# OPERATOR'S MANUAL


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**www.norbar.com/HowtoUseANorTronic**

## NORTRONIC®



Part Number 34399 | Issue 2 | Original Instructions (English)

# Contents

# INTRODUCTION

The NorTronic® is an electronic torque and angle wrench capable of measuring, displaying, storing and transmitting test results and receiving configuration settings from TDS (Torque Data System PC software) via the USB or wireless interface.

The tool comes in 3 torque capacities: - 50 N·m, 200 N·m & 330 N·m.

The NorTronic® features 2 identical colour displays positioned at 90 degrees to each other. This enables the user to see a display when the tool is being operated in the vertical or horizontal plane.

The NorTronic® gives visual, audible and physical indication via vibration that the Tool Target has been reached.

## Part Numbers Covered by This Manual

| Part Number | Torque Capacity | Ratchet Square Drive | Wireless Communication Frequency |
|---|---|---|---|
| 43500 | 50 N·m | ⅜" | 868 MHz |
| 43501 | 50 N·m | ½" | 868 MHz |
| 43502 | 200 N·m | ½" | 868 MHz |
| 43503 | 330 N·m | ½" | 868 MHz |
| 43504 | 50 N·m | ⅜" | 915 MHz |
| 43505 | 50 N·m | ½" | 915 MHz |
| 43506 | 200 N·m | ½" | 915 MHz |
| 43507 | 330 N·m | ½" | 915 MHz |

## Parts Included

| Parts Included | Part Number | Quantity |
|---|---|---|
| NorTronic® electronic torque wrench. | 4350X | 1 |
| USB flash drive (Manuals / Software). | 61131 | 1 |
| Quick reference guide. | 34398 | 1 |
| USB lead to PC (Mini USB to Type A). | 39678 | 1 |
| AA Rechargeable Battery | 39663 | 3 |
| Calibration Certificate. | - | 1 |
| NorTronic® carry case. | 44506 - 44508 | 1 |

## USB Wireless Adapters (Accessory)

| USB Wireless Adapters | Part Number |
|---|---|
| USB Wireless Adapter (868 MHz) | 43508 |
| USB Wireless Adapter (915 MHz) | 43509 |

## Software Compatibility

| NorTronic® | TDS | Reason for upgrade |
|---|---|---|
| Version 1.XX | 1.0.X | - |

**NOTE: 'X' is shown in place of the latest software release version #.**

# FEATURES AND FUNCTIONS

- TDS (Torque Data System) software included for complete data management and archiving to a PC. Includes seamless data synchronisation. See TDS Manual part number 34397 for more information.
- All NorTronic® tools are Torque Handles with a 16mm spigot to interface to additional end fittings and offsets. A push through ratchet head end fitting is supplied as standard.
- Ability to enter offset compensation for non standard end fitting.
- NorTronic® can be locked from adjustment “P type” for production environments (via TDS).
- 2 colour 0.95” OLED displays for visual indication of measurement against Target status.
- Audible indication of Target status.
- Vibration feedback when Target reached.
- 4 digit resolution for all NorTronic® electronic torque wrenches.
- Maximum of 3000 (date & time stamped) reading memory store.
- 5 user buttons.
- Operational from three AA internal rechargeable / non rechargeable batteries.
- Ability to link targets for applications that require tightening in a sequence via TDS.
- USB port for interface to TDS.
- Built in Wireless transceiver for Wireless interface to TDS.
- 12 Torque units.
- Time & date stamped Test Results.
- Displays torque only or torque & angle.
- IP44 protection against dust and water ingress.
- Ability to Ratchet when measuring Angle.
- 3 Target modes - Torque Target only, Snug Torque followed by Angle Target or Snug Torque followed by Angle Target + final Torque Target.

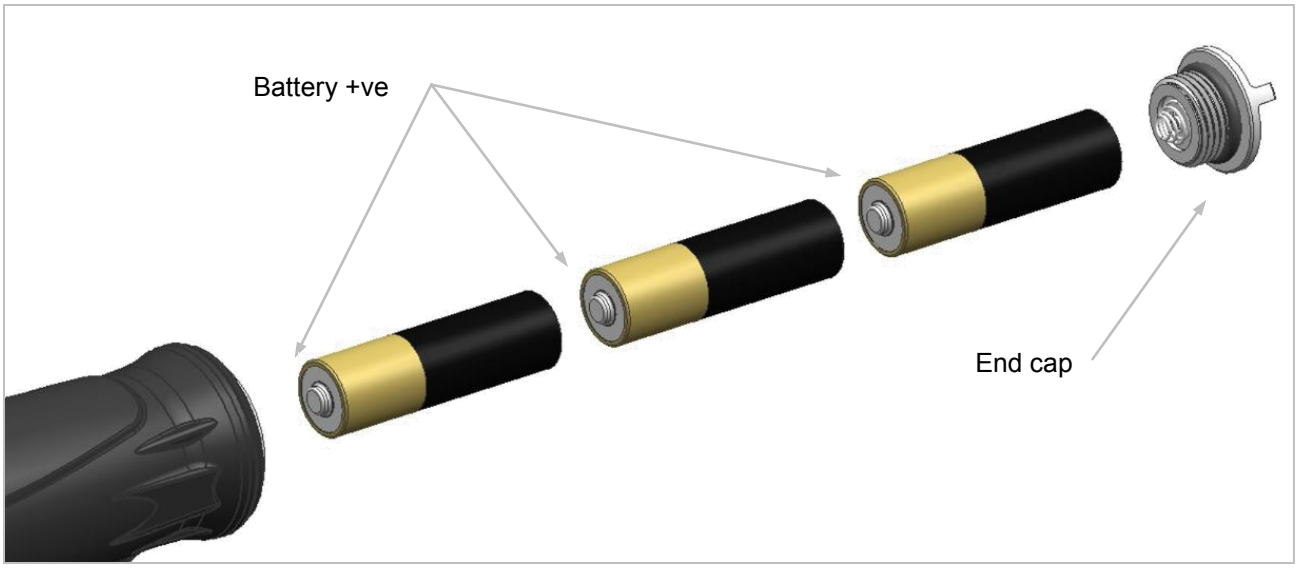
# BEFORE USE

## Preparation

**IMPORTANT:** **IF THE EQUIPMENT IS USED IN A MANNER NOT SPECIFIED BY THE MANUFACTURER, THE PROTECTION PROVIDED BY THE EQUIPMENT MAY BE IMPAIRED.**

**WARNING:** **ALLOW THE NORTRONIC® TO EQUALISE TO THE AMBIENT TEMPERATURE/HUMIDITY BEFORE SWITCHING ON. WIPE OFF ANY MOISTURE BEFORE USE.**

## Battery Fitting / Replacement




**NOTE:** **Insert positive battery terminal into handle cavity first. Rotate the end cap clockwise to tighten and counter-clockwise to release.**

## Ratchet Head Fitting / Replacement


**NOTE:** **All NorTronic® tools are Torque Handles with a 16mm spigot. Should you wish to change to a different spanner end fitting, depress the plunger on the ratchet head and pull to release.**

