RAD TORQUE SYSTEMS

radtorque.com



USER MANUAL

E-RAD BLU

RAD TORQUE SYSTEMS

RAD PNEUMATIC SERIES



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

E-RAD® BLU SERIES



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

B-RAD X® SERIES



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

B-RAD® SERIES



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

SMART SOCKET™ SERIES



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

NOTICE:

This manual applies to the following firmware release and build:

ERAD-27.0308-0003(Screen and Controller)

Use with any other firmware version may produce unexpected results.

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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:
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- Added SS menu (Section 4.8)
- Simplified some sections

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- Updated Section 5.10 – Reverse Confirmation

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- Fixed order of Controller components, Section 3.2

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- Release for Firmware ERAD-27.0303-0114

V2018.11.27:
- Release for Firmware ERAD-27.0303-0117

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- 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:
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- Updated: 11. 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

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V2024.11.29:

- Updated: 11. Contact Us – Bluetooth® trademark statement

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- Release for Firmware ERAD-27.0308-0003
- Reformatting of manual
- Updated images
- Updated General Safety Warnings
- Updated: Section 7 General Operating Instructions
- Updated: Section 5.11 Trigger Stop
- Updated: Section 5.23 Network & Address
- Updated: Section 5.24 Any Network
- Moved: Section 5.25 Gateway
- Updated: Section 6 Calibration
- Updated: Section 8.1 Software Installation and PC Requirements

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.

The E-RAD Tool System should be inspected before each use.

1. Work Area Safety

a. **Keep work area clean and well lit.** Cluttered and dark areas invite accidents.
b. **Do not operate power tools in explosive atmospheres, such as environments with the presence of flammable liquids, gases, or dust.** Power tools create sparks 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:

- E-RAD BLU tool handle
- E-RAD BLU controller (plastic or metal case)
- Tool handle cable
- AC power cable
- Reaction arm
- USB A to B cable for data transfer
- Calibration certificate
- User manual

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



Figure 1.1-1: E-RAD BLU Tool Handle



Figure 1.1-2: E-RAD BLU Controller



Figure 1.1-3: Tool Handle Cable



Figure 1.1-4: AC Power Cable



Figure 1.1-5: Reaction Arm

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

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 into account 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!

Only operate the B-RAD X Tool System if the following storage and operation conditions have been met.

It is recommended that the operator wears hearing protection.

	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/s^2 ; K = 1.5 m/s^2	
Noise Emissions		
A-weighted sound pressure level - LpA	Does not exceed 70dB(A)	
A-weighted sound power level – LWA / 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. It may be used for comparing one tool with another and may be used in a preliminary assessment of exposure.

1.2.4 Cycle of Operation

A cycle of operation or a tool cycle is defined as:

- 10 seconds on (forward or reverse)
- 10 seconds off

Note: An actual torque cycle may vary from the general definition above.

2. POWER REQUIREMENTS

The installer of this equipment is responsible for complying with the National Electrical Code (NEC) or equivalent; 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, 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.

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 11 – 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 m (30 ft), and 10 AWG (5.26 mm^2) for extension cords over 9 m (30 ft).

The maximum recommended length for extension cords is 30 m (100 ft), 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 tool options, presets, and custom settings depending on which handle is connected. The handle has a Bluetooth® 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.

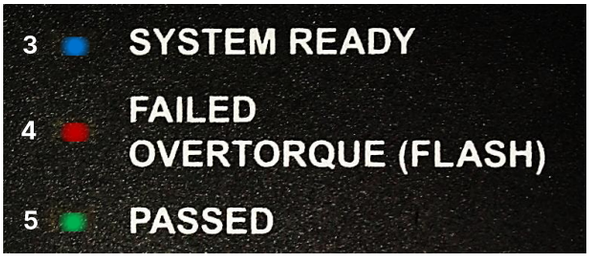


Figure 3.1-2: LED Status Display

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)
4. Optional custom serial port
5. Network communication port
6. USB communication port
7. Power switch
8. LCD touch display
9. Controller serial number

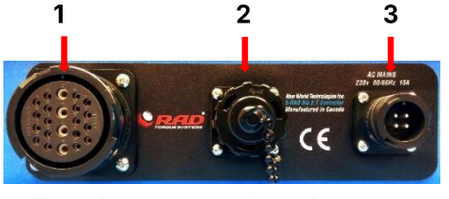


Figure 3.2-1: Controller Cable Connectors



Figure 3.2-2: Controller Top Plate

3.3 Touch Display Interface

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.

The layout of the touch display interface is described in the following sections.

The basic functions needed 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.

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. Preset 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 exceeds 85°C, the tool handle will be disabled until the temperature drops below 75°C.

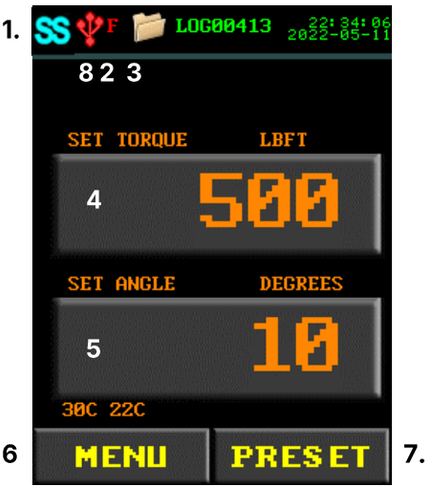


Figure 3.3.1-1: Main Screen

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 Sensor Mode is enabled and 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 during normal bolting operations to avoid inadvertent changes to tool settings and calibration.

Access Level		Passcode
	Locked	14504
B	Basic	
I	Intermediate	Contact your RAD distributor.
A	Advanced	

Table 3.4-1: Access Levels and Passcodes

Function	Level			
	🔒	B	I	A
Select a Preset	✅	✅	✅	✅
Setup Data Logs	✅	✅	✅	✅
View Data Logs	✅	✅	✅	✅
View Tool Information	✅	✅	✅	✅
View Tool Statistics	✅	✅	✅	✅
View Diagnostics	✅	✅	✅	✅
Smart Socket Settings	❌	✅	✅	✅
Change Set Torque	❌	✅	✅	✅
Change Set Angle	❌	✅	✅	✅
Modify Presets	❌	✅	✅	✅
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	❌	❌	❌	✅
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.
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 3.4.1-1: Main Menu

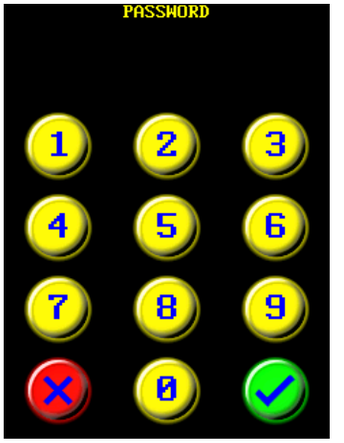


Figure 3.4.1-2: Number Pad



Figure 3.4.1-3: Unlocked Main Screen

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 for the access level the tool is currently in. For Basic level, input "**14504**".
5. Press to confirm the password or to correct.
6. The tool is now locked.

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



Figure 3.4.2-1: Main Menu



Figure 3.4.2-2: Number Pad



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 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, 3.6-4, and 3.6-5 show the Main Menu in Advanced level without a handle.



Figure 3.6-1: Main Screen- No Handle



Figure 3.6-2: Main Menu- No Handle



Figure 3.6-3: Second Screen- No Handle



Figure 3.6-4: Third Screen- No Handle

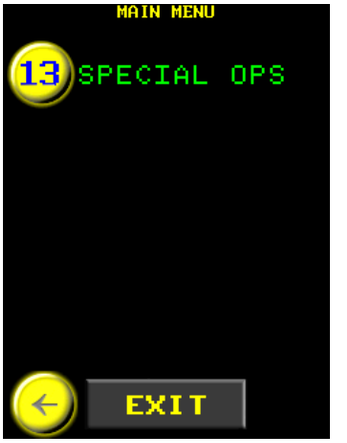


Figure 3.6-5: Fourth Screen- No Handle

4. COMMON FUNCTIONS

4.1 Select a Preset

Presets are torque and/or angle values stored in a list that allow the operator to quickly change the torque and angle. The Presets are held on the tool handle. See Section 4.4 – Modify Presets to create a Preset.

To select a Preset:

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



Figure 4.1-1: Preset Menu



Figure 4.1-2: Load Preset Menu

An Application Preset 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 Presets may include extra information such as short descriptions.

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

To select an Application Preset:

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

Note: If the Application Preset 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).



Figure 4.1-3: Preset Menu



Figure 4.1-4: Application Menu



Figure 4.1-5: Preset Selection

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. Presets 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 (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. Presets 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).

