ASG ST Series Smart Transducer Digital Torque Tester Operation Manual

Assembly · Industrial · Precision Fastening · Automation

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Basic Description and Guidelines

The ASG ST Series Digital Torque Tester is a state of the art device suitable for torque testing and torque calibration. As a precision tool, it is highly accurate and highly repeatable. For product portfolio cohesion, the control module 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.

Our products are demonstrated to have an accuracy of ±0.5% or better, and are both simple to set and calibrate as well as coming with a fully traceable ISO 6789 certification.

The ASG ST Series Digital Torque Tester 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.

Recommended Use

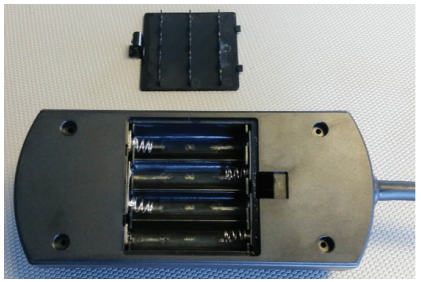
The ASG Digital Torque Tester is specifically designed for use in all industrial settings and applications where high accuracy and repeatability combined with a complete torque data management and control system are required. This tool is ideal for the regular accuracy checking required for a torque wrench, and will ensure that on-site tools are compliant and accurate to the relevant standards.

General Characteristics

Accuracy	Right hand side torque = ±0.5% of actual reading Left hand side torque = ±0.5% of actual reading
Resolution	0.01 to 50 N.m 0.1 to 1000 N.m
Alarms	Preset Value Approach, Range Overload, Mechanical Overload, Low Battery, Memory Full
Memory Capacity	2094 Values
Battery Life	Sleep Mode: 5000 hours; Operational Mode: Up to 120 hours (Up to 40 hours for wireless models)

Basic Description and Guidelines (Cont.)

Installing the Batteries



1. Remove the battery door.
2. Install 4 standard AA or 4 rechargeable AA batteries in the required orientation.
3. Replace battery door.
4. Turn on the tester and check that the device powers up.

Note: Standard and rechargeable batteries are both suitable for use. Rechargeable batteries should be charged offline with suitable charger.

Transducer Guidelines

- Store in a dry location
- Do not exceed specified torques
- Do not use external forces on (i.e. a hammer)
- Apply torque perpendicularly to transducer
- Max torque for sockets:
  - 1/4″ = 30 N.m;
  - 3/8″ = 135 N.m,
  - 1/2″ = 400 N.m;
  - 3/4″ = 1000 N.m;
  - 1″ = 2000 N.m;

Basic Description and Guidelines (Cont.)

Interchanging a Transducer

It is possible to interchange transducers with different torque ranges using the same Smart Control Box (SCB – ASG Number 65200).

Instructions:

- Ensure the SCB power is off
- Unscrew the cable from the connector on the smart transducer
- Screw the cable into the same connector on the desired smart transducer
- Power on the SCB
- Ensure that no error messages appear; the device is now ready to operate

Safety Instructions

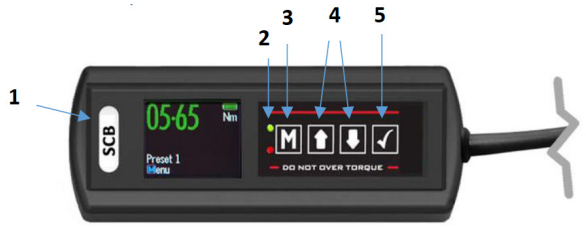
The following are a set of general guidelines for using and storing the tester that should be adhered to at all times.

- 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
- 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 to protect from damage

Basic Description and Guidelines (Cont.)

Basic Operation

1. Product label
2. Colored 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 unites, torque settings, time, etc.
5. Use √ to enter mode, confirm setting or to save result to memory



Modes of Operation (Cont.)

Torque reading starts 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 ASG Digital Torque Tester:

- Language Mode
- Units Mode
- Date Mode
- Track Mode
- Peak Mode
- Preset Mode
- Set Mode
- Click-Torque Mode
- Dynamic Peak Mode
- Recall Mode
- Upload Mode
- Comms Mode
- Clear Mode

Language Mode

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

Step 1: Press **M** to scroll to the Language Menu

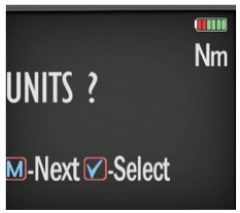
Step 2: Press ✓ to enter Language Menu.

