RAD®
TORQUE SYSTEMS

ADVANCED
BOLTING
TECHNOLOGY



PNEUMATIC


ELECTRONIC


BATTERY


ELECTRIC


SMART SOCKET

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# E-RAD BLU
# USER MANUAL

# RAD TORQUE SYSTEMS

## 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

## ELECTRONIC SERIES E-RAD

- **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**
  Unmistakable visual signal indicates status of torque procedure for maximum accuracy and speed

## BATTERY SERIES B-RAD

- **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

## ELECTRIC SERIES V-RAD

- **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
- **ADVANCED ULTRA-DURABLE ELECTRIC MOTOR DESIGN**
  Extreme duty designed to reduce maintenance cost and increase reliability
- **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
- **BLUE 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

***NOTICE:***

This manual applies to the following firmware release and build:

**ERAD-27.0306-0105** (Screen and Controller)

Use with any other firmware version may produce unexpected results.

# TABLE OF CONTENTS

# MANUAL REVISION HISTORY

**V2014.06.17:**

- Initial Release for Firmware ERAD-27.0109

**V2017.01.26:**

- Release for Firmware ERAD-27.0300
- Updated Manual Layout
- Updated Important Safety Notice
- Updated Pictures

**V2017.07.19:**

- Release for Firmware ERAD-27.0300-0232 and newer
- Moved 7.6 – Start-Up Without Handle to 3.6
- Changed order of various sections in 5.0
- Changed order of features in 3.4 – User Access Levels
- Updated screenshots and images

**V2018.02.22:**

- Release for Firmware ERAD-27.0300-0311
- Added SS menu (Section 4.8)
- Simplified some sections

**V2018.03.29:**

- Release for Firmware ERAD-27.0300-0313
- Updated Section 5.10 – Reverse Confirmation

**V2018.04.23:**

- Release for Firmware ERAD-27.0303-0101

**V2018.05.15:**

- Release for Firmware ERAD-27.0303-0111
- Fixed order of Controller components, Section 3.2

**V2018.06.15:**

- Release for Firmware ERAD-27.0303-0113

**V2018.06.28:**

- Release for Firmware ERAD-27.0303-0114

**V2018.11.27:**

- Release for Firmware ERAD-27.0303-0117

**V2021.10.22:**

- Release for Firmware ERAD-27.0303-0309
- Updated: Important Safety Notice - 2. Electrical Safety – added section g.
- Updated: 1.2.3 Environmental Specifications – added Noise section to table.
- Updated noise and vibration values in 1.2.3 Environmental Specifications.

**V2022.01.25:**

- Updated: Important Safety Notice – section 3 and 4.
- Updated: 1.2.3 Environmental Specifications with Noise and vibration emission values and warnings.
- Updated: 2.1 AC Mains Power with warning about supplied power cord.

**V2023.03.21:**

- Release for Firmware ERAD-27.030-0103
- Updated: 11.0 Contact Us – New Address
- Updated: Images
- Updated: 3.1 Tool Handle Description – Added BT Module product name
- Updated: 5.1 Connecting to a Smart Socket – Added pairing code note
- Updated: 5.23 Network & Address – Added address
- Updated: 7. General Operating Instructions – Added re-torque note
- Added: 5.3 Language
- Added: 5.25 Any Network
- Added: 10. Additional Information – Bluetooth Module information

**V2023.04.10:**

- Release for Firmware ERAD-27.0306-0105
- Updated: 11.0 Contact Us – New Photo

# 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 mains-operated (corded) power tool.

**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 in the presence of flammable liquids, gases, or dust.** Power tools create sparks that may ignite the dust or fumes.

c. **Keep children and bystanders away while operating a 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 (grounded) surfaces such as pipes, radiators, ranges, or refrigerators.** There is an increased risk of electric shock if your body is earthed (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.

**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.** Ensure 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.

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.

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. **Power tools must be properly maintained. 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. **Use the power tool and accessories 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.

g. **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. 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.

# 1. GENERAL INFORMATION

## 1.1 System Components

The E-RAD BLU Tool System ships from New World Technologies Inc. with the following parts:


Figure 1.1-1: E-RAD BLU Tool Handle

Figure 1.1-2: E-RAD BLU Controller (or optional steel case)

Figure 1.1-3: Tool Handle Cable

Figure 1.1-4: AC Power Cable

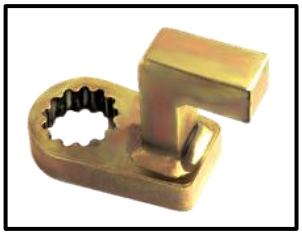


Figure 1.1-5: Reaction Arm

- USB A to B Cable for data transfer
- Calibration Certificate
- User Manual

**Note:** Your distributor may ship additional parts along with the E-RAD BLU Tool System.

## 1.2 Specifications

**CAUTION!**

Only operate the E-RAD BLU Tool System if the following electrical and environmental specifications have been met.

### 1.2.1 Torque Ranges

| E-RAD BLU Model | Range (Foot-Pounds) | Range (Newton-Metres) |
|---|---|---|
| E-RAD BLU 700 / 950-M | 100 – 700 | 135 – 950 |
| E-RAD BLU 1500 / 2000-M | 200 – 1500 | 270 – 2000 |
| E-RAD BLU 2500 / 3400-M COMP | 250 – 2500 | 340 – 3400 |
| E-RAD BLU 3000 / 4000-M | 500 – 3000 | 675 – 4050 |
| E-RAD BLU 6000 / 8000-M | 1000 – 6000 | 1350 – 8100 |
| E-RAD BLU 7500 / 10k-M | 1500 – 7500 | 2030 – 10000 |
| E-RAD BLU 11k / 15k-M | 3000 – 11000 | 4050 – 15000 |

Table 1.2.1-1: Torque Ranges

### 1.2.2 Electrical Specifications

| | Units | 120V Model | 230V Model |
|---|---|---|---|
| **Nominal Input Voltage** | VAC | 120 | 208 – 240 |
| Minimum Input Voltage | VAC | 80% of Calibration Voltage | |
| Maximum Input Voltage | VAC | 110% of Calibration Voltage | |
| Input Frequency | Hz | 50 – 60 | |
| **Nominal Tool Voltage** | VDC | 160 | 328 |
| Minimum Tool Voltage | VDC | 80% of Calibration Voltage | |
| Maximum Tool Voltage | VDC | 110% of Calibration Voltage | |
| **Nominal Input Current** | $A_{RMS}$ | 5 | 5 |
| **Peak Tool Input Current** | $A_{RMS}$ | 15 | 15 |

Table 1.2.2-1: Electrical Specifications

### 1.2.3 Environmental Specifications

| | All Models | |
|---|---|---|
| | **°C** | **°F** |
| **Ambient Operating Temperate Range** | -20 to 40 | -4 to 104 |
| **Storage Temperature Range** | -25 to 70 | -13 to 158 |
| **Humidity** | 10% to 90% non-condensing | |
| **Area** | No flammable gases or vapours permitted in area. | |
| **Shock** | 10G according to DIN IEC 68-2-6/29 | |
| **Vibration Emission / Uncertainty = K** | Does not exceed 2.5 m/s² ; K = 1.5dB | |
| **Noise Emissions** | | |
| A-weighted sound pressure level - LpA | Does not exceed 70dB(A) | |
| A-weighted sound power level – $L_{WA}$ / Uncertainty = K | 80.8dB(A); K = 1.5dB | |

Table 1.2.3-1: Environmental Specifications

**Note**: The declared vibration total value has been measured in accordance with a standard test method and may be used for comparing one tool with another and may be used in a preliminary assessment of exposure.

**WARNING!**

The vibration emission during actual use of the power tool can differ from the declared total value depending on the ways in which the tool is used.

Identify safety measures to protect the operator that are based on an estimation of exposure in the actual conditions of use (taking account of all parts of the operating cycle such as the times when the tool is switched off and when it is running idle in addition to the trigger time).

**CAUTION!**

It is recommended that the operator wears hearing protection.

### 1.2.4 Cycle of Operation

A Cycle of Operation or a Tool Cycle is defined as:

- 10 seconds On (Forward or Reverse)
- 5 seconds Off

# 2. POWER REQUIREMENTS

The installer of this equipment is responsible for complying with National Electrical Code (NEC) or equivalent and Federal and Local Guidelines and Application Codes that govern protection, Earth Grounding, disconnects, and other current protection for electrical equipment for use in outdoor or indoor applications.

## 2.1 AC Mains Power

**DANGER!**

Electrical Shock can cause serious or fatal injury. Ensure the E-RAD BLU Controller and Tool Handle are properly Earth Grounded before turning on the Power Switch. Do not touch any power device or electrical connection or remove the E-RAD BLU Controller Top Plate before ensuring the Power Switch is in the Off Position, the AC Mains Power is disconnected, and no high voltage is present.

New World Technologies Inc. does not recommend replacing the supplied AC Power Cable. If using a different power cable or a power plug adapter, ensure the Earth Ground is present and firmly connected.

**WARNING!**

Ensure all AC Mains wiring to the E-RAD BLU complies with National and Local Electrical Codes. Improper wiring may result in unsafe conditions for equipment and personnel.

**WARNING!**

If the supplied power cord of the power tool is damaged, it must be replaced by a specially prepared power cord available through the service organization.

The E-RAD BLU Controller requires model specific single phase 120VAC or 230VAC. Refer to Section 1.2.2 – Electrical Specifications.

The single phase line must be electrically symmetrical with respect to Earth Ground. The branch circuit must be a dedicated 15A circuit to ensure proper tool operation and to avoid circuit loading and nuisance trips.

**Note**: The E-RAD BLU Controller is internally fused for self-protection. Contact New World Technologies Inc. Technical Support for assistance if a blown fuse is suspected (Section 10 – Contact Us).

## 2.2 Earth Grounding Safety

**IMPORTANT!**

Earth Grounding is the primary electrical shock protection and is mandatory!

The E-RAD BLU is assembled with a dedicated earth ground connection to the Tool Handle and Controller via the AC Mains Power Connection.

It is the operator's responsibility to adhere to an Assured Grounding Program and all National and Local Electrical Codes.

## 2.3 Ground Fault Circuit Interrupt (GFCI)

GFCI (also known as RCD – Residual Current Device) units are secondary protection devices which protect against electric shock in case of a ground wiring fault. E-RAD BLU tools are safe according to CE/CSA certification as the leakage current is less than 1mA. Ground leakage currents of 1mA are within Class A GFCI standard. The E-RAD BLU Tool System is compatible with Class A GFCI units.

**Note**: National and Local Electrical Codes may require use of GFCI. Check National and Local Electrical Codes for compliance.

## 2.4 Extension Cords

Extension cord quality and condition is important to ensure personal safety and tool performance. Check National and Local Electrical Codes for compliance.

We recommend 12 AWG (3.31 $mm^2$) for extension cords under 9 metres (30 feet), and 10 AWG (5.26 $mm^2$) for extension cords over 9m (30ft).

The maximum recommended length for extension cords is 30 metres (100 feet), although some installations demand longer cords. Longer extension cords will reduce the voltage supplied to the E-RAD BLU Tool System and may cause nuisance trips at higher torque demand.

## 2.5 Power Cycling

If AC power has been shut off from the E-RAD BLU, it should not be reapplied for at least one minute. This allows the input surge protection to perform properly. Power cycling too quickly can cause nuisance trips and reduce the lifetime of the electronics.

# 3. TOOL SYSTEM OVERVIEW

## 3.1 Tool Handle Description

The E-RAD BLU Controller may be used to operate different tool handles. The Controller will change the tool options, pre-sets, and custom settings depending on which handle is connected. The handle has a BT 4.0 Dual Mode Module to allow connection to Smart Sockets.

**Note**: Some handle features may require a custom Controller program to function. Contact Us for more information.

The Tool is activated by a trigger switch and direction is controlled by a forward/reverse switch (see Figure 3.1-1).

1. Forward/Reverse Switch – direction control.
2. On/Off Trigger – motor activation.

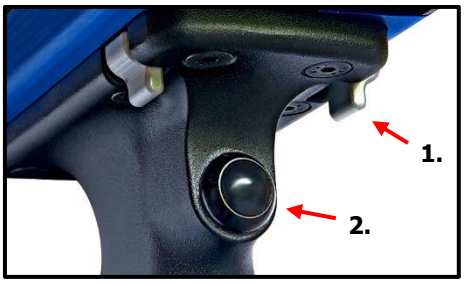



Figure 3.1-1: E-RAD BLU Tool Handle

The LED status displays on each side of the tool housing (Figure 3.1-2) indicate the following:

3. System Ready – blue LED lit when ready for use.
4. Failed – red LED lit when torque cycle has failed.
   Over torque – red LED flashes when torque cycle has over torqued.
5. Passed – green LED lights when torque cycle has passed.

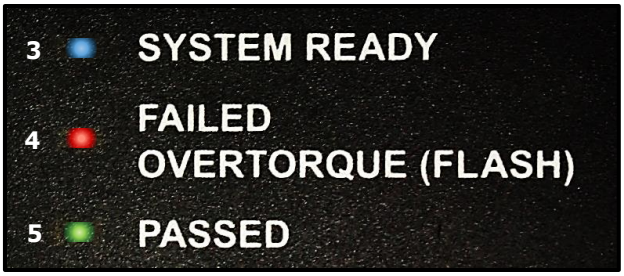



Figure 3.1-2: LED Status Display

## 3.2 Controller Description

The E-RAD BLU Controller has a touch screen interface for changing settings, viewing torque results and logs, and viewing tool information. The AC Power and Tool Handle cable connections are on the right side of the controller housing. Figures 3.2-1 and 3.2-2 show the details.

1. Tool Handle connector
2. USB charging connector
3. AC Mains connector (120V or 230V)


Figure 3.2.1: Controller Cable Connectors

4. Optional custom Serial Port
5. Network communication port
6. USB communication port
7. Power switch
8. LCD Touch Display
9. Controller serial number


Figure 3.2-2: Controller Top Plate

## 3.3 Touch Display Interface

The layout of the Touch Display Interface is described in the following sections.

The basic functions you need to know before starting are described in Section 4 – Common Functions. More advanced applications are covered in Section 5 – Tool Functions. Torque operation procedures are explained in Section 7 – General Operating Instructions.

**CAUTION!**

LCD Touch Displays can be damaged by moisture, high temperatures, and mechanical shock. Excessive force on the Touch Display may result in damage. Gently wipe clean or let dry before use.

### 3.3.1 Main Screen

The Main Screen (Figure 3.3.1-1) is used to control basic Torque and Angle functions of the E-RAD BLU Tool System.

**Items:**

1. "SS" Sensor Options menu (Sections 3.3.3 – The "SS" Icon and 4.8 – Sensor Settings Menu)
2. Access Level Indicator (Section 3.4 – User Access Levels)
3. Data Log Menu
4. Torque
5. Angle
6. Main Menu
7. Pre-set Menu
8. Network Connection Indicator

The Controller Temperature (left) and the Handle Temperature (right) are displayed near the bottom of the screen. When either the Controller Temperature or the Handle Temperature exceed 85°C, the Tool Handle will be disabled until the temperature drops below 75°C.


Figure 3.3.1-1: Main Screen

### 3.3.2 Menus

To open the Main Menu, select the "Menu" button from the Main Screen.

When selecting a menu item, press the number to the left of the item. Menus may contain multiple pages. To view the full menu, use the arrow buttons at the bottom of the screen.

### 3.3.3 The "SS" Icon

The SS (Smart Socket/Sensor) icon in the top left of the screen displays the status of the torque sensor/transducer. The icon also acts as a quick-access menu for changing sensor settings (see Section 4.8 – Sensor Settings Menu).

The SS icon will display one of the following:

**Grey**: indicates the Bluetooth® module or sensor has been disabled or a handle is not connected.

**Red**: indicates that the Controller recognizes the Bluetooth module in the handle but is not connected to a Smart Socket. If Sensor Mode is not enabled, the E-RAD will operate normally. Sensor Mode disables the tool when a sensor is not detected.

**Yellow**: indicates that the Controller has found a Smart Socket and is in the process of connecting to it. **DO NOT** use the Tool during this process. See Section 9.2 – Connecting to a Smart Socket: Troubleshooting if the Smart Socket does not connect within one minute.

**Blue**: indicates that the Controller is connected to a Smart Socket and is ready to be used. Actual Torque readings will be displayed in light blue to indicate readings from the Smart Socket.

Refer to Section 5.1 – Connecting to a Smart Socket for more information.

**Note**: "Sensor Info" in the Tool Information Menu will show information about the hardware, software, and Bluetooth connection when a Smart Socket is connected. Refer to Section 4.7.1 – View Tool Information.

## 3.4 User Access Levels

The E-RAD BLU operates under four User Access Levels: Locked, Basic, Intermediate, and Advanced. Each level has a different passcode and enables access to different functions. An icon at the top of the Main Screen confirms which Access Level is enabled. Table 3.4-1 lists the Access Levels and provides the Basic passcode. Table 3.4-2 outlines the functions available to each level. These functions are described in detail in this manual.

**Note**: The E-RAD BLU Tool System is shipped from factory in Basic Level. After configuration, it is recommended that the tool be locked for normal bolting operations to avoid inadvertent changes to Tool Settings and Calibration.

| Access Level | Passcode |
|---|---|
|  Basic<br>Locked | 14504 |
|  Intermediate | Contact your RAD Distributor. |
|  Advanced | |

Table 3.4-1: Access Levels and Passcodes

| Function | Level | | | |
|---|---|---|---|---|
| | 🔒 | B | I | A |
| Select a Pre-set | ✓ | ✓ | ✓ | ✓ |
| Setup Data Logs | ✓ | ✓ | ✓ | ✓ |
| View Data Logs | ✓ | ✓ | ✓ | ✓ |
| View Tool Information | ✓ | ✓ | ✓ | ✓ |
| View Tool Statistics | ✓ | ✓ | ✓ | ✓ |
| View Diagnostics | ✓ | ✓ | ✓ | ✓ |
| Smart Socket Settings | ✗ | ✓ | ✓ | ✓ |
| Change Set Torque | ✗ | ✓ | ✓ | ✓ |
| Change Set Angle | ✗ | ✓ | ✓ | ✓ |
| Modify Pre-sets | ✗ | ✓ | ✓ | ✓ |
| Change Torque Units | ✗ | ✓ | ✓ | ✓ |
| PC Connect / Transfer | ✗ | ✗ | ✓ | ✓ |
| Enable/Disable Angle Mode | ✗ | ✗ | ✓ | ✓ |
| Enable/Disable Point Calibration | ✗ | ✗ | ✓ | ✓ |
| Enable/Disable Operator Password | ✗ | ✗ | ✓ | ✓ |
| Enable/Disable Graphing | ✗ | ✗ | ✓ | ✓ |
| Enable/Disable Hide Result/Joint | ✗ | ✗ | ✓ | ✓ |
| Clear Maintenance Statistics | ✗ | ✗ | ✓ | ✓ |
| Change Back-Off Angle | ✗ | ✗ | ✓ | ✓ |
| Point Calibration | ✗ | ✗ | ✓ | ✓ |
| Blue Calibration | ✗ | ✗ | ✓ | ✓ |
| Enable/Disable Auto Lock | ✗ | ✗ | ✗ | ✓ |
| Enable/Disable Reverse Confirmation | ✗ | ✗ | ✗ | ✓ |
| Enable/Disable Trigger Stop | ✗ | ✗ | ✗ | ✓ |
| Low Pre-Torque | ✗ | ✗ | ✗ | ✓ |
| Torque Check Enable/Angle | ✗ | ✗ | ✗ | ✓ |
| Change Check Speed | ✗ | ✗ | ✗ | ✓ |
| Change Run Speed | ✗ | ✗ | ✗ | ✓ |
| Calibration Adjust | ✗ | ✗ | ✗ | ✓ |
| Maintenance Cycle Lock/Warn | ✗ | ✗ | ✗ | ✓ |
| Maintenance Count Threshold Torque | ✗ | ✗ | ✗ | ✓ |
| Set System Clock | ✗ | ✗ | ✗ | ✓ |
| Network Settings | ✗ | ✗ | ✗ | ✓ |
| Factory Settings (code-enabled) | ✗ | ✗ | ✗ | ✓ |
| Tool Calibration | ✗ | ✗ | ✗ | ✓ |

Table 3.4-2: User Access Levels and Functions

### 3.4.1 Unlocking Access Levels

**To Unlock an Access Level**:

1. Select "**Menu**" from the Main Screen.
2. Select the "**Lock**" or "**Unlock**" option from the Main Menu (Figure 3.4.1-1).
3. A number pad will be displayed (Figure 3.4.1-2).
4. Enter the password for the desired Access Level (see Section 3.4 – User Access Levels).
5. Press ✓ to confirm the password or ✗ to backspace or cancel.


