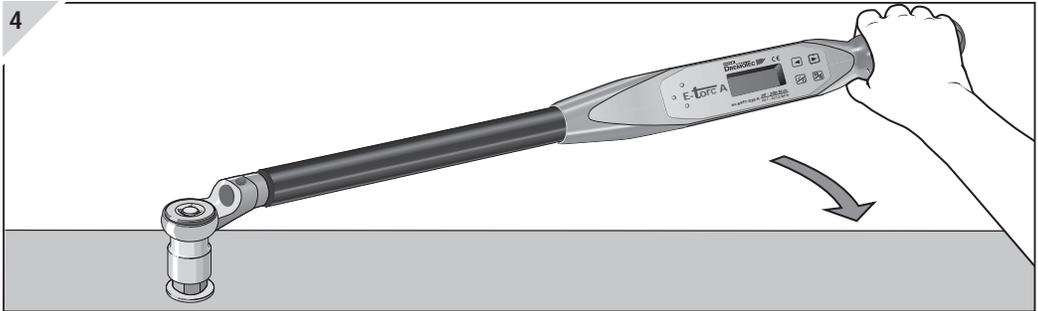
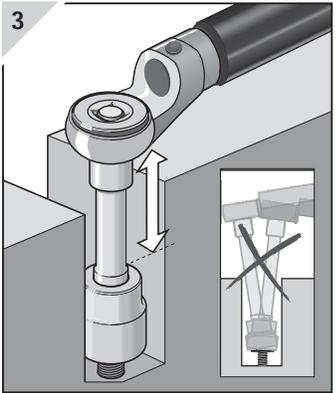
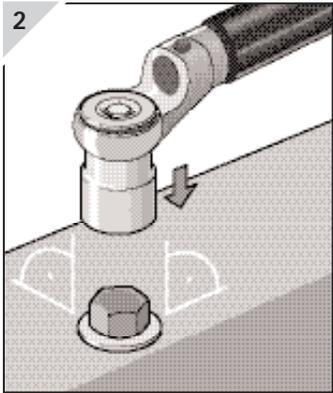
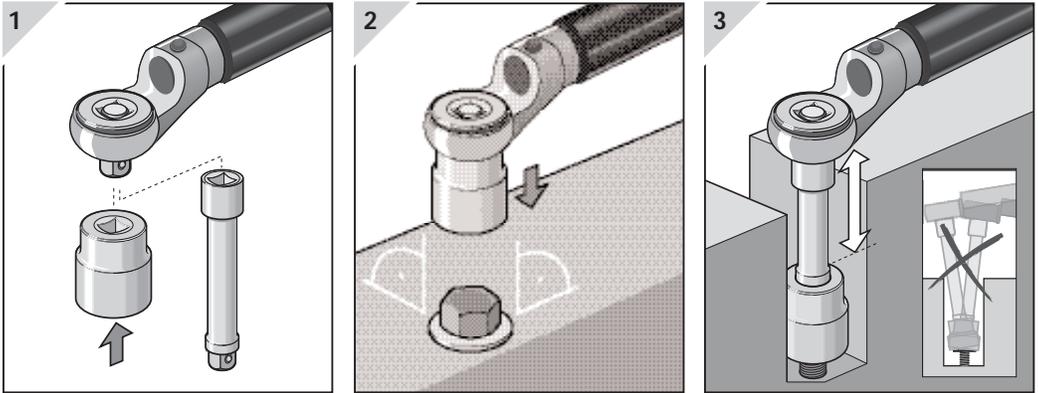
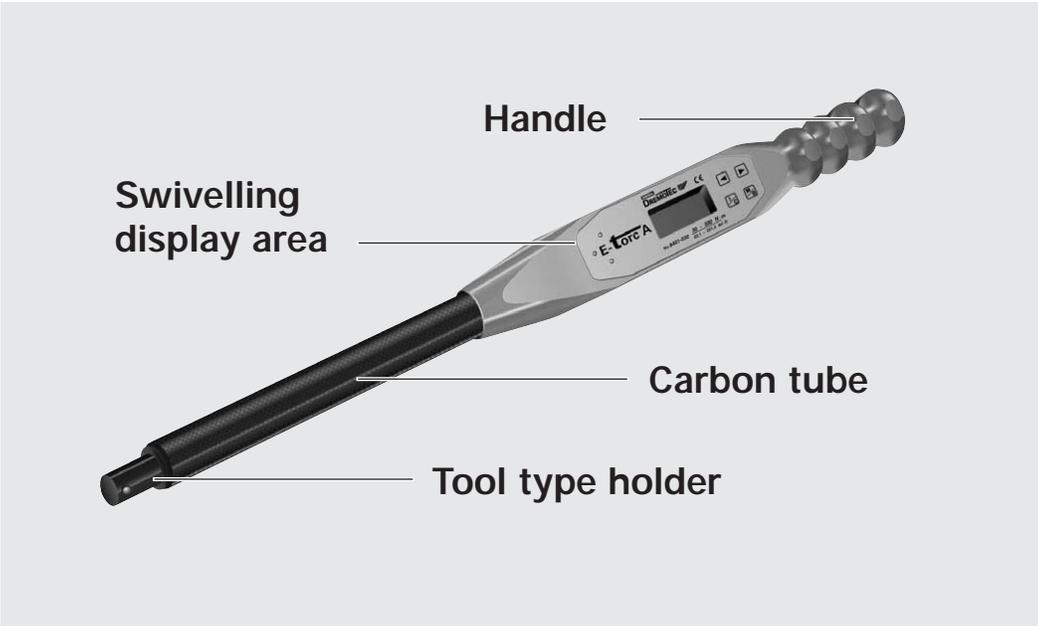


ETORC

Torque & Angle Models Operating Instructions



Mountz, Inc
ISO 9001 (2000) company

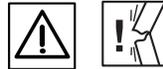


These operating instructions provide important information for the correct operation of the E-TORC A.

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SAFETY INFORMATION



▣ The E-TORC A is a precision tool. Despite its robust design, the E-TORC A should be treated like a measuring device.

Do not use the E-TORC A as a striking tool as this may destroy it.

▣ Before using the E-TORC A, ensure that it is correctly calibrated. All new E-TORC A models come with a test certificate in compliance with DIN ISO 6789.

▣ Please attach only standard sockets and accessories to the E-TORC A. Do not use worn or defective accessories and, where possible, do not use reduction adapters.

▣ To avoid the danger of slipping, always attach the E-TORC A onto the screw connection at a right angle.

▣ Do not exceed the permitted torque value for the E-TORC A. Excessive tightening of the E-TORC A can cause material failure!

INTENDED USE

- ✔ The E-TORC A may only be used for its intended purpose.
- ✔ The E-TORC A is designed exclusively for the controlled tightening of screws.
- ✔ Any other additional use of the E-TORC A is not the intended use.
- ✔ Liability will not be accepted for any damages arising from incorrect use. Guarantee/warranty services are also excluded in such cases.

MODELS

E-TORC A Model No.	Tool cavity	Measurement range		Weight
		Mt	DEG	
8441-010 A	16 Z	10-150 N·m	0°-999°	1400 g
8441-030 A	16 Z	30-300 N·m	0°-999°	1500 g
8443-010 A	9 x 12 mm	10-150 N·m	0°-999°	1400 g
8444-030 A	14 x 18 mm	30-300 N·m	0°-999°	1500 g

TECHNICAL DATA

Display swivel range
62° clockwise;
62° counter-clockwise

Zero adjustment
by pressing the button

Transducer (Mt)
bending bar with full bridge circuit

Transducer (DEG)
rate gyroscope

Measurement accuracy over entire handle length
max. $\pm 1\%$ / ± 1 Digit
of actual measured value

Resolution
0.1 N·m; DEG: 1°

Torque display
LCD – graphic display

Status message
Min and Max values via 3 LED's, acoustic signal generator and sensory signal generator (vibration).

