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# Operating Manual CENTORMETER EASY V1.0



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I.	Introduction .....	2
1.	Presentation .....	2
2.	Definition .....	2
II.	Handling.....	2
1.	Unpacking.....	2
2.	Recommendation before first use .....	3
3.	Product presentation .....	4
4.	Starting your torque analyzer CENTORMETER EASY .....	6
5.	Display mode .....	7
6.	Reset function .....	8
7.	Measure unit .....	8
8.	Peak values .....	8
9.	Backlight .....	8
10.	Perform a measurement .....	8
III.	Advanced Features.....	10
1.	Setting screen:.....	10
2.	Display .....	11
3.	System setting .....	12
4.	Using the RS232 Output .....	12
IV.	Associated products .....	13
1.	Acquisition software.....	13
2.	Interface Cables.....	13
V.	APPENDICES.....	14
1.	Keyboard chart .....	14
2.	Actions:.....	14
3.	Error messages .....	15
4.	SubD15 connector .....	15

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## I. Introduction

### 1. Presentation

Thank you for choosing the CENTORMETER EASY Torque analyzer manufactured by Andilog Technologies.

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

### 2. Definition

To help you during the reading of this Operating Manual, please find below some definitions:

**INTERNAL CHANNEL:** Also known and called as Channel V1 or Internal sensor. Referred to the sensor which is connected to the board. This sensor cannot be disconnected from the unit. The sensor may however be located inside the housing or outside therefore and connected by a wire at the bottom of the gauge. The sensor can be measuring; force, torque linear or angular displacement.

**CALIBRATION:** The CENTORMETER units are calibrated by Andilog and always delivered with a certificate of calibration according to COFRAC standard. It is generally recommended to re-calibrate your equipment once a year unless different internal procedure of you company applied. Com-Ten Industries guarantee a full check up of your equipment, with software update and also the adjustment of the calibration to ensure perfect accuracy of your force gauge.

## II. Handling

**CAUTION - Unpacking:** 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 CENTORMETER Easy is supplied with:

- Power cord
- Certificate of calibration
- Operating manual

## 2. Recommendation before first use

### a. Battery

The battery reaches its maximum capacity after several charges. This is very important! A new gauge has a battery that does not have its full capacity at the first power on. The 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

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.

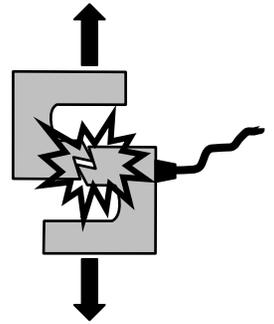
It is important that measured values are under 90% of the sensor capacity.

### c. Test bench

The unit can be affixed to a test bench via the four holes on the unit's base.

