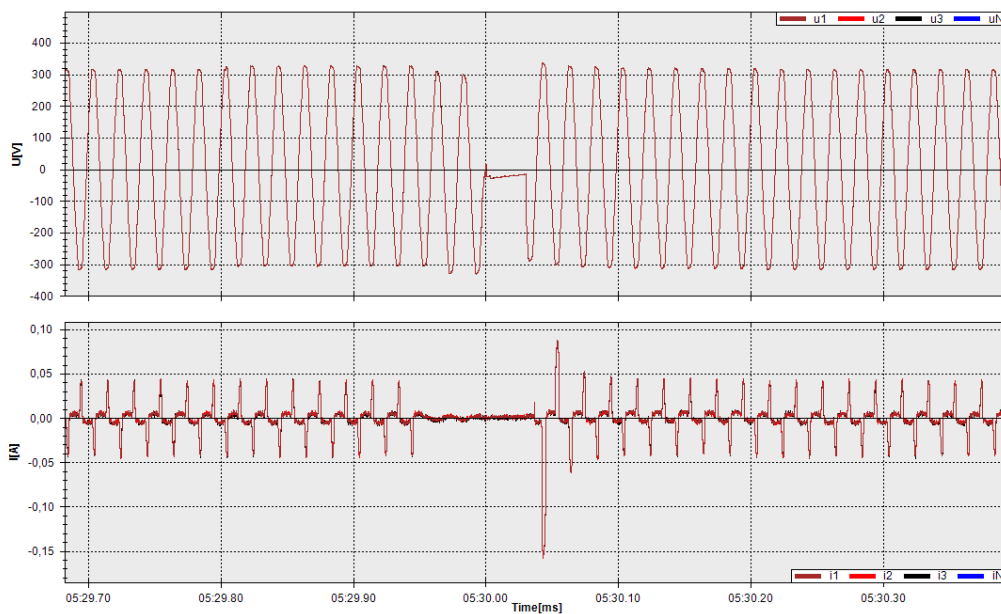


General Oscillogram fw. module

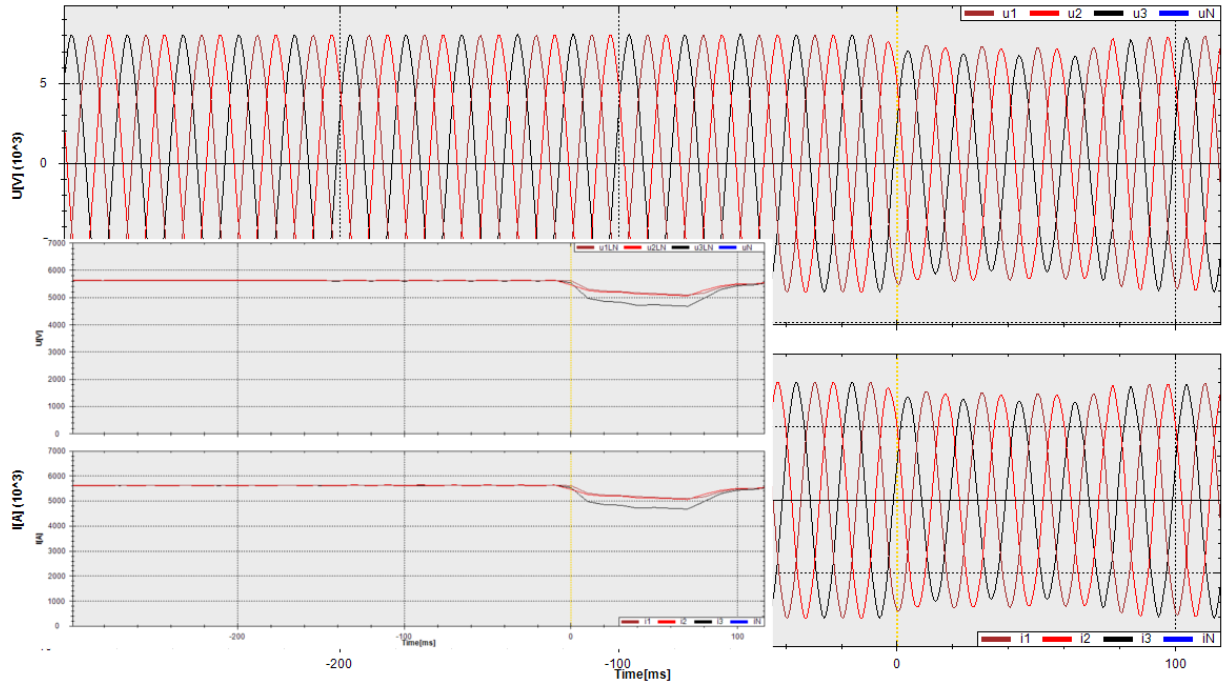
User Guide

Preliminary



Description

Module for detection and precise recording of various waveform distortions. This module records the so called oscillograms of voltages and currents in extended detail, capacity and trigger options into the flash memory.

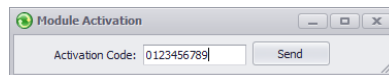


Supported Instruments

SMC, SMV, SMP, SMPQ, SMP-CA, SMP-BX, SMPQ-BX, SIMON PQ, NEMO

Activation of the module

1. If you are already owner of some of the Supported Instruments order the module at sales@kmb.cz. Otherwise you can order the module with instrument and we will activate it for you.
