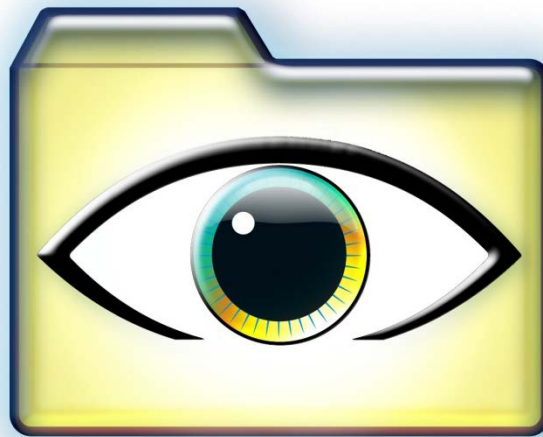


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**Monitor & Configuration Software  
Type ABS AquaProg™ 6**

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81300037E

**EN**

**User Guide**

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# 1 GENERAL ABOUT AQUAPROG

## 1.1 INTRODUCTION

### 1.1.1 AquaProg

### 1.1.2 HARDWARE

No real special demands!  
 A general purpose PC is enough.  
 A RS 232 adapter is in most cases needed!

### 1.1.3 SOFTWARE

AquaProg is a Windows based program specially made for setting of substations.

#### **AquaProg can be used for:**

- Configure substations
- Check and acknowledge alarms
- Check events
- Collect log data
- Show the main status of the station
- Show the status of the in- and outputs of the controller / panel
- Collect and send the configuration data of the substation
- Substation software upgrade
- Online trend indication

The main purpose to use AquaProg is that it is a simple way of configuring and backing up configurations of the various Sulzer controllers and Sulzer control panels.

### 1.1.4 SUPPORTED SULZER PRODUCTS

Following Sulzer units can be used in combination with AquaProg:

- CP 112 / 212	- CP 116 / 216
- PC 242	- PC 441
- PCx	-

### 1.1.5 SUPPORTED OLDER UNITS

Following pruned Sulzer units can also be used in combination with the AquaProg:

- PC 4	- PC 241
- DL 44 / EL 44	- UCE / UP 20
- CPU 30 (PCx)	- LPP / LSP 4000
- PH 4000 / 4100	- LF / LPF 4100
- SDM 200	-

AquaProg only handles one substation at the time.  
 The substation can be called via a modem or connected via a fixed line directly to a serial port.  
 Several AquaProg can be started and connected to different substations.  
 Several AquaProg can also be connected to the same substation, which in some cases can make it easier to read the values from the substation.

AquaProg can be used together with the Alarm system type ABS AQUAVISION.  
AquaProg and AQUAVISION use the same communication software, REPLINE that is installed by both systems.  
This means that AquaProg and AQUAVISION  
Can be connected to the same substation simultaneously

## 1.2 *HARDWARE*

AquaProg can be run on any standard Windows based computer

## 1.3 *SOFTWARE*

The software needed to run AquaProg is:  
Windows XP or later.  
AquaProg

We recommend that the software MS EXCEL is added.

(However not needed for standard configuration)

## 2 INSTALLATION OF AQUAPROG

### 2.1 GENERAL

The modems which are to be used with AquaProg are installed in the normal way via Windows . Before the installation is started all programs must be closed.

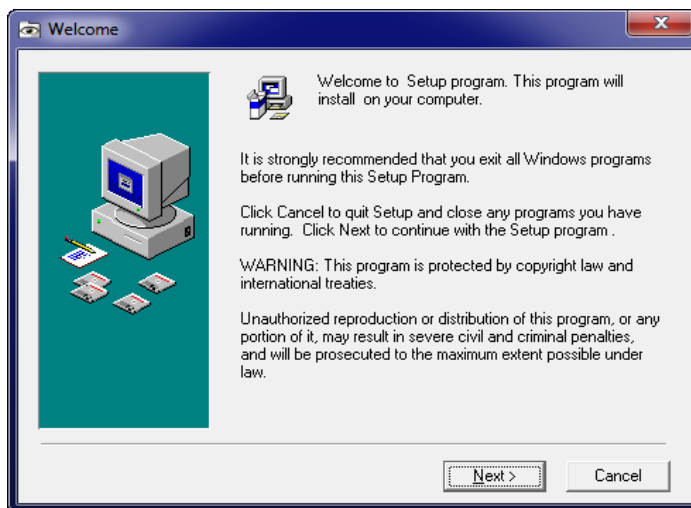
This is very important if AQUAVISION already is installed in the computer.

The delivery of AquaProg includes a license agreement with User- and Company name and Product ID.

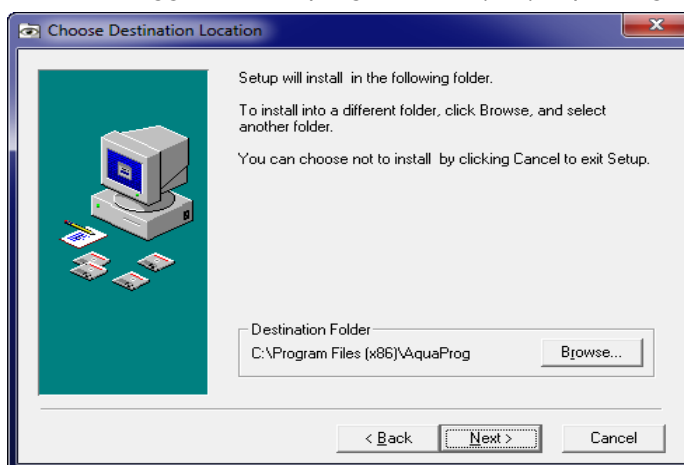
These are needed for the installation.

### 2.2 INSTALLATION OF AQUAPROG

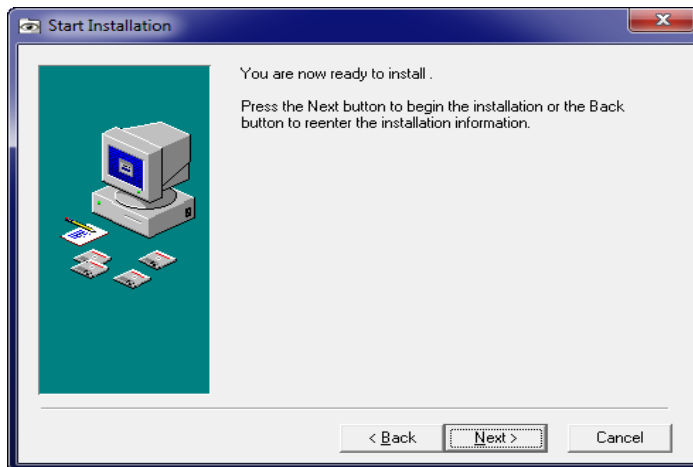
1. Place the CD-disc in the CD-ROM unit.
2. Start Explorer and Click on the AquaProg setup file
3. The installation program for AquaProg is started. To continue click **NEXT**.



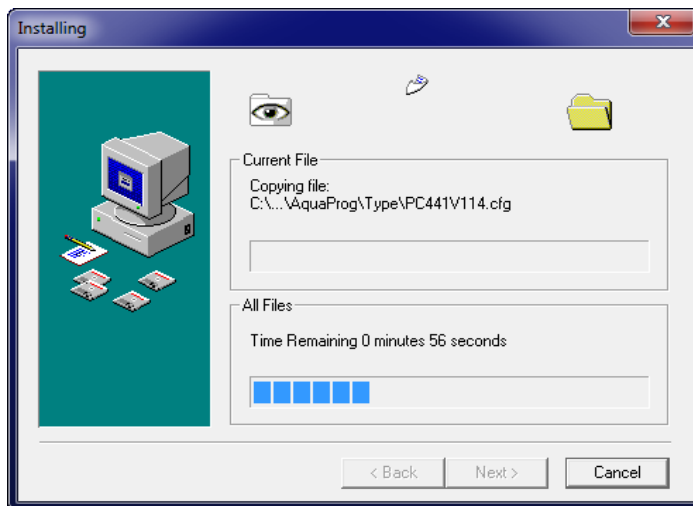
4. The installation program suggests the catalogue where AquaProg should be installed. The basic suggestion "C:\program Files (x86)\AquaProg" is recommended. Press "Next"



5. You are now ready to install! Press “Next”



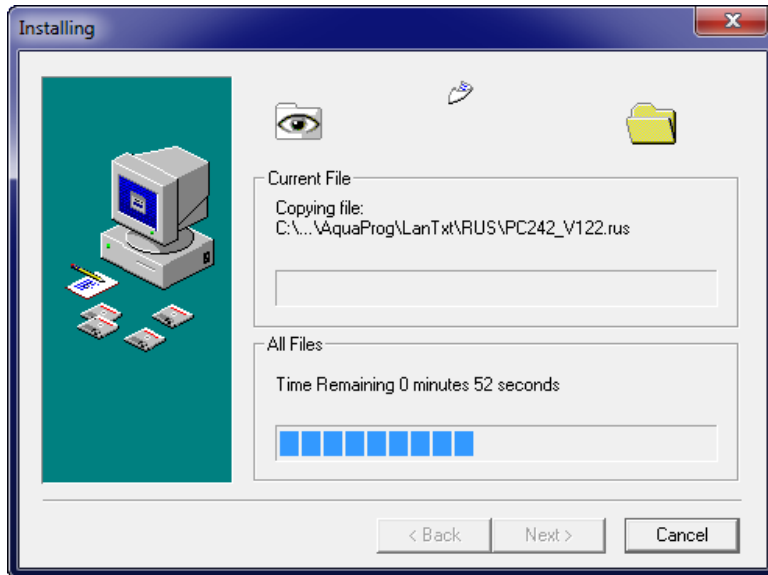
6. The installation begins!



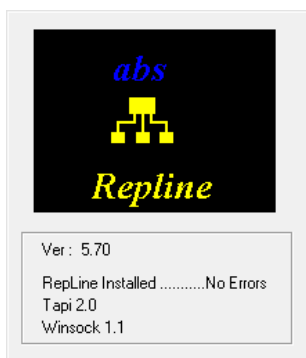
7. Choose language and click OK.



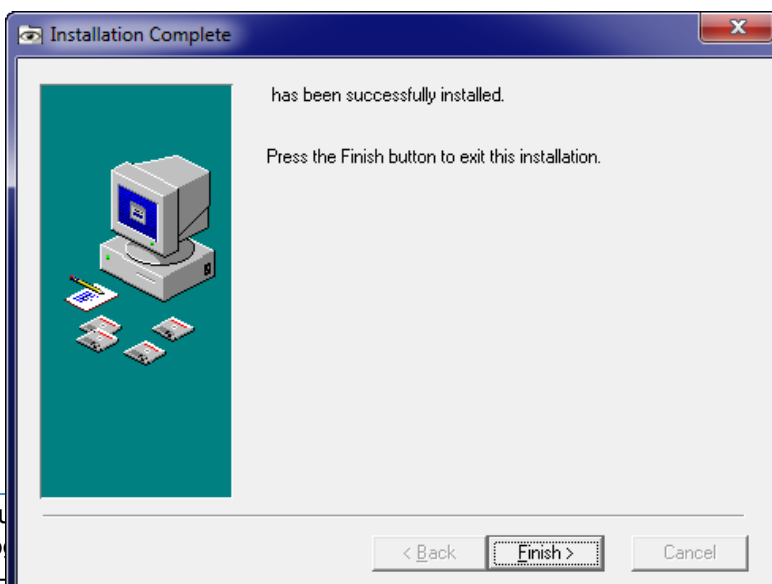
8. All files are now copied from the source to the computer.



9. AquaProg uses a special communication program for the communication with the substations. This is now started and will register itself in Windows.



10. The installation is finished, end with finish.





Sometimes the question if Windows should be restarted will show up before the new settings will be valid. In this case restart the computer.

### 3 START AQUAPROG FOR THE FIRST TIME

When AquaProg is started for the first time following settings must be done:

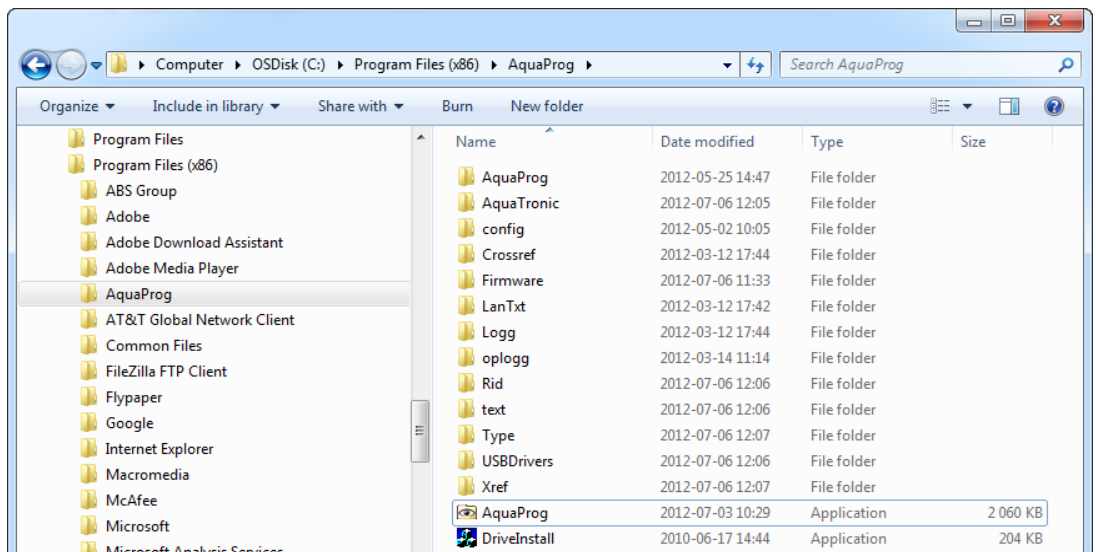
1. Register the user.
2. Settings of communication parameters.
3. Select a password.

#### Start AquaProg

Start by double clicking on the AquaProg icon.

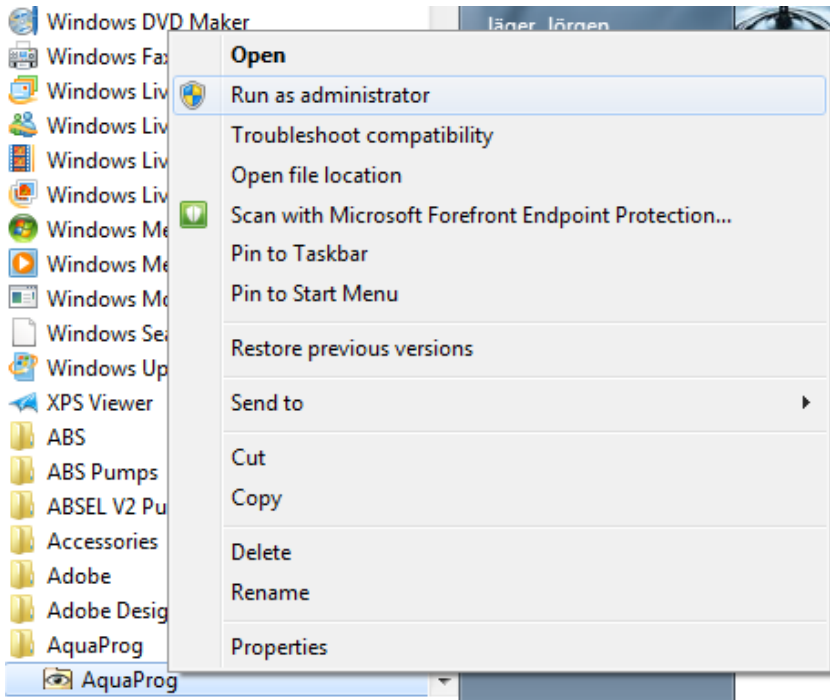


Or via Explorer:



#### Note!

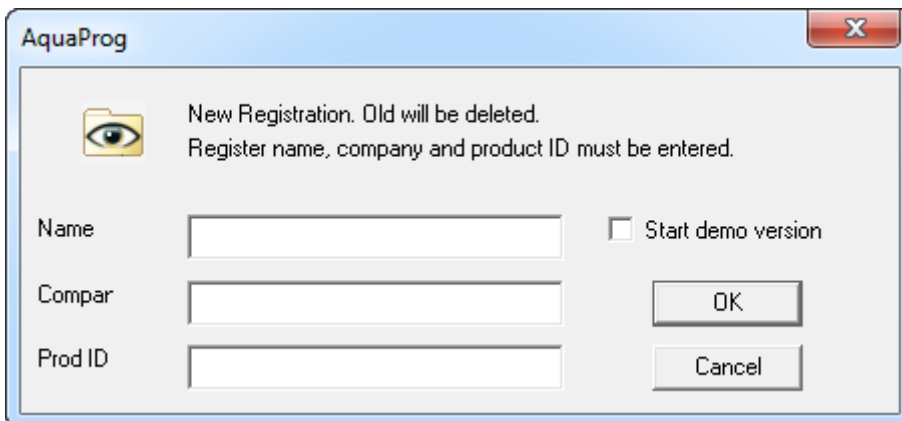
For Windows 7 and 8 please start up the first session as an administrator to avoid possible problems with authorization rights!



### 3.1 REGISTER THE USER

The first time AquaProg is used the program demands that the user is registered.

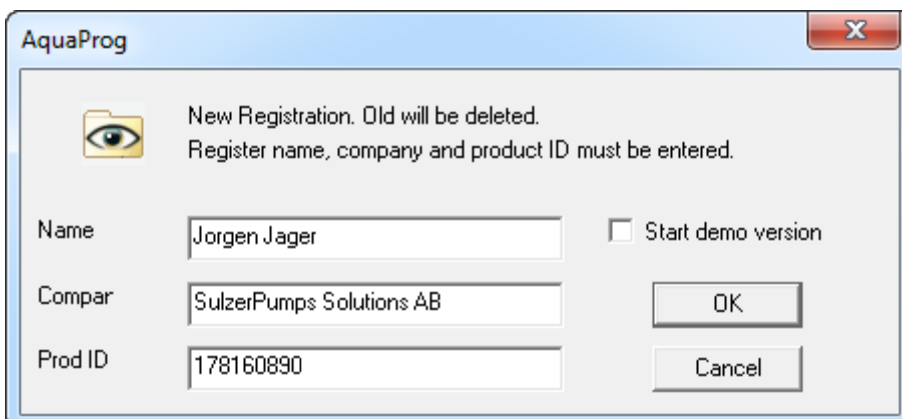
Following picture is shown.



The registration box will either read:  
This is the first time AquaProg is run on this computer.  
Register name, company and product ID must be entered.

OR as to the left!

Look at the license agreement (part of AquaProg delivery) and fill in name , company and Prod-ID (available in the agreement ).



Click OK.

You are registered as user of the AquaProg.

There is also a possibility to start a demo version of AquaProg by marking the box “Start demo version”.

The demo version has a time limit of 15 min after connection.

After this time the line is automatically shut down.

Collection and sending the configuration to/from the substations is also blocked in the demo version.

When this is ready AquaProg is started and ready for use.

## 3.2 COMMUNICATION SETTINGS

AquaProg uses the following methods of communication with the substations:

- Direct connection (serial RS 232 or USB)
- Dial-up connection (modem)
- GSM and GPRS
- TCP/IP and UDP/IP (Network) for the communication with the substations.

At direct communication the substation is connected directly to anyone of the serial ports of the computer COM1 – COM32 or any of the computers USB ports.

At called connection the connected modem is used to call the substation via the telephone line. The modem used shall be installed according to Windows standard procedure.

At TCP/IP, UDP/IP or GPRS the computer's internal Ethernet card or Wifi is used.

In the AquaProg there is a choice between 3 different parameter settings (modem, baud rate etc.) for connection to a specific substation.

1. Standard settings.  
Parameters for communication are collected from a common source which is the same for all substations which are set to use the standard settings.  
This is used only if a modem, which is used to call all substations, is connected to the computer.
2. Individual settings.  
All substations have their own parameters for making the connection.  
The parameters are set when a new substation is created by the operator.  
This type is used if several modems are connected to the computer and allows starting several AquaProg which communicate with different substations simultaneously.  
A substation can also be connected via serial port while a modem is used for communication with the other substations.
3. Substation connected to AQUAVISION.  
If AquaProg is used together with the alarm system AQUAVISION the parameters for connection are collected from the AquaVision system. This allows that AquaVision and AquaProg can communicate with the same substation simultaneously.

Connection /Disconnection of substations to / from AquaVision are set when a new substation is created or when a present substation is opened.

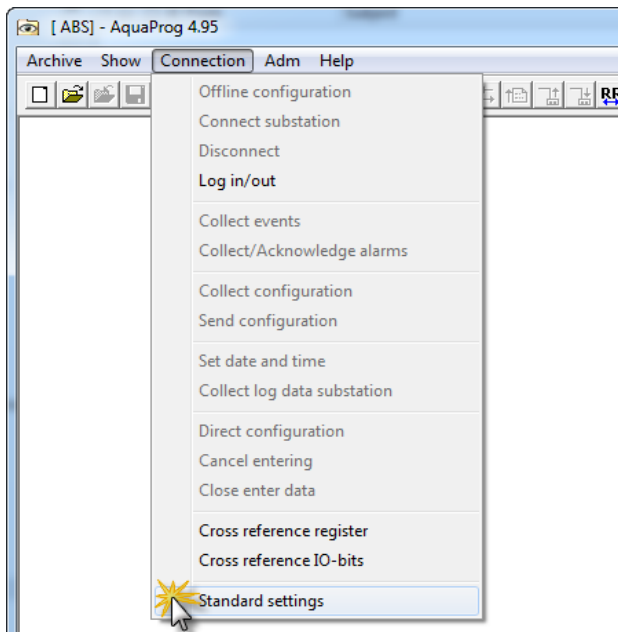
If AquaVision and AquaProg are used on the same computer all substations should be connected to the AquaVision system, more about this later.

Always start by setting what standard settings should be valid for communication with the substations. This is best done the first time AquaProg is started.

