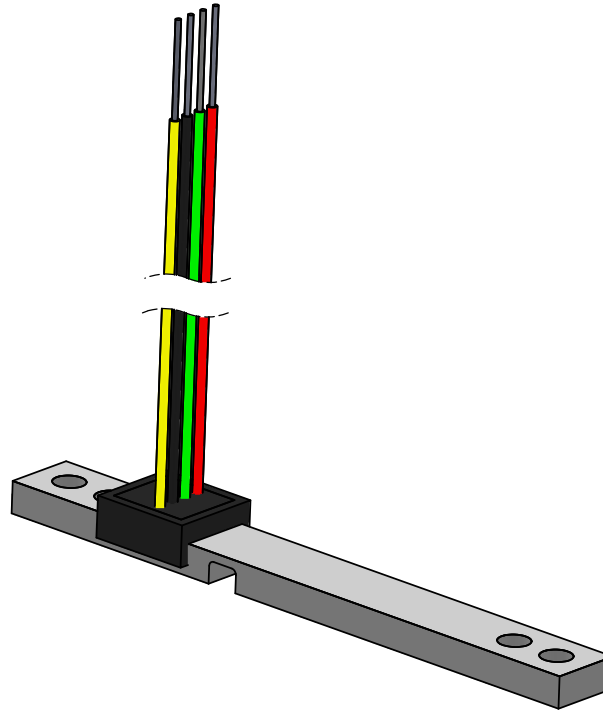


REVISIONS			
MOD No.	REV.	DRAWN BY:	DATE
3473	1	SML	10/18/19



APPLICATION NOTES

SMD "S100" SENSOR

GENERAL DESCRIPTION: The SMD "S100" Sensor is a family of monolithic aluminum or stainless steel bodied structures (depending on capacity) with a proprietary thin film technology strain gauge applied, capable of producing a linear, analog voltage output in response to loadings of 0.2 Newtons up to 125 Newtons depending on the model chosen. (Refer to PRODUCT SPECIFICATION SMD2207 and SMD4546)

PHYSICAL CONSIDERATIONS:

Mounting: Two 0.118" dia. mounting holes are provided through the termination end of the sensor body. This end of the sensor should be rigidly mounted to a "mechanical ground" the surface contact of which should not extend beyond the mid-point of the termination area.

Loading: Load forces may be applied in either direction to the free end of the sensor, perpendicular to its body and on the center axis of the 0.118" dia. holes. For accuracy and repeatability, a single point of contact is best. The configuration of the S100 sensor provides for no inherent overload protection (loading in excess of 150% of rated capacity) therefore provisions should be designed into the application hardware to preclude excessive deflection and damage to the sensor. Note: An overload protection mount is available (see SMD2207ANOP).

Wiring: Color coded lead wires are provided for electrical connections however when extended, adequate forms of strain relieving should be provided in the assembly design.

Handling: Avoid physically bending the unit during handling and installation. Units are rated for 150% of full scale load before permanent deformation occurs. This is especially important for low range versions (.2N, .4N)

ELECTRICAL CONSIDERATIONS:

As seen in the schematic drawing, 4 resistive elements are created by proprietary thin film technology in a Wheatstone Bridge configuration and adjoining areas of strain concentration. The application of a load to the sensor causes an electrical imbalance between the resistive elements and produces an output voltage (typically in millivolts) that is linear and proportionate to the load applied. Less than the maximum excitation voltage may be used however the resulting output will be reduced proportionately.

