

## Model 31 Mid-Range Precision Miniature Load Cell

Order Code AL311

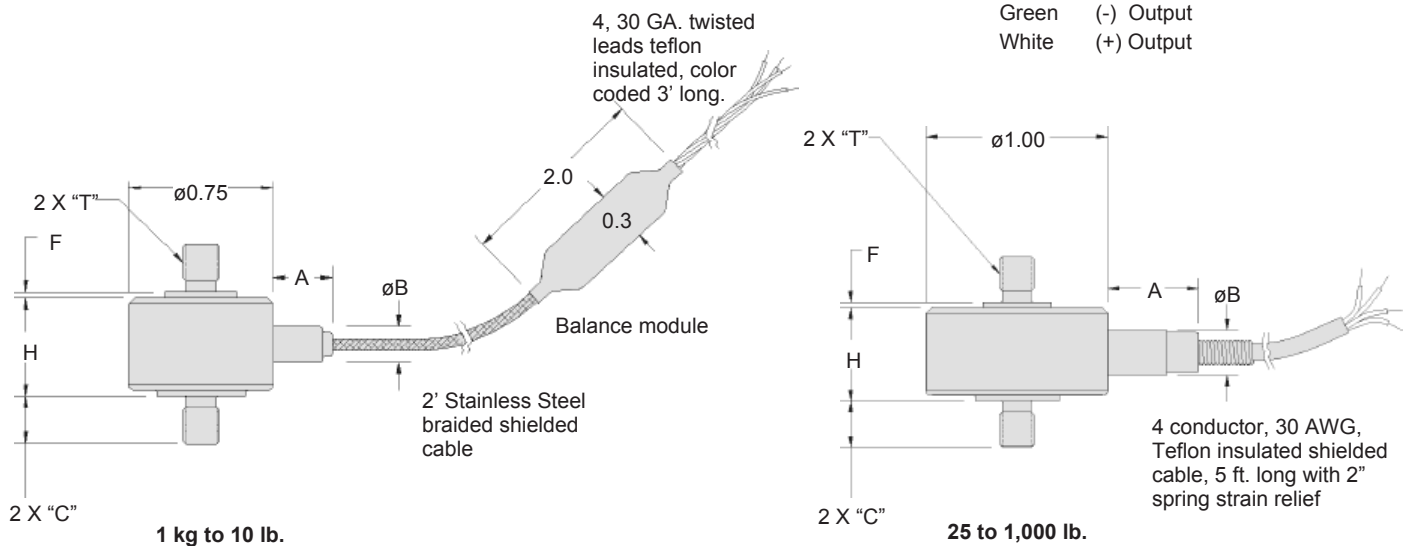
- 1000 g to 1,000 lb.
- mV/V Output
- Stainless Steel
- Miniature Design



### 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

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## Model 31 Std

### 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.)

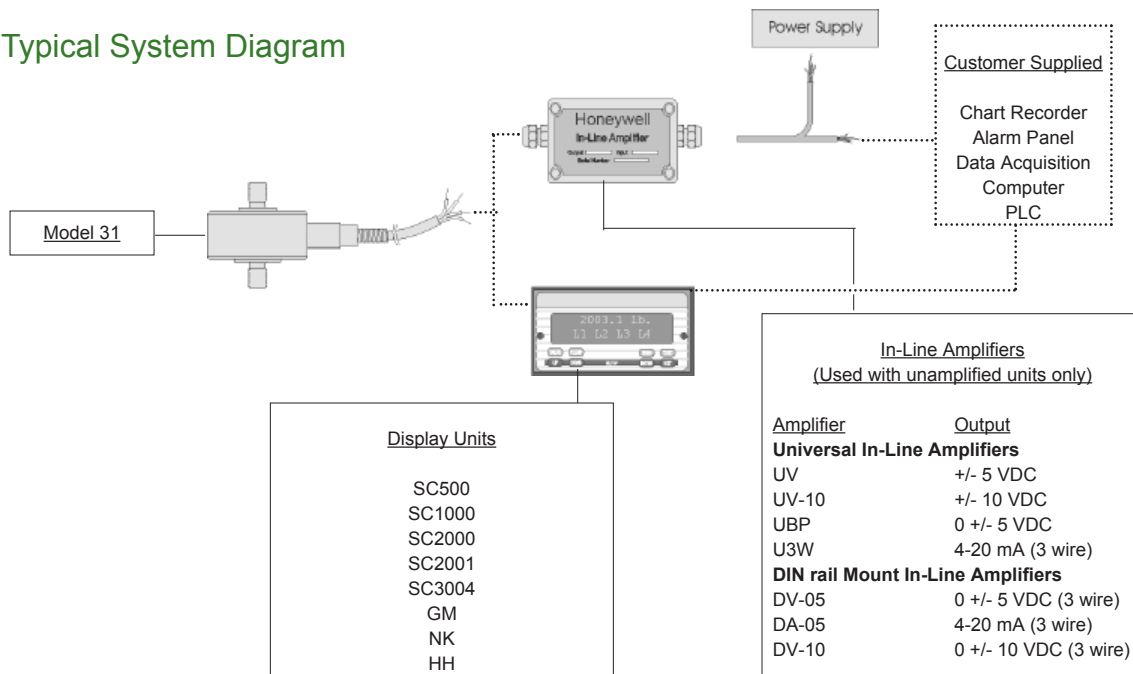
### Mechanical

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.)	Ringing 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

## Model 31 Std

### 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

- 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.
- Availability varies with range.

### Special Customer Requirements (Consult Factory)

OEM Labels  
Radiation proof  
Different cable lengths

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