



INSTRUCTION MANUAL

PowCom™ 5.2.x

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1.1 General Introduction

PowCom™ software is a Windows based program that communicates with and controls UNIPOWER Aspiro and Guardian rectifiers and supervision systems. The software allows a user to access the system from a remote location using a graphic user interface to perform the same functions that are available on the controller (PCU/PCS/GMC/PCC/ACC/ACX).

Some of these functions include:

- Viewing battery test data.
- Displaying battery discharge curves.
- A database function for saving battery test information.
- Context sensitive help. Pressing the F1 key opens a help menu that is sensitive to the current active window.
- Site installation information.
- Devices operating status.
- System data logging and collecting



NOTE Some functions described in this chapter may not be available to all systems due to different hardware configurations.

1.2 Hardware Requirements

PowCom™ software requires a computer with Microsoft Windows98SE or later with at least one serial port available. A modem/null-modem cable/USB is used to connect from the serial port on the computer to the external hardware.

The modem must be Hayes compatible and communicate on one of the following baud rates: 2400, 4800, 9600 and 38400. The baud rate must be at least as high as the one in the power system.

PowCom™ will automatically adjust itself to the baud rate in the power system if it is lower than the one in PowCom™. Therefore, it is possible to call a system that has a modem with the baud rate set to 2400, with a 9600 baud modem. However, the power system cannot be adjusted to a lower baud rate. Therefore, it is impossible to call a system which has a modem with a baud rate of 9600, and which is adjusted to 9600 baud, with a 2400 baud modem.

1.3 Feedback & Support

Product support can be obtained using the following address and telephone numbers.

Manufacturing facility:
UNIPOWER, LLC
65 Industrial Park Rd
Dunlap, TN 37327
United States

Phone: +1-954-346-2442
Toll Free: 1-800-440-3504
Web site – www.unipowerco.com

When contacting UNIPOWER, please be prepared to provide:

1. The product model number, spec number, S build number, and serial number
- see the equipment nameplate on the front panel
2. Your company's name and address
3. Your name and title
4. The reason for the contact
5. If there is a problem with product operation:
 - Is the problem intermittent or continuous?
 - What revision is the firmware?
 - What actions were being performed prior to the appearance of the problem?
 - What actions have been taken since the problem occurred?

2.1 Installation

1. Download the latest PowCom™ setup file of your choice from the [software downloads](#) page on the UNIPOWER web site.
2. The downloaded program works in read-only mode until the license key has been entered.
3. Obtain a license key from your UNIPOWER sales associate. Note that your company may have a company license with a license number distributed internally. It is recommended to check this before contacting UNIPOWER.
4. After extracting the zip file run setup.exe.



NOTE Administrator rights for Win2000, XP, Vista, Windows7 or later are required.

5. The program will prompt for an installation directory. Select the directory for installation. The default directory is:

C:\Program Files (x86)\UNIPOWER\PowCom

Press “Next” after entering the directory.



NOTE In most cases warnings are caused by DLL files in the WINDOWS/SYSTEM directory being newer than the version on the installation disk but should not cause a problem with the system.

6. PowCom™ supports multiple languages. The preferred language can be selected in the language selection page, see Figure 2-1.

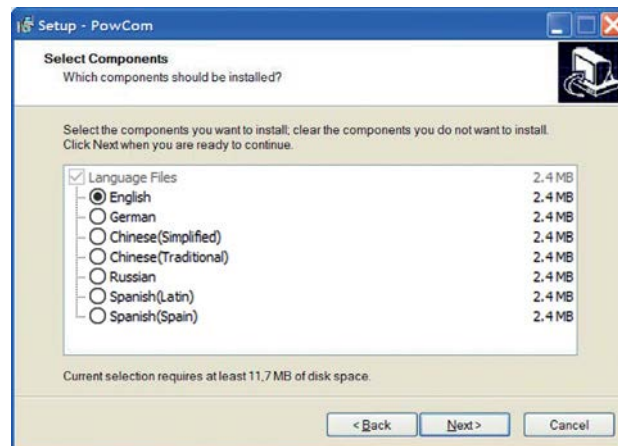


Figure 2-1 Language Selection

2.2 Compatibility with older versions of PowCom™

Data files (phone book, tests data) from previous versions of the PowCom™ can be used in this version. Copy these files to the PowCom™ data folder. The path to this folder is:

C:\Documents and Settings\All Users\Application Data\PowCom
(Windows 2000/Windows XP)

or:

C:\Users\<username>\AppData\Roaming\UNIPOWER\PowCom
(Windows Vista/Windows 7)

or subfolder Data of the PowCom4 application folder:

C:\Program Files\PowCom\Data
(Windows 98/Windows Me)

For modem installation, please consult the system documentation.



NOTE Prior to release 5.00.05 PowCom™ default file paths used 'Power-One' in place of 'UNIPOWER'.

2.4 Null-modem Cable

If a null-modem cable is used to communicate directly with a control unit without using a modem, select **Communication / Direct communication**. The baud rate for both, PowCom™ and the control unit should be the same. If the baud rate for PowCom™ and the control unit are different, it is impossible to make a connection.

Connect the cable to the 9-pin plugs as follows:

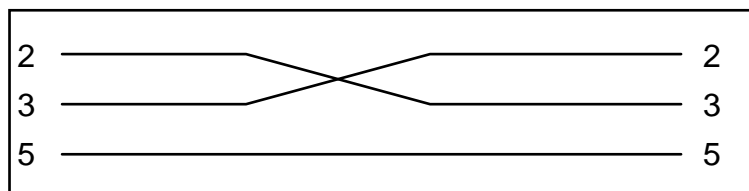


Figure 2-2 Null-modem cable

2.4 USB Cable

The ACC/ACX controller does not have a DB9 connector for direct communication but it has USB connector. A standard USB AM-BM cable can be used for connection, see figure 2-3. For some systems it is also possible to use a serial port (RJ-45) on the internal connection board.

When the ACC/ACX is connected to the PC, a virtual COM port is created and should be set as a communicator port in PowCom™. For port setting see **Com port setup**, section 4.1.5.



NOTE PowCom™ has to be installed before the ACC/ACX is connected for the first time, otherwise Windows does not recognize the ACC/ACX correctly.

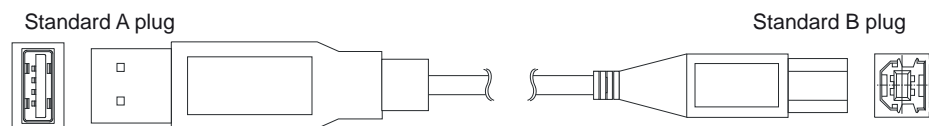


Figure 2-3 USB cable

3.1 Main Window

When connected to the system, the PowCom™ main window displays various information about the system. The information may differ depending on the particular system, but the key parameters like system voltage and battery current are usually displayed here. The main part of the window is occupied by a diagram that shows basic information.

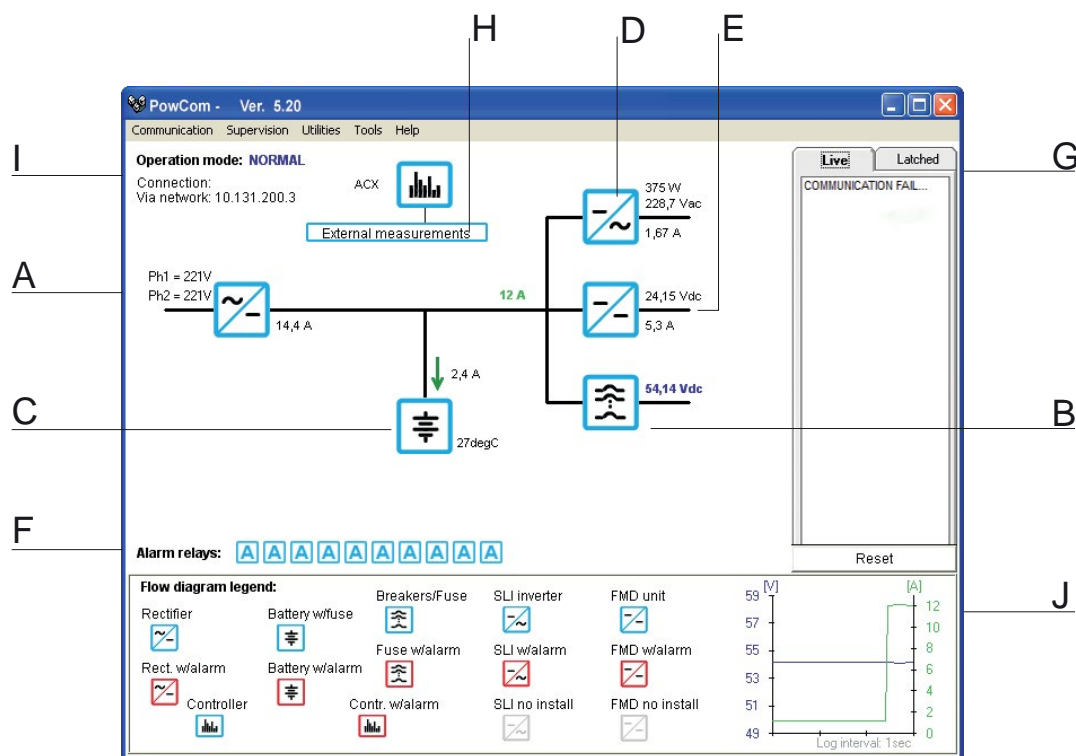


Figure 3-1 Main Window



NOTE The information displayed when clicking on the icons vary depending on the type of the controller and also on the power system setup.

