

PC User Interface

Instruction Manual

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1. PCFE Installation

Open PCFE_Installer.exe from the USB Storage Device supplied with the torque device.

This PCFE_Installer.exe file will guide you through the installation of the PCFE. A desktop shortcut is created when the installation is complete.

1.1. PCFE communication with torque device

1. Connect a USB Cable from PC to the torque device. The HID driver will self-install and prompt you when the process is complete (See Figure 1).



Figure 1: Desktop Notification for Driver Installation

2. When in the "Select Port" menu from the top left of the PCFE, there will be two options:
 - i. **Com Port 1** – Select this option if you require and have the capability of serial communication.
 - ii. **torque device** – This will allow you to connect your torque device via USB.

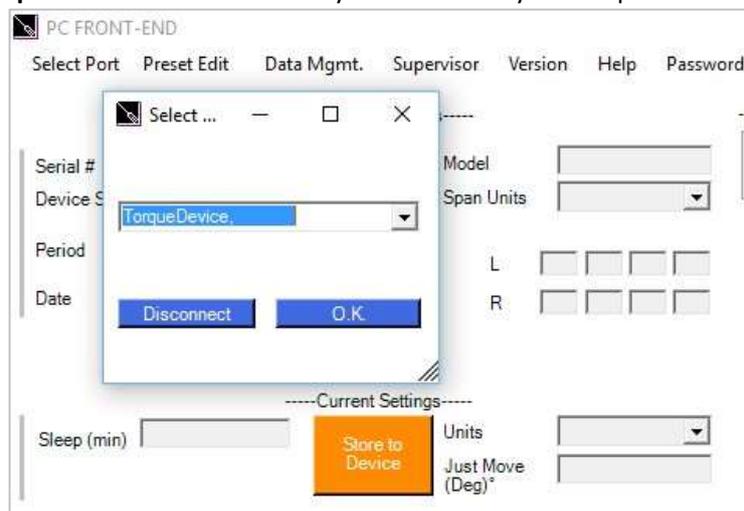


Figure 2: Selecting suitable COM port

2. PCFE User Instructions

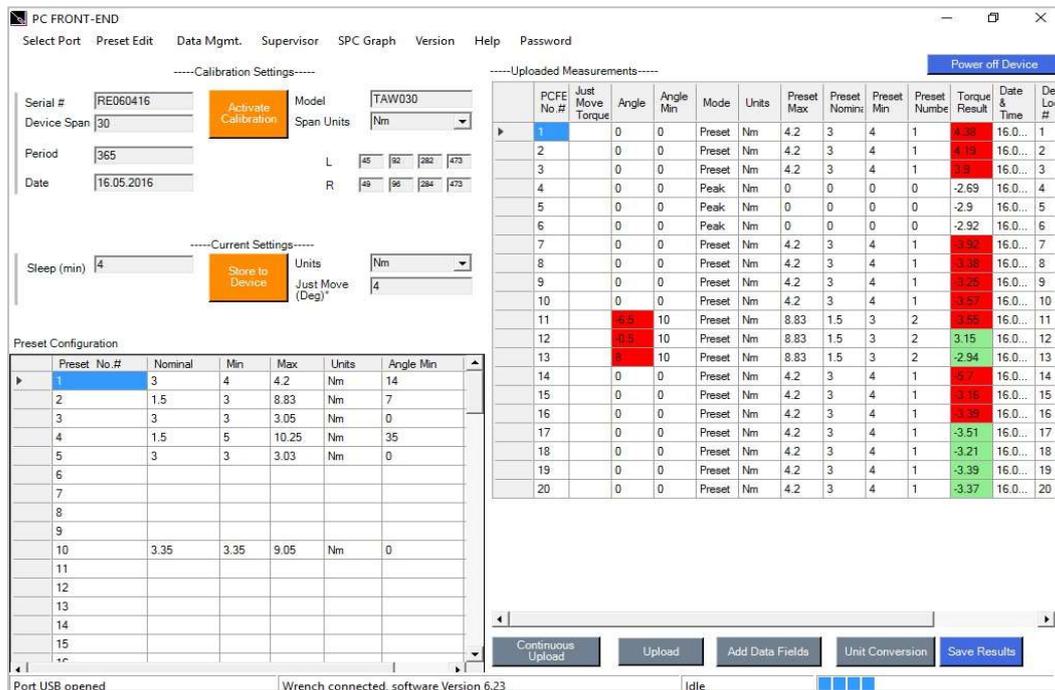


Figure 3 PCFE Main window

2.1 Password



Figure 4 Password entry on opening PCFE

The PCFE has 2 passwords, each with varying levels of control.

