

# USER MANUAL



**TESTER 1008** for checking simultaneously a weighing system with up to 4 load cells  
Calibrator and mV/V signal simulator

Software version P28901



# INDEX

Technical Specifications .....	Page	2
Connection Sub-D 25 poles.....	Page	3
Tester: Switch ON .....	Page	4
Signal Detection.....	Page	5
Tester Functions .....	Page	6
Display .....	Page	7
Tester Functions.....	Page	8
Tester Functions: Autotare .....	Page	12
Tester: Calibrator Functions.....	Page	13
Main Menu .....	Page	15
Instrument Files Menu .....	Page	17
Configuration Files Menu .....	Page	18
NFC Communication Files .....	Page	19
File Management from PC .....	Page	20
Example: Configuration Files .....	Page	20
Declaration of Conformity .....	Page	21

## TECHNICAL SPECIFICATIONS

<b>Power Supply:</b>	4 x 1,5V Alkaline Batteries or NiMh 1.2V rechargeables
Consumption:	Max. 170 mA (Max. Light, 4 load cells of 350 Ohm)
Operating Temperature:	-10°C ÷ +50°C
Storage Temperature:	-20°C ÷ +70°C
Display:	LCD graphic monochrom. 4" (240 x 128 pixels)
Keyboard:	Touch panel + Switch On button
Dimensions:	185 x 93 x 36 mm (H x L x D)
Case:	Palm- ABS
Protection Degree:	IP54
Load cells Connction:	Sub-D 25 poles cable

### 4 independent channels:

Load Cells Excitation:	3.3 Vdc / 50 mA (max 4 load cells of 350 Ohm)
Internal Resolution:	24 bit
Weight Display:	Up to 50.000 divisions
Linearity:	< 0,01% FS
Temperature Drift:	0,0003% FS / °C
Input Signal:	From -3.9 to 3.9 mV/V
Load Cells Impedence:	From 350 Ohm to 2000 Ohm

### Calibrator Specifications:

For equipment with load cells excitation from +/-3Vdc up to +/-15 Vdc with input resistance >100 kohm.

Output Signal:	-3 mV /+20 mV (Optional +30mV)
Resolution:	16 bit
Output:	Panel Touch
Linearity:	< 0,02% FS
Temperature Drift:	0,001% FS / °C

Communication Ports:	N° 1 USB device (connection to a PC) N° 1 RS232 (connection to instrument) N° 1 NFC (connection to DAT1400)
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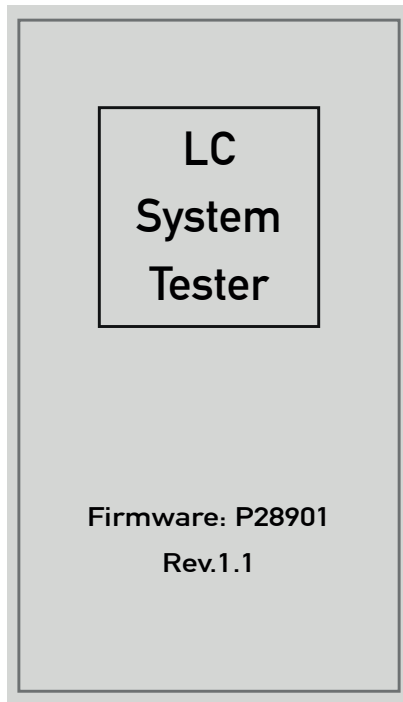
Status Battery:	Battery Icon 5 levels
Auto Switch Off:	Programmable
Microcontroller:	ARM Cortex M0+ 32 bit, 256KB Flash on board from USB
Setup Memory:	64 Kbytes.
Archive and Files Memory:	1024 Kbytes
Archive and Optional Files Memory:	µSD card (not removable)
Complies with:	EN61000-6-2, EN61000-6-3 for EMC; EN61010-1 Electrical Safety

## SUB-D 25 POLES CONNECTION

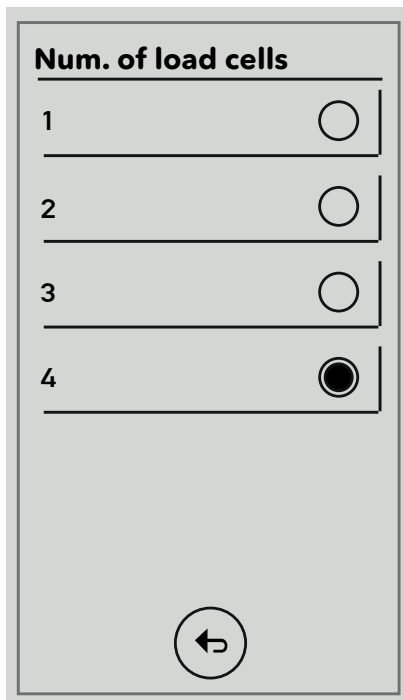
NUMBER	FUNCTION
1	+EXC. LOAD CELL 1
2	-EXC. LOAD CELL 1
3	+SIGNAL LOAD CELL 1
4	-SIGNAL LOAD CELL 1
5	TX RS232
6	+SIGNAL INSTRUMENT
7	-SIGNAL INSTRUMENT
8	
9	+EXC. LOAD CELL 2
10	-EXC. LOAD CELL 2
11	+SIGNAL LOAD CELL 2
12	-SIGNAL LOAD CELL 2
13	
14	+EXC. LOAD CELL 3
15	-EXC. LOAD CELL 3
16	+SIGNAL LOAD CELL 3
17	-SIGNAL LOAD CELL 3
18	RX RS232
19	+EXC. AND SENSE INSTRUMENT
20	-EXC. AND SENSE INSTRUMENT
21	+EXC. LOAD CELL 4
22	-EXC. LOAD CELL 4
23	+SIGNAL LOAD CELL 4
24	-SIGNAL LOAD CELL 4
25	

## TESTER SWITCH ON

The LC Tester1008 shows the following display for about 2 seconds where Firmware and Software Rev. are displayed.