Figure 3.4.1-1: Main Menu

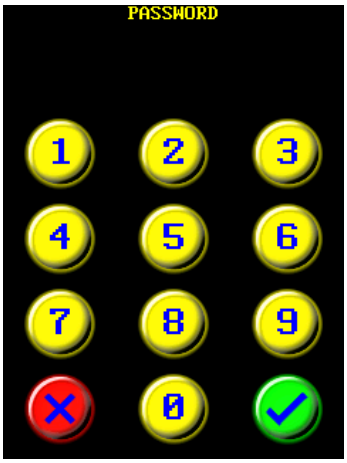



Figure 3.4.1-2: Number Pad

6. If a wrong password was entered, "PASSWORD INCORRECT" will be displayed.
7. If the password is correct, the display will return to the Main Screen and the desired Access Level will be unlocked (Figure 3.4.1-3).

   **Note:** The access level indicator will change to a letter indicating the new unlocked level.


Figure 3.4.1-3: Main Screen in Basic Unlock

### 3.4.2 Returning to the Locked Level

**To return to the Locked Access Level**:

1. Select "**Menu**" from the Main Screen.
2. Select the "**Lock**" option from the Main Menu (Figure 3.4.2-1).
3. A number pad will be displayed (Figure 3.4.2-2).
4. Enter the password "**14504**".
5. Press ✓ to confirm the password or ✗ to correct.


Figure 3.4.2-1: Main Menu


Figure 3.4.2-2: Number Pad

6. If the Touch Display was in the Basic Level, the tool will be locked. If the display was in any other level, it will now be in Basic. Input the code "**14504**" again to lock the tool.

   **Note:** The Lock Icon is displayed at the top of the screen (Figure 3.4.2-3).


Figure 3.4.2-3: Main Screen in the Locked Level

## 3.5 Connecting the Tool Components

**DANGER!**

Electrical shock can cause serious or fatal injury. Ensure E-RAD BLU Controller and Tool Handle are properly Earth Grounded before turning on the Power Switch.

**CAUTION!**

Do not connect or disconnect the electrical connectors while the power switch is turned on. Damage to the Tool or Controller may occur. Refer to Section 2 – Power Requirements and ensure compliance before connecting the Tool Handle or AC Power Cable to the Controller.

**Follow the instructions below to safely connect the E-RAD BLU Tool System components.**

1. Connect the Tool Handle to the Controller with the Tool Handle Cable.
2. Ensure the AC Mains Supply is Earth Grounded.
3. Ensure the AC Power Cable is in good condition and the plug pins and Earth Ground are present.
4. Ensure the Power Switch is in the Off Position.
5. Connect the AC Power Cable to the AC Mains Connector on the right side of the Controller and to the AC Mains Supply. Ensure the correct voltage is being supplied.
6. Check that the E-RAD BLU Controller and Tool Handle are properly Earth Grounded.

The E-RAD BLU Tool System is ready to power on.

## 3.6 Start-Up Without Handle

When the Controller is turned on without a handle connected, the options and settings related to the handle will be disabled. The Handle Temperature and the Pre-set button will not be shown on the Main Screen (Figure 3.6-1), the grey "SS" icon will appear, and the "Default" Log will be selected unless a custom Log was set previously. The unit will start up in the Locked Access Level.

If the Access Level is unlocked, the Menu options corresponding to the tool handle are disabled. Figures 3.6-2, 3.6-3, and 3.6-4 show the Main Menu in Advanced Level without a handle.


Figure 3.6-1: Main Screen: No Handle

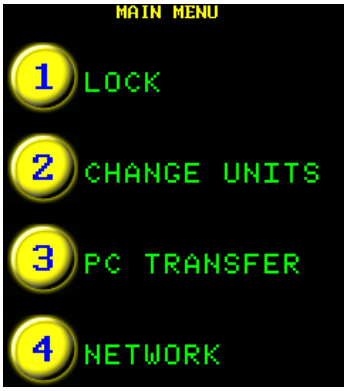



Figure 3.6-2: Menu First Screen


Figure 3.6-3: Second Screen


Figure 3.6-4: Third Screen

# 4. COMMON FUNCTIONS

## 4.1 Select a Pre-set

Pre-sets are Torque and/or Angle values stored in a list that allow the operator to quickly change the Torque and Angle. The Pre-sets are held on the Tool Handle. See Section 4.4 – Modify Pre-sets to create a Pre-set.

**To select a Pre-set:**

1. Select "Preset" from the Main Screen.
2. Select "Load Preset" from the Pre-set Menu (Figure 4.1-1).
3. Select the desired Pre-set from the list displayed. Figure 4.1-2 is an example of the Load Pre-set Screen.
4. The Main Screen will change the Set Torque and Set Angle to the Pre-set values. Any other settings stored in the Pre-set will also be changed.


Figure 4.1-1: Pre-set Menu


Figure 4.1-2: Load Pre-set Menu

An **Application Pre-set** is a pre-defined Set Torque and Set Angle value that allows the operator to quickly select a Set Torque and Set Angle for a specific application. These are stored in the Controller instead of the Tool Handle. Application Pre-sets may include extra information such as short descriptions or bolt count.

**Note**: The "App Presets" button only appears in the Pre-set Menu when App Pre-sets are installed on the Controller. For more information, refer to Section 8.7 – Edit Applications.

**To select an Application Pre-set:**

1. Press the "Presets" button on the Main Screen.
2. Select "App Presets" from the Pre-set Menu (Figure 4.1-3).
3. Select the desired Application from the App Pre-sets Menu (Figure 4.1-4).
4. Select the desired Pre-set from the list (Figure 4.1-5).


Figure 4.1-3: Preset Menu


Figure 4.1-4: Application Menu

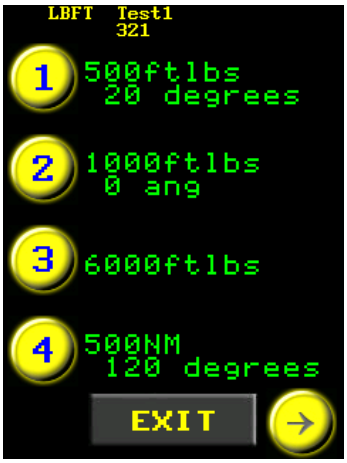



Figure 4.1-5: Pre-set Selection

**Note**: If the Application Pre-set has a torque outside of the range of the tool, a warning, "Preset Value Not Accepted" will be displayed and the torque will not be changed. Torque values below the minimum may be used if a Low Pre-Torque is set up (see Section 5.12 – Low Pre-Torque).

## 4.2 Change the Set Torque

The Set Torque is the actual torque value at which the tool will stop, and the cycle is considered a pass. For more information on the Set Torque and Torque Cycles, refer to Section 7.2 – Torque Only Operation.

**Note**: Set Torque cannot be changed while in the Locked Access Level. Pre-sets must be used instead.

**To change the Set Torque:**

1. Press the "Set Torque" button on the Main Screen.
2. Enter the new Set Torque (Figure 4.2-1).
3. Press to confirm the new Set Torque or to correct.
   **Note:** The torque value will be reset to either the minimum or maximum torque if the entered value was outside of the limits. To enter pre-torque values lower than the minimum (for Torque and Angle mode), use Low Pre-Torque values (see Section 5.12 – Low Pre-Torque).
4. The new Set Torque is displayed on the Main Screen (Figure 4.2-2).


Figure 4.2-1: Number Pad

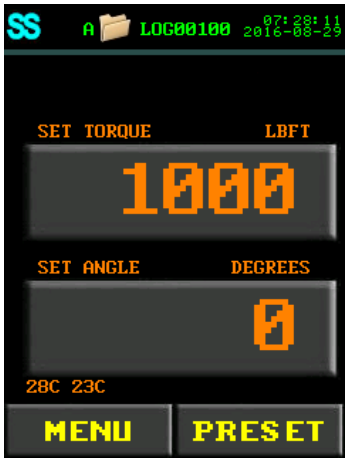



Figure 4.2-2: New Set Torque

## 4.3 Change the Set Angle

The Set Angle is the actual rotation angle at which the tool will stop, and the cycle will be considered a pass. For more information on the Set Angle and Angle Cycle, see Section 7.3 – Angle Only Operation.

**Note**: To change the Set Angle, Angle Mode must be enabled. Refer to Section 5.4 – Angle Mode.

**Note**: Set Angle cannot be changed while in the Locked Access Level. Pre-sets must be used instead.

**To change the Set Angle:**

1. Press the "**Set Angle**" button on the Main Screen. A number pad will be displayed (Figure 4.3-1).
2. Enter the new Set Angle.
   **Note:** The Set Angle range is 0 – 600°. Values entered above 600° will be set to 600°.
3. Press to confirm the new Set Angle or to correct.
4. The new Set Angle is displayed on the Main Screen (Figure 4.3-2).

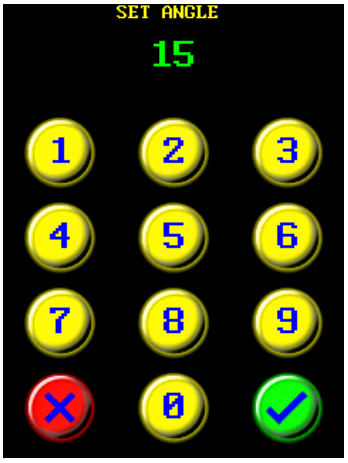



Figure 4.3-1: Number Pad

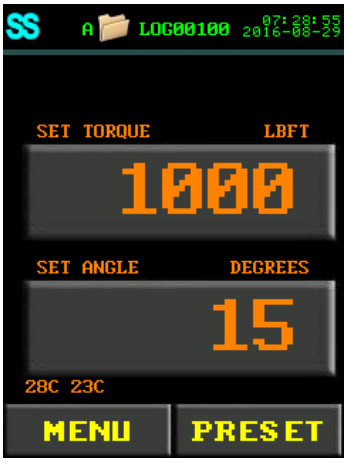



Figure 4.3-2: New Set Angle

## 4.4 Modify Pre-sets

This function allows you to modify any of 16 Pre-sets. For more information on using Pre-sets, refer to Section 4.1 – Select a Pre-set.

Pre-sets may include Angle Torque limits (Section 5.17 – Torque Limits), Torque-only Angle Limits (Section 5.18 – Angle Limits), or Point Calibrated torque (Section 5.15 – Point Calibration).

**To modify a Pre-set:**

1. Change the Set Torque and Set Angle to the desired values (refer to Sections 4.2 – Change the Set Torque and 4.3 – Change the Set Angle) and modify any other settings.
   **Note**: If Angle Mode is disabled, the saved Pre-set will contain only a Set Torque.
2. Press the "**Preset**" button on the Main Screen.
3. Select "**Save Preset**" from the Pre-sets Menu (Figure 4.4-1).
4. The Save Pre-set screen will be displayed (Figure 4.4-2).
5. Select the desired Pre-set to be overwritten.

   **Note:** The Set Torque and Set Angle values previously stored in the selected Pres-et will be overwritten.

   **Note:** Pre-sets are saved on the Tool Handle. Changing the Tool Handle will result in different Pre-sets.


Figure 4.4-1: Pre-set Menu


Figure 4.4-2: Save Pre-set Screen

## 4.5 Setup a Data Log File

This function allows you to create and select custom Data Log files to record torque results. The default Data Log file is named using the serial number of the Tool Handle. New Data Log files will be created on the Controller for each handle that is connected.

**Note**: Data Logs are stored on the Controller. To download logs to a computer, see Section 8.4 – Downloading All Data Logs.

**To create a new Data Log file:**

1. Press the Data Logs button (folder icon) located at the top of the Main Screen.
2. Choose "**Select Log**" from the Data Log Menu (Figure 4.5-1).
3. The Select Log screen is displayed. The current Log will be highlighted in the list of Data Logs.
4. Press the "**New**" button (Figure 4.5-2).
5. Enter the desired log name using the keypad (Figure 4.5-3).


Figure 4.5-1: Data Log Menu

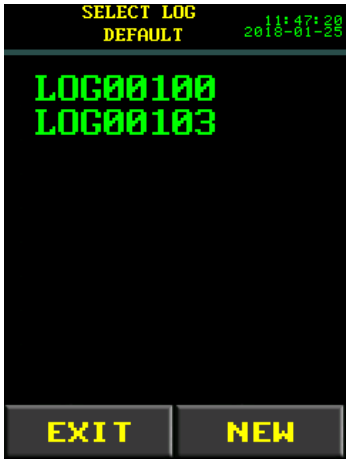



Figure 4.5-2: Select Log Screen


Figure 4.5-3: Alpha-Numeric Keypad

**Note**: Press a key several times to use the available characters on that key. The "1" key includes the characters "_" and "–". The cursor will move to the next position after a 1 second delay.

6. Press ✓ to accept the file name or ✗ to delete the previous character.
7. If the Data-Log file name already exists, you will be prompted to continue the existing log, ✓, or choose another file name, ✗ (Figure 4.5-4).
8. The new Data-Log file name is displayed at the top of the Main Screen (Figure 4.5-5).


Figure 4.5-4: Data Log Already Exists Prompt


Figure 4.5-5: Main Screen with New Data Log Displayed

**To select a different Data Log file:**

1. Press the Data Logs button (folder icon) located at the top of the Main Screen.
2. Choose "**Select Log**" from the Data Log Menu, shown in Figure 4.5-6.

   **Note:** To use the default log, select "Use Default" from the Data Log Menu.
3. The log list will be displayed with the current log highlighted (Figure 4.5-7).
4. Select a Data Log.
5. Press the "**Exit**" button. The display will return to the Data Log Menu.
6. Press the "**Exit**" button to return to the Main Screen. The selected Data Log will be displayed at the top of the Main Screen.

   **Note:** When a custom log is selected, it will be used by the Controller regardless of the tool handle connected. When "Use Default" is selected, the default log (using the serial number of the handle) will be selected.


Figure 4.5-6: Data Log Menu

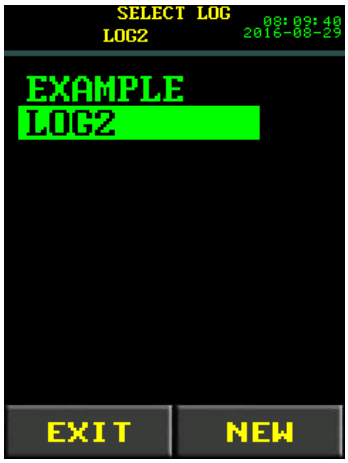



Figure 4.5-7: Select Log Screen

## 4.6 View a Data Log File

**To view the currently selected Data Log file:**

1. Select the Data Logs button (folder icon) located at the top of the Main Screen.
2. Select "**View Log**" from the Data Log Menu.
3. View individual cycle records using the left and right arrows at the bottom of the screen.

   **Note**: The log records will be green for passed cycles (Figure 4.6-1) or red for failed or invalid cycles (Figure 4.6-2).
4. Press the "**Exit**" button to return to the Main Screen.

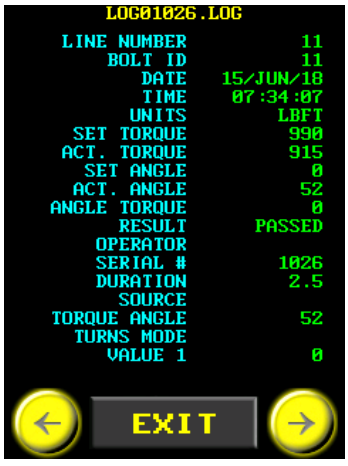



Figure 4.6-1: Passed Cycle

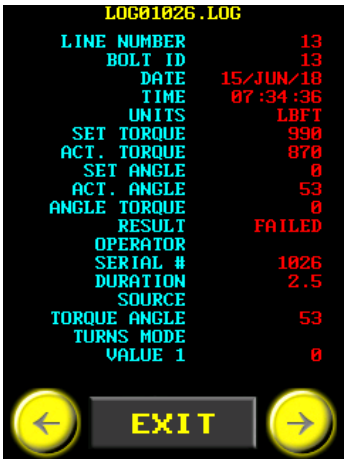



Figure 4.6-2: Failed Cycle

**To view a Data Log not currently selected:**

1. Select the Data Logs button (folder icon) at the top of the Main Screen.
2. Select "**View Select**" from the Data Log Menu.
3. Select the log that you want to view (Figure 4.6-3).
4. Press the "**Exit**" button.
5. View individual cycle records using the left and right arrow keys at the bottom of the screen.
6. Press the "**Exit**" button to return to the Data Log Menu.

   **Note:** If a Data Log file contains no logs, a "Log is Empty" message will be displayed. Select a different log or add cycles to the log before viewing. If another log is selected and used while an empty log exists, the empty log will be deleted.

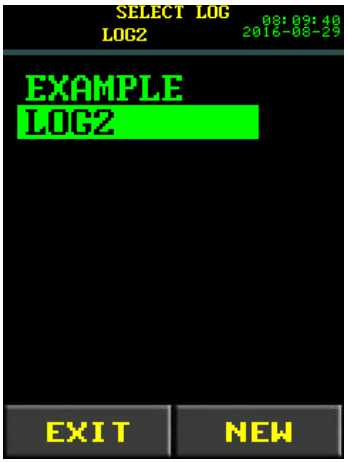



Figure 4.6-3: Select Log Screen

## 4.7 Information Functions

### 4.7.1 View Tool Information

This function allows you to view details about the Controller, the Tool Handle, and the Sensor/Smart Socket.

**To access the Information Menu:**

1. Select "Menu" from the Main Screen.
2. Select "Tool Info" from the Main Menu. The Tool Information Menu will appear (Figure 4.7.1-1).


Figure 4.7.1-1: Tool Information Menu

**To view the Controller information** (Figure 4.7.1-2)**:**

- Select "Case Info" from the menu.

