

SMX Torque Sensor Operation Instructions

Rev 2.0 (5/6/2011)

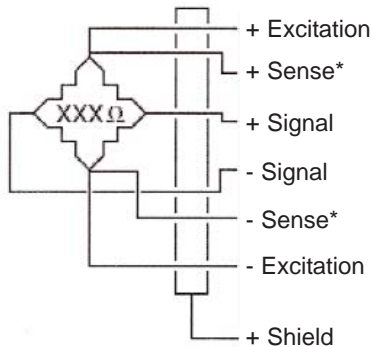
SMX Application Examples

SMX is a torque sensor designed for auditing or tightening fasteners to a specified torque when mated with a torque analyzer. Connect the SMX to the square drive of a wrench and monitor or audit the torque applied to an application. With its compact size, the socket extension torque sensor provides a unique solution for many torque auditing applications.

Place the square drive of the wrench into the female socket side of the SMX.



SMX Wiring Diagram



* Used with 6 conductor cable

Wiring Code

+ Excitation:	Red
+ Sense:	Orange
+ Signal:	Green
- Signal:	White
- Sense:	Blue
- Excitation:	Black

Operating SMX

Once the SMX is connected with a Mountz Torque Analyzer, follow the instructions in the Torque Analyzer manual for accessing external transducers.

Make sure the application is within the torque range of the SMX model. If the application is under the torque range, then the accuracy may not be reliable. If the application is over the torque range, then you may overtorque the SMX and damage the sensor. Place the square drive of the wrench into the female socket side of the SMX.

Place a socket or adapter, if necessary, onto the square drive of the sensor and then apply or measure torque. You may require adapters for the application or for calibration. Always make certain adapters are as short as possible and fit properly, with little "play."

Torque Testing & Auditing Methods

There are three common methods that have been established to provide an accurate reference to the applied torque.

- 1) First Movement Test - Once the fastener has been tightened, use the SMX. Mark the tightened fastener and surrounding application. In the tightening direction, begin to slowly apply force to the tool until the first movement in the fastener is noted. The reading recorded is a good indication of the original torque applied to the joint. This is the best way to determine residual torque.
- 2) Loosening Test - This is a similar process to the first movement test described above, except instead of the tightening the fastener, the torque is applied in the direction that loosens the fastener. At the point the fastener breaks loose, the torque reading is recorded. The torque value to loosen the fastener is the approximate torque that was applied to the joint.
- 3) Marking Test - Once the fastener tightened, mark clearly the surface of the fastener, nut or bolt and continuing the mark onto the surface being clamped for reference. This time loosen the fastener and retighten until the marks on both application and fastener are aligned. The torque required to return the fastener to its original location is the reference to the original torque applied to the fastener.

What is Residual Torque? It is the amount of tension that remains in a joint after fastening a threaded fastener.



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Calibration Procedures

1. Attach the SMX securely to a special fixture device.
2. Connect the SMX to a torque analyzer/display. Review the torque range of the sensor and select the appropriate measurement units.
3. Determine type of calibration to be performed.
Calibration at 3 Pts. Test at 10%, 50% and 100 of Full Scale.
Calibration at 6 Pts. Test at 10%, 20%, 40%, 60% 80% and 100 of Full Scale.
Direction Clockwise and/or Counter Clockwise
4. Select the appropriate Calibration Arm or Wheel and attach it.
5. Gently connect the Hanger to the Calibration Arm or wheel.
6. Load 3 times to minimum 80% FS in direction of operation and reset to zero after loading.
7. Apply series of increasing torques in direction of operation starting from the lowest test point.
8. Record readings from the test device at each test point prior to performing any adjustments.
9. Repeat steps 6-8 in the opposite direction (if required).
10. Perform calibration adjustments. Repeat test as described above until readings at all test points are within tolerances.
11. Repeat test as described above and record 5 readings from test device at each test point. Compile all necessary details to generate test report.
12. Remove old calibration label and place new label on transducer.

Mountz Calibration & Repair Services

Mountz Inc. features an experienced calibration and repair staff. Our trained technicians can calibrate and repair most any tool. Mountz provides rapid service with quality that you can trust as we offer three state-of-the-art calibration lab and repair facilities that can calibrate up to 20,000 lbf.ft.

With over 45 years of experience, Mountz's in-depth knowledge of torque is reflected in our tool's craftsmanship and our ability to provide solutions to both common and uncommon torque applications. We perform calibrations in accordance with ANSI/NCSL-Z540. Mountz is dedicated solely to the manufacturing, marketing and servicing of high quality torque tools.

Mountz is an ISO 9001 certified and ISO 17025 accredited company.

Tool Service & Repair Capability

- Torque Wrench Calibration: Click Wrench, Dial Torque Wrench, Beam Wrench, Cam-Over & Break-Over Wrench
- Torque Screwdrivers: Dial, Micrometer, Preset & Adjustable
- Torque Analyzers/Sensors: All brands
- Electric Screwdrivers: All brands
- Air Tools: All brands
Impact Wrenches, Drills, Pulse Tools, Grinders, Percussive Tools, Air Screwdrivers, Nutrunners, DC Controlled Nutrunners
- Torque Multipliers: All brands

Mountz Service Locations

Eastern Service Center

19051 Underwood Rd.
Foley, AL 36535
Phone: (251) 943-4125
Fax: (251) 943-4979

Western Service Center

1080 N.11th Street
San Jose, CA 95112
Phone: (408) 292-2214
Fax: (408) 292-2733

Mexico Service Center

Mountz Mexico SA de CV Chihuahua
Av. Cristobal Colon #15343
Col. Paseos de Chihuahua
Chihuahua, Chih. Mexico CP 31125
Phone: (614) 481-0023
Fax: (614) 481-0053

www.mountztorque.com
sales@mountztorque.com

Download a "Service Form" and include a copy when you send the tools in to be serviced.

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