Then, select the number of load cells connected to the junction box mod. CGS4C - CEM4C (or other).



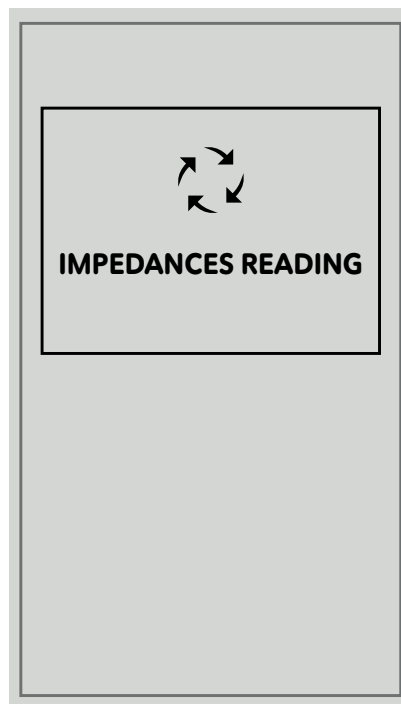
## SIGNALS DETECTION

The LC Tester 1008 automatically detects the input impedance values of the load cells connected, choosing among the 4 available values " 350Ω, 700Ω, 1000Ω e 2000Ω".

The detected values can all be changed if the load cell impedance is different from the 4 available values.

Note: The impedance values result in a variation in the reading of the individual signals of each load cell.

During impedance measurement the LC Tester 1008 displays :



## TESTER FUNCTIONS

The 1008 tester allows the simultaneous display of the "mV / V" signals of each individual load cell, of the relative weight applied in "Kg ..gr..t..lb..N..KN", of the percentage of the single load expressed in "% FS" and its distribution "%".

It also concerns the integrity of the load cell and its electrical connections.

Any anomalies are indicated with the following indications: No Exc-, No Exc + e signal.

N.B. The parameters in the "Weighing Data" menu manage the correct detection of the individual weights controlled by the 1008 tester.

The 1008 tester has the "Peak" function. It detects the weight values in "Kg ..gr..t..lb..N..KN" and the relative signals in "mV / V".

The detected peak values can be saved and used in the "HOLD" screen.

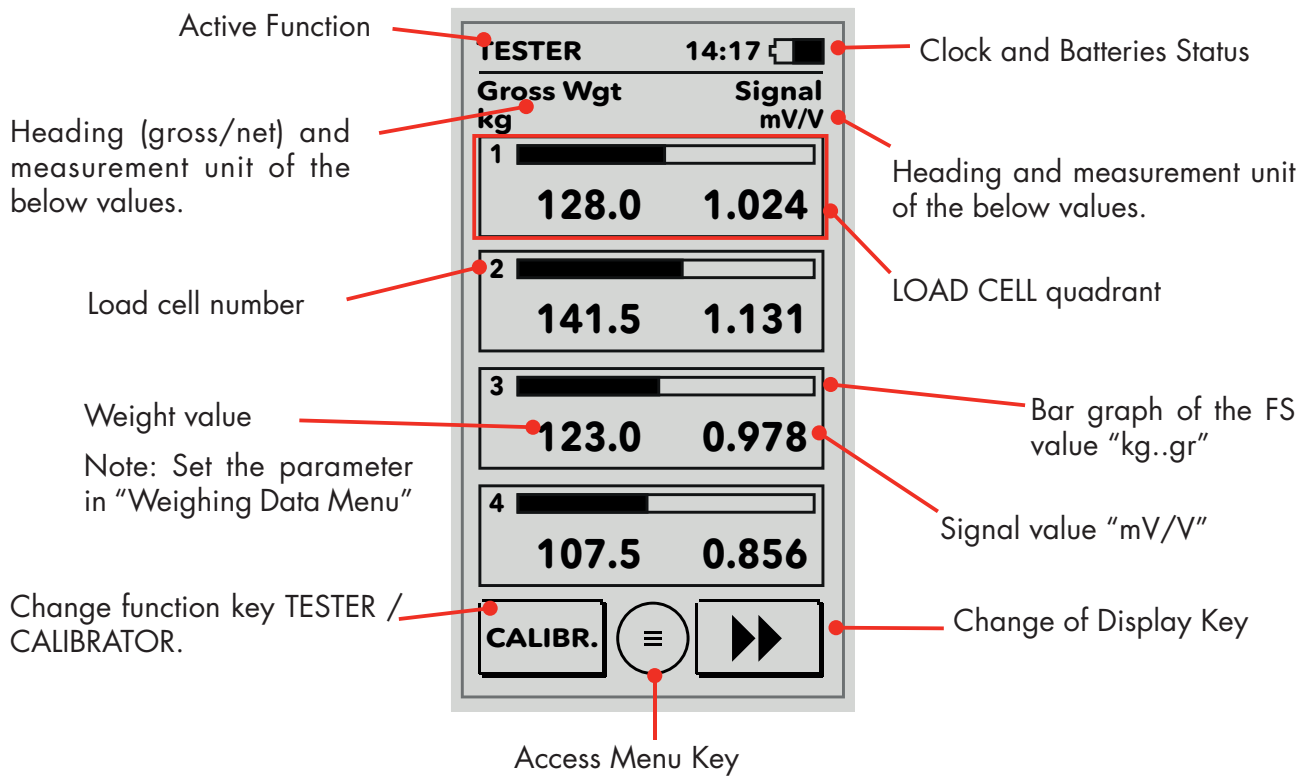
The tester is equipped with the auto-tare function, with zeroing of the weight values in "Kg..gr..t..lb..N..KN", load values expressed in "% FS" and distribution in "%".

The tester can receive and transfer the weight setting configuration mod. DAT400, MC302, DAT1400, MCT1302 via serial connection. The NFC is only available for the DAT1400 indicator.

