# Operating Manual CENTOR TOUCH STAR/DUAL V6.10
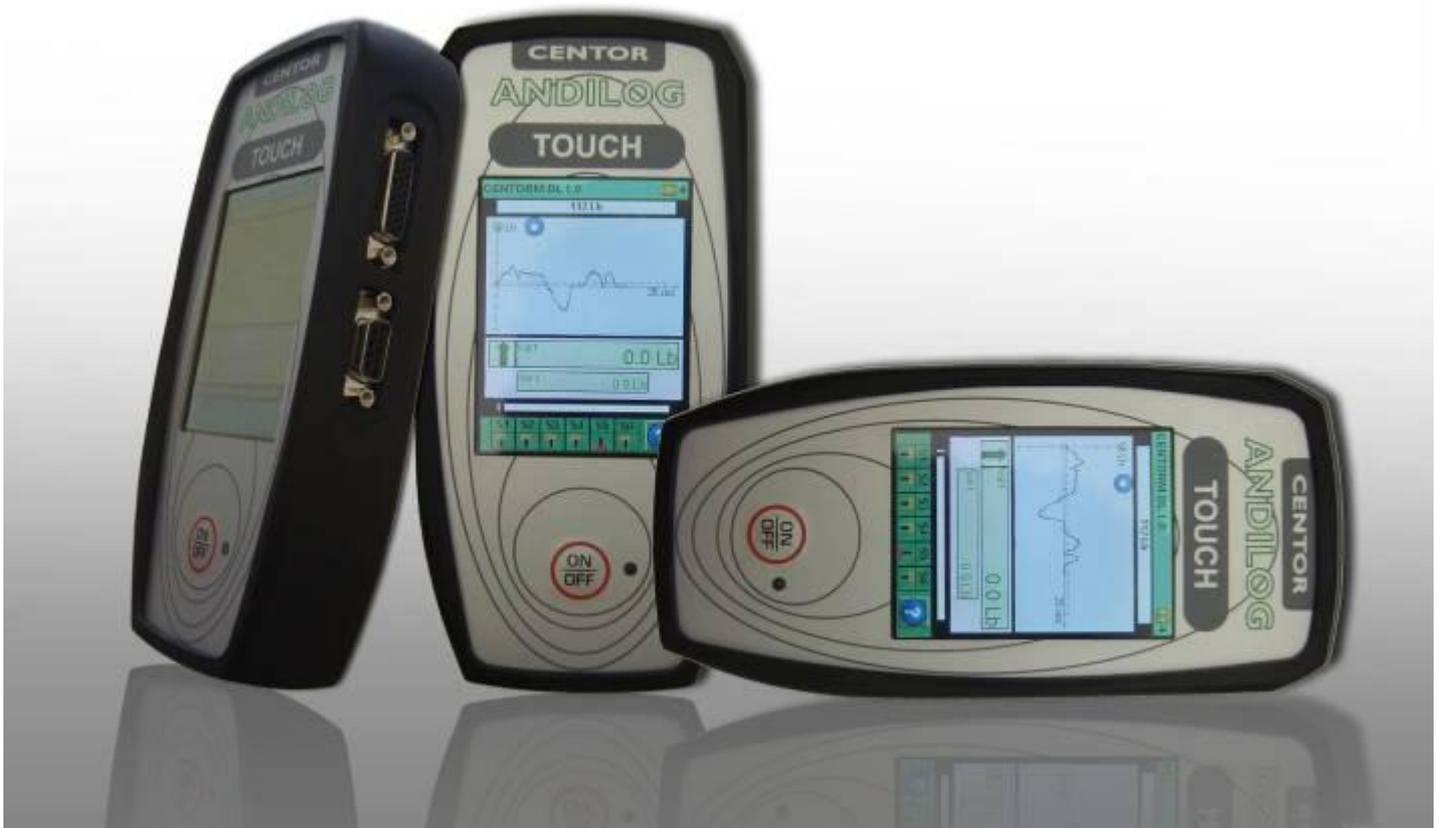
| Revision | Date | Description |
|---|---|---|
| Rev. 5.4 | 15.08.2013 | § VII. 1 |
| Rev 5.5 | 03.03.2014 | II.4->7, III, IV, V.1, V.3, VI.1, VII.1, VIII.1, VIII.2, IX, IX.1, IX.2, IX.3, IX.4, IX.5, X, XI, XIII.2, XIII.3, XIII.4, XIII.5, XIII.6, XIII.7, XIII.8, XIII.9 |
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| Rev 6.3 | 28.08.2015 | General review |
| Rev 6.10 | 25.04.2016 | 2.1; 2.3; 3.1; 6.2.2; 6.4 9.1; 9.5.2;9.5.3 |

## I.    INTRODUCTION TO THE CENTOR TOUCH

Thank you for choosing the CENTOR Touch gauge manufactured by Andilog Technologies.

This force gauge is the result of 25 years experience in force and torque measurements with new electronic technologies offering a higher-performance and more reliable instrument.

Though it is a very comprehensive instrument, the CENTOR TOUCH force gauge is easy to use. This instruction manual will guide you to set your first measurements.



Output : RS232, USB, TOR

Colors Touch Screen

Display Curve : Force/Time

Rotating Screen

Connectors for additional sensors: force, torque, displacement or angle using our SPIP technology

Friendly user menu

## II. HANDLING

CAUTION - Unpacking: Your CENTOR TOUCH force gauge has been supplied in its carrying case. Check that it has not been damaged during transportation. If you have any doubt, please contact us, and our service support will you guide you through simple checks to ensure that the gauge has not been damaged.

### 1. Unpacking

The Centor Touch is available in different configuration: portable, table top, with internal sensor or SPIP, 1 channel (Star) or 2 channels (Dual):

Portable version with internal force sensor                    Portable version with SPIP sensor

Portable verion with internal torque sensor          Table top version

The CENTOR TOUCH gauge is supplied with:

- Carrying case (according to your setup)
- Extension rod (Internal sensor only)
- Hook (Internal sensor only)
- Compression plate (Internal sensor only)
- Power plug adaptor
- Certificate of calibration

## 2. Recommendation before first use
### a. Battery

The battery reaches its maximum capacity after several charges. This is very important! A new force gauge has a battery that does not have its full capacity at the first power on. The force gauge will shut down automatically if the battery is too low.

The battery life is 8 hours under a normal use. The gauge should be charged after normal use. You should charge it every 3 weeks, to ensure a maximum life time of the batteries.
It is recommended to use the original power adaptor supplied by ANDILOG Technologies. The power adaptor has the following specifications: 12V, 1.5A

### b. Sensor

**Never connect accessories (hook, plate . . .) directly to the sensor rod. Use the extension rod delivered with your instrument.**

In spite of its mechanical protection, sensor overload can damage the instrument. The instrument stops if the capacity has been exceeded 10 times. You have to return it to ANDILOG TECHNOLOGIES for checking.

It is important that measured values are under 90% of the sensor capacity.
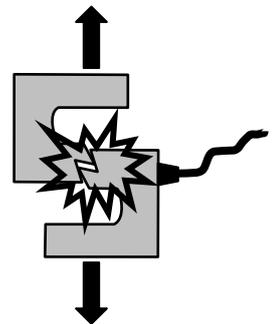
### c. Test Stand

The gauge can be affixed to a test stand via two M5 screws, which should not extend through the back cover more than 3 mm. Please contact ANDILOG Technologies if you need more information or if you need a fixture to mount your force gauge to a test stand.

### d. Conditions
- Working Temperature: 0°C to +35°C
- Stock Temperature: -20°C to +45°C
- Humidity: 5% to 95%
- Altitude: 3000m

## 3. Starting your force gauge

Press the ON/OFF button, the information screen showing the status of the CENTOR TOUCH force gauge is displayed for 5 seconds and then the main screen is displayed.

**ANDILOG**
FORCE MEASURING TECHNOLOGIES

**STR 1 CC**
**6.10**

| | |
|---|---|
| Software version | Type of sensor (Force, Torque,..) |
| Date of the day | Warning |
| Battery condition | Sensor Information |

Apr 22, 2020 12:11 AM

| | | | |
|---|---|---|---|
| C1: | Overloads qty | | |
| Re-calibration DATE | | 01/01/2030 | |
| C2: | Overloads qty | | 0 |
| Re-calibration DATE | | 04/30/2016 | |