Step 3: Press ↑ ↓ to scroll to the desired language.

Step 4: Press ✓ to confirm operation in this language.

Modes of Operation (Cont.)

Units Mode



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

Step 1: Press **M** to scroll to the Units Menu.

Step 2: Press ✓ to enter Units Menu.

Step 3: Press ↑ ↓ to scroll to the desired units.

Step 4: Press ✓ to confirm selected units.

Date Mode

Step 1: Press **M** to scroll to the Date Menu.

Step 2: Press ✓ to enter Date Menu.

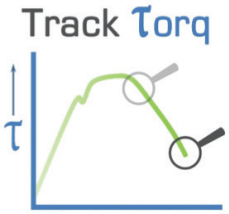
Step 3: Press ↑ ↓ to scroll to set the minute and hour.

Step 4: Press ✓ to confirm.

Step 5: Repeat steps 3 and 4 to set the month, date and year.

Modes of Operation (Cont.)

Track Mode

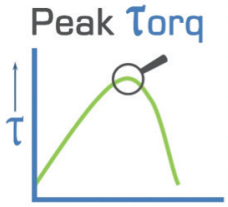


As torque is applied, the OLED will actively display the applied torque reading from 5-100% of the maximum span of the device. Upon removal of the load, the display will return to zero.

Step 1: Press **M** to scroll to Track Mode.

Step 2: Press ✓ to operate in Track Mode.

Peak Mode



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.

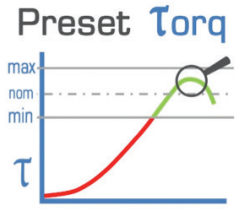
Step 1: Press **M** to scroll to Peak Mode.

Step 2: Press ✓ to operate in Peak Mode.

Step 3: Press ✓ to store the peak value if required.

Modes of Operation (Cont.)

Preset Mode



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. 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. The OLED display will change to green.
- **Passing Maximum Value**: The red LED will flash continuously and the buzzer will sound continuously. The OLED will change to red.

Step 1: Press **M** to scroll to Preset Mode.

Step 2: Press ✓ to enter Preset Mode.

Step 3: Press ↑ ↓ to select your preferred preset number (1 to 99).

Step 4: Press ✓ to operate within this preset parameter.

Step 5: Press ✓ to store the applied torque if required.

Modes of Operation (Cont.)

Set Mode

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

Step 1: Press [M] to scroll to Set Mode.

Step 2: Press [✓] to select Set Mode.

Step 3: Press [↑] [↓] to scroll to set by percentage or set by tolerance.

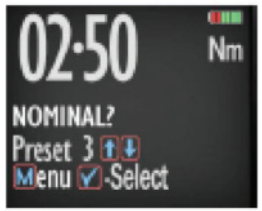
Step 4: Press [↑] [↓] to scroll to required preset number (i.e. 1 to 99).

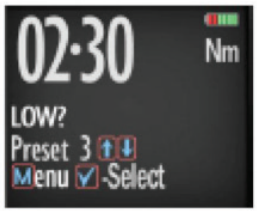
Step 5: Press [✓] to confirm preset number selected.

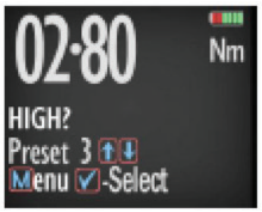
Step 6: Press [↑] [↓] to set nominal value and [✓] to confirm.

Step 7: Press [↑] [↓] to set your low value and [✓] to confirm.

Step 8: Press [↑] [↓] to set your high value and [✓] to confirm.







Modes of Operation (Cont.)

Set Mode (Cont.)

Step 9: 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.

Click-Torque Mode

In Click-Torque mode, the first peak 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. This mode is best suited to capturing the click-out point of a mechanical click wrench which can then be compared to the etched, printed dial scale on the tool itself. Once captured, the user has the option to store the reading to memory. If storage of the reading is not required, the user may continue to the next measuring task.

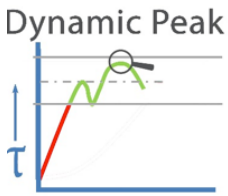
Step 1: Press [M] to scroll to Click-Torque Mode

Step 2: Press [✓] to operate in Click-Torque Mode

Step 3: Press [✓] to store the first peak value recorded if desired

Modes of Operation (Cont.)