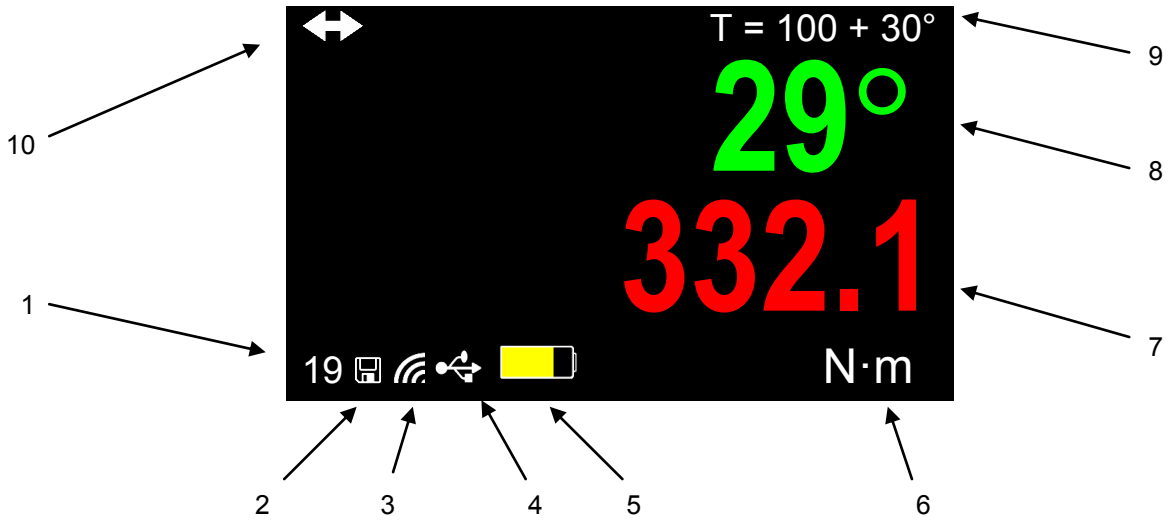
# BUTTON FUNCTIONS

Throughout SETUP and Operation, the buttons perform the following functions:

| Button | Function | |
|---|---|---|
| | Operation | SETUP |
|  | Change Units | Scroll through options or change a selected value.<br>When *changing* a value, *hold* the *button down* for a *faster rate* of change. |
|  | Zero Torque & Angle display if below the *Active From* threshold.<br>Cancel the peak reading if above the *Active From* threshold and send via USB / Wireless. | Confirm a setting. |
|  | Exit the measure display. | Exit current menu / screen. |
|  | Save test results to NorTronic®. | None |

# MEASURE DISPLAY

**NOTE: Both of the displays on the NorTronic® show the same information at all times.**




| # | Function |
|---|---|
| 1 | Number of readings that have been saved for the current Target. |
| 2 | Shows the next peak reading that will be saved to the NorTronic® (if Auto Reset enabled). |
| 3 | Wireless connected to P.C. (TDS). |
| 4 | USB connected to P.C. (TDS). |
| 5 | Low Battery / Flat Battery. |
| 6 | Current Torque Units. |
| 7 | Torque reading. |
| 8 | Angle reading. |
| 9 | Current Snug Torque & Angle Target. |
| 10 | Torque CRS has been changed from default value. |

# OPERATION

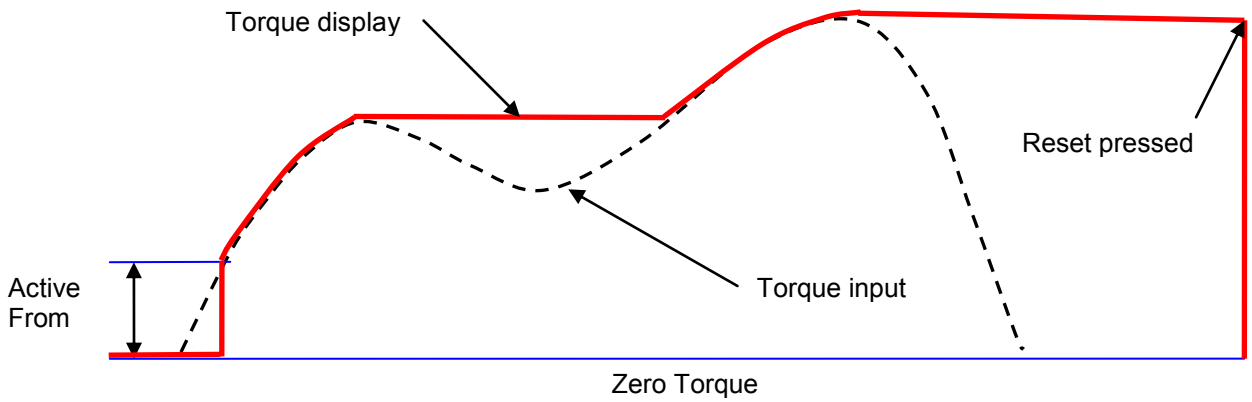
## Start Up

The NorTronic® does not have a power ON/OFF switch. The NorTronic® is always powered up and in a deep sleep mode.

Upon fitting the batteries and end cap (or pressing any button to wake the NorTronic® up from sleep), the Norbar logo is displayed for 2 seconds followed by the measure display:



## Peak Reading with Manual Reset Operation




When Torque is applied, the NorTronic® will track the torque input until it has exceeded the ***Active From*** setting (See page 19) and then enters into peak mode for Torque & Angle.

The Angle display is shown as "***0°***" until the Torque is above the ***Active From*** setting for the tool. If the ***Snug Torque*** value is set (See page 13) and is above the ***Active From*** setting, the Angle display is shown as "***0°***" until the Torque reaches the ***Snug Torque*** value and then displays the Angle value in peak mode.

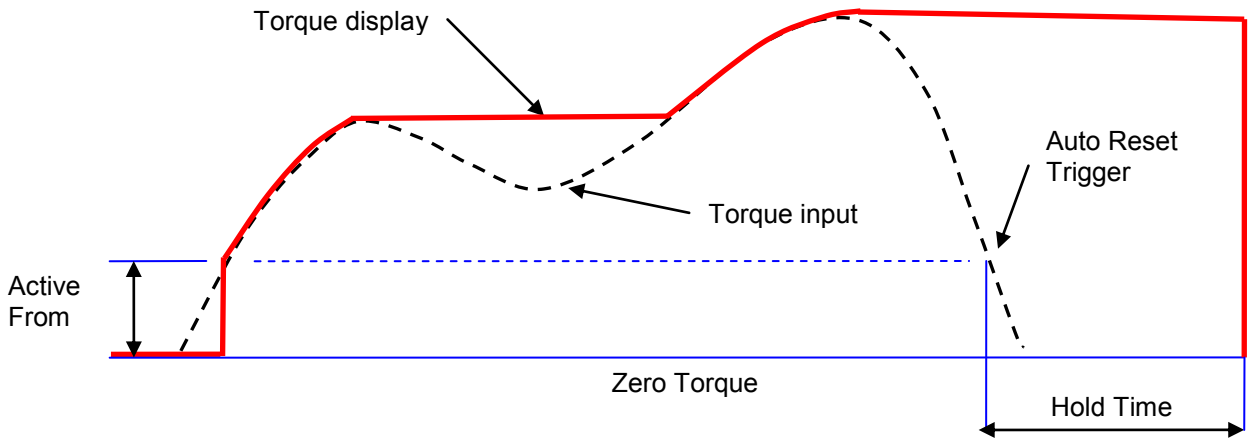
After a Peak Torque or Angle has been applied and then the Torque has dropped below the ***Active From*** setting, both the Torque & Angle readings continuously flash.

Press the ZERO button to ***Reset*** the Torque display to the current Torque input and Angle Display to "***0°***".


Press the SAVE button to ***Reset & Save*** the peak Torque & Angle readings to the Data Store on the NorTronic® tool.

If a ***Target*** is in use, press the UP button to ***delete*** the ***last reading*** that has been ***saved*** via the ***Delete Last Result?*** confirmation screen.

## Peak Reading with Auto Reset




When Torque is applied, the NorTronic® will track the torque input until it has exceeded the ***Active From*** setting (See page 19) and then enters into peak mode for both Torque & Angle.

The angle display is shown as "***0°***" until the torque is above the ***Active From*** setting for the tool. If the ***Snug Torque*** is set, the angle display is shown as "***0°***" until the torque reaches the ***Snug Torque*** value (see page 13) and then displays the angle value in peak mode.

When a peak torque or angle has been applied after which the torque has dropped below the ***Active From*** setting, both the torque & angle readings continuously flash for the duration of the ***Hold Time*** (see page 21). The displays are then reset to the current torque input.

If the ***Save*** button (which now becomes ***latching***) has been pressed prior to the ***Peak*** being detected, the ***Torque & Angle*** readings are ***saved*** to the ***Data Store*** on the NorTronic®.

If a ***Target*** is in use, press the UP button to ***delete*** the ***last reading*** that has been ***saved*** via the ***Delete Last Result?*** confirmation screen.


## Tool Target

Having already set a ***Tool Target*** (see page 13 for more details), the NorTronic® beeps as the applied torque approaches the Torque Target (starting slow and getting faster) until a continuous tone is heard when the Target has been reached. This stops after the Torque has been released.

