Sonel PQM-707

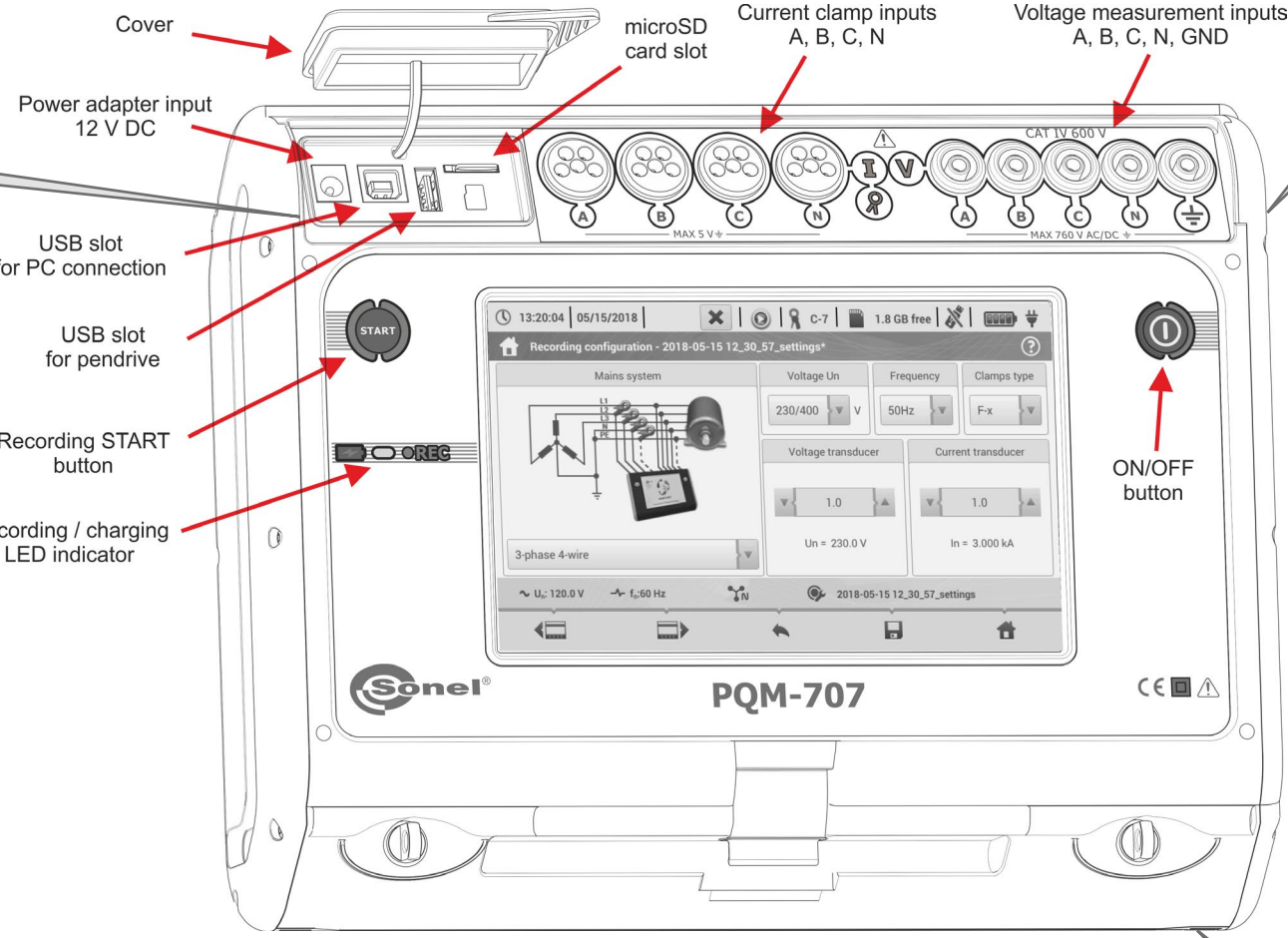
Power Quality Analyzer • Quick Guide

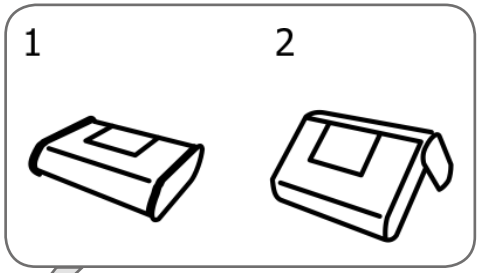
Sonel® test & measurement

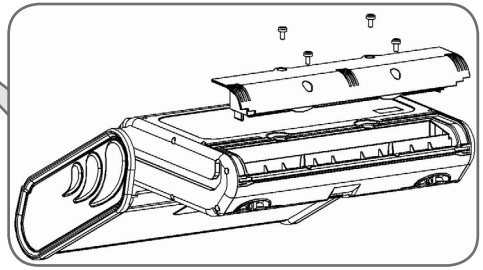
CE CLASS S IEC 61000-4-30 | CAT IV 600 V | IP51

v1.01 | 12.09.2019

External power supply





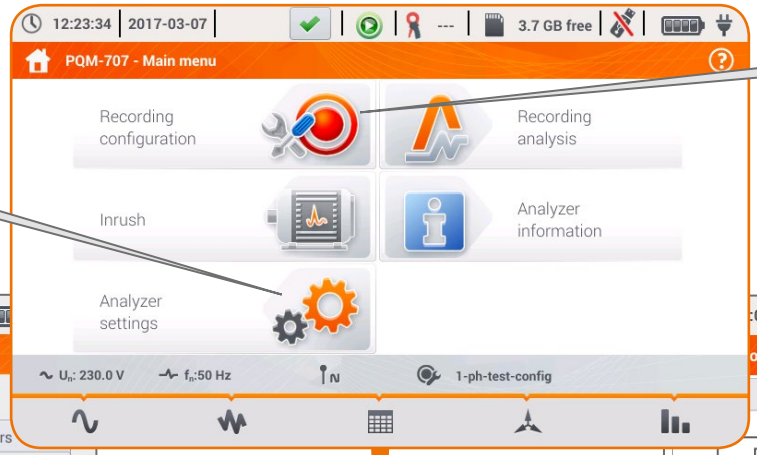


Top bar of the display

