MEIRI 2657-USB
Version 1.7

USER MANUAL

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PLEASE READ THIS MANUAL BEFORE PROCEEDING ANY HANDLING

WARNING

Keep this manual in a safe place for further usage.

PRECAUTIONS

Always follow the basic precautions listed below to avoid accidents such as electric shock, short circuit, fire and other damage. These precautions given below are not exhaustive.

ELECTRICAL WIRINGS

Only use the approved power source. This information is located on the nameplate of the manufacturer. Be sure that the mains voltage is the same as the one written on the rear of the device. The electric line must contain a switch with two poles. The equipment must be able to easily disconnect. The device must be installed so that the mains plug remains accessible.
The manufacturer declines all responsibilities in case of improper use of the device. Periodically check the state of the plug. Only use the included power cord. Do not leave the power cord near heat sources as radiators or heating installations. Avoid overbending the cable, damaging it or placing it under heavy objects. Never open the device, do not remove or modify internal parts. The user can only remove or insert cards on the front, no intervention on internal parts of the device is required. If the measuring instrument is malfunctioning, turn off the power immediately and give it to a MEIRI qualified technician for inspection.

PRECAUTIONS ON THE LOCATION 

Using this measuring device in the following locations can lead to a malfunction: right under the sun, hot or very humid places, dusty or dirty areas, places subjected to strong vibrations or near magnetic fields. Avoid leaving the device in the rain or damp places. Do not place liquid containers on it. Never touch an electric plug with wet hands. If the power cord is damaged or if you detect unusual smell or smoke, immediately turn off the switch, remove the plug from the outlet, and give the measuring device to a MEIRI qualified technician for revision.

GROUNDING THE EQUIPMENT 

Always connect the three-pole plug to a properly grounded power supply. The electrical safety of this equipment is only assured if it is properly connected to an installation of grounding standards for electrical safety. It is essential to check whether this basic requirement of security is met. During installation, there should be a two-pole switch with at least 3 mm contact opening.

OTHER PRECAUTIONS 

Disconnect all connected cables before moving the measuring device. Do not disassemble this device without removing all the cables from the rear panel, including the power cord. The disassembly by a person not authorized by MEIRI would cancel the warranty. Do not place the objects in front of the air vents of the measurement unit that would prevent adequate ventilation of the internal components and cause overheating. Before connecting the measuring device to other electronic components, turn off the power. Do not insert objects in paper, metal or other into the cover's slot. If this happens, immediately turn off and unplug the power cord from the mains and have the instrument inspected by a qualified person. Do not use excessive force on the buttons, switches and connectors.

LITHIUM BATTERY

The measuring device has a lithium battery (CR1220BE) and calendar data (date and time) are kept even if you unplug the device. However, if the battery is completely discharged, date and time would be lost. However, the accuracy of the measurements would not be affected. Don't throw away the flat batteries, bring them to appropriate collection places.

CLEANING

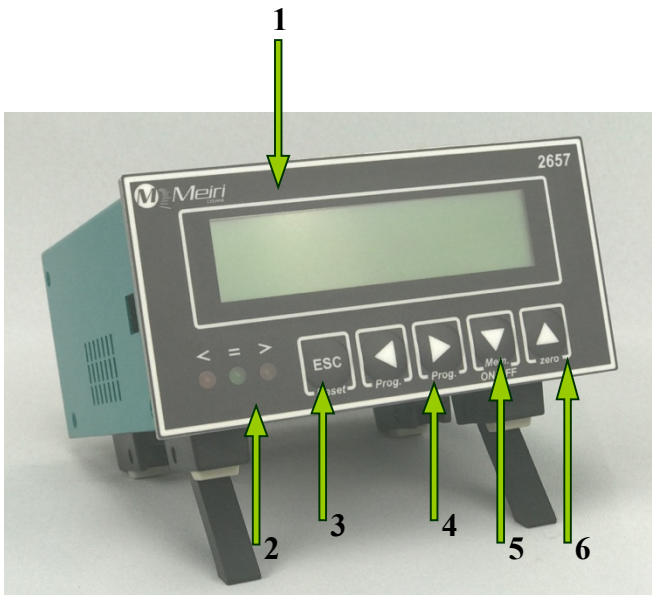
Before any cleaning or maintenance, disconnect the unit by disconnecting the plug or turning off the switch of the electrical installation. When the device is dirty, clean it with a clean dry cloth. Do not use liquid cleaning products such as benzene, thinner or flammable products. Never use paint thinners, solvents, cleaning products or cleaning pads impregnated with chemicals. MEIRI is not responsible for damages caused by improper use of the device or by changes made by the user and cannot cover data loss or destruction.

WARRANTY

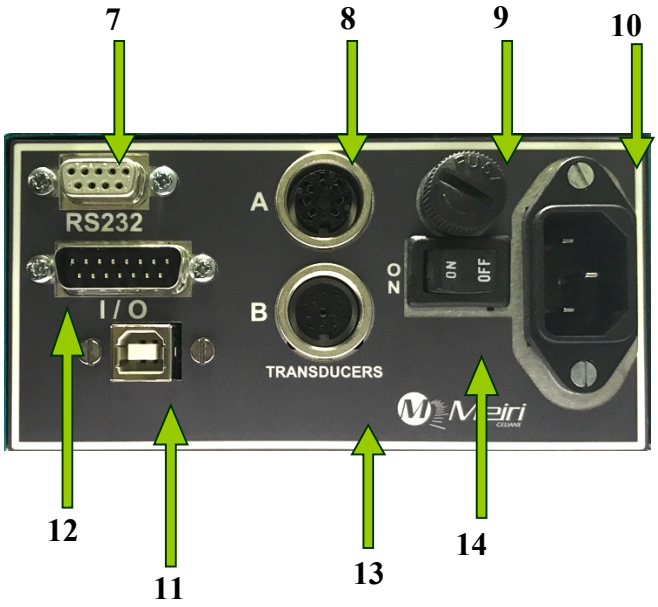
Measuring devices are guaranteed 1 year by MEIRI, parts and labor, return to factory, except special provisions. Exchanges or repairs under guarantee cannot extend the term. In order to apply the warranty, the user must contact the MEIRI distributor who sold the device. No compensation is owed in case of stopping of the unit for repair under warranty. The warranty will not work in the following cases:
If the unit has been started on a voltage other than indicated on the nameplate. If the delivered equipment is misused, abused or changed. If the user causes damage through negligence, inadequate maintenance, lack of experience or use of harmful products. Warranty repairs are performed in our laboratories. The unit must be returned in packing ensuring its safety during transport. The user is responsible for shipping and packaging for the return of the unit at the factory. MEIRI or its distributor cover the freight and packing charges when returning the repaired device, but only in continental France.