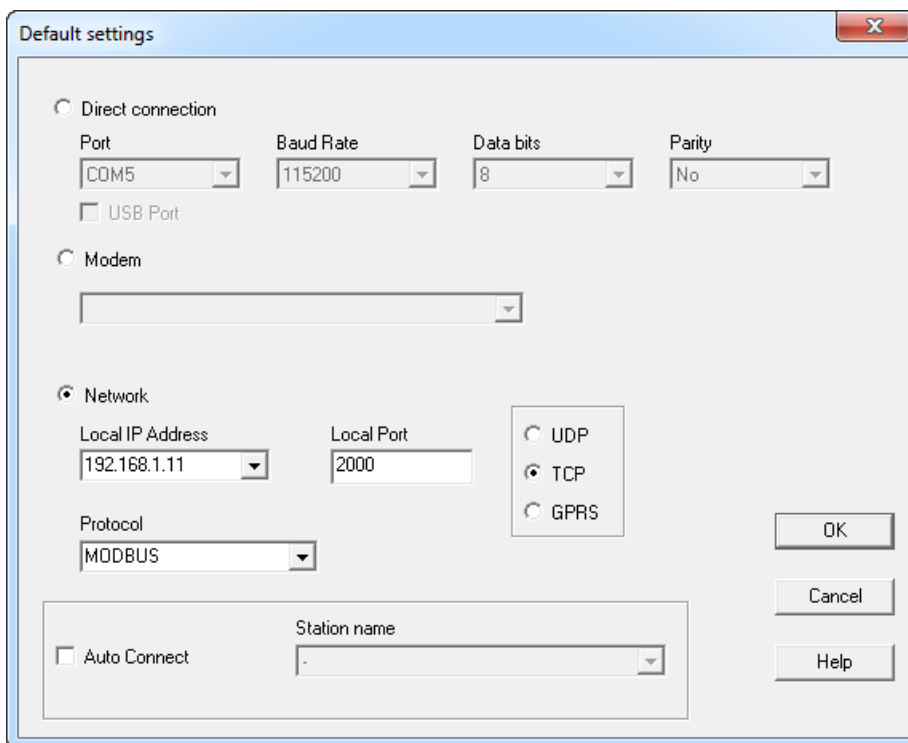
Setting of the other types of parameter settings (individual etc..) is not described in this chapter. see chapter 4, create/open a substation.

The following pages describes how the standard settings of communication parameters are done in the AquaProg .

Choose connection in the menu field and standard settings.



The window shows following:



First choose between direct connection (serial port), modem or network connection.

When direct connection set comport, baud rate, number of data bits and parity.

These parameters must be the same as is the substation to be connected.

To use the USB connection tic the USB port box. To be used with ABS / Sulzer controllers fitted with an USB port. (PC 441).

Port, Speed etc. is not relevant when using USB.

**Note!** If a USB to RS 232 converter is used, shall the tic box USB NOT be filled in!!!

In this case shall the corresponding Com Port number shall be set that Windows has given the unit when connected! The number given by Windows can be checked in the control panel!

When modem connection only the modem type has to be chosen, the menu gives a list of all modem types that are installed in the computer.

Chosen settings will be valid for all substations which are set to use standard for connection

When network connection is used, a selection is made for the desired protocol, TCP or UDP. TCP is a connected protocol with build-in handling of failures (retransmission at failure etc.). UDP is not a connected protocol and has no build-in handling of failures. Since the network protocol only is a carrier for the application protocol, Comli/Modbus etc., is UDP the preferred network protocol. The application protocols have their own handling of failures which means that TCP only gives a unnecessary overhead.

However, there is a drawback with the UDP protocol.

When more UDP connections is connected at the same time, each UDP connection have to have a unique local port address.

With TCP, all connections can use the same local port address.

Use TCP if more substations should be connected simultaneously via the network.

As an alternative, choose "Individual setting" for the substation (see chapter 4) and set a unique local port address for each substation.

In practice is the selection of protocol to be used controlled by type of controller and type of modem connected to it.

Thereafter a local IP-address and port is chosen. AquaProg fetches the computers IP-address from Windows, which shall be set in "Network settings" in Windows.

AquaProg supports several network cards in the computer. There is usually only one alternative to select.

Dynamic allocation of IP-addresses cannot be used with AquaProg.

"Local port" is the port where AquaProg receives incoming messages from the substation.

Port number can be set between 0 - 65535.

Port numbers below 1000 should not be used since some of these are reserved by Windows.

An exception is Modbus TCP where port number 502 normally is used.

Take into consideration that there may be firewalls etc. which blocks some port numbers and IP-addresses. Contact the network administrator for advice.

Finally choose which application protocol to use, Comli, Modbus etc.

Note! If Modbus is selected as an application protocol for network connection type TCP is the protocol Modbus TCP used as protocol!

For the other connection alternatives is Modbus RTU used!

The settings made here will be valid for all substations which are set to use default settings for connection.

It is also possible to select a station for automatic connection.

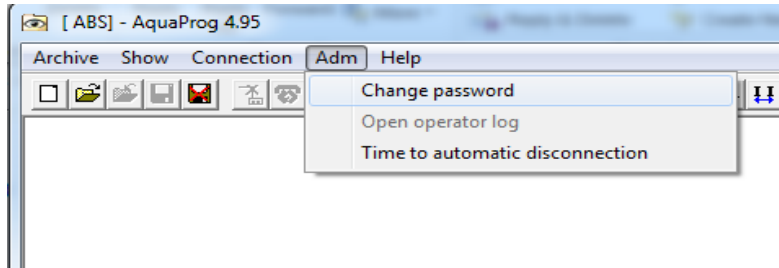
Every time when AquaProg is started will the given station be connected automatically.

Can be a useful function when to work with a certain station for a longer time period.

Just fill in the tic box "Auto Connect" and select a station!

## CHOICE OF PASSWORD

All changes, which are made in a connected substation, are protected via a password in the AquaProg. Without the correct password nothing can be changed in a connected substation. The first time the AquaProg is started the password is missing. Here follows a description of how the password is set. Chose " Change pass word" in the menu "Adm".

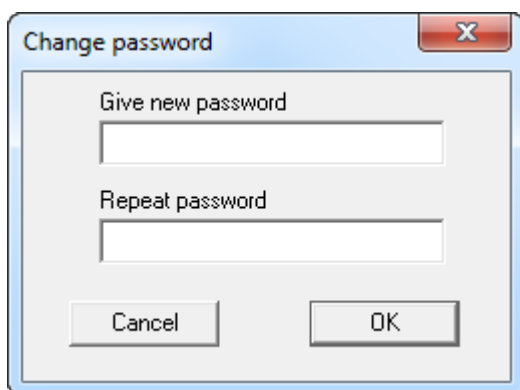


Following picture is shown:



The valid password has to be set if the password shall be changed. As no password has been set this password field is left empty. Click OK.

Following picture is shown:



Set wanted password and repeat this in the field below.

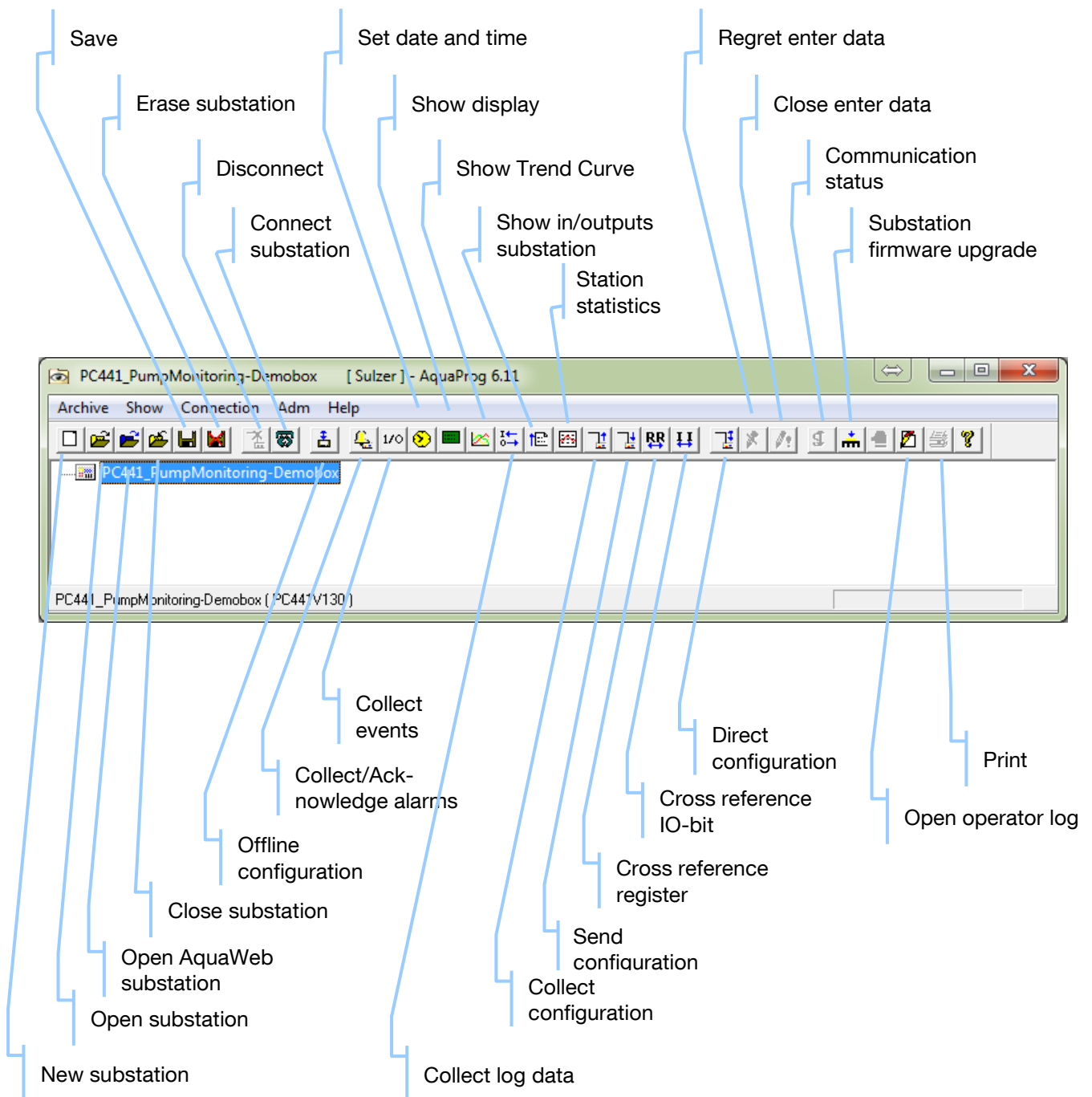
Click OK.

Do not forget to write down the password, without the correct password no changes can be made in a connected substation.

The password is selected and AquaProg will ask for this every time the first change is going to be made in a connected substation.

The operator can also log in/out manually via the menu "Connection " Log in /out.

## 4 FUNCTION OVERVIEW



## 5 CREATE/OPEN SUBSTATION.

In the AquaProg each substation has a unique station name. AquaProg uses the station name to keep control of the communication parameters, the configuration file, type etc.

The information is stored in two files station name.UCM and station name.CFG.

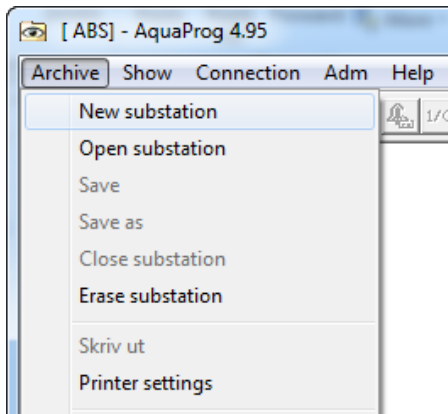
Before a substation can be connected to AquaProg it must be opened as new in the AquaProg.



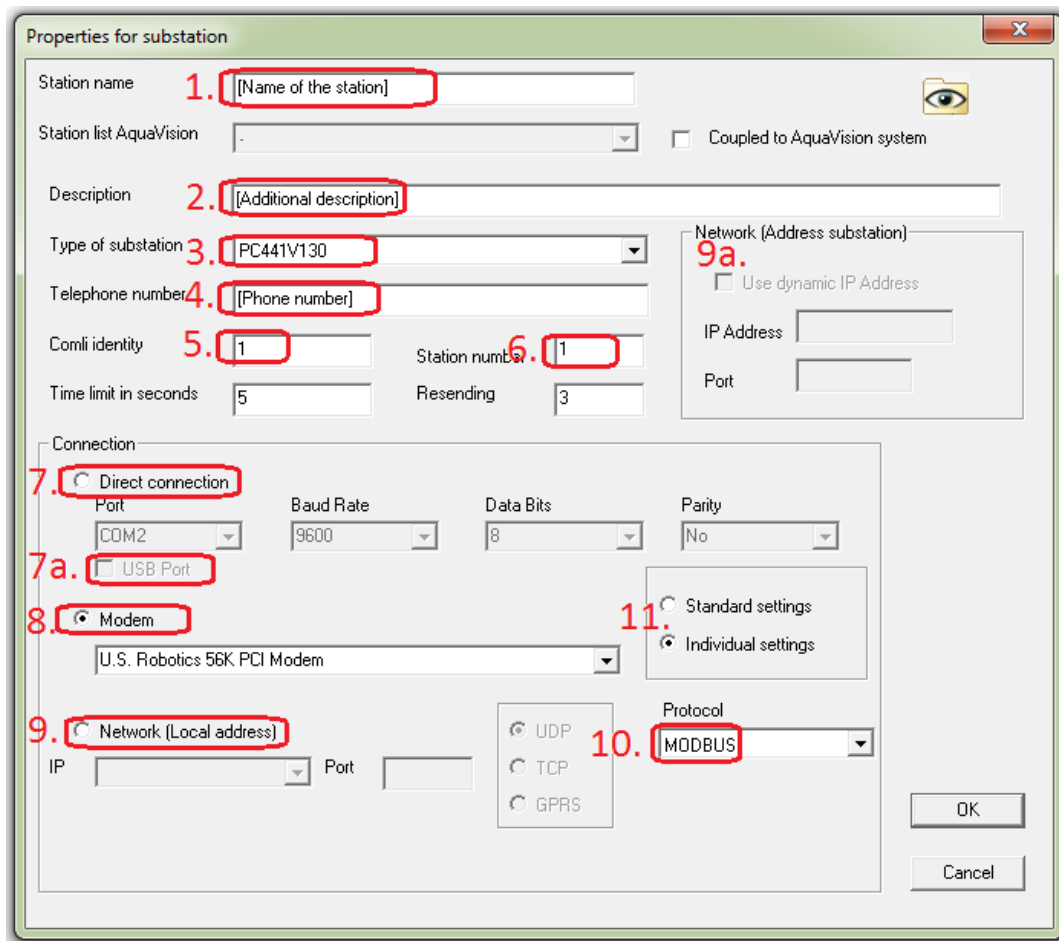
Here the stations name / type etc. is set by the operator.  
 This chapter shows how a new substation is created in AquaProg and how an existing substation is opened.

### 5.1 CREATE A NEW SUBSTATION

Chose "Archive" in the menu and field "New substation".



Following picture is shown:



Picture 5.1A: Communication settings –explanations on next page

Reference to picture 5.1A above; here shall all the information regarding the communication be set.  
Depending of type of communication

1.       **Name of the station** The configuration file will be stored in a file with same name
2.       **Additional description** Will not be a part of the file name
3.       **Type of station** Crucial parameter in all set up.
4.       If eight (8) is a land line or dial up modem; phone number to the substation here
5.       **Modbus / Comli ID** Crucial parameter in all set up; 1 is the most common. If communicate with a substation directly through the service port; the service port has always ID 1. If its wrong here the communications can't establish contact.
6.       **Station ID** If wrong here; Aquaprog gives a warning when connection is establish and then operate normal.
7.       **Direct connection** This is when you have a strait RS232 cable from your computer to the service port. Make sure that the communication parameters are the same in substation as in Aquaprog (Com. Port no, Baud rate, Data bits, Parity).
- 7a.      **USB Port** Direct communication with USB cable instead of RS232 (no consider the Baud rate etc.), only for PC 441.
8.       **Modem Communication** If you have a dial up or GSM modem installed on your computer; choose modem in the drop list.
9.       **Network** communication; your local IP-address on your computer –you will find it in the drop box.
- 9a.      The address to local LAN modem at site. Use port 2000 (has to be open through all the switches, routers and firewalls along the way)
10.      **Protocol** Comli / Modbus RTU / TCP. If it's wrong here the communications can't establish contact
11.      To be able to make any changes from the standard settings; click on **Individual setting**

Following is valid if the substation shall **NOT** be connected to ABS AQUAVISION.

1. Start by giving the substation a unique station name.  
In this case we chose the station name "South Central".

Properties for substation

Station name: South Central

Stationslista: -

Coupled to AquaVision system

2. Give short description of what the substation /pump station is used for.

Stationslista: South Central

Description: Main 4-pump station

Type of substation: PC441V122

Coupled to AquaVision system

3. Set type of substation, i.e. what product will communicate with the AquaProg.  
In this pump station there is as example a PCx with program version 1.10.

Description: Main 4-pump station

Type of substation:

- PC441V100
- PC441V104
- PC441V114
- PC441V114US
- PC441V120
- PC441V120US
- PC441V122
- PC441V122US
- PC4US
- PCxW11
- PCxW12
- PCxW124

Network (Address substation):

Use dynamic IP Address

IP Address: [ ]

Port: [ ]

Connection:

Direct connection

Port: COM5

Baud Rate: 115200

Data Bits: 8

Parity: No

4. Set telephone number to the substation alt. IP-Address and port.

Type of substation: PC441V122

Telephone number: [ ]

Comli identity: 1

Station number: 1

Time limit in seconds: 5

Resending: 3

Network (Address substation):

Use dynamic IP Address

IP Address: 192.168.0.27

Port: 1002

The telephone number must not be set if the substation is connected via a direct line (serial port) or network.

If a network connection is used, the substations IP-address and port number is entered. These shall correspond to the local address in the substation or network modem. The address is used as destination address when AquaProg shall send a message to a substation.

- Next step is to set a number of parameters, which are used, for the communication with the substation.

**Comli identity:** is an address, which is used by the Comli protocol. The address is set in the substation.

The substation only answers messages which have the same address as set. Normally the Comli identity is set =1, but if several substations are connected to the same line (multidrop) and have the same telephone number these will have no 2, 3 and so on.

This means that it is necessary to know which Comli identity is set in the substation.

**Station number (ID):** This number must be unique (a must if AQUAVISION is used). The number is used to identify the substations to allow for example to connect incoming alarms to the correct station.

**Time limit in seconds:** The max time for a message sent to the substation until answer is received. At time out the AquaProg repeats the message (tries again). Normally the time is set to 3-5 sec but has sometimes to be longer, for example when using radio communication.

**Resending's:** Number of attempts which are made at time out according to above or if a wrong answer is received from the substation. When max number of resending's are reached the normal operation is closed and an error message sent and shown on the screen. The parameter is normally set to three attempts, more attempts may be needed when for example the telephone lines are bad.

Here the normal settings are shown:

Comli identity	<input type="text" value="1"/>	Station number	<input type="text" value="1"/>	IP Address	<input type="text" value="192.168.0.28"/>
Time limit in seconds	<input type="text" value="5"/>	Resending	<input type="text" value="3"/>	Port	<input type="text" value="1002"/>

- Choice between standard settings or individual settings for the communication parameters  
When standard settings the parameters as in chapter 3.2 are used.  
Here it is possible to give the substation its own communication parameters, which can be of advantage if the station is connected via direct line, or several modems are used.

For other information about settings see chapter 3.2

Click OK, a new substation is created in AquaProg.

Here it is possible to save the substation directly (Menu Archive, select Save).

AquaProg will always ask if the substation is to be saved when the station or AquaProg is closed.

This information will be stored in the description file of the station (Station name.UCM).

Following is valid if the substation is connected to AQUAVISION.

If AQUAVISION is used on the same computer as AquaProg all substations should be connected to the AQUAVISION system.

AquaProg and AQUAVISION will in this case use the same communication parameters for each substation. This means that both can communicate with the substation simultaneously.

Another important point is how AquaProg stores the configuration from a substation.

When AQUAVISION is used each substation has a unique station number.

AquaProg stores the collected configuration files with different names depending on if the substation is connected to AQUAVISION or not.

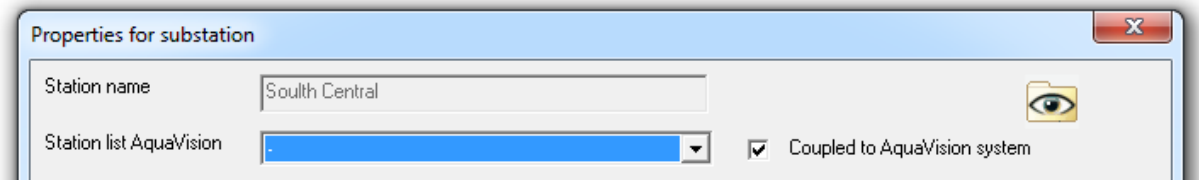
File name: Station name.cfg (for ex. South Central.cfg) is used if the substation is not connected to AQUAVISION.

File name: Station number.cfg (for ex. 15.cfg) is used if the substation is connected to AQUAVISION.

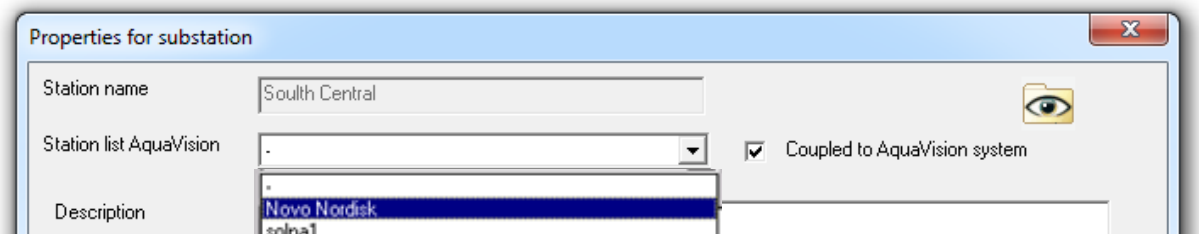
A configuration file collected from a substation connected to AQUAVISION is stored with the unique station number as file name.

Both AquaProg and AQUAVISION now knows which substation is meant when a certain configuration file has to be handled (a substation can have different names in AquaProg and AQUAVISION).

1. Start by marking the box "Coupled to AquaVision system".



2. Now chose which substation shall be opened via the station list. The list shows all substations that use AQUAVISION.



If the substation is not used by AQUAVISION it cannot be connected to AQUAVISION.

