

SI Log Advisor – Quick Guide

1. Introduction

SI Log Advisor is a tool for reading and analyzing log information stored in Satron devices. At this time event and data log feature is implemented in Satron VO and VC series transmitters.

The main functions of the software are

- reading and modifying the logging configuration of the device
- updating the device firmware
- reading the log contents from device to PC
- writing/reading the log contents to/from hard disk of the PC
- exporting the log contents to text file
- viewing the log contents in text and graphical formats

2. Installation

SI Log Advisor requires

- VO or VC series transmitter (firmware O100223A or later)
- PC with Windows XP, Windows Vista, Windows 7, Windows 8 or Windows 10 operating system

SI Log Advisor includes the following files

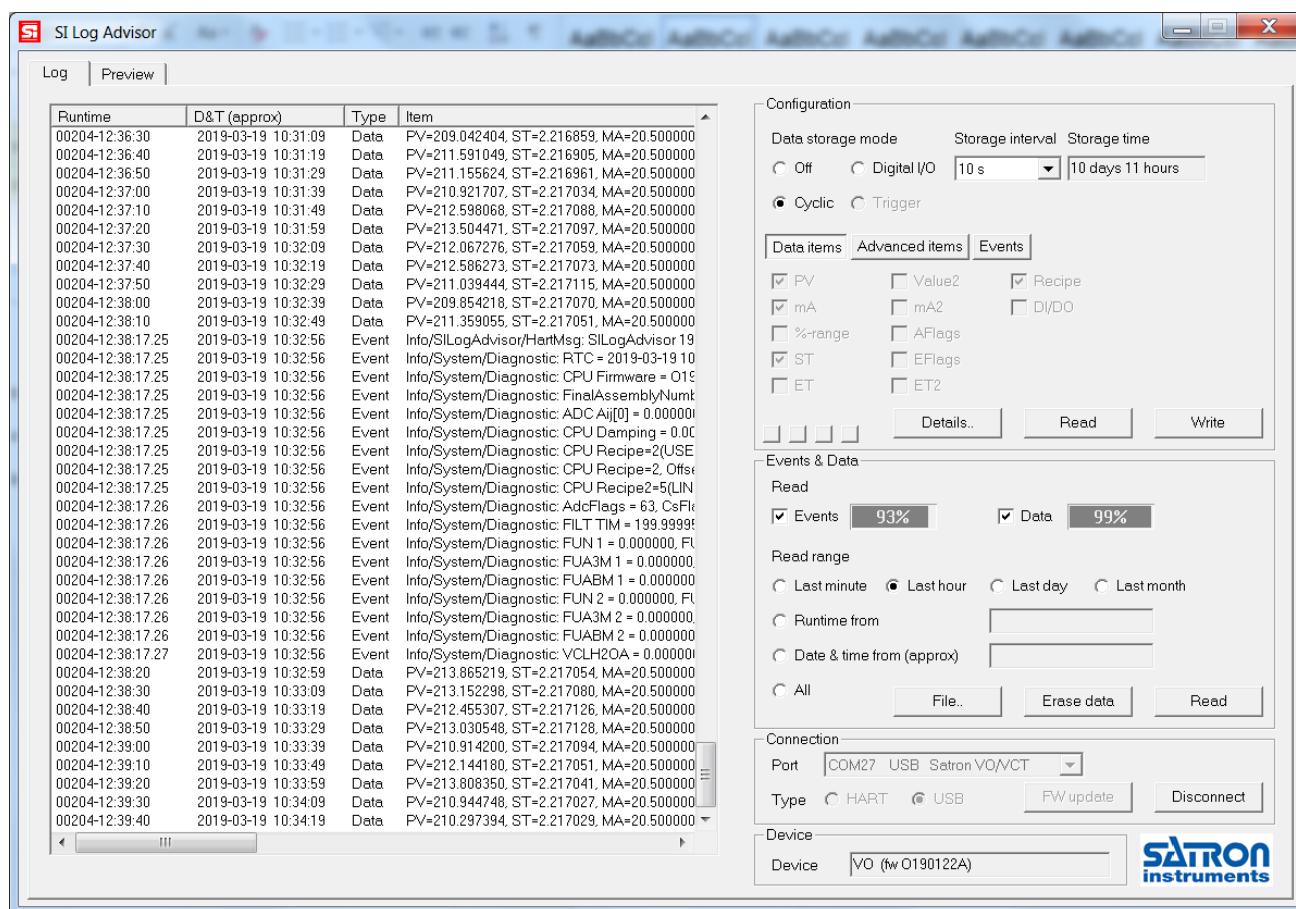
SILogAdvisor.exe	executable file
FlashMagicARM.dll	dll file needed with the firmware update
SILogAdvisor.ini	program settings (automatically created)

SI Log Advisor does not require any actual installation.

