

ProWrench *Opta* **Digital Torque Wrench**

Operator's Manual **Manual 973: Issue 1b**

Crane Electronics Ltd

NOTICE

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CE MARKING

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Declares that this product has been assessed and complies with the requirements of the relevant CE Directives



This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

(1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Caution: Changes or modifications to the Prowrench Opta not expressly approved by Crane Electronics Ltd could void the user's authority to operate the equipment.

CONTENTS

	PAGE
SECTION 1 Introduction	4
How to use this manual	4
Packing List	4
Care and Storage	4
Batteries	4
Overview	5
Dimensions	6
Specifications	7
Accessories	7
SECTION 2 Controls	8
Removing & Attaching Drive Adaptors	8
Control Panel	9
SECTION 3 Operating Instructions	10
Basic Operation	10
Replacing the Batteries	10
Recharging the Batteries	11
Powering On	12
Auto Power Off	12
Hardware Reset	12
Attaching a Printer or PC	12
Basic Menu Structure	14
Getting Started - Using for the first time	15
Changing the Time and Date and Date Format	15
Changing the Language	15
Taking a Reading - Quick Read Mode	16
Taking a Reading - Quick Store Mode	18
Quick Read setup Menu	21
Quick Store Setup Menu	21
Main Setup Menu	22
Power Setup Menu	22
Advanced Operation	23
Features (Advanced Mode)	23
Using with Opta Comms	24
Working with Jobs	24
Working with Rounds	26
Remote Setup	27
Comms Setup	27
Flash Program	27
Software Reset	27
Trace Duration	27
Troubleshooting Guide	28
Glossary of Terms	29

HOW TO USE THIS MANUAL

This manual is split into sections describing the steps to be taken to configure the ProWrench Opta for use in measuring and recording torque values.

- Section 1 is an introduction to the ProWrench Opta.
- Section 2 describes the controls and features.
- Section 3 describes how to configure and use the ProWrench Opta .

The following conventions are adopted throughout this manual:

Keys to be pressed will be shown as the key legend - *for example*  Enter
Information displayed on the LCD screen will be shown in italics contained within quotation marks i.e. *'Select Fault'* or displayed as an actual screenshot.

PACKING LIST

- | | |
|--|-------------------------|
| The following items are supplied with the basic ProWrench Opta unit. | |
| 1x ProWrench Opta Digital Torque Wrench | 1x User Manual |
| 1x Square drive adaptor | 1x Quick Start Guide |
| 2x Alkaline C cell batteries | 1x Aluminium carry case |

CARE & STORAGE

This unit is designed for indoor use only

- | | |
|-----------------------------|----------------|
| Operating temperature range | 5-40 degrees C |
| Storage temperature range | 0-50 degrees C |

The membrane keypad may be wiped clean with a soft damp cloth. The unit is not waterproofed and spillages should be avoided.

THIS UNIT CONTAINS NO USER SERVICEABLE PARTS. ONLY QUALIFIED SERVICE PERSONNEL SHOULD REPLACE OR FIT PARTS.

BATTERIES

ProWrench Opta takes either two 1.5v Alkaline Manganese type 'C' cells (battery life - 8 hours of continuous use) ora Crane supplied rechargeable cell pack (battery life - typically 8 hours of continuous use).

OVERVIEW

ProWrench Opta's range of software features can be individually specified to give a configuration most suited to the requirements – from a simple no frills digital wrench to a comprehensive audit tool.

The ProWrench Opta features two measurement modes for displaying either peak or real time torque with a bar graph feature to give an analogue representation.

Upper and lower limits can be set in peak mode, enabling the display and LED to indicate HI, OK or LO fastener status.

The ProWrench Opta is designed to be point of load insensitive, which means that the operator can be assured of correct measurement however the wrench is held and torque is applied - particularly useful in limited access situations.

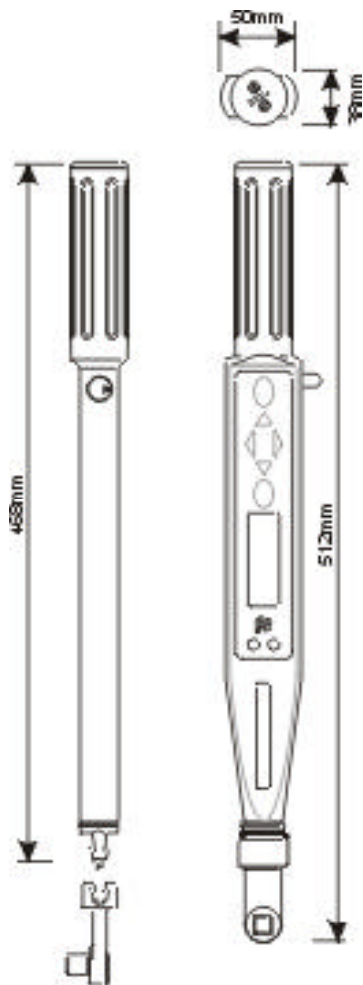
ProWrench Opta is supplied with a dovetail (Sturtevant Richmond) interchangeable head fitting, giving a wide range of head attachments to meet the assembly requirements.

When used in Jobs mode, the ProWrench Opta has the ability to store a large amount of date and time stamped readings for each of the fasteners audited. This data can be uploaded and stored on the PC with the use of the Opta Comms platform.

Data from the ProWrench can either be printed or downloaded to a PC using an RS232 cable. **Note:** The ProWrench Opta cable has a 5 pin round connector to the wrench. This means the previous 4 pin cables for earlier ProWrench models cannot be used.