Dynamic Peak Mode



In Dynamic Peak mode, the final peak value 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 mode is best suited to capturing the final installed torque (2nd peak) for click wrenches, the peak torque of slipping wrenches/ screwdrivers, or in conjunction with a joint simulator, the peak torque of suitable rotary tools of 1200 RPM or less. Please note that impact of erratic drive pulse tools are not suitable for testing with the ASG range of digital torque testers. Once captured, the user has the option to store the reading to memory. If storage of the reading is not required, the user may continue to the next task.

Step 1: Press M to scroll to the Dynamic Peak mode.

Step 2: Press ✓ to operate in Dynamic Peak mode.

Step 3: Press ↑ ↓ to scroll to the required preset number (i.e. 1 to 99).

Step 4: Press ✓ to select the desired preset.

Step 5: Press ✓ store the maximum peak value if desired.

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.

Step 1: Press M to scroll to Recall Mode.

Step 2: Press ✓ to enter and view memory locations, results, and functions.

Step 3: Press ↑ ↓ to scroll through locations that contain data.

Modes of Operation (Cont.)

Upload Mode

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

Step 1: Press M to scroll to Upload Mode.

Step 2: Press ✓ to enter Upload Mode.

Step 3: Press ✓ to select "From" and ↑ ↓ for the starting point of the results upload.

Step 4: Press ✓ to confirm "From" location.

Step 5: Press ✓ to select "To" and ↑ ↓ for the finishing point of the results upload.

Step 6: Press ✓ to confirm, press against when you are asked are you sure.

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 SCB/WCBR will need physical modifications in advance.

Step 1: Press M to scroll to Comms Mode.

Step 2: Press ✓ to enter Comms Mode.

Step 3: Press ↑ ↓ to select the method of communication and ✓ to confirm.

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

Modes of Operation (Cont.)

Clear Mode

This mode allows the user to clear the stored data from a 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.

Step 1: Press [M] to scroll to Clear Mode.

Step 2: Press [✓] to enter Clear Mode.

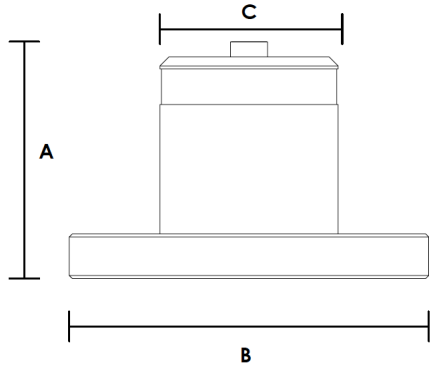
Step 3: Press [↑][↓] to select "From" range to be cleared and press [✓] to confirm.

Step 4: Press [↑][↓] to confirm "To" range to be cleared and press [✓] to confirm.

Step 5: Press [✓] to confirm and you will be asked if you are sure.

Step 6: Press [✓] to confirm and that the range of the data is cleared from memory.

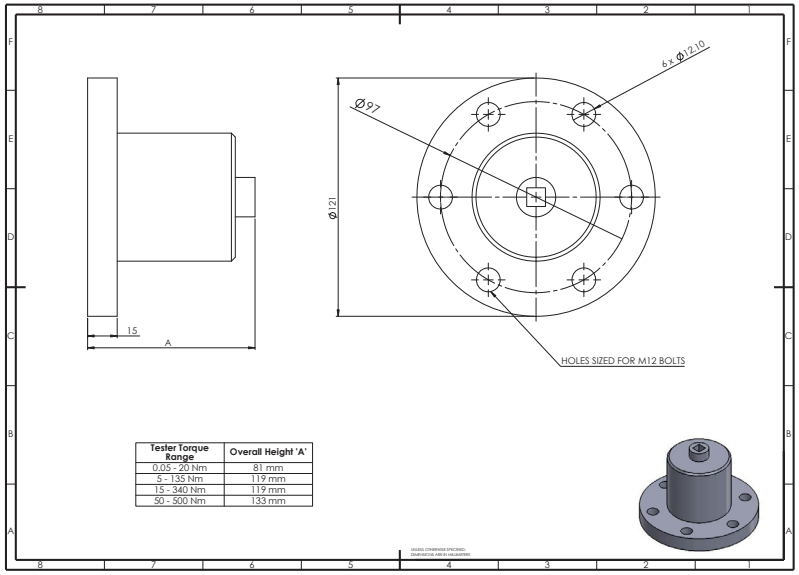
Product Dimensions



Product Dimensions (Cont.)