Auto-Tests          Measure
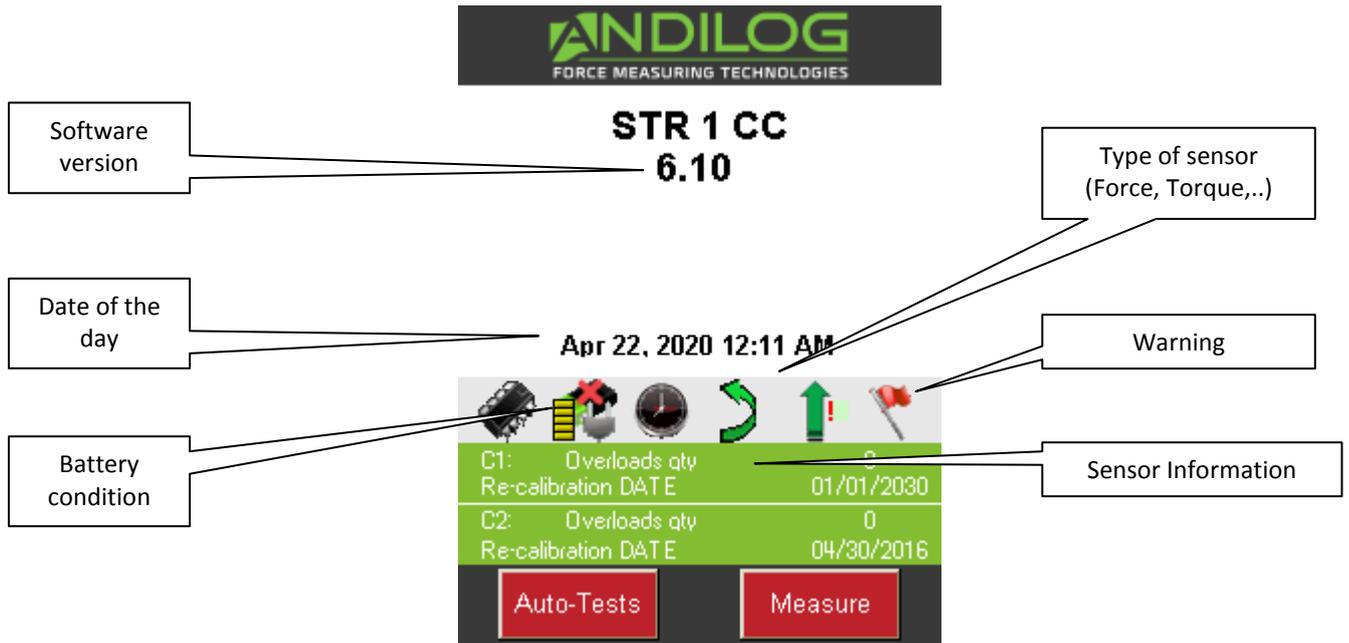
Battery condition: Display the battery state

Date of the day:  Display the date according to the format DD/MM/YYYY or MM/DD/YYYY setup under the maintenance menu (see chapter "maintenance").

Software version: indicates the software version installed on the force gauge
Internal and External sensor: show the type of sensor (force, torque, displacement or angle) and its condition.
- A red X indicates a disconnected sensor or a major failure.
- A red exclamation point! Indicates a minor issue on the sensor - An overload or a calibration date pasted.

Sensor Information:  The CENTOR TOUCH gauge can detect when turned ON, wheither internal or external sensors are connected. External sensors are linked to CENTOR TOUCH Gauge through a special connector called SPIP.
- If an internal sensor is detected AND NO EXTERNAL SENSOR IS DETECTED, the internal channel is the measuring channel.
- If an external sensor is detected, the external channel is the measuring channel.
- For a Centor Touch Dual, both sensors (internal and external) are simultaneously scrutinized
The following information regarding the sensor is displayed:
- V1 for internal or V2 for external.
- Date of the next calibration due
- Number of overload

CENTOR TOUCH version: there are 2 versions of CENTOR TOUCH:
        CENTOR TOUCH STAR                Referenced as CENTOR CT
        CENTOR TOUCH DUAL              Referenced as CENTOR DT

### 4. Main screen – Measurement

After the starting screen, you access to the main measurement screen as display below. According to the configuration of your Centor Touch, some information can be displayed or not.

Note: the described parameters below are part of the default configuration
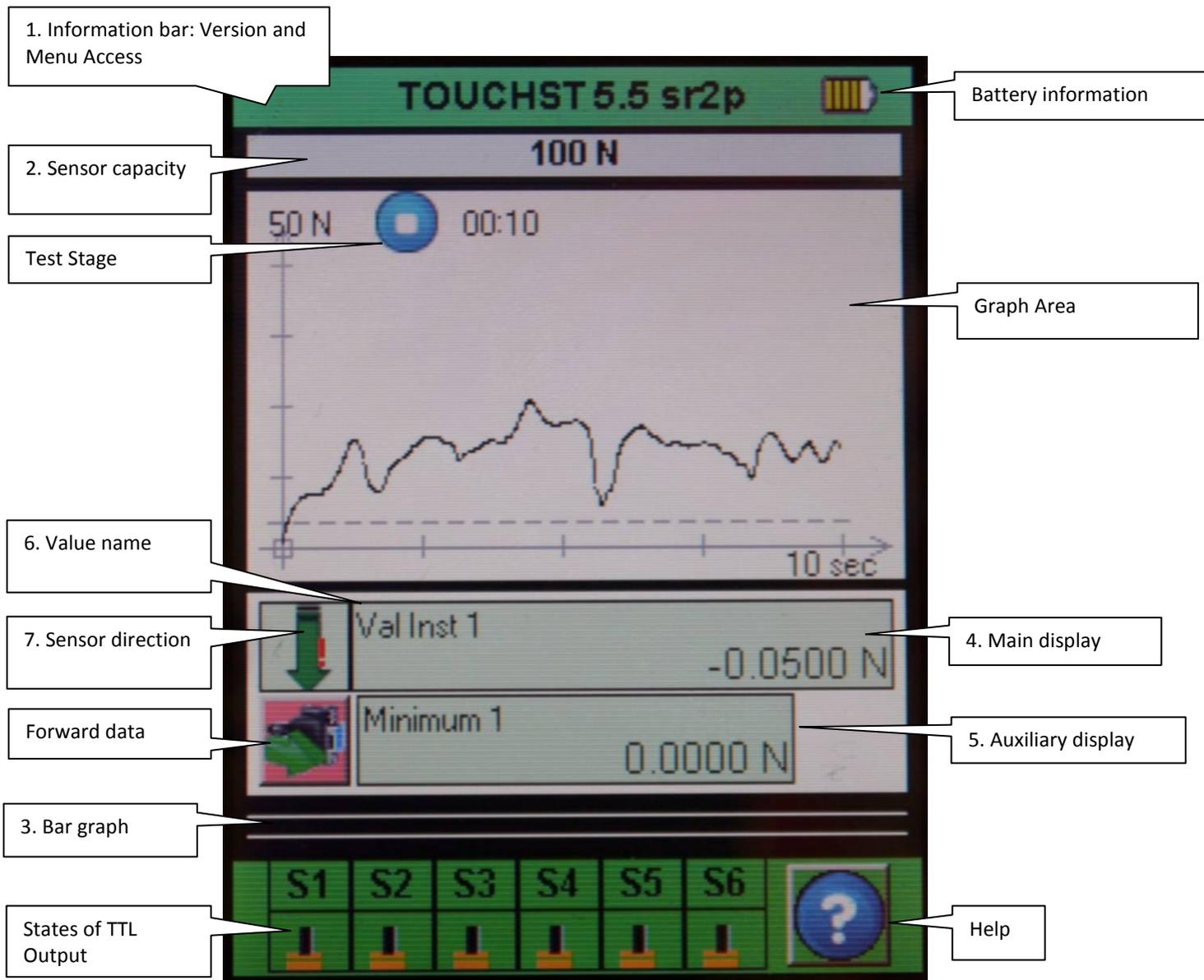


1. **Information bar** - The name of your device and battery status are displayed**:** Low battery indication: pictogram indicating the battery power status via 4 horizontal lines which respectively symbolize 25%, 50%, 75% and 100% of power. Press this field to access to the Main MENU

**2. Sensor Capacity:** The capacity and unit of your device is displayed at any time, even for additional remote external sensor.

**3**. **Bar Graph:** A black line is the representation of the applied force. If the bar graph is full, it means that the sensors maximum range is reached: risk of overload! If the "limit set pints" are activated, colours may change accordingly to the current applied value (see dedicated chapter).

**4. Main display:** Many values can be displayed in this window. See display screen chapter for details.

5**. Auxiliary display**: Many values can be displayed in this window. See display screen chapter for details.

**6. Value name**: displayed in the main and auxiliary displays is shown in the upper left corner of each screen. We will see in Chapter IV, how to change the displayed value.