DIMENSIONS

Weight:	1 Kg
Construction:	Cast Aluminium
Dimensions:	468mm (Length) x 48mm (Width) x 38mm (Depth) (Dimensions shown are for Sturtevant Richmond fitting)

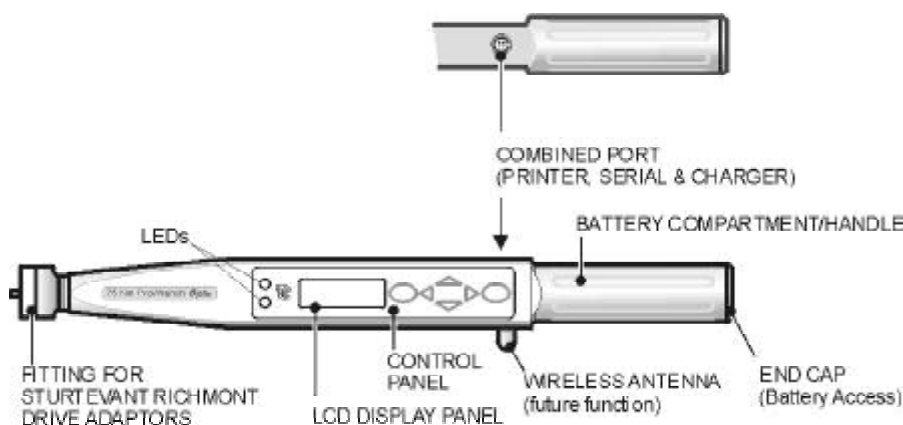


SPECIFICATIONS

Power:	One Crane rechargeable battery pack or two type 'C' cells (Alkaline Manganese 1.5v)
Accuracy:	$\pm$ 0.5% of rated maximum wrench capacity.
Overload Capacity:	125% of stated maximum wrench capacity.
Zero Drift:	<0.1% of rated maximum wrench capacity.
Operating Temperature Range:	+5 to +40 degrees Celsius
Temperature Stability:	$\pm$ 0.1% per degree Celsius.
Sealing:	IP54.
Humidity:	5% to 75% non condensing.
Calibration:	Issued with calibration certificate traceable to national and international standards. 12 months typical recalibration interval.
Warranty:	12 months parts and labour.
Servicing:	Crane Electronics Ltd offer a repair facility and calibration to NAMAS and international standards.

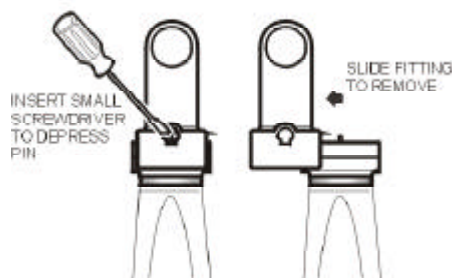
ACCESSORIES

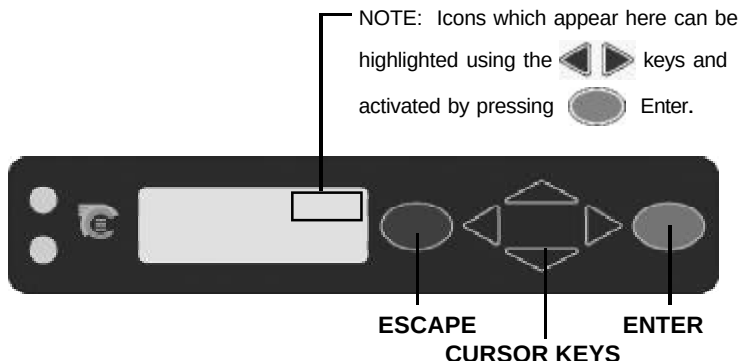
ITEM	PART No.
RS232 Cable	CBL-796-01CR-0-0
Rechargeable Battery	A1 080139
Charger Kit	PO-981-01CR-0-0
External Battery Kit	PO-981-02CR-0-0

CONTROLS & CONNECTORS**REMOVING AND ATTACHING THE DRIVE ADAPTORS****Sturtevant Richmond Head**

To remove a drive adaptor, insert a small screwdriver into the access hole as shown, depress the small locking pin and slide the adaptor to the side - see below.

To attach a drive adaptor, depress the locking pin and slide the adaptor into place until it locates with a click.



CONTROL PANEL**ENTER KEY (green)**

Used for confirming a selection or accepting an option etc. Similar to the Return key on a computer.

**ESCAPE KEY (red)**

Used for cancelling an option.

**UP/DOWN ARROW KEYS**

Used to toggle between screens and options (small arrows on right of screen show direction(s) available).

**LEFT RIGHT ARROW KEYS**

Used to select different fields or options.

All the functionality of the wrench is accessed through a simple menu structure with the aid of the 4 arrow keys, the ENTER Key (Green) and the ESCAPE Key (Red).

A short single press is sufficient to operate the keys.

A click will be heard when the arrow keys are operated.



are used to navigate through the menus on the same level.

Pressing  ENTER on a displayed menu function will take you into the relevant menus for that function.

Pressing  ESCAPE will take you up a level back towards the main menu.

If you keep pressing the  you will go through all the menus on that level and will return to where you started. When you choose a menu item, the Prowrench Opta will remember what sub-menu item you choose last time.

REMOVING AND REPLACING THE BATTERIES

It is recommended that the wrench is turned off before batteries are removed so that any current data can be backed up (see Auto Power Off function). If this is not done, when the wrench is turned on it will show memory checksum errors.

Removing

To remove the batteries from the ProWrench Opta:

Unscrew the end cap (anti-clockwise) as shown and remove.

