



Operating Manual

Classic series (Pro, Super, Auditor)



What's inside?

1.	INTRODUCTION	4
1.1.	Product Description	4
1.2.	Recommended Use	5
1.3.	Basic Characteristics	5
1.4.	Safe Use Disclaimer	5
2.	GENERAL GUIDELINES	6
2.1.	Changing the Batteries	6
2.2.	Ratchet Head Guidelines	6
2.3.	Safety Instructions	6
2.4.	Basic Wrench Operation	7
3.	MODES OF OPERATION	8
3.1.	Language Mode	8
3.2.	Units Mode	9
3.3.	Date Mode	9
3.4.	Track Mode (All Series)	9
3.5.	Peak Mode (All Series)	9
3.6.	Preset Mode (All Series)	10
3.7.	Set Mode	10
3.7.1.	Torque	11
3.7.2.	Just Move	12
3.7.3.	Torque Angle	12
3.8.	Just Angle Mode (Auditor Series only Mode)	13
3.9.	Just Move Mode (Auditor Series only Mode)	13
3.10.	Recall Mode	14
3.11.	Upload Mode	14
3.12.	Comms Mode	14
3.13.	Clear Mode	15
4.	PCFE – PC SOFTWARE	16
4.1.	Installing the PCFE	16
4.2.	Communication with PCFE	17
4.3.	PCFE User Instructions	18
4.3.1.	Menu Bar	18
4.3.2.	Calibration Settings	19
4.3.3.	Current Settings	20
4.3.4.	Preset Configuration	20
4.3.5.	Status Bar & Results Table Controls	21
4.3.6.	Status Bar	21
4.3.7.	Results Table Controls	21
4.3.8.	Results Table	22
4.3.9.	SPC Graph	22
4.3.10.	Set a Preset using the PCFE	24
4.3.11.	Add a Data Field	25
5.	CALIBRATION	25
6.	WARRANTY	26

1. Introduction

1.1. Product Description

The TrackWrench range of Digital Torque Wrenches comprises three separate models; Pro, Super & Auditor. Each model has certain features and modes that are applicable to certain situations. The differences in the models will be explained in more detail in the “Modes of Operation” section of the document.

The Digital Torque Wrench is a state of the art hand-held device suitable for both torque auditing & torque application. As a precision tool, it is highly accurate as well as highly repeatable. For product portfolio cohesion, the Digital Torque Wrench uses the same Organic LED display, membrane keypad, user interface and PC based data management software as other standard products within this range of electronic torque tools. Additionally, training time is kept to a minimum due to the ease of use of the tool itself.

TrackWrench Digital Torque Wrenches are demonstrated to have an accuracy of 1% or better and are both simple to set and calibrate, as well as coming with a fully traceable ISO 6789 certification.

The wrench has both visual and audible alarms that signal good or bad torque. Furthermore, there is a visual battery life indicator, alarms for preset value approach, fastener overload, range overload and maximum mechanical overload.

1.2. Recommended Use

The Digital Torque Wrench is specifically designed for use in all industrial settings and applications where accuracy and repeatability combined with a complete torque data management and control system are required.

1.3. Basic Characteristics

- Accuracy – Right hand side torque = 1%, Left hand side torque = 1% of actual reading.
- Torque range – 1Nm to 2.000 Nm.
- Alarms – Preset value approach, range overload, mechanical overload, low battery and memory full.
- Memory Capacity – 2.094 values.
- Battery Life – Sleep Mode: 5,000 hours, Operational Mode – For standard super series: Up to 120 hours, For wireless model: Up to 40 hours.

1.4. Safe Use Disclaimer

BMS Ireland is not responsible for, and expressly disclaims all liability for, damages of any kind arising out of misuse or improper operation of this tool. Clearly, due to the multitude of potential uses and working environments for this tool, BMS cannot set out guidelines as to how to safely operate this tool. Thus, operators should exercise care and judgment when operating this tool and to take all safety precautions that they deem necessary in the circumstances.

2. General Guidelines

2.1. Changing the Batteries

1. Unscrew the metal end cap at the rear end of the wrench.
2. Remove the four AA cell batteries and replace with a new set.
3. Screw the metal end cap back on.
4. Turn on the wrench and check to ensure the date and time are both set correctly.

Note: Standard & rechargeable AA batteries are both suitable for use with TrackWrench Digital Torque Wrenches. Re-chargeable batteries should be charged offline with a suitable charger.