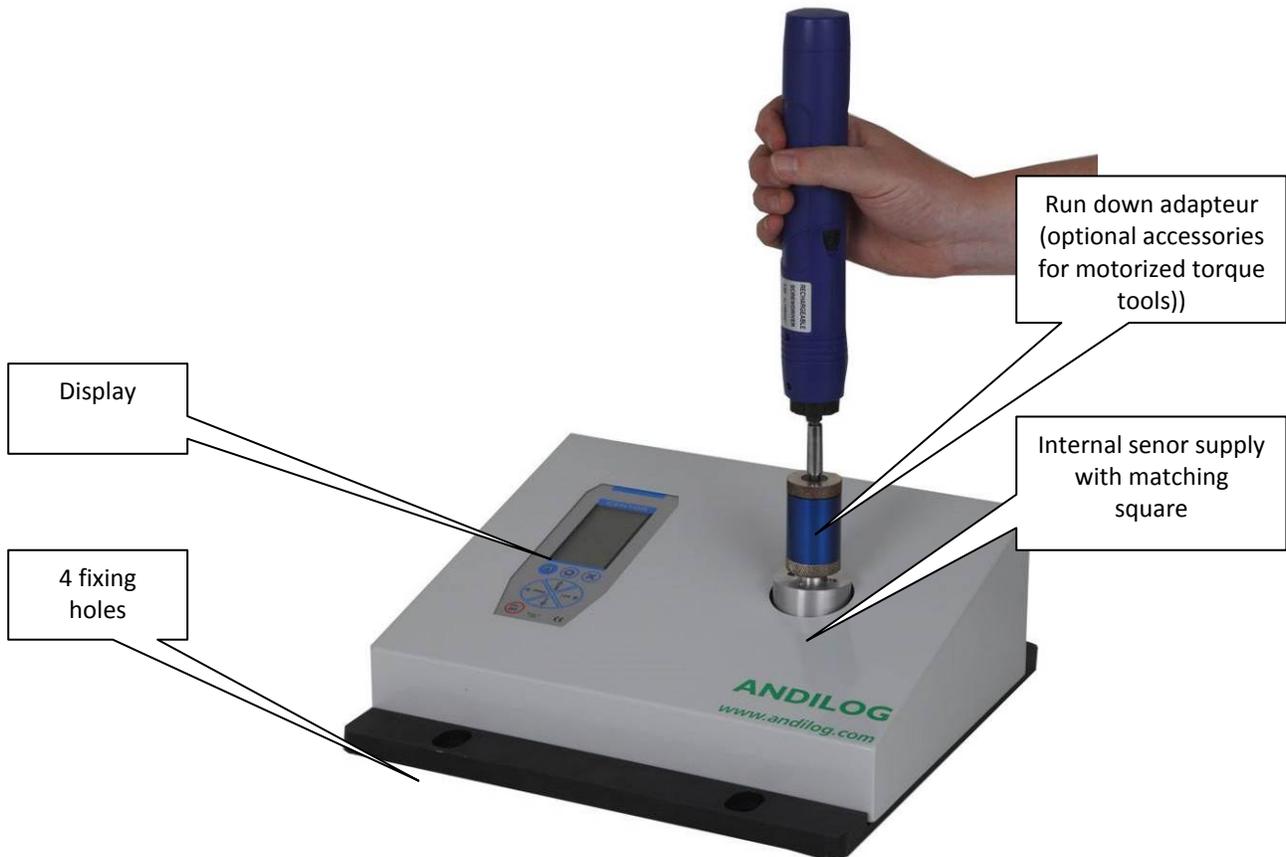
### d. Conditions

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

