Operating manual
ANDIDOOR
V3.39

Index

1. General information

1.1. Presentation

Thank you for choosing the ANDIDOOR gauge manufactured by Andilog Technologies.

This force gauge is the result of 30 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 ANDIDOOR force gauge is easy to use. This instruction manual will guide you to set your first measurements.

1.2. Handling

ANDIDOOR is delivered as a complete and ready to use unit; it is composed by a display and an external force load cell linked to the display by an indissociable cable

CAUTION - Unpacking: Your ANDIDOOR 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.

Unpacking: The ANDIDOOR gauge is supplied with:

- Carrying case
- CD including
  - RSIC Lab software for ANDIDOOR
  - User manual
- Power plug adaptor
- Connection cable to connect the ANDIDOOR to a PC
- Certificate of calibration

1.3. Information

ANDIDOOR is a gauge specially designed to measure the closing force of motorized & automatic doors. It is in conformity with the norm EN 12453. The data acquisition software RSIC delivered with the instrument, allows the transfer of the measured values to an Excel table to resume the test.

The force load cell is able to measure forces up to 2000 N. The measured values are displayed on the screen of the gauge after each measurement.

1.4. Recommendation before first use
1.4.1. General

We recommend to read the documentation carefully, and to commit the use of the instrument only to trained operators with the types of measurements you want to realise.
If you have a doubt, don't hesitate to call our technical service which is at your disposal.

1.4.2. Sensor

In spite of its mechanical protection, sensor's 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 evaluation.

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

1.4.3. Rechargeable batteries

ANDIDOOR is equipped with rechargeable batteries that assure 8 hours of operation without recharging.
The loading time is 1 to 2 hours. However the best performance is reached after 3 or 4 complete cycles of charge and discharge.

The rechargeable batteries suffer from a phenomenon of natural discharge; it is strongly advised against letting the instrument for a long time without recharge.
If the instrument isn't used for a long period of time, the battery is discharging itself and can reach a very low level, which can degrade its intern capacity of holding its charge in the future.
Also, if the instrument cannot be used for a long period of time, we recommend you to do a cycle of charging and discharging about every two months.

The icon for the battery information gives precise information on the state of charge of the battery.
This information is updated permanently.

Maximum charge : 4H of operation without charging in continuous mode

Minimum charge : connect the A/C adaptor

This icon shows progressively the charge of the battery and informs you if the rest capacity is 25, 50 or 75% of the maximum capacity.

1.4.4. Calibration

The norm EN 12445 recommends in the paragraph 5.1, a periodical calibration of the force gauge. This calibration allows to survey and to rectify eventually the characteristics of the sensor. This calibration should be made every two years.

To perform the periodical calibration of your instrument, you can return it back to ANDILOG, in its carrying case with its A/C adaptor.

1.5. Typographic conventions
1.5.1. Typography

- For more clearness, we have used italic letters for actions to do
  For example: "*Push the X button*"

- All other information is written in standard letters.

1.5.2. Pictograms

Interest!
This pictogram indicates information and advice that make the instrument easier to handle.

Warning!
This pictogram emphasises the cases in which bad use of the instrument can cause incorrect measurements or damage to the instrument.

Alert!
This pictogram is placed every time the risk of damage for the instrument or for the operator is important.

2. Technical characteristics

2.1. Sensor

Technology	Strain gauge
Capacity	2000 N
Rigidity	500 N/mm
Weight	0,8 kg
Protection	IP 65
Height	51 mm
Diameter	Ø 80 mm

2.2. Display

Display	Graphic screen
Resolution	1 N
Accuracy	± 10 N
Power	Rechargeable battery
Autonomy	8 h in operation, 4 h in continuous mode
Auto off	10 min without action on the buttons
Working Temperature	-5°C to +60°C
Stock Temperature	-30°C to +70°C
Protection	IP 40
Casing	Metal casing and protective rubber housing
Weight	0,6 kg
Dimensions (w x l x h)	88 mm x 180 mm x 38 mm

