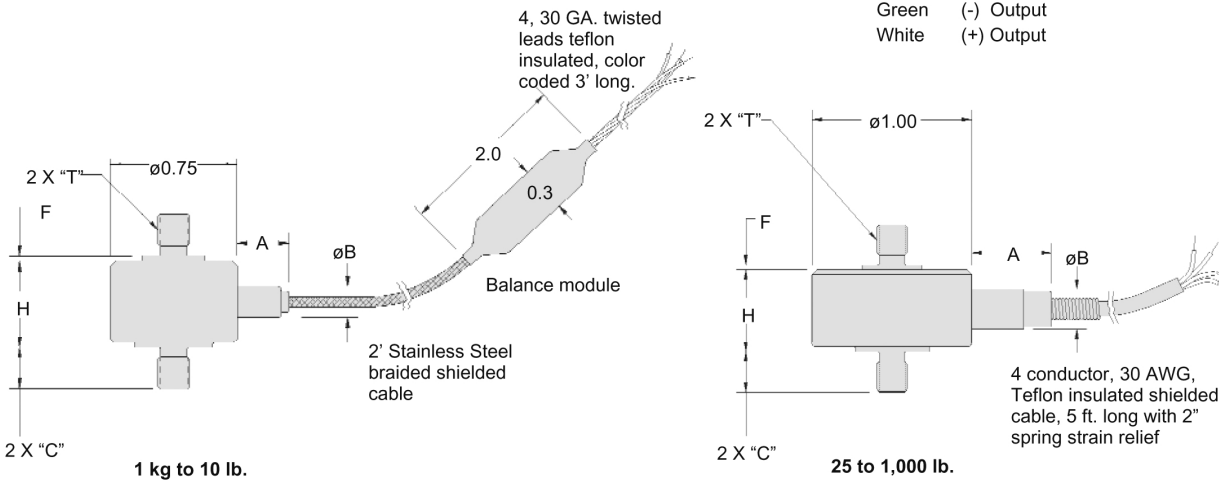


Force

Wiring Code

Cable/ Unamplified

- Red (+) Excitation
- Black (-) Excitation
- Green (-) Output
- White (+) Output



Dimensions

Ranges (lb.)	T	H (in.)	C (in.)	F (in.)	A (in.)	B (in.)
1000 g; 5; 10 lb.	#6-32 UNC	0.45	0.25	0.05	0.31	0.19
25; 50; 100 lb.	#10-32 UNF	0.52	0.25	0.03	0.50	0.25
250; 500; 1000 lb.	1/4-28 UNF	0.52	0.38	0.03	0.50	0.25

Performance

- Load Ranges.....1000 g; 5; 10; 25; 50; 100; 250; 500; 1000 lb.
- Linearity
 - 1000 g to 250 lb.....+/- 0.15% Full Scale
 - 500 to 1,000 lb.....+/- 0.2% Full Scale
- Hysteresis
 - 1000 g to 250 lb.....+/- 0.15% Full Scale
 - 500 to 1,000 lb.....+/- 0.2% Full Scale
- Non-Repeatability
 - 1000 g.....+/- 0.1% Full Scale
 - 5 to 1,000 lb.....+/- 0.05% Full Scale
- Tolerance on Output
 - 1000 g.....1.5 mV/V (nominal)
 - 5 to 1,000 lb.....2 mV/V
- Operation.....Tension/ Compression (note 3)
- Resolution.....Infinite



Model 31 - Mid

Force

Environmental

Temperature, Operating.....	-65° to 250° F
Temperature, Compensated.....	60° to 160° F
Storage Temperature.....	-100° to 300° F
Temperature, Effect	
Zero.....	0.005% Full Scale/° F
Span.....	0.005% Full Scale/° F

Electrical

Strain Gage Type.....	Bonded Foil
Excitation (calibration)	
1 kg to 10 lb.....	5 VDC
25 to 1000 lb.....	10VDC
Insulation Resistance.....	5000 Megohms @ 50 VDC
Bridge Resistance.....	350 Ohms
Zero Balance.....	1% max.
Electrical Termination (std).....	Teflon Cable (5 ft.)