A. Rectifier Icon



The rectifier icon displays the rectifier current. When this icon is clicked on, module information is displayed at the bottom left side of the main window. (See A in Figure 3-1.)

For more information see Module Information in section 3.1.1.

B. Breaker Icon



The value next to the Breaker icon displays the system voltage and load current.

For a system controlled by a PCS it has individual current measurements:

When this icon is clicked on, system specific information is displayed. On PCS system that have distribution with individual current measurement it shows control that displays current values and allows settings of the individual high current alarms. If the limit checkbox is not checked the limit is inactive. Setting the limit to 0 is the same as deactivating it. (See B in Figure 3-1.)

C. Battery Icon



The value next to this icon displays the battery current. (If the current is negative the battery is discharged.) When this icon is clicked on battery symmetry information is shown if the system is set up to measure it. If a battery temperature probe is installed, battery temperature information is also displayed here. (See C in Figure 3-1.)



NOTE With the ACC/ACX controller, if the battery capacity is set, a capacity indicator is displayed below the battery icon. However, as not all information from the ACC/ACX is available for the PowCom™ software, the remaining capacity shown in PowCom™ can differ from the information shown on the ACC/ACX display.

Symmetry voltage

Symmetry voltage lists the measured values of the symmetry voltages. If the battery/batteries contain 18 cells, one of the measurements for each battery will be 0.00V.

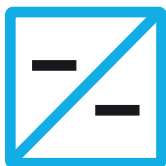
A Red icon signifies an alarm appertaining to that particular icon.

D. Inverter Icon



This icon displays the current of the inverter. When this icon is clicked on, module information is displayed at the bottom left side of the main window. (See D in Figure 3-1.)

E. Converter Icon



This icon displays the current of the DC converter. When this icon is clicked on, module information is displayed in the bottom left side of the main window. (See E in Figure 3-1.)

F. Alarm relay



The alarm relay icon is displayed in blue and indicates the alarm condition for a specific relay. A Red icon signals an alarm condition. (See F in Figure 3-1.)

G. Alarm Information

Details of signaled alarm are shown on the right side of the main window. (See G in Figure 3-1.) If the main window is small and the Alarm Information is not displayed the Alarm icon goes active.

Selecting the LIVE or LATCHED tab will display current and previously recorded intermittent alarms respectively.



NOTE The LATCHED tab will only be displayed when connected to a controller supporting this feature, e.g. ACX Advanced with firmware version 2.20 or later.

H. External Measurements

This button is available only if one or more external measurements are set in the system. If it is clicked on, a window with detailed information about external measurements (that are system specific, i.e. they are not standard measurements) appears. These measurements and their descriptions are programmed in the configuration of the system. (See H in Figure 3-1.)

I. Operation mode

A text field indicates the charging status of the system; NORMAL, BOOST, TEST, SPARE, etc. (See I in Figure 3-1.)

J. Graphic chart

The Graphic chart in the bottom right corner displays value history for the selected interval (time on the x-axis; voltage, current or temperature on the y-axis). It can be changed by a right mouse click on the chart. Values displayed at the icons can be displayed in the graph, when clicked on them. A right click changes the source for a blue line, a left click changes the source for a green line. (See J in Figure 3-1.)

3.1.1 Module Information

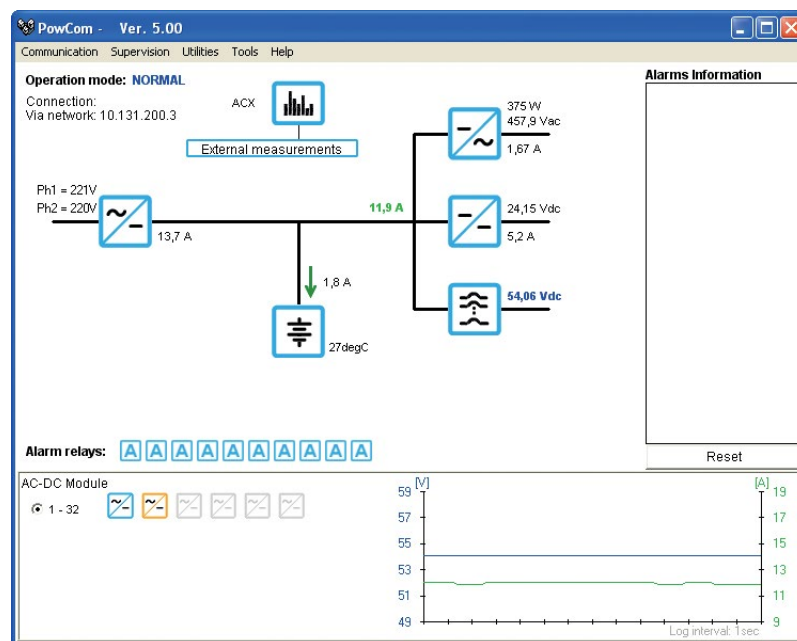


Figure 3-2a Main Window with Displayed Modules

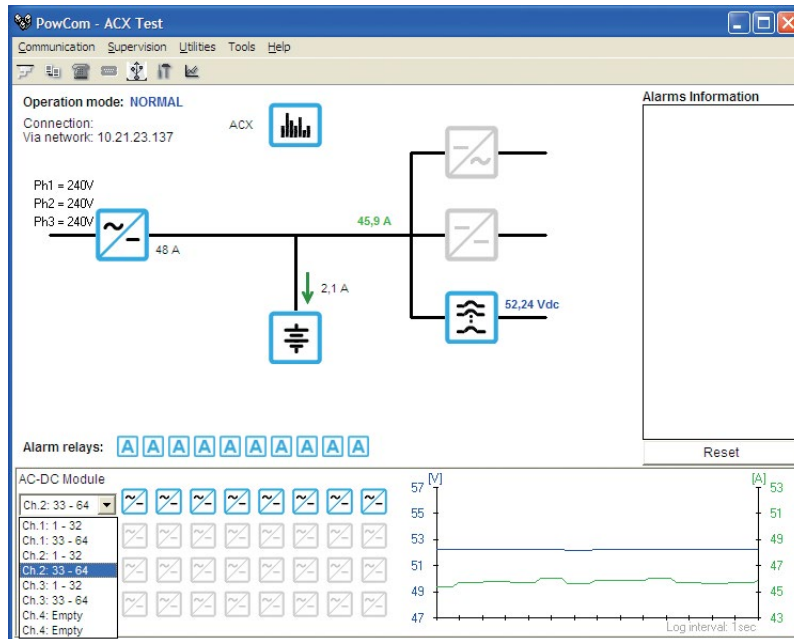


Figure 3-2b Main Window with Displayed Modules with 4x64 Multiplexer

Click on the rectifier / converter / inverter icon and information regarding the installed modules appear on the left bottom side.

A blue icon indicates the module is working properly. A red icon indicates the module is in an alarm condition. A gray icon indicates the module is not installed. An orange icon indicates the module is in energy save mode (ACC & ACX Advanced only).

If any module icon is clicked, detailed module data is displayed at the bottom of the window, Figure 3-3 on page 3-6.



NOTE When the 4x64 Multiplexer is installed it is necessary to select a channel before selecting a particular module. See figure 3-2.

Module data

The displayed information depends on the system.

The scrollbar at the bottom of the window is used to select the module number for which the data is displayed. If another module is selected with the scrollbar the information regarding the selected module appear on the screen after approximately one second.