The following information is displayed:

- Controller Serial Number
- Tool model
- Motor Drive information
- Controller firmware and hardware information
- IP Address and Gateway (if network connected)
- Error count (to view the errors, see Section 4.7.2 – View Tool Statistics)

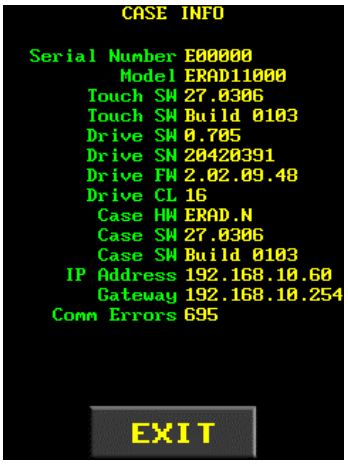



Figure 4.7.1-2: Controller Information

**To view the Tool Handle information** (Figure 4.7.1-3)**:**

- Select "Handle Info" from the menu.

The following information is displayed:

- Tool Handle Serial Number
- Handle firmware information
- Tool model
- Calibration voltage
- Factory Calibration Date
- Customer Calibration Date (if Calibration was modified)
- Total Cycles
- Maintenance Cycles
- Minimum Torque
- Maximum Torque

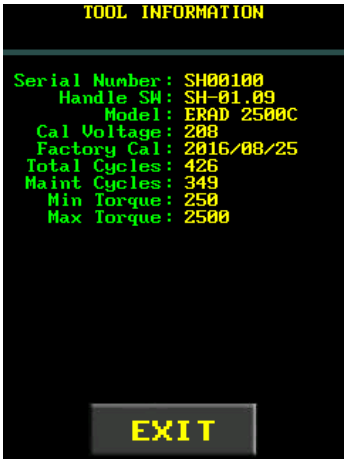



Figure 4.7.1-3: Handle Information

**To view the Sensor or Smart Socket information** (Figure 4.7.1-4)**:**

- Select "Sensor Info" from the menu.

The following information is displayed:

- Socket serial number (if connected)
- Socket model
- Socket firmware information
- Bridge (Bluetooth module) firmware information
- Socket maximum torque


Figure 4.7.1-4: Sensor Information

### 4.7.2 View Tool Statistics

These menus allow you to view torque statistics and errors recorded on the Tool Handle and Controller.

**To view the Tool Statistics:**

1. Select "**Menu**" from the Main Screen.
2. Select "**Tool Stats**" from the Main Menu (Figure 4.7.2-1).
3. The Tool Statistics Menu will be displayed (Figure 4.7.2-2).

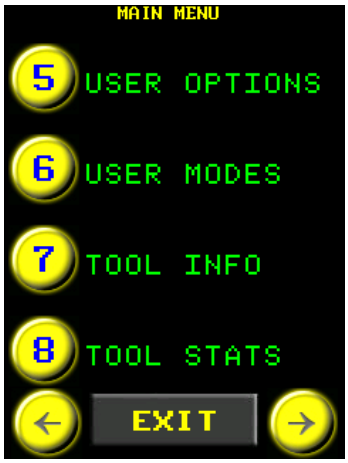



Figure 4.7.2-1: Main Menu


Figure 4.7.2-2: Statistics Menu

**Lifetime Stats** (Figure 4.7.2-3) lists information recorded since the manufacture date. The following information is listed:

Stored on Handle:

- Total torque cycles (forward and reverse cycles are counted)
- Cycles counted between 0-20%, 20-80%, and 80-100% of the tool's torque range.
- Over Torque cycles above maximum torque

Stored on Controller:

- Under Voltage errors
- Over Voltage errors
- Drive Overload errors
- Over Temperature errors

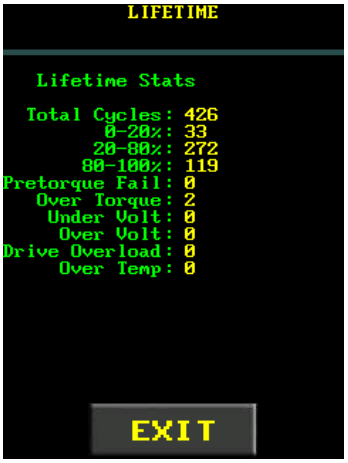



Figure 4.7.2-3: Lifetime Statistics

**Maintenance Stats** (Figure 4.7.2-4) lists information recorded since maintenance was done. If the Maintenance Cycles were cleared at some time (see Section 5.20 – Clear Maintenance Statistics), the cycles recorded here will be less than in Lifetime Statistics.

The same information is listed as in Lifetime Statistics.

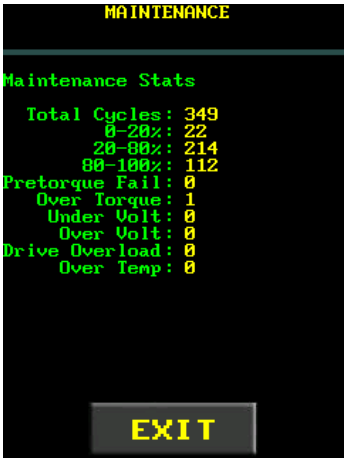



Figure 4.7.2-4: Maintenance Statistics

**Error Log** (Figure 4.7.2-5) lists all errors that have occurred on the Controller. If no errors have occurred, a "No Errors" message will appear.

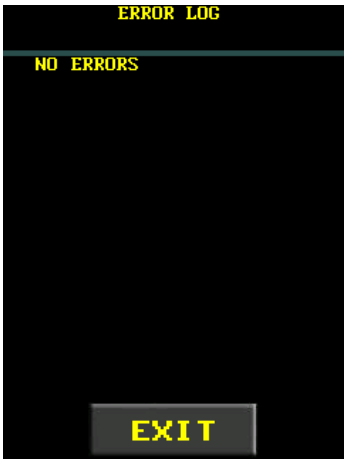



Figure 4.7.2-5: Error Log

### 4.7.3 View Diagnostics

Diagnostics (Figure 4.7.3-1) lists information useful when troubleshooting the E-RAD BLU Tool System. The information includes the following:

- Drive (Controller) temperature
- Minimum voltage since startup
- Line voltage
- Motor current
- Motor position
- Tool velocity (in RPM)
- Peak torque
- Peak current
- Status of the On/Off Trigger, Forward/Reverse Switch, and Elmo controller
- Various diagnostic values
- Sensor Input or Bridge Connection State

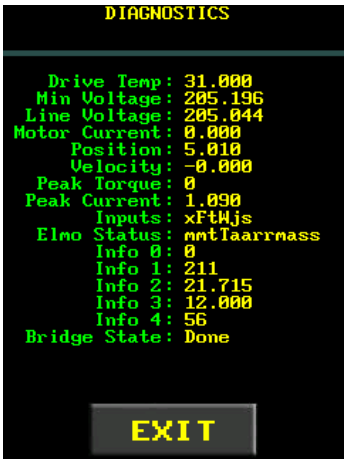



Figure 4.7.3-1: Diagnostics Display

**To view the Diagnostics Display:**

1. Select "Menu" from the Main Screen.
2. Select "Diagnostics" from the Main Menu (Figure 4.7.3-2).
   **Note:** To return to the Main Screen, press the "Exit" button.


Figure 4.7.3-2: Main Menu

## 4.8 Sensor Settings Menu

The Smart Socket setup options can be found in the SS menu located on the Main Screen (the **SS** in Figure 4.8-1). You can select a socket serial number and pin to connect to a Smart Socket (example in Figure 4.8-2). See Section 5.1 – Connecting to a Smart Socket for more information.


Figure 4.8-1: Main Screen


Figure 4.8-2: SS Menu Settings

# 5. TOOL FUNCTIONS

Refer to Section 3.4 – User Access Levels for more information on the accessibility of these functions. The procedures and figures in this section are from the Advanced access level.

Many options will not be available if the Tool Handle is disconnected (see Section 3.6 – Start-up Without Handle).

## 5.1 Connecting to a Smart Socket

**To connect a Smart Socket to the E-RAD BLU:**

1. Enable Bluetooth on the Smart Socket. Refer to the Smart Socket User Manual Section 5.2 – Connecting the Smart Socket to a PC for instructions.
2. Ensure that "Target Pass/Fail" is disabled on the Smart Socket before using the Smart Socket with the E-RAD BLU. Refer to the Smart Socket User Manual Section 6.2 – Operating Modes for more information.
3. Enable Bluetooth on the E-RAD BLU. Tap the SS icon in the top left of the Main Screen. The Socket Information Screen (Figure 5.1-1) will be displayed.

**Note:** The Socket information screen can also be accessed through the User Configuration Menu.

4. Input the Smart Socket serial number and pairing code.

**Note:** The default pairing code is 1111. The pairing code 2222 is reserved for connection to Smart Socket 2.7 units, do not use this pairing code for Smart Socket 2.0. Refer to the Smart Socket User Manual Section 5.12 – Changing the Bluetooth Pin for information on how to change the pairing code.


Figure 5.1-1: Bluetooth Settings

**Note**: The "SS" and any leading zeroes in the serial number can be ignored; for example, input "100" for "SS00100." Entering "0" or toggling the "Bluetooth" button will disable the Bluetooth module.

5. Select "**Bluetooth**" to turn Bluetooth on or off.

**Note**: If you encounter connection problems, refer to Section 9.2 – Connecting to a Smart Socket: Troubleshooting.

## 5.2 Change the Torque Units

You can choose between foot-pound (LbFt) or newton-metre (Nm) torque units. When the units are changed, the E-RAD BLU converts the Set Torque value, Pre-set torque values, and Calibration values to the selected units.

**Note**: The Application Pre-set list includes torque units, which are used for all the pre-sets in the list. Selecting an Application Pre-set (see Sections 4.1 – Select a Pre-set and 8.7 – Edit Applications) may change the torque units.

**To change the torque units:**

1. Select "**Menu**" from the Main Screen.
2. Select "**Change Units**" from the Main Menu (Figure 5.2-1).
3. Select the desired units from the units menu (Figure 5.2-2).


Figure 5.2-1: Main Menu


Figure 5.2-2: Select Units

## 5.3 Set Language

The E-RAD BLU can set the language to English or Chinese.

To set the language:

1. Select "**Menu**" from the Main Screen.
2. Select "**Language**" from the Main Menu (Figure 5.3-1).
3. Select the preferred language in the Language Menu (Figure 5.3-2).


Figure 5.3-1: Main Menu


Figure 5.3-2: Language Settings

## 5.4 Angle Mode

Angle Mode enables Angle Only and Torque and Angle operations. With Angle Mode enabled, you can change the Set Angle and use Pre-sets with angle values. Refer to Sections 4.1 – Select a Pre-set, 4.3 – Change the Set Angle, 4.4 – Modify Pre-sets, 7.3 – Angle Only Operation, and 7.4 – Torque and Angle Operation.

**To enable or disable Angle Mode:**

4. Select "**Menu**" from the Main Screen.
5. Select "**User Options**" from the Main Menu (Figure 5.4-1).
6. Select "**Angle Mode**" to toggle Angle Mode on or off (Figure 5.4-2).

   **Note:** Angle Mode is enabled when a checkmark is displayed.

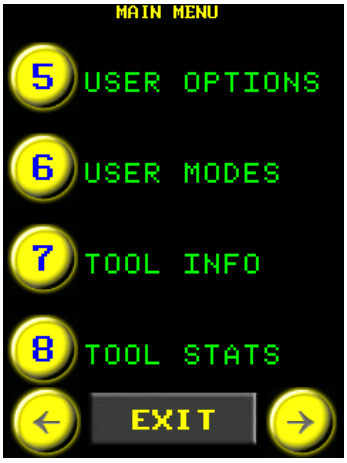



Figure 5.4-1: Main Menu

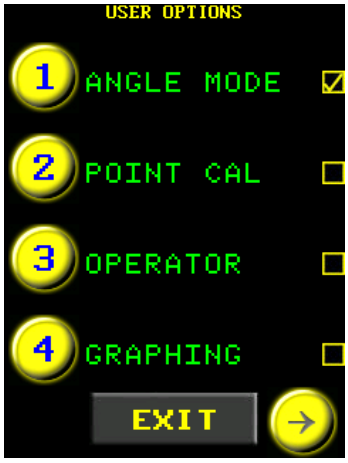



Figure 5.4-2: User Options Menu

## 5.5 Operator Password

The Operator Password function locks out all tool functions until an operator logs in. The operator may log in using one of the passwords in the Operator Password File uploaded to the E-RAD BLU Controller (refer to Section 8.8 – Manage Operator Passwords).

**To enable or disable the Operator Password:**

1. Select "**Menu**" from the Main Screen.
2. Select "**User Options**" from the Main Menu.
3. Select "**Operator**" to toggle Operator Password on or off (Figure 5.5-1).

**To Login:**

**Note:** The Main Screen will not be displayed until someone logs in.

1. Select "**Login**" from the Main Menu (Figure 5.5-2).

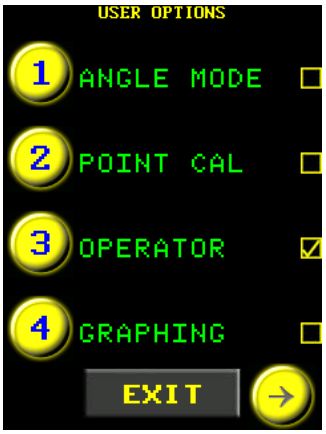



Figure 5.5-1: User Options Menu

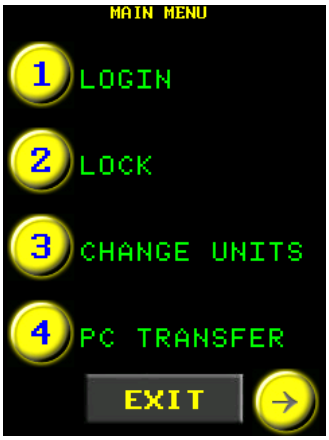



Figure 5.5-2: Main Menu

2. Enter an Operator Password (Figure 5.5-3).
3. Press "✓" to confirm or "✗" to correct.
4. The Main Menu will appear, and the "**Logout**" option will be displayed (Figure 5.5-4).

**To Logout:**

1. Select "**Menu**" from the Main Screen.
2. Select "**Logout**" from the Main Menu (Figure 5.5-4).
5. The display will return to the Main Menu and the "**Login**" option will be displayed (Figure 5.5-2).

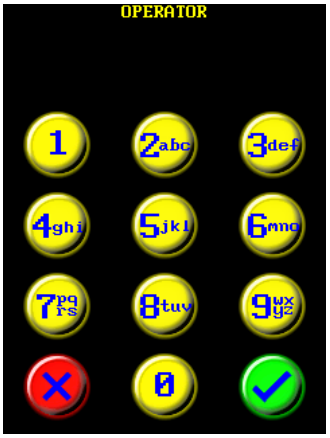



Figure 5.5-3: Password Keypad

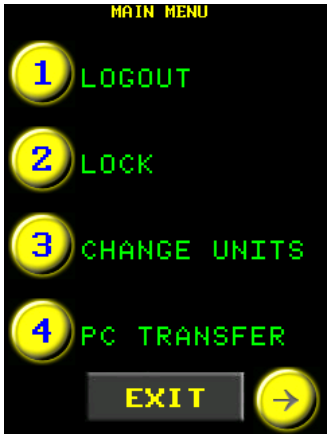



Figure 5.5-4: Main Menu with Logout Option

## 5.6 Torque Graphing

When the E-RAD BLU is connected to a network (see Section 5.23 – Network & Address), the torque curve can be plotted using a PC application.

**To set up Graphing:**

1. Select "**Menu**" from the Main Screen.
2. Select "**User Options**" from the Main Menu.
3. Select "**Graphing**" to toggle Graph Mode on or off (Figure 5.6-1).

**Note:** Graphing is turned on when a checkmark is displayed.

When graphing is enabled, the timestamp, tool angle, and measured torque data may be collected on a local computer using a third-party software package. For more information on data collection and graphing, contact New World Technologies Inc. Technical Support (see Section 10 – Contact Us).

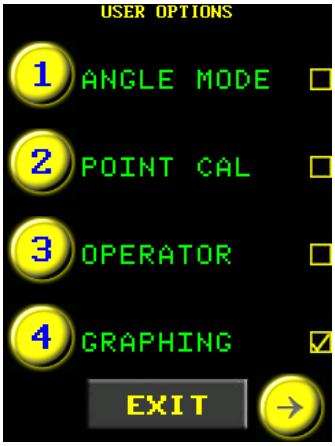



Figure 5.6-1: User Options Menu

## 5.7 Hide Result

The Hide Result option prevents the Actual Torque and Actual Angle results from being displayed after a tool cycle has been completed.

**To enable Hide Result:**

1. Select "**Menu**" from the Main Screen.
2. Select "**User Options**" from the Main Menu.
3. Select "**Hide Result**" to toggle the option on or off (Figure 5.7-1).

**Note:** Hide Result is turned on, meaning the cycle results will not be shown when the checkmark is displayed.

After a tool cycle is completed, the final torque and/or angle values are not shown, but "Last Result" may still be selected to view the actual values (see Section 7.5 – Reviewing the Last Result).

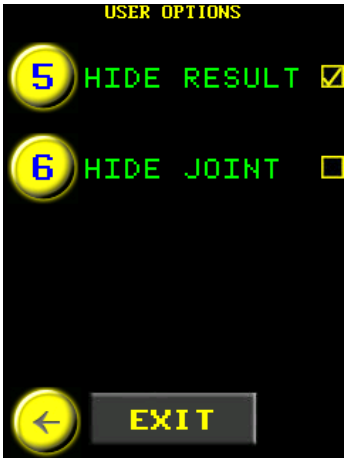



Figure 5.7-1: User Options Menu

## 5.8 Hide Joint

The Hide Joint option prevents just the Actual Angle value from being displayed after a tool cycle has been completed.

**To enable Hide Joint:**

4. Select "**Menu**" from the Main Screen.
5. Select "**User Options**" from the Main Menu.
6. Select "**Hide Joint**" to toggle the option on or off (Figure 5.8-1).

**Note:** Hide Joint is turned on, meaning the actual angle results will not be shown when the checkmark is displayed.

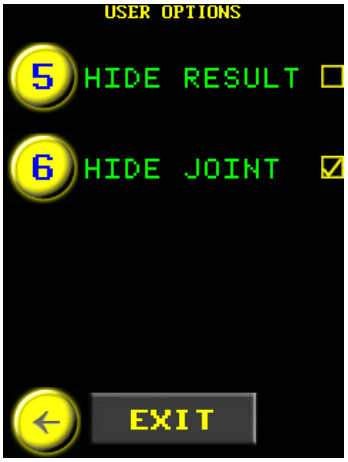



Figure 5.8-1: User Options Menu

## 5.9 Auto Lock

The Auto Lock function forces the Controller to start-up in the Locked Access Level.

**To enable or disable Auto Lock:**

1. Select "**Menu**" from the Main Screen.
2. Select "**User Modes**" from the Main Menu.
3. Select "**Auto Lock**" to toggle Auto Lock on or off (Figure 5.9-1).

**Note:** Auto Lock is enabled when a checkmark is displayed.

The Controller will not be locked until the power is switched off and on again.

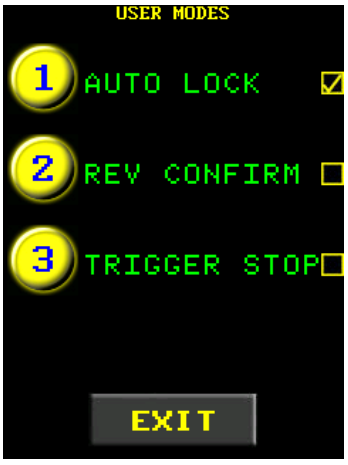



Figure 5.9-1: User Modes Menu

## 5.10 Reverse Confirmation

Reverse Confirmation prevents the tool from being reversed without a confirmation from the user.