1. Current date and time
2. Hold/continue button of display refreshing
3. Range check
4. Recording status
5. Actual current probes connected
6. Free memory on microSD card
7. USB Stick status
8. Battery status and external supply

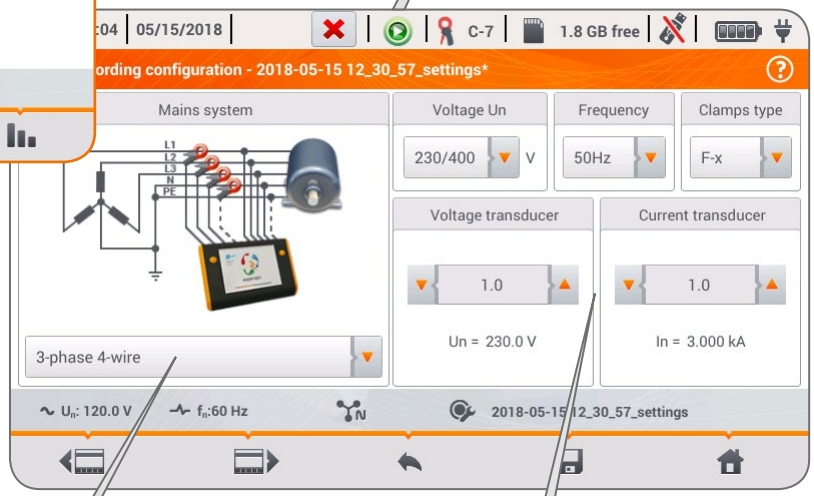
Analyzer settings

- **Hardware**
- **Settings**
- **Managers**
  - Standard report settings
  - Files
  - Upgrades