The 1008 tester is also a signal generator in mV / V which, when connected to an instrument, simulates the load applied to the load cells.



# DISPLAY



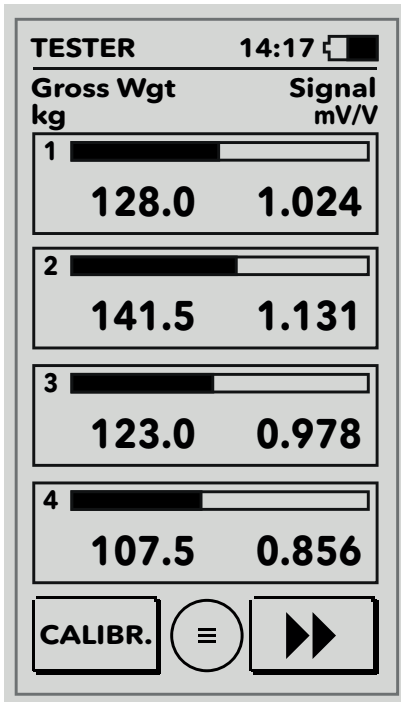
The displayed "squared boxes" depend on the number of load cells selected when powering on the LC Tester 1008.

The change of the displayed values determines the display of the following alternative screens:

## TESTER FUNCTIONS



The following displays can be selected with the key:

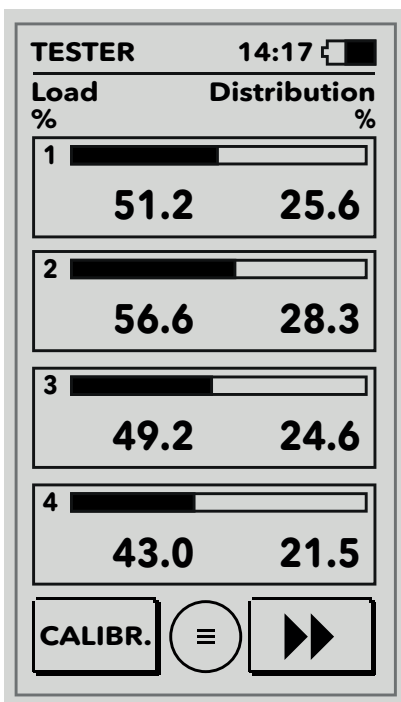


### Display of "Kg" load values and "mV / V" signal values.

The displayed values are the weight in Kg applied to each load cell and its "mV/V" signal.

Pressing around "Gross Weight" it activates the autotare function and the display shows "Net Weight", resetting the weight values, the load percentage and the distribution percentage.

Pressing again it restores the gross weight function.



### Display of load percentage and weight distribution percentage

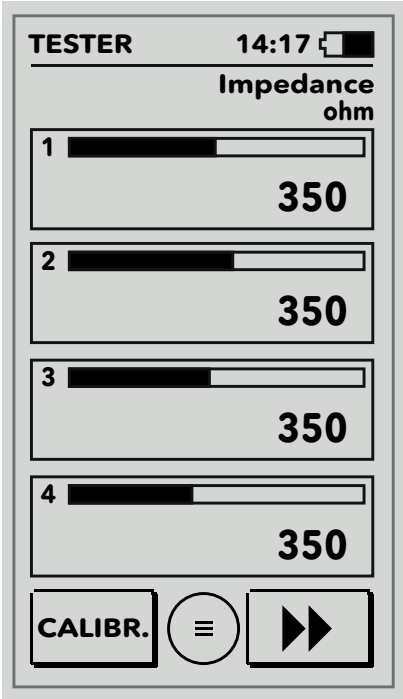
The displayed values are the load percentage applied to each load cell their distribution percentage.

The values on the right are the percentages of load distribution on the individual load cell (signals below 0.01 mV/V are not considered in the calculation of this percentage).

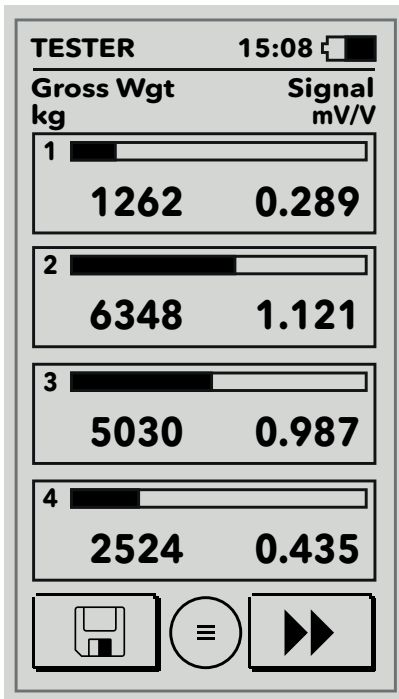
**Display of the load cells input resistance.**

The impedance of each load cell is expressed in Ohm.

It is possible to manually change each impedance value by clicking directly on the value itself and setting the new value. When rebooting, the values calculated by the LC Tester 1008 tester are restored.



## SAVING TESTER DATA



### Weight saving page in csv format

The values displayed on the right are the weights of the different load cells

The values displayed on the left are the mV / V signals of the individual load cells

Each time the save key is pressed, the following data are saved in a file in the main folder of the SDCARD, called "Weights.csv".

The data format is as follows (Heading and Weighing):

```
DATE; NOW; WEIGHT 1 ;; SIGNAL1 ;; WEIGHT 2 ;; SIGNAL2 ;;  
WEIGHT 3 ;; SIGNAL3 ;; WEIGHT 4 ;; SIGNAL4 ;;
```

```
29/07/2020; 15:30; 1262; kg; 0.289; mV / V; 6348; kg; 1.121;  
mV / V; 5030; kg; 0.987; mV / V; 2524; kg; 0.435; mV / V
```

ATTENTION: the file is deleted every time you change the number of connected load cells, both at power-up and from the menu; once deleted, the file cannot be recovered.