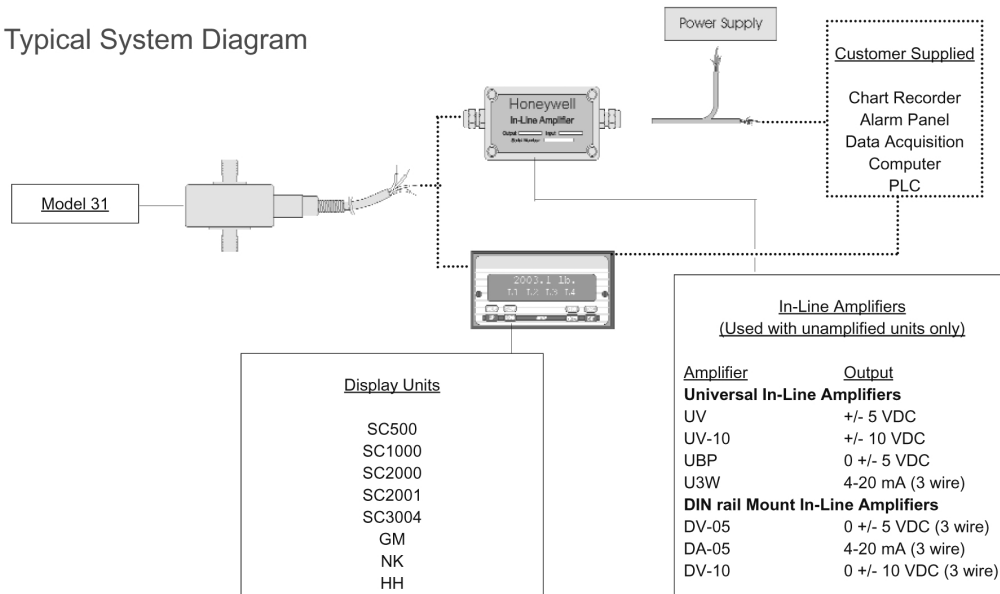
Mechanical

Maximum Allowable Load.....	150% F.S. (note 1)
Weight.....	See table
Material.....	17-4 PH Stainless Steel
Deflection Full Scale.....	See table
Natural Frequency.....	See table

Deflections and Ringing Frequencies

Capacity (lb.)	Deflection at Full Scale (in.)	Ringng Frequency (Hz)	Weight (grams)
1000 g to 10 lb.	0.001	3,000	21
25 to 100	0.001	10,000	63
250 to 1000	0.0015	12,000	80

Typical System Diagram




Range Codes

Range	Range Code
1000 g.	AR
5 lb.	AT
10 lb.	AV
25 lb.	BL
50 lb.	BN
100 lb.	BR
250 lb.	CN
500 lb.	CR
1000 lb.	CV

Options

	Same Day Ship	Fast track manufacture	Build to Order
Load Range	1000 grams 5, 10, 25, 50, 100, 250, 500, 1000 lbs		
Temperature Compensation	1a. 60° to 160° F	1b. 30° to 130° F 1c. 0° to 185° F 1d. -20° to 130° F 1e. -20° to 200° F 1j. 0° to 50° C 1k. -20° to 85° C 1m. -25° to 110° C	1f. 70° to 250° F 1g. 70° to 325° F 1h. 70° to 400° F 1i. -65° to 250° F
Internal Amplifiers	2u. Unamplified, mV/V output		
Electrical Termination	6e. Integral cable: Teflon	6v. Phoenix connector on end of cable	6a. Bendix PTIH-10-6P - 6 pin (max. 250° F) (note 5) 6d. Microtec DR-4S-4H 4 pin 6f. Integral cable: PVC 6g. Integral cable: Neoprene (max. 180° F) 6h. Integral cable: Silicone 6i. Integral underwater cable (max. 180° F) 15d. Connector on end of cable
Special Calibration		9a. 10 point (5 up/5 down) 20% increments @ 20° C 9b. 20 point (10 up/10 down) 10% increments @ 20° C	
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 & Vibration		44a. Shock and vibration resistance	
Interfaces (note 4)		53e. Signature Calibration 53t. T.E.D.S. IEEE 1451.4 Module	

 Supplied as standard

Notes

1. Allowable Maximum Loads- Maximum load to be applied without damage (note 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. Standard calibration for tension/ compression load cells is in tension only.
4. TEDS available with integral cable units only.
5. Availability varies with range.

