



OPERATING MANUAL
PCC Controller
(PCC-01 and 1-149160G)



[PCC-01 shown]

www.unipowerco.com

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System Controller PCC

1. Description

The Prime Controller Card (PCC) is a pluggable microprocessor controller that provides monitoring and control for a broad range of DC Power Systems. The PCC monitors all system parameters including: DC voltage, rectifier current, rectifier temperature, system capacity, battery parameters, and circuit breaker status.

Alarm and warning notifications are indicated by front panel LEDs, and through potential free alarm contacts that allow remote signaling. External monitoring of alarms is accomplished through an RS232 port using the PC-based PowCom™ software. The PCC has an Ethernet port allowing monitoring and control over a TCP/IP network. Alarms can be mapped via SNMP traps to customer OSS platforms such as HP Openview™

To meet individual site requirements, the PCC contains a Programmable Logic Unit that can be used to monitor and control specified requirements. This allows individual alarm routing and logic operations to be set as actions, alarms to be triggered, and outputs to be activated based on internal and external signal monitoring, comparing, and processing.

2. Specifications

Input voltage:	30-60VDC.
Input Current:	<200mA at 48V.
Instrumentation:	Three LED's: Green - OK. Yellow - Message, Red - Alarm. LCD Display with backlight.
Interface:	RS232/Ethernet for remote operation via a PC. RS485 for internal communication with 20 modules.
Basic functions:	Simple menu-guided operation User-selectable alarm parameters Temperature compensated charging Boost charging, manual and automatic LVD/PLD control of two contactors, voltage or time controlled Battery test, manual or automatic with symmetry measurement. Alarm relay test Software controlled start up after mains outage and battery test Built in Web server and SNMP (Ethernet connection)

3. Operation

The PCC communicates through an alarm interface board and a backplane that connects to the rectifier modules.

This section contains basic PCC functions including starting the PCC, adding modules and removing modules from the PCC system.

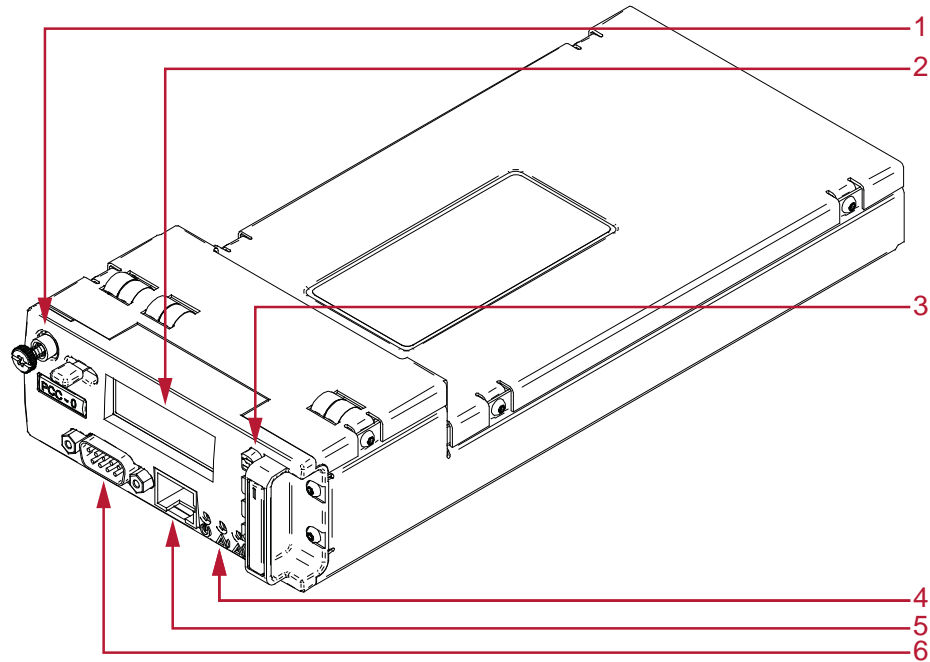


Figure 3-1 PCC User Interface (PCC-01 shown)



NOTE: The only tangible difference between PCC-01 and 1-149160G is the overall width of the module. The items listed below are identical for both types.

1. Fastening Screw and Retaining Latch
2. LCD
3. Push Buttons for Menu operation
4. Left to right: Power LED (Green), Warning LED (Yellow) and Alarm LED (Red)
5. Ethernet Connection
6. RS232 Interface Connection

3.1 Starting the Controller

When power is applied to the PCC:

The PCC will take approximately 5 seconds to analyze the system and test all addresses for connected modules and units. The green LED on the PCC will blink (Figure 3-1). No alarms will be given during this period.

When the PCC finds a module or a unit it will add it to the inventory. The module will remain in system memory until a master reset or a reconfiguration is performed.