2. You will receive activation code by e-mail. Such as 0123456789.
3. Start ENVIS.Daq and connect to the instrument. Click on the link *Module activation* under *Configs* tab in left part of the window.



4. Enter your activation code into Module Activation window and press *Send*.
5. Successful activation will be confirmed and instrument will restart. Your new firmware module is now activated.

Configuration in ENVIS.Daq

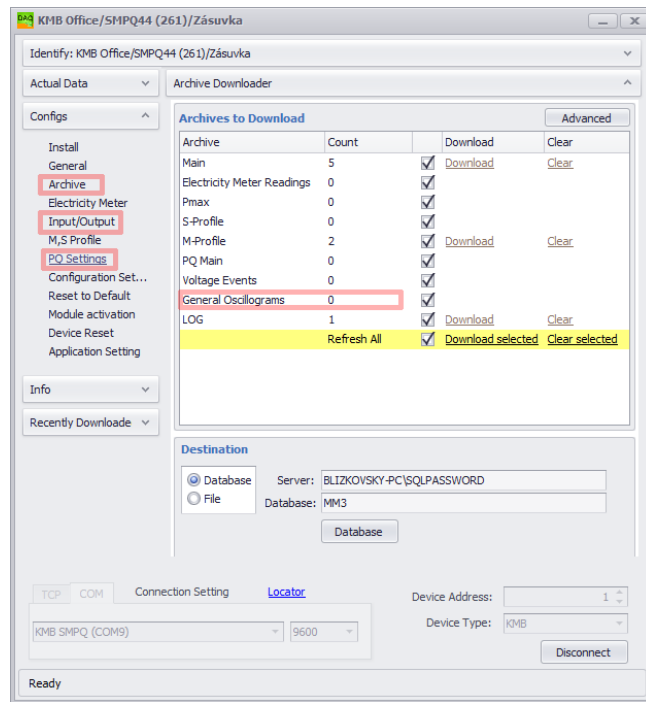


Figure 1: Important menus of General Oscillogram module

Assigning the memory to the General Oscillogram Archive

Enter the 'Archive' configuration located under 'Configs' tab on the left side of the window. Check 'Enable' and adjust the slider on the bottom part of the windows according to your needs.