Special Customer Requirements (Consult Factory)

OEM Labels
Radiation proof
Different cable lengths

How to Order

Combine the order code, the range code and the options code.

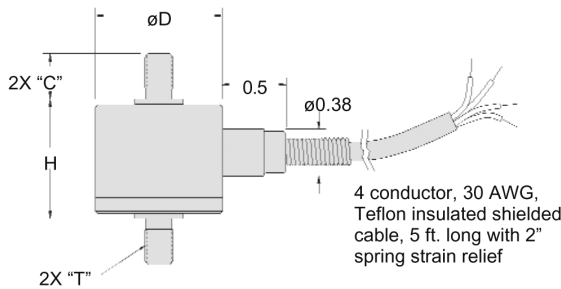
Sample Code: **AL311** **CV** **1b, 30a**
Model Code Range Code Options Code

Model 31 High Range Precision Miniature Load Cell

Order Code AL311

Force

- 2000 to 10,000 lb.
- mV/V Output
- Stainless Steel
- Miniature Design
- Stabilized Column Construction



Wiring Code

Cable/ Unamplified

Red	(+) Excitation
Black	(-) Excitation
Green	(-) Output
White	(+) Output

Dimensions

Ranges (lb.)	T	øD (in.)	H (in.)	C (in.)
2000; 3000	3/8-24 UNF	1.00	0.72	0.50
4000; 5000	1/2-20 UNF	1.25	0.94	0.63
7500; 10,000	3/4-16 UNF	1.38	1.10	0.88

Performance

Load Ranges	.....2000 to 10,000 lb.
Linearity	.....+/- 0.2% Full Scale
Hysteresis	.....+/- 0.2% Full Scale
Non-Repeatability	.....+/- 0.05% Full Scale
Tolerance on Output	.....2 mV/V
Operation	.....Tension/ Compression (note 3)
Resolution	.....Infinite

Environmental

Temperature, Operating	.....-65° to 250° F
Temperature, Compensated	.....60° to 160° F
Storage Temperature	.....-100° to 300° F
Temperature, Effect	
Zero	.....0.005% Full Scale/° F
Span	.....0.005% Full Scale/° F

Electrical

Strain Gage Type	.....Bonded Foil
Excitation (calibration)	.....5 VDC
Insulation Resistance	.....5000 Megohms @ 50 VDC
Bridge Resistance	.....350 Ohms
Zero Balance	.....1% max.
Electrical Termination (std)	.....Teflon Cable (5 ft.)

Mechanical

Maximum Allowable Load	.....150% F.S. (note 1)
Weight	.....See table
Material	.....17-4 PH Stainless Steel
Deflection Full Scale	.....See table
Natural Frequency	.....See table