Tilt the ProWrench slightly to allow the batteries to slide out.

Replacing

Place 2 new 'C' type batteries (see page 4) into the ProWrench Opta as shown, making sure the Positive (+) ends of the batteries are both facing into the device and the Negative (-) ends are towards the cap.

Replace the cap by carefully screwing it clockwise against the spring pressure, taking care to keep it at a right angle to the ProWrench body to avoid cross-threading.

NOTE: If the ProWrench Opta does not switch on and the LED is showing a constant amber light, the ProWrench will have to be reset. Press the  and  keys simultaneously and hold for a few seconds to perform a hardware reset.

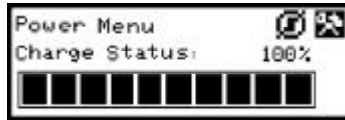
IMPORTANT: ProWrench Opta can take either NiMH or alkaline batteries

It is **IMPORTANT** to set the correct battery type in the SETUP Menu before changing the battery type. The wrench will then remember the setting for subsequent battery changes



RECHARGING THE NIMH BATTERIES

The Power Menu will show the available charge left on the battery - see Setup Menu / Power Menu.



When the menu show 3 bars left (30%), the wrench will display a flashing battery symbol at the bottom of the display, on any screen. This indicates that the battery charge is low and the battery should be replaced or recharged depending on its type.

As a precautionary measure, the wrench will turn off the backlight to conserve the remaining battery charge.

As the battery charge falls further, the wrench will show a Battery Urgent message and will then turn off the wrench. If an attempt is made to turn the wrench on while it is in this state, it will not power up. The batteries should be immediately replaced or recharged.

There are 2 options for charging the Crane rechargeable battery pack:

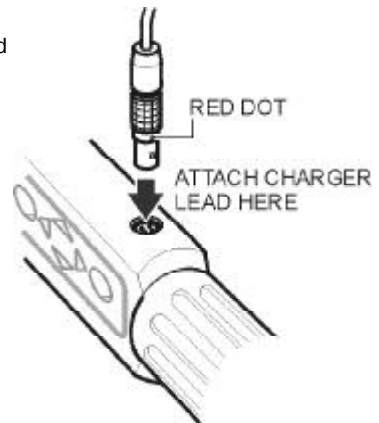
Option 1: In the wrench with a special cable connecting the Crane supplied charger to the RS232 port of the wrench: PO - 981 - 01CR - 0 - 0

Option 2: In an external battery holder connected to a Crane supplied charger supplied with Option 1: PO - 981 - 02CR - 0 - 0

Note: The ProWrench Opta cable has a 5 pin round connector to the wrench. This means the previous 4 pin cables for earlier ProWrench models cannot be used.

Note: While the rechargeable battery pack is being charged in the wrench, the wrench cannot be operated.

Hint: Line up the red dots on connector and the plug.



POWERING ON

To switch on the ProWrench Opta, press any arrow key.



If the wrench is switched on after it has powered down, it will return to the menu/screen it was in before power was removed.

HARDWARE RESET

To perform a hardware reset, press the red DELETE  and UP  keys together.

Note: Performing a Hardware Reset resets the ProWrench Opta but does not erase any settings or batch information. Use it to reset the software after changing the batteries.

AUTO POWER OFF FUNCTION

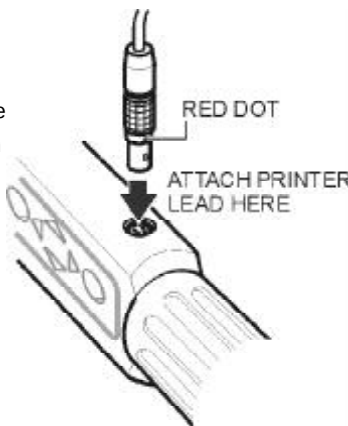
As an energy saving feature, the ProWrench Opta is programmed to power down automatically if it has received no user input for a predefined period (10 mins is the default setting, but can be set from 1 minute to never off). Pressing any key will restore the unit to the last display prior to powering off. This is to avoid the possibility of loss of data due to an interruption to the operator's activities while using the ProWrench Opta.

To Switch off without waiting for the Auto Power Off, go into Main Setup Menu / Power Settings and select the Power off icon. 

ATTACHING A PRINTER OR PC

A printer or PC may be connected to the ProWrench using RS232 cable no. CBL-796-01CR-0-0. Attach the small 5 pin connector to the ProWrench as shown, making sure the red dot on the connector aligns with the red dot on the ProWrench. The other end of the cable connects to the serial port on a dot matrix printer such as the Epson LX-300 or to the serial port of a PC.

Note: The ProWrench Opta cable has a 5 pin round connector to the wrench. This means the previous 4 pin cables for earlier ProWrench models cannot be used.



BASIC OPERATING PRINCIPLES

MAIN MENU

This menu allows the user to choose between the following items:

Quick Read - Enter the Quick Read mode

Quick Store - Enter the Quick Store mode

Jobs (advanced model only) - Needs jobs loaded from Opta Comms

Rounds (advanced model only) - Needs Rounds loaded from Opta Comms

PC Comms (advanced model only) - Communications via Bluetooth or serial port

Remote Setup (advanced model only) - Through Bluetooth or serial port

Setup - Enter the Setup menu (see below)

Logout (advanced model only) - Logout manually as user (see Jobs)

NOTE: Bluetooth is a future option

SET UP MENU

This menu allows the setup of following parameters:

Date & Time - Setup the date & time and their formats

Regional Settings - Change the language for the ProWrench Opta

Power Settings - Change the power setting parameters

Trace Duration - Set the maximum duration for the trace

Comms Setup (bluetooth feature enabled) - Select between cable and bluetooth for comms

Software Reset - Perform a software reset **NOTE:** All data and settings will be lost

This should normally be used after flash downloads

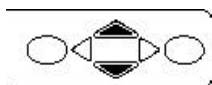
Flash Program - Flash download to update software

About - Displays the product name, software version number and calibration due date

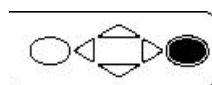
Features - Displays the list of enabled features and gives the operator the option to enter an upgrade activation code if purchased from Crane.

