RAD TORQUE SYSTEMS

radtorque.com



USER MANUAL

SMART SOCKET

RAD TORQUE SYSTEMS

RAD PNEUMATIC SERIES



- **PATENTED PLANETARY GEAR REDUCTION**
  Delivers one of the highest power-to-weight ratios of any pneumatic controlled bolting system.
- **SMOOTH CONTINUOUS FLOW OF CONTROLLED TORQUE**
  Eliminates destructive hammering.
- **LIGHTWEIGHT ERGONOMIC PISTOL GRIP DESIGN**
  Reduces operator strain and injury; resulting in increased productivity.
- **UNMATCHED RELIABILITY AND QUALITY**
  Delivered by one of the most advanced engineered gear boxes on the market.

E-RAD® BLU SERIES



- **PUSH-BUTTON SELECT TORQUE**
  Fast and convenient error-free digital single increment torque settings.
- **DIGITAL TORQUE CONSOLE DISPLAY**
  Maximum accuracy by seeing the set torque value and the actual delivered torque value.
- **LIGHTWEIGHT AND ERGONOMIC PISTOL GRIP DESIGN**
  Advanced low-profile handle to reduce operator fatigue and increase productivity.
- **EXTREMELY LOW NOISE LEVEL ONLY 75DB**
  World's quietest extreme torque gun, ideal for sensitive environments and standards.
- **LED GREEN (PASS) OR RED (FAIL) INDICATOR LIGHTS**
  Clear visual signal shows torque status for fast, accurate results.

B-RAD X® SERIES



- **Award-winning cordless technology**
  Proven cordless innovation delivers powerful performance without the need for hoses or external power sources.
- **Torque + Angle functionality**
  Provides greater fastening control for applications that require precise torque and angle specifications.
- **Extended battery runtime**
  High-capacity 18V lithium-ion batteries help keep crews working longer between charges.
- **Patented Planetary Gearbox Technology**
  Engineered for dependable torque delivery, durability, and consistent performance in tough working conditions.

B-RAD® SERIES



- **QUICK ADJUST TORQUE SETTINGS**
  Fast and accurate "dial a torque" for maximum versatility and efficiency.
- **SOFT-START VARY SPEED TRIGGER**
  Allows operator to safely and quickly set reaction arm before full torque is applied.
- **EQUAL POWER IN FORWARD AND REVERSE**
  Convenience and cost effective use of same tool for break away and final torque.
- **IMAGINE THE FREEDOM – NO AIR LINES, NO POWER CORDS!**
  The lightweight design of the B-SERIES makes it ideal for any application, especially where compressed air and electricity are not readily available.
- **ADVANCED GEARBOX DESIGN**
  PATENTED planetary gear reduction drive system delivering one of the highest power-to-weight ratios of any controlled bolting system.

SMART SOCKET™ SERIES



- **MEASURE AND DISPLAY PEAK TORQUE**
  Transducer technology combined with a custom socket measures the actual torque applied to the bolt during a torque cycle.
- **PASS OR FAIL INDICATION**
  Unmistakable digital signal indicates peak torque achieved for maximum accuracy.
- **BLUETOOTH® TECHNOLOGY**
  View and download logs onto your smartphone or tablet.
- **IDEAL ON SITE CALIBRATION TOOLS**
  Comparable in size to a standard socket, it's the perfect tool for inspecting bolted joints and can function as a master calibrator for your torque tools.

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MANUAL REVISION HISTORY

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- Firmware Release 2.27.02

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- Updated Section Organization

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- Updated Section 1.2.1: Model Specifications
- Updated Section 2.1: General Safety Warnings and Guidelines
- Added Section 8.0 Additional Information
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- Updated Section 5.1: PC requirements
- Updated Section 5.7: Exporting Data
- Added caution in Section 5.8: Changing the Bluetooth® Pin
- Added Section 6.1: Tool Details
- Updated Section 7.2: Turning on Bluetooth®: Troubleshooting

RAD Smart Socket – Original Instructions

IMPORTANT SAFETY NOTICE

WARNING!

READ ALL SAFETY WARNINGS AND ALL INSTRUCTIONS. FAILURE TO FOLLOW THE WARNINGS AND INSTRUCTIONS MAY RESULT IN ELECTRIC SHOCK, FIRE, AND/OR SERIOUS INJURY.

NEW WORLD TECHNOLOGIES INCORPORATED IS NOT RESPONSIBLE FOR ANY SUCH INJURY.

SAVE ALL WARNINGS AND INSTRUCTIONS FOR FUTURE REFERENCE.

GENERAL POWER TOOL SAFETY WARNINGS

The term “power tool” in the warnings refers to your battery-operated (cordless) power tool.

The Smart Socket Tool should be inspected before each use.

1. Work Area Safety

a. **Keep work area clean and well lit.** Cluttered and dark areas invite accidents.
b. **Do not operate power tools in explosive atmospheres, such as environments with the presence of flammable liquids, gases, or dust.** Power tools create sparks which may ignite the dust or fumes.
c. **Keep children and bystanders away while operating the power tool.** Distractions can cause you to lose control.

2. Electrical Safety

a. **Power tool plugs must match the outlet. Never modify the plug in any way. Do not use any adapter plugs with earthed (grounded) power tools.** Unmodified plugs and matching outlets will reduce the risk of electric shock.
b. **Avoid body contact with earthed or grounded surfaces such as pipes, radiators, ranges, or refrigerators.** There is an increased risk of electric shock if your body is earthed or grounded.
c. **Do not expose power tools to rain or wet conditions.** Water entering a power tool will increase the risk of electric shock.
d. **Do not abuse the cord. Never use the cord to carry, pull, or unplug the power tool. Keep cord away from heat, oil, sharp edges, and moving parts.** Damaged or entangled cords increase the risk of electric shock.
e. **When operating a power tool outdoors, use an extension cord suitable for outdoor use.** Use of a cord suitable for outdoor use reduces the risk of electric shock.
f. **If operating a power tool in a damp location is unavoidable, use a Ground Fault Circuit Interrupter (GFCI) protected supply.** Use of a GFCI reduces the risk of electric shock.
NOTE: A "Ground Fault Circuit Interrupter (GFCI)" is also known as a "RESIDUAL CURRENT DEVICE (RCD)" or "earth leakage circuit breaker (ELCB)"

3. Personal Safety

a. **Stay alert, watch what you are doing, and use common sense when operating a power tool. Do not use a power tool while you are tired or under the influence of drugs, alcohol, or medication.** A moment of inattention while operating power tools may result in serious personal injury.
b. **Use personal protective equipment and always wear eye protection.** Protective equipment such as a dust mask, non-skid safety shoes, hard hat, and hearing protection used in appropriate conditions will reduce personal injuries.
c. **Prevent unintentional starting by ensuring the switch is in the off position before connecting to a power source and/or BATTERY pack, picking up, or carrying the tool.** Carrying power tools with your finger on the switch or energizing power tools that have the switch on invites accidents.
d. **Remove any adjusting key or wrench before turning the power tool on.** A wrench or a key left attached to a rotating part of the power tool may result in personal injury.

e. **Do not overreach. Keep proper footing and balance at all times.** This enables better control of the power tool in unexpected situations.
f. **Dress properly. Do not wear loose clothing or jewellery. Keep your hair, clothing, and gloves away from moving parts.** Loose clothes, jewellery or long hair can be caught in moving parts.
g. **If devices are provided for the connection of dust extraction and collection facilities, ensure these are connected and properly used.** Use of dust collection can reduce dust-related hazards.
h. **Do not let familiarity gained from frequent use of tools allow you to become complacent and ignore tool safety principles**. A careless action can cause severe injury within a fraction of a second.
i. **Keep all body parts clear of moving parts and the reaction contact point.** Careless placement can cause severe injury within a fraction of a second.

4. Power Tool Use and Care

a. **Do not force the power tool. Use the correct power tool for your application.** The correct power tool will do the job better and safer at the rate for which it was designed.
b. **Do not use the power tool if the switch does not turn it on and off.** A power tool that cannot be controlled with the switch is dangerous and must be repaired.
c. **Disconnect the power source and/or the BATTERY pack from the power tool before making any adjustments, changing accessories or storing power tools.** Such preventive measures reduce the risk of starting the power tool accidentally.
d. **Store idle power tools out of the reach of children and do not allow persons unfamiliar with the power tool or these instructions to operate the power tool.** Power tools are dangerous in the hands of untrained users.
e. **Maintain power tools and accessories. Check for misalignment or binding of moving parts, breakage of parts, and any other condition that may affect the power tool's operation. If damaged, have the power tool repaired before use.** Many accidents are caused by poorly maintained power tools.
f. **Keep cutting tools sharp and clean.** Properly maintained cutting tools with sharp cutting edges are less likely to bind and are easier to control.
g. **Use the power tool, accessories, and tool bits etc. in accordance with these instructions, taking into account the working conditions and the work to be performed.** Use of the power tool for operations different from those intended could result in a hazardous situation.
h. **Keep handles and grasping surfaces dry, clean, and free from oil and grease.** Slippery handles and grasping surfaces do not allow for safe handling and control of the tool in unexpected situations.