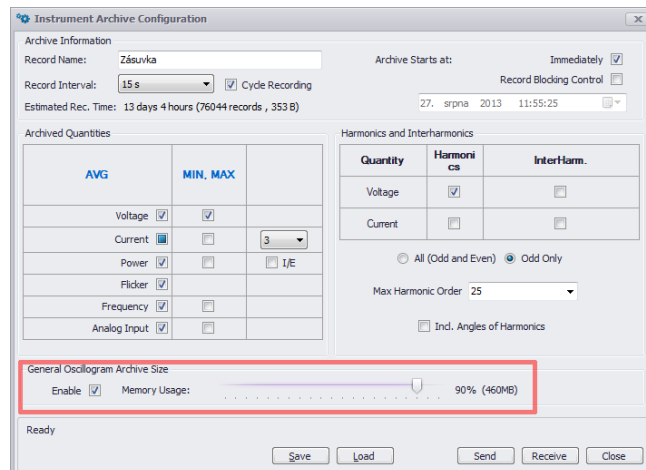


Figure 2: Assigning memory to General Oscillogram archive

Configuration of the General Oscillogram Archive

Enter the *'PQ Settings'* configuration located under *'Configs'* tab on the left side of the window and switch to *'General Osc'* tab. In this menu, you can define which quantities you would like to record and at what sampling rate. Also you can enable *'Cycle Recording'* which specifies what to do when assigned memory is full. When enabled, the instrument will start overwriting oldest records otherwise it will simply stops recording.

Depending on this configuration and also depending on assigned memory you can see in *'Total Osc. Archive Capacity'* the capacity of the archive. It defines how long waveform can be recorded before filling up the memory.

'Starting Method' defines how to act when event to start is raised. There are three options

- **Single-Shot:** When predefined event occurs, instruments starts recording of waveform for predefined time (*'Post-Trigger Duration'*).
- **Multi-Shot:** Similar to single shot, but when there is another event during the recording the counter resets and starts to count again until *'Post-Trigger Duration'*.
- **Level:** Instrument starts recording when event occurs and stops recording when elapses *'Post-Trigger Duration'* after the event disappears.

'Post-Trigger Duration' defines how long will be instrument recording the waveforms after the trigger, which is defined it *'Starting Method'*. When set to zero (0), duration will be infinite.

