Sturtevant Richmont
555 Kimberly Drive Carol Stream, IL 60188
Phones: 847/455-8677 800/877-1347 Fax: 847/455-0347
E-mail: CustomerService@srtorque.com
URL: srtorque.com



1250 SERIES EXACTA® 2

Digital Torque & Angle Wrench

Operating and Service Manual

Safety

Torque Testers

⚠WARNING



- Calibration weights can cause tester and its base to tip

Wear safety goggles (users and bystanders).

Counterbalance or anchor mounting base.

Tipping base can cause injury.

Torque Wrenches

⚠WARNING



- Overtorquing can cause breakage
- Wrench can break while breaking fasteners loose
- An out-of-calibration torque wrench can cause part or tool breakage

Wear safety goggles (user and bystanders).

Do not exceed rated torque.

Do not use a torque wrench to break fasteners loose.

Periodic recalibration is necessary to maintain accuracy.

Broken tools can cause injury.

Tool Overview:

The SR 1250 Exacta 2 is the latest extension of the legendary Exacta line of digital torque wrenches. In addition to the +/- 1% Indicated Value accuracy, extraordinary durability, and more the 1250 Series has four modes of angle measurement engineered into the circuit board:

- Torque to Angle
- Torque With Angle Monitoring
- Prevailing Torque Mode
- Residual Torque

New Nomenclature

- Torque to Angle
- Torque With Angle Monitoring
- Prevailing Torque Mode
- Dwell
- Accumulating Angle



NOTE:

This tool requires the use of one rechargeable NiMH cartridge battery. Using ANY other type of battery immediately voids the 1-year limited warranty on this tool. The electronic circuit of the 1250 Series was designed to save power and operate on this battery alone.

SR 1250-Series **Exacta® 2** Digital Torque Wrenches are designed to work with the Global 400 and Global 400mp process monitor/process monitors. These wireless capable digital torque and angle wrenches are designed for industrial assembly use. The wrench is completely dependent on the Global 400/400mp for directions and torque results reporting. Once connected to the Global 400/400mp, the wrench keypad is disabled. This prevents inadvertent operator changes to parameters.

These tools are designed for ease of use. Operators simply pull to green, there are no buttons to push. The display and audible signal the operator of the status for each tightening. The display and the underside LED turn yellow when approaching minimum torque. The display and audible beep signal the operator of the status for each fastening. Exceeding maximum torque causes the screen to turn red and the audible beep changes to one long tone. Upon reaching the target torque measurement the 1250 Series handle vibrates. The 1250 Series Exacta 2 digital torque and angle wrench provides operator with visual, auditory, and kinesthetic guidance.

*Details on programming the tool through the Global 400/400mp process monitors are found in the process monitor manual. There are "how to" programming videos at www.srtorque.com. The 1250-Series Exacta 2 does not communicate with the Global 8.

Safety: Always wear appropriate personal safety equipment when operating this tool.

- □ Never use this tool for any purpose other than that for which it is intended.
- □ Never use the tool beyond its' rated torque capacity.
- □ Never immerse the tool in liquids.

Battery and Battery Charger Selection

The **Exacta® 2** digital torque wrench has very specific battery requirements.

- Use of any batteries not meeting SR NiMH rechargeable cartridge battery requirements could electronically and physically damage the tool and immediately voids the warranty.





- BATTERY CHARGING NOTE: The first time you charge NiMH batteries the batteries should remain charging for at least 24 hours. Removing the batteries from the charger prior to 24 hours shortens battery life and the number of cycles a battery can power in the wrench.

Battery Installation

At the end of the grip is a battery cap that covers the battery compartment inside the grip. To install the batteries:



1. Insure that the correct batteries are those to be used, and that they are completely charged. NOTE: When brand new batteries are used for the first time please leave them on the charger for 24 hours prior to use. Even though the charger may indicate the battery is charged, premature battery use shortens battery life. Follow the instructions that come with the charger to charge the batteries before installing them.

2. The battery cap (6) is screwed into an internal thread inside the grip (*Portion of grip marked as 5A*.) Remove the battery cap by unscrewing it from the grip (CCW).

3. The battery compartment will be exposed. Install the battery cartridge (6A) in the only orientation that fits.

4. Reinstall the battery cap. Tighten the cap until snug; do not overtighten the cap.

The 1250-*Series* Exacta® 2 has a Low Battery Indicator on the display. If the battery voltage falls below 20%, a battery icon will appear in the upper right-hand section of the display. When this occurs, it is time to replace or recharge the battery cartridge. The wrench will continue to operate until the battery voltage drops below 10%, at which time the "BAD" icon will illuminate. The display will show the message "bAtt" and only the RS232 commands will be operational. Readings stored prior to that point will remain in memory.

Interchangeable Heads

The1250-Series Exacta® 2 digital torque wrenches use the SR dovetail system. The tools are calibrated for use with SR Interchangeable Heads having a 1 7/16" (36.5mm) Common Centerline. Any SR heads with this centerline length may be used without affecting torque accuracy.

