INSTRUCTION BOOKLET

AQtivate Pro –

Substation Management Software

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Revision	1.0
Date	29.9. 2014
Changes	N/A

Read these instructions carefully and inspect the equipment to become familiar with it before trying to install, operate, service or maintain it.

Electrical equipment should be installed, operated, serviced, and maintained only by qualified personnel. Local safety regulations should be followed. No responsibility is assumed by Arcteq for any consequences arising out of the use of this material.

We reserve right to changes without further notice.

1 OVERVIEW

1.1 INTRODUCTION

AQtivate Pro is a Substation Management software program that is used to monitor Arcteq's AQ 200-series IEDs. It can be used to remote access and engineering of the IEDs, monitor events, get disturbance records, visualize and control the mimic views, and to check the recorded measurements depending on the acquired software license package.

The main benefits of the AQtivate Pro system are:

- Easy to install, apply and use
- Remote setting and configuration access (via AQtivate 200)
- Automatic updating of valid setting and configuration files from IEDs
- Automatic disturbance recorder uploading
- Consolidated event and alarm handling during commissioning and normal use
- Switching status visualization
- Primary or back-up control functionality
- Measurement trends for energy management

1.2 TYPICAL SYSTEM CONFIGURATION

AQtivate Pro can be used within the substation for a single substation management or in remote location for managing several substations. AQtivate Pro works in any Ethernet based network. System configuration principle is demonstrated in Figure 1.
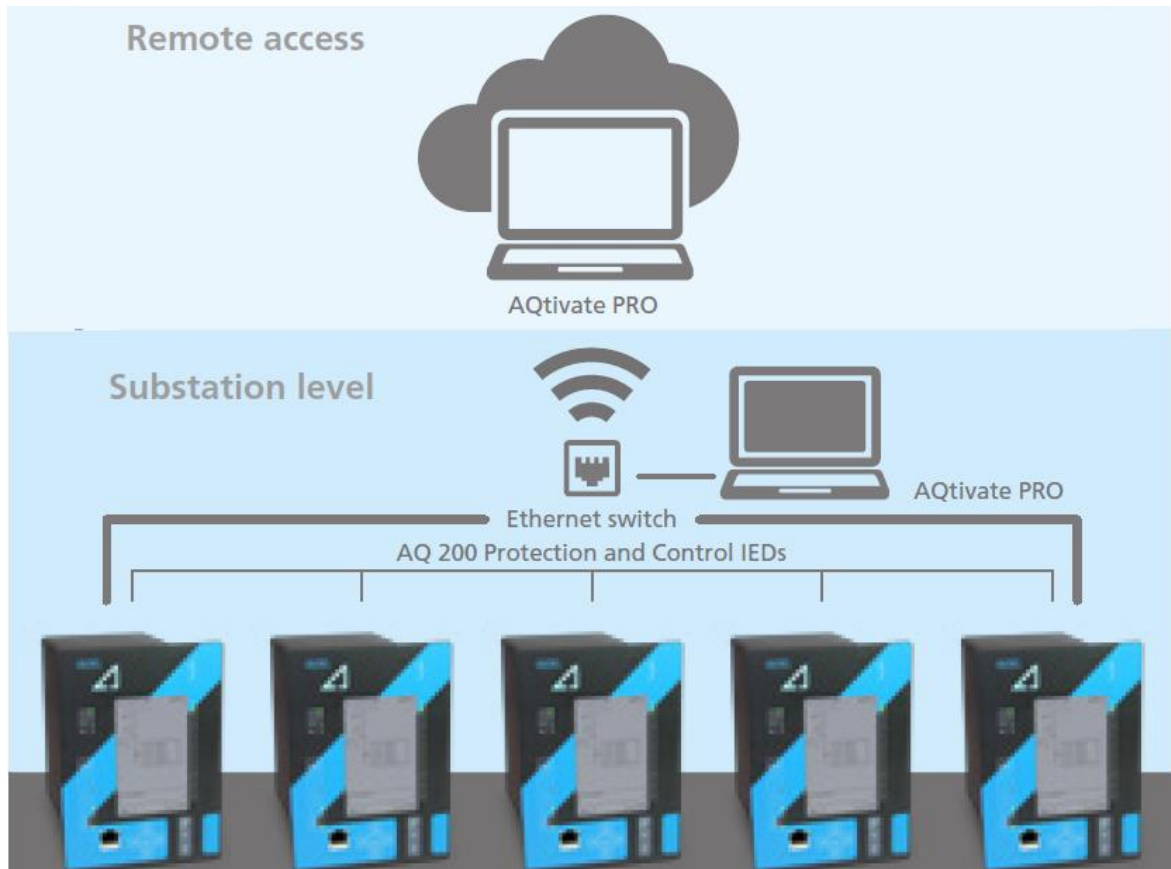