3.2 Adding Modules

When a rectifier is added to the system it will remain off until the PCC detects it.

1. The PCC constantly scan for new modules and units.
2. The PCC will locate the module, and the new module will give a current sharing fault until its output voltage has been adjusted to the correct voltage. This may take additional time.

3.3 Removing modules

Physically removing a module from the system appears as a communication error on the PCC.

1. To remove the error message press the reconfigure button in the Inventory window in PowCom.
2. Make sure that there are no communication faults caused by any other failure before doing this as it will cause all non-communicating modules to be removed from the inventory.
3. This will make all communication faults disappear, but it will not fix any problems so it must only be used if the communication fault is caused by the module being intentionally removed.

3.4 Control Buttons

To browse the controller menu, 4 push-buttons are used to scroll and select.

- **CANCEL** - Used to go cancel the current selection on the menu hierarchy. When pressed the menu will return to the previous screen.

- **UP ARROW** - Used to go up in the menu hierarchy. select options and to adjust limits.
- **DOWN ARROW** - Used to go down in the menu hierarchy. select options and to adjust limits.
- **ENTER** - Used to select and confirm an option or to go down a level in the PCC software hierarchy.

To adjust the alarm limits, use the arrow keys to select “adjust limits”. Press RETURN to enter the sub menu, and RETURN once more to select “alarm limit”. By using the arrow keys the various alarm limits can be checked. For adjusting a limit: select the correct limit and press RETURN. The correct password must be entered before a new value can be set.

The password is set to 1234 by default, but can be changed. Use the arrow keys to set and RETURN to confirm each digit. CANCEL can be used to correct a digit. For more information on setting the system password, see the section “Set New Password” in this chapter.

Adjust mode is indicated by a the edit icon being visible and a blinking cursor. Use the arrow keys to adjust the alarm limit and press RETURN to confirm the value or CANCEL to revert to the previous value.

To return to main menu, press the CANCEL button. If the PCC is left unattended the display will return to main menu automatically after 2 minutes.

3.5 Display Icons

The controller icons are displayed at the top of LCD screen, indicating the status of various system parameters.

Battery Current, Distribution Current and Rectifier Current are displayed below the icons after controller start-up.

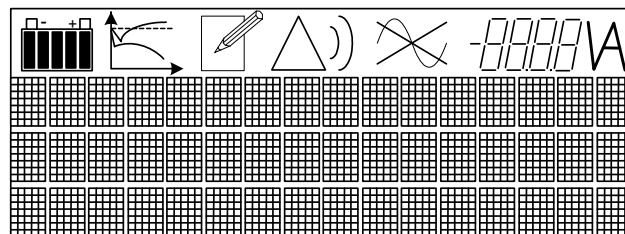


Figure 3-2 Display Icons

Battery Icon



The battery icon displays the charge status for the batteries shown in 20% increments. The charge status is calculated from an accumulated amount of discharged Ah. It also takes into account the load current and the voltage to predict the remaining capacity.

During charging the battery icon will pulsate. During the final fill charge of the battery only the rightmost segment will blink.

After the system is started the first time it will take up to 48 hours before the battery icon is fully operational. The battery capacity must be set correctly in the Adjust Limits | Battery settings menu for the Icon to work properly. If the Battery capacity is set to 0 the icon is not shown.



NOTE: The battery charge status may be incorrect if the battery is malfunctioning.

Graph Icon



Boost



Test

The graph icons indicate charging mode as either Boost or Battery Test. The graph showing an up-going curve is the Boost icon, while Battery Test is indicated with a down-going curve on the graph.

Update Mode



This icon is displayed in editing mode when editable parameters in the Menu tree are accessed. The value can be updated by pressing the ENTER button when the desired value is shown.

Warning and Alarm Icons



Warning



Alarm

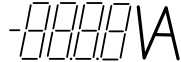
The Warning icon appears when a warning is present. The alarm icon indicates an alarm situation.

Mains Failure Icon



This icon indicates mains failure.

System Voltage Measurement



The system voltage with 2 decimal points is displayed.

3.6 PCC Menus

The PCC menu is divided into nine sections. Some of these sections are further divided into more menu options. Figure 4-1 Menu Tree shows the hierarchy tree. The following contains descriptions of each menu option.

3.6.1 Show voltage and currents

The default PCC screen displays system voltage and battery current. Pressing the down arrow will display system voltage and distribution current, pressing down once more will display system voltage and rectifier current.

3.6.2 Show alarms

Displays the current alarm status. If there are several concurrent alarms use the arrow keys to scroll through the alarms. Any new alarms or alarms that disappear will be added or taken off of the menu immediately. Battery failure and symmetry failure alarms need to be reset manually by pressing RETURN at the show alarms display.