- 1 If the password field is left blank the program can be accessed but options such as Activate Calibration are limited.
- 2 "Distr"- this password is designed to be used by a supervisor and allows recalibration.
- 3 Passwords 2 can be changed by selecting the password tab in the toolbar of the main window.

2.2 Menu Bar



Figure 5: PCFE Menu Bar

1. **Select Port:** Allows the User to connect with the torque device (See Figure 2).
2. **Preset Edit:** A preset is a set of torque/torque and angle parameters.
 - i. **Clear all** – Delete existing presets from the table, use the “Store to Device” button to remove presets from the torque device.
 - ii. **Load from File** – Load presets from a .csv file to the torque device.
 - iii. **Save to File** – Export the preset table to a .csv file.
3. **Data Mgmt:**
 - i. **Save Results** – Save measurement results to a .csv file.
 - ii. **Print Results** – Print measurement results.
 - iii. **Clear Results** – Delete all the results from the table.
 - iv. **Page Setup** – Set the page layout for the “Print Results” option.
4. **Supervisor:**
 - i. **Clear Product Results** – Permanently delete all measurement results from the torque device.
 - ii. **Enable/Disable** – Hides all torque device modes except for “Preset” or other default mode where applicable. On the next startup all modes except preset (or default mode) will be enabled/disabled.
 - iii. **Torque Counter** – Displays a counter on wrench start-up indicating the current number of tightenings since the last calibration. A message will show if the defined limit is reached. Torque Counter can only be enabled/disabled on compatible products and while calibration has been activated.
 - iv. **Reset Product** – Perform factory reset on the torque device. **Note:** This deletes all information on the torque device including calibration information.
5. **SPC Graph:** Creates a visual representation of the chosen torque results. **Note:** This feature is only available when ten or more measurements using the same preset, have been uploaded to the PCFE.
6. **Version:** Shows current version of the PCFE.
7. **Password:** Change existing password. **Note:** Only available when PCFE opened with “master” password.

2.3 Calibration Settings

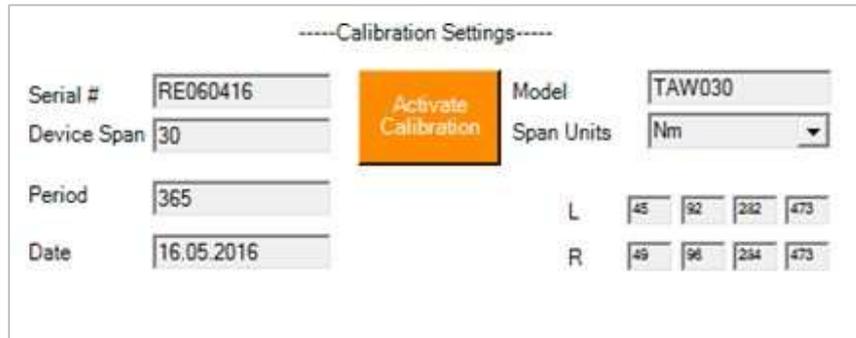


Figure 6: Calibration Settings Screen

1. **Serial #:** The serial number of the torque device.
2. **Model:** The model number for the current product.
3. **Device Span:** The upper torque limit of the torque device connected is shown here.
4. **Span Units:** This displays what units the torque device was calibrated in.
5. **Period:** This shows the number of days from the date of calibration until the product will display an alarm 'Needs Calibration'
6. **Date:** The date on which the torque device was last calibrated.

2.4 Current Settings



Figure 7: Current Settings

1. **Sleep:** The time in minutes before the torque device will enter sleep mode if left idle. If the operator applies torque or uses the torque device control buttons the sleep counter is reset. The torque device will not enter sleep while connected via USB to PC.
2. **Units:** Current units of measurement (Nm is the default setting).
3. **Just Move (Deg)°:** The default Just Move angle setting, which is the angle at which a snapshot of the torque is taken during the Just Move mode application.