Figure 1: AQtivate Pro – system configuration principle

2   SOFTWARE LICENSE AND FUNCTIONALITY PACKAGES

AQtivate Pro functionality depends on acquired license level. The Table 1 describes the functionality of each software module. For pricing contact your nearest Arcteq representative.

| Feature\ Module	Engineering	Monitoring	Control	Full
Automatic IED recognition over Ethernet	✓	✓	✓	✓
AQtivate 200 remote access	✓	✓	✓	✓
Drag and drop of IED setting and CID files	✓	✓	✓	✓
Automatic disturbance recorder download	✓	✓	✓	✓
Substation event and alarm lists		✓	✓	✓
Substation online measurement		✓	✓	✓
Measurement trend displays		✓	✓	✓
Switching device status monitoring		✓	✓	✓
Switching device remote control			✓	✓

Table 1: AQtivate Pro licensing schedules

3 GETTING STARTED

To communicate with the device and to download/upload configurations free Ethernet port in the PC is needed and standard RJ-45 cable. Make sure that your firewall program allows AQtivate Pro to connect and freely use Ethernet ports of the PC.
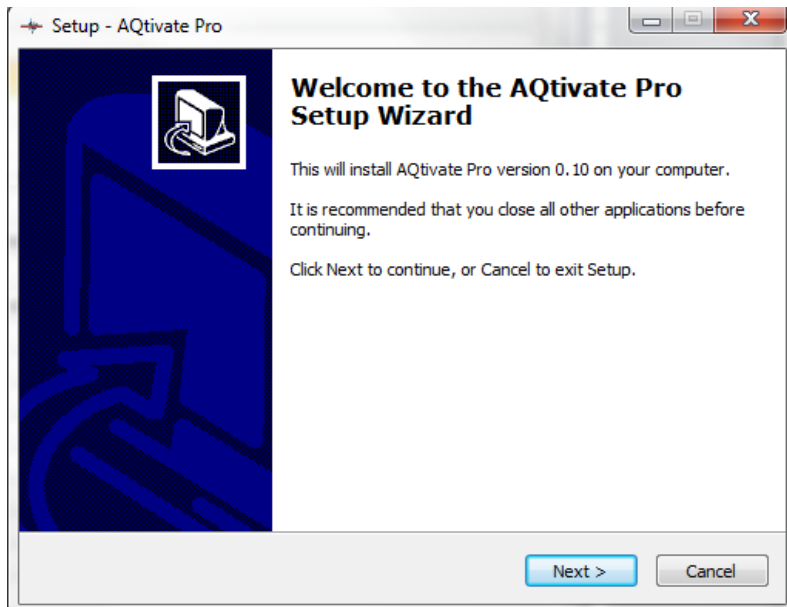
3.1 INSTALLING AQTIVATE PRO SOFTWARE