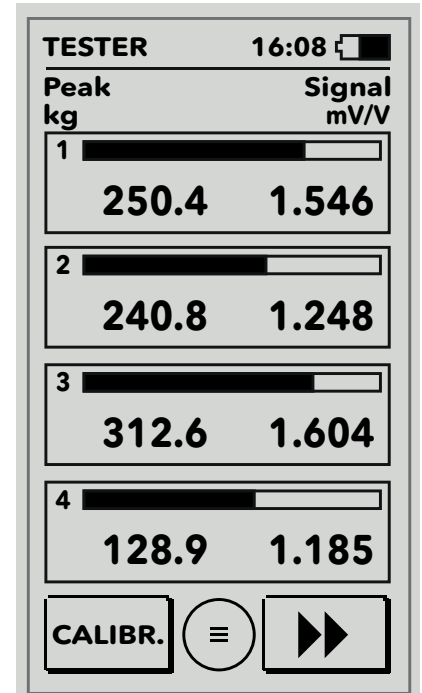
## TESTER FUNCTIONS

In order to enable peak and hold functions, press impulsively on the squared box of the "Gross Weight and Signal (mV / V)" display.

Note: Peak function only activates from the "Gross Weight and Signal" display.

The value on the left corresponds to the actual weight of the detected peak. The value on the right corresponds to the signal in mV/V of the load cell corresponding to the weight value of the detected peak.

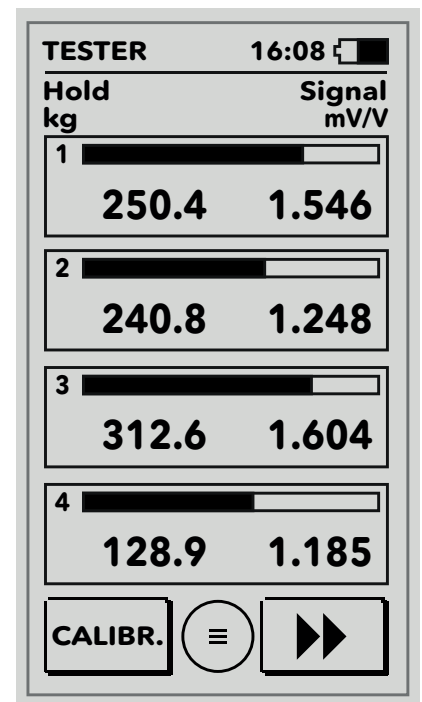
To delete the detected peak values, press one of the squared box for about 2 seconds.



The pressure, for about 2 seconds, of one of the four squared box allows storing individual values.

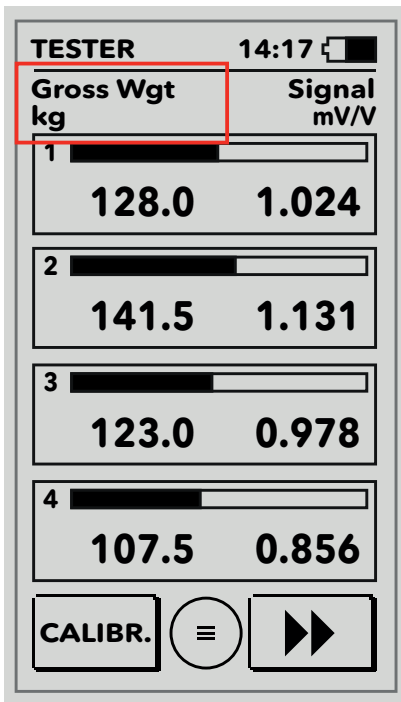
The display shows the Hold display automatically.

To delete stored values, press one of the squared box for about 2 seconds to return to the main display.



## TESTER FUNCTIONS: AUTOTARE

The Autotare function activates by pressing the display in the highlighted area



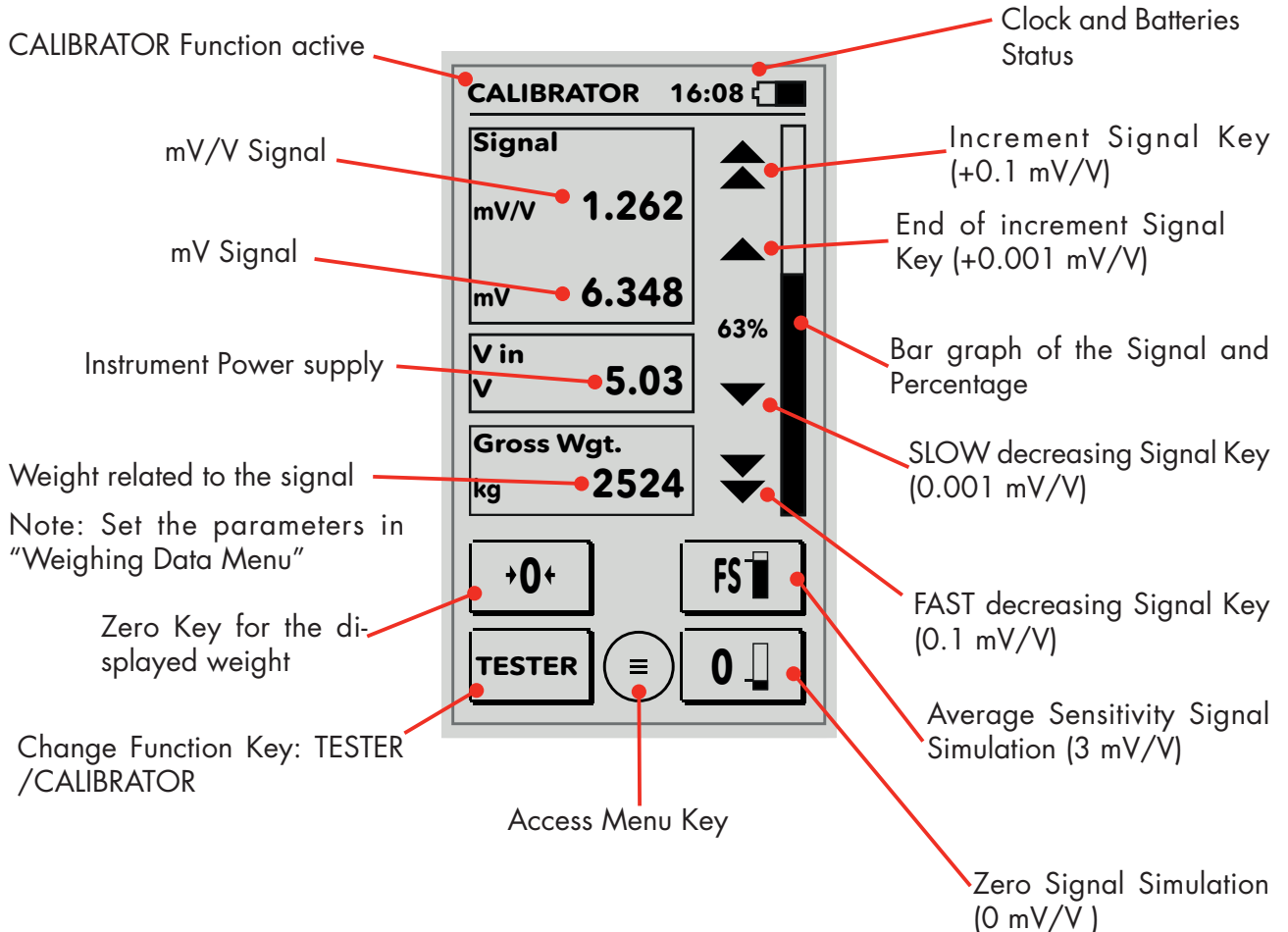
By pressing the highlighted area again the gross weight function is restored and the autotare performed is deleted.