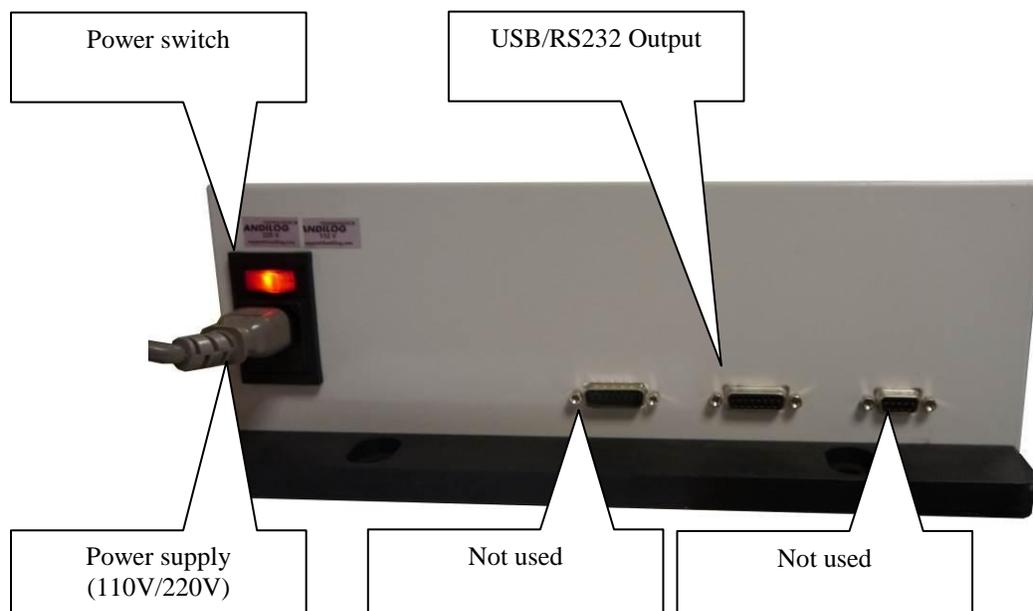


### 3. Product presentation

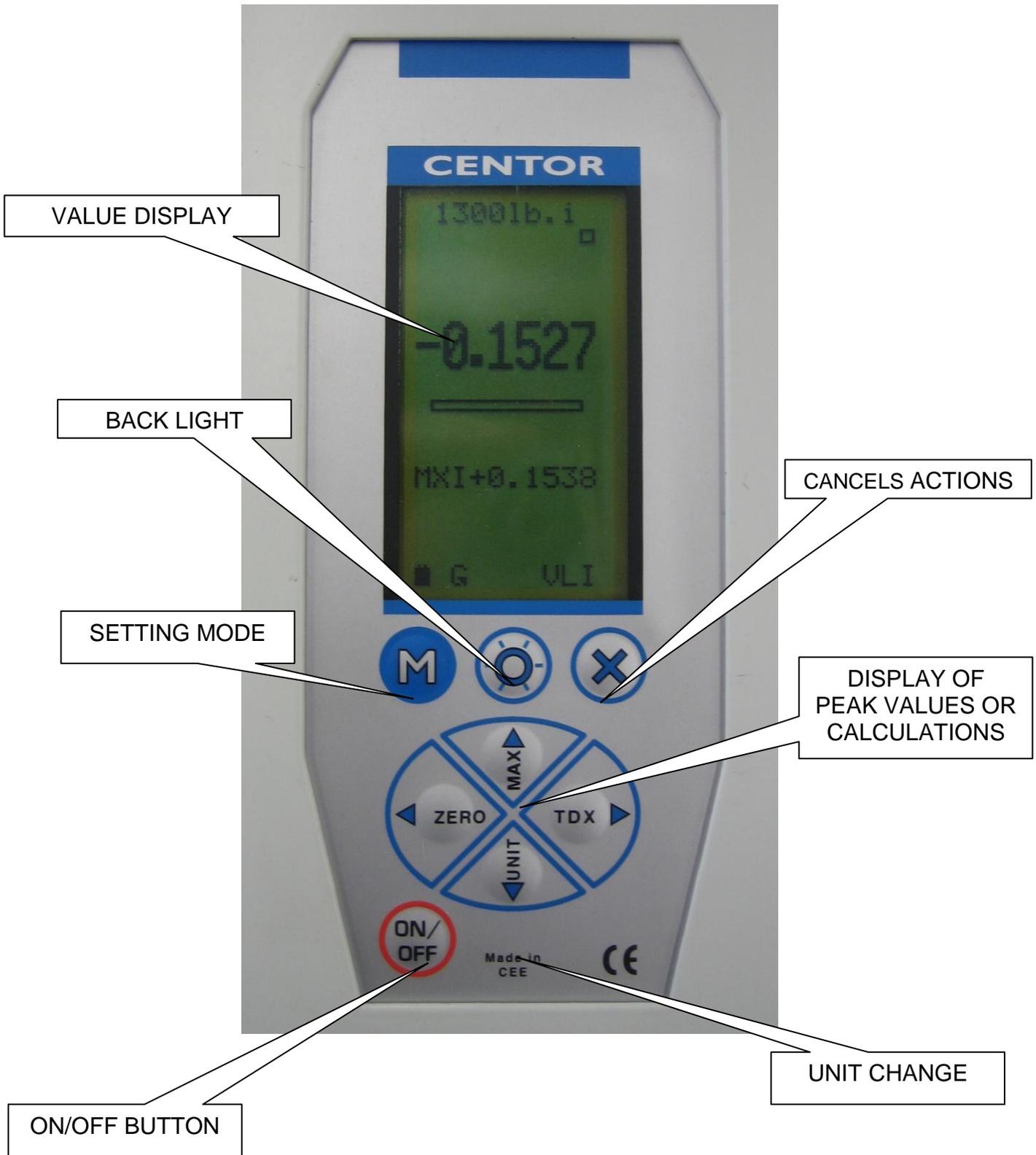
General view:



Back of the Centormeter

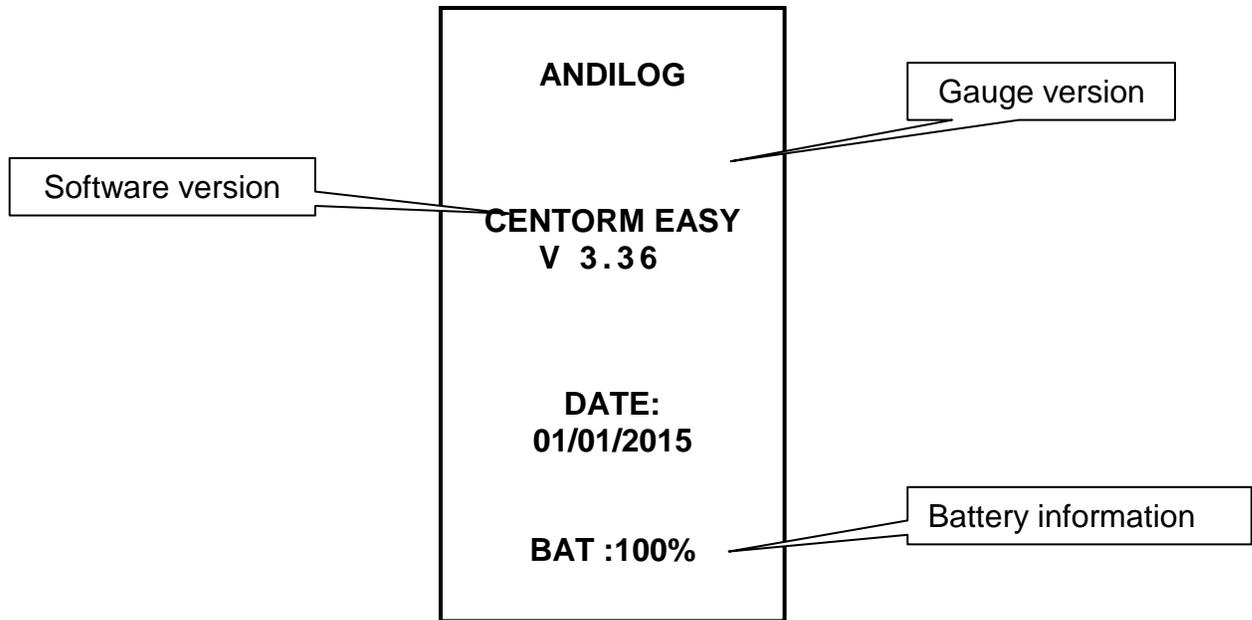


Display presentation:



#### 4. Starting your torque analyzer CENTORMETER EASY

Press the I/O button, the information screen showing the status of the CENTORMETER force gauge is displayed for 5 seconds and then the main screen is displayed.



**Software version:** the line indicates the software version installed on the force gauge.

**Current date:** displayed according to the format: DD / MM / YYYY.

#### **Battery information:**

When the battery is low, a low battery message is displayed on the screen as the gauge is turned on, before carrying out tests.

If the charger is connected, the message « CHARG » will be displayed.

While displaying low battery indication, CENTORMETER gauge runs internal tests. If during these tests, problems are detected, the internal information screen is displayed.