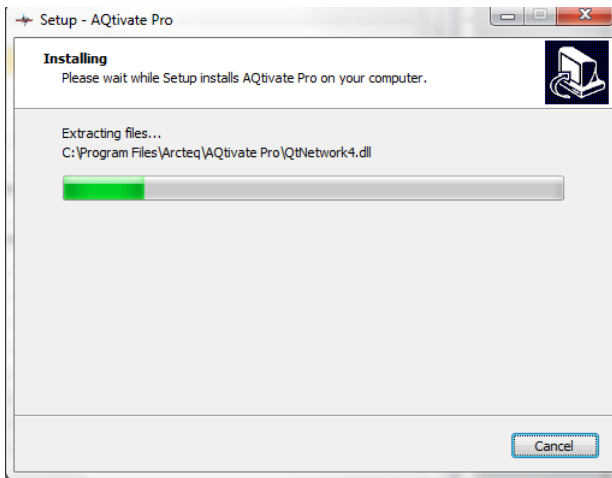First launch the "AQtivate PRO Installer".
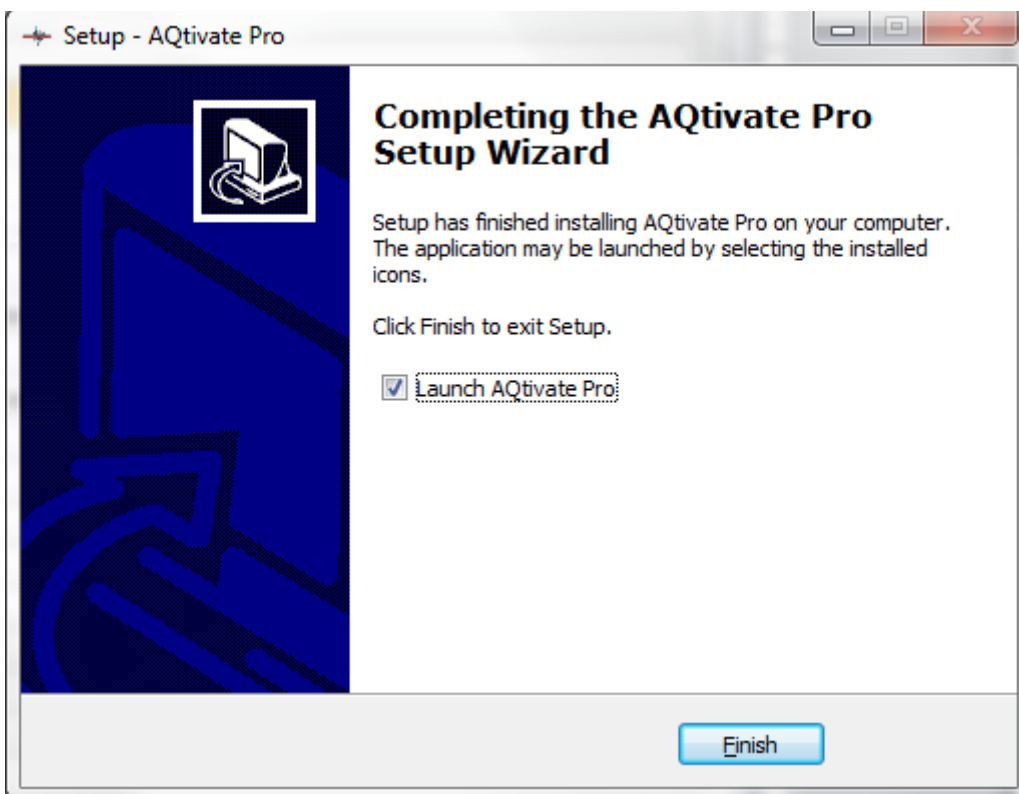
You can first select your language:
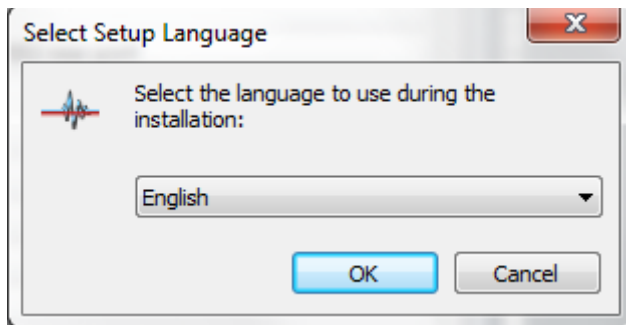
And then follow step by step (wizard) instructions for installing the software.

