CarScope i-Tester

Data Logger Mode

User manual

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1. Description

The "Logger" function of the CarScope i-Tester allows you to record and browse already recorded signals (voltage and current).

Simultaneously recorded signals can be up to 3:
 - V bat. - Voltage of the battery that powers the device
 - In 2 – Voltage or current, depending on the selected input probe
 - In 15 – Voltage or current, depending on the selected input probe

The time during which the signals are recorded is 1 second and the duration of recording is up to 10 hours.

In the measurement (recording) process, the data is saved to a file/files and the measured values are displayed graphically.

The files with the recorded signals can be browsed from the device itself or on a computer.
Recorded files (TGL and SCV) are kept on the device's SD card for up to 30 days after recording. Older files are automatically deleted.

One of the applications of this function is tracking the current consumed by the car's battery after the ignition key is removed.
This allows monitoring of the "sleeping" process of the modules connected to the CAN bus, as well as their possible cyclic activation, which can lead to battery draining.

2. Start of the "Logger" function

To start the "Logger" function from the home screen, using the keyboard buttons <Up Arrow> , <Down Arrow> , <Left Arrow> and <Right Arrow> focus on the "Logger" icon and confirm with the <OK button >.

The "Logger" menu will appear on the display with the following options:
- Data logging
- Logger settings
- Browse file

2.1. Data logging

This "Logger" menu option allows you to start recording data.

To start this option, from the "Logger" menu, using the <Up Arrow> and <Down Arrow> keyboard buttons, focus on the "Data logging" option and confirm with the <OK> button.

The following panel will appear on the display:
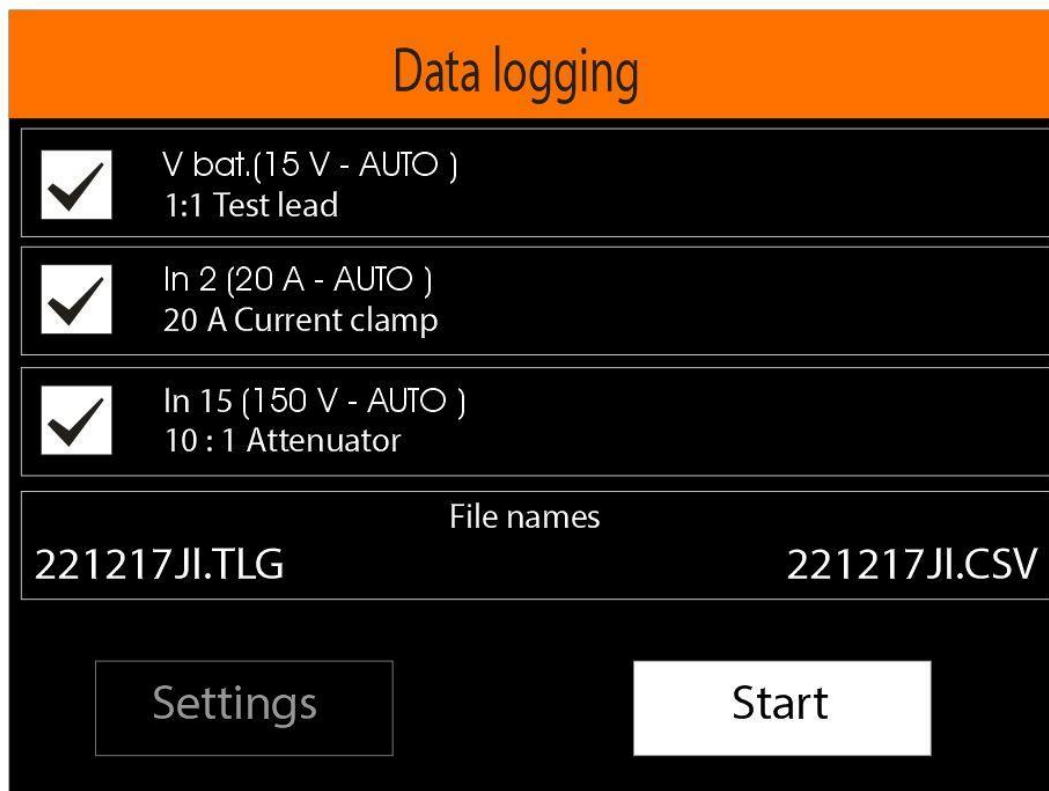
In this panel you can see the current settings of each of the channels:
- the check box indicates whether the channel is enabled or disabled
- channel name (for example: In 2)
- range (for example: 20)
- measurement unit (for example: A)
- input probe (for example: 20 A current clamp)
- Auto range (AUTO)

In addition, the panel displays the names of the files to which the data will be saved, as well as the "Settings" and "Start" icons.