3.6.3 Show messages

This item displays any messages. If there are several messages use the arrow keys to view the various messages. New or disappearing messages will be updated immediately on the menu.

3.6.4 Show data

This menu displays information about: modules, units, temperature, and symmetry voltage. Information on each of these menus is in the following section:

Module Data

This menu displays information from each rectifier module. Use the arrow keys to select the module number.



NOTE Rectifier modules are numbered from the top to bottom, and left to right.

Once the rectifier is selected on screen, Pressing RETURN will display a new menu with the following information: communication status, module current, mean current, module temperature, module measured voltage, Module OVP limit and alarm information.

Module alarms are indicated by 3 letter flags. The meanings of these are as follows.

- MNS - No input mains.
- LOW - Input voltage low.
- OFF - No operation, caused by no mains or other failure.
- OVS - Overvoltage shutdown.
- FAN - Fan failure, will cause the module turn off (depending on type of module).
- CUR - Current sharing fault. Current deviates too much from average.
- TMP - Temperature is high. This alarm must be reset manually.

Temperature

This menu displays the battery temperature.

Symmetry Voltage

The symmetry voltage for each battery branch is displayed.

3.6.5 Select / adjust U1 - U4

This menu is used to select one of the references for the 4 charge modes, U1 - float voltage, U2 - boost voltage, U3 - battery test voltage, U4 - spare, and to adjust these references.



CAUTION Always consult the battery user's guide before attempting to boost. Improper settings can damage batteries.

The voltage references can be adjusted in steps of 0.1V.

U1 Normal. The U1 reference is shown, press RETURN to change U1 (The float charge voltage) and use the arrow keys to adjust to the proper voltage.

U2 Boost. The U2 reference is shown, press RETURN to change U2 (The boost charge voltage).

U3 Test. The U3 reference is shown, press RETURN to change U3 (The Battery test voltage).

U4 Spare. The U4 reference is shown, press RETURN to change U4 (The spare voltage). The U4 setting is normally not used in this system.

3.6.6 Adjust limits

The Adjust Limits menu allows the user to change and add limits to the system. The menu has the following options: alarm limits, boost parameters, battery test, temperature compensation, battery current limit, system specific limits and distribution current limits. Parameters can be set and adjusted by selecting the different sub-menus.

Alarm limits

This menu allows the following alarm limits to be changed:

- High voltage
- Low voltage
- Over voltage shutdown limit
- Low voltage disconnect
- Partial low voltage disconnect limits
- Load reconnect limit
- High load limit
- High temperature limit.

Change these limits using the arrow keys and RETURN to select.

Boost parameters

This menu contains the limits for boost charging control. See section “Boost charging” for more information.

Battery test

This menu contains the limits for battery test. See section “Battery test” for more information.

Temperature comp.

This menu turn the temperature compensation on and off, and is used to set the compensation factor.

System specific limits

Only available for specific systems. Information will be provided with systems when shipped.



NOTE Current limiting is not available on all systems.

3.6.7 Miscellaneous

The miscellaneous menu is used to set the date and time, change password, view version information, initialize modem, show symmetry voltages and temperature.

Set time

The clock is shown. Press RETURN to adjust the clock. There is no battery back-up to keep the time when the PCC is turned off.

Relay test

Press RETURN to check the alarm relays. Use the arrow keys to select the relay to be activated.

Alarm blocking

Use Alarm Blocking to disable the relays during service. One alarm relay will normally be active as long as the alarms are blocked.

Version

Show the PCC software version, configuration number and serial number.

Set new password

Choose “set new password” from the “miscellaneous” menu. Press RETURN, enter the old password and press RETURN. Enter the new password and confirm by pressing RETURN. To avoid mistyping the new password has to be entered once more. Confirm by pressing RETURN.



NOTE Be sure to note the new password. If the password is not known or access is denied, contact UNIPOWER technical support for assistance.

Shunt A

Displays the current rating of the battery shunt, i.e. this parameter shows the value of current in the current/voltage ratio of the shunt.

Shunt mV

Displays the voltage drop of the battery shunt at rated current, i.e. this parameter shows the value of voltage in the current/voltage ratio of the shunt.

Network address

Displays the network address for each module. Several PCC's may be connected together in a multidrop RS232 network. The modules require a unique address between 2 and 255. This address may be set here. Also this submenu is used to set TCP/IP address for use on the ethernet version of the controller.

Baud rate

Select the baud rate for the RS232 serial port of the PCC. Either 2400 or 9600.

Init modem

Press RETURN to send a string to initiate a modem. The initiation string will set the modem to auto-answer after two rings. See the modem instructions to see if it requires additional initialization to operate.

Accept removed parts

Removing a module or unit will appear to the PCC as a communication error. If the module or unit is intentionally removed then the PCC will need to be informed. Select “YES” in the Accept Removed Parts menu to inform the system that the module was removed.



