

# OPERATOR'S MANUAL



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## NORTRONIC®





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# 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	3/8"	868 MHz
43501	50 N·m	1/2"	868 MHz
43502	200 N·m	1/2"	868 MHz
43503	330 N·m	1/2"	868 MHz
43504	50 N·m	3/8"	915 MHz
43505	50 N·m	1/2"	915 MHz
43506	200 N·m	1/2"	915 MHz
43507	330 N·m	1/2"	915 MHz

NorTronic® models 43500, 43501, 43502 & 43503 use an 868 MHz wireless frequency; this is designed for use in Europe.

NorTronic® models 43504, 43505, 43506 & 43507 use a 915 MHz wireless frequency; this is designed for use in USA, Canada, Australia and New Zealand.

For use outside the above areas, disable wireless feature until regulatory approval is obtained.

## 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 2.XX	2.0.XX	-

**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 16 mm 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 2,400 (date & time stamped) reading memory store.
- 5 user buttons.
- Operational from three AA internal rechargeable / non-rechargeable batteries.
- Up to 15 linked (or non-linked) targets can be on the tool at any one time.
- 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.
- Directly display and save the output torque of a HT (HandTorque®) gearbox when used in conjunction with a NorTronic®.
- Produce, save, view and print real time torque & angle graphs in conjunction with TDS.
- View and print reports for results in conjunction with TDS.
- 4 target modes - Torque Target only, Snug Torque followed by Angle Target, Snug Torque followed by Angle Target + final Torque Target or Audit Torque Target.
- Improved battery life when sleeping (batteries do not need to be removed for storage).
- ASCII mode for interfacing to third party control systems.

## BEFORE USE

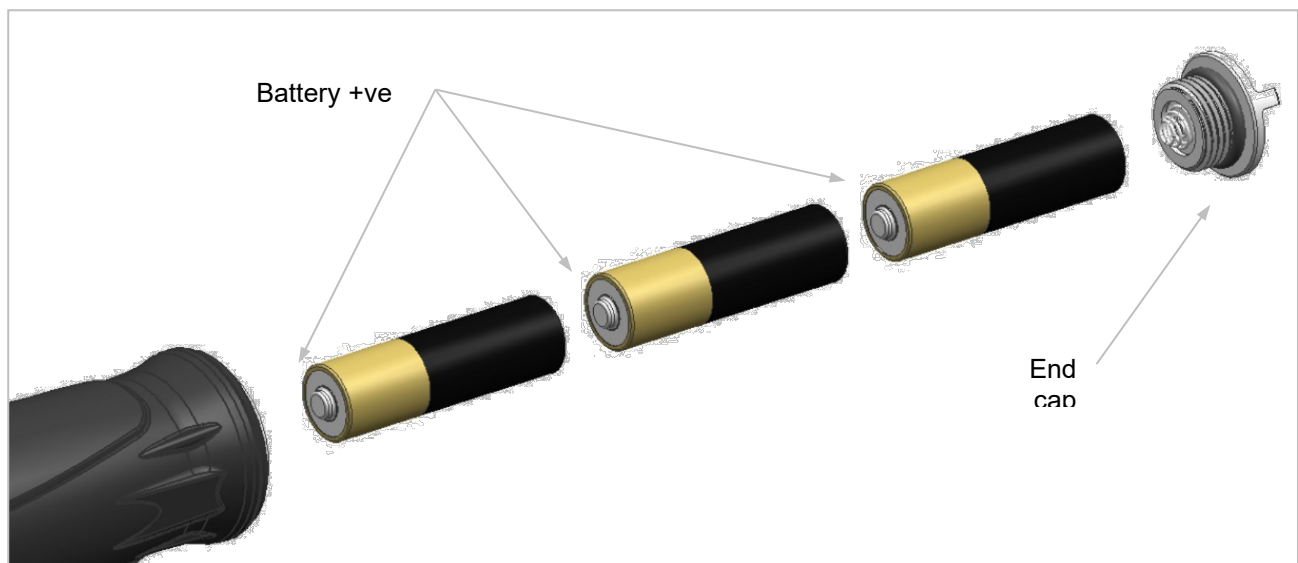
### Preparation

**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 16 mm spigot. Should you wish to change to a different spanner end fitting, depress the plunger on the ratchet head and pull to release.



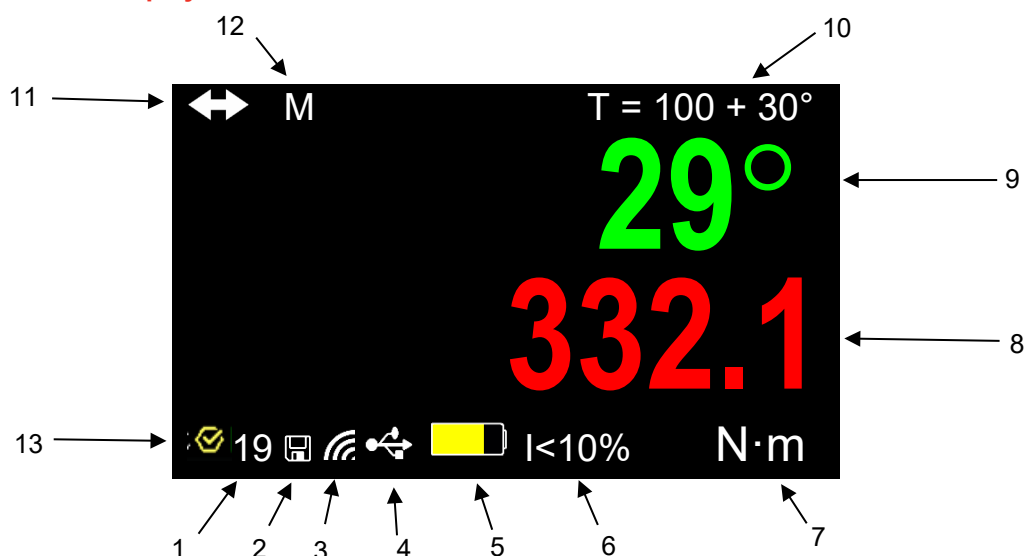
## BUTTON FUNCTIONS

Throughout set up and operation, the buttons perform the following functions:

Button	Function	
	Operation	SET UP
 	Change target	Scroll through options or change a selected value. When <i>changing</i> a value, <i>hold</i> the <i>button down</i> for a <i>faster rate</i> of change.
	Zero Torque & Angle display if below the <i>Active From</i> threshold. Cancel the peak reading if above the <i>Active From</i> 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	Target less than 10% of tool capacity (ISO6789:2017)
7	Current torque units
8	Torque reading
9	Angle reading
10	Current Snug Torque & Angle Target
11	Torque CRS has been changed from default value
12	Multiplier in use
13	Audit Target

# OPERATION

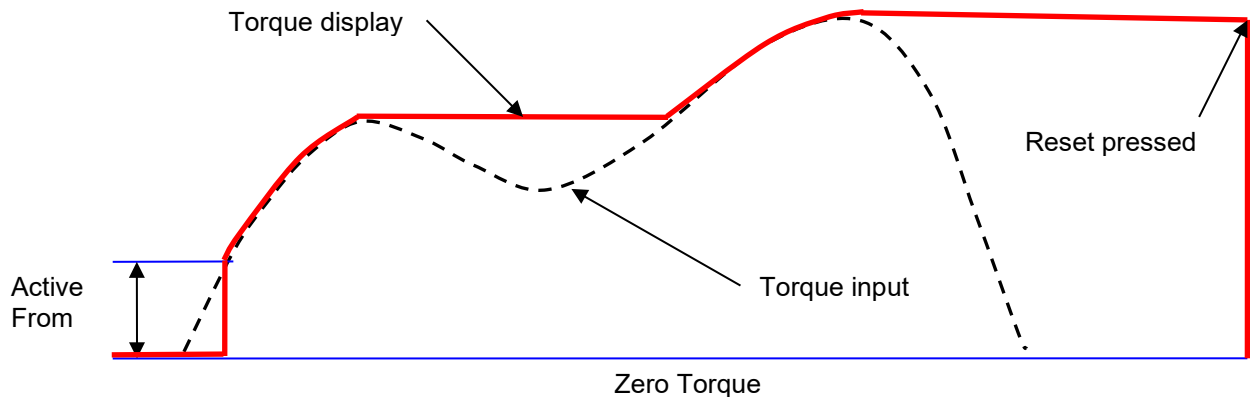
## Start Up

The NorTronic® does not have a power on/off switch. The NorTronic® is always powered up or in a deep sleep mode.

Upon fitting the batteries and end cap, press 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 20) and then enters into peak mode for torque and 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 14) 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 and 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 and angle readings to the Data Store on the NorTronic® tool.



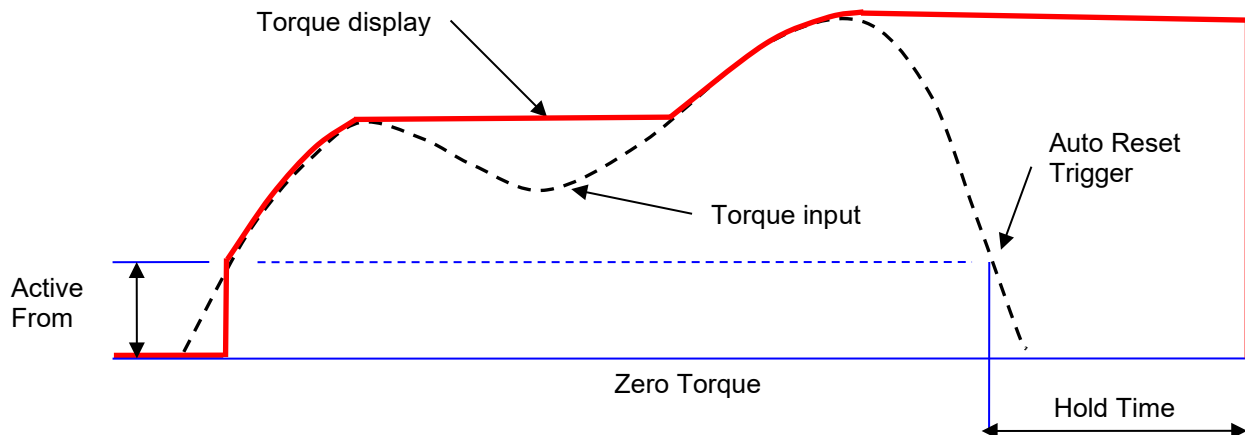
If a **Target** is in use and a reading has been saved, press the UP button (and hold in for 2 seconds) to **delete** the **last reading** that has been **saved** via the **Delete Last Result?** confirmation screen.



Delete  
Last Result ?

Y / N

## 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 20) 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 **Set Target (Snug Torque)** is set, the angle display is shown as “0” until the torque reaches the **Set Target (Snug Torque)** value (see page 14) 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 and angle readings continuously flash for the duration of the **Hold Time** (See page 22). 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 and a reading has been saved, press the UP button (and hold in for 2 seconds) to **delete** the **last reading** that has been **saved** via the **Delete Last Result?** confirmation screen.



Delete  
Last Result ?