2.5 Preset Configuration

| Preset No.# | Nominal | Min | Max | Units | Angle Min |
|-------------|---------|------|-------|-------|-----------|
| 1 | 3.05 | 3 | 5.09 | Nm | 0 |
| 2 | 1.5 | 3 | 8.83 | Nm | 7 |
| 3 | 3 | 3 | 3.05 | Nm | 0 |
| 4 | 1.5 | 5 | 10.25 | Nm | 35 |
| 5 | 3 | 3 | 3.03 | Nm | 0 |
| 6 | | | | | |
| 7 | | | | | |
| 8 | | | | | |
| 9 | | | | | |
| 10 | 3.35 | 3.35 | 9.05 | Nm | 0 |
| 11 | | | | | |
| 12 | | | | | |
| 13 | | | | | |
| 14 | | | | | |
| 15 | | | | | |

Figure 8: Preset Configuration Screen

The Preset Configuration Screen shows the presets that are stored on the torque device. Presets can be configured either in the PCFE or on the torque device.

For instructions on how to add a preset using the PCFE, please see the section “Set a Preset using the PCFE”.

2.6 Status Bar

- 1 **Port status:** Displays which port is being used by the torque device.
- 2 **Connection Status:** Displays the current status of the PCFE’s connection to a torque device.
- 3 **Software version:** The current firmware version on the torque device.
- 4 **PCFE Status:** Displays what actions are currently being processed by the PCFE.
- 5 **Progress Bar:** A visual progress bar showing active communication between the PCFE and the torque device.



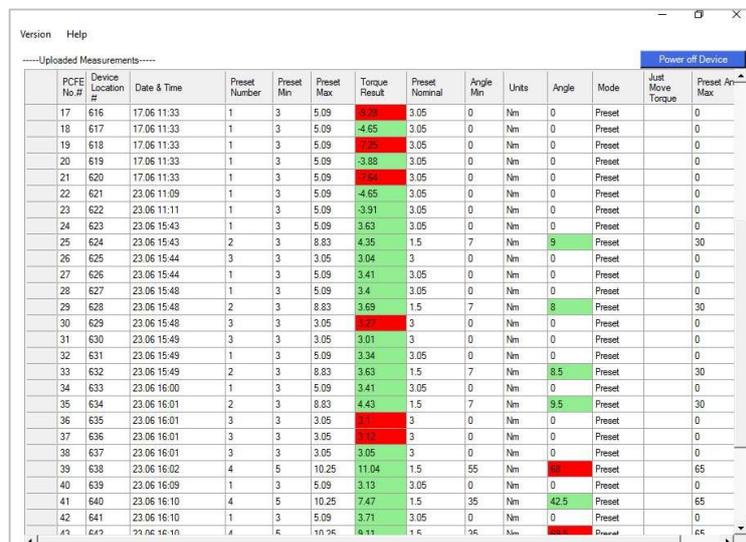
Figure 9: Status bar

2.7 Controls for results table

This section of the PCFE allows the user to view stored results from the torque device. These results can then be saved as an Excel file for further analysis and to offer the user complete traceability of their torque measurements.

- 1. Continuous Upload:** If this option is selected and the torque device is tethered to the PCFE via USB or RS232 cables, the results of the torque device will continuously upload to the PCFE as the measurements are taken with the torque device.
- 2. Upload All:** Once the torque device is connected to the PCFE, selecting this option will upload all the measurements stored on the torque device.
- 3. Set Data Fields:** This is used to add columns to the PCFE results section. These columns contain comments that are applied to all subsequent results.
- 4. Unit Conversion:** Converts the units of the existing results in the table to Nm, cNm, kgm, kgfcm, lbft, lbin or ozin.
- 5. Save Results:** Save results to a .csv file.
- 6. Power off Device:** Turn off and disconnect the torque device from the PCFE.