NOTE Do not accept removed parts if there is an alarm on a module that has not been removed.

Reset to defaults

This command will reset the system to default values without deleting logged data or system information. It is recommended to try this instead of Master Reset if a reset is needed. After a reset always check all limits and adjust them to the desired level.

Master reset

Will completely reset the PCC, deleting all stored data. If possible backup the data to a PC before doing a master reset. After a reset always check all limits and adjust them to the desired level.



CAUTION A Master Reset will delete all information from the system. Use the master reset feature only as a last resort.

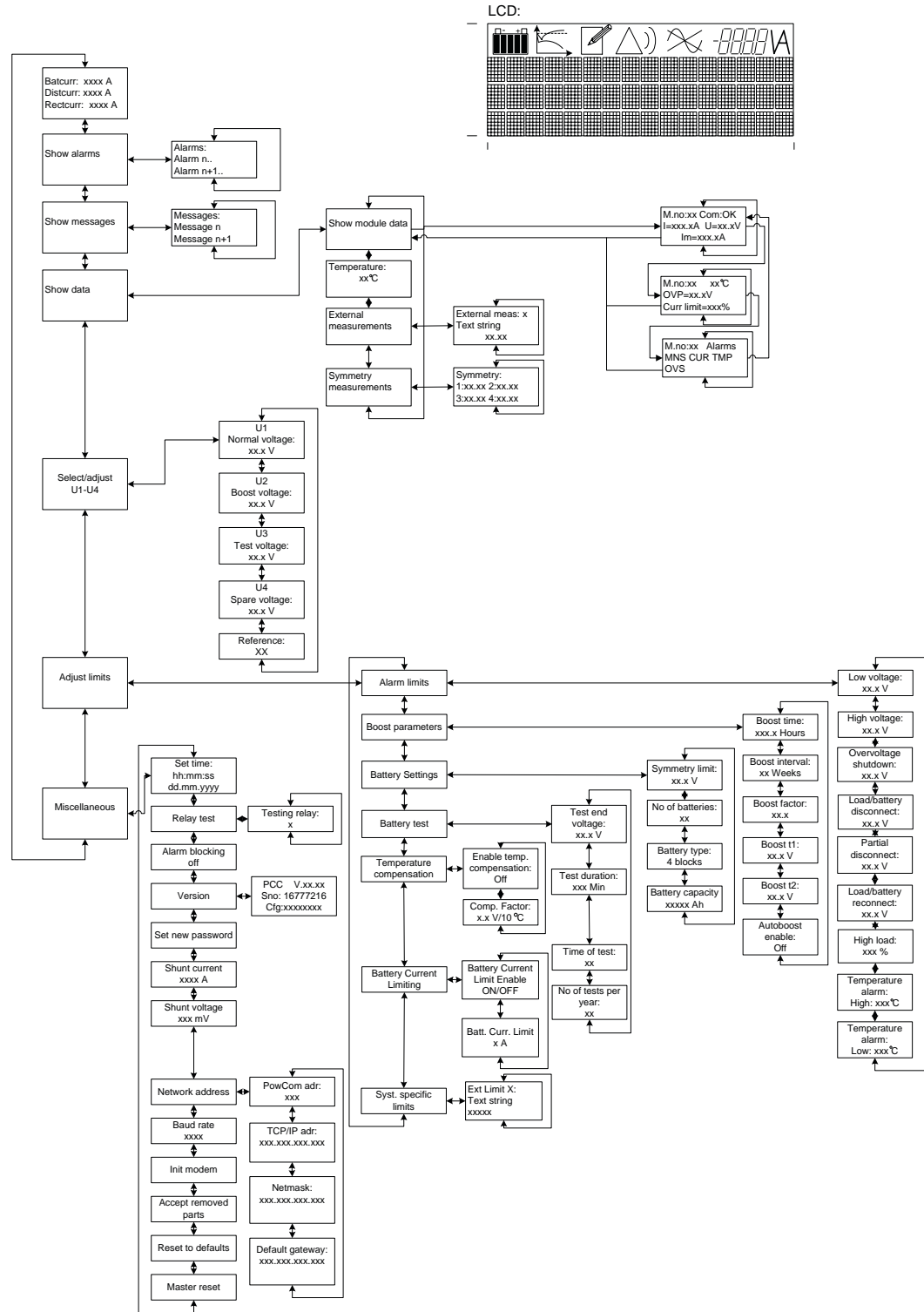


Figure 3-3 Menu Tree

3.7 Connecting to PC

The PCC to PC connection requires a RS232 cable to connect to the PCC and to the PC serial port connection.

Cable

The PC to PCC connection is made using a modem, or directly with a null-modem cable (PCC to PC cable). P1 and P2 are both 9-pin female D-sub plugs. P1 is to be connected to the PCC.