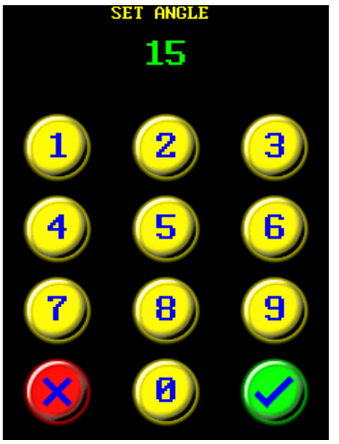


Figure 4.3-1: Number Pad



Figure 4.3-2: New Set Angle

4.4 Modify Presets

This function allows the operator to modify any of 16 Presets. For more information on using Presets, refer to Section 4.1 – Select a Preset.

Presets 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 Preset:

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 Preset will contain only a set torque.
2. Press the "**Preset**" button on the Main Screen.
3. Select "**Save Preset**" from the Presets Menu (Figure 4.4-1).
4. The Save Preset Screen will be displayed (Figure 4.4-2).
5. Select the desired Preset to be overwritten.
   Note: The set torque and set angle values previously stored in the selected Pres-et will be overwritten.

Note: Presets are saved on the tool handle. Changing the tool handle will result in different Presets.



Figure 4.4-1: Preset Menu



Figure 4.4-2: Save Preset Screen

4.5 Setup a Data Log File

This function allows the operator 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).

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, the operator 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 4.5-1: Data Log Menu

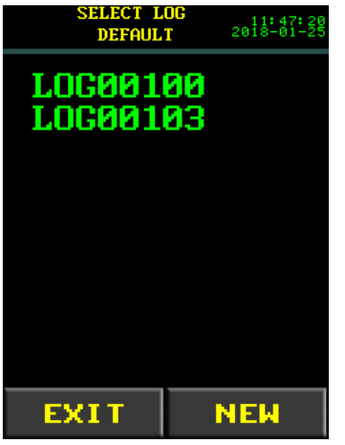


Figure 4.5-2: Select Log Screen

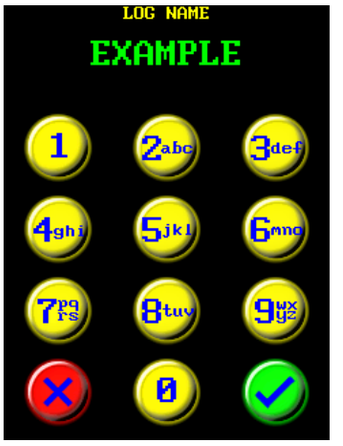


Figure 4.5-3: Alpha-Numeric Keypad

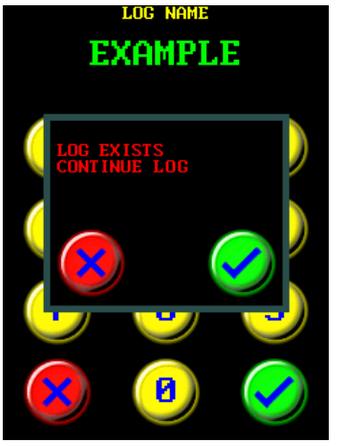


Figure 4.5-4: Data Log Already Exists Prompt

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 4.5-5: Main Screen with New Data Log Displayed



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.

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 desired log 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.

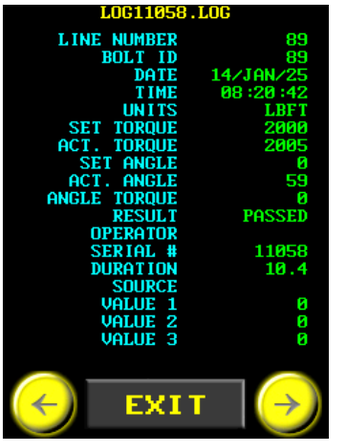


Figure 4.6-1: Passed Cycle

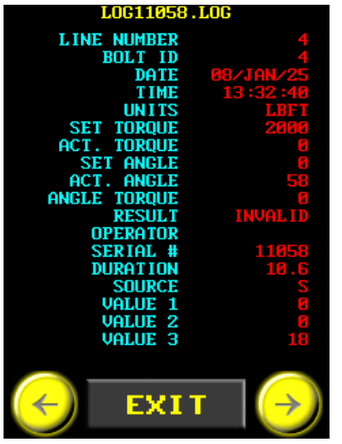


Figure 4.6-2: Failed Cycle



Figure 4.6-3: Select Log Screen

4.7 Information Functions

4.7.1 View Tool Information

This function allows the operator 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).

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)

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

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 4.7.1-1: Tool Information Menu

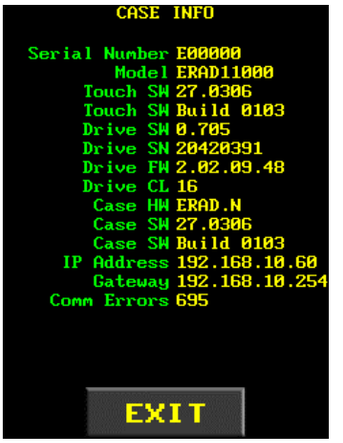


Figure 4.7.1-2: Controller Information

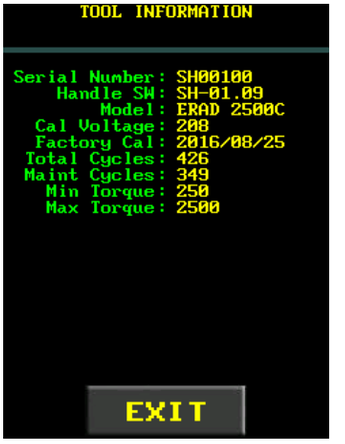


Figure 4.7.1-3: Handle Information

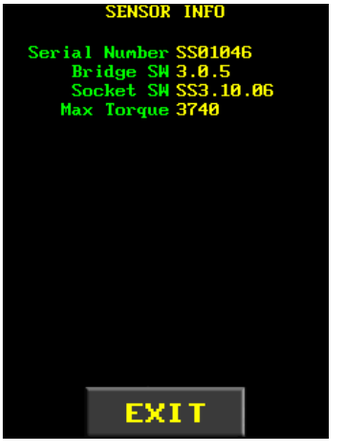


Figure 4.7.1-4: Sensor Information

4.7.2 View Tool Statistics

These menus allow the operator 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).

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

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.

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 4.7.2-1: Main Menu



Figure 4.7.2-2: Statistics Menu



Figure 4.7.2-3: Lifetime Statistics

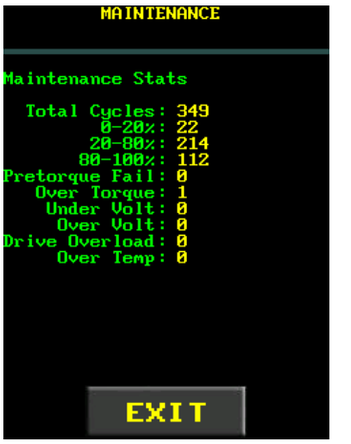


Figure 4.7.2-4: Maintenance Statistics

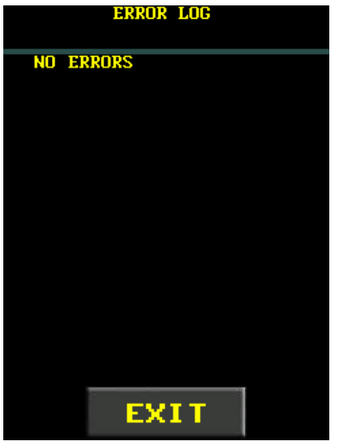


Figure 4.7.2-5: Error Log

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

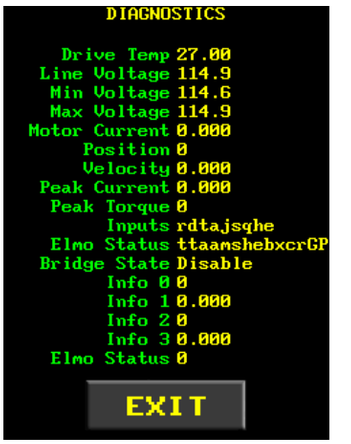


Figure 4.7.3-1: Diagnostics Display

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). The operator 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 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 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 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 connection problems are encountered, refer to the troubleshooting section of the Smart Socket Manual.

5.2 Change the Torque Units

The torque units can be changed between foot-pound (ft·lb) or newton-metre (N·m). When the units are changed, the E-RAD BLU converts the set torque value, Preset torque values, and calibration values to the selected units.

Note: The Application Preset list includes torque units, which are used for all the presets in the list. Selecting an Application Preset (see Sections 4.1 – Select a Preset 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 (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).

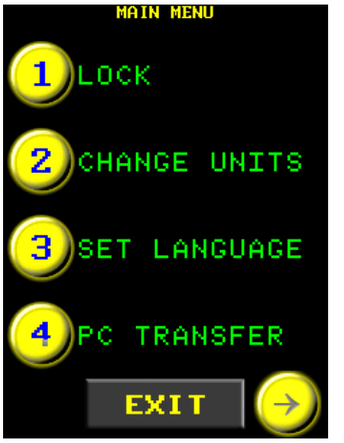


Figure 5.3-1: Main Menu



Figure 5.3-2: Language Settings

5.4 Angle Mode

Angle Mode enables angle only and torque and angle operations. With Angle Mode enabled, the set angle can be changed and Presets with angle values can be used. Refer to Sections 4.1 – Select a Preset, 4.3 – Change the Set Angle, 4.4 – Modify Presets, 7.3 – Angle Only Operation, and 7.4 – Torque and Angle Operation.