5. BATTERY tool use and care

a. **Recharge only with the charger specified by the manufacturer.** A charger that is suitable for one type of BATTERY pack may create a risk of fire when used with another BATTERY pack.
b. **Use power tools only with specifically designated BATTERY packs.** Use of any other BATTERY packs may create a risk of injury and fire.
c. **When BATTERY pack is not in use, keep it away from other metal objects, like paper clips, coins, keys, nails, screws, or other small metal objects that can make a connection from one terminal to another.** Shorting the BATTERY terminals together may cause burns or a fire.
d. **Under abusive conditions, liquid may be ejected from the BATTERY; avoid contact. If contact accidentally occurs, flush with water. If liquid contacts eyes, additionally seek medical help.** Liquid ejected from the BATTERY may cause irritation or burns.
e. **Do not use a BATTERY pack or tool that is damaged or modified.** Damaged or modified batteries may show unpredictable behaviour resulting in fire, EXPLOSION, or risk of injury.
f. **Do not expose a BATTERY pack or tool to fire or excessive temperature.** Exposure to fire or temperature above 130 °C (265 °F) may cause explosion.
g. **Follow all charging instructions and do not charge the BATTERY pack or tool outside the temperature range specified in the instructions.** Charging improperly or at temperatures outside the specified range may damage the BATTERY and increase the risk of fire.

6. Service

a.**Have your power tool serviced by a qualified repair person using only identical replacement parts.** This will ensure that the safety of the power tool is maintained.

b. **Never service damaged BATTERY packs.** Service of BATTERY packs should only be performed by the manufacturer or authorized service providers.

Battery Pack Safety Warnings

Do not operate the tool or charge the battery before reading the safety instructions and warnings detailed in this manual. If breakdown, malfunction, or damage occurs, DO NOT attempt to repair; contact New World Technologies Inc. or your RAD distributor immediately.

Lithium Polymer (LiPo) batteries are volatile. Failure to read and follow these instructions may result in fire, personal injury, and/or damage to property if the battery is charged or used improperly.

To prevent ignition of a hazardous atmosphere, batteries must only be changed in an area known to be nonhazardous.

New World Technologies Inc, its distributors, and retailers assume no liability for failures in compliance with these warnings and safety guidelines.

By purchasing this tool system and battery, the buyer assumes all risks associated with this product. If you do not agree with these conditions, please do not use the tool and return the tool and accessories immediately.

Symbol Identification

These are symbols that can be found on the tool or in this manual and information about them.

	ISO-7010-M002	Refer to instruction manual/booklet. Used to signify that the instruction manual/booklet must be read.
	ISO-7000-0434A	To indicate that caution is necessary when operating the device or control close to where the symbol is placed. To indicate that the current situation needs operator awareness or operator action in order to avoid undesirable consequences.

1.0 GENERAL INFORMATION

1.1 Receiving and Inspection

The Smart Socket System is shipped with the following:

- Smart Socket (includes internal rechargeable LiPo battery)
- Socket retaining pin
- Socket retaining pin O-ring (or set screw for smaller Smart Sockets)
- USB charging/data cable
- USB charger
- Factory calibration certificate
- User manual



Figure 1.1-1: Smart Socket



Figure 1.1-2: Retaining Pin and Ring



Figure 1.1-3: USB Cable

Upon receiving the Smart Socket System, please check the following:

1. Check the shipping packaging condition and immediately report any damage to the carrier that delivered the Smart Socket System.
2. Remove the Smart Socket and accessories from the shipping packaging and ensure all the items listed above are in the package
3. Verify the Smart Socket model received is the same as specified by the purchase order.
4. If the Smart Socket is to be stored prior to use, ensure that it is stored in a location that conforms to the storage temperature and humidity specifications outlined in Section 1.2 - Specifications.

1.2 Specifications

Please ensure that all specifications are observed when storing or using the Smart Socket.

1.2.1 Model Specifications

Model	**Torque Range** (Foot-Pounds)	**Torque Range** (Newton-Metres)
SMART SOCKET™ 1500/2000-M	150 – 1500	203 – 2034
SMART SOCKET™ 3400/4600-M	340 – 3400	461 – 4624
SMART SOCKET™ 8000/10800-M	800 – 8000	1085 – 10846
SMART SOCKET™ 12000/16200-M	1200 – 12000	1627 – 16200
SMART SOCKET™ 18000/24000-M	1800 – 18000	2440 – 24400

Table 1.2.1: Model Specifications

1.2.2 Charging Specifications

	Units	240 mAh Battery	480 mAh Battery
Charge Time	Hours	Approx. 1	Approx. 2
Storage Time (Must be fully charged)	Months	3-4	3-4

Table 1.2.2: Charging Specifications

1.2.3 Environmental Specifications

All environmental specifications must be observed before the Smart Socket is used.

All Models		
	°C	**°F**
Ambient Operating Temperature Range		
Optimum Battery Life	5 to 35	41 to 95
Maximum Operating Range	-10 to 50	14 to 122
Ambient Charging Temperature Range		
Temperature at Charging	5 to 35	41 to 95
Storage Temperature Range		
Optimum Battery Life	-20 to 45	-4 to 113
Storage More than 3 Months	0 to 30	32 to 86
Humidity	10% to 90% non-condensing	

Table 1.2.3: Environmental Specifications

2.0 BATTERY USAGE AND CHARGING

WARNING!

Do not operate the tool or charge the batteries before reading the safety instructions and warnings detailed in this manual.

If breakdown, malfunction or damage occurs, DO NOT attempt to repair; contact New World Technologies Inc. or your local RAD distributor immediately.

This section provides instructions for safe usage and charging of the Smart Socket internal Lithium Polymer (LiPo) battery.

The Smart Socket is assembled, calibrated, and shipped with a rechargeable Lithium Polymer (LiPo) battery.

The Smart Socket battery may not be fully charged when it is received; the battery may be approximately 50% charged.

2.1 General Safety Warnings and Guidelines

The charge port lid, if applicable, must be closed unless the tool is being charged.

Avoid directly touching the charging port whenever possible.

Lithium Polymer (LiPo) batteries are volatile. Failure to read and follow these instructions may result in fire, personal injury, and/or damage to property if charged or used improperly.

Use only the New World Technologies Inc. supplied USB charger. Do not use any other Lithium Polymer, NiCd, or NiMh charger. Failure to comply may cause overheating or fire, which may result in personal injury and/or property damage.

Never charge the tool unattended. When LiPo batteries are charging they should be monitored for any risks or problems that may occur.

Charge in an isolated area away from flammable materials.

Let the Smart Socket and battery regulate to the recommended ambient temperature before charging.

If there is any sign of damage to the Smart Socket, charger, or charging cable, do not attempt to charge the tool/battery. Unplug the charger immediately.

If there is any sign of damage to the battery pack, or the battery pack is leaking, do not attempt to charge or make direct contact. If battery fluid comes into direct contact with skin or eyes, flush immediately with clean water and contact a physician.

2.2 Battery Charging and Storage

Battery life and charge capacity will be greatly extended by observing the optimal operating, charging, and storage temperature ranges stated in Section 1.2 - Specifications.

To charge the battery, plug the supplied USB charging/data cable into the Smart Socket's micro-USB port and a computer or the supplied USB wall charger.

Depending on age, ambient operating conditions, and care, a fully charged battery should have a stand-by life of 1-2 weeks.

Depending on the above-mentioned factors, a fully charged battery should have an operation life of several thousand bolts.

2.3 Battery Removal and Replacement

If all tool and battery guidelines are followed, the battery life should exceed the normal re-calibration interval of the tool. If the battery life seems exceedingly low or has deteriorated over time, it may be replaced by New World Technologies Inc. or an authorized service center and may only be replaced with a New World Technologies Inc. approved battery.