2.2. Ratchet Head Guidelines

- Store in a cool, dry location.
- Oil frequently to prevent ratchet head from becoming stiff and seizing.
- Do not exceed specified torques.
- Do not use external forces on ratchet e.g. a hammer.
- Max Torques: $1/4'' = 30 \text{ Nm}$
 $3/8'' = 135 \text{ Nm}$
 $1/2'' = 400 \text{ Nm}$
 $3/4'' = 1.000 \text{ Nm}$
 $1'' = 2.000 \text{ Nm}$

2.3. Safety Instructions

The following are a set of general guidelines for using and storing the wrench that should be adhered to at all times;

- All torque tools are precision instruments and should be handled with care.
- Do not subject the tool to torque loads in excess of the model range.
- Do not use the tool to loosen fasteners tightened beyond maximum tool capacity.
- Using non-linear extensions may affect the accuracy of the readings.
- The use of torque extensions will increase the torque applied.
- Do not operate the tool unless it has been powered on and the display screen can be read clearly.
- Do not drop the tool or subject it to heavy impact blows.

- Ensure the tool is stored in a cool, dry location in order to protect it from damage.
- Adhere to safety instructions.
- Torque should be applied to the centre of the torque wrench handle only, with no force applied to any other part of the tool.

2.4. Basic Wrench Operation



Figure 2.4.A : Digital Torque Wrench Overview

1. TrackWrench standard ratchet head.
See "Ratchet Head Guidelines" for more details.
2. DIN socket for torque attachments, e.g. ratchet head, open end, ring end, etc.
3. OLED display.
4. Membrane switch for tool navigation.
5. Soft grip handle. Force should always be applied to the centre of the handle for optimal accuracy and function.
6. End cap.



Figure 2.4.B : Tool Interface Overview

1. Torque range label. Stated accuracy applies to this torque range.
2. Coloured LED warning indicators.
3. Use "M" to scroll through the menu or return to the previous screen.
4. Use the directional arrows to adjust values such as units, torque settings, time, etc.
5. Use "√" to enter mode, confirm setting or save result to memory.

3. Modes of Operation

Torque reading start at 5% of maximum capacity with an accuracy of 1% beginning at 10% of maximum capacity (threshold to maximum span).

The following are the different modes available with the Digital Torque Wrench:

- Languages
- Units
- Date
- Track (All Series)
- Peak (All Series)
- Preset (All Series)
- Set:
 - Set Torque
 - Set - Just Move
 - Set - Torque & Angle
- Just Move
- Just Angle
- Recall
- Upload
- Clear
- Comms
- Clear

3.1. Language Mode

The languages of operation available to the user are: English, Chinese, French, German, Italian, Polish, Portuguese, Russian & Spanish.

1. Press **M** to scroll to the Language mode.
2. Press **✓** to enter Language mode.
3. Press **✓** **↶** to scroll to desired language.
4. Press **✓** to confirm operation in this language.

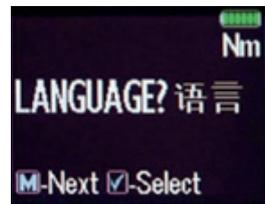


Figure 3.1: Language Mode

3.2. Units Mode

1. Press **M** to scroll to Units mode.
2. Press **✓** to enter Units mode.
3. Press **▼** **▲** to scroll to desired units.
4. Press **✓** to confirm selected units.



Figure 3.2: Units Mode

Note: The following units of measurement are available; kgf.cm, kgf.m, cN.m, N.m, ozf.in, lbf.in & lbf.ft.

3.3. Date Mode

1. Press **M** to scroll to Date mode.
2. Press **✓** to enter Date mode.
3. Press **▼** **▲** to set the minute and hour.
4. Press **✓** to confirm.
5. Repeat steps 3 & 4 to set the date, month and year.

3.4. Track Mode (All Series)

As torque is applied, the OLED will actively display the applied torque reading from 5-100% of the maximum span of the device. Upon removal of the load, the display will return to zero.

1. Press **M** to scroll to Track mode.
2. Press **✓** to enter Track mode.



Figure 3.4:
Track Mode Graph

3.5. Peak Mode (All Series)

In Peak mode, the maximum torque reading will remain on the OLED display when the load is removed as long as the torque loaded is above the 10% of maximum capacity threshold. The user has the option to store the reading in memory. If storage of the reading is not required, the user may continue to the next measuring task.