2.8 Results Table



| PCFE No. # | Device Location # | Date & Time | Preset Number | Preset Min | Preset Max | Torque Result | Preset Nominal | Angle Min | Units | Angle | Mode | Just Move Torque | Preset An Max |
|------------|-------------------|-------------|---------------|------------|------------|---------------|----------------|-----------|-------|-------|--------|------------------|---------------|
| 17 | 616 | 17.06.11.33 | 1 | 3 | 5.09 | 3.50 | 3.05 | 0 | Nm | 0 | Preset | 0 | 0 |
| 18 | 617 | 17.06.11.33 | 1 | 3 | 5.09 | -4.65 | 3.05 | 0 | Nm | 0 | Preset | 0 | 0 |
| 19 | 618 | 17.06.11.33 | 1 | 3 | 5.09 | 3.50 | 3.05 | 0 | Nm | 0 | Preset | 0 | 0 |
| 20 | 619 | 17.06.11.33 | 1 | 3 | 5.09 | -3.88 | 3.05 | 0 | Nm | 0 | Preset | 0 | 0 |
| 21 | 620 | 17.06.11.33 | 1 | 3 | 5.09 | 3.50 | 3.05 | 0 | Nm | 0 | Preset | 0 | 0 |
| 22 | 621 | 23.06.11.09 | 1 | 3 | 5.09 | -4.65 | 3.05 | 0 | Nm | 0 | Preset | 0 | 0 |
| 23 | 622 | 23.06.11.11 | 1 | 3 | 5.09 | -3.91 | 3.05 | 0 | Nm | 0 | Preset | 0 | 0 |
| 24 | 623 | 23.06.15.43 | 1 | 3 | 5.09 | 3.63 | 3.05 | 0 | Nm | 0 | Preset | 0 | 0 |
| 25 | 624 | 23.06.15.43 | 2 | 3 | 8.83 | 4.35 | 1.5 | 7 | Nm | 9 | Preset | 30 | 0 |
| 26 | 625 | 23.06.15.44 | 3 | 3 | 3.05 | 3.04 | 3 | 0 | Nm | 0 | Preset | 0 | 0 |
| 27 | 626 | 23.06.15.44 | 1 | 3 | 5.09 | 3.41 | 3.05 | 0 | Nm | 0 | Preset | 0 | 0 |
| 28 | 627 | 23.06.15.48 | 1 | 3 | 5.09 | 3.4 | 3.05 | 0 | Nm | 0 | Preset | 0 | 0 |
| 29 | 628 | 23.06.15.48 | 2 | 3 | 8.83 | 3.69 | 1.5 | 7 | Nm | 8 | Preset | 30 | 0 |
| 30 | 629 | 23.06.15.48 | 3 | 3 | 3.05 | 1.97 | 3 | 0 | Nm | 0 | Preset | 0 | 0 |
| 31 | 630 | 23.06.15.49 | 3 | 3 | 3.05 | 3.01 | 3 | 0 | Nm | 0 | Preset | 0 | 0 |
| 32 | 631 | 23.06.15.49 | 1 | 3 | 5.09 | 3.34 | 3.05 | 0 | Nm | 0 | Preset | 0 | 0 |
| 33 | 632 | 23.06.15.49 | 2 | 3 | 8.83 | 3.63 | 1.5 | 7 | Nm | 8.5 | Preset | 30 | 0 |
| 34 | 633 | 23.06.16.00 | 1 | 3 | 5.09 | 3.41 | 3.05 | 0 | Nm | 0 | Preset | 0 | 0 |
| 35 | 634 | 23.06.16.01 | 2 | 3 | 8.83 | 4.43 | 1.5 | 7 | Nm | 9.5 | Preset | 30 | 0 |
| 36 | 635 | 23.06.16.01 | 3 | 3 | 3.05 | 1.92 | 3 | 0 | Nm | 0 | Preset | 0 | 0 |
| 37 | 636 | 23.06.16.01 | 3 | 3 | 3.05 | 1.92 | 3 | 0 | Nm | 0 | Preset | 0 | 0 |
| 38 | 637 | 23.06.16.01 | 3 | 3 | 3.05 | 3.05 | 3 | 0 | Nm | 0 | Preset | 0 | 0 |
| 39 | 638 | 23.06.16.02 | 4 | 5 | 10.25 | 11.04 | 1.5 | 55 | Nm | 55 | Preset | 65 | 0 |
| 40 | 639 | 23.06.16.09 | 1 | 3 | 5.09 | 3.13 | 3.05 | 0 | Nm | 0 | Preset | 0 | 0 |
| 41 | 640 | 23.06.16.10 | 4 | 5 | 10.25 | 7.47 | 1.5 | 35 | Nm | 42.5 | Preset | 65 | 0 |
| 42 | 641 | 23.06.16.10 | 1 | 3 | 5.09 | 3.71 | 3.05 | 0 | Nm | 0 | Preset | 0 | 0 |
| 43 | 642 | 23.06.16.10 | 4 | 5 | 10.25 | 9.31 | 1.5 | 35 | Nm | 35 | Preset | 65 | 0 |