Connections

- **Create configuration**
- **Edit configuration**
- **Set configuration as active**



1 Set date and time

- **YYYY-MM-DD** or **MM/DD/YYY**
- **hh:mm:ss**

2 Clamps

- Set current direction

3 Memory

- Check memory status
- Format memory

4 Regional settings

- Choose language
- Choose name of signals
- Choose color of signals

5 Power saving

- Instantaneous auto-off mode
- Instrument auto-off mode

6 Security

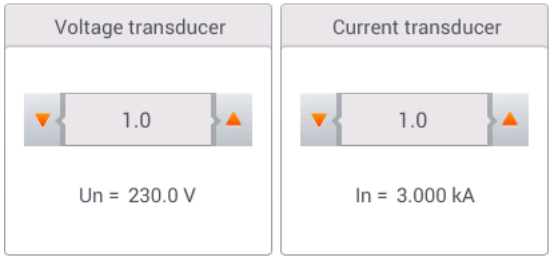
- Set lock analyzer PIN

7 User data

- User specification, contact and address

- 1-phase system
- Split-phase system
- 3-phase 4-wire system
  3-phase 4-wire (no V L2) / 2 ½ element (no V L2/B)
  Transducers: 3-phase 4-wire
- 3-phase 3-wire system
  3-phase open delta
  Transducers: 3-phase 3-wire
- 3-phase 3-wire Aron / 2-elements
  Transducers: 3-phase 3-wire Aron (2 PTs, 2-Elements)
- DC system
- DC+M system

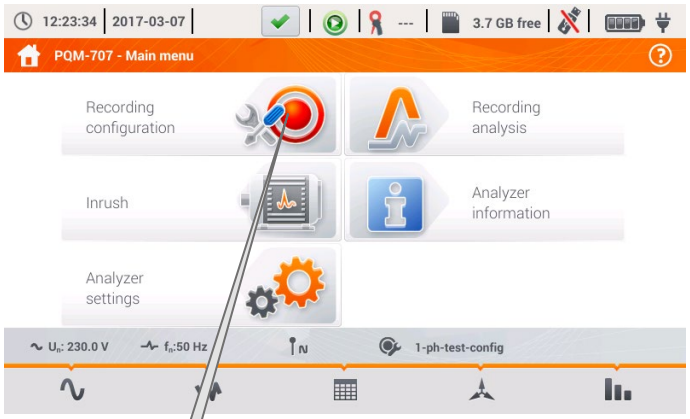
Coefficients of transducers



$$k_U = \frac{\text{Primary U}}{\text{Secondary U}} \quad k_I = \frac{\text{Primary I}}{\text{Secondary I}}$$

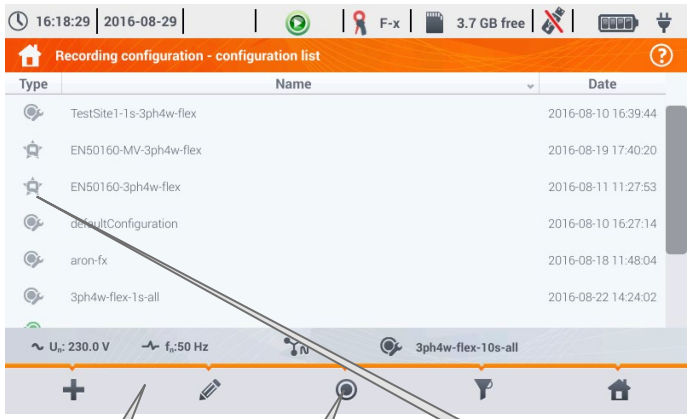
Recording

1 Before measurement adjust settings



- General settings (I and II)
- Voltage parameters
- Current parameters
- Power parameters
- Energy and factors
- Flicker and unbalance
- THD and harmonics
- Save over own name and select as active