Model 31 - High

Force

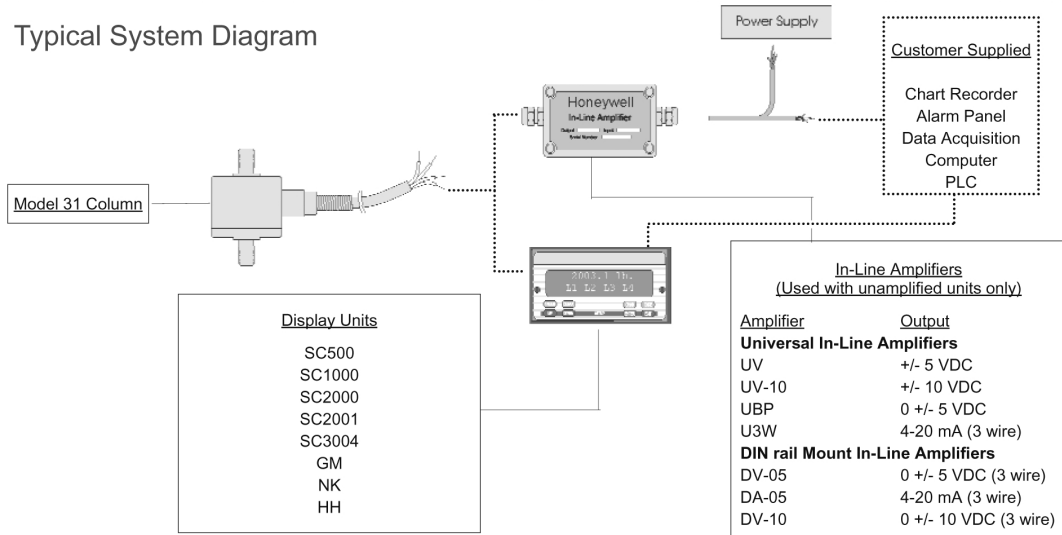
Deflections and Ringing Frequencies

Capacity (lb.)	Deflection at Full Scale (in.)	Ringing Frequency (Hz)	Weight (grams)
2000; 3000	0.001	26,000	60
4000; 5000	0.0015	21,000	125
7500; 10,000	0.0015	17,000	250

Range Codes

Range	Range Code	Range	Range Code
2000 lb.	DL	5000 lb.	DR
3000 lb.	DN	7500 lb.	DT
4000 lb.	DP	10,000 lb.	DV

Typical System Diagram



Options

	Build to Order
Load Range	2000, 3000, 4000, 5000, 7500, 10,000 lbs
Temperature Compensation	1a. 60° to 160° F
	1b. 30° to 130° F
	1c. 0° to 185° F
	1d. -20° to 130° F
	1e. -20° to 200° F
	1f. 70° to 250° F
	1g. 70° to 325° F
	1h. 70° to 400° F
	1i. -65° to 250° F
	1j. 0° to 50° C
	1k. -20° to 85° C
	1m. -25° to 110° C
	Internal Amplifiers	2u. Unamplified, mV/V output
Electrical Termination	6e. Integral cable: Teflon
	6d. Microtec DR-4S-4H 4 pin
	6f. Integral cable: PVC
	6g. Integral cable: Neoprene (max 180° F)
	6h. Integral cable: Silicone
	6i. Integral underwater cable (max 180° F)
6v. Phoenix connector on end of cable	
Bridge Resistance	12a. 1000 ohm (foil)
	12b. 5000 ohm (foil)
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. Compression only calibration, Positive in compression
	30b. Tension and Compression calibration, Positive in tension
	30c. Compression only calibration, Negative in compression
	30d. Tension and Compression calibration, Positive in compression
Shock & Vibration	44a. Shock and vibration resistance
	53e. Signature Calibration
Interfaces (note 4)	53t. T.E.D.S. IEEE 1451.4 Module

■ Supplied as standard

Special Customer Requirements (Consult Factory)

- OEM Labels
- Radiation proof
- Different cable lengths

Notes

- Allowable Maximum Loads- Maximum load to be applied without damage (note 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.
- Standard calibration for tension/compression load cells is in tension only
- TEDS available with integral cable units only.