The 400 foot-pound capacity tool is calibrated for interchangeable heads having a Common Centerline length of 3 7/8" (98.4mm). Any SR heads with this centerline length may be used without affecting torque accuracy.

Three 1250-Series Exacta® 2 digital torque wrench models come equipped with a fixed ratchet. The 250 foot-pound capacity, the 400 foot-pound capacity, and 600 ft. lb. The ratchets should be disassembled and cleaned periodically. Ratchet renewal kits having the appropriate parts for each ratchet are available. Contact your local SR sales professional to order or visit www.srtorque.com.

1250 Series Exacta 2 wrenches with capacity up to 150 foot-pounds can also be ordered with the Quick Change (QC) dovetail. These wrenches require only thumb pressure to remove the interchangeable head. (See the video "One Head Is Better Than Two) on YouTube. (https://www.youtube.com/watch?v=3R1X_VeWxYY&list=PLNqL5J_q1KXMo71e471Mv9JdsrRYJ0tU9)

Power Switch, Serial Port and Cover

On the top of the electronics housing are the power switch and serial port for the tool. These are protected by a rubber cover that can be lifted to provide access to the power switch. The cover should be closed at all times.

The tool power is enabled (power On) by sliding the switch away from the grip as shown here.

Power to the tool is disabled (power Off) by sliding the power switch towards the grip.

The serial cable that is supplied with the wrench connects to the round serial port that is also used to hold the cover in place.

Component Identification

1. Electronics Module
   The electronics module houses and protects the circuit boards, display, operating buttons and other electronic components.



2. Display
   The display conveys the visual information needed for use and generated by use.

3. Indicator Labels
   These labels, working with indicators on the display, inform the user of Target Torque. what mode (TAM, T2A, or PTM) or function is currently active.

4. Buttons
   These buttons (Clear, Select, Up, Down) are used only for calibration purposes.

5. Grip
   The grip is where the tool should be grasped when in use. The load point (5A) on the grip is marked by the plain ring in the center of the grip.

6. Battery Compartment Cover
   The battery compartment cover protects the battery cartridge and associated parts, and permits access for battery replacement. Battery is 6A.

7. Switch Cover
   This rubber cover protects the power switch and the serial port. (*Note: The Switch Cover is in identical locations on ALL Exacta Series wrenches.)*



8. Serial Port
   This is a single-pin serial port for communications.

9. Power Switch
   This switch enables and disables electric power from the batteries to the electronics.

10. Indicators
    There are four triangular indicators in a line across the top of the display. These indicators are activated and deactivated to show what mode of operation is currently active on the tool. To the right of these is a battery icon (not activated in this photograph) used as a battery level (low battery power) indicator.

11. Unit of Measure Area
    This area of the display shows the currently active unit of measure during use.

12. Data Record Area
    This small alpha/numeric four-character display shows the firmware version upon power up. This display area says “rAd”, if the tool is not connected to a Global 400/400mp.



13. Quality Attribute Area
    There are several icons along the bottom of the display to the left of the Data Record area. These include “OK” and “BAD”, which provide the attribute evaluation of the torque against the programmed specification when the tool is in use. They also include MAX and MIN. If the tool is not connected to a Global 400 or Global 400mp the display will read “bAd.”

14. CCW Icon
    The CCW designator is a minus (-) sign and it illuminates when the torque is in the counter-clockwise direction.

15. Primary Display Area
The primary display area conveys differing information depending upon the current action of the tool. This may be numeric information such as torque values or alphabetic information used during calibration. If the screen is dim and this area is all dashes, ( ) the tool is in suspend mode.

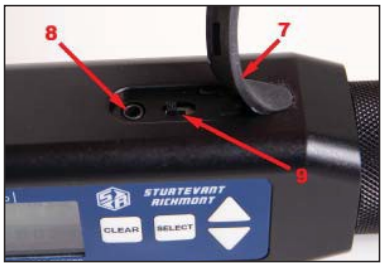


16. Rear Cover
The rear cover permits access to the electronics when repair is required; it should not be removed except for repair situations requiring its' removal.

17. Buzzer
This buzzer provides an audible indication of the torque status to augment the visual indicators. When in use, a rapid series of beeps when the torque specification is attained and while within the specification. It will emit a single longer beep if the torque specification or torque capacity is exceeded.

18. Rear LED Lens (Circular, #16 in image)
This lens illuminates with the color (Yellow-Orange/Green/Red) in the same manner as the display when the LED color system is in use. This notifies the user of the tightening status even when the tool is used in an orientation where the LCD display is not immediately visible.

Wrench Start Up Sequence



Please Note: While the image to the right has a blue face mask, the functionality is the same for all Exacta Series wrenches.
To use the wrench, slide the power switch (9) to the Enabled or On position. The tool will begin an internal starting routine and the display will first show the Series Number of this Exacta 2 wrench. The display will show 1250. In the lower right hand corner of the display you will see the tool firmware number. The display then shows tool capacity in foot pounds. The radio serial number is the third item for display. This completes the initial start-up screen sequence.