Y / **N**

## Tool Target

Having already set a **Tool Target** (See page 14 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 **SET UP – Vibrate**, see page 21 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.

## Target(s) – Change

Press UP or DOWN   to change displayed **Target**. The UP button has a different function if a **Target** is active (See pages 8, 9 & 13).

## 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 set up – Sleep** (see page 20 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)

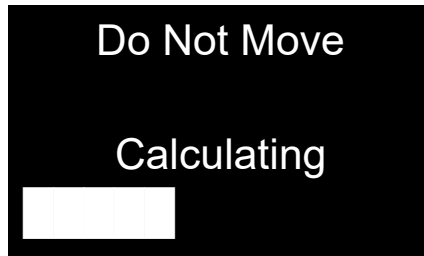
To wake the NorTronic®, press any button. After the display of the Norbar logo the NorTronic® will perform a gyroscope drift calibration. The gyroscope drift calculation will also be done if the temperature changes by more than 3 degrees. This is necessary to ensure the angle measurement is accurate.



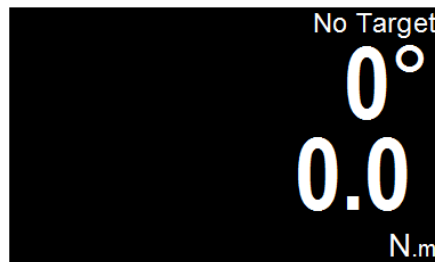
5 second countdown to the gyroscope drift calculation.



**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 gyroscope 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 SET UP** configuration can also be sent from TDS.

When plugged in, the USB icon  will appear on the bottom left of the display. When connected to TDS, the icon will go green. 

## 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 SET UP** 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 868/915 MHz USB Wireless Adapters.

The Wireless Interface must be Enabled in SET UP with the correct 868/915 MHz frequency (see page 21 for more information).

Multiple Tools must be set up with individual Node numbers (see page 21 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 100 mm **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**.

## Multiplier

The **Multiplier** value only needs to be changed if a Norbar HT (HandTorque®) gearbox is being used in conjunction with the NorTronic®. This setting ensures the NorTronic® **displays** the **correct torque** for the output of the **Torque Multiplier**: - i.e. with a 100:1 **Ratio**.



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

**NOTE:** This is a Torque only mode, so Angle measurement cannot be displayed.

## Exit Measure Display (Options Menu)

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



Press  or  to change highlighted option.

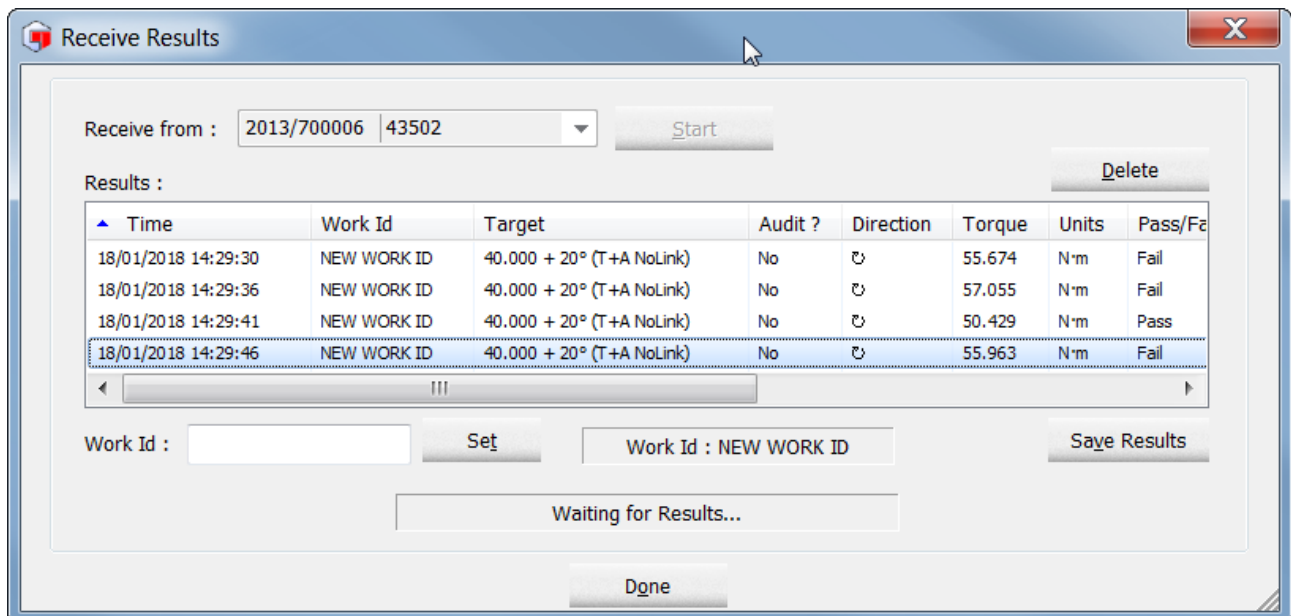
Press  to confirm.

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 and a reading has been saved, press the UP button (and hold in for 2 seconds) to **delete** the **last reading** that has been **output** to **"Receive Results"** in **TDS**.


## TOOL TARGET - SETTING

### Set Target



Press  or  to change.

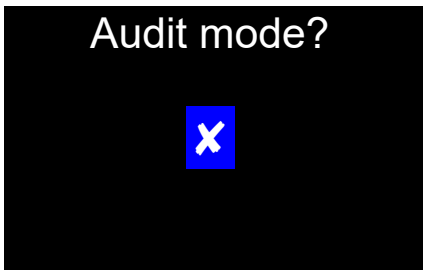
Press  to confirm and go to the [Audit mode?](#)



The  button is not functional.


- Minimum = **0 (No Target)**, Maximum = **100%** of NorTronic® torque capacity.


### Audit Mode

**NOTE:** This screen will only be shown if Angle is Enabled '✓' in Set up and Target is larger than 'Active from' threshold.



Press  or  to enable '✓' or disable 'X'.

Press  to confirm and go to either [Set Angle Limit](#) or [Set Angle](#).

The  button is not functional.


- '✓' go to [Set Angle Limit](#), 'X' go to [Set Angle](#).


### Set Angle Limit

**NOTE:** This screen will only be shown if '✓' was selected on the [Audit mode?](#) screen.



Press  or  to change value.

Press  to confirm and go to [Options Menu](#).

The  button is not functional.


- Minimum = **1**, Maximum = **720**.


### Set Angle Target

**NOTE:** This screen will only be shown if 'X' was selected on the [Audit mode?](#) screen.



Press  or  to change.

Press  to confirm and go to [Set Torque Target](#).

The  button is not functional.

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





## Set Final Torque Target

**NOTE:** This screen will only be shown if Angle Target is larger than '0' on the 'Set Angle' screen.



Press  or  to change.

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

The  button is not functional.

- Minimum = **0 (No Final Torque Target)**, Maximum = **NorTronic® torque capacity**.
- If the **Final Target** value is set to **0**, the Final Target is **disabled (Torque + Angle Target)**, if it is set to a value **above** the **Torque Target** setting, the **Final Target** is **enabled (Torque + Angle (with Final Torque) Target)**.

## Linked Targets

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

Name	Description	Final/Audit Target	Units	Audit Mode	Upper Limit %	Lower Limit %	Number of Readings	Torque Tar...	Angle	Angle Tar...	Angle U...	Angle L...	Next Target
40 Nm		40	N·m	No	4	4	3		No				42 Nm
40 Nm + 10 deg			N·m	No	4	4	3	40	Yes	10	2	2	40 Nm + 12 deg
40 Nm + 10 deg (50 Nm)		50	N·m	No	4	4	3	40	Yes	10	3	3	40 Nm + 12 deg (50 Nm)
40 Nm + 12 deg			N·m	No	4	4	3	40	Yes	12	2	2	40 Nm + 14 deg
40 Nm + 12 deg (50 Nm)		50	N·m	No	4	4	3	40	Yes	12	3	3	40 Nm + 14 deg (50 Nm)
40 Nm + 14 deg			N·m	No	4	4	3	40	Yes	14	2	2	40 Nm + 16 deg
40 Nm + 14 deg (50 Nm)		50	N·m	No	4	4	3	40	Yes	14	3	3	40 Nm + 16 deg (50 Nm)
40 Nm + 16 deg			N·m	No	4	4	3	40	Yes	16	2	2	40 Nm + 18 deg
40 Nm + 16 deg (50 Nm)		50	N·m	No	4	4	3	40	Yes	16	3	3	40 Nm + 18 deg (50 Nm)
40 Nm + 18 deg			N·m	No	4	4	3	40	Yes	18	2	2	40 Nm + 10 deg (50 Nm)

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 last **Target** is **enabled**.

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

**Modify Target**

Name : 40 Nm + 10 deg (50 Nm)

Description :

Target Torque : 40.000 N·m

☒ Angle ? ☐ Audit Mode?

Angle Target : 10.000

Upper : 3 °

Lower : 3 °

Final Target : 50.000

Upper Limit : 4 %

Lower Limit : 4 %

Number of Readings : 3

Next Target : 40 Nm + 12 deg (50 Nm)

OK Cancel

## TDS Target Interface

The NorTronic® has up to **15 active Targets**. **Multiple Targets** can be set up in **TDS** and individually **downloaded** to **NorTronic®**.

Name	Final/Audit Target	Units	Audit Mode	Upper Limit %	L
40 Nm + 10 deg (50 Nm)	50	N·m	No	4	
40 Nm + 12 deg				4	
40 Nm + 12 deg (50 Nm)				4	
40 Nm + 14 deg				4	
40 Nm + 14 deg (50 Nm)				4	
40 Nm + 16 deg				4	
40 Nm + 16 deg (50 Nm)				4	
40 Nm + 18 deg				4	
40 Nm + 18 deg (50 Nm)				4	

+

 Add Target

...

 Modify Target

-

 Delete Target

+

 Duplicate Target

T

 Send Target(s)

Insert

Enter

Delete

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 17 for more information on **“Tool Setup”**).

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

Set Tool Options

Send To 2013/700006 43502

Tool Version :  
2.14

Tool Capacity :  
200 N.m

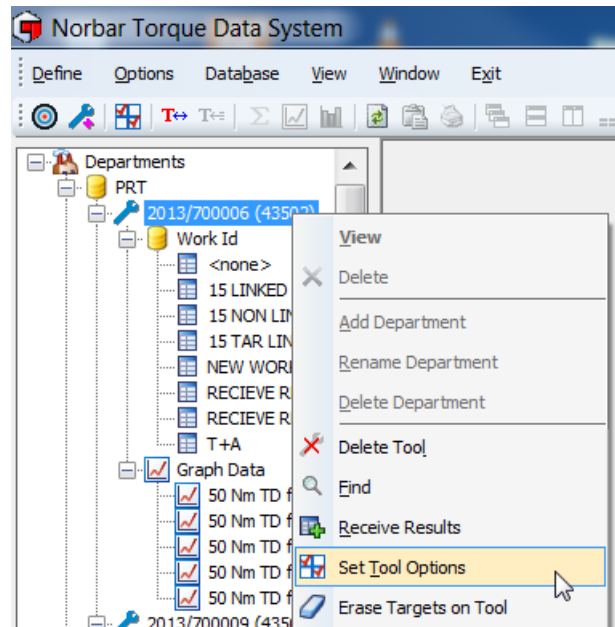
Last Cal Check Date :  
Never

Display Unit :  
☒ N·m ☐ dN·m ☐ cN·m ☐ kgf·m ☐ kgf·cm ☐ gf·m  
☐ lbf·ft ☐ lbf·in ☐ ft·lb ☐ in·lb ☐ ozf·in ☐ in·oz

Options :  
☒ Auto-Zero? ☐ Auto-Reset? ☒ Vibrate?  
☐ Inverse? ☒ Angle? ☒ Wireless?  
☒ Complete Screen? ☒ Warnings Screen? ☒ Locked

## TOOL – SET UP

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





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

**NOTE:** **Tool - set up** 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 set up or Target SETTING**.

LIMITS  
UNITS  
DATE / TIME  
SLEEP

Press  or  to highlight required setting.