To enable or disable Angle Mode:

1. Select "**Menu**" from the Main Screen.
2. Select "**User Options**" from the Main Menu (Figure 5.4-1).
3. 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).
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).
3. The display will return to the Main Menu and the "**Login**" option will be displayed (Figure 5.5-2).

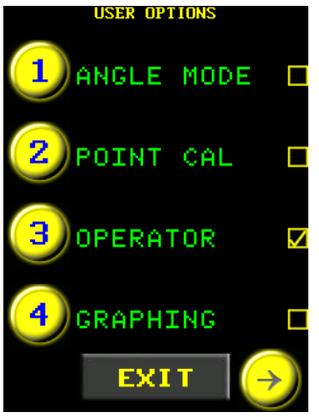


Figure 5.5-1: User Options Menu

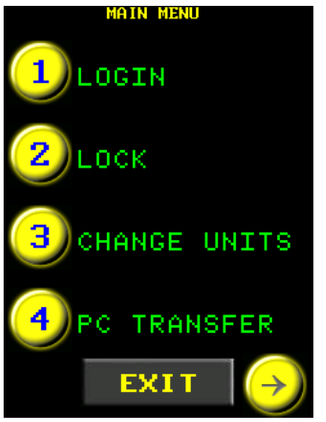


Figure 5.5-2: Main Menu

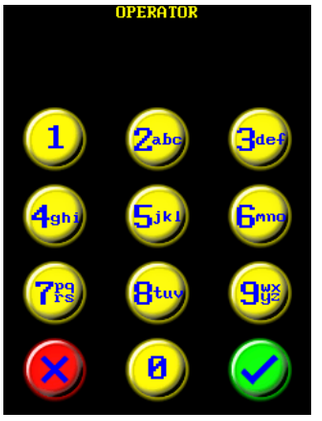


Figure 5.5-3: Password Keypad

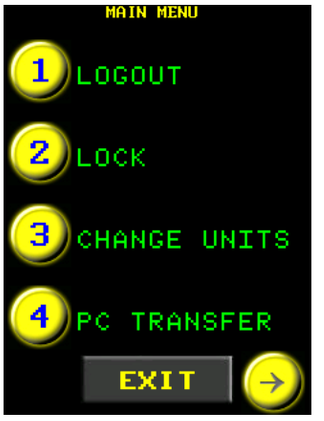


Figure 5.5-4: Main Menu with Logout Option

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 11 – Contact Us).

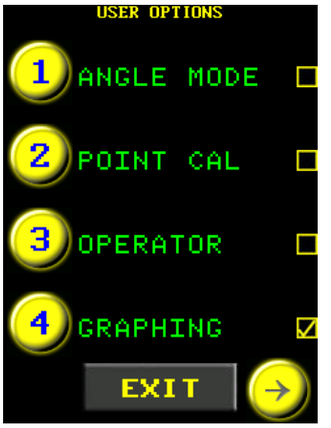


Figure 5.6-1: User Options Menu

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:

1. Select "**Menu**" from the Main Screen.
2. Select "**User Options**" from the Main Menu.
3. 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. If trigger stop is disabled, the tool will perform the back off movement after a cycle whether the trigger is depressed or not.

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

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.

Low Pre-Torque settings are custom set torque values that may be entered on the Main Screen or using a Preset. 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.

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

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).
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.

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:

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

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.

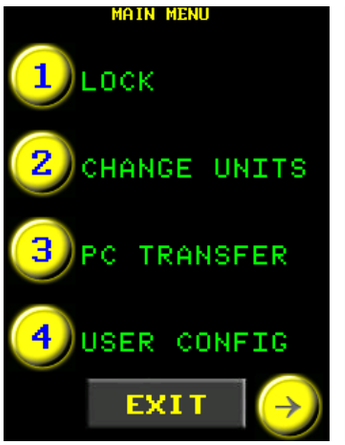


Figure 5.12-1: Main Menu



Figure 5.12-2: User Configuration Menu



Figure 5.12-3: Low Pre-Torque Menu

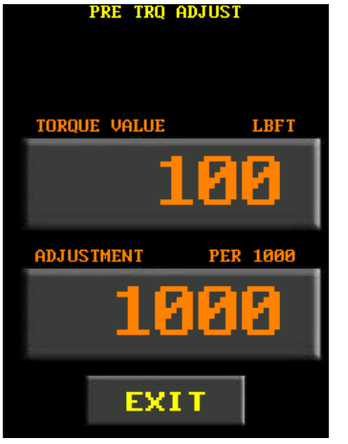


Figure 5.12-4: Low Pre-Torque Adjustment Screen

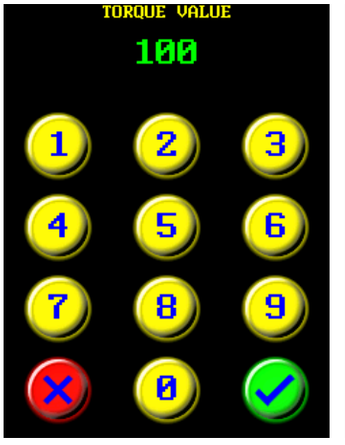


Figure 5.12-5: Torque Value Keypad



Figure 5.12-6: Number Pad

5.13 Torque Check

Torque Check Mode measures the angle movement of a fastener and displays the checked 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. A different back-off angle may be entered or press ✓ to accept 90 degrees.



Figure 5.14-1: User Config Menu



Figure 5.14-2: Change Values Menu

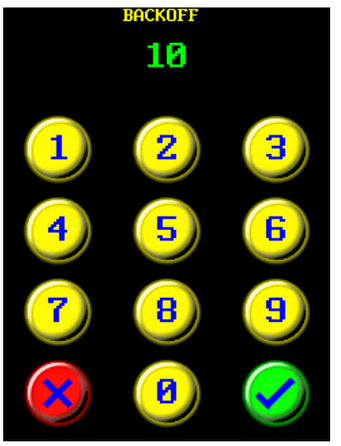


Figure 5.14-3: Backoff Keypad

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 5.22 – Calibration Adjust). Presets 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.

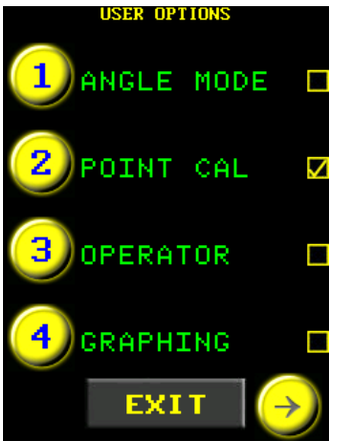


Figure 5.15-1: User Options Menu



Figure 5.15-2: User Config 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 set torque on the Main Screen and set the set angle to 0.
5. Select "**Menu**" from the Main Screen.
6. Select "**User Config**" from the Main Menu.



Figure 5.15-3: Point Calibration



Figure 5.15-4: Point Calibration Screen

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.
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 Preset.
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. As many Presets with unique Point Calibration data desired may be saved.

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 5.22 – Calibration Adjust for more information.



Figure 5.15-5: Save Result Confirmation



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 the operator 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 5.22 – 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.
5. The Blue Calibration screen will be displayed (Figure 5.16-3).
6. Operate the tool to complete one torque cycle.
7. The measured torque will be entered from the connected Smart Socket (Figure 5.16-4).



Figure 5.16-1: User Config Menu

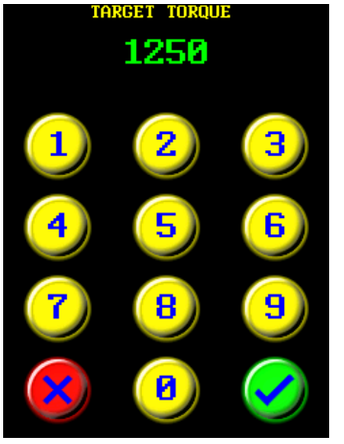


Figure 5.16-2: Target Torque Keypad



Figure 5.16-3: Blue Calibration Screen



Figure 5.16-4: Blue Calibration Screen – Cycle 1 Completed

8. Reverse the tool and perform a second torque cycle.
9. The second measured torque will be entered from the connected Smart Socket (Figure 5.16-5).
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 5.16-6). 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 5.22 – Calibration Adjust for more information.



Figure 5.16-5: Blue Calibration Screen – Cycle 2 Completed



Figure 5.16-6: Save Result Confirmation

5.17 Torque Limits

This feature enables torque limits for Angle Only or Torque and Angle Modes. 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.

The torque limits will be cleared if the set torque or set angle are changed, or a Preset without torque limits is selected. When a Preset is saved, the angle torque limits will also be saved. The list of saved Presets will display the limits beside the set torque value (see Presets 1 and 4 in Figure 5.17-3).