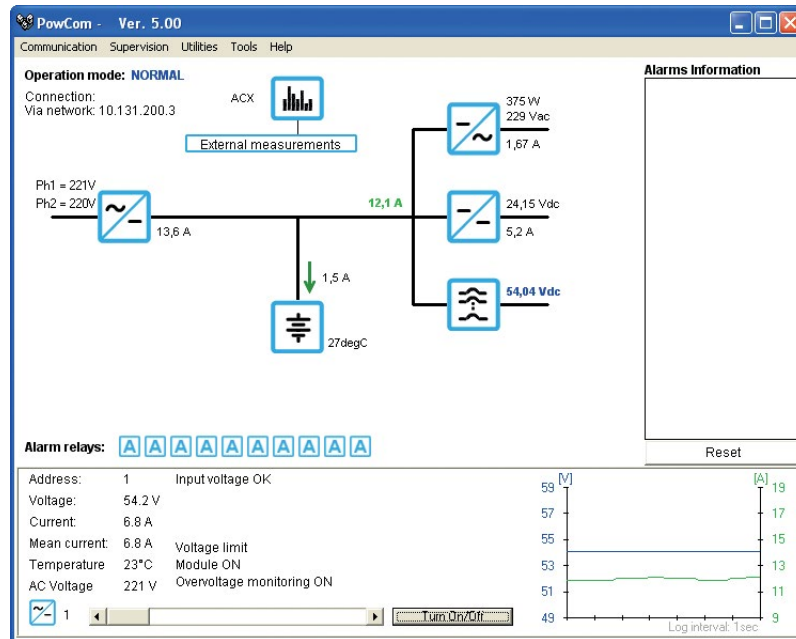


Figure 3-3a Main Window with Displayed Modules

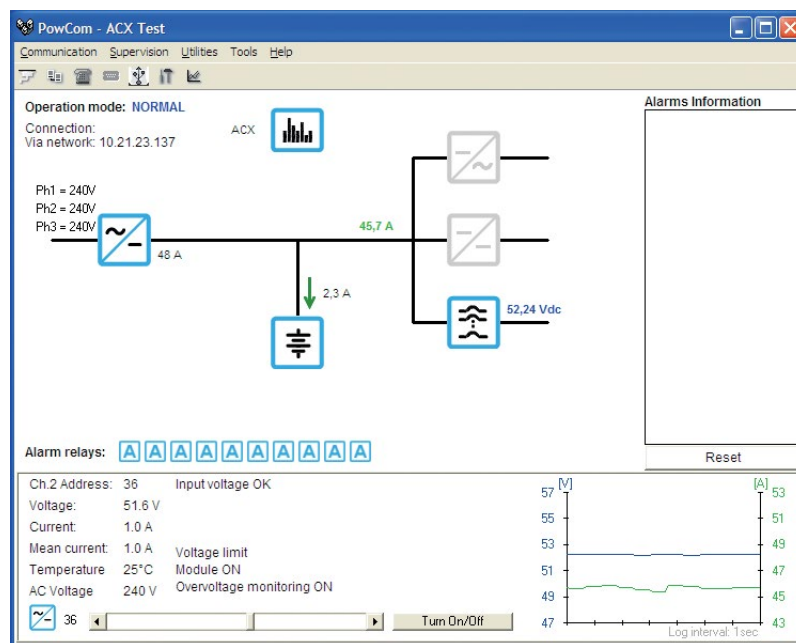


Figure 3-3b Main Window with Displayed Modules with 4x64 Multiplexer

With PCS and ACC/ACX controllers installed, when the small rectifier icon in the bottom left corner is clicked, a dialog box with additional information (serial number, revision, etc.) opens. See Figure 3-4.

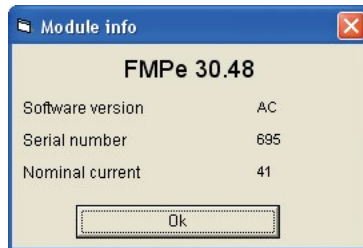


Figure 3-4 Module Info

If the system configuration allows it, modules can be turned on/off directly from the screen of the ACC/ACX controller. (See Adjust limits -> Module ON/OFF.)



NOTE Configuration allows manual or automatic module on/off. If the manual or automatic function is allowed, the module power state can be controlled from the controller. If the automatic function is allowed and turned on, it overrides the manual setting. During manual/automatic turn off the mean current value is invalid and the current share among the modules does not run in a standard way. To obtain a correct value it is necessary to remove the module from the slot.

4.1 Communication menu

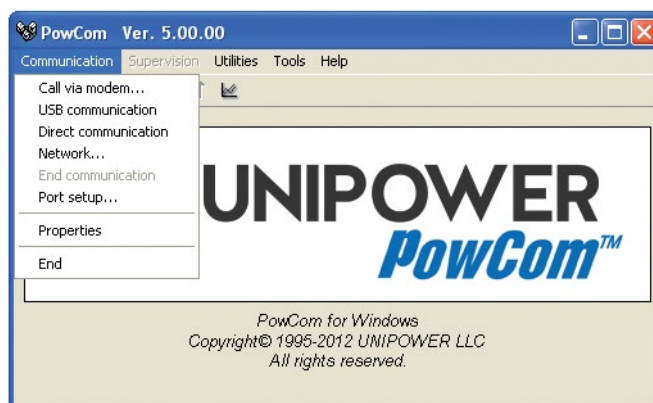


Figure 4-1 Communication menu

4.1.1 Call via modem

4.1.1.1 Phone list

To create a telephone list press “New/Phone list” and select a file. Type a file name and Open. Several telephone lists can be created, each of them can be protected with a password.

To enter a contact to the list press “Edit”. Fill in the name, telephone number, baud rate and callback if needed.

If no baud rate is entered, use 9600. If the modem you want to communicate with is adjusted to a lower speed, the program will automatically adjust the speed when contact is achieved.

If a new contact needs to be added click on the blank line at the bottom of the telephone list. Select “Edit” and enter required information.

The telephone list is sorted in alphabetical order automatically when a number is added to the list.

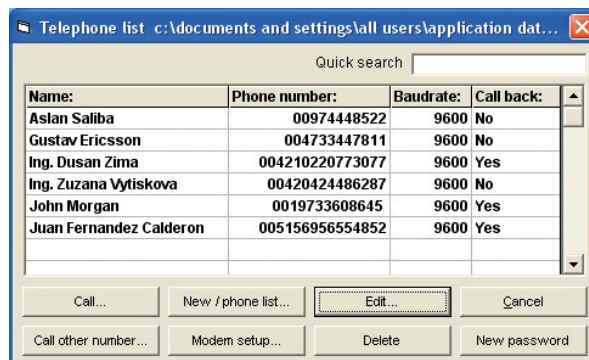


Figure 4-2 Example of a phone list

4.1.1.2 Edit

To edit the telephone list, highlight a line and select “Edit”. Make necessary changes and press OK.

To delete a line in the telephone list, select a line and press “Delete”.

To change the telephone list, press “New/Phone list” and select the file. To create a new list, type a new file name, and the file will be created.

To change the password for the active telephone list, press “New password”. Enter old password. Then, fill in a new password twice to ensure correct spelling. (The password can contain all numbers and letters regardless of the letter case used.)

4.1.1.3 Password

Once the connection is made, a system password needs to be entered. For remotely controlled systems the default password is 1234.

Some systems also require a password to accept parameter updates.

4.1.1.4 Quick search

If the telephone list is too long a Quick Search field may be used. Start typing a required name and the first item in the list matching the typed name will be highlighted. If “Enter” is pressed, PowCom™ starts automatically dialing the number.

An already existing list made with an earlier versions of PowCom™ can be sorted out by selecting an item from the list. Press “Edit”. Without changing anything press OK in the window that pops up. The list is now sorted. PowCom™ sorts out the list automatically when changes have been made.

4.1.1.5 Calling

This window is displayed when the connection is made via modem. Messages from the modem are shown in the text box.

To dial-up, select the number from the list and press “Call”.

If the list does not contain the number you want to call, press “Call other number” and enter the telephone number, baud rate and callback, if needed, and press OK.

If the modem cannot establish the connection, an error message, such as: NO CARRIER, BUSY, NO DIAL TONE, NO CONNECTION or CANNOT CONNECT TO THE MODEM will be generated. In such case PowCom™ does not hang up. It is necessary to press “Cancel call” to hang up.

4.1.1.6 Modem initialisation

To change the initialisation string for the modem, press “Modem setup” and enter the string.



NOTE Switch data compression off, select direct asynchronous communication, set the terminal speed to follow the line speed, select no hand shake. For some modems these parameters are set by default. For high speed modems data compression (v42/MNP) have to be usually switched off.

Examples of suitable initialization strings for some modems:

Modem Type	Initialization String
US Robotics Sportster 14400	AT&K0
Lasat Unique 14400	AT&Q0&K0
UCOM Fastlink 14400	AT&Q0
HIDEM 14400 fax	AT%C0\N1
HANDY 144 CC	AT&F&C1 &Q0&K0
XLINK 28800	AT%C0\N1 (Rockwell chipset)

4.1.2 USB communication (ACX Advanced only)

The ACX Advanced Controller is designed to USB HID class specifications and expected to work as a USB-compatible device.

4.1.3 Direct communication

Direct communication is used to access the system, which is directly connected to the controller, using a null-modem cable/USB cable. It is important to set com-port and baud-rate correctly before selecting “Direct Communication”.

When the connection is made the installation information of the system is shown in a dialog window and the system password has to be entered.

4.1.4 Network connection

Network Connection enables to establish a connection to the system with the PNI (Power Network Interface). The PNI contains a server that allows connection with PowCom™.

It is also possible to connect through a TCP/IP server that works as a link to a network of rectifier systems connected to that server. To use this a server program must be running on this computer or on another computer reachable within the TCP/IP network.

TCP/IP must be installed on the computer.

Server: Port

Enter the address and port number of the PowCom™ server here in the format IP address:port. If a name-server is available symbolic names can be used for the address, otherwise the standard TCP/IP notation is used.

Example: 199.200.110.101:4999

4999 in the example is the port number. PowCom™ only accepts a port number higher than 1000 to avoid conflict with standards used in TCP/IP. The port number must be the same as the one used by the server.

The standard port number for the PNI is 9000.

Get list

When the address and the port number are entered into Server: Port, select “Get List”. A list of systems connected to the server displays.

Connect

Highlight one of the systems in the list and select “CONNECT” to set up the connection to that system. When connection is made the installation information about the system is shown and the system password has to be entered.

Cancel

Press cancel to leave this window without making a connection.

4.1.5 Com port setup

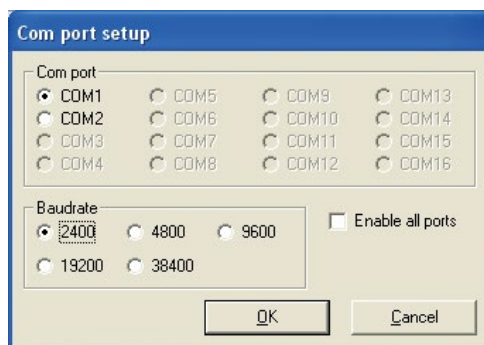


Figure 4-3 Com port setup

The port set-up menu allows the PowCom™ software to set the PC communication port and the modem baud rate. Only available COM ports can be set by default.