The Torque & Angle digits will be shown as:

White = below Active From setting or no Target set

Yellow = above Active From setting, but below Target Lower Limit

Green = above Target Lower Limit and below Target Upper Limit

Red = above Target Upper Limit

The tool ***Vibrates*** when the ***Torque Target*** or ***Angle Target*** has been reached (if enabled in ***SETUP – Vibrate***, see page 20 for more information).

**TIP: If an angle only target has been set, the beeper sounds as the user approaches the angle target, quickening in frequency until a continuous tone when the angle target has been reached.**

## Torque Units - Change

Press UP or DOWN to change displayed ***Torque Units***. The UP button has a different function if a ***Target*** is active (see pages 7, 8 & 12).

**TIP: Units that have been disabled in (SETUP - Units) will NOT be shown. See page 18.**

## Zero Display Offset

Exercise the NorTronic® in required direction of use.

Press the ZERO button to ***Zero*** both the ***Torque & Angle*** values when the Torque is below ***3%*** of the wrench capacity.


**TIP: Zero the NorTronic® in the vertical position with the ratchet head removed, so that the weight of the tool is not affecting the reading. If the displayed reading does not zero, increase the reading by applying and maintaining a small torque (<3%) and then press the ZERO button. Remove the torque and press the button again.**

## # of Saved Readings

Every time a ***Test Result*** is saved to the NorTronic® memory, the ***Reading #*** (bottom left of display) is incremented. This is reset when the ***Tool Target*** has been changed.

## Sleep

The NorTronic® will ***Sleep*** if any of the events listed below have ***not*** happened during the time period specified in ***Tool SETUP– Sleep*** (see page 19 for more information):

a) A button has been pressed.

b) The Torque reading has changed by more than **2%** of the wrenches capacity.

**TIP: The NorTronic® can be forced to sleep at any time by pressing the**  **button for 2 seconds.**

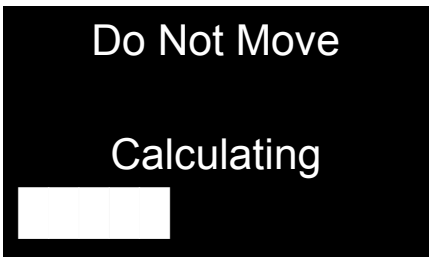
## Resume from Sleep (Gyroscope drift calibration)

To wake the NorTronic®, press any button. After the display of the Norbar logo the NorTronic® will perform a gyroscope drift calibration. The Gyroscope drift calculation will also be done if the temperature changes by more than 3 degrees. This is necessary to ensure the angle measurement is accurate.



5 second countdown to the Gyroscope drift calculation.

**WARNING: PLACE THE TOOL ON A FLAT LEVEL SURFACE AND DO NOT MOVE BEFORE "CALCULATING" IS DISPLAYED.**




This screen is displayed during the Gyroscope drift calculation.


The NorTronic® can now be used.

**NOTE: The Gyro drift calibration will not be done if the NorTronic® is woken less than 30 seconds after going to sleep.**

## USB Interface

The NorTronic® can be connected to a PC with TDS installed using the cable supplied.

**NOTE: Remove the *USB cover* to access the *USB connector*. The USB cover must be fitted for *IP44 protection*.**


***Test Results*** saved on the NorTronic® (to the ***Data Store***) will be copied to TDS when synchronising. The ***Tool Target*** and ***Tool SETUP*** configuration can also be sent from TDS.

When connected, the USB icon  will appear on the bottom left of the display.

## Wireless Interface


The NorTronic® can be ***connected*** to a ***PC*** with ***TDS*** installed using an additional ***USB Wireless Adapter***.

***Test Results*** saved on the NorTronic® (to *the* ***Data Store***) will be copied to TDS when synchronising. The ***Tool Target*** and ***Tool SETUP*** configuration can also be sent to the NorTronic® Tool from TDS.

There are 2 USB Wireless Adapters available:

- 868 MHz (part # 43508) for the UK & Europe
- 915 MHz (part # 43509) for the USA, Canada, Australia & New Zealand.

When connected, the Wireless icon will appear on the bottom left of the display. The Tool can now be synchronised with TDS.

**NOTE: Only *NorTronic®* tools fitted with the *matching Transceiver* will work the *868* or *915 MHz* USB *Wireless Adapters*.**

**The *Wireless Interface* must be *Enabled in SETUP* with the correct *868/915 MHz* frequency (see page 20 for more information).**

***Multiple Tools* must be set up with individual *Node* numbers (see page 20 for more information).**

## Low Battery

The LOW BATTERY icon will be shown when there is approximately 20 minutes of operational life left in the NorTronic®.

**NOTE: This icon will *overwrite* the *Wireless* or *USB* icons (but the NorTronic® will remain connected).**

## Flat Battery

The Flat Battery icon will be shown for approximately 30 seconds before shutting down. Further button presses will not wake up the tool. The batteries must be removed and re-charged or replaced.

**NOTE: This icon will *overwrite* the *Wireless* or *USB* icons (but the NorTronic® will remain connected).**

## Torque CRS

The **Torque CRS** (centres) value only needs to be changed if the end fitting has been changed. This setting ensures the NorTronic® ***displays*** the ***correct Torque*** *when fitting a* ***non standard spanner end fitting***: - i.e. with a 100mm ***Torque CRS***.

The ***icon*** will be shown in the ***top left*** hand corner of the ***Measure*** display if the ***Torque CRS*** value has been ***changed*** from the ***default value***.

## Exit Measure Display (Options Menu)

Press to exit Measure. The Options Menu (shown below) is displayed.


Press or to change highlighted option.

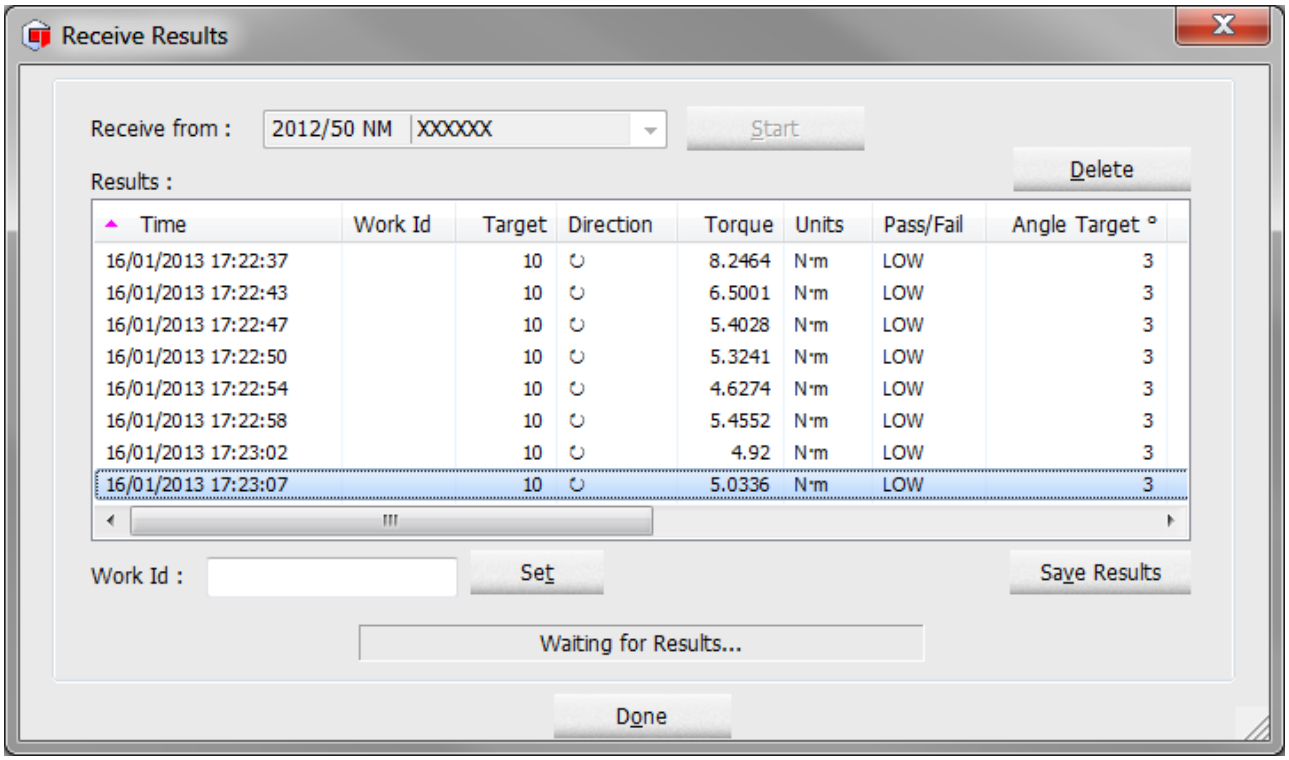
Press to confirm.