Figure 5.17-1: Torque Limits Screen



Figure 5.17-2: Set Min and Max Torque Limits

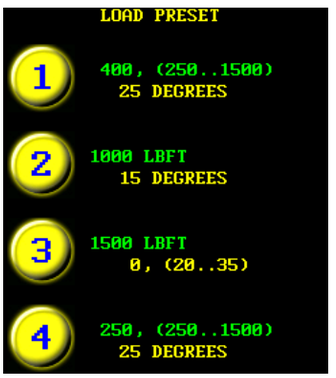


Figure 5.17-3: Presets 1 and 4 with Torque Limits in Brackets

5.18 Angle Limits

This feature enables angle limits for Torque Only Mode. 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 600 degrees. The minimum value cannot exceed the maximum value and will be corrected to a value below the maximum.

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 Preset without angle limits is selected.

When a Preset is saved, the angle limits will also be saved. The list of saved Presets will display the limits below the set torque (see Presets 2 and 3 in Figure 5.18-3).

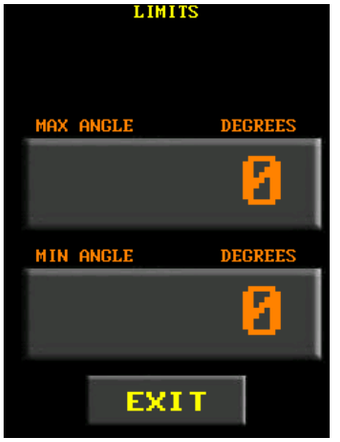


Figure 5.18-1: Angle Limits Screen

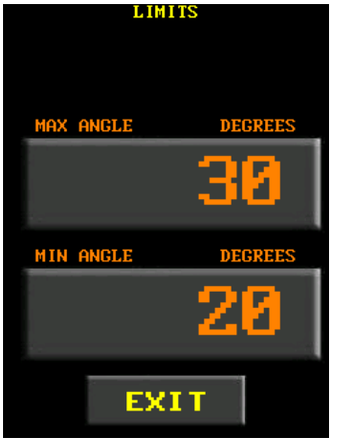


Figure 5.18-2: Set Min and Max Angle

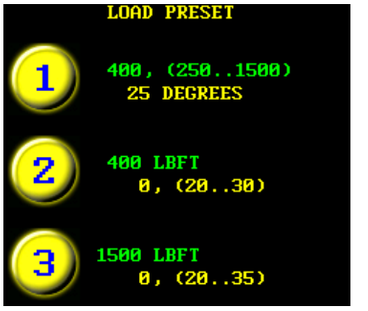


Figure 5.18-3: Presets 2 and 3 with Angle Limits in Brackets

5.19 Maintenance Cycle Control

Maintenance Lock disables the tool handle after a set 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.

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.
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 the Maint Limit).
9. Press ✓ to confirm the warning cycles or ✗ to correct. The

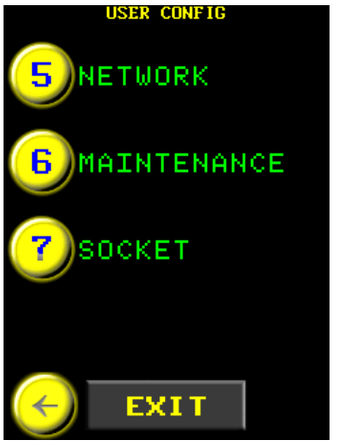


Figure 5.19-1: User Config Menu



Figure 5.19-2: Maintenance Menu



Figure 5.19-3: Maintenance Menu

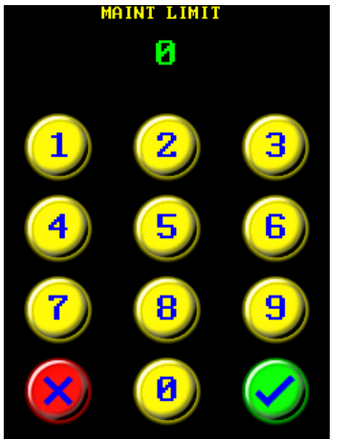


Figure 5.19-4: Enter Maint Limit

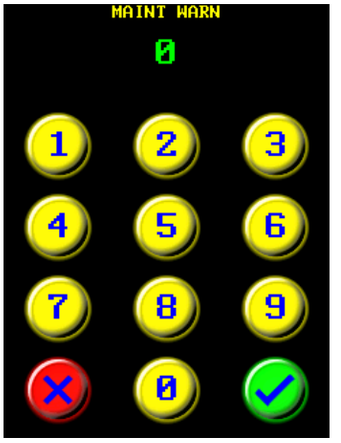


Figure 5.19-5: Enter Maint Warn



Figure 5.19-6: Maintenance Menu

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. Maintenance cycles may need to be cleared to reset the counter. Refer to Section 5.20 – Clear Maintenance Statistics.

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.

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 ft·lb and a desired threshold of 1000 ft·lb yields $\frac{1000}{2500} = \mathbf{40}\%$ of maximum. Then, all torque cycles over 1000 ft·lb will be counted.

4. Press the ✓ button to save the value.
5. A message is displayed asking to clear maint stats. If the ✗ is pressed, the total maintenance cycles are cleared but the individual ranges are kept. If the ✓ is pressed, all the maintenance cycles are cleared.

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



Figure 5.19-7: Maintenance Warning



Figure 5.19-8: Maintenance Required



Figure 5.19-9: Number Pad



Figure 5.19-10: Maintenance Menu

5.20 Clear Maintenance Statistics

This function allows the operator 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 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 5.21-1).
4. Select the desired values to change from "**Set Date**" or "**Set Time**" (Figure 5.21-2).
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 5.21-1: User Config Menu



Figure 5.21-2: Date and Time

5.22 Calibration Adjust

This function allows the operator 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 5.22-1).
4. Select "**Cal Adjust**" from the Change Values Menu (Figure 5.22-2).
5. Enter the adjustment value for the tool's calibration (Figure 5.22-3).
6. If Point Calibration is enabled, the heading is changed to Point Cal Adjust (Figure 5.22-4). 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 5.22-1: User Configuration Menu



Figure 5.22-2: Change Values Menu



Figure 5.22-3: Cal Adjustment



Figure 5.22-4: Point Cal Adjust

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 automatic IP addressing:

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 "**Set Network**" box needs to be checked (Figure 5.23-2).
5. Select "**Network**" from the Network Menu. The Network Screen will appear as in Figure 5.23-3.
6. Set the "IP 32" to "0" and the "IP 24" to "0".
7. Select "**Address**" from the Network Menu (Figure 5.23-2). The Address Screen will appear (Figure 5.23-4).
8. Set the "IP Net" to "0" and the "IP Node" to "0".

To connect the E-RAD BLU using a static 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 5.23-1).
4. To change any values, the "**Set Network**" box needs to be checked (Figure 5.23-2).
5. Select "**Network**" from the Network Menu. The Network Screen will appear as in Figure 5.23-3.
6. Set "IP 32" to the first number of the IP address and set "IP 24" to the second number of the address as in Figure 5.23-5.
7. Select "**Exit**" to return to the Network Menu.
8. Select "**Address**" from the Network Menu (Figure 5.23-2). The Address Screen will appear (Figure 5.23-4).
9. Set "IP Net" to the third number of the address and "IP Node" to the last number as in Figure 5.23-5.

Note: To change the netmask, see section 5.24 – Any Network

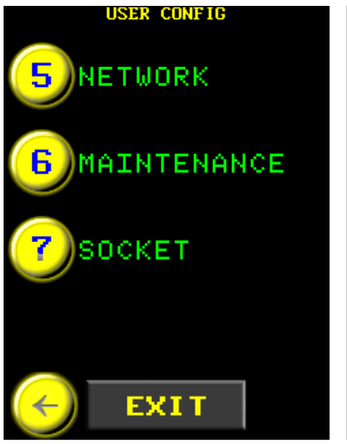


Figure 5.23-1: User Config Menu



Figure 5.23-2: Network Menu

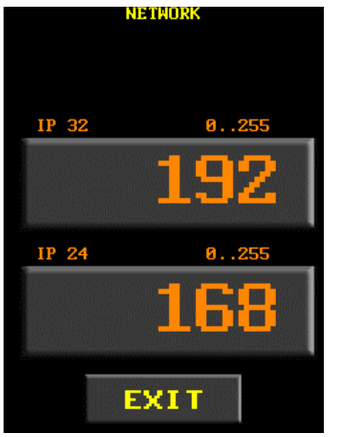


Figure 5.23-3: Network Screen

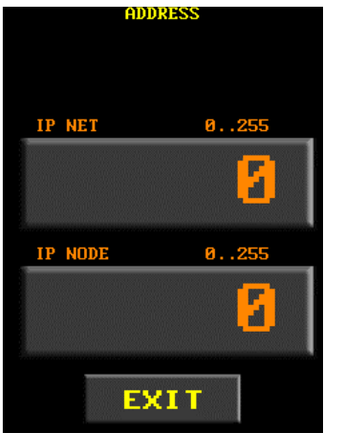


Figure 5.23-4: Address Settings

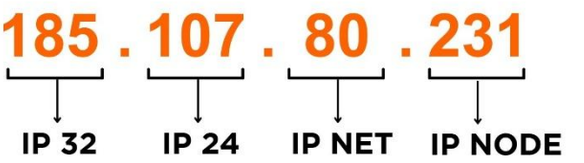


Figure 5.23-5: IP Addressing

To check the IP address:

1. Select "**Menu**" from the Main Screen.
2. Select "**Tool Info**" from the Main Menu (Figure 5.23-6).
3. Select "**Case Info**" (Figure 5.23-7). The IP address and subnet will be shown when connected to a network.