The screen shows only one menu item at a time. To navigate the menu, use the cursor keys to scroll, and then press Enter to select as shown below:

1

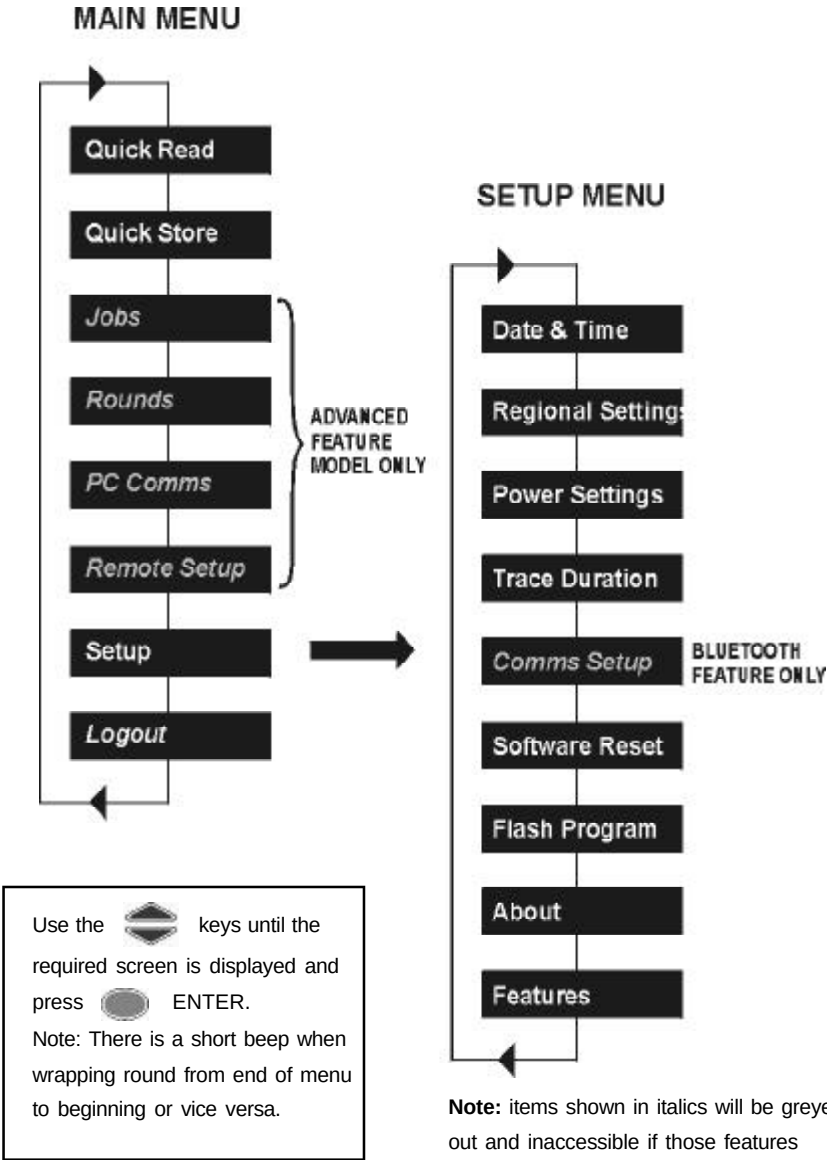


2



BASIC MENU STRUCTURE

The diagram below shows the basic menu structure of the ProWrench Opta.



GETTING STARTED - USING FOR THE FIRST TIME

When using the ProWrench Opta for the first time, you will need to set the time and date. The format of how Date and Time can be displayed can also be selected.

Note: Once the time is changed from 00:00:00 then the real time clock will start counting in seconds.

The Real time clock and memory have their own battery backup supply so will not lose data when the batteries are replaced.

Setting the Time and Date

The Time and Date is set in Main Setup Menu / Time and Date. Use the  keys to scroll to the Time screen and press  Enter. Use the  keys to change the hour digits above the cursor and the  keys to advance along to the minutes and then the seconds. When the time is correct, press  Enter.

Repeat the process for the Date screen changing the digits in the same way until the correct date is showing.

Changing the Date or Time Format

The format of how Date and Time is to be displayed can be selected.

From the Date and Time Menu, Select Date Format or Time Format and use the  keys to select the required format and press Enter.

Changing the Language

At present the wrench can display one of several different languages.

This found in the Main Menu / Main Setup Menu / Regional Settings / Language.

Use the  keys to select between: English, Deutsch, Francais, Espanol, Italiano, Swedish or Czech and press  Enter to select.

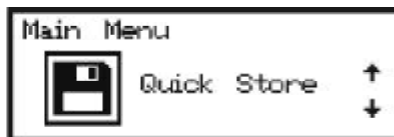
Changing the Decimal Point style

There is also an option to change the decimal point in displayed numbers from a '.' (period) to a ',' (comma), to suit local conventions.

This is found in the Main Menu / Setup Menu / Regional Settings / Decimal Point.