Figure 10: Results Table

The results table is only populated when torque results are uploaded to the PCFE. Results that are highlighted in green indicate that the torque or torque & angle measurement was “good”, i.e. the torque or torque & angle applied was within the pre-configured tolerances. Conversely, results highlighted in red indicate that the torque or Torque & angle measurement fell outside the preconfigured tolerances.

2.9 SPC Graph

To access SPC graphing, select the SPC graph tab on the PCFE Main window. For functionality there must be at least ten results uploaded to the PCFE and at least 10 measurements from a single preset number.

SPC Features

1. **Date Range:** This setting is used to select the range of results that are to be graphed. Select the required dates from the calendar.
2. **Preset Select:** Select the preset you wish to graph. **Note:** To graph a preset, at least 10 measurements for the individual preset must be reset.
3. **Maximum number of Readings:** This sets the maximum number of results to be graphed for a given preset and date range. Where the maximum value is under the actual value of results, the earliest results will be displayed.
4. **Print Graph:** Print the current graph.
5. **Graph:** Creates the graph as per the parameters entered in the data fields.

Note: To produce a line graph the results table must be ordered by the “PCFE #” column. If not, the time axis of the graph will be affected and a standard scatter chart will be shown.

Upon graphing a set of results (*Figure 12*), the $C_p k$ and standard deviation are automatically calculated, and displayed in the bottom right of the screen (*Figure 11*).

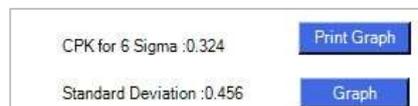


Figure 11: $C_p k$ and Standard Deviation Values

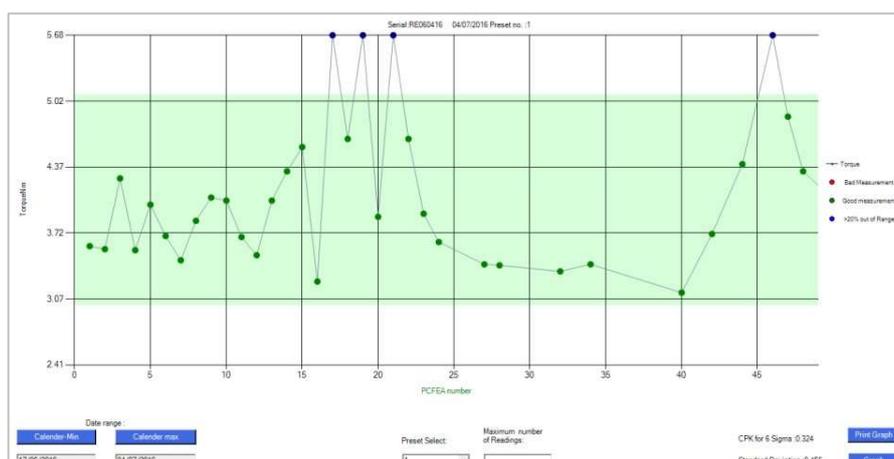


Figure 12: SPC Graph Output of a Torque Only Preset

2.10 Configure torque device presets using the PCFE

1. Ensure the torque device is connected to the PCFE software selected using "Select Port" (Figure 13).
2. Select the preset number or location from 1 to 99 you wish to set.
3. When the pop up window appears fill in required fields and press "O.K."
4. Select 'Store to torque device'. The data is then written to the torque device.

Notes:

- Some series of torque device only have the capability for one preset to be configured.
- Torque or torque & angle parameters can be set, product dependent.