2 Select a configuration from list



Function icons

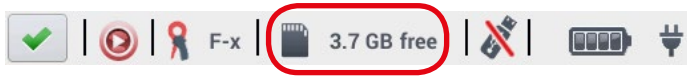
- add new configuration
- edit selected

Set configuration as active

Types of configurations

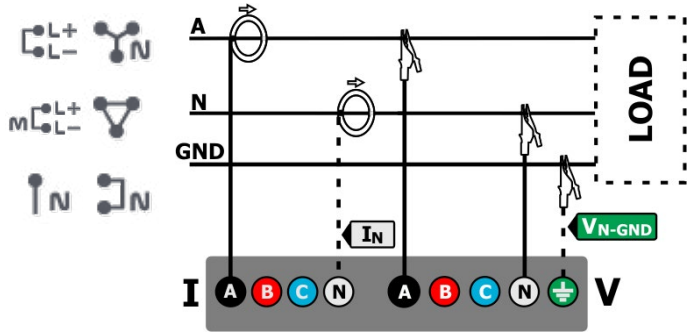
- user - inactive
- user - active
- standard - inactive
- standard - active

3 Insert a memory card



4 Check the power supply

5 Connect signals

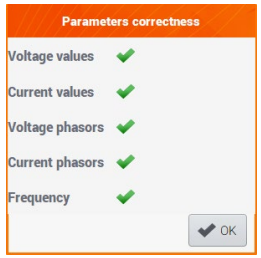


6 Verify the connection

LIVE mode

Range check

- ✖ if the table includes is at least one ✖
- ? if the table includes is at least one ?, but there is no error (no ✖)
- ✔ if all measured parameters are correct