Front and rear panels of the 2657

Front panel



Rear panel



1. **LCD DISPLAY (lines 16 characters)**
2. **Range lamps (Min / OK / Max)**
3. **RESET and ESCAPE key**
4. **MENU key**
5. **TRACK-PEAK key / DOWN scroll**
6. **ZERO key / UP scroll**
7. **RS 232C connection**
8. **Strain gauge input (optional)**
9. **Fuse holder**
10. **Mains supply 85 to 264 Vac – 50/60 Hz**
11. **USB 2 connection**
12. **Input / Output connections**
    O ← Range contacts output
    I → Remote Print, Tare & Zero inputs
13. **Electronic torque sensor and quadrature encoder input (optional)**
14. **Mains On/Off switch**

Set up of the 2657

Press and release the  or  keys to choose the desired menu.

Use the  or  keys to modify the settings of the chosen menu.

Menus of the 2657 version 1.1

MEIRI 2657 Ver : 1.1a	**Welcome menu at power up. Name of the instrument and firmware version.**
PASSWORD 0000	**An access code is needed to enter the menus. The access code for the 2657 is 0314. Use the scroll keys to input this value.**
LANGUAGE ENGLISH	**French, English, German, Spanish… 2 languages as standard, 6 others optional.**
MEASURING UNIT N.m	**32 units listed. N.m Ncm m.daN cm.daN cm.Kgf Lbf.in …**
FULL SCALE 5.000 N.m	**Adjustable range from 0.1000 up to 9999. This value is used to scale and display the measured real physical magnitude.**
SENSITIVITY 2.000 mV/V	**For strain gauges (A) from 0.5 up to 2.5 mV/V For electronic sensors (B) from 2 up to 10V Analogue output ±10V for the chosen sensitivity**
REAL : + 00.26 TARA : + 00.00	**Use the  key to set point zero (displays zero-software compensated) Use the  key to clear the software offset (displays the real offset of the transducer)**
TYPE OF MEASURE PEAK +/ANGLE	**Peak+, Peak-, Peak+ and angle, Peak- and angle.**
MODE OF MEASURE STANDARD	**Standard: the measure starts when the signal level is greater than the trigger value for at least the trigger time. Fast: the start of the measure is not conditioned by the trigger level and trigger time.**

FILTRE 500 Hz	**Software averaging filter from 125Hz up to 10KHz.**
TRIGGER TIME 0.007 s	**Used in standard peak mode. The signal must be greater than the trigger level for at least this time in order to start the measure. Range 0.001 - 1.000 seconds**
TRIGGER 0.500 N.m	**Used in standard peak mode. The signal must be greater than this level for at least the trigger time in order to start the measure.**
RESET TYPE AUTOMATIC	**Manual: By pressing the RESET key on the front panel or by the remote RESET input trough the rear panel's I/O connector. Automatic: when the signal level re-drops below the trigger's. Client: Only the remote RESET is enabled with HOLD function.. Display is maintained until the input is released.**
ENCODEUR 360 puls/tour	**Access to this menu is enabled only if peak/angle mode is chosen. Range: 360 to 50000. (Puls/shaft)**
10V OUT FOR 0360°	**Defines the scale of the angle analogue output. (Degrees to have 10V analogue output, range: from 360° up to 50000°)**
START ANGLE 0.000 N.m	**The start of angle measuring is conditioned by the torque value given here. The condition is bypassed if the entered value is 0. (In this case the start of angle measuring is the same as torques.**
STOP ANGLE 0.000 N.m	**The end of angle measuring is conditioned by the torque value given here. The condition is bypassed if the entered value is 0. (In this case the end of angle measuring is the same as torque's.**
LIMITS ON MEASURE AND ANGLE	**Monitoring of the ranges can be set to measure, angle or both**

MEASURE LOW LIM. +2.000 Nm	**Adjust in this menu the measure's low threshold value.**
MEASURE HIGH LI.. +3.000 Nm	**Adjust in this menu the measure's high threshold value.**

Note : You can enter here positive or negative values as well. To avoid debouncing hysteris is used. Its value depends on the decimal digits chosen to display (see menu DECIMAL DIGITS). The less the displayed decimal digits the greater the hysteresis. (See table of hysteresis values)

ANGLE LOW LIMIT 0050°	**Adjust in this menu the angle's low threshold value**
ANGLE HIGH LIMIT 0055°	**Adjust in this menu the measure's high threshold value.**
LIMIT TESTS REAL TIME	**In case of peak measuring the range relays and range lamps can be activated in real time or at the end of measure.**
INITIALITION PEAK	**The instrument will start measuring in the mode defined here. (After a power up and/or after the set-up procedure).**

While running it is possible to toggle the track/peak mode by simply pressing the  key.

FRONT ZERO P.B ENABLED	**By pressing the ZERO key while running the instrument will set the displayed values to zero. (Relative offset on the measure and resets the angle/position registers.** **This function key can be enabled/disabled in this menu**
DECIMAL DIGITS 50.000	**Adjust the number of the displayed decimal digits from 0 to max. The max value depends on the chosen full-scale value of the measure.**

CALIBRATION	**Calibration mode (advanced users only)** **1st line: Full scale and sensitivity.** **2nd line: Measured value.**

By pressing the up/down arrow keys the sensitivity is fine adjusted, thus the measured value will also change.
Adjust the sensitivity until the measured value shows the calibre's value. During the calibration procedure make sure that the sensor's zero is correctly adjusted. The newly adjusted sensitivity should be saved (SAVE menu), for a proper functioning after a power off. /on cycle.

RS232 PARAMETERS 9600, NON, 8	**RS 232C communication parameters set-up** **(32 possible combinations) from 2400 to 19200 bauds** **Displayed format: Baud rate, parity, 7/8 bits data (+1 STOP bit)**
DATE 26-05-2007	**Date display and settings. Use the up/down arrow buttons to adjust the correct date: Displayed format: day-month-year**
TIME 10 : 59 : 20	**Time display and settings. Use the up/down arrow buttons to adjust the correct time: Displayed**
STATISTIC MODE AUTOMATIC	**Three posibilities for the statistic computations.** **« Manual / Automatic / Disabled ».**

MANUAL STATISTICS :

Static computations are done when requested by the user and the results are displayed on the screen.