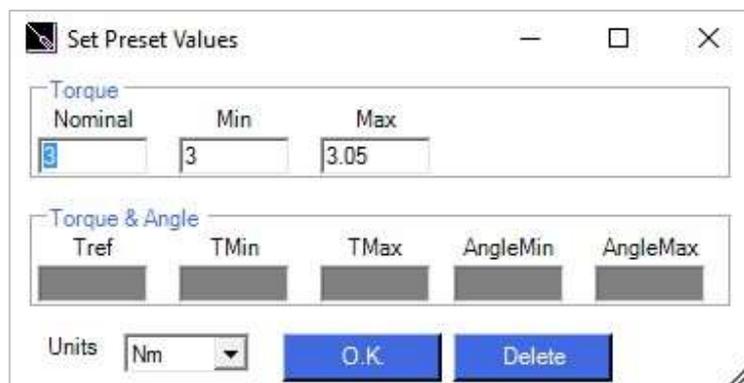


Figure 13: Setting Presets via the PCFE

2.11 Add a Data Field

1. Select the "Add Data Fields" button on the bottom right of the main PCFE window.
2. Enter column title and select either "Auto-Fill" or "Manual Entry" button. If "Auto-Fill" button is selected then the value entered in "Cell Entry" will be set as default.
3. Hit the save button and the column will be added to the results table on the far right.

Note: If the "Enable Column" is not selected the column will not appear at all in the PCFE results table.

The screenshot shows a dialog box titled "Add manual-entry data-fields?". It contains five rows of input fields. Each row has a "Column Title" and "Cell Entry" text box, and "Delete Column?" and "Enable Column?" checkboxes. The first row is populated with "Operator" in the Column Title and "Ben" in the Cell Entry, and the "Enable Column?" checkbox is checked. The other four rows are empty. At the bottom of the dialog are four buttons: "Auto-Fill" (green), "Manual Entry" (grey), "Save" (blue), and "Cancel" (blue).

Figure 14: Adding a default Data field

3. Wireless Communications

3.1. Connecting to a Wireless Receiver

1. Connect a USB Cable from the PC to the WCBR (Wireless receiver). The HID driver will selfinstall and prompt you when the process is complete (See Figure 15).



Figure 15: Desktop Notification for Driver Installation

2. After clicking the 'Select Port' tab from the top left of the PCFE, select the following option:

RF Master – This will allow you to connect your torque device via USB.

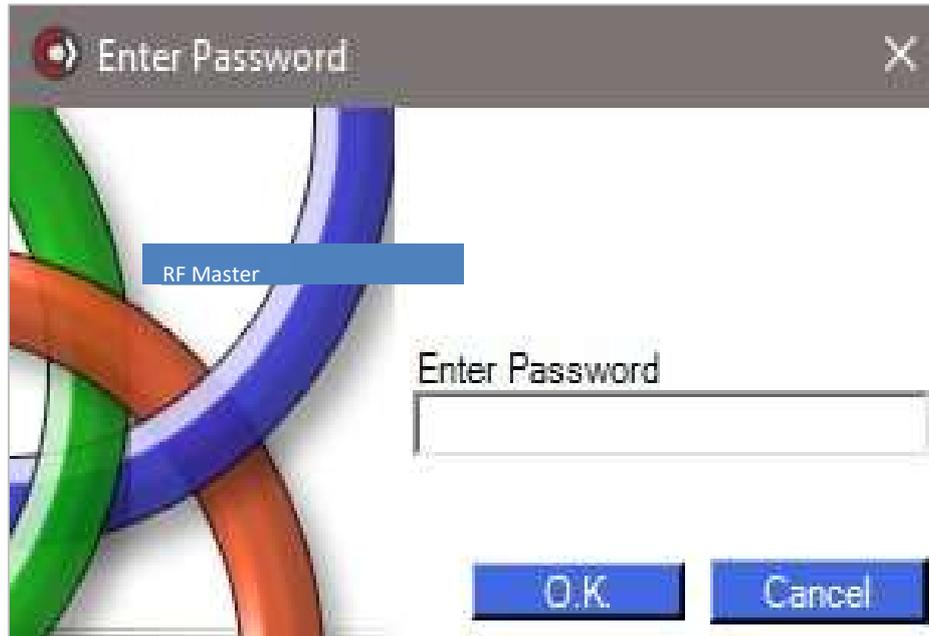


Figure 16 Selecting suitable COM port

3.2. Receiving torque results to the PCFE

1. After connection to the WCBR the PCFE screen will automatically change to a wireless data screen as per the sample screenshot below.
2. On the upper left of the screen the wireless symbol highlights to indicate an incoming torque result. On the lower left side of the screen the most recent result and when it was received is displayed.
3. Torque results will be received from all Zigbee wrenches which are within range of the WCBR (circa 10-15 metres).
4. All results can be sorted by date or torque device serial number within the torque results table to the right of the screen.
5. Sub-section 2.7 above advises the controls possible with the results table.