If automatic detection of available COM ports fails, all ports can be enabled by checking Enable all ports. Select used com-port and the communication baud-rate. If an incorrect baud-rate is selected, direct communication will not work. The baud-rate should always be the same as the controller settings.

- PCC 2400/9600 baud (Default 9600)
- ACC/ACX 2400/9600/38400 baud (Default 9600; from 1.11 firmware version 38400)

4.1.6 Properties

4.1.6.1 Message timeout

Message time-out sets the time PowCom™ waits for a reply before sending a new request. The default value is 1.0, nevertheless, when communicating over long distances, via mobile phones, radio modems or other equipment that cause a delay in the data flow, it may be necessary to increase the set time. In most cases 2.0 is sufficient enough.

With time-out increased it takes longer for PowCom™ to discover a broken connection. The system does not allow values under 1.0.

4.1.6.2 Dial up timeout

This function sets a period of time during which the software waits for a modem to connect to another modem. The default setting is 60 seconds. This period of time is usually sufficient, but occasionally it needs to be increased if the remote modem has been set up to wait for many rings before answering.

4.2 Supervision menu

4.2.1 Set parameters

The Set Parameters menu is located under the Supervision menu and allows system parameters to be changed. The functions in the window are the same as those in the system controller.

The number of functions displayed in the set parameters vary depending on the particular system connected. Not all functions listed below are available in all systems.

Some systems have more than one output voltage. In this case a window for the selected rectifier is opened and limits should be set for the module or module group.

Values for some battery parameters (e.g. battery tests) should be set regarding to the battery datasheet.

Select rectifier

Some systems have several galvanic isolated output voltages and the possibility for individual alarm threshold adjustment. Because of this feature the rectifier must be selected before the alarm adjustment can be made.

However, when one module in a module group is adjusted the others will automatically be adjusted correspondingly.

4.2.1.1 Adjust Limits

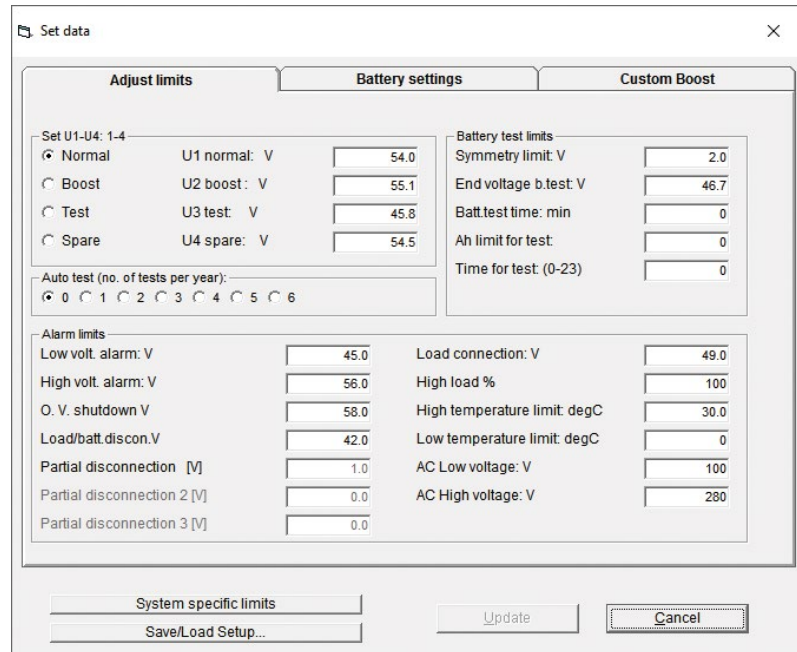


Figure 4-4 Adjust limits window

4.2.1.1.1 Set U1 - U4:

U1 - U4 - voltage reference for the different output modes.

Select output mode for the system. U1 is the normal charge voltage.

U2 is the boost charge voltage.

U3 is battery test voltage. (U3 test value should be less than End voltage battery test value.)

U4 is a spare mode that may be used for a user-defined purpose.

4.2.1.1.2 Auto test:

Sets how many times a year automatic test shall be performed. Exact time and date are calculated from the installation date. See Set Installation Data section 4.2.5.

4.2.1.1.3 Alarm Limits:

Low voltage alarm

Adjusts the lower limit for voltage before the system gives alarm.

Low voltage alarm value has to be less or equal to formula: High voltage alarm value - 1 V.

High voltage alarm

Adjusts the upper limit for voltage before the system gives alarm. If the set value is less than the “Low voltage alarm” value, the Low voltage alarm value will be automatically corrected according to formula: High voltage alarm value -1 V.

Over voltage shutdown

If the voltage reaches over this limit, the rectifier that delivers the highest current will be switched off.

Over voltage shutdown value has to be greater or equal to formula: High voltage alarm value +1 V. If the condition is not met, the value will be automatically adjusted.

Load/battery disconnection

If the voltage falls below this limit during mains failure, the battery will be disconnected.

If the Load connection is less or equal to Load/battery disconnection, then load connection is automatically adjusted to Load/battery disconnection +5 V.

Partial load disconnection

Disconnection of lower prioritised load in order to extend backup time for important load. Disconnection is time controlled or voltage controlled. Partial load disconnection must be greater than Load/battery disconnection. If it is not, the warning message is displayed. Partial load disconnection value has to be less than Load connection value.

Partial load disconnection 2

Disconnection of lower prioritised load in order to extend backup time for important load. Disconnection is time controlled or voltage controlled.

Partial load disconnection 3

Disconnection of lower prioritised load in order to extend backup time for important load. Disconnection is time controlled or voltage controlled.

Load connection

If the battery is disconnected, it will be connected again if the voltage is above this limit and the mains returned.

It is recommended to set this value 5V above the “Load / battery disconnection” limit.



NOTE Some systems do not include this function.

High load

Entered in percent of the maximum power from the system. If the load current gets higher than this limit, the system will give alarm to signal that there may not be enough capacity to charge the battery.

High Temperature limit

Sets the upper limit for temperature before the system gives alarm.

Low Temperature limit

Sets the bottom limit for temperature before the system gives alarm.

Low temperature limit can not be greater than High temperature limit value -10°C. If the condition is not met, the value will be automatically adjusted.

AC Low Voltage

Sets the bottom limit for the AC voltage before the system gives alarm.

AC High Voltage

Sets the upper limit for the AC voltage before the system gives alarm.

4.2.1.1.4 Battery Test Limits:**Symmetry limit**

If the voltage in one block differs from this limit (from the average block voltage) the system gives alarm.

End voltage battery test

Lower limit for system voltage during test. If the voltage falls below this limit, the test is stopped and an alarm will be reported. (End voltage battery test value should be greater than U3 test voltage value.)

Battery test time

Sets the maximum amount of time a test may last. If this limit is reached the test will stop.

Ah. limit for test

Sets the energy that may be discharged from the battery during test. If this limit is reached the test will stop.

Time for test

Sets the time of day (0-23) when automatic test should start. If the user enters 0, the test starts at 12AM (midnight) or if the user enters 4, the test starts at 04:00AM.

4.2.1.2 Battery settings

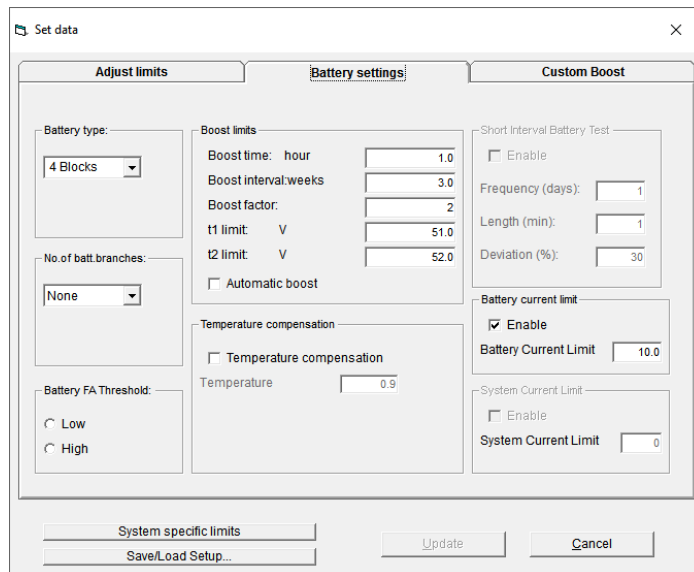


Figure 4-5 Battery Settings Window

4.2.1.2.1 Battery type:

Sets the type of symmetry measurements for connected battery. Indicates how many blocks each branch is divided into.

4.2.1.2.2 Number of battery branches:

Sets the number of branches on the battery that are equipped with symmetry measuring. If 0 is selected, controller deactivates symmetry measurement and no “Symmetry fault” alarm message will be indicated.

4.2.1.2.3 Boost limits:

Boost time (hour)

Sets the duration of boost charging.

Boost interval (weeks)

Sets the number of weeks between each boost.

Boost factor

Boost factor sets the multiplication coefficient for the boost duration. See T1 Limit and T2 Limit.

T1 limit

When the voltage drops below this limit, the system starts counting the time.

When the voltage increases above this limit again, the counting stops. The counted time is used in a function with the boost factor when the voltage reaches over T2 LIMIT.