Press to enter ***Measure***.

# TDS Receive Results Interface

***Test Results*** can be ***sent*** as they happen (i.e. in ***real time***) from the NorTronic® Tool to ***TDS*** via the ***Receive Results*** window using the ***USB*** or ***Wireless*** interfaces.

Only ***one*** tool can be interfaced at any ***one time***.




If the ***USB*** interface is used, the USB ***icon*** will appear on the ***bottom left*** of the display.

If the ***Wireless*** interface is used, the Wireless ***icon*** will ***change*** from  to  when the tool is connected to ***Receive Results*** in ***TDS***.


After a ***peak*** has been detected, press ZERO to ***send*** both the peak ***Torque & Angle*** values to ***Receive Results*** in ***TDS***. If the tool is configured for ***Auto Reset***, the readings are automatically sent during the ***Hold Time***.

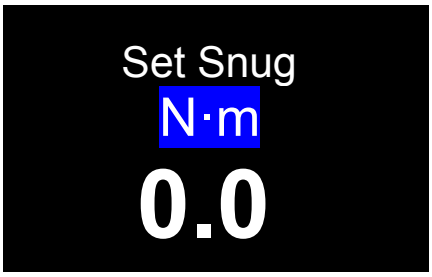
The ***save*** button is ***inactive*** (i.e. ***Test Results*** are ***NOT*** saved on the NorTronic®). When the button is pressed, ***Test Results*** will be sent via ***USB*** or ***wireless*** to the ***Receive Results*** window on ***TDS***.

If a ***Target*** is in use, press the UP button to ***delete*** the ***last reading*** that has been ***output*** to ***"Receive Results"*** in ***TDS***.

# TOOL TARGET - SETTING

## Set Target Units

**NOTE: Set Snug will be shown as Set Target if *Angle* is *Not Enabled*.**




Press ▲ or ▼ to change.

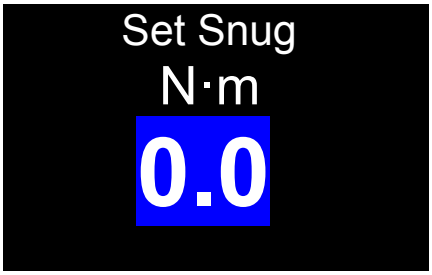
Press ZERO to confirm and go to the ***Set Snug Torque***.

The ☒ button is not functional.

- Only enabled ***Torque Units*** will be shown (see page 18).

## Set Snug Torque

**NOTE: This screen will not be shown if *Angle* is *Not Enabled* in *Tool - SETUP*.**




Press ▲ or ▼ to change.

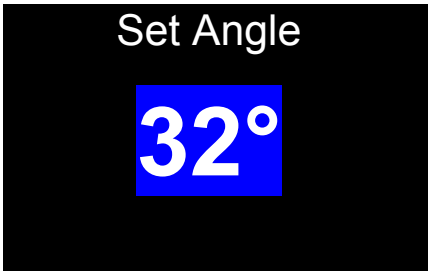
Press ZERO to confirm and go to the ***Set Angle Target***.

The ☒ button is not functional.

- Minimum = ***0***, Maximum = ***100%*** of NorTronic® Torque capacity.

## Set Angle Target

**NOTE: This screen will not be shown if *Angle* is *Not Enabled* in *SETUP*.**




Press ▲ or ▼ to change.

Press ZERO to confirm and go to ***Set Torque Target***.

The ☒ button is not functional.

- Minimum = ***0***, Maximum = ***999.***

## Set Torque Target


Press ▲ or ▼ to change.

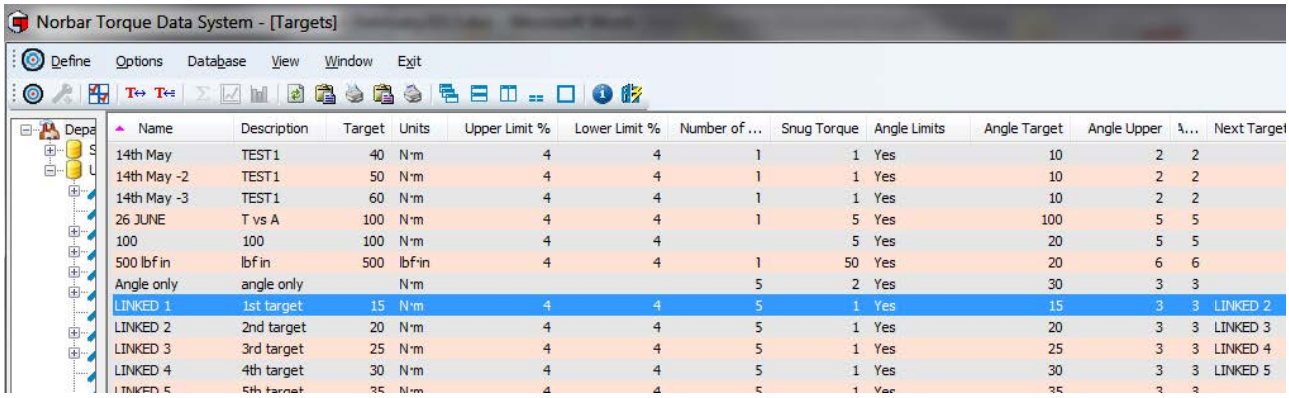
Press ZERO to confirm and go to ***Options Menu***.

The ☒ button is not functional.

- Minimum = ***0***, Maximum = ***NorTronic® Torque capacity***.
- If the ***Torque Target*** value is set to ***0***, the Target is ***disabled***, if it is set to a value ***above*** the ***Active From*** setting, the ***Target*** is ***enabled.***