3. Presentation of your instrument

3.1. Front panel

Screen	

Connector 15 pins for PC connection

Setting MENU -	

Backlight	

Zeroing	

ON / OFF	

Cancel Action – Back to previous screen without saving

Data Transfer

Changes Unit
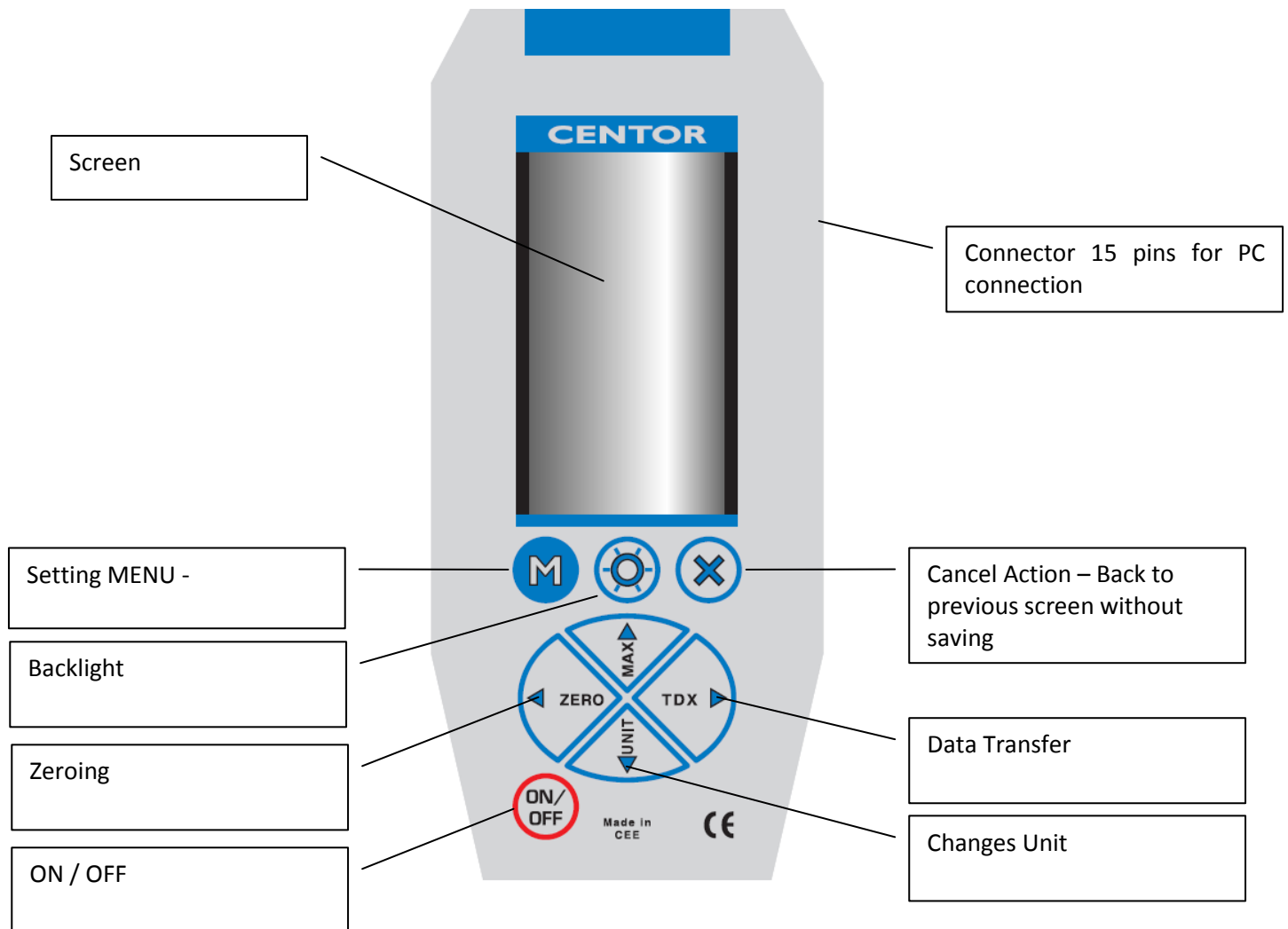
3.2. Features

The ANDIDOOR has several modes:

- MEASUREMENT mode :
  In this mode you read the force measured by the sensor; this is the usual mode of ANDIDOOR

- STATISTICS mode:
  In this mode you can visualise the results of the measurement you have done.