## TESTER: CALIBRATOR FUNCTIONS

Suitable for weighing instruments with load cells excitation from +/-3V to +/-15V

Reading and Display of Indicator power supply.

The display allows a complete and clear visualization the signals and their simulated gross or net weight.



### ADJUSTING OUTPUT SIGNAL

The signal adjustment is managed with the cursor keys next to the Bar graph.

By holding the end adjustment keys there is a continuous signal adjustment.

The signal can be reduced to negative values up to -2.8 mV and reach the maximum value of +20.3 mV.

It is possible to manually set a value in the Signal squared box.

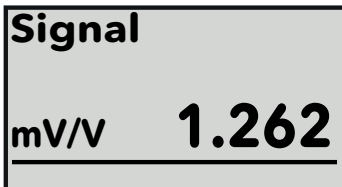


The Key generates the 0 mV/V Signal.




The Key generates the average Sensitivity Signal of the load cells.

In case this value is not set the default value is 2 mV/V.




By clicking on the area "Signal" it is possible to set the desired value of the mV/V signal to be generated.



The  key performs the Autotare of the Gross weight.

In the box "weight" the heading becomes "Net weight" and the Zero Key changes and becomes:



By holding the  Key the performed Autotare is cancelled and in the box "weight" it is displayed "Gross Weight".

The LC Tester 1008 simulates signals expressed in mV/V and generates the weight.

*Note: The correct display of the weight generated, assumes that the parameters WEIGHING DATA: "Load Cell Number", "Load Cell Sensitivity", and "Single Load Cell Capacity" are set correctly.*

#### **Example:**

If the instrument to be checked is normally connected to 4 load cells of 250 kg, 2 mV/V, the LC Tester 1008 must have been programmed as follows:

Number of load cells = 4

Unit of measurement = Kg

Division value = 1

Single load cell capacity = 250 Kg

Load Cell sensitivity 1 = 2.0000

Load Cell sensitivity 2 = 2.0000

Load Cell sensitivity 3 = 2.0000

Load Cell sensitivity 4 = 2.0000

Capacity = 1000 Kg.



# MAIN MENU



This key allows to access the main menu .

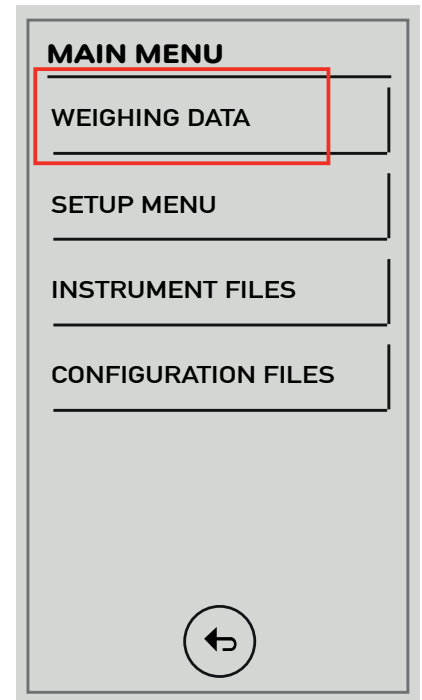
The main menu is made as follows:

## WEIGHING DATA MENU:

here the load cells parameter must be set

- \* **Number of Load Cells:** Selection of load cells connected to the summing junction boxes CGS4C – CEM4C – CGS8C.
- \* **Measurement Unit:** Selection of the weight measurement unit.
- \* **Division Value:** Selection of the min. increment value of the weight.
- \* **Single load cell capacity:** Capacity value of one of the load cells connected to the j box.
- \* **Load cells Sensitivity:** Sensitivity value of one of the load cells connected to the j box.
- \* **Max capacity of the system:** capacity of the weighing system.