5.23-6: Main Menu



5.23-7: Tool Information Menu

5.24 Any Network

This function allows the operator 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 Config**" from the Main Menu (Figure 5.24-1).
3. Select "**Network**" from the User Config Menu. (Figure 5.24-2)
4. Select "**Any Network**" in the Network Menu. (Figure 5.24-3)
5. Select "**NetMask**" in the Network Menu. (Figure 5.24-4)
6. Select "**IP Mask**" to change the netmask value.

To check the IP address:

1. Select "**Menu**" from the Main Screen.
2. Select "**Tool Info**" from the Main Menu (Figure 5.23-6 above).
3. Select "**Case Info**" (Figure 5.23-7 above). The IP address and subnet will be shown when connected to a network.



Figure 5.24-1: Main Menu

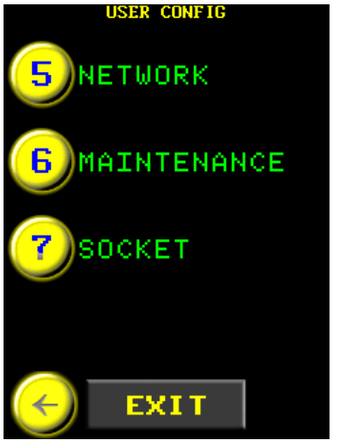


Figure 5.24-2: User Config Menu



Figure 5.24-3: Network Menu



Figure 5.24-4: Netmask

5.25 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.

5.26 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 11 – 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.
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).
11. A number pad will be displayed (Figure 6-5).



Figure 6-1: User Configuration Menu



Figure 6-2: Confirm Calibration Prompt



Figure 6-3: Calibration Mode



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

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 rest of the calibrations points until the tool's maximum rated torque is reached. Be careful not to exceed the maximum torque of the tool.
    Note: Torque cycles do 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. The operator will be prompted to save before exiting as seen in Figure 6-6. 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

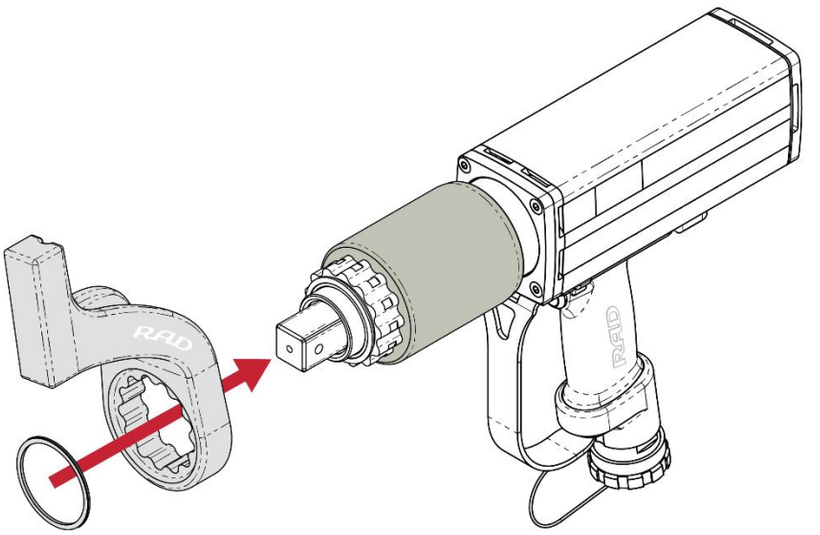
WARNING!
Always keep body parts clear of the reaction arm when the E-RAD BLU Tool System is in use. Serious injury could occur.

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

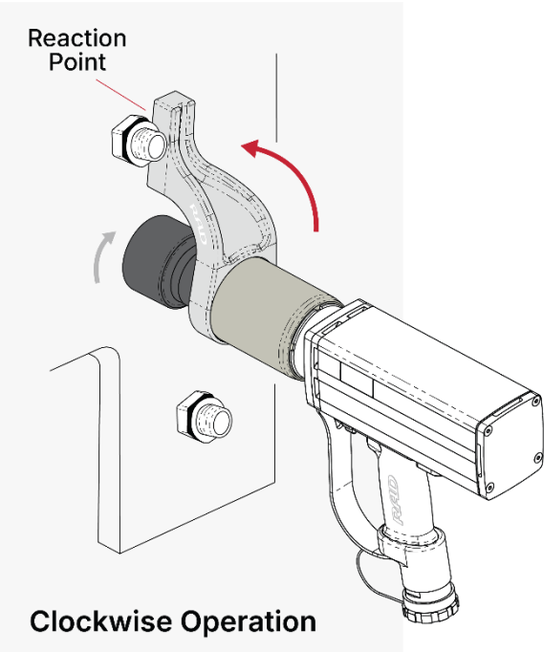
Slide the reaction arm onto the spline or serpentine fitting and secure the snap ring to hold the reaction arm in place.

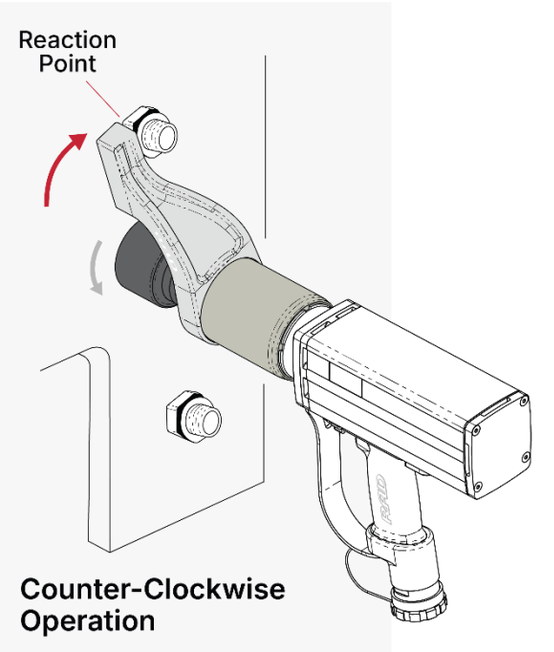


Reaction Points

Make sure that the reaction arm is in contact with a solid reaction point before operating the tool.

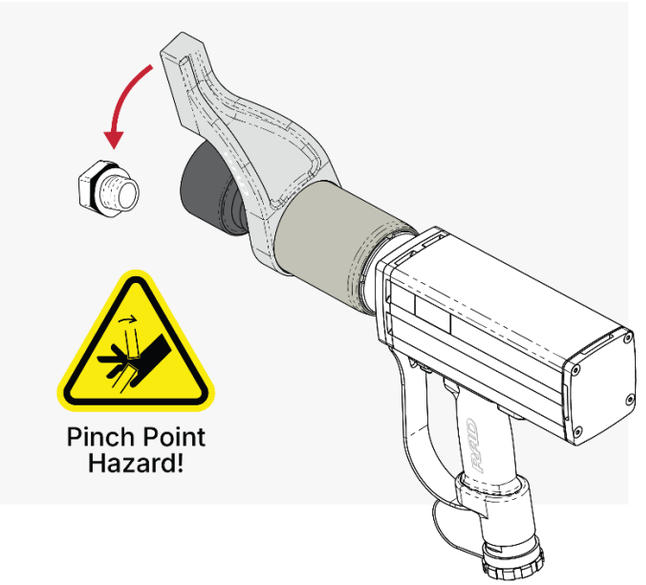
When the tool is in operation, the reaction arm rotates in the opposite direction to the output square drive and must be allowed to rest squarely against a solid object or surface adjacent to the bolt to be tightened.





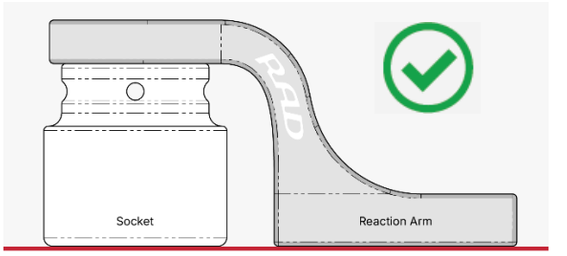
Personal Safety

CAUTION!
Keep hands clear of the reaction arm and joint when the tool is in operation.

