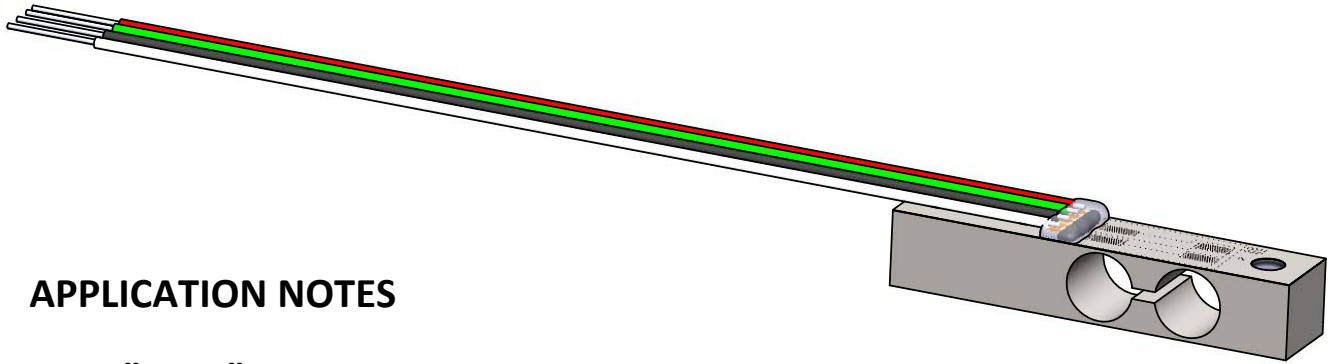


REVISIONS			
MOD No.	REV.	DRAWN BY:	DATE
3473	1	SML	10/18/19



APPLICATION NOTES

SMD "S215" SENSOR

GENERAL DESCRIPTION: The SMD "S215" Sensor is a family of monolithic stainless steel bodied structures with a proprietary thin film technology strain gauge applied, capable of producing a linear, analog voltage output in response to loadings of 2 to 22 lbs depending on the model chosen. (Refer to PRODUCT SPECIFICATION SMD2551).

PHYSICAL CONSIDERATIONS:

Mounting: Two #4-40 threaded 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. The mounting screws should be located below the sensor (see page 2).

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 other #4-40 threaded hole. For accuracy and repeatability, a single point of contact is best and often achieved by contacting a spherical element with a flat surface. The configuration of the S215 sensor provides for no inherent overload protection (loading in excess of 200% of rated capacity) therefore provisions should be designed into the application hardware to preclude excessive deflection and damage to the sensor.

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.

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 S215 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°
X.XXmm = ±0.3mm	SURFACE FINISH $\sqrt{0.8}$
X.XXXmm = ±0.15mm	

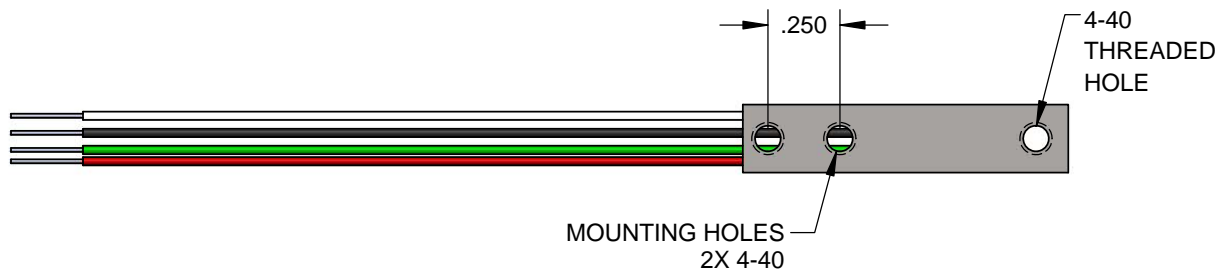
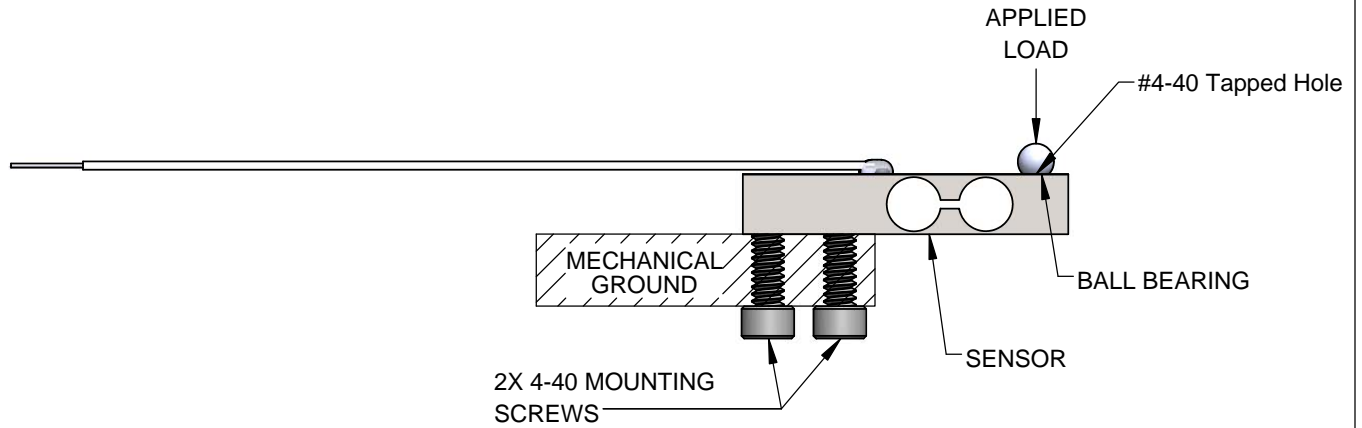


55 Barnes Park Rd. North
 Wallingford, CT 06492
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www.smdsensors.com

TITLE: APPLICATION NOTES - S215 SENSOR						
DATE: 2/28/13	SCALE: NONE	DIM: INCHES	DRAWN: RFP/SML	CHECKED: DES	NEXT ASSY: -	REV -
DWG No. SMD2551AN			USED ON: S215	SHT 1 OF 2		1

RECOMMENDED MOUNTING FOR S215 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 SENSOR, TAKE CARE NOT TO INTERFERE WITH THE SENSORS MOVEMENT.

UNLESS OTHERWISE SPECIFIED:				STRAIN MEASUREMENT DEVICES		55 Barnes Park Rd. North Wallingford, CT 06492 Telephone: (203) 294-5800 www.smdsensors.com	
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		DWG No. SMD2551AN		SHT 2 OF 2	
XX = ±1/64"	.XXX = ±.005"	.Xmm = ±0.5mm	ANGLES = ± 2°	REV 1			
.X = ±.030"	.XXXX = ±.001"	X.XXmm = ±0.3mm	SURFACE FINISH $\sqrt{0.8}$				
.XX = ±.010"	ANGLES = ±2°	X.XXXmm = ±0.15mm	SURFACE FINISH $\sqrt{32}$				