Once the initial start-up sequence is complete the wrench moves to suspend mode. In suspend mode the screen dims and the screen shows a horizontal dashed line where the torque values normally appear.

Association or Learning Process with the Global 400/400mp
Each Global 400/400mp and the different types of SR branded wireless tools use a XBEE transceiver. Each transceiver has its own unique address. Once a tool is associated to a Global 400/400mp they will only communicate with each other. To change a tools location within a facility and connect that tool to a different Global 400 the tool must be erased from the original Global 400/400mp.

Associating a 1250 Series Exacta 2 with a Global 400/400mp is fast and easy. See the Global 400/400mp owner's manual for details and processes.

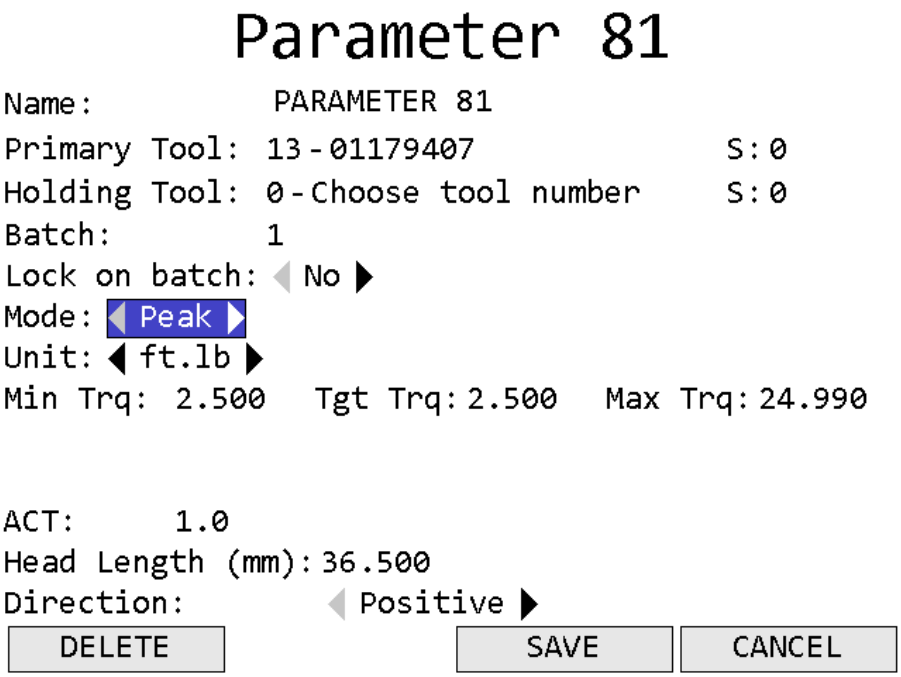
Using the Tool with the Global 400
Once the tool and process monitor radios are connected, the tool must be assigned to a parameter before it can be used. See Global 400/400mp owner's manual for complete details.

Performance NOTE:
The only time the 1250 Series Exacta 2 digital torque and angle wrench can be operated without a process monitor is during calibration. During calibration, the 1250 Series wrench must have the radio disabled.

When the tool is used with a Global 400, the keypad is locked. This is part of the error proofing approach to ensure that torque values or other parameter settings are NOT changed anywhere but at the Global process monitor or in the Global Manager software. Details for this process are found in the Global Manager software owner's manual.

Setting Torque Values and the "Pull To Green" Threshold
Using a combination of torque values and degrees of rotation after torque has been reached is available to set ever tighter torque applications.

Using the Global Manager software, set the Unit of Measure (UOM), Minimum (Lo) Torque Specification, Maximum (Hi) Torque Specification, Mode of Operation (Track, Residual or Peak), head length, auto-clear time, direction of torque, batch size, and "target torque". Directions are found in the Global 400 or 400mp owners guide.