Tester Range	A		B		C		Weight	
	mm	in.	mm	in.	mm	in.	kg	lb
0.05-20 N.m	75	3	Ø 121	Ø 4.8	Ø 70	Ø 2.76	0.72	1.6
5-135 N.m	120	4.7	Ø 121	Ø 4.8	Ø 70	Ø 2.76	0.94	2.1
15-340 N.m	120	4.7	Ø 121	Ø 4.8	Ø 70	Ø 2.76	1.2	2.6
50-750 N.m	135	5.3	Ø 121	Ø 4.8	Ø 70	Ø 2.76	1.6	3.5
100-1000 N.m	147	5.8	Ø 121	Ø 4.8	Ø 70	Ø 2.76	2.8	6.2
150-2000 N.m	177	7	Ø 121	Ø 4.8	Ø 70	Ø 2.76	3.8	8.4

Transducer Flange



PCFE - PC Software

Installing the PCFE

PCFE - "PC Front End" is the standard software that the device communicates with and is included with the tool.

1. Download the software from the ASG product page on asg-express.com. Select "setup.exe"
2. Choose one of the following options based on your requirements;
   - **Demo PCFE**: This will allow the user to test the software without installing it on a PC or laptop.
   - **Install PCFE.exe**: install the software to the PC or laptop for full functionality.
   - Instructions - User Manual
3. Install the PCFE.exe
   - During the steps for installation, there is a search to ensure the .net framework is present and installs it from the web if required.
   - 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.
   - Subsequent to installation, the PCFE icon will appear on the desktop. Double click the icon and contact ASG for the password.
   - At this stage the PCFE window can be resized. Once altered, it will stay as such until modified again.

PCFE - PC SOFTWARE

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).

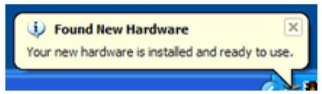
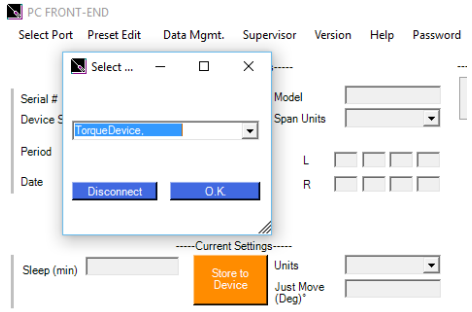


Figure 1: Desktop Notification for Driver Installation

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



PCFE User Instructions

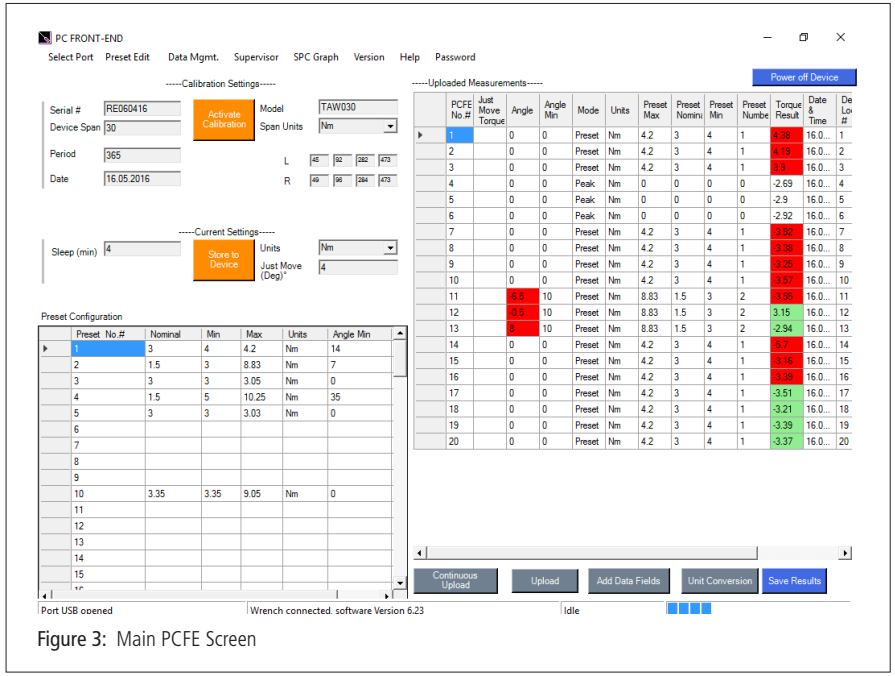


Figure 3: Main PCFE Screen

Password

A prompt will appear asking for a password - no password is needed. Please leave blank and click enter.