Memory
2000 measured values

Power supply
2 batteries 1.5V LR14 or
2 NiH batteries C 1.2V 3500 mAh

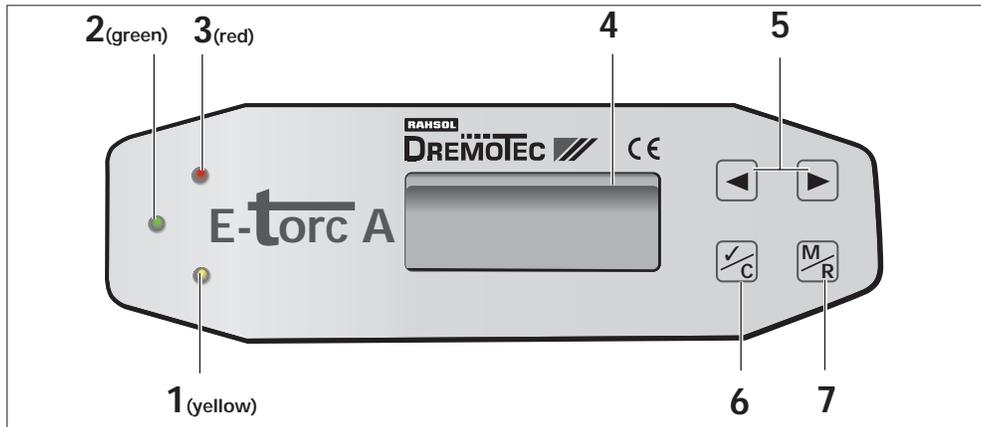
Operating life
battery operated: min.: 50 hours
NiH battery operated: min.: 24 hours

Temperature range
+10 ° to +40 °C ambient temperature

Interface
RS 232; 300 - 9600 Baud; No parity,
8 data bits, 1 stop bit

DESCRIPTION

SWITCHING ON/OFF



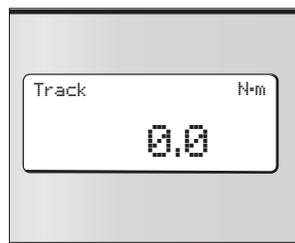
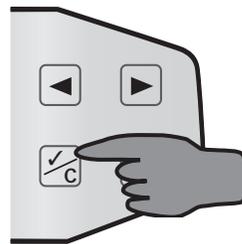
- 1 LED yellow:
Early warning value reached
- 2 LED green:
Measurement within set preset limits (OK)
- 3 LED red:
Measurement outside set preset limits (NOK)
- 4 LCD display:
scaled in N·m and
lbf·in / lbf·ft
- 5   Arrow keys to adjust limit values (up/down)
- 6 Confirmation key 
✓: Confirm entry /
C: Calibration mode key
- 7 Menu key 
M: Menu call up /
R: Return (back)

 This symbol indicates an action to be implemented using the E-TORC A keys.

Switch on

The E-TORC A is switched on by pressing key 6.

► The torque wrench electronics start functioning and, after a few seconds, the display will show the current measurement mode of the E-TORC A.



MEASUREMENT PROCEDURES

The E-TORC A offers three different measurement procedures.

Track:

✔ The **Track mode** is a "Continuous value measurement"

✔ This means that the current torque is continually displayed on the display during tightening.

✔ The peak value is not retained on the display during the measurement and after release.

✔ Limit values are not required.

i | The LED's, beeper and vibrator are deactivated.

Peak:

✔ The **Peak mode** is a "Peak value measurement".

✔ During tightening, the current torque is continuously displayed.

✔ If a maximum torque is reached or the tightening is interrupted, the display will show the last maximum torque value "peak value".

✔ Only peak values are stored.

✔ Limit values are not required.

i | The LED's, beeper and vibrator are deactivated.

Preset:

✔ The **Preset mode** is a "Limit value measurement".

✔ Limit values must be entered in the E-TORC A.

✔ There is a choice between absolute (N·m) or relative (%) input of limit values.

✔ The E-TORC A signals when the limit value range is reached by means of the LED's, beeper and vibrator.

i | The torque achieved (peak values) is stored together with the input limit values, the status of the screw connection (OK or NOK) and the date/time.

Angle:

✔ A torque / torque angle measurement can be implemented without reference arm in the **Angle-Mode**.

✔ However, a start point for the angle measurement (preset torque) must first be entered into the wrench.

✔ In addition, the limit values for the torque / torque angle measurement must be entered into the wrench.

✔ Once the start point has been exceeded, the display shows the respective torque and angle value.

✔ The tightening torque reached (torque and angle) and the entered limit values, status (OK or NOK), the screw connection and date/time are saved.

i | **Important!**
In order to prevent greater imprecision during angle measurement, the E-TORC A must be held **GENTLY** in the hand during each Reset. The confirmation button should **never** be pressed during a movement as this will move the zero point.

If this does happen accidentally, please hold the wrench gently in the hand and press the confirmation key again.

Setting the measurement procedure:

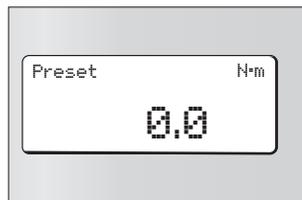
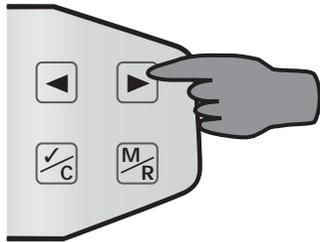
When first switched on, the E-TORC A is always in the **Track mode**.

In order to switch to a different measurement procedure, select the required mode using the arrow keys.

Example:

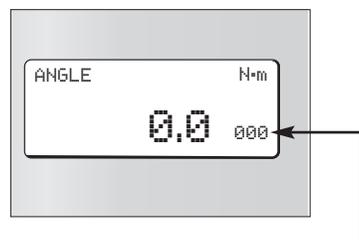
"Preset limits measurement".

Press the arrow keys until **Preset** appears in the display.



After selection the display shows the actually measurement mode!

The angle value is shown in addition to the torque in the **Angle Mode**.



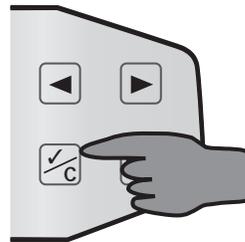
Indicator of the angle measurement.

i | An angle measurement can only be carried out once the angle measurement display can be seen in the display. This appears after approx. 3 seconds.

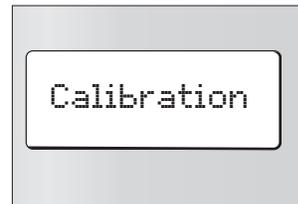
The E-torc needs this time to activate the angle sensor, which is normally automatically switched off for energy-saving reasons during a normal torque measurement.

Switch off

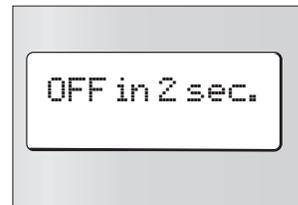
To switch off the E-TORC A, press the confirmation key for ca. 3-4 seconds.