**7. Sensor direction:** An easy-to-remember small symbol indicates the direction of the force applied
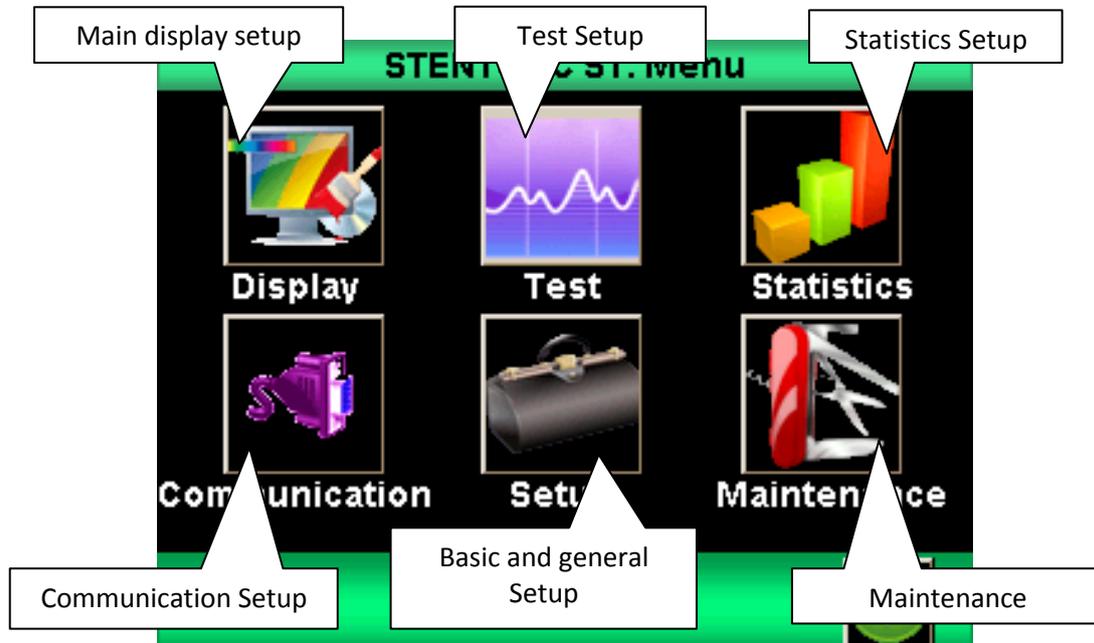
to the sensor: ⬇ tensile and ⬆ compression

### 5. Touch area on the Measure screen

Each area of the measurement screen provides access to the configuration menus of the force gauge.
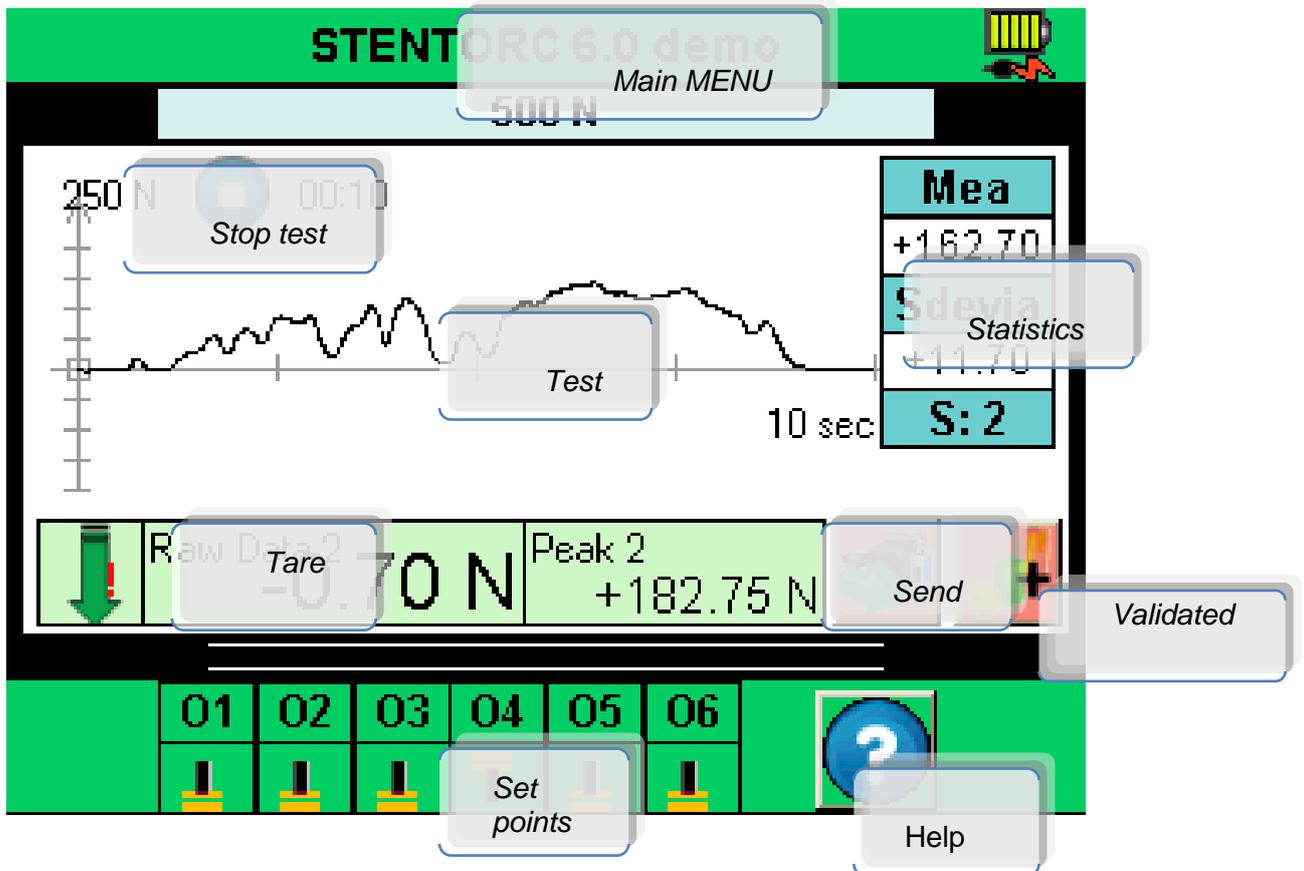
## 6. Main MENU

To access the main menu, press the green bar at the top of the screen of the dynamometer. It displays the main menu:



| | | |
|---|---|---|
| Main display setup | Test Setup | Statistics Setup |
| Communication Setup | Basic and general Setup | Maintenance |

| | |
|---|---|
| Display | Change displayed test results |
| Test | Activate and change graph display parameters |
| Statistics | Activate and select values for statistical analysis. |
| Communication | Select and activate communications. |
| Setups | Basic setups |
| Maintenance | Diagnostics |

## 7. Tare your device:

Touch the main display area to zeroed-out your force gauge.

This action tares the gauge. The gauge will take into consideration the weight of accessories (hook or plate) fixed on the sensor's rod.
Taking this action resets all memories and peak values.

**NOTE:** When turned ON the CENTOR TOUCH completes several self-tests to check the sensor's health. It is possible to leave tools fixed on the force gauge, but the total weight **must not exceed 10%** of the sensor's maximum capacity.

## 8. Backlight

When using the force gauge, the backlight automatically turns off after a preset time of operation. The total battery life the CENTOR TOUCH will be reduced when the backlight is turned on.
.

### III. START your measurements

The CENTOR TOUCH Version allows you to draw the graph of the test. The following screen is displayed:

Test state Indicators

First chanel axis

Graph Displaying Area

Time axis

State of TTL outputs
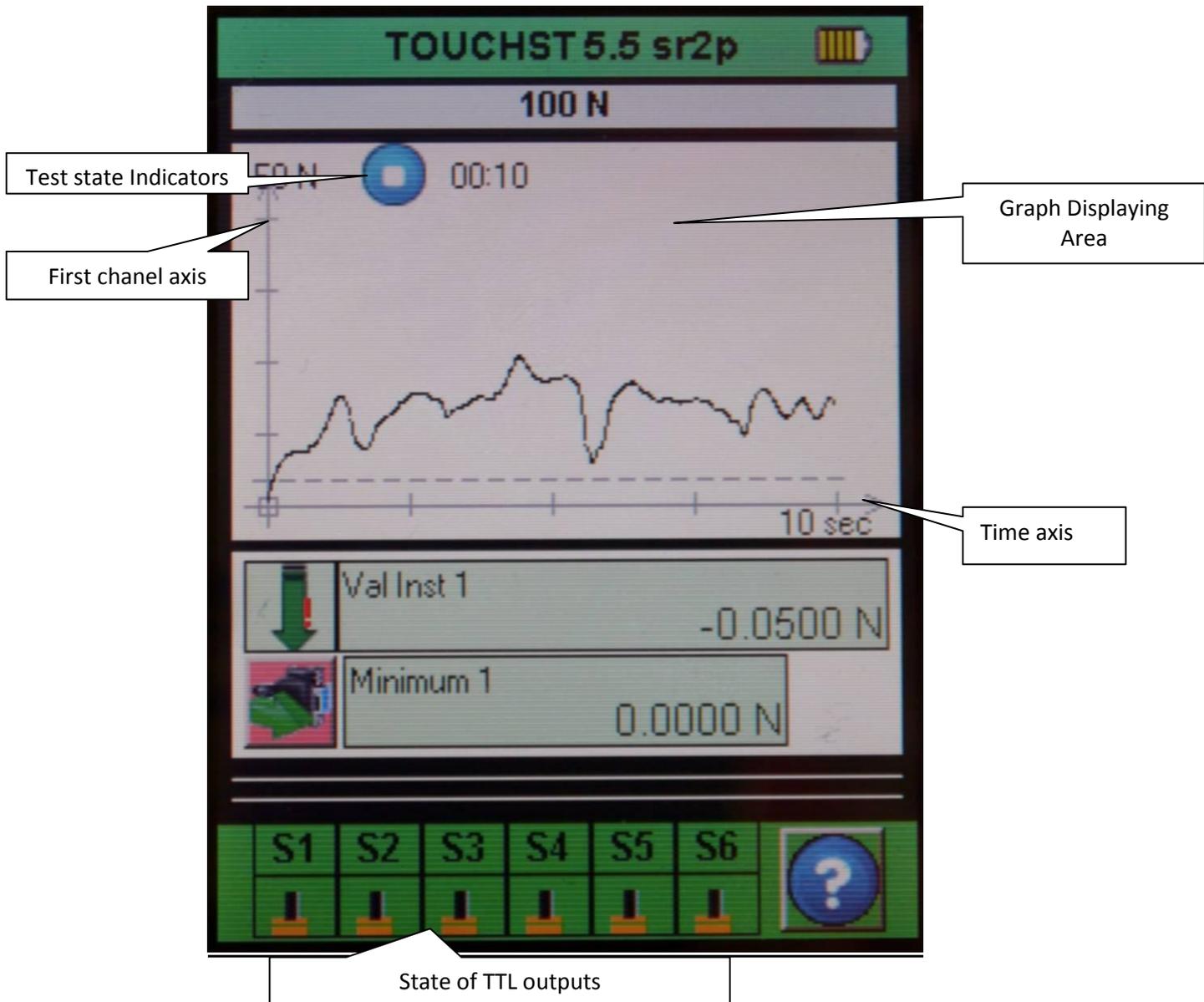
1. **Measurement principles**