T2 limit

When the system increases above this limit the boost will start. The duration is calculated from the time T1 LIMIT multiplied with the boost factor.

4.2.1.2.4 Battery Current limit:

Allows setting of a maximum battery current. The software always counts on at least 10% of total battery capacity. This parameter is of the highest priority amongst the parameters listed in Battery settings Tab, Figure 4-5. (Temperature compensation is of the second highest priority.)

Battery current limit range is 0-1000A.

4.2.1.2.5 Temperature compensation:

Activates temperature compensation. The charging voltage will be adjusted continuously according to the compensation factor. The compensation factor depends on the actual type of the battery.

Temperature compensation factor

When temperature compensation is active the charging voltage is changed according to this factor. The adjusted charging voltage refers to 20°C.

If the temperature rises 10°C, the voltage will be reduced according to the adjusted compensation factor. If the temperature drops down the voltage will be adjusted correspondingly. Adjustment is done continuously. It means that if the temperature is changed in 1°C, the voltage will be changed by 1/10 of the compensation factor.

4.2.1.2.6 Short interval batt. test (Batt. discontinuance test) (ACC/ACX only)

The ACC/ACX controller is able to perform an automatic battery discontinuance (or cessation) test in order to establish if there is a permanent break or interruption in the battery string. This test can be enabled or disabled. If the test fails, Battery failure alarm is displayed.

Frequency sets how often this test will be performed. The value (in days) can be set from 1 to 7.

Length sets duration of the test. The value (in minutes) can be set between 1 and 10 minutes.

Deviation sets allowed battery current deviation for the test, i.e. if the lowest current reading is less than this value of the highest reading, alarm will be given. The value (in%) can be set between 0 and 70.

4.2.1.2.7 System Current Limit:

Provides the ability to select a maximum current from the rectifiers. This option is available only with ACC/ACX firmware supporting this function.

4.2.1.3 Custom Boost Settings (ACX Advanced v2.20 firmware and above)

Designed for Ni-Cd batteries, ACX v2.20 firmware includes a customizable two-stage boost algorithm to regulate battery recharge current after extended discharges. Like the automatic boost, the custom boost charges at the U2 voltage setting. However, the recharge current settings are programmable and are specified as a percentage of the battery capacity; note the units are designated as Cn [Ah] for the engineered rating (e.g. C5) since it depends on the application. Also note that custom boost can only be enabled when the Automatic boost is not selected. PowCom™ automatically alerts and disables one boost mode if the other is enabled.

The algorithm only kicks in after a discharge of a preset duration, with 30 minutes being the default. Custom Boost stage 1 defaults to a current limit of 30% Cn [Ah] for a period 1 hour, while stage 2 defaults to a current limit of 10% Cn [Ah] for 17 hours. Stage 2 also terminates if the current falls below the early-exit setting of 3% Cn [Ah] at which time the voltage returns to the U1 (Vfloat) settings.

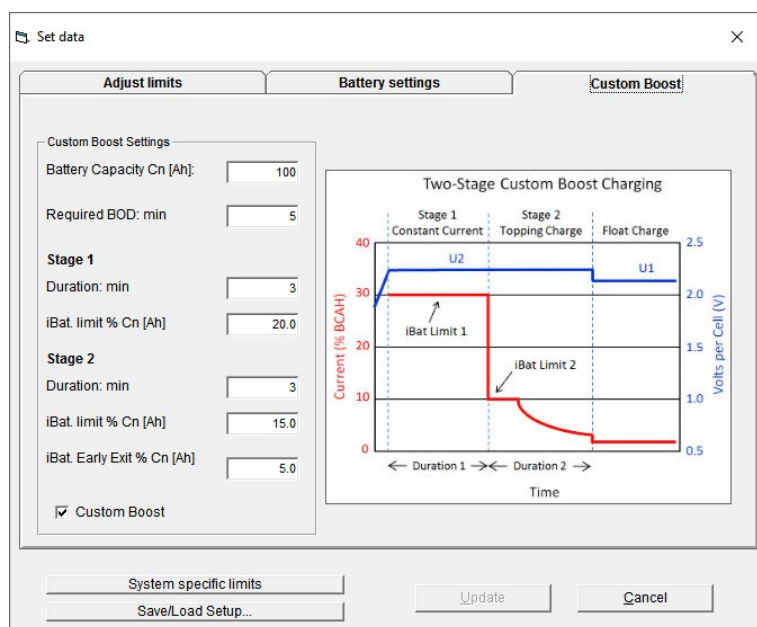


Figure 4-6 Custom Boost Settings Window

To manually start the Custom Boost charging algorithm, use the same dialog box as when manually setting Automatic boost. First select the Boost radio button and then click Update.

4.2.2 Set Extra Parameters (ACC/ACX only)

The Set Extra Parameters window allows to disconnect the relays manually and change the parameters for Energy Saving Mode. Parameters can be changed on-line and are not saved to the configuration file.

4.2.2.1 Low Voltage Disconnection Enable

Some areas have unstable power network. To avoid system damage, it is possible to disconnect selected LVD or PLD relay manually.

4.2.2.2 Energy Saving Mode

When the button “Rectifier auto on/off” is checked, Energy saving mode starts running. In this mode the ACC/ACX controller is able to turn off the redundant rectifiers automatically depending on the load. At least 2 rectifiers remain always active and rotate in set time periods on every address position. Time period for rotation can be set in “Rectifier rotation time” section of the window. The smallest unit of rotation is 0.1hrs (6mins).



NOTE This window is available only for ACC/ACX controller with firmware version 1.14 or higher.



NOTE If the threshold values for adding/removing another modules are not set in the configuration file, Energy Saving Mode function will not be activated. It is recommended to set the Low [%] threshold limit to minimum 25% and High [%] threshold limit to maximum 90%.

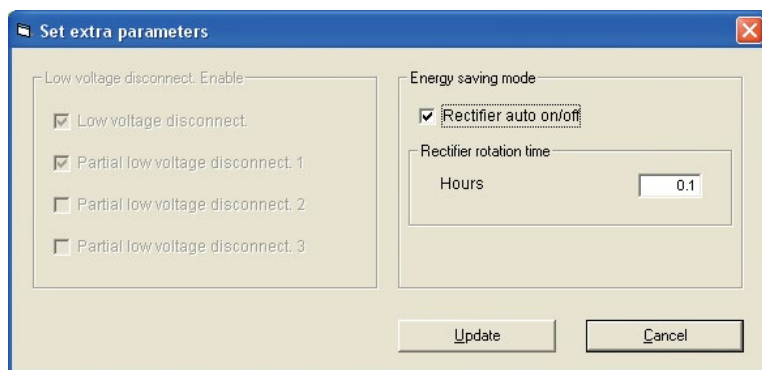


Figure 4-7 Set Extra Parameters

4.2.3 Program version

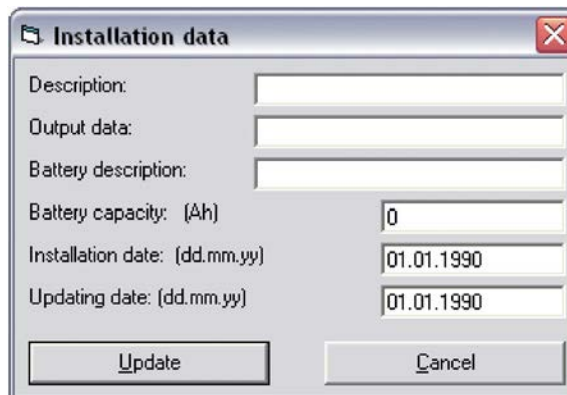
This window provides information about controller type, hardware version, serial and configuration numbers.

4.2.4 Set date and time

This function allows to set the date and time in the controller.

The “System time” button enables the user to set the date and time of the controller according to the PC system time the controller is connected to.

4.2.5 Set installation data



The image shows a Windows-style dialog box titled "Installation data". It contains several input fields: "Description:" (empty), "Output data:" (empty), "Battery description:" (empty), "Battery capacity: (Ah)" (with a value of "0"), "Installation date: (dd.mm.yy)" (with a value of "01.01.1990"), and "Updating date: (dd.mm.yy)" (with a value of "01.01.1990"). At the bottom, there are two buttons: "Update" and "Cancel".

Figure 4-8 Installation data

This menu allows system information to be changed. The information is displayed when connected to the system. The information has no influence on the function of the system, but is necessary to identify the system. The installation date should be set when the system is installed because it is used to calculate the battery test dates.

For ACC/ACX controller, if the battery capacity information is needed, battery value has to be set.

4.2.7 Change user password

Select this menu to change the default password. To change the password for the active telnet list, select “New password”. The system will prompt for the old password, enter it and then enter the new password twice for verification.

4.2.8 Transfer test data

This menu shows last 10 tests stored in the controller. The tests are numbered in time order starting with 0 (being the most recent) and 9 (being the oldest). Displayed test data include information about measured values, end voltage, and maximum deviation of symmetry voltage.

Test data can be saved to file or viewed in the “View Test Data” window or in a spreadsheet format. Select “Preview” and an example of the test curve appears.

ACC/ACX: If there are any batteries with active symmetry measurement during the test the symmetry voltages may be downloaded by clicking the Symmetries button. If the button is gray no data are available. Symmetries may be stored as normal battery test files. The file for each battery string is saved separately. The filename should not be longer than 7 characters. Block numbers 1 to 4 are added to the filename automatically according to the battery string.