SILogAdvisor.exe can simply be copied to a folder on the hard disk, or the software can be executed directly from a USB memory stick.

FlashMagicARM.dll needs to be located in the same directory as the executable file **SILogAdvisor.ini** is created automatically to folder %C:\SILogAppData+(by default), or alternatively it can be located in the same folder as the executable file.

3. Log page



3.1. Making the connection

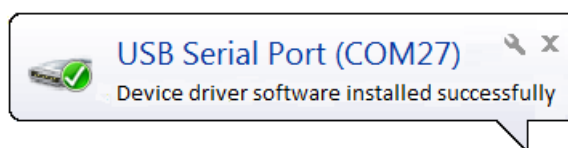
Make the connection to the device with the following steps

- connect the device to the PC with a USB cable (with Standard-A and Mini-B plugs), or with HART
- if you are using USB, and the transmitter has not been connected to your PC previously, an automatic device driver installation will now begin (if connected to Internet)
 - progress of installation is indicated by messages in the bottom right hand corner of the PC
 - Note: **always** wait for the device driver installation to complete before proceeding to the next step
- select the port (COM1..COM256) with **Port** selection box
 - only COM ports that are currently present in the system are shown
- select USB or HART with **Connection** selection
 - Note: HART communication is about 100 times slower than USB
- connect with **Connect** button

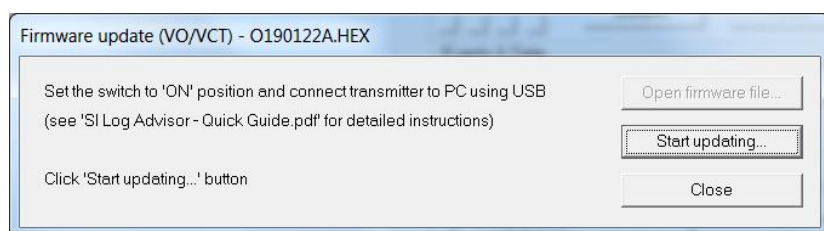
If the device is found

- the log settings are automatically read from the device
- various functions on the page are enabled
- device type and firmware versions are shown on the **Device** line
- **Connect** button is replaced with **Disconnect** button.

If the device is not found, an error message is displayed.



3.2 Firmware update (FW update via USB)



To update the device firmware, click the **FW update** button and the Firmware update window appears.

Open firmware file

- Browse to locate a new firmware file (*.Hex)

Start updating...

- Starts the update process and shows the progress in progress bar
- The little white switch must be switched to **ON** position before starting the update and back to **OFF** position when the update is finished
- Update takes couple of minutes

Close

- Closes the Firmware update window

3.3. Changing log settings

On the **Configuration** area of the **Log** page the logging settings of the device can be modified:

Data storage mode

- Cyclic (default): data logged cyclically (oldest data replaced with new)
- Digital I/O: data logging is enabled with digital input of the device
- Off: no data logging
- Trigger: (not yet available)

Storage interval

- 1 s, 2 s, 5 s, 10 s, 30 s, 1 min, 2 min, 5 min, 10 min, 30 min, 1 hour, 2 hour, 6 hour 12 hour, 1 day
- Note: with device firmware versions **O120516A** (VO) and later, this is **Medium speed+storage interval**

Storage time

- shows estimated data storage time with current log settings

Data items and Advanced items

- with device firmware versions **O120327A** (VO) and earlier
 - data items that will be logged can be selected here
- with device firmware versions **O120516A** (VO) and later
 - data items that will be logged are shown here
 - data item selection can be done in **Details** page, see **3.3.1 Details page**.
- selectable items depend on the device type as follows

VO and VC:

PV	PV (process value)
mA	output current
%-range	percent of range
ST	ST (sensor temperature)
ET	ET (electronics temperature)
Value2	value 2 (second loop)
mA2	output current 2 (second loop)
AFlags	alarm flags
EFlags	error flags
ET2	ET2 (electronics temperature 2)
Recipe	active recipe index (1..4)

