

ELPF Load Cell



- Compact Tension/Compression Design
- 10 – 500 lbf
- High Level and mV Output
- High Stability
- Industry Standard Packing
- Resists Off Axis Load Components
- Full NIST Traceable 11 Point Calibration
- Shielded Teflon Cabling with Strain Relief
- IP65 Rating

DESCRIPTION

The ELPF series tension/compression load cells raise the bar for high performance at low cost. Measurement Specialties proprietary Microfused™ technology, derived from demanding aerospace applications, employs micro-machined piezoresistive strain gages fused with high temperature glass to a high performance stainless steel force measuring flexure. Microfused™ technology eliminates age-sensitive organic epoxies used in traditional load cell designs providing excellent long term span and zero stability. Operating at very low strains, Microfused™ technology utilizes strain gages providing gage factors greater than 100, an essentially unlimited cycle life expectancy, superior resolution, exceedingly high over-range capabilities (without the need for stops) and an amplified ratiometric high level 0.5 to 4.5 V output or 20 mV/V bridge output.

Microfused™ sensors are ideal for your test and measurement applications. Measurement Specialties' ELPF Test and Measurement series sensors, unlike most competitive designs, are provided with a "four-bar" design where a flexible diaphragm parallels the measuring flexure. This configuration is far less susceptible to off-axis load components than single diaphragm traditional designs. Shielded, Teflon insulated instrumentation cabling is provided along with spring steel strain reliefs and full NIST traceable calibration certificates. The ELPF unit is fully thermally compensated and will provide an essentially unlimited cycle life expectancy. The ELPF can be configured with a variety of options to fine-tune the instrument to your application: select from several standard package geometries, compensated temperature ranges, input voltages, lead lengths or specify entirely unique combinations of these options.

FEATURES

- Low Cost
- Optional High Level Output
- Small, Low Profile Design
- Low Noise
- Robust: High Over-Range
- High Reliability
- Low Deflection
- Low Off-Axis Response
- Fast
- Essentially Unlimited Life Cycle
- IP65 Rating

APPLICATIONS

- Theatrical Rigging Loads
- Assembly Forces
- Weighing
- Tool Forces
- Thrust Measurements
- Batch Weighing
- Robotics End Effectors
- Product Validation Testing
- Medical Instruments
- Hoist and Winch Loads

ELPF Load Cell

STANDARD RANGES

Lbf	N	Body Style
10	50	T1
20	100	T2
50	250	T2
100	500	T3
200	1K	T3
500	2.5K	T3

PERFORMANCE SPECIFICATIONS

Supply Voltage: 5V

Ambient Temperature: 25°C (unless otherwise specified)

PARAMETERS	MIN	TYP	MAX	UNITS	NOTES
Output Span (Amplified/Ratiometric)		0.5 to 4.5	±3% Span	V	
Output Span (Bridge Output)		±5.0	±5 %Span	mV/V	
Zero Force Output			±5	%FSO	1
Non Linearity			±0.25	%FSO	
Hysteresis			±0.25	%FSO	
Temperature Error – Zero (Over Compensated Temperature Range)			±0.01	%FSO/ °C	
Temperature Error – Span (Thermal Sensitivity Shift Over Compensated Temperature Range)			±0.01	%/ °C	
Maximum Over Load			250	%	
Impedance In			3	KΩ	
Impedance Out			2.2	KΩ	
Compensated Temperature	20		80	°C	
Operating Temperature	-40		+120	°C	
Storage Temperature				°C	
Excitation Voltage		5		Vdc	
Isolation Resistance (250Vdc)	50			MΩ	
Deflection at Rated Load		<0.05		mm	
Cycle Life Expectancy		Essentially Unlimited			
Solder Temperature					