When the curve mode is activated, the force gauge is under the mode called "TEST". Here is the process of a TEST:

```
┌──────────────┐
│ Tare force   │
│ gauge        │
└──────┬───────┘
       │      ┌──────────────────┐
       └─────▶│ Waits to detect  │
              │ force on the     │
              │ sensor           │
              └────────┬─────────┘
                       │      ┌──────────────────┐
                       └─────▶│ Start measuring, │
                              │ recording force  │
                              │ in continue and  │
                              │ drawing the graph│
                              └────────┬─────────┘
                                       │   ┌──────────────────┐
                                       └──▶│ Stop the test at │
                                           │ the end of the   │
                                           │ set time.        │
                                           └──────────────────┘
```
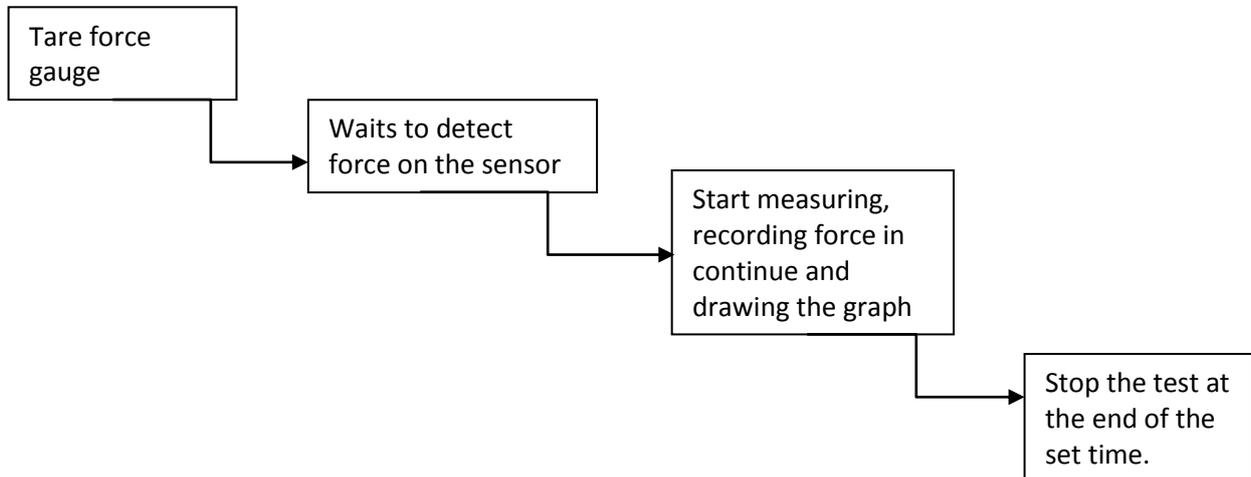
By default, the gauge graphs the curve of the active channel/Time for the Star version, and channel1/channel2 for the Dual version. They are 3 values for the graph scale: 25%, 50%, and 100%. At the end of the test, the graph is automatically drawn to efficiently use the space available.
There are 3 possibilities for the axis position: positive measure, negative measure, positive and negative measure.

2. **States Indicators**

On the left corner of the main screen, the state indicator is displayed:

   Stand-by mode. Waiting an event to start.

   Acquisition mode. Acquiring data.

    Test complete.  To start a new test tares the force gauge.

If you would like to stop the test before the end of the time, press the state indicator.

3. **Graph displaying area**

To start measuring and drawing the graph, you must touch the main display area to do the tare. When the CENTOR TOUCH detects a load on the sensor, it will start measuring force & drawing the graph.

While applying a load to the gauge, the graph is drawn on the screen and the current and maximum values are displayed according to the setup in the SCREENS settings.

The CENTOR TOUCH data capture rate is 5,000Hz, however, for better readability; it displays a maximum of 1000 points per graph.

If you wish to acquire a more precise graph, you can transfer the data to your computer under continuous mode:
- The RS232 output allowing a maximum acquisition rate of 100 values per second
- The USB outputs allowing a maximum acquisition rate of 1000 values per second

The state indicator changes from to.

To stop the graph acquisition, touch the graph area. However, the acquisition automatically stops after the selected time in the graph setup screen. The test length can be set, see Chapter "Graph and test settings".

At the end of the acquisition the state indicator changes to .

At this step, you can:
- Read the graph
- Read calculated values during the test by touching the statistics window.
- Download calculated values or the graph on a PC through the RS232 output (using the send data key "")
- Set a different Test setup
- Erase the graph by touching the graph display area"

To start a new test or change to display mode, you have to erase the graph by touching the graph display area or zeroing the gauge by touching the main display window.

## IV.    DISPLAY setup

The setup of the test display can be changed from the "Display" menu. Select the icon.



The following screen is displayed, each parameters allows you to manage the information display on the main measurement screen.
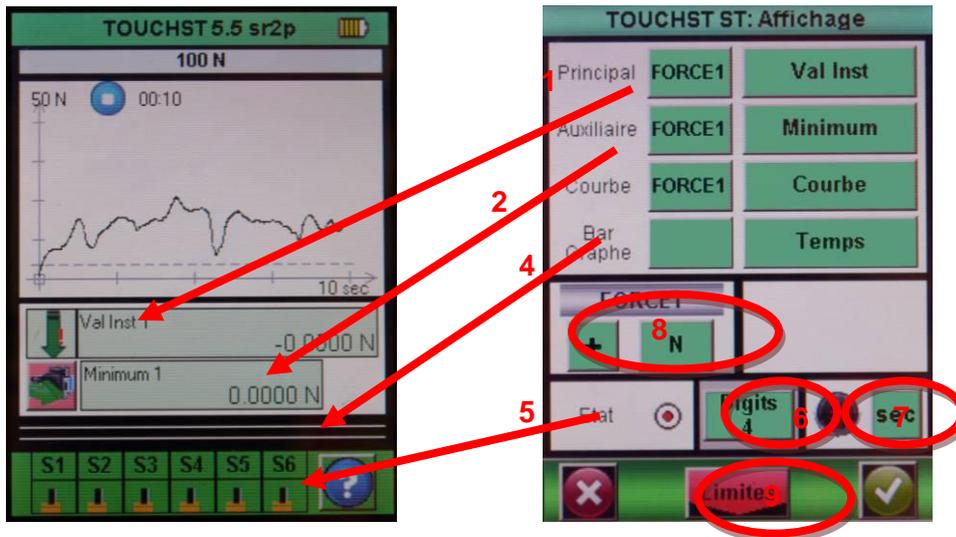
### 1. Main screen

The main display area can show all the alues that appears in the list. Touch this value to display the list of available values. Select the sensor you want to display by touching the green window (channel 1: internal or channel 2: external).

- The available data are: raw data, Peak (maximum), minium, calculation1 and calculation2 (if enalble, see chapter "Setting calculation")

### 2. Auxiliary

The Auxiliary display window has the same parameters as the Main screen, so it allows you to display a second selection.

### 3. Curve

You have 3 choices:
- Displays the curve and two values: select "curve" (as in the figure above)
- Show two values but no curve: select "None"
- Show a three value but no curve: select the third value to be displayed

When the curve is not displayed, the bar graph option always represents the time

### 4. Bar Graph

Select sensor and type of data displayed in the bar graph. Same parameters than the main screen.

### 5. State

Show or hide the output status display.

### 6. Digits

Number of digits right of the decimal point for all displayed data are selected from the drop down menu after touching the arrow key.

### 7. Time unit

Select the time units between: minute, seconds or milliseconds.

### 8. Sensor Units V1

Sensor units are independently selected. Touch the arrow key in the desired display window to display all available units. The units allowed will change with the sensor attached. Force, torque or travel units.

The green key above the unit selection determines the sign of the displayed value, either: +, - or no sign can be selected.

### 9. Set points - Limits

Allows you to access to the limits setting screen, see the chapter "Limits"

## V. SET POINTS Setting - Limits

To access the limits settings touch the bar graph on the main screen or touch the button "limits" from the "Display" screen. The limits feature allows you to setup action under the condition of the current values. Those actions can be: enable an output or the buzzer.

