COMMANDER II

User Manual Rev1.0
6/2018

Version 2.0

Features:

- Send display data directly to an Excel spreadsheet
- Stream torque data to an Excel spreadsheet
- Change units remotely
- Enable and disable keys
- Change the target set point remotely
- Change the tolerance
- Download memory to Excel spreadsheet
- Clear memory
- Charge batteries from USB port
- Real time two way communication with torque tester/wrench

Disclaimer: This product is not warranted for any particular application and does not guarantee that it will perform with all the different operating systems and computer systems on the market. Microsoft Windows and Microsoft Excel are trademarks of Microsoft Corporation.

General

The Commander II software program is used to output data from the ED-series electronic torque wrench and TED-series torque testers with the –P and –USB options, to an Excel spreadsheet. In addition there are functions that allow you to set-up the wrench/tester functions (control the keypad remotely) and change features of the wrench (see attached list of functions).

USB adapter/Charger

In order to use this program with your EX-series you will need the USB6V4AA communication kit. This kit includes a communication cable and USB communication adapter (or serial adapter for legacy products).

In order to use the Microsoft Excel features of this program the computer that runs this program MUST have Microsoft Excel installed or you will get an Error message when the program starts. The Commander II will open a blank worksheet when a user click in Open Excel file button. If Commander II cannot find Excel an error message will display.

The Commander II will work with the computer communication ports. The program will automatically show com ports where the device is connected and set the protocol to 9600,8,n,1.

The Commander II program is designed to be used with Microsoft Windows 7 or 10.

The COMMANDER II program is designed for those with computer experience. This manual is limited to how to operate the COMMANDER II program. Please refer to the Windows operation manual if you have questions about how to load programs and how to communicate with the serial port on your computer.

Installation:

BEFORE INSTALLING THE COMMANDER II SOFTWARE plug the USB adapter into your computer using a standard USB A-B cable. Most computers will use a USB 2.0 A-B cable with the following ends (typically used on printers or scanners):

After plugging in the adapter box (no need to have the wrench connected) Windows will automatically find and install the driver for the USB-Serial adapter. Windows will assign a com port to the connection. To find out which com port was assigned you will need to use the Device Manager within windows. Please refer to the Windows help function to use device manager (for convenience here is the procedure):

Select START-CONTROL PANEL-SYSTEM- Select HARDWARE TAB-Select Device Manager-Select PORTS. Under PORTS you will see which com port was assigned automatically.

Installing and Running the program:
Insert the Commander program disk and select Set-up.
The installation program will create a COMMANDER folder on the C drive: (c:\COMMANDER).
Once installed the program will appear on your programs list.

Connect the wrench or tester:
Remove the grey connector cover (if one is installed) exposing the RJ type connector on the back side of the wrench or side of the tester. Plug in the 6' grey RJ plug in the wrench or the USB connector for –C models or the USB connector for –USB models. Note: the cable end will engage in such a way that the wrench tube will act as a strain relief when the cable is pulled on. This engagement will make it slightly tricky to remove the connector if needed. To remove the connector from the wrench squeeze the locking tab and push the connector towards the handle then pull the connector out of the tube.