How to Order

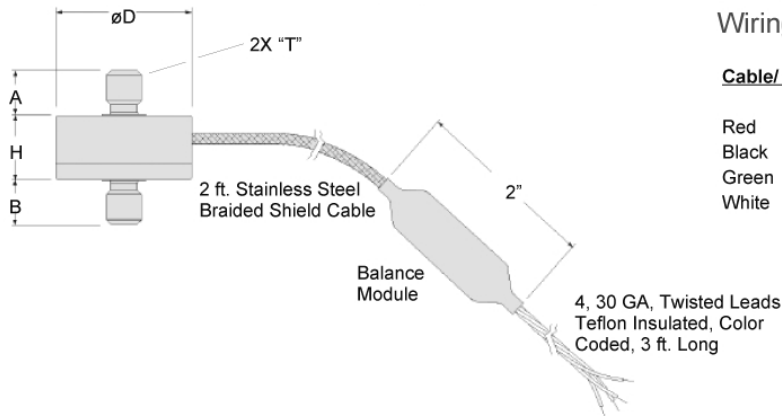
Combine the order code, the range code and the options code.

Sample Code: **AL311** **DV** **1b, 30a**
 Model Code Range Code Options Code

Model 11 Subminiature Load Cell

Order Code BL321

- 150 g to 1000 lb. Range
- mV/V Output
- Subminiature Design
- Single Diaphragm Construction



Wiring Code

Cable/ Unamplified

- Red (+) Excitation
- Black (-) Excitation
- Green (-) Output
- White (+) Output

Dimensions	Range (lb.)	øD (in.)	T	H (in.)	A (in.)	B (in.)
	150; 250; 500; 1000 g 5; 10; 25; 50; 100 lb.	0.50	#4-40 UNC	0.29	0.19	0.18
	250; 500; 1000 lb.	0.75	1/4-28 UNF	0.38	0.31	0.31

Performance

Load Ranges.....	150 g to 1,000 lb.
Linearity.....	+/- 0.5% Full Scale
Hysteresis.....	+/- 0.5% Full Scale
Non-Repeatability.....	+/- 0.1% Full Scale
Output (tolerance)	
150 to 500 g.....	10 mV/V (nominal)
1000 g to 1000 lb.....	2 mV/V (nominal)
Operation.....	Tension/ Compression (note 3)
Resolution.....	Infinite
Maximum Permissible Torque	
150 g to 100 lb.....	4 in.-lb.
250 to 1000 lb.....	20 in.-lb.

Environmental

Temperature, Operating.....	-65° to 250° F
Temperature, Compensated.....	60° to 160° F
Temperature, Effect	
Zero.....	0.01% of Full Scale/ °F
Span.....	0.02% of Reading/ °F

Electrical

Strain Gage Type	
150 to 500 g.....	Semiconductor
1000 g to 1000 lb.....	Bonded Foil
Excitation (calibration).....	5 VDC
Insulation Resistance.....	5,000 Megohms @ 50 VDC
Bridge Resistance (tolerance)	
150 to 500 g.....	500 Ohms (nominal)
1000 g to 1000 lb.....	350 Ohms (nominal)
Zero Balance (tolerance).....	+/- 3% of Full Scale (nominal)
Shunt Calibration Data.....	Included
Electrical Termination (std).....	5' integral cable with balance board (note 4)

Mechanical

Maximum Allowable Load.....	See table (note 1)
Weight.....	See table
Material.....	Stainless Steel
Deflection @ Full Scale.....	See table
Natural Frequency.....	See table