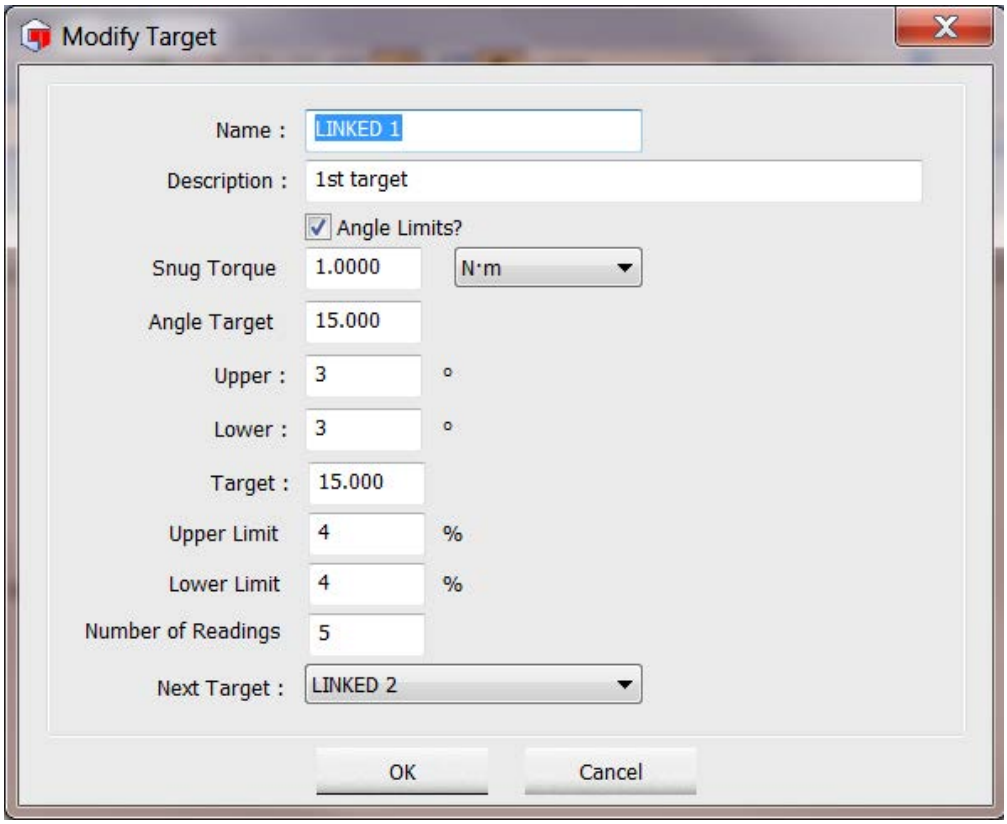
# Linked Targets

***Linked Targets*** can only be ***set up*** in ***TDS***.




| Name | Description | Target | Units | Upper Limit % | Lower Limit % | Number of ... | Snug Torque | Angle Limits | Angle Target | Angle Upper | ... | Next Target |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 14th May | TEST1 | 40 | N·m | 4 | 4 | 1 | 1 | Yes | 10 | 2 | 2 | |
| 14th May -2 | TEST1 | 50 | N·m | 4 | 4 | 1 | 1 | Yes | 10 | 2 | 2 | |
| 14th May -3 | TEST1 | 60 | N·m | 4 | 4 | 1 | 1 | Yes | 10 | 2 | 2 | |
| 26 JUNE | T vs A | 100 | N·m | 4 | 4 | 1 | 5 | Yes | 100 | 5 | 5 | |
| 100 | 100 | 100 | N·m | 4 | 4 | | 5 | Yes | 20 | 5 | 5 | |
| 500 lbf in | lbf in | 500 | lbf·in | 4 | 4 | 1 | 50 | Yes | 20 | 6 | 6 | |
| Angle only | angle only | | N·m | | | 5 | 2 | Yes | 30 | 3 | 3 | |
| LINKED 1 | 1st target | 15 | N·m | 4 | 4 | 5 | 1 | Yes | 15 | 3 | 3 | LINKED 2 |
| LINKED 2 | 2nd target | 20 | N·m | 4 | 4 | 5 | 1 | Yes | 20 | 3 | 3 | LINKED 3 |
| LINKED 3 | 3rd target | 25 | N·m | 4 | 4 | 5 | 1 | Yes | 25 | 3 | 3 | LINKED 4 |
| LINKED 4 | 4th target | 30 | N·m | 4 | 4 | 5 | 1 | Yes | 30 | 3 | 3 | LINKED 5 |

The ***# of Tests*** & ***Next Target*** can only be specified in the ***TDS Target***.



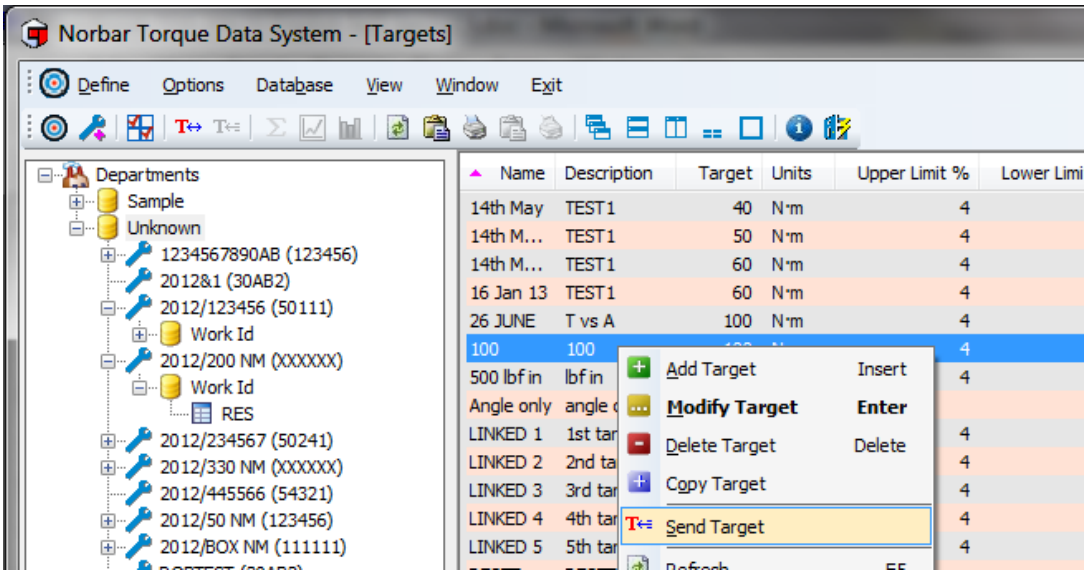

***Linked Targets*** can be sent via the ***USB*** or ***Wireless*** interface to the ***Tool.***

If after the ***final Target*** has completed (and No further Target has been specified), the ***Target*** becomes ***not enabled,*** i.e. ***No Target*** is shown on the ***Tool.***

To carry on, link the ***last Target*** to the ***first***.

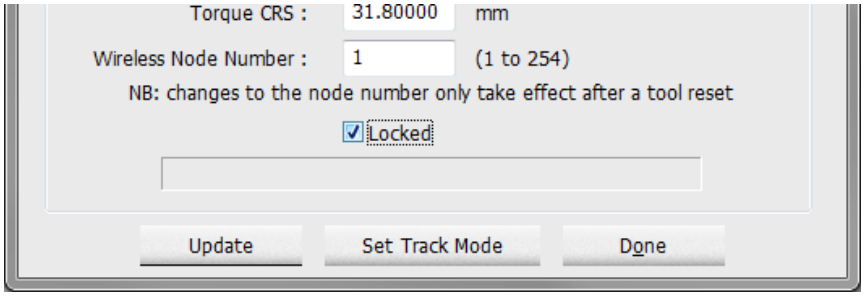
# TDS Target interface

The NorTronic® has ***1 active Target. Multiple Targets*** can be set up in ***TDS*** and individually ***downloaded*** to ***NorTronic®***.




The ***Target*** can be changed on the tool unless the ***"Locked"*** option has been ***ticked*** in ***"Set Tool Options"*** and ***downloaded*** to the NorTronic® by clicking the ***Update*** button on ***"Set Tool Options"*** as shown below. (See page 16 for more information on ***"Set Tool Options"***)

The Locked option ***disables*** the NorTronic® user from altering the ***Target SETTING*** and ***Tool SETUP*** on the NorTronic®.