GETTING STARTED - TAKING A READING

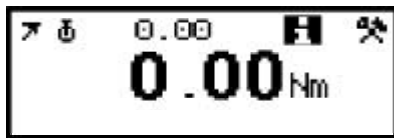
After switching on, you will be in the Main Menu. The screen shows just one item from the menu. Use the Up and Down arrow keys to navigate between screens and press  ENTER to access the required mode. Shown below are the screens for the 2 measure modes - Quick Read and Quick Store.



Note: Any Items shown greyed out on any of the menus are unavailable at present and cannot be selected. This is either due to certain features not being activated on the wrench, or are reserved for future development.

Quick Read Mode

Use the keys to scroll between Peak or Track measurement modes and press  ENTER. **Note:** Track mode shows a continuous real-time torque readout and Peak shows only the peak torque achieved.

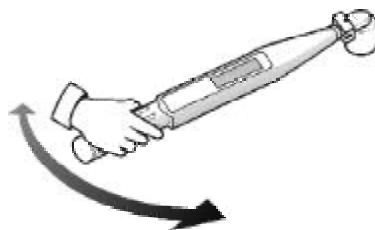


QUICK READ SCREEN - PEAK



QUICK READ SCREEN - TRACK

With a suitable drive adaptor and socket in place, connect to the required fastener and apply torque. Check the readout in the display.



To change the following parameters:

Units of Measurement

Direction of Rotation

Cycle End Time

Torque Threshold

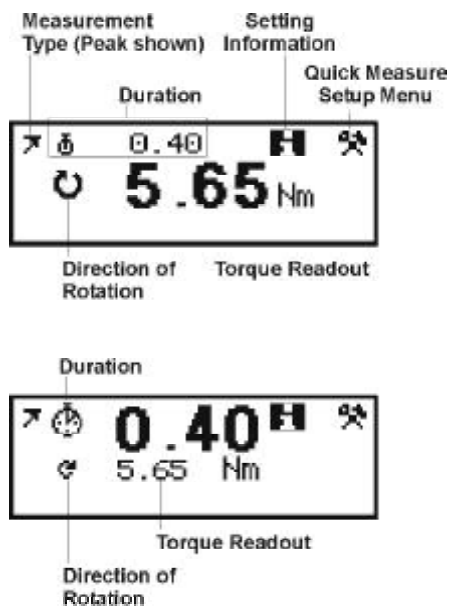
Auto Print

Inhibit Trace

Use the ◀▶ keys to highlight the  Setup Icon and press  ENTER to access the Quick Read Setup Menu. See page 21.

To View the selected options, select the  icon and hold down  ENTER. For more details, see Quick Store info on page 21.

Screen Information For Quick Read Mode



The above pictures show the alternative screen display formats - press the  key to toggle between screens.

The LCD is backlit to aid viewing in poor light conditions. The backlight can be set to turn off after a certain time to conserve power (see power settings). When the backlight turns off, it will come back on by pressing any key. The keys can be now be used for their normal functionality again.

Note: the duration time may continue for a short time after the reading is taken. It will stop and correct itself when the Cycle End Time has been reached. The Cycle End Time can be altered in Setup - see glossary for definition.

Printing

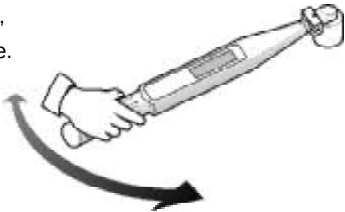
To print from the ProWrench Opta (1 line of data for each torque application), connect a suitable printer via the special cable (see page 12) and ensure Autoprint is set to On in the Quick Read Setup menu. This also applies to Quick Store and Jobs.

Quick Store Mode

From the Quick Store screen, use the  keys until the Peak measurement mode is displayed and press  ENTER.



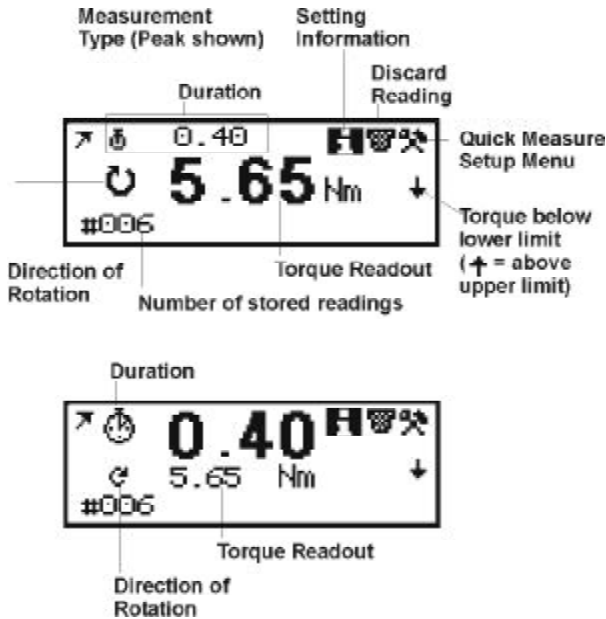
With a suitable drive adaptor and socket in place, connect to the required fastener and apply torque. Check the readout in the display.



Subsequent readings are taken in the same way.

The wrench can store up to 200 readings in this mode. The screen shows the current reading, the direction of rotation, the time taken and the number of stored readings taken (this is shown following the # sign).

Screen Information for the Quick Store Mode



The above pictures show the alternative screen display formats - press the  key to toggle between screens.

The LEDs will light to show the status of the reading:

AMBER - Measurement below preset minimum torque setting. An arrow pointing down will appear on the screen to confirm - ProWrench will give a single beep.