1. Press **M** to scroll to Peak mode.
2. Press **✓** to enter Peak mode.
3. Press **✓** to store the peak value recorded if required.

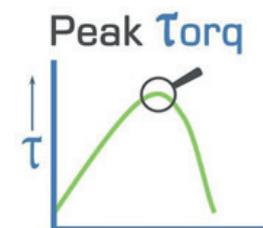


Figure 3.5:
Peak Mode Graph

3.6. Preset Mode (All Series)

In Preset mode, the maximum torque reading will remain on the OLED display when the load is removed as long as the torque loaded is above the 10% of maximum capacity threshold.

Depending on the maximum torque recorded, there are various warning signals activated:

- Passing Minimum Value – The green LED on the keypad will flash, and the buzzer will sound intermittently, while the OLED display will change to orange.
- Passing Nominal Value – The green LED on the keypad will turn on, and the buzzer will sound continuously, while the OLED display will change to green.
- Passing Maximum Value – The red LED will flash continuously, and the buzzer will sound continuously, while the OLED display will change to red.

1. Press **M** to scroll to Preset mode.
2. Press **✓** to enter Preset mode.
3. Press **▼** **▲** to select your preferred preset number i.e. 1 to 99 (Pro Series Wrenches have 1 configurable preset, Super & Auditor Series have 99).
4. Press **✓** to operate within this preset parameter.
5. Press **✓** to store the applied torque if required.

3.7. Set Mode

This mode allows the user to set limits for the torque or angle, applied. The operator can choose to set values by either percentage or numerical tolerance. During operation the OLED display will be green when approaching the preset tolerance and will change to red if exceeded.

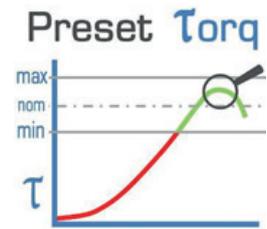


Figure 3.6:
Preset Mode Graph

3.7.1. Torque

1. Press **M** to scroll to Set mode.
2. Press **✓** to enter Set mode.
3. If the tool is torque-only, skip to step 4. If the tool has angle measuring capabilities there will be three options in Set mode;
 - a. Set Torque.
 - b. Set Torque & Angle (Auditor Series only Mode).
 - c. Just Move Preset (Auditor Series only Mode).

The user should select the most relevant option for their application.

4. Press **✓** **↑** to select set by percentage or set by tolerance.
5. Press **✓** **↑** to scroll to required preset number i.e. 1 to 99.
6. Press **✓** to confirm preset number selected.
7. Press **✓** **↑** to set nominal value and **✓** to confirm.
8. Press **✓** **↑** to set your low value and **✓** to confirm.
9. Press **✓** **↑** to set your high value and **✓** to confirm.

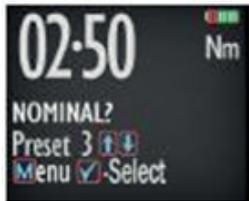


Figure 3.7.1. A: Nominal Preset



Figure 3.7.1. B: Low Preset



Figure 3.7.1. C: High Preset

10. Once the parameters have been confirmed the operator can find the configured preset within Preset mode. Use **M** to select Preset mode from the main menu and find the desired preset number.



Figure 3.7.1. D: Set & Preset Functions

3.7.2. Just Move

Just Move allows the user to measure torque after rotation of a pre-defined number of degrees. Degrees will count once load applied is above 5% of the maximum tool span. Torque will be captured at the angle defined here.

1. Press **M** to scroll to Set mode.
2. Press **✓** to select Set mode.
3. Press **▼** **▲** to select Just Move.
4. Press **▼** **▲** to scroll to required preset number i.e. 1 to 99.
5. Press **✓** to confirm preset number selected.
6. Press **▼** **▲** to set just move preset angle and **✓** to confirm.

3.7.3. Torque & Angle

This mode allows the user to prepare Minimum & Maximum acceptable limits for both torque and angle. The angle starts once the reference torque has been reached.

1. Press **M** to scroll to Set mode.
2. Press **✓** to select Set mode.
3. Press **▼** **▲** to select Torque & Angle.
4. Press **▼** **▲** to scroll to required preset number i.e. 1 to 99.
5. Press **✓** to confirm preset number selected.
6. Press **▼** **▲** to set reference torque value and **✓** to confirm.