### 1. Activate/Deactivate

Touch the area "Touch to activate" or "Touch to deactivate" to activate or disable the set points menu.
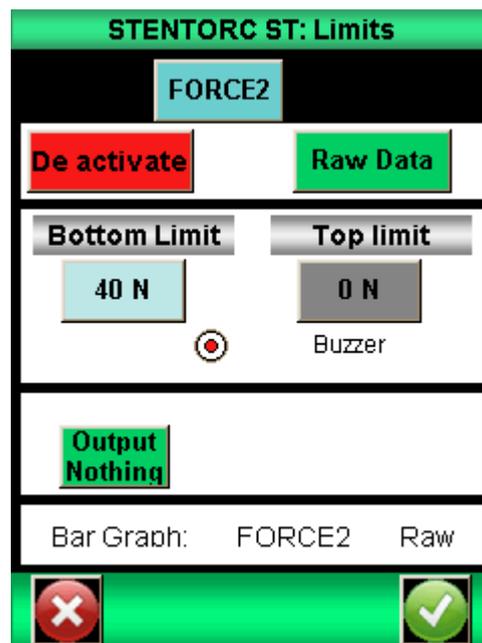


### 2. Load cell tab

A separate tab is displayed for each sensor. Select the desired sensor tab and sets your limit value. Your gauge can beep and activated a TTL output once the sets point has been reached.

### 3. Type of Data

You can either choose to apply the set point to the "Raw Data" or the "Peak value". Usually, the raw data is used but you can setup a limit on the maximum or a calculation (mean, standard deviation, break... see chapter "Graph calculation settings").

#### 4. Top and Bottom limits

You can setup a top and a bottom limits for each channel by touching the button and enter the limit value from the displayed keyboard.
Then you can select "buzzer" if desired for each limit.

The set points will be displayed on the main measurement screen on the bar graph area and during the test; the current reading will change of colours when a limit is reached.

#### 5. Activate an Output

The limit can control a TTL output action. Select the desired output. The output action is chosen by setting the desired output in the output control. Set the action and state as required.

Operations:
- If the bottom limit is the only one set, the state of the output will change when the measured value will exceed the limit value.
- If the bottom and the top limit are set, the state of the output will change when the measured value will be in between of the limit values

### VI. GRAPH & TEST Settings.

Touch the graph icon on the setting screen
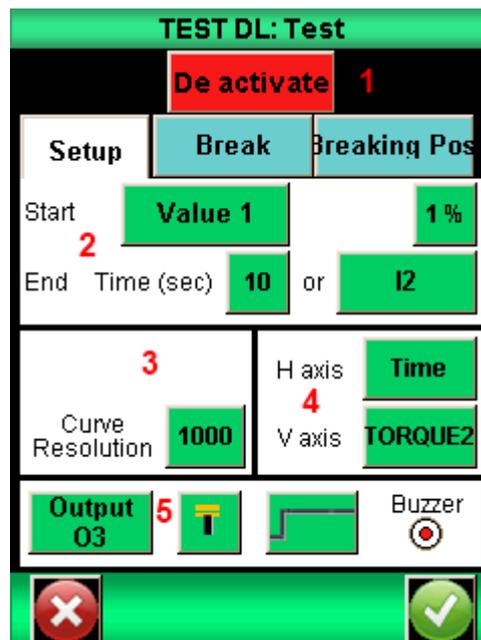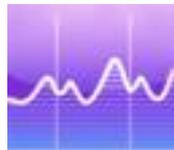




#### 1. Setups tab.

Touch the control in the upper left corner to enable or deactivate the graph.

## 2. Tests settings

There are 2 parameters that need to be defined to set a test
- The start condition of the test
- The duration of the test

### a. Start settings of the test

Once the force gauge is zeroed, the Centor Touch is waiting an event to start the acquisition. There are two types of possible events:
- Load applied on the load cell
- External event, by example: Input on the force gauge through a trigger signal, foot pedal...

Choose the start condition in the roll menu ("Value 1" for the internal load cell or "Value 2" for the external load cell, "Pedal, I& or I2" for the external event).

If you choose "Value" 1 or "Value 2", you have to define the threshold percentage that starts the acquisition. Example: the load cell has a capacity of 100 Newton maximum, the test graph will start when the force reaches 1% of 100 Newton is 1 N. Touching the percent sign gains access to the

adjustment keypad.

### b. End of the test

Select the duration of the test. This run time has an influence on the curve resolution. Example: if you running time are 10 seconds and the resolution of the curve is 1000, so you will record a point every 0.01 seconds.
Touch the control to activate the keypad. Enter desired test time.

Note: A test can be stopped before the end of the running time by touching the icon or using an Input from the force gauge. See "Chapter X – Input & Output". The test may also be stopped on the activation of an output as the result of a calculation by example. However this stop before the end of the test will have no effects on the curve resolution and fewer points will be recorded. Example: if you running time are 10 seconds and the resolution of the curve is 1000, so you will record a point every 0.01 seconds. If the test is stopped after 5 seconds, the acquisition will recorded 500 points and the resolution will still be equal to 10ms.

## 3. Curve Resolution

The graph display resolution is adjustable from 1 to 1000 points, by default it is set to the maximum at 1000.

## 4. Axe H & Axe V

Horizontal and vertical display data can be changed by touching the name of the axis. You can choose to display: the time, internal channel (Force 1), External channel. So you can display:
- The internal channel vs time
- The external channel vs time
- For Centor Touch Dual only: internal channel vs external channel (or vice versa)
- For Centor Touch Dual only Internal and external channel vs time

### 5. Output control

Graph completion can cause an output control to change. Select the output control from the drop down menu then select control action and state. You can select two types of actions:
- Beep: Toggle the buzzer control to enable the buzzer for the output condition if desired
- Active an Output of the force gauge: choose the output to activate (from 1 to 6) and its running mode: pulse or switch mode and the high or low state. More details on the input/output see "Chapter X – Input & Output".

## VII. CALCULATION Settings

The Force gauge Centor Touch allows you to setup automatic calculations derived from the graph. The settings of the calculation can be done in the Test menu. It is possible to perform simultaneous 2 calculations in addition of the raw data, the maximum and the minimum.

### 1. Calculation

The Centor Touch allows you to select 2 calculations, derived from the graph. Select the Calcul 1 or 2 tab. The Test running mode should be activated to perform calculation.



**The following calculations are available:**

Average: The average of load readings over selected time or travel. Select time or travel parameters after selecting average.
Break: The calculated break point. Select the percent of peak to determine break point after selecting break.
First Peak – Selects the first peak in multiple peak graphs. Select the percent of peak to determine peak point after selecting First Peak
Force at T Force at a specific time. Select time in milliseconds.
Force contact – Calculates the maximum force when you're closing a contact or a switch plug on the Input E1 (by example a foot pedal).

Level L – Calculates the value of a channel, when the other one reached its defined limits (<u>absolute</u>: the time increments when the test starts / <u>relative</u>: the time increments when the curve starts, meeting the start condition on force value, to be used for Topload tests)
<u>Peak</u> – The maximum force or torque measured during the test.
<u>Moving average</u> – Rolling average or running average
<u>Speed:</u> Speed calculation in real time of the selected channel
<u>Stiffness</u>: Calculate the slope of the curve between two values
<u>Time of peak</u>: Return the time value when the peak have been reached

## 2. Output actions

After each calculation, it is possible to activate an output of the force gauge.
Select the output control from the drop down menu to activate (from 1 to 6) then select its running mode: pulse or switch mode and the high or low state. More details on the input/output see
"Chapter X – Input & Output". These actions can be very useful when you want communicate with the test stand. Example: stop the test stand when the force gauge detects the force break.

### VIII.    RECORD DATA AND STATISTICAL Mode.

The Centor Touch has a memory of the least 1000 values per channels and automatically calculating the sleeping mean, the standard deviation and the mean divided by the standard deviation. It is possible to record 3 results simultaneously to choose in between: the maximum, the minimum, calcultaion1 and calcultion2.

Note: The force gauge can't record multiples curves. Only the last curve is stored. You have to connect the force gauge to a computer or used the memory USB stick called DATASTICK to save multiples curves.

Statistics and memory must be enabled by touching the statistics symbol on the setup screen.



#### 1.  Statistics setup



1: Select the desired result to be entered into the statistic arrays; you can choose 3 types of values to record: maximum, minimum, calculation1 or calculation2 for each channel. Select the units desired.

2: More than one result can be averaged to create a saved result. Enter this number in the Samples.

3: By default the "Tare" will be done automatically once the results are saved; but you can de-activate it.

4: Then you would be able to display the tab of values by touching button "Arrays".

### 2. Records data

When the statistics feature is activated, the following icon is displayed on the main measuring display. After a test is completed, you can save the test results to the statistics array by pushing the icon:
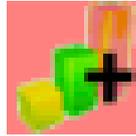




To save the data, you have to tare the gauge. At the end of the test, press the icon above to validate and save the data. The values are added to the array and the average value is calculated and displayed in the window on the top right:

To view all the calculation and the statistical results touch the mean window. You can then transfer those results to a computer through USB, RS232 or a memory USB stick. See the Chapter "Communication Setup"



## IX.    COMMUNICATION Settings.

You can connect your Centor Touch to a computer throught RS232, USB or Analog input, or to a memory USB stick called Datastick.