Then select location for installing the program and click install and following screen will appear:


When program is successfully installed the following screen will appear:

Note that your firewall software may detect AQtivate Pro and you need to select option "allow connection" or manually set AQtivate Pro to list of allowed programs.
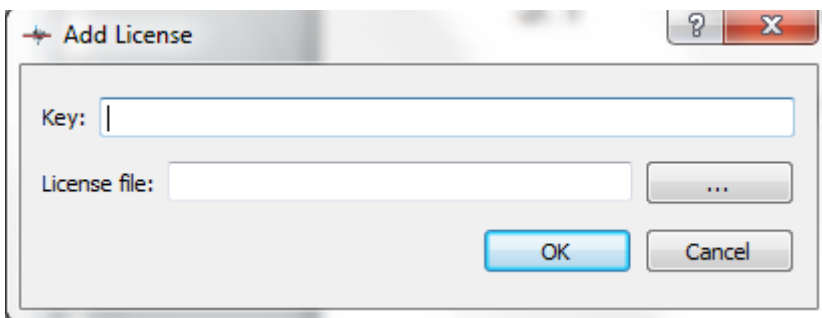
4 LICENSE

To use AQtivate Pro, a license must be acquired. A license key and a license file are given with the software. When AQtivate Pro is launched, it will ask for a license.
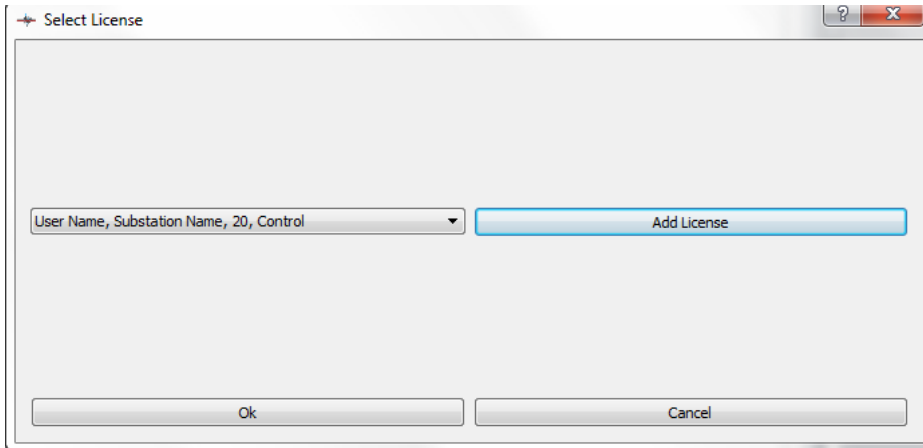
Activated licenses can be seen in the drop-down menu. To add a new license, click the "**Add License**"-button. When there is a license activated, select the one you want to use and press the "**Ok**"-button.
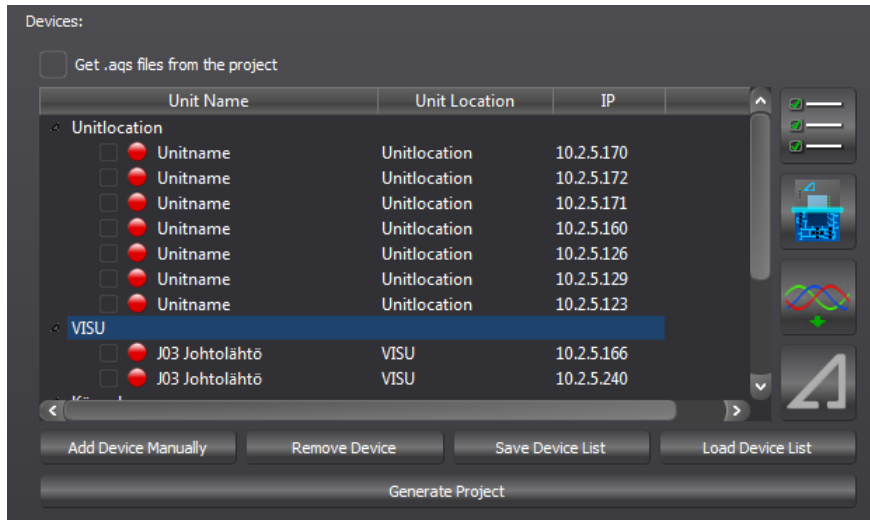
4.1 ADDING NEW LICENSE

When "**Add License**"-button is pressed, it will prompt the user with a dialog. Copy the **key** provided to you in the "**Key**"-field.

Click the "**...**"-button and select the license file provided with the key. If the license key and license file match, it will take you back to the "**Select License**"-dialog with the new license added to the drop-down menu.

5 DEVICE LIST

Device list is a part of the window which contains a list of devices. Here you can connect to devices, open their .aqs files in AQtivate, and get their disturbance records.

