Sturtevant Richmont
Global Reach. Local Support.

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

SLTC24-FM (2.4GHz) Torque Wrench Operating Instructions

Models to which these instructions apply:

P/N	Description	P/N	Description	P/N	Description
810316	SLTCR-FM 2.4GHz 3000I	810317	SLTC-FM 2.4GHz 3600I	810318	SLTC-FM 2.4GHz 4800I
810319	SLTCR-FM 2.4GHz 7200I				

S/R SLTC-FM 2.4 GHz torque wrenches are designed and manufactured to provide consistent torque application in multiple manufacturing and maintenance applications. They meet or exceed the requirements of ASME B107.300-2010 and ISO 6789. These wrenches are accurate to +/-4% of the preset value from 20% to 100% of rated capacity.

Interchangeable Heads and Dovetail

Any S/R interchangeable head may be used with the wrench. Note: It is imperative that the head used to preset the torque wrench have the same common centerline length as the head that will be used in assembly. Failure to do so will create a different torque output during assembly than that which was preset. To attach the head:

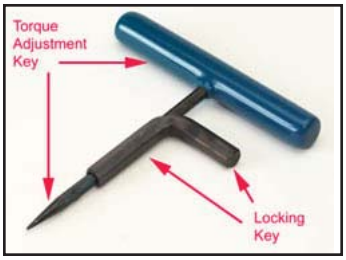
1. Align the head with the dovetail and slide it onto the dovetail until it contacts the retaining pin.
2. Use a small hex key or other device to depress the locking pin.
3. Slide the head completely onto the dovetail.

To remove the interchangeable head:

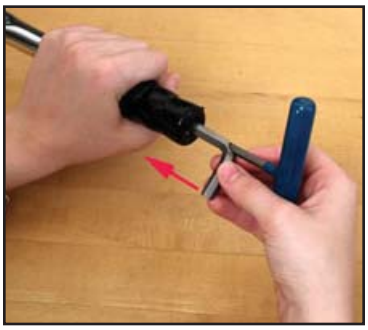
1. Use small hex key or similar device to depress the locking pin through the access hole in the rear of the head.
2. While the pin is depressed, slide the head sideways to hold the pin down and remove the hex key.
3. Slide the head completely off the dovetail.

Torque Setting

A torque tester of +/- 1% indicated value accuracy or better, an S/R CART (Combination Adjusting and Release Tool shown at right), and an interchangeable head having the same common centerline length as the head that will be used in assembly and capable of engaging the tester are required.



1. Remove the protective cap and insert the Torque Adjustment Key fully into the rear of the wrench so the hex engages the adjustment nut. Do not engage the Lock Key. Rotate the Torque Adjustment Key slightly clockwise to disengage the adjustment nut from the lock nut.



2. Slide the Lock Key in until it engages the lock nut. You may need to rotate the lock key slightly to align it with the internal hex of the lock nut. Rotate the Lock Key counterclockwise several turns to assure the lock nut is fully disengaged from the adjustment nut and that there is sufficient travel available for the adjustment nut to attain the torque setting desired.

3. Install the interchangeable head on the wrench. Engage the wrench to the tester and click the wrench once or twice while noting the readings. To adjust the wrench to a higher torque setting, rotate the Torque Adjustment Key clockwise. To adjust the wrench to a lower torque setting, rotate the Torque Adjustment Key counter-clockwise. Torque adjustments should be made in small increments with several checks made between each movement of the Torque Adjustment Key.

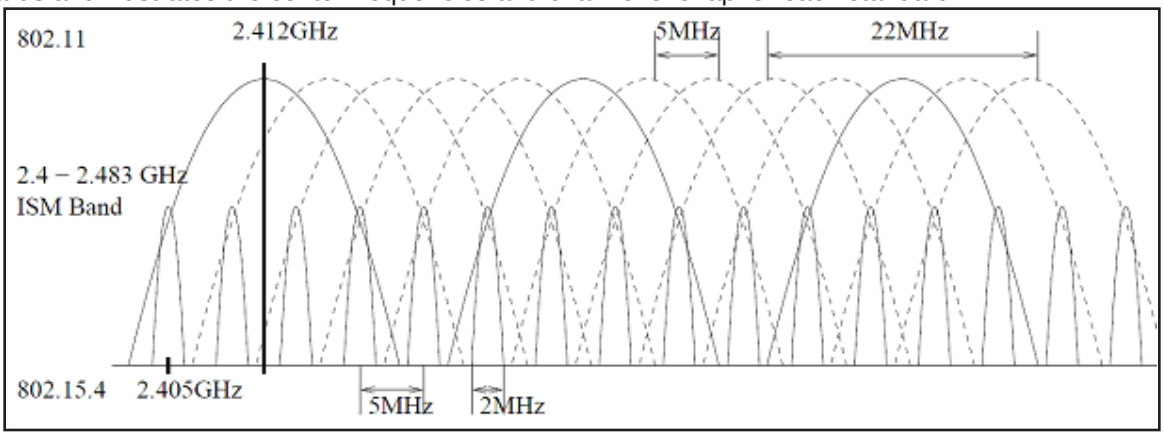
4. Once the desired torque has been attained, hold the Torque Adjustment Key steady and rotate the Lock Key clockwise until the lock nut firmly engages the torque adjustment nut, locking it in place. Remove the CART from the wrench and perform a final torque check on the tester. When the reading matches the desired torque and the lock nut is firmly engaged to the torque adjustment nut, the procedure is complete.