If you want to change the current settings, use the <Left Arrow> and <Right Arrow> buttons to focus on the "Settings" icon and confirm with the <OK> button.
You can see more details about the Logger settings in item 2.2.

If you want to start the measurement with the displayed settings, use the <Left arrow> and <Right arrow> buttons to focus on the "Start" icon and confirm with the <OK> button.

After starting the recording, the following panel will appear on the display:
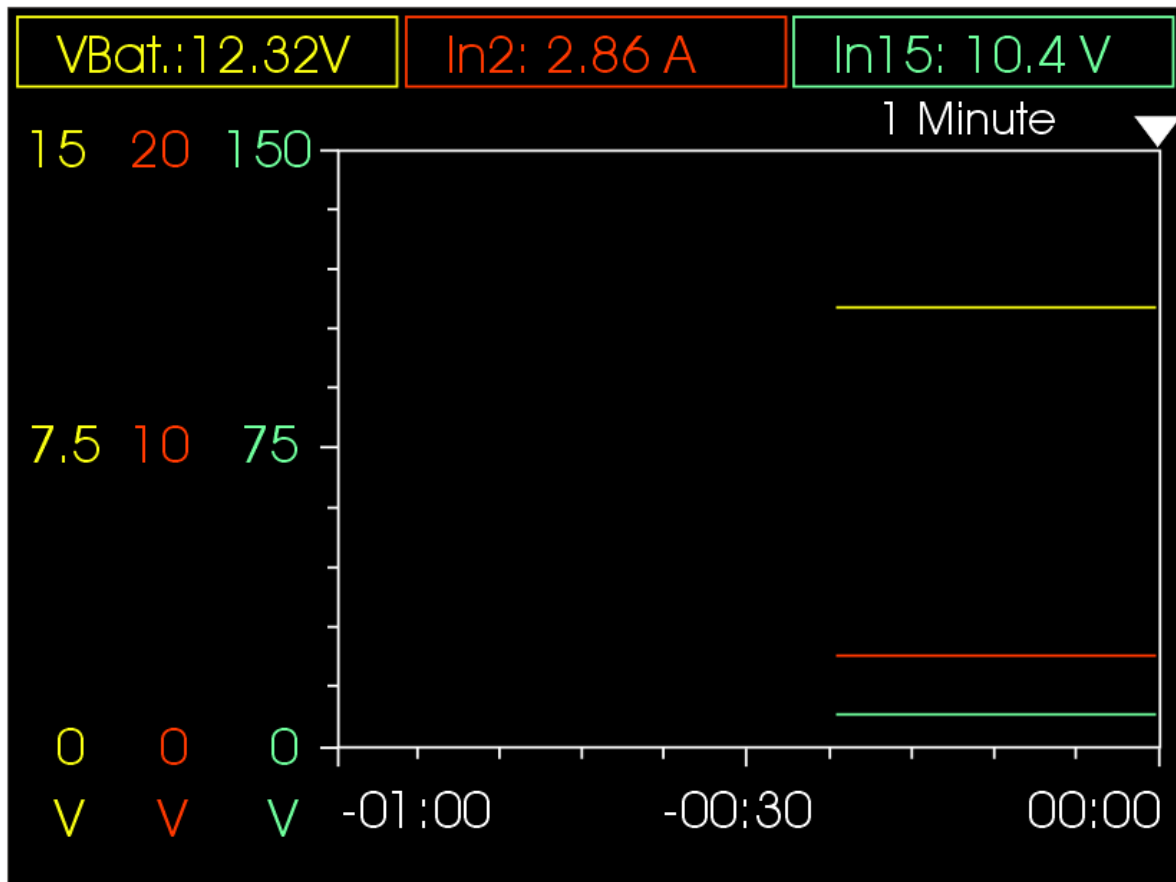
In the upper part of the panel, the last (Time 00:00) measured values of each of the enabled channels are shown in different colors.

The left part of the panel shows the channel ranges and measurement units.

In the right part of the panel, the dynamic graph of the measured values of the channels over time is presented.

Using the keyboard buttons <Up Arrow> and <Down Arrow> you can change the time range of the graph (from 1 to 600 minutes), i.e. how far back in time to show the measured values on the display (the last 1-600 minutes).