Menu Bar

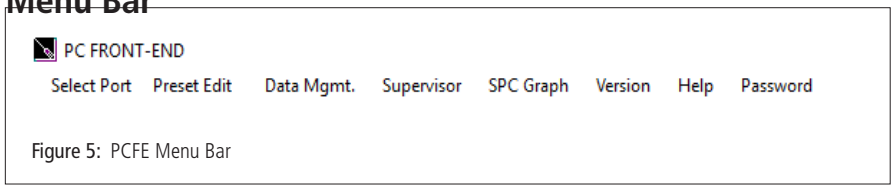


Figure 5: PCFE Menu Bar

PCFE User Instructions

Menu Bar (Cont.)

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
   - **Clear all:** Delete existing presets from the table, use "Store to Device" to save this update to device .
   - **Load from File:** Load presets from a .csv file to the torque device.
   - **Save to File:** Export the preset table to a .csv file.
3. Data Mgmt:
   - **Save Results:** Save measurement results to a .csv file
   - **Print Results:** Print measurement results.
   - **Clear Results:** Delete all the results from the table.
   - **Page Setup:** Set print layout for the "Print Results" option.
4. Supervisor:
   - **Clear Product Results:** Permanently delete all measurement results from the torque device.
   - **Enable/Disable:** Hides all torque device modes except for "Preset". On the next startup, all modes except preset will be enabled/disabled.
   - **Torque Counter:** Can only be enabled/disabled on compatible products and the counter limits set.
   - **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

PCFE User Instructions

Calibration Settings

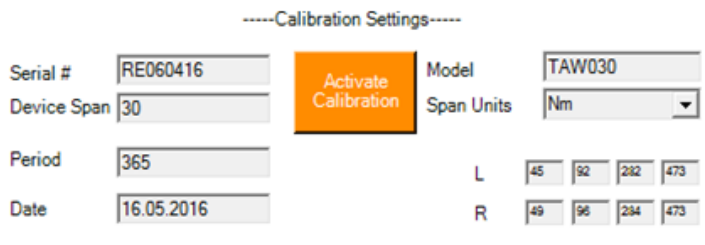


Figure 6: Calibration Settings Screen

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 it required without effecting the calibration of the torque device.
3. **Device Span:** The upper torque limit of the torque device is shown here.
4. **Span Units:** This displays 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 recalibrated.
6. **Date:** The date on which the torque device was last calibrated.

Current Settings

Figure 7: Current Settings

PCFE User Instructions

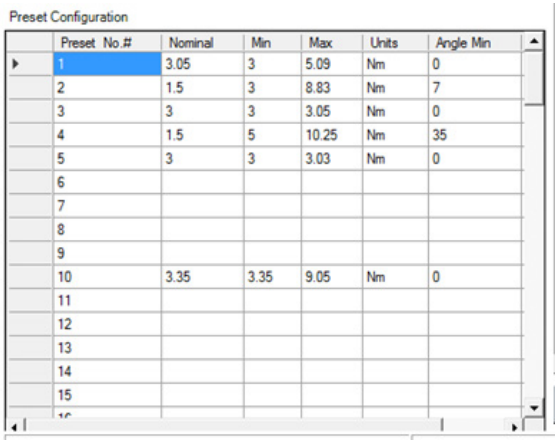
Current Settings (Cont.)

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.

Preset Configuration

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".



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

PCFE User Instructions

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 bards when connected.