PS	process status (firmware O171013A or later required)
DI/DO	digital input and output states (bit 0=DI1, bit 1=DI2, bit 2=DI3, bit 3=DO1, bit 4=DO2, bit 5=DO3)
D1i	D1 (as integer value)
D1Ri	D1R (as integer value)
D2i	D2 (as integer value)
D2Ri	D2R (as integer value)
Raw	calculated raw value
Averaged	averaged value
CV	compensated value
FTV	factory trimmed value
UTV	user trimmed value
FU	factory unit value
RawA .. RawD	raw values A .. D
FuA .. FuD	Fu-values A .. D
FTV2	factory trimmed value 2
PV2	process value 2 (second loop) (fw O161116A or later required)
FTV3	factory trimmed value 3 (fw O161116A or later required)
Recipe2	active recipe index 2 (5..6, second loop) (fw O161116A or later required)
D1R .. D6R	D1..D6 raw value (step R, LED OFF)
D1 .. D6	D1..D6 raw value (step A, LED ON)
D1Z .. D6Z	D1..D6 zeroed value (-%)
D1F .. D6F	D1..D6 filtered value (-%)
D1B .. D6B	D1..D6 raw value (step B, LED ON)
D1BZ .. D6BZ	D1..D6 zeroed value (-%)
D1BF .. D6BF	D1..D6 filtered value (-%)
D1C .. D6C	D1..D6 raw value (step C, LED ON)
D1CZ .. D6CZ	D1..D6 zeroed value (-%)
D1CF .. D6CF	D1..D6 filtered value (-%)
D1D .. D6D	D1..D6 raw value (step D, LED ON)
D1DZ .. D6DZ	D1..D6 zeroed value (-%)
D1DF .. D6DF	D1..D6 filtered value (-%)

Note:

- all the items above are available in device firmware versions **O151223A** and later (except where noted)
- in firmware versions earlier than **O151223A**, some of the items are not available, and can not be selected

Events

- all event types (except Digital I/O events) are always logged
(selection of event types that will be logged is currently not supported)

Error	error
Warning	warning
Alarm	alarm
Start	start event (several Start events will be logged with every boot)
Config	configuration change
Diagnostic	diagnostic event
Digital I/O	change in digital I/O states
HART error	HART error (invalid HART message received)
Sample	sample event
RTC	real-time-clock event
Other	other event

DetailsÅ

- opens Details page (device firmware versions **O120516A** (VO) and later only)

