

1	ELTEK CHARGERS SET-UP	2
1.1	INITIAL SET-UP PROCESS	2
1.2	CONFIGURATION SETTINGS	3
2	WIRING AND CABLING	14
2.1	AC POWER WIRING	14
2.2	DC POWER WIRING	15
2.3	ALARM & TEMPERATURE PROBE WIRING.....	16
2.4	MODS TO EARTHS.....	17

1 Eltek Chargers Set-Up

1.1 Initial Set-Up Process

- 1.1.1 Connect an Ethernet Cable into the port on the controller card of the charger, the other end of the Ethernet cable must be attached to our internal network switch.
- 1.1.2 Run the Eltek Network Utility on the Desktop (Download this from Eltek if you do not have a copy) and click on the search key located on the top left hand corner of the application. See Figure 1. Eltek Network Utility Search Screen below.

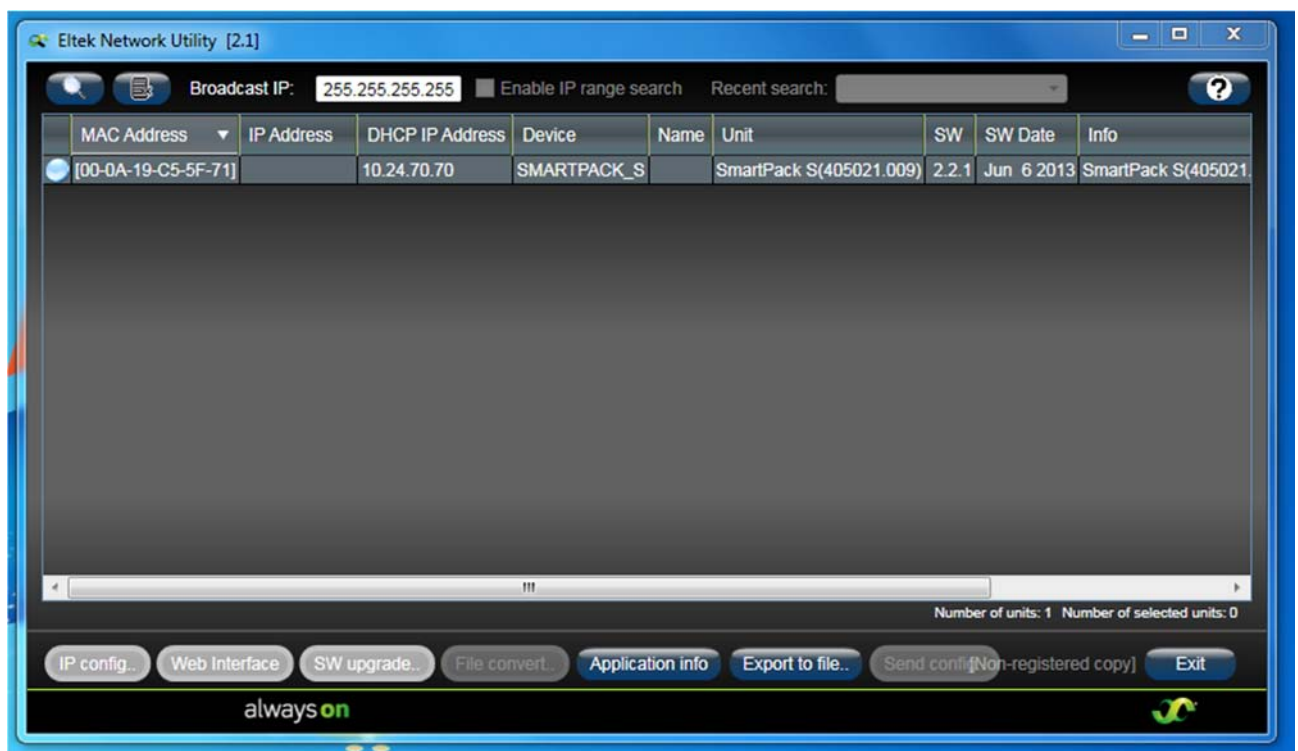


Figure 1. Eltek Network Utility Search Screen

- 1.1.3 Highlight the Controller and click on IP config button located on the bottom left hand corner and set the IP Address to 10.24.70.220, also click the DHCP box as shown in Figure 2. Eltek Network Utility IP Configuration.