Figure 9: Status Bar

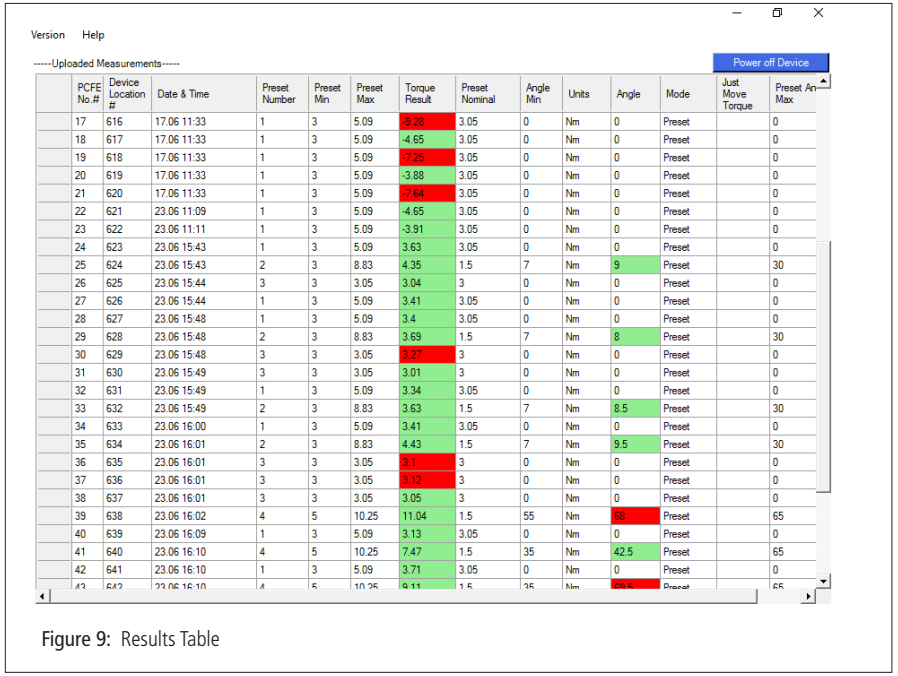
Results Table Controls

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 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.

PCFE User Instructions

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 or angle measurement was "good", i.e. the torque or angle applied was within the pre-configured tolerances. Conversely, results highlighted in red indicate that the torque or angle measurement was "bad", i.e. the torque or angle applied fell outside the pre-configured tolerances.



	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 Max
	17	616	17.06 11:33	1	3	5.09	-9.28	3.05	0	Nm	0	Preset		0
	18	617	17.06 11:33	1	3	5.09	-4.65	3.05	0	Nm	0	Preset		0
	19	618	17.06 11:33	1	3	5.09	-7.25	3.05	0	Nm	0	Preset		0
	20	619	17.06 11:33	1	3	5.09	-3.88	3.05	0	Nm	0	Preset		0
	21	620	17.06 11:33	1	3	5.09	-7.64	3.05	0	Nm	0	Preset		0
	22	621	23.06 11:09	1	3	5.09	-4.65	3.05	0	Nm	0	Preset		0
	23	622	23.06 11:11	1	3	5.09	-3.91	3.05	0	Nm	0	Preset		0
	24	623	23.06 15:43	1	3	5.09	3.63	3.05	0	Nm	0	Preset		0
	25	624	23.06 15:43	2	3	8.83	4.35	1.5	7	Nm	9	Preset		30
	26	625	23.06 15:44	3	3	3.05	3.04	3	0	Nm	0	Preset		0
	27	626	23.06 15:44	1	3	5.09	3.41	3.05	0	Nm	0	Preset		0
	28	627	23.06 15:48	1	3	5.09	3.4	3.05	0	Nm	0	Preset		0
	29	628	23.06 15:48	2	3	8.83	3.69	1.5	7	Nm	8	Preset		30
	30	629	23.06 15:48	3	3	3.05	3.27	3	0	Nm	0	Preset		0
	31	630	23.06 15:49	3	3	3.05	3.01	3	0	Nm	0	Preset		0
	32	631	23.06 15:49	1	3	5.09	3.34	3.05	0	Nm	0	Preset		0
	33	632	23.06 15:49	2	3	8.83	3.63	1.5	7	Nm	8.5	Preset		30
	34	633	23.06 16:00	1	3	5.09	3.41	3.05	0	Nm	0	Preset		0
	35	634	23.06 16:01	2	3	8.83	4.43	1.5	7	Nm	9.5	Preset		30
	36	635	23.06 16:01	3	3	3.05	3.1	3	0	Nm	0	Preset		0
	37	636	23.06 16:01	3	3	3.05	3.12	3	0	Nm	0	Preset		0
	38	637	23.06 16:01	3	3	3.05	3.05	3	0	Nm	0	Preset		0
	39	638	23.06 16:02	4	5	10.25	11.04	1.5	55	Nm	68	Preset		65
	40	639	23.06 16:09	1	3	5.09	3.13	3.05	0	Nm	0	Preset		0
	41	640	23.06 16:10	4	5	10.25	7.47	1.5	35	Nm	42.5	Preset		65
	42	641	23.06 16:10	1	3	5.09	3.71	3.05	0	Nm	0	Preset		0