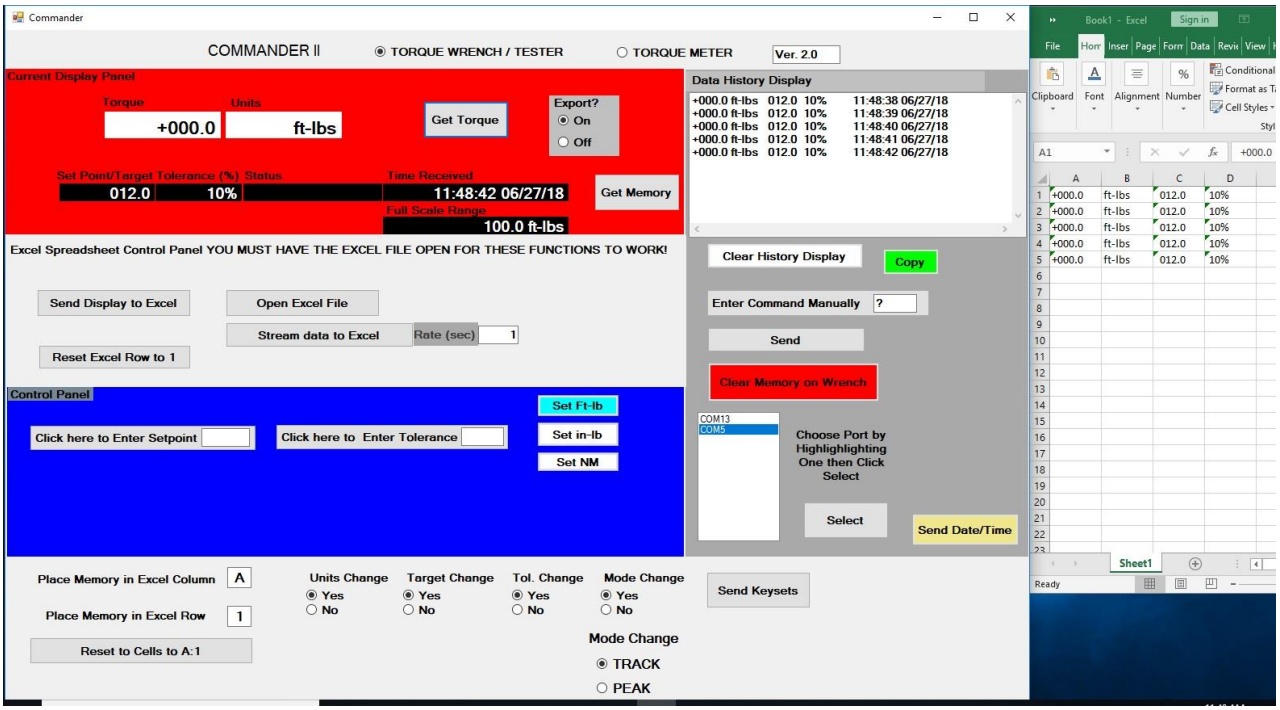
IMPORTANT:
When the wrench/tester is attached to the computer the rechargeable batteries (inside the wrench) will get charged (similar to how a cell phone charges). You MUST make sure you have rechargeable batteries installed in the torque tester/ wrench when it is connected to the computer.

WARNING ! If non-rechargeable batteries are installed in the wrench damage to the circuit board will occur and the batteries may explode. Damage as a result of this is **not covered by warranty.**

Note: When plugged into the USB port the wrench can be used without batteries (wrench is powered by the USB port). If you have the RS232 version you will need the transformer plugged in to a 110Volt outlet.

Program Overview (start screen):

Start the program. Click on Open Excel File , a blank Excel spreadsheet (blank1) will be opened. After sending data to this spreadsheet you can save it under the name of your choice or create your own macros to deal with the information. Program Screen: There are three panels (red, white and blue) plus one extended functions panel.



1. **Data panel (RED):** This panel shows the data that is sent from the wrench when either the power/clear key is pressed on the wrench or when you press the get torque button on the panel. Additionally, anytime you execute a function this panel will update. These are the values that get sent from the wrench.
2. **Excel Control Panel (White):** This panel is used to send data to the excel spreadsheet. You can send the data shown in the red panel, or you can send data every "X" seconds as entered in the rate box, or you can reset the insertion point in the spreadsheet file.
3. **Wrench Control Panel (Blue):** This panel is used to program the wrench remotely. You can set the torque set-point (target), set the tolerance and change the units from this panel.
4. **Extended panel :** This panel allows you to activate and de-activate keys, Display memory, export memory to Excel or clear the memory. Other functions may be available on future revisions.
5. **Data History Display**/Manual command entry box. The white display shows all information sent to and received from the wrench. The Enter command box allows you to manually enter commands to the wrench (see command list below).

Operation:

Wrench Display Panel (RED):

To receive data from the wrench to the red panel either press the Power/clear key on the wrench or press the **Get Torque** button on the red panel on the computer screen.

Get Torque : Click this button to retrieve the data from the wrench (current settings and the value on the wrench LCD will be updated). The time received will also be logged.

Export Switch: When flipped to On the data sent from the wrench will be sent directly to the open Excel spreadsheet in addition to showing on the panel (when the get torque button is pressed).

Torque window: The current torque on the wrench LCD.

Units: The current units on the wrench.