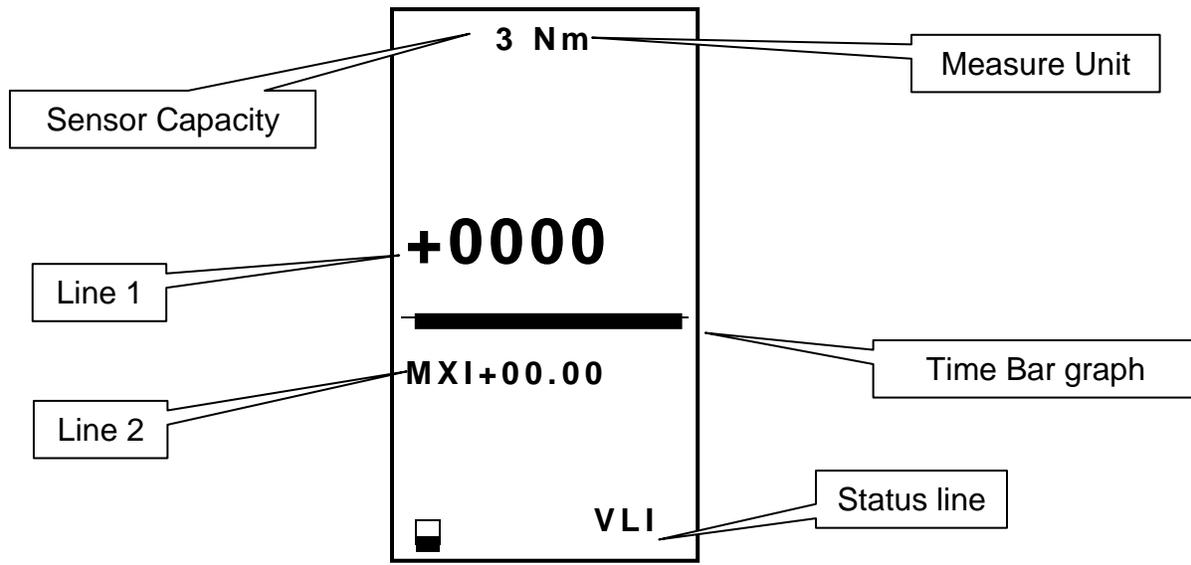
An error message indicates that the gauge is not in optimum operating condition for measuring. Please see the Appendices chapter for the meaning of indications and error messages.

If the error detected makes measurement impossible (defective sensor for example), the display will hold and it will be impossible to take any further action. Then return the instrument to ANDILOG TECHNOLOGIES for examination.

If the error detected does not make measurement impossible (low battery for example) you can switch to the main screen by pressing MAX button.

## 5. Display mode

NOTE: Described here are manufacturer settings, prepared by ANDILOG TECHNOLOGIES for delivery.



When turned on, CENTORMETER force gauge displays a small square in the middle of main screen (line 1). This small square slides from left to right and then the value of the force applied to the force gauge sensor appears on line 1 in big letters. If no force is applied, CENTORMETER force gauge displays « 0 ».

**Sensor Capacity:** the range of the sensor detected can be displayed at any time, even for additional external sensor.

**Measure unit:** indicates the unit used for the display. Several units are available. Press the “UNIT” button to change the measure unit.

**Line 1:** displays the current reading.

**Time Bar graph:** a black line is the representation of the time.

**Line 2:** displays the maximum, minimum, current values and calculations. Could be selected by pressing “MAX” button.

**Status line:** Low battery indication: pictogram indicating the battery power status via 4 horizontal lines which respectively symbolize 25%, 50%, 75% and 100% of power. When adaptor is connected, this pictogram flashes.

An easy-to-remember small symbol indicates the direction of the force exerted on the sensor ( ).  
↓ ↑

VAL 1: indicates the value displayed on line 1. You can effectively modify the information displayed on this line. We will see on Chapter 4 part C how to change the displayed value.