**To enable or disable Reverse Confirmation:**

1. Select "**Menu**" from the Main Screen.
2. Select "**User Modes**" from the Main Menu.
3. Select "**Rev Confirm**" to enable or disable Reverse Confirmation (Figure 5.10-1).
   **Note:** Reverse Confirmation is enabled when a checkmark is displayed.

When the tool direction switch is set to reverse, a confirmation box will appear asking to allow reverse (Figure 5.10-2).

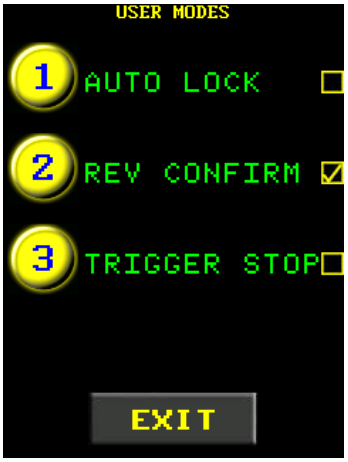


Figure 5.10-1: User Modes Menu

Figure 5.10-2: Allow Reverse

## 5.11 Trigger Stop

This function is a safety feature that prevents the tool from moving when the trigger button is not being pressed.

**To enable or disable Trigger Stop:**

1. Select "**Menu**" from the Main Screen.
2. Select "**User Modes**" from the Main Menu.
3. Select "**Trigger Stop**" to turn the Trigger Stop function on or off (Figure 5.11-1).
   **Note:** When a checkmark is displayed, the tool will move only while the trigger is depressed.

Figure 5.11-1: User Modes Menu

## 5.12 Low Pre-Torque

Low Pre-Torque settings are custom Set Torque values that may be entered on the Main Screen or using a Pre-set. These values may only be used with Torque and Angle Mode (see Section 7.4 – Torque and Angle Operation). The Low Pre-Torque values may be set lower than the tool's Minimum Torque or greater than the pre-torque limit of 50% Maximum Torque, providing a wider range of torque and angle options.

**CAUTION!**

When using a Low Pre-Torque setting over 50% of Maximum Torque, take extra care while doing torque and angle movement and be ready to cancel the cycle. The tool's Maximum Torque may be quickly exceeded while doing an angle movement, especially on hard joint systems.

**Note**: Angle Mode must be enabled to use Low Pre-Torque values. Refer to Section 5.4 – Angle Mode.

**To create a Low Pre-Torque setting:**

1. Select "**Menu**" from the Main Screen.
2. Select "**User Config**" from the Main Menu (Figure 5.12-1).
3. Select "**Low Pretorque**" from the User Configuration Menu (Figure 5.12-2).
4. Select one of the Pre-Torque slots from the Low Pre-Torque Menu (Figure 5.12-3).


Figure 5.12-1: Main Menu


Figure 5.12-2: User Configuration Menu


Figure 5.12-3: Low Pre-Torque Menu

5. The Pre-Torque Adjustment screen will be displayed (Figure 5.12-4).
6. Press the "**Torque Value**" button on the Pre-Torque Adjustment screen. A number pad will be displayed (Figure 5.12-5).
7. Enter the desired Low Pre-Torque Value.
8. Press "✓" to confirm or "✗" to correct.
9. Select "Exit" to return to the Main Screen.
10. Set the Angle to some small value. Verify the Low Pre-Torque setting by changing the Set Torque to the Low Pre-Torque value.


Figure 5.12-4: Low Pre-Torque Adjustment Screen

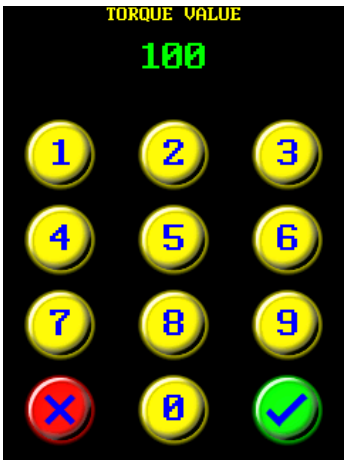



Figure 5.12-5: Torque Value Keypad

**Note**: The Angle must be set to a non-zero value before a Low Pre-Torque can be selected.

11. Perform a pre-torque cycle and check the actual torque using a transducer. Stop the tool before angle movement starts (see Section 7.4 – Torque and Angle Operation).
12. Calculate the Adjustment Value using the torque measured by the transducer. Use the following equation:

$$\text{Adjustment Value} = \frac{\text{Pre-Torque Value}}{\text{Transducer Torque}} \times 1000\ ‰$$

13. Select the "**Adjustment**" button on the Low Pre-Torque Adjustment Screen. A number pad will be displayed (Figure 5.12-6).
14. Enter the Adjustment value (a value of 1000 means no adjustment).
15. Press "✓" to confirm or "✗" to correct.
16. Press the "**Exit**" button at the bottom of the screen.
17. The display will return to the Low Pre-Torque Menu and the modifications will be saved.
18. Press the "**Exit**" button at the bottom to return to the Main Screen.

A Low Pre-Torque value may be saved in a Pre-set. Refer to Section 4.4 – Modify Pre-sets for more information.


Figure 5.12-6: Number Pad

## 5.13 Torque Check

Torque Check mode measures the angle movement of a fastener and displays the result on the Main Screen. This is useful to check tightened fasteners at the desired torque value. If the actual angle is less than the specified value, the cycle result will report "Check" on the main screen. Logs will record "passed" just as normal torque pulls. See Section 7.2 – Torque Only Operation for an example of the tool cycle result.

**Note:** The Torque Check Angle value may vary depending on the application and the hardness of the joint.


Figure 5.13-1: Change Values Menu

**To set up Torque Check:**

1. Select "**Menu**" from the Main Screen.
2. Select "**User Config**" from the Main Menu.
3. Select "**Change Values**" from the User Config Menu.
4. Select the "**Check Angle**" option from the Change Values menu (Figure 5.13-1).
5. Enter an angle value between 0 and 90 degrees.

## 5.14 Change Tool Back-Off Angle

The E-RAD BLU reverses slightly after a tool cycle has passed to release the tool from the joint. The Back-Off Angle is the angle of reverse rotation, set to 10 degrees by default.

**To change the back-off angle:**

1. Select "**Menu**" from the Main Screen.
2. Select "**User Config**" from the Main Menu.
3. Select "**Change Values**" from the User Config Menu (Figure 5.14-1).
4. Select "**Backoff**" from the Change Values Menu (Figure 5.14-2).
5. Enter the new Back-Off Angle, in degrees (Figure 5.14-3).

**Note**: Press "✓" to confirm the new Angle or "✗" to correct the value or cancel the adjustment.

**Note**: The Back-Off Angle must be an angle between 0 and 90 degrees. If the angle is set greater than 90 degrees, the value will change to 90 degrees. You may enter a different Back-Off Angle or press "✓" to accept 90 degrees.


Figure 5.14-1: User Config Menu


Figure 5.14-2: Change Values Menu


Figure 5.14-3: Backoff Keypad

## 5.15 Point Calibration

Point Calibration allows a single torque point to be fine-tuned to suit the needs of an application. When Point Calibration is enabled, the Calibration Adjust value applies to the selected torque point instead of the entire tool range (refer to Section 5.21 – Calibration Adjust). Pre-sets may include a Point Calibrated torque.

Point Calibration cannot be used with a Torque and Angle cycle. Instead, use the Low Pre-torque Adjustment to adjust the pre-torque value (see Section 5.12 – Low Pre-Torque).

**Note:** Point Calibration does not replace the Tool Calibration. For information on Tool Calibration, refer to Section 6 – Calibration. A full calibration must be done before Point Calibration may be used.

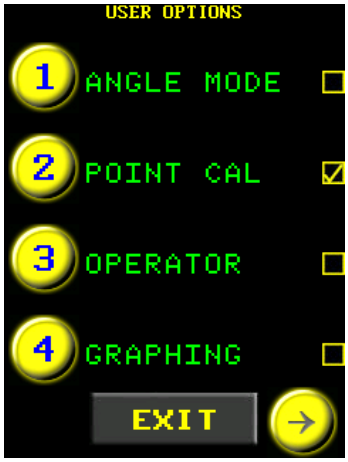



Figure 5.15-1: User Options Menu

**To enable or disable Point Calibration:**

1. Select "**Menu**" from the Main Screen.
2. Select "**User Options**" from the Main Menu.
3. Select "**Point Cal**" to toggle Point Calibration on or off (Figure 5.15-1).
4. Press "**Exit**" to return to the Main Screen.

**To calibrate a Set Torque point:**

1. Ensure Point Calibration is enabled.
2. Mount the E-RAD BLU Tool to a calibration stand.
3. Ensure that the transducer is using the same units as the E-RAD BLU.
4. Set the desired Target Torque on the Main Screen and set the Target Angle to 0.
5. Select "**Menu**" from the Main Screen.
6. Select "**User Config**" from the Main Menu.
7. Select "**Point Cal**" from the User Config Menu (Figure 5.15-2).
8. The Point Calibration screen is displayed (Figure 5.15-3).
9. Operate the tool to complete one torque cycle.
10. If using a calibration stand, enter the torque read from the transducer. If using a Smart Socket, the Measured Torque will be entered through the Bluetooth connection.
11. Reverse the tool to loosen the joint.
12. Operate the tool for a second torque cycle.
13. Input the torque from the transducer or let the Smart Socket input the measured torque (Figure 5.15-4).
14. Press  to save the Point Calibration.
15. A message will ask to save the Point Calibration results. Press  to save the results or  to discard (Figure 5.15-5).
16. The display will return to the Main Screen (Figure 5.15-6). A target symbol is shown in the top left corner.


Figure 5.15-2: User Config Menu


Figure 5.15-3: Point Calibration

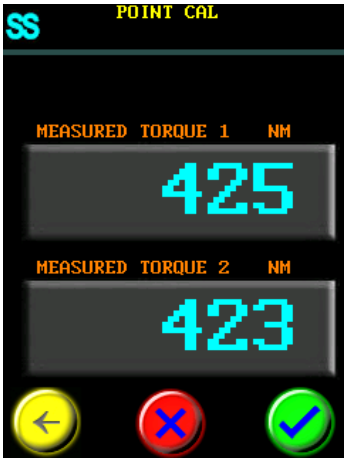



Figure 5.15-4: Point Calibration Screen


Figure 5.15-5: Save Result Confirmation

17. The Point Calibration will be saved until the torque value is changed or Point Calibration is disabled. Only one torque value may be Point Calibrated at a time unless it is saved in a Pre-set.
18. Presets may be saved using point-calibrated torque (see Preset 1 in Figure 5.15-7). A point-calibrated torque value is designated with a star. The Point Calibration will not apply if Point Calibration is disabled. You may save as many Presets with unique Point Calibration data as you like.

    **Note**: When Point Cal is enabled, the Cal Adjust value becomes the Point Cal Adjustment value (Figure 5.15-8). This value may be manually changed for Point Calibrated torque values. See Section 5.21 – Calibration Adjust for more information.


Figure 5.15-6: Point Cal Set


Figure 5.15-7: Point Calibration, Preset 1


Figure 5.15-8: Point Cal Adjust

## 5.16 Blue Calibration

Blue Calibration allows you to quickly adjust the Calibration for the tool. This feature is useful in the field when the torque needs to be adjusted for a specific application. Blue Cal adjusts the tool's full torque range without overwriting the original calibration values. This method uses a Smart Socket to modify the Calibration Adjust value (refer to Section 5.21 – Calibration Adjust).

**Note**: Blue Calibration appears in the User Configuration Menu only after a full Tool Calibration has been done and a Smart Socket is connected to the E-RAD BLU (see Section 5.1 – Connecting to a Smart Socket).

**Note**: Blue Calibration is not recommended for use above 80% or below 40% of the tool's Maximum Torque. If Blue Calibration is used for a torque value below 40%, an error message will be displayed: "Torque too low, Use Point Cal". Point Cal should be used for any torque below 40%. Refer to Section 5.15 – Point Calibration.

**To perform Blue Calibration:**

1. Select "**Menu**" from the Main Screen.
2. Select "**User Config**" from the Main Menu.
3. Select "**Blue Cal**" (Figure 5.16-1). A keypad will be displayed (Figure 5.16-2).
4. Enter the desired Target Torque (around 50% of Maximum Torque usually works well).

   **Note**: Press ✓ to confirm torque or ✗ to correct.


Figure 5.16-1: User Config Menu


Figure 5.16-2: Target Torque Keypad

5. The Blue Calibration screen will be displayed (Figure 5.16-4).
6. Operate the tool to complete one torque cycle.
7. The measured torque will be entered from the connected Smart Socket (Figure 5.16-5).
8. Reverse the tool and perform a second torque cycle.


Figure 5.16-3: Blue Calibration Screen


Figure 5.16-4: Blue Calibration Screen

9. The second measured torque will be entered from the connected Smart Socket (Figure 5.16-6).
10. Press  to accept the Blue Calibration.
11. A message will appear asking to confirm the result as shown. Press  to save the result or  to discard (Figure 5.16-7). The screen will return to the User Configuration Menu.
**Note:** To view or modify the new adjustment value, check the "**Cal Adjust**" value. Refer to Section 5.21 – Calibration Adjust for more information.


Figure 5.16-5: Blue Calibration Screen


Figure 5.16-6: Save Result Confirmation

## 5.17 Torque Limits

This feature enables torque limits for Angle Only or Torque and Angle cycles. The angle movement stops if the Actual Torque exceeds the Torque Limit. The cycle will pass or fail depending on whether the Actual Torque is within the limited range. Refer to Sections 7.3 – Angle Only Operation and 7.4 – Torque and Angle Operation for more information.

**To modify the Angle Torque Limits:**

1. Ensure that Angle Mode is enabled. Refer to Section 5.4 – Angle Mode.
2. Change the Set Angle to a non-zero value (refer to Section 4.3 – Change the Set Angle).
**Note**: If Angle is set to 0, Angle Limits may be set instead of Torque Limits (see Section 5.18 – Angle Limits).
3. Change the Pre-Torque to the desired value (refer to Section 4.2 – Change the Set Torque).

4. Press and hold the "**Set Angle**" button for 3 seconds. The Torque Limits screen will be displayed (Figure 5.17-1).
5. Set the Minimum and Maximum Torque Limits (Figure 5.17-2). Select the "**Min Torque**" or "**Max Torque**" buttons and enter the values using the keypad. Min Torque may be set to 0.
6. Press the "**Exit**" button to return to the Main Screen.
7. The Final Torque of a cycle must be between the Min Torque and the Max Torque values for the cycle to pass. If the Final Torque is less than the Minimum or exceeds the Maximum, the cycle will fail.


Figure 5.17-1: Torque Limits Screen


Figure 5.17-2: Set Min and Max Torque Limits

The Torque Limits will be cleared if the Set Torque or Set Angle are changed, or a Pre-set without Torque Limits is selected.

When a Pre-set is saved, the Angle Torque Limits will also be saved. The list of saved Pre-sets will display the limits beside the Set Torque value (see Pre-sets 1 and 4 in Figure 5.17-3).

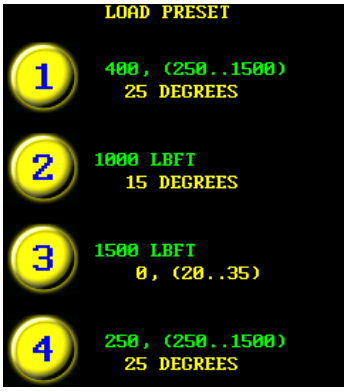



Figure 5.17-3: Pre-sets 1 and 4 with Torque Limits in Brackets

## 5.18 Angle Limits

This feature enables angle limits for a Torque Only cycle. The tool measures the angle movement between Seating Torque and Final Torque and stops if the measured angle exceeds the Angle Limit. The torque cycle will pass or fail depending on whether the Actual Angle is within the limited range. Refer to Section 7.2 – Torque Only Operation for more information.

**To modify the Torque Angle Limits:**

1. Change the Set Angle to 0 or disable Angle Mode (refer to Sections 4.3 – Change the Set Angle or 5.4 – Angle Mode).
   **Note**: If Set Angle is not 0, Torque Limits may be set instead of Angle Limits (see Section 5.17 – Torque Limits).
2. Change the Set Torque to the desired value (refer to Section 4.2 – Change the Set Torque).

3. Press and hold the "**Set Torque**" button for 3 seconds. The Angle Limits menu will be displayed (Figure 5.18-1).
4. Set the Minimum and Maximum Angle Limits. Select the "**Min Angle**" or "**Max Angle**" buttons (Figure 5.18-2) and enter the values using the keypad. Min Angle may be set to 0.
5. Press the "**Exit**" button to return to the Main Screen.

   **Note:** the maximum angle that may be set is 18,000 degrees. The Minimum value cannot exceed the Maximum value, and will be corrected down.

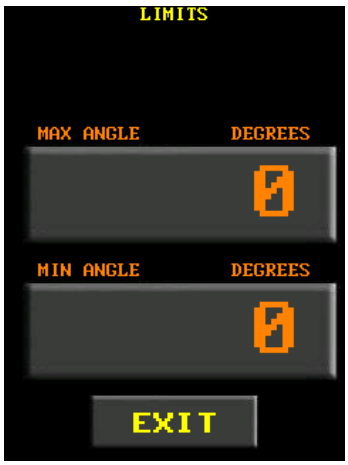



Figure 5.18-1: Angle Limits Screen

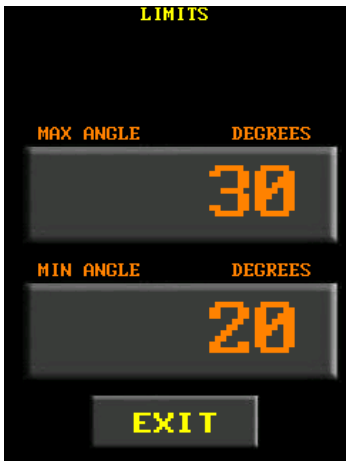



Figure 5.18-2: Set Min and Max Angle

The Actual Angle is the angle measured from Seating Torque to Final Torque. The Actual Angle of a cycle must be between the Min Angle and the Max Angle values for the cycle to pass. If the Actual Angle is less than the Minimum or exceeds the Maximum, the cycle will fail.

The Angle Limits will be cleared if the Set Torque or Set Angle are changed, or a Pre-set without Angle Limits is selected.

When a Pre-set is saved, the Angle Limits will also be saved. The list of saved Pre-sets will display the limits below the Set Torque (see Pre-sets 2 and 3 in Figure 5.18-3).

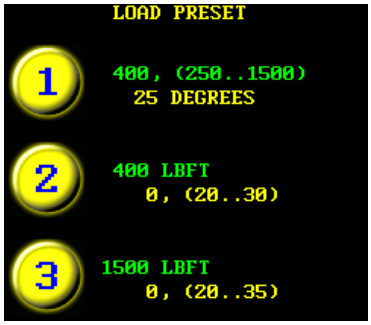



Figure 5.18-3: Pre-sets 2 and 3 with Angle Limits in Brackets

## 5.19 Maintenance Cycle Control

"**Maintenance Lock**" disables the Tool Handle after a number of torque cycles. The "**Maintenance Limit**" value defines how many cycles are done before the "Maintenance Required" message is displayed and/or the tool is disabled. "**Maintenance Warning**" defines the number of cycles before a warning message is displayed. "**Maintenance Torque**" restricts the torque threshold over which cycles are counted toward the limit.