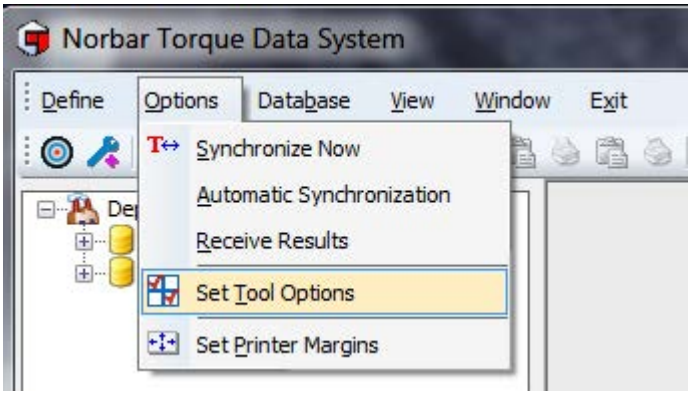


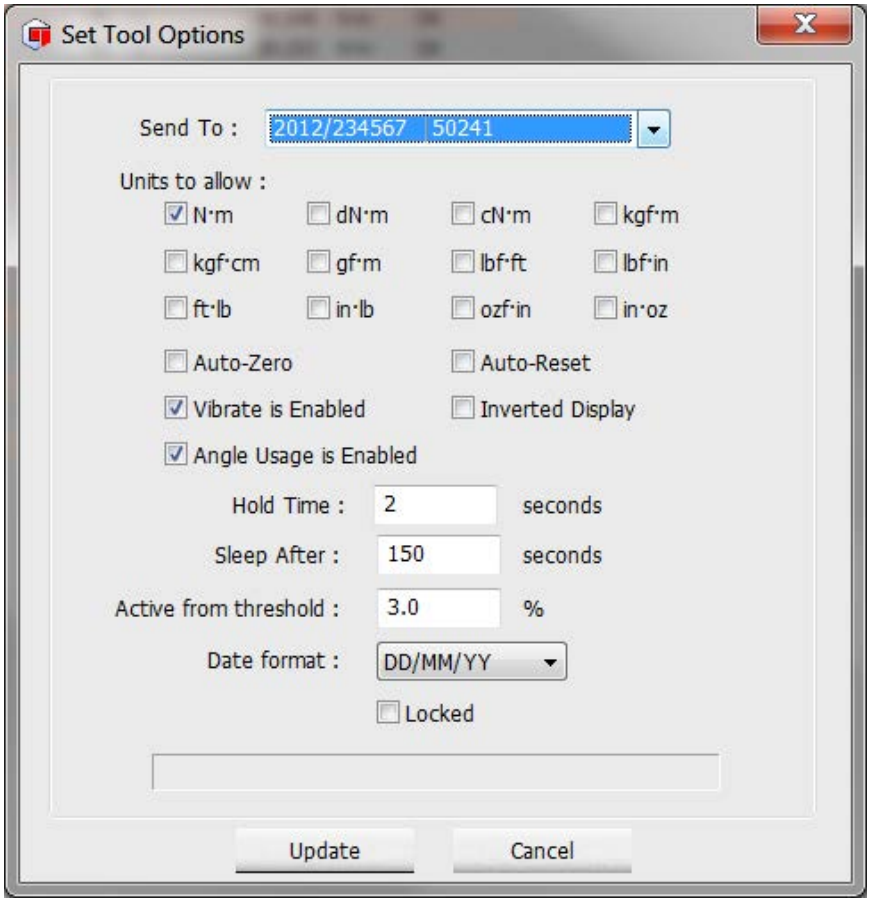
# TOOL - SETUP

All NorTronic® ***Tool - SETUP*** can be configured in ***TDS*** and ***downloaded*** to the ***tool.***

NorTronic® ***Tool - SETUP*** includes: ***Limits, Units, Time & Date, Sleep, Angle Display, Auto Zero, Active From, Vibrate, Wireless, Auto Reset, Display and Torque Centres.***

**NOTE:** ***Tool - SETUP*** **is active unless the** ***"Lock"*** **option has been** ***ticked*** **and** ***downloaded*** **to NorTronic® via the** ***TDS software*****. This** ***disables*** **the NorTronic® user from** ***altering*** **the** ***Tool SETUP*** **or** ***Target SETTING*****.**



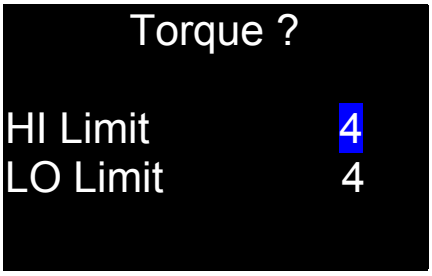

Press  or  to highlight required setting.

Press  to confirm the setting to change.

Press  to exit to the ***Options Menu***.


**NOTE:** **Tool - SETUP is a scrolling screen. Press the DOWN button with *SLEEP* highlighted to go to *ANGLE* etc.** 


## Torque Limits



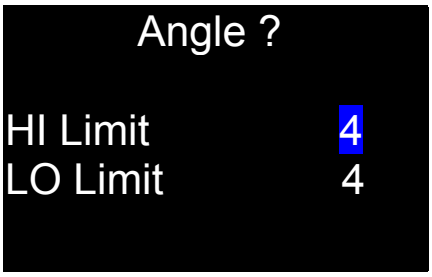

Press  or  to change highlighted value.

Press  to confirm and go to ***LO Limit***.

Press  to exit to ***SETUP*** (saving changes).

- % of Torque Target setting: Minimum = ***0***, Maximum = ***20***. Default = ***4.***

## Angle Limits



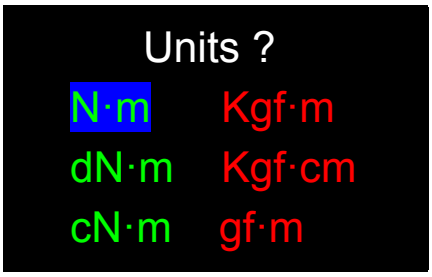

Press  or  to change highlighted value.

Press  to confirm and go to ***LO Limit***.

Press  to exit to ***SETUP*** (saving changes).

- Target + HI Limit, Target - LO Limit in degrees (°).
- Minimum = ***0***, Maximum = ***20***. Default = ***4***.

## Units




Press or to highlight unit.

Press to enable (green) or disable (red).

Press to confirm and exit to ***SETUP*** (saving changes).

- Press the DOWN button with ***'gf·m'*** highlighted to go to ***2nd units screen*** (shown below).

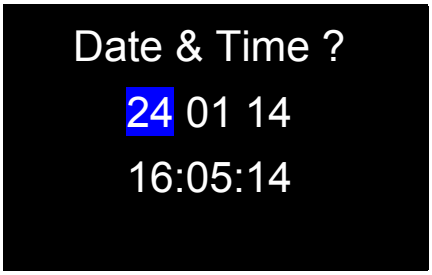

Press or to highlight unit.

Press to enable (green) or disable (red).

Press to confirm and exit to ***SETUP*** (saving changes).

- Minimum Enabled = ***1***, Maximum Enabled = ***All (12)***. Default = ***All (12).***

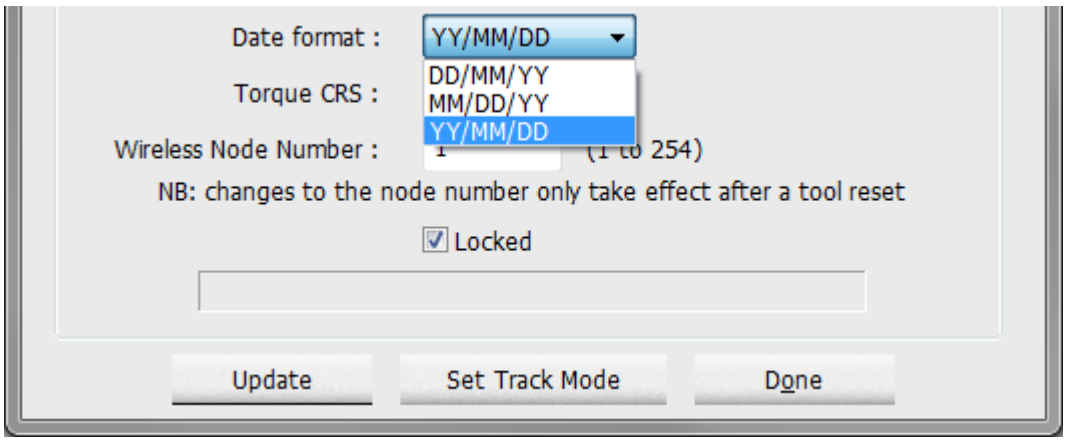
## Date & Time




Press or to change highlighted value.

Press or to confirm and step onto next change ***(month, year, hours, minutes & seconds)***.

- 24 hour clock format. The ***Time & Date*** will always be checked and ***updated*** when ***synchronising*** to ***TDS***.
- Date format can be ***changed*** in ***TDS Set Tool Options, DD/MM/YY, MM/DD/YY or YY/MM/DD.***



## Sleep

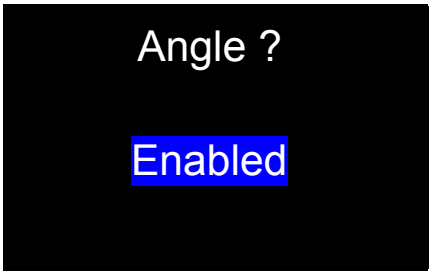
The NorTronic® will go to ***Sleep*** if there has been ***No activity*** for the time set in ***'Sleep After'***. During sleep, none of the NorTronic® functions operate.