Select the communication setup by touching the communication symbol.

Then you get a window with a choice of 5 communication modes: USB, RS232, analog, Data Stick or Bluetooth.

Note: One and **only one** of the five choices for data output is available at one time. Select the tab accordingly.

The outputs of the Centor Touch have the following features:

- RS232: sending data continuously at 100Hz, sending data upon request via the main screen, a digital input or a computer, sending the stored curve.
- USB: sending data continuously until 1000Hz, sending data upon request via the main screen, a digital or a computer input, sending the stored curve.
- Bluetooth: sending data continuously at 100Hz, sending data upon request via the main screen, a digital or a computer input, sending the stored curve.
- Analog: sending data continuously at 100Hz
- Datastick – USB Stick (optional): sending data upon request via the main screen

### 1. RS232 or Serial commands

Input/output of the RS232 can be set for continuous or on demand:
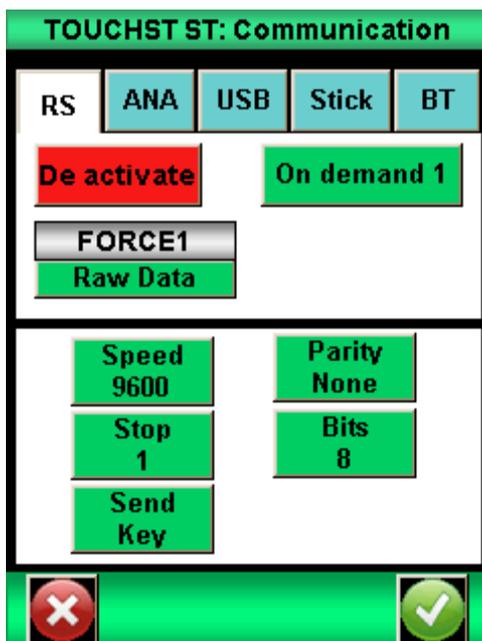


- Continuous: Data can be sent continuously using the serial command, with a frequency rate around 100Hz.
- Demand: You have to send a command to the force gauge to receive data. This command can be send by a computer with an ASCII charater, a TTL input or using the key icon from the main measuring screen:



Note: The data displayed in the "Send" dropdown menu are dynamic. Therefore if both inputs of the dynamometer are used for other operations, they do not appear in the menu. Only available inputs appear. See "Chapter X - The inputs and outputs pedal" for more detail.

Choose the type of data to send:

- If you want to send the command through a TTL input or the display, you can choose the type of data in the list
- If you want to send the command using a computer (with ASCII character) , the value sent will depends on the character sent by the computer.

Set speed, parity, stop bits and number of bits to match the connected computer. By default values are:

- Speed: 9600
- Parity: None
- Stop: 1
- Bits: 8

Here are the serial commands (Using our dedicated software R-SIC or ASCII parameters):
- F: Current value
- P: Maximum value
- V: Minimum value
- C: Calculation
- T: Last 2000 calculated values
- U: unit
- W: Last Graph
- Z: Tare the gauge

For the Centor Touch Dual, additionals commands are available:
- F: Current value sensor 1
- I: Current value sensor 2
- P: Maximum value sensor 1
- M: Maximum value sensor 2
- V: Minimum value sensor1
- B: Minimum value sensor2
- C: Calculation
- T: Last 2000 calculated values
- U: unit sensor1
- N: unit sensor2
- W: Last Graph
- Z: Tare the gauge

The following rules applied to the communication protocols on "Demand" mode:
- The force gauge doesn't send trailing characters
- The force gauge sent the sign +, - or none according to the measured values and the settings.
- The resolution of the sent values depends of load cell capacity
- The force and displacement values are separated by a TAB characters (09 decimal and 09 hexadecimal
- The force gauge sent the data "?" if the request isn't valid
- The force gauge sent the data "!" if the value is empty

The communication protocol follows the following rules for the «On Demand" mode:
- Force and displacement data are separated by the TAB character (09 decimal, 09 hex, octal 11)
- Lines are terminated by carriage return (13 decimal, 0D hex and octal 015)
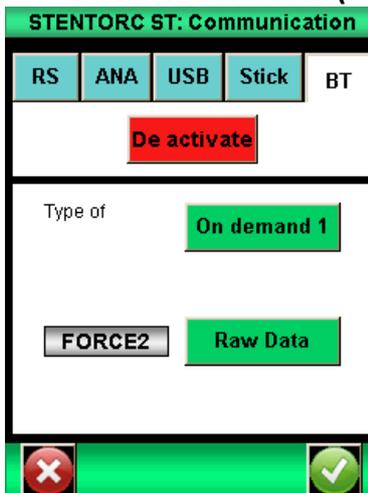
### 2. USB Connection
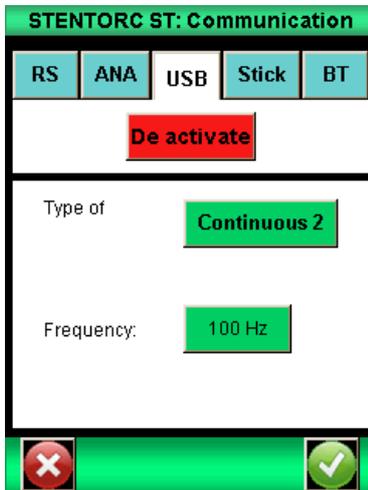
The USB is set as the RS232 communication: on demand or continue mode; and commands are similar.

However you can:
- Set the baud rate value in continuous mode if "Eco" is selected in the menu "Setup"

- The Baud rate is fixed to 921600

### 3. Bluetooth (Optional)

The Bluetooth connection allows wireless communication with a computer. It can replace by example: RS232 or USB cable. It requires a module sold separately which is connected to the connector on the side of the Centor Touch.

The Bluetooth connection has the same features as the RS232: request and continuous mode. The controls remain the same too.

### 4. Analogue Connection
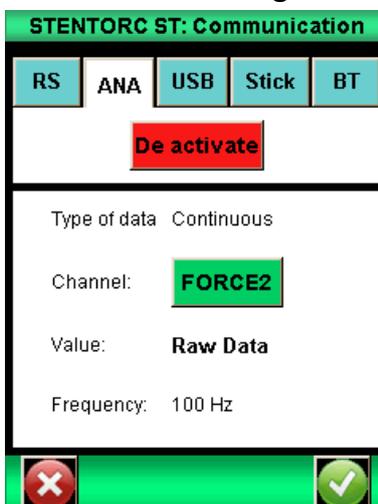
The Centor Touch is able to send analogue data at a rate of 100Hz. The analogue output is +1/-1V.

Analogue output is done through the pin 10 of the 26 pins connector.

### 5. DATASTICK – USB Memory Stick (optional)
#### a. Presentation

The DATASTICK kit is an option available with the CENTOR TOUCH, in order to save your data on a USB memory stick.

The kit includes: a USB Stick and a connexion cable (to link the CETOR TOUCH through the 26 pins connector to the USB stick).

This feature is available for all CENTOR TOUCH from version V4.6

#### b. Configuration

You can activate and configure the Datastick communication setting from the Menu "communication"
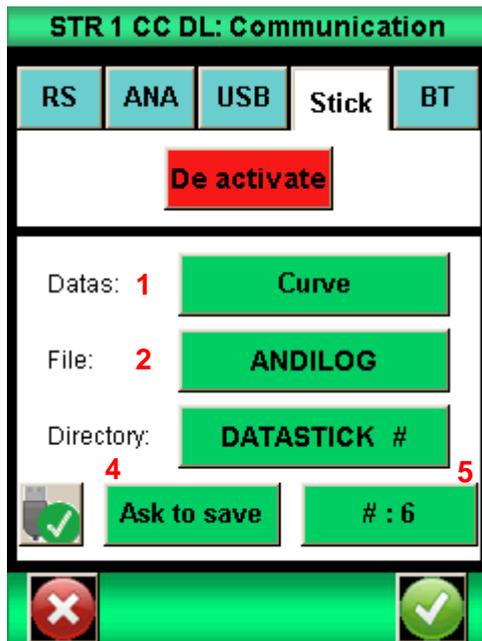
**1.** The CENTOR TOUCH is able to save several types of data on the USB stick, to choose from:
- Calculated values: max, min, and calculations selected in the menu "TEST"
- Raw data: the value measured by the sensor at the time of communication.
- Curve: save the curve plotted on the screen
- Curve and calculations: the plotted curve + max, min, and calculations selected in the menu "TEST"
- Statistics: data saved in the statics table of the CENTOR TOUCH

**2.** You can change the default file name for the unitary data (statistics and values). Default file name: "ANDILOG_date" (i.e.: ANDILOG_2013_01_17.txt"). Push the button to change the name.
Data will be recorded at the end of this file.

The directory where the curve is saved is by default names "DATASTICK_date_hours". You can change this default name by pushing the button.
The directory includes 2 files:
- Data.txt: curve data
- testSettings.txt: setting of the curve

All those files are saved as TXT format, and so can be open with regular Table software as Microsoft Excel. Data are separated by a TAB character (09 decimal and 09 hexadecimal) and the rows are separated by a carriage return (decimal 13, hex 0D).