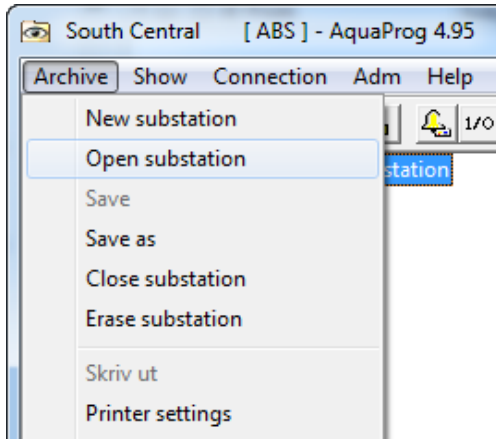
3. Chose type of substation and write short description as described earlier.
4. Other fields are grey because the parameters are collected from the AquaVision system.

The substation is now created and ready for connection.

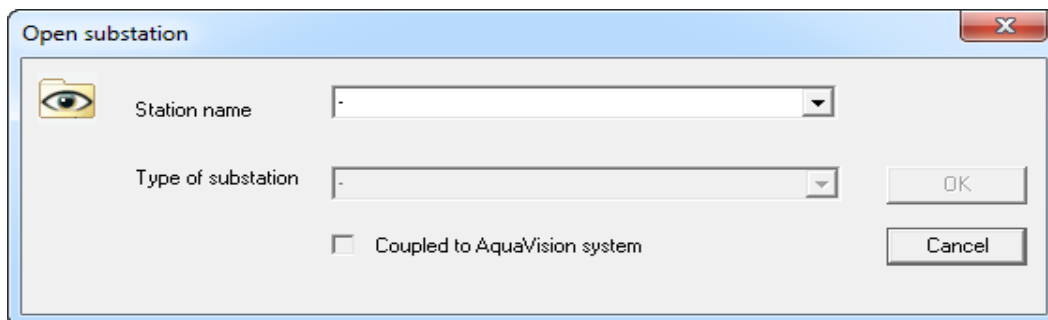
## 5.2 OPEN A SUBSTATION

A created substation can be opened in different ways.

Chose “Archive” and field “Open substation” or click on symbol for “Open” on the tool field. In the lower part of the Archive menu there is a list of the latest opened stations. Here it is possible to open a station fast. Chose a station out of the list and click.



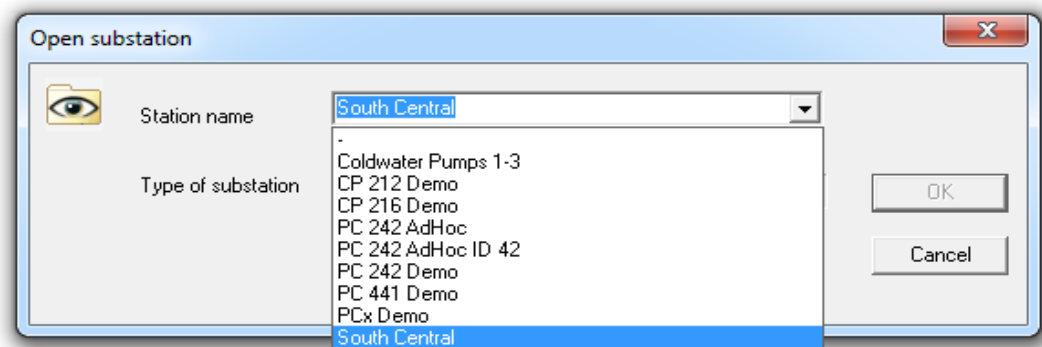
Following picture will be shown (not when opened fast).



Click on arrow on the right hand side of the station name field  
A list with all created stations will be shown.

Select substation to be opened out of list.

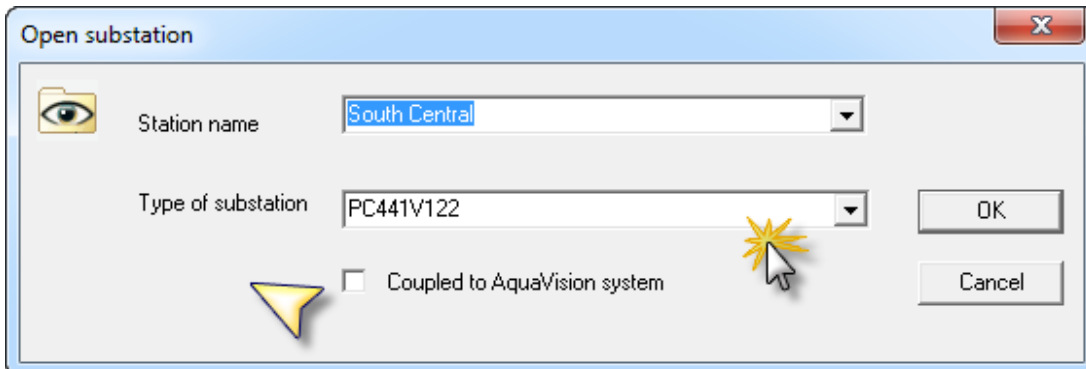
After the substation has been chosen the substation type and if the substation is connected to AQUAVISION is shown.



Before the substation is opened it's possible to change the station type and if the station should be connected to AQUAVISION.

Station type must be changed if the UP 20 have been upgraded with new software.

A substation, which is not connected to AQUAVISION, can be connected for example after installation of AQUAVISION.



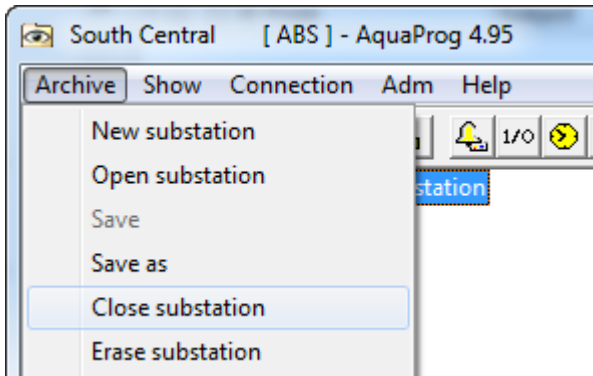
Sometimes it may be good to temporarily disconnect a station from AQUAVISION for example at back-up.

It is only possible to connect substations to AQUAVISION if AQUAVISION is installed and the substation is used by the AquaVision-system.

Click OK, the station is opened.

### 5.3 CLOSE A SUBSTATION

A substation can either be closed by opening a new or from the menu "Archive" field "Close substation".



If anything has en changed since the station was opened AquaProg will ask if the changes should be saved.

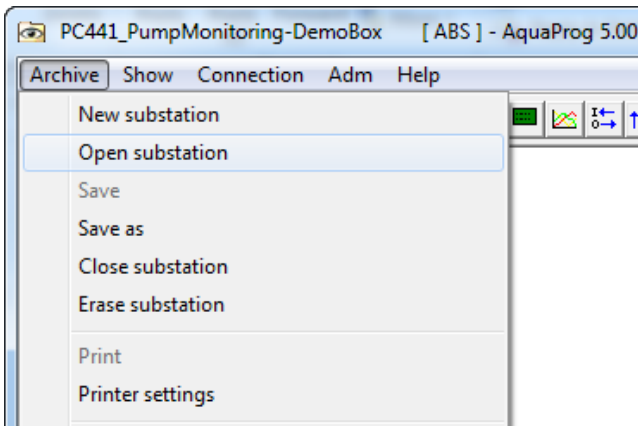
### 5.4 ERASE A SUBSTATION

A created substation can be erased from AquaProg by selecting "Erase substation" in the "Archive" menu. The description file of the substation (\*.UCM) and the configuration file (\*.CFG) will be erased.

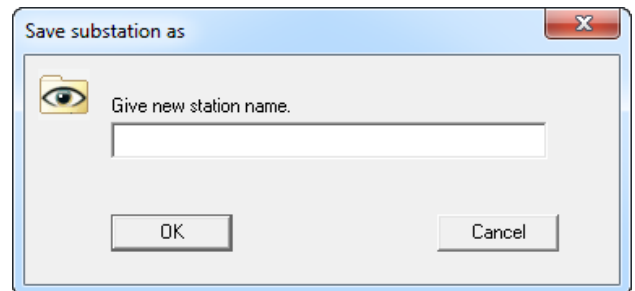
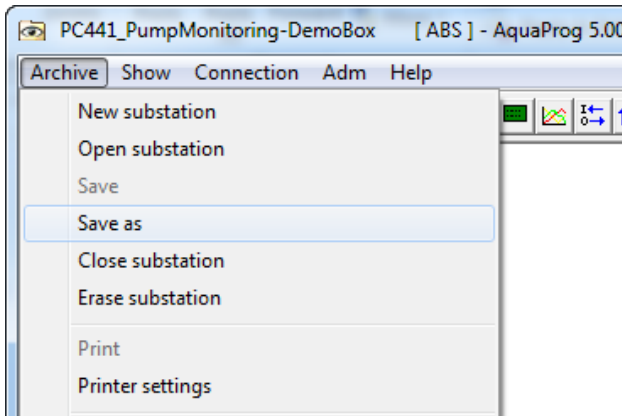
## 5.5 COPY A SUBSTATION

If a substation is to be copied following must be done

1. Open the substation to be copied.



2. Select "Save as" in the "Archive" menu.



Following picture is shown:

Give a name to the new substation and click OK.

You can't overwrite an existing substation. This has to be erased first.



## 6 Communication

There are basically five different types of communication you can use to communicate with a substation. *Direct (RS232 or USB), modem dial up, TCP/IP (Network) and AquaWeb-connection*

**Direct RS232:** Connect from your computer or laptop RS232 port (or through a converter USB – RS232) the service port in the front of the substations with is the service port. Make sure that you have same parameters for baud rate and so on in the substation as in the settings in Aquaprog. Sometimes it's necessary to have a check in Windows "Device Manager" to find out the settings and which comport number you have on your computer.

**Direct USB:** When connecting a PC 441 by a USB cable to your computer for the first time; a dialog box will appears on the computer screen for "Found new hardware". Follow the instruction on the screen step by step. After your computer has installed the drivers for the PC 441; you will be able to communicate with the substation by Aquaprog.

**Modem:** This is for a "land line" / "dial-up" or GSM modem. Under all circumstances the modem has to be installed under Windows before you can use it in Aquaprog. If you don't have a built-in modem; you must have a RS232 cable connected from your external modem to the computer. You also need a phone cable which is connected to your computer/external modem to a phone line (phone jack on the wall). The substation has to be set to "Autoanswer" to minimum 1 signal.

**Network:** This is used when you got a LAN modem at the substation sites and your laptop/PC is in the same local network area.

**AquaWeb-connection:** This can be used if your substation has an AquaWeb contract and your computer is connected to Internet.

**Note** When you have a modem (land line, GSM, LAN etc.) at the substation; you have to make sure that the substation communication port has same settings as the port at the modem. They must have same baud rate, same parity and same stop bit(s) and so on. If those parameters mismatch the communication will never succeeds to establish.

### 6.1 Communication requirements

This section describes each way to communicate to a substation and what's requiring in those different circumstances. To be able to make any changes from the standard settings, click on **Individual setting** (see point 11 in picture 5.1A on page 15 in this document above).

#### 6.1.1 Direct Communication

Make sure which comport number you are using at your computer. You find this in the *Device Manager* under the *Control panel – System*. Ensure your settings regarding comport number, baud rate and so on. Match the setting for the comport

**Crucial parameters for setup direct RS232 communication in Aquaprog (see picture 5.1A on page 15 in this document above)**

1. **Name of the station:** Unique name for the station
3. **Type of station:** Use highest version type and make sure you have latest version in the substation.
5. **Modbus / Comli ID:** Service port in the front has always 1 which is most common.
7. **Direct connection:** Must be activated and the parameters must be the same as in substation. Verify comport number in the *Device Manager* in Windows.
10. **Protocol:** same as in the substation.

#### **Necessary equipment for direct RS232 communication**

- Strait RS232 cable (DB9F-DB9M) from your computer to the substation service port
- If you don't have a RS232 port at your computer: use a USB-RS232 converter

## 6.1.2 USB Communication

You have ability to communicate with PC 441 by USB. First time when you connect a PC 441 to your computer; you will get a message at the computer screen that says: *Found new hardware*. Follow that instructions and let your computer install the necessary drivers for PC 441.

The critical parameters are the same as RS232 except those for direct RS232 without the baud rate.

### Crucial parameters for setup USB communication in Aquaprog (see pic. 5.1A p.15 above)

1. **Name of the station:** Unique name for the station
3. **Type of station:** Use highest version type and make sure you have latest version in the substation.
5. **Modbus / Comli ID:** Same as in the substation.
- 7a. **Direct connection:** Must be activated and the checkbox for USB marked
10. **Protocol:** Same as in the substation

## 6.1.3 Modem Communication

The modem you are going to use; has to be installed in Windows. Ensure you find your modem under the *Control panel – Phone and Modems*. It shall appear in the drop box under **point 8** in the picture 2 above. The modem has to be a land line modem, analogue or GSM. It's not possible to make a dial out call from ADSL modem etc.

**Note** If you have a GSM modem in one or both ends; make sure that SIM card(s) are open for “telematics” and data communication, have the option to answer to an incoming data call. These types of SIM can be difficult to get in some countries, specialty in USA. 95% of all failed communication by GSM has to do with these options of the SIM card.

### Crucial parameters for setup modem communication in Aquaprog (see pic.5.1A p.15 above)

1. **Name of the station:** Unique name for the station
3. **Type of station:** Use highest version type and make sure you have latest version in the substation.
4. **Phone number** to the substation
5. **Modbus / Comli ID:** when communicate over modem; the Comli/Modbus ID has to be same.
8. **Modem Communication:** The modem you attend to use at your computer has to be selected here in the drop box. If the modem not shows up in the drop box; it's not installed in Windows.
10. **Protocol:** same as in the substation

Necessary equipment for modem *communication*

- Build-in modem in your laptop

**OR:**

- External modem with power supply
- RS232 cable from your laptop/computer's RS232 port to the external modem
- If there is no RS232 port at your computer: use a USB-RS232 converter

**AND:**

- A phone cable from your computer/external modem to a phone jack (on the wall). Preferable is a telephone line outside any switchboard, an analogue line.

## 6.1.4 Network communication

If you have substations which are connected to a LAN modems, you can communicate by TCP/IP to those stations if you have a local network connection and are in the same subnet, “same subnet” means that your local IP-address on your computer is close to the modem IP-address on site.

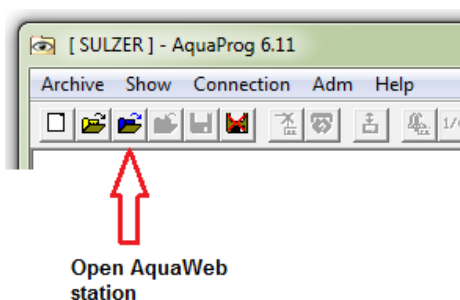
Crucial parameters for setup Network communication in Aquaprog (see pic.5.1A p.15 above)

1. **Name of the station:** Unique name for the station
3. **Type of station:** Use highest version type and make sure you have latest version in the substation.
5. **Modbus / Comli ID:** Same as the substation, 1 is mostly common.
9. **Network:** Your local IP-address; you find in the drop list.
  - 9a. The IP-address to your LAN modem at the site, use port 2000 and make sure that port is open all the way to the modem.
10. **Protocol:** Same as in the substation

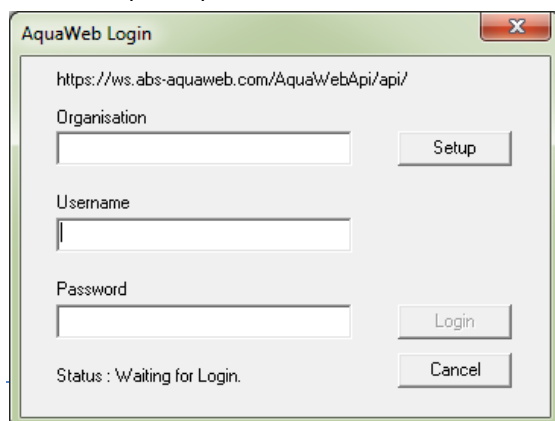
Then all the communication settings are done press OK and the dialog box will disappear. We shall now contact or call up the station.

## 6.1.5 Communication to AquaWeb connected substation

If your substation have an AquaWeb contract and your laptop is connected to Internet; you can connect Aquaprog to your substation if you have a login account in Aquaweb.



Click on “Open AquaWeb station”-icon and a new dialog box appear:



Click on **Setup** first time you do this. A new dialog box will appear

AquaWeb Setup

AquaWeb URL

Default Organisation

Default Username

Local IP Address (Host IP)

Save

Cancel

You need your:

- Default Organization number in AquaWeb
- *User name* (NOT e-mail address) in AquaWeb
- Password in AquaWeb
- **Save**

After saving, the information is transferred back to the first login screen where you shall type in your AquaWeb password and then click at the login button.

AquaWeb Login

https://ws.abs-aquaweb.com/AquaWebApi/api/

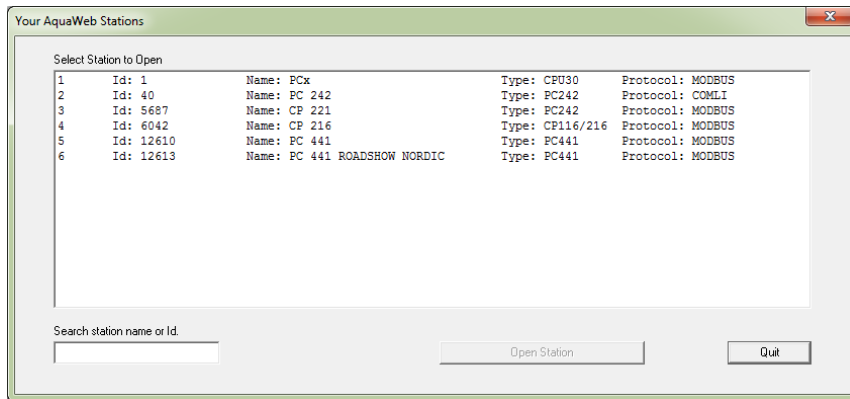
Organisation  
 Setup

Username

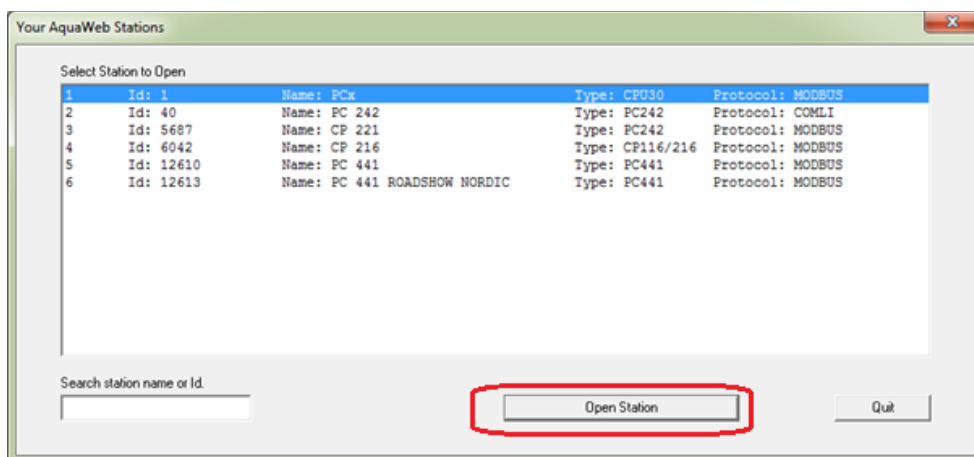
Password  
 Login

Status : Waiting for Login. Cancel

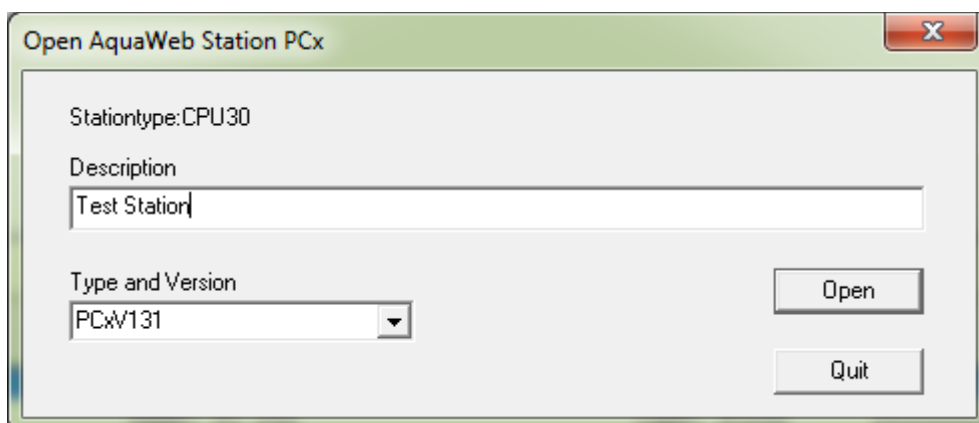
After a succeed login, a dialog box appears with your stations.



High light your station and proceed with "Open Station" box.



Next; give the station a description and select type of substation. Those values don't affect any parameters in AquaWeb, these values are only in your local computer and how Aquaprog will read the settings.



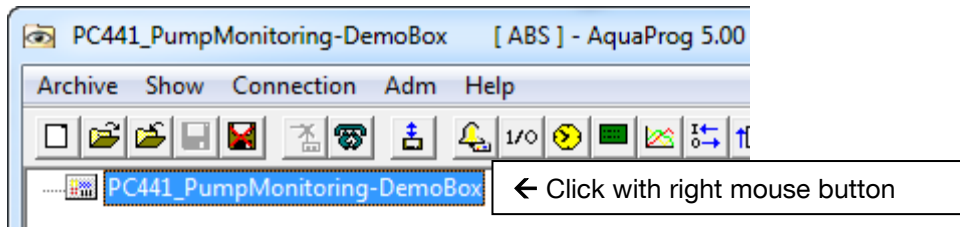
Then call the station as normal by clicking on the phone icon



### 6.1.6 CHANGE COMMUNICATION PARAMETERS

The communication parameters (modem, baud rate etc.) for an opened station can be changed clicking with the right mouse button on the station name at the top of the configuration tree.

Same dialog as when a new substation is created is shown.  
See chapter 5.1.



## 7 CONNECTION

The communication between the AquaProg and a substation is established by connecting the substation. Connection can be to call the substation via a telephone modem or via direct line or radio. At connection the AquaProg uses the substations communication parameters to get the information about how the connection is to be made (modem name, baud rate etc....). The information is stored in the substations description file (\*.UCM).