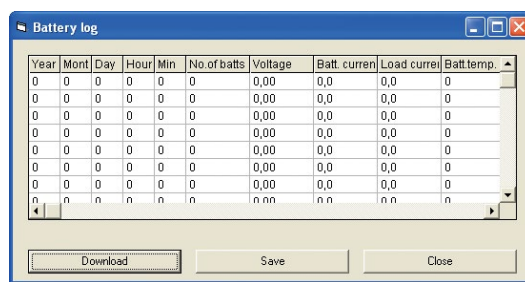
4.2.9 Get all test data

Get all tests data enables to save all stored tests data to PC. Enter the name of a file. Numbers 0, 1, 2... are added automatically to the file names according to the appertaining tests. The tests data can be viewed in the “VIEW TEST DATA” window or a spreadsheet.

This function collects all tests data at once while with “TRANSFER TEST DATA” it is possible to collect only the data from one test at the time. If the filename entered is identical with the one already existing, the older file is automatically overwritten.

4.2.10 Get battery log (ACC/ACX)

“Get battery log” enables to download the battery log data that have been stored in the controller the first day of the month. Download takes a while, and is indicated by a progress bar. Click “Save” to save the log as a delimited text file (in which the Tab character usually separates each field of text). This way it can be imported into Excel or other spreadsheet programs.



Year	Month	Day	Hour	Min	No. of bats	Voltage	Batt. current	Load current	Batt. temp.
0	0	0	0	0	0	0.00	0.0	0.0	0
0	0	0	0	0	0	0.00	0.0	0.0	0
0	0	0	0	0	0	0.00	0.0	0.0	0
0	0	0	0	0	0	0.00	0.0	0.0	0
0	0	0	0	0	0	0.00	0.0	0.0	0
0	0	0	0	0	0	0.00	0.0	0.0	0
0	0	0	0	0	0	0.00	0.0	0.0	0
0	0	0	0	0	0	0.00	0.0	0.0	0
0	0	0	0	0	0	0.00	0.0	0.0	0
0	0	0	0	0	0	0.00	0.0	0.0	0

Figure 4-9 Battery Log

4.2.11 System logs (ACC/ACX only)

Alarm history

This lists up to the last 1000 events. To see the data use the Download button.

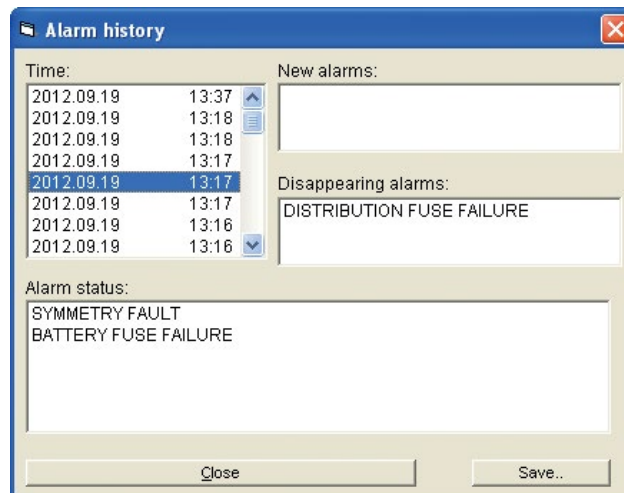


Figure 4-10 Alarm History

Inventory

This contains modules and units history (installation and removing). Up to the 200 last events can be recorded. To see the Inventory, use the Download button.

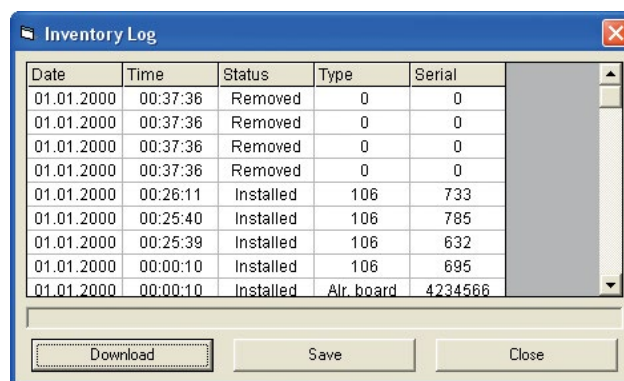
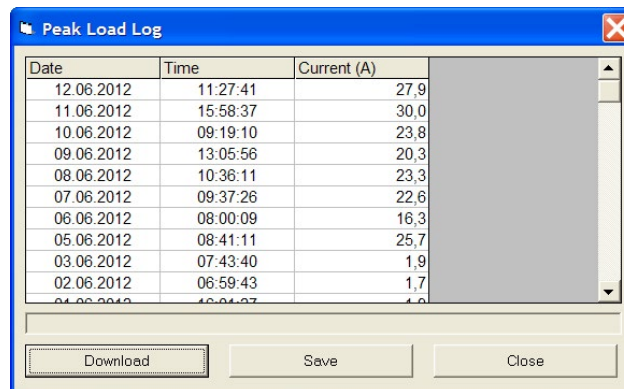


Figure 4-11 Inventory

Peak load

This contains the highest load current value for up to last 30 days together with the time it has occurred. To see the Peak load log, use the Download button.



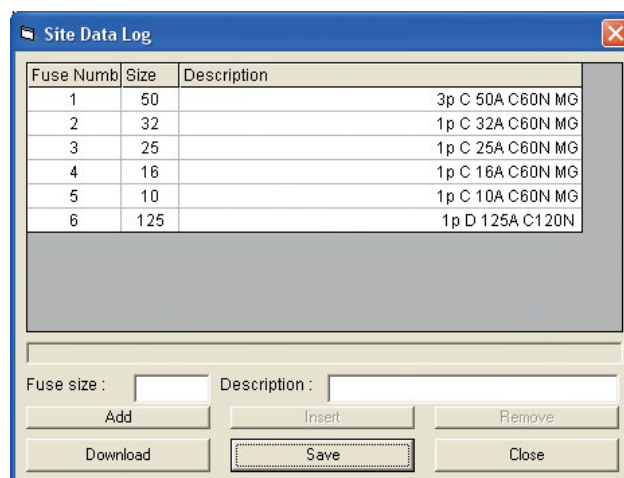
Date	Time	Current (A)
12.06.2012	11:27:41	27,9
11.06.2012	15:58:37	30,0
10.06.2012	09:19:10	23,8
09.06.2012	13:05:56	20,3
08.06.2012	10:36:11	23,3
07.06.2012	09:37:26	22,6
06.06.2012	08:00:09	16,3
05.06.2012	08:41:11	25,7
03.06.2012	07:43:40	1,9
02.06.2012	06:59:43	1,7
01.06.2012	10:04:07	1,0

Buttons: Download, Save, Close

Figure 4-12 Peak Load

Site data

The controller has a register of 200 entries where an integer for fuse size and a 16 byte description for load fuses can be stored. It can be modified through this dialog.



Fuse Numb	Size	Description
1	50	3p C 50A C60N MG
2	32	1p C 32A C60N MG
3	25	1p C 25A C60N MG
4	16	1p C 16A C60N MG
5	10	1p C 10A C60N MG
6	125	1p D 125A C120N

Fuse size : Description :

Buttons: Add, Insert, Remove, Download, Save, Close

Figure 4-13 Site Data

Maintenance and service

The controller has a register of 50 entries with date and a 16 byte description for storing maintenance entries. If the register is full, the new entry overwrites the oldest one.

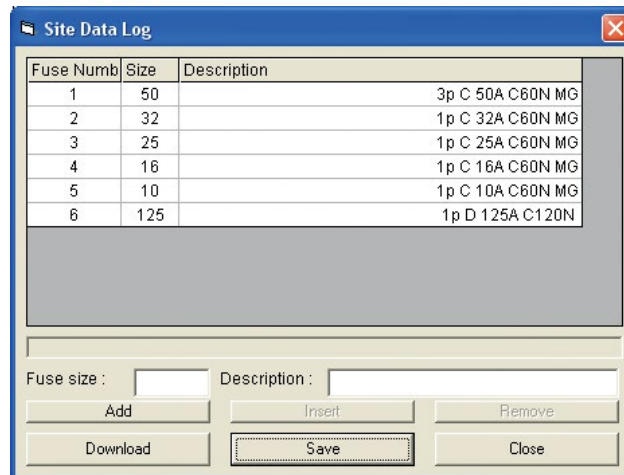
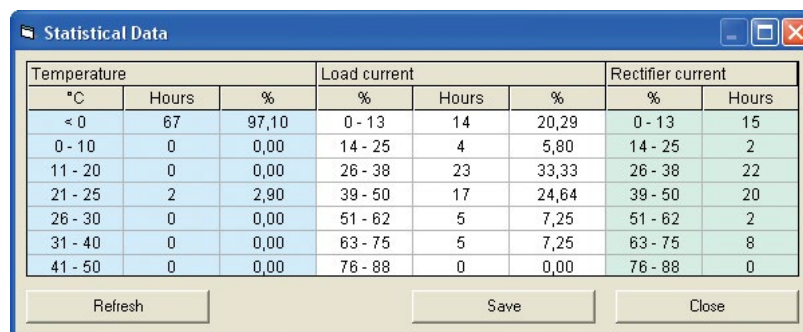


Figure 4-14 Maintenance and Service

Statistical data

Contains statistic data about rectifier and load current and battery temperature.