Press  to confirm the setting to change.

Press  to exit to the *Options Menu*.

ANGLE  
AUTO ZERO  
ACTIVE FROM  
VIBRATE

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




WIRELESS  
AUTO RESET  
DISPLAY  
MULTIPLIER


COMPLETE  
WARNINGS  
TORQUE CRS

## Torque Limits

Torque ?  
HI Limit 4  
LO Limit 4

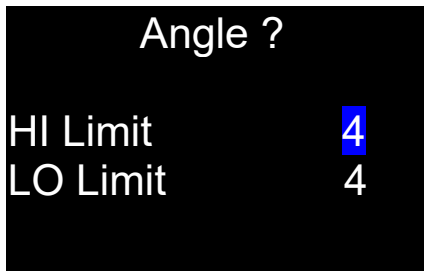
Press  or  to change highlighted value.

Press  to confirm and go to *LO Limit*.

Press  to exit to *set up* (saving changes).

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

## Angle Limits



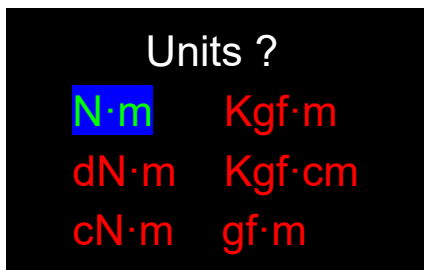
Press or to change highlighted value.

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

Press to exit to **set up** (saving changes).

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

## Units



Press or to highlight required unit.

Press to select unit and exit.

Press to exit to **set up** (no changes).

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



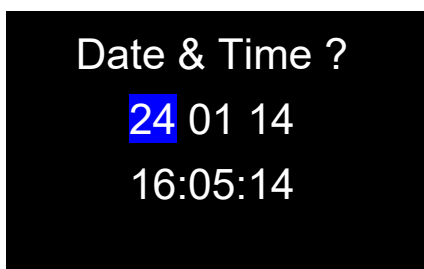
Press or to highlight unit.

Press to select unit and exit.

Press to exit to **set up** (no changes).

- Minimum Enabled = 1, Maximum Enabled = 1. Default = N·m.

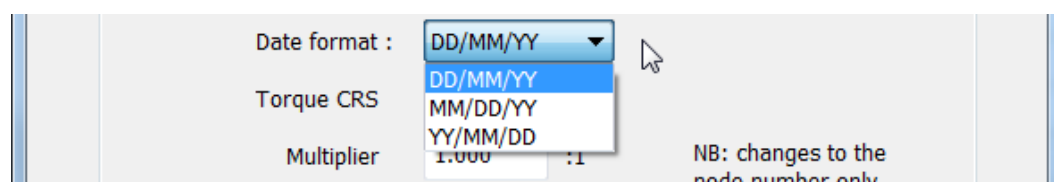
## Date & Time



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 **Date & Time** 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.

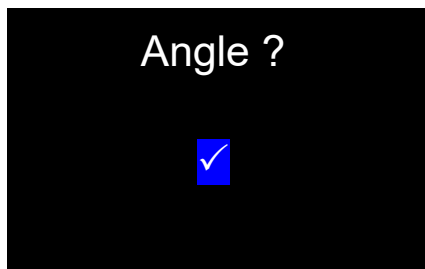


Press  or  to change value.



Press  or  to confirm and exit to **set up**.

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

## Angle

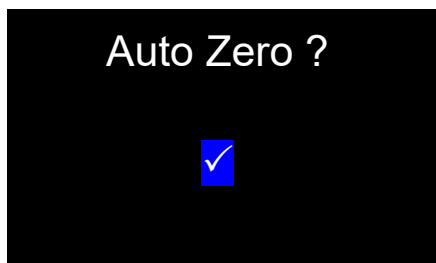


Press  or  to change setting.



Press  or  to confirm and exit to **set up**.


- ✓ = **Display Torque & Angle**.
- ✕ = **Display Torque only**.

## Auto Zero



Press  or  to change setting.



Press  or  to confirm and exit to **set up**.

- ✓ = both the **TORQUE & ANGLE** readings will **Auto Zero** on **power up** or **resume from sleep**.
- ✕ = the user must **press** the ZERO button  to **reset** the **torque display** to the current torque input and **Angle Display** to "0".

## Active From

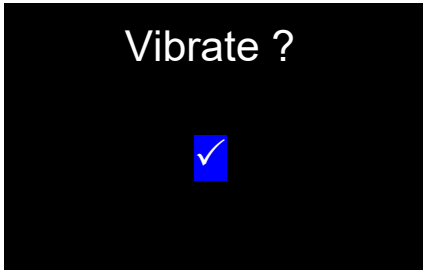


Press  or  to change value.



Press  or  to confirm and exit to **set up**.

- Minimum = **1.8 %**, Maximum = **100.0 %**. Default = **7.0 %**

## Vibrate

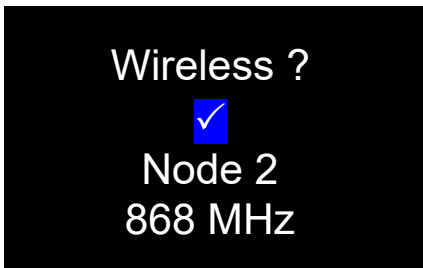


Press  or  to change setting.


Press  or  to confirm and exit to **set up**.


- ✓ = Tool will **Vibrate** when **Torque Target** reached.
- ✕ = Tool **does not vibrate** when **Torque Target** reached.

## Wireless

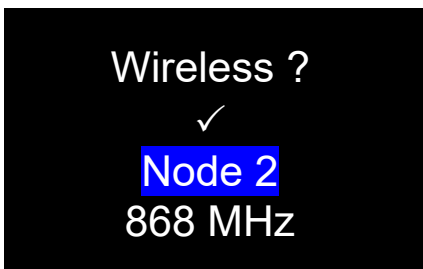


Press  or  to change setting.


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


Press  to confirm and exit to **set up** (saving changes).

- ✓ = **Wireless** communication is **Active**.
- ✕ = **Wireless** communication is **Not Active**.



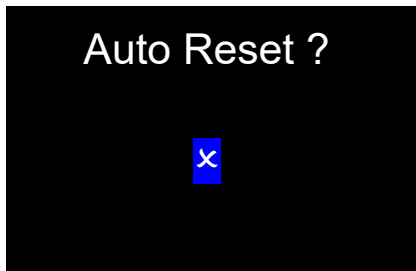
Press  or  to change value.

Press  to confirm and go to **set up** (saving changes).

Press  to confirm and exit to **set up** (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 = **Randomly generated number**.
- 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 ✓, pressing  or  will take the user to 'set up Hold Time ?'. If x, the user will return to set up.

- ✓ = **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**.
- x = **Hold** the torque (and angle) values until the ZERO button  has been **pressed** and then reset the display to **0**.

## Hold Time ?



Press  or  to change value.



Press  or  to confirm and go to **set up** (saving changes).

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

## Display



Press  or  to change setting.

Press  or  to confirm and go to **set up** (saving changes).

- ✓ = **Black** digits on **White** background, x = **White** digits on **Black** background, when in the **Measure display**.





**WARNING:**

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

## Multiplier



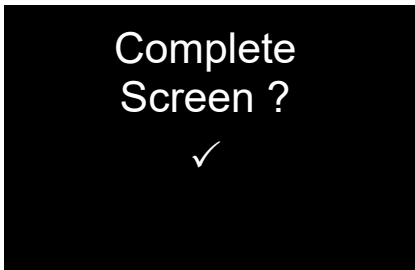
Press  or  to change value.

Press  or  to confirm and go to **set up** (saving changes).



- Minimum = **1.000**, Maximum = **1000.000**. Default = **1.000**



## Complete

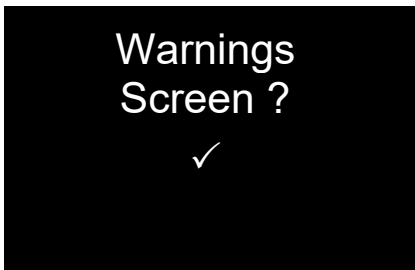


Press  or  to change setting.

Press  or  to confirm and go to **set up** (saving changes).

- ✓ = Show the **Complete Screen** when the **Number of Results saved** equal the **Number of Results** specified for the **Target**.
- × = Do not show the **Complete Screen** when the **Number of Results saved** equal the **Number of Results** specified for the **Target**.

## Warnings

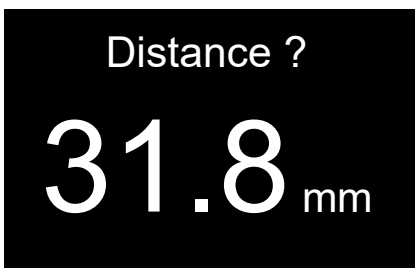


Press  or  to change setting.



Press  or  to confirm and go to **set up** (saving changes).

- ✓ = Show the **Warnings Screen** on power up (or resume from sleep) if the **Multiplier** or **Torque CRS** settings are not default.
- × = Do not show the **Warnings Screen** on power up (or resume from sleep) if the **Multiplier** or **Torque CRS** settings are not default.

## Torque CRS

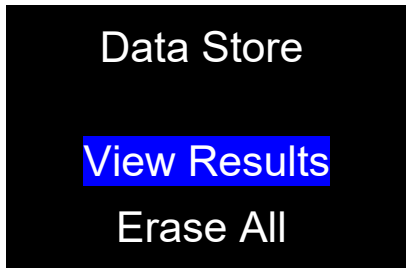




Press  or  to change value.

Press  or  to confirm and go to **set up** (saving changes).

- Minimum = **0.1**, 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 **set up**.

### View Results

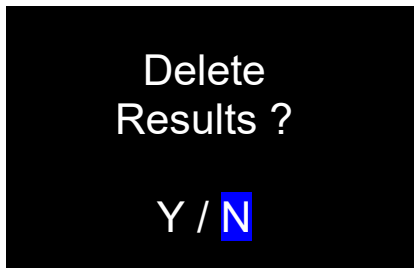




Press the  or  buttons to scroll through the **Saved Test Results** screen(s).