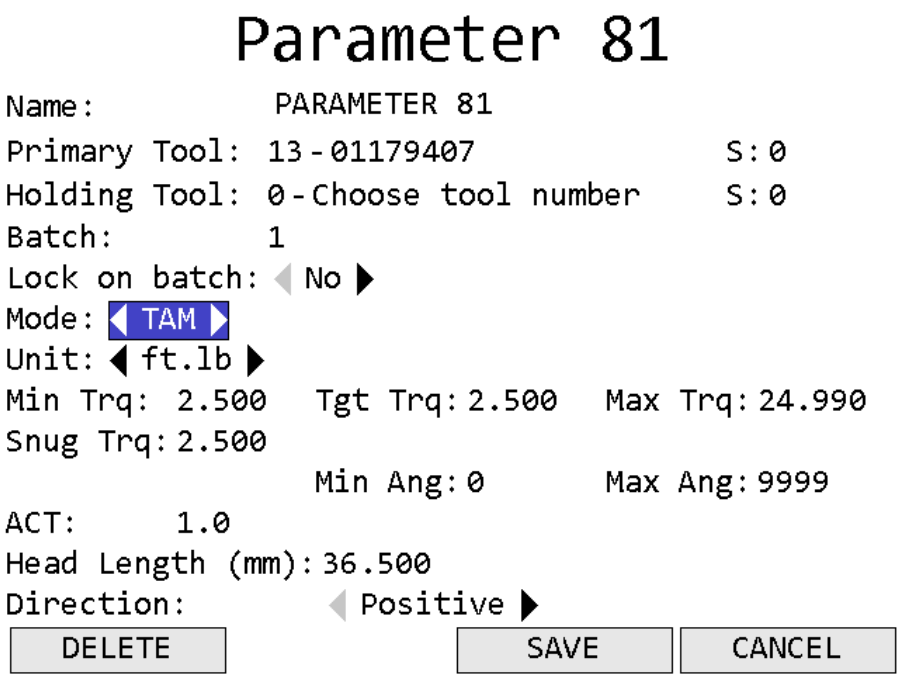


Setting Angle Parameters and the "Pull To Green" Threshold
A target angle (degrees of fastener rotation), a minimum angle, and maximum angle must be set in the Global 400 or 400mp for angle functions to work in conjunction with target torque values.

When combining target torque and angle settings, both must reach the minimum established values for a

When combining target torque and angle settings, both must reach the minimum established values for a fastening to be compliant. If the torque value is at target but angle values are either too high or too low, Global 400 and the 1250 Series Exacta 2 provide the operator with a NOK result. If the angle values are acceptable but torque values are not the feedback will be NOK.

Notes for programming the Global 400 with Exacta 2 1250 series Torque and Angle digital wrenches. The screen capture below is for programming TAM (Torque With Angle Monitoring)



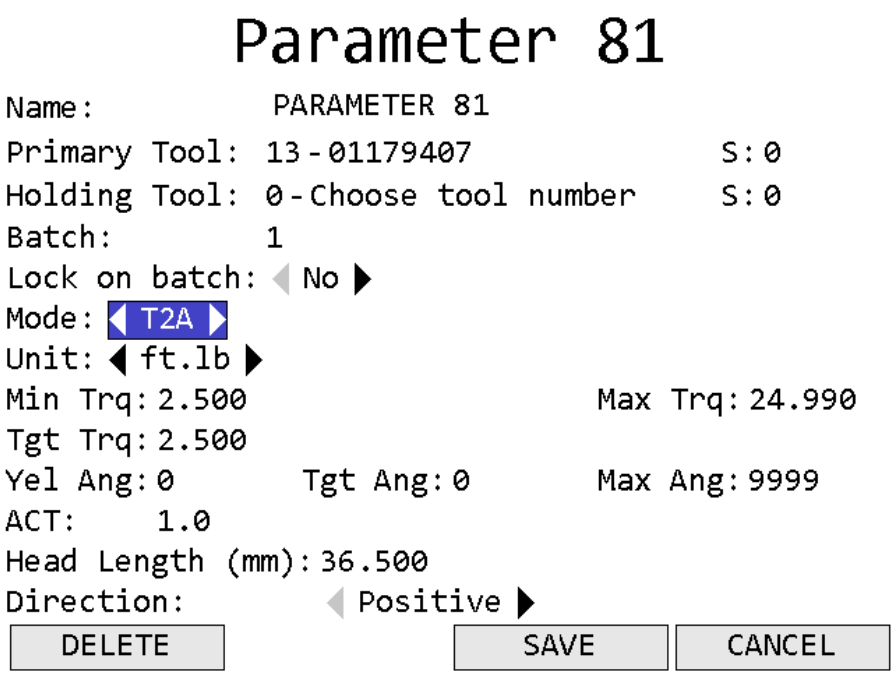
There are several uses for monitoring angle while achieving a torque specification in production. One simple use might be to ensure that an operator has not tightened the same fastener by programming a minimum amount of angle is reached prior to achieving the minimum torque specification. Another use can be for ensuring the repeatability of the joint to be assembled by identifying a minimum and a maximum acceptable joint rate. Assuming the parts are precision made and finished reaching torque before the minimum angle has been met would be indicative ofa cross threaded fastener or an obstruction in a blind hole. Reaching minimum torque after the maximum angle has been achieved would indicate that the joint rate changed for some reason.
You will notice a setting for Target Torque that is a new feature for the 1200 and 1250 series tools.

At present Target Torque has 2 different uses one for TAM and a different use for T2A. This feature came about as operators were pulling to green with our 1100 series tools. The 1100 series would turn green when minimum torque was met and the torque results all tended to be to the low side of the specification. With the 1200 and 1250 series of tools it is now possible to program the green indicator to obtain results that are more near the center of the specification.
Torque Angle Threshold pictured on the screen as “TTAM” is also referred to as “Snug” Torque.

This is a torque value that triggers the start of angle measurement. If a value is not programmed then angle will automatically start to be monitored by the wrench at approximately 4% of the tool’s torque capacity.