AUTOMATIC STATISTICS :

Statistic computations are done after the pre-programmed sampling numbers is reached. (See later Menu « AMOUNT values »)

DISABLED STATISTICS:

Statistic computations are disabled. The acquired measures are only saved.

If this option is chosen the Menu+ will jump over all other menus relatives to the statistics parameters till « READ MEMORY »…

TARGET MEASURE
1.500 N.m

Reference value for statistical calculations.

TOLERANCE PLUS
1.500+0.400

Upper Tolerance Limit in addition to the nominal value

TOLERANCE MINUS
1.500-0.759

Lower Tolerance Limit in subtraction from the nominal value

AMOUNT VALUE
010

Numbers of required values on witch the statistics are calculated. The range is from 5 to 100.

ANALYSE RECORDS
PRESS ON ^

Manually starts the statistic computation on the predefined and recorded measures.
Press the up arrow key several times to see all the statistic results.

MIN. VALUE	MAX. VALUE	AVERAGE VALUE	STD.DEVIATI ON	CAM	CPK
= 1.2267	= 1.5795	= 1.3589	= 0.068545	= 1.2267	= 5.041

READ RECORD
PRESS ON ^

The records are displayed starting by the last one. Up/down scrolling the records is possible with the up/down arrow keys.

Value displayed for the records read-back

+ 01.2267 N.m >
+ 0036.5d 155 =

1st line: torque value, unit of measure,
2nd line: angle value, record number, alarm state > = <

IMPRIME MEMOIRE APPUYEZ SUR ^	**Prints the records trough the RS232C port and if statistics are enabled, the statistics results as well.**
RESET MEMOIRE APPUYEZ SUR ^	**Clears all records.** **Note: The configuration parameters (sensitivity, measure) will not be erased.**
SAUVEGARDE APPUYEZ SUR ^	Save all the set-up parameters. **Warning: The changed set-up parameters will be lost if power is switched off prior to a save.**

Display in mode « RUN » (after pressing the escape key)

In case of TRACK mode

```
+ 999.9 ft.lbs                >
```

1st line measure; unit of measure; alarms

In case of PEAK mode

```
+ 999.9 ft.lbs                >
9.999sec 500H
```

1st line measure; unit of measure; alarm
2nd line elapsed time since the START of measure in seconds; N° of the measure; H (if fast mode selected)

In case of TRACK and ANGLE mode

```
+ 999.9 ft.lbs                >
+9999.9°                      <
```

1st line measure; unit of measure; alarms of the measure
2nd line angle in degrees, alarms of the angle

In case of PEAK and angle mode

```
+ 999.9 ft.lbs                >
+9999.9° 500H                 <
```

1st line measure; unit of measure; alarm
2nd line angle in degrees, N° of the measure; H (if fast mode selected),
Alarms of the angle

PRINT examples (not relevant values)

In case of TRACK mode:

```
+00.021;N.m;<;+0122.6;d;=
+00.021;N.m;<;-0055.8;d;<
+00.021;N.m;<;-0071.8;d;<
```

In case of PEAK mode :

```
2007-02-14;17:22:01;Nr;005;+001.51;cm.daN;<;0.100s;+0010.1;d;
2007-02-14;17:22:01;Nr;006;+001.49;cm.daN;<;0.116s;+0012.5;d;
2007-02-14;17:22:01;Nr;007;+001.44;cm.daN;<;0.090s;+0018.9;d;
```

In case of PEAK mode and automatic statistics:

```
2007-06-11;15:09:05;Nr;003;+00.0314;N.m;<;1.361s;+0000.0;d;<
2007-06-11;15:09:06;Nr;004;+00.0314;N.m;<;1.485s;+0000.0;d;<
2007-06-11;15:09:09;Nr;005;+00.0314;N.m;<;2.126s;+0000.0;d;<

;;;;;;;;;;MIN.VALUE     = 0.0314
;;;;;;;;;;MAX.VALUE     = 0.0784
;;;;;;;;;; AVERAGE VALUE  = 0.0408
;;;;;;;;;;STD.DEVIATION       = 0.021018
;;;;;;;;;;CAM           = 001.98
;;;;;;;;;;CPK           = 013.22
```

ALARMS TABLE

ALARMS STATE

Note: the LEDS and RELAYS are associated; if the right red LED if on, the max relay is activated.
If the left red LED if on, the min relay is activated.
If the green LED is on both the min. and the max. Relays are deactivated.

High level		**RIGHT LED >**
OK		**MIDDLE LED =**
Low level		**LEFT LED <**

ALARM RELAYS STATES

	Contacts states	Low level	Ok	High level	In set-up mode	At power off
Low level Relay	Contact normally closed (pin 1-9)	Closed	Open	Open	Open	Closed
	Contact normally open (pin 2-9)	Open	Closed	Closed	Closed	Open
High level Relay	Contact normally closed (pin 11-3)	Open	Open	Closed	Open	Closed
	Contact normally open (pin 10-3)	Closed	Closed	Open	Closed	Open

Alarms on measure			Alarms on angle			Alarms on measure and angle		
Left LED MIN	Middle LED OK	Right LED MAX	Left LED MIN	Middle LED OK	Right LED MAX	Not ok Left LED	Ok Middle LED	Not ok Right LED
Measure low	Measure Ok	Measure High	Angle low	Angle ok	Angle high	Angle Not ok Low or High	Measure and angle ok	Measure not ok Low or High

Note: The levels are in positive security. The relays are in alarm state if the power is off or in set-up mode.

Range levels hysteresis values.

FULL SCALE	DECIMAL NUMBERS	HYSTERESIS
0.XXXX	0.XXXX	0.0001
	0.XXX	0.001
	0.XX	0.01
	0.X	0.025
X.XXX	X.XXXX	0.0010
	X.XXX	0.001
	X.XX	0.01
	X.X	0.1
	X.	0.25
XX.XX	XX.XXX	0.010
	XX.XX	0.01
	XX.X	0.1
	XX.	0.25
XXX.X	XXX.XX	0.10
	XXX.X	0.1
	XXX.	1.
XXXX	XXXX.X	1.0
	XXXX.	1.

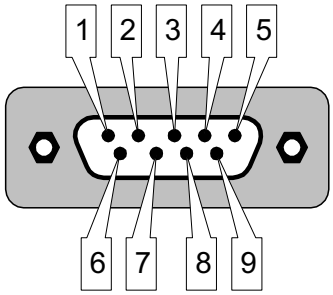
CONNECTORS PINOUT (REAR PANEL)

Mains :	Standard « Schaffner » connector
Sensors:	Amphenol 12 and 7 pins female connectors
Alarms, Reset and remote inputs	DB 15 male connector
RS232C	DB 9 female connector
USB	USB TYPE B connector

REMARK: The screening of the cables must be connected to the case of the connectors.