NOTE: on lines 1 and 2 you can display the following values:

VLI: current value

MXI: maximum value

MNI: minimum value

CP: calculation (If calculation is used)

## 6. Reset function

Press on “ZERO” button to reset the force gauge.

This button allows for tare. The gauge will take into consideration the weight of accessories (hook or plate) fixed on the sensor’s rod.

Pressing this button resets all memories and peak values.

**NOTE:** When turned ON the CENTORMETER 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 20%** of the sensor’s maximum capacity.

## 7. Measure unit

To change the unit of measure, just press “UNIT” button.

When the force gauge has an external sensor attached, it detects the type of sensor connected and displays the corresponding units.

## 8. Peak values

The CENTORMETER automatically calculates peak values (maximum and minimum) and systematically displays them on line 2. Pressing “MAX” button makes max. Value, min. value and current value successively display (as well as a calculation if it has been set).

To reset those values press the “ZERO” button.

## 9. Backlight

You can turn on the backlight by pressing “O” button.

When using the force gauge on battery, the backlight automatically turns off after 3 minutes of operation. The total battery life the CENTORMETER will be reduced when the backlight is turned on.

When the gauge is used with the charger, the backlight does not switch off.

## 10. Perform a measurement

Place your torque tools to control in the square fixture of the Centormter Easy. Press the ZERO button to reset to 0 the maximum and minimum values. Apply torque on your torque tools.

The Centometer Easy automatically display the maximum values measured on the first line and will remember it until the ZERO buttons is pressed or the power is turned off.

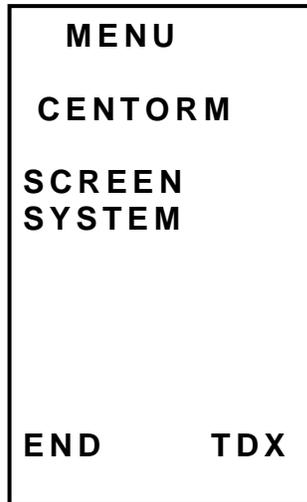
To make the next test, press ZERO

You can also send the maximum value to a PC pressing the TDX button or from the optional RSIC Lab software.

### III. Advanced Features

Access to the advanced features configuration mode by pressing the M button. The following screen appears:

#### 1. Setting screen:



In the menu, the button has the following functions:

A	On/Off	Turn the gauge on or off
B	ZERO	Arrow to the left: displaces the cursor to the left
C	Units	Arrow downward: displaces the cursor to the bottom
D	TDX	Arrow to the right: displaces the cursor to the right and validates
E	MAX	Arrow upward: displaces the cursor to top
F	M	switches to the previous screen saving modifications.
G	O	Turn on the backlit.
E	X	Switches to the previous screen cancelling modifications.

To move within the menu, use “▲ - MAX ” and “▼ - UNIT ” buttons  
To select the desired function, highlight it and press the “TDX” button.  
To switch to display mode, use “M” button.

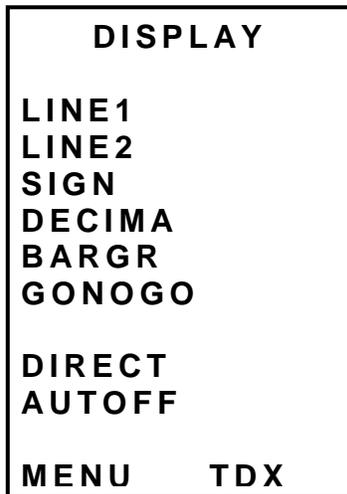
In the following screens, the operating mode is the same. In any other screen whatever the position of the cursor:

“X”: switches to the previous screen cancelling the modifications.

“M”: switches to the previous screen saving the modifications.

Following are the force gauge functions described one by one:

## 2. Display



Exit by pressing the “M” button to save your parameters.  
From this menu you can entirely set the main screen.