Set point: The current set point (target) value the wrench is set to

Tolerance: The current tolerance setting on the wrench (1-10%)

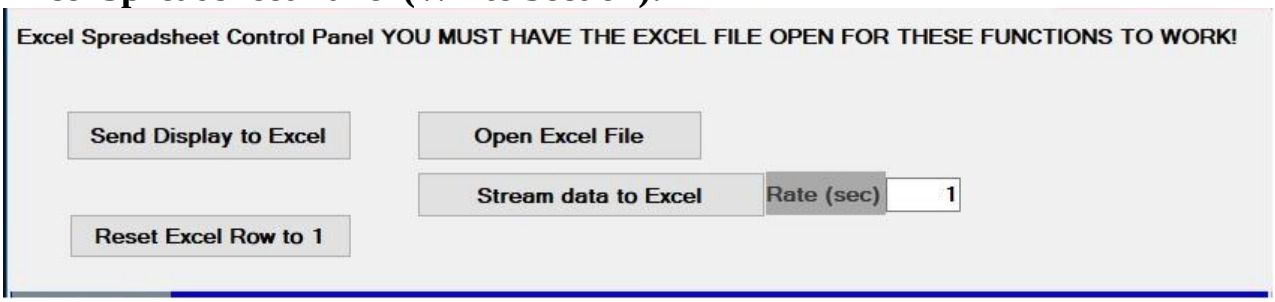
Status: Low if the torque value is below the set point (set point minus the tolerance)
Pass if the torque value is within the set point. High if the torque value is over the set point (set point plus the tolerance)

Time Received : Time / Date the torque data was received and stored in the memory.

Full Scale Range : Full scale range of the torque wrench / tester.

Get Memory : Display the stored torque data in the Data History Display

Excel Spreadsheet Panel (White Section):



Send Display to Excel: Press this button and the current data in the Red panel will be sent to the open Excel spreadsheet. Each data set will be sent to successive rows in the spreadsheet.
Stream data to Excel: Press this button and the wrench will be polled and data will be sent at the rate shown in the Rate window. If the wrench is in the default peak mode (shown with a PH on the LCD) the software will send the peak readings as they increase and are held on the wrench display. If the wrench is in track mode (select track mode by pressing the power key and then the Target + key on the wrench) the software will send the real time torque as it increases and decreases showing peaks and valleys.
Rate (sec): Input the rate at which you would like to get the torque data from the wrench (default 1 second) never set the rate below .1 seconds.
Stop: Press this button to stop the stream of data function
Reset Excel Row to 1: Press this button to reset the cell where the data is sent (Excel spreadsheet) to the top of the spreadsheet.

Wrench Control Panel (Blue):

Enter Set point: Enter the target torque for the current programmed units (do not enter units).