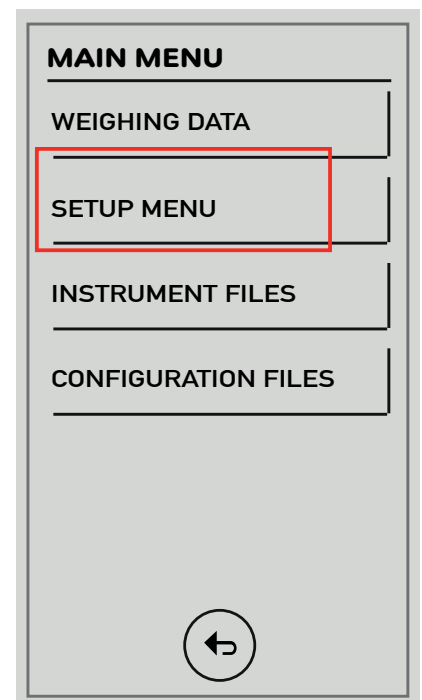
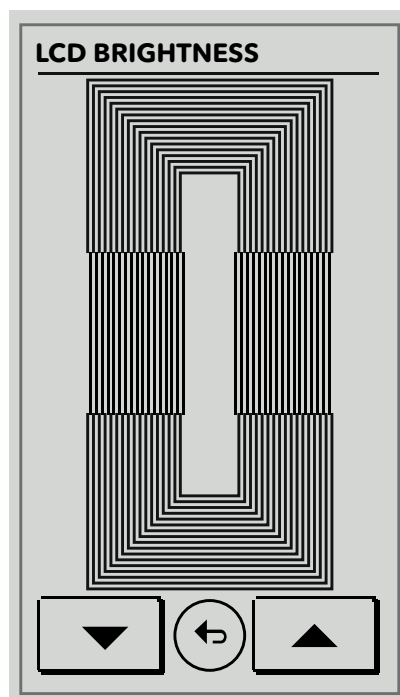
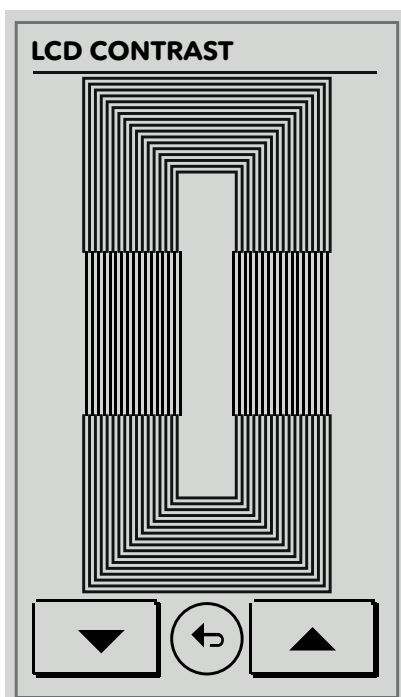
*Note: The correct configuration of the main menu parameters allows the correct visualization of the weights generated from the LC Tester 1008.*



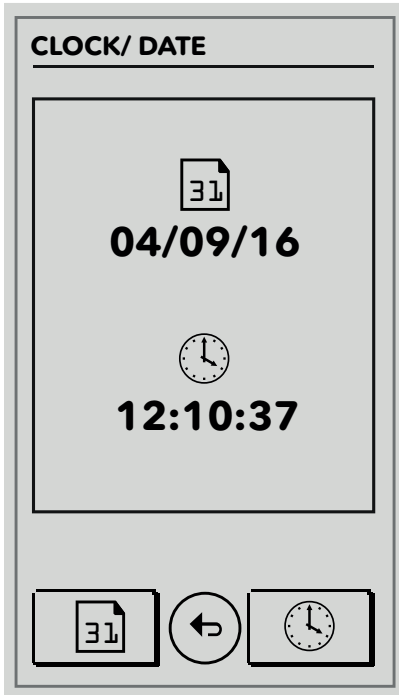
## SET UP MENU:

Here the LC Tester 1008 operation parameters must be set.



- \* **LCD CONTRAST and LCD BRIGHTNESS:** Manual adjustment of the LCD contrast and LCD brightness (to reduce the batteries consumption).



\* **AUTO – SWITCH OFF:** Selection of the auto-switch off after a non-operative while (OFF, 3 MIN, 5 MIN, 10 MIN)



\* **DATE/TIME ADJUSTMENT:** Manual adjustment of the clock and calendar.

By selection of  and  is possible to set date and time.

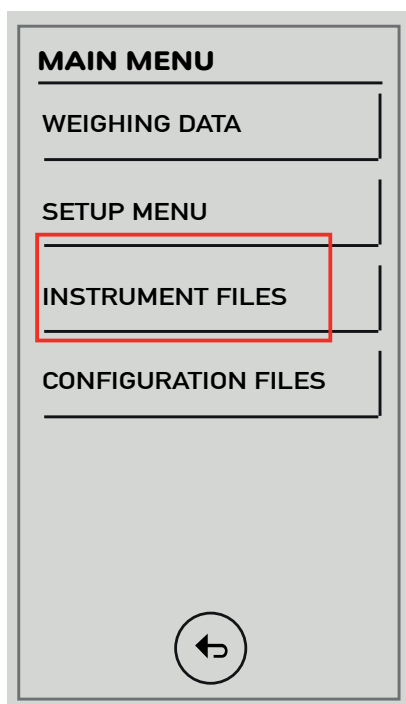
\* **BAUD RATE RS232:** Selection of the default values from 1200 to 115200 bit/sec.

\* **FRAME FORMAT:** Selection of the data format of the RS232 serial port (N-8-1, N-8-2, E-7-2, E-8-1, O-7-2, O-8-1).

\* **LANGUAGE:** Selection of the language for the display: (ENGLISH/ITALIAN).

\* **MEMORY RESET:** Memory reset of the System File and creation of a File Directory.

## INSTRUMENT FILES MENU



### INSTRUMENT FILES:

Management and transfer of the instrument's Configuration Files. These Files are stored in the directory (: \INSTR).