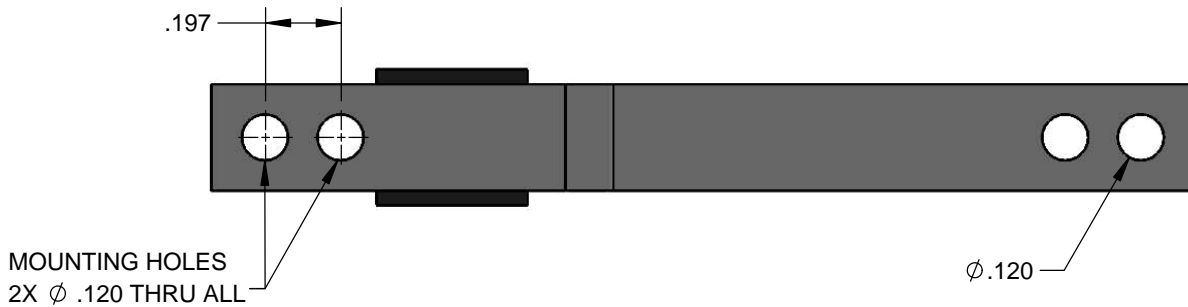
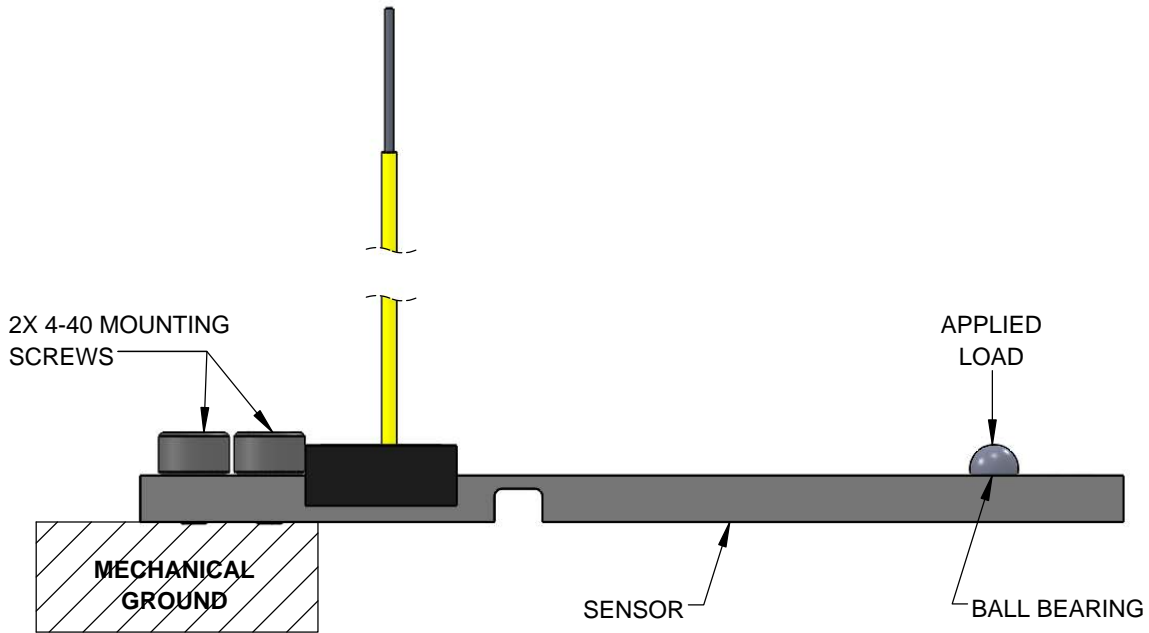
ENVIRONMENTAL CONCERNS and PRECAUTIONS:

While the thin film technology is itself immune to normal humidity levels, care must be taken to avoid condensing moisture and direct water exposure. The S100 is very stable over time & temperature. Due to the nature of the thin film technology, care in handling should be observed and no damage be allowed to occur especially in the area of the thin film strain gages. During handling and assembly procedures anti-static discharge practices should be observed.

UNLESS OTHERWISE SPECIFIED: BREAK SHARP EDGES .003-.015 SURFACES TO BE SQUARE &/OR PARALLEL W/IN .005 X/X = 1/64" .XXX = ±.005" .X = ±.030" .XXXX = ±.001" .XX = ±.010" ANGLES = ±2° SURFACE FINISH 32/				55 Barnes Park Rd. North Wallingford, CT 06492 Telephone: (203) 294-5800 www.smdsensors.com	
BREAK SHARP EDGES .08-.4 SURFACES TO BE SQUARE &/OR PARALLEL W/IN .127 .Xmm = ±0.5mm X.XXmm = ±0.3mm X.XXXmm = ±0.15mm ANGLES = ±2° SURFACE FINISH 0.8/				APPLICATION NOTES - S100 SENSOR DATE: 2/28/13 SCALE: NONE DIM: INCHES DRAWN: RFP/SML CHECKED: DES NEXT ASSY: - REV: - DWG No. SMD2207AN USED ON: S100 SHT 1 OF 2 1	

RECOMMENDED MOUNTING FOR S100 SENSOR

Ideally, load interface should be via a single point of contact, such as the intersection of a sphere to a plate.



The sensor moves with applied load.

When mounting the load cell, take care not to interfere with the sensors movement.

UNLESS OTHERWISE SPECIFIED:	
BREAK SHARP EDGES .003-.015. REMOVE ALL BURRS. SURFACES TO BE SQUARE &/OR PARALLEL W/IN .005	BREAK SHARP EDGES .08-.4. REMOVE ALL BURRS. SURFACES TO BE SQUARE &/OR PARALLEL W/IN .127
X/X = $\pm 1/64$ "	.XXX = $\pm .005$ "
.X = $\pm .030$ "	.XXXX = $\pm .001$ "
.XX = $\pm .010$ "	ANGLES = $\pm 2^\circ$
SURFACE FINISH \checkmark 32	SURFACE FINISH \checkmark 0.8
	X.Xmm = ± 0.5 mm
	X.XXmm = ± 0.3 mm
	X.XXXmm = ± 0.15 mm



**STRAIN MEASUREMENT
DEVICES**

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DWG No.

SMD2207AN

SHT 2 OF 2

REV **1**