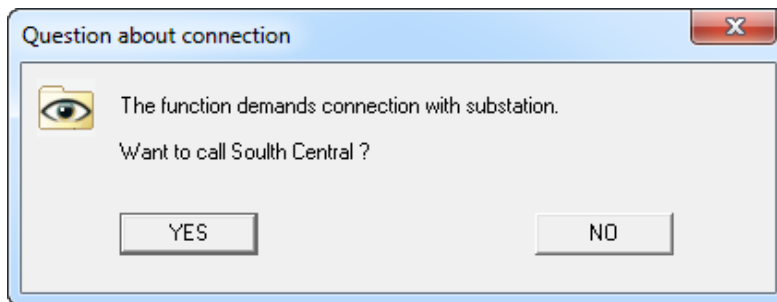
A substation must be opened before it can be connected.

### 7.1 DIAL UP

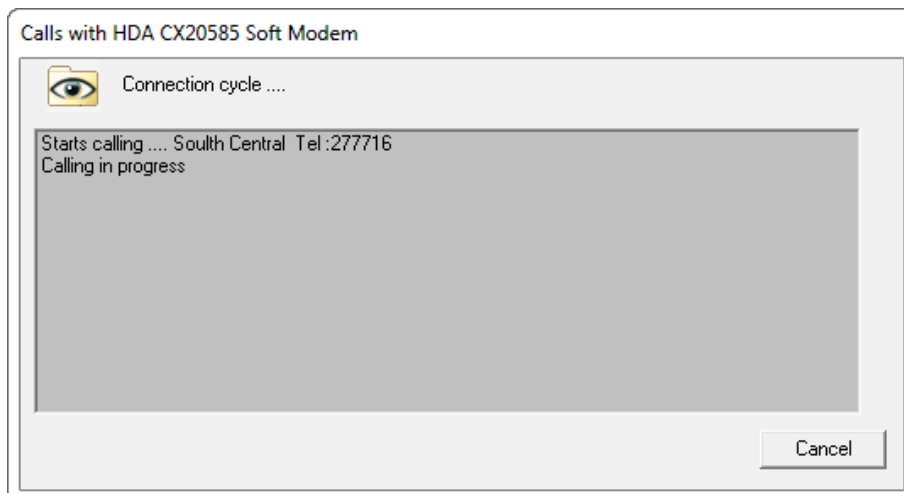
There are several ways of connecting a substation to AquaProg. Here are two examples:

Click on the telephone in the tool field.  
Chose "Connect substation" in the "Connection" menu.

It is not necessary to give the AquaProg a command to connect a substation. AquaProg shows following picture if any function that demands connection is started.



Following picture is shown during the dial-up phase:



During this a number of faults can occur for example:

- Busy.
- Substation does not answer.
- Modem on receiver side does not answer.

All faults stop the connection and an error message is shown in the picture.

Some faults can take a long time for AquaProg to detect.



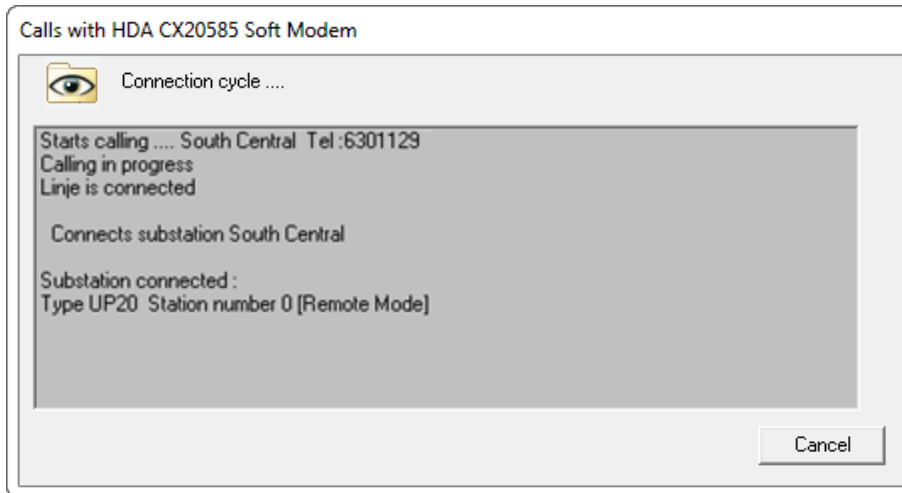


When AquaProg has established contact with the substation following data will be collected:

Type of substation (UP20/PC4...).

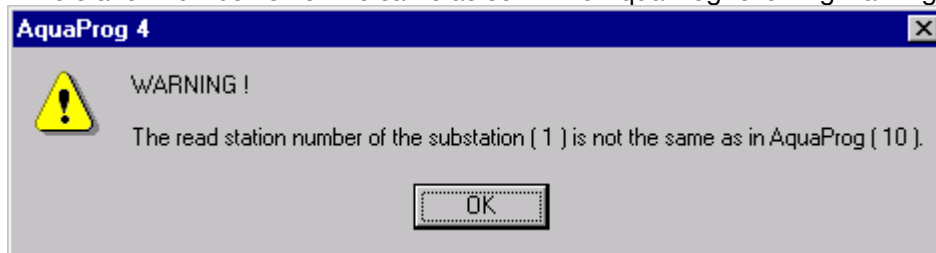
Station number.

Remote/Local flag (only UP20/PCx).



If the substation is of a type not handled by AquaProg, a warning about this will be given and the line disconnected.

If the station number is not the same as set in the AquaProg following warning is given.



Local/Remote flag is only used by UP20/PCx.

If the substation is in local mode no changes can be made in the settings of the substation via the AquaProg.

Normally a local configuration of the substation is in progress.

A warning about this is given in a picture.

The substation is now connected to the AquaProg.

## 7.2 DISCONNECT

The substation is disconnected by clicking on one of the buttons shown below in the tool field.



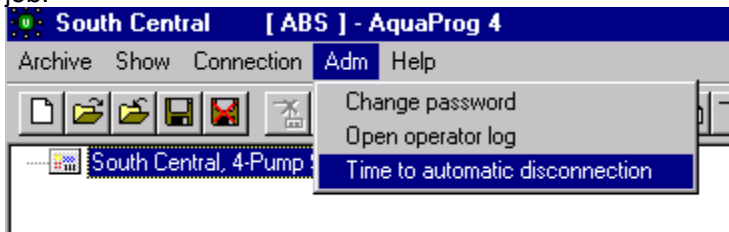
The substation will be disconnected automatically if the AquaProg is closed or the modem does not have a carrier wave (called modem has put down the receiver).

## 7.3 AUTOMATIC DISCONNECTION

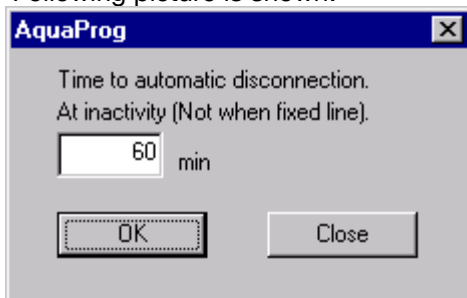
The AquaProg has a function, which automatically disconnects a substation when there is no activity.

Inactivity means that the operator has not moved the mouse within an adjustable time.

This function can be used to prevent that the operator forgets to disconnect the line after finished job.



Following picture is shown:



Standard value is 60 min.

Above mentioned function is only activated when the substation is connected via telephone modem. Not direct line (serial port) or radio.

## 8 DIRECT CONFIGURATION

A connected substation can be configured directly (online) via the AquaProg. Data that is changed in the AquaProg will directly be written to the substation.

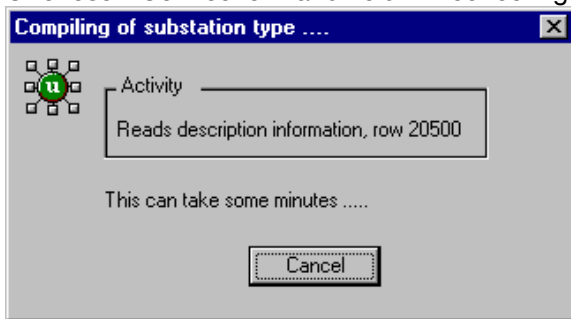
In this chapter only the method for configuring is described. For information about how the functions in the different products are configured, we refer to the product manual.

### 8.1 OPEN DIRECT CONFIGURATION

Start by clicking on:



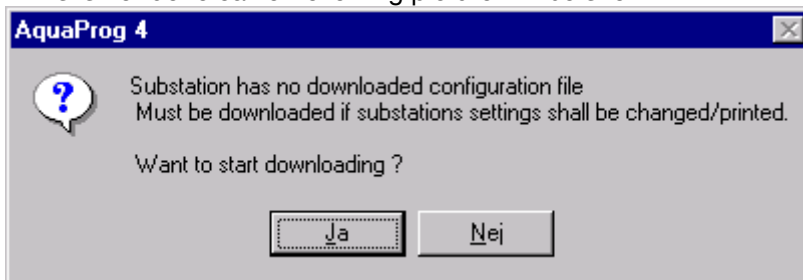
Or chose “ Connection” and field “Direct configuration”.



Each type of substation has a description file, which described to AquaProg how the configuration tree should be built up (for example PCxV11). Here the first part is built.

When a new substation is created in AquaProg you start by reading the configuration of the substation.

If this is not done earlier following picture will be shown.



Here you can start the reading of the configuration.

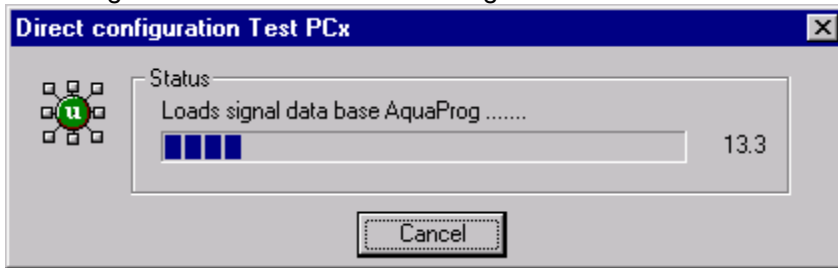
This configuration is used by the AquaProg to give the start values in the configuration tree (before AquaProg has read the values from the station).

This is important when printing the configuration, more about this later.

When the operator changes a parameter the value is written directly to the substation and into the local signal database of the AquaProg. When the direct configuration is ended AquaProg asks if the online changes should be saved in the configuring file of the substation.

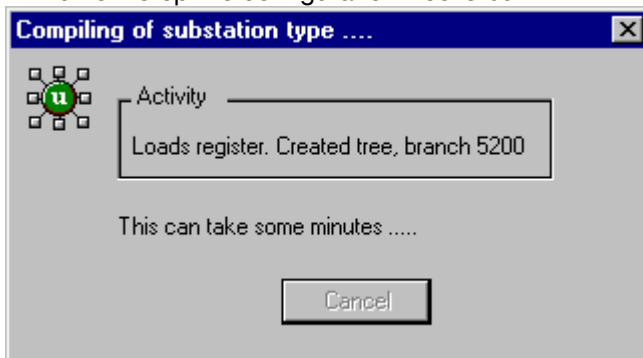
The file is updated directly with the changes made by the operator in the substation. No new reading of the configuration must be made. This if a configuration file was available earlier.

If a configuration file is available following is shown:



Here the AquaProg signal database with start values from available configuration file is read.

In the next step the configuration tree is built:



When this is ready the substation is ready for configuration.

## 8.2 CONFIGURATION TREE

AquaProg uses the same tree structure as the Explorer in Windows for showing the parameters of the substation.

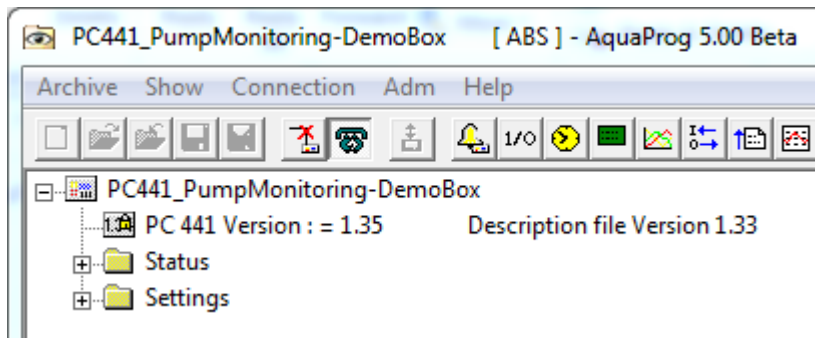
The tree is expanded by double clicking with the left mouse button on selected map or on plus sign [+]

and decreased by double clicking with left mouse button on minus sign [-].  
First only the root map with station name is shown.



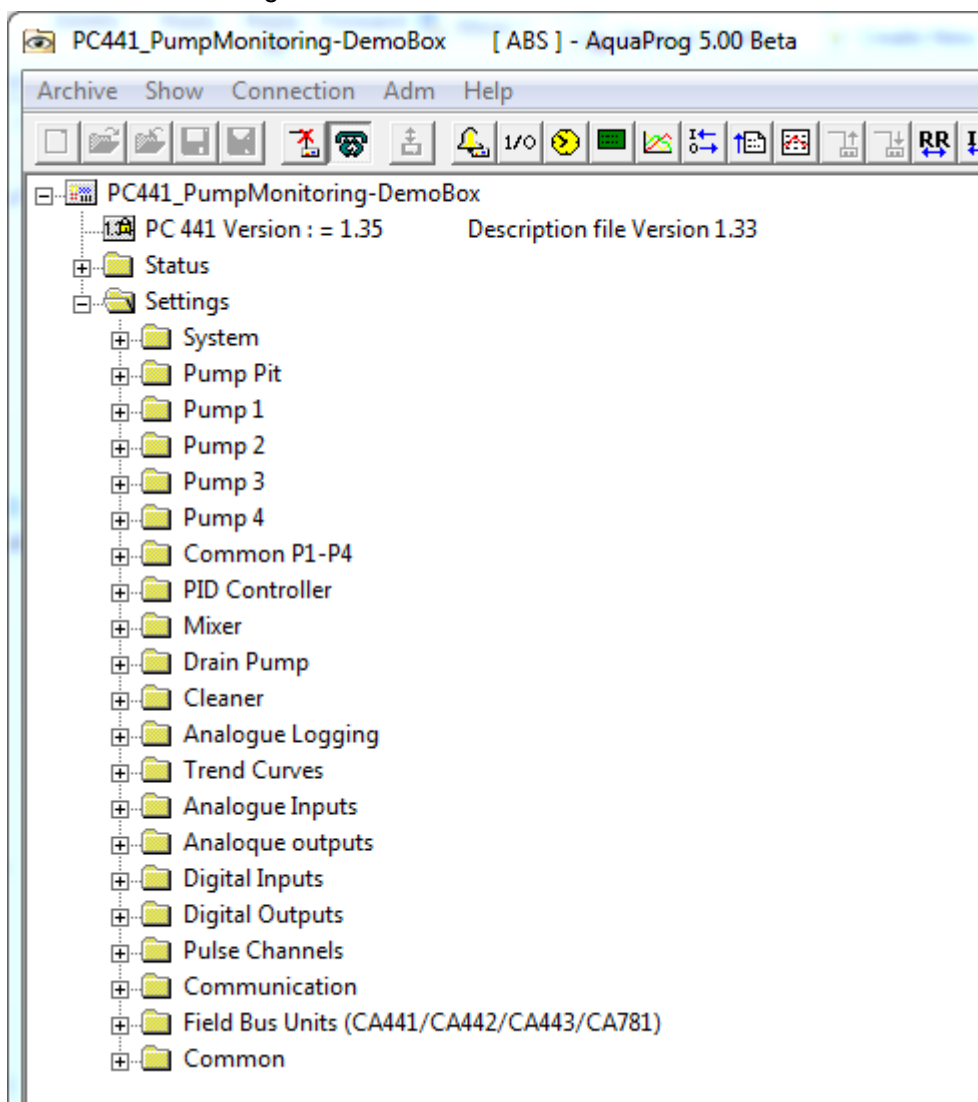
← Double click with left mouse button.

The tree is expanded. What is shown depends on type of substation.



We want for ex. to change start level of pump 1.

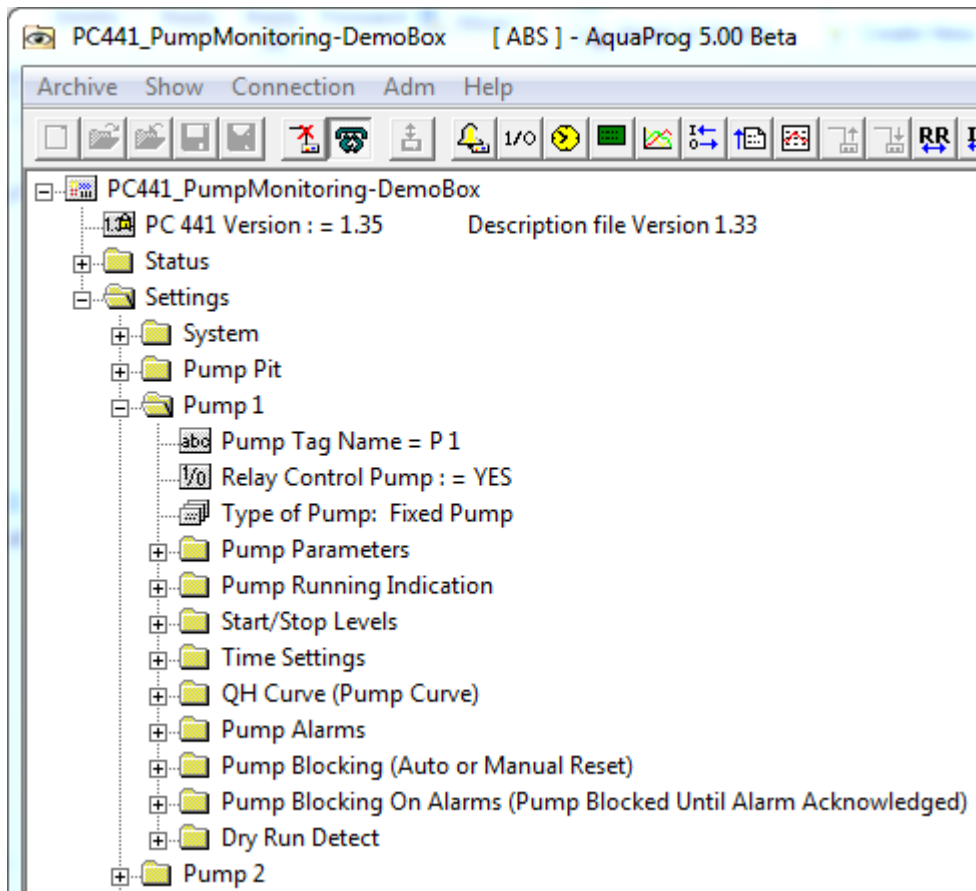
In the folder settings there are all the configuration parameters for the substation. Double click on settings.



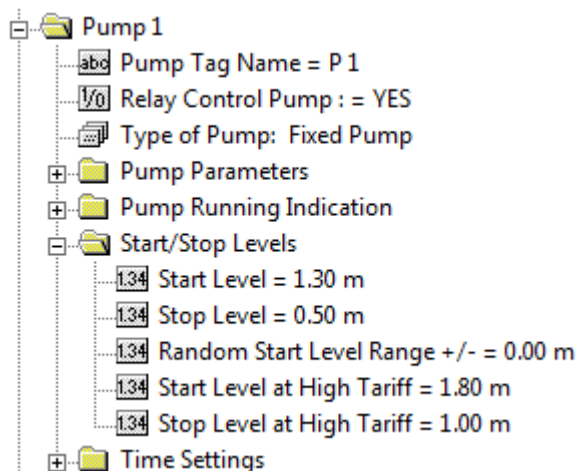
Here are all folders with name, which relate to a function in the substation.

As we are to change start level we select the folder "Pump 1"

We chose Pump 1.



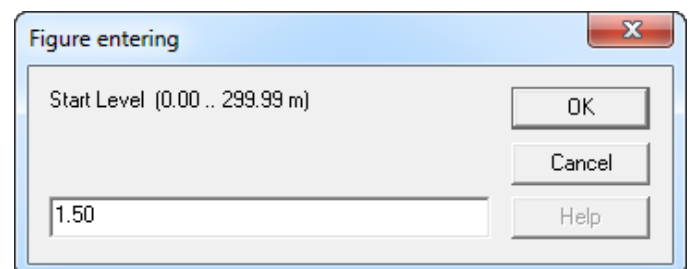
Select folder “Start/Stop Levels”



Now we will change the start level to for ex. 1.50 m.

The parameter value can be change by clicking with the right hand mouse button on desired field We click with right mouse button on Start level.

Enter 1.50 and click OK.

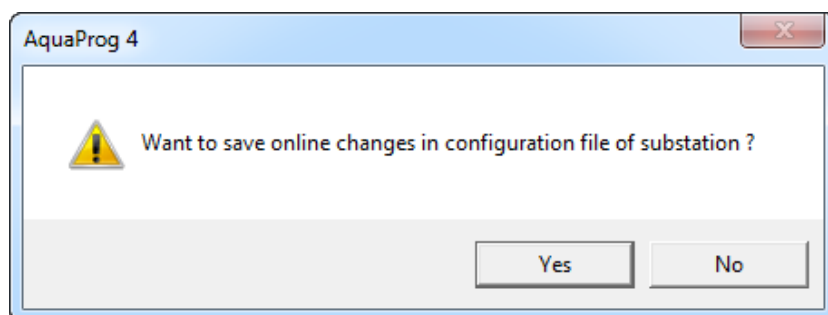


When clicking same button as when starting finishes direct configuration.



Direct configuration is also stopped automatically when the line is closed or if AquaProg is closed.

When direct configuration is closed and the operator had changed something for example a start level the AquaProg asks if the changes should be saved in the substation configuration file. This under the condition that configurations file was downloaded when direct configuration was started.



The advantage with this is that it is not necessary to download a new configuration file from the substation. Changes made are written directly in the already available configuration file.