5.1 BUTTONS

	Check/uncheck all	Marks all devices as either checked or unchecked.
	Scan devices	Establishes connection to the checked devices.
	Get disturbance records	Gets disturbance records from checked devices.
	Open in AQtivate 200	Opens the .aqs file of the selected device (*not checked devices, just the selected one*) in AQtivate.

5.2 CONNECTING TO DEVICES

To connect to some devices, you can mark the devices you want to connect to as selected by either clicking on a check box on the left side of the device name, or by double-clicking the item. Selected devices will be marked by a green check-sign. After the
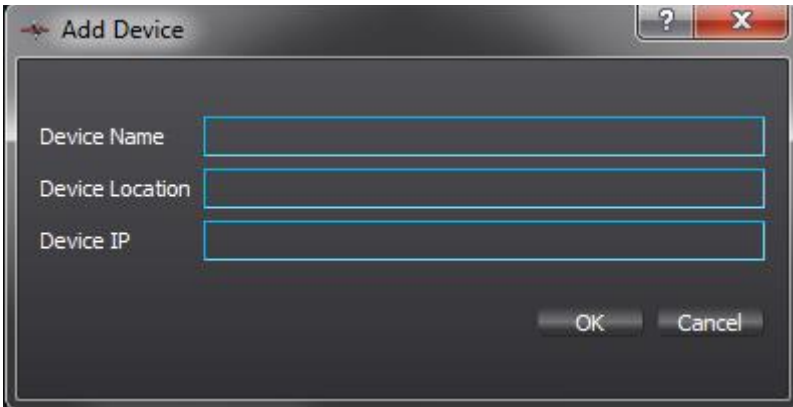
devices have been selected, connecting to them will happen by clicking the "**Scan devices**"-button.

5.2.1 USING .AQS FILES CONTAINED IN A PROJECT

Connecting to devices can take some time. This is because AQtivate Pro must download .aqs files from the devices. To speed up the process, AQtivate Pro can use the .aqs files contained in a project. To do this, check the "**Get .aqs files from the project**"-checkbox. For more information about how projects work, check the **"Projects"** part of the manual.

5.3   ADDING DEVICES MANUALLY

Sometimes some devices cannot be found in the device list. This can be for many different reasons. For example some firewalls inside the network, router setup, UDP port being taken. In this case devices can be added manually. Clicking the "**Add Device Manually**"-button will prompt the user with a dialog. This dialog will ask for the device name, device location and the device IP-address from the user.

When "**OK**"-button is clicked, the device will appear in the device list.

To remove a device from the device list, select a device from the device list and click the "**Remove Device**"-button.

Device list can be saved to a file. Clicking the "**Save Device List**"-button will ask the user for the file name to save the device list. Saved device list can be opened by clicking the "**Load Device List**"-button.

5.4 GENERATE PROJECT

The user can generate a project from the connected devices. A connection to relays must be established first, so that .aqs files can be added to the project. Then once the connections have been established, and the .aqs files have been downloaded, the project can be generated by clicking the "**Generate Project**"-button. The project will appear inside the **Project** view. More about projects can be found in the "**Projects**" part of the manual.

6   EVENTS AND ALARMS

On the right side of the main view there are two tables, the events table and the alarms table. In the events table you can see all the events generated by the relay. In the alarms table you can see all the alarm events generated by the relay. To know how set which events should be alarm events, please refer to the AQtivate 200 manual.

Events:

:vice Nan	Seq Idx	Ecode	Description	Time
TestUnit	43108	1280	NOC1: Start ON	29/09/2014 13:51:07.152
TestUnit	43107	643	DIGI: DI 2 Off	29/09/2014 13:50:20.703
TestUnit	43106	4105	DR1: Storing recording Off	29/09/2014 13:50:13.209
TestUnit	43105	4104	DR1: Storing recording On	29/09/2014 13:50:13.013
TestUnit	43104	4097	DR1: Recorder triggered Off	29/09/2014 13:50:13.011
TestUnit	43103	4096	DR1: Recorder triggered On	29/09/2014 13:50:12.505
TestUnit	43102	640	DIGI: DI 1 On	29/09/2014 13:50:02.594
TestUnit	43101	30	SYSTEM: Event buffer clear marker	29/09/2014 13:49:58.823