Changing a name is done by pressin the corresponding button, which display a virtual keyboard:
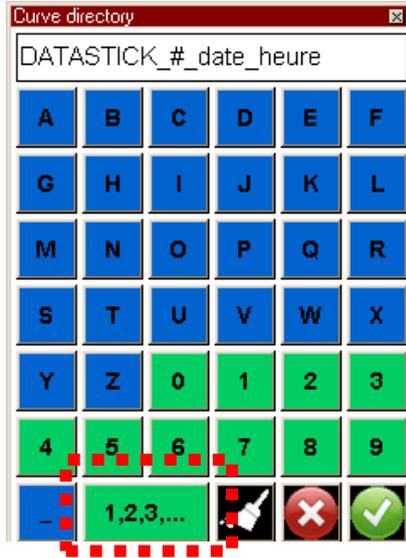


The "1,2,3,..." button allows to insert an automatic counter to the name of the directory curve. This counter is symbolized by the # sign.

**3.** The  button is used to eject safely the USB Datastick.

**4.** You can choose to save your data on the Datastick either:

- Manually (at the end of each test by pressing the  button)
- Automattically at the end of each test
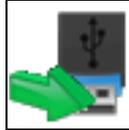- After confirmation at the end of each test

**5.** The button including the sign # and followed by a number, allows you to change the automatic counter, the number displayed corresponds to the conter's current value.

### c. Save your data

Once the DATASTICK communication is active, a USB icon appears on the main Measure screen:
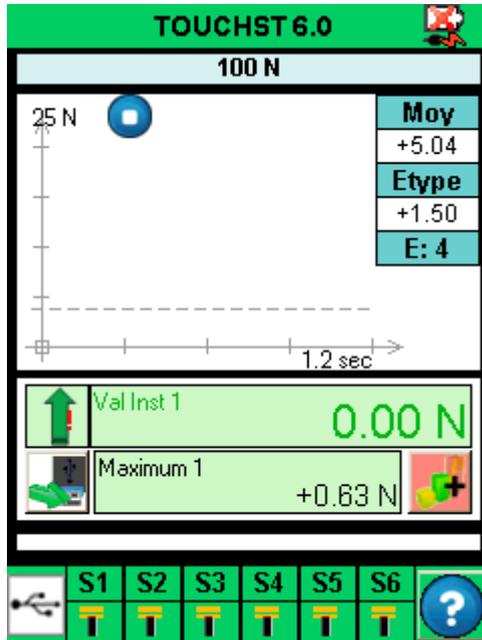


Save you data on the USB by pushing on the icon:

During the data transfer, the USB icon becomes a timer; <u>do not disconnect the USB stick at this time</u>. Once the timer disappears you can safely disconnect the USB stick.

On the left bottom corner, the button [icon] allows to access directly to the « Stick » setttings screen.

### d. Use multiples USB stick

The USB stick supplied by ANDILOG at the time of the purchase of the DATASTICK option, has been set to communicate with your CENTOR TOUCH; and it recognize the serial number of your CENTOR TOUCH. However you can duplicate this USB sticks as many as you want. To do so: copy and paste the file "datastick config" (saved on the original USB stick) on your own USB stick.

## X.    INPUT, OUTPUT & Foot Pedal

The Centor Touch is able to communicate and send data to an external device such as a test stand, or a programmable logic controller using its TTL inputs and outputs.

The Centor Touch has:
- 3 Inputs (Pedal, I1 and I2)
- 6 Outputs (O1 to O6)

Each Input/output can be set separately using various menu and features of the Centor Touch (limits, calculation, communication...). But a dedicated menu allows you to display and configure the state and action of those Input/output, from the third panel "TTL O/I" from the Maintenance menu.
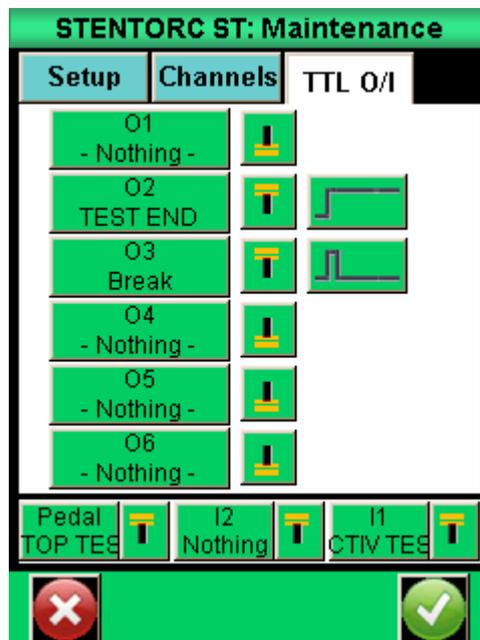


### 1.  Outputs

Each output from 1 through 6 can be set separately. Those outputs can change state under different conditions depending of the settings of the force gauge. The main states are:
- Nothing: no action
- Calcul 1: changes state at the end of calculation 1
- Calcul 2: changes state at the end of calculation 2
- Test End: changes state at the end of the test
- Limits:  changes state after reaching a set points (channel 1 or channel 2)
- Over 120%: changes state when the measured value is over 20% of the maximum capacity of the load cell. It is used to protect the load cell when mounted on a test stand.

For each output, it is possible to define its default value (at the beginning of the test): high or low:

 Low Level      Hhigh Level

Also it is possible to define the type of actions:
- Switch (steady): the output changes state and stay in this new state until the end

of the test or until the condition is true (limits case)

- Pulse: the output changes state for a period of time of 50ms, and then come back to its previous state.

### 2. Inputs and Pedal

The 3 input (Pedal, E1 and E2) of the Centor Touch can be set separately.  Those Inputs allow you to do the following actions:

- Active Test: start the test
- End Test: Stop the test
- Tare Vx: tare the channel Vx
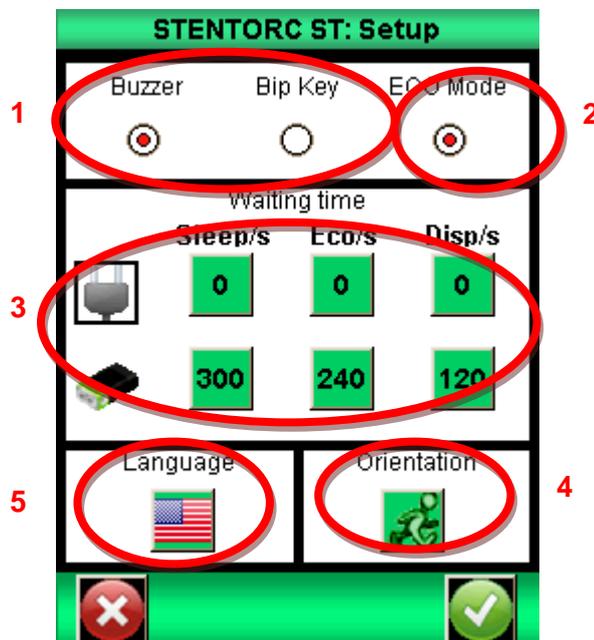- F Contact: uses during the calculation

For each input, it is possible to define its default value (at the beginning of the test): high or low:

Low Level          Hhigh Level

The Centor Touch can be connected to an external pedal switch, set the pedal action in this dialog box.

## XI.    GENERAL Setups

Access to the General Setting through the icon:

1. **Buzzer**

<u>Buzzer</u>**:** Activates the buzzer for alarm conditions.

<u>Beep Key</u>**:** Activates the beeper when you touch the touch panel. Provides tactile touch to the user.

2. **ECO Mode:**

Reduces power consumption. Useful for long test times and USB communication.

3. **Times out settings.**

You can adjust individually times for sleep and power down.

<u>Times out Sleep</u>: Individually adjustable times for sleep. The CENTOR Touch will go to sleep after this time. Separately set times for battery and charger. Touch the selected time to display keypad. Erase then enter new time in seconds then touch the check key on the keypad.

<u>Times out Screen:</u> Individually adjustable times for display back light power down. Separately set times for battery and charger. Touch the selected time to display keypad. Erase then enter new time in seconds then touch the check key on the keypad.

4. **Orientation**

You can rotate the display of your CENTOR Touch by 90 degree increments. Touch the running man picture to select orientation.
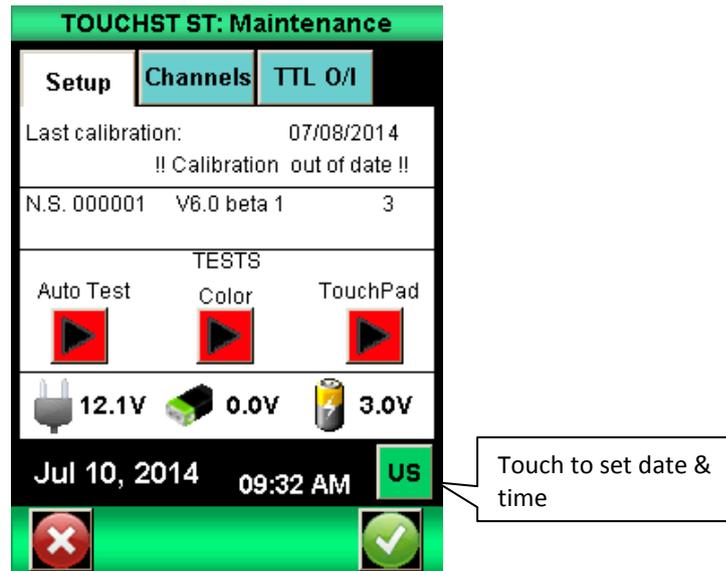
5. **Language.**

Touch the language picture to select desired display language**.**
Touch the check key to exit and save settings or the "x" key to exit with no save.