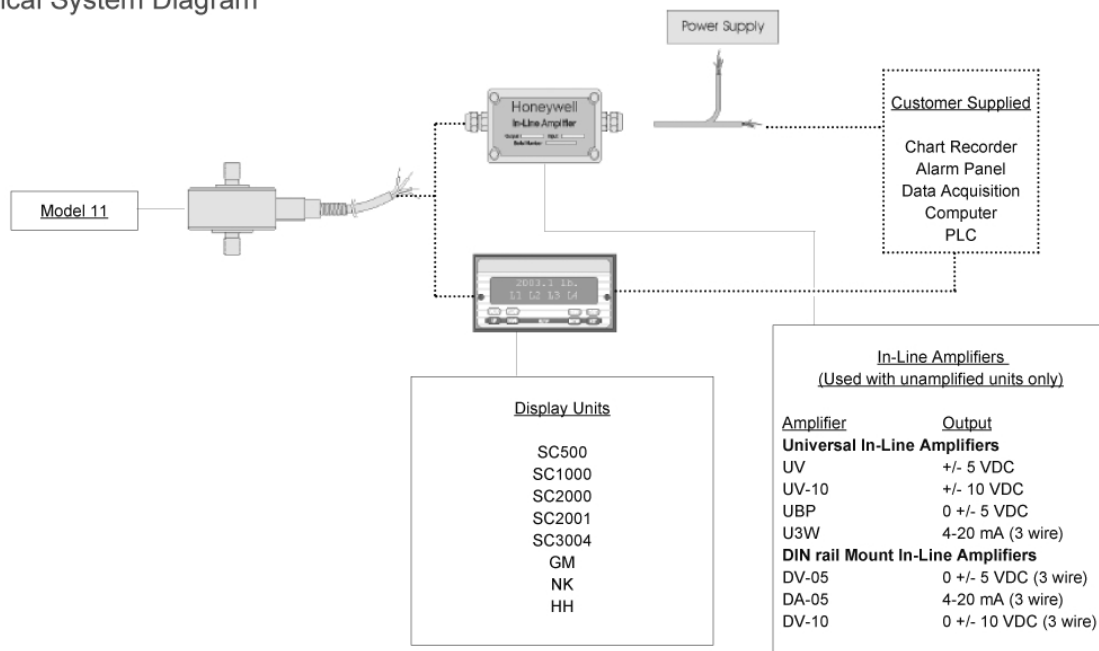
Model 11

Deflections and Ringing Frequencies

Capacity	Deflection at Full Scale (10 ⁻³ in.)	Ringng Frequency (kHz)	Weight (g)	Weight with Cable (g)	Maximum Allowable Load (note 1) (% F.S.)
150 g	0.05	10	5	13	500
250 g	0.04	14	5	13	500
500 g	0.03	22	5	13	500
1000 g	0.7	8	5	13	150
5 lb.	0.6	11	5	13	150
10 lb.	0.6	17	5	13	150
25 lb.	0.5	24	5	13	150
50 lb.	0.5	34	5	13	150
100 lb.	0.5	48	5	13	150
250 lb.	0.6	25	19	27	150
500 lb.	0.7	33	19	27	150
1000 lb.	1.0	40	19	27	150

Force

Typical System Diagram



Range Codes

Range	Range Code
150 g	AL
250 g	AN
500 g	AP
1000 g	AR
5 lb.	AT
10 lb.	AV
25 lb.	BL
50 lb.	BN
100 lb.	BR
250 lb.	CN
500 lb.	CR
1000 lb.	CV

Model 11

Options

	Built from Scratch
Load Range	150 g to 1,000 lb.
Temperature Compensation	1a. 60° to 160° F 1b. 30° to 130° F 1c. 0° to 185° F 1e. -20° to 200° F (note 5) 1f. 70° to 250° F (note 5)
Internal Amplifiers	2u. Unamplified, mV/V output
Electrical Termination	5ft. Integral cable with balance board (note 4) 6a. Bendix PTIH-10-6P - (or equivalent) 6 pin (max. 250°F) on end of cable 6e. Integral cable; Teflon 6v. Phoenix connector on end of cable
Electrical Connector Orientation	15d. Connector on end of cable
Load Direction	30a. Positive in compression, compression testing only 30b. Positive in tension, tension & compression testing only 30c. Negative in compression, compression testing only
Shock & Vibration	44a. shock rated wiring

■ Supplied as standard

Special Customer Requirements (Consult Factory)

- OEM Labels
- Radiation rated
- Different cable lengths
- Custom threads
- Non-magnetic
- Increased fatigue life
- Custom cable exit
- No circuit board (note 6)
- Alternate cable materials

Notes

1. Allowable Maximum Loads- Maximum load to be applied without damage (note 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. Standard calibration for tension/ compression load cells is in tension only.
4. A small 2 in. circuit board is included in the cable, 2 ft. from the load cell. Do not remove this board.
5. Only for ranges greater than or equal to 1,000 g.
6. Specifications may vary with this option.