Alarms:

:vice Nan	Seq Idx	Ecode	Description	Time
TestUnit	43108	1280	NOC1: Start ON	29/09/2014 13:51:07.152

7 DISTURBANCE RECORDS

In the disturbance records view, the user can set the storage location of the disturbance records that are retrieved from the relays. To change the storage location, press the "**…**"-button. The stored records can be opened in the AQviewer by clicking the "**AQviewer**"-button. Select the disturbance record file from the list which you want to open, and press the "**AQviewer**"-button. The disturbance records can be retrieved manually by pressing the "**Get disturbance records**"-button inside the device list view. If the "**auto get recordings**" is enabled in the relay, the **AQtivate pro** will check and download the disturbance records automatically.
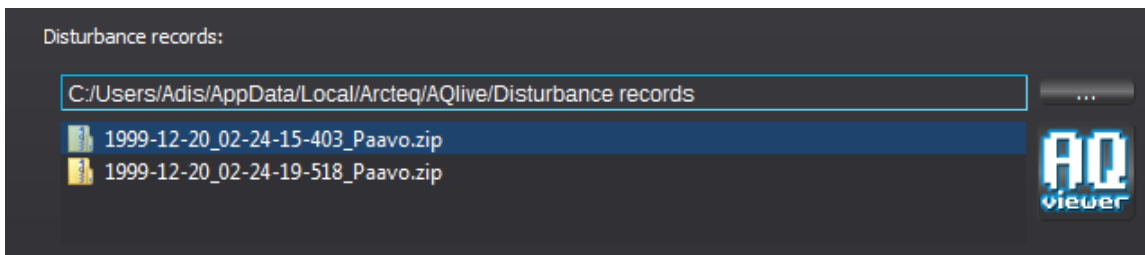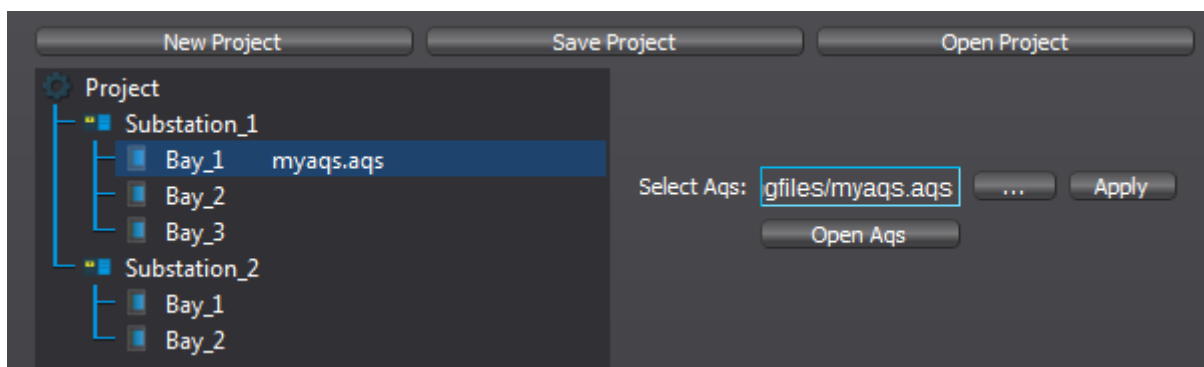
8   PROJECTS

Inside the projects view, the user can manage projects. To toggle the projects view, press the grey tree-button at the top-right corner.