The battery should not be changed at any time without the approval of New World Technologies Inc.

3.0 SMART SOCKET ASSEMBLY

The Smart Socket is a battery powered strain gauged socket for precision torque monitoring of fastening operations.

The Smart Socket assembly is comprised of the following (refer to Figure 3-1):

1. Socket hex drive – Engages application fastener.
2. Socket square drive – Receives customer-supplied tool's square drive.
3. Socket retaining pin hole/retaining O-ring groove – Used with the supplied retaining pin and O-ring or set screw to retain the socket to the user-supplied tool's square drive.
4. LCD screen – Displays battery charge, mode, status, and measured torque.
5. Keypad – For wake-up and option selection.
6. Charging port – Used with supplied USB charger cable to connect the Smart Socket to a PC or wall outlet to charge the internal Lithium Polymer battery.
7. "**Reset**" button – Located on the back of the Smart Socket, the "**Reset**" button can be used to reset the Smart Socket. It can be pressed with a 1.5 metric allen key or an object of similar size.



Figure 3-1: Smart Socket Assembly

3.1 LCD Screen

The Smart Socket displays the most important information on the LCD screen. Once the Smart Socket is turned on, the Main Screen may appear as below:

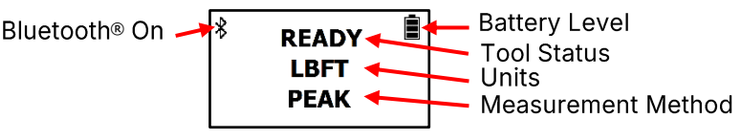


Figure 3.1-1: Screen Display

Once the display shows "READY," the Smart Socket is ready to record torque values. The peak or tracking torque will be displayed on the LCD screen (see Section 4.3 – Measurement Method).

4.0 GENERAL OPERATION

WARNING!

Read, understand, and follow all safety instructions, warnings, and cautions provided in the user manual.

CAUTION!

The LCD screen is protected by a clear plastic cover; however, the display is susceptible to mechanical shock which may result in damage and failure. Handle the Smart Socket with care to protect it from impact.

The performance of the display may degrade when the temperature and humidity are outside of the specified ranges (see Section 1.2 – Specifications); avoid such conditions during use and storage.

The Smart Socket must be properly selected to fit both the mating torque tool square drive and the application fastener, without exceeding the maximum torque rating of the model. Refer to Section 1.2.1 – Model Specifications for the models and torque ranges.

The Smart Socket provides a simple display and three-button keypad for measuring torque operations and changing settings.

4.1 Preparing for Use

To begin using the Smart Socket for bolting operations:

1. If the Smart Socket is in Sleep Mode, wake the device as detailed in Section 4.2 – Sleep/Wake.
2. Check that the battery is sufficiently charged; if not, charge the device (see Section 2.0 – Battery Usage and Charging).
3. Prior to first use, configure the device (see Section 6.0 – Pre-Deployment Configuration).
4. Set the measurement method. Refer to Section 4.3 – Measurement Method for more information.
5. Install the Smart Socket on the torque tool as recommended by the tool manufacturer and New World Technologies Inc. Refer to Section 4.4 – Installation.
6. When the Smart Socket screen reads “READY,” the tool is ready to operate.

4.2 Sleep/Wake

To conserve battery power, the Smart Socket will go to sleep after 10 minutes of inactivity. This time can be changed (refer to Section 6.2.4 – Tool Uptime).

Note: While the device is in Sleep Mode, the screen is blank.

To wake the Smart Socket from sleep:

1. Press the keypad “**Centre**” button.
2. When the display reads “Unload,” ensure that there is no torque or loading force applied to the Smart Socket, then press the “**Centre**” button.
3. The display should read “READY” and show the selected torque units and the measurement method.
4. If the LCD display does not turn on when the “**Centre**” button is pressed, check that the battery has been charged. (Refer to Section 2.0 – Battery Usage and Charging).
5. If the display reads “Charge Required,” plug in the Smart Socket to charge the battery.
6. If the Smart Socket still does not turn on, refer to Section 7.0 – Troubleshooting.

4.3 Measurement Method

The measurement method set in the Smart Socket will determine what values are displayed during or after a torque cycle. The possible measurement methods are Peak Mode or Track Mode. Both are described in detail below.

To select the desired measurement method:

1. Press the "**Right Arrow**" button on the Smart Socket to cycle through the menu options.
2. When the desired measurement method is displayed, press the "**Centre**" button.

Peak Mode: The Smart Socket will record the maximum torque of a torque cycle. The LCD will display the peak torque for 1 minute or until another torque cycle is started.

Note: The tool may need to reverse slightly before the peak torque is displayed.



Figure 4.3-1: Peak Mode

Track Mode: The Smart Socket will constantly track and display the real-time torque on the LCD. Press the "**Centre**" button when the above display is shown to begin real-time tracking.



Figure 4.3-2: Track Mode

Pressing the "**Centre**" button during tracking will hold and display the current torque for 1 minute. To stop tracking and return to the Main Screen, press and hold the "**Centre**" button for 5 seconds.

Note: The held torque is an instantaneous value and does not represent the peak torque.

Note: Track Mode does not record individual cycles, but any torque value that is "held" will be recorded as a cycle.

4.4 Installation

WARNING!

Improper installation or use of the Smart Socket can cause serious or fatal injury to the user. **DO NOT** use the Smart Socket before reading all safety instructions and warnings in this manual.

Ensure that the square drive size of the tool matches the Smart Socket model and that the fit is snug.

1. Refer to Section 1 – General Information and Section 3.0 – Smart Socket Assembly to become familiarized with the Smart Socket models and components.
2. Inspect the Smart Socket for any apparent damage to the display, keypad and/or body. DO NOT charge or use the Smart Socket if any component is damaged.
3. Press the "**Centre**" keypad button to wake up the Smart Socket.
4. Check that the displayed battery charge is sufficient for operations. If not, refer to Section 2.0 – Battery Usage and Charging for instructions and safety information to charge the Smart Socket.
5. Install the Smart Socket onto the desired tool, ensuring that the retaining pin holes on both the Smart Socket and the square drive line up.

6. Slide the retaining O-ring (if included) onto the neck of the Smart Socket just below the retaining O-ring groove, such that it does not impede the insertion of the tool square drive or the retaining pin.
7. Insert the retaining pin through one side of the Smart Socket neck and the tool's square drive.
8. Move the retaining O-ring into the groove such that it holds the retaining pin in place.
9. Pull the Smart Socket away from the mated tool to ensure it is securely retained on the tool.

The Smart Socket is now installed and ready for use.

4.5 Operation with Target Mode Enabled

Refer to Section 6.0 – Pre-Deployment Configuration for more information on how to set up the Smart Socket.

If "Target PASS/FAIL Enable" is enabled within Configuration, a "PASS" or "FAIL" message will be displayed on the display after a torque cycle. The result of the torque cycle is determined by the target torque and tolerance set up during pre-deployment configuration. The Smart Socket must be in Peak Mode to operate with Target Mode enabled (see Section 4.3 – Measurement Method). The Smart Socket will display as in Figure 4.5-1 indicating that Target Mode is enabled.



Figure 4.5-1: Target Mode

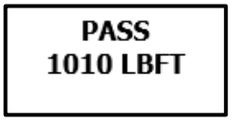


Figure 4.5-2: Pass



Figure 4.5-3: Fail

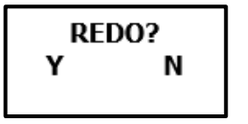


Figure 4.5-4: Redo

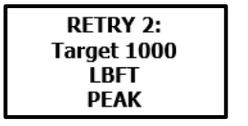


Figure 4.5-5: Redo Cycle

1. Proceed with bolting operations following proper workplace procedures including all safety instructions and warnings in this manual.
2. Set the target torque of the torque tool to the same as the target torque on the Smart Socket as shown in Figure 4.5-1.
3. If the actual torque is within the target torque tolerance, the "PASS" message will appear on the screen along with the actual torque (Figure 4.5-2).
4. If the actual torque is outside of target torque tolerance, the "FAIL" message will appear along with the actual torque (Figure 4.5-3).
5. If the Redo Screen setup parameter is enabled (refer to Section 6.3 – Operating Modes), the operator will be prompted to "Redo" (Figure 4.5-4) after a "FAIL" message.
6. Press the corresponding keypad button below the "Y" for "yes" to allow the same Bolt ID to be used for the next torque cycle. Another record will be appended to the log file for the next torque cycle. The "Retry" is the number of times the bolt has been retried and the "Target" is the target torque as seen earlier. The screen will look like Figure 4.5-5 for example.
7. Press the corresponding keypad button below the "N" for "no" to increment the Bolt ID on the next torque cycle.