Notes

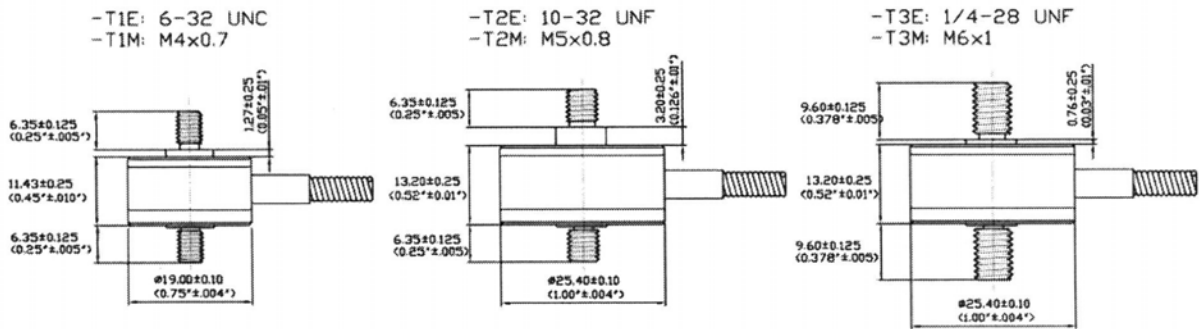
1. Re: Zero output: Lower trim values available on request.

Remarks

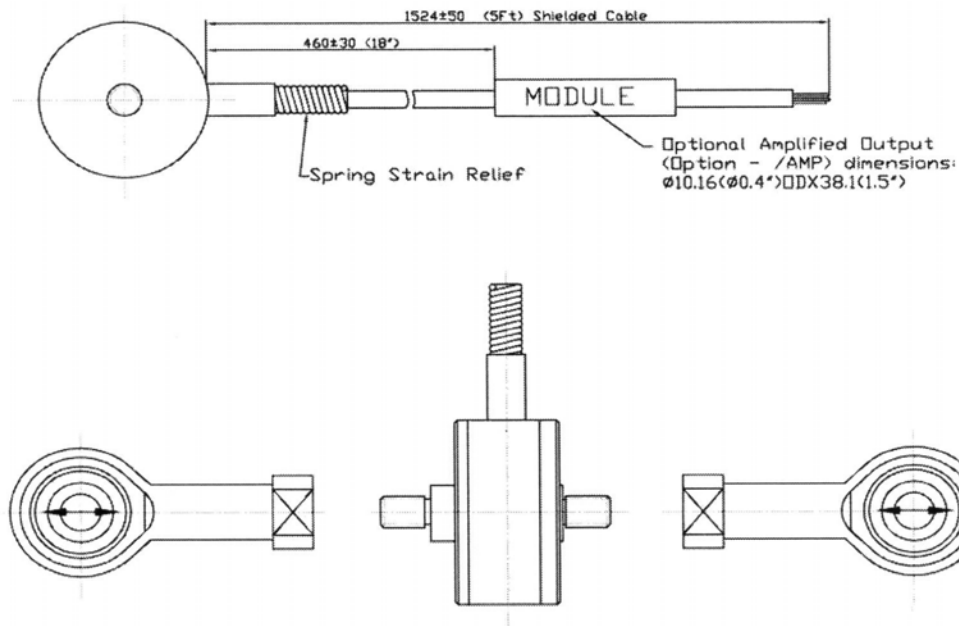
- Positive output in compression.
- Laser welded stainless steel body construction.
- Spring strain relief and shielded Teflon cable provided standard.
- Unique 4 bar linkage design provides resistance to off axis load components.