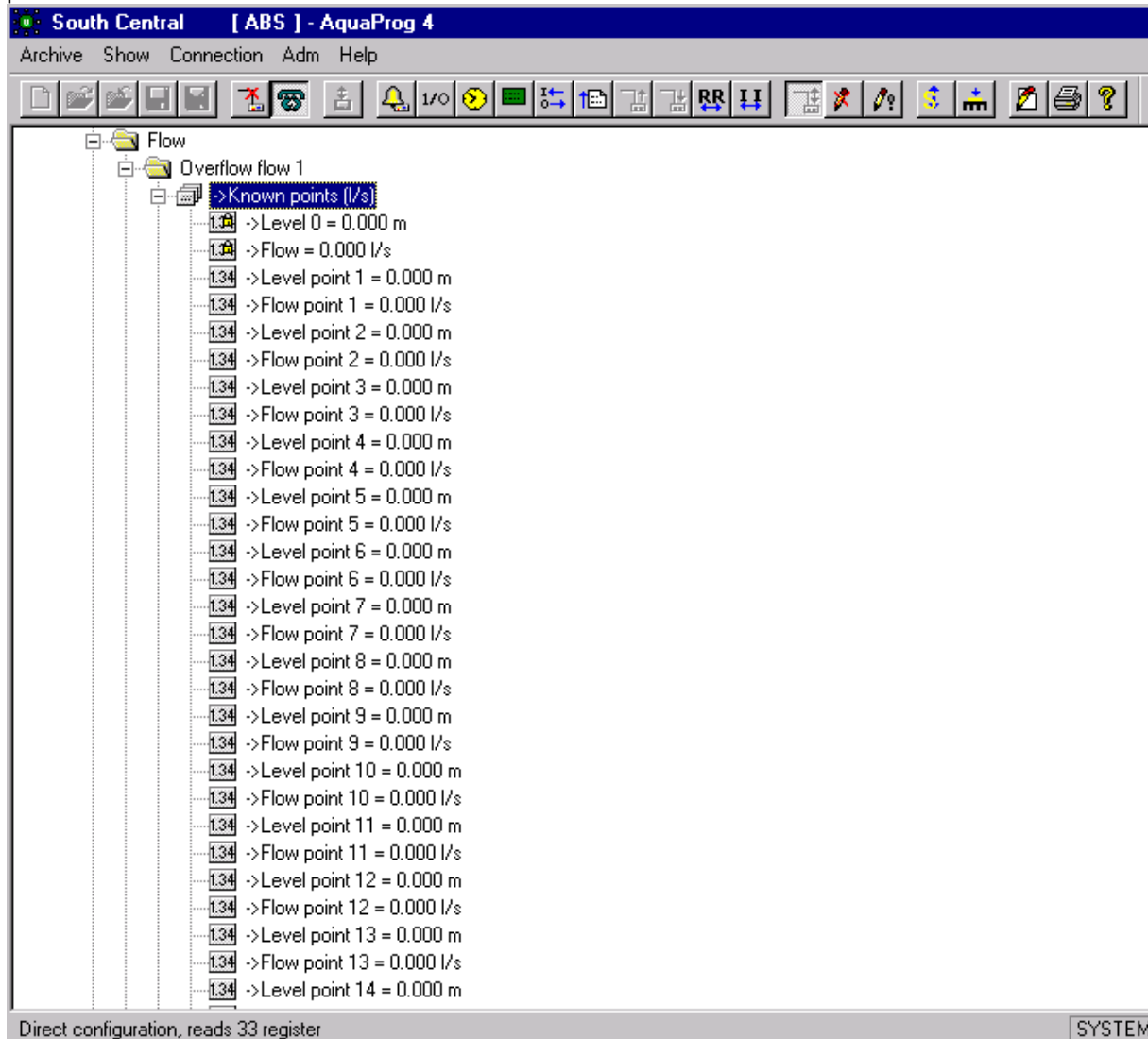
### 8.3 INTERLINKED PARAMETERS

Certain parameters in a substation must be set at the same time.

The substation needs all parameters simultaneously for example flow calculation with known points to be able to make the internal calculations after a change.

AquaProg must in this case send all the levels and corresponding flows at the same time, not each parameter separately.

Interlinked parameters are indicated in the configuration tree by an indentation before the actual parameters.

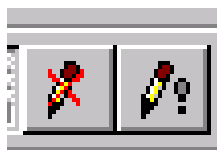


Here is an example of interlinked parameters for flow calculation with known values is shown.

All levels and flows have to be set before they are sent to the substation.

If interlinked parameters are used it is also indicated by the window buttons in the tool row which are lighted.

This button interrupts **with-out writing** the parameter values to substation →



This button interrupts and **writes** the parameter values to substation. ←

If interlinked parameters have been started you always have to finish with one of the buttons above

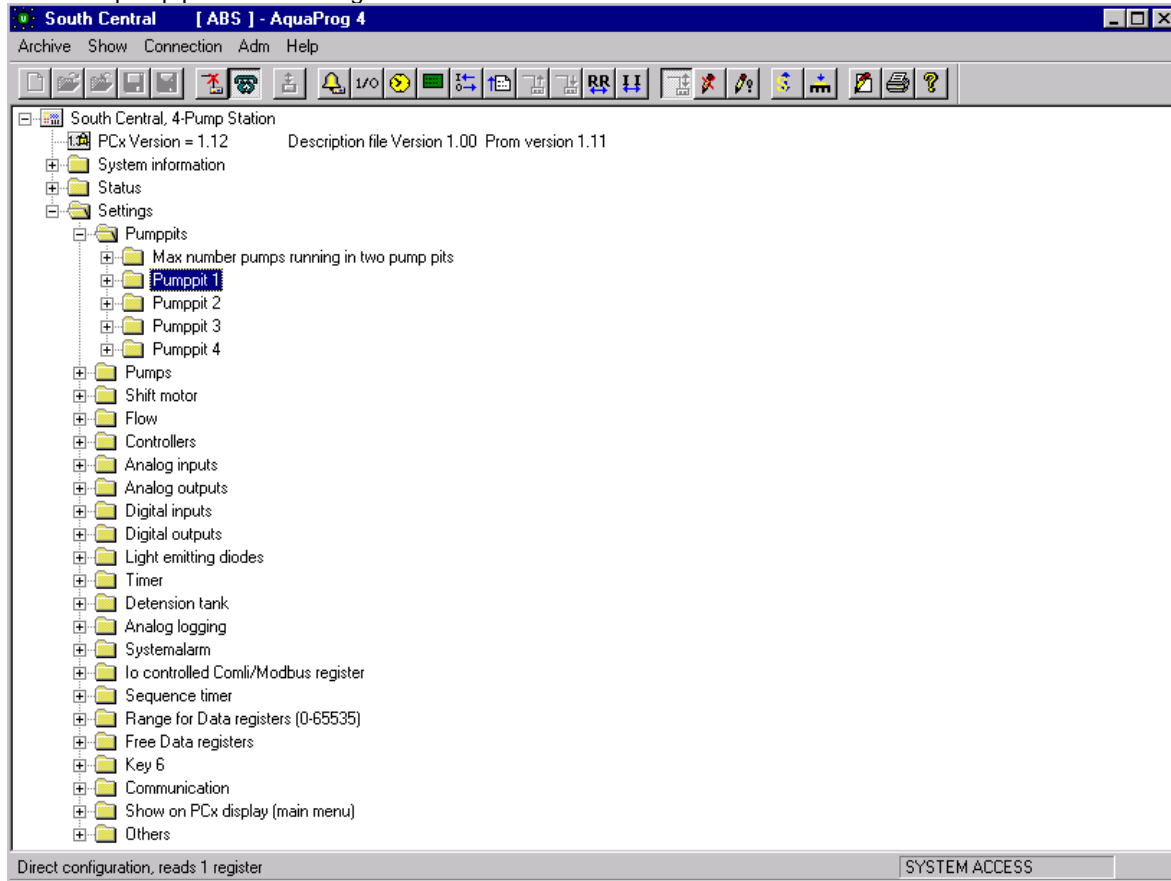



## 8.4 PRINTING CONFIGURATION

A connected substation configuration can be printed.  
 What to be printed is selected by marking a position in the configuration tree.  
 All information that is in the marked map will be printed.

If you want to for example print all settings in pump pit 1 you do as follows:

1. Mark pump pit 1 in the configuration tree.



2. Start printing by clicking symbol  PRINTER or “Print” in Archive menu.

3. All information, which is available in pumppit 1, will now be printed.

If you mark the root map (on top "South Central") the whole configuration of the substation will be printed which produces a lot of paper.

Check that AquaProg is set for correct printer and paper size.

Select “Archive” and “Printer settings” for check.

In some occasion’s it might also be needed to set a scaling if not all information fits.

It is also important that a configuration file is collected from the substation before printing.

Otherwise the printout will be wrong. AquaProg has not correct start values for parameters of the folders. See chapter 7.1, Open direct configuration.

## 9 COLLECT/SEND CONFIGURATION

As earlier mentioned the AquaProg stores the configuration in special configuration files (\*.cfg).

If AquaProg is used together with AQUAVISION following applies:

The files are stored in different place depending on which program has been installed first.

Catalogue C:\program\AquaProg\config is used if AquaProg has been installed first.

Catalogue C:\program\AquaVision\report-comm\config is used if AQUAVISION has been installed first.

This is valid if standard settings for installations catalogue is used when installing.

Uncertain, use the search function in Windows and search for \*.UCM.

A configuration file of a substation can have different names depending on if the substation is connected to AQUAVISION.

Station name.cfg (for example South Central.cfg) not connected to AQUAVISION.

Station number.cfg (for example 10.cfg) connected to AQUAVISION.

The description file of the substation (Modem, baud rate ..) is always stored as stations name.UCM.

(for example South Central.UCM).

The file is stored in the Config catalogue.

Substation which is connected to AQUAVISION uses a file type stations name.URP at connection which is written by AQUAVISION and stored in the Config catalogue.

Above mentioned is good to know when you want to make a backup for the configuration of a substation.

Here it is the (\*.cfg) file which is important as it holds the complete configuration of the substation.

Other files (\*.UCM) and (\*.URP) only have the communication parameters of the substations.

For a substation to be opened it must have a UCM-file.

When taking a backup the substations \*.CFG and \*.UCM files are copied to wanted backup media.

## 9.1 COLLECT CONFIGURATION

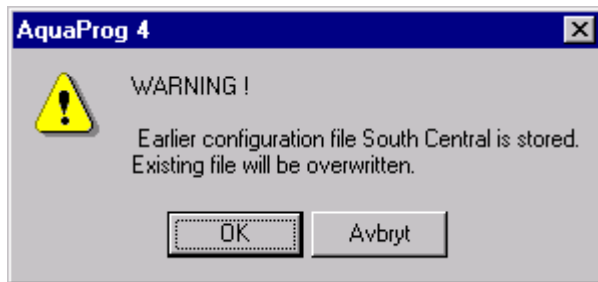
The reading of the configuration from a substation is started by clicking on symbol below



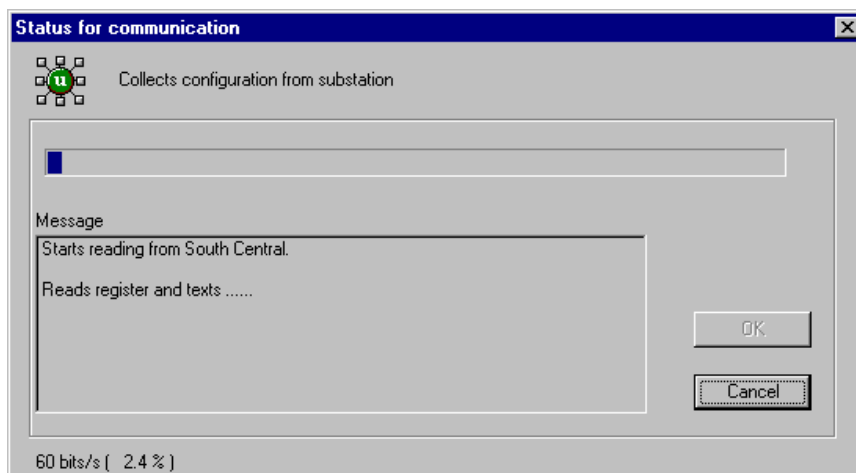
Or select “Collect configuration” from the Connection menu.

The substation must be opened before the configuration can be collected.

First a check is made if a configuration file already has been collected. In such case the operator get a warning.



If the question is answered with OK, the reading starts.



## 9.2 SEND CONFIGURATION

Downloading of a configuration to a substation is started by clicking symbol below

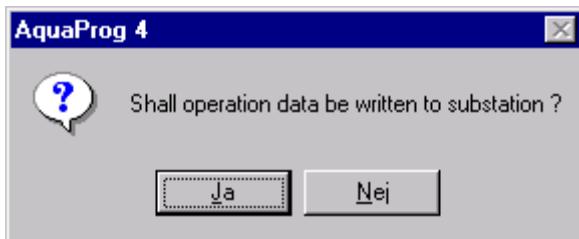


Or by selecting “Send configuration” in the connection menu.

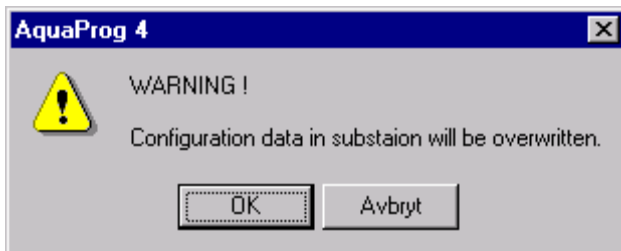
AquaProg asks if the operation data should be sent to the substation.

With operation data the running time of pumps, number of pump starts etc. is mean Normally there is no need to overwrite the operation data in the substation.

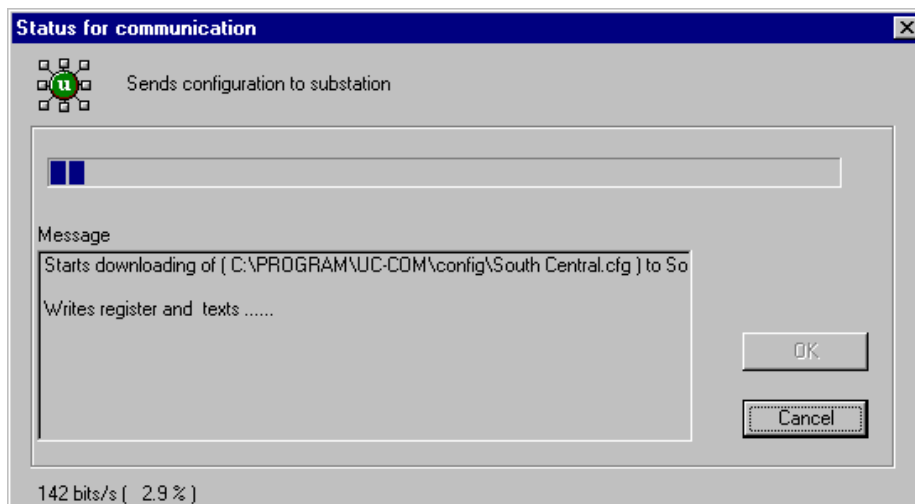
It may sometimes be needed for example after a repair/ change of electronics in the substation Normally answer NO to the question.



Then a warning is given that the actual settings will be overwritten. Think what you are doing, especially if the station is in operation.



Click OK, the downloading starts.



A strong reason is needed to cancel the download when started.

If you cancel the substation will use part if the new settings and part of the old configuration.

This may result in a strange behavior of the station

## 10 OFFLINE CONFIGURATION

A substation can also be configured without being connected.  
 In this case the configuration is done to the configuration file of the substation (offline).  
 This file can later be downloaded to selected station.

Following applies at offline configuration:

A configuration file (\*.CFG) must be available.  
 This can be an earlier downloaded file or a file copied from another substation.  
 During installation of AquaProg a number of configuration files with standard settings for UP20 (for ex F893 3-Pump with motor current) are included.  
 Any of these can be used.  
 At offline configuration there are some limitations in the automatic regarding sorts etc.  
 If a sort is changed on for ex. an input the sort is not changed automatically in all places where the signal is used in the configuration tree for ex. in the map for high and low level alarms.  
 The same applies for number if decimals a.s.o.  
 During direct configuration the connected substation handles this automatically..

The configuration file used to start must be for a substation of the same type (UP20, LPP4000..) to be used later.

The best way of using offline configuration is to use a file downloaded from the substation to be changed. Make the changes offline and avoid changing parameters which are part of the I/O-system. When this is ready download the configuration file to selected substation.

### 10.1 OPEN OFFLINE CONFIGURATION

Offline configuration is opened by clicking on symbol below

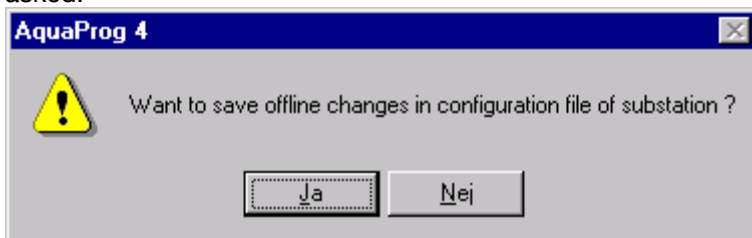


Or select "Offline configuration" in the connection menu.

First is checked that the substation has a downloaded configuration file.

Following functions are the same as in direct configuration.  
 See chapter 6 direct configuration.

When offline configuration is finished and something has been changed following question will be asked:



Here is selected if the changes in the substation configuration file are to be saved or not.

## 11 OTHER FUNCTIONS

In AquaProg there are a number of functions which can be used for the control of the display, alarm, I/O-status etc. in the substation

### **Following functions will be described:**

- 10.1 Show Display/LED
- 10.2 Show I/O-status
- 10.3 Show Acknowledge Alarms
- 10.4 Show Events
- 10.5 Show Station Statistics
- 10.6 Show Log data in Table & Graphical form
- 10.7 Show/set clock
- 10.8 Upgrade Soft/Firmware

The functions are only described briefly, as they are self-explaining when used.

## 11.1 SHOW DISPLAY/LED.

For PCx this function basically shows the front panel with display and LED of the substation.

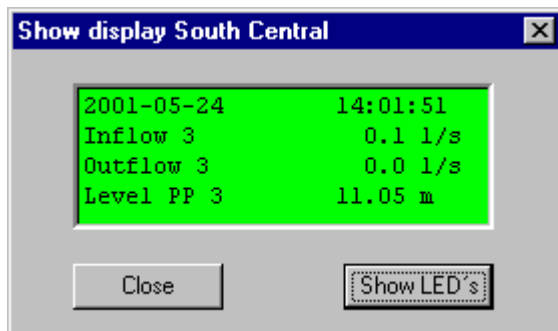
Note! This view will vary depending on type of controller connected!

The function is selected by clicking on:

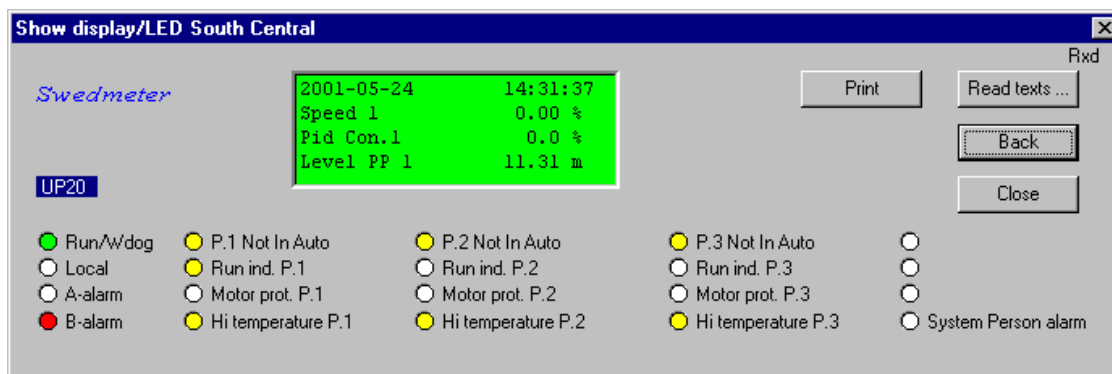


Or select “ Show display” in the Show menu.

Here the display of the substation is shown.



If you want to check the whole front panel with LED's, click Show LED's.



If you want to get back to previous (only display) click “Back”.

If you want to print the settings for display and LED's click “Print”.