Here below are listed the selection menu:

- \* **INTERFACE COMMUNICATION PORT:** Selection of the interface communication port (RS232 – NFC).

*Note: NFC interface is available ONLY for Communication with DAT1400 indicator.*

- \* **Receipt File:** Selection of the configuration file stored in the memory or creation of a new one.

**Search File:** It is possible to select an already existing configuration. The receipt of a new file will overwrite the previous one.

**New File:** Creation of a new configuration with its name.

- \* **RECEIVE FILE:** In the menu, it can be selected the weight indicator from which to receive the configuration (DAT400, MC302, DAT1400 and MCT1302).

Activate the download / upload function of the connected indicator.

The confirmation key starts the receiving phase from the LC Tester 1008.

The message "File Received " confirms the correct execution of the transfer.

The "Error" message is displayed if there are errors in the transfer.

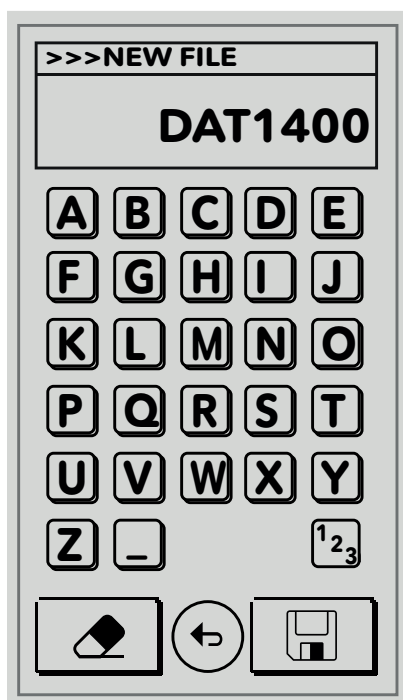
- \* **Transmission File:** Selection of an already existing file.

**Search File:** It is possible to select an already existing configuration which will be sent to the weight indicator connected.

- \* **SEND FILE:** The function activates the transfer of the selected configuration in the "File" menu to the weight indicator.

The message "TRANSFER FILE" confirms the correct execution of the transfer.

The "Error" message is displayed if there are any errors in the transfer.



# CONFIGURATION FILES MENU

## CONFIGURATION FILES:

Management of the transmission and storage of the configuration files set into the LC Tester 1008.

The files are stored in the folder (: \ CONFIG). The file extension is .csv.

Stored parameters are: Number of the Load Cells, Measurement Unit, Division Value, Load Cell Capacity, Load Cell Sensitivity, Capacity of the System, Zero Signals, FS Signals, Sample Weight.

- **SAVE FILE:** Configuration File Saving (Only possible after selecting a file in the Selected File menu).
- **OPEN FILE:** Upload of an existing configuration file (only possible after selecting the file). The related data can be displayed in the Saved Signals menu.
- **FILE SELECTION:** You can select SEARCH FILE or NEW FILE.

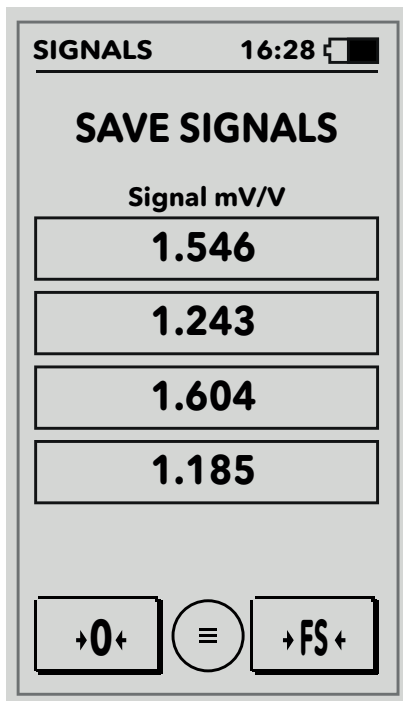
**Search File:** Allows the automatic search of the file in the memory.

**New File:** Creation of a new file that will be saved in the memory.

*Note: Selecting an existing file does not automatically load the configuration. It must be selected the parameter: OPEN FILE.*


## SAVE SIGNALS

This function allows to store the mV/V values coming from each load cell, both at Zero and at a known weight. Note: These data will be associated to the current configuration file only by performing the operation: SAVE FILE



Select  to store the mV/V values of the weighing system

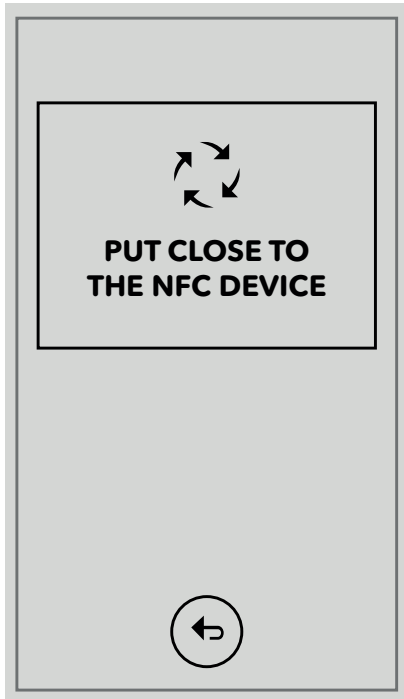


Select  after the load on the system of a sample weight and write the weight value loaded.

\* **STORED SIGNALS:** Visualization of the Zero and F/S values store in the menu "Load Cells Signals"

## NFC COMMUNICATION

Data exchange mode with DAT1400 with NFC option.