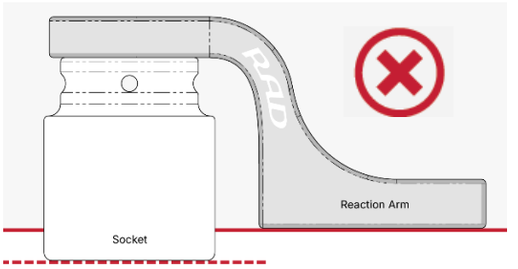


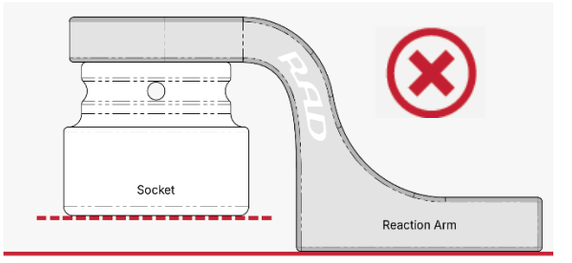
Reaction Arm Height

For proper tool function, ensure that the height of the socket is even with the height of the reaction arm.



Correct: The socket and reaction arm are aligned

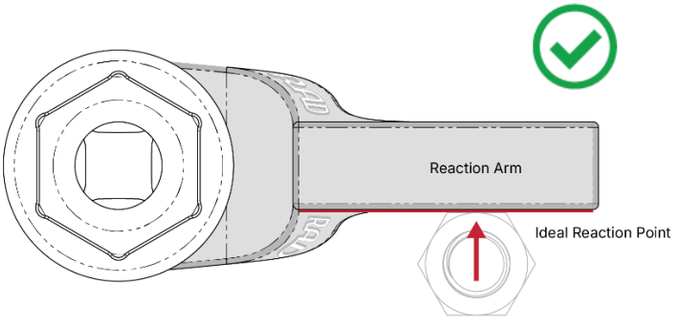




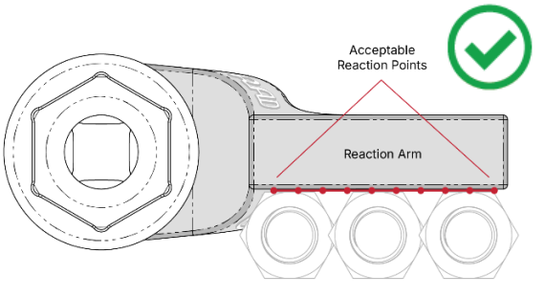
Incorrect: The leg of the reaction arm is too short in the left image and too long in the right image

Reaction Arm Foot

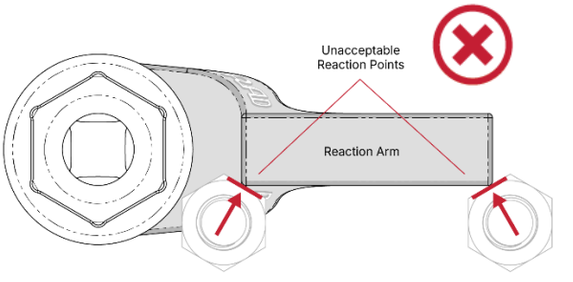
Make sure the foot of the reaction arm is positioned directly against the reaction point to ensure correct function



Reaction Point



Good reaction point:
Reacting perpendicular to the reaction arm



Bad reaction point:
Reacting at the angle towards the heel or the toe 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 Preset. 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 Preset. 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.

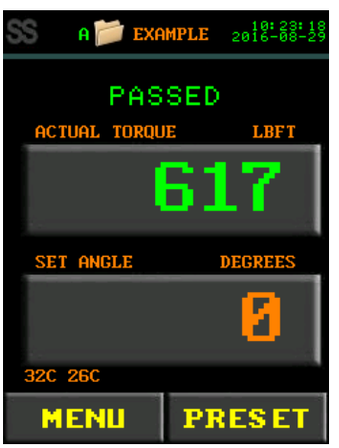


Figure 7.2-1: Passed Torque Cycle



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.

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). The actual angle moved will be displayed. If the actual angle is above the specified value, the cycle result is "Passed" as normal operation.



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



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



Figure 7.2-5: Torque Invalid Message

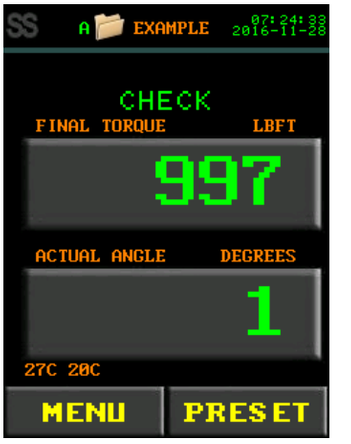


Figure 7.2-6: Torque Checked Cycle

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 Preset. 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 Preset. 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.

Note: 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.
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 failed angle cycle and Figure 7.3-3 shows a passed angle cycle.

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

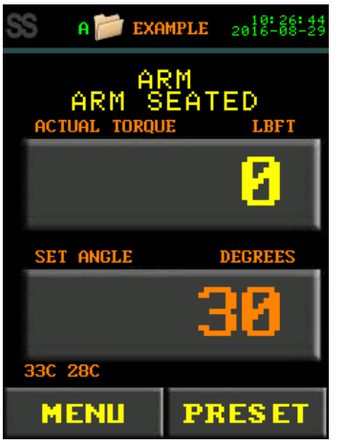


Figure 7.3-1: Arm Seated Message



Figure 7.3-2: Failed Angle Cycle



Figure 7.3-3: Passed 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 Preset 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 Preset, 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.

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.

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.

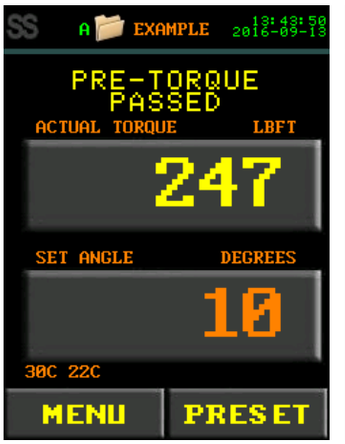


Figure 7.4-1: Pre-torque Passed



Figure 7.4-2: Cycle Passed

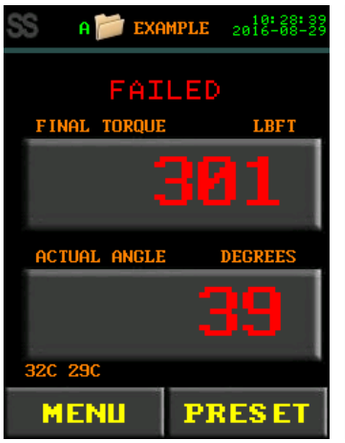


Figure 7.4-3: Cycle Failed

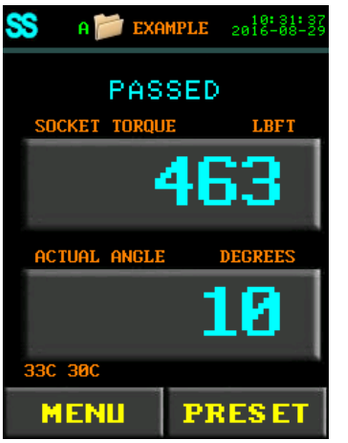


Figure 7.4-4: Passed Torque and Angle with Smart Socket

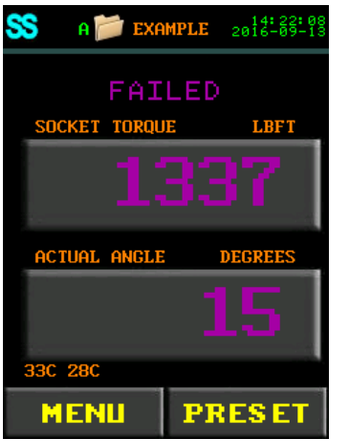


Figure 7.4-5: Failed Torque and Angle with Smart Socket

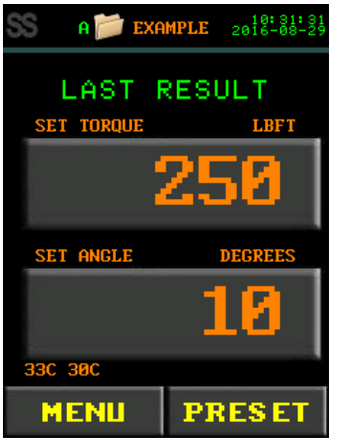
7.5 Reviewing the Last Result

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.
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.





Passed Result



SS Passed



Failed/Invalid Result



SS Failed

Figure 7.5-1: Last Result Option

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 our website:

1. Go to www.radtorque.com/resources/
2. Scroll down to E-RAD BLU.
3. Click on "**E-RAD Touch Data Logger**". It will open Dropbox.
4. Click the Download symbol at the top right of the page.
5. After the download is complete, select "**setup.exe**" in the E-RAD Touch Installer folder and follow the installation instructions.