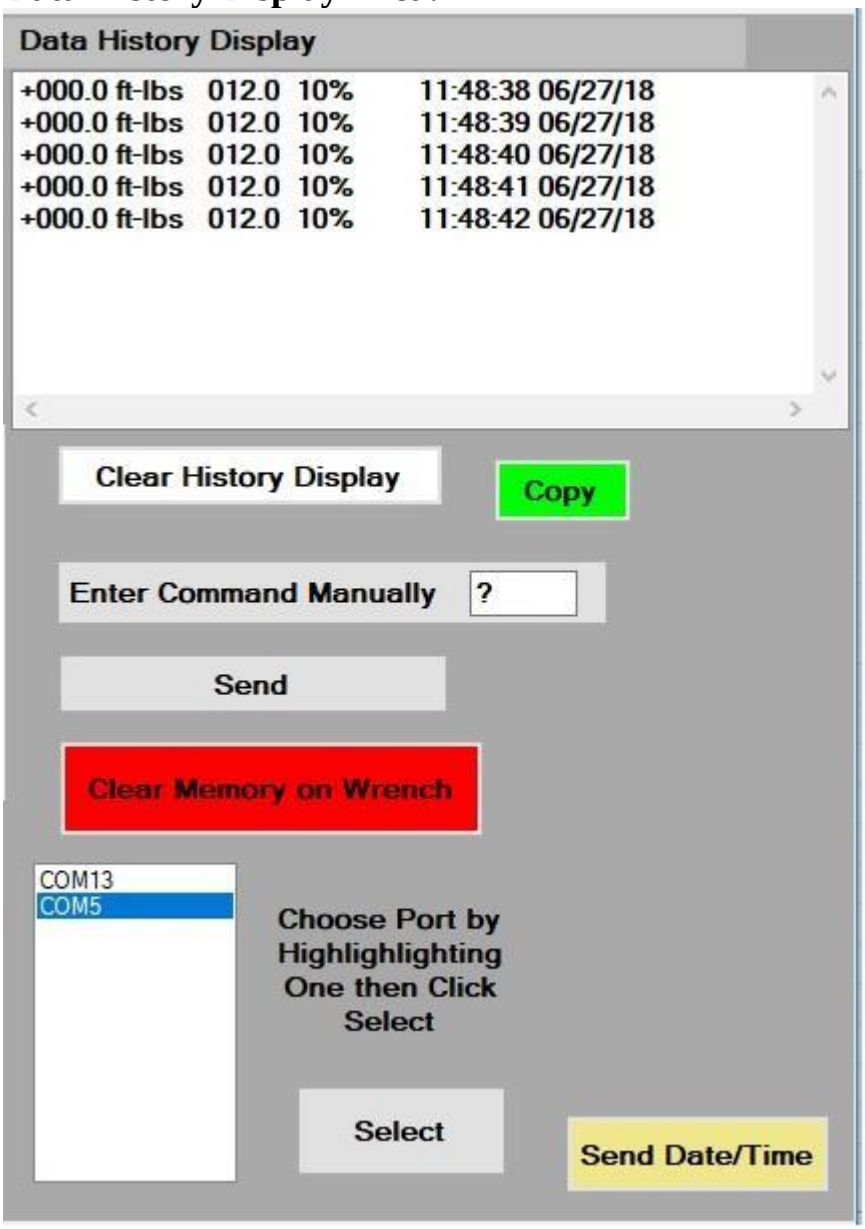
Enter Tolerance %: Enter the Tolerance (wrench supplied with 2%). Values are from 1-10.

Set Ft.lb.: Set the wrench unit of measurement to ft.lb.

Set In.lb.: Set the wrench unit of measurement to In.lb.

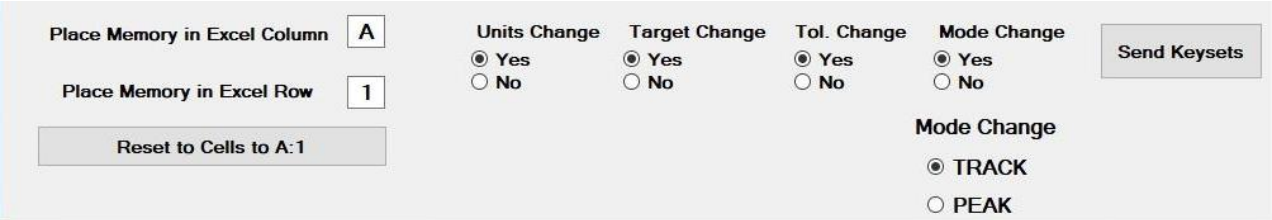
Set NM: Set the wrench unit of measurement to Nm.

Data History Display Area:



This display area is used to show the data that comes from the wrench. It can also be used to manually send commands that are listed in the control commands table above.
Clear History Display: Press to clear the display.
Enter Command Manually: Enter any command manually (see command list document).
Clear Memory on Wrench : Clear torque data stored on wrench memory.
Send: Send the command in the enter command box to wrench.
Example #1: To change the units on the wrench from ft.lb. - NM do the following:
Look at commands table. You will see that the command to change the units to Newton Meters is "NMT".
Type NMT in the Enter Command box. Press Send. You will see that the wrench icon changes from ft.lb. - Nm. The wrench will respond with "OK" This now becomes the default units on the wrench.
Send Date / Time: Update the Date / Time set on the wrench.

Extended Functions Panel:



Place Memory in Excel Column: Spreadsheet column where data gets sent.
Place Memory in Excel Row: Spreadsheet row where data is sent.
Reset cells to : Set data export location to the column and row set on the spreadsheet.
Send Keysets: Enable or disable keys as selected in boxes. After turning on or off the keys press the send keysets button to set the key functions on the wrench (tolerance can only be changed by entering the tolerance value on the main screen).
Mode Change : Set wrench mode to Track or Peak

List of serial commands:

The following is a list of serial commands that are available for the new TED/ED-series torque tester/wrench. These commands are built into the operating system of the wrench and do not need any special software to execute other than a communication program.