If you want to update texts (after change) click “Read texts”

## SHOWING PC 441

Show status PC441\_PumpMonitoring-DemoBox

**Status Pit**

Inflow 97.2 l/s  
 Outflow 104.2 l/s  
 Pumped Volume :  
 Today 7242 m3  
 Yesterday 11481 m3  
 Total 41954 m3

Overflow Level 0 mm  
 Overflow (l/s) 0.0 l/s  
 Overflow (m3/h) 0.0 m3/h

No. of Overflows :  
 Today 0  
 Yesterday 0  
 Total 0

Overflow Time :  
 Today 0.00 hh:mm  
 Yesterday 0.00 hh:mm  
 Total 0.00 hh:mm

Overflow Volume :  
 Today 0.0 m3  
 Yesterday 0.0 m3  
 Total 0.0 m3

**Pump Blocking P1-P4 :**

Remote Blocking  
 High Back-Pressure  
 Low level float  
 Wrong phase order  
 Phase missing  
 Over voltage  
 Under voltage  
 Unbalance  
 High frequency  
 Low frequency

**Power monitor CA 443**

U L1-L2 --- V  
 U L2-L3 --- V  
 U L3-L1 --- V

I L1 --- A  
 I L2 --- A  
 I L3 --- A

Power --- kW  
 Frequency --- Hz

**Alarm**

PC 441 Ver 1.35 Id 12610 CA 511 Ver 1.22

1.02 m

**Analogue inputs**

AI1: Level 1.02 m  
 AI2: Motor Current P1 0.0 A  
 AI3: Motor Current P2 0.0 A  
 AI4: Motor Current P3 0.0 A  
 AI5: Motor Current P4 12.6 A  
 Power Supply 24.3 V

**Analogue outputs PC441**

A01: Level 5.600 mA  
 A02: OFF 4.000 mA

**Analogue outputs CA781**

A01: OFF 0.000 mA  
 A02: OFF 0.000 mA

**Digital outputs**

**PC441**

DO 1: Alarm Alert  
 DO 2: Control Pump 1  
 DO 3: Control Pump 2  
 DO 4: Control Pump 3  
 DO 5: Control Pump 4  
 DO 6: Personal Alarm Ind.  
 DO 7: Mixer Control  
 DO 8: High Level

**Exp. CA 781**

DO 1: OFF  
 DO 2: OFF  
 DO 3: OFF  
 DO 4: OFF  
 DO 5: OFF  
 DO 6: OFF  
 DO 7: OFF  
 DO 8: OFF

**Digital inputs**

DI 1: Overflow Sensor  
 DI 2: High Level Float  
 DI 3: Power Fail  
 DI 4: Local Mode  
 DI 5: Motor protector P1  
 DI 6: P1 Not in auto  
 DI 7: OFF  
 DI 8: Motor protector P2  
 DI 9: P2 Not in auto  
 DI10: OFF  
 DI11: Motor protector P3  
 DI12: P3 Not in auto  
 DI13: OFF  
 DI14: Motor protector P4  
 DI15: P4 Not in auto  
 DI16: Low Level Float

**Pump status**

	P1	P2	P3	P4
Running Indicator	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
Pump Blocked	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Alarm Blocked	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Fallen Motor Protector	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Fallen Temp. Protector	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Leakage	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Pump Error	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Dry Run Block	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
High vibrations	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Phase missing	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Not in Auto	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Can Bus Blocked	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

**Running Time [ hh.mm ] :**

	P1	P2	P3	P4
Today	4.42	4.43	4.41	4.42
Yesterday	7.34	7.44	7.27	7.29
Total	32.02	32.32	31.57	31.56

**No. of Starts :**

	P1	P2	P3	P4
Today	160	156	158	158
Yesterday	272	267	276	258
Total	1042	1037	1057	1015

**Pump Capacity [ l/s ] :**

	P1	P2	P3	P4
Nominal	114.3	101.8	119.6	104.2
Last Sample	133.6	100.0	126.6	88.3

[More Pump Info ...](#)

[Read texts](#)

[Quit](#)

**More Pump Info...**

	P1	P2	P3	P4
<b>Temperature/vibrations</b>				
Digital input High temperature	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
MiniCas sim.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Stator T1 (L1)	<input checked="" type="radio"/> Pt100 30.8°C	<input checked="" type="radio"/> Pt100 34.0°C	<input checked="" type="radio"/> Pt100 40.8°C	<input checked="" type="radio"/> Pt100 43.9°C
Stator T4 (L1)	<input checked="" type="radio"/> Pt100 36.2°C	<input checked="" type="radio"/> Pt100 35.0°C	<input checked="" type="radio"/> Pt100 47.9°C	<input checked="" type="radio"/> Pt100 47.7°C
Stator L2	<input checked="" type="radio"/> Pt100 30.8°C	<input checked="" type="radio"/> Pt100 33.3°C	<input checked="" type="radio"/> Pt100 40.8°C	<input checked="" type="radio"/> Pt100 46.0°C
Stator L3	<input checked="" type="radio"/> Pt100 32.5°C	<input checked="" type="radio"/> Pt100 35.0°C	<input checked="" type="radio"/> Pt100 42.4°C	<input checked="" type="radio"/> Pt100 47.7°C
Upper bearing	<input checked="" type="radio"/> Pt100 32.5°C	<input checked="" type="radio"/> Pt100 35.7°C	<input checked="" type="radio"/> Pt100 42.4°C	<input checked="" type="radio"/> Pt100 45.6°C
Lower bearing	<input checked="" type="radio"/> Pt100 34.5°C	<input checked="" type="radio"/> Pt100 33.3°C	<input checked="" type="radio"/> Pt100 46.2°C	<input checked="" type="radio"/> Pt100 46.0°C
Vibrations	<input checked="" type="radio"/> 10.0 mm/s	<input checked="" type="radio"/> 0.0 mm/s	<input checked="" type="radio"/> 0.0 mm/s	<input checked="" type="radio"/> 17.5 mm/s
<b>Leakage</b>				
Digital input Leakage	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
MiniCas sim.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Oil chamber	<input type="radio"/> Off	<input type="radio"/> Off	<input type="radio"/> Off	<input type="radio"/> Off
Connect chamber	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Motor housing	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
<b>Electric status</b>				
Voltage L1-L2	<input type="radio"/> Off	<input type="radio"/> Off	<input type="radio"/> Off	<input type="radio"/> Off
Voltage L2-L3	<input type="radio"/> Off	<input type="radio"/> Off	<input type="radio"/> Off	<input type="radio"/> Off
Voltage L3-L1	<input type="radio"/> Off	<input type="radio"/> Off	<input type="radio"/> Off	<input type="radio"/> Off
Motor Current L1	<input type="radio"/> 12.5 A	<input type="radio"/> 0.0 A	<input type="radio"/> 0.0 A	<input type="radio"/> 12.6 A
Motor Current L2	<input type="radio"/> 12.5 A	<input type="radio"/> 0.0 A	<input type="radio"/> 0.0 A	<input type="radio"/> 12.5 A
Motor Current L3	<input type="radio"/> 12.6 A	<input type="radio"/> 0.0 A	<input type="radio"/> 0.0 A	<input type="radio"/> 12.6 A
Power factor	<input type="radio"/> --	<input type="radio"/> --	<input type="radio"/> --	<input type="radio"/> --
Power absorbed	<input type="radio"/> --	<input type="radio"/> --	<input type="radio"/> --	<input type="radio"/> --
Phase missing	<input type="radio"/> --	<input type="radio"/> --	<input type="radio"/> --	<input type="radio"/> --
Dry run	<input type="radio"/> --	<input type="radio"/> --	<input type="radio"/> --	<input type="radio"/> --

[Read Texts](#)

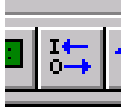
[Quit](#)



## 11.2 SHOW I/O-STATUS

The function shows the status of analogue/digital in and outputs for a connected substation.

The function is selected by clicking on symbol below:



Or select “Show in/outputs” in the Show menu.

Following is shown for PCx

The status for digital inputs shown is the logic state after NO/NC handling. Yellow filled circle indicates the function is ON.

If you want to print the settings of selected I/O-module, click “Print”.

If you want to update texts (after change) click “Read texts”

## Showing PC 441

## 11.3 SHOW/ACKNOWLEDGE ALARMS

The function shows set/active alarms for a substation.  
Here it is also possible for the operator to acknowledge alarms.

The function is selected by clicking symbol below:



Or selecting “Collect/Acknowledge alarms” in the Connection menu.

At first information about set alarms is collected from the substation. Then following is shown:

**Alarm South Central**

Set alarms

A-alarm:	4	Active:	0	Not acknowledged:	0
B-alarm:	20	Active:	5	Not acknowledged:	5
C-alarm:	0	Active:	0	Not acknowledged:	0

Nr.	Typ	Text	Status	Not ackn.	
81	B	Pump 1	High motorcurrent	ON	Not ackn.
83	B	Pump 1	Fallen motorprot.	OFF	Ackn.
84	B	Pump 1	Fallen tempprot.	ON	Not ackn.
86	B	Pump 1	No running ind.	OFF	Ackn.
97	B	Pump 2	High motorcurrent	OFF	Ackn.
99	B	Pump 2	Fallen motorprot.	OFF	Ackn.
100	B	Pump 2	Fallen tempprot.	ON	Not ackn.
102	B	Pump 2	No running ind.	OFF	Ackn.
113	B	Pump 3	High motorcurrent	OFF	Ackn.
115	B	Pump 3	Fallen motorprot.	OFF	Ackn.
116	B	Pump 3	Fallen tempprot.	ON	Not ackn.
118	B	Pump 3	No running ind.	OFF	Ackn.
369	B	Io Module 1	Power failure	OFF	Ackn.
370	B	Io Module 1	Low voltage 12V	OFF	Ackn.
371	A	Io Module 1	Io module missing	OFF	Ackn.
372	A	Io Module 1	Ain board 1 missing	OFF	Ackn.
373	B	Io Module 1	Ain board 2 missing	OFF	Ackn.
374	B	Io Module 1	Ain board 3 missing	OFF	Ackn.
375	B	Io Module 1	Ain board 4 missing	ON	Not ackn.

Alarm category:

- Show not ackn. alarms
- Show active alarms
- Show all alarms

Alarmtype:

- Show A-alarm
- Show B-alarm
- Show C-alarm

Buttons: Ackn. all, Ackn., Print, Execute, Update..., Close

Select alarmtype and alarm category to show. Click on [Execute].

First the number of set, active and not acknowledged alarms are shown  
Under alarm category and alarm type you can select what to show in the alarm window.

The alarm window shows alarm number, alarm type, alarm text, ON/OFF status and if the alarm is acknowledged.

With the button “Print” the alarms displayed in the window can be printed.

A separate alarm can be acknowledged by clicking on the alarm in the window (will be blue marked) and then click on Acknowledge.

With button “Acknowledge all” all alarms in the window will be acknowledged at the same time.

If the substation is coupled to AQUAVISION no alarm acknowledgement is allowed via AquaProg. Alarm acknowledgement is in this case only allowed by the AquaVision system and is blocked in AquaProg.

With the button “Update...” you can manually start the reading from a substation's Alarm/Acknowledge status.

## 11.4 SHOW EVENTS

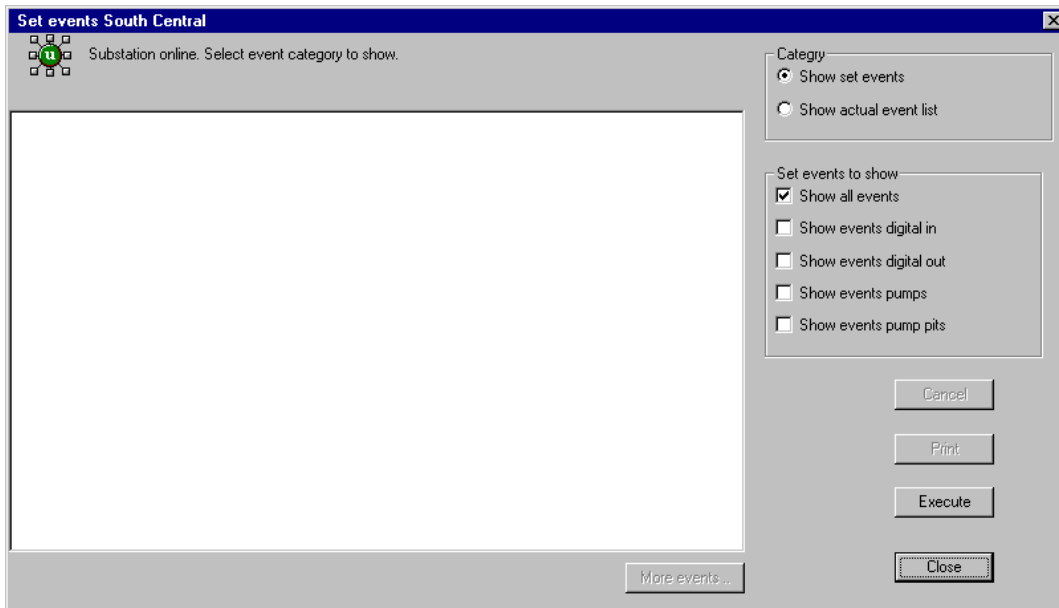
The function shows set and occurred events in a substation.

The function is selected by clicking on symbol below:



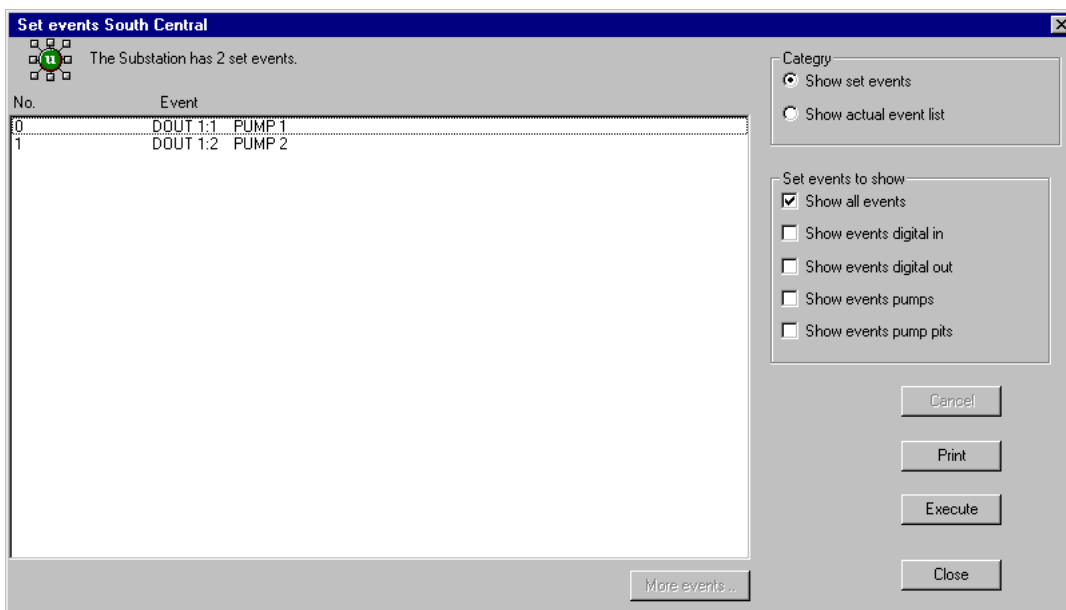
Or selecting “Collect events” in the Connection menu.

Following is shown:



Here you chose if a list of set or actual events is to be shown.

We select set events and click Execute. All set events in the substation are shown.

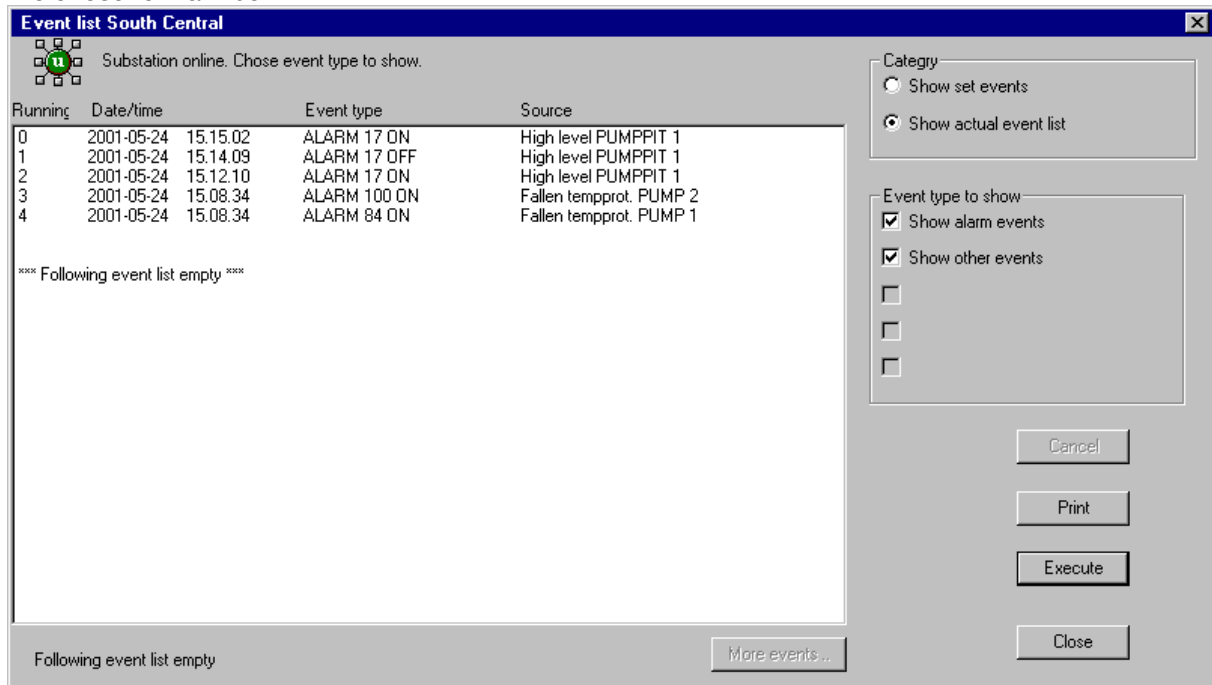


You can also select to only show events, which have to do with a pump.  
 Select “Show events pump” and click Execute.

If you instead chose actual event list as category the AquaProg collects logged events from the substation.

Here you can chose between alarm events and other events.

We chose to mark both.



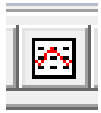
AquaProg collects the latest 15 events from the substation.  
 Clicking "More events..." collects the previous 15 events.

Displayed event list can be printed with button “Print”.

## 11.5 SHOW STATION STATISTICS

In this function all relevant station statistics can be viewed and saved to a file.

The function is selected by clicking symbol below:



Or selecting “Station Statistics” in the Show menu.

Select Values to Show

- Pump Runtime
- Pump Start Count
- Pump Capacity
- Pump Energy Consumption
- Pumped Volume
- Energy Efficiency
- Overflow Count
- Overflow Time
- Overflow Volume
- Mixer Runtime
- Mixer Start Count
- Drain Pump Runtime
- Drain Pump Start Count
- Pulse Channels
- Flow Meters
- Runtime 2 or more pumps
- Start Count 2 or more pumps
- Total Energy Consumption

Click the desired check boxes depending in what shall be included in the report.

Selection made can be saved or loaded via the buttons Save or Load settings.

**Collect new data ...**

**Save to File**

**Show Curve**

**Update Table**

**Quit**

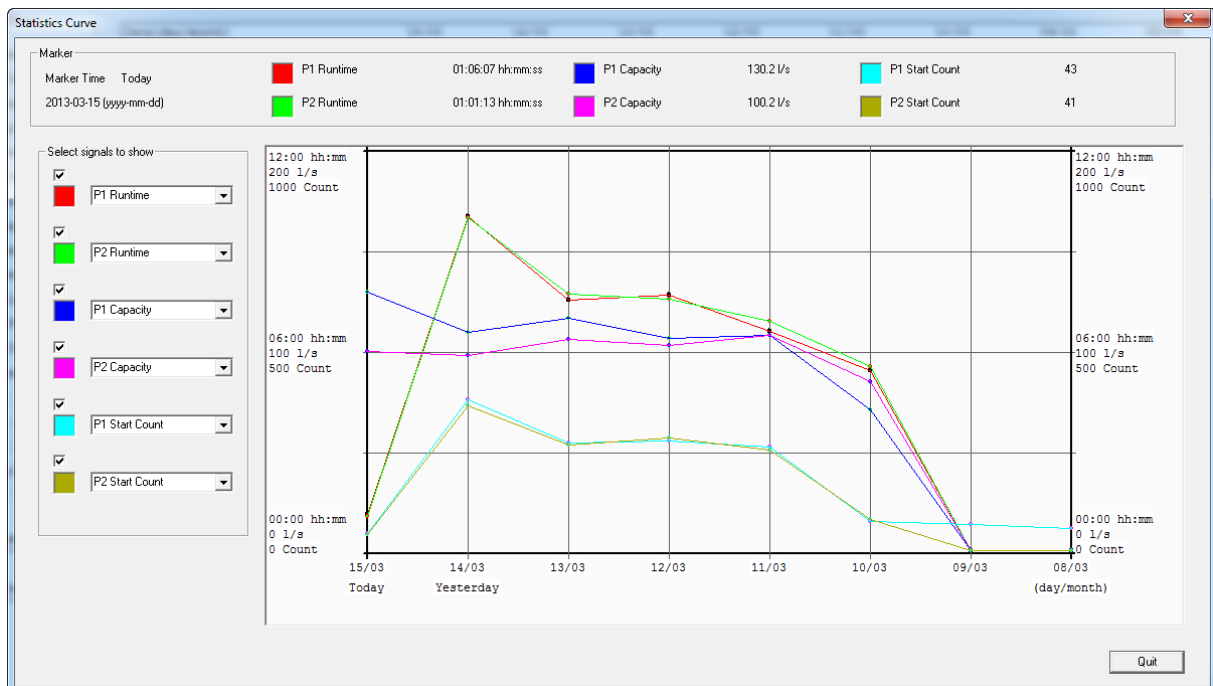
### The result from made selection as a Table

Date [day/month]	12/03 Today	11/03 Yesterday	10/03	09/03	08/03	07/03	06/03	05/03	Total
<b>Pump Runtime [hh:mm:ss]</b>									
P1	05:40:29	07:34:08	07:43:30	06:37:05	05:26:01	00:00:00	00:00:00	00:00:00	33:01:13
P2	05:41:47	07:44:45	07:35:07	06:54:58	05:34:16	00:00:00	00:00:00	00:00:00	33:30:53
P3	05:38:29	07:27:58	07:25:32	06:52:19	05:29:35	00:00:00	00:00:00	00:00:00	32:53:53
P4	05:42:33	07:29:20	07:31:06	06:50:41	05:22:55	00:00:00	00:00:00	00:00:00	32:56:35
<b>Pump Start Count</b>									
P1	193	272	276	260	74	65	55	43	1075
P2	190	267	283	253	78	0	0	0	1071
P3	190	276	273	270	80	0	0	0	1089
P4	191	258	268	253	78	0	0	0	1048
<b>Pump Capacity [l/s]</b>									
P1	112.5	116.9	106.9	108.6	70.7	0	0	0	129.2
P2	121.5	106.1	103.1	108.6	85.1	0	0	0	121.5
P3	114.0	111.9	102.0	112.3	93.6	0	0	0	114.0
P4	112.9	108.2	105.0	102.9	87.9	0	0	0	104.1
<b>Pumped Volume [m3]</b>									
	8726	11481	10558	10384	2289	0	0	0	43438

### The result from made selection unformatted in Excel

	[12/03]	[11/03]	[10/03]	[09/03]	[08/03]	[07/03]	[06/03]	[05/03]	Total	
1	Station: PC441_PumpMonitoring-DemoBox Date: 2013-03-12 09:29:16									
2										
3	Date[day/month]									
4	[12/03]	[11/03]	[10/03]	[09/03]	[08/03]	[07/03]	[06/03]	[05/03]	Total	
5	Today	Yesterday								
6	Pump Runtime[hh:mm:ss]									
7	P1	05:40:29	07:34:08	07:43:30	06:37:05	05:26:01	00:00:00	00:00:00	00:00:00	33:01:13
8	P2	05:41:47	07:44:45	07:35:07	06:54:58	05:34:16	00:00:00	00:00:00	00:00:00	33:30:53
9	P3	05:38:29	07:27:58	07:25:32	06:52:19	05:29:35	00:00:00	00:00:00	00:00:00	32:53:53
10	P4	05:42:33	07:29:20	07:31:06	06:50:41	05:22:55	00:00:00	00:00:00	00:00:00	32:56:35
11	Pump Start Count									
12	P1	193	272	276	260	74	65	55	43	1075
13	P2	190	267	283	253	78	0	0	0	1071
14	P3	190	276	273	270	80	0	0	0	1089
15	P4	191	258	268	253	78	0	0	0	1048
16	Pump Capacity[l/s]									
17	P1	112,5	116,9	106,9	108,6	70,7	0	0	0	129,2
18	P2	121,5	106,1	103,1	108,6	85,1	0	0	0	121,5
19	P3	114	111,9	102	112,3	93,6	0	0	0	114
20	P4	112,9	108,2	105	102,9	87,9	0	0	0	104,1
21										
22	Pumped Volume[m3]									
23		8726	11481	10558	10384	2289	0	0	0	43438

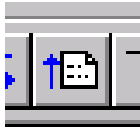
## The result from made selection as a Curve



## 11.6 SHOW LOG DATA IN TABLE & GRAPHICAL FORM

Number of log channels will vary depending on controller connected!