**Note**: Reverse and Forward Cycles are counted.

**To enable or disable Maintenance Lock:**

1. Select "**Menu**" from the Main Screen.
2. Select "**User Config**" from the Main Menu.
3. Select "**Maintenance"** from the User Configuration menu (Figure 5.19-1).
4. Select "**Maint Lock**" to enable or disable Maintenance Lock (Figure 5.19-2).

The tool is disabled once the cycle Limit is reached. The counter is reset after the Maintenance Cycles are cleared.

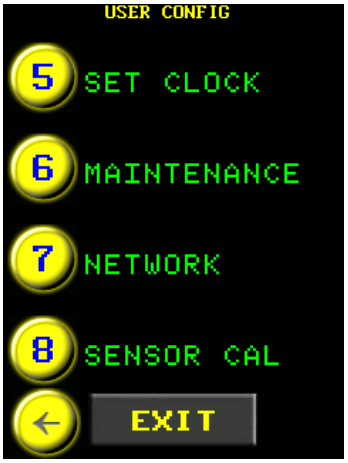



Figure 5.19-1: User Config Menu


Figure 5.19-2: Maintenance Menu

**Note**: "Maint Limit" must also be set for Maintenance Lock to work (see below).

**Note**: The number of maintenance cycles on the tool can be viewed in Handle Info (see Section 4.7.1 – View Tool Information) or Maintenance Statistics (see Section 4.7.2 – View Tool Statistics).

**To set the "Maint Limit" and "Maint Warn" options:**

**Note**: If "Maint Limit" is set while "Maint Lock" is disabled, the tool will continue to operate after the specified number of cycles.

1. Select "**Maint Limit**" from the Maintenance Menu (Figure 5.19-3).
2. A number pad will be displayed (Figure 5.19-4).
3. Enter the number of cycles to be done before the tool is disabled.
4. Press to confirm the number of Limit Cycles or to correct.
5. The display will return to the Maintenance Menu.


Figure 5.19-3: Maintenance Menu

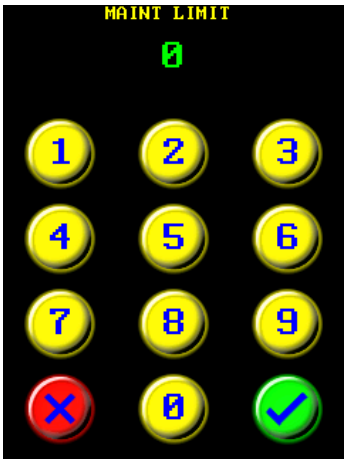



Figure 5.19-4: Enter Maint Limit

6. A warning may be displayed before the tool is disabled. Select "**Maint Warn**" from the Maintenance Menu.
7. A number pad will be displayed (Figure 5.19-5).
8. Enter the number of cycles to be done before a warning is displayed (the value should be smaller than "Maint Limit").
9. Press to confirm the Warning Cycles or to correct. The Maintenance Menu will be displayed with the settings applied (Figure 5.19-6).
10. When the options are set as desired, select "Exit" to return to the Main Screen.
11. You may need to clear the Maintenance Cycles to reset the counter. Refer to Section 5.20 – Clear Maintenance Statistics.

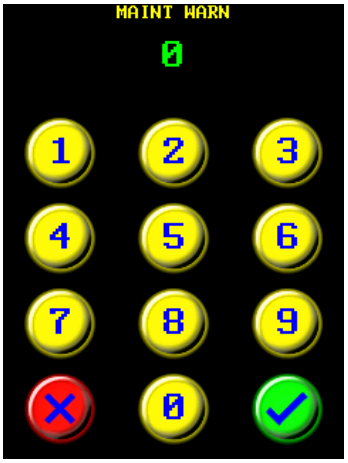



Figure 5.19-5: Enter "Maint Warn"


Figure 5.19-6: Maintenance Menu

When the Maintenance Cycles reach the specified Warning value, the "Maint Nearing" message will be displayed on the Main Screen (Figure 5.19-7).

When the Maintenance Cycles reach the Limit, the "Maint Required" message will be displayed (Figure 5.19-8). The message will be displayed, and the tool will be disabled until the Maintenance Cycles are cleared.


Figure 5.19-7: Maintenance Warning


Figure 5.19-8: Maintenance Required

**To set the Maintenance Count Torque Threshold:**

1. Select "**Maint Torque**" from the Maintenance Menu.
2. A number pad will be displayed (Figure 5.19-9).
3. Input the percentage of Maximum Torque above which Maintenance cycles will be counted.

**Example:** A maximum torque of 2500 LbFt and a desired threshold of 1000 LbFt yields $\frac{1000}{2500} = 40\%$ of maximum. Then, all torque cycles over 1000 LbFt will be counted.

4. Press the button to save the value.
5. A message is displayed asking to clear "Maint Stats". If you press , the total Maintenance Cycles are cleared but the individual ranges are kept. If you press , all the Maintenance Cycles are cleared.

Figure 5.19-9: Number Pad

Figure 5.19-10: Maintenance Menu

The display will return to the Maintenance Menu with the setting changed (Figure 5.19-10).

## 5.20 Clear Maintenance Statistics

This function allows you to clear the Maintenance Statistics. This is generally done after maintenance to reset the cycle counters. To view the Maintenance Statistics, refer to Section 4.7.2 – View Tool Statistics.

**To clear Maintenance Statistics:**

1. Select "**Menu**" from the Main Screen.
2. Select "**Tool Stats**" from the Main Menu.
3. Select "**Clear Maint**" from the Statistics Menu (Figure 5.20-1).
4. Select "**Confirm CLR**" to confirm the clearing the Maintenance Statistics or press the "**Exit**" button to cancel (Figure 5.20-2).

The Maintenance cycles will be set to 0. The Lifetime Statistics will not be altered.

Figure 5.20-1: Statistics Menu

Figure 5.20-2: Confirm CLR Option

## 5.21 Calibration Adjust

This function allows you to adjust the entire Tool Calibration Table, which increases or decreases the output torque. The default adjustment factor of 1000 (displayed as **0**) uses the original Calibration Table. The adjust factor can be increased or decreased by 20%. Set the calibration adjust value using this calculation:

$$\text{Cal Adjust} = \frac{\text{Desired Torque}}{\text{Actual Torque}} \times 1000\ ‰$$

**Note**: If **Point Calibration** is enabled, the Calibration Adjust Value applies to a single torque point and will not affect the entire torque range. If Point Cal is enabled, Calibration Adjust is called "**Point Cal Adjust**". See Section 5.15 – Point Calibration.

**Note:** If **Blue Cal** is used, the Calibration Adjust value is modified by the Blue Cal feature and will affect the full torque range. See Section 5.16 – Blue Calibration.

**To adjust the calibration:**

1. Select "**Menu**" from the Main Screen.
2. Select "**User Config**" from the Main Menu.
3. Select "**Change Values**" from the User Configuration Menu (Figure 5.21-1).
4. Select "**Cal Adjust**" from the Change Values Menu (Figure 5.21-2).


Figure 5.21-1: User Configuration Menu


Figure 5.21-2: Change Values Menu

5. Enter the Adjustment Value for the Tool's Calibration (Figure 5.21-3).
6. If Point Calibration is enabled, the heading is changed to "Point Cal Adjust" (Figure 5.21-4). Point Cal Adjust will only apply to the selected torque, and the Point Cal target symbol will appear on the Main Screen.

   **Note:** Point Calibration is enabled only when the adjust value is not 1000. When the Cal Adjust value is set to 1000, a "0" is displayed, indicating no adjustment is made.

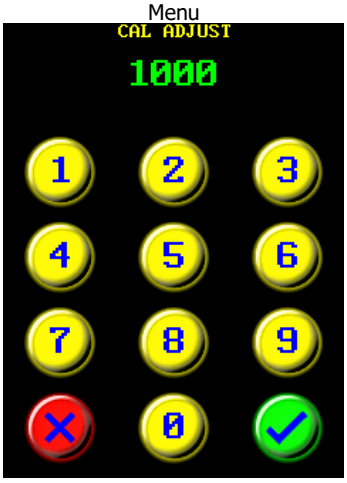



Figure 5.21-3: Cal Adjustment


Figure 5.21-4: Point Cal Adjust

## 5.22 Set Clock

The date and time may be set on the E-RAD Controller.

**To set Date and Time:**

1. Select "**Menu**" from the Main Screen.
2. Select "**User Config**" from the Main Menu.
3. Select "**Set Clock**" from the User Configuration menu (Figure 5.22-1).
4. Select the values you want to change from "Set Date" or "Set Time" (Figure 5.22-2).
5. A number pad will be displayed for each value. Enter the desired values.

   **Note:** For "Year," enter only the last two digits of the year.


Figure 5.22-1: User Config Menu

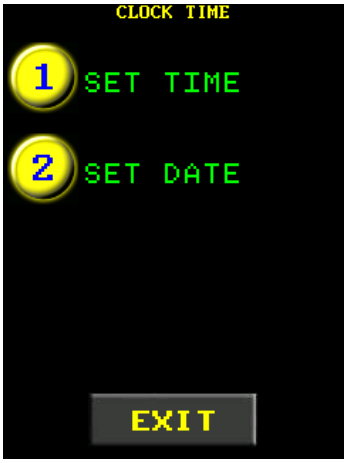



Figure 5.22-2: Date and Time

## 5.23 Network & Address

The Network options provide an alternative way to connect to the E-RAD Touch Data Logger or other PC applications. Refer to Section 8 – Data Log PC Operations for more information about the Data Logger.

**To connect the E-RAD BLU using the Network port**:

1. Select "**Menu**" from the Main Screen.
2. Select "**User Config**" from the Main Menu.
3. Select "**Network**" from the User Configuration menu (Figure 5.23-1).
4. To change any values, the "**Configure**" box needs to be checked (Figure 5.23-2).
5. Select "**Network**" again from the Network menu.

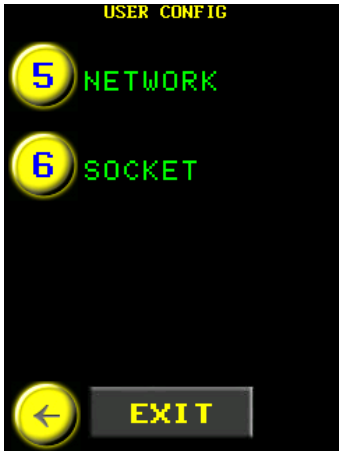



Figure 5.23-1: User Config Menu

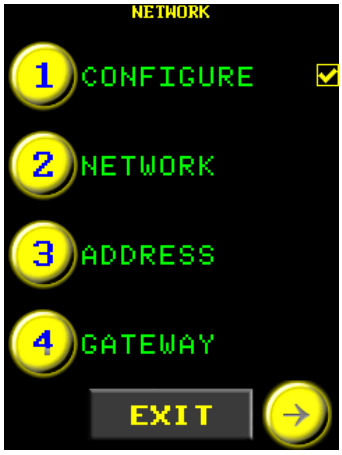



Figure 5.23-2: Network Menu

6. The Network screen will appear (Figure 5.23-3).
7. For automatic IP addressing, set the "IP 32" to "0" and the "IP 24" to "0".
8. For a fixed IP address on the private network:
   a. Change the "IP 32" to the subnet of the IP address.
   b. Change the "IP 24" to the unit address of the IP address.

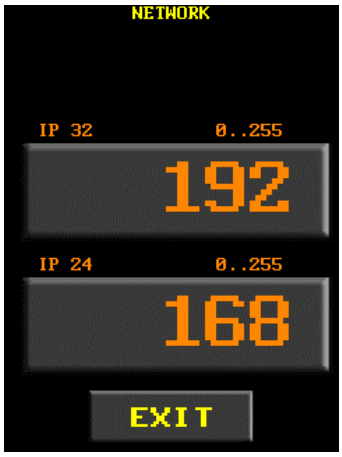



Figure 5.23-3: Network Screen

**To Change the E-RAD IP Address**:

1. Select "**Menu**" from the Main Screen.
2. Select "**User Config**" from the Main Menu.
3. Select "**Network**" from the User Configuration menu (Figure 5.23-4).
4. To change any values, the "**Configure**" box needs to be checked.
5. Select "**Address**" from the Network menu (Figure 5.23-5).

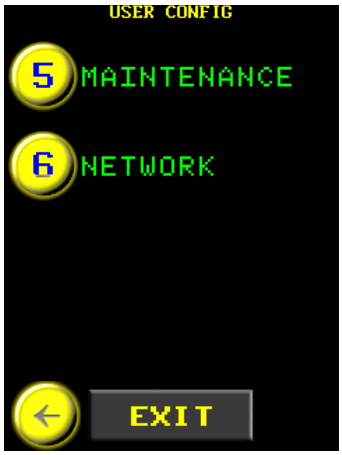



Figure 5.23-4: User Config Menu

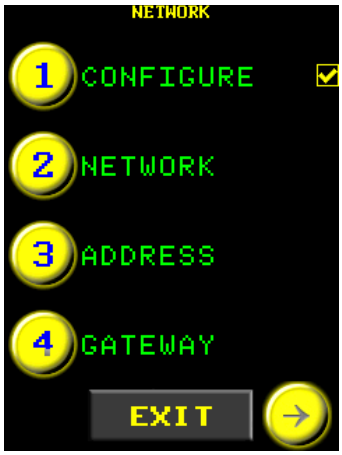



Figure 5.23-5: Network Menu

6. The Address screen will appear (Figure 5.23-6).
7. For automatic IP addressing, set the "IP Net" to "0" and the "IP Node" to "0".
8. For a fixed IP address on the 192.168 private network:
   c. Change the "IP Net" to the subnet of the IP address.
9. Change the "IP Node" to the unit address of the IP address.

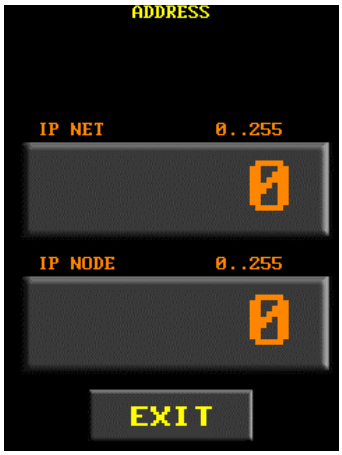
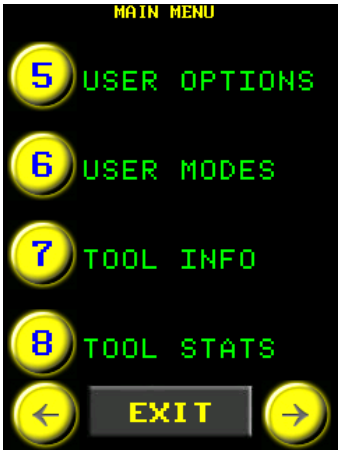



Figure 5.23-6: Address Settings

**To check the IP Address:**

1. Select "**Menu**" from the Main Screen.
2. Select "**Tool Info**" from the Main Menu (Figure 5.23-7).
3. Select "**Case Info**" (Figure 5.23-8). The IP Address and Subnet will be shown when connected to a network.




5.23-7: Main Menu


5.23-8: Tool Information Menu

## 5.24 Gateway

The Gateway setting allows the E-RAD BLU Controller to connect to a PC that is on a different network than the default local network. Change the Gateway address only if Static IP addressing is used on the network.

## 5.25 Any Network

This function allows you to connect to a subnet mask on the local IP Address.

To set Any Network:

1. Select "**Menu**" from the Main Screen.
2. Select "**User Options**" from the Main Menu (figure 5.25-1).
3. Select "**Any Network**" from the User Option Menu.

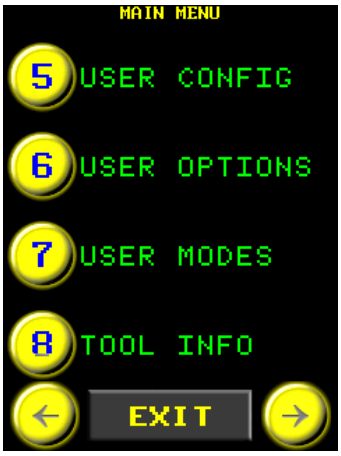



Figure 5.25-1: Main Menu

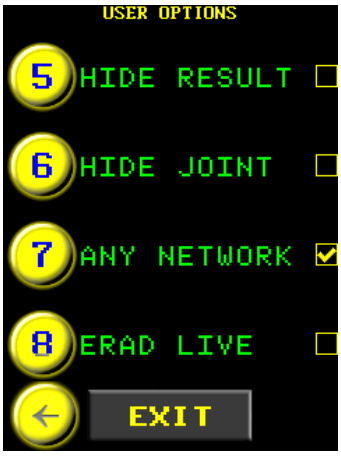



Figure 5.25-2: User Options

4. "**Exit**" the User Options Menu.
5. Select "**User Config**" in the Main Menu.
6. Select "**Network**" in the User Config Menu.

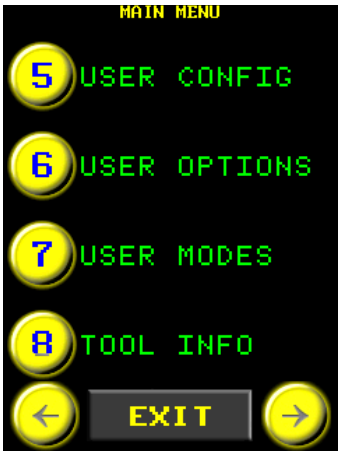



Figure 5.25-3: Main Menu

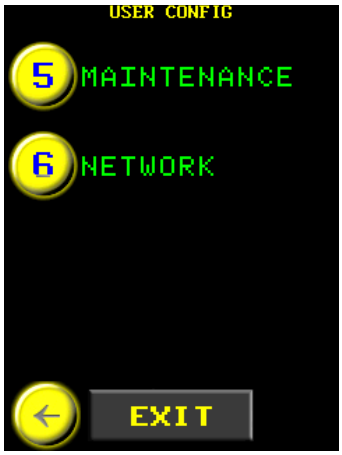



Figure 5.25-4: User Config

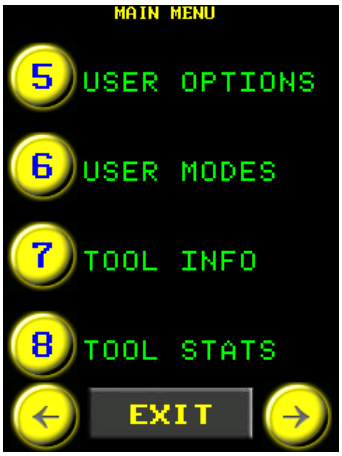
7. Select "**NetMask**" in the Network Menu.
8. Select "**IP Mask**" to change the netmask value.


Figure 5.25-5: Network Menu


Figure 5.25-6: Network Mask

**To check the IP Address:**

1. Select "**Menu**" from the Main Screen.
2. Select "**Tool Info**" from the Main Menu (Figure 5.25-7).
3. Select "**Case Info**" (Figure 5.25-8). The IP Address and Subnet will be shown when connected to a network.