These commands can be sent via Windows Hyper-terminal or any communication program such as Labview or the Commander II data send box on the main program screen. The communication parameters are as follows (note these values are automatically set when the commander program is used):
9600,8,none,1:

9600 BPS
8 data bits
no parity
1 stop bit.
Data can be received from the wrench by sending a Carriage Return (CR) or a ? mark followed by a carriage return.

SERIAL COMMANDS

Command	Description	Parameters	Examples
LBF	Change display units to foot pounds	CR at end	Command: LBF<CR> Response: OK
LBS	Change display units to inch pounds	CR at end	Command: LBS<CR> Response: OK
NMT	Change display units to Newton Meters	CR at end	Command: NMT<CR> Response: OK
MMV Or '?'	Return current torque value	CR at end or ? CR at end If '?' alone, no CR is needed	Command: MMV?<CR> or MMV<CR> or ?<CR> Response: Torque value
DMM	Return torque memory contents	CR at end or ? CR at end	Command: DMM?<CR> or DMM<CR> Response: All saved torque readings
RMM	Clear torque memory contents	CR at end or ? CR at end	Command: RMM<CR> Response: OK
RDP	Clear display and peak	CR at end	Command: RDP<CR> Response: OK
PER	Get / Set Setpoint Percent	Get: CR at end or ? CR at end Set: PER,X or XX, = 0 to 10 %, 0 = OFF	Get: Command: PER?<CR> or PER<CR> Response: Setpoint Percent Value Set: Command: PER,5<CR> = Set Setpoint % to 5% Response: OK
SET	Get / Set Setpoint	Get: CR at end or ? CR at end Set: SET,X or XXXXX	Get: Command: SET?<CR> or SET<CR> Response: Setpoint Value Set: Command: SET,50.0<CR> = Set Setpoint to 50.0 Response: OK
SEA	Get / Set Angle Setpoint	Get: CR at end or ? CR at end	Get: Command: SEA?<CR> or SEA <CR>

Command	Description	Parameters	Examples
		Set: SEA,X or XXX, = 0 to 360, 0 = OFF	Response: Angle Setpoint Value Set: Command: SEA,5<CR> = Set Angle Setpoint to 5 degrees Response: OK
BAT	Get Battery Level	CR at end or ? CR at end	Command: BAT<CR> Response: Battery Level in percent full.
SWO	Get / Set Auto Off Time	Get: CR at end or ? CR at end Set: SWO,X or XX	Get: Command: SWO?<CR> or SWO<CR> Response: Auto off time in minutes Set: Command: SWO,10<CR> = Set Auto off time to 10 minutes. Range 1 to 30 minutes. Response: OK
SFP	Get / Set First Peak A/D Count	Get: CR at end or ? CR at end Set: SFP,X or XX or XXX	Get: Command: SFP?<CR> or SFP <CR> Response: First Peak setpoint in A/D counts Set: Command: SFP,300<CR> = Set First Peak setpoint to 300 counts. Range 1 to 999 counts. Response: OK
VER	Get Version	Get: CR at end or ? CR at end	Command: VER<CR> Response: Software Version Number
DPK	Set display peak torque mode	Get: CR at end or ? CR at end	Command: DPK <CR> Response: Software Version Number
DAV	Set display average torque mode	Get: CR at end or ? CR at end	Command: DAV <CR> Response: Software Version Number
PLS	Power up in last saved mode.	CR at end	Command: PLS <CR> Response: OK

USR	Get / Set User Wrench ID	Get: CR at end or ? CR at end Set: USR,(User ID) CR at end	Get: Command: USR?<CR> or SWO<CR> Response: User set ID, 24 characters maximum. Set: Command: USR,1234567890123456789012 34<CR> = Set user ID to '123456789012345678901234. Response: OK Please note any spaces after the comma will be included.
MFG	Get Manufacturer Serial Number	Get: CR at end or ? CR at end	Command: MFG?<CR> or MFG<CR> Response: 12 character serial number in the format:

ENK	Enable / Disable Keypresses. Stores setting in EEPROM	Get: CR at end or ? CR at end Set: KEY,1,1,1,1 CR at end Position 1 = Units Change, 1 = Enabled, 0 = Disabled Position 2 = Mode Change Position 3 = Target Change Position 4 = Target Tolerance Change	Command: ENK,1,0,1,1<CR> Enables: Units Changes Target Changes Target Tolerance Changes Disables: Mode Changes Response: OK
DTC	Disable target changes. Allows viewing only.	CR at end	Command: DTC <CR> Response: OK
ETC	Enable target changes.	CR at end	Command: ETC <CR> Response: OK
RFS	Return calibration full scale torque	Get: CR at end or ? CR at end	Command: RFS?<CR> or CLP<CR> Response: Calibration full scale torque in ASCII
CLP	Return current	Get: CR at end or ? CR at	Command: CLP?<CR> or

	peak CW torque value	end	CLP<CR> Response: Current peak CW torque value
ALP	Return current peak CCW torque value	Get: CR at end or ? CR at end	Command: ALP?<CR> or ALP<CR> Response: Current peak CCW torque value
ENB	Enable Options Changes	CR at end	Command: ENB<CR> Response: OK
DIS	Disable Options Changes	CR at end	Command: DIS<CR> Response: OK
ENP	Enable Setpoint Presets	CR at end	Command: ENP <CR> Response: OK
DIP	Disable Setpoint Presets	CR at end	Command: DIP <CR> Response: OK
PRE	Get / Set Setpoint Preset	Get: PRE,Y CR at end or ? CR at end Y = setpoint number 1 through 8 Set: PRE,Y,X or PRE,Y,XXXXX	Get: Command: PRE,4?<CR> or PRE,4<CR> Response: Setpoint Preset #4 Value Set: Command: PRE,2,50.0<CR> = Set Setpoint Preset #2 to 50.0 Response: OK
RTC	Get / Set Real Time Clock (Time and Date)	Get: RTC CR at end or ? CR at end Set: RTC,HH:MM:SS MM/DD/YY	Get: Command: RTC?<CR> or RTC<CR> Response: HH:MM:SS MM/DD/YY Set: Command: RTC,12:34:56 10/20/15<CR> = Set Real Time Clock to 12:34:56, October 20th, 2015 Response: OK
RTT	Get / Set Real Time Clock (Time only)	Get: RTT CR at end or ? CR at end Set: RTT, HH:MM:SS	Get: Command: RTT?<CR> or RTT <CR> Response: HH:MM:SS Set: Command: RTT,12:34:56<CR> = Set Real Time Clock to 12:34:56

			Response: OK
RTD	Get / Set Real Time Clock (Date only)	Get: RTD CR at end or ? CR at end Set: RTD,MM/DD/YY	Get: Command: RTD?<CR> or RTD <CR> Response: HH:MM:SS Set: Command: RTD,10/20/15<CR> = Set Real Time Clock Date to October 20th, 2015 Response: OK
ADT	Return the A/D torque reading	CR at end	Command: ADT <CR> Response: Curre untared A/D torque reading
ADA	Return the A/D angle reading	CR at end	Command: ADA <CR> Response: Current raw A/D angle sensor reading
ADB	Return the A/D battery reading	CR at end	Command: ADT <CR> Response: Current A/D battery level reading
RST	Reset the electronics	CR at end	Command: RST <CR> Electronics is reset back to powerup state. Response: none

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Torque response format (MMV command and DMM command):
Character count, 60 message characters plus carriage return /
linefeed = 62 maximum:

         111111111122222222223333333333444444444455555555556
123456789012345678901234567890123456789012345678901234567890
|     |      ||     ||   ||  |       |    |  |  |  |  |  |
+139.7 ft-lbs, 185.0, OFF, 45 degrees Pass HH:MM:SS MM/DD/YY
+ 1669 in-lbs,  2220, 05%, 45 degrees Low  HH:MM:SS MM/DD/YY
+265.7 Nm    , 250.9, 02%, 45 degrees High HH:MM:SS MM/DD/YY
+182.4 ft-lbs, 185.0, 02%, 45 degrees Pass HH:MM:SS MM/DD/YY
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Backwards compatibility.
This software will operate, with limited functions, on legacy torque wrenches. Older versions of TED/ED-series torque tester/wrenches sent data to the computer when pressing the power key (like using the get torque button on the commander screen). They were also able to be “polled” by sending a carriage return to the wrench, but the other functions listed in the above table were not installed in the software and will not work when executed from the commander software.