The display then shows the message:



and, after another 2 seconds, the message:



i | Please keep pressing the button until the display goes out.

CONTROLLED SCREW TIGHTENING

 Figures 1 – 4

✓ The electronic torque wrench E-TORC A is suitable for controlled right and left-handed tightening.

1 Attach a ratchet head and the matching socket wrench or other matching accessory tool (Open-End, Ring, Inbus, Torx® attachment) for the screw connection.

2 Position the E-TORC A together with the accessory tool on the screw connection at right angles.

3 **Attention!**
 To avoid tilting and slipping, always select the extension that brings the E-TORC A as close as possible to the screw connection.

✓ The display area of the E-TORC A can be swivelled around +/- 62°. This makes it possible to have the display area constantly in view while tightening.

4 Operate the E-TORC A by holding it with 1 or 2 hands on the handle only and tightening uniformly.
In the "Preset" mode, the YELLOW LED will be the first to signal that the input tolerances are being approached.

✓ When the input tolerances are reached, the GREEN LED lights up.
In addition, an acoustic warning signal can be heard and, depending on the settings, a sensory signal may be generated by the vibrator.

i Do not continue tightening after the signal has been given!

✓ The RED LED lights up if the MAX tolerance is exceeded, and this is supported by an acoustic and sensory warning signal.

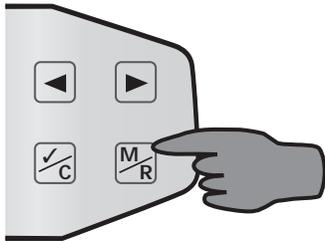
✓ Depending on the setting of the E-TORC A, the measured value reached must either be manually saved to reset the display to null or it is automatically saved by the E-TORC A.
The E-TORC A will then be ready for use immediately.

Attention!
 The torque transmitted is dependant on the lever arm length. Applying the load other than through to hand grip, or the use of extension tubes or special additional tools, renders the displayed torque value incorrect.

MAIN MENU

i One detailed example for menu operation will be explained here and the rest of the procedures in these instructions will be given in abbreviated format.

To reach the main menu, switch on the wrench and simply press the Menu key.



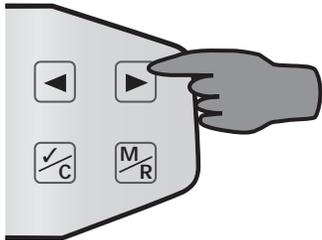
The graphic display will switch from the measurement mode to the main menu.



The display shows:

Setup

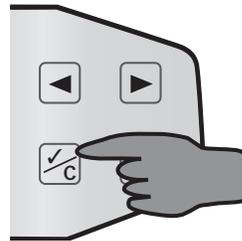
i Use the arrow keys to select the required main menu.



The following menu items are available:

- => Setup
- => Preset limits
- => Battery State
- => Memory
- => Multi-Presets
- => Units
- => Quit

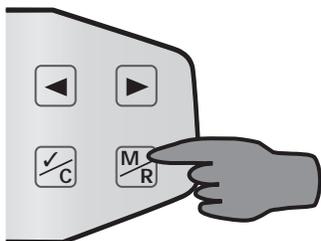
Once the required menu has been selected, confirm by pressing the confirmation key.



i An example description is given, based on the following main menu "Setup", on how to call up a sub menu, change settings and return to the active measurement mode.

MAIN MENU SETUP

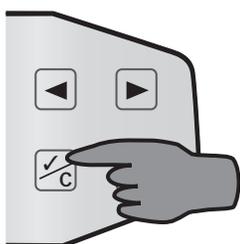
First switch from the current measurement mode to the main menu overview: Press the Menu key.



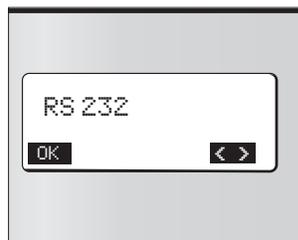
The main menu overview shows the first main menu "Setup" on the display.



Confirm the "Setup" display to open the main menu "Setup".



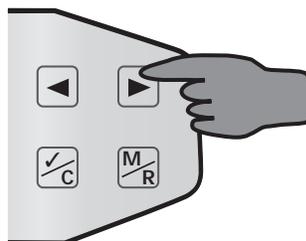
The first sub menu will be displayed: "RS 232".



The following sub menus are available:

- => RS 232
- => Date - Time
- => Contrast
- => Language
- => Autoreset
- => Preset Abs-Rel
- => Vibration

Use the arrow keys to select the required sub menu.



i | In this example, the sub menu "Date - Time" is called up.

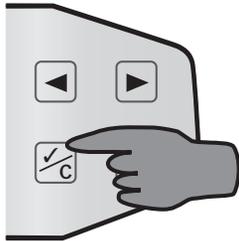
Sub menu Date - Time

✔ Normally, these settings are default set during initial commissioning of the wrench in the factory. Even changing the batteries will not affect these settings.

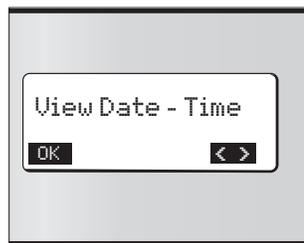
✔ However, there are always circumstances requiring modification of date and time (e.g. a different time zone).

✔ To change or display these settings, proceed as described below:
In the main menu item "Setup", select the menu item "Date - Time" with the arrow keys.

Confirm the selection with the confirmation key.

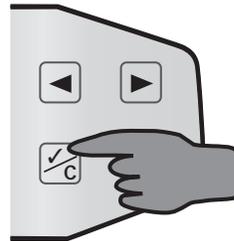


Following confirmation, the menu "View Date - Time" will appear in the display.

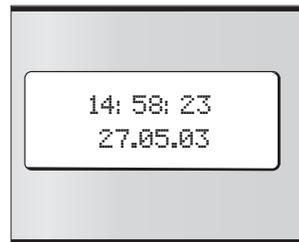


The set time and date can be displayed here.

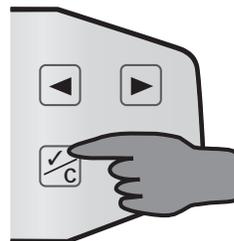
Confirm this with the confirmation key.



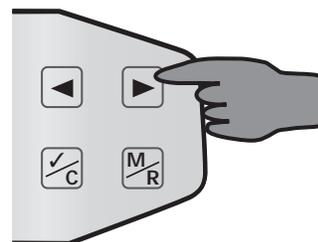
The currently set time and date will be displayed.



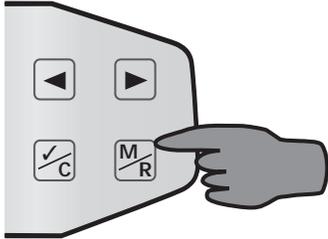
To leave this display, press the confirmation key again.



To change the time and date, use the arrow keys to select the menu "Set time".



To leave the sub menu at this point, press the Menu (Return) key.



This calls up the sub menu "Date - Time".

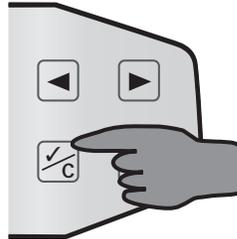


i To return to the measurement mode, press the Menu (Return) key again and continue as described at the end of this example.