GREEN - Measurement OK (within specified torque range) - ProWrench will give 2 beeps.

RED - Measurement above preset maximum setting. An arrow pointing up will appear in the display - ProWrench will give 3 beeps.

NOTE: If the Auto Fault Prompt has been set to yes in the Quick Store Setup menu, the following prompt will appear on the screen: 'Select fault'

Options are:

Stripped Thread	
Double Hit	
Blind Hole	
Crossed Thread	
Other Bolt Cause	
Operator Error	

Select an option. This option enables user to mark a particular reading to be ignored for the purpose of analysis.

The actions to be taken are:

Do Quality Check	
Replace Bolt	
Report	
Investigate	
Other Action	

Torque Status Bar

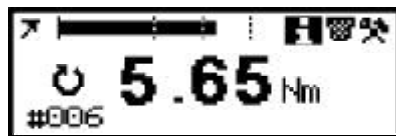
The torque status bar can be displayed on the Quick Store screen by selecting ON from the Quick Store Setup Menu - see page 21.

The first (left) Vertical line represents the Lower Specification Limit (LSL)

The second vertical line represents the Target Torque

The third vertical line represents the Upper Specification Limit (USL)

The Torque Status Bar is linear and will start displaying when the torque reaches LSL - (USL - LSL). The bar will stop at USL.



Cancelling a reading

To discard a reading, the   keys to highlight the  Cancel Icon and press  ENTER. Press  ENTER again to confirm when prompted 'Cancel reading?' This also applies in Jobs and Rounds modes.

Changing the Quick Store parameters

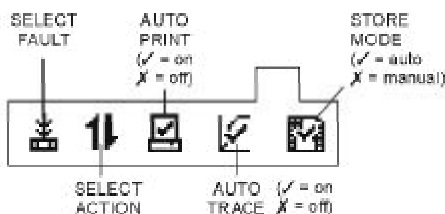
To change the following parameters:

Units of Measurement; Direction of Rotation; Cycle End Time; Torque Threshold; Torque Limits; Torque LSL; Target; Torque USL; Auto Print; Inhibit Trace; Torque Bar On/Off; Auto Fault Prompt; Current Fault

Use the   keys to highlight the  Setup Icon and press  ENTER to access the Setup Menu.

To View the selected options, select the  icon and hold down  ENTER.

The info screen appears to show the options currently selected.



To View all readings in Quick Store mode.

Press the  ESCAPE key to return to the Quick Store menu.

Use the   keys to access the View All screen then press  ENTER.

The screen will show the latest reading and its number. To view the other readings, use the   keys to move between screens. The user can move from latest to first reading by using the  key. **Note:** Up to 200 readings can be stored.

To Delete all readings in Quick Store mode.

Press the  ESCAPE key to return to the Quick Store menu.

Use the   keys to access the Clear All screen then press  ENTER.

The screen will prompt "Erase All Readings?"

Press  ENTER to DELETE all saved readings or  ESCAPE to abort.

To Print all readings in Quick Store mode.

Press the  ESCAPE key to return to the Quick Store Menu. Use the   keys to access the Print All screen then press  ENTER.

The screen will prompt "Print All Readings?"

Press  ENTER to Print all saved readings or  ESCAPE to abort.

QUICK READ SETUP MENU

To change the following settings:

Units of Measurement

Direction of Rotation

Cycle End Time

Torque Threshold

Auto Print (on or off)

Inhibit Trace (on or off) **Note:** there is only 1 trace stored at a time. When a trace needs to be saved, turn on the Inhibit Trace function and no further traces will be stored, therefore the saved trace will not be overwritten. To view the trace, download to Opta Comms.

Use the   keys to highlight the  Setup Icon and press  ENTER to access the Setup Menu.

Use the   keys to scroll through the menu options (displayed 1 per screen), and press  to edit.

Menu options are edited by using the   keys to scroll through the options and then pressing , or in the case of numeric fields such as *Torque Threshold*, use the   keys to move between characters and use the   keys change the digit above the cursor. When the required figure is displayed, press .

To exit without changing, press  ESCAPE.

To exit from any screen, press  ESCAPE.

For more information of these settings, refer to the Glossary section.

QUICK STORE SETUP MENU

Quick Store setup is the same as for Quick Read with the addition of the following editable settings:

Torque Limits

Torque LSL (Lower Specification Limit)

Target (target torque)

Torque USL (Upper Specification Limit)

Torque Bar (torque status bar on or off)

Auto Fault Prompt

Current Fault

MAIN SETUP MENU

Use the Main Setup Menu to change the following:

Date and Time (plus date format)

Regional Settings (language and decimal point style)

Power Settings (battery charge status, battery auto off time, Backlight auto off time, and battery type [NiMH or alkaline]) See below

Trace Duration (length of trace duration - 5, 10, 20, 30, 40, 50 or 60 secs)

Comms Setup (see page 28)

Software Reset (see page 28)

Flash Program (see page 28)

About (shows title screen followed by the software revision)

Features - features list and activation code (see page 28)

Use the  keys to scroll through the menu options (displayed 1 per screen), and press  to edit.

Menu options are edited by using the  keys to scroll through the options and then pressing  . ENTER.

To exit without changing, press  ESCAPE.

To exit from any screen, press  ESCAPE.

POWER SETUP MENU

Use the Power Setup menu to change the following:

Battery Auto Off

(1, 2, 5, 10, 20, 30, 40 mins, 1 hour, 16 hours or Never Off)

Battery Backlight Off

(1, 2, 5, 10, 20, 30, 40 minutes, 1 hour, 16 hours, Never Off or Always Off)

Battery Type

(NiMH or Alkaline)

Note: it is important to select the correct type for the battery in use. If NiMH have been selected and Alkaline batteries are installed in the wrench, the wrench will not switch on as it measures the battery voltage as being too low for the type of battery.