Recording can be stopped with the <BACK> or <HOME> buttons from the keyboard.

In case the recording is not terminated 600 minutes after starting, it is terminated automatically.

2.2. Logger settings

This "Logger" menu option allows you to change the logger settings.

To start this option, from the "Logger" menu, using the <Up Arrow> and <Down Arrow> keyboard buttons, focus on the "Logger settings" option and confirm with the <OK> button.

The "Logger settings" menu will appear on the display with the following options:
- V bat
- In 2
- In 15
- Auto range
- CSV file save

2.2.1. Channel „V bat." enabling

This option allows you to enable or disable "V bat." channel data recording that measures the voltage of the battery from which the CarScope i-Tester is powered.

To start this option, from the "Logger settings" menu, using the <Up Arrow> and <Down Arrow> keyboard buttons, focus on the "V Bat" option and confirm with the <OK> button.

The "Channel V bat Enable" menu will appear on the display with the following options:
- Enable
- Disable

If you want to enable "V bat." channel data recording, use the <Up Arrow> and <Down Arrow> keyboard buttons to focus on the "Enabled" option and confirm with the <OK> button.

If you do not want the data from "V Bat." channel to be recorded, use the <Up arrow> and <Down arrow> keyboard buttons to focus on the option "Disabled" and confirm with the <OK> button.

2.2.2. "In 2" Settings

This option allows you to change the In 2 channel settings.

To start this option, from the "Logger settings" menu, using the <Up Arrow> and <Down Arrow> keyboard buttons, focus on the "In 2" option and confirm with the <OK> button.

The "In 2 Settings" menu will appear on the display with the following options:
- Channel enable
- Channel Input probe

2.2.2.1. Channel "In 2" enabling

This "In 2 Settings" menu option allows you to enable or disable recording of data from the In 2 channel.

To start this option, from the "In 2 Settings" menu, using the <Up Arrow> and <Down Arrow> keyboard buttons, focus on the "Channel enable" option and confirm with the <OK> button.

The "Channel In 2 Enable" menu will appear on the display with the following options:
- Enable
- Disable

If you want to enable the recording of data from channel "In 2", using the <Up arrow> and <Down arrow> keyboard buttons, focus on the "Enable" option and confirm with the <OK> button.

If you do not want the data from channel "In 2" to be recorded, use the <Up arrow> and <Down arrow>keyboard buttons to focus on the option "Disable" and confirm with the <OK> button.

2.2.2.2. "In 2" Input probe

This "In2 Settings" menu option allows you to select the input probe to use. Plug in to the "In 2" channel.
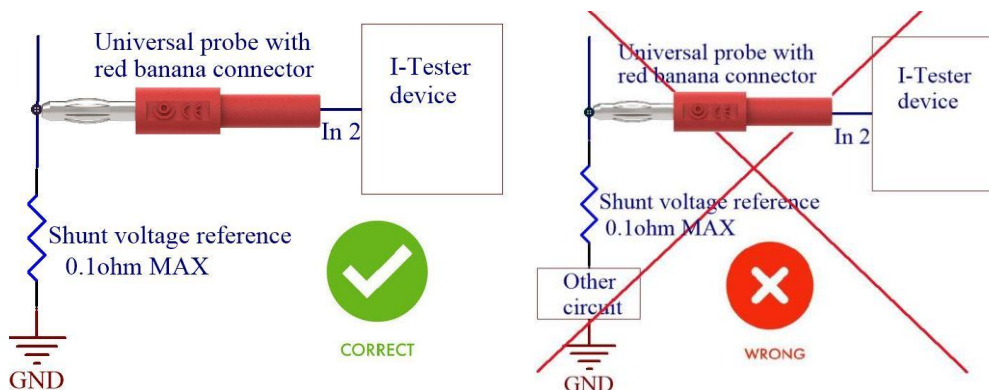
To start this option, from the "In 2 Settings" menu, using the <Up Arrow> and <Down Arrow> keyboard buttons, focus on the "Channel Input Probe" option and confirm with the <OK> button.

The "In 2 Input Probe" menu will appear on the display with the following options:
- 1:1 Test lead
- 20 A Current clamp
- 60 A Current clamp
- 10:1 Attenuator

The use of a DC current clamp connected to the In2 channel is recommended to perform a battery drain test or to measure the current in a circuit.

However, you can use a shunt voltage reference and measure the voltage drop connected to the In2 channel. CarScope i-Tester is a unipolar device. So, you can only do unipolar measurements.

