

Miniature Universal Load Cell



Features

- ❑ Available in ranges from $\pm 10\text{N}$ (2.25lb) to $\pm 500\text{N}$ (112 lb)
- ❑ Output $\pm 2\text{mV/V}$ nominal
- ❑ Accuracy: $< \pm 0.03\%/FS$
- ❑ Miniature, only 35mm (1.38") high
- ❑ IP54 Environmental Sealing
- ❑ Custom versions available

Benefits

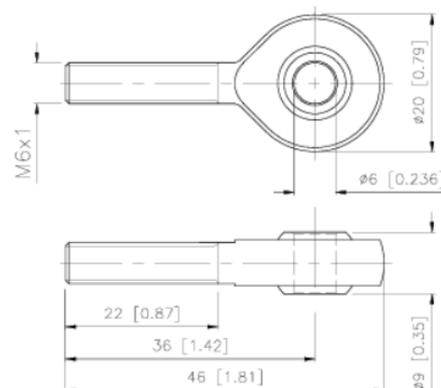
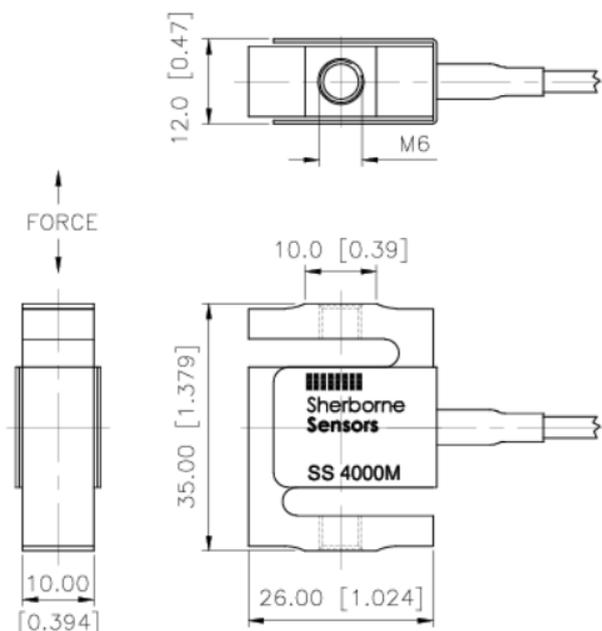
- ❑ Improved Accuracy with special designed rod end bearings
- ❑ High stiffness and low deflection under load
- ❑ Incorporates bending moment and side load compensation
- ❑ 100% tested and supplied with an individual calibration certificate
- ❑ Male Rod End Bearings available (Option)

Application

- ❑ General in-line force monitoring in limited space applications
- ❑ Bi-directional force monitoring
- ❑ Tensile testing machine

Introduction

The U4000M ultra miniature load cell is equally suitable for tension and compression applications and is especially useful where space is limited. The internal construction consist of a full bridge of transducer quality strain gauges that are bonded to the transducer element. This element is manufactured from high strength aluminium alloy or stainless steel, depending upon the force range. The design incorporates side load and bending moment rejection; despite its small size the transducer is highly accurate.



Electrical connections

Red	Excitation +	Green	Signal Output +
Black	Excitation -	White	Signal Output
Shield	Not connected		

Specifications Specifications by Range @ +20°C (+68°F)

Rated Range	N	±10N	±20N	±50N	±100N	±200N	±500N
Rated Range	lb	±2.3	±4.5	±11.2	±22.5	±45	±112
Operational Mode	Tension / Compression						
Non-linearity (see note 2)	% FRO (max)	±0.05					
Zero Return (see note 3)	% FRO (max)	±0.01					
Overload Capacity	% Rated Range (max)	150					
Side Load	% Rated Range (max)	50					
Deflection at Rated Load	mm (inches)	0.19 (0.007)	0.14 (0.006)	0.10 (0.004)	0.10 (0.004)	0.08 (0.003)	0.06 (0.002)
Frequency Response	Hz (min)	100					
Thermal Zero Shift	%FRO/°C (%FRO/°F)(max)	≤ ± 0.010 (0.005)					
Thermal Sensitivity Shift	%Reading/°C (%Reading/°F)(max)	≤ ± 0.002 (0.001)					

Electrical

Full Scale Output (see note 1)	mV/V (nom)	±2
Recommended Excitation Voltage	Volts dc	10
Maximum Excitation Voltage	Volts dc	12
Operating Current	mA	22
Signal Polarity	Positive in Tension	
Input Resistance	Ω (nom)	375
Output Resistance	Ω (nom)	350
Electrical Connection	1 metre (3 foot) 4-conductor shielded cable	

Environmental Characteristics

Operating Temperature Range	°C (°F)	-10 to 60 (14 to 140)
Survival Temperature Range	°C (°F)	-40 to 80 (-40 to 144)
Environmental Sealing	IEC529	IP54

Notes

- Units supplied calibrated as standard in tension only, bi-directional calibration available on request.
- Non-linearity is determined by the method of least squares.
- Zero return is the zero offset after a full scale excursion and return to zero load.

Model Designation & Ordering Code