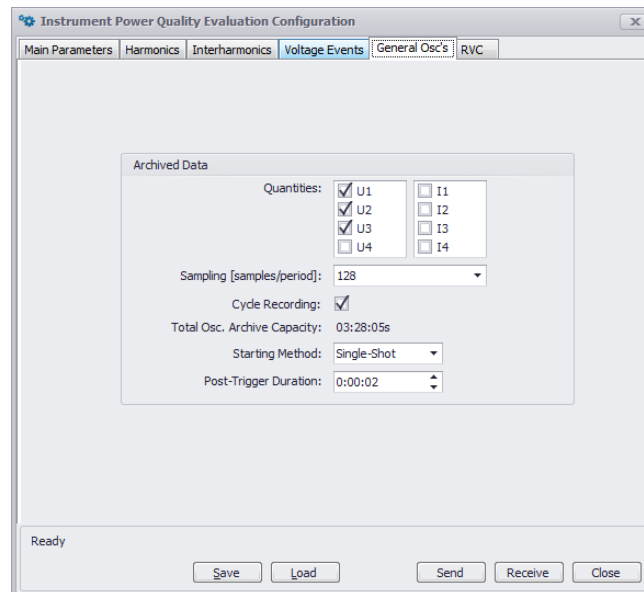


Figure 3: Configuration of General Oscillogram

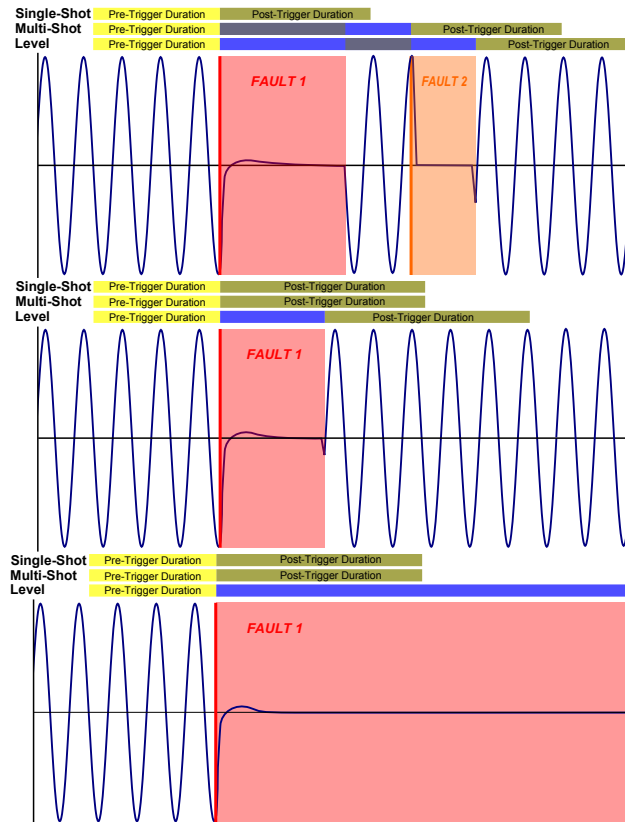


Figure 4: Starting Methods

Configuration of the event/trigger which starts the recording

Enter the 'Input/Output' configuration located under 'Configs' tab on the left side of the window and switch to 'General Osc' tab. First it's necessary to check 'Enabled'.

Recording is triggered when result of 'Output formula' is true. This output formula consists of four events connected by logic operators.

i.e. When we want to start the recording when phase voltage in one of three phases drops below 80% of Nominal value. We need to configure following:

1. Set 'Event type' to control value and control quantity to 'U-LN'. 'Polarity' should be set to under limit and the limit to 80% of nom. value.
2. For immediate reaction we set 'C. quantity type' to Actual and as we want to monitor drop in any of the phases we set 'Phase' to At least one L1, L2, L3.
3. Hysteresis could be set for 1.00% and 'Blocking time' which specifies how long will be this kind of event blocked before reactivation, we leave it on 0 seconds.
4. Other Events (E2, E3, E4) are set to Passive which also means false.
5. Output formula should be defined as on picture below which states (E1 or E2) or (E3 or E4). Where E1 will be active/true when voltage drops below 80% and other events E2, E3, E4 are always passive/false. So output formula will be active/true when E1 is active/true.