Press ▲ or ▼ to change value.

Press ZERO or ☒ to confirm and exit to ***SETUP***.

- Minimum = ***10***, Maximum = ***300***. Default = ***120***
- Set the time to ***Never*** (below 10) to disable ***SLEEP***.

## Angle

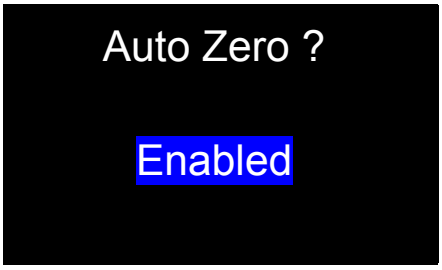



Press ▲ or ▼ to change setting.

Press ZERO or ☒ to confirm and exit to ***SETUP***.

- Enabled = ***Display Torque & Angle.***
- Not Enabled = ***Display Torque only***.

## Auto Zero

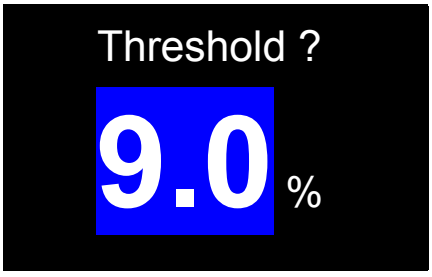



Press ▲ or ▼ to change setting.

Press ZERO or ☒ to confirm and exit to ***SETUP***.

- Enabled = both the ***TORQUE & ANGLE*** readings will ***Auto Zero*** on ***power up*** or ***resume from sleep***.
- Not Enabled = the user must ***press*** the ZERO button to ***reset*** the ***Torque display*** to the current Torque input and ***Angle Display*** to ***"0"***.

## Active From

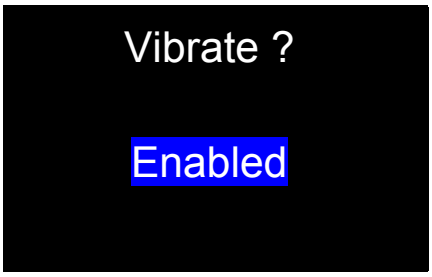



Press ▲ or ▼ to change value.

Press ZERO or ☒ to confirm and exit to ***SETUP***.

- Minimum = ***1.8 %***, Maximum = ***100.0 %.*** Default = ***9.0 %***

## Vibrate

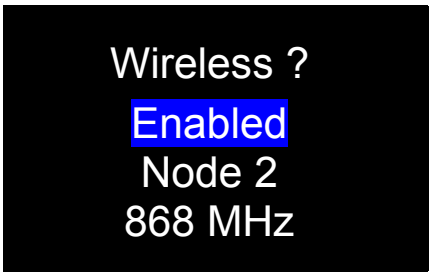



Press or to change setting.

Press or to confirm and exit to ***SETUP***.

- Enabled = Tool will ***Vibrate*** when ***Torque Target*** reached.
- Not Enabled = Tool ***does not vibrate*** when ***Torque Target*** reached.

## Wireless

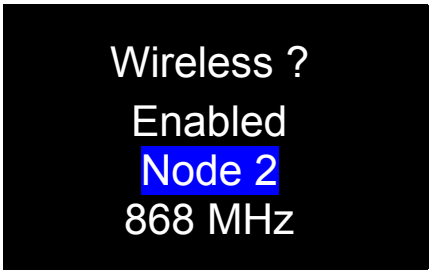



Press or to change setting.

Press to confirm and go to ***Node X***.

Press to confirm and exit to ***SETUP*** (saving changes).

- Enabled = ***Wireless*** communication is ***Active***.
- Not Enabled = ***Wireless*** communication is ***Not Active***.



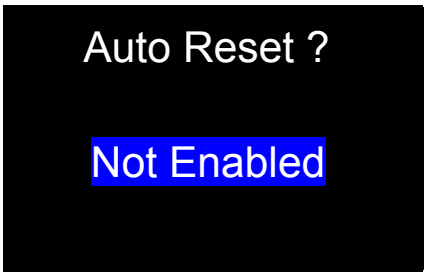

Press or to change value.

Press to confirm and go to ***868/915 MHz***.

Press to confirm and exit to ***SETUP*** (saving changes).

- A ***Node*** number is an individual ***identification*** of a tool on the ***wireless network***. If ***multiple*** NorTronic® tools are ***communicating*** with the same ***USB wireless adapter*** (at the same time), they must each have individual node numbers.
- Minimum = ***1***, Maximum = ***254***. Default = ***2***.
- An ***868 MHz or 915 MHz Transceiver*** is fitted inside the tool. This is ***Country*** specific and needs to ***Match*** the operational frequency of your ***USB Wireless Adapter***.

## Auto Reset (Hold Time ?)



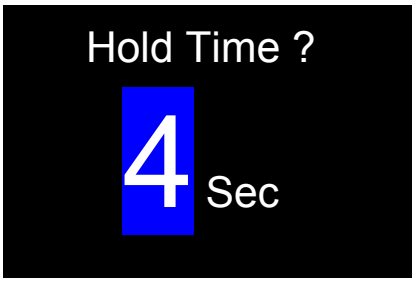

Press ▲ or ▼ to change setting.

If Enabled, pressing ZERO or ☒ will take the user to '***SETUP Hold Time ?***'.

If Not enabled the user will return to ***SETUP***.

- Enabled = ***Hold*** the torque (and angle) values the length of the ***Hold Time*** setting after the torque has been removed and then reset the display to ***0***.
- Not Enabled = ***Hold*** the torque (and angle) values until the ZERO button has been ***pressed*** and then reset the display to ***0***. ZERO

## Hold Time ?

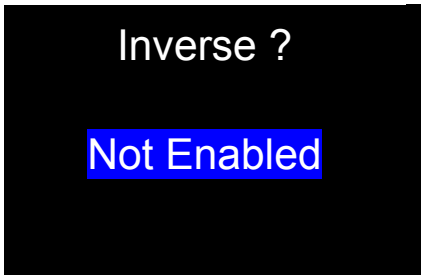



Press ▲ or ▼ to change value.

Press ZERO or ☒ to confirm and go to ***SETUP*** (saving changes).

- Minimum = ***1***, Maximum = ***10***. Default = ***4***

## Display




Press ▲ or ▼ to change value.

Press ZERO or ☒ to confirm and go to ***SETUP*** (saving changes).

- Enabled = ***Black*** digits on ***White*** background, Not Enabled = ***White*** digits on ***Black*** background, when in the ***Measure display***.

**WARNING:** ***WHITE*** **DIGITS ON** ***BLACK*** **BACKGROUND WILL** ***REDUCE*** **THE OPERATIONAL BATTERY LIFE BY APPROXIMATELY** ***65%.***

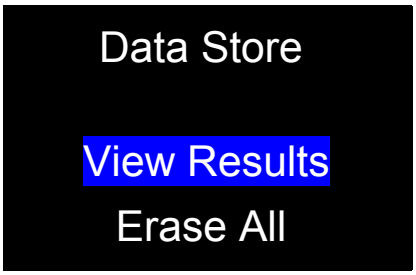
## Torque CRS


Press ▲ or ▼ to change value.

Press ZERO or ☒ to confirm and go to ***SETUP*** (saving changes).

- Minimum = ***0.0***, Maximum = ***999.0***. Default: - NorTronic® 50 & 200 = ***31.8 mm***, NorTronic® 330 = ***35.0 mm***.

# DATA STORE




Press  or  to change highlighted option.

Press  to confirm.

Press  to go to ***SETUP***.

## View Results


Press the  or  buttons to scroll through the ***Saved Test Results*** screen(s).

Press the  button on to exit back to ***Data Store***.


## Erase All


Press  or  to change highlighted option.

Press  to confirm.

Press  to go to ***SETUP***.