5.25-7: Main Menu


5.25-8: Tool Information Menu

## 5.26 Factory Settings

The Factory Set menu is used to change tool settings including Minimum Torque, Maximum Torque, and Gear Ratio, and enable or disable custom features. These settings should only be used under the direction of New World Technologies Inc. Technical Support (see Section 10 – Contact Us).

# 6. CALIBRATION

**WARNING!**

Only qualified personnel with training in the safe operation of torque tooling and familiar with the E-RAD BLU Tool System should operate this tool.

**CAUTION!**

Do not calibrate at values that result in exceeding the E-RAD BLU Tool System's Torque Range. Severe tool damage will occur.

This function provides access to the Calibration Values of the E-RAD BLU Tool System. The Calibration Values should only be modified by a qualified Calibration Technician with the use of a Calibration Stand.

The Calibration Values represent a relationship between the Actual Output Torque of the E-RAD BLU Tool System and the Set Torque. After calibrating on a joint system, the E-RAD BLU is more accurate to that system.

**To calibrate the E-RAD BLU Tool System:**

1. Select "**Menu**" from the Main Screen.
2. Select "**User Config**" from the Main Menu.
3. Select "**Calibration**" from the User Configuration Menu (Figure 6-1).
4. A message will be displayed asking to enter or cancel Calibration (Figure 6-2).
5. Press to enter Calibration.


Figure 6-1: User Configuration Menu


Figure 6-2: Confirm Calibration Prompt

6. The 7% Calibration screen will be displayed (Figure 6-3).
7. Mount the E-RAD BLU to the Calibration Stand.
8. Ensure that the Calibration Transducer is set to the same units as the E-RAD BLU Tool System.
9. Do one Torque Cycle. Skip steps 10 – 12 if the E-RAD BLU is connected to a Smart Socket. The torque read from the Smart Socket will be automatically entered. The number will be coloured blue (Figure 6-4).
10. Press the "**Cal Value**" field on the Calibration Screen (Figure 6-3).


Figure 6-3: Calibration Mode


Figure 6-4: Calibration Value from Sensor/Smart Socket

11. A number pad will be displayed (Figure 6-5).
12. Enter the torque measured by the Calibration Stand Transducer.
13. Press ✓ to confirm or ✗ to correct.
14. The next Calibration screen will be displayed.
15. Repeat from step 9 for each tool capacity percentage. Calibrate the points at 7%, 10%, 20%, 30%, 40%, 50%, 60%, and 70%. Be careful not to exceed the Maximum Torque of the tool.

    **Note**: Torque cycles may not need to be done for torque higher than the tool's maximum. These values are extrapolated from the Cal Values of the previous Tool Capacity percentages. The extrapolated values are shaded white.

Figure 6-5: Number Pad

Figure 6-6: Save Calibration

16. Once all the values have been set, press the **EXIT** button.
17. You will be prompted to save before exiting. Press ✓ to save or ✗ to discard and exit.
18. The display will return to the Main Screen.

**Note:** When the Calibration Values are modified, the date is stored as the User Calibration Date in Tool Information. Refer to Section 4.7.1 – View Tool Information.

# 7. GENERAL OPERATING INSTRUCTIONS

**WARNING!**

Only qualified personnel with training in the safe operation of torque tooling and the E-RAD BLU Tool System should operate this tool.

The E-RAD BLU Tool System has three operating modes: Torque Only, Angle Only, or Torque and Angle. The use of the Reaction Arm, each of the operating modes, and reviewing cycle results are described in the following sections.

## 7.1 Reaction Arm

**WARNING!**

**Always keep body parts clear of the Reaction Arm when the E-RAD BLU Tool System is in use. Serious injury could occur.**

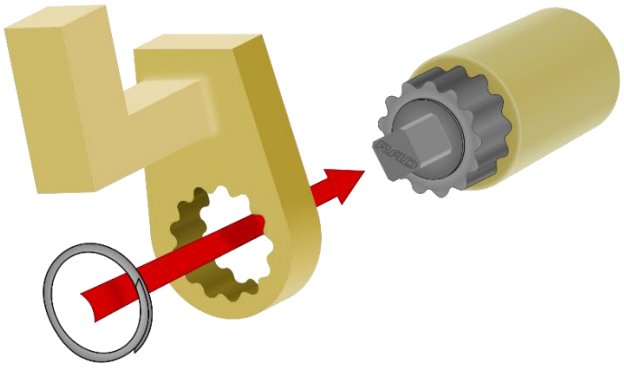
**CAUTION!**

Ensure that the Reaction Arm has a solid contact point before operating the E-RAD BLU Tool System. Improper reaction will void warranty and can cause premature tool failure.

Please contact New World Technologies Inc. or your local RAD Authorized Distributor for information on custom Reaction Arms.

### Installing the Reaction Arm

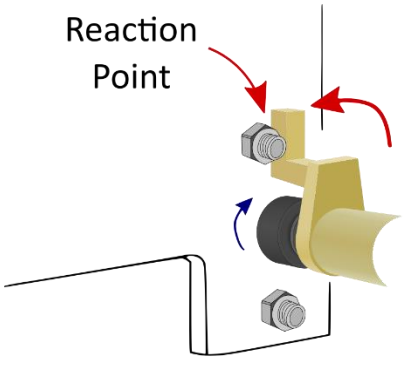
Slide the Reaction Arm onto the spline or serpentine fitting and secure the Snap Ring to hold the Reaction Arm in place.



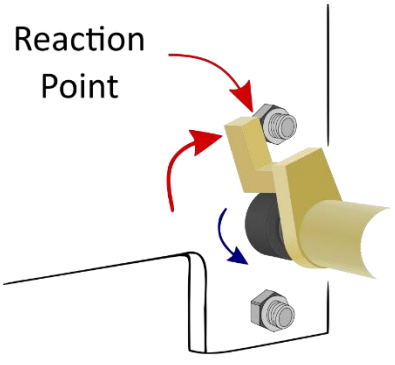
### Reaction Points

Make sure that the Reaction Arm is in contact with a solid Reaction Point before you operate the tool.

When the tool is in operation, the Reaction Arm rotates in the opposite direction to the Output Square Drive and must be allowed to rest squarely against a solid object or surface adjacent to the bolt to be tightened.




Clockwise Operation

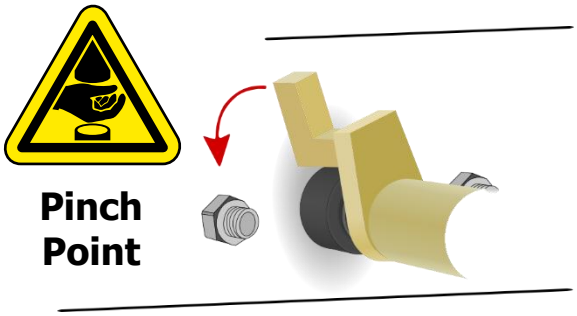



Counter-Clockwise Operation

## Personal Safety

**CAUTION!**

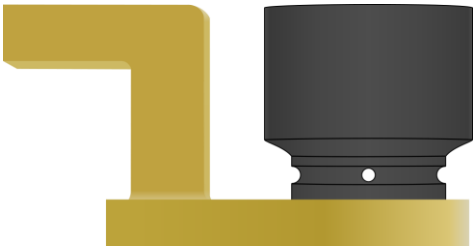
Keep your hands clear of the Reaction Arm and joint when the tool is in operation.




## Reaction Arm Height

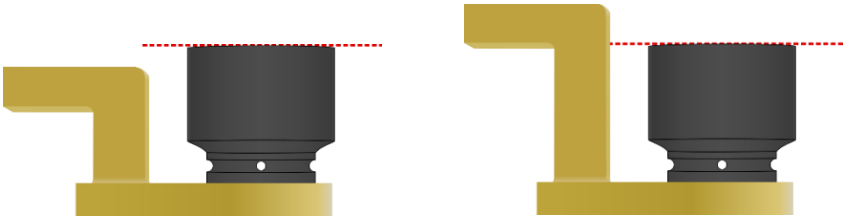
Ensure that the height of the socket is even with the height of the Reaction Arm.

**CORRECT:** The Reaction Arm and socket are even.



The height of the socket cannot be shorter or longer than the height of the Reaction Arm.

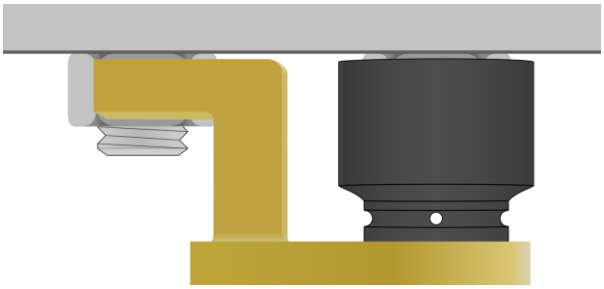
**INCORRECT:** The leg of the Reaction Arm is too short in the left image and too long in the right image.



## Reaction Arm Foot

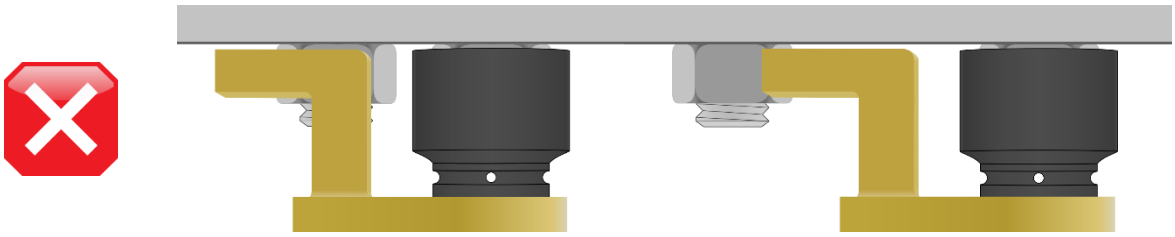
Ensure that the foot of the Reaction Arm aligns with the reaction point.

**CORRECT:** The foot of the Reaction Arm aligns with the reaction point.



The length of the foot cannot be shorter or longer than the reaction point.

**INCORRECT:** The reaction point is too close in the left image and too far in the right image. Do not react against the heel of the reaction arm.



## 7.2 Torque Only Operation

In Torque Only Mode, the E-RAD BLU turns the fastener until the Set Torque has been achieved. The Torque Cycle has passed when the Actual Torque reaches the Set Torque within the tolerance of the tool.

> **Note**: During long high torque cycles, the E-RAD BLU may relax and re-torque again until it reaches its target. This may look like a back-off cycle, but it is much quicker. Keep the On/Off Trigger pressed until a back-off cycle is performed and the screen displays a result.

**To operate Torque Only Mode:**

1. Change the Set Angle to zero if Angle Mode is enabled or disable Angle Mode. If the Access Level is Locked, refer to Section 4.1 – Select a Pre-set. If the E-RAD BLU is in a higher Access Level, refer to Section 4.3 – Change the Set Angle.
2. Change the Set Torque to the desired value. If the Access Level is Locked, refer to Section 4.1 – Select a Pre-set. If the E-RAD BLU is in a higher Access Level, refer to Section 4.2 – Change the Set Torque.
3. If desired, set Angle Limits (refer to Section 5.18 – Angle Limits) or enable Torque Check (refer to Section 5.13 – Torque Check).
4. Place the E-RAD BLU on the joint system.
5. Set the Forward/Reverse Switch to the Forward position.
6. Ensure that the blue "System Ready" LED is illuminated.
7. Press and hold the Tool Handle On/Off Trigger until the Torque Cycle has passed (the "Passed" LED is illuminated).

   **Note**: To stop the E-RAD BLU at any time during the Torque Cycle, release the On/Off Trigger. This will result in an Invalid cycle result.
8. After the Torque Cycle has passed, the E-RAD BLU will reverse slightly to unload the Reaction Arm. Refer to Section 5.14 – Change Tool Back-Off Angle for more information.
9. When the Torque Cycle is finished, the final torque will be displayed on the Main Screen. Figure 7.2-1 shows a passed Torque Cycle and Figure 7.2-2 shows a failed Torque Cycle, showing the actual final torque.


Figure 7.2-1: Passed Torque Cycle

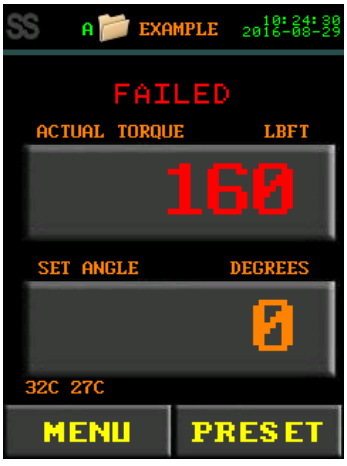



Figure 7.2-2: Failed Torque Cycle

Figures 7.2-3 and 7.2-4 show the Torque Cycle results with a Smart Socket connected. Note that a passed cycle is coloured blue, and a failed cycle is purple.


Figure 7.2-3: Passed Torque Cycle with Smart Socket Result

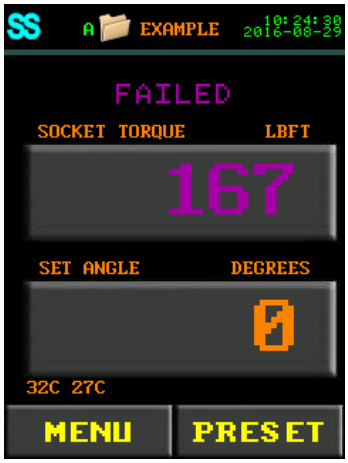



Figure 7.2-4: Failed Torque Cycle with Smart Socket Result

**Note:** The result will be displayed for 15 seconds or until a new cycle is started.

**Note:** If the trigger is released during the Torque Cycle, a Torque Invalid message will be displayed (Figure 7.2-5).

If Torque Check mode is enabled (see Section 5.13 – Torque Check) and the Actual Angle is within the specified value, the cycle result is "Check" (Figure 7.2-6) and the actual angle moved is displayed. If the Actual Angle is above the specified value, the cycle result is "Passed" as normal operation.

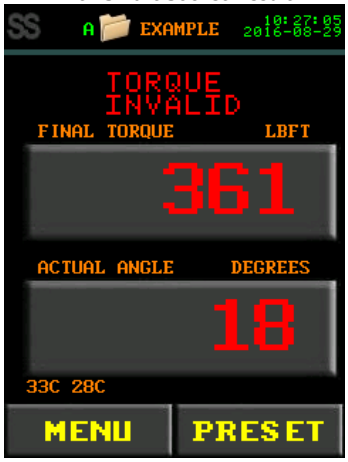



Figure 7.2-5: Torque Invalid Message

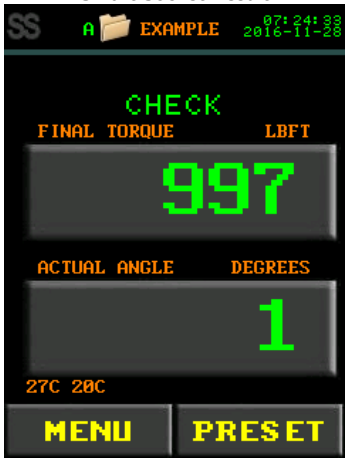



Figure 7.2-6: Torque Checked Cycle

## 7.3 Angle Only Operation

In Angle Only Mode, the E-RAD BLU begins angle movement as soon as seated torque is detected. The Angle Cycle has passed when the Actual Angle reaches the Set Angle.

> **Note**: During long high torque cycles, the E-RAD BLU may relax and re-torque again until it reaches its target. This may look like a back-off cycle, but it is much quicker. Keep the On/Off Trigger pressed until a back-off cycle is performed and the screen displays a result.

To operate in Angle Only Mode, Angle Mode must be enabled (see Section 5.4 – Angle Mode).

**To operate Angle Only Mode:**

1. Change the Set Torque to zero. If the Access Level is Locked, refer to Section 4.1 – Select a Pre-set. If the E-RAD BLU is in a higher Access Level, refer to Section 4.2 – Change the Set Torque.
2. Change the Set Angle to the desired value. If the Access Level is Locked, refer to Section 4.1 – Select a Pre-set. If the E-RAD BLU is in a higher Access Level, refer to Section 4.3 – Change the Set Angle.

   **Note**: The Set Angle range is 0 – 600 degrees.

3. If desired, set Torque Limits (refer to Section 5.17 – Torque Limits).
4. Place the E-RAD BLU on the joint system.
5. Set the Forward/Reverse Switch to the Forward position.
6. Ensure that the blue "System Ready" LED is illuminated.
7. Press and hold the Tool Handle On/Off Trigger until the arm has seated. "Arm Seated" will be displayed (Figure 7.3-1).
8. Press and hold the On/Off Trigger until the Angle Cycle has passed.

**Note:** To pause the E-RAD BLU at any time during the Angle Cycle, release the Trigger. Pull the Trigger to continue (within the 5 second timeout).

To cancel the Angle Cycle at any time, release the Trigger or toggle the Forward/Reverse switch. This will result in an invalid Angle Cycle.

The Angle Cycle will stop if the Actual Torque exceeds the Maximum Torque of the tool or the custom Torque Limit (refer to Section 5.17 – Torque Limits).

9. After the Angle Cycle has passed, the E-RAD BLU will reverse slightly to unload the Reaction Arm. Refer to Section 5.14 – Change Tool Back-Off Angle for more information.

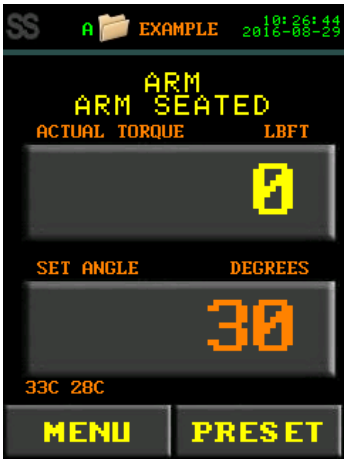



Figure 7.3-1: Arm Seated Message

10. When the Angle Cycle has passed or failed, the Actual or Socket Torque and the Actual Angle (total degrees of rotation) will be displayed on the Main Screen. Figure 7.3-2 shows a passed Angle Cycle and Figure 7.3-3 shows a failed Angle Cycle.

    **Note:** The result will be displayed for 15 seconds or until a new cycle is started.

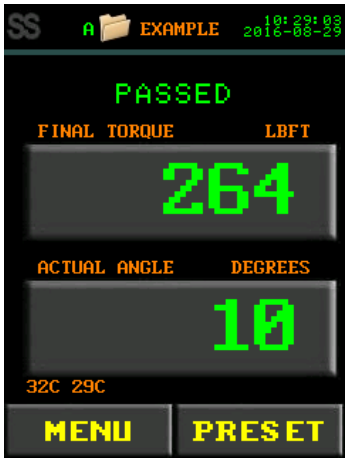



Figure 7.3-2: Passed Angle Cycle


Figure 7.3-3: Failed Angle Cycle

## 7.4 Torque and Angle Operation

In Torque and Angle Mode, the E-RAD BLU begins angle movement after achieving a Pre-Torque value. The Torque and Angle cycle passes after both the Actual Pre-Torque and the final Angle reach the set values.

> **Note**: During long high torque cycles, the E-RAD BLU may relax and re-torque again until it reaches its target. This may look like a back-off cycle, but it is much quicker. Keep the On/Off Trigger pressed until a back-off cycle is performed and the screen displays a result.

To use Torque and Angle Mode, Angle Mode must be enabled (see Section 5.4 – Angle Mode).

