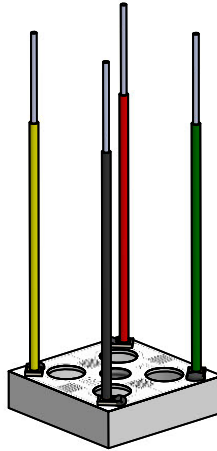


REVISIONS			
MOD No.	REV.	DRAWN BY:	DATE
3473	1	SML	10/18/19
3911	2	SML	4/30/21



APPLICATION NOTES

SMD "S410" SENSORS

GENERAL DESCRIPTION: The SMD "S410" Sensor is a monolithic stainless steel bodied structure with a proprietary thin film technology strain gauge applied, capable of producing a linear, analog voltage output in response to loadings of 0- 900 grams.

PHYSICAL CONSIDERATIONS:

Mounting: The S410 is intended to be welded, captured in a recess, or clamped/adhered to a mounting surface. The open side of the sensor should be mounted toward a rigid and flat "mechanical ground" with an aperture or space adjacent to the center boss to preclude interference.

Loading: Load forces may be applied in either direction to the center boss of the sensor, perpendicular to its body and on the center axis of the threaded center hole. For accuracy and repeatability, a single point of contact is best. The configuration of these sensors provides for no inherent overload protection (loading in excess of 175% of rated capacity) therefore provisions should be designed into the application hardware to preclude excessive deflection and damage to the sensor.

Wiring: Wire leads of various material, length, and color per customer request are a common option however adequate forms of strain relieving should be provided in the assembly design.

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 (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 S410 is very stable over time and 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 gauges. 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"	.XXX = ±.001"
.XX = ±.010"	ANGLES = ±2°
SURFACE FINISH $\sqrt{32}$	
BREAK SHARP EDGES .08-.4	
SURFACES TO BE SQUARE &/OR PARALLEL W/IN .127	
.Xmm = ±0.5mm	ANGLES = ±2° $\sqrt{0.8}$
X.XXmm = ±0.3mm	SURFACE FINISH $\sqrt{0.8}$
X.XXXmm = ±0.15mm	



STRAIN MEASUREMENT
DEVICES

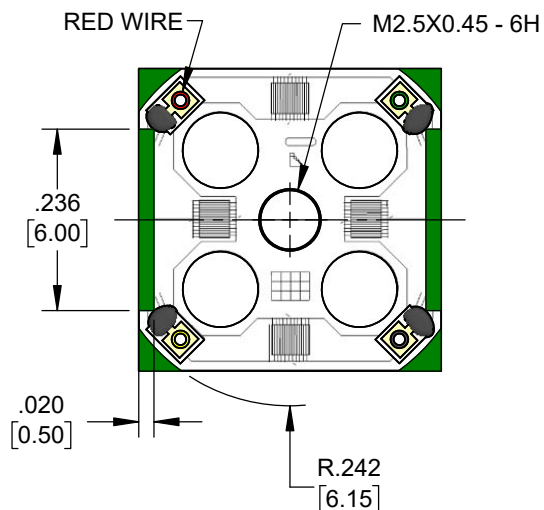
55 Barnes Park Rd. North
Wallingford, CT 06492
Telephone: (203) 294-5800
www.smdsensors.com

TITLE:

APPLICATION NOTES - S410 SENSORS

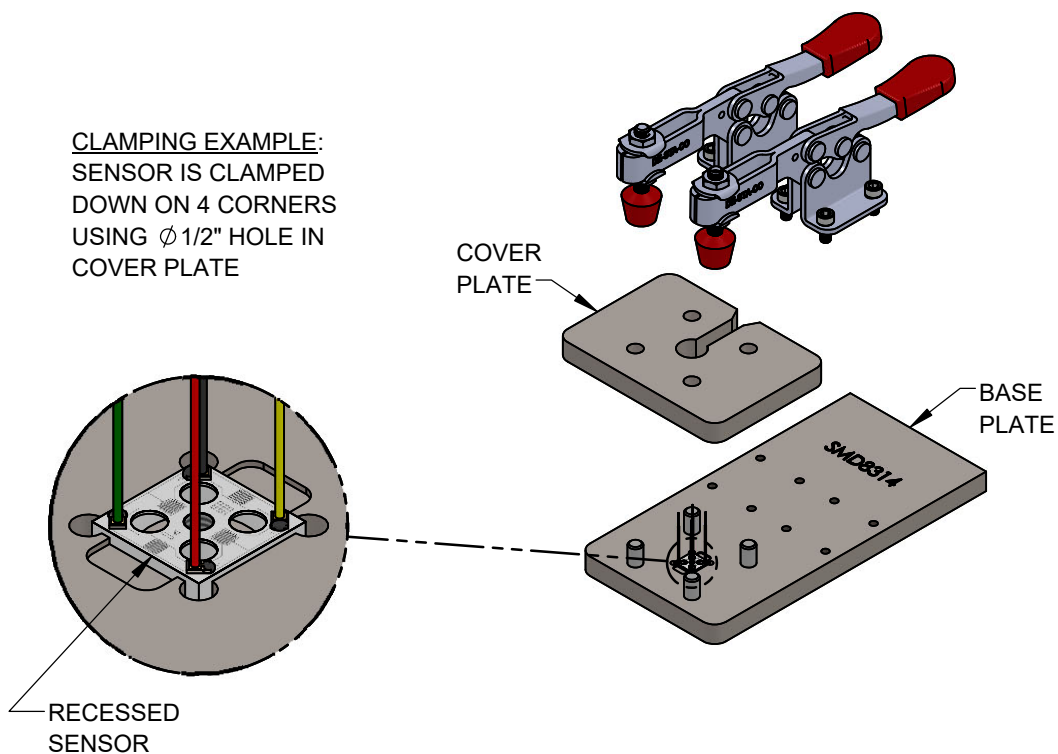
DATE: 2/28/13	SCALE: NONE	DIM: INCHES	DRAWN: RFP/SML	CHECKED: DES	NEXT ASSY: -	REV 2
DWG No. SMD3323AN			USED ON: S410		SHT 1 OF 2	

S410 MOUNTING



NOTE: THE S410 DOES NOT HAVE ANY MOUNTING HOLES. TO IMPROVE LINEARITY, THE SENSOR CAN BE WELDED TO A FLAT AND RIGID "MECHANICAL GROUND" PLANE ALONG ITS BOTTOM EDGE, OR CLAMPED DOWN IN THE AREAS SHOWN IN GREEN ABOVE.

CLAMPING EXAMPLE:
SENSOR IS CLAMPED
DOWN ON 4 CORNERS
USING $\phi 1/2"$ HOLE IN
COVER PLATE



UNLESS OTHERWISE SPECIFIED:

BREAK SHARP EDGES .003-.015. REMOVE ALL BURRS.
SURFACES TO BE SQUARE &/OR PARALLEL W/IN .005

X/X = $\pm 1/64"$.XXX = $\pm .005"$
.X = $\pm .030"$.XXXX = $\pm .001"$
.XX = $\pm .010"$ ANGLES = $\pm 2^\circ$

SURFACE FINISH $\sqrt{32}$

BREAK SHARP EDGES .08-.4. REMOVE ALL BURRS.
SURFACES TO BE SQUARE &/OR PARALLEL W/IN .127

.Xmm = ± 0.5 mm ANGLES = $\pm 2^\circ$
X.XXmm = ± 0.3 mm
X.XXXmm = ± 0.15 mm

SURFACE FINISH $\sqrt{0.8}$



STRAIN MEASUREMENT
DEVICES

55 Barnes Park Rd. North
Wallingford, CT 06492
Telephone: (203) 294-5800
www.smdsensors.com

DWG No.

SMD3323AN

SCALE

-

SHT 2 OF 2

REV **2**