- CONFIGURATION mode:
  In this mode it is possible to modify some parameters concerning measurement or statistics.

The CONFIGURATION mode is only accessible if the measurements in the memory have been deleted. It is not possible to modify the parameters as long as measurements that have been done with the former parameters remain.

To change from the MEASUREMENT mode to the STATISTICS mode: *push the M button*

To change form the STATISTICS mode to the MEASUREMENT mode: *push the X button*

To enter the CONFIGURATION mode: *delete the former statistics*

The buttons on the keyboard have different function depending on the mode which is activated in the instrument:

Button	Features / MEASUREMENT mode	Features / STATISTICS mode	Features / CONFIGURATION mode
ON/OFF	Start /Stop	Stop	Stop
◀ ZERO	Sets to zero measurements and forces read by the sensor	Deletes the values in the memory: Follow the instruction on the screen to delete all or just a part of the memorized values. Allows entering to the configuration	Moves the cursor to the left
▲ MAX	Inactive	Moves the cursor upwards	Increases the value by 1
TDX ▶	Saves the effected measurements	Starts printing the ticket	Moves the cursor to the right
UNIT ▼	Inactive	Moves the cursor downwards	Decreases the value by 1
M	Entering the statistics mode	Allows to show one by one the statistics concerning the values Fd, Fs, Fe	Inactive
☼	Activates the backlit display	Activates the backlit display	Activates the backlit display
X	Inactive	Enters the MEASUREMENT mode	Enters the MEASUREMENT mode