Figure 9: Results Table

PCFE User Instructions

SPC Graph

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

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**: This sets the 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 affected and a standard scatter chart will be shown.

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

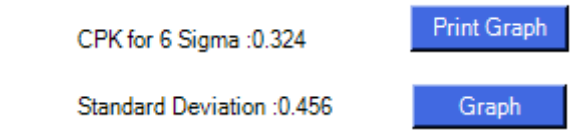


Figure 11: C_pk and Standard Deviation Values

PCFE User Instructions

SPC Graph (Cont.)

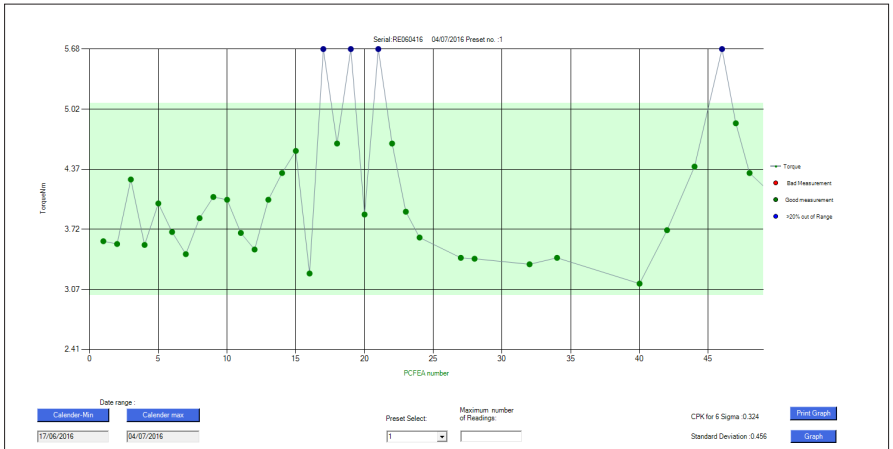


Figure 12: SPC Graph Output of a Torque Only Pre-Set

PCFE User Instructions

Configure Torque Device Presets Using 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

NOTE: 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.

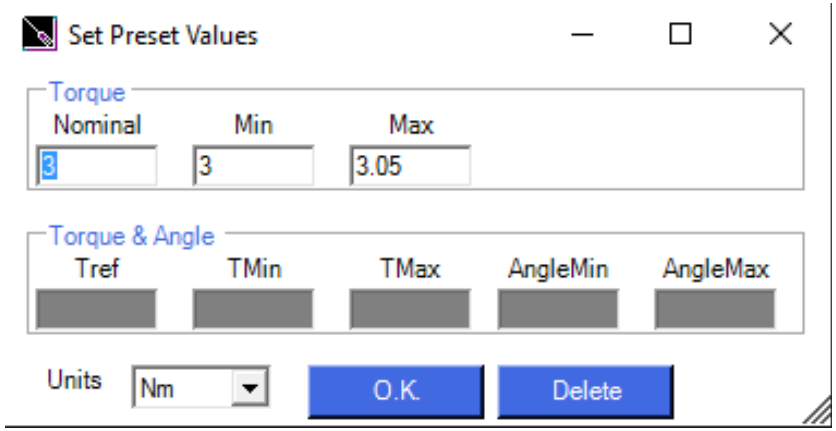


Figure 13: Setting Presets via the PCFE

PCFE User Instructions

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.