7 Start recording

Press START/STOP

LED starts to blink RED

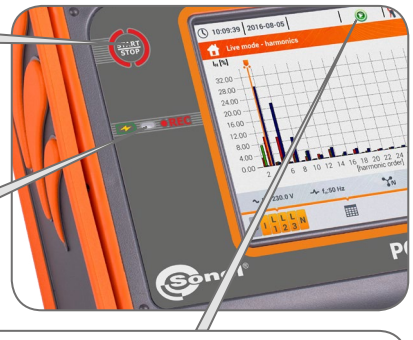
→ **Status icon** changes color to red

Buzzer signals are heard: 3 short signals

8 Stop recording

Press START/STOP

LED does not blink anymore

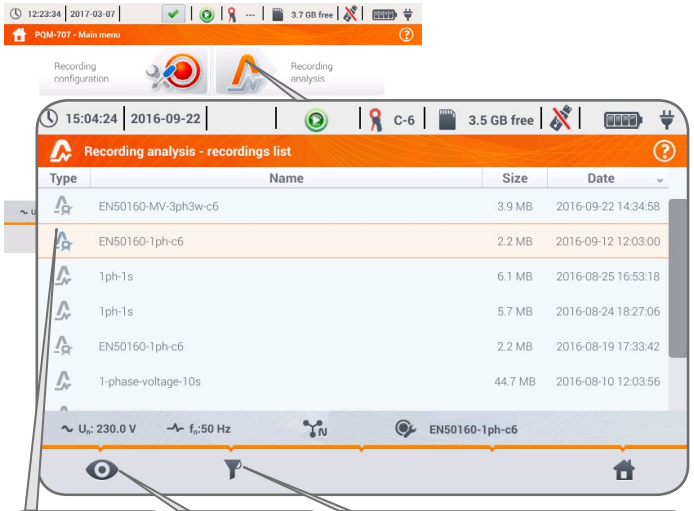


→ **Status icon** changes color to green

Buzzer signals are heard: 1 long + 3 short signals

Data analysis

1 List of recorded measurements



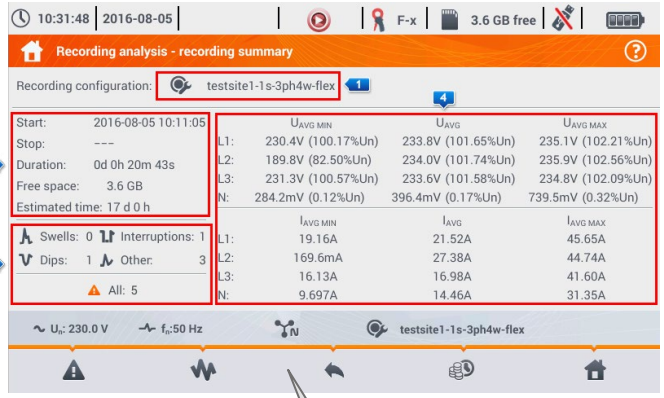
Select a measurement file from list

Analysis of the selected recording

Filtering the recordings

- according to standard
- according to user
- inrush current

2 Recording summery window

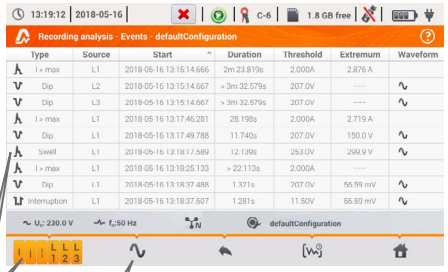


1. Configuration name
2. History of recording
3. Statistics of events
4. Statistics of Voltage and Amps measurement

- go to list of events
- go to plots
  - timeplots
  - harmonics
- go to standard report (only for configuration acc. to standard)
- go to energy costs calculator (only for configuration acc. to user)

Analysis of events

- Swells
- Dips
- Interruptions
- I > max
- I < min
- U_{DC} > max
- U_{DC} < min



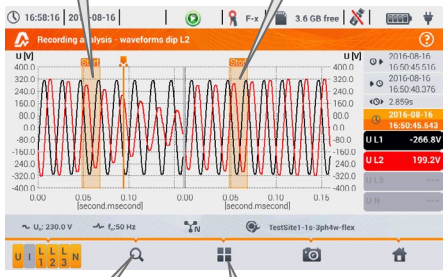
Filter the list using and select an item

- go to a diagram of selected item
  - waveforms
  - $RMS_{1/2}$ plot
  - ANSI plot
  - CBEMA plot

Waveforms

Waveforms of beginning (**START**) and end (**STOP**) of event

Select signals as visible:
- U - voltages
- I - currents
- L1(A) - phase 1
- L2(B) - phase 2
- L3(C) - phase 3
- N - neutral



- zoom of visible time window
  - zoom-in horizontally
  - zoom-out horizontally
- screenshot

- select view type
- go to $RMS_{1/2}$ plot

$RMS_{1/2}$ plot

Reason of event

Marker to view **details** at selected time

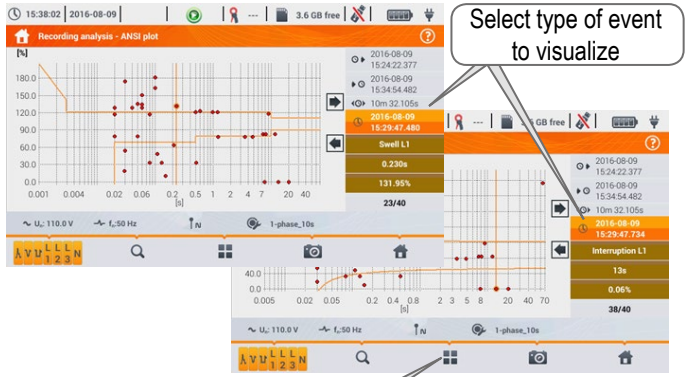
Select signals to visualize:
- **Ch 1**: V A, V A-B, I A
- **Ch 2**: V A, V A-B, I B
- **Ch 3**: V A, V A-B, I C
- **Ch 4**: V N-PE, I N

- zoom of visible time window
  - zoom-in horizontally
  - zoom-out horizontally
- screenshot