**WARNING: SAVED TEST RESULTS *CANNOT* BE RETRIEVED FROM THE *TOOL* ONCE THEY HAVE BEEN *DELETED*.**

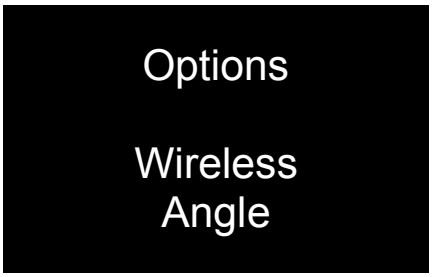
# ABOUT

Each of the 3 screens (starting with serial #), is displayed for 2 seconds before returning to SETUP.

Tool Identification


Version #


Hardware options fitted.



# SPECIFICATIONS

| Model | Resolution | Zero Suppression | Weight | | Dimensions (mm) | | |
|---|---|---|---|---|---|---|---|
| | | | Kg | lb | H | W | L |
| NorTronic® 50 | 0.01 N·m | ± 1 L.S.D (0.01 N·m) | 1.20 | 2.63 | 41 | 41 | 468 |
| NorTronic® 200 | 0.1 N·m | ± 1 L.S.D (0.1 N·m) | 1.45 | 3.20 | 41 | 41 | 593 |
| NorTronic® 330 | 0.1 N·m | ± 1 L.S.D (0.1 N·m) | 1.89 | 4.17 | 41 | 41 | 808 |

| | |
|---|---|
| Display: | 2 x 0.95” OLED colour displays. With update rate of five readings per second (5Hz). |
| Torque unit conversions: | To ‘BS 350:2004 Conversion factors for units’. |
| Units of measurement: | N·m, dN·m, cN·m, Kgf·m, Kgf·cm, gf·m, lbf·ft, lbf·in, ozf·in, ft·lb, in·lb & in·oz. |
| Date / Time: | Date format DD/MM/YY / MM/DD/YY or YY/MM/DD (set up via TDS), Time format HH:MM:SS (24 Hour clock). |
| Frequency response: | 860 Hz. |
| Torque accuracy: | +/-2% of reading from 10% - 19%.<br>+/-1% of reading from 20% - 100%. |
| Angle display (CW & CCW): | 1° Resolution, Maximum angle 999 degrees. |
| Angle accuracy: | CW = 1% +/-1 digit.<br>CCW = 2% +/-1 digit. |
| Operating temperature range: | +5°C to +40°C. |
| Storage temperature range: | -20°C to +70°C. Batteries -10°C to +35°C |
| Maximum operating humidity: | 85% Relative Humidity @30°C. Batteries 50% |
| Operational life from fully charged: | 34 hours continuous, 136 hours with a 25% duty ratio (17 x 8 hour shift). *Dependant on display settings.* |
| Power consumption: | 130 mW – maximum. |
| Batteries: | AA, 2500 mAh, 1.2 volt NiMH (Nickel metal Hydride). |
| Coin cell: | Renata 36 mAh (CR1220). |
| Materials / finish: | Handle: Powder coated aluminium, Body tube: Xylan coated steel, Lever arm: Nickel plated steel, Ratchet head: Chrome plated steel Battery cap: polished stainless steel |
| Environmental protection: | IP44. |
| Electromagnetic Compatibility: (EMC) Directive | In conformance with EN 61326:2006. |
| USB: | 2.0 Device (5 pin mini). |
| Wireless Transceiver: | 868 MHz conforms to the following ETSI standards: -<br>EN 300 220-2 V2.3.1 (2001–02)<br>EN 301 489-3 V1.4.1 (2002–08)<br><br>915 MHz<br>Contains FCC ID: OA3MRF89XAM9A<br>This device complies with Part 15 of the FCC Rules, subpart C.<br>Contains transmitter module IC: 7693A-89XAM9A. |
| Wireless Nodes: | 1 – 254. |
| Mechanical overload: | NorTronic® 50, 100% of Torque Capacity<br>NorTronic® 200, 50% of Torque Capacity<br>NorTronic® 330, 50% of Torque Capacity |

**NOTE: Due to continuous improvement all specifications are subject to change without prior notice.**

# MAINTENANCE

## NorTronic® Calibration

Your NorTronic® has been supplied with a certificate of calibration. To maintain the specified accuracy it is recommended that the NorTronic® is recalibrated at least once per year. Re-calibration should be carried out at Norbar or by a Norbar approved agent, where all the facilities to ensure the instrument is functioning at maximum accuracy are available.

**IMPORTANT: DO NOT REMOVE SIDE PANELS; THERE ARE NO CALIBRATION SETTINGS INSIDE.**

## Battery Replacement

There are 2 types of batteries in this product. 3 standard AA batteries for powering the NorTronic® (which can be removed by the user and recharged when necessary) and a coin cell to power the clock.

The coin cell should only be replaced by Norbar or a Norbar approved agent.

## Repair

Repair should be carried out at Norbar or by a Norbar approved agent, where all the facilities to ensure the NorTronic® is functioning at maximum accuracy are available.

## Cleaning

Do not use abrasives or solvent based cleaners.

## Product Disposal

This symbol on the product indicates that it must not be disposed of in the general waste.

Please dispose of according to your local recycling laws and regulations.

Contact your distributor or see the Norbar web site (www.norbar.com) for further recycling information.

## Battery Disposal

This product contains 2 types of Batteries. Only dispose of batteries at end of product life.

Batteries contain substances that can have a negative effect on the environment and human health.

The crossed-out wheeled bin means that batteries must NOT be disposed of in the general waste.
All batteries must be disposed of at a local waste battery collection point.

The batteries do NOT contain mercury (Hg), cadmium (Cd) or lead (Pb). If the battery substances exceed the legal limits the battery would be marked with Pb, Cd or Hg.

# TROUBLE SHOOTING

Tips are located within the manual to help with troubleshooting.
Common problems are listed below:

| Problem | Likely Solutions |
|---|---|
| NorTronic® displays are blank. | Remove and recharge AA batteries or replace batteries. |
| NorTronic® only powers up for a short time. | Remove and recharge AA batteries or replace batteries. |
| Torque will not zero and displays **"**Err=1**".** | Torque reading must be within ***± 3%*** of the wrench capacity. |
| Display shows "Err=2**".** | Torque over range – return to Norbar. |
| Display shows "Err=3**".** | Hardware error – return to Norbar. |
| Display shows "Err=4**".** | Hardware error – return to Norbar. |
| Date & Time not remembered. | The coin cell battery has failed. Return to Norbar. |
| Cannot zero NorTronic®. | Tool has possibly been overstrained. Return to Norbar. |
| Measurement does not function correctly. | Ensure the 'Active From' setting is not too low or too high. |
| NorTronic® locks up. | Remove batteries, then re-insert to reset configuration. |
| NorTronic® continuously triggers. | Check that ZERO of the NorTronic® has been set with no torque applied i.e. the weight of the tool.<br>Change the Active From setting to a larger value. |
| Frequency of beep does not get faster when approaching a Target. | Apply the torque slower. |

# GLOSSARY OF TERMS

| Word or Term | Meaning |
|---|---|
| # | Number |
| Active From | Value from which the memory modes operate. |
| Capacity | NorTronic® full scale. |
| CRS | Centres. |
| Frequency Response | Frequency value below which signals are passed. |
| Hold Time | The length of time a reading is displayed until automatically reset. |
| Hz | Hertz, unit of frequency. |
| L.S.D. | Least Significant Digit. |
| mAh | milli ampere hour; Rate of charge/discharge of a battery. |
| PC | Personal Computer. |
| Sleep After | The time after, when not used, the NorTronic® goes to sleep; this will save battery power. |
| Snug Torque | Torque value that must be reached before measuring angle. |
| Spanner End Fitting | Optional extra fitted in place of the ratchet. |
| Target | Torque or Angle value required. Each Target has an Upper Limit & a Lower Limit. |
| TDS | Torque Data System – Software included for PC use. |
| Tool | A reference to the tool being used. |
| Transceiver | Internal wireless module to enable data to be transmitted / received by the NorTronic®. |
| USB | Universal Serial Bus. |
| Work Id | Work identification - the reference to the task, application or job e.g.: a bolted flange, engine cylinder head, vehicle wheel nuts, etc. |
| Zero Suppression | Value of torque that has to be achieved for the NorTronic® not to display zero. |