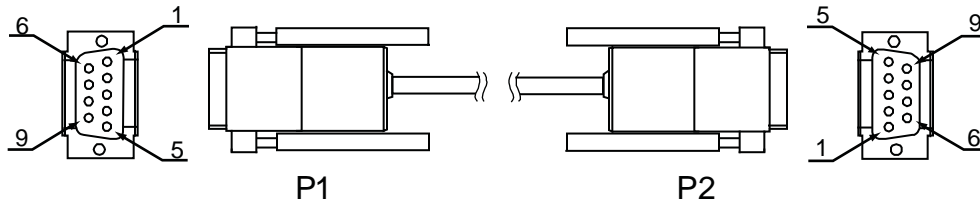


Figure 3-4 PCC to PC Cable

Pin	P1	P2
2	Receive	Transmit
3	Transmit	Receive
5	0V (Ground)	0V (Ground)

Table 3-1 RS232 Cable Pinouts

1. To connect the PCC to the PC, locate the RS232 interface connector on the front of the PCC.
2. Connect one end of the RS232 cable to the interface connection.
3. Route the cable to the rear of the PC (the PC should be powered “Off”).
4. Connect the RS232 cable to the #1 serialport on the PC.
5. Power up the PC and start the PowCom™ software.
6. Choose “Communications” from the PowCom™ menu, and select “Port Setup” (Figure 3-5).

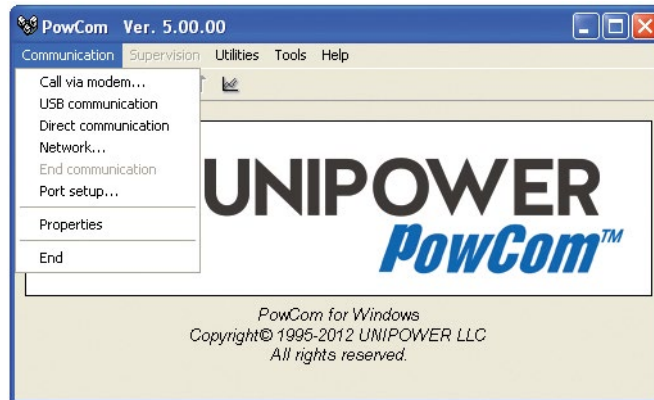


Figure 3-5 Communications menu

1. Select “9600” baud rate from the Port Setup menu (Figure 3-6).

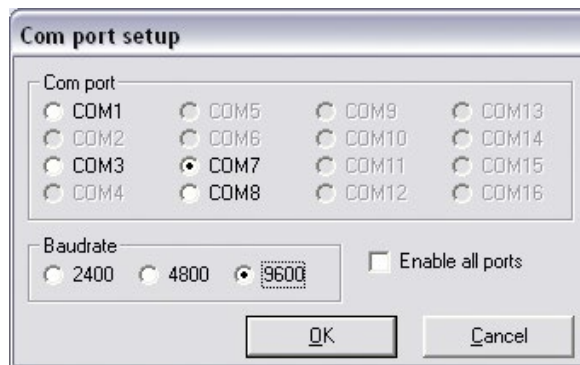


Figure 3-6 Port Setup Menu

2. Select “OK”
3. Choose “Direct Communication” from the Communications menu.
4. Enter Password (1234 by default).
5. Consult the [PowCom™ User Guide](#) for more information about using PowCom™ software.

3.8 Connecting a Modem

A modem can be connected to the serial port using a standard modem cable. To setup the modem to auto-answer use the init modem command from the Miscellaneous menu (see menu tree). Some modems may require further initiation to be done before it is connected to the PCC. Please refer to the modem manufacturer’s documentation.

To dial up the system using PowCom™, please refer to the [PowCom™ User Guide](#) delivered with the PowCom™ software package.

3.9 Boost Charging

Open the “Select/Adjust” menu on the PCC.

Boost charging can be activated by three methods:

Manual boost charging - Choose “U2” in the reference menu for activating boost charging. (Return to float charge manually by choosing “U1”, or automatically after a pre-set time.)

Periodic boost charging - after a pre-set period boost charge will be automatically activated for a pre-set time. Interval and boost time to be programmed (for example 4 hours every 3rd week).

Automatic boost charging - when, during a mains failure, the battery voltage falls below LEVEL t1 value, a timer is started. When the mains returns, the system will start an automatic boost. This will last a certain time after the battery voltage reach LEVEL t2. This time will be multiplied with a factor, K. LEVEL t1, LEVEL t2 and the factor can all be set.