4.6 Operation with Target Mode Disabled

Refer to Section 6 – Pre-Deployment Configuration, for more information on how to set up the Smart Socket.

If "Target PASS/FAIL Enable" is disabled within configuration, the Smart Socket will be in Audit Mode and may be operated using Peak or Track Mode. The pass/fail indication will not be displayed.

Note: The data logs created in this mode will always contain a "Passed" result when viewed in the data logger.

1. Check the device status and configuration on the screen. The screen should display one of the screens shown in Figure 4.6-1 or Figure 4.6-2.
2. Proceed with bolting operations following proper workplace procedures, safety precautions, and warnings in this manual for the use of the Smart Socket.
3. Each measured peak torque will be displayed as in Figure 4.6-3.

See Section 4.3 – Measurement Method for the functions of Peak and Track Modes.



Figure 4.6-1: Ready Screen - Peak



Figure 4.6-2: Ready Screen - Track

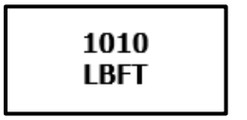


Figure 4.6-3: Measured Peak Torque Screen

5.0 DATA LOG PC OPERATIONS

The RAD RT Data Logger supplements the Smart Socket with the ability to download data logs, view tool details, configure the specifications of the tool, and calibrate the Smart Socket. Figure 5-1 shows the main screen of the data logger. For more detailed information, refer to the RT Data Logger Manual located under the "Help" dropdown menu (Figure 5-2).

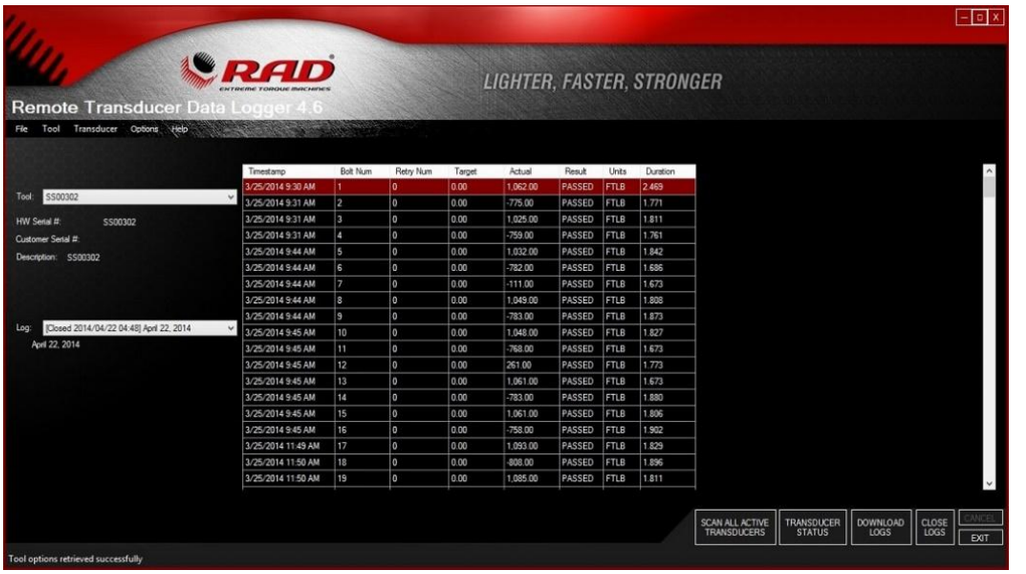


Figure 5-1: Main Display Screen

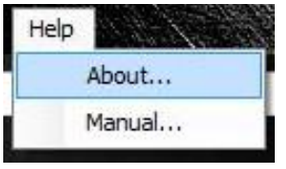


Figure 5-2: The Help Dropdown Menu

5.1 Software Installation & PC Requirements

The RT Data Logger Software is compatible with Window XP, Windows Vista, Windows 7, Windows 8, Windows 10 and Windows 11 operating systems.

Note: The "SQLite" download package is for customers with a Windows 8 or Windows 10 computer or for those that do not have an existing database (compatible with Windows XP, Windows Vista, Windows 7, Windows 8, Windows 10, and Windows 11).

Note: The "SQL Express" download package is for customers who have an existing database that is still in use (compatible with Windows XP, Windows Vista and Windows 7).

The RT Data Logger Software can be downloaded from **www.radtorque.com/resources**.

Note: If an alternate solution is needed, please contact your authorized RAD distributor or New World Technologies Technical Support. Refer to Section 9.0 – Contact Us.

5.2 Connecting the Smart Socket to a PC

The Smart Socket can be connected to a PC through Bluetooth® for Smart Socket configuration and data log downloads.

To turn on Bluetooth® on the Smart Socket, press one of the arrow keys until the screen reads "BT OFF" (Figure 5.2-1). This is the current state of the Bluetooth®. Press the "**Centre**" button to turn it on. When Bluetooth® is turned on, the screen will read "BT ON" (Figure 5.2-2).

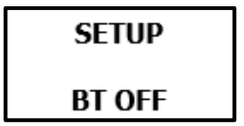


Figure 5.2-1: Bluetooth® Off



Figure 5.2-2: Bluetooth® On

To connect the Smart Socket to the PC, follow the steps below:

Note: It is recommended that a Bluetooth® adapter dongle is used when connecting the Smart Socket to a PC. The Bluetooth® dongle has a range that will exceed that of an integrated Bluetooth® adapter.

5.2.1 Connecting to WIN 10

1. Right click the "**Bluetooth® Devices**" icon in the Windows notification area (Figure 5.2.1-1).

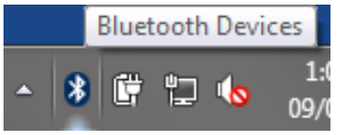


Figure 5.2.1-1: Bluetooth® Devices Icon

2. Click "**Add a Device**" (Figure 5.2.1-2).

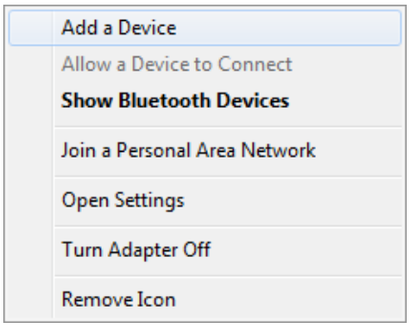


Figure 5.2.1-2: Add a Device

3. Click the name of the Smart Socket once it has been discovered (Figure 5.2.1-3).
4. Enter the correct pairing code (Figure 5.2.1-4).

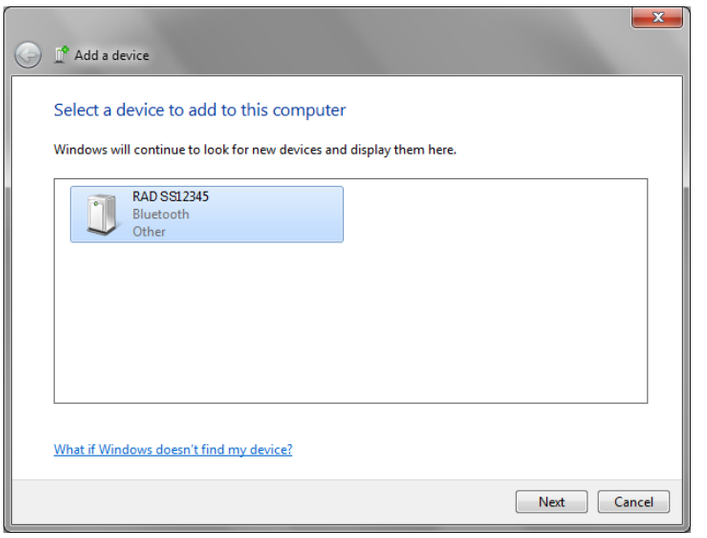


Figure 5.2.1-3: List of Bluetooth® Devices

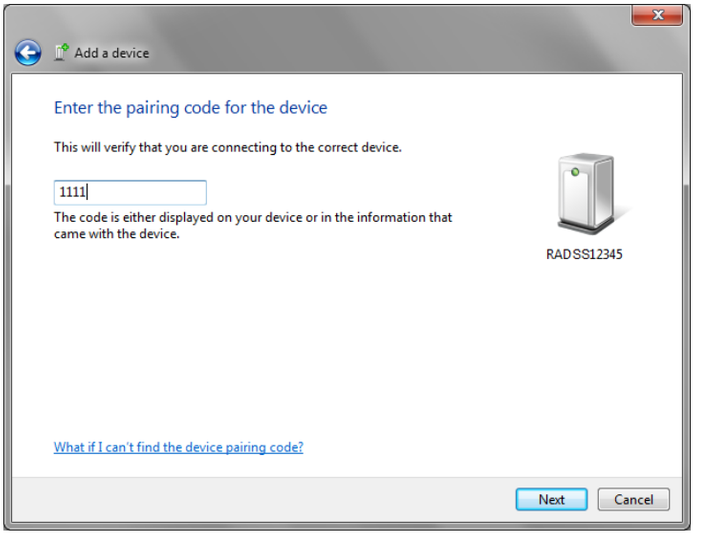


Figure 5.2.1-4: Enter Pairing Code

Note: The default pairing code is "1111". Refer to Section 5.8 – Changing the Bluetooth® Pin, for information on how to change the pairing code.