RS 232C connector pin out

1	N. C.
2	RX
3	TX
4	N.C.
5	GND
6	N.C.
7	N.C.
8	N.C.
9	N.C.



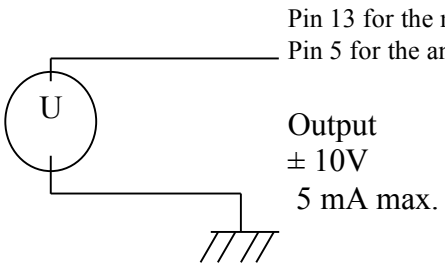
DB15 male Connector

Contact normally closed min.	**1**
Contact normally open min.	**2**
Contact common max.	**3**
GROUND	**4**
Encoder analogue output ±10V	**5**
GROUND	**6**
PRINT	**7**
Not connected	**8**

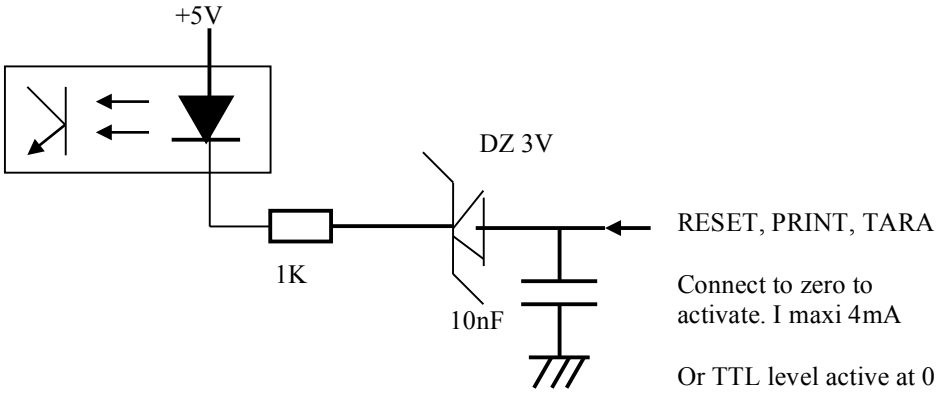
Contact common min.	**9**
Contact normally open max.	**10**
Contact normally closed max.	**11**
+5V 10mA max !	**12**
Measure analogue output ±10V	**13**
RESET remote input	**14**
TARA remote input	**15**

INPUT/OUTPUT EQUIVALENT SCHEMATICS

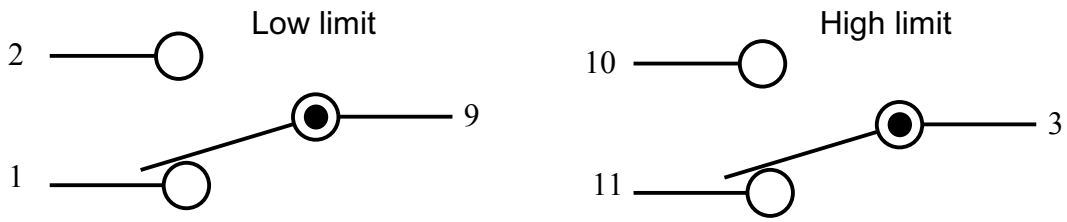
ANALOGUE OUTPUTS



RESET, PRINT, TARA Inputs



Relays contacts

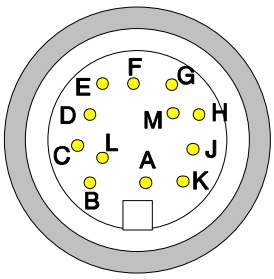


Cable connexions 7 and 12 pins 2657
(Some inputs might be optional)

Female 12-pins am phenol Brushless torque sensor with build in encoder	**Socket B**
+15V	H
Encoder phase B	C
-15V	J
Encoder Phase A	D
M+ for torque tension input (U)	G
GROUND	A et E
Case ground	L

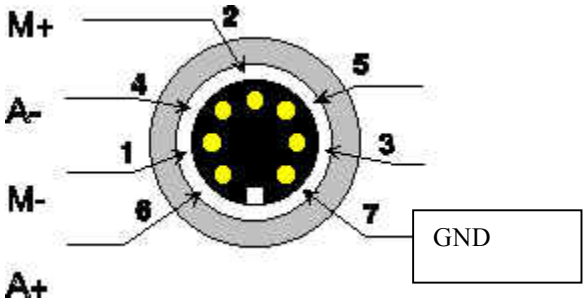
Female 7-pins am phenol Strain gauge sensor	**Socket A**
A+ gauge	6
M- gauge	1
A- gauge	4
M+ gauge	2
GROUND	7
Set to GROUND to select this input	3
NOTE : If pin 3 left unconnected = dynamic torque sensor ±5V (u) If pin 3 grounded = strain gauge sensor.	

SENSOR B



Cable **CONNECTOR**
front view

SENSOR A



SOCKET at rear panel
front view

Nota:
For ICP version Sensor A is remplaced by a BNC socket
And sensor B and ANGLE menus is NOT USABLE.

PC 2657 SOFTWARE INSTALLATION GUIDE

To get the software, register on our website :
http://celians.com/inscriptionST.html

Recommended configuration:
PC with USB2 port, minimum 800MHz processor, 20Mo free HD space, 128Mo of RAM.

Through the USB port on the 2657, is possible to remotely set-up the measuring system with a PC.
The PC software supplied with the instrument allows a complete set-up and data logging directly into the PC. The acquisition frequency can be as high as 16 000 measures/seconds depending on the PC and it's operating system.
There is no more need to install an acquisition board into the PC.

Automatic detection occurs when the 2657 is connected to the PC's USB port.

WARNING :

DO NOT CONNECT THE INSTRUMENT BEFORE HAVING INSTALLED THE SOFTWARE.