PC Front-End

Select Port Preset Edit Data mgmt. Supervisor Version Language Password Wireless

PowerOff Device



Reading Count 21 Result

12.8 lbft

Uploaded Measurements

| PCFE No. | Device Location | Date & Time | Torque Result | Preset no. | Preset Min | Preset Nominal | Preset Max | Device serial Number | Units | Mode | Preset Angle Min | Preset Angle Max | Angle | Just Move Torque |
|----------|-----------------|-------------|---------------|------------|------------|----------------|------------|----------------------|-------|--------|------------------|------------------|-------|------------------|
| 1 | 26 | 02.01 13:49 | -13 | 1 | 12.5 | 13 | 13.5 | P1387786 | lbft | Preset | | | | |
| 2 | 27 | 02.01 13:49 | -13.5 | 1 | 12.5 | 13 | 13.5 | P1387786 | lbft | Preset | | | | |
| 3 | 28 | 02.01 13:49 | 13 | 1 | 12.5 | 13 | 13.5 | P1387786 | lbft | Preset | | | | |
| 4 | 29 | 02.01 13:49 | 13 | 1 | 12.5 | 13 | 13.5 | P1387786 | lbft | Preset | | | | |
| 5 | 30 | 02.01 13:50 | 13.1 | 1 | 12.5 | 13 | 13.5 | P1387786 | lbft | Preset | | | | |
| 6 | 31 | 02.01 13:50 | 13.3 | 1 | 12.5 | 13 | 13.5 | P1387786 | lbft | Preset | | | | |
| 7 | 32 | 02.01 13:50 | 13.4 | 1 | 12.5 | 13 | 13.5 | P1387786 | lbft | Preset | | | | |
| 8 | 33 | 02.01 13:50 | 13.1 | 1 | 12.5 | 13 | 13.5 | P1387786 | lbft | Preset | | | | |
| 9 | 34 | 02.01 13:50 | 13.5 | 1 | 12.5 | 13 | 13.5 | P1387786 | lbft | Preset | | | | |
| 10 | 35 | 02.01 13:50 | 13.2 | 1 | 12.5 | 13 | 13.5 | P1387786 | lbft | Preset | | | | |
| 11 | 36 | 02.01 13:50 | 13.2 | 1 | 12.5 | 13 | 13.5 | P1387786 | lbft | Preset | | | | |
| 12 | 37 | 02.01 13:50 | 13.3 | 1 | 12.5 | 13 | 13.5 | P1387786 | lbft | Preset | | | | |
| 13 | 38 | 02.01 13:50 | 13.1 | 1 | 12.5 | 13 | 13.5 | P1387786 | lbft | Preset | | | | |
| 14 | 39 | 02.01 13:50 | 13.4 | 1 | 12.5 | 13 | 13.5 | P1387786 | lbft | Preset | | | | |
| 15 | 40 | 02.01 13:51 | 12.7 | 1 | 12.5 | 13 | 13.5 | P1387786 | lbft | Preset | | | | |
| 16 | 41 | 02.01 13:51 | 13.3 | 1 | 12.5 | 13 | 13.5 | P1387786 | lbft | Preset | | | | |
| 17 | 42 | 02.01 13:51 | 13.2 | 1 | 12.5 | 13 | 13.5 | P1387786 | lbft | Preset | | | | |
| 18 | 43 | 02.01 13:52 | -12.8 | 1 | 12.5 | 13 | 13.5 | P1387786 | lbft | Preset | | | | |
| 19 | 44 | 02.01 13:52 | -12.9 | 1 | 12.5 | 13 | 13.5 | P1387786 | lbft | Preset | | | | |
| 20 | 45 | 02.01 13:53 | 13.4 | 1 | 12.5 | 13 | 13.5 | P1387786 | lbft | Preset | | | | |

Received measurement at: 13:53 on: 02.01

Continuous Upload
Upload
Add Data Fields
Unit Conversion
Save Results

Port USB opened | Wrench Connected, software version 1.01Z

Figure 17 Wireless RF page