Tip: If you are using a 0.1 ohm shunt, choose a 20 A current clamp. Thus, the readings will be in amperes. Important thing you should keep in mind. If the shunt is 0.1 ohm it should be for at least 5 watts.

IMPORTANT: I-Tester works only with unipolar signals, so when using current clamps (20A or 60A), you must consider the current direction. There is an arrow marking on the current clamps indicating the current direction.

Using the <Up Arrow> and <Down Arrow> keyboard buttons, focus on the desired input probe and confirm with the <OK> button.

2.2.3. "In 15" Settings

This option allows you to change the "In 15" channel settings.

To start this option, from the "Logger settings" menu, using the <Up Arrow> and <Down Arrow> keyboard buttons, focus on the "In 15" option and confirm with the <OK> button.

The "In 15 Settings" menu will appear on the display with the following options:
- Channel enable
- Channel Input probe

2.2.3.1. Channel "In 15" enabling

This "In 15 Settings" menu option allows you to enable or disable recording of data from the "In 15 channel".

To start this option, from the "In 15 Settings" menu, using the <Up Arrow> and <Down Arrow> keyboard buttons, focus on the "Channel enable" option and confirm with the <OK> button.

The "Channel In 15" enable menu will appear on the display with the following options:
- Enable
- Disable

If you want to enable the recording of data from channel "In 15", using the <Up arrow> and <Down arrow> keyboard buttons, focus on the "Enable" option and confirm with the <OK> button.

If you do not want the data from channel "In 15" to be recorded, use the <Up arrow> and <Down arrow> keyboard buttons to focus on the option "Disable" and confirm with the <OK> button.

2.2.3.2. "In 15" Input probe

This "In 15 Settings" menu option allows you to select the input probe to use. Plug in to the "In 15" channel.

To start this option, from the "In 15 Settings" menu, using the <Up Arrow> and <Down Arrow> keyboard buttons, focus on the "Channel Input Probe" option and confirm with the <OK> button.

The "In 15 Input Probe" menu will appear on the display with the following options:
- 1:1 Test lead
- 20 A Current clamp
- 60 A Current clamp
- 10:1 Attenuator
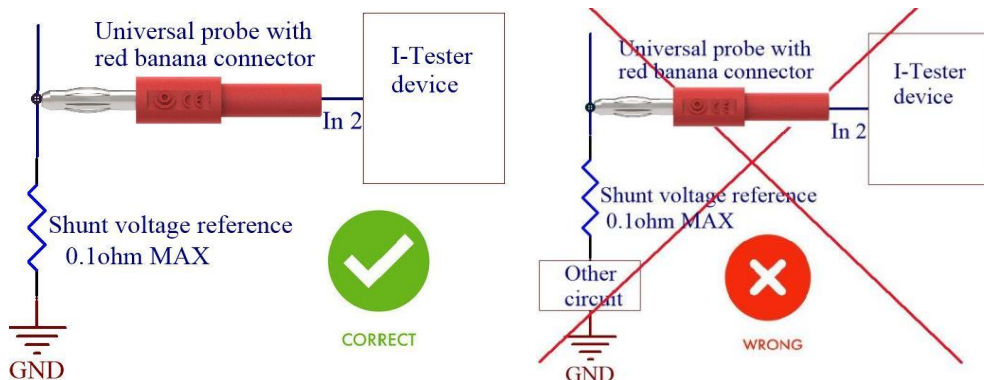
Note: Using the voltage method on this input is not recommended because the signal will be very small to identify it correctly.

Note: Connecting current clamps to "In 15" is not recommended because the signal will be very small to identify it correctly.

IMPORTANT: I-Tester works only with unipolar signals, so when using current clamps (20A or 60A), you must consider the current direction! There is an arrow marking on the current clamps indicating the current direction.

Using the <Up Arrow> and <Down Arrow> keyboard buttons, focus on the desired input probe and confirm with the <OK> button.

2.2.4. Auto range enabling

This option in the "Logger Settings" menu allows you to enable or disable the automatic determination of the ranges of the enabled channels in their graphic representation.

To enable or disable Auto range, from the "Logger settings" menu, using the <Up Arrow> and <Down Arrow> keyboard buttons, focus on the "Auto range" option and confirm with the <OK> button.

The "Auto range" menu will appear on the display with the following options:
- Enable
- Disable

If you want to enable the automatic determination of the ranges of the enabled channels in their graphical representation, use the <Up Arrow> and <Down Arrow> keyboard buttons to focus on the "Enabled" option and confirm with the <OK> button.