Menu	Choice	Description
<b>LINE 1</b>	VLI, MXI, MNI	Set the display of the first line 1 : current value (VLI), Maximum (MXI), Minimum (MNI)
<b>LINE 2</b>	NO, VLI, MXI, MNI	Set the display of the second line 2 : None (NO), current value (VLI), Maximum (MXI), Minimum (MNI)
<b>SIGN</b>	NO, TRA, COM	Set if the sign is displayed and if yes the direction of the positive sign : tensile (TRA) or compression (COM)
<b>DECIMA</b>	0,1, 2, 3, 4	Number of decimals
<b>BARGRA</b>	YES, NO	Display the bar graph or not
<b>GONOGO</b>	NO, PAS, FAI	Display or not the word PASS or FAIL when the limit is reached
<b>DIRECT</b>	H, B	determines the direction of display, caution: the front panel buttons are not affected by this parameter
<b>AUTOFF</b>	NO, 5, 10, 15	Determines if force gauge stops if no button is activated after 5, 10, 15 min.

**CAUTION:** if Auto-off displays NO, we advise you to use the force gauge with the charger to avoid the measuring process being interrupted because of low battery condition.

### 3. System setting

This screen displays the general information of your CENTORMETER.

**SYSTEM**

**CENTORM**  
**F:3.17/H30**  
**01/01/1999**  
**03:24**  
**>ENGLISH<**

**SPIP AV10**  
**N99 0001**  
**16/11/1999**

**MENU TDX**

Exit the screen by pressing “M” button to save the settings.

### 4. Using the RS232 Output

By default, on the Centometer Easy the RS232 output is switched ON. The RS232 cable connects to the 15pins connector on the back of the unit. Once connected to a computer, the Centormeter EASY can send data according to two protocols:

- Pressing the TDX button, the Centormeter EASY send under ASCII format the maximum torque value
- The computer queries the Centormeter EASY to retrieve the value

List of the available commands

Menu	Choice	Description
<b>Demand</b>	F	Send the raw data
	P	Send the maximum
	V	Send the minimum

RS232 configuration

Menu	Choice
<b>Bauds</b>	9600
<b>Parity</b>	SANS
<b>Bits stop</b>	NON
<b>Bits</b>	8
<b>Stop</b>	1

#### **IV. 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: CALIGRAF software goes further in tests analysis.

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

##### **2. Interface Cables**

Several interface cables can be used with CENTOR force gauge:

External pedal: allows simulation of a keyboard button

Cable for RS232 link: connect your gauge to a computer using the RS232 output through a USB or RS232 port

## V. APPENDICES

### 1. Keyboard chart

BUTTON N°	MEASURE Screen	MENU Screen
1 on/ off	Turn the gauge on / off	Turn the gauge on / off
2 O	Backlight on/ off	Backlight on/ off
3 ZERO	Resets values	Left Arrow
4 UNIT	Changes units	Down Arrow
5 MAX	Displays max and min values	Up Arrow
6 TDX	Sends a value through RS232	Right Arrow
7 X	Inactif	Returns to preceding screen without saving
8 M	Setting mode	Returns to preceding screen with saving

### 2. Actions:

While setting screen is displayed:

M + X      activates factory setting

While the system screen is displayed:

M + MAX    Displays diagnostic screen

While the diagnostic screen is displayed:

M + MAX    to return to preceding screen

### 3. Error messages

#### Diagnostic screen:

This screen is displayed in two cases:

- After the completion of internal tests, if a minor or major defect has been found.
- In System Menu, when M + MAX are pressed.

#### Minor defects:

- Low battery
- Expired calibration date

Press MAX button to continue

#### Major defects:

- Damaged sensor
- High number of overloads (>5)
- Internal error

### 4. SubD15 connector

Connector detail SubD 15 pins connected to CENTORMETER electronic card

<b>PIN</b>	3	RS232	TXD
	4	RS232	RXD
	12	Input Force pedal	
	13	GND	