If the menu "Set time" was selected to change the displayed time, continue as described below.

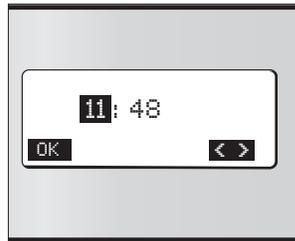


Confirm this with the confirmation key.

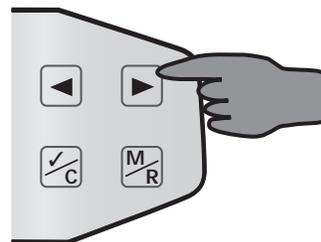


After confirmation, the time in hours and minutes appears in the display.

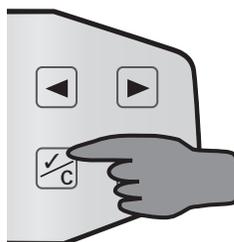
The hour display is marked in black.



The hour can now be changed using the arrow keys.



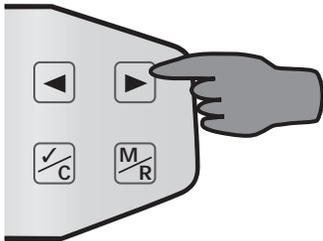
Once the required hour is set, confirm the settings with the confirmation key.



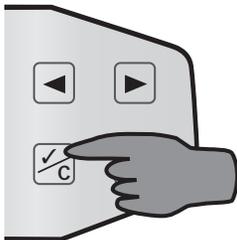
The black marking now changes automatically to the minutes.



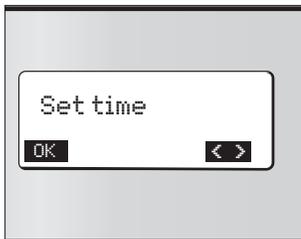
The minutes can also be changed with the arrow keys.



The settings must then be confirmed with the confirmation key.

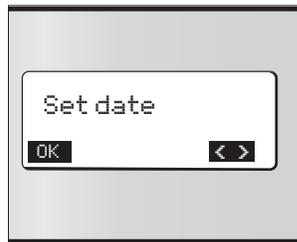
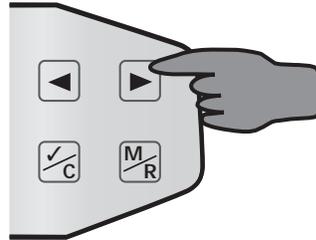


The menu "Set time" will then appear again in the display.

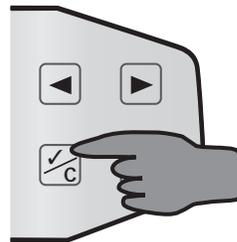


Set date

To set the date, select the menu "Set date" with the arrow keys.



Confirm the selection with the confirmation key.

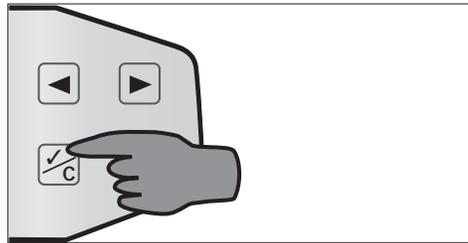


The date will then be shown in the display, with the day displayed on a dark background.



i | Changing the date is the same procedure as described in "Set time".

Confirm the set date with the confirmation key.



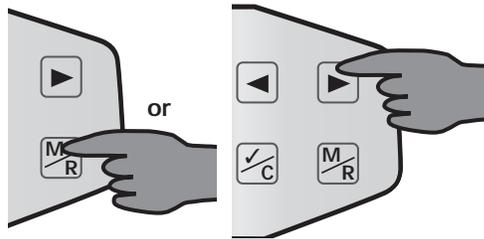
Press the Return key once to return to the sub menu "Date - Time".



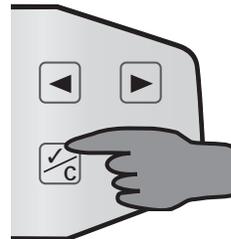
i | Press the Return key again to return to the main menu "Setup".



In order to return to the measurement mode, press the Menu (Return) key again or use the arrow keys to select the menu item "Quit".



Confirm this with the confirmation key.



i | Following confirmation, the active measurement mode appears in the display.

i It is possible to select all menus and sub menus as described in the previous example in order to change settings or implement functions.

Abbreviated procedure description

▀ The remainder of these instructions will use an abbreviated procedure description.

▀ Example for the display:

Setup

▀ Action / Result: =>

▀ Key depiction: 

Procedure example 1:

Setup =>  => RS 232

means:

Press the confirmation key in the main menu "Setup". Result: This calls up the first sub menu "RS 232".

Procedure example 2:

RS 232 =>  => Setup =>   =>   => Quit => Track 0.0 Nm

means:

Press the menu key in the sub menu "RS 232". Result:

Returns to the main menu "Setup".

Action:

Use the arrow keys to select main menu "Quit" and press the confirmation key.

Result:

This leaves the menu mode and returns to the active measurement mode.

Sub menu RS 232

▀ The E-TORC A is equipped with an RS 232 interface. It is located on the rear of the E-TORC A.

▀ To communicate via the interface with the E-TORC A, the data transfer cable supplied with the wrench is required.

▀ To ensure that data transmission functions without problems, both units must be identically configured.



Switch from the main menu "Setup" to the sub menu "RS 232" and confirm the selection.

Setup =>  => RS 232 => 

The graphic display shows:



The currently set baud rate (e.g. 9600) is shown in the display.

To change this setting, use the arrow keys to select the required baud rate and confirm the new setting.

9600 =>   => 14400 => 

 In order to return to the current measurement mode, proceed as follows.

RS 232 =>  => Setup =>   => Quit =>  => Track 0.0 Nm

Press the Menu (Return) key.

Use the arrow keys to select the menu item "Quit" and confirm with the confirmation key or press the Menu (Return) key in the menu item "Setup" again.

Setup =>  => Track 0.0 Nm

Sub menu Contrast

✔ The graphic display can be made lighter or darker here as required.

✔ To change the default settings, proceed as described below.

 Switch to the main menu "Setup" and confirm with the confirmation key. Result: The first sub menu "RS 232" is displayed.

Setup =>  => RS 232

 Use the arrow keys to select the sub menu "Contrast" and press the confirmation key.

=>   Contrast => 

The display shows the display "Bright - Dark".



 Press the arrow keys repeatedly to obtain the required setting. Then press the confirmation key.

 To return to the main menu "Setup", press the Menu (Return) key.

Contrast =>  => Setup

 To return to the measurement mode, press the Menu (Return) key again.

Setup =>  => Track 0.0 Nm

Sub menu Language

Use this menu item to select the required menu language to be used in the graphic display.

The following menu languages can be selected:

=> German

=> English

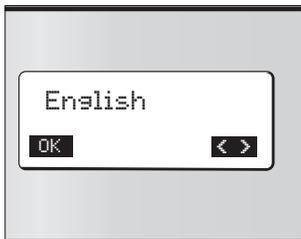
Switch to the main menu "Settings" and confirm with the confirmation key.

Setup => [OK] => RS 232

Use the arrow keys to select the sub menu "Language" and press the confirmation key.

=> [Left] [Right] Language => [OK]

The current language setting, e.g. "English" is shown in the display.



Press the arrow keys to obtain the required language setting. Then press the confirmation key.