How to Order

Combine the order code, the range code and the options code.

Sample Code: BL321 AT 1b

Order Code Range Code Options Code

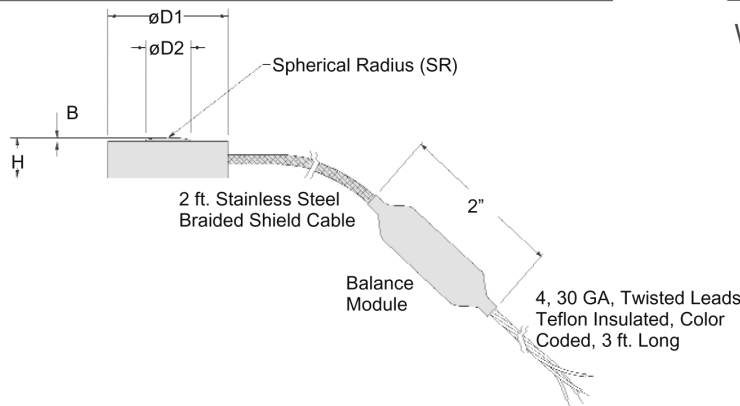
Model 13 Subminiature Load Cell

Order Code AL322

- 150 g to 1,000 lb.
- mV/V Output
- Stainless Steel
- Single Diaphragm Construction



Force



Wiring Code

Cable/ Unamplified

- Red (+) Excitation
- Black (-) Excitation
- Green (-) Output
- White (+) Output

Dimensions	Ranges	D1 (in.)	D2 (in.)	H (in.)	B (in.)	SR (in.)
	150; 250; 500; 1000 g 5; 10; 25; 50 lb.	0.38	0.09	0.13	0.027	0.25
	100; 250 lb.	0.50	0.12	0.15	0.020	0.50
	500; 1000 lb.	0.75	0.25	0.25	0.025	0.50

Performance

- Load Ranges150; 250; 500; 1000 g; 5; 10; 25; 50; 100; 250; 500; 1000 lb.
- Linearity+/- 0.5% Full Scale
- Hysteresis+/- 0.5% Full Scale
- Non-Repeatability+/- 0.1% Full Scale
- Output (tolerance)
- 150 g to 500 g15 mV/V (nominal)
- 1000 g1.5 mV/V (nominal)
- 5 lb. to 1000 lb.2 mV/V (nominal)
- OperationCompression Only
- ResolutionInfinite

Environmental

- Temperature, Operating-65° to 250° F
- Temperature, Compensated60° to 160° F
- Temperature, Effect
- Zero0.01% Full Scale/ °F
- Span0.02% Reading/ °F

Electrical

- Strain Gage Type
- 150 g to 500 gSemiconductor
- 1000 g to 1000 lb.Bonded Foil
- Excitation (calibration)5 VDC
- Insulation Resistance5000 Megohms @ 50 VDC
- Bridge Resistance (tolerance)
- 150 g to 500 g500 Ohms (nominal)
- 1000 g to 1000 lb.350 Ohms (nominal)
- Zero Balance (tolerance)+/- 3% of Full Scale (nominal)
- Shunt Calibration DataIncluded
- Electrical Termination (std)5' Integral cable with balance board (note 3)

Mechanical

- Maximum Allowable LoadSee table
- WeightSee table
- MaterialStainless Steel
- Deflection @ Full ScaleSee table