5. Open the RT Data Logger Software.
6. Select "**Scan All Active Transducers**" from the bottom of the screen (Figure 5.2.1-5). The Smart Socket should now be connected to the PC. Proceed with configuration or data download as detailed further in this section.



Figure 5.2.1-5: Scan All Active Transducers

Note: For troubleshooting, refer to Section 7.2 – Turning On Bluetooth®: Troubleshooting.

5.2.2 Connecting to WIN 11

1. Go to the "**Bluetooth® & devices**" which can be navigated to through the system tray. Then right-click on the "**Bluetooth® symbol**" and select "**Go to Settings**" (Figure 5.2.2-1).
2. Once on Bluetooth® & Devices Screen select the arrow on the "Devices" row.
3. On the Devices Screen scroll down and select "**Advanced**" from the "Bluetooth® devices discovery" (Figure 5.2.2-2).
4. Scroll back up the Devices Screen and select "**Add Device**".
5. On the Add a Device Screen, select "**Bluetooth®**".
6. Select the Smart Socket from the list.
7. If prompted enter the pairing code.

Note: The default pairing code is "1111".

Note: Newer sockets may not require a pairing code.

8. If the connection fails, then retry connecting to the Smart Socket.

Note: Connection may time out on first try.

9. Smart Socket will appear under "Other devices" once paired but may show "Not connected".

Note: Connection is "sleeping" and will wake up when connection to RT Data Logger is established.

10. Open the RT Data Logger Software.
11. Select "**Scan All Active Transducers**" from the bottom of the screen (Figure 5.2.2-3). The Smart Socket should now be connected to the PC. Proceed with configuration or data download as detailed further in this section.

Note: For troubleshooting, refer to Section 7.2 – Turning On Bluetooth®: Troubleshooting.

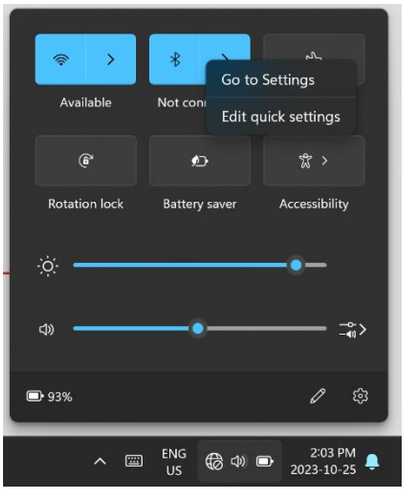


Figure 5.2.2-1: System Tray Bluetooth® Settings

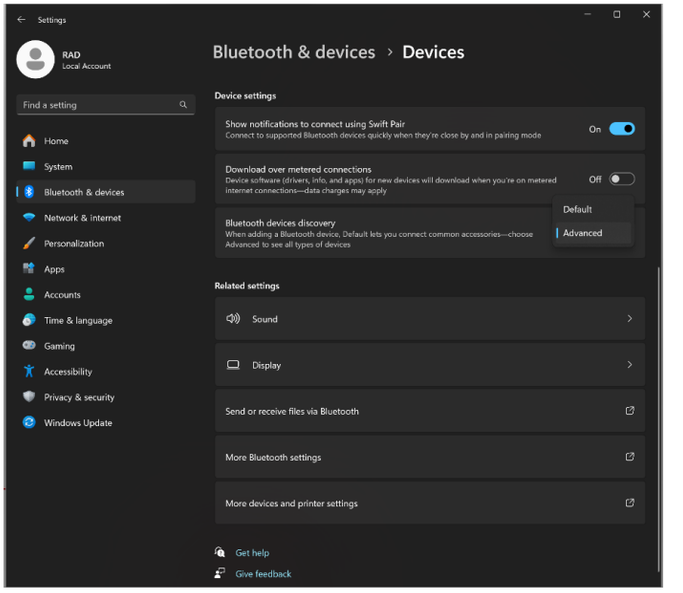


Figure 5.2.2-2: Devices Page with Bluetooth® Devices Discovery



Figure 5.2.2-3: Scan All Active Transducers

5.3 Downloading all Data Logs

Note: The Smart Socket holds up to 300 logs. If the logs stored in the Smart Socket exceed 300 records, they must be downloaded to the data logger and cleared from the Smart Socket (refer to Section 5.4 – Deleting (Closing) Data Logs).

The RT Data Logger Software allows the data log files to be downloaded from the Smart Socket to a computer.

1. Press the "**Download Logs**" button on the Main Screen (Figure 5.3-1).



Figure 5.3-1: Download Logs Button

2. The data logger will download all the data from the device.
3. The data logger will be prompt the user to add descriptions of the tool and the data logs once the log has been downloaded. These descriptions should contain information to help identify the data.

5.4 Deleting (Closing) Data Logs

Closing Data Logs allows the operator to remove the log from the device. The log information will remain accessible from the data logger. The title of the closed log will be automatically modified to represent the date it was closed.

To close a data log:

1. Select the desired log.
2. Select "**Close Logs**" located under the Tool Menu or press the "**Close Logs**" button on the bottom of the Main Screen (Figure 5.4-1).



Figure 5.4-1: Close Logs Button

3. The name of the log file will automatically change to "Closed" along with the date and time at which it was closed (Figure 5.4-2).



Figure 5.4-2: Example of a Closed Log

5.5 Generating Data Log Reports

This feature allows the user to generate a data log report for a selected data log.

To generate a data log report:

1. Select the desired data log.
2. In the "File" drop down menu, press "**Generate Data Log Report**" (Figure 5.5-1).

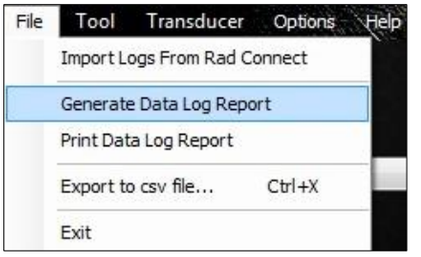


Figure 5.5-1: Generate Report Button

3. The generated report will then be displayed (Figure 5.5-2).

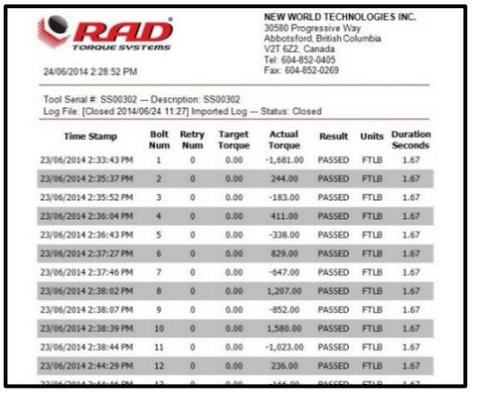


Figure 5.5-2: Example of Generated Data Log Report

4. From the generated report window, the report can be printed or saved as a different file type.

5.6 Printing Reports

This feature allows the user to print a data log report for a selected data log.

To print a data log report:

1. Select the desired data log.
2. In the "File" drop down menu, press "**Print Data Log Report**" (Figure 5.6-1).

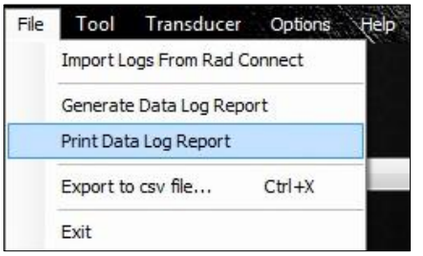


Figure 5.6-1: Print Data Log Report Button

3. The data log report will be printed to the default printer that is set up on the PC.

5.7 Exporting Data

Exporting data allows the user to save the data logs to another location and to print the data logs.