To return to the main menu "Setup", press the Menu (Return) key.

Language => [M/R] => Setup

To return to the measurement mode, press the Menu (Return) key again.

Setup => [M/R] => Track 0.0 N.m

Sub menu Autoreset

The E-TORC A has a function that can automatically save the displayed measured value.

After the measured value is saved, the value is reset to zero in the display.

This function can be switched on or off.

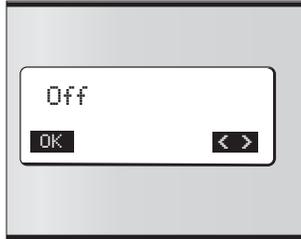
Switch to the main menu "Setup" and confirm with the confirmation key.

Setup => [OK] => RS 232

Use the arrow keys to select the sub menu "Autoreset" and press the confirmation key.

=> [Left] [Right] Autoreset => [OK]

The current setting, e.g. "Off" is shown in the display.



 Press the arrow keys to obtain the required setting.
Then press the confirmation key.

 To return to the main menu "Setup", press the Menu (Return) key.

Autoreset =>  => Setup

 To return to the measurement mode, press the Menu (Return) key again.

Setup =>  => Track 0.0 Nm

Sub menu Preset Abs-Rel settings

▼ This sub menu item can be used to select the input type for the limit values.

▼ Select between input in

=> absolute values

=> relative values

▼ With absolute (Abs.) input of limit values, the values must be entered in the corresponding units.

Example specification 40 N·m ± 10 N·m:

=> Min. limit value: 30 N·m.

=> Nominal value: 40 N·m.

=> Max. limit value: 50 N·m.

▼ When entering relative (Rel.) limit values, the values must be entered in percent (%).

The E-TORC A then calculates the absolute limit values.

Example: Specification 15.5 N·m ±10%

=> Min. limit value: 13.95 N·m.

=> Nominal value: 15.5 N·m.

=> Max. limit value: 17.05 N·m.

 Switch to the main menu "Setup" and confirm with the confirmation key.

Setup =>  => RS 232

 Use the arrow keys to select the sub menu "Preset Abs-Rel" and press the confirmation key.

=>   Preset Abs-Rel => 

The current limit value display setting, e.g. "Abs." is shown in the display.



Press the arrow keys to change the setting to "Rel.". Then press the confirmation key.

To return to the main menu "Settings", press the Menu (Return) key.

Preset Abs-Rel => => Setup

To return to the measurement mode, press the Menu (Return) key again.

Setup => => Track 0.0 N.m

i **Note:**
This settings refer only to torque measurements!
Angle measurements are excluded.

Sub menu Vibration

► To facilitate work, the E-TORC A is equipped with a vibration signal. This indicates that the specified tightening torque has been reached by means of a vibrating signal.

► This function can be switched on or off.

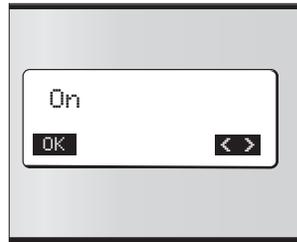
Switch to the main menu "Setup" and confirm with the confirmation key.

Setup => => RS 232

Use the arrow keys to select the sub menu "Vibration" and press the confirmation key.

=> Vibration =>

The current setting, e.g. "On." is shown in the display.



Press the arrow keys to change the setting to "Off". Then press the confirmation key.

The vibration function is switched off.

 To return to the main menu "Setup", press the Menu (Return) key.

Vibration =>  => Setup

 To return to the measurement mode, press the Menu (Return) key again.

Setup =>  => Track 0.0 N.m

 **Attention!**
The vibrator will be automatically deactivated by the E-TORC A when the battery voltage has reached a critical level!

MAIN MENU: PRESET LIMITS

 First switch from the current measurement mode to the **Preset** mode:
Press the arrow keys until **Preset** appears in the display.

 Switch from the measurement mode to the main menu overview:
Press the Menu key.

Preset 0.0 N.m =>  => Setup

 Use the arrow keys to select the main menu "Preset-Limits" and press the confirmation key.

=>   Preset-Limits => 

▼ The E-TORC A can set the following limit values for the **Preset mode** or the **Angle Mode**:

- => Nominal value
- => Maximum value
- => Minimum value
- => Notice value
- => Preset torque
- => Angle Min.
- => Angle Max

i **Note:**
The LED's, BUZZER and VIBRATION SENSOR are only active in the **Preset Mode** or the **Angle Mode**.
They have no function in the measurement modes **Track** and **Peak**.

Sub menu Nominal value

- ✔ The nominal value is greater than the minimum value and smaller than the maximum value!
- ✔ When the nominal value is reached, the green LED lights up permanently and the buzzer sounds.
- ✔ The setting is documented.
- ✔ Input must always be an absolute value, e.g. in "N·m".

 In the main menu "Preset Limits", use the arrow keys to select the sub menu "Nominal Value" and press the confirmation key.

```
Preset-Limits => [C] =>
Nominal Value => [C]
```

 Use the arrow keys to select the required nominal value. Then press the confirmation key.

 To return to the main menu "Preset Limits", press the Menu (Return) key.

```
Nominal Value => [M_R] =>
Preset-Limits
```

 To return to the measurement mode, press the Menu (Return) key again.

```
Preset-Limits => [M_R] =>
Preset 0.0 N·m
```

Sub menu Maximum value

- ✔ The maximum value is greater than the nominal value!
- ✔ When the maximum value is reached, the red LED lights up and the buzzer sounds.
- ✔ The input must be either a relative (%) or absolute (e.g. N·m) value.
- ✔ The setting is documented.

 In the main menu "Preset Limits", use the arrow keys to select the sub menu "Maximum value" and press the confirmation key.

```
Preset-Limits => [C] =>
Maximum Value => [C]
```

 Use the arrow keys to select the required maximum value. Then press the confirmation key.

 To return to the main menu "Preset Limits", press the Menu (Return) key.

```
Maximum Value => [M_R] =>
Preset-Limits
```

 To return to the measurement mode, press the Menu (Return) key again.

```
Preset-Limits => [M_R] =>
Preset 0.0 N·m
```

Sub menu Minimum value

▀ The minimum value is greater than the notice value and smaller than the nominal value!

▀ When the minimum value setting is reached, the green LED flashes. The minimum value reached is documented!

▀ The input must be relative (%) or absolute (e.g. N·m)

 In the main menu "Preset Limits", use the arrow keys to select the sub menu "Minimum Value" and press the confirmation key.

Preset-Limits =>  =>

Minimum Value => 

 Use the arrow keys to select the required minimum value. Then press the confirmation key.

 To return to the main menu "Preset Limits", press the Menu (Return) key.

Minimum Value =>  =>

Preset-Limits

 To return to the measurement mode, press the Menu (Return) key again.

Preset-Limits =>  =>

Preset 0.0 N.m

Sub menu Notice value

▀ The notice value is smaller than the minimum value!

▀ The notice value will warn the user in time that the tolerance range of the screw connection is being approached.

▀ The notice value is shown in the display as a peak value. This means that the value reached will be retained and shown in the display even after the wrench has been released.

▀ When the notice value limit is exceeded, the yellow LED flashes.

▀ The input must be either relative (%) or absolute (e.g. N·m).

▀ The notice value is dependent on the minimum value.

 In the main menu "Preset Limits", use the arrow keys to select the sub menu "Notice Value" and press the confirmation key.