FEATURES

Activation Code

The ProWrench Opta is presently available in 2 versions - Basic or Advanced (with additional features under development for possible future release).

The basic wrench can be upgraded by the user via a 16 digit code supplied by Crane Electronics which is entered in the Features Menu. This is found in the Main Menu/ Setup Menu/Features Menu.



To enter the supplied code, select 'Activation Code' from the Features Menu and press  ENTER.

Enter the supplied number using the  keys to increment/decrement the digits in the displayed number and using the  keys to advanced along the row of digits. Repeat until all the 16 digits are correct. Press  ENTER.

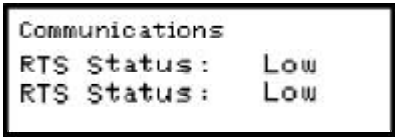
To obtain an upgrade code - contact Crane.

Features List

This shows the features enable on the ProWrench Opta. The screen will only show 1 item at a time - scroll to reveal the rest. Features which are enabled, are marked with a tick .

USING PROWRENCH OPTA WITH OPTA COMMS

First connect the ProWrench Opta to the PC with the special cable - see page 12. From the Prowrench Main Menu, select the PC Comms option and enter the Communications screen.



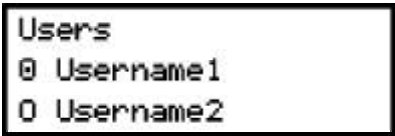
Open the Opta Comms program on the PC and use the Test Link function in the Communications menu to check the connection. Opta Comms will show 'Link working' if the connection is OK. If not, check the correct comms port is selected in Opta Comms and the cable is connected correctly. When the link is established, use the Download function to download selected Jobs , Rounds and User IDs to the ProWrench Opta. For more information, please refer to the Opta Comms manual.

JOBS

Logging in

NOTE: A user must be logged in before any Job or Round can be performed. The user's details must be created in and downloaded from the User ID table in the Opta Comms program. The screen shows a maximum of 2 users per screen - scroll to reveal any which are not displayed

Select the required user from the list by using the  keys to highlight the required radio button  and press  ENTER.



Enter the user password (created in Opta Comms) by using the  keys to increment/decrement the character above the cursor and using the  keys to



move across the character spaces. Press  ENTER when the correct password is showing. **Note:** Several Users can be downloaded from Opta Comms but only 1 Superuser .

The display will now show the list of jobs which have been downloaded from Opta Comms.

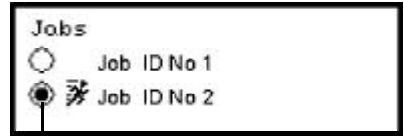
The following icons appearing next to Jobs in the list indicate the following:



= job in progress.



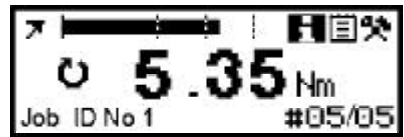
= job has been completed.



Indicates this job is highlighted - press  Enter to select.

Select the Jobs Screen from the Main Menu. The screen will show a list of the user's available (2 shown per screen). Select the required user from the list - use the  keys to highlight the required job and press  ENTER. Enter the user password (created in Opta Comms) by using the  keys to change the character above the cursor. Use the  keys to move across the character spaces. Press  ENTER when the correct password is showing. Select the required job.

The Perform Job screen will now appear ready to accept a series of readings. This is similar to the Quick Store screen with the addition of the Job name, the subgroup number, and an additional option for adding a comment to jobs and subgroups.



As the readings are taken, the number of readings will be counted until the target figure is reached. The number of subgroups within the job will also be counted. ProWrench Opta beeps twice after each reading and 3 times when the end of each group has been counted. The numbers in the bottom right corner of the screen show the status of the countdown. When counting readings for instance, '#01/05' shows 1 reading completed in subgroup of 5. When counting subgroups, '#02/03' shows 2 out of 5 subgroups completed in a Job.

There are 3 types of screen display for the jobs mode. Toggle between them using the  keys.

Data can now be uploaded to the PC via the PC Comms upload function for analysis in Excel etc.

After the job(s) are complete, press Escape to exit. Screen will prompt 'Log Out?' Press  Enter to log the current user out or press  Escape to continue as the signed in user.

JOBS SETUP

To change the Jobs settings, from the Perform Jobs screen use the   keys to highlight the  Setup icon and press  Enter.

The following parameters can be amended or viewed by using the   keys to display the various items and press  Enter to amend.

Subgroup Comment (add/amend an optional comment for the subgroup)

Subgroup Ref. (add/amend an optional reference for the subgroup)

Job Comment (add/amend an optional comment for the Job)

Auto Print (Auto print On or Off)

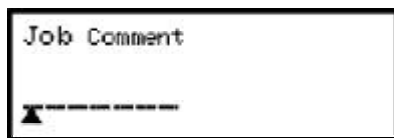
Inhibit Trace (prevent new traces being taken)

Torque Bar (Torque Status Bar Display - Yes/No)

Auto Fault Prompt (Automatic prompt if a fault detected - On/Off)

Current Fault (Current fault options)

Menu options are edited by using the   keys to scroll through the options and then pressing  , or in the case of numeric fields such as *Subgroup Comment*, use the   keys to move between characters and use the   keys change the digit above the cursor. When the required figure is displayed, press  .
See below:



NOTE: Subgroup Comment, Subgroup Ref. and Job Comment fields can only be added/amended if the number of characters has been specified in Opta Comms. The length feature in that program specifies the number of characters available for that particular field.