4. Measurement

4.1. Starting your instrument
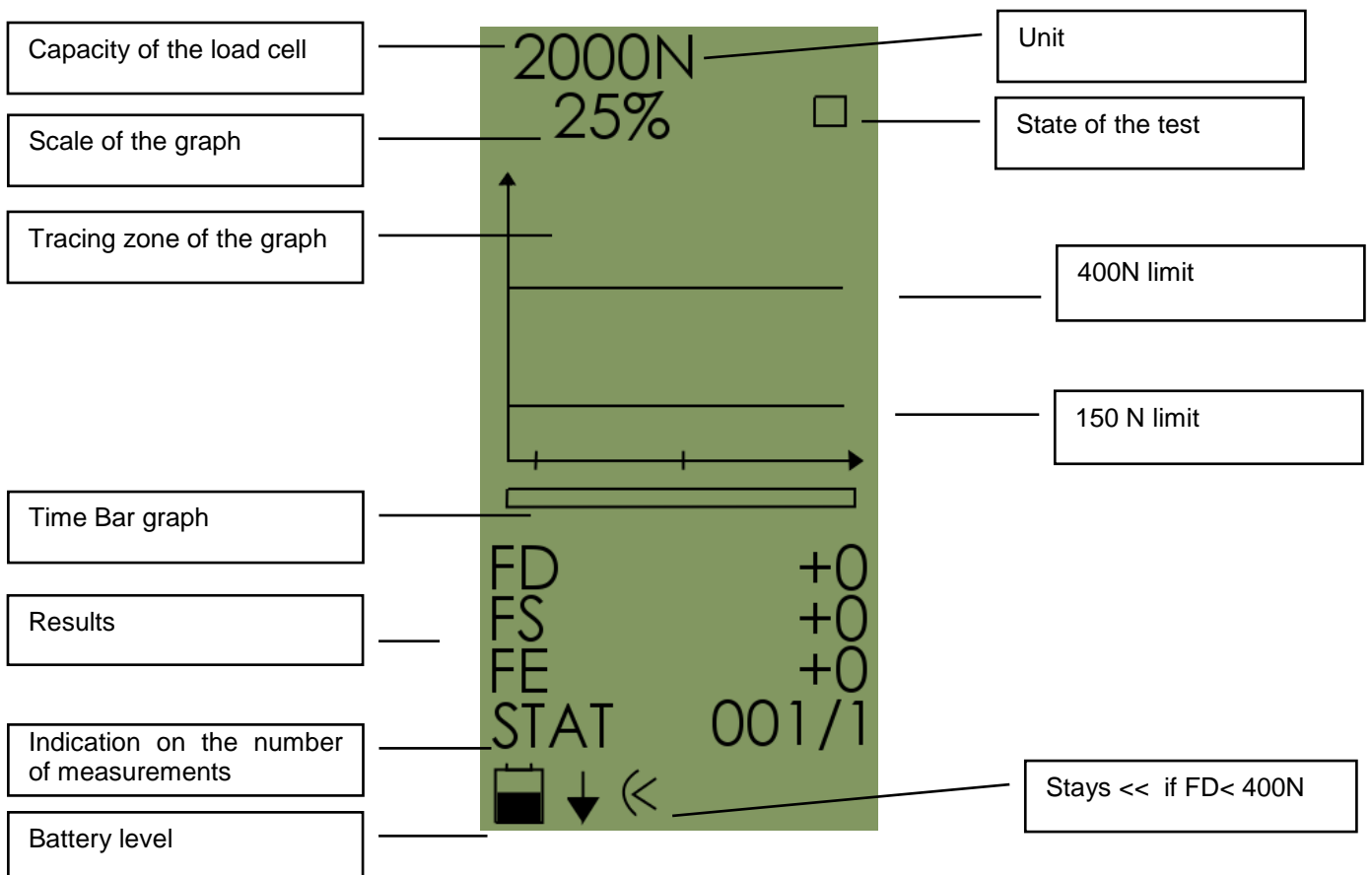
- *Press the ON/OFF button*

The information screen is displayed during 5 seconds and then the main screen is displayed. The following details are displayed on the information screen: ANDILOG logo, model of the device, software version, and the date of the day: DD/MM/YYYY.

An auto-test is automatically performed by the ANDIDOOR. The auto-test checks the state of the force load cell, the effective operation of the battery and the calibration date.

If an error is detected by the auto-test then a new information screen is displayed underlining the main error - Refers to the annexe for the list of errors.

4.2. Display mode

We describe here the screen following manufacturer settings, prepared by ANDILOG.

Capacity of the load cell		Unit
Scale of the graph	2000N	State of the test
Tracing zone of the graph	25% □	
		400N limit
		150 N limit
Time Bar graph		
Results	FD +0	
	FS +0	
	FE +0	
Indication on the number of measurements	STAT 001/1	
Battery level	🔋 ↓ «	Stays << if FD< 400N

5. Measurement configuration – Prerequisite

5.1. Presentation

The ANDIDOOR has been designed to reply and comply with the recommendations of the international standard, which means that the measurement process and calculations can't be changed.

However some details can be adapted to comply with your testing protocol. Here are the details of the 3 parameters that can be modified:

- The number of measurement per point/sample: you can change the parameter from 0 to 9. This parameter is defined by the norm: for each point measured, you should repeat several successive tests and calculate the average. The norm itself determines that 3 successive tests must be done.
- A variable called "operator" or "operation" and which is configurable from 1 to 20. This variable can be used to distinguish different users, or as a number to identify a door, etc.
- The measurement unit: the available units are N, KN, Kg, lb, oz, daN. Please keep in mind that the international standards are specifying results in Newton.

5.2. Modify the measurement configuration

To enter the CONFIGURATION mode:

- *In MEASUREMENT mode, press the M button*

Note: If measurements are already stored in the internal memory of your device, you have to delete them to be able to enter the CONFIGURATION mode

<table>
<tr><td>

E R A S E ?

M : A L L
< : S A M P L E
X : C A N C E L

</td><td>

Erasing procedure:
- *Press the ZERO button*
- *Then press the M button, all values are deleted*

</td></tr>
</table>

<table>
<tr><td>

M e s / S a m p   1
O p e r .   0 1
U n i t   N

</td><td>

The first two parameters can be modified as follow:
- *Push the ▲ ▼ buttons to be able to place the cursor on the parameter you want to change*
- *When the cursor is placed on the line you want to modify, push the ▶ buttons to enter the modification of the parameter*

Push the ▲ ▼ buttons to modify the values: by pushing successively on the buttons
- *To finish the configuration of the parameter, push once again one of the ◀ ▶ buttons*

</td></tr>
</table>

To configure the unit:

- *Place the cursor on the line "Unit" by using the ▲ ▼ buttons*
- *Modify the unit by using the ◀ ▶ buttons (available units: N, kN, kg, lb, oz, daN)*

To leave the CONFIGURATION mode:

- *Push the X button*

ANDIDOOR is now in the MEASUREMENT mode.