1 - Installation for Windows 2000 and XP

- Run the CDM 2.02.04.exe from the folder « Install MEIRI 2657 » : \Drivers MEIRI 2657\Win 2000 & XP\.
- Run « setup.exe » from the root of « Install MEIRI 2657 ».
  Keep ***absolutely*** all default path options and finish the installation.
- Wait the end of installation before hit a key to finish the DOS windows
- Power up the instrument
- Connect the USB cable to the PC
- Windows will find a new hardware.
- Wait till WINDOWS finishes installing completely the different drivers, until the message « the new hardware is ready to be used ».
- Go to « Start » « Programs » « MEIRI 2657 » et run the program MEIRI 2657
  Or, another way, run « C:\MEIRI2657\MEIRI2657.exe. »

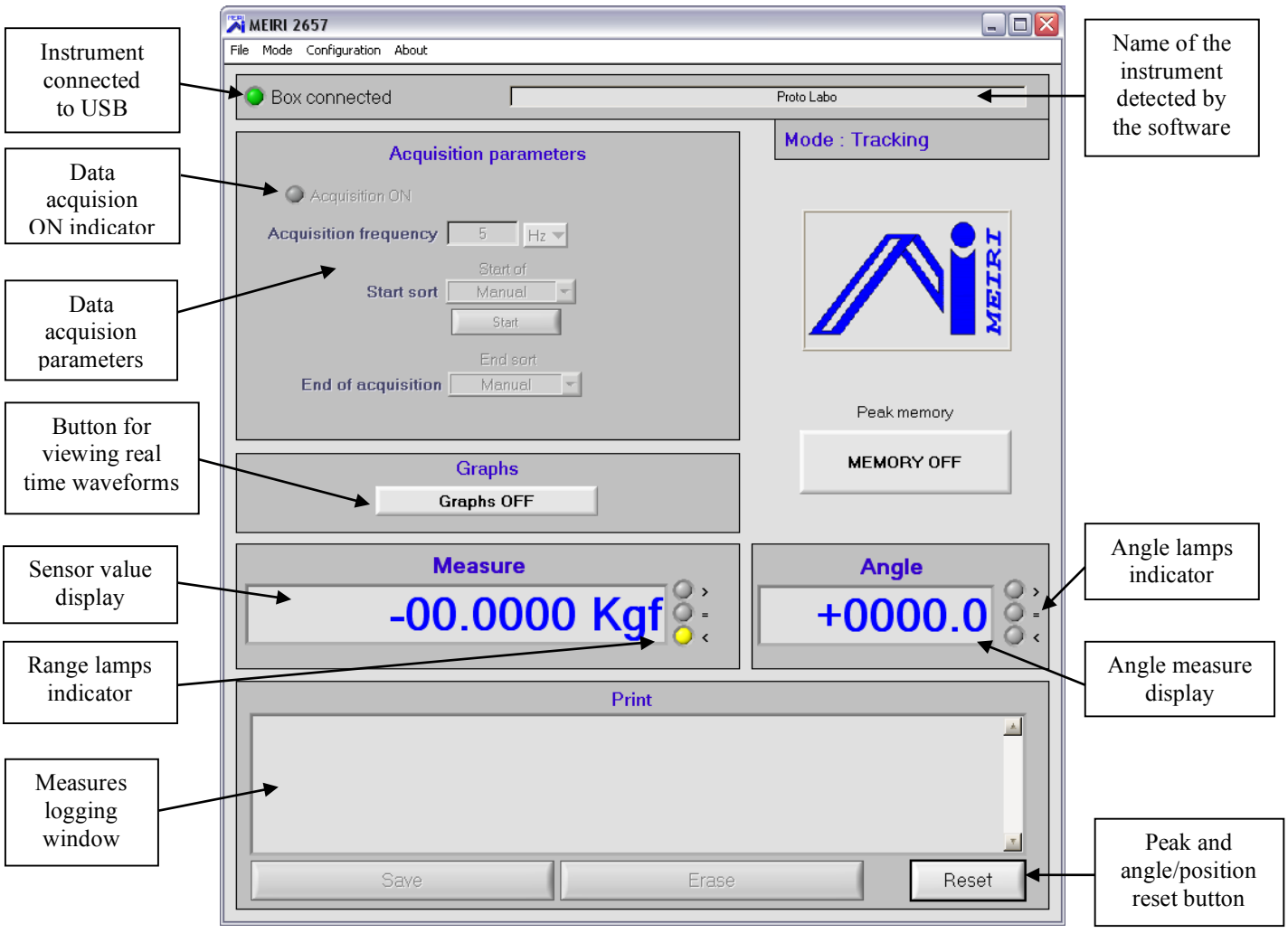
2 – Installation for Windows 98 and ME

- Run « Install.bat » from the root of « Install MEIRI 2657 ».
  Keep ***absolutely*** all default path options and finish the installation.
- Wait the end of installation before hit a key to finish the DOS windows
- Power up the instrument.
- Connect the USB cable to the PC
- Windows will detect a new hardware device and when asks for it's driver, browse to « CD installation ": \Drivers MEIRI 2657\win98 & ME\.
- Go to « Start » « Programs » « MEIRI 2657 » et run the program MEIRI 2657
  Or, another way, run « C:\MEIRI 2657\MEIRI2657.exe. »

Note: For updating the newer versions of the software you have to uninstall the existing software by running « Install.bat ».
Then install the newer version by running « Install.bat » again.