Temperature			Load current			Rectifier current	
°C	Hours	%	%	Hours	%	%	Hours
< 0	67	97,10	0 - 13	14	20,29	0 - 13	15
0 - 10	0	0,00	14 - 25	4	5,80	14 - 25	2
11 - 20	0	0,00	26 - 38	23	33,33	26 - 38	22
21 - 25	2	2,90	39 - 50	17	24,64	39 - 50	20
26 - 30	0	0,00	51 - 62	5	7,25	51 - 62	2
31 - 40	0	0,00	63 - 75	5	7,25	63 - 75	8
41 - 50	0	0,00	76 - 88	0	0,00	76 - 88	0

Below the table are buttons for 'Refresh', 'Save', and 'Close'.

Figure 4-15 Statistical Data

4.2.12 Alarm history

This window shows a list of the last (up to) 40 alarms. Selecting the time on the list displays a list of alarms active at that time, and also shows changes in the alarm status.

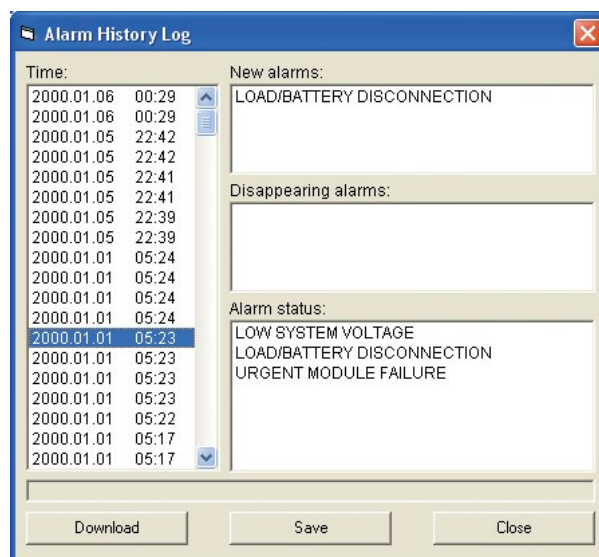


Figure 4-16 Alarm History

4.2.13 Alarm information

The list shows alarms active at the moment.

4.2.14 Alarm dial back

If needed, the controller can be set up to dial back to a certain number in case of an alarm. Tick off the alarms that should trigger a dial back. Enter the phone number and enable dial back. Dial back requires a modem connected to the controller. Three modes of dial back are available.

- Server on change is used together with the PowCom™ phone server and the telephone number must be the number of that server. Note that this mode dials repeatedly until contact is made with the server, so do not use this in any other context.
- Pager on change will dial once each time the alarm status change, including when the alarm is deactivated.

- Pager on new alarm dials once when a new alarm occurs. To send a number to a pager set the phone number to NNNNNNNN@XXXXX, where NNNNNNNN is the number of the pager and XXXXX is the number displayed on the pager.

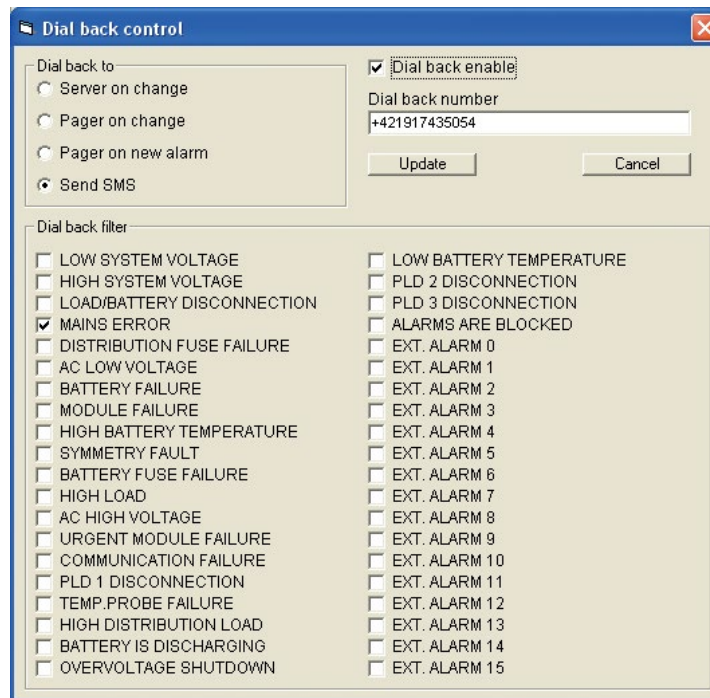


Figure 4-17 Dial Back Control

4.2.15 Set network address

Newer versions of the controller software allow several control units to be connected to one serial port controlled by a PowCom™ network server, or a UNI (UNIPOWER network interface). To make this work, each controller must be given a unique address. The address must be between 2 and 255.

When a UNI is used set the network address to 2.

4.2.16 TCP/IP settings

In systems with PNI (Power Network Interface) built in, the IP-address of the network board must be set from PowCom™ before the network interface communication is established.

Enter the IP address, net mask and default gateway.

Use a telnet client to log on to the card and do further configuration of the network interface. See the PNI documentation.

4.2.17 Inventory

The inventory menu displays a list of all modules and units in the system. Click on a module or a unit and select “View Unit/Module Info”. Further information about the selected item is displayed.

The Reconfigure button is used when modules or units are permanently removed from the system to tell the controller that all items that are not communicating have actually been removed from the system.

Some systems allow a master reset to be performed when connected with a direct connection. Some systems also allow the controller to be restarted without resetting anything. These buttons are available only in direct communication if the PowCom™ software supports them. For security reasons resets are not possible from network or modem connections.

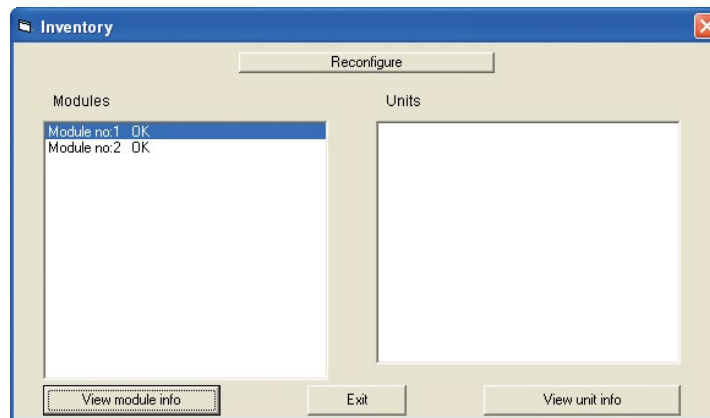


Figure 4-18a Inventory

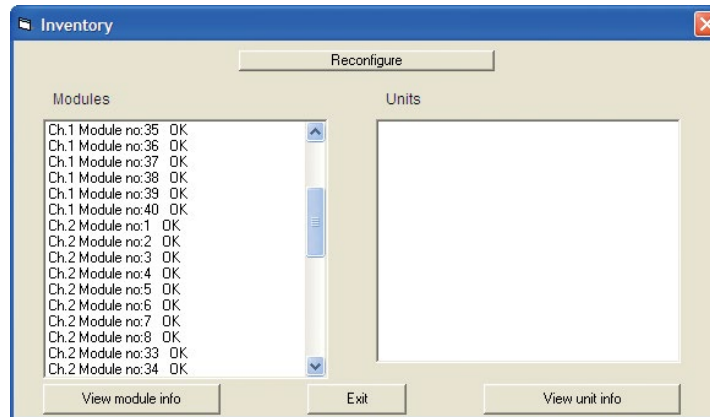


Figure 4-18b Inventory with 4x64 Multiplexer

4.3 Utilities menu

4.3.1 Log data

The Log Data function can be used to log current, voltage, temperature etc. PowCom™ must be connected to the system during the log period.

To log the data select File name, define the target directory and then press Start.

The files generated by the logger, cannot be displayed in the “VIEW TEST DATA” window, but can be imported to a spreadsheet.

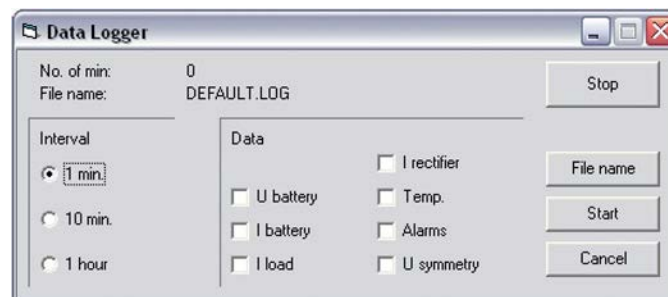


Figure 4-19 Log Data

4.3.2 Inventory Log

Inventory log provides information how the system is set. It enables to file and save all the system data and up-to-day measured values from the controller.

4.3.3 View test data

This window displays test data graphically. Up to four charts can be displayed at the same time. Select the file you want to see from the file list. Use the Ctrl key and left mouse button to display several charts at the same time.

The combo boxes marked with X-axis and Y-axis can be used to change the axis values. The voltage as a function of Ah-discharged can be used to compare data for different tests to see if the battery voltage falls faster during discharging than when the battery was new.

To delete files use “drag-drop”. Click on a file and drag it to the trash can icon.

Test data files can be saved by using the built in database function. Drag and drop the file in the database icon (file cabinet) to save.