The automatic determination of the ranges of the enabled channels in their graphic representation on the display is based on the calculated maximum and minimum value that are currently displayed on the screen.

If you do not want the ranges of the enabled channels to be determined automatically, use the <Up arrow> and <Down arrow> keyboard buttons to focus on the "Disable" option and confirm with the <OK> button.

In this case, the ranges of the enabled channels in their graphic representation on the display are determined by the physical range of the corresponding selected input probe.

2.2.5. Save to CSV file enabling

After starting the recording (see item 2.1.1.). The data is saved in a TLG file, which is specific to the CarScope i-Tester and can be viewed later in the device itself.

This option in the "Logger settings" menu allows you to enable or disable the additional recording of the data to a CSV file, which will allow you to view it later on a computer.

Note: Recorded files (TGL and SCV) are kept on the device's SD card for up to 30 days after recording. Older files are automatically deleted.

To enable or disable the recording of data in a CSV file, from the "Logger settings" menu, using the <Up arrow> and <Down arrow> keyboard buttons, focus on the option "CSV file save" and confirm with the <OK button >.

The "CSV file save" menu will appear on the display with the following options:
- Enable
- Disable

If you want to enable data saving in a CSV file, use the <Up Arrow> and <Down Arrow> keyboard buttons to focus on the "Enable" option and confirm with the <OK> button.

If you do not want the data to be saved in a CSV file, use the <Up Arrow> and <Down Arrow> keyboard buttons to focus on the "Disable" option and confirm with the <OK> button.

2.3. Browse file

This "Logger" menu option allows you to browse the data in an already recorded file.

To start this option, from the "Logger" menu, using the <Up Arrow> and <Down Arrow> keyboard buttons, focus on the "Browse file" option and confirm with the <OK> button.

A menu will appear on the display with the names of the available TLG files along with the date and time they were created, sorted by time, with the most recently recorded file displayed first.

Note: In case the number of saved files is large, it may take some time. While the sorting is being done, the display shows the message "Please wait...".

Using the <Up Arrow> and <Down Arrow> keyboard buttons focus on the name of the file you want to browse and confirm with the <OK> button.