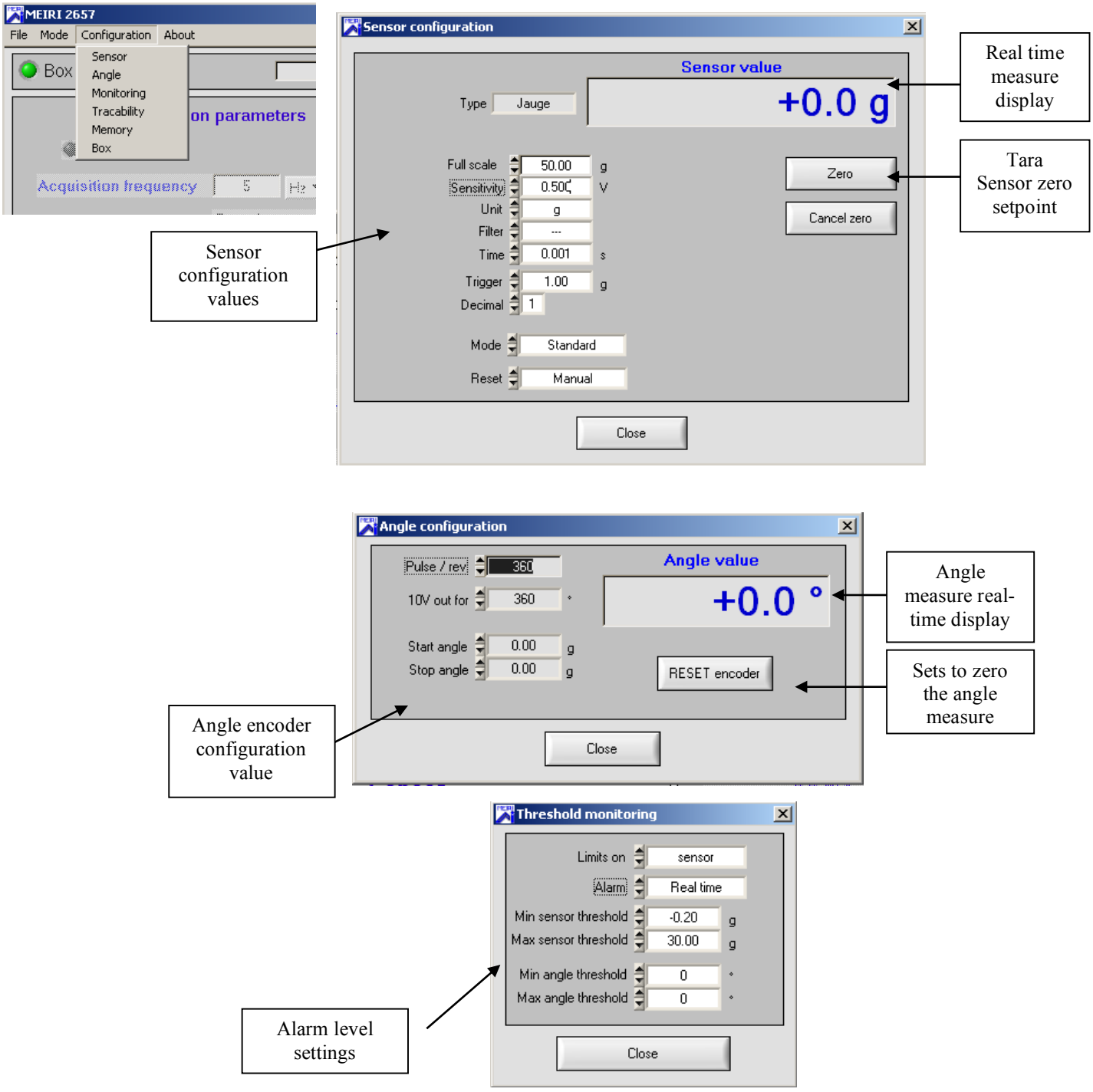
“2657” SOFTWARE LAYOUT

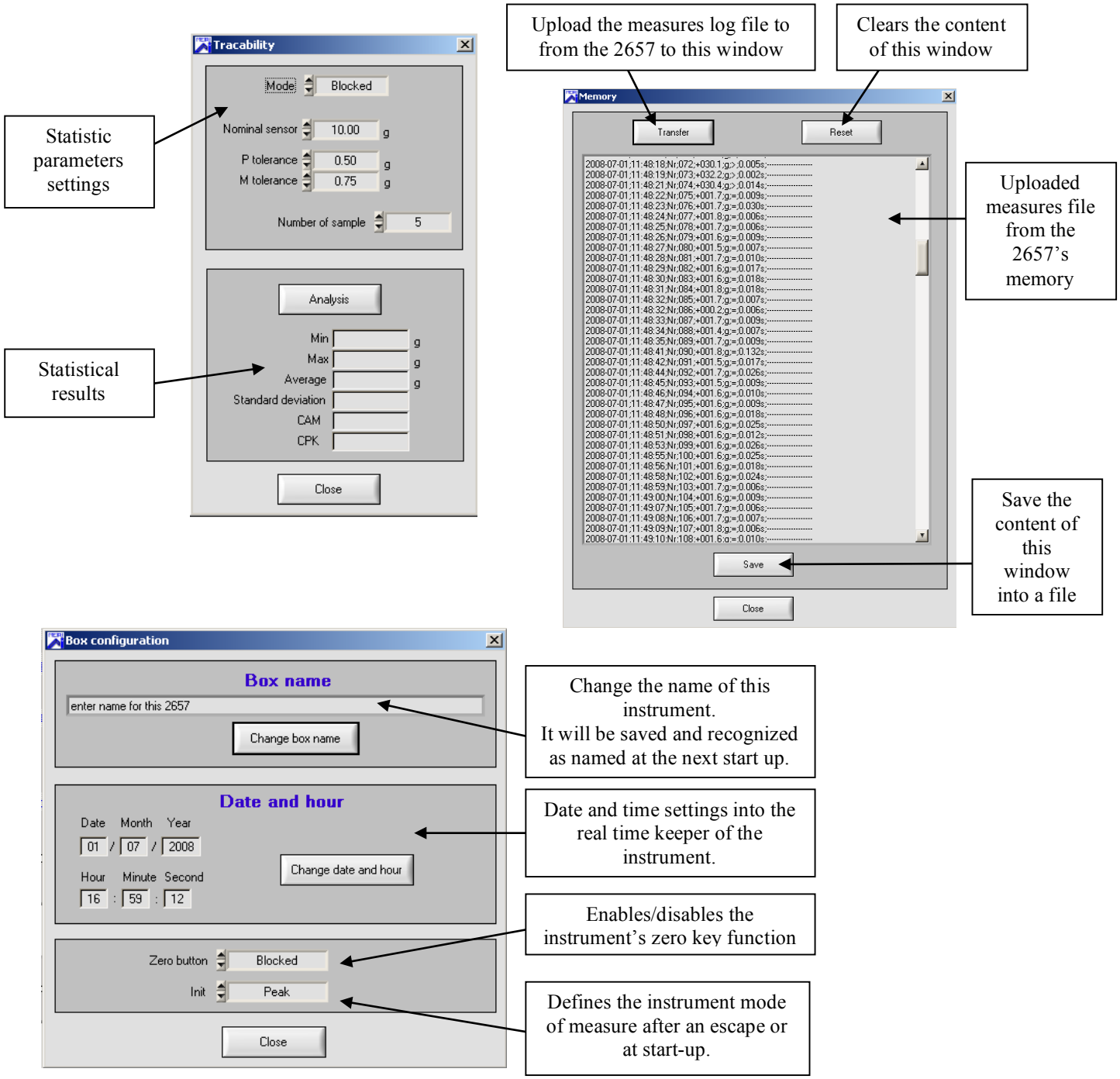
Upon running the software the below picture is shown.
The program detects automatically all connected channels.
The green light indicator (left high corner) will be on when the instrument is connected to the PC.