Once this reference torque value is reached the Angle value will set to zero degrees.

7. Press **▼** **▲** to set low torque value and **✓** to confirm.
8. Press **▼** **▲** to set high torque value and **✓** to confirm.
9. Press **▼** **▲** to set low angle value and **✓** to confirm.
10. Press **▼** **▲** to set high angle value and **✓** to confirm.

Just Move

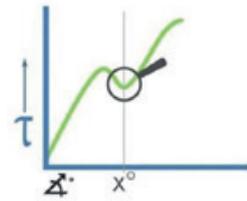


Figure 3.7.2: Set Just Move

Function Graph

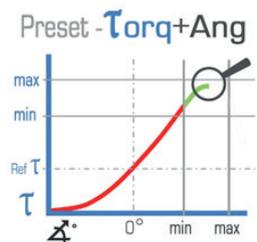


Figure 3.7.3: Set Torque & Angle Function Graph

3.8. Just Angle Mode (Auditor Series only Mode)

In Just Angle Mode, the maximum torque reading will remain on the OLED display when the load is removed as long as the torque loaded is above the 10% of maximum capacity threshold. The angle turned from 5% of the tool span until maximum torque reading is also displayed. The user has the option to store the reading in memory. If storage of the reading is not required, the user may continue to the next measuring task.

1. Press **M** to scroll to Just Angle mode.
2. Press **✓** to enter in Just Angle mode.
3. Press **✓** to store the peak torque and peak angle values if desired once a torque has been applied. If storage is not required, apply a new load to capture the next result.

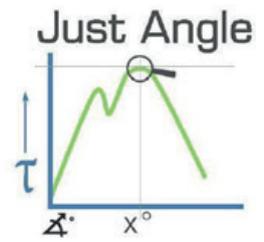


Figure 3.8:

Just Angle Mode

3.9. Just Move Mode (Auditor Series only Mode)

In Just Move Mode, the torque recorded after a pre-defined number of degrees (Defined in Set Mode) will remain on the OLED display when the load is removed, as long as the torque loaded is above the 10% of maximum capacity threshold. The final torque and final angle measurements will also be displayed. The user has the option to store the reading in memory. If storage of the reading is not required, the user may continue to the next measuring task.

1. Press **M** to scroll to Just Move mode.
2. Press **✓** to enter Just Move mode.
3. Press **✓** to store the Just Move torque along with the final peak torque and peak angle values. If storage is not required, then apply a new load to capture the next result.

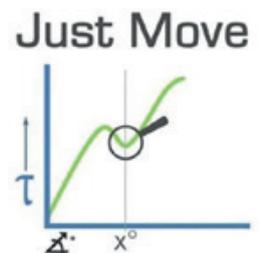


Figure 3.9:

Just Move Mode

3.10. Recall Mode

This mode allows the user to view the stored torque data. Only locations containing data will be displayed. Note that as data is stored, the locations are populated sequentially from 01 to 2094.

1. Press **M** to scroll to Recall mode.
2. Press **✓** to enter and view memory locations, results and functions.
3. Press **✓** **↶** to scroll through locations that contain data.

3.11. Upload Mode

This mode allows the user to upload stored torque data. In upload mode, the driver must be connected to a PC running the PC Front-End Software (PCFE) via the USB port on the Driver and the PC.

1. Press **M** to scroll to Upload mode.
2. Press **✓** to enter Upload mode.
3. Press **✓** to select "From" & **✓** **↶** for the starting point of the results upload.
4. Press **✓** to confirm "From" location.
5. Press **✓** to select "To" & **✓** **↶** for the finishing point of the results upload.
6. Press **✓** to confirm, press **✓** again when asked are you sure.

3.12. Comms Mode

This mode allows the user to select the method of communication. The standard model allows communication by standard USB cable to the included software. For communication by ASCII or BINARY the wrench will need factory modifications in advance.

1. Press **M** to scroll to Comms mode.
2. Press **✓** to enter Comms mode.
3. Press **✓** **↶** to select the method of communication & **✓** to confirm.

Note: For standard communication to the included software program, select "PCFE".

3.13. Clear Mode

This mode allows the user to clear the stored data from an range of locations. Before clearing the selected range and as a safety precaution, the user will be asked are they sure they wish to clear selected data. This can be done by pressing the confirm button.