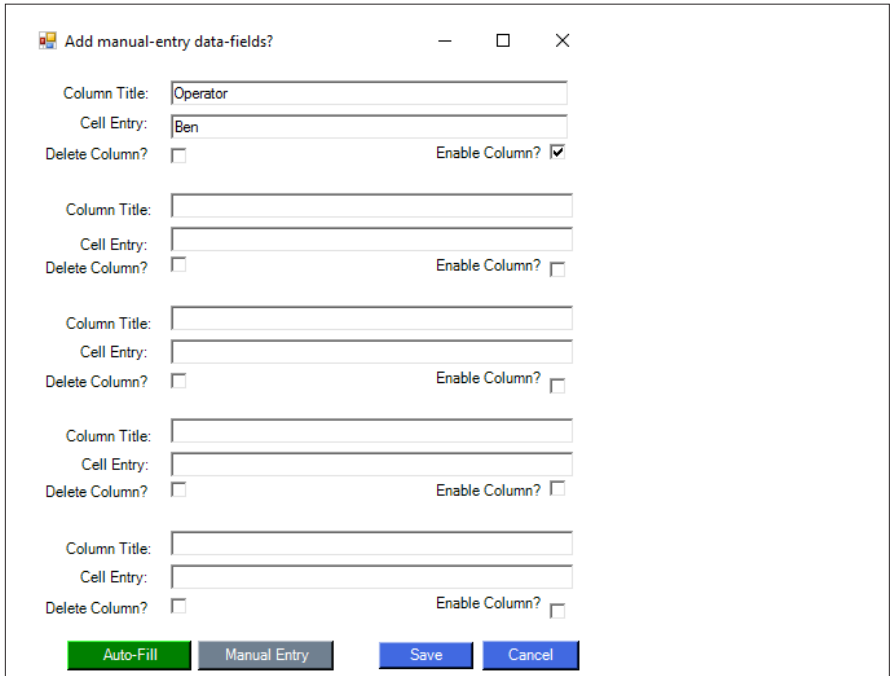


Figure 14: Adding a Default Data Field

Wireless Communications

Connecting to a Wireless Receiver

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

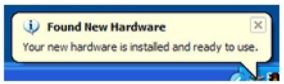


Figure 15: Desktop Notification for Driver Installation

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.

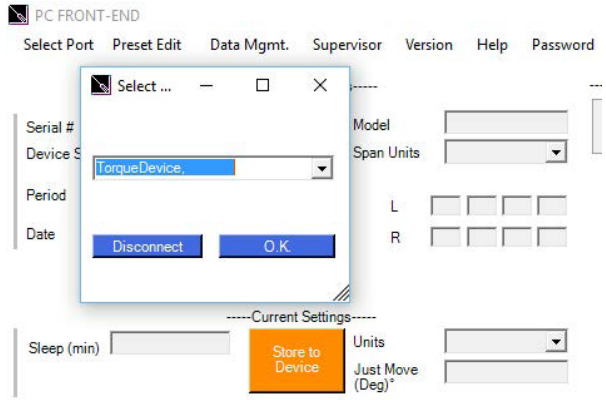


Figure 16: Selecting suitable COM port

Wireless Communications (Cont.)

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 TW wrenches which are within range of the WCBR (circa 10-15 meters).
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 "Controls for Results Table" above advises the controls possible with the results table.

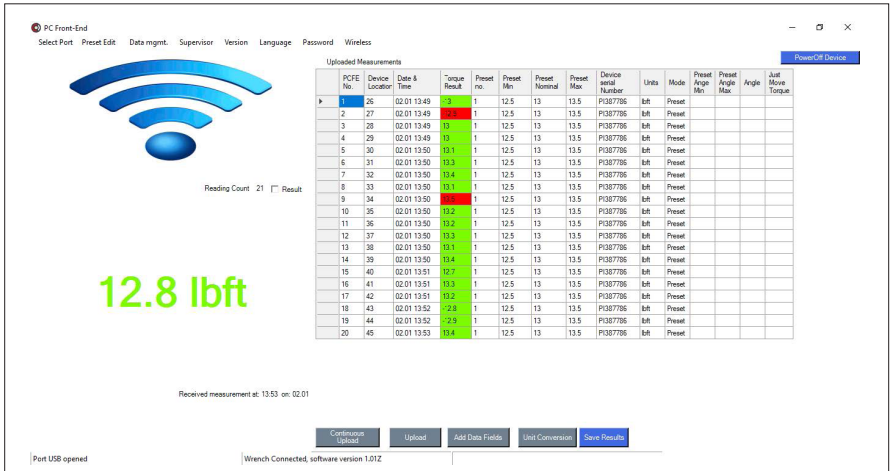


Figure 17: Wireless RF page