**To operate in Torque and Angle Mode:**

1. Change the Set Torque to the desired pre-torque value. See Section 4.1 – Select a Pre-set if the Access Level is Locked, or Section 4.2 – Change the Set Torque if the E-RAD BLU is in a higher level.

   **Note**: In Torque and Angle mode, the Set Torque cannot be set above 50% of the tool's Maximum Torque or below the Minimum Torque. To use a pre-torque below the Minimum Torque or above 50% of the tool's Maximum Torque, use a Low Pre-torque setting (Section 5.12 – Low Pre-Torque).

2. Adjust the Set Angle to the desired value by referring to Section 4.1 – Select a Pre-set, if the Access Level is Locked or Section 4.3 – Change the Set Angle, if the E-RAD BLU is in a higher level.

**Note**: The Set Angle range is 0 – 600 degrees.

**Note**: When both the torque and the angle are set to zero, the reaction arm will seat and a cycle will not be completed.

3. If desired, set Torque Limits (refer to Section 5.17 – Torque Limits).
4. Place the E-RAD BLU on the joint system.

5. Set the Forward/Reverse Switch to the Forward position.
6. Ensure that the blue "System Ready" LED is illuminated.
7. Press and hold the On/Off Trigger until the Pre-torque Cycle has passed. This will occur when the Actual Torque reaches the Set Torque (Figure 7.4-1).

   **Note:** To stop the E-RAD BLU at any time during the Pre-torque, release the Trigger. This will result in a failed Torque and Angle Cycle.
8. Press and hold the On/Off Trigger until the Angle Cycle has passed. This will occur when the Actual Angle reaches the Set Angle, or the Actual Torque reaches the Maximum Torque of the E-RAD BLU.

   **Note:** The Angle Cycle will fail if the Actual Torque exceeds the Maximum Torque of the tool.
9. After the Torque and Angle Cycle has passed, the E-RAD BLU will reverse slightly to unload the Reaction Arm. Refer to Section 5.13 – Change Tool Back-Off Angle for more information.

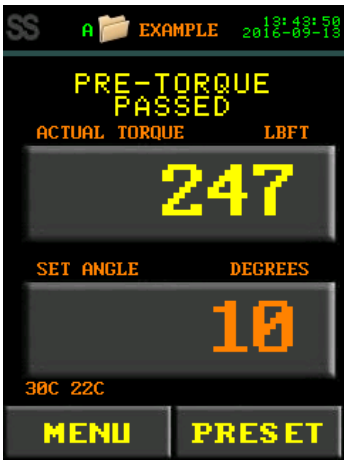



Figure 7.4-1: Pre-torque Passed

10. When the Torque and Angle Cycle has passed or failed, the measured torque and the Actual Angle (rotation after Pre-torque) will be displayed on the Main Screen. Figures 7.4-2 and 7.4-3 show a passed and a failed Torque and Angle Cycle.

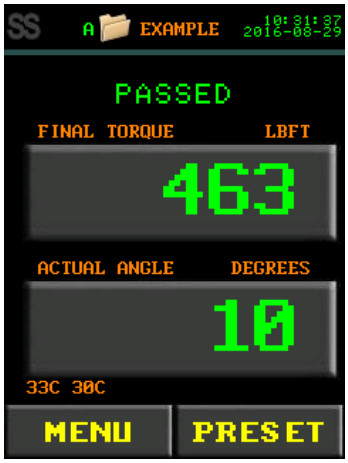



Figure 7.4-2: Cycle Passed


Figure 7.4-3: Cycle Failed

Figures 7.4-4 and 7.4-5 show a passed and failed Torque and Angle Cycle with a Smart Socket connected.

The result will be displayed for 15 seconds or until a new cycle is started.

**Note:** Final Torque is the measured torque after the Torque and Angle cycle is complete and will depend largely on the bolting application.


Figure 7.4-4: Passed Torque and Angle with Smart Socket

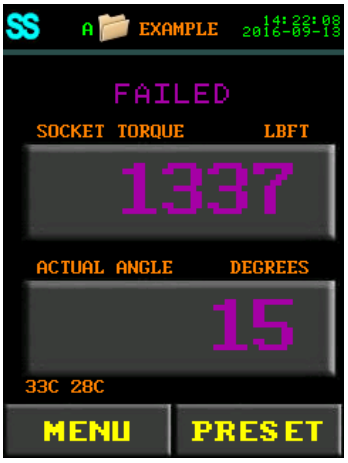



Figure 7.4-5: Failed Torque and Angle with Smart Socket

## 7.5 Reviewing the Last Result

Last Result allows the operator to review the results of the previous tool cycle performed.

**To review the Last Result:**

1. The "Last Result" option is displayed on the Main Screen after a torque cycle is made until a new cycle is started or an option is changed.
2. Select the "Last Result" text above the Set Torque on the Main Screen (Figure 7.5-1). The Last Result text will be green if the cycle passed or red if the cycle failed or was invalid. With a Smart Socket connected, the text will be blue if the cycle passed or purple if the cycle failed.


Passed Result

SS Passed

Failed/Invalid Result

SS Failed

Figure 7.5-1: Last Result Option

3. The cycle results will appear on the Main Screen in the colour indicating the status.
   **Note**: The Last Result values will be displayed for 15 seconds or until a new cycle is started.

# 8. DATA LOG PC OPERATIONS

The E-RAD Touch Data Logger is a PC software package designed to connect the E-RAD BLU Controller to a computer for data logging and administrative options. This section covers the main features of the Data Logger.

For more information on the E-RAD Touch Data Logger Software, refer to the E-RAD Touch Data Logger Manual located in the "Help" menu in the Data Logger.

## 8.1 Software Installation and PC Requirements

The E-RAD Touch Data Logger Software can be downloaded from www.eradtorque.com. Click on "E-RAD Software Download" found in the bottom right of the home page.

**Note**: The "SQLite" download package is for customers with a Windows 8 computer or for those that do not have an existing database (compatible with Windows XP, Windows Vista, Windows 7, and Windows 8). 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). Follow the "README" file found on the download page.

Download the desired Data Logger option and a Driver package. After the download is complete, select "setup.exe" in the E-RAD Touch Installer folder and follow the installation instructions. Select the executable installer file in the driver folder and follow the installation instructions.

The E-RAD Touch Data Logger Software is compatible with Windows XP, Windows Vista, Windows 7, and Windows 8 operating systems.

The PC must have a free USB port to be used with the USB cable provided.

## 8.2 Connecting E-RAD and PC

**To connect the E-RAD BLU Tool System to a PC:**

1. Connect the USB Cable from the available USB Port to the Communication Port on the E-RAD BLU Controller. Turn on the E-RAD BLU.
2. On the E-RAD BLU Touch Display:
   a) Select "**Menu**" from the Main Screen.
   b) Select "**PC Transfer**" from the Main Menu.
3. The PC Transfer Screen will be displayed.
4. Open the E-RAD Touch Data Logger Software (Figure 8.2-1).

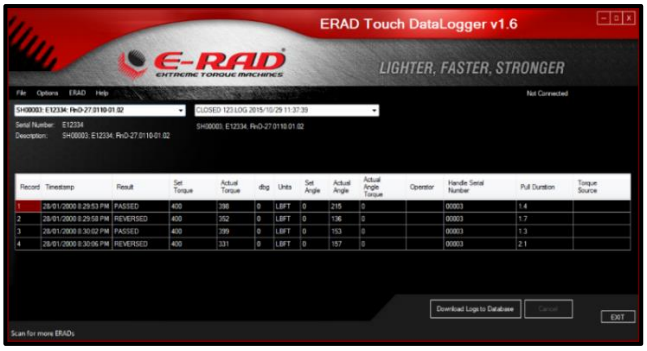



Figure 8.2-1: Data Logger Main Screen

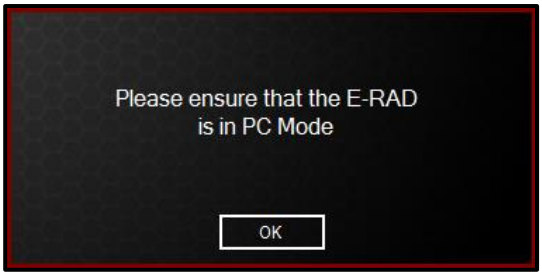



Figure 8.2-2: PC Mode Prompt Window

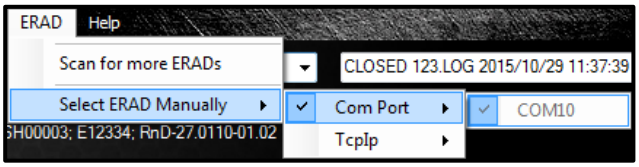



Figure 8.2-3: Com Port Selection from "ERAD" Menu

5. Select the "**ERAD**" drop-down menu.
6. Select "**Scan for more ERADs**" from the ERAD menu (Figure 8.2-3) **or**;
7. To select the E-RAD manually:
   a) Choose "**Select ERAD Manually**" from the ERAD Menu.
   b) Select "**Com Port**" from the menu (Figure 8.2-3).
   c) Select the correct Com Port for the connected tool.

   **Note**: Ensure that the E-RAD BLU is in PC Transfer Mode (a prompt message will appear as in Figure 8.2-2) and press "OK".

## 8.3 Setting the Clock

The E-RAD Touch Data Logger Software can be used to set the current time and date on the E-RAD BLU.

**To set the time and date:**

1. Ensure the E-RAD BLU Controller is connected and in PC Transfer mode (see Section 8.2 – Connecting E-RAD and PC)
2. Select the "**Options**" drop down menu.
3. Select "**Set RTC**" from the Options drop down menu (Figure 8.3-1).
4. The time and date on the E-RAD BLU will be updated to match the time and date on the PC.

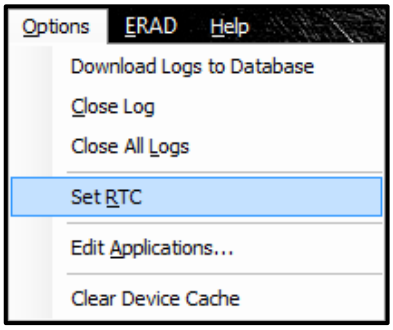



Figure 8.3-1: Set RTC from Options Menu

## 8.4 Downloading all Data Logs

The Data Logs stored on the E-RAD BLU Controller can be downloaded to the Data Logger Software.

**To download all the Data Logs onto the PC:**

1. Ensure the E-RAD BLU Controller is connected and is in PC Transfer mode.
2. Press the "**Download Logs to Database**" button on the Main Screen.
3. The Data Logger Software will download all the Data Logs from the E-RAD BLU Controller. Once the Data Logs have been downloaded to the Data Logger Software, you will be prompted to add descriptions of each Data Log file. The name of the Data Log is displayed above the text box (Figure 8.4-1).

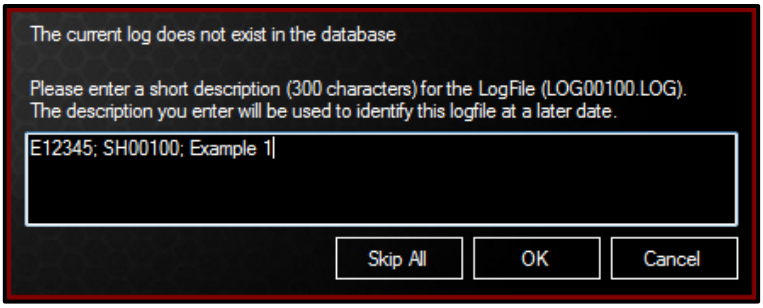



Figure 8.4-1: Data Log Descriptions

## 8.5 Deleting Data Logs from the E-RAD BLU

Once Data Logs are stored in the database, they may be deleted from the Controller. The Data Log will be saved on the PC and the title will be modified to indicate the date it was closed.

**To clear a Data Log:**

1. Ensure the E-RAD BLU Controller is connected and is in PC Transfer mode.
2. Select the current tool and the Data Log to be closed (Figure 8.5-1).


Figure 8.5-1: Select a Data Log

3. Select the "**Options**" drop down menu.
4. Select "**Close Log**" from the Options menu (Figure 8.5-2).
5. Confirm the dialogs.
6. The selected Data Log will be closed in the Data Logger Software and deleted from the E-RAD BLU.

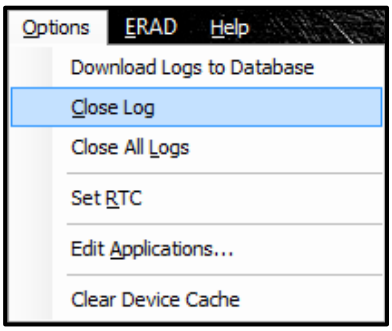



Figure 8.5-2: Close Log Option

## 8.6 Exporting Data

Data Logs may be exported to a file or another program such as Notepad, WordPad, Microsoft Word, or Microsoft Excel. There are two methods to export the Data Log:

**To export the entire Data Log into various file formats:**

1. Select the tool and the desired Data Log (Figure 8.6-1).


Figure 8.6-1: E-RAD Tool List

2. Select "**Export Data Log**" from the File Menu (Figure 8.6-2).

The E-RAD Touch Data Logger Software will generate a table of data from the Data Log (example shown in Figure 8.6-3).

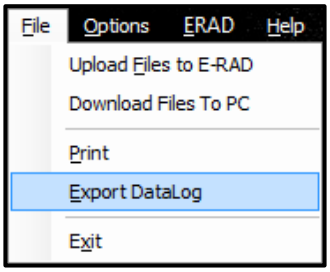



Figure 8.6-2: Export Data Log Option

| ID | Time Stamp | Units | Result | Set Torque | Actual Torque | dbg | Set Angle | Actual Angle | Actual Angle Torque | Operator | Handle Serial Number | Pull Duration | Torque Source |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | July-07-15 1:17:04 PM | LBFT | INVALID | 500 | 50 | 54 | 0 | 69 | 0 | | 11058 | .9 | |
| 2 | July-07-15 1:19:07 PM | LBFT | FAILED | 500 | 597 | 112 | 0 | 278 | 0 | | 11058 | 1.9 | S |
| 3 | July-07-15 1:19:18 PM | LBFT | REVERSED | 500 | 496 | 0 | 0 | 234 | 0 | | 11058 | 5.4 | M |
| 4 | July-07-15 1:19:26 PM | LBFT | PASSED | 500 | 551 | 78 | 0 | 251 | 0 | | 11058 | 1.3 | S |
| 5 | July-07-15 1:19:59 PM | LBFT | REVERSED | 500 | 632 | 0 | 0 | 143 | 0 | | 11058 | 3.8 | M |

Figure 8.6-3: Generated Data Log File

3. There are several options for printing, viewing, and exporting the Data Log. Click the Save icon to export the Data Log as a PDF document, CSV comma delimited format, Excel spreadsheet, Rich Text document, TIFF image stack, or MHTML web archive (Figure 8.6-4).

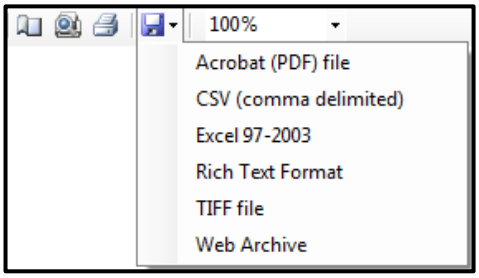



Figure 8.6-4: Print and Export Options

**To select and copy data from a Data Log:**

1. Select the tool and the desired Data Log (Figure 8.6-5).


Figure 8.6-5: E-RAD Tool and Logs Selection

2. Click and drag the cursor over the data to select it (Figure 8.6-6).

| Record | Timestamp | Result | Set Torque | Actual Torque | dbg | Units | Set Angle | Actual Angle | Actual Angle Torque | Operator |
|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 28/01/2000 8:29:53 PM | PASSED | 400 | 398 | 0 | LBFT | 0 | 215 | 0 | |
| 2 | 28/01/2000 8:29:58 PM | REVERSED | 400 | 352 | 0 | LBFT | 0 | 136 | 0 | |
| 3 | 28/01/2000 8:30:02 PM | PASSED | 400 | 399 | 0 | LBFT | 0 | 153 | 0 | |
| 4 | 28/01/2000 8:30:06 PM | REVERSED | 400 | 331 | 0 | LBFT | 0 | 157 | 0 | |

Figure 8.6-6: Select Data from Data Log

3. Press "Control" + "C" on your keyboard to copy the data.
4. Open the destination program. Microsoft Excel works well for manipulating data in a table format.
5. Press "Control" + "V" to paste the data into the program.

## 8.7 Edit Applications

This function allows you to create and edit Application Pre-sets and transfer them to and from the E-RAD BLU Controller. Refer to Section 4.1 – Select a Pre-set for more information on Application Pre-sets.

**To view and edit Applications:**

1. Ensure the E-RAD BLU is connected and in PC Transfer mode.
2. Select the "**Options**" drop down menu.
3. Select "**Edit Applications…**" from the Options menu (Figure 8.7-1).

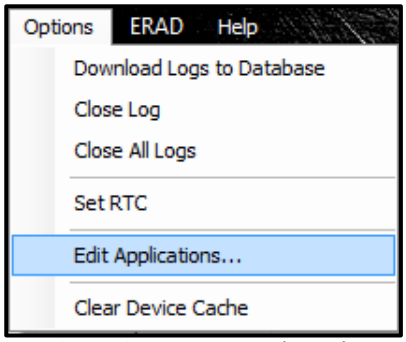



Figure 8.7-1: Options Menu, Edit Applications

4. The "Application Presets" window will be displayed (Figure 8.7-2).

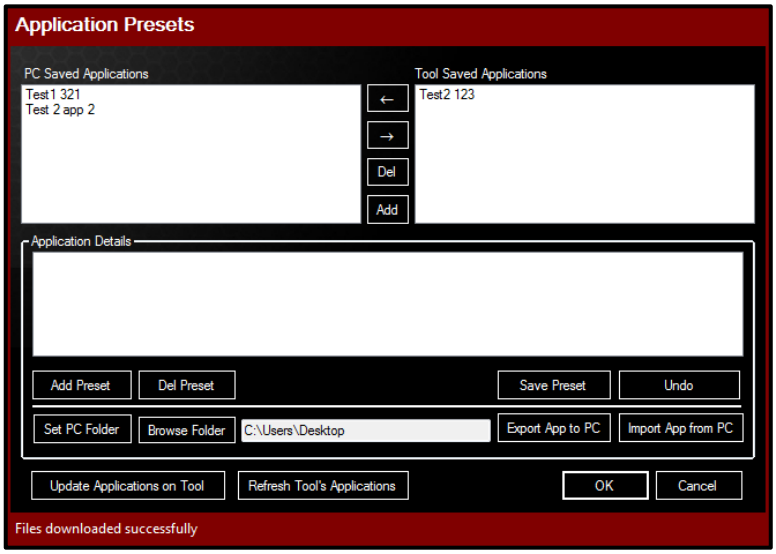



Figure 8.7-2: "Application Presets" Window

**To create a new Application:**

1. Press the "**Add**" button (Figure 8.7-3).
2. A new application, "Enter Description," will appear under PC Saved Applications (Figure 8.7-4).
3. Click on "**Enter Description**" to open the application.
4. The Application will open in Application Details (Figure 8.7-5).
5. Click on "Description Line 1:" to select it and again to edit the description.
6. Set the "Units:" field to "**1**" for Foot-Pounds or "**2**" for Newton-Metre units.
7. Press the "**Add Preset**" button (Figure 8.7-6). A Pre-set will appear in Application Details.