1. Press **M** to scroll to Clear mode.
2. Press **✓** to enter Clear mode.
3. Press **▼** **▲** to select "From" range to be cleared and press **✓** to confirm.
4. Press **▼** **▲** to select "To" range to be cleared and press **✓** to confirm.
5. Press **✓** to confirm and you will be asked if you are sure.
6. Press **✓** to confirm and that range of data is cleared from the wrench memory.

4. PCFE – PC Software

4.1. Installing the PCFE

PCFE – “PC Front End” is the standard software that the wrench communicates with and is included with the tool.

1. Select “Setup.exe” from the USB storage device received with the product.
2. Choose one of the following options based on your requirements;
 - a. Demo PCFE – This will allow the user to test the software without installing it on a PC or laptop.
 - b. Install PCFE.exe – Install the software to the PC or laptop for full functionality.
 - c. Instructions – User Manual.
3. Install the PCFE.exe
 - a. During the steps for installation there is a search to ensure the .net framework is present and installs it from the web if required.
 - b. USB drivers are automatically installed, if there are any issues achieving this they can also be manually installed from: C:/program files/PCFE/Front- end/USB drivers.
 - c. Subsequent to installation, the PCFE icon will appear on the desktop. Double click on the icon, the password is “master”.
 - d. At this stage the PCFE window can be resized. Once altered, it will stay as such until modified again.

4.2. Communication with PCFE

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 4.2.A: 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.

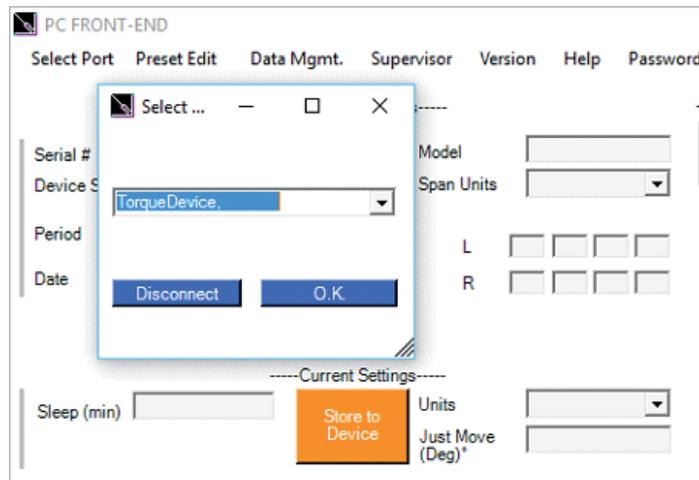


Figure 4.2.B: Selecting suitable COM port

4.3. PCFE User Instructions

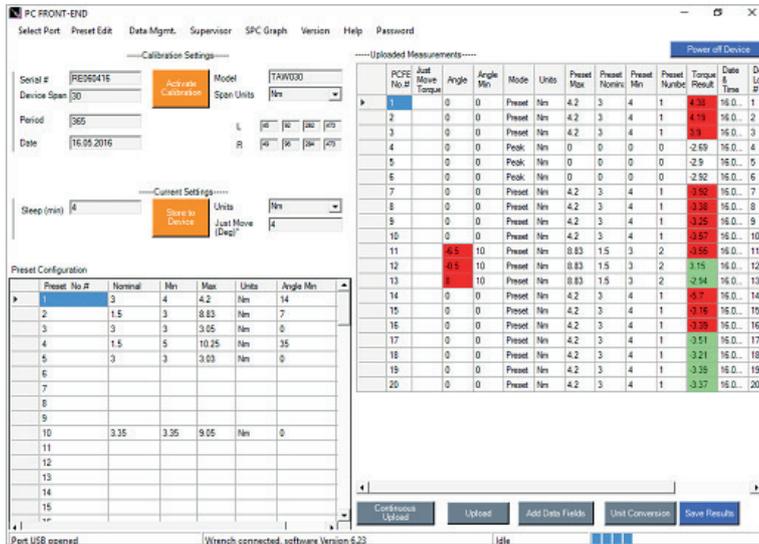


Figure 4.3.: Main PCFE Screen

4.3.1. Menu Bar



Figure 4.3.1.: 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 “Store to Device” save this update to 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 measurement from the table.
 - iv. **Page Setup** – Set print 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”. On next start-up all mode except preset will be enabled/disabled.