Read

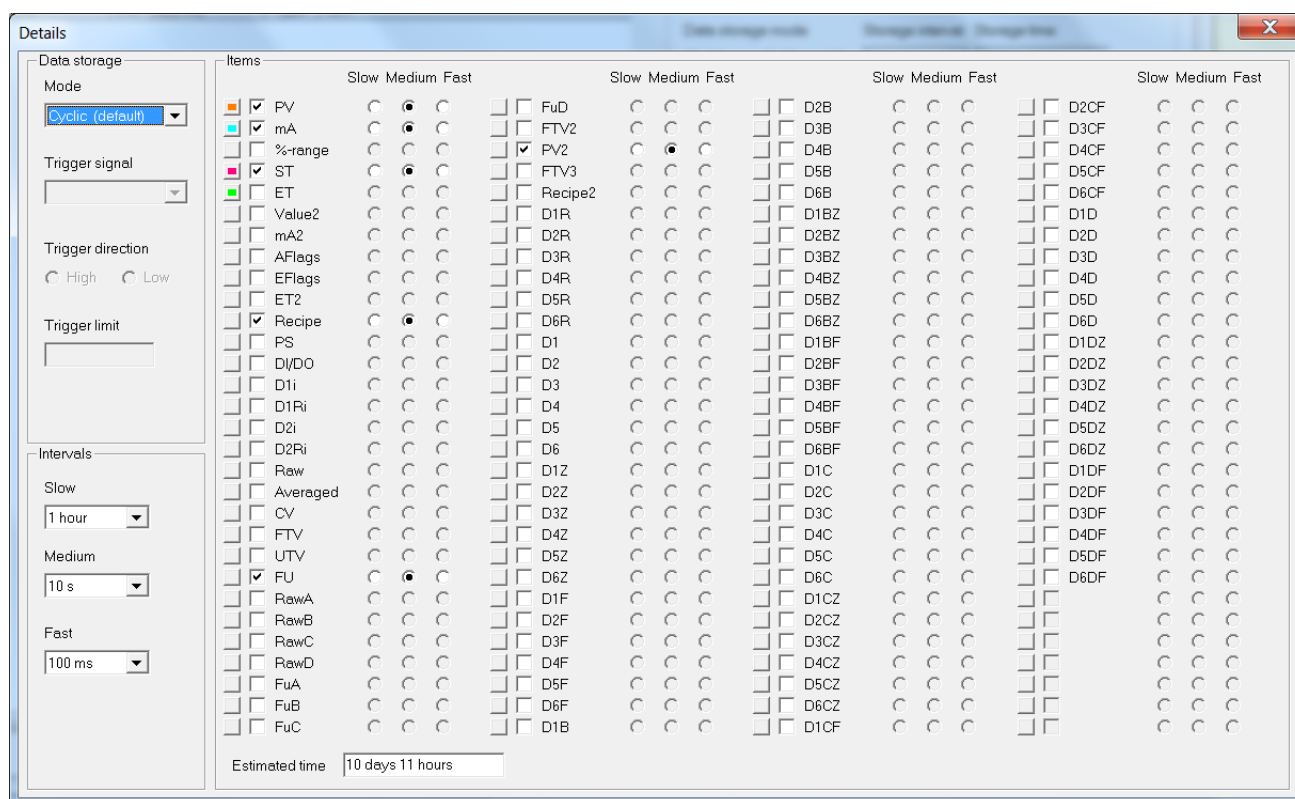
- reads current log configuration (automatically performed with **Connect**)

Write

- writes modified log configuration to the device

- Note: changes take effect immediately (no restart required)

3.3.1. Details page



On **Details** page (see above) the logged signals are selected.

Note: After having changed the log settings, they have to be written to the device with Write button on the Configuration section.

Data storage

Mode

- Cyclic (default): data logged cyclically (oldest data replaced with new)
- Digital I/O: data logging is enabled with digital input of the device
- Off: no data logging
- Trigger: (not yet available)

Trigger signal, Trigger direction, Trigger limit

- not yet available

Intervals

Slow, Medium

- 1 s, 2 s, 5 s, 10 s, 30 s, 1 min, 2 min, 5 min, 10 min, 30 min, 1 hour, 2 hour, 6 hour 12 hour, 1 day

Fast

- 100 ms, 200 ms, 500 ms, 1 s, 2 s, 5 s, 10 s, 30 s, 1 min, 2 min, 5 min, 10 min, 30 min, 1 hour, 2 hour, 6 hour 12 hour, 1 day

Items

- logging for each item can either be disabled, **Slow**, **Medium** or **Fast**
- the maximum number of logged signals is 24
- the maximum number of logged signals with %Fast+interval is 8
- the diagram color of the item is indicated (and can be changed) with the button to the left of the item name

Estimated time

- shows estimated data storage time with current log settings

3.4. Reading events and data from the device

On the **Events & Data** area of the **Log** page, the settings with which the data from the device will be read, can be changed, and the reading of data can be started.

Read

- reads either events or data, or both
- Note: reading events/data using HART connection requires firmware version O120327A or later (VO)

Events and Data

- read either events or data, or both (at least one has to be selected)
- Note: it is recommended that events should always be read
(e.g. the RTC calculation does not work without reading the RTC events)
- usage gauges show the amount (as percent) of events and data flash memory that is currently in use
 - 0 % = memory empty (or less than 1 % in use)
 - 99 % = all memory in use (oldest items have been erased)
 - value 100 % is never reached because there is always room for new items

Read range

- specifies the starting time after which the events/data are read

Last minute	events/data during the last minute
Last hour	events/data during the last hour
Last day	events/data during the last 24 hours
Last month	events/data during the last 31 days
Runtime from	events/data after specified runtime (runtime is the time in days, hours, minutes, seconds and tenths of a second, which the device has been operational)
Date & time from	events/data after the specified date and time (if real-time-clock is active, then RTC events are used to calculate the time, otherwise the date and time is an approximation which assumes that the device has been operational without interruption)
All	all events/data