To create a new project, press the "**New Project**"-button. To add a substation to the project, right-click the project and select "**Add Substation**" from the context menu. To add a bay to a substation, right-click the substation and select "**Add Bay**" from the context menu. To remove an item (*project, substation or bay*), right-click the item and select "**Remove**" from the context menu. Items can be renamed by double-clicking them.
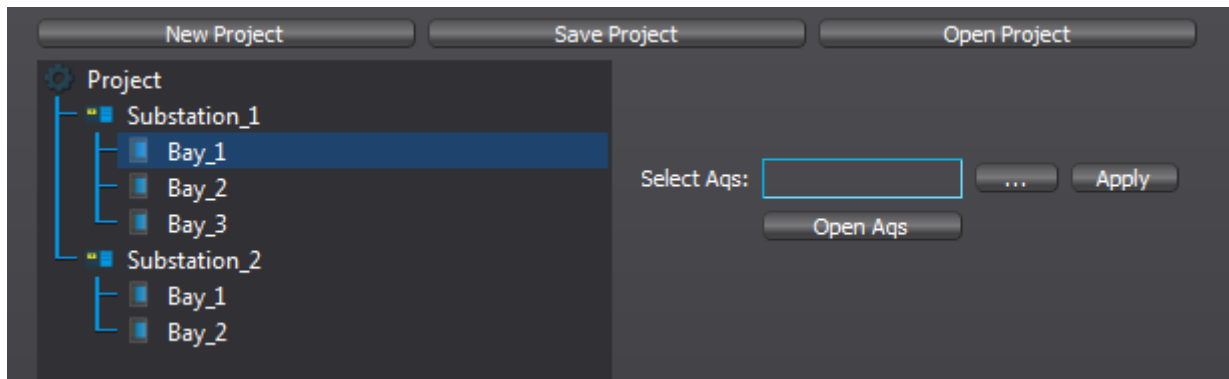
Aqs-files can be assigned to the bays. To do this, select a bay and press the "**…**"-button to browse for an .aqs-file and press the "**Apply**"-button to apply the .aqs file to the bay. The name of the .aqs-file appear next to the name of the bay.

You can also assign a device to a bay. To do this, drag a device from the **device list** and drop it on the bay. An IP-address will appear on the same row.
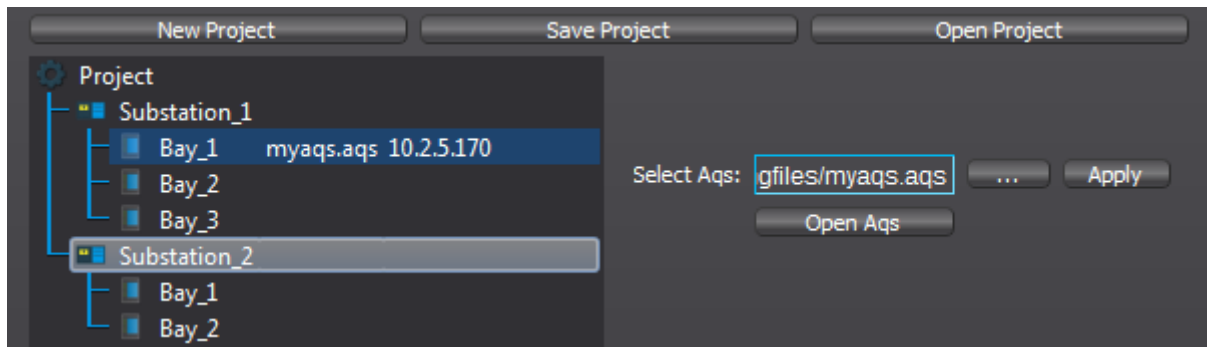

8.1   SAVE PROJECT

To save a project file, press the "**Save Project**"-button. After selecting the file name, the program will ask the user if he wants to save the mimic positions inside the project. This is so the user can store all the needed data inside the project file. If the mimic positions are saved, opening the project will cause the mimics to be arranged automatically.

8.2   OPEN PROJECT

To open a project, press the "**Open Project**"-button. If the project contains any devices assigned to the bays, it will ask the user if he wants to connect to these devices. It will also use the .aqs files from inside the project, if the user chooses to connect to the devices found inside the project. If the project contains mimic position data, AQtivate will arrange the mimics according to that data.