The function is selected by clicking symbol below:



Or selecting “Collect log data” in the Connection menu.

First information about set log channels is collected from the substation. Here AquaProg gets information about log interval, log type etc. for every log channel.

Collect log data from PC441\_PumpMonitoring-DemoBox

Log channels to collect:

<input checked="" type="checkbox"/> 1: Level	<input type="checkbox"/> 9: Closed	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/> 2: Inflow	<input type="checkbox"/> 10: Closed	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input checked="" type="checkbox"/> 3: Outflow	<input type="checkbox"/> 11: Closed	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> 4: Overflow level	<input type="checkbox"/> 12: Closed	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> 5: Overflow flow	<input type="checkbox"/> 13: Closed	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> 6: Back-Pressure	<input type="checkbox"/> 14: Closed	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> 7: Closed	<input type="checkbox"/> 15: Closed	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="checkbox"/> 8: Closed	<input type="checkbox"/> 16: Closed	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Log blocks (days) to collect:

Start block:  up to   All blocks (0-15)

0=Today, 1=Yesterday, 2=Day before yesterday... 15

Chose log channels and log blocks to collect from the substation

Buttons: Show inf. log ch, Collect log data ..., Close

The operator selects which log channels are to be collected and which log blocks.

UP20/PCx stores all logged data for one day in one log block.

Log block zero has the information from today and log block 31 the information from 31 days back.

PCx store data from 99 days back and has 100 log blocks.

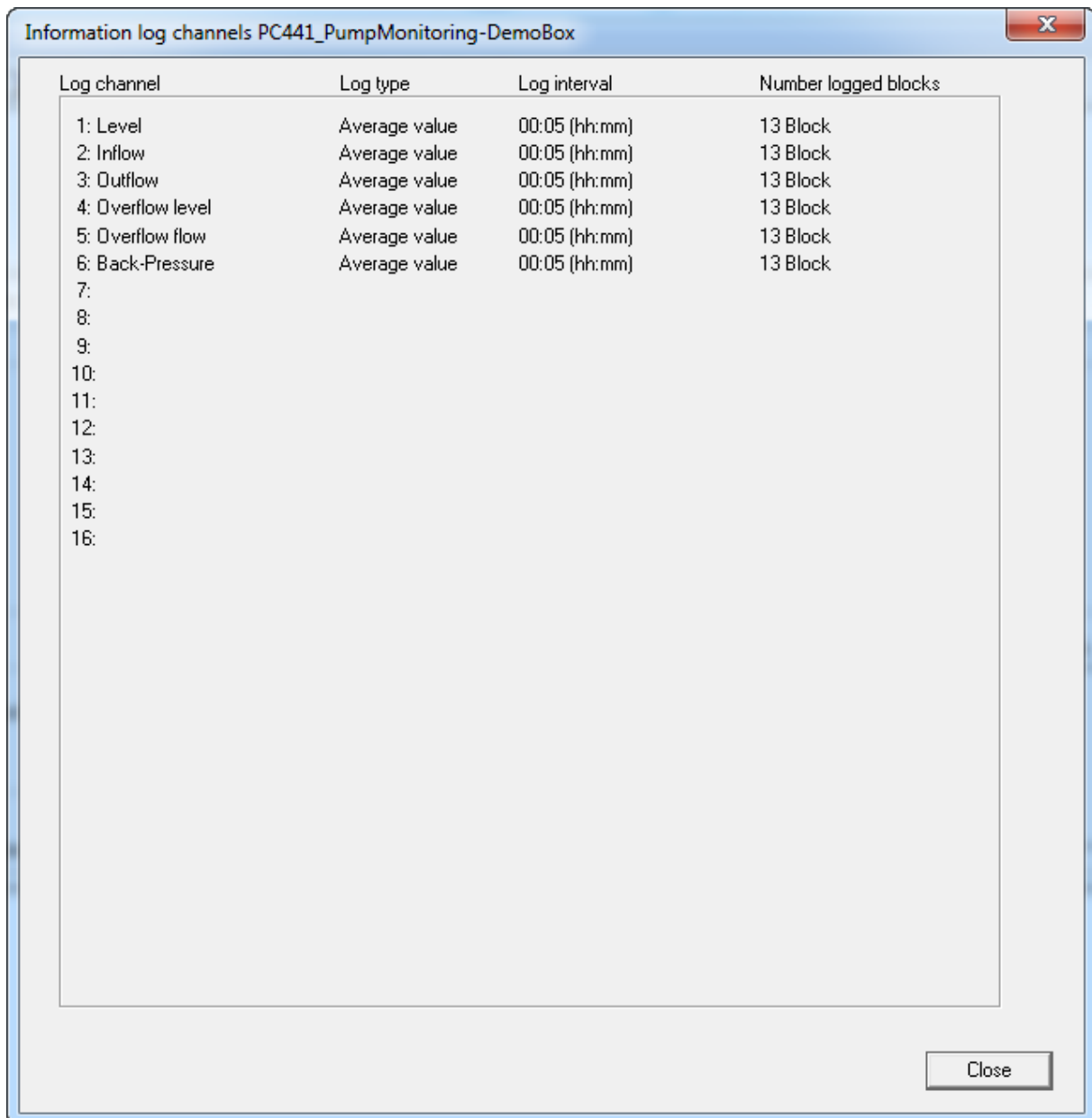
It is not certain that a log channel has the history for 32(100) days stores, i.e. stored log data for 31(99) days back. At short log intervals it can happen that several blocks are needed to store information for the same day. The history will then decrease.

Same thing happens if the operator changes the settings of a log channel.

CP 116 / CP 216, PC 242 and PC 441 can store data for up to 10 days.

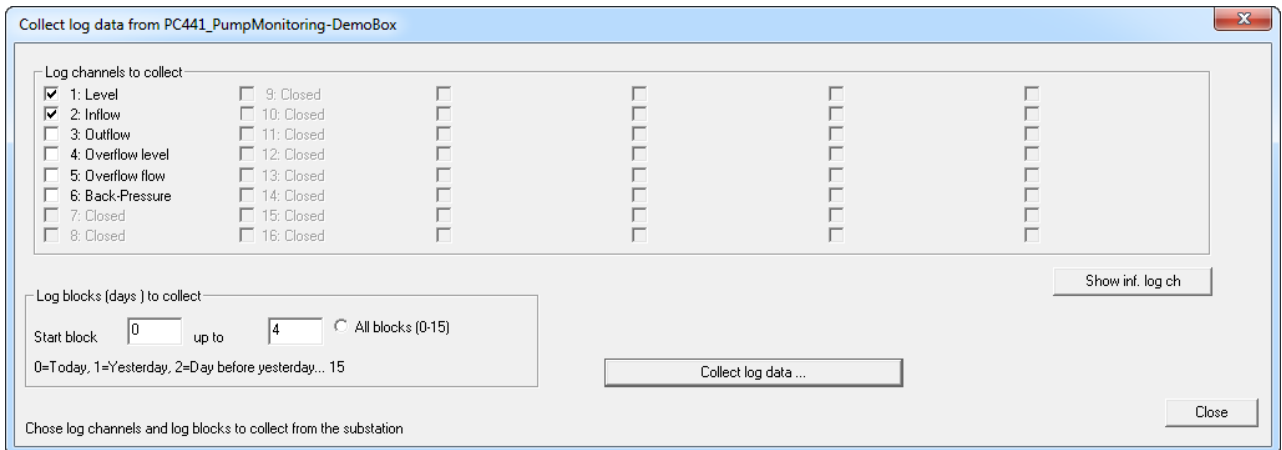


Settings for each log channel can be checked by clicking button “Show inf.log channels”.

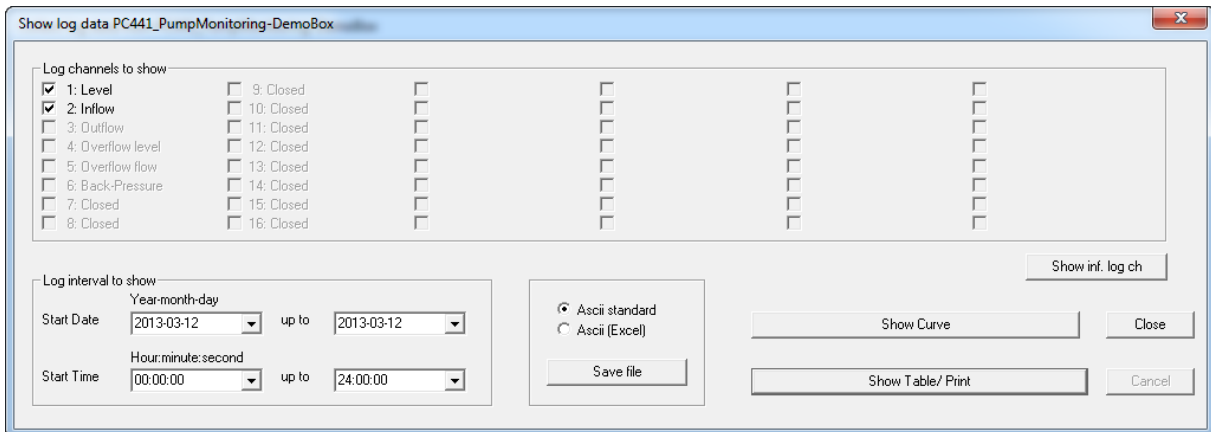


We return to previous picture by clicking Close.

Mark that log channel 1 and 2 shall be collected and blocks 0 – 4.



After collecting the following picture is shown.



Here can be selected which of the collected log channels are to be displayed, printed or saved to file  
We select log channel 1 and 2.

As log interval for displaying we select 2013-03-12 to 2013-03-12

As time interval we chose 00:00:00 till 24:00:00 which means that we want to look at the whole day.

AquaProg can store log data in two different file formats: Ascii standard and Ascii Excel.

In format Ascii Exel a ; is used to separate the data fields and is and is used for importation to Excel.

Asscii standard is a tab-separated format and is used for printers.

Select format and click “Save file” if you want to save the file.

We select the button Show Table/Print.

Following picture will be shown

Date	Time	1: Level m	2: Inflow l/s
2013-03-12	09:10:00	0.90	98.9
2013-03-12	09:15:00	1.03	120.6
2013-03-12	09:20:00	1.02	146.4
2013-03-12	09:25:00	1.05	169.8
2013-03-12	09:30:00	1.19	126.1
2013-03-12	09:35:00	0.87	138.7
2013-03-12	09:40:00	0.96	117.0
2013-03-12	09:45:00	1.04	127.9
2013-03-12	09:50:00	1.02	144.3
2013-03-12	09:55:00	1.05	167.7
2013-03-12	10:00:00	1.19	137.2
2013-03-12	10:05:00	0.88	126.8
2013-03-12	10:10:00	1.02	104.0
2013-03-12	10:15:00	1.03	127.4
2013-03-12	10:20:00	1.00	154.7
2013-03-12	10:25:00	1.07	171.6
2013-03-12	10:30:00	1.20	125.3
2013-03-12	10:35:00	0.87	134.0
2013-03-12	10:40:00	0.96	112.8
2013-03-12	10:45:00	1.05	110.6

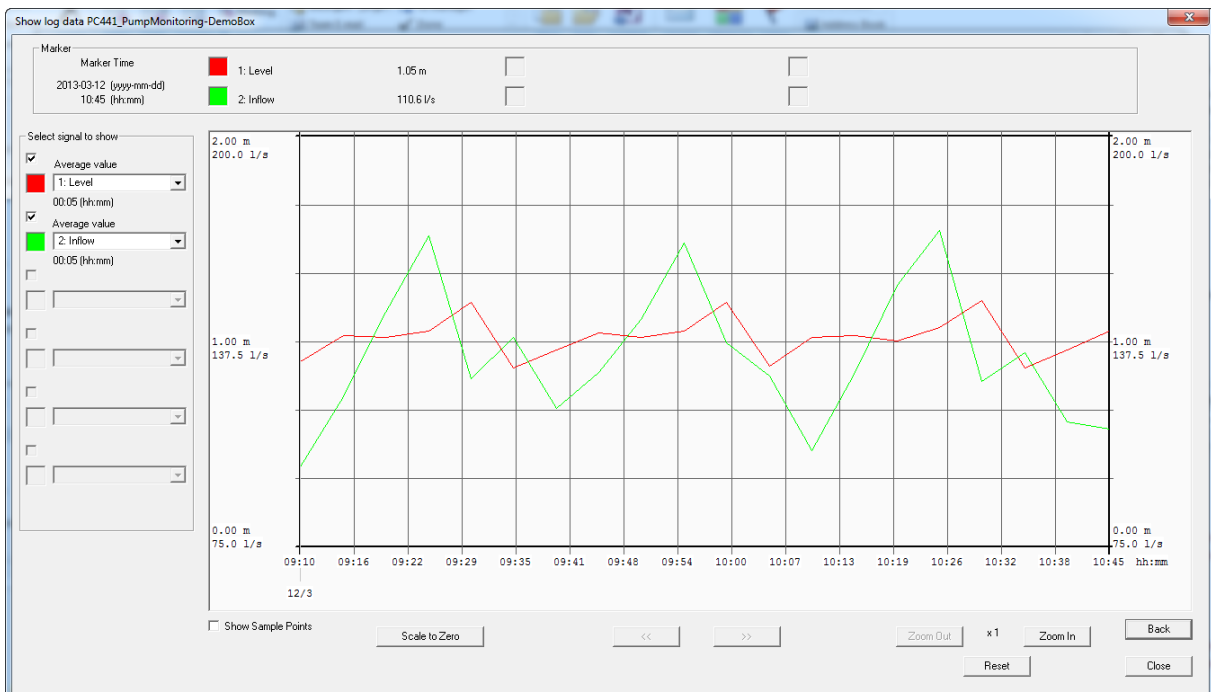
Average value      Average value

Displayed interval 2013-03-12 00:00:00 - 2013-03-12 10:45:00

Cancel    Print...    Back    Close

Max 6 log channels can be displayed simultaneously on the screen and max 4 can be printed simultaneously in the same document.

If we select the button Show Curve it can look like this



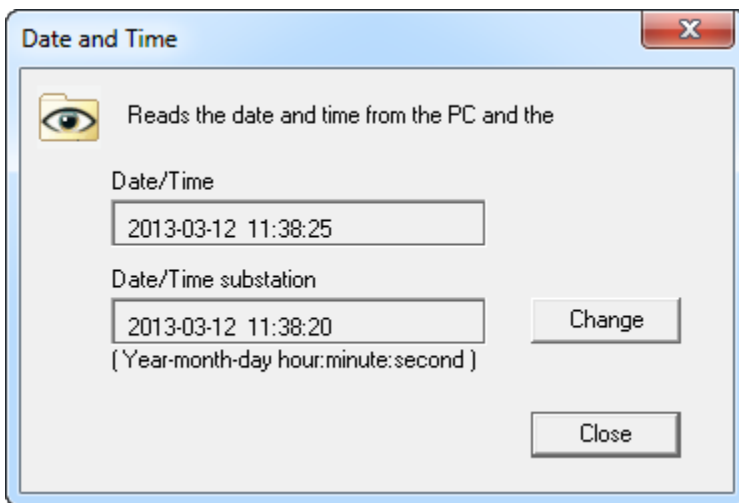
## 11.7 SHOW/SET CLOCK

With this function it is possible to check present date/time in a connected substation. It is also possible to set the clock either manually or by synchronizing with the clock in the PC.

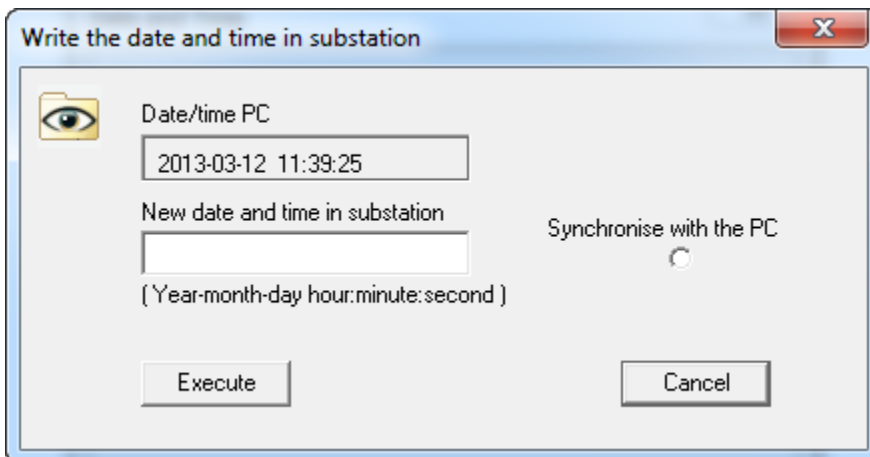


The function is selected by clicking on the symbol:  
Or select "Set date and time" in the Connection menu.

Following is shown:



Here the date and time in the substation and PC are shown. If you want to set the time click on "Change".



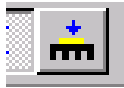
Here you can change the date and time in a connected substation. Either manually or by synchronization with PC clock.

## 11.8 UPGRADE SOFT/FIRMWARE

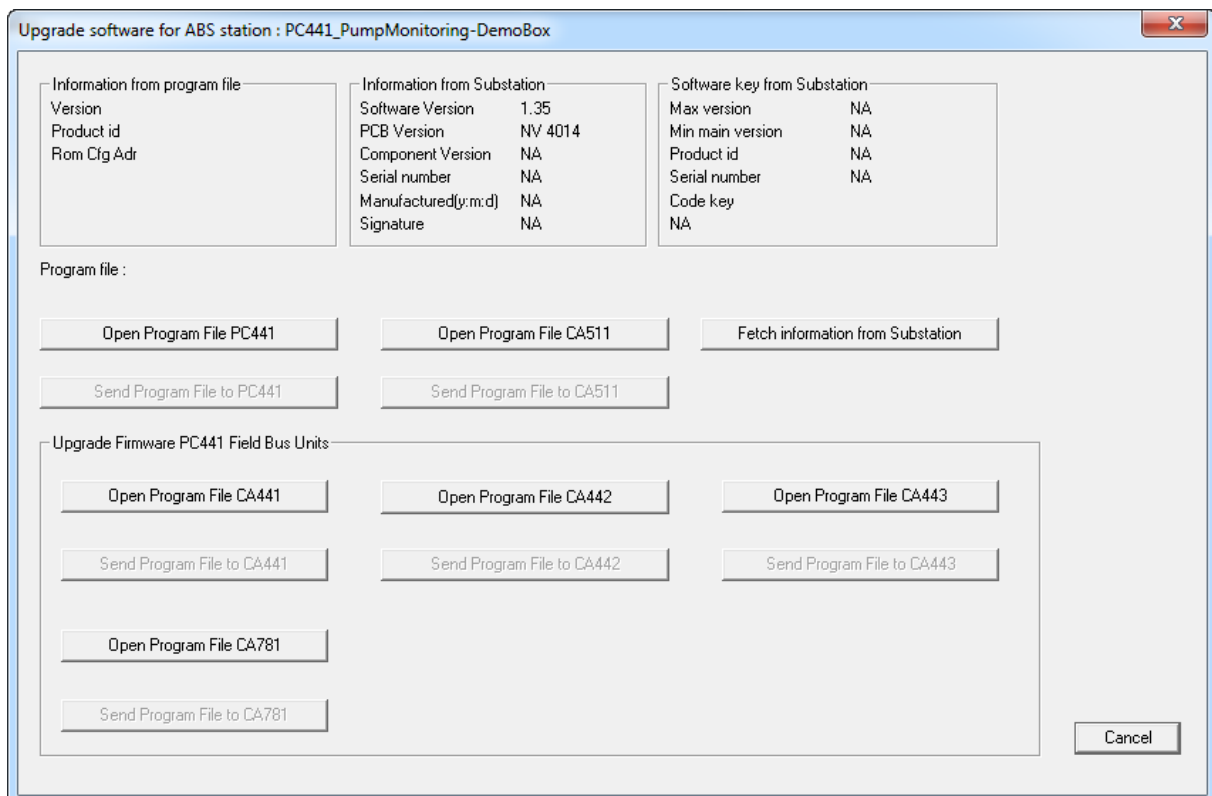
This function is used for upgrading the firmware of the different controllers.

Major program releases needs a key to be downloaded. This key is obtained from Sulzer.

Upgrade is selected by clicking:



Following is shown: (Depending on selected version of controller)



AquaProg reads following information from the connected substation:

Current program version, PCB version, Serial number, Manufacturing date and the current program key when applicable.

Here it is shown what software updates that can be made without a new program key.

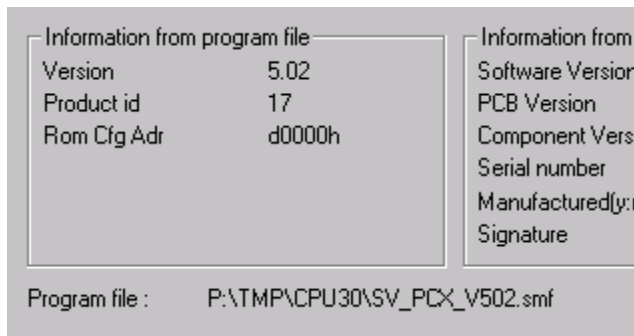
Max version: The highest program version that the substation can be upgraded to with the current program key.

Min main version: The lowest current program version to allow upgrading.

To load new software, click "Open Program File".

Files used have the extension type .smf. E.g. PC441\_V135.SMF.