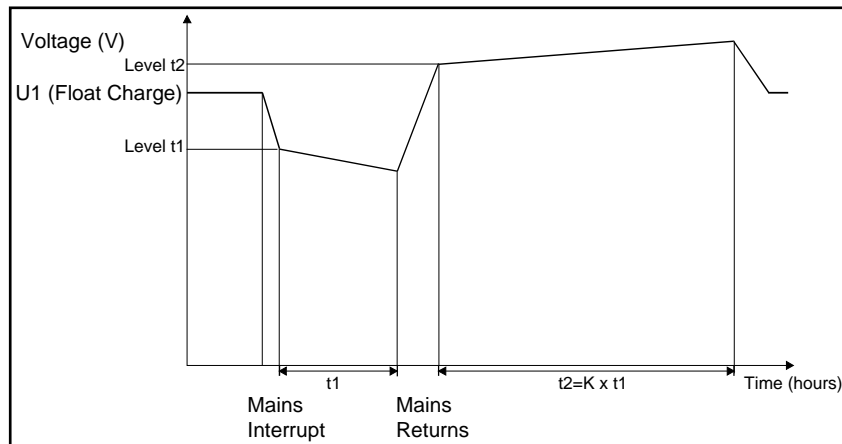


Figure 3-7 Boost Charging

The following values are adjustable for boost charging:

Boost voltage	40 - 60 Volts
Boost time	0 - 200 hours
Boost interval	3 - 16 weeks
Boost factor	1.0 - 16
Boost t1	40 - 60 Volts
Boost t2	40 - 60 Volts
Auto boost enable	Passive - Active

Disabling Automatic Boost Charge:

Select “Boost parameters” in the “Adjust limits” menu. Push RETURN, up arrow and RETURN / then select disable.



NOTE Most manufactures of sealed lead acid batteries do not recommend boost charging. If this type of battery is used, the boost function should be totally disabled by settings as follows: Boost time = 0; U2= U1

3.10 Battery Test

The following section contains the procedure for testing the batteries in the system.

Battery testing is activated by selecting U3 (in the “Choose reference” menu.)

Once selected the rectifier voltage will decrease to a pre-set value (U3, adjustable).

The battery test will automatically be interrupted and output rectifier voltage will raise to U1 level, if programmed time or end voltage is reached during the test.

The test is considered as accepted if time causes the interruption.

If the battery voltage reaches programmed end voltage, the battery is considered as faulty, and an alarm will be indicated and further automatic testing is interrupted.

Battery tests can also be set to activate automatically 1-6 times a year. In the “Choose Reference” menu, select “Select no. of tests”.

Parameter Settings.

The parameter settings feature allows for the partial discharge of the batteries (approx. 30-40% of the capacity) in order to test the batteries for errors. The settings should be done according the battery manufacturer requirements, however, the following settings can be used for standard VR lead batteries:

U3	=	1.9V/cell
End voltage	=	1.94V/cell
Time	=	40% of expected backup time

Parameters to be set/adjusted from the “battery test” menu or PC with PowCom™ installed.

Battery test voltage:U3	0- 100 Volts
Symmetry limit:	0.0 - 4.0 Volts
Test end voltage:	0-100 Volts
Test duration:	0- 20 hours
Time of test:	0 - 23 (0=midnight)
No of test/year:	0 - 4
No of batteries:	0 - 12
Battery type:	4 blocks, 3 blocks or 2 blocks

Number of batteries must be equal to number of symmetry measurements. If symmetry cables are not in use, number of batteries must be set to 0 (zero).

3.11 Temperature compensation

The PCC module can adjust the charging voltage to compensate for temperatures above or below 20°C. $T > 20^{\circ}\text{C}$ lower charging voltage. $T < 20^{\circ}\text{C}$ higher charging voltage. The zero point for temperature compensation can optionally be set to 25°C.

The temperature compensation function can be enabled and disabled and the level of compensation is adjustable.

3.12 High load

The “High Load” alarm is activated when the load current exceeds the capacity of the installed modules multiplied by the high load limit. This is an indication that the system requires increased rectifier capacity.

4. Ethernet Connection

The controller can be connected directly to an Ethernet 10 base T network for supervision using a Web interface. The Web interface will allow setting of parameters. The parameters should be checked so that only legal values are set. Web supervision requires any graphical Internet browser (ie MS Internet Explorer, Mozilla, Firefox, Netscape or other). It is convenient for administration by network connection.



NOTE For connectivity verification in the network between a PC and the PCC controller it is possible to use ICMP (Internet Control Message Protocol). It is chiefly used by the operating systems of networked computers to send error messages - indicating, for instance, that a requested service is not available or that a host or router could not be reached.

The tool 'ping' is used directly by user network applications. It sends "Echo request" and expects "Echo replay".

PCC can work with 32 Bytes only (Windows ping default).

4.1 Commissioning

For successful installation of an Ethernet connection, follow the instructions below.

