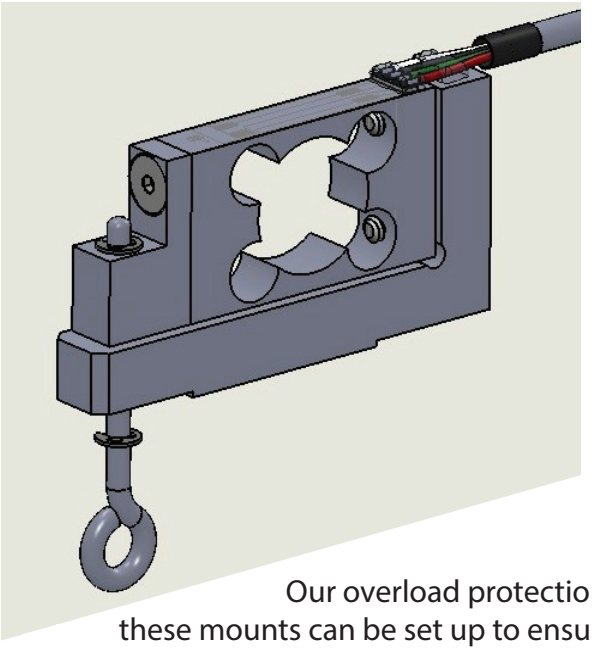
STRAIN MEASUREMENT DEVICES

ISO9001 Registered

ISO13485 Registered

# S251 Overload Proof Assembly

Purpose: This mounting and loading scheme protects the sensor from overloading forces in tension, compression, and torsion



Strain Measurement Devices manufactures a wide variety of low range force sensors using our proprietary thin-film technology. The long term stability and concise performance of these products is unsurpassed due to our thin-film manufacturing process that allows the creation of high resistance full bridge without the use of glues or organic materials between the flexure and the metal sensing film.

In order for these sensors to last forever they must be protected, so that the base metal flexure is never deformed. When stresses below the yield point of the host flexure are maintained these sensors will preform for many million cycles, faithfully retaining their initial zero offset. This means that your measurements will always be accurate and there will not be any need for zero recalibration either before or after an extended test.

Our overload protection mounts offer an environment that preserves the flexure's integrity, these mounts can be set up to ensure the flexure is never overloaded. A small gap underneath the sensor ensures that the sensor bottoms out after the full scale load is achieved and subsequently shunts higher forces directly to ground. The hook does not allow compression forces to be transmitted to the sensor and restrains some of the torque applied so the sensor remains safe in almost any combination of loads (this assembly is intended for 3 kg and lower ranges). Order your S251 load cell, factory pre-assembled to the overload protecting mount with hook installed or with subcomponents separately as desired.

## Features:

- Stainless Steel hook pre installed in loading
- Tension overload gap preset at the factory
- Aluminum Bracket with XXX holes to mount the assembly
- Hook properly clearance & concentrically located in a through hole to avoid parasitic drag and torsion load transmission to the sensor

RoHS Compliant

RoHS Directive bans the presence of specified hazardous substances in certain electronic and electrical equipment

**USA:** Strain Measurement Devices
55 Barnes Park North, Wallingford, CT 06492
**sales@smdsensors.com | (203) 294-5800**

**Europe:** Strain Measurement Devices
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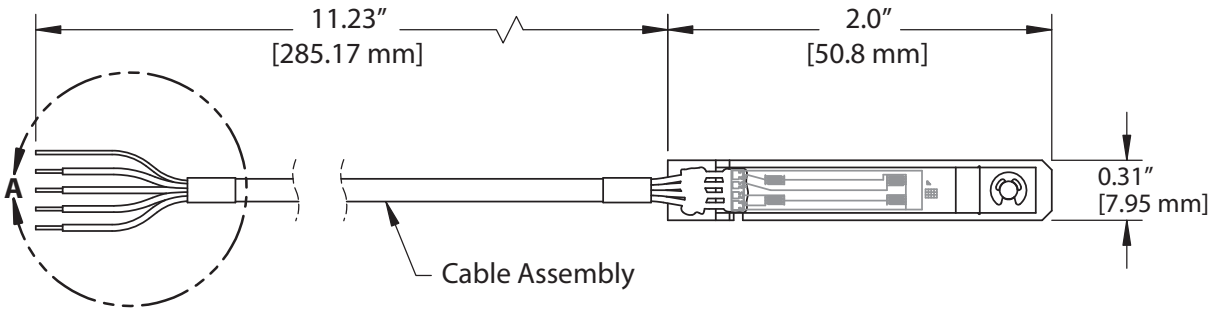
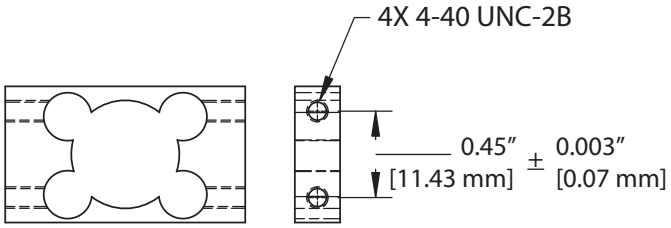
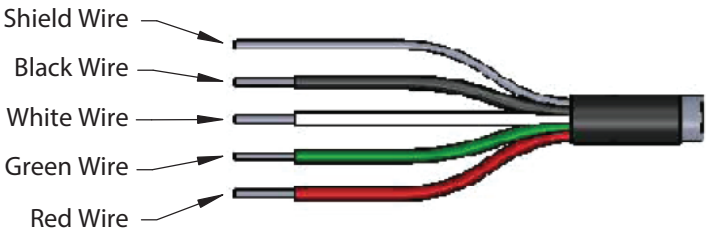
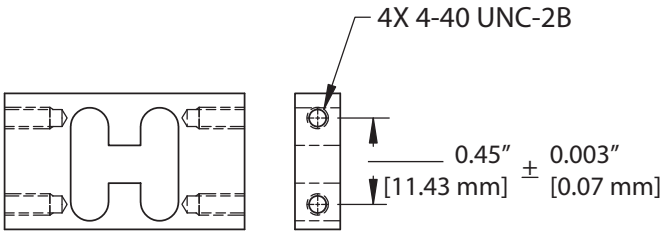