Preset-Limits =>  =>

Notice Value => 

 Use the arrow keys to select the required preset limit. Then press the confirmation key.

 To return to the main menu "Preset Limits", press the Menu (Return) key.

Notice Value =>  =>

Preset-Limits

 To return to the measurement mode, press the Menu (Return) key again.

Preset-Limits =>  =>
Preset 0.0 N.m

Sub menu Preset Torque

✔ The preset torque is the torque that determines the starting point for angle measurement (DEG). This means that an angle value is shown in degrees on the display when the preset torque is exceeded.

✔ In order to set the preset torque, you need to switch from the measuring mode to the main menu mode.

 In the main menu "Preset Limits", use the arrow keys to select the sub menu "Preset Torque" and press the confirmation key.

Preset-Limits =>  =>
Preset Torque => 

 Use the arrow keys to select the required value.
Then press the confirmation key.

 To return to the main menu "Preset Limits", press the Menu (Return) key.

Preset Torque =>  =>
Preset-Limits

 To return to the measurement mode, press the Menu (Return) key again.

Sub menu Angle Min

✔ The angle min value setting will be stored in the memory.

✔ In order to set the angle min value, you need to switch from the measuring mode to the main menu mode.

 In the main menu "Preset Limits", use the arrow keys to select the sub menu "Angle Min" and press the confirmation key.

Preset-Limits =>  =>
Angle Min => 

 Use the arrow keys to select the required value.
Then press the confirmation key.

 To return to the main menu "Preset Limits", press the Menu (Return) key.

Angle Min =>  =>
Preset-Limits

 To return to the measurement mode, press the Menu (Return) key again.

Sub menu Angle Max

✔ The angle max value setting will be stored in the memory.

✔ In order to set the angle max value, you need to switch from the measuring mode to the main menu mode.

 In the main menu "Preset Limits", use the arrow keys to select the sub menu "Angle Max" and press the confirmation key.

Preset-Limits =>  =>
Angle Max => 

 Use the arrow keys to select the required value.
Then press the confirmation key.

 To return to the main menu "Preset Limits", press the Menu (Return) key.

Angle Min =>  =>

Preset-Limits

 To return to the measurement mode, press the Menu (Return) key again.

TIP: Check values

✔ To check the described preset limits without changing the current settings, leave each displayed sub menu by pressing the menu (Return) key.

Example:

 To check a set value, use the arrow keys in the main menu "Preset Limits" to select the required sub menu and press the confirmation key.

Preset-Limits =>  =>

Maximum Value =>  => 120 Nm.

 Leave the display again, without changing anything, by pressing the Menu (Return) key.

=> 120 Nm =>  => Maximum Value.

MAIN MENU: BATTERY

 First switch from the current measurement mode to the main menu overview:
Press the Menu key.

Preset 0.0 Nm =>  => Setup

 Use the arrow keys to select the main menu "Battery".

=>   Battery State

Sub menu Battery state

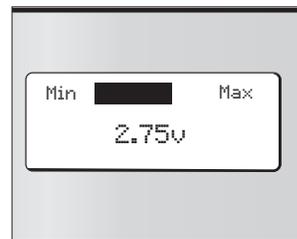
✔ The E-TORC A allows the battery status to be called up.

✔ The status is displayed in Volts and as a bar chart (Min – Max).

 Open the main menu "Battery State" with the confirmation key.

Battery State => 

After a few seconds, the display will indicate the current battery status.



 To return to the main menu "Battery State", press the confirmation key .

 To return to the measurement mode, press the Menu (Return) key.

 =>  =>



i Note:
To ensure the longest possible operating life of the wrench, the E-TORC A switches itself off automatically approx. 3 minutes after its last use.

MAIN MENU: MEMORY

► The following three sub menus can be selected in the main menu "Memory":

- => View memory
- => Print memory
- => Clear memory

First switch from the current measurement mode to the main menu overview:
Press the Menu key.

 =>  => 

 Use the arrow keys to select the main menu "Memory" and press the confirmation key.

=>    => 

Sub menu "View memory"

► The memory content can be shown here in the display.

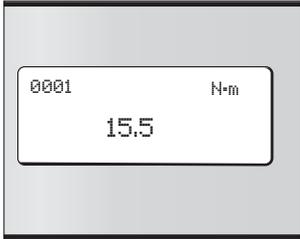
► The display shows the memory location number in the top left and the measurement value unit in the top right corner.

The centre of the display shows the measurement value of the memory location.

 Use the arrow keys to select the sub menu "View Memory" and press the confirmation key.

=>    => 

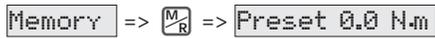
The display shows the content in memory location No. 0001:



Use the arrow keys to scroll through the memory and display the required value.

To return to the main menu "Memory", press the Menu (Return) key .

To return to the measurement mode, press the Menu (Return) key again.

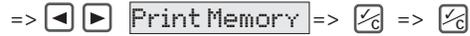


Sub menu "Print memory"

▀ The RS 232 interface can be used to print out the memory contents. The E-TORC A can be connected directly to a serial printer or a PC.

▀ To prepare a printout of the memory, switch from the measurement mode to the main menu "Memory".

Use the arrow keys to select the sub menu "Print Memory" and press the confirmation key. To start the printout, press the confirmation key again.



=> The display briefly shows the information "printing".

i Note:
When relative limit values are entered, they are converted to absolute values and displayed on the memory printout as absolute values.

To return to the main menu "Memory", press the Menu (Return) key .

Presentation of memory content:

Mem. Locat.	Measuring values	Min	Max	Angle	Preset Totque	Min	Max	Status	Time	Date	Preset No.
0001	015.5 N-m	010.0 N-m	016.0 N-m	20	10 N-m	15	25	OK	11:55:00	05.03.2003	
0002	015.0 N-m	012.5 N-m	014.5 N-m	10	5 N-m	5	9	NOK	12:13:00	05.03.2003	2
0003	012.5 N-m	010.0 N-m	013.0 N-m	34	7 N-m	27	39	OK	12:14:00	05.03.2003	1
0004	014.0 N-m	012.7 N-m	016.0 N-m	13	15 N-m	8	15	OK	12:15:00	05.03.2003	3
0005										

Sub menu "Clear memory"

➤ To delete memory content, switch from the measurement mode to the main menu "Memory".

 Use the arrow keys to select the sub menu "Clear Memory" and press the confirmation key.

=>   `Clear Memory` => 

=> The display briefly shows the information "clearing".

 To return to the main menu "Memory", press the Menu (Return) key .

 To return to the measurement mode, press the Menu (Return) key again.

`Memory` =>  => `Preset 0.0 Nm`

MAIN MENU: MULTI-PRESETS

➤ A so-called Multi-Preset is a program in which various tightening options (max. 25) and their parameters (limit values) can be stored.

These multi-presets are loaded via the RS 232 interface into the E-TORC A.

➤ If the E-TORC A is working in the preset mode, the parameters can be manually or automatically selected and edited.

➤ The E-TORC A saves all recorded data so that they can later be transferred to a PC via the RS 232 interface.

➤ There are two options to program a preset:

1. The programming of a preset using the supplied "Excel® Macro"
2. Or the programming of a preset using a normal terminal program (e.g. Hyperterminal in Windows®)

i Note:

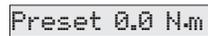
With both options, the E-TORC A and the PC must be connected and configured via the serial interface. Follow the instructions given in the section "Main menu: Setup" in the sub menu "RS 232"!