3.5. Erasing logged data from the device

- logged data can be erased from the device with **Erase data** button
- Note: logged events can only be erased at the factory

3.6. Writing/reading events and data to/from files

- the log data can be saved/read to/from files with the following functions using the **Files..** button

Open SI file (*.sif)	opens previously stored log data file (*.sif)
Save SI file (*.sif)	stores log data to file (*.sif = Satron Instruments file format)
Export data to text file	writes data to text file in CSV format (comma-separated values)
Export events to text file	writes events to text file in CSV format
Export data/events to text file	writes data and events to text file in CSV format

- with the **Export** functions the log data can be exported for later analysis with other tools (e.g. Excel)
 - the same decimal symbol (%~~.~~ or %~~.~~) will be automatically used as in Windows
 - semicolon (%~~,~~) will be used as a separator
- Note: it is recommended that after the events/data has been read from a device, it should be stored using the **Save SI file (*.sif)** function.
This enables opening the stored events/data for later viewing in **SI Log Advisor** as well as exporting it later to a text file (a text file can not be opened in **SI Log Advisor**).

3.7. Viewing events and data as a list

On the left hand side of the **Log** page, the events and data are shown as a list with the following columns:

Runtime	the time in days, hours, minutes and seconds (and hundreds of a second),
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which the device has been operational at the time of the logging

D&T (approx)

date and time (calculated using Runtime and RTC events)

- if real-time-clock is active, then RTC events are used to calculate this time

- otherwise the date and time is an approximation which assumes that the device has been operational without interruption