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



### Erase All



Press  or  to change highlighted option.

Press  to confirm.

Press  to go to **set up**.



**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 set up. The 'Extended Capacity' screen is shown if the 'Multiplier', 'Torque CRS' or both have been changed from their default values.

Tool Identification

A black rectangular screen with white text. The text is centered and reads: 'Serial #' followed by '2017/123456' on the next line, 'Part #' followed by '43536' on the next line.

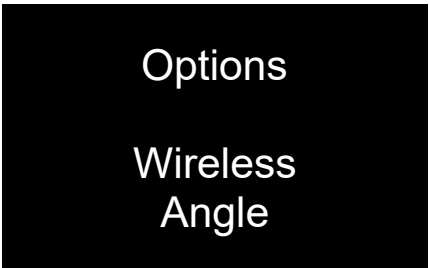
Serial #  
2017/123456  
Part #  
43536

Version #, Capacity

A black rectangular screen with white text. The text is centered and reads: 'Version #' followed by '2.XX' on the next line, 'Capacity' followed by '200 N·m' on the next line.

Version #  
2.XX  
Capacity  
200 N·m

Hardware options fitted.

A black rectangular screen with white text. The text is centered and reads: 'Options' followed by 'Wireless' and 'Angle' on the next line.

Options  
Wireless  
Angle

Extended Capacity.

A black rectangular screen with white text. The text is centered and reads: 'Extended' followed by 'Capacity' and '2970 N·m' on the next line.

Extended  
Capacity  
2970 N·m

# 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, Kg·m, Kg·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%.  
+/-1% of reading from 20% - 100%.

Angle display (CW & CCW): 1° Resolution, Maximum angle 999 degrees.

Angle accuracy: CW = 1% +/-1 digit.  
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.

USB: 2.0 Device (5 pin mini).

Wireless Transceiver: 868 MHz – see Declaration of Conformity  
915 MHz  
Contains FCC ID: OA3MRF89XAM9A  
This device complies with Part 15 of the FCC Rules, subpart C.  
Contains transmitter module IC: 7693A-89XAM9A.

Wireless Nodes: 1 – 254.

Mechanical overload:	NorTronic® 50, 100% of Torque Capacity NorTronic® 200, 50% of Torque Capacity NorTronic® 330, 50% of Torque Capacity
Directive 1999/5/EC:	Norbar hereby declares that this NorTronic® (Part # 43500, 43501, 43502 & 43503) are in compliance with the essential requirements and other relevant provisions of Directive 1999/5/EC".
FCC Rules (USA):	<p>This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy, and if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment OFF and ON, the user is encouraged to try to correct the interference by one or more of the following measures:</p> <ul style="list-style-type: none"> <li>• Reorient or relocate the receiving antenna.</li> <li>• Increase the separation between the equipment and receiver.</li> <li>• Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.</li> <li>• Consult the dealer or an experienced radio/TV technician for help.</li> </ul>
RSS Standard (Canada):	<p>This device complies with Industry Canada license-exempt RSS standard(s). Operation is subject to the following two conditions: (1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of the device.</p>

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

### EU Declaration of Conformity (No 0019V2)

The object of the declaration: NorTronic® Electronic Torque Wrench. Serial Number – All.

The object of the declaration described above is in conformity with the relevant union harmonisation legislation:

<b>Model Name (Part Number):</b>	NorTronic 50 868MHz (43500 & 43501) NorTronic 200 868MHz (43502) NorTronic 330 868MHz (43503) NorTronic 50 Bluetooth® (43534 & 43535) NorTronic 200 Bluetooth® (43536) NorTronic 330 Bluetooth® (43537)	NorTronic 50 915MHz (43504 & 43505) NorTronic 200 915MHz (43506) NorTronic 330 915MHz (43507) <b>NOTE: Turn wireless feature off for use in Europe (SETUP / Wireless / Not Enabled).</b>
<b>Legislation</b>	Directive 2014/30/EU on Electromagnetic Compatibility (EMC). Directive 2011/65/EU of the European Parliament and of the Council of 8 June 2011 on the restriction of the use of certain hazardous substances in electrical and electronic equipment (RoHS). Directive 2014/53/EU on Radio Equipment (RED).	Directive 2014/30/EU on Electromagnetic Compatibility (EMC). Directive 2011/65/EU of the European Parliament and of the Council of 8 June 2011 on the restriction of the use of certain hazardous substances in electrical and electronic equipment (RoHS).

The object of the declaration described above has been designed to comply with the following standards:

EMC directive	RED directive	
	868MHz	Bluetooth®
EN 61326-1:2013	EN 301 489-1 V2.1.1 & EN 301 489-1 V2.2.0. EN 301 489-17 V3.1.1 & EN 301 489-17 V3.2.0. EN 300 220-1 V3.1.1 & EN 300 220-2 V3.1.1. EN 62311:2008.	EN 301 489-1 v.2.1.1 & EN 301 489-17 v3.1.1 EN 61000-4-3:2006 + A1:2008 + A2:2010. EN 300 328 v2.1.1

The basis on which conformity is being declared:

This declaration of conformity is issued under the sole responsibility of the manufacturer.

The technical documentation required to demonstrate that the product meets the requirements of the above Directives has been compiled by the signatory below and is available for inspection by the relevant enforcement authorities.

The CE mark was first applied in: 2014.

The authorised representative within the European Union (EU) is:

Francesco Frezza Snap-on Equipment S.r.l. Via Prov. Carpi, 33 42015 Correggio RE Italy

Signed for and on behalf of Norbar Torque Tools Ltd.

Signed: *T.M. Lester* Full Name: Trevor Mark Lester B.Eng. Date: 25 January 2021. Authority: Compliance Engineer  
Place: Norbar Torque Tools Ltd., Wildmere Road, Banbury, Oxfordshire. OX16 3JU

### UK Declaration of Conformity (No 0019V0)

The object of the declaration: NorTronic® Electronic Torque Wrench. Serial Number – All.

The object of the declaration described above is in conformity with the relevant UK statutory requirements:

<b>Model Name (Part Number):</b>	NorTronic 50 868MHz (43500 & 43501) NorTronic 200 868MHz (43502) NorTronic 330 868MHz (43503) NorTronic 50 Bluetooth® (43534 & 43535) NorTronic 200 Bluetooth® (43536) NorTronic 330 Bluetooth® (43537)	NorTronic 50 915MHz (43504 & 43505) NorTronic 200 915MHz (43506) NorTronic 330 915MHz (43507) <b>NOTE: Turn wireless feature off for use in Europe (SETUP / Wireless / Not Enabled).</b>
<b>Legislation</b>	Electromagnetic Compatibility Regulations 2016 The Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment Regulations 2012. Radio Equipment Regulations 2017	Electromagnetic Compatibility Regulations 2016 The Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment Regulations 2012

The object of the declaration described above has been designed to comply with the following standards:

Electromagnetic Compatibility	Radio Equipment	
	868MHz	Bluetooth®
EN 61326-1:2013	ETSI EN 301 489-1 V2.1.1, ETSI EN 301 489-1 V2.2.0. ETSI EN 301 489-17 V3.1.1. ETSI EN 301 489-17 V3.2.0. ETSI EN 300 220-1 V3.1.1. ETSI EN 300 220-2 V3.1.1. BS EN 62311:2008.	ETSI EN 301 489-1 v.2.1.1 ETSI EN 301 489-17 v3.1.1 BS EN 61000-4-3:2006 + A1:2008 + A2:2010. ETSI EN 300 328 v2.1.1

The basis on which conformity is being declared:

This declaration of conformity is issued under the sole responsibility of the manufacturer. The technical documentation required to demonstrate that the products meet the requirements of the above legislation has been compiled by the signatory below and is available for inspection by the relevant enforcement authorities.

The UKCA mark was first applied in: 2021.

Signed for and on behalf of Norbar Torque Tools Ltd.

Signed: *T.M. Lester* Full Name: Trevor Mark Lester B.Eng. Date: 13 May 2021. Authority: Compliance Engineer  
Place: Norbar Torque Tools Ltd., Wildmere Road, Banbury, Oxfordshire. OX16 3JU

# 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](http://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 $\pm 3\%$ 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. 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 and 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



## NORTRONIC<sup>®</sup> BLUETOOTH<sup>®</sup> 4.0





# 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 Bluetooth® 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
43534	50 N·m	3/8"
43535	50 N·m	1/2"
43536	200 N·m	1/2"
43537	330 N·m	1/2"

## Parts Included

Parts Included	Part Number	Quantity
NorTronic® electronic torque wrench	4353X	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 Bluetooth® Adapters (Accessory)

USB Bluetooth® Adapter	Part Number
USB Bluetooth® Adapter (2.4GHz)	43513

## Software Compatibility

NorTronic®	TDS	Reason for upgrade
Version 2.XX	2.0.XX	-

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

# FEATURES AND FUNCTIONS

- Bluetooth® interface with plaintext protocol for easy integration into user environments; set targets, get results, and stream live torque and angle data using your own software and equipment on phones, computers, tablets, and more, via Bluetooth® or USB. Refer to the ASCII mode function operators manual (34472) for more information.
- ASCII mode for interfacing to third party control systems.
- TDS (Torque Data System) software included for complete data management and archiving to a PC. Includes seamless data synchronisation (USB only). See TDS Manual part number 34397 for more information.
- All NorTronic® tools are Torque Handles with a 16 mm 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 or ASCII mode instruction from external device).
- 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 2,400 (date & time stamped) reading memory store.
- 5 user buttons.
- Operational from three AA internal rechargeable / non rechargeable batteries.
- Up to 15 linked (or non-linked) targets can be on the tool at any one time.
- USB port for interface to TDS or user software.
- 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.
- Directly display and save the output torque of a HT (HandTorque®) gearbox when used in conjunction with a NorTronic®.
- Produce, save, view and print real time torque and angle graphs in conjunction with TDS, or stream real time data to user software via ASCII mode communication.
- View and print reports for results in conjunction with TDS.
- 4 Target modes - Torque Target only, Snug Torque followed by Angle Target, Snug Torque followed by Angle Target + final Torque Target or Audit Torque Target.
- Improved battery life when sleeping (batteries do not need to be removed for storage).