1. In the "File" tab press "**Export to csv file…**" (Figure 5.7-1).

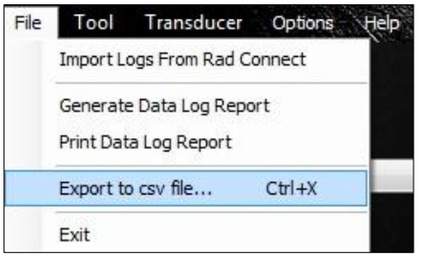


Figure 5.7-1: Export Button

2. A prompt window will be displayed asking to export all data logs or just the currently selected data log (Figure 5.7-2). If "**Yes**" is selected, all data logs will be exported. If "**No**" is selected, only the currently selected data log will be exported. If "**Cancel**" is selected, no data logs will be exported.



Figure 5.7-2: Export Dialog Box

3. When confirmed "**Yes**" or "**No**," a file browser will be opened asking for a location to save the file (Figure 5.7-3).

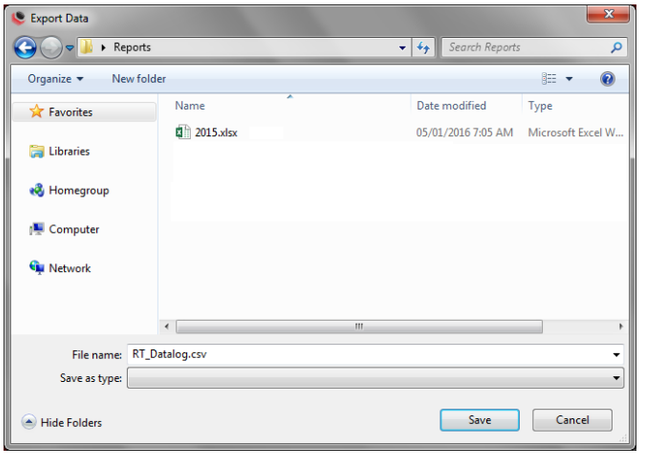


Figure 5.7-3: Saving the Data Log

4. The file can now be opened and modified on the computer.

The second method to export data logs is to copy and paste directly from the Datalogger:

1. Click and drag the cursor over the desired range of data from the current data log (Figure 5.7-4).

Timestamp	Bolt Num	Retry Num	Target	Actual	Result	Units	Duration
21/01/2016 10:16 AM	1	0	0.00	0.00	PASSED	FTLB	0.000
21/01/2016 10:23 AM	2	0	0.00	0.00	PASSED	FTLB	0.000
21/01/2016 10:25 AM	3	0	0.00	761.00	PASSED	FTLB	10.041
21/01/2016 10:41 AM	4	0	0.00	757.00	PASSED	FTLB	6.836
21/01/2016 12:37 PM	5	0	0.00	752.00	PASSED	FTLB	7.059
21/01/2016 12:38 PM	6	0	0.00	775.00	PASSED	FTLB	3.826
21/01/2016 1:01 PM	7	0	0.00	1,027.00	PASSED	Nm	7.281
21/01/2016 1:02 PM	8	0	0.00	145.00	PASSED	Nm	2.924

Figure 5.7-4: Select Data to Export

2. Use the keyboard shortcut Control-C to copy the selected data to the computer's memory.
3. Paste the data into a spreadsheet software and save the file as needed.

5.8 Changing the Bluetooth® Pin

CAUTION!
If the pin is forgotten, the Smart Socket will be locked out and not recoverable.

Changing the Bluetooth® pin allows the user to change the pairing code of the Smart Socket.

To change the Bluetooth® pin:

1. Connect the Smart Socket to the PC. Refer to Section 5.2 – Connecting the Smart Socket to a PC, for more information on this procedure.
2. From the Tool Menu, select "**Bluetooth® Pin**" (Figure 5.8-1).

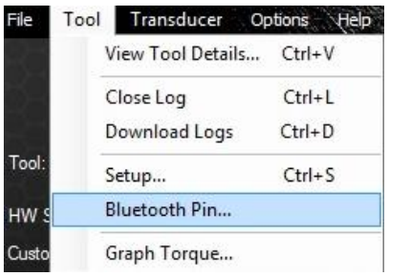


Figure 5.8-1: Bluetooth® Pin Button

3. A dialog box will ask to confirm the old pin and set a new pin (Figure 5.8-2).



Figure 5.8-2: Changing the Bluetooth® Pin

Note: The new pin must be 4 digits long and cannot be “0000.”

4. After the new pin is entered, reset the Smart Socket and reconnect it to the PC using the new pairing code.

6.0 PRE-DEPLOYMENT CONFIGURATION

Prior to each deployment, the user should verify that the Smart Socket is configured as desired. Access to a computer running the RT Data Logger software is required.

Configuration includes date/time clock, measurement units, operating modes, and, if target pass/fail is enabled, target torque set points and pass/fail tolerance.

See Section 5.1 – Software Installation & PC Requirements, for more information on installing the RT Data Logger Software.

See Section 5.2 – Connecting the Smart Socket to a PC, for more information on connecting the Smart Socket to the PC.

6.1 Tool Details

Basic information stored on the Smart Socket including serial number, version number, battery state, torque cycle statistics, torque limits can be viewed in the RAD RT Data Logger Software.

To view the tool details:

1. Open the "Tool" dropdown menu.
2. Select "**View Tool Details**" (Figure 6.1-1).
3. The Tool Details Box (Figure 6.1-2) will open.

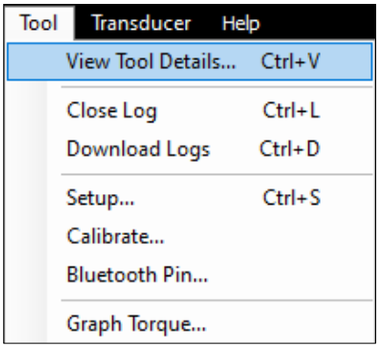


Figure 6.1-1: View Tool Details Button



Figure 6.1-2: Tool Details Window

6.2 Tool Setup

To change the tool configuration:

1. From the "Tool" drop down menu, select "**Setup**" (Figure 6.2-1).

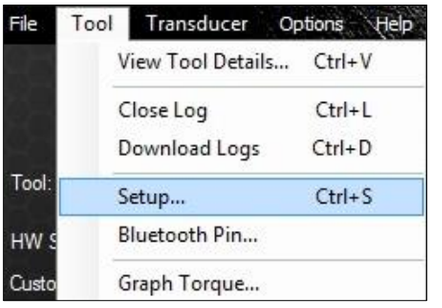


Figure 6.2-1: The Setup Button

2. The Tool Setup Menu will be displayed (Figure 6.2-2).

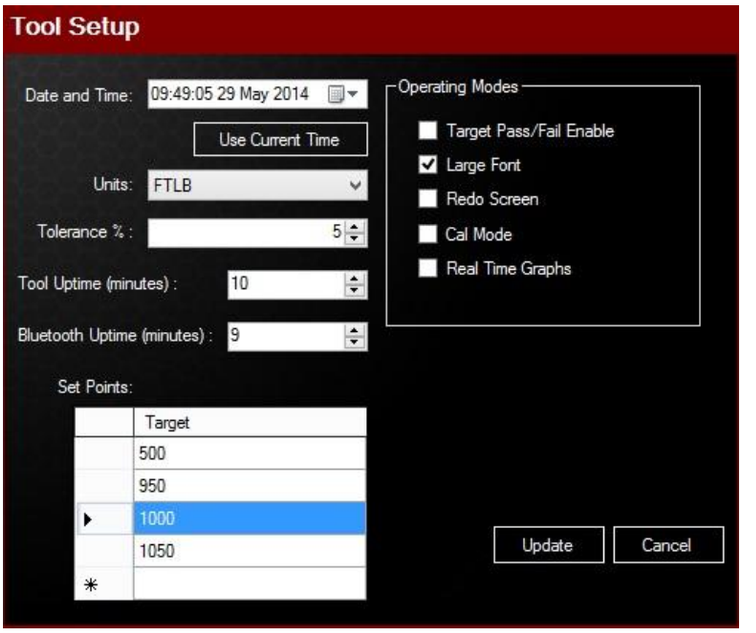


Figure 6.2-2: Tool Setup Menu

3. Once all the desired changes have been made, press "**Update**".

6.2.1 Date and Time

The date and time can be set manually or automatically. Press "**Use Current Time**" to use the computer's date and time. The calendar icon to the right of the text box can also be used to quickly find the correct date.