NOTE
ISO 5393 identifies joint rates as High (hard) or Low (soft) using 10% of the target torque to begin measuring angle. As an example, a target torque of 100 Nm begins to measure angle at 10 Nm, if the angular displacement is less than 30º when 100 Nm is reached it is considered a High joint rate. A Low joint uses the same methodology angle would start to be measured at 10 Nm but the target torque of 100 Nm would be reached after 720º of angular displacement.

Torque to Angle programming (T2A)

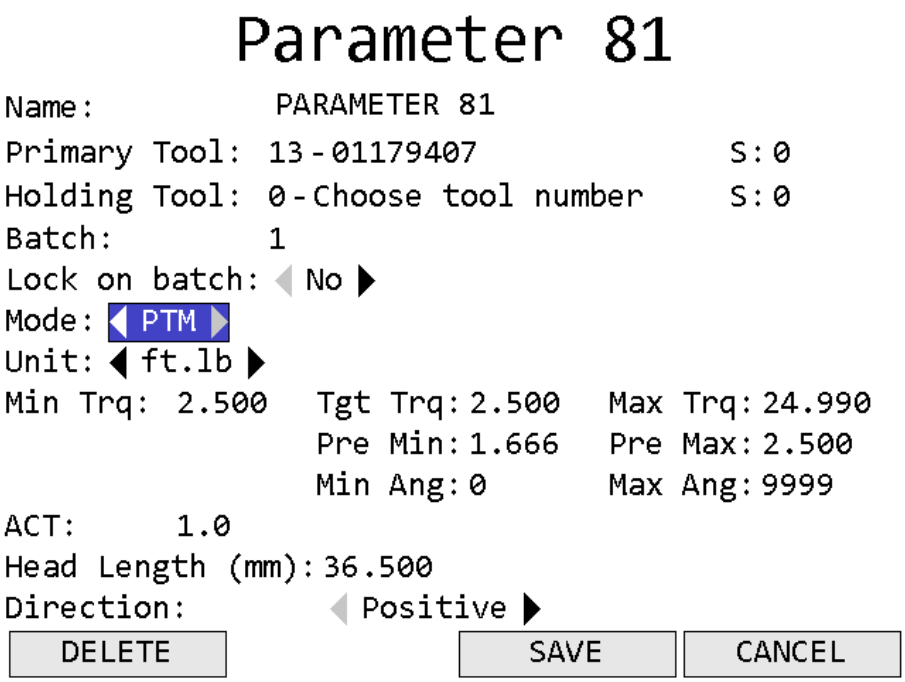


This is the screen for programming a T2A parameter. The one misleading value here is Target Torque. The green lights on the tool automatically turn on when the minimum angle specification is reached. The Target Torque must have a value set more than zero for the G 400 to accept this as a valid parameter. Notice in this case we chose the minimum torque specification.

Prevailing Torque Mode (PTM)
A prevailing torque nut is designed to resist loosening due to vibration. It typically has a nylon insert or distorted threads, both of which require a fairly constant "prevailing torque" to overcome friction while tightening. To sustain a specified torque on its own, a nut must be over-torqued by the prevailing torque amount.

Prevailing Torque Mode measures the prevailing torque during the last full rotation of run-down, then adds this torque on the fly to the specified minimum, maximum, and target torque. A tightening is successful if its peak torque falls in the range between minimum plus prevailing torque and maximum plus prevailing torque. (During tightening, the total torque is displayed on the wrench. On completion, during the auto-clear timeout, the total torque minus the prevailing torque is displayed.)

Refer to the Global 400 manual for additional details on the settings for this mode. The following image is a screen capture from the PTM programming screen on the Global 400.



Calibration
Prior to calibration the radio on the wrench must be turned off.

There are two ways to release the tool radio from the Global 400.

Option 1 (preferred): Using the Global 400/400mp: in the programming menu go to tools, select the tool to be tested by pressing the 'EDIT' button. The page display changes and you need to press the "CALIBRATE" button. This turns the radio off and allows you to check the tool and if need be, calibrate it.

Option 2: If the Global 400 is unavailable, unscrew the 2 screws on the back of the 1250 Series Exacta 2, remove the plate, and physically disconnect the radio.

Once the radio is off, the tool must be connected to a computer using the serial port on the tool.

The calibration process for the **Exacta® 2** tools has three sub-processes. The first is testing the tool to find the "as found" condition. If the tool is out of calibration, then two subsequent processes are performed; calibration adjustment to bring the tool into calibration, and subsequent repetition of tool testing to assure that the adjustments were effective and the results are valid. This process addresses only the adjustment, not pre- and post-adjustment testing.

We strongly recommend that when performing the calibration process a torque tester of not less than 0.25% Indicated Value Accuracy be used, and that it be used in conjunction with a mechanical loader to obtain proper loading of the tool. We have designed these tools to be as hand-position insensitive as we can within other constraints, but the use of a mechanical loader is still recommended. The load applied during testing must be at the loading point on the grip indicated by the plain ring at the middle of the grip.