## BEFORE USE

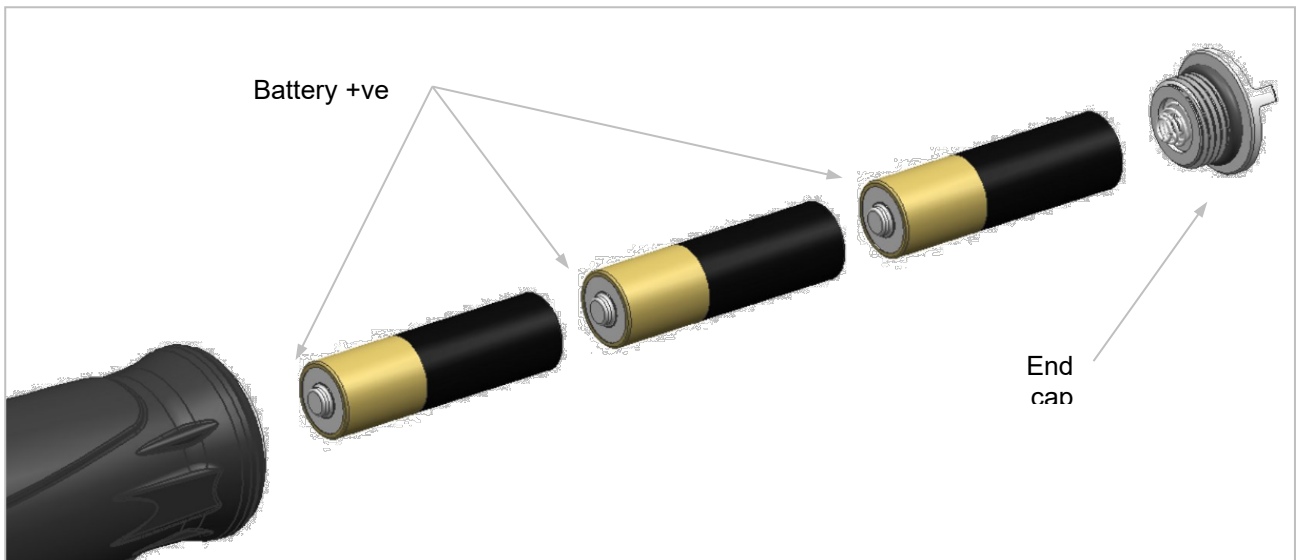
### Preparation

**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 16 mm spigot. Should you wish to change to a different spanner end fitting, depress the plunger on the ratchet head and pull to release.

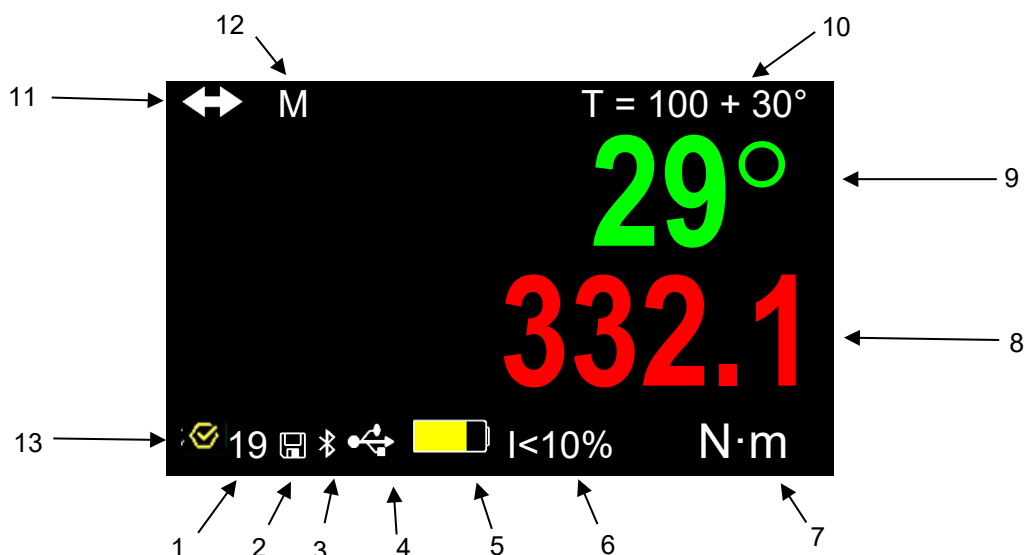
## BUTTON FUNCTIONS

Throughout set up and operation, the buttons perform the following functions:

Button	Function	
	Operation	set up
 	Change Target	Scroll through options or change a selected value. When <i>changing</i> a value, <i>hold</i> the <i>button down</i> for a <i>faster rate</i> of change.
	Zero Torque & Angle display if below the <i>Active From</i> threshold. Cancel the peak reading if above the <i>Active From</i> threshold and send via USB / Bluetooth®	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	Bluetooth® connected
4	USB connected to P.C. (TDS)
5	Low Battery / Flat Battery
6	Target less than 10% of Tool Capacity (ISO6789:2017)
7	Current Torque Units
8	Torque reading
9	Angle reading
10	Current Snug Torque & Angle Target
11	Torque CRS has been changed from default value
12	Multiplier in use
13	Audit Target

# OPERATION

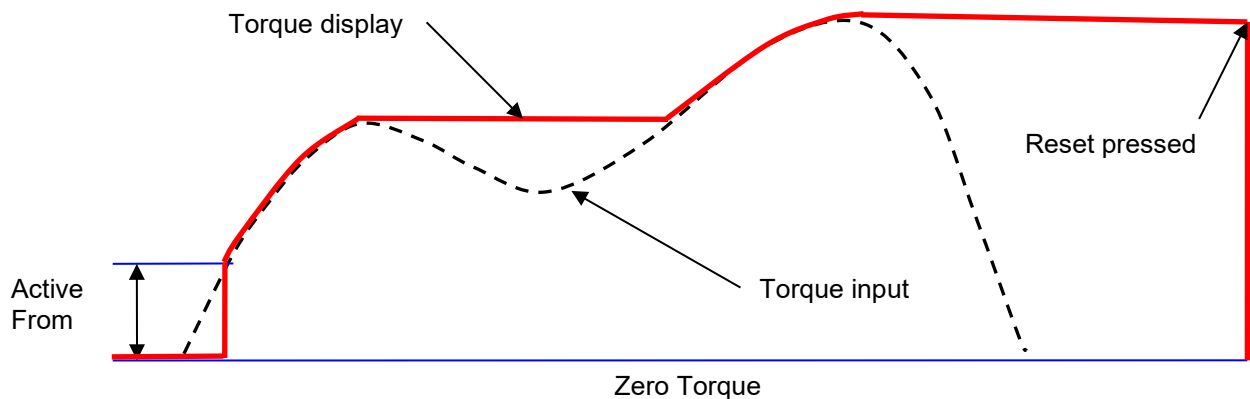
## Start Up

The NorTronic® does not have a power on/off switch. The NorTronic® is always powered up or in a deep sleep mode.

Upon fitting the batteries and end cap, press 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 50) 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 44) 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.



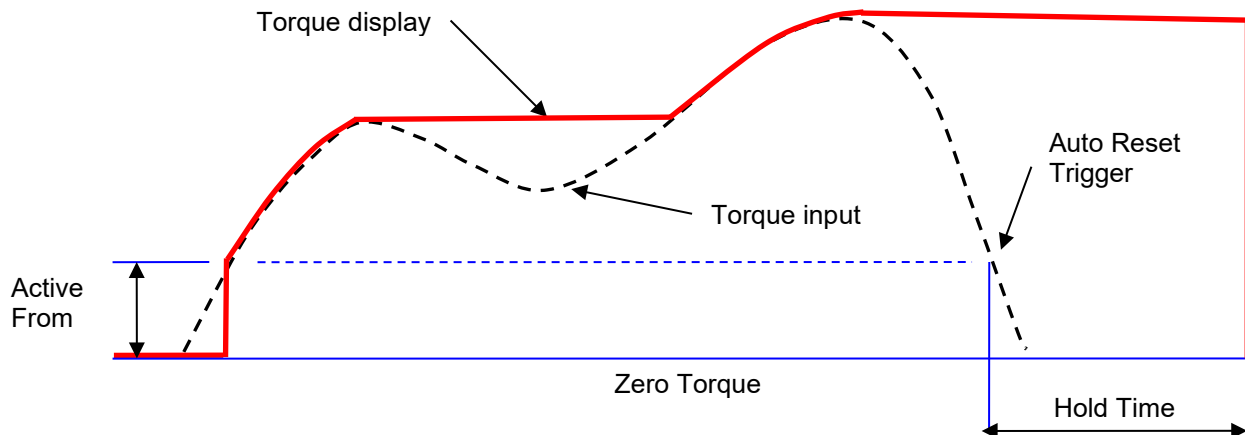
If a **Target** is in use and a reading has been saved, press the UP button (and hold in for 2 seconds) to **delete** the **last reading** that has been **saved** via the **Delete Last Result?** confirmation screen.



Delete  
Last Result ?

Y / N

## 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 50) 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 **Set Target (Snug Torque)** is set, the angle display is shown as “0” until the torque reaches the **Set Target (Snug Torque)** value (see page 44) 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 52). 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 and a reading has been saved, press the UP button (and hold in for 2 seconds) to **delete** the **last reading** that has been **saved** via the **Delete Last Result?** confirmation screen.



Delete  
Last Result ?

Y / **N**

## Tool Target

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 beeps and **Vibrates** when the **Torque Target** or **Angle Target** has been reached (if enabled in **set up – Vibrate**, see page 51 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.



## Target(s) – Change

Press UP or DOWN   to change displayed **Target**. The UP button has a different function if a **Target** is active (see pages 37, 38 & 43).

## 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

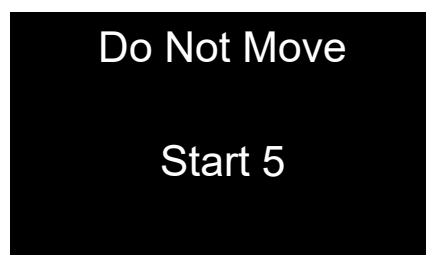
The NorTronic® will **Sleep** if any of the events listed below have **not** happened during the time period specified in **Tool Set up – Sleep** (see page 50 for information):

- c) A button has been pressed.
- d) 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)

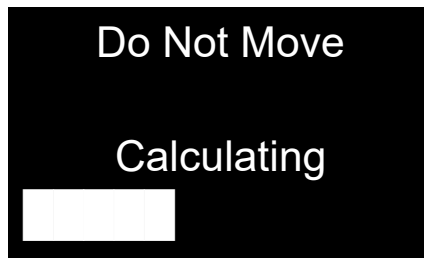
To wake the NorTronic®, press any button. After the display of the Norbar logo the NorTronic® will perform a gyroscope drift calibration. The gyroscope drift calculation will also be done if the temperature changes by more than 3 degrees. This is necessary to ensure the angle measurement is accurate.



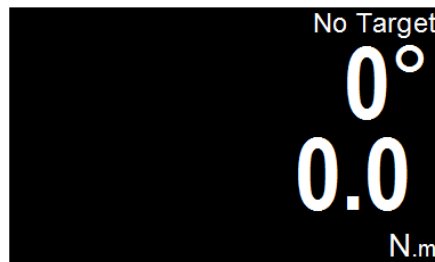
5 second countdown to the gyroscope drift calculation.



**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 gyroscope 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 Set up** configuration can also be sent from TDS.

When plugged in, the USB icon  will appear on the bottom left of the display. When connected to TDS, the icon will go green. 

## Bluetooth® Interface

The NorTronic® can be **connected** to a **PC, a phone, a tablet, or any other compatible Bluetooth® device**. For convenience, we offer a **USB Bluetooth® Adapter** that is preconfigured to detect and communicate with the NorTronic® tools.



When inserted, this USB adapter appears as a serial port instead of a Bluetooth® device. This is to make it easier for you to interface with it in software, and to prevent it interfering with any existing Bluetooth® hardware and software that may be installed on the system.

The USB Bluetooth® Adapter is controlled by a simple plaintext AT command system that lets you scan for and connect to tools. Please see the ASCII mode operators manual (34472) for more details.