- iii. **Torque Counter** – Counter can be enabled/disabled on compatible products and the counter limits set.
 - 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. **Help:**
Leads to instruction manuals for PCFE operation.
 8. **Password:**
Change existing password. Note: Only available when PCFE opened with “master” password.

4.3.2. Calibration Settings

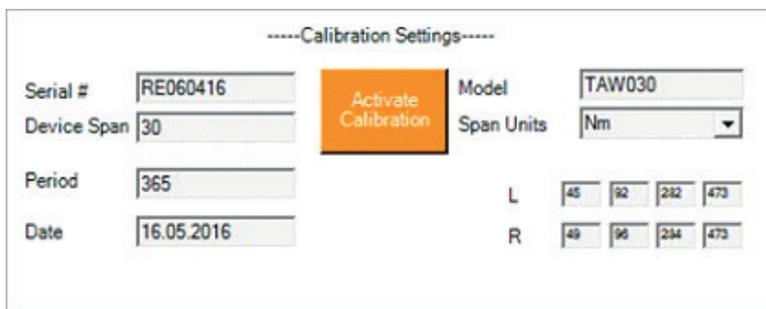


Figure 4.3.2.: Calibration Settings Screen

1. **Serial #:** The serial number of the product which can be linked to a calibration certificate.
2. **Model:** The model number is the default value used but can be changed if required without effecting the calibration of the Torque Device.
3. **Device Span:** The upper limit of the torque range of the Torque Device is shown here.
4. **Span Units:** Shows what units the Torque Device was calibrated in.
5. **Period:** The number of days from the date of calibration until it is recommended that the Torque Device is re-calibrated.
6. **Date:** The date on which the Torque Device was last calibrated.

4.3.3. Current Settings



Figure 4.3.3.: 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.

4.3.4. Preset Configuration

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					
	16					

Figure 4.3.4.: 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".

4.3.5. Status Bar & Results Table Controls

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.



Figure 4.3.5.: Status Bar & Results Table Controls

4.3.6. 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, defaults to three bars when connected.

4.3.7. Results Table Controls

1. **Continuous Upload:** If this option is selected and the Torque Device is permanently connected 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 Torque Device stored measurements.
3. **Set Data Fields:** 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.

4.3.8. 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.
17	616	17.06 11:33	1	3	5.09	8.28	3.05	0	Nr	0	Preset	0	
18	617	17.06 11:33	1	3	5.09	4.55	3.05	0	Nr	0	Preset	0	
19	618	17.06 11:33	1	3	5.09	7.21	3.05	0	Nr	0	Preset	0	
20	619	17.06 11:33	1	3	5.09	3.38	3.05	0	Nr	0	Preset	0	
21	620	17.06 11:33	1	3	5.09	7.44	3.05	0	Nr	0	Preset	0	
22	621	23.06 11:09	1	3	5.09	4.55	3.05	0	Nr	0	Preset	0	
23	622	23.06 11:11	1	3	5.09	3.41	3.05	0	Nr	0	Preset	0	
24	623	23.06 15:43	1	3	5.09	3.63	3.05	0	Nr	0	Preset	0	
25	624	23.06 15:43	2	3	8.83	4.35	1.5	7	Nr	9	Preset	30	
26	625	23.06 15:44	3	3	3.05	3.04	3	0	Nr	0	Preset	0	
27	626	23.06 15:44	1	3	5.09	3.41	3.05	0	Nr	0	Preset	0	
28	627	23.06 15:48	1	3	5.09	3.4	3.05	0	Nr	0	Preset	0	
29	628	23.06 15:48	2	3	8.83	3.69	1.5	7	Nr	9	Preset	30	
30	629	23.06 15:48	3	3	3.05	3.27	3	0	Nr	0	Preset	0	
31	630	23.06 15:49	3	3	3.05	3.01	3	0	Nr	0	Preset	0	
32	631	23.06 15:49	1	3	5.09	3.34	3.05	0	Nr	0	Preset	0	
33	632	23.06 15:49	2	3	8.83	3.63	1.5	7	Nr	9.5	Preset	30	
34	633	23.06 16:00	1	3	5.09	3.41	3.05	0	Nr	0	Preset	0	
35	634	23.06 16:01	2	3	8.83	4.43	1.5	7	Nr	9.5	Preset	30	
36	635	23.06 16:01	3	3	3.05	3.1	3	0	Nr	0	Preset	0	
37	636	23.06 16:01	3	3	3.05	3.12	3	0	Nr	0	Preset	0	
38	637	23.06 16:01	3	3	3.05	3.05	3	0	Nr	0	Preset	0	
39	638	23.06 16:02	4	5	10.25	11.04	1.5	55	Nr	58	Preset	65	
40	639	23.06 16:09	1	3	5.09	3.13	3.05	0	Nr	0	Preset	0	
41	640	23.06 16:10	4	5	10.25	7.47	1.5	35	Nr	42.5	Preset	65	
42	641	23.06 16:10	1	3	5.09	3.71	3.05	0	Nr	0	Preset	0	