6. Testing protocol

6.1. General procedure

ANDIDOOR has been designed to comply with the specifications of the international standard for the "industrial, commercial and garage doors and gates" in order to measure their closing force. All the calculation's parameters are defined in conformity with the norm and cannot be modified.

The forces measured are as followed:
- Fd (dynamic force) : the maximum force, in N, measured during the dynamic period, which means up to 0.75 s
- Fs (static force) The maximum force, in N, measured in the period of time between 0,75s et 5s
- Fe (final force) the off-peak force measured at 5s.
- The total time of the test has been fixed to 10s, this period is symbolised by the bar graph that is shown under the curb.
- The curb of the test is designed in real time on the screen
- Les values Fd, Fs, Fe are shown after the test under the bar graph as well as the number of effected measurements.

It is possible to save in the memory up to 100 measurements, which means 33 groups of 3 values. If the 33 blocks are over passed, it is necessary to transmit the measurements from the internal memory to a PC before continuing the tests.

6.2. Recommendations

Attention!
Before starting your measurement, check the configuration of your instrument, to follow the conditions recommended by the norm:

- *Push the M button*
- *Check the actual parameters : number of measurements per block = 3; unit = N*
- *(in case of divergence, delete the values in the memory and configure the parameters once again – see chapter 5)*
- *Push the X button to return to the MEASUREMENT mode*

Alert!

Measuring the closing force of motorized & automatic doors has to be done with special care: the operator has to make sure to not trap himself in the door and not to be directly exposed to the risk linked with the closing action of the door.

6.3. Step by step protocol
- *Chose the points which need to measure following the recommendation of the norm EN 12445*
- *Place the circular part (active part) of the sensor by abutting it on the mounting or a brace (in the case of measurements at midway), paying attention that the force is applied on the center of the sensor when the door is closing.*
- *If the force is not applied in the center of the sensor, the ANDIDOOR is still able to measure a force, but the results won't be optimal.*
- *Turn the device ON and check that the display is in the MEASUREMENT mode*
- *Zeroing the device by pressing the ZERO button*

- Check that the display shows on the right top corner a little square (i.e. the device is waiting and ready to start the measurement).

- Close the door, taking care to not be in the way.

- If case of difficulties (the door stays closed) let off the sensor. Do not use the sensor as a leverage to open the door.
- If the sensor is blocked in the door, open the door to set it free, without trying to put it out by pulling on the grip (or on the cable) for example.
- If the sensor is in correct position, is must not move (or only slightly) when the door is closing.
- If the sensor moves, put the values to ZERO, put the sensor in a more solid position and restart the test.

- The measurement begins when the force overpasses 150N, the curve is displayed on the screen, the bar graph indicates the time of test (up to 10secondes), and the calculated values are shown on the screen.

To obtain a more visible screen,

Push the ☼ button
Using the backlit screen reduces the autonomy of the instrument. To save the charge of the battery, the backlit is switched off automatically after 2 min.

6.4. Termination of the trial

At the end of the test: the bar graph is fully black, the square on the right top corner has been replaced by a cross, the values are shown and the curve is traced:

You can:

Save the measured values:

- Push the TDX button
The values are saved in the memory, and then the curve and the screen are put to zero.
The square is shown on the right upper corner.
The number of measurements is updated.
ANDIDOOR is ready for the next test.