When the program file is opened following information is shown:

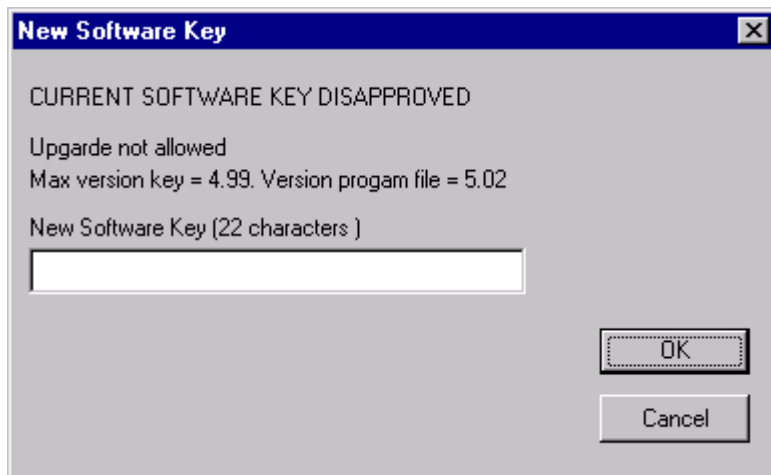


Here is shown what program version the file contain and what product it is intended for. At the bottom the name and path of the file is shown (SV\_PCx\_V502.smf).

Since the program version of the program file is 5.02 and current key only allows upgrading to version 4.99 (see previous page), a new program key is needed to allow upgrading.

To start downloading of new software, click "Send Program File to Substation".

Following window is shown if the current program key doesn't allow upgrading:

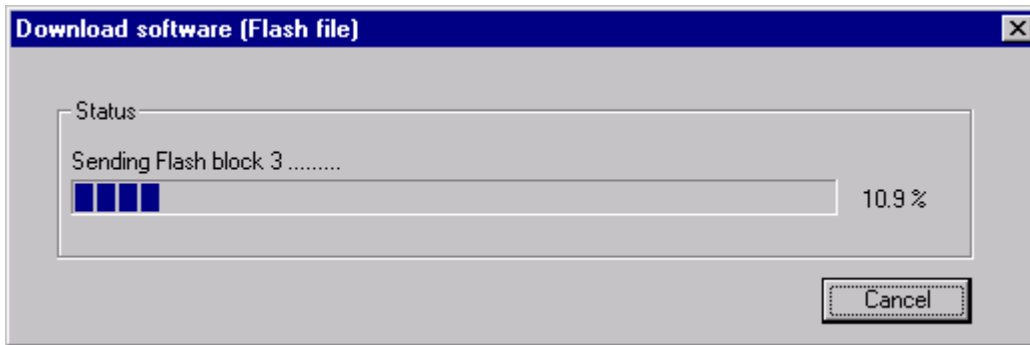


Enter the new program key and click "OK".



All controlling of pumps etc. is stopped when the substation is in downloading mode. Here is warning and a possibility to cancel. Click "OK" to start downloading the new program.

Following window is shown during downloading:

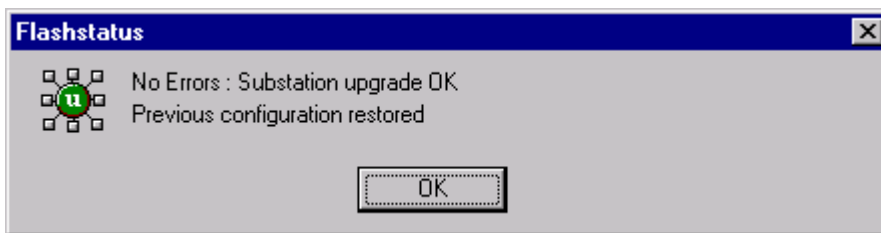


The downloading time is about 5 min. at 115200 Baud fixed line.  
 If a modem or lower connection speed is used the time for downloading is increasing consequently.

There is no risk by interrupting the download by pressing "Cancel".  
 The substation will restart and use the previous software.

The configuration in the substation is saved before downloading starts and is restored when the downloading is finished.

Following window is show after a upgrade has succeeded.



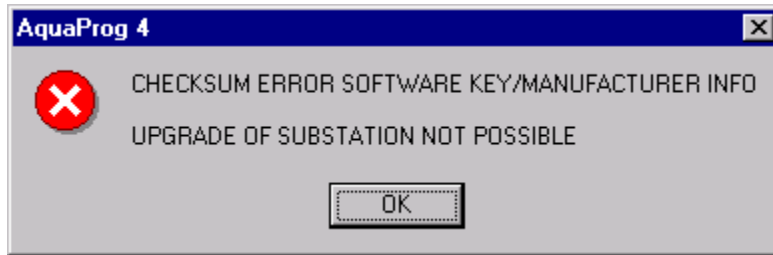
Thereafter AquaProg reads the manufacturing information and program key from the substation.

If the downloading is cancelled, following window is shown:



The substation continues to run the previous software.

To be able to upgrade a substation, a correct program key and manufacturing information must be loaded. This is done at factory before delivery to customer. If the information is corrupted, following window is shown:



Upgrading is not possible.  
Contact Sulzer.



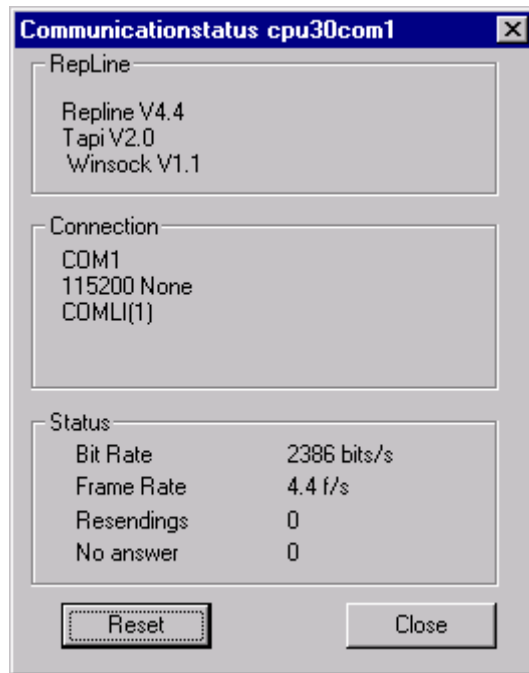
## 12 SHOW COMMUNICATION STATUS

Sometimes it is desirable to check the quality of a connected line. AquaProg has a function, which checks the number of wrong messages from a connected substation.

The function is selected by clicking symbol below:



Or selecting “Show Communication status” in the Display menu.



### Repline

Here is information about the communication server Repline.

### Connection

Here is information what type of connection is used etc.

### Status

Here the number of resending's is shown as number of messages without answer, which have occurred when in communication with a substation.

The counters are set to zero by clicking “Reset”.

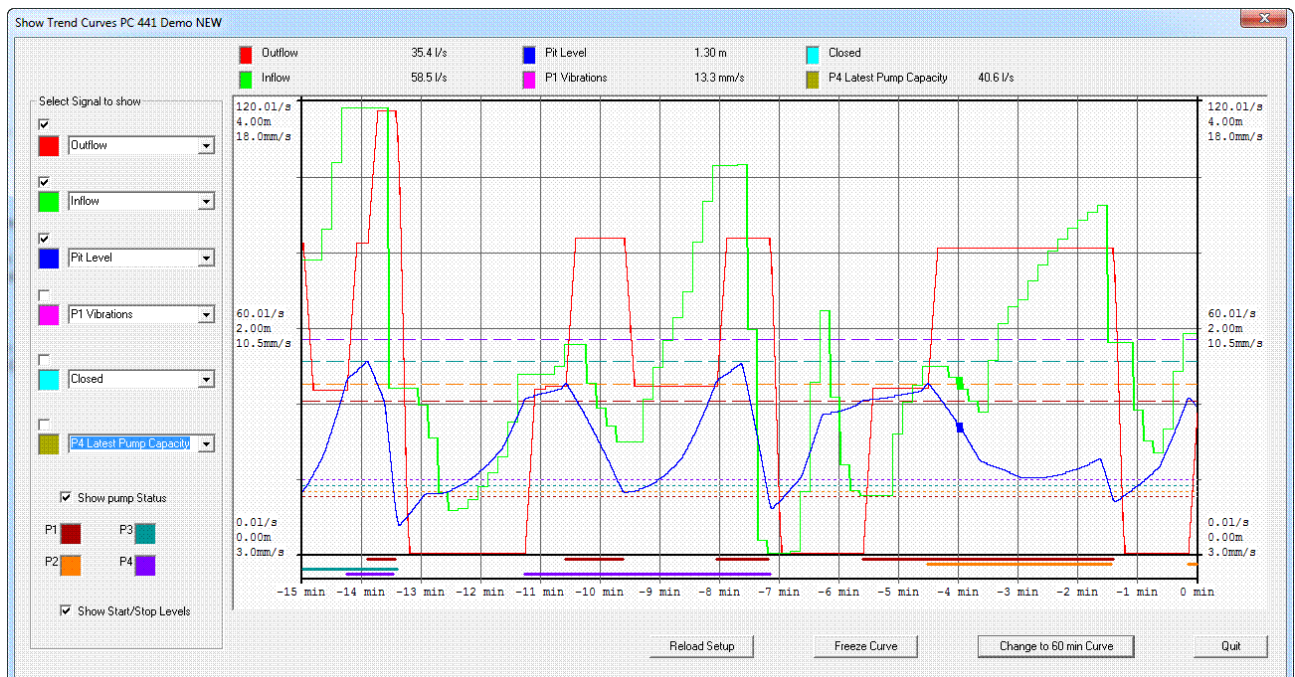
At the same time the actual data transfer speed is shown as number of bits per second and number of messages per second.

When there are too many resending's and/or a low bit rate it may be advisable to disconnect the line and try again with another line.

# 13 ONLINE TREND MODULE



Here you can select between showing 6 different online trend signals!  
 To this you can also choose to show Pump status as well for Start/Stop levels!  
 This will be a most valuable tool!!  
 Especially for adjusting the pump capacity calculation or checking the power supply  
 as well for any fault finding in the pump!!!  
 You can choose between a 15 and 60 minute time window.  
 In the background AquaProg is receiving up to 20 values per second showing a calculated sampling  
 with 1 or 4 seconds interval depending on selected time window frame.



The value drawn will be a dot or line depending on how much the value has changed during the sampling calculation!

Depending on communication speed and quality we handle a sampling rate of up to 20 samples per second!

If it is indicated as a vertical line it means we have a span between highest and lowest value during the calculation of the value shown and of course the span!!!

**Note!** We have not included any print out or save function!  
Just use conventional print screen command or any screen dump software!

**AquaProg has trend support for:**

- PC 242
- PC 441
- CP 112-212
- CP 116-216

A ruler can be placed indicating the actual values and time from current time!

When connected to a PC 441 you can select between showing the following parameters:

Pump controller PC 441	
- Closed	- P2 Motor Current L1
- Pit Level	- P2 Motor Current L2
- Inflow	- P2 Motor Current L3
- Outflow	- P3 Motor Current L1
- Overflow Level	- P3 Motor Current L2
- Overflow Flow	- P3 Motor Current L3
- Back-Pressure	- P4 Motor Current L1
- Power frequency	- P4 Motor Current L2
- Voltage L1-L2	- P4 Motor Current L3
- Voltage L2-L3	- P1 Temp. Stator T1
- Voltage L3-L1	- P1 Temp. Upper Bearing
- Power supply	- P1 Temp. Lower Bearing
- P1 Motor Current	- P1 Temp. Stator T4
- P2 Motor Current	- P2 Temp. Stator T1
- P3 Motor Current	- P2 Temp. Upper Bearing
- P4 Motor Current	- P2 Temp. Lower Bearing
- P1 Nom. Pump Capacity	- P2 Temp. Stator T4
- P2 Nom. Pump Capacity	- P3 Temp. Stator T1
- P3 Nom. Pump Capacity	- P3 Temp. Upper Bearing
- P4 Nom. Pump Capacity	- P3 Temp. Lower Bearing
- P1 Power Factor	- P3 Temp. Stator T4
- P2 Power Factor	- P4 Temp. Stator T1
- P3 Power Factor	- P4 Temp. Upper Bearing
- P4 Power Factor	- P4 Temp. Lower Bearing
- P1 Vibrations	- P4 Temp. Stator T4
- P2 Vibrations	- AI2 P1 Motor Current / Selected funct.
- P3 Vibrations	- AI3 P2 Motor Current / Selected funct.
- P4 Vibrations	- AI4 P3 Motor Current / Selected funct.
- P1 Pump Power	- AI5 P4 Motor Current / Selected funct.
- P2 Pump Power	- AO 1 mA Output
- P3 Pump Power	- AO 2 mA Output
- P4 Pump Power	- PID Set Point
- P1 Motor Current L1	- P1 Latest Pump Capacity
- P1 Motor Current L2	- P2 Latest Pump Capacity
- P1 Motor Current L3	- P3 Latest Pump Capacity
-	- P4 Latest Pump Capacity
-	-

When connected to a PC 242 you can select between showing the following parameters:

Pump controller PC 242	
- Closed	- P1 Nom. Pump Capacity
- Pit Level	- P2 Nom. Pump Capacity
- Inflow	- P1 Temperature
- Outflow	- P2 Temperature
- Overflow Level	- Power supply
- Overflow Flow	- AI4 Back-Pressure / Free choice
- P1 Motor Current	- P1 Latest Pump Capacity
- P2 Motor Current	- P2 Latest Pump Capacity
-	-

When connected to a CP 112-212 you can select between showing the following parameters:

Control Panel CP 112 & CP 212	Control Panel CP 212
- Closed	- Closed
- Pit Level	- Pit Level
- P1 Motor Current L1	- P1 & P2 Motor Current L1
- P1 Motor Current L2	- P1 & P2 Motor Current L2
- P1 Motor Current L3	- P1 & P2 Motor Current L3
- P1 Power Factor	- P1 & P2 Power Factor
- Back-Pressure	-
-	-

When connected to a CP 116-216 you can select between showing the following parameters:

Control Panel CP 116 & CP 216	Control Panel CP 216
- Closed	- Closed
- Pit Level	- Pit Level
- Inflow	- Inflow
- Outflow	- Outflow
- Overflow Level	- Overflow Level
- Overflow Flow	- Overflow Flow
- AI4 Back-Pressure / Free choice	- AI4 Back-Pressure / Free choice
- P1 Motor Current	- P1 & P2 Motor Current
- P1 Nom. Pump Capacity	- P1 & P2 Nom. Pump Capacity
- P1 Power Factor	- P1 & P2 Power Factor
- P1 Motor Current L1	- P1 & P2 Motor Current L1
- P1 Motor Current L2	- P1 & P2 Motor Current L2
- P1 Motor Current L3	- P1 & P2 Motor Current L3
- P1 Latest Pump Capacity	- P1 & P2 Latest Pump Capacity
-	-

## 14 OPERATOR LOG

When an operator makes changes in a substation it can be good to have documentation about the changes.

AquaProg has a function, which opens Windows Notepad with a unique file name for each substation. The files are saved as station namen.txt in the catalogue OPLOGG that is in the AquaProg catalogue.

The function is selected by clicking symbol below:



or select “Open operator log” in adm. menu.

Here the operator can make notes about made changes.

## 15 SETTING FOR CROSS-REFERENCE

The cross-reference table is used when you want to optimise the data flow between the substation and the supervision system. The function is supported for the following Sulzer units:

- CP 116/216
- PC 242
- PC 441
- PCx
- (UP 20)

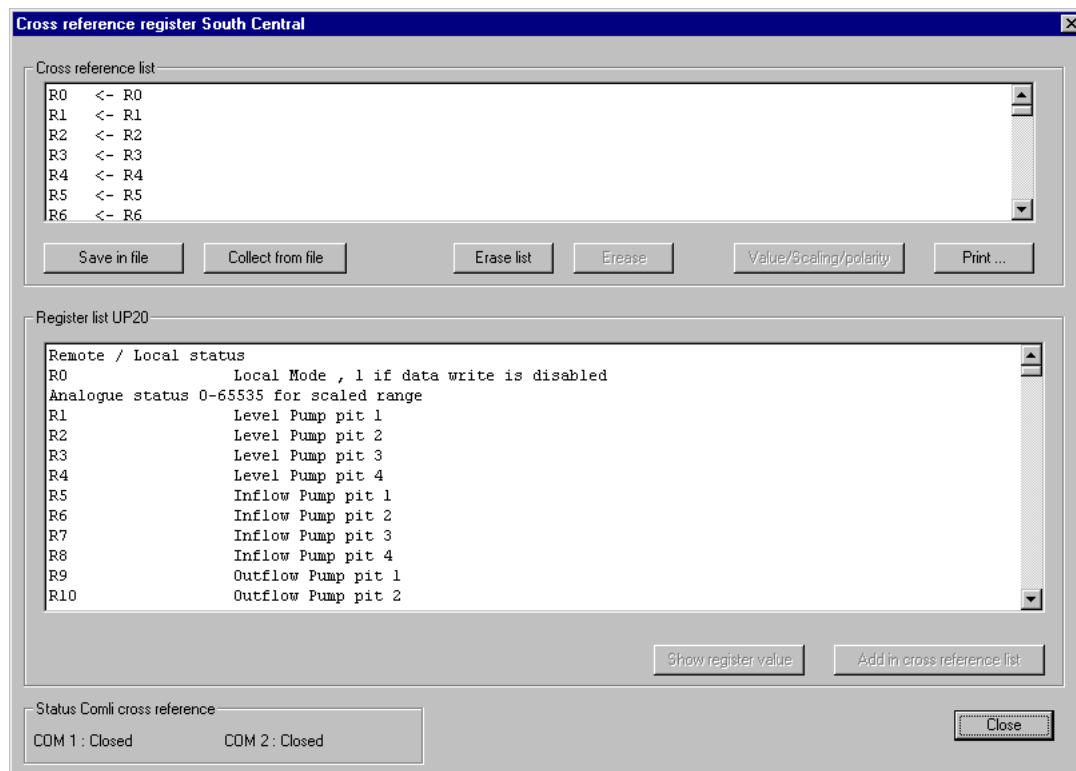
You can save and collect the cross-reference list for registers and I/O-bits. These are saved in a separate file, in the catalogue Crossref, in the AquaProg catalogue.

### 15.1 CROSS REFERENCE FOR REGISTERS

The function is selected by clicking the symbol below:



Or select “Open cross reference register “ in the connection menu. The picture shows an example of a cross-reference list for registers. By clicking the button Value/Scale/Polarity it is possible to check the content of the register and find out if the scaling is correct.



## 15.2 CROSS-REFERENCE FOR I/O-BITS

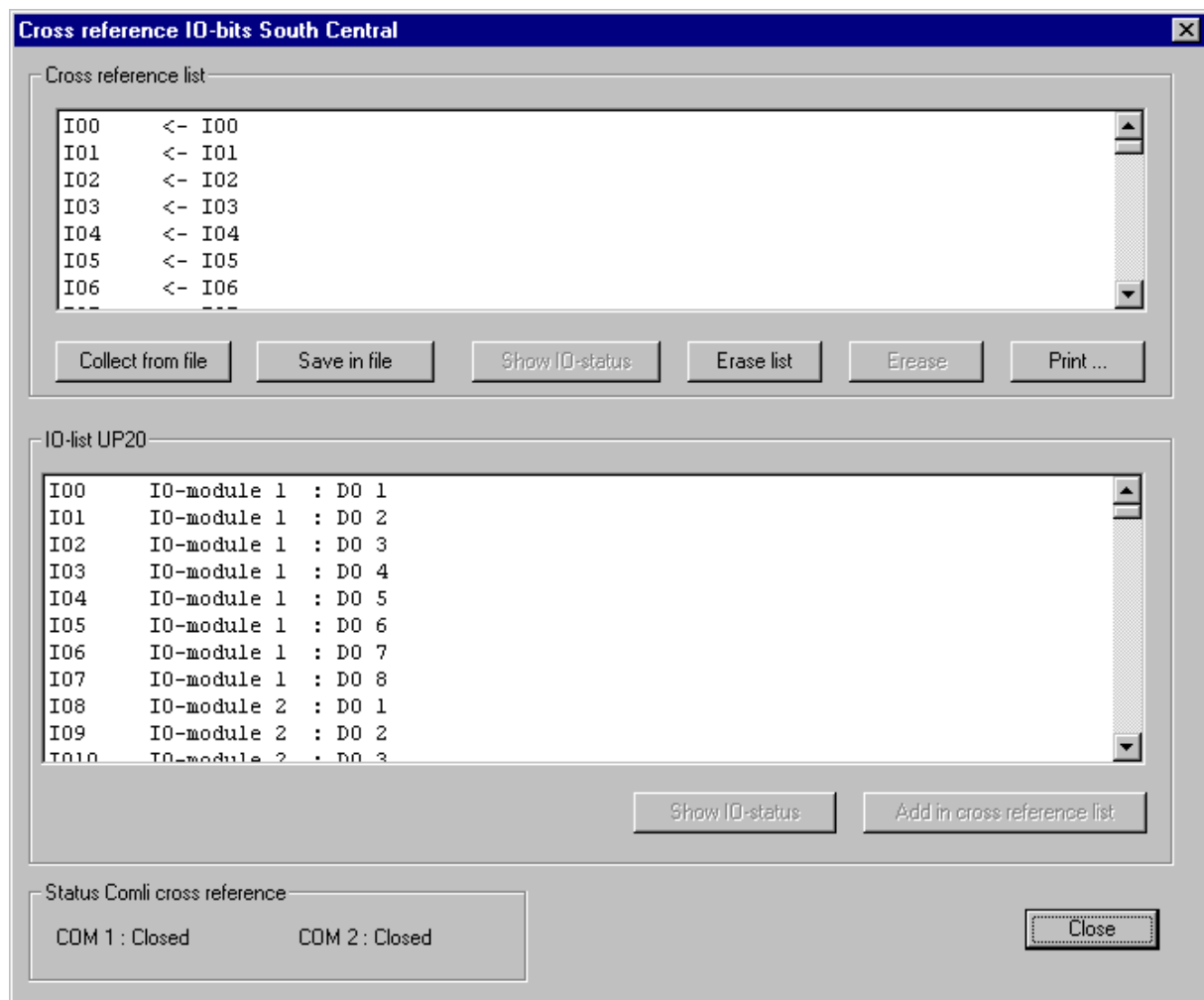
The function is selected by clicking:



Or selecting "Cross reference I/O-bits" in the connection menu.

This function is mainly used to reduce the number of IO's/Tags used for the SCADA system

The picture shows cross-reference list for I/O-bits.



By clicking the button Show I/O-status the value for the I/O-bits is shown.