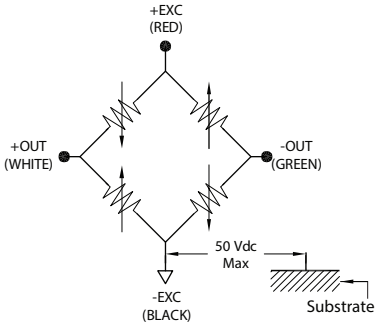



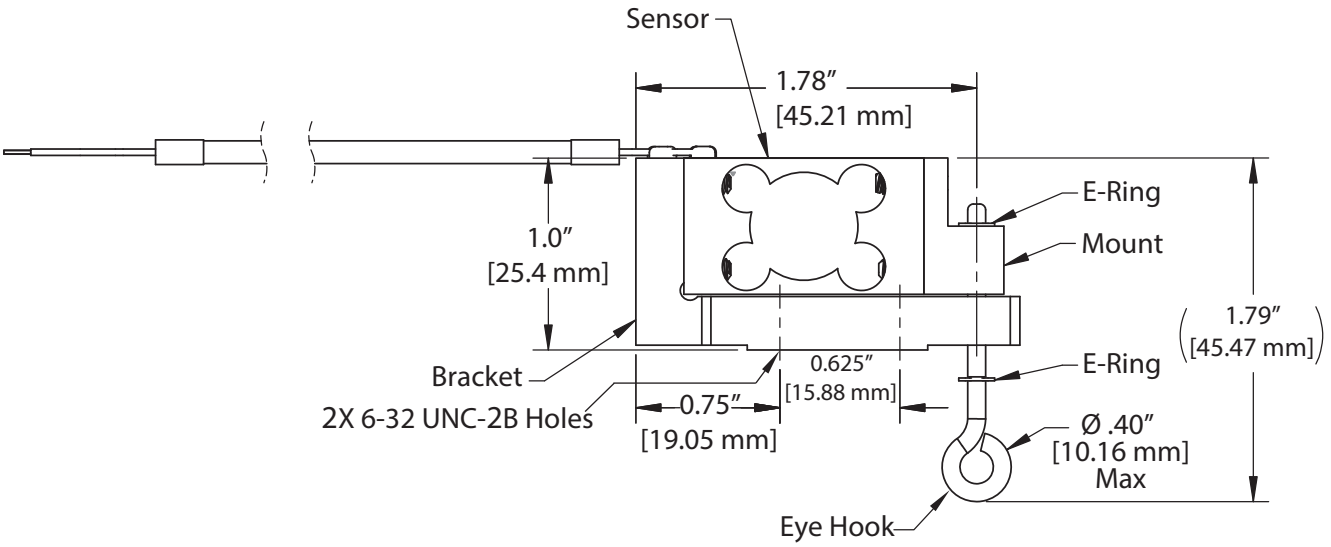

0.2kg Thru 10kg




30kg Sensor

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# S251 Overload Proof Assembly

| Product Specifications | |
|---|---|
| **Capacities:** | 0.2, 0.6, 1, 2, 3 kg-force |
| **Output:** | 2 mV/V Nominal |
| **Excitation:** | 5-20 V ac/dc |
| **Overload Limit:** | 150% of Range (At Center Loading) |
| **Ultimate Overload:** | 400% of Range (At Center Loading) |
| **Bridge Configuration:** | Full Bridge, Four-Wire Closed |
| **Bridge Resistance:** | 3,000 Ω +5% |
| **Insulation Resistance:** | 1,000 MΩ @ 50 Vdc |
| **Nonlinearity:** | 1 kg & Below <0.05% R.O.<br>2 kg & Above <0.03% R.O. |
| **Repeatability:** | 0.03% R.O. |
| **Hysteresis:** | 0.05% R.O. |
| **Creep:** | 0.05% R.O. |
| **Temp. Effect on Zero Balance:** | <0.01% FSO/˚C |
| **Standard:** | <0.03% of Span/˚C (<0.017% of Span/˚F) |
| **Optional:** | <0.004% of Span/˚C (<0.0022% of Span/˚F) |
| **Temp. Effect on Span:** | |
| **Standard:** | <0.025% of Reading/˚C (<0.014% of Reading/˚F) |
| **Optional:** | <0.002% of Reading/˚C (<0.0011% of Reading/˚F) |

| *Ordering Information* | |
|---|---|
| **Sensor Mounting Bracket:** | PLC 4535 |
| **Hook Mounting Bracket:** | PLC 4536 |
| **Hook with Circlips:** | PLC 4509 |
| **Complete Assembly:** | SMD 5900 |

*Please fully specify the range and temperature*

*Complete Assembly Part Information*

| Part # | Range | Material | Deflection (at Full Scale Load) |
|---|---|---|---|
| **SMD5900-002** | 0.2 kg | Aluminum | 0.008 |
| **SMD5900-006** | 0.6 kg | Stainless Steel | 0.009 |
| **SMD5900-010** | 1 kg | Stainless Steel | 0.007 |
| **SMD5900-020** | 2 kg | Stainless Steel | 0.007 |
| **SMD5900-030** | 3 kg | Stainless Steel | 0.005 |

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