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

**NOTE:** Only **NorTronic®** tools fitted with Bluetooth® functionality will work with the USB Bluetooth® Adapter; it is not designed to talk to other Bluetooth® devices.

The USB Bluetooth® Adapter is not required to talk to a NorTronic® via Bluetooth® (for instance, most modern Android and Apple phones will work without it), but in that case, in your software you must configure your Bluetooth® hardware to work with the NorTronic® Bluetooth® Low Energy GATT profile.

**TDS does not support the USB Bluetooth® Adapter or Bluetooth® connectivity. NorTronic® Bluetooth® functionality is for interfacing to 3<sup>rd</sup> party software only.**

## ASCII Mode Communication Protocol

By using the ASCII Mode communication protocol, users can directly interface with the NorTronic® using their own software and equipment to control and configure the tool and receive data.

This is an extremely powerful feature; it's useful if you already have an application and wish to directly integrate data capture and control from the NorTronic®. It's also useful if you want to create a bespoke solution tailored for your requirements, and have the tool work with that.

A great example would be integrating the NorTronic® into a production line, where you want to automatically control the tool target and settings, and guide the operator through tightening all the bolts to the required specifications while capturing the results.

Another example would be if you want to gather readings in a remote environment far away from computers. You could use a phone to read the results from the NorTronic® and send these via the Internet to a remote destination without needing to find a computer to connect to the tool and download everything.

The NorTronic® ASCII interface is designed to be easy to understand and easy for programmers to support in their software, and offers a huge range of commands that let you read and modify tool settings, read and set targets, stream live readings from the tool, and more. For more details please see the ASCII mode operators manual (34472).

## 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 Bluetooth® 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 Bluetooth® 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 100 mm *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*.

## Multiplier

The **Multiplier** value only needs to be changed if a Norbar HT (HandTorque®) gearbox is being used in conjunction with the NorTronic®. This setting ensures the NorTronic® *displays* the *correct Torque* for the output of the *Torque Multiplier*: - i.e. with a 100:1 *Ratio*.



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

**NOTE:** This is a torque only mode, so angle measurement cannot be displayed.

## Exit Measure Display (Options Menu)

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



Press  or  to change highlighted option.

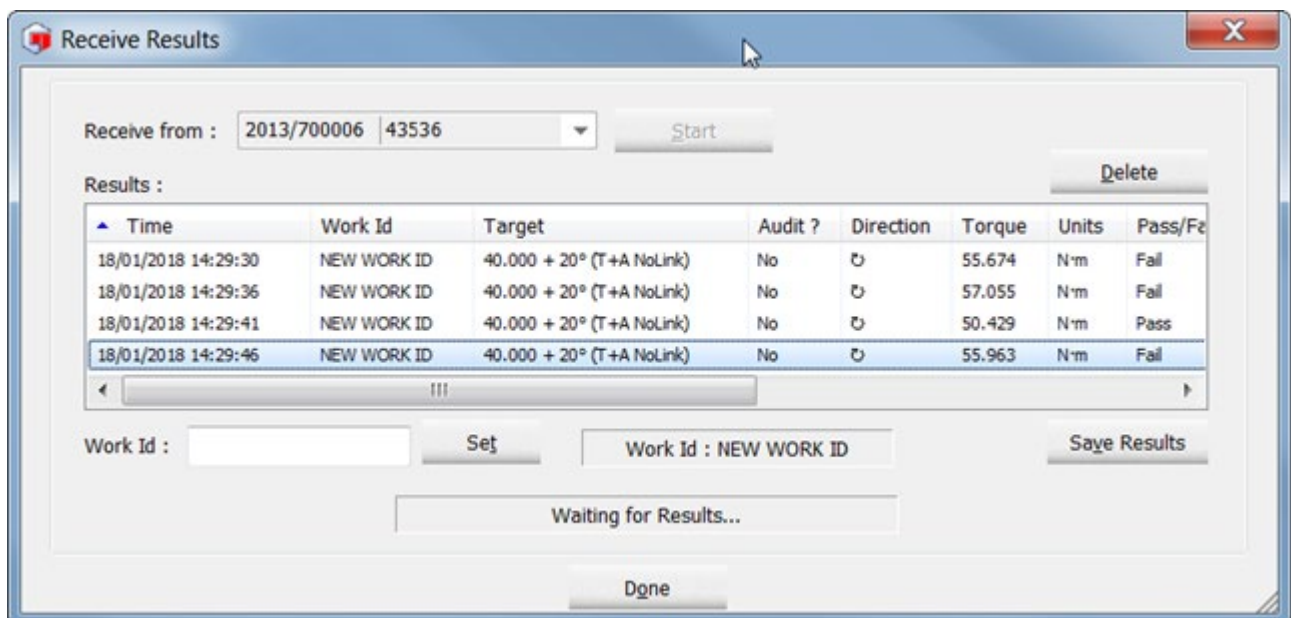
Press  to confirm.

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** interface.

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



Connect the **USB** interface; the USB **icon** will appear on the **bottom left** of the display.



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** to the **Receive Results** window on **TDS**.




If a **Target** is in use and a reading has been saved, press the UP button (and hold in for 2 seconds) to **delete** the **last reading** that has been **output** to **"Receive Results"** in **TDS**.


## TOOL TARGET - SETTING

### Set Target



Press  or  to change.

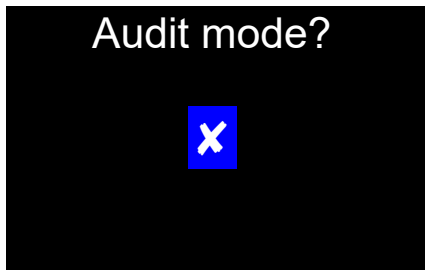
Press  to confirm and go to the *Audit mode?*



The  button is not functional.


- Minimum = **0 (No Target)**, Maximum = **100%** of NorTronic® torque capacity.


### Audit Mode

**NOTE:** This screen will only be shown if Angle is Enabled '✓' in Set up and Target is larger than 'Active from' threshold.



Press  or  to enable '✓' or disable 'X'.

Press  to confirm and go to either *Set Angle Limit* or *Set Angle*.

The  button is not functional.


- '✓' go to *Set Angle Limit*, 'X' go to *Set Angle*.


### Set Angle Limit

**NOTE:** This screen will only be shown if '✓' was selected on the *Audit mode?* screen.



Press  or  to change value.

Press  to confirm and go to *Options Menu*.

The  button is not functional.


- Minimum = **1**, Maximum = **720**.


### Set Angle Target

**NOTE:** This screen will only be shown if 'X' was selected on the *Audit mode?* screen.



Press  or  to change.

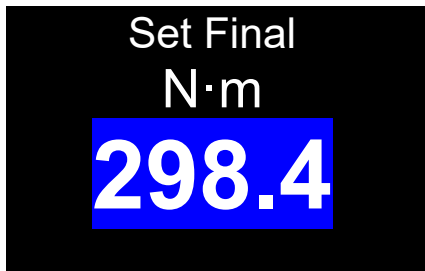
Press  to confirm and go to *Set Torque Target*.

The  button is not functional.


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


## Set Final Torque Target

**NOTE:** This screen will only be shown if Angle target is larger than '0' on the 'Set Angle' screen.



Press  or  to change.

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

The  button is not functional.

- Minimum = **0 (No Final Torque Target)**, Maximum = **NorTronic® torque capacity**.
- If the **Final Target** value is set to **0**, the Final Target is **disabled (Torque + Angle Target)**, if it is set to a value **above** the **Torque Target** setting, the **Final Target** is **enabled (Torque + Angle (with Final Torque) Target)**.

## Linked Targets

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

Name	Description	Final/Audit Target	Units	Audit Mode	Upper Limit %	Lower Limit %	Number of Readings	Torque Tar...	Angle	Angle Tar...	Angle U...	Angle L...	Next Target
40 Nm		40	N·m	No	4	4	3		No				42 Nm
Name 0 deg			N·m	No	4	4	3	40	Yes	10	2	2	40 Nm + 12 deg
40 Nm + 10 deg (50 Nm)		50	N·m	No	4	4	3	40	Yes	10	3	3	40 Nm + 12 deg (50 Nm)
40 Nm + 12 deg			N·m	No	4	4	3	40	Yes	12	2	2	40 Nm + 14 deg
40 Nm + 12 deg (50 Nm)		50	N·m	No	4	4	3	40	Yes	12	3	3	40 Nm + 14 deg (50 Nm)
40 Nm + 14 deg			N·m	No	4	4	3	40	Yes	14	2	2	40 Nm + 16 deg
40 Nm + 14 deg (50 Nm)		50	N·m	No	4	4	3	40	Yes	14	3	3	40 Nm + 16 deg (50 Nm)
40 Nm + 16 deg			N·m	No	4	4	3	40	Yes	16	2	2	40 Nm + 18 deg
40 Nm + 16 deg (50 Nm)		50	N·m	No	4	4	3	40	Yes	16	3	3	40 Nm + 18 deg (50 Nm)
40 Nm + 18 deg			N·m	No	4	4	3	40	Yes	18	2	2	40 Nm + 10 deg (50 Nm)

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

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

If after the **final Target** has completed (and no further target has been specified), the last **Target** is **enabled**.

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

**Modify Target**

Name : 40 Nm + 10 deg (50 Nm)

Description :

Target Torque : 40.000 N·m

☒ Angle ? ☐ Audit Mode?

Angle Target : 10.000

Upper : 3 °

Lower : 3 °

Final Target : 50.000

Upper Limit : 4 %

Lower Limit : 4 %

Number of Readings : 3

Next Target : 40 Nm + 12 deg (50 Nm)

OK Cancel

## TDS Target Interface

The NorTronic® has up to **15 active Targets**. **Multiple Targets** can be set up in **TDS** and individually **downloaded** to **NorTronic®**.

Name	Final/Audit Target	Units	Audit Mode	Upper Limit %	L
40 Nm + 10 deg (50 Nm)	50	N·m	No	4	
40 Nm + 12 deg				4	
40 Nm + 12 deg (50 Nm)				4	
40 Nm + 14 deg				4	
40 Nm + 14 deg (50 Nm)				4	
40 Nm + 16 deg				4	
40 Nm + 16 deg (50 Nm)				4	
40 Nm + 18 deg				4	
40 Nm + 18 deg (50 Nm)				4	

+ Add Target Insert  
... Modify Target Enter  
- Delete Target Delete  
+ Duplicate Target  
T Send Target(s)

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 47 for more information on **“Tool Set up”**).