The E-RAD Touch Data Logger Software is compatible with Windows XP, Windows Vista, Windows 7, Windows 8, Windows 10 and Windows 11 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).

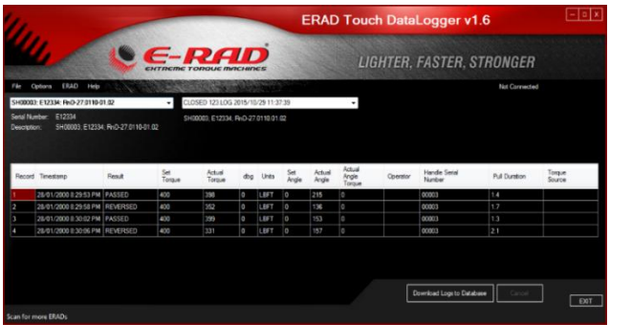


Figure 8.2-1: Data Logger Main Screen

5. Select the "**ERAD**" drop-down menu.
6. Select "**Scan for more ERADs**" from the ERAD Menu (Figure 8.2-2) **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 8.2-2).
   c) Select the correct com port for the connected tool.

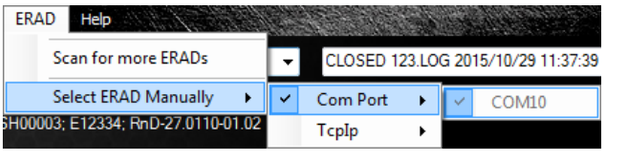


Figure 8.2-2: Com Port Selection from "ERAD" Menu

Note: Ensure that the E-RAD BLU is in PC Transfer Mode (a prompt message will appear as in Figure 8.2-3) and press "**OK**".

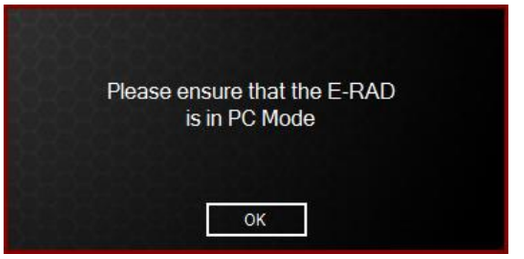


Figure 8.2-3: PC Mode Prompt Window

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:

a) Ensure the E-RAD BLU controller is connected and in PC Transfer Mode (see Section 8.2 – Connecting E-RAD and PC)
b) Select the "**Options**" drop down menu.
c) Select "**Set RTC**" from the Options drop down menu (Figure 8.3-1).
d) The time and date on the E-RAD BLU will be updated to match the time and date on the PC.

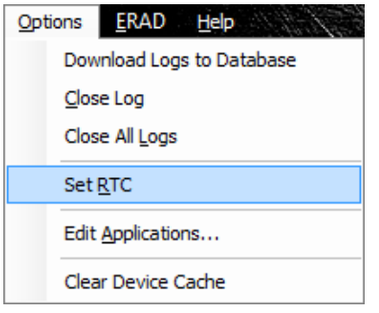


Figure 8.3-1: Set RTC from Options Menu

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, the user 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).

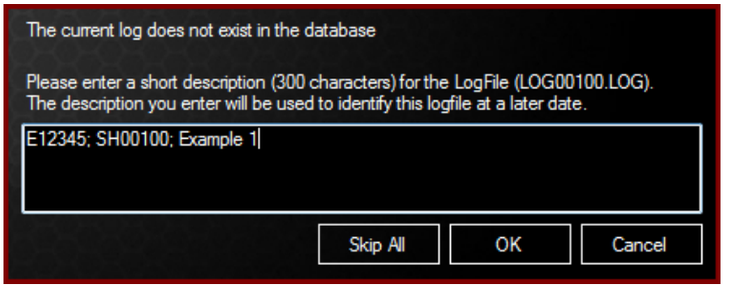


Figure 8.4-1: Data Log Descriptions

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. The selected data log will be closed in the data logger software and deleted from the E-RAD BLU.

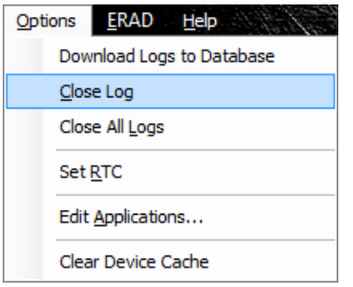


Figure 8.5-2: Close Log Option

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).

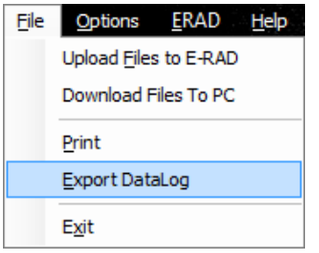


Figure 8.6-2: Export Data Log Option

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

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).

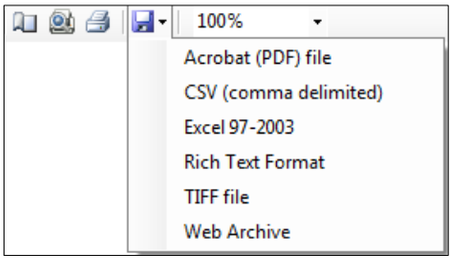


Figure 8.6-4: Print and Export Options

To select and copy data from a data log:

1. Select the tool and the desired data log (Figure 8.6-1).
2. Click and drag the cursor over the data to select it (Figure 8.6-5).
3. Press "**Control**" + "**C**" on the 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.

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 8.6-5: Select Data from Data Log

8.7 Edit Applications

This function allows the user to create and edit Application Presets and transfer them to and from the E-RAD BLU controller. Refer to Section 4.1– Select a Preset for more information on Application Presets.

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).

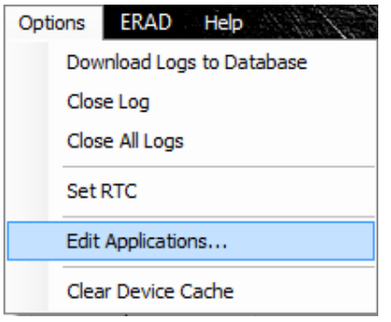


Figure 8.7-1: Options Menu, Edit Applications

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

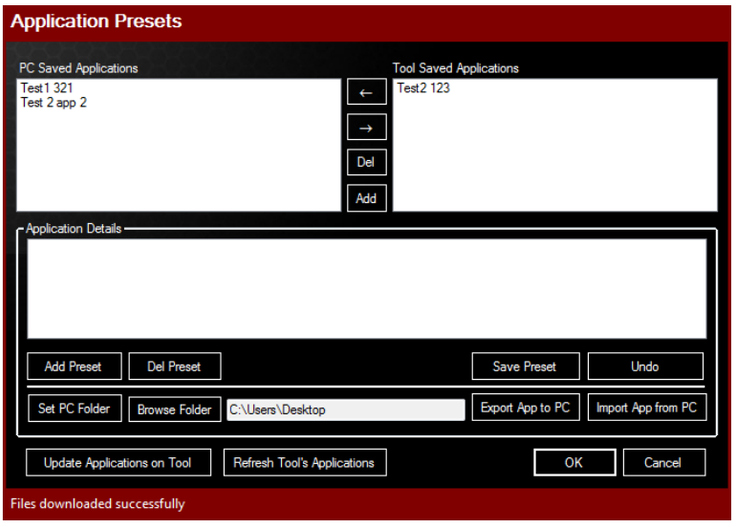


Figure 8.7-2: Application Presets Window

To create a new Application:

1. Press the "**Add**" button (Figure 8.7-3). A new application, "Enter Description," will appear under "PC Saved Applications".

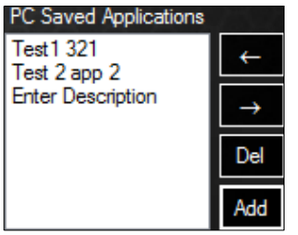


Figure 8.7-3: PC Saved Applications

2. Click on "**Enter Description**" to open the application. The Application will open in application details (Figure 8.7-4).

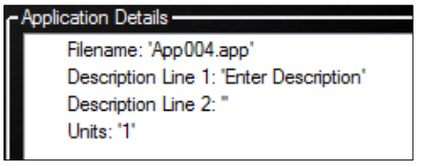


Figure 8.7-4: Application Details

3. Click on "**Description Line 1:**" to select it and again to edit the description.
4. Set the "Units:" field to "1" for Foot-Pounds or "2" for Newton-Metre.
5. Press the "**Add Preset**" button (Figure 8.7-5). A Preset will appear in application details.