To open a file in the database, double-click on the database icon, a list of available files will appear. Select the file from the list.

To cancel the marking of all files in a list: Select only one file, press the Ctrl button and click the left button on the mouse over the selected file.

The list boxes which covers the graphic area can be moved by clicking the right button of the mouse and drag the window, or hidden by deselecting Legend.

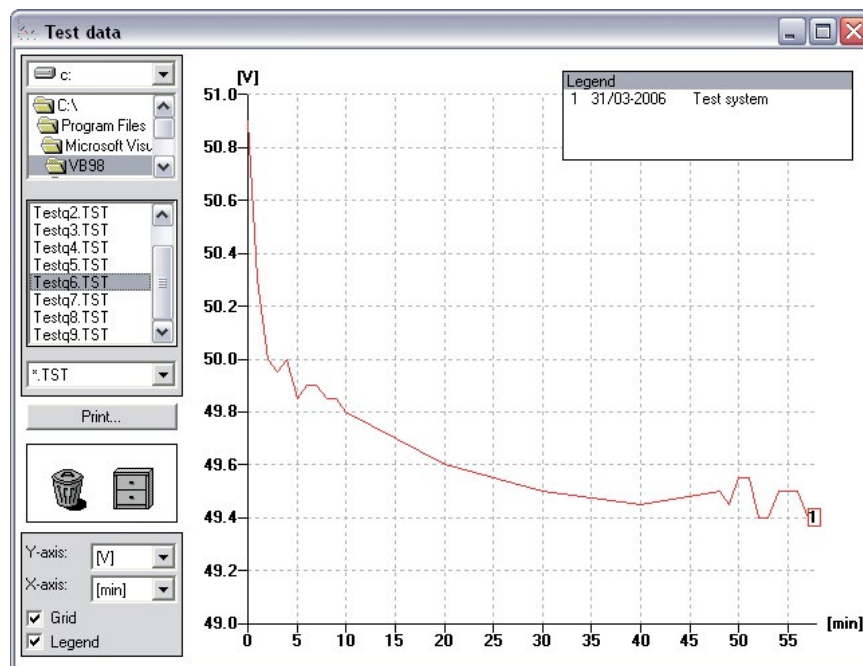


Figure 4-20 View Test Data

Print...

The Print button allows the file to be sent to a printer. The following options are available:

Full page - Printing the charts in the window in a full-page version. The data for each chart is printed at the top of the sheet.

Half page - Printing the charts in the window on a half page. The data for each chart is printed at the top of the sheet.

U, A, Ah - Only available when one chart is selected. Prints voltage, current and ampere-hours as a function of time in three different curves on one sheet.

Measurements - Prints the values of the test as text.

Printer set-up - Standard printer set-up picture for selecting printer and paper orientation (landscape or portrait).

Copying to Clipboard - Copies the chart to the clipboard enabling the user to paste it into a document in another program, e.g. Word. To paste the chart into a Word document, select PASTE SPECIAL in Word and select PICTURE from the list. The chart will be pasted in the Word document and can be scaled in Word. To paste the information texts about the different charts select PASTE SPECIAL once more and select UNFORMATTED TEXT.

4.3.4 View parameter file

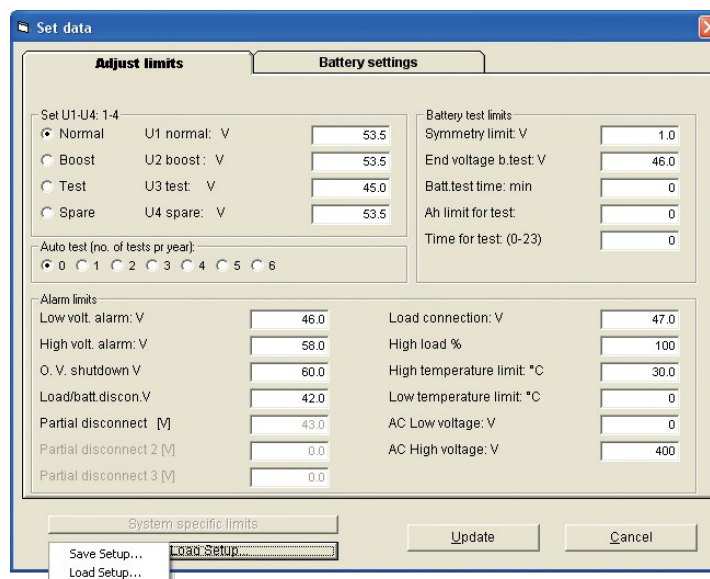


Figure 4-21 View Parameter File

Files saved by the save command in the SET PARAMETERS window may be viewed and edited off-line by selecting this command, Figure 4-21.

This allows a parameter file to be altered and restored to the system at a later time. The command opens a Set Parameter window for the original system type. The file is saved with the suffix.prm.

4.3.5 Update configuration

If the configuration of the controller needs to be updated a file from UNIPOWER can be used to do that.

1. Open the PowCom™ software and choose “Update configuration” from the Utilities Menu.
2. Another window will open. Choose “Select update file”.



Figure 4-22 Update Configuration

3. Locate the directory that has the update file. Select the file and click “Ok”.
4. Choose “Transfer data to controller” button. The transfer process will take a few seconds.
5. Once the transfer is complete, choose “Store config in flash”.
6. When the system is done, select close from the Configuration updater menu.
7. To check that the configuration is updated, check the configuration number via the PCS miscellaneous-version menu.
8. If you get a warning that the configuration was not made specifically for this system, it means that you are trying to load a general configuration. You can do that if you are sure that the configuration suites the system you try to load it into. If you are not sure of this then press cancel to abort the operation. It is important not to load unsuitable configurations since the configuration may change the operation of the system.

4.3.6 Modify configuration

Through this dialog default parameters can be modified and alarms relays assigning can be changed. This menu item is accessible only if user has appropriate licence.

4.3.7 Configuration wizard

Through this wizard it is possible to create or modify the whole system configuration. It is accessible only if a user has an appropriate licence.

4.3.8 Button Bar

For starting the direct communication:



For opening network connection window:



For starting the phone list for communication via modem:



For opening the window for selection of baud-rate and serial port:



For opening USB HID communication:



To open the Set parameters window. (Only when communication is established.):



To open the View test data window:



4.4 Tools Menu

4.4.1 Download SD card (ACC/ACX only)

The data logging function is used for collecting system data which can be later used for analysis or statistical calculations.

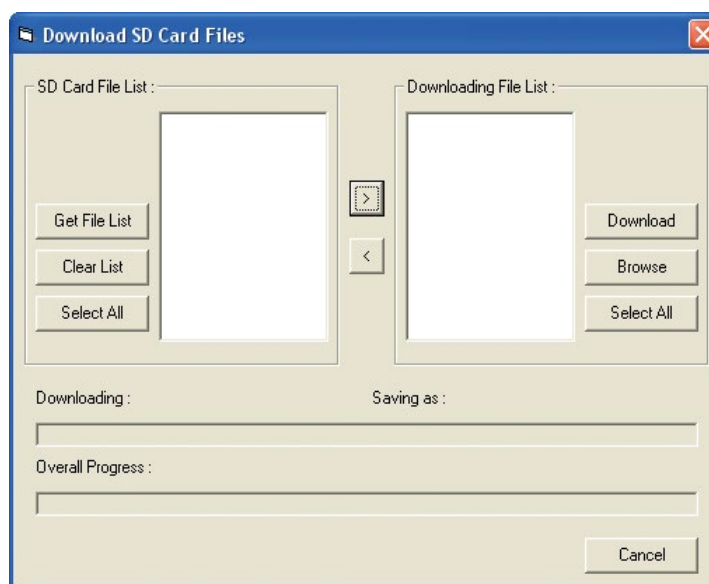


Figure 4-23 Download SD Card

The ACC/ACX controller logs the data at regular 10-minute-time intervals with the date and time stamp. The data is saved in separate files for each day in comma separated values file format (e.g.: 20100513.csv).



NOTE SD card downloading can be applied only to the controllers with SD card fitted.



NOTE The ACC/ACX controller supports max. 4GB microSD card, sufficient for more than 20 years of data logging.

This document is believed to be correct at time of publication and UNIPOWER LLC accepts no responsibility for consequences from printing errors or inaccuracies. Specifications are subject to change without notice.

Plant Voltage: 24/48	No. of ext. Boards	LVD	No. of PLDs	No. of Shunts	Shunt Size	Shunt Voltage	Temp. Sensors	Ambient Temp. Sensor	Battery Block Type	No. of Batt. Branches (# strings)	SPD
2	N	N	N	N	1 (100A)	1 (50mV)	N	N	4	N	Y
4	1	1	1	1	2 (200A)	2 (60mV)	1	1 (ACX)	2	1	N
	2		2	2	3 (300A)			2 (Ext. 1)		2	
	3		3	3	4 (400A)			3 (Ext. 2)		3	
	4			4	5 (500A)			4 (Ext. 3)		4	
				5	6 (600A)			5 (Ext. 4)		5	
					8 (800A)					6	
					A (20A)					7	
					B (50A)					8	
					C (80A)					9	
					D (1000A)					A (10)	
					E (1500A)					B (11)	
					F (2000A)					C (12)	
					G (3000A)					D (13)	
										E (14)	
										F (15)	
										G (16)	
										H (17)	
										J (18)	
										K (19)	
										L (20)	