Load preset via "Excel Macro"

- ✔ Connect the E-TORC A with the PC.
- i** Note the operating instructions located separately on the CD for the Excel® Macro.
- ✔ Open the "Macro" instructions using the program Microsoft PowerPoint® from the CD.
- ✔ If you do not have Microsoft PowerPoint® on your PC, please start the Powerpoint Viewer (ppviewer97.exe) on the CD via your Windows Explorer.
- ✔ Open the preset file required for your E-TORC A model (844X-0X0 A) from the CD with a double click. Continue as described in the operating instructions.

Load preset via terminal program

 To enter the preset mode, switch from the measurement mode to the main menu mode:
Press the Menu key.

 =>  => 

 Use the arrow keys to select the main menu "Multi-Presets" and press the confirmation key.

=>    => 

✔ The following sub menus are available in the main menu "Multi-Presets":

- => Edit Presets
- => Auto Presets
- => Manual Presets

Sub menu "Edit Presets"

✔ Use this sub menu to create multi-presets and transfer them to the E-TORC A.

i Important:
To create a multi-preset, you will need a PC with a terminal program (e.g. Hyperterminal under Windows). The E-TORC A and the PC must be connected and configured via the serial interface. Follow the instructions given in the section "Main menu: Setup" in the sub menu "RS 232"!

 Use the arrow keys to select the sub menu "Edit Presets" and press the confirmation key.

=>    => 

The following note appears in the display:



Following successful connection, the following note appears in the display:



Create multi-presets

▼ The following query appears on your PC monitor:

Select from

- 1: Load multi-preset
- 2: Show multi-preset
- 3: Clear multi-preset
- 4: NOK screw connections permitted
- q: quit



To create a multi-preset, press "1" and confirm by pressing the ENTER key on the PC keyboard.

=> The following queries then appear on the monitor.

First query:

Pos:

=> Specify the position where this screw connection should be located. (Up to 25 parameter sets can be stored in a multi-preset.)

Example:

Pos.: 1 => First preset limit.

Pos.:14 => Fourteenth preset limit.

Second query:

Nominal value:

=> N·m = Nominal value input in N·m (or Lbf·ft, etc.)

The values must be input in whole numbers without comma or point.

Examples:

Value: 100.0 => Input: 1000

Value: 15.5 => Input: 155

Value: 7.2 => Input: 72

i Attention!

Different measurement units cannot be used in one preset (e.g. N·m and Lbf·ft). In order to measure using a different measurement unit, select the required measurement unit beforehand in the menu item "Units".

Third query:

Min. value:

=> N·m = minimum value input as absolute value.

Value input in whole numbers without comma or point (see examples above).

Fourth query:

Max. value:

=> N·m = maximum value input as absolute value.

Value input in whole numbers without comma or point (see examples above).

Fifth query:

Preset torque:

=> N·m = start value for angle measurement.

Value input in whole numbers without comma or point (see examples above).

Sixth query:

Angle Min:

=> DEG ° = Minimum value input as absolute value.

Seventh query:*Angle Max:*

=> DEG ° = Maximum value input as absolute value.

Eighth query:*Text:*

=> A brief description of the required screw connection can be entered here. This description can contain up to 16 characters.

i | **Note:**
Spaces are also characters!**Example of programming:***Select from*

- 1: *Load multi-preset*
- 2: *Show multi-preset*
- 3: *Clear multi-preset*
- 4: *NOK screw connections permitted*
- q: *quit 1:*

Pos: 01 => Preset Limit val. 01
Nominal: 130 => 13 N·m
Min: 115 => 11.5 N·m
Max: 145 => 14.5 N·m
Preset torque: 90 => 9.0 N·m
Angle Min: 10 => 10°
Angle Max: 15 => 15°
Text (16 characters): Seat screw 1L
 => Preset limits description



Input via PC keyboard: 1 for "Load multi-preset".



Confirm inputs via PC keyboard with the ENTER or RETURN key.

Select from
 1: Load multi-preset
 2: Show multi-preset
 3: Clear multi-preset
 4: NOK screw connections permitted
 q: quit 1:

Pos: 02
 Nominal: 200
 Min: 175
 Max: 225
 Text (16 characters): Seat screw 1R



Input via PC keyboard: 1 for "Load multi-preset".



Confirm inputs via PC keyboard with the ENTER or RETURN key.

i | To leave the macro programming, enter "q" and confirm with ENTER.

Show multi-preset

Once a multi-preset has been created, it can be displayed on the PC monitor.

Select from
 1: Load multi-preset
 2: Show multi-preset
 3: Clear multi-preset
 4: NOK screw connections permitted
 q: quit 2:



Input via PC keyboard: 2 for "Show multi-preset" and ENTER key.

=> The multi-preset contents will then be displayed.

NOK screw connection not permitted

Pos	Text	Nominal	MIN	MAX	Preset Torque	Angle: Min	Max
01	Seat screw 1L	13 N·m	11.5 N·m	14.5 N·m	9.0 N·m	10 DEG	15 DEG
02	Seat screw 1R	20 N·m	17.5 N·m	22.5 N·m	8.0 N·m	15 DEG	20 DEG
03	Seat screw 2L	22 N·m	19.5 N·m	24.5 N·m	5.0 N·m	7 DEG	11 DEG
04	Door chk str.f.L	12 N·m	8.5 N·m	14.5 N·m	9.0 N·m	10 DEG	15 DEG
05	S.belt F.L	120 N·m	117.5 N·m	122.5 N·m	10.0 N·m	25 DEG	31 DEG
06	Belt lock F.L	30 N·m	27.5 N·m	32.5 N·m	9.0 N·m	10 DEG	15 DEG
07	Window I. 1L	10 N·m	7.5 N·m	12.5 N·m	9.0 N·m	10 DEG	15 DEG
08	Window I. 2L	15 N·m	12.5 N·m	17.5 N·m	9.0 N·m	10 DEG	15 DEG
09						

Change multi-preset

▀ If it is necessary to change previously loaded preset positions, it is possible to overwrite the corresponding position using Point 1 "Load multi-preset". All values of the position preset must be entered again.

Example: Error in Pos. 01

PC monitor display:

Select from

1: Load multi-preset

2: Show multi-preset

3: Clear multi-preset

4: NOK screw connections permitted

q: quit 3:

Pos: 01

Nominal: 130

Min: 115

Max: 145

Text (16 characters): Seat screw 1L

 Input via PC keyboard: **1** for "Load multi-preset" and ENTER key.

 Confirm inputs via PC keyboard with the ENTER or RETURN key.

=> The old inputs are now overwritten.

Clear multi-presets

PC monitor display:

Select from

1: Load multi-preset

2: Show multi-preset

3: Clear multi-preset

4: NOK screw connections permitted

q: quit 3:

 **Attention!**
Carrying out this function will delete all presetted positions.

 Input via PC keyboard: **3** for "Clear multi-preset" and ENTER key.

NOK screw connections permitted

✔ If several limit values have been stored in the macro, the E-TORC A will load the next limit value after every OK when in the macro automatic mode.

✔ If the screw connection is NOK, the E-TORC A stops at this screw connection until it is OK.

✔ To allow NOK screw connections, this function can be used to instruct the E-TORC A.

PC monitor display:

Select from

1: Load multi-preset

2: Show multi-preset

3: Clear multi-preset

4: NOK screw connections permitted

q: quit 4:



Press key **4** on the PC to change the selection "NOK screw connections permitted".