6.2.2 Measurement Units

Select the desired units from the Units Menu (Figure 6.2.2-1). The possible choices are Inch-Ounces (**INOZ**), Inch-Pounds (**INLB**), Foot-Pounds (**FTLB**), and Newton-Metres (**Nm**).

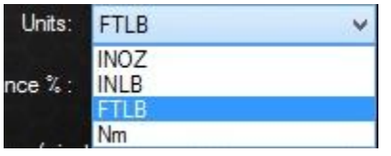


Figure 6.2.2-1: Units Drop Down Menu

6.2.3 Target Tolerance

In the "Tolerance %" box, enter the desired tolerance percentage above or below target to indicate a pass or fail. The default value is 5%.

Note: The Operating Mode "Target Pass/Fail Enable" must be enabled for the tolerance parameter to take effect. Refer to Section 6.3 – Operating Modes for more information on this option.

6.2.4 Tool Uptime

Tool Uptime is the amount of time (in minutes) before the device goes to sleep during inactivity. By default, this time is set to 10 minutes. The Smart Socket will not sleep while it is charging if it's already turned on. It will sleep after charging is complete if still inactive.

6.2.5 Bluetooth® Uptime

Bluetooth® Uptime is the amount of time (in minutes) before Bluetooth® connectivity turns off. By default, this time is set to 9 minutes.

6.2.6 Set Points

The "Set Points" box (Figure 6.2.6-1) lists the currently saved target torque values. To choose the current set point, click on the desired target value. To add a new target, press the asterisk (*) in the bottom left corner, then type in the desired value. To change a target, double-click the desired target to change and enter the new value.

Note: The currently selected target has an arrow beside it.

Note: The Operation Mode "Target Pass/Fail Enable" must be enabled for the target set points to take effect. Refer to Section 6.3 – Operating Modes for more information on this option.

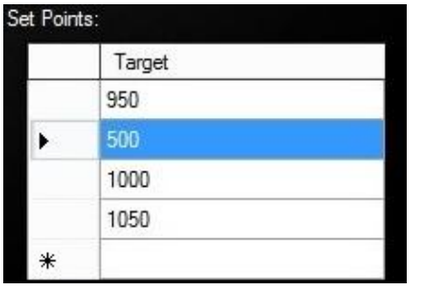


Figure 6.2.6-1: Set Points Box

6.3 Operating Modes

To access the Operating Modes, select "**Setup**" from the "Tool" drop down menu in the RT Data Logger Software.

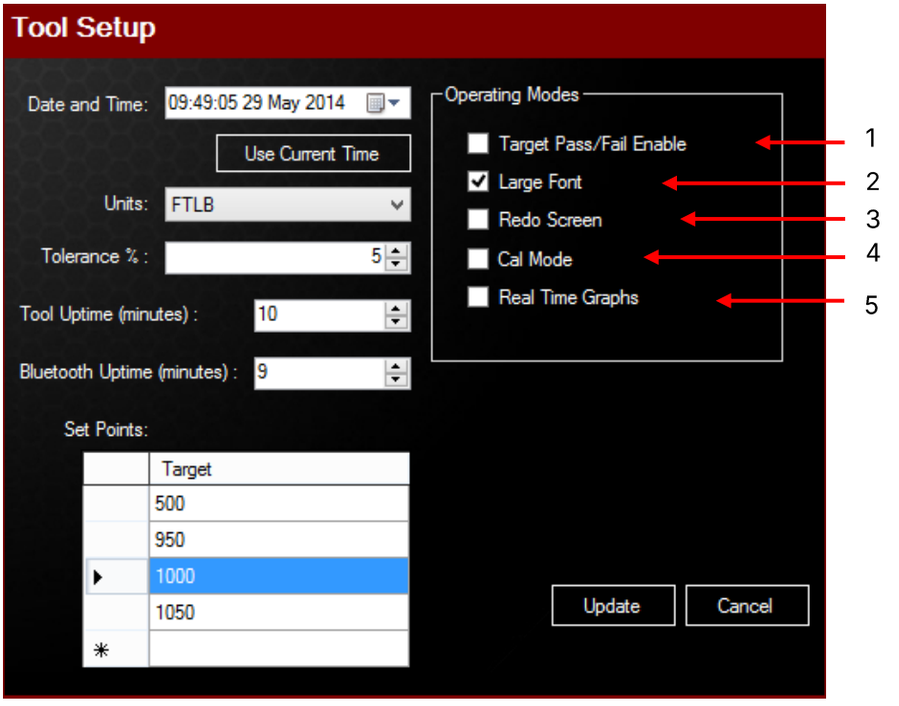


Figure 6.3-1: Tool Setup Menu

Operating Modes (refer to Figure 6.3-1 above):

1. **Target Pass/Fail Enable** (see Sections 4.5 – Operation with Target Mode Enabled and 4.6 – Operation with Target Mode Disabled):

   When "Target Pass/Fail Enable" is enabled, the target torque (see Section 6.2.6 – Set Points) and measurement method ("Peak" or "Track") will appear on the LCD screen.

   When "Target Pass/Fail Enable" is disabled, the Smart Socket will be in Audit Mode and will measure, display, and record the torque according to the measurement method selected (see Section 4.3 – Measurement Method).

2. **Large Font**:

   When "Large Font" is enabled, the Smart Socket will display the torque readings in larger text on the LCD.

   Note: The Large Font option is enabled by default.

3. **Redo Screen**:

   Choose whether the bolt ID will be incremented after a failed target torque cycle (see Section 4.5 – Operation with Target Mode Enabled for more information).

4. **Cal Mode**:

   It is not recommended to enable Cal Mode at any time. When Cal Mode is enabled, the Smart Socket will display torque data from the strain gauges. These numbers are raw values and are not in any torque units.

5. **Real Time Graphs**:

   Note: The Smart Socket must be connected to the data logger to use Real Time Graph Mode. Refer to Section 5.2 – Connecting a Smart Socket to a PC for more information on how to connect the Smart Socket to the data logger.

   When Real Time Graph Mode is enabled, the user can view a live graph of the torque cycle on the RT Data Logger Software. To view the live graph, go to the Tool Menu and press "**Graph Torque**" (Figure 6.3-2).

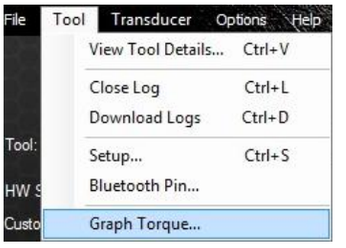


Figure 6.3-2: Graph Torque Button

The Torque vs Time Graph will then be displayed on the screen (Figure 6.3-3).



Figure 6.3-3: Torque Vs Time Graph

When a pull is done with the Smart Socket, a live graph will be created on the Torque vs Time Screen (Figure 6.3-4).



Figure 6.3-4: Live Graph

7.0 TROUBLESHOOTING

WARNING!

Never open the Smart Socket cover without the authorization of New World Technologies Inc. Do not remove the battery cover, attempt to repair the device or replace the battery. Do not touch any exposed power device, electrical connections or cable.

If there is a problem with the Smart Socket, please first check that all instructions in the user manual have been followed and the device/battery is charged.