Figure 8.7-5: Add Preset

6. Press the "**+**" button beside the Preset to expand it (Figure 8.7-6).

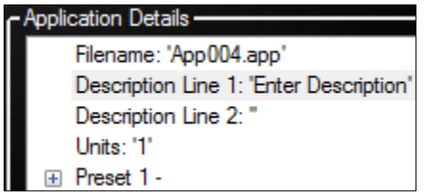


Figure 8.7-6: Application Details

7. Set a torque value, an angle value, and enter a description (Figure 8.7-7).

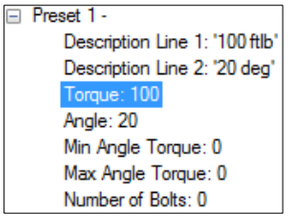


Figure 8.7-7: Edit Preset

8. Repeat steps 6-8 to add multiple Presets.
9. Press the "**Save Preset**" button (Figure 8.7-8).



Figure 8.7-8: Save Preset Button

10. Ensure that the Application is highlighted in PC saved applications.
11. Press the "→" button to copy the Application to the E-RAD.
12. The Application will appear in tool saved applications (Figure 8.7-9).

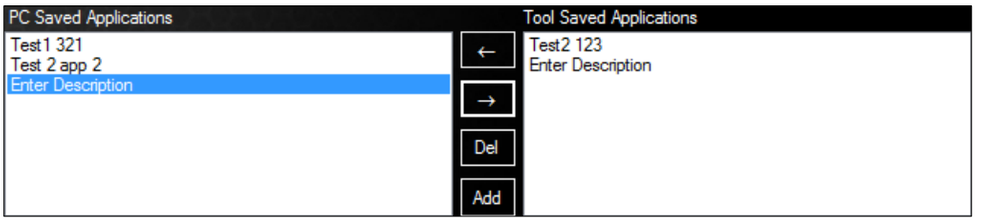


Figure 8.7-9: Tool Saved Applications

13. Press the "**Update Applications on Tool**" button to load the new Application onto the E-RAD (Figure 8.7-10).



Figure 8.7-10: 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 8.7-11).

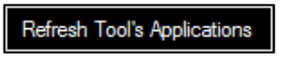


Figure 8.7-11: Refresh Tool's Applications Button

1. The existing applications will appear in the list of tool saved applications (Figure 8.7-12).

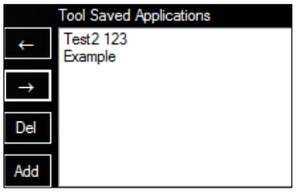


Figure 8.7-12: Tool Saved Applications

2. Select the Application and edit the Presets (Figure 8.7-13).

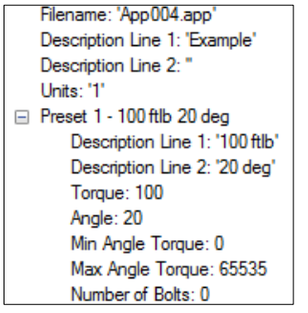


Figure 8.7-13: Edit Preset

3. Press the "**Save**" button.
4. Press the "**Update Applications on Tool**" button to load the changes onto the E-RAD (Figure 8.7-10).

An Application Preset 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 preset to be exported under the PC saved applications section.
2. Set the destination folder (Figure 8.7-14).
3. Press the "**Export App to PC**" button (Figure 8.7-14).



Figure 8.7-14: Set PC Folder and Export App to PC Buttons

An Application Preset 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 8.7-14).
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. Data log 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.
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.

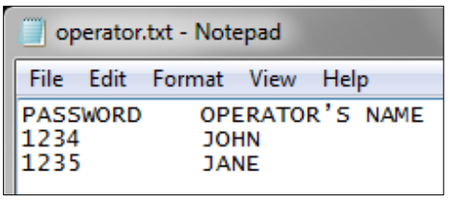


Figure 8.8-1: Example Operator Password File

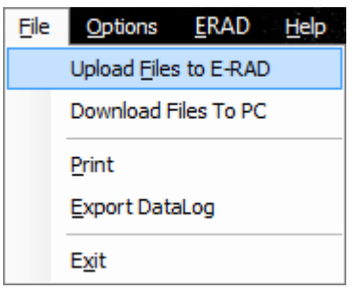


Figure 8.8-2: Upload Files to E-RAD

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 11 – 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. 2. Check that the AC power cable is connected to the controller and AC Mains power supply of the correct specifications. 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: 1. Switch the power switch to the off position. 2. wait two minutes. 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: 1. Switch the power switch to the off position and wait two minutes before proceeding. 2. Remove the tool handle cable from the tool handle connector on the side of the E-RAD BLU controller. 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. 4. Connect the tool handle cable to the connector. 5. Ensure that the connections are locked in place. 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).

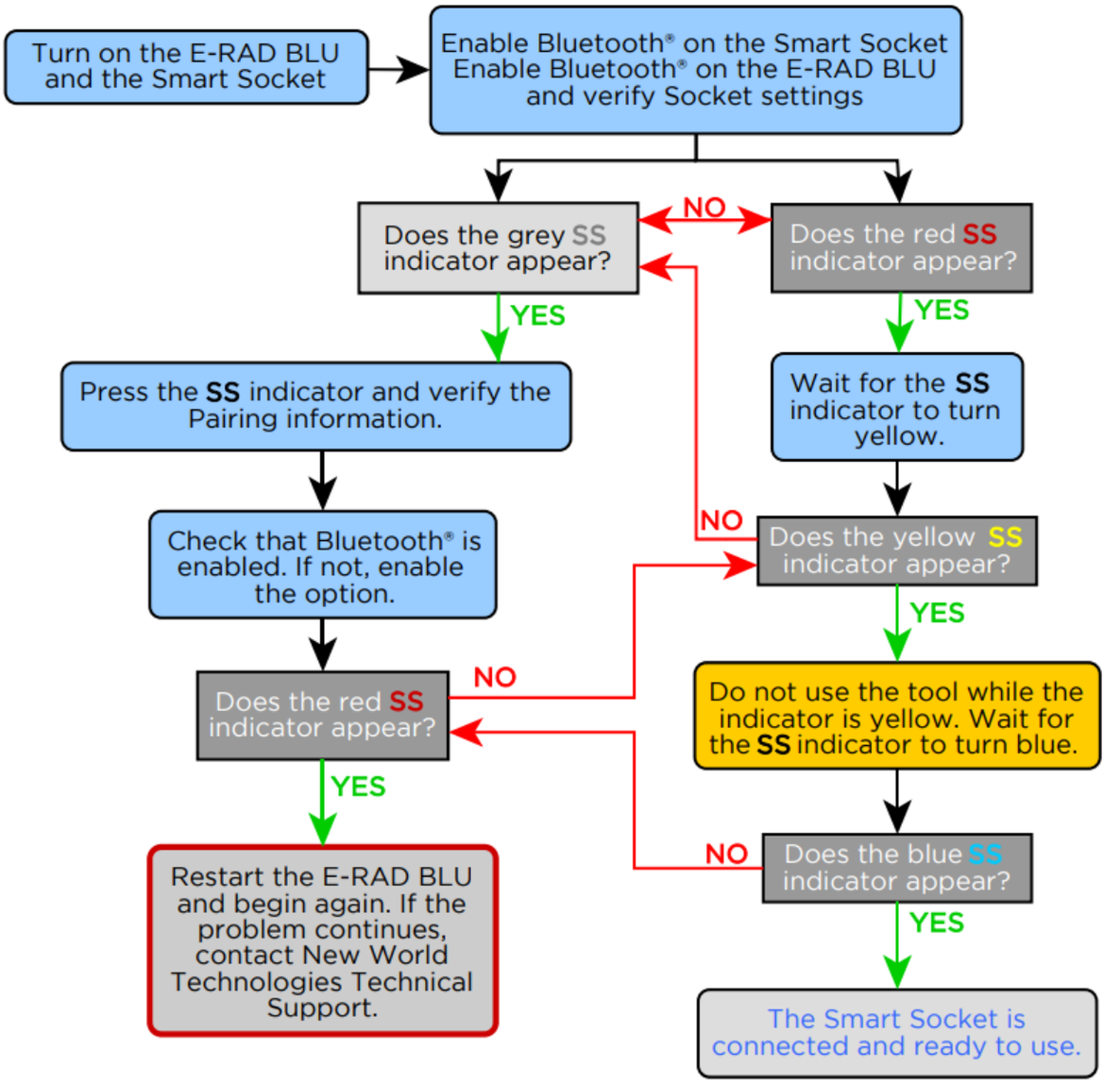
...continued on next page

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. 2. Check that the AC power cable is connected to the controller and AC Mains power supply of the correct specifications. 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: a. Switch the forward/reverse switch to the reverse position. b. Switch the forward/reverse switch to the forward position. c. Re-try. 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. 2. Check that the AC power cable is connected to the controller and AC Mains power supply of the correct specifications. 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. 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. 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 11 – Contact Us).

Over temp	The E-RAD BLU controller's internal temperature has exceeded the limit.	To cool the E-RAD BLU Tool System: 1. Ensure that the controller cooling fans are functional, and the filter covers are not blocked, or; 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: - Controller Comms – loss of communication between control modules. - Comms Lost – loss of communication between control modules. - NVRam Lost – corrupt memory resulting in loss of data. - Unknown Err. - Stack Overflow – program crashed. - 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. 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



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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 arms being used with the tool must also be returned.

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EXCLUSIONS FROM WARRANTY

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

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

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

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

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

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

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TRUSTED POWER.

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

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