ROUNDS

NOTE: A user must be logged in before any Round can be performed (see page 24). The user's details must be created in and downloaded from the User ID table in the Opta Comms program.

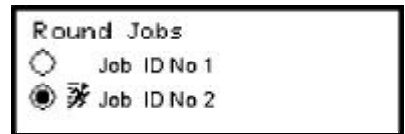
A round is a series of Jobs to be performed together as a group. Each round must contain at least 2 Jobs.

Select the Rounds Screen from the Main Menu. The screen will show a list of the user's available (see page 24 for logging in details).

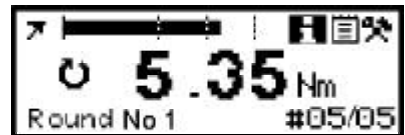
Select the required Round from the list.



Select the required Job from the list.



The Perform Job screen will now appear ready to accept a series of readings for the first Job in the Round. This is the same screen as in the Jobs mode.



As the user takes readings, ProWrench Opta will count down each Job subgroup showing the name of the Job (see Jobs Mode page 24) until all of the Jobs in the Round are complete. The Opta screen will now display 'DONE'. Press Escape to exit to Round Jobs List.

Select another Round to action or press  Escape return to the Other Modes Menu.

Data can now be uploaded to the PC via the PC Comms upload function for analysis in Excel etc.

After the job(s) are complete, press Escape to exit. Screen will prompt 'Log Out?' Press  Enter to log the current user out or press  Escape to continue as the signed in user.

REMOTE SETUP

No information available at present.

COMMS SETUP

This menu is only enabled if the Bluetooth feature has been activated (Bluetooth is a future feature). It chooses the path for serial data communications as either through the RS232 port or via a Bluetooth Link. **Note:** for Bluetooth to work, the antenna in the dome on the side of the wrench must be present.

As soon as Bluetooth is selected it is turned on and initialised. Its timer is used to control when it will turn off. A flashing B in the lower left of the LCD indicates it is active.

FLASH PROGRAM

This is used to update the program in the wrench. It requires the wrench to be connected via a RS232 cable to a PC running a special flash download program. Normally this function would only be used after a Flash Program. The operator must ensure the download process is not disturbed once it is in progress, otherwise the software in the wrench may be affected and the wrench would need to be returned to Crane.

SOFTWARE RESET

To return the device to its factory settings, use the Software Reset function. Accessed via the Main Setup Menu page 22.

Screen will warn: '**ATTENTION, ALL DATA AND SETTINGS WILL BE LOST!**'

Press  ENTER to reset or  ESCAPE to abort.

TRACE DURATION

The wrench can save one trace. This trace is saved every time a reading is taken and so overwrites the previous one. To keep a particular trace once it has been taken, you should select **Yes** to the **Inhibit Trace** Option in the Setup menu for that measurement mode. The length of the trace can be setup in the **Trace Duration** option in the Main Menu / Setup Menu. Note that the same number of data points are stored so specifying a longer trace means that a certain number of the actual measurements are ignored. The maximum resolution is 1 reading every 2 mS. Up to 10,000 readings can be stored.

TROUBLESHOOTING GUIDE

The following guide gives some of the possible problems which could be encountered with the ProWrench Opta, the possible causes, and the suggested remedial action.

Fault

LCD panel does not come on at power up.

Possible Cause

- A** Batteries not fitted correctly or not secured.
- B** Batteries discharged.

Action

- A** *Ensure the batteries are seated properly and the polarity is correct.
Ensure the battery compartment cover is screwed down correctly.
See page 10.*
- B** *Change the batteries.*

GLOSSARY OF TERMS

Batch

A group of readings taken. ProWrench Opta stores these readings by default in the Quick Store mode.

Configure

The process of entering and storing the basic parameters which determine the resulting outputs of ProWrench Opta.

Cycle End Time

Is the time the torque must be below threshold for the reading to finish.

Direction of Rotation

The direction in which the wrench is turned to apply torque - Clockwise (right) or Anticlockwise (left).

Job

A series of torque applications to be measured together.

Peak

A type of measurement which records the highest torque applied to a transducer during an operation.

Round

A series of Jobs to be performed together.

Sample

Individual torque reading.

Span

The Span is the effective operating range of the wrench. This is the range between zero and the maximum design limit of the transducer.

Threshold Torque Value

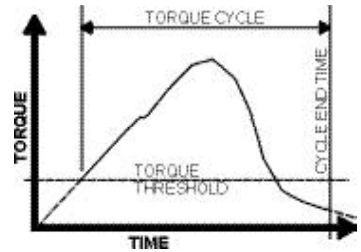
The level of torque which a signal must rise above and then fall below to be considered a valid torque cycle. In the ProWrench II, this is set at 5% of the rated span of the transducer.

Target

The target torque figure.

Torque Cycle

A complete application of torque to a joint starting from the torque rising above the preset threshold value and finishing at the preset cycle end time.



Torque Limits

The upper and lower limits for the torque application.

Torque LSL

The Lower Specification Limit as set in the setup parameters.

Torque USL

The Upper Specification Limit as set in the setup parameters.

Trace

A graphical representation of the torque cycle.

Track

A type of measurement which follows the changing torque values imposed on a transducer as torque is applied. The display will return to zero after the torque is removed.

Units of Measurement

It is possible with ProWrench Opta to measure torque, and convert internally to display and store in any of the other torque measurement units as specified.