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

Set Tool Options

Send To 2013/700006 43536

Tool Version : 2.14

Tool Capacity : 200 N.m

Last Cal Check Date : Never

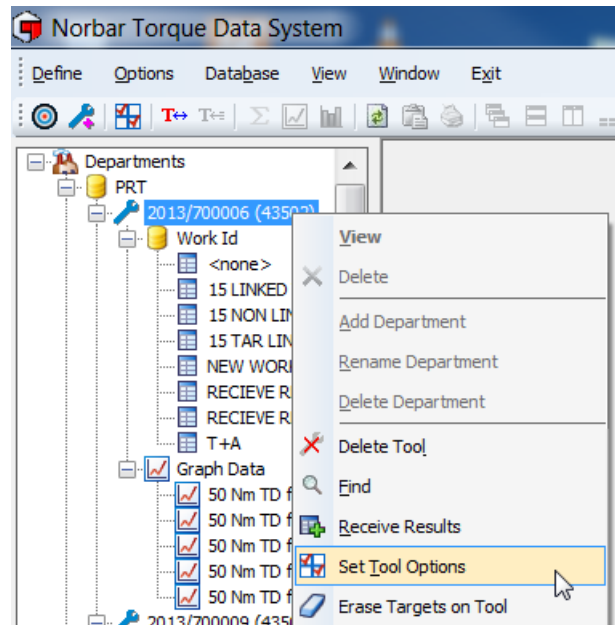
Display Unit :
☒ N·m
☐ dN·m
☐ cN·m
☐ kgf·m
☐ kgf·cm
☐ gf·m
☐ lbf·ft
☐ lbf·in
☐ ft·lb
☐ in·lb
☐ ozf·in
☐ in·oz

Options :
☒ Auto-Zero?
☐ Auto-Reset?
☒ Vibrate?
☐ Inverse?
☒ Angle?
☒ Wireless?
☒ Complete Screen?
☒ Warnings Screen?
☒ Locked



## TOOL – SET UP

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



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

**NOTE:** **Tool - Set up** 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 Set up** or **Target SETTING**.

**Set Tool Options**

Send To: 2017/TESTBOX 654321

Tool Version : 2.14

Tool Capacity : 330 N.m

Last Cal Check Date : 13-12-2017

Display Unit :

☒ N·m ☐ dN·m ☐ cN·m ☐ kgf·m ☐ kgf·cm ☐ gf·m

☐ lbf·ft ☐ lbf·in ☐ ft·lb ☐ in·lb ☐ ozf·in ☐ in·oz

Options :

☒ Auto-Zero? ☒ Auto-Reset? ☒ Vibrate?

☐ Inverse? ☒ Angle? ☒ Wireless?

☒ Complete Screen? ☒ Warnings Screen? ☐ Locked

Settings :

Hold Time: 2 seconds

Sleep After : 120 seconds (zero = disable)

Active from threshold: 7.0 %

Date format : DD/MM/YY

Torque CRS: 35.0 mm

Multiplier: 1.000 :1

Wireless Node Number: 178 (1 to 254)


NB: changes to the node number only take effect after a tool reset/sleep


Buttons: Update, Set Track Mode, Restore Defaults, Done

**NOTE:** Wireless Node number and Wireless settings are legacy options for non-Bluetooth® tools; they have no effect on the Bluetooth® NorTronic®.

LIMITS  
UNITS  
DATE / TIME  
SLEEP

Press  or  to highlight required setting.

Press  to confirm the setting to change.

Press  to exit to the *Options Menu*.

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



ANGLE  
AUTO ZERO  
ACTIVE FROM  
VIBRATE


BLUETOOTH  
AUTO RESET  
DISPLAY  
MULTIPLIER

COMPLETE  
WARNINGS  
TORQUE CRS

## Torque Limits

Torque ?  
HI Limit 4  
LO Limit 4

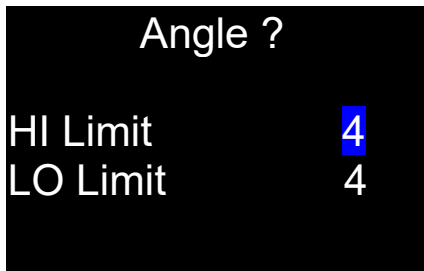
Press  or  to change highlighted value.

Press  to confirm and go to *LO Limit*.

Press  to exit to *set up* (saving changes).

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

## Angle Limits



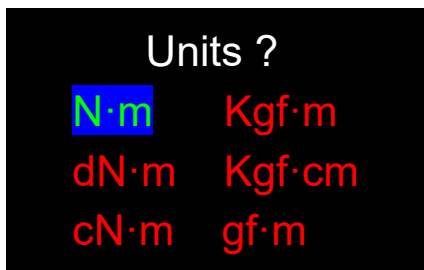
Press or to change highlighted value.

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

Press to exit to **set up** (saving changes).

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

## Units

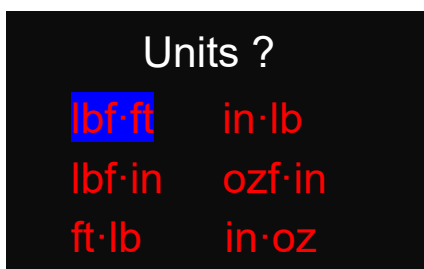


Press or to highlight required unit.

Press to select unit and exit.

Press to exit to **set up** (no changes).

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



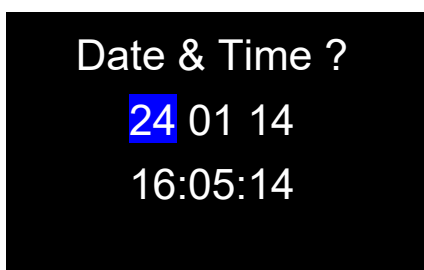
Press or to highlight unit.

Press to select unit and exit.

Press to exit to **set up** (no changes).

- Minimum Enabled = 1, Maximum Enabled = 1. Default = **N·m**.

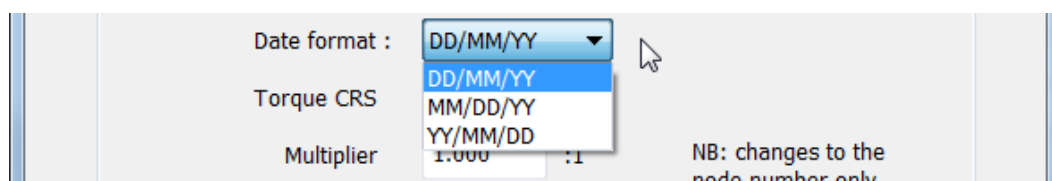
## Date & Time



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 **Date & Time** 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.

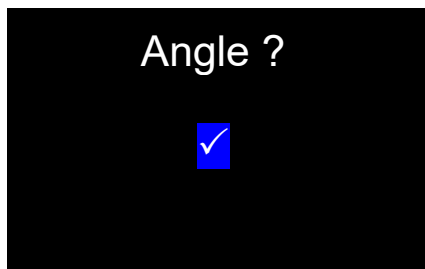


Press  or  to change value.



Press  or  to confirm and exit to **set up**.

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

## Angle

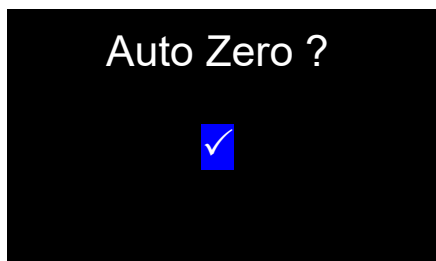


Press  or  to change setting.



Press  or  to confirm and exit to **set up**.


- ✓ = **Display Torque & Angle**.
- ✕ = **Display Torque only**.

## Auto Zero

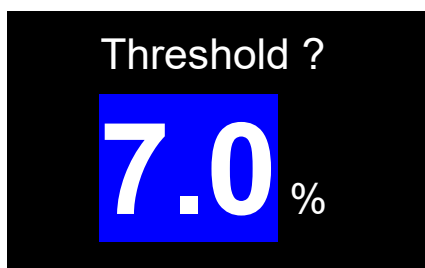


Press  or  to change setting.



Press  or  to confirm and exit to **set up**.

- ✓ = both the **TORQUE & ANGLE** readings will **Auto Zero** on **power up** or **resume from sleep**.
- ✕ = the user must **press** the ZERO button  to **reset** the **Torque display** to the current Torque input and **Angle Display** to "0".

## Active From

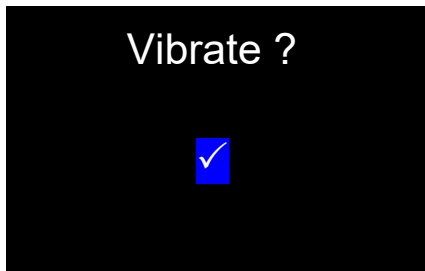


Press  or  to change value.



Press  or  to confirm and exit to **set up**.

- Minimum = **1.8 %**, Maximum = **100.0 %**. Default = **7.0 %**

## Vibrate

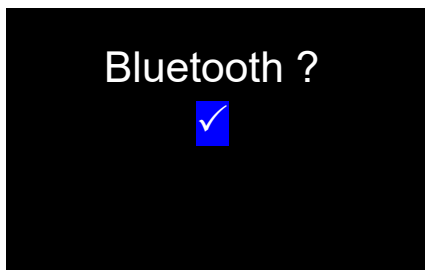


Press  or  to change setting.


Press  or  to confirm and exit to **set up**.

- ✓ = Tool will **Vibrate** and **beep** when **Torque Target** reached.
- ✕ = Tool **does not vibrate** or beep when **Torque Target** reached.

## Bluetooth®

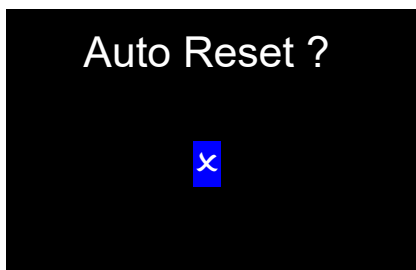


Press  or  to change setting.



Press  to confirm and exit to **set up** (saving changes).


- ✓ = **Bluetooth** communication is **Active**.
- ✕ = **Bluetooth** communication is **Not Active**.

## Auto Reset (Hold Time ?)



Press  or  to change setting.



If ✓, pressing  or  will take the user to '**Set up Hold Time ?**'. If ✕, the user will return to **set up**.

- ✓ = **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**.
- ✕ = **Hold** the torque (and angle) values until the ZERO button  has been **pressed** and then reset the display to **0**.

## Hold Time ?



Press  or  to change value.



Press  or  to confirm and go to **set up** (saving changes).

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

## Display



Press  or  to change setting.

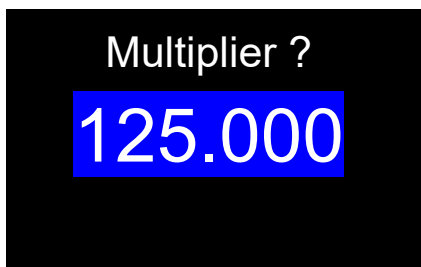
Press  or  to confirm and go to **set up** (saving changes).

- ✓ = **Black** digits on **White** background, × = **White** digits on **Black** background, when in the **Measure display**.





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

## Multiplier

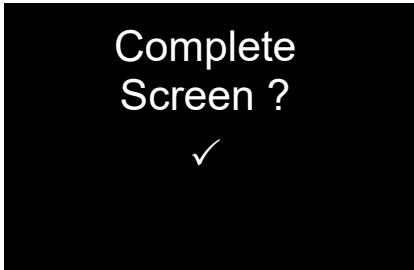


Press  or  to change value.



Press  or  to confirm and go to **set up** (saving changes).