7.1 Problem Diagnosis

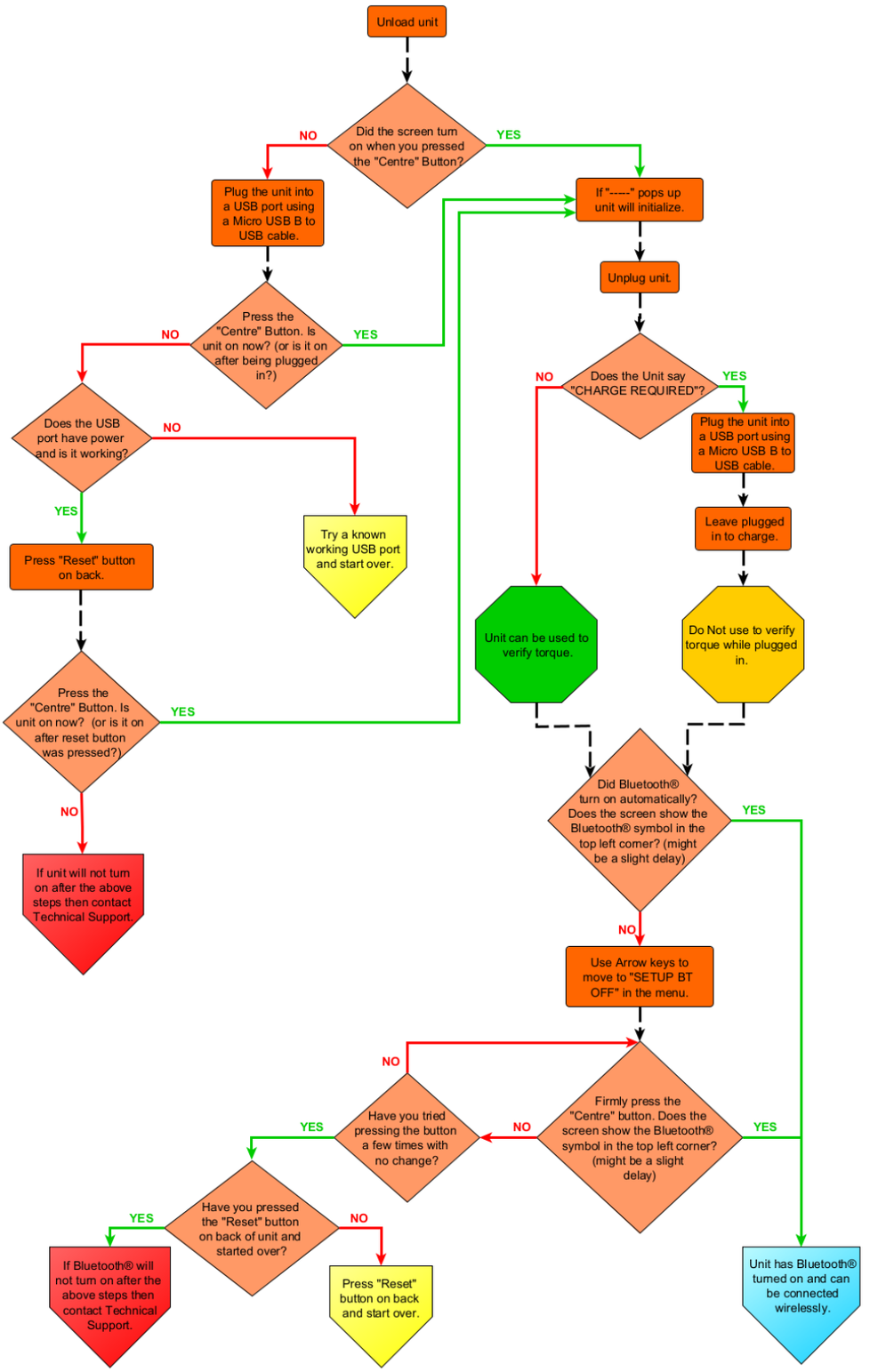
The following sections describe various common problems and steps for resolution.

If the problem persists, please contact your authorized RAD distributor or New World Technologies Inc. Technical Support.

Problem	Solution(s)
Display screen is blank	1. Press the keypad "**Centre**" button to wake the Smart Socket from Sleep Mode. 2. If screen remains blank, connect the Smart Socket to the supplied charger or a computer and press the "**Centre**" button. 3. If screen remains blank, press the "**Reset**" button on the back of the Smart Socket while it is still plugged in. 4. If screen remains blank, charge the Smart Socket for 15 minutes and try again. If problem persists after charging, call your RAD distributor for return/inspection.
Display reads "Charge Required"	The Smart Socket battery does not have enough power to operate. Charge the Smart Socket (refer to Section 2.2 – Battery Charging and Storage). If message persists after charging, contact your RAD distributor for return/inspection.
Display reads "Battery Low"	Charge the Smart Socket as soon as possible (refer to Section 2.2 – Battery Charging and Storage). If message persists, contact your RAD distributor for return/inspection.
Display reads "Logs Full"	Connect the Smart Socket to the PC software, download the data and close the log, (refer to Section 5.0 – Data Log PC Operations). If message persists after closing the log file, contact your RAD distributor for technical support. **Note:** The Smart Socket can store approximately 300 log records.
Display shows "Ready" or "Target" but doesn't update torque cycle	Check that the Smart Socket data logs were closed prior to the next cycle. If error persists, contact your RAD distributor for return/inspection.
Display shows "Unload"	Press the keypad "**Centre**" button. If error persists, contact your RAD distributor for return/inspection.
Battery does not hold a charge	The battery needs to be replaced; contact your RAD distributor for return/inspection.

Table 7.1-1: Problem Diagnosis

7.2 Turning On Bluetooth®: Troubleshooting



8.0 ADDITIONAL INFORMATION

Bluetooth® module used in the product:
NINA-W156-03B

This device contains FCC ID: XPYNINAW106 IC: 8595A-NINAW106

This device complies with Industry Canada's license-exempt RSSs. Operation is subject to the following two conditions:

1) This device may not cause interference; and
2) This device must accept any interference, including interference that may cause undesired operation of the device.

9.0 CONTACT US



TF: 1-800-983-0044 **F:** 604-852-0269
W: www.radtorque.com **E:** info@radtorque.com

Technical Support
P: 1-800-983-0044 (EXT. 227)
E: service@radtorque.com

New World Technologies Inc.
100-30722 Marshall Road
Abbotsford, BC V2T 0H9
Canada

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Smart Socket Limited Warranty

NEW TOOL WARRANTY

Any new tool branded with the RAD name and purchased from New World Technologies Inc., or through one of its authorized distributors or agents, is warranted to the original purchaser against defects in materials and workmanship for a period of one (1) year from the date of original calibration. Electric drive components such as electric motors, switches, and batteries etc., are covered for a period of six (6) months from the date of original calibration. Under the terms of this warranty, New World Technologies Inc., at its option and F.O.B. either its factory or an authorized service center, will replace or repair for the original purchaser, free of charge, any part or parts, found upon examination by New World Technologies Inc., to be defective in material or workmanship or both. If any product or part is replaced or repaired under the terms of this warranty, that product or part will carry the remainder of the warranty from the date of original calibration.

REPAIRED TOOL WARRANTY

Once a tool is beyond its new tool warranty, New World Technologies Inc., for a period of three (3) months from the date of repair, will replace or repair for the original purchaser, free of charge, any part or parts, found upon examination by New World Technologies Inc., to be defective in material or workmanship or both. If any product or part is replaced or repaired under the terms and conditions of this warranty, that product or part will carry the remainder of the warranty from the date of original repair.

To qualify for the above mentioned warranties, written notice to New World Technologies Inc. must be given immediately upon discovery of such defect, at which time New World Technologies Inc. will issue an authorization to return the tool. The defective item must promptly be returned to New World Technologies Inc. all freight charges prepaid. When returning a tool, the reaction arms being used with the tool must also be returned.

NEW WORLD TECHNOLOGIES INC. | T: 1.800.983.0044 | E: INFO@RADTORQUE.COM

EXCLUSIONS FROM WARRANTY

Tools or accessories found by New World Technologies Inc.'s sole judgement to have been altered, damaged, misused, abused, badly worn due to excessive utilization, lost, or improperly maintained will NOT be covered under the terms of this warranty.

Tools returned without the reaction arms will not be covered under the terms of this warranty.

Consumable parts and accessories (such as extensions, reaction blanks/arms) are not covered under this warranty.

Tools that have been relabeled without prior written consent of New World Technologies Inc. will not be covered under this warranty.

Equipment and accessories not manufactured by New World Technologies Inc. (measuring equipment, etc.) are warranted only to the extent of the original manufacturer's warranty.

**There is no other express warranty. Implied warranties, including those of merchantability and fitness for a particular purpose are limited to one year from date of calibration and to the extent permitted by law. Liability for consequential damages under any and all warranties are excluded to the extent exclusion is permitted by law.*

RAD®
TORQUE SYSTEMS

TRUSTED POWER.

New World Technologies is a leading Canadian manufacturer of pneumatic, battery powered, and electronic pistol grip torque wrenches. Our advanced products have proven to be successful all over the world in such industries as oil and gas, petrochemical, mining, aerospace, and manufacturing. We continue to invest in and employ the latest technology to achieve the highest level of Innovation, quality, and performance - which has resulted in multiple patents for our products.

NEW WORLD TECHNOLOGIES INCORPORATED

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CALIBRATION LABORATORY

NEW WORLD TECHNOLOGIES INC.
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