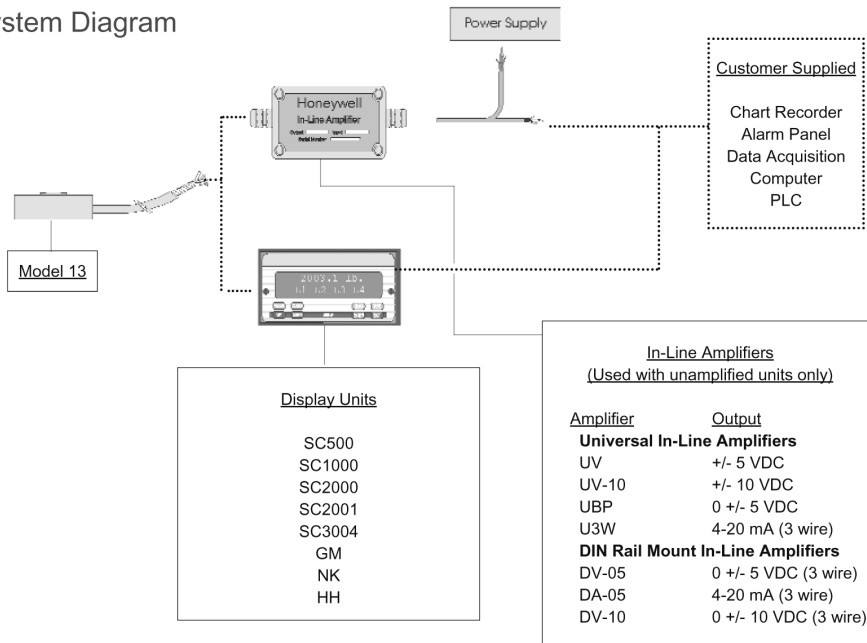
Model 13

Force

Deflections and Weight

Capacity	Deflection at Full Scale (10 ⁻³ in.)	Weight (g)	Weight with Cable (g)	Maximum Allowable Load (note 1) (%F.S.)
150 g	0.06	1	9	500
250 g	0.06	1	9	500
500 g	0.08	1	9	500
1000 g	0.05	1	9	150
5 lb.	0.5	1	9	150
10 lb.	0.4	1	9	150
25 lb.	0.4	1	9	150
50 lb.	0.4	1	9	150
100 lb.	0.4	3	11	150
250 lb.	0.5	3	11	150
500 lb.	0.5	10	18	150
1000 lb.	0.6	10	18	150

Typical System Diagram



Range Codes

Range	Range Code	Range	Range Code
150 g	AL	5 lb.	AT
250 g	AN	10 lb.	AV
500 g	AP	25 lb.	BL
1000 g	AR	50 lb.	BN
		100 lb.	BR
		250 lb.	CN
		500 lb.	CR
		1000 lb.	CV

Model 13

Options

	Same Day Ship	Fast track manufacture	Build to order	Build from scratch
Load Range	1000 grams 10, 25, 50, 100, 250, 500, 1000 lbs			150, 250, 500 grams 5 lbs
Temperature Compensation	1a. 60° to 160° F	1b. 30° to 130° F 1c. 0° to 185° F 1d. -20° to 130° F 1e. -20° to 200° F 1j. 0° to 50° C 1k. -20° to 85° C 1m. -25° to 110° C		
Internal Amplifiers	2u. Unamplified, mV/V output			
Overload Stops			4a. Overload Stops	
Electrical Termination	Twisted cable	6v. Phoenix connector on end of cable 15d. Connector on end of cable		
Special Calibration		9a. 10 point (5 up/5 down) 20% increments @ 68° F 9b. 20 point (10 up/10 down) 10% increments @ 68° F		
Shock & Vibration			44a. Shock and vibration resistance	

■ Supplied as standard

Special Customer Requirements (Consult Factory)

OEM Labels
Radiation rated
Different cable lengths
Non-magnetic
Increased fatigue life
Custom cable exit
No circuit board (note 5)
Alternate cable materials

Force

Notes

1. Allowable Maximum Loads- Maximum load to be applied without damage (note 2). Loads described allow for 100% full scale axial loading with the bending loads specified. Torque loading maximum is without axial or other load. For any other combination consult factory.
2. Without Damage- loading to this level will not cause excessive zero shift of 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. A small 2 in. circuit board is included in the cable, 2 ft. from the load cell. Do not remove this board.
4. Only for ranges greater than or equal to 1000 g.
5. Specifications may vary with this option.

How to Order

Combine the order code, the range code and the options code.

Sample Code: AL322 AT 1b
Order Code Range Code Options Code