- select view type
- go to ANSI plot
- go to CBEMA plot

ANCI / CBEMA graph

Select type of event to visualize



- select view type
- screenshot
- zoom of visible time window

Data analysis

Timeplots

Move the markers to set the range of analyzed data

or

Set:
- start time
- duration
- end time

select parameters to view range

Selection of timeplot data

Categories, types, classes:
- **Max** - maximum in period
- **Avg** - average in period
- **Min** - minimum in period
- **Inst** - instantaneous value

go to timeplot analysis

removes all selections

Recording analysis - timeplot

Marker to view **details** at selected time

Select for visualization:
- Ch 1
- Ch 2
- Ch 3
- Ch 4

zoom menu

displays additional menu

additional selecting displayed timeplots

Harmonics

switching to tabular view of harmonics

additional menu

hiding the fundamental harmonic

[V,A] displaying in absolute units (volts and amps)

[%] displaying in percent of fundamental

Table of harmonics

switching to bargraph

additional menu

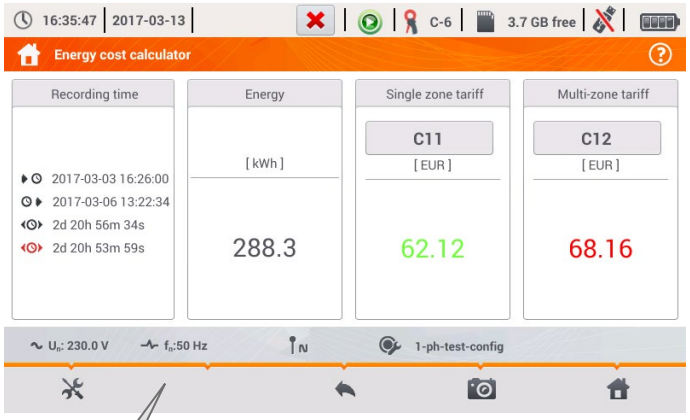
[V,A] displaying in absolute units (volts and amps)