## XII.    MAINTENANCE Panel

The maintenance panel allows access to basic test and control functions. Select the maintenance symbol from the setup panel

Touch to set date & time

## 1. General

The Setup tab gives you the load cell information, the software version, the state of the battery and the possibility to adjust hours and date.

Auto Test: Launches an auto test and display the health details of all sensors connected and battery conditions

Colour**:** Display colour capabilities of the display.

Touch pad: Allows calibration of the touch pad.

## 2. Setting the clock:

Date and time are set from the maintenance Setups tab. Touch the date format control. Access is granted to the date and time panel.



Change date and time but touching the appropriate up or down arrows. Select AM or PM. You can also choose the clock format:
- EU = day; month: year.
- US = month; day; year.

Touch the check arrow to save changes and exit or the x to forget changes and exit.

## 3. Channels tab

Display the details of the sensor memory data and the present settings of all input and output signals.

## 4. Factory configuration

Re-load the factory configuration

## XIII.   ASSOCIATED PRODUCTS

### 1.  Acquisition software

ANDILOG TECHNOLOGIES has developed several programs to save and analyse values.

You want to analyse values on a chart: RSIC software has been developed to this.

You want to capture the values graph and use graphics tools: CALIGRAPH software goes further in tests analysis.

If you wish to connect your CENTOR TOUCH force gauge to a PC via one of our programs, contact your ANDILOG TECHNOLOGIES dealer.

### 2.  Interface Cables

Several interface cables can be used with CENTOR TOUCH force gauge:

External pedal: allows simulation of a keyboard button

Cable for external contact: allows force calculation from closing /opening of contact (equipped with male-female plugs):

Linking cable for motorised test stand STENTOR allows to stop the stand according to a condition defined by CENTOR TOUCH force gauge:

Cable for analogue link (with male-female plugs): links your gauge to another system

Cable for RS232 link: connect your gauge to a computer using the RS232 output

Multifunction cable test stand STENTOR control and RS232 link

Cable for USB connection: connect your gauge to a computer using the USB output

## XIV. APPENDICES                                    - 32 -

### 1. Errors Messages

**Information screen:**



This screen is displayed after completion of internal tests and a minor or major defect has been found.



**Minor defects:**

- Low battery
- Number of overloads less than 10
- Expired calibration date
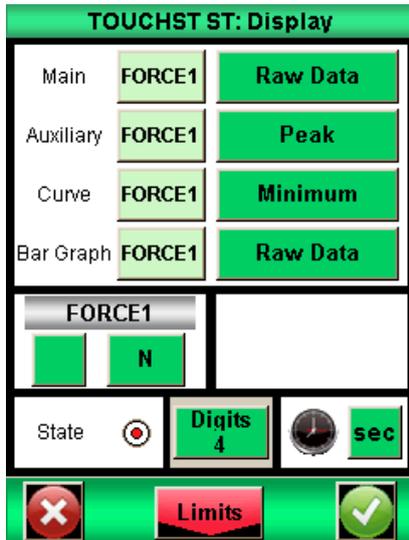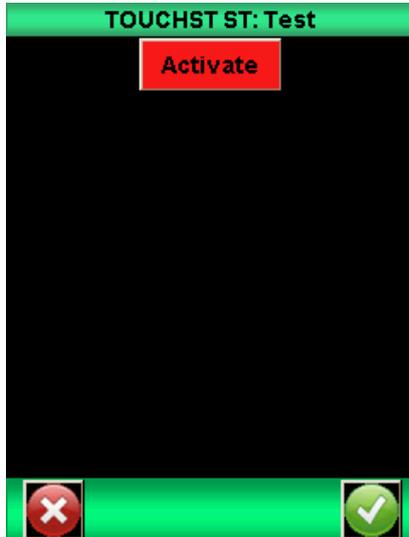
Touch Measure to continue.



**Major defects:**

- Damaged sensor
- High number of overloads (>10)
- Internal error
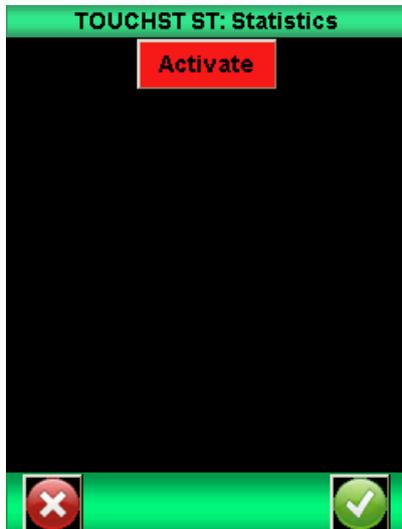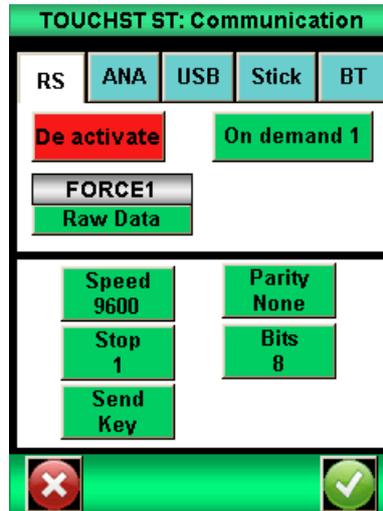- Sensor not attached

## 2. Factory Settings
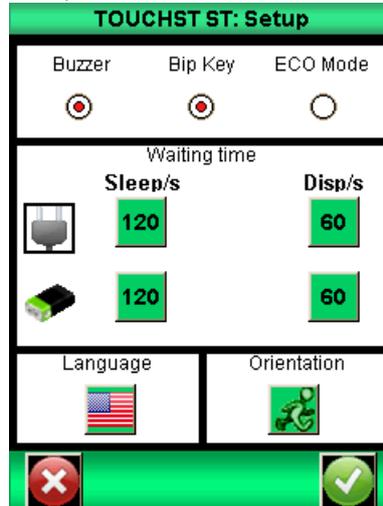
Screens default



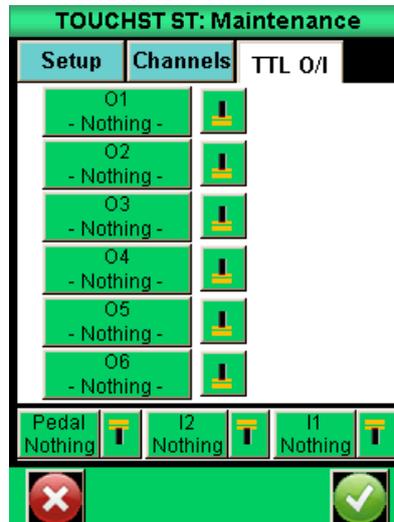Communications default



Test default



Setups default



Statistics default



Maintenance default

### 3. Connections

**Connector detail SubDHD 26 pins connected to CENTOR TOUCH electronic card**

| PIN | | |
|---|---|---|
| | 1 | GND |
| | 2 | I1 input |
| | 3 | Not used |
| | 4 | RS232 read data |
| | 5 | USB device data minus |
| | 6 | USB host data minus |
| | 7 | O3 output. Open collector requires 50 k ohm pull up to 5 volts DC |
| | 8 | O2 output Open collector requires 50 k ohm pull up to 5 volts DC |
| | 9 | Gauge reset |
| | 10 | Analogue output |
| | 11 | I2 input |
| | 12 | Not used |
| | 13 | Not used |
| | 14 | USB device power |
| | 15 | USB host power |
| | 16 | O4 output Open collector requires 50 k ohm pull up to 5 volts DC. |
| | 17 | O5 output Open collector requires 50 k ohm pull up to 5 volts DC. |
| | 18 | GND |
| | 19 | Chassis ground |
| | 20 | Pedal input |
| | 21 | Not used |
| | 22 | RS232 transmit data |
| | 23 | USB device data plus |
| | 24 | USB host data plus |
| | 25 | O6 output. Open collector requires 50 k ohm pull up to 5 volts DC. |
| | 26 | O1 output, Open collector requires 50 k ohm pull up to 5 volts DC. |

### 4. Setup Examples

**Display with graph:**

Touch information bar. 

Touch graph icon. 
Set Start to Value 1. 1%
End time 10 sec
Curve resolution = 10000.
Axe H = TIME. Ave V = FORCE1

**Send peak data after test complete with send key to the RS232 port:**

Touch information bar. 

Touch the communications icon. 
RS232 touch to activate.
Set FORCE 1 to peak. Set speed, parity, stop bits and number of bits to match com port on computer.
Set Send to key.

After the test is complete touch the send key to transmit data. 

**Start from pedal:**

Touch information bar. 

Touch maintenance icon. 
Set pedal control to tare V1

## 5. Dimensions