SIGNAL CONDITIONER CONFIGURATION

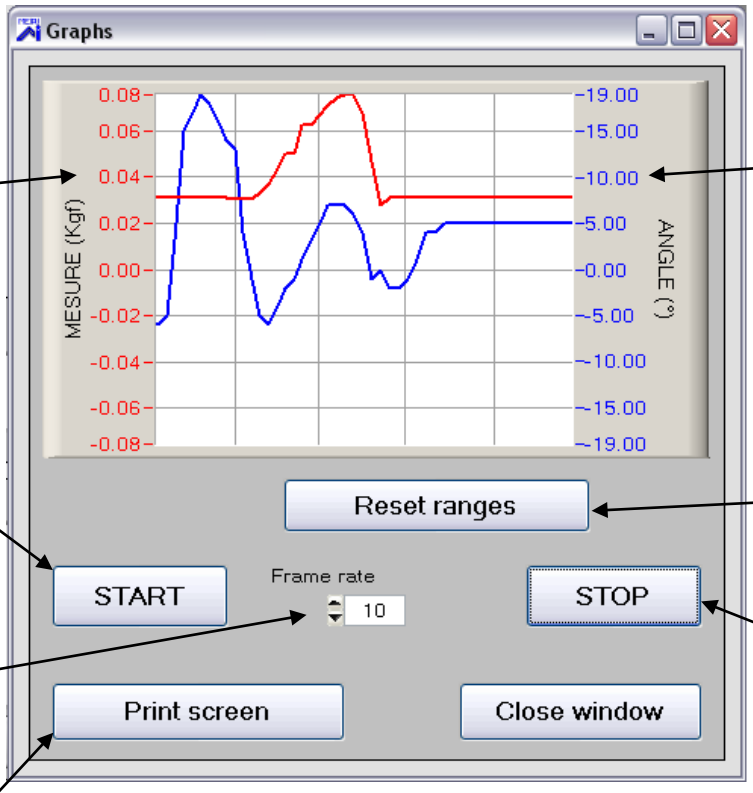
On the menu bar choose « configuration »
A new window will show up proper to the selected channel.
The configuration values are limited. If an out of range value is entered it will be automatically set to the maximum/minimum allowed value.




Upload the measures log file to from the 2657 to this window
Clears the content of this window
Statistic parameters settings
Tracability
Mode
Blocked
Nominal sensor
10.00
g
P tolerance
0.50
M tolerance
0.75
Number of sample
5
Analysis
Min
Max
Average
Standard deviation
CAM
CPK
Close
Statistical results
Memory
Transfer
Reset
Uploaded measures file from the 2657's memory
Save
Close
Save the content of this window into a file
Box configuration
Box name
enter name for this 2657
Change box name
Change the name of this instrument.
It will be saved and recognized as named at the next start up.
Date and hour
Date Month Year
01 / 07 / 2008
Hour Minute Second
16 : 59 : 12
Change date and hour
Date and time settings into the real time keeper of the instrument.
Zero button
Blocked
Enables/disables the instrument's zero key function
Init
Peak
Defines the instrument mode of measure after an escape or at start-up.
Close

VIEWING REAL-TIME WABEFORMS

The “Graphs” button from the main windows allows to open the viewing real-time waveforms windows :



Automatic scaling of measurement counts, the same color as the associated curve.

Automatic scaling of the angle counts, the same color as the associated curve.

Start the scrolling of the curves.

Reset the both scale of the curves.

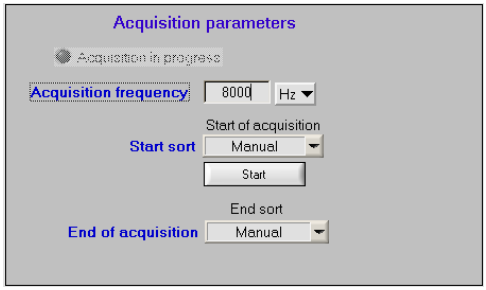
Scrolling speed of the curves, adjustable from 0 to 50 measurements per second.

Stop the scrolling of the curves.

Save in BMP file, a snapshot of the waveforms.

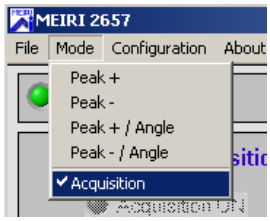
DATA ACQUISITION ON THE PC

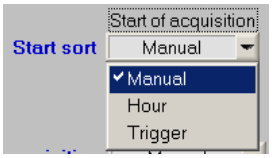
« Acquisition ON ”
The green light will be on once the acquisition has started.



« Acquisition frequency »
With this button you can select frequency-based values for high-speed data acquisition or time based values in seconds for low speed data acquisition. The system’s maximum acquisition speed is 16 000 samples per seconds and the minimum speed is 1 measure each 16000 seconds which is one measure cca.each 4h26 .

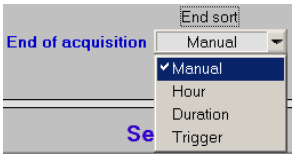
« Start of acquisition »
This button defines the data acquisition starting mode.
Manual Mode: Instant start of the acquisition once the «Start acquisition» button is pressed.
Timer Mode: by setting a real time value (hours, minutes, seconds). This time is based upon the Windows O.S. real time clock.





Trigger Mode: by setting a trigger **level**, an **under/over condition** (> or <) and a **memory buffer size** Witch is the same for the pre and post trigger.

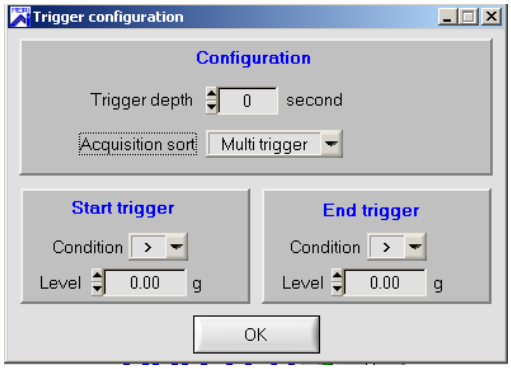
« End of acquisition »



Several modes of Stop acquisition are possible.
Manual mode: Instant stop f the acquisition by pressing this button.
Real time mode: Stop at a given time (hours, minutes, seconds) This time is based upon the « Windows » operating system real time.
Time interval mode: Acquisition stops after the pre-programmed time by the user has elapsed (hour, minutes, seconds).
Trigger Mode: by setting a trigger **level**, an **under/over condition** (> or <) and a **memory buffer size** Witch is the same for the pre and post trigger.

CONFIGURING THE TRIGGERS

« Memory buffers sizes »: pre and post trigger duration size in seconds.