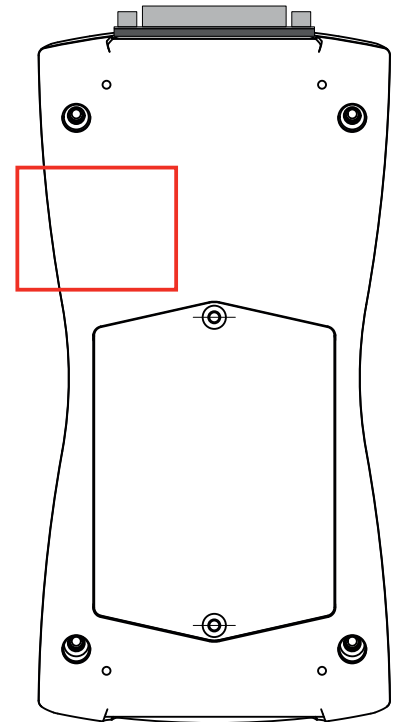


### NFC

When receiving or transferring the file using NFC, place the LC Tester 1008 aerial, located in the back of the container above the batteries compartment, close to that of the instrument. When the LC Tester 1008 has established the communication with the instrument, the word "Reading in progress" (or "Writing in progress") will appear. After about one second, if the data exchange is successful, the word "Reading completed" or "Writing completed" will appear.

*Note: Function only possible with the DAT1400.*

Position of the NFC Aerial



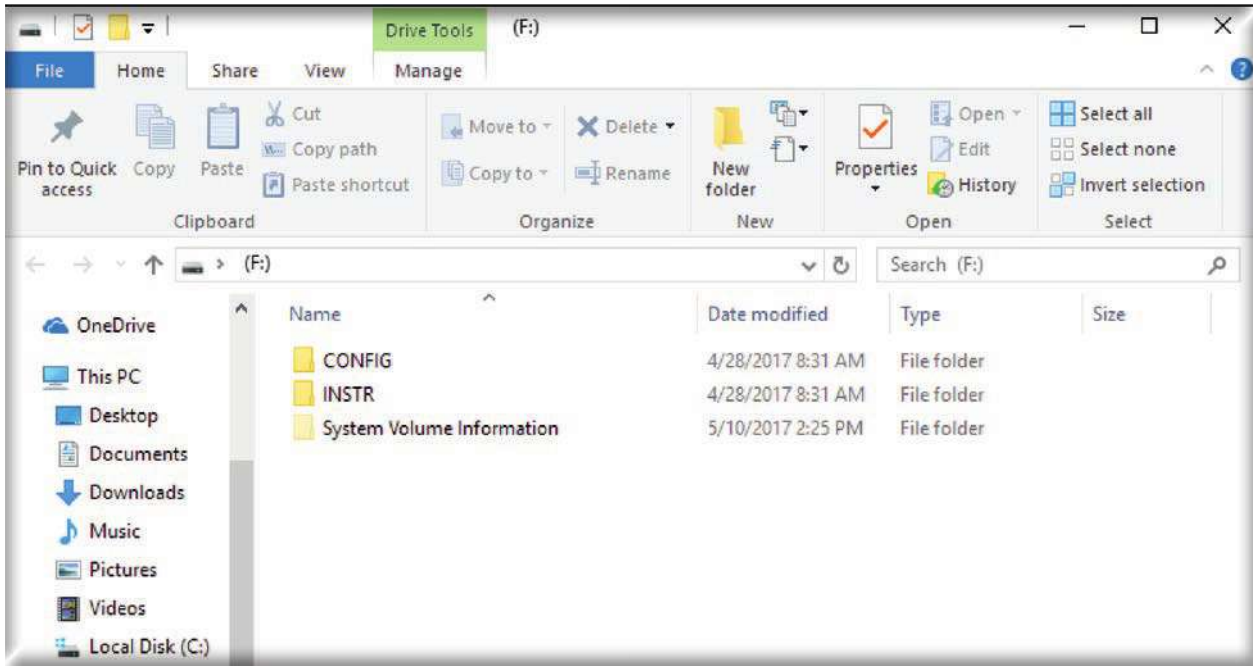
## FILE MANAGEMENT FROM PC

File management functions (erasing, renaming, etc.) can only be performed from a PC via USB connection (ABC cable). The PC will recognize the LC Tester 1008 as a USB remote disk.

There are two folders inside of it:

“**CONFIG**” containing the indicators set up files.

“**INSTR**” containing the system parameter saved files and the LC Tester 1008 signal files (.CSV format).



## EXAMPLES: CONFIGURATION FILES

The configuration files are in .csv: format

```
N. LOADS: ;2;
MEASURAMENT UNIT: ;kg ;0
DIVISION VALUE: ;0.5 01 ;11
CAPACITY: ; 4000.0;
SENS1: ;2.0000;
SENS2: ;2.0000;
SENS3: ;2.0000;
SENS4: ;2.0000;
SYSTEM CAPACITY: ; 8000.0;
ZERO1: ;-0.0823;
ZERO2: ;-0.0823;
ZERO3: ;-0.0823;
ZERO4: ; 0.0714;
FS1: ; 1.9174;
FS2: ; 1.9173;
FS3: ; 1.9175;
FS4: ; 2.0819;
WEIGHT: ; 3000.0;
```

## EU Declaration of conformity (DoC)

We

Pavone Sistemi s.r.l.  
Via Tiberio Bianchi, 11/13/15  
20863 Concorezzo, MB

**declare that the DoC issued under our sole responsibility and belongs to the following product:**

Apparatus model/Product: **TESTER 1008**  
Type: Weighing System Tester

The object of the declaration described above used as indicated in the installation manual and use, is in conformity with the relevant Union harmonisation legislation:

Directive **EMC 2014/30/EU** Electromagnetic Compatibility

The following harmonized standards and technical specification have been applied:

**EN 61000-6-2:2005**  
**EN 61000-6-3:2007 + A1 2011**

Directive **LVD 2014/35/EU** Low Voltage Directive

The following harmonized standards and technical specification have been applied:

**EN 61010-1:2011**

Signed for end on behalf of:  
Concorezzo: 27/04/2017

  
Di Reda Donato - Manager



**PAVONE**SYSTEMS

**PAVONE SISTEMI S.R.L.**

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