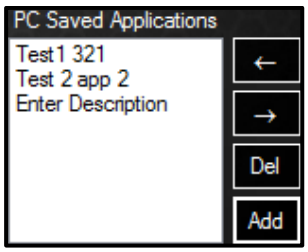



Figure 8.7-3: PC Saved Applications

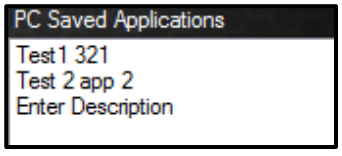



Figure 8.7-4: New PC Application

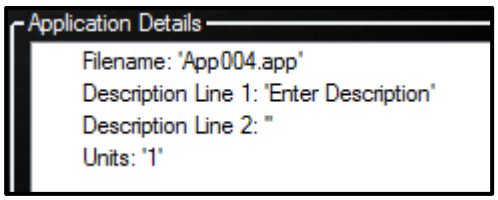



Figure 8.7-5: Application Details


Figure 8.7-6: "Add Preset"

8. Press the "**+**" button beside the Pre-set to expand it (Figure 8.7-7).
9. Set a Torque and Angle and enter a description (Figure 8.7-8).
10. Repeat steps 6-8 to add multiple Pre-sets.

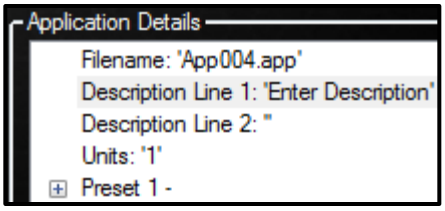



Figure 8.7-7: Application Details

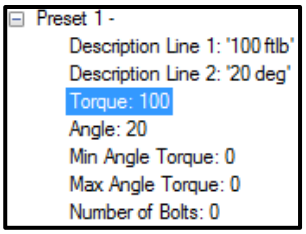



Figure 8.7-8: "Edit Preset"

11. Press the "**Save Preset**" button (Figure 8.7-9).
12. Ensure that the Application is highlighted in PC Saved Applications.
13. Press the "→" button to copy the Application to the E-RAD.

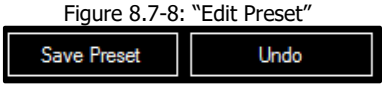



Figure 8.7-9: "Save Preset" Button

14. The Application will appear in Tool Saved Applications (Figure 8.7-10).

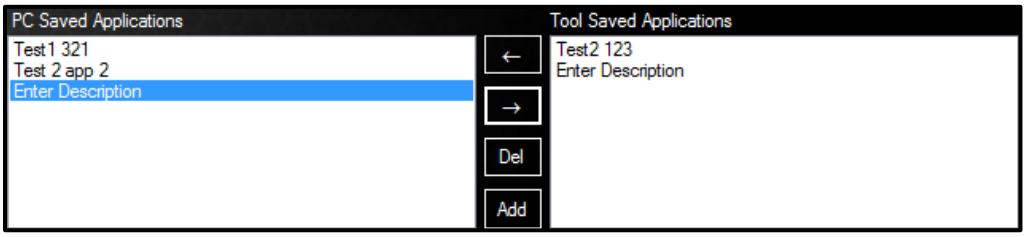



Figure 8.7-10: Tool Saved Applications

15. Press the "**Update Applications on Tool**" button to load the new Application onto the E-RAD (Figure 8.7-11).


Figure 8.7-11: "Update Applications on Tool" Button

**To edit an existing Application:**

**Note:** If the Tool Saved Applications do not load, ensure that the E-RAD is connected and press the "**Refresh Tool's Applications**" button (Figure 8.7-12).

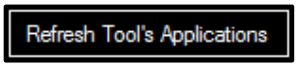



Figure 8.7-12: "Refresh Tool's Applications" Button

1. The existing applications will appear in the list of Tool Saved Applications (Figure 8.7-13).

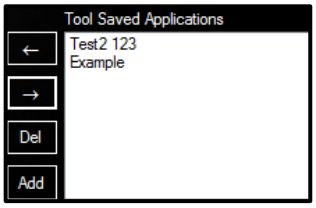



Figure 8.7-13: Tool Saved Applications

2. Select the Application and edit the Pre-sets (Figure 8.7-14).
3. Press the "**Save**" button.
4. Press the "**Update Applications on Tool**" button to load the changes onto the E-RAD (Figure 8.7-15).

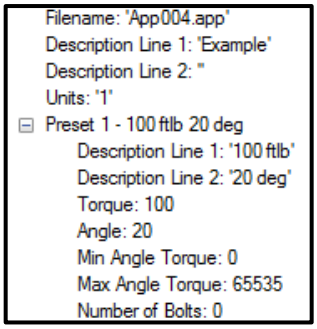



Figure 8.7-14: "Edit Preset"


Figure 8.7-15: "Update Applications on Tool" Button

An Application Pre-set that is in the "PC Saved Applications" section may be exported to a chosen folder.

**To Export an App to the PC:**

1. Select the pre-set to be exported under the PC Saved Applications section.
2. Set the destination folder (Figure 8.7-16).


Figure 8.7-16: "Set PC Folder" and "Export App to PC" Buttons

3. Press the "**Export App to PC**" button (Figure 8.7-16).

An Application Pre-set that is saved on the PC can be imported into the Data Logger PC Saved Applications.

**To Import an App from the PC:**

1. Set the folder that the application file is located (Figure 8.7-16).
2. Press the "**Import App from PC**" button.
3. Select the ".app" file to be imported.
4. The application file will be placed in PC Saved Applications as the last file in the list.

## 8.8 Manage Operator Passwords

The Operator Password function is outlined in Section 5.5 – Operator Password. Custom operator names and passwords may be loaded into the E-RAD BLU Controller to be used when the Operator Password function is enabled. DataLog files include the operator's name when selected.

**Note**: In this section, an underscore "_" represents a space. When creating this file, use spaces in place of underscores. Correct spacing is important for the E-RAD BLU to be able to read the file.

**To create the Operator Password File:**

1. Open a plain text editor on the PC.
2. Enter the first line "PASSWORD_ _ _ _OPERATOR'S_NAME" (exclude the quotation marks and replace the four underscores with spaces). See Figure 8.8-1 for an example.
   **Note**: All the letters must be uppercase.
3. Enter the first password and operator's name on the second line. The password must have the correct number of spaces between it and the operator's name (if used).
   Example: "1234_ _ _ _ _ _ _ _JOHN".
   **Note**: The password may be up to eight characters. The operator's name may be up to 15 characters or be left blank.

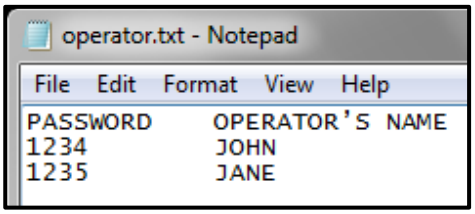



Figure 8.8-1: Example Operator Password File

4. Enter more passwords and operator's names if needed. Each password must be unique. Press enter to start the next line.
5. Save this file with the name "**operator.txt**" in an accessible location.
6. Open the E-RAD Touch Data Logger Software and ensure that the E-RAD BLU is in PC Transfer Mode.
7. Select the "**File**" drop down menu.
8. Select "**Upload Files to E-RAD**" from the File drop down menu (Figure 8.8-2). A File Explorer Window will appear. Select the Operator Password file created previously.
9. After the upload is completed, a message will be displayed indicating if the upload was successful or not.

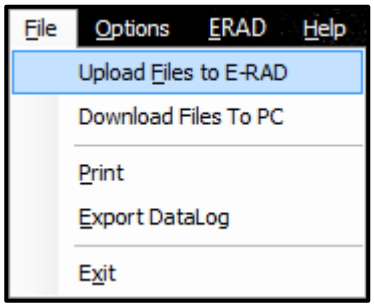



Figure 8.8-2: Upload Files to E-RAD

# 9. TROUBLESHOOTING

**DANGER!**

Electrical Shock can cause serious or fatal injury. Do not remove the E-RAD BLU Controller Top Plate or attempt any repairs without approval and training. Do not touch any exposed power devices, electrical connections, or cables. Disassembling or attempting to repair the E-RAD BLU Handle or Controller will void warranty.

## 9.1 Errors and Solutions

In case of an error or problem, the E-RAD BLU Touch Display will display an error message and disable tool operation. Table 9.1-1 lists error messages, problems that may occur, and possible solutions to the problem.

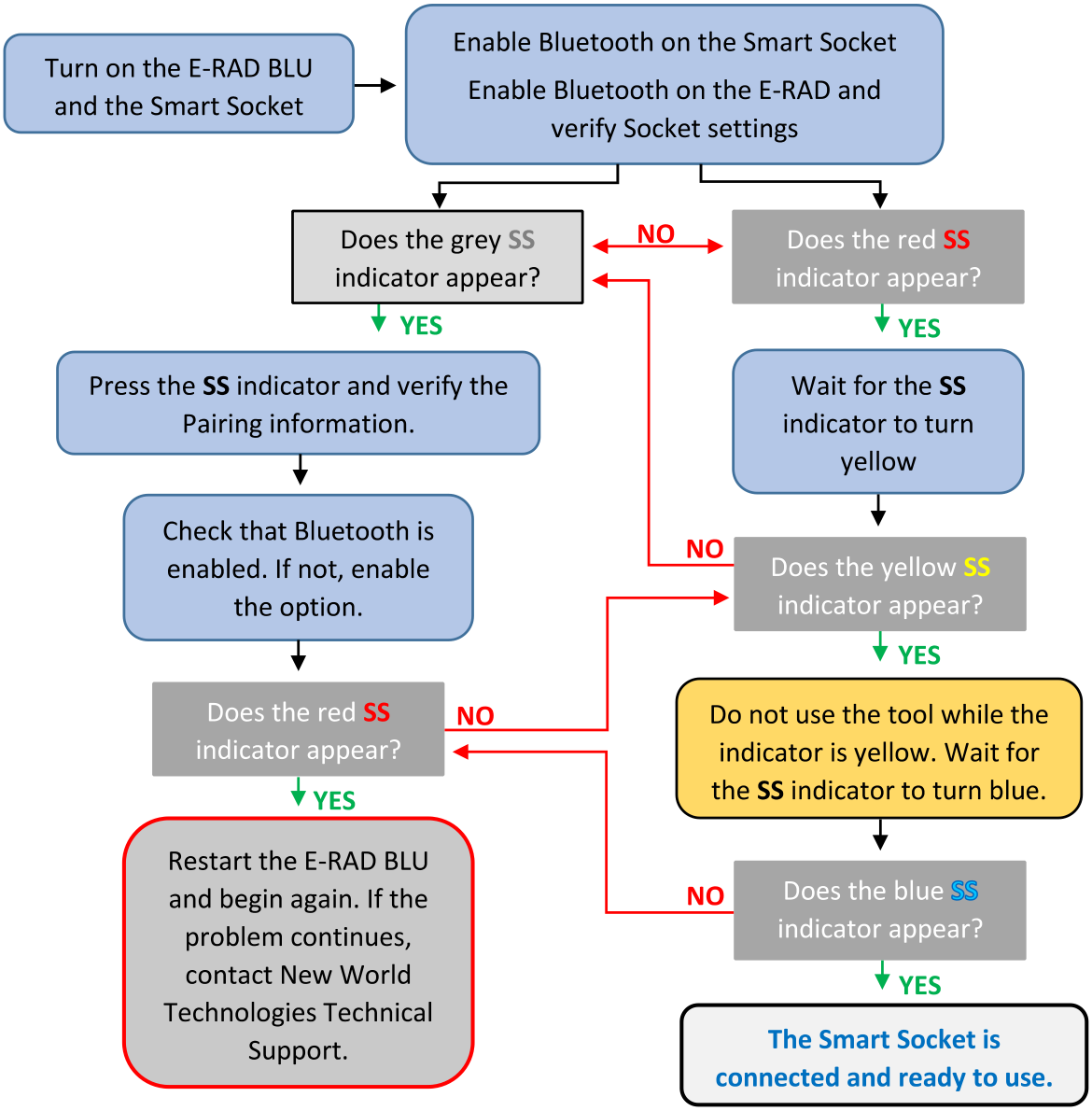
**Note:** If the problem or error persists after following solution instructions, contact New World Technologies Inc. Technical Support (refer to Section 10 – Contact Us).

| Error | Symptoms/Reasons | Possible Solution(s) |
|---|---|---|
| Screen is blank/ Tool not turning on | The Touch Display remains off; cooling fans don't run; LEDs don't turn on. | 1. Ensure E-RAD BLU Power Switch is on.<br>2. Check that the AC Power Cable is connected to the Controller and AC Mains Power Supply of the correct specifications.<br>3. If a blown fuse is suspected, Contact Us. |
| Stuck in Initialization | The E-RAD BLU Tool System turns on; the Touch Display is on but is stuck in "Initialization". | Power-Cycle the E-RAD BLU Tool System:<br>1. Switch the Power Switch to the Off Position.<br>2. Wait two minutes.<br>3. Switch the Power Switch to the On Position and re-try. |
| FB Not Ready/Analog Sensor | The E-RAD BLU Controller is not receiving feedback from the Tool Handle. | Check the Tool Handle Cable:<br>1. Switch the Power Switch to the Off Position and wait two minutes before proceeding.<br>2. Remove the Tool Handle Cable from the Tool Handle Connector on the side of the E-RAD BLU Controller.<br>3. Visually check the condition of the Tool Handle Cable and the pins in the Connectors. Ensure that there are no cuts or breaks in the cable insulating jacket and the pins are present and in good condition.<br>4. Connect the Tool Handle Cable to the Connector.<br>5. Ensure that the connections are locked in place.<br>6. Switch the Power Switch to the On Position and try again. |
| Feedback Loss | The E-RAD BLU Controller has lost the feedback signal from the Tool Handle. | Check the Tool Handle Cable (see above). |
| Overspeed | The motor is moving too fast during a cycle. Usually caused by a loss of feedback from the motor to the servo drive. | Check the Tool Handle Cable (see above). |
| Position Error | The motor is not in the expected position. Usually caused by a loss of feedback from the motor to the servo drive. | Check the Tool Handle Cable (see above). |
| Position Limit Exceeded | The motor position exceeded the expected motor movement during an Angle Cycle. | Check the Tool Handle Cable (see above). |
| Motor Stuck | The servo driver is unable to rotate the motor. Usually caused by a loss of feedback or power from the motor to the servo drive. | Check the Tool Handle Cable (see above). |
| Peak Current Exceeded | The E-RAD BLU Controller or Tool Handle current draw has exceeded the Maximum Limit. | 1. Check the Tool Handle Cable.<br>2. Check that the AC Power Cable is connected to the Controller and AC Mains Power Supply of the correct specifications.<br>3. Power-cycle the Controller. Wait 2 minutes before powering-on. |

| | | |
|---|---|---|
| Inhibited | The motor is disabled. This is usually caused by a loss of feedback or power from the motor to the servo drive. | 1. Reset the error message using the Forward/Reverse Switch:<br>a. Switch the Forward/Reverse Switch to the Reverse Position.<br>b. Switch the Forward/Reverse Switch to the Forward Position.<br>c. Re-try.<br>2. Power-cycle the Controller. Wait 2 minutes before powering-on. |
| Motor Cannot Start | The servo driver is unable to rotate the motor. Usually caused by a loss of feedback or power to the motor or the servo drive. | Power-cycle the Controller. Wait 2 minutes before powering-on. |
| DB Inconsistent | An intermittent fault in the AC/DC conversion has resulted in unexpected changes in signal amplification. | 1. Check the Tool Handle Cable.<br>2. Check that the AC Power Cable is connected to the Controller and AC Mains Power Supply of the correct specifications.<br>3. Power-cycle the Controller. Wait 2 minutes before powering-on. |
| Under Voltage | The DC power provided to the motor is too low. | 1. Check that the AC Power Cable is connected to the Controller and AC Mains Power Supply of the correct specifications.<br>2. Power-cycle the Controller. Wait 2 minutes before powering-on. |
| Over Voltage | The DC power provided to the motor exceeds the limitations. | 1. Check that the AC Power Cable is connected to the Controller and AC Mains Power Supply of the correct specifications.<br>2. Power-cycle the Controller. Wait 2 minutes before powering-on. |
| Short Circuit | | Immediately power off the E-RAD BLU and remove from service. Contact New World Technologies Inc. Technical Support (Section 10 – Contact Us). |
| Over Temp | The E-RAD BLU Controller's Internal Temperature has exceeded the limit. | To cool the E-RAD BLU Tool System:<br>1. Ensure that the Controller Cooling Fans are functional, and the filter covers are not blocked, or;<br>2. Switch the Power Switch to the Off Position until the temperature of the system is within specifications. |
| "Internal Error" or "Program Error" | An "Internal Error" may display any of the following messages:<br>- Controller Comms – loss of communication between Control Modules.<br>- Comms Lost – loss of communication between control modules.<br>- NVRam Lost – corrupt memory resulting in loss of data.<br>- Unknown Err.<br>- Stack Overflow – program crashed.<br>- CPU Fatal Exception – Processor failure. | Power-cycle the Controller. Wait 2 minutes before powering-on. |
| "Case and Screen Have Different Versions" | The programs on the controller and touch screen do not match. | Solution: Contact your RAD Distributor for assistance. |
| "Tool Info Lost" | The tool's information (units, voltage, serial numbers, etc.) has been lost. | Solution: Contact your RAD Distributor for assistance. |
| "Program Not Validated"/"Validation Failed" | The program has not been validated or the validation process has failed. | Solution: Contact your RAD Distributor for assistance. |
| "Sensor Comms Lost"/"Handle Comms Lost" | Communications with the sensor or the handle have been lost. | 1. Check the Tool Handle Cable.<br>2. Refer to Section 4.7.1 – View Tool Information. Check if the Handle Information and the Sensor Information are in the menus. If not, contact your RAD Distributor for assistance. |

Table 9.1-1: List of Errors, Symptoms, and Possible Solutions

## 9.2 Connecting to a Smart Socket: Troubleshooting



# 10. ADDITIONAL INFORMATION

Bluetooth module used in the product:

BlueRadios BR-LE4.0-D2A

Module Bluetooth 4.0 Chip Antenna Dual Mode 17.8mm (l) x 12.1mm (w) x 2.0mm (h) 3.6Vdc, 72mA

FCC IDENTIFIER: XDULE40-D2

IC Certification No: 8456A-LE4D2

Complete Documentation can be found at:

https://www.blueradios.com/nBlue%20BR-LE4.0-D2%20Summary%20Datasheet.pdf

And https://www.blueradios.com/hardware_LE4.0-D2.htm

## 11. CONTACT US

**Toll Free:** 1-800-983-0044
**Fax:** 604-852-0269
**Web:** www.radtorque.com
**Email:** info@radtorque.com

**Technical Support:**
**Phone:** 1-800-983-0044 (EXT. 227)
**Email:** service@radtorque.com

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

# E-RAD BLU
# 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 arm/s 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 arm/s 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.*

# LIGHTER FASTER STRONGER SAFER

RAD TORQUE SYSTEMS

## ABOUT NEW WORLD TECHNOLOGIES INC.

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


## NEW WORLD TECHNOLOGIES INC

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