When calibrating and testing one of the tools having the SR dovetail that the calibration be performed with the same Common Centerline Head Length (CCL) as the head length used in the original calibration. (see the Interchangeable Heads section of these instructions.) When changing the CCL the wrench has internal formula that compensates for that change when that change is entered into the tool by the Global 400 or Global 400mp.

We strongly recommend that the tool be temperature stabilized before testing, and that a fully charged battery cartridge be used during the procedure to assure that the tool does not suffer a loss of battery power during the process.

This section of this document presents the information required to adjust the tool when it is found to be out of tolerance.

Needed items (in addition to tester and loader):

- A computer with a serial port and a terminal emulation software program or a serial to USB conversion cable.
- The serial cable supplied with the torque wrench.

Setup for Adjustment

1. Ensure the computer is operating and is turned on.

2. Connect the serial cable or USB conversion to a port on the computer.

3. Connect the single-pin connector on the cable to the serial port on the tool.

4. Start the Terminal emulation software. (HyperTerminal and Tera Term are two examples.) Terminal emulation software will be referred to as Terminal or Terminal Program in the remaining portion of this document.

5. Set the communication protocols within Terminal to the following settings:
   Baud Rate = 19200 baud (tool default baud rate at startup)
   Data bits = 8
   Stop bit = 1
   Parity = None
   Flow Control = none
   Echo = On

6. Ensure that there is no torque load on the tool. Communication with the computer will be established.

1. Type the diagnostic “D” Command into the terminal and press <enter>. The Terminal program will display “01 = DiaOn”. You are now in diagnostic mode.
2. Type the M <enter>. The terminal program will display “Set Capacity via keypad.” The capacity of the tool should be seen on the tool display. If the capacity on the tool does is not correct, use the UP or DOWN arrow to change the value.
3. To enter the Calibration process, press the ‘Select‘ button on the tool keypad. The terminal program will display the calibration head length.
4. The units of measure can be changed by issuing one of the following commands:
   - U1<enter> for IN.LB
   - U2<enter> for FT.LB
   - U3<enter> for cNm
   - U5<enter> for Nm
5. Disconnect the serial cable from the wrench.

Calibration Procedure Overview

Note: Be sure to pull the wrench at least three (3) times in a clockwise direction prior to calibration. This ensures the wrench is exercised and ready to be tested. Calibration points are established and saved for each calibration point. Once clockwise calibration has been completed, be sure to pull the wrench three times in the counterclockwise direction prior to calibration.

The calibration procedure starts at 0. Once that is established the process moves to 100% of tool capacity and progresses down the scale. The clockwise (CW) direction is calibrated first and then the counterclockwise direction is calibrated.

The DOWN arrow (v) saves each calibration point.
The UP arrow (^) advances the wrench to the next calibration (cal) point.

Calibration Procedure Keypad Functions

- Clear button – Restarts calibration process at Cal point CW 0.
- Down Arrow – Captures the calibration point value.
- UP Arrow moves the wrench to the next cal point.
- The first cal point is 0%.
- The up Arrow advances the tool to next cal point and always moves down the tool capacity scale from the full tool capacity.
- Select button – Not used during this process. (If you hit the Select button in error during the calibration process the program will exit the calibration process and the wrench will revert to operating mode. If this happens, the calibration process must start again from the beginning.)

Tool Display Note

- At this point the tool LCD display should be displaying “0” in the lower right corner.

- The tool display will use both the main display and the lower right-hand segment to show key information needed during these processes.

Calibration Adjustment Procedure:

1. Install drive square on torque tester. Place wrench onto torque tester. Apply three 100% CW FSloads to ExS1250 wrench. See –the Accuracy Tolerance Tables By Capacity of this document for correct loads.

2. Remove the torque load from wrench. Remove wrench from tester, and hold tool (by grip – not transducer) in vertical position. Press DOWN arrow key to save the zero setting. Replace wrench on tester.

3. Press the Up arrow key until 100 appears in the lower right corner of the LCD display. Apply 100% CW FS load to the unit. When exactly 100% CW FS torque is applied, press the DOWN arrow key to save the calibration point. Unload the tool.

4. Press the Up arrow key until 90 appears in the lower right corner of the LCD display. Apply 90% CW FS load to the unit. When exactly 90% CW FS torque is applied, press the DOWN arrow key. Unload the tool.

5. Press the Up arrow key until 80 appears in the lower right corner of the LCD display. Apply 80% CW FS load to the unit. When exactly 80% CW FS torque is applied, press the DOWN arrow key. Unload the tool.

6. Press the Up arrow key until 70 appears in the lower right corner of the LCD display. Apply 70% CW

FS load to the unit. When exactly 70% CW FS torque is applied, press the DOWN arrow key. Unload the tool.

7. Press the Up arrow key until 60 appears in the lower right corner of the LCD display. Apply 60% CW FS load to the unit. When exactly 60% CW FS torque is applied, press the DOWN arrow key. Unload the tool.

8. Press the Up arrow key until 50 appears in the lower right corner of the LCD display. Apply 50% CW FS load to the unit. When exactly 50% CW FS torque is applied, press the DOWN arrow key. Unload the tool.