Figure 4.3.8.: Results Table

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

4.3.9. SPC Graph

To access SPC graphic functionality there must be at least ten results uploaded to the PCFE. Figure 10 shows the control panel of the SPC Graph feature.



Figure 4.3.9.A: SPC Graph Control Screen

1. **Date Range:** This setting is used to select the range of results that are to be graphed. The minimum and maximum values default to the oldest and latest results respectively. To change these dates, press the button above the appropriate date. These select the desired date 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:** A maximum number of results to be graphed for a given preset and date range. If there are 50 results for that particular parameter and 10 readings are selected, the earliest results will be graphed.
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 effected and a standard scatter chart will be shown.

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

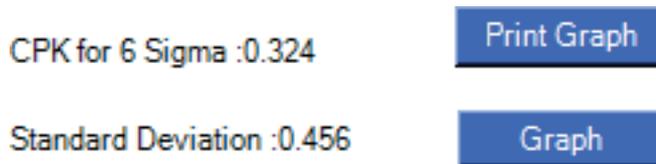


Figure 4.3.9.B: Cpk and Standard Deviation Values

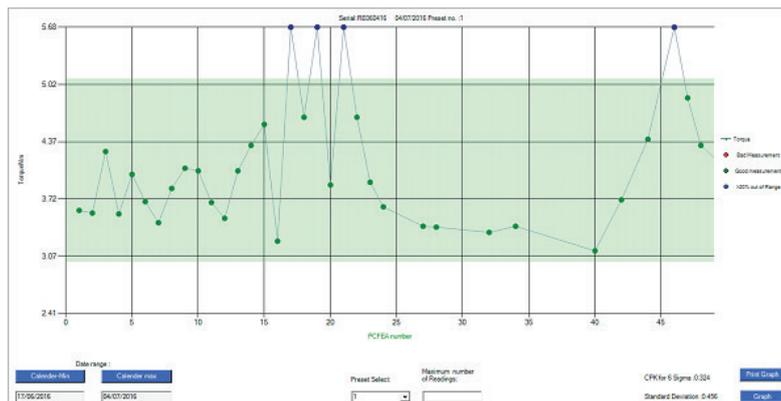


Figure 4.3.9.C: SPC Graph Output of a Torque Only Preset

4.3.10. Set a Preset using the PCFE

1. Ensure the Torque Device is connected to the PCFE software selected using "Select Port" (Figure 2).
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 and angle parameters can be set product dependent.