ELPF Load Cell

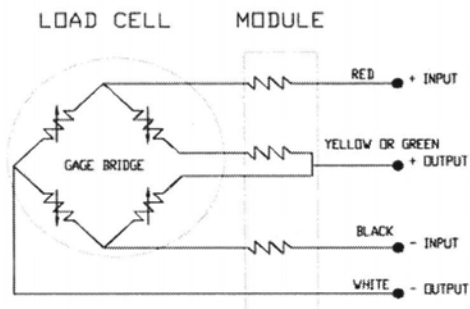
DIMENSIONS



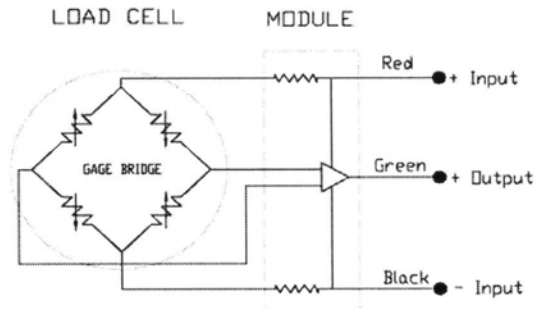
WIRING



Millivolt Bridge Version



High Level Amplified OutPut



ELPF Load Cell

OPTIONS

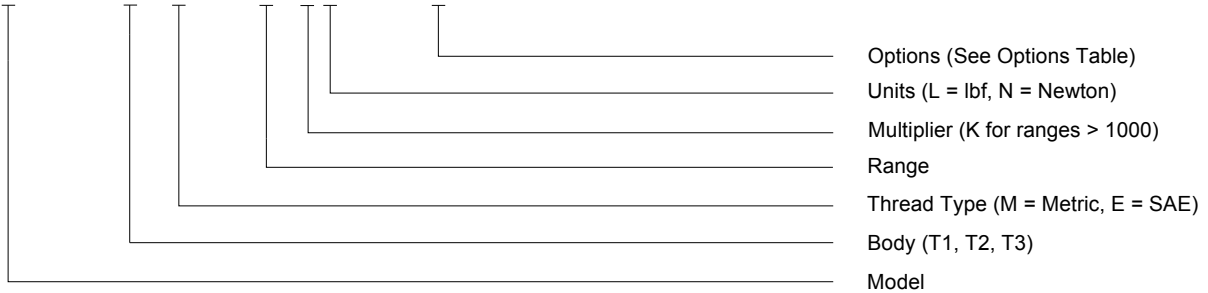
Standard Compensation Range: 20 to 80°C
Z0: -40 to +20°C
Z1: -20 to +40°C
Z2: 0 to 60°C
Z*: Nonstandard compensation temperature range
Excitation Voltage (Bridge Output): 5 Vdc standard
V00: Replace "00" with excitation between 1 and 10V. (At excitations less than 5V, sensitivity decreases proportionately.) Sensitivity at excitations > 5V equals 20mV/V.)
V2.5: Sensitivity equals 50 mV FSO nominal.
V10: Sensitivity equals 100 mV FSO. Note that input impedance may increase substantially when excitations > 5Vdc are specified.
Excitation Voltage (Amplified): 5 Vdc standard (higher excitations available: Consult factory.)
Standard Cable Length = 5ft (1.5m)
L00F: Replace "00" with total cable length in feet. Specified only on units with SAE threads and lbf range.
L10F: Units provided with 10 ft total cable length. Specified only on units with SAE threads and lbf range.
L00M: Replace "00" with total cable length in meters. Specified only on units with metric threads and N range.
L6M: Units provided with 6m total cable length. Specified only on units with metric threads and N range.
L10M: Units provided with 10m total cable length. Specified only on units with metric threads and N range.
MXXP: MXXP Special Compensation Module Location: Replace XX with percentage of cable length.
M10P: Module located at 10% of cable length ±5%
M25P: Module located at 25% of cable length ±5%
M50P: Module located at 50% of cable length ±5%
M75P: Module located at 75% of cable length ±5%
C: Microtech type male or equivalent (w/o mate)
R: RJ Telephone type male (w/o mate)
AN: Calibrate lbf range unit in Newtons
AL: Calibrate N range unit in lbf
AC: Alternate calibration: Units with studs are calibrated in tension by default. Option AC provides compression calibration in addition to tension calibration.
AMP: Provides amplified, ratiometric output of 0.5 – 4.5V in tension only. Amplified units with option AC for amplified operation in tension and compression: Zero trimmed to +2.5Vdc ± of 2V ±3% span in tension and compression at 5 Vdc input.

ELECTROMAGNETIC COMPATIBILITY: RESIDENTIAL, COMMERCIAL, AND LIGHT INDUSTRIAL

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ORDERING INFORMATION

ELPF - T3 E - 500 N - /V10/M25P/...



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