9. Press the Up arrow key until 40 appears in the lower right corner of the LCD display. Apply 40% CW FS load to the unit. When exactly 40% CW FS torque is applied, press the DOWN arrow key. Unload the tool.

10. Press the Up arrow key until 30 appears in the lower right corner of the LCD display. Apply 30% CW FS load to the unit. When exactly 30% CW FS torque is applied, press the DOWN arrow key. Unload the tool.

11. Press the Up arrow key until 20 appears in the lower right corner of the LCD display. Apply 20% CW FS load to the unit. When exactly 20% CW FS torque is applied, press the DOWN arrow key. Unload the tool.
12. Press the Up arrow key until 10 appears in the lower right corner of the LCD display. Apply 10% CW FS load to the unit. When exactly 10% CW FS torque is applied, press the DOWN arrow key. Unload the tool.

13. **Apply 3 full-scale loads to the wrench in the CCW direction.**

14. Remove the torque load from wrench. Remove wrench from tester, and hold tool by the grip in vertical position. Press the Up arrow key until - 0 appears in the lower right corner of the LCD display. With no torque applied, press the DOWN arrow key. Replace wrench on tester.

15. Press the Up arrow key until -100 appears in the lower right corner of the LCD display. Apply 100% CCW FS load to the unit. When exactly 100% CCW FS torque is applied, press the DOWN arrow key. Unload the tool.

16. Press the Up arrow key until - 90 appears in the lower right corner of the LCD display. Apply 90% CCW FS load to the unit. When exactly 90% CCW FS torque is applied, press the DOWN arrow key. Unload the tool.

17. Press the Up arrow key until - 80 appears in the lower right corner of the LCD display. Apply 80% CCW FS load to the unit. When exactly 80% CCW FS torque is applied, press the DOWN arrow key. Unload the tool.

18. Press the Up arrow key until - 70 appears in the lower right corner of the LCD display. Apply 70% CCW FS load to the unit. When exactly 70% CCW FS torque is applied, press the DOWN arrow key. Unload the tool.

19. Press the Up arrow key until - 60 appears in the lower right corner of the LCD display. Apply 60% CCW FS load to the unit. When exactly 60% CCW FS torque is applied, press the DOWN arrow key. Unload the tool.

20. Press the Up arrow key until - 50 appears in the lower right corner of the LCD display. Apply 50% CCW

FS load to the unit. When exactly 50% CCW FS torque is applied, press the DOWN arrow key. Unload the tool.

21. Press the Up arrow key until - 40 appears in the lower right corner of the LCD display. Apply 40% CCW FS load to the unit. When exactly 40% CCW FS torque is applied, press the DOWN arrow key. Unload the tool.

22. Press the Up arrow key until - 30 appears in the lower right corner of the LCD display. Apply 30% CCW FS load to the unit. When exactly 30% CCW FS torque is applied, press the DOWN arrow key. Unload the tool.

23. Press the Up arrow key until - 20 appears in the lower right corner of the LCD display. Apply 20% CCW FS load to the unit. When exactly 20% CCW FS torque is applied, press the DOWN arrow key. Unload the tool.

24. Press the Up arrow key until - 10 appears in the lower right corner of the LCD display. Apply 10% CCW FS load to the unit. When exactly 10% CCW FS torque is applied, press the DOWN arrow key. Unload the tool. Remove the torque from the wrench.

25. Press the Up arrow key until ”-dAtE” appears on the LCD. Press the DOWN arrow key to save the calibration date.

26. Press the SELECT key. This takes the tool out of calibration mode and places it in Track mode. Apply torque with the wrench while still on the tester to validate accuracy. Torque values typically used are 20%/60%/100% of wrench capacity.

27. If the tool is accurate to within +/-1% Indicated Value the wrench may be returned to production.

28. If the tool is not accurate within +/-1% Indicated Value, the calibration process may not have been accurately done. Please recalibrate the tool.

29. A wrench that has been taken to over 120% of capacity may not accurately calibrate. At this point the wrench should be returned to the factory for repair. Contact your distributor or Sturtevant Richmont customer service at customerservice@srtorque.com.

30. Turn off the tool. When the tool is turned on in the vicinity of the Global 400, the radio reconnects and the tool is ready to work.

Accuracy Tolerance Tables By Capacity

25 foot-pounds

Capacity in Ft.Lb	% FS	Torque Value in In.Lb	+ Tol.	-Tol.
25	10	30	30.3	29.7
	20	60	60.6	59.4
	30	90	90.9	89.1
	40	120	121.2	118.8
	50	150	151.5	148.5
	60	180	181.8	178.2
	70	210	212.1	207.9
	80	240	242.4	237.6
	90	270	272.7	267.3
	100	300	303	297

75 foot-pounds

Capacity in Ft.Lb	% FS	Torque Value in In.Lb	+ Tol.	-Tol.
75	10	90	90.9	89.1
	20	180	181.8	178.2
	30	270	272.7	267.3
	40	360	363.6	356.4
	50	450	454.5	445.5
	60	540	545.4	534.6
	70	630	636.3	623.7
	80	720	727.2	712.8
	90	810	818.1	801.9
	100	900	909	891