1. In order to communicate with the site network, a valid IP address, netmask and default gateway are required. These should be provided by the site network administrator. These should be obtained before continuing with the installation.
2. Enter the IP address, netmask and gateway using the Miscellaneous network menu on the LCD display. (Alternatively you can set this via Powcom and a RS232 connection)
3. Connect to the controller using the Ethernet interface located on the Controller frontplate. Connect this directly to the remote Ethernet 10 base T network connection.
4. Start the internet browser on the PC and enter the IP address of the PCC to start connection. On the first connection both the user name and password shall be left blank. The user name and password can be changed in the Configuration - Admin menu on the left hand of the screen. See Admin Configuration on page 6-19. There is only one user and only one level of access.



NOTE Until the user name and password has been changed the user name and password should be left blank when logging in.



Figure 4-1 User name and password

4.2 General information about the interface

The interface (Web page) is divided into 4 frames. See Figure 4-2.

The title frame (1) on the top shows the logo.

The menu frame (2) on the left control what is shown in the main frame (3). The main frame displays the information according to menu choices. In this case the Overview frame is shown.

The left frame (4) is used to display the alarms.

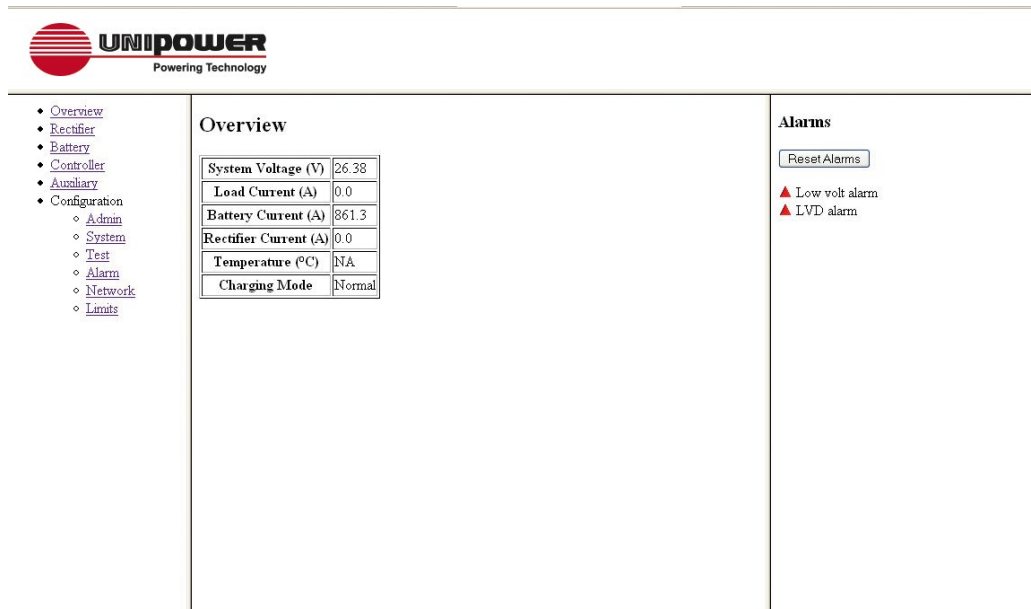


Figure 4-2 Graphic Interface

4.3 Menu Options

4.3.1 Overview

This page shows the system measurements, voltage, battery current, load currents, rectifier current, battery temperature and charge mode.

4.3.2 Rectifier

This page shows the rectifier data for individual rectifiers one at the time.

Voltage

Current

Mean current

Temperature

Alarm Status

4.3.3 Battery

This page shows the symmetry measurements.

4.3.4 Controller

This page show controller information (type, serial number, software version and configuration number).

4.3.5 Auxiliary

This page shows the external measurements that have been programmed in the configuration (including the programmed text).

4.3.6 Admin Configuration

This page allows system name, time, date, service contact name, service contact phone to be set. The user name and password can also be set.

4.3.7 System Configuration

This page allows the selection and adjusting of U1, U2, U3 & U4, Boost parameters and Battery information.

Boost parameters:

Boost time

Boost interval

Boost factor

T1 limit

T2 Limit

Automatic boost on/off

Battery info:

Battery capacity
Battery Type (4 blocks, 3Block, 2 Blocks)
Number of battery strings (branches)
Temperature compensation On/Off
Temperature compensation factor
Battery current limiting on/off (if enabled in configuration)
Battery current limiting limit (if enabled in configuration)

4.3.8 Test Configuration

This page allows the setting of Battery Test parameters.

Symmetry limit
End voltage for test
Battery test time
Time for test
No. of tests pr. Year

4.3.9 Alarm Configuration

This page allows the setting of alarm limits.