Delete the measured values:

- Push the ZERO button
The curb and the screen are put to zero.
The square is shown on the right upper corner.
The number of measurements is updated.
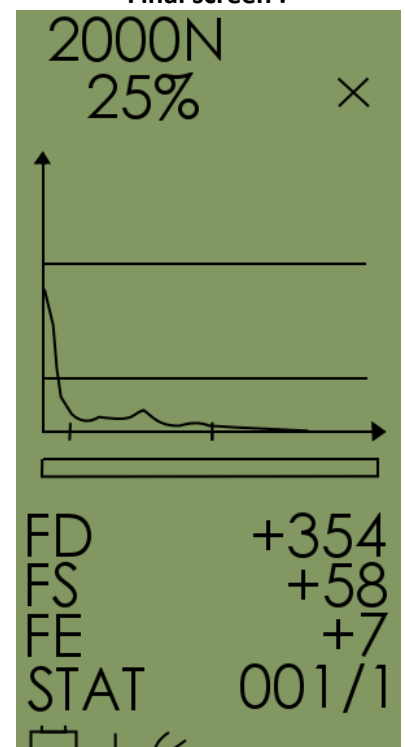*ANDIDOOR is ready for the next test.*

Switch off ANDIDOOR:

The values and the curb will be shown if you switch on the ANDIDOOR next time.

Final screen :