150 foot-pounds

Capacity in Ft.Lb	% FS	Torque Value in In.Lb	+ Tol.	-Tol.
150	10	180	181.8	178.2
	20	360	363.6	356.4
	30	540	545.4	534.6
	40	720	727.2	712.8
	50	900	909	891
	60	1080	1090.8	1069.2
	70	1260	1272.6	1247.4
	80	1440	1454.4	1425.6
	90	1620	1636.2	1603.8
	100	1800	1818	1782

250 foot-pounds

Capacity in Ft.Lb	% FS	Torque Value in In.Lb	+ Tol.	-Tol.
250	10	300	303	297
	20	600	606	594
	30	900	909	891
	40	1250	1212	1188
	50	1500	1515	1485
	60	1800	1818	1782
	70	2100	2121	2079
	80	2400	2424	2376
	90	2700	2727	2673
	100	3000	3030	2970

400 foot-pounds

Capacity in Ft.Lb	% FS	Torque Value in In.Lb	+ Tol.	-Tol.
400	10	480	484.8	475.2
	20	960	969.6	950.4
	30	1440	1454.4	1425.6
	40	1920	1939.2	1900.8
	50	2400	2424	2376
	60	2880	2908.8	2851.2
	70	3360	3393.6	3326.4
	80	3840	3878.4	3801.6
	90	4320	4363.2	4276.8
	100	4800	4848	4752

600 foot-pounds

Capacity in Ft.Lb	% FS	Torque Value in In.Lb	+ Tol.	-Tol.
600	10	720	727.2	712.8
	20	1440	1454.4	1425.6
	30	2160	2181.6	2138.4
	40	2880	2908.8	2851.2
	50	3600	3636	3564
	60	4320	4363.2	4276.8
	70	5040	5090.4	4989.6
	80	5760	5817.6	5702.4
	90	6480	6544.8	6415.2
	100	7200	7272	7128

Factory Service, Parts and Calibration
Factory service, parts, and calibration in our ISO/IEC 17025 Accredited Calibration Laboratory are readily available. Simply contact your SR Distributor, or contact us at +1-847-455-8677. Email us at Customerservice@srtorque.com.

Other Serial Communications Commands and Communications
The serial communications system used by these tools permits flexibility in terms of tool operation control, data transfer and tool operation

Some of the functions covered in this section are only available via the use of Terminal or similar terminal software.

All commands incoming from the tool end in a carriage return and a line feed. All commands going out to the tool must end with a carriage return. In this section, the carriage return keystroke will be represented by “<cr>”.

Available Tool Baud Rates and Considerations
Sturtevant Richmont 1250 Series Exacta 2 wrenches communicate at a baud rate of 19200. The Global 400 and 400mp baud rate is also 19200. Changing the baud rate on the wrench prevents that 1250 Series Exacta 2 digital torque wrench from communication with the Global 400 or 400mp.

Clear Current Tool Data (Partial)
This command uses “CL” followed by <cr> to clear the data records stored on the tool up to the current record number.

Clear Current Tool Data (All)
This command uses “CLA” followed by <cr> to clear all the data records stored on the tool.

Frequently Asked Questions

The display turned red and showed "OL". What happened?
The tool is designed to be used within its rated capacity, and one of the calibration points for the tool is the 100% of capacity point. The tool is not designed to be used above this point.

At 120% of capacity we use the LED and show "OL" on the display to tell the user that the rated capacity has been exceeded and that the tool is in danger of being damaged. Even a single use above this level can cause the tool to become less accurate, and repeated use at this level increases the probability of accuracy degradation and expensive damage to the tool.

At 120% of rated tool capacity there is a high probability of damage to the sensor, including damage of a level that necessitates replacement.

We **strongly** recommend that the tool **NEVER** be used beyond its rated capacity. If the tool is inadvertently overloaded it be immediately removed from service and the calibration checked.

During the starting routine, I saw "CAL" and 0 (or -0) appear on the display. What does this mean?
During the starting routine, the tool checks the calibration table against the output from the sensor. This message appears if the two are not in agreement. Most frequently this is a response to an overload of the sensor (and tool) to the point where the sensor has suffered a deformation.

If this occurs the tool should not be used. Have the tool calibrated, and repaired if necessary, before use.

When using the tool with a process monitor, I got "rAd" and "BAD" on the display. What happened?
For one reason or another (power loss to process monitor, brownout, interference, etc.) the tool and process monitor with which it is associated have lost radio communication with each other. The tool attempted repeatedly to send the information with no success and is now notifying you ofthis.

You can diagnose and correct the problem: it may be as simple as restoring power to the box, or something more complex such as determining a new source of radio interference that has appeared. If the radio interference cannot be removed, changing the channel on the Global 400/400mp will be necessary. See the Global 400/400mp owner's manual for directions, or go to our website to watch the video on how to change the channel using the channel noise analyzer.