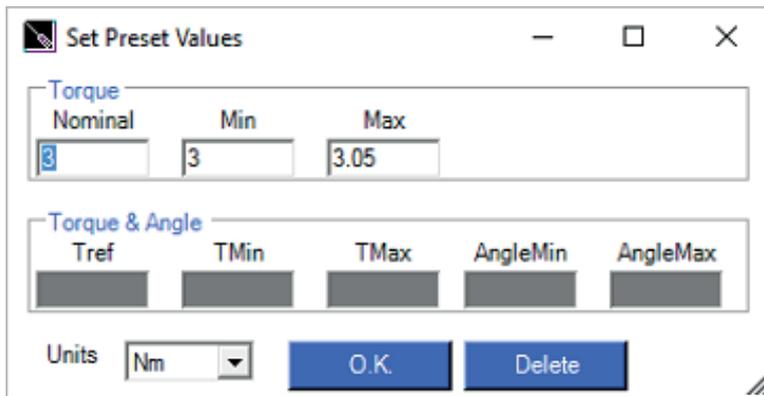
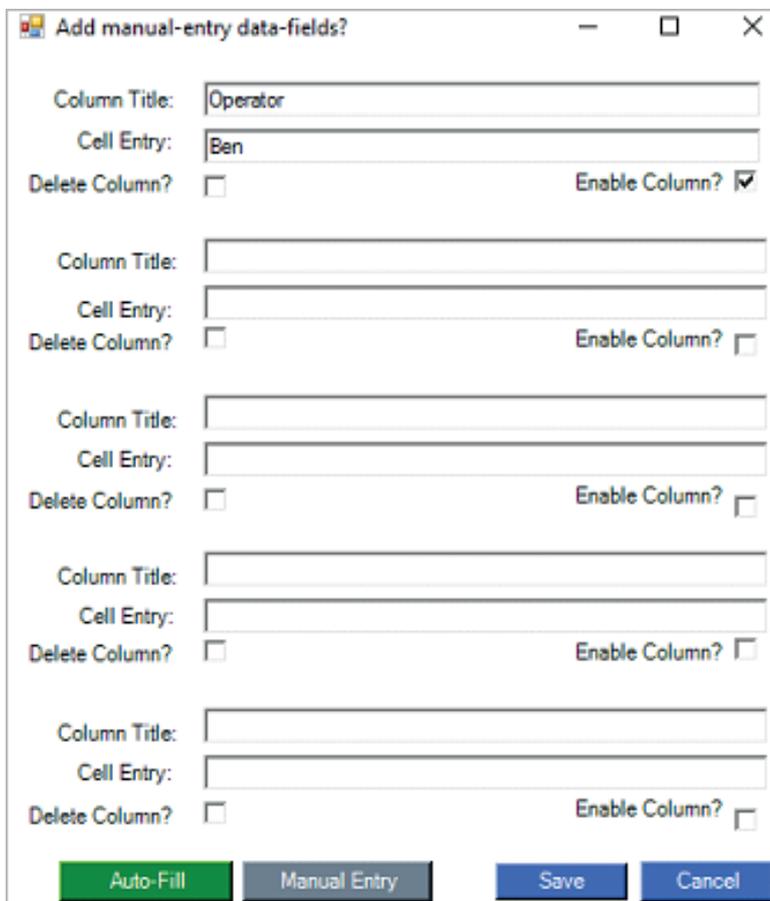


Figure 4.3.10.: Setting Presets via the PCFE

4.3.11. 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 enable column is not selected the column will not appear at all in the PCFE.



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

Figure 4.3.11.: Adding a default Data field

5. Calibration

For calibration instructions please contact manufacturer.

6. Warranty

TrackWrench® is an independent product group within RAD Torque Systems B.V.. Therefore, all TrackWrench® products fall under the Terms and Conditions of RAD Torque Systems B.V..

6.1. New tool warranty

Any new tool branded with the RAD name and purchased from RAD Torque Systems B.V., 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 twelve (12) month from the date of delivery to the end user. This guarantee is valid until fifteen (15) months after the original calibration date.

Furthermore, the warranty conditions determine that no warranty applies if:

1. The defect, wholly or partly, is due to unusual, inappropriate, improper or careless use of the product;
2. The defect, wholly or partly, is due to normal wear and tear or lack of proper maintenance;
3. The defect, wholly or partly, is due to installation, assembly, modification and / or repair by the customer or by third parties;
4. The product is altered, modified, used or processed;
5. The product is transferred to a third party;
6. RAD Torque Systems B.V. has obtained the product, wholly or partly, from a third party, and RAD Torque Systems B.V. can not claim compensation under warranty;
7. RAD Torque Systems B.V. in manufacturing of the product raw materials, and suchlike has used those on the instructions of the customer;
8. The product has a small deviation in it's quality, finishing, size, composition and suchlike, which is not unusual in the industry or if the defect was technically unavoidable;
9. The customer has not fulfilled all obligations under the agreement promptly and correctly towards RAD Torque Systems B.V..

6.2. Repaired tool warranty

After the warranty has expired a three (3) month warranty applies to the original purchaser against defective in material or workmanship or both from the date of repair. To qualify for the above mentioned warranties, written notice to RAD Torque Systems B.V. must be given immediately upon discovery of such defect, at which time RAD Torque Systems B.V.. will issue an authorization to return the tool. Freight costs must be paid in advance. When returning a tool, the reaction arm/s being used with the tool must also be returned.

For the latest warranty terms, please see our sales conditions on our website www.trackwrench.com.

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