A panel will appear on the display showing a general description of the data of the selected file:
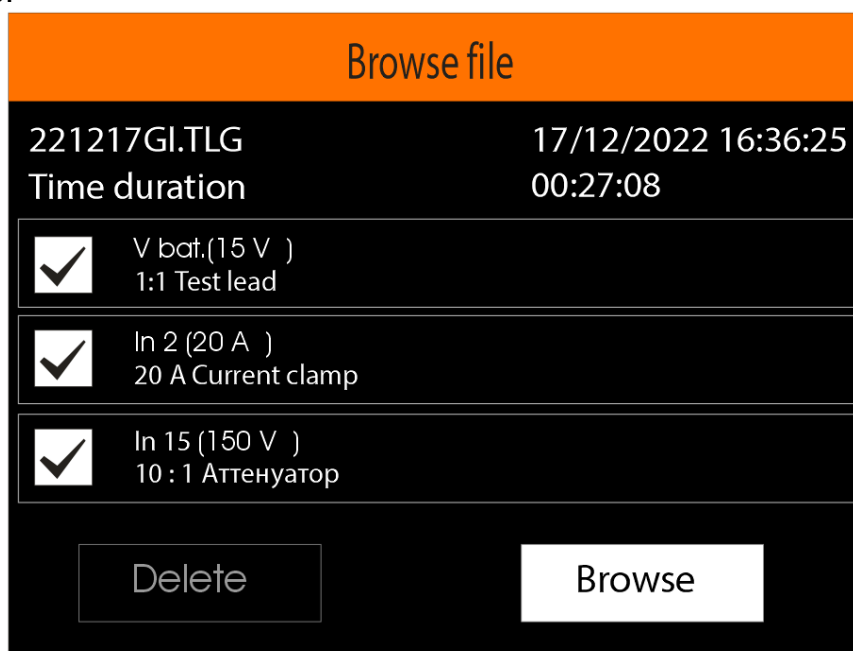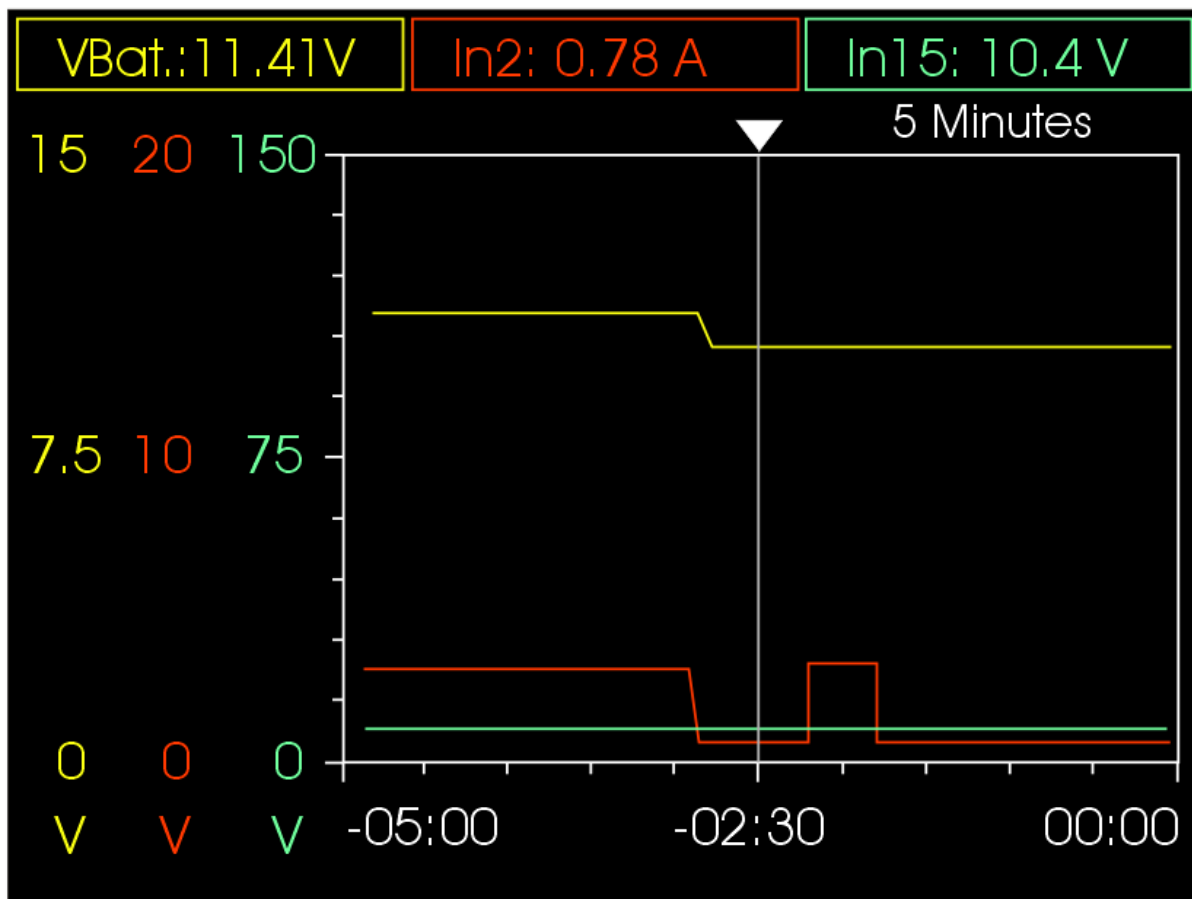

This panel shows:
 - File name
 - The time of its creation (the start of the record)
 - Time duration
 - The status (enabled/disabled), range, unit of measure and the selected input probe of each channel.

If you want to delete this file, use the <Left Arrow> and <Right Arrow> keyboard buttons to focus on the "Delete" icon and confirm with the <OK> button. The available files menu will then be displayed again.

If you want to browse the recorded data in this file, use the <Left Arrow> and <Right Arrow> keys on the keyboard to focus on the "Browse" icon and confirm with the <OK> button.

The following panel will appear on the display:

The upper part of the panel shows the recorded values of each of the enabled channels at the time indicated by the marker (in this case -02:30 minutes). The channels are shown in different colors.

The left part of the panel shows the channel ranges and measurement units.

The graph of the measured values of the channels over time is presented in the right part of the panel.
Using the buttons from the keyboard <Arrow up> and <Arrow down> you can change the time range of the graph (from 1 to 600 minutes), i.e. how much of the recorded data is shown on the display.

Using the <Left Arrow> and <Right Arrow> keyboard buttons, you can navigate through the recorded data, i.e. to determine which part of the recorded data to be shown on the display.