Radio Communications - 2.4 GHz Communication Overview

These tools use the 2.4GHz band for communication with the controller. As with all radio communications, there are limits on the distance at which reliable bi-directional communication may be obtained. Physical barriers such as steel framing, sheet metal and other objects that impede radio waves can significantly reduce the reliable communication distance. Another factor affecting the reliability and distance combination is the radio environment in which the unit will be used.

The controller and torque wrench may operate on any of the 12 channels these products use. It is generally best to think about this even before the unit is installed.

The radio modules in the controllers and torque wrenches used with them comply with the IEEE 802.15.4 standard. The channel numbers loosely match the channels used by the IEEE 802.11b/g WLAN standard. It may be beneficial to use channels that do not match the channels used by a nearby wireless network. The graph below depicts both standards and illustrates the center frequencies and channel overlap for each standard.



Notice that the channels we use leave a much smaller footprint than WLAN. Also notice that one WLAN channel radiates a significant amount of energy onto several of the adjacent WLAN and controller channels.

For the most reliable communication between the S/R controller and the tool in a 802.11b/g LAN environment, it is usually best to choose a channel for the controller and tool that is separated from the channel of the LAN.

Unlike IEEE 802.15.1 (Bluetooth) radios, the our 2.4GHz radio modules do not frequency hop, use less power and have faster response times with less impact on other wireless devices. A wrench only transmits a small packet of data after each torque operation, and each transmission lasts about 30ms (0.03 seconds).

The 2.4GHz radio used by the unit and the tool is certified in the United States (FCC), Canada (IC), and Europe (CE).

Torque wrench output power:	1mw
Controller 2.4GHz output power:	10-60mw
Typical 802.11b/g output power:	100mw

Frequency Map of 802.15.4 vs. 802.11b/g

Channel	Center Frequency (GHz) 802.15.4	802.11b/g
1	2.410	2.412
2	2.415	2.417
3	2.420	2.422
4	2.425	2.427
5	2.430	2.432
6	2.435	2.437
7	2.440	2.442
8	2.445	2.447
9	2.450	2.452
10	2.455	2.457
11	2.460	2.462
12	2.465	

Establishing RF Communication With S/R Controllers

The procedure used to establish RF communication with the SR controllers varies by controller. Regardless of the controller, however, there are two important elements to understand and one procedure that it is useful to know.

The first element is that the system uses the identification number of the transceivers in establishing communications. The transceiver in the controller and the one in the torque wrench each have identification numbers. When communication between the two is first established, the numbers are exchanged and stored in memory. The controller and tool will thereafter ignore communications from other radios until the number stored in memory is replaced with a different identification number.

The second element is that under all conditions the controller and the tool to be used with it must be on the same channel. If the channel on the controller is changed and the channel on the tool is not, they will not communicate or will cease communicating if they have previously been associated with each other.

To remove the identification of the TV unit from the tool memory, click the wrench and hold it in the clicked position until the LED on the wrench flashes. This will take about 5 seconds. Release the pressure on the tool and allow it to return to the normal position.

The flashing of the LED occurs when the memory of which controller the tool was associated with has been erased. The tool is now ready to be associated with another controller.

Note that when the battery has been removed and replaced in the wrench the LED will alternate between emitting red and green light several times very quickly. If the alternating color emission stops and then a red light pulse is emitted, the tool is not associated with a specific controller and can be associated with whatever unit is desired. If the alternating color emission stops and then a green light pulse is emitted, the tool has a specific controller unit identification number in memory and is ready to be used with that unit.

To establish communication with the controller, it is necessary to follow the instructions included with the specific controller to be used. The simpler controllers use one methodology, and those with advanced features in their programs use another.