=> The following query appears:

NOK screw connections permitted y/n



Enter a "y" for yes or a "n" for no and confirm with the ENTER key.



To check the settings, press key **2** on the PC for the selection "Show multi-preset" and confirm with the ENTER key.

=> The following screenshot will appear on the monitor:

<i>NOK screw connections permitted</i>							
01	Seat screw 1L	13 N·m	11.5 N·m	14.5 N·m	9.0 N·m	10 DEG	15 DEG
02	Seat screw 1R	20 N·m	17.5 N·m	22.5 N·m	8.0 N·m	15 DEG	20 DEG
03	Seat screw 2L	22 N·m	19.5 N·m	24.5 N·m	5.0 N·m	7 DEG	11 DEG
...

Or:

<i>NOK screw connection not permitted</i>							
01	Seat screw 1L	13 N·m	11.5 N·m	14.5 N·m	9.0 N·m	10 DEG	15 DEG
02	Seat screw 1R	20 N·m	17.5 N·m	22.5 N·m	8.0 N·m	15 DEG	20 DEG
03	Seat screw 2L	22 N·m	19.5 N·m	24.5 N·m	5.0 N·m	7 DEG	11 DEG
...

q: quit

➤ On completion of the macro programming, interrupt the connection between the PC and the E-TORC A.

PC monitor display:

Select from

- 1: Load multi-preset
- 2: Show multi-preset
- 3: Clear multi-preset
- 4: NOK screw connections permitted

q: quit

 To return to the main menu "Multi-Presets", press the Menu (Return) key.

=> Edit Presets =>  =>

Multi-Presets

 To return to the current measurement mode, press the Menu (Return) key.

Multi-Presets =>  =>

Preset 0.0 N.m

 Disconnect the connection by pressing the "q" key on the PC keyboard.

i | The cable connection between the E-TORC A and PC can now be disconnected.

=> The display of the E-TORC A shows "Edit Presets".

i | **Note:**
For questions regarding presets programming, please contact the manufacturer Richard Abr. Herder KG.

Sub menu "Auto Presets"

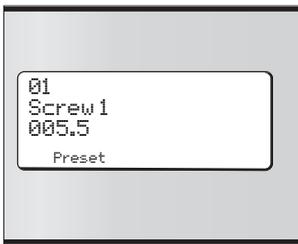
✔ If this function is selected, the preset is automatically executed in the programmed sequence.

 Switch to the main menu "Multi-Preset" and press the confirmation key .

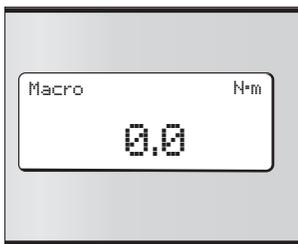
 Use the arrow keys to select the sub menu "Auto presets" and press the confirmation key.

=>   **Auto Presets** => 

The display briefly shows the description of the screw connection:



and then switches immediately to the macro measurement mode:



i To read this description again, display it using the arrow keys  .

✔ The display shows the current measured value as soon as the screw is tightened.

✔ If the preset limit is reached, a vibration, the LED's and the buzzer will indicate this.

✔ After the screw is tightened, the value and status of the screw connection can be seen in the display.

 Confirm the screw connection with the confirmation key .

✔ If the setting "NOK screw connections not permitted" has been selected, this preset position is repeated while the status is NOK until the status OK is achieved.

The next preset limit is then automatically loaded and displayed.

✔ With the setting "NOK screw connections permitted", the next preset limit is automatically loaded and displayed even if the status is NOK.

=> Once all programmed preset limits in the multi-preset have been executed, the display briefly shows the message "Empty" and "End".

=> The sub menu "Auto Presets" reappears.

 To return to the main menu "Multi-Presets", press the Menu (Return) key.

=> **Auto Presets** =>  =>

Multi-Presets

 To return to the current measurement mode, press the Menu (Return) key again.

Multi-Presets =>  =>

Preset 0.0 N+m

Sub menu "Manual Presets"

Use this menu to individually call up each limit value that you have programmed. This means that the sequence of programming does **not** need to be followed.

i This means that you can begin with screw connection 05 and stop with screw connection 01 or implement screw connection 03, then 07 and then 04.

 Switch to the main menu "Multi-Presets" and confirm with the confirmation key .

 Use the arrow keys to select the sub menu "Manual Presets" and press the confirmation key.

=>   Man. Presets => 

=> The display shows the first screw connection.

 Use the arrow keys   to select the required screw connection and confirm with the confirmation key .

=> The screw connection can now be implemented.

 Following the screw connection, confirm once again with the confirmation key .

=> The same screw connection can be repeated or a new screw connection can be selected.

 To do this, press the Menu (Return) key once to read the screw connection text in the display.

 Use the arrow keys   to select the next screw connection and confirm with the confirmation key .

 To leave the menu, press the Menu (Return) key. To return to the main menu "Multi-Presets", press the Menu (Return) key again.

=>  => Man. Presets =>  => Multi-Presets

 To return to the current measurement mode, press the Menu (Return) key.

Multi-Presets =>  => Preset 0.0 N.m

MAIN MENU: UNITS

▼ The following default units are available for the E-TORC A:

=> N·m

=> Lbf·ft

=> Lbf·in

▼ Other measurement units can be programmed if requested (e.g. Kg·m).

▼ To set the units, switch from the measurement mode to the main menu "Units".

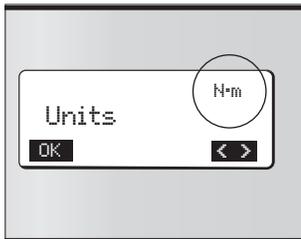
 First switch from the current measurement mode to the main menu overview:
Press the Menu key.

Preset 0.0 N·m =>  => Setup

 Use the arrow keys to select the main menu "Units" and press the confirmation key.

=>   Units => 

=> The display shows the current set unit.



 Use the arrow keys to select the required unit.

 To confirm the selection and return to the main menu "Units", press the confirmation key .

 To return to the current measurement mode, press the Menu (Return) key.

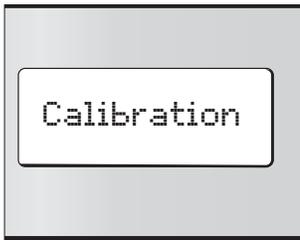
Units =>  => Preset 0.0 N·m

CALIBRATION

➤ If the E-TORC A displays small deviations from the zero point 0 when not loaded, the wrench must be recalibrated.

 To do this in the measurement mode, simply press the confirmation key when the wrench is not loaded .

The display shows the message "Calibration".



i **Note:**
It is important that the wrench is not loaded during the calibration! Any load will lead to an incorrect zero point setting and to measurement inaccuracies.

=> Following calibration, the E-TORC A automatically switches back to the current measurement mode.

Explanation

i Calibration

➤ Action to determine measurement inaccuracy without implementing modifying measures to the measuring device.

Only the relationship between the input and output parameters - the difference between the set and actual value - is determined.

The calibration result can then be used for: => "Adjusting".

Test regulations for the calibration of this wrench are taken from DIN ISO 6789 and DKD-R 3-7 Class 1

i Adjusting

➤ Action that places the measuring device in an operational condition.

All falsifying measurement inaccuracies are reduced by modifying the measurement device until the pre-defined error limits (e.g. DIN ISO Standards) are again met.