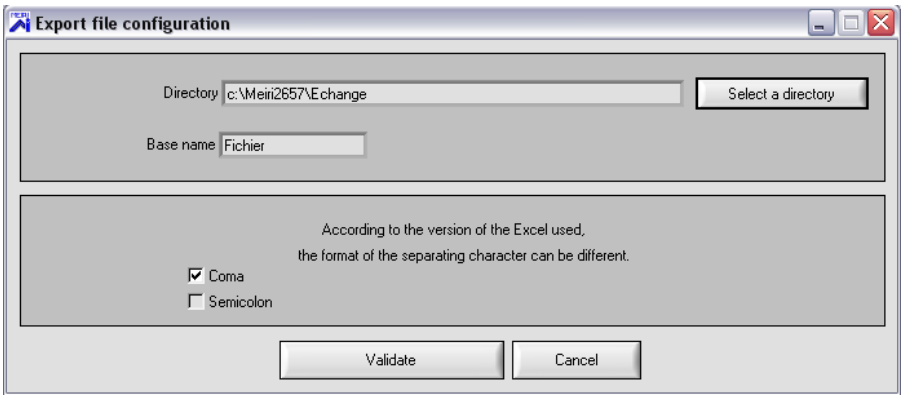
« Acquisition type» :
Mono trigger: starts the acquisition only once
Multi trigger: always starts the acquisitions when the required conditions are fulfilled, and will automatically make a new file with an auto-incrementing name (e.g..: Test1.csv, Test2.csv, ….)
Start condition: starts the acquisition if the signal is > or < than the entered value.
Start Value: Reference triggering value for start acquisition.
Stop condition: stops the acquisition if the trigger level is > or < than the value specified below
Stop value: Reference triggering value for stop acquisition.

Data acquisition files

Directory and file base name:

At the first use, the system requests the path and file name you want to give to your export files. Go to "File" menu then "Export", browse to the directory you wish to store the export files and specify a base file name. This name will be assigned to your files and auto-incremented for successive acquisitions

Note : For files from the acquisition the extension is .csv compatible with Microsoft Excel. For files "print screen" from the "Graphics" windows, the file is named imageXXX.bmp, and increments.



The **Separator type** has to be the same as « Microsoft Excel » uses. From the menu bar open « configure the swap file » window and choose the right **« ; » or « , » separator** used by your « Microsft Excel » version.

Once the data acquisition is finished go to the previously defined directory where the data acquisition files are stored and double click on one of them. Microsoft Excel will open and within you can exploit all your results, trace your chart, compute average values, etc. …

Note : maximum 1 048 576 lines can be used in Microsoft Excel 2007.

When you open with Excel a csv file form an acquisition, the below table will be shown:

			30/09/2011	15:03:07
Temps (s)	Measure (Kgf)	Angle (°)	Depassement	
0	0.0372	-49		
0.00006	0.0372	-49		
0.00013	0.032	-49		
0.00019	0.036	-49		
0.00025	0.0363	-49		
0.00031	0.0339	-49		
0.00038	0.036	-49		

TECHNICAL CHARACTERISTICS

CONDITIONER AMPLIFIERS FOR STRAIN GAUGE SENSORS		
Sensor Excitation tension	10*	V dc
Sensor minimum Impedance	350*	Ω
Sensitivity range	0.5 to 2.500	mV/V
Full scale	0.1000 to 999.9	
Linearity	0.05	%
Thermal drift	< 1	µV/°C
Bandwidth	14000	Hz
* Other values possible if requested		

CONDITIONER AMPLIFIERS FOR ICP® SENSORS		
Sensor Excitation constant current	4 to 10	mA
Voltage excitation	24	V
Sensitivity range	0.5 to 2.500	V
Full scale	0.1000 to 999.9	
Linearity	0.1	%
Thermal drift	10	µV/°C typ
Bandwidth	20000	Hz
* Other values possible if requested		

CONDITIONER AMPLIFIER FOR ±5V or ±10V TENSION OUTPUT SENSORS		
Sensor Excitation tension	±15	V dc
Sensitivity range	2 to 10.000	V
Full scale	0.1000 to 999.9	
Linearity	0.05	%
Thermal drift	< 1	µV/°C
Bandwidth	14000	Hz
* Other values possible if requested		

DIGITAL EQUIPEMENT		
Micro controller	RISC	
Oscillator	40	MHz
Acquisition frequency	100 KHz maxi	Menu defined
Analogue/Digital converter	2 x 16 Bits	Input converter
Digital/Analogue converter	2 x 12 Bits	Output converter
Input resolution for +/- F.S.	+/- 32768	Points

ANA LOG OUTPUTS		
Measure and angle analogue outputs	2 x ± 10V	Bandwidth : 500 Hz at -3dB

REMOTE INPUTS (REAR PANEL)		
RESET	By potential free contact or TTL level	ACTIVE: closed or at 0
PRINT	By potential free contact or TTL level	ACTIVE: closed or at 0
TARA	By potential free contact or TTL level	ACTIVE: closed or at 0

RS232C SERIAL COMMUNICATION		
Direction	Transmission	
Speed	2400, 4800,9600, 19200	Bauds
Data bits	7, 8 (1 STOP bit)	
Parity	No parity, Even, Odd	

RS232 CHARACTERISTICS		
Delay time between Print request and start of the print frame	3 to 50 ms	Value range
Print frame length at 2400, 4800,9600,19200 bauds	170, 80, 20, 11	ms
Print request speed at 2400, 4800, 9600, 19200 bauds AN impulse shorter than 30 ms will trigger the print of one line on the RS232C port If this input is maintained at zero level (GROUND) print will be continuous up to 20 measures/seconds.	9, 20, 26 Impressions / seconds **Available only if the remote input (DB15 pin 7) at the rear panel is enabled.**	

RANGE RELAYS OUTPUTS		
CONTACTS	Still / work 0,5A maxi	220V maximum
Hysteretic	With maximum decimal numbers	10 points
	With other displayed modes Ex: display 1.00 hysteresis = ±0.01	± 1 displayed Point

Given values are indicatives. The constructor reserves the right to change them without prior notice.

MAINS POWER		
Tension	85 to 264Vac	50-60Hz
Fuse	1 A on the rear panel	Type 5x20 mm
Mains filter	Schaffner	
Power	15 (typical)	W
Maximum power consumption	20	W

TEMPERATURE		
In-use Temperature	0 to 50	°C
Stocking Temperature	-10 to + 70	°C

END OF DOCUMENT