Battery Installation/Replacement and Circuit Board Replacement

These tools are shipped with the correct battery for proper function included. To access the electronics and battery holder:

1. The electronics housing is the plastic box mounted on top of the wrench just forward of the grip The box may be on the flat or round section of the tube. This housing contains the circuit board and the battery holder.

   To access the compartment, use a #1 Phillips screwdriver to remove the four screws on the top of the battery holder. When this has been done, lift the top half of the electronics housing straight up off of the bottom half to expose the circuit board.

2. The circuit board will be exposed approximately as shown to right; there is some variation from model to model. In some the top of the board will be exposed, in some the bottom when the top section is removed. The same approach given here applies to both. The radio transceiver is triggered by a screw that moves when the tool is cycled. The screw is indicated by the red arrow in the photograph to the right. Note the location of the screw in relationship to the microswitch activation lever; the screw is outside of the space between the lever and the microswitch body. When the circuit board is replaced after removal this relationship must be maintained or the tool will not operate properly.

   Note: We strongly urge that this be the only battery used in these products. Other batteries have different operating characteristics and are highly unlikely to provide satisfactory performance.

3. To replace the battery, carefully lift the circuit board straight up off of the housing. The battery holder is located on the underside of the circuit board. Invert the circuit board and set it down.

4. Insert the battery carefully into the battery holder with the negative polarity end at the spring and the positive polarity end on the solid contact.

5. Inspect the gray insulating paper on which the circuit board sits. It should be in position, and free of tears or damage. If it is damaged it must be replaced before reinstalling the circuit board. Lack of this insulating paper or reduction of it's electical integrity will cause short circuits and damage or destroy the board.

6. Invert the circuit board again so the battery side is facing downwards and replace the circuit board in it's original installed position. Refer the the photograph from Step 2 for correct installed position!

7. Replace the cover and install the four screws. Tighten the screws finger tight.

If it ever becomes necessary to replace the circuit board, us the first two steps of the battery replacement procedure to gain access to the board. Remove the old board and replace with the new. We strongly advise replacing the insulating paper at the same time to assure electrical integrity is maintained.

Operation & LED's

Once the tool has been preset, the appropriate interchangeable head installed and the radio transceiver has been associated with the appropriate controller and specifications exchanged, the tool is ready for use. In normal operation, the tool will emit a strong tactile and sound impulse when it clicks. If the tool is jerked (too little time in the clicked position) the LED on the tool will not illuminate. If the tool has been properly used (force applied, click attained, force released within specified time frame) the LED on the circuit board will illuminate with a green color. This will shine through the cover and be highly visible. If the tool has been pulled past the click (too much time in the clicked position) the LED on the circuit board will illuminate with a red color. Under either of the latter two circumstances, the information will be immediately transmitted to the controller.

SLTCR (Ratcheting) Models

These tools use the S/R slide pin ratchet design to permit the user to reposition the body of the tool in limited-access applications where a socket is used. Even though the ratchet is reversible, the tool only applies measured and controlled torque in the clockwise direction, so thought must be given to the task to be accomplished before the ratchet is reversed and the tool used in the counter-clockwise direction. Exceeding the capacity of the tool in a CCW torque application is likely to damage the tool and is not covered by warranty.

The ratchet should be disassembled and cleaned periodically, then the ratchet spindle teeth lubricated very lightly with a grease containing molybdenum disulfide prior to reassembly. For detailed instructions on ratchet disassembly, cleaning and reassembly, go to the FAQ section of our website.

SAFETY

- ALWAYS wear safety glasses and all other required safety equipment when operating this tool.
- Do NOT exceed the rated capacity of the wrench.
- Do NOT use this wrench for any purpose other than that for which it was designed and manufactured.

Cleaning

This wrench should be cleaned with a soft cloth dampened with water. Do not immerse this tool in liquid or use any solvent other than water to clean the tool.

Presetting, Calibration and Repair

Factory presetting and calibration from our ISO 17025 Accredited Calibration Laboratory are available. Contact your S/R distributor for details. Parts and factory repair are also available. Speak with your S/R distributor to arrange either.

INSTRUCTION TO THE USER

This equipment has been tested and found to comply with the limits for a class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

* Reorient or relocate the receiving antenna.
* Increase the separation between the equipment and receiver.
* Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
* Consult the dealer or an experienced radio/TV technician for help.

This equipment has been certified to comply with the limits for a class B computing device, pursuant to FCC Rules. Operation with non-approved equipment is likely to result in interference to radio and TV reception. The user is cautioned that changes and modifications made to the equipment without the approval of manufacturer could void the user's authority to operate this equipment.

Additional Information

Additional information is available seven days a week from our website, www.srtorque.com. You can also contact us via phone, facsimile or e-mail using the information on the front of this document.

P/N 857258
Revised 2/3/2011