[%] displaying in percent of fundamental

screenshot

Data analysis

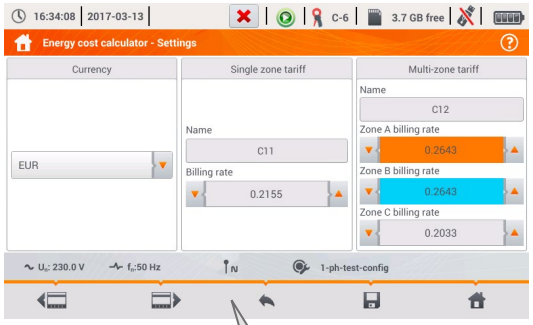
Energy cost calculator



select parameters to view range
make screenshot

Settings

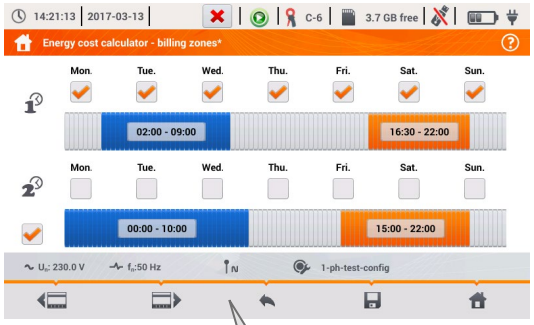
- Select
- Verify
- Set costs



go to billing zones
go to billing zones
back to calculator
save

Billing zones

- Select
- Verify
- Set actual



go to settings
go to settings
back to calculator
save

Report according to standard

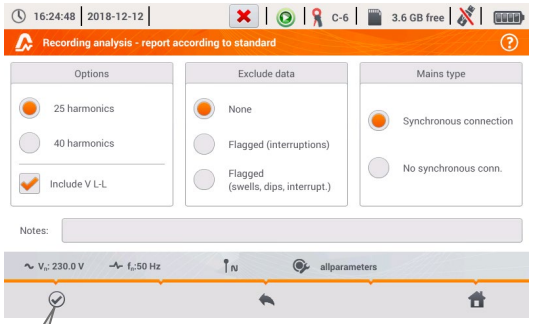
Before recording

User data
Enter personal information

Selecting options

After recording

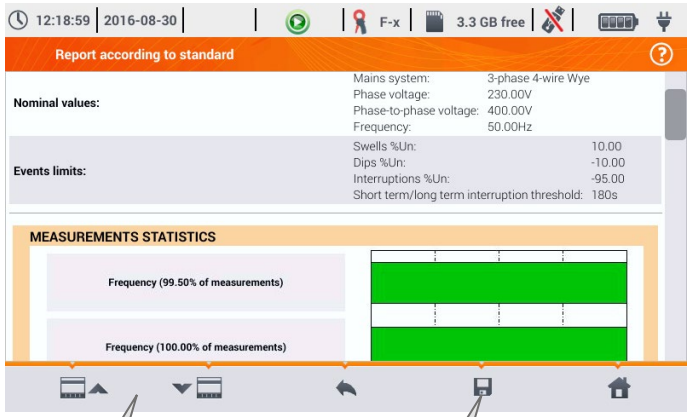
Enter report settings



save settings

Analysis and saving the report

After recording

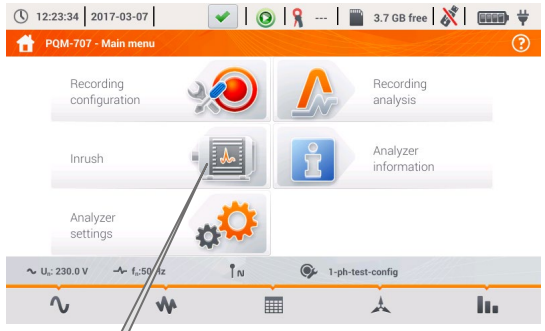


page up
page down

save report
to memory
to USB stick

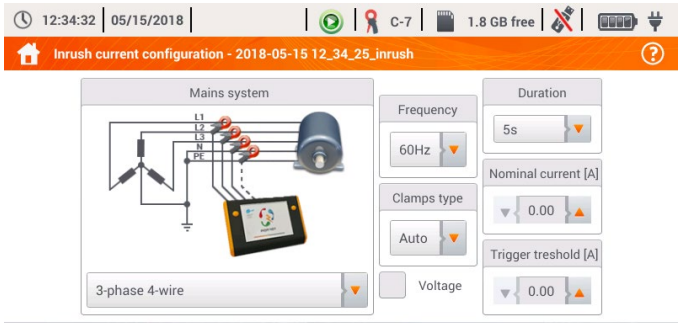
Inrush current

1 Configure the measurement



- **Connection of the meter**
- **Configuration of**
  - mains system
  - frequency
  - probes type
  - measurement duration
  - nominal current and trigger threshold

2 Set necessary parameters

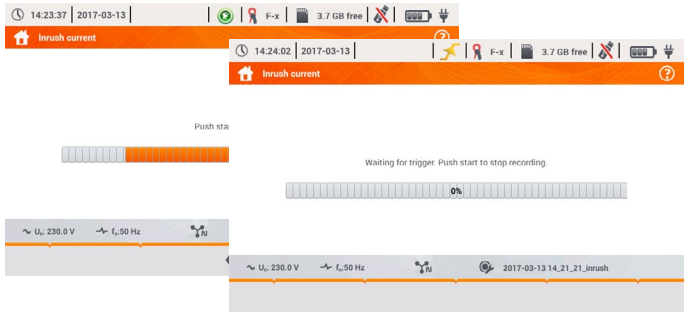


accept settings

get from saved

save

3 Start the measurement



Press **START/STOP**

- Wait for automatic threshold value
- Wait for end of recording

4 Waveform plot will appear

zoom of visible time window

zoom-in horizontally

zoom-out horizontally

screenshot

menu bar

waveform

RMS plot

characteristics

Inrush RMS plot

Characteristics of event

	I RMS ½ max [A]	I²t [A²s]
L1	22.81	52.89
L2	21.38	47.98
L3	21.64	51.05

Sonel®

test & measurement

Find more information in the user manual and on our website www.soneltest.com