8.3   WRITING SETTINGS-FILE TO A DEVICE

To write an .aqs-file to a relay, assign an .aqs file to a bay. Then drag this bay and drop it on a device inside the **device list**. If all goes well a dialog will appear upon completion saying "**Write settings complete**".
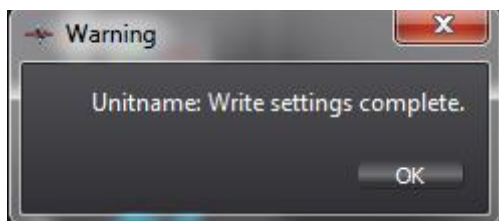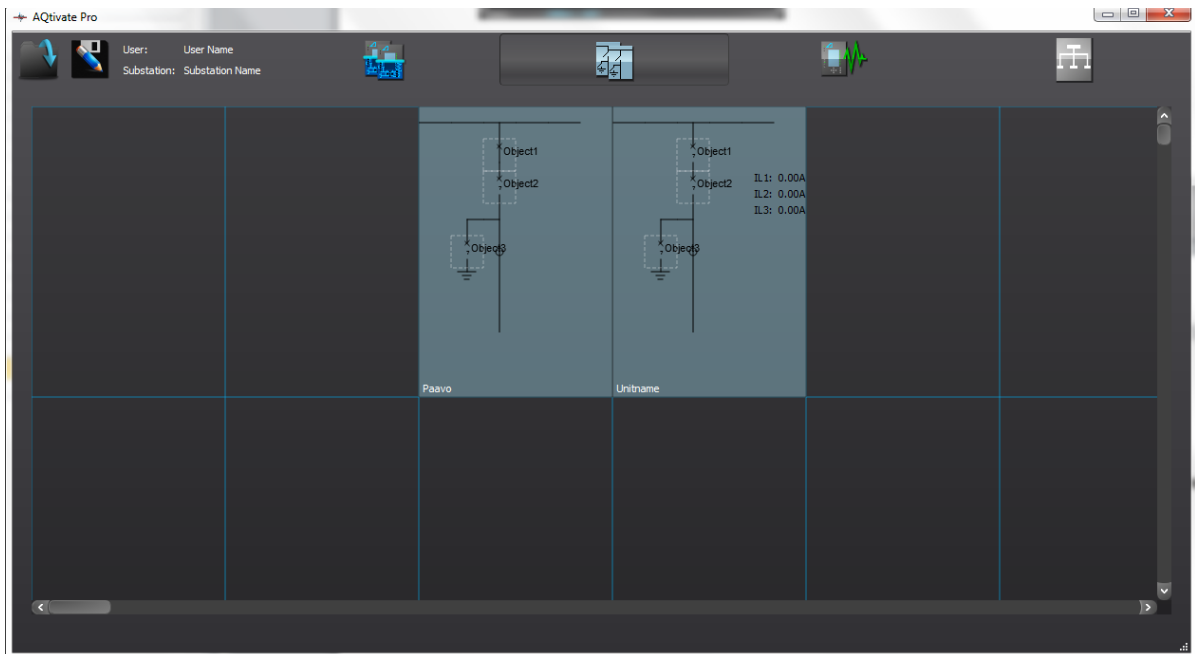
9   MIMIC VIEW

Mimic view is a view that contains all the mimics of the connected devices. To show the mimic, press the mimic-button located on the top of the window.


The mimics can be dragged and dropped to arrange them. Each object inside a mimic is surrounded by a white rectangle. Clicking inside this rectangle will cause the object operations dialog to pop-up.

9.1   CONTROLLING OBJECTS

Each object is surrounded by a white rectangle. To control an object, click inside this rectangle. Object operations dialog will pop-up. The selected object will also start blinking. Select the operation to perform by clicking the "I/0"-buttons. To perform the selected operation, press the green triangular button (*play-button*). To cancel, press the red "X"-button.
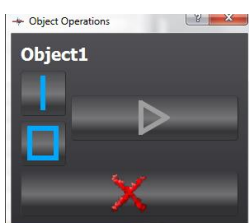
9.2   SAVE MIMIC POSITIONS

To save the arranged mimic locations, press the save-button located on the top-left corner of the window. The mimic positions can also be saved inside a project. For more information about this refer to the "**Projects**" part of the manual.

9.3   LOAD MIMIC POSITIONS

To load previously saved mimic positions, press the open-button on the top-left corner of the window.

10 MEASUREMENT VIEW

In the measurement view, the recorded measurements of the relays are shown in a graph. To show this view, press the graph-button. The measurements are updated once in a minute.

The specific device's measurements can be hidden and shown by toggling the checkboxes from the top-list. To hide/show the specific measurement of a specific device, select the device from the top-list and toggle the checkbox of the desired measurement in the bottom-list.

Specific plot can be selected by either clicking the plot inside the graph, or by clicking its name in the graph legend.

11 REFERENCE INFORMATION

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