- Minimum = **1.000**, Maximum = **1000.000**. Default = **1.000**

## Complete

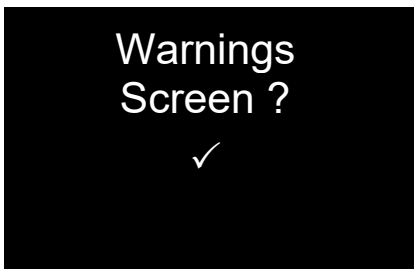


Press  or  to change setting.



Press  or  to confirm and go to **set up** (saving changes).

- ✓ = Show the **Complete Screen** when the **Number of Results saved** equal the **Number of Results** specified for the **Target**.
- ✕ = Do not show the **Complete Screen** when the **Number of Results saved** equal the **Number of Results** specified for the **Target**.

## Warnings

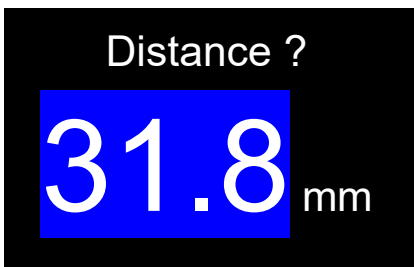


Press  or  to change setting.



Press  or  to confirm and go to **set up** (saving changes).

- ✓ = Show the **Warnings Screen** on power up (or resume from sleep) if the **Multiplier** or **Torque CRS** settings are not default.
- ✕ = Do not show the **Warnings Screen** on power up (or resume from sleep) if the **Multiplier** or **Torque CRS** settings are not default.

## Torque CRS

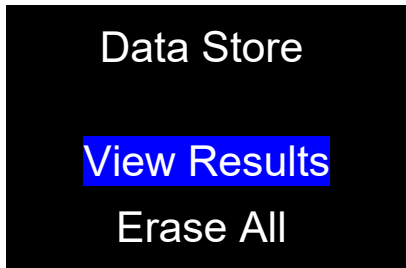




Press  or  to change value.

Press  or  to confirm and go to **set up** (saving changes).

- Minimum = **0.1**, 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 **set up**.

### View Results

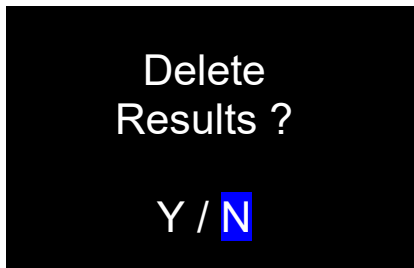




Press the  or  buttons to scroll through the **Saved Test Results** screen(s).

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



### Erase All



Press  or  to change highlighted option.

Press  to confirm.

Press  to go to **set up**.



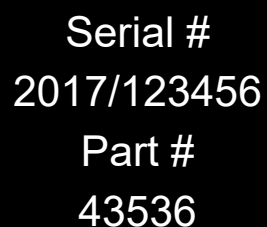
**WARNING:** SAVED TEST RESULTS CANNOT BE RETRIEVED FROM THE TOOL ONCE THEY HAVE BEEN DELETED.



## ABOUT

Each of the 3 screens (starting with serial #), is displayed for 2 seconds before returning to set up. The 'Extended Capacity' screen is shown if the 'Multiplier', 'Torque CRS' or both have been changed from their default values.

Tool Identification

A black rectangular screen with white text. The text is centered and reads: 'Serial #' followed by '2017/123456' on the next line, 'Part #' followed by '43536' on the next line.

Serial #  
2017/123456  
Part #  
43536

Version #, Capacity

A black rectangular screen with white text. The text is centered and reads: 'Version #' followed by '2.XX' on the next line, 'Capacity' followed by '200 N·m' on the next line.

Version #  
2.XX  
Capacity  
200 N·m

Hardware options fitted.

A black rectangular screen with white text. The text is centered and reads: 'Options' followed by 'Bluetooth' on the next line, and 'Angle' on the next line.

Options  
Bluetooth  
Angle

Extended Capacity.

A black rectangular screen with white text. The text is centered and reads: 'Extended' followed by 'Capacity' on the next line, and '2970 N·m' on the next line.

Extended  
Capacity  
2970 N·m

## 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	51	41	468
NorTronic® 200	0.1 N·m	± 1 L.S.D (0.1 N·m)	1.45	3.20	51	41	593
NorTronic® 330	0.1 N·m	± 1 L.S.D (0.1 N·m)	1.89	4.17	51	41	808

Display:	2 x 0.95" OLED colour displays. With update rate of five readings per second (5 Hz).
Torque unit conversions:	To 'BS 350:2004 Conversion factors for units'.
Units of measurement:	N·m, dN·m, cN·m, Kg·m, Kg·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%. +/-1% of reading from 20% - 100%.
Angle display (CW & CCW):	1° Resolution, Maximum angle 999 degrees.
Angle accuracy:	CW = 1% +/-1 digit. 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). <i>Dependant on display settings.</i>
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.
USB:	2.0 Device (5 pin mini).
Bluetooth®:	2.4 GHz Contains Transmitter Module FCC ID: QOQBLE112 Contains Transmitter Module IC: 5123A-BGTBLE112 This device complies with Part 15 of the FCC Rules, subpart C. Contains transmitter module IC: BLE112.

Mechanical overload:	<p>NorTronic® 50, 100% of Torque Capacity</p> <p>NorTronic® 200, 50% of Torque Capacity</p> <p>NorTronic® 330, 50% of Torque Capacity</p>
FCC Rules (USA):	<p>This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy, and if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment OFF and ON, the user is encouraged to try to correct the interference by one or more of the following measures:</p> <ul style="list-style-type: none"> <li>• Reorient or relocate the receiving antenna.</li> <li>• Increase the separation between the equipment and receiver.</li> <li>• Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.</li> <li>• Consult the dealer or an experienced radio/TV technician for help.</li> </ul>
RSS Standard (Canada):	<p>This device complies with Industry Canada license-exempt RSS standard(s).</p> <p>Operation is subject to the following two conditions: (1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of the device.</p>

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

### EU Declaration of Conformity (No 0019V2)

The object of the declaration: NorTronic® Electronic Torque Wrench. Serial Number – All.

The object of the declaration described above is in conformity with the relevant union harmonisation legislation:

<b>Model Name (Part Number):</b>	NorTronic 50 868MHz (43500 & 43501) NorTronic 200 868MHz (43502) NorTronic 330 868MHz (43503) NorTronic 50 Bluetooth® (43534 & 43535) NorTronic 200 Bluetooth® (43536) NorTronic 330 Bluetooth® (43537)	NorTronic 50 915MHz (43504 & 43505) NorTronic 200 915MHz (43506) NorTronic 330 915MHz (43507) <b>NOTE: Turn wireless feature off for use in Europe (SETUP / Wireless / Not Enabled).</b>
<b>Legislation</b>	Directive 2014/30/EU on Electromagnetic Compatibility (EMC). Directive 2011/65/EU of the European Parliament and of the Council of 8 June 2011 on the restriction of the use of certain hazardous substances in electrical and electronic equipment (RoHS). Directive 2014/53/EU on Radio Equipment (RED).	Directive 2014/30/EU on Electromagnetic Compatibility (EMC). Directive 2011/65/EU of the European Parliament and of the Council of 8 June 2011 on the restriction of the use of certain hazardous substances in electrical and electronic equipment (RoHS).

The object of the declaration described above has been designed to comply with the following standards:

EMC directive	RED directive	
	868MHz	Bluetooth®
EN 61326-1:2013	EN 301 489-1 V2.1.1 & EN 301 489-1 V2.2.0. EN 301 489-17 V3.1.1 & EN 301 489-17 V3.2.0. EN 300 220-1 V3.1.1 & EN 300 220-2 V3.1.1. EN 62311:2008.	EN 301 489-1 v.2.1.1 & EN 301 489-17 v3.1.1 EN 61000-4-3:2006 + A1:2008 + A2:2010. EN 300 328 v2.1.1

The basis on which conformity is being declared:

This declaration of conformity is issued under the sole responsibility of the manufacturer.

The technical documentation required to demonstrate that the product meets the requirements of the above Directives has been compiled by the signatory below and is available for inspection by the relevant enforcement authorities.

The CE mark was first applied in: 2014.

The authorised representative within the European Union (EU) is:

Francesco Frezza Snap-on Equipment S.r.l. Via Prov. Carpi, 33 42015 Correggio RE Italy

Signed for and on behalf of Norbar Torque Tools Ltd.

Signed: *T.M. Lester* Full Name: Trevor Mark Lester B.Eng. Date: 25 January 2021. Authority: Compliance Engineer  
Place: Norbar Torque Tools Ltd., Wildmere Road, Banbury, Oxfordshire. OX16 3JU

### UK Declaration of Conformity (No 0019V0)

The object of the declaration: NorTronic® Electronic Torque Wrench. Serial Number – All.

The object of the declaration described above is in conformity with the relevant UK statutory requirements:

<b>Model Name (Part Number):</b>	NorTronic 50 868MHz (43500 & 43501) NorTronic 200 868MHz (43502) NorTronic 330 868MHz (43503) NorTronic 50 Bluetooth® (43534 & 43535) NorTronic 200 Bluetooth® (43536) NorTronic 330 Bluetooth® (43537)	NorTronic 50 915MHz (43504 & 43505) NorTronic 200 915MHz (43506) NorTronic 330 915MHz (43507) <b>NOTE: Turn wireless feature off for use in Europe (SETUP / Wireless / Not Enabled).</b>
<b>Legislation</b>	Electromagnetic Compatibility Regulations 2016 The Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment Regulations 2012. Radio Equipment Regulations 2017	Electromagnetic Compatibility Regulations 2016 The Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment Regulations 2012

The object of the declaration described above has been designed to comply with the following standards:

Electromagnetic Compatibility	Radio Equipment	
	868MHz	Bluetooth®
EN 61326-1:2013	ETSI EN 301 489-1 V2.1.1, ETSI EN 301 489-1 V2.2.0. ETSI EN 301 489-17 V3.1.1. ETSI EN 301 489-17 V3.2.0. ETSI EN 300 220-1 V3.1.1. ETSI EN 300 220-2 V3.1.1. BS EN 62311:2008.	ETSI EN 301 489-1 v.2.1.1 ETSI EN 301 489-17 v3.1.1 BS EN 61000-4-3:2006 + A1:2008 + A2:2010. ETSI EN 300 328 v2.1.1

The basis on which conformity is being declared:

This declaration of conformity is issued under the sole responsibility of the manufacturer. The technical documentation required to demonstrate that the products meet the requirements of the above legislation has been compiled by the signatory below and is available for inspection by the relevant enforcement authorities.

The UKCA mark was first applied in: 2021.

Signed for and on behalf of Norbar Torque Tools Ltd.

Signed: *T.M. Lester* Full Name: Trevor Mark Lester B.Eng. Date: 13 May 2021. Authority: Compliance Engineer  
Place: Norbar Torque Tools Ltd., Wildmere Road, Banbury, Oxfordshire. OX16 3JU

# 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](http://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 $\pm 3\%$ 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. Change the Active From setting to a larger value

## 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 and 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