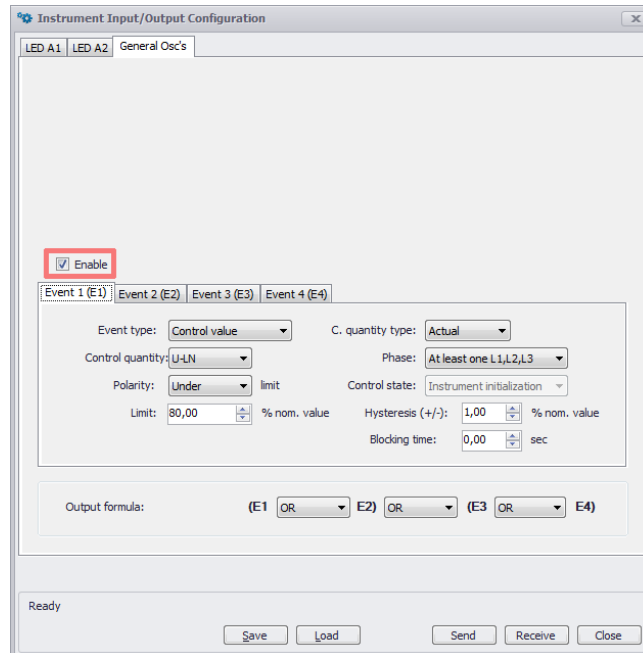


Figure 5: Assigning memory to General Oscillogram archive

Analysing data in ENVIS

First it's necessary to download the data from the instrument via ENVIS.Daq. Either to database or cea file. Then open the ENVIS and downloaded data. Select respective measurement in the Object list and pick General Oscillograms in archives. On the right side there should be Powe Quality and General Oscillograms window opened. You can see all recorded events there, depending on configuration it show voltage and also current waveforms. It's possible to browse the waveforms in similar way as with other graphs. You can zoom/pan by mouse wheel or by slider at the bottom of the graph or by creating the zoom rectangle by mouse in the area of graph. By doubleclicking the graph area it's possible to add the cursors.

There is gray area show around the cursor or between two cursors. This displays area/region for which the application calculates the values in table bellow graph. You can see there Main quantities like U, I, P and also it's possible to switch to Harmonics tab and even to Phasor diagram.

By right clicking on the graph area, it's also convert the waveform view to Effective values view by selecting it in the context menu.

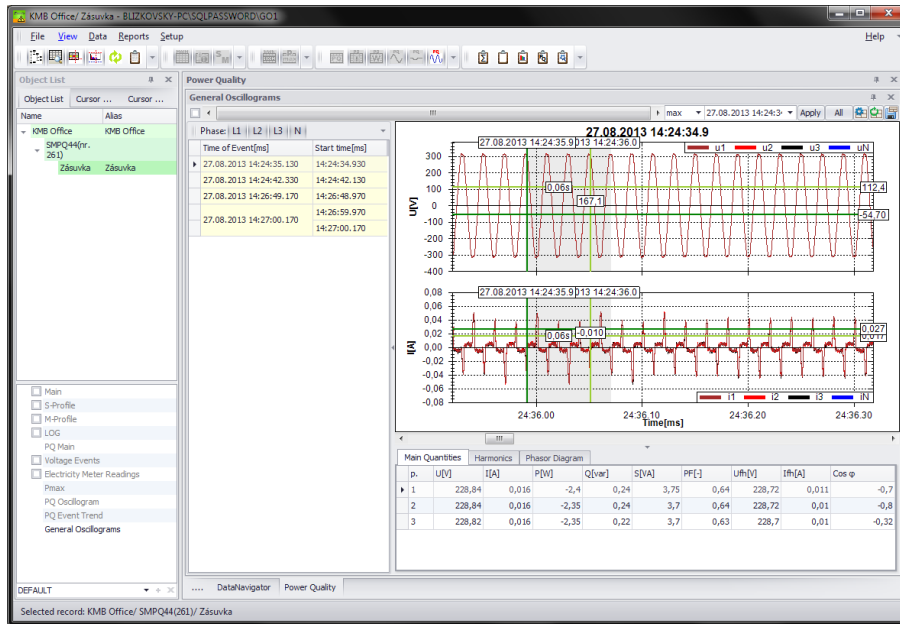


Figure 6: ENVIS General oscillogram options

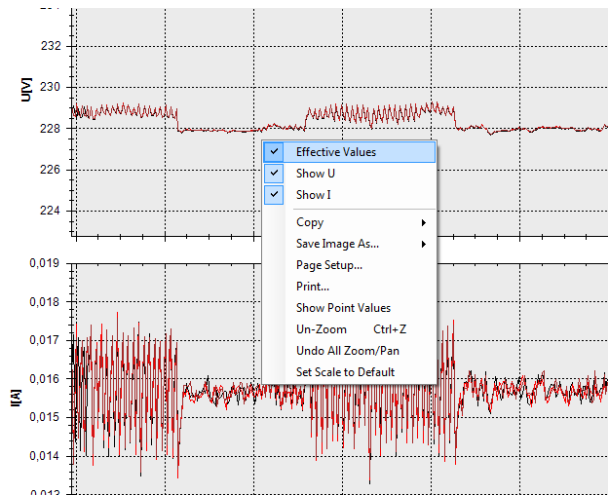


Figure 7: ENVIS General oscillogram options