Low Voltage
High Voltage
Overvoltage shutdown
Low voltage disconnect
Partial disconnect (V or min. depending of config)
Load connection limit
High load
High temperature limit
Low temperature limit

4.3.10 Network Configuration

IP-address, Netmask, Gateway and Host name can be set. In this window it is also possible to set up the trap recipient for SNMP traps.



NOTE Do not change IP address, netmask or gateway unless you are sure that you can reach the new address. Connection will be lost with the current address.

4.3.11 System Specific Limits

In this window it is possible to change the programmable limits that have been assigned in the configuration of the system. Programmed text in the config is used as description.

4.4 SNMP

General SNMP Managers can supervise a variety of networked equipment simply by importing a text file called MIB (Management Information Base). The SNMP Manager program can access and control the DC-Power systems by adding the MIB describing the PNI SNMP Agent to its collection of MIB files.

The SNMP support is according to SNMP V1. The MIB is a simple Custom MIB which is available on the UNIPOWER web site at:

https://www.unipowerco.com/MIB_files/PCC-MIB.mib

Readable system information

- System Name
- Controller Type
- Controller software version
- Controller Serial number
- DC output description
- Battery Description
- Battery Capacity

This is basically the system information set from PowCom™ when the system is installed and some additional controller information.

Readable Measurements

- System Voltage
- Load Current
- Battery Current
- Rectifier Current (Total)
- Battery Temperature

Readable Alarm data

- Number of active alarms
- Alarm text of the 16 programmable alarms
- Alarm Data 1-3
- Ext Alarm data 1-2
- Status bytes 1-3

Alarm data 1-3, Ext Alarm data 1-2 and Status bytes 1-3 are bit patterns that contain the current alarm status etc. See the following table for more information.

Bit	Description	Comment
	Alarm data 1	
0	Low voltage alarm	
1	High voltage alarm	
2	Low voltage disconnect	Ref: Battery/Load disconnected alarm
3	Mains failure	
4	Distribution fuse failure	Ref: Load breaker failure
5	Earth failure	Not in use
6	Battery failure	
7	Rectifier module alarm	
	Alarm data 2	
0	High temperature alarm	
1	Symmetry failure	
2	Battery fuse failure	
3	High Load alarm	
4	Battery fuse disconnected	Not in use
5	Urgent module alarm	
6	Communication fault	
7	Partial load disconnect	
	Alarm data 3	
0	Temp probe failure	
1	Distr load high	Not in use
2	Batteries on discharge	
3	Output overvoltage shut down alarm	
4	Low battery temperature alarm	
5	Reserved	
6	Reserved	
7	Alarms blocked	Other alarms disabled during maint.
	Extra Alarms 1 (Alarm data 4)	Ext alarm 1-8 (user defined alarms)
0	Ext alarm 1	
1	Ext alarm 2	
2	Ext alarm 3	
3	Ext alarm 4	
4	Ext alarm 5	
5	Ext alarm 6	
6	Ext alarm 7	

Bit	Description	Comment
7	Ext alarm 8	
	Extra Alarms 2 (Alarm data 5)	Ext alarm 9-16 (user defined alarms)
0	Ext alarm 9	
1	Ext alarm 10	
2	Ext alarm 11	
3	Ext alarm 12	
4	Ext alarm 13	
5	Ext alarm 14	
6	Ext alarm 15	
7	Ext alarm 16	
	Status 1	
0-1	U1 Normal	Bit 0 and 1 = 0
0-1	U2 Boost	Bit 0 and 1 = 1
0-1	U3 Test	Bit 0 and 1 = 2
0-1	U4 Spare	Bit 0 and 1 = 3
2	Time controlled load disconnect	
3	Not load/batt disconnect	
4	Partial load disconnect extst	
5	Time controlled partial disconnect	
6	Battery current limit enabled	
7	OVP disable	Not Supported. Always 0
	Status 2	
0	Battery current measured	
1	Load current measured	
2	Rectifier current measured	
3	3 block symmetry	
4	2 block symmetry	
5	IP inforamtion updated	
6		
7		
	Status 3	
0	Two password system	Not Supported. Always 0
1	Function 16 and 17 available	Always 1
2	Dial back available	
3	Extended sysinfo in msg 11 (13)	Always 1
4	Extended batt. Test length	Not Supported. Always 0

Bit	Description	Comment
5	Large system	Not Supported. Always 0
6	Internal PNI	Network option installed. Set to 1 when ethernet

Table 4-1 Alarm data

Traps sent from controller when events occur.

- All the 20 standard alarms sent individually with a variable showing if the alarm is set or cleared
- All the 16 programmable alarms sent individually with a variable showing if the alarm is set or cleared
- Trap sent when the charge mode change. 4 different traps depending on mode it is changed to (U1-U4)

Traps are sent to a single trap recipient that can be set up from the web interface.

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