7. Displayed the results
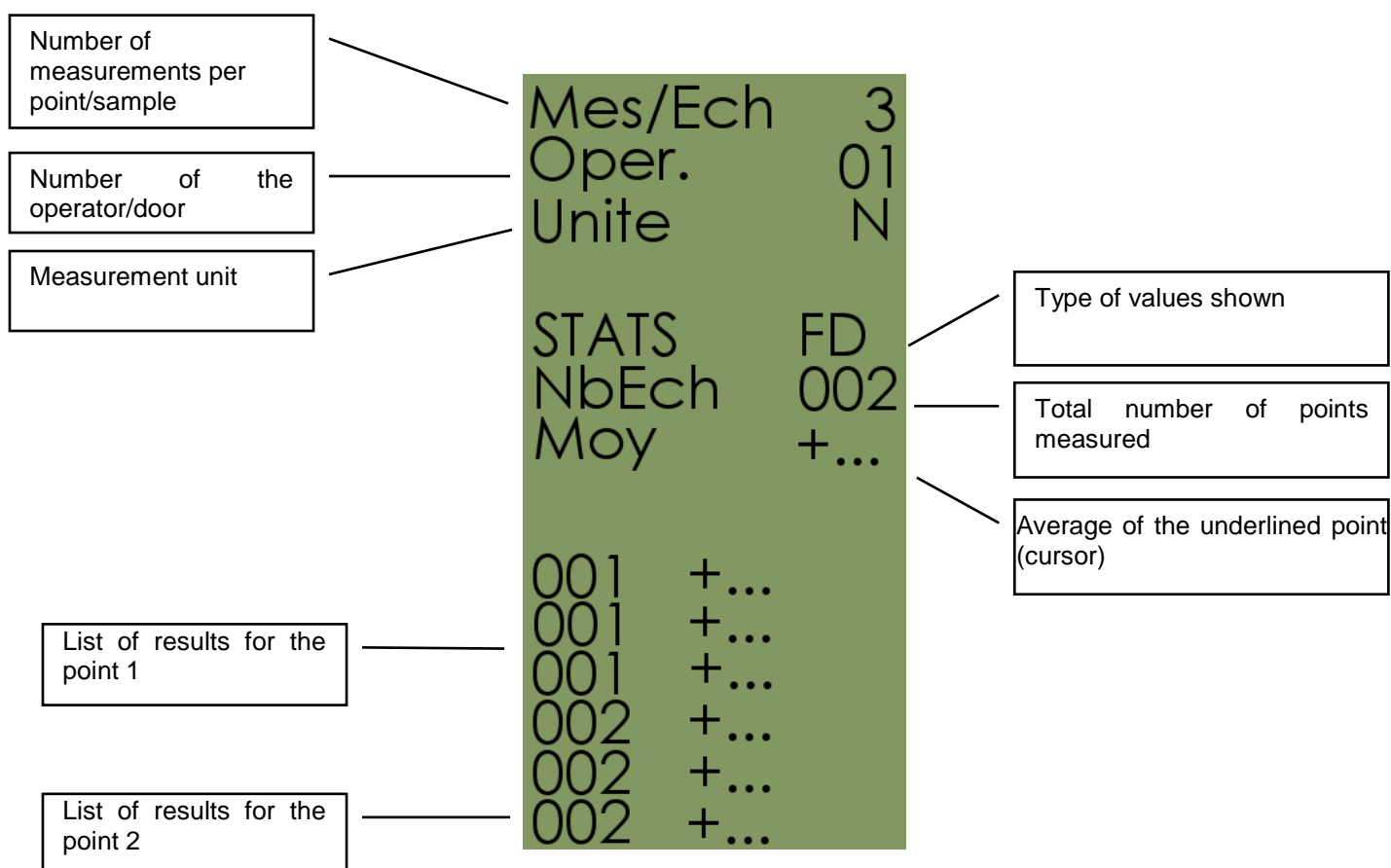### 7.1. Access to the results

The STATISTICS mode allows:

- To access to the CONFIGURATION mode

- To visualise the memorized results and see the average values

From the main MEASUREMENT screen:
- *Push the M button*

Screen of the STATISTICS mode:

Number of measurements per point/sample

Number of the operator/door

Measurement unit

```
Mes/Ech    3
Oper.     01
Unite      N

STATS     FD
NbEch    002
Moy      +...


001   +...
001   +...
001   +...
002   +...
002   +...
002   +...
```

Type of values shown

Total number of points measured

Average of the underlined point (cursor)

List of results for the point 1

List of results for the point 2

For each test, the 3 values are saved (Fd, Fs and Fe). ANDIDOOR shows the list of obtained values:

The value type is indicated in the middle of the screen (i.e. in the example above FD is the shown result)
To see another type of value, Fs or Fe for example:
- *Push the M button*
- *Use the ▲ ▼ buttons to move the cursor in the list of values*

To return to the MEASUREMENT mode:
- *Push the X button*

7.2. Erasing procedure

```
ERASE?

M: ALL
<: SAMPLE
X: CANCEL
```

It is possible to delete all the values, as well as one block of values (Fd, Fs and Fe).
It is impossible to delete an individual value (Fd or Fs or Fe), you can only delete the whole block to which it belongs and restart all the tests for this concerned point.

Deleting a block:

- *Starting from the MEASUREMENT mode, push the M button to return to the STATISTICS mode*

- *Move the cursor by using the ▲ ▼ buttons and by positioning them on the value or block to delete (this function is activated no matter what type of value is displayed (Fd, Fs or Fe))*

- *Push the ZERO button*

- *Push the ZERO button once again*

- *The block has been deleted*

- *Push the X button to return to the MEASUREMENT mode*

Deleting all memories:

- *Starting from the MEASUREMENT mode, push the M button to return to the STATISTICS mode (this function is activated no matter what type of value is displayed (Fd, Fs or Fe))*

- *Push the ZERO button*

- *Push the M button*

- *All the values have been deleted*

- *Push the X button to return to the MEASUREMENT mode*

In both situations, press the X key if you decide to not pursue the erasing procedure.

8. Edit your test report

Refer to the RSIC software operating manual to:
- Install the RSIC software
- Connect the ANDIDOOR to the software
- Export the results to your computer
- Either edit a formal report or export the results stored in the internal memory to an EXCEL spreadsheet.

NOTE: You can export your results after each test under a pre-formatted report or export results of all your tests (stored in the internal memory) under a spreadsheet.

NOTE: by exporting the results to your computer, you are not deleting the measurements from the ANDIDOOR – please refers to the chapter "Erasing procedure" to delete the memorized results.

9. Annexe - Error Messages

The AUTOTEST screen displays if:
- The device detects a minor or major default when it starts
- In the SYSTEM sub menu, by pressing the keys: M and MAX

a. Minor defaults
   - Low battery level
   - Calibration is due
   - Backup battery is out of order

Press the MAX key to continue

b. Major defaults
   - Load cell is out of order: "Off" value is higher than 3%
   - Counter of overload reach its maximum value: "OVERL" value is higher than 10
   - Internal error

Please contact ANDILOG