- Note: if the date and time is an approximation, it is shown in parentheses

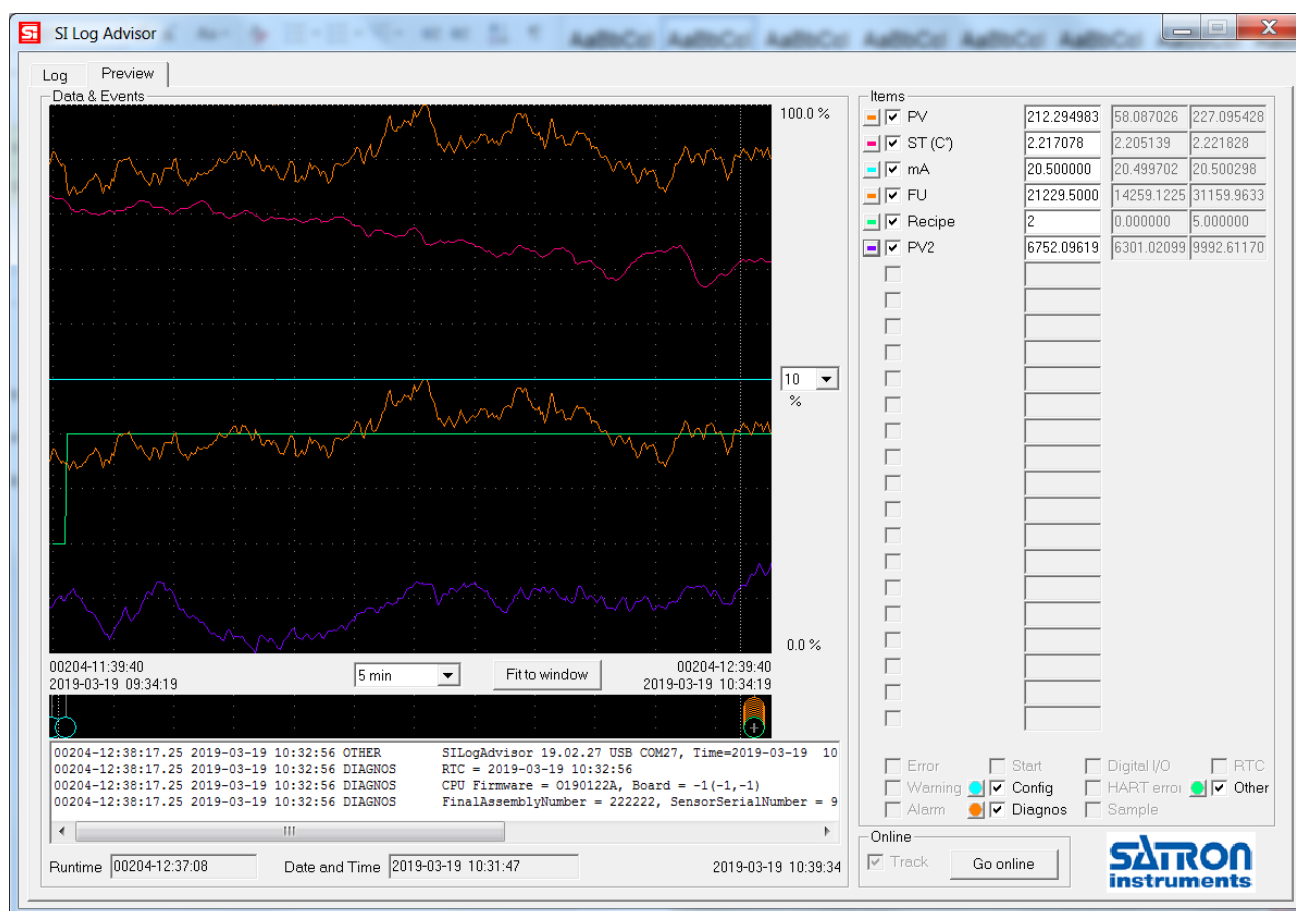
Type Item

Event or Data

event/data item information as text

Note: activating an event/data on the Log page (by clicking the *Runtime* field) will place cursor on the **Preview** page to the time of that particular event/data item

4. Preview page



4.1. Data items

- data item values are shown in the upper left window as lines (0 % to 100 % range), with various colors
- when zoomed in enough, individual measurement points are represented with tiny squares
- the upper right hand side of the page shows the numerical values of the items at the cursor position, with their respective colors
- items that are not present in the log data are disabled (gray)
- items that are present in the log data can be hidden by unchecking the visibility checkbox for the item
- the 0 % and 100 % values for each item can be modified only when the checkbox is unchecked
- the active window can be moved up or down (with 10 % steps of the range)
- range box selects the height of a grid square (*not* total height of the window) from the following values
 - 10 % (default), 5 %, 2 %, 1 %, 0.5 %, 0.2 %, 0.1 %, 0.05 %, 0.02 %, 0.01 %
- with **Fit to window** button the timescale can be adjusted automatically so that all events/data fits to the window

4.1.1. Data item ranges

- the range of each data item can be modified automatically with the following functions (press the color symbol to the left of the item name)

Fit range	fit the item data to 5.. 95 % of the preview window
Zoom range in	zoom the item data range in
Zoom range out	zoom the item data range out
Move diagram up	move diagram up on the display
Move diagram down	move diagram down on the display
Stack ALL diagrams	organize all data ranges so that they are displayed stacked one on top of the other
Save range	save automatically modified range
Save ALL ranges	save all automatically modified ranges
Change color	change color of diagram

4.2. Events

- events are shown in the lower left graphical window as circles, with various colors
- events at the same position are stacked one above another (± sign on an event indicates that there are more events on that position than is possible to show on the window)
- the lower right hand side of the page shows the event types that can be selected to be visible, with their respective colors
- the event types that are not present in the log data are disabled (gray)
- text window below the graphical window shows textual information of the event(s) at cursor position

4.3. Data items and Events

- the active windows can be moved with mouse left or right
- time box selects the width of a grid square (*not* total width of the windows) from the following values
 - 1 s, 2 s, 5 s, 10 s, 30 s, 1 min, 2 min, 5 min, 10 min, 30 min, 1 hour, 2 hour, 6 hour 12 hour, 1 day, 2 days, 1 week
- Note: when time box is active, the time can be zoomed in and out with mouse wheel (time box can be activated also by clicking on the graphical window)

4.4. Other functions

- **Runtime** shows the operating time of the device at the cursor position
- **Date and Time** shows the real-time-clock time at the cursor position
- Note: double-clicking on either of the graphical windows activates the **Log** page and displays the event or data item, which is closest to that cursor position
- current time is shown on the bottom of the screen

4.5. Online mode

Online mode can be entered with **Go online** button.

In the online mode the event and data log items that the device is logging to the internal flash memory, are simultaneously written to the connected PC (via USB).

Online mode can be exited **Go offline** button.

When **Track** is enabled, the preview window and cursor are automatically moved to show the last log item (oscilloscope-like function).

When **Track** is disabled, the user can move freely within the time space.

Note: Online mode is available only with USB (not HART).