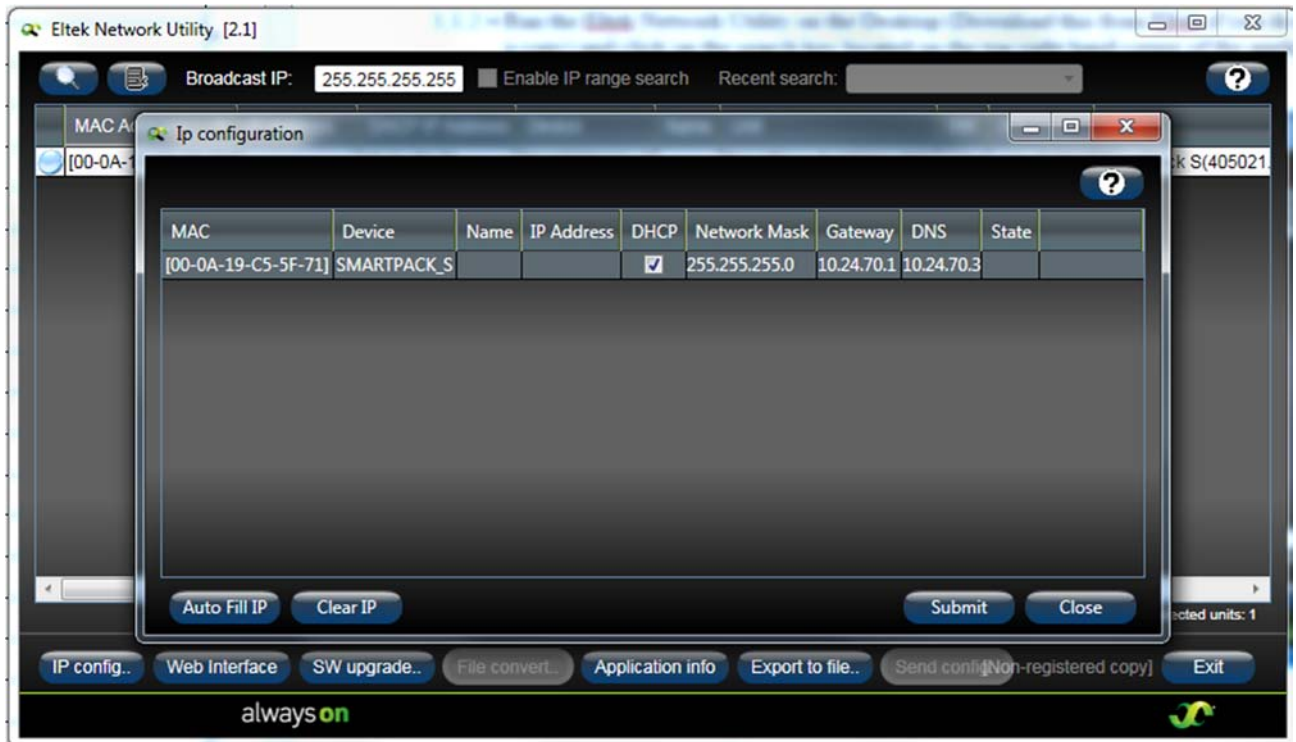


Figure 2. Eltek Network Utility IP Configuration

1.2 Configuration Settings

- 1.2.1 Close the application and reopen and search again for the controller, when it's found note the IP address and in any Internet Browser type this figure into the address bar, this will permit access to the controller settings the User Name and password is admin and the Password is admin.
- 1.2.2 On the System Configuration tab change the settings to those show in Figure 3. System Configuration Tab and make changes as per the other screen shots in:

- Figure 4. System Global Settings
- Figure 5. Rectifier Configuration
- Figure 6. Battery Configuration
- Figure 7. Battery Boost Settings
- Figure 8. Battery Equalize Settings
- Figure 9. Mains Input Alarm Configuration
- Figure 10. Rectifiers Alarm Configuration
- Figure 11. Rectifiers Communication Alarm
- Figure 12. Battery Voltage Alarm Settings
- Figure 13. Battery Temperature Alarm Settings
- Figure 14. Battery Quality Alarm Settings
- Figure 15. Battery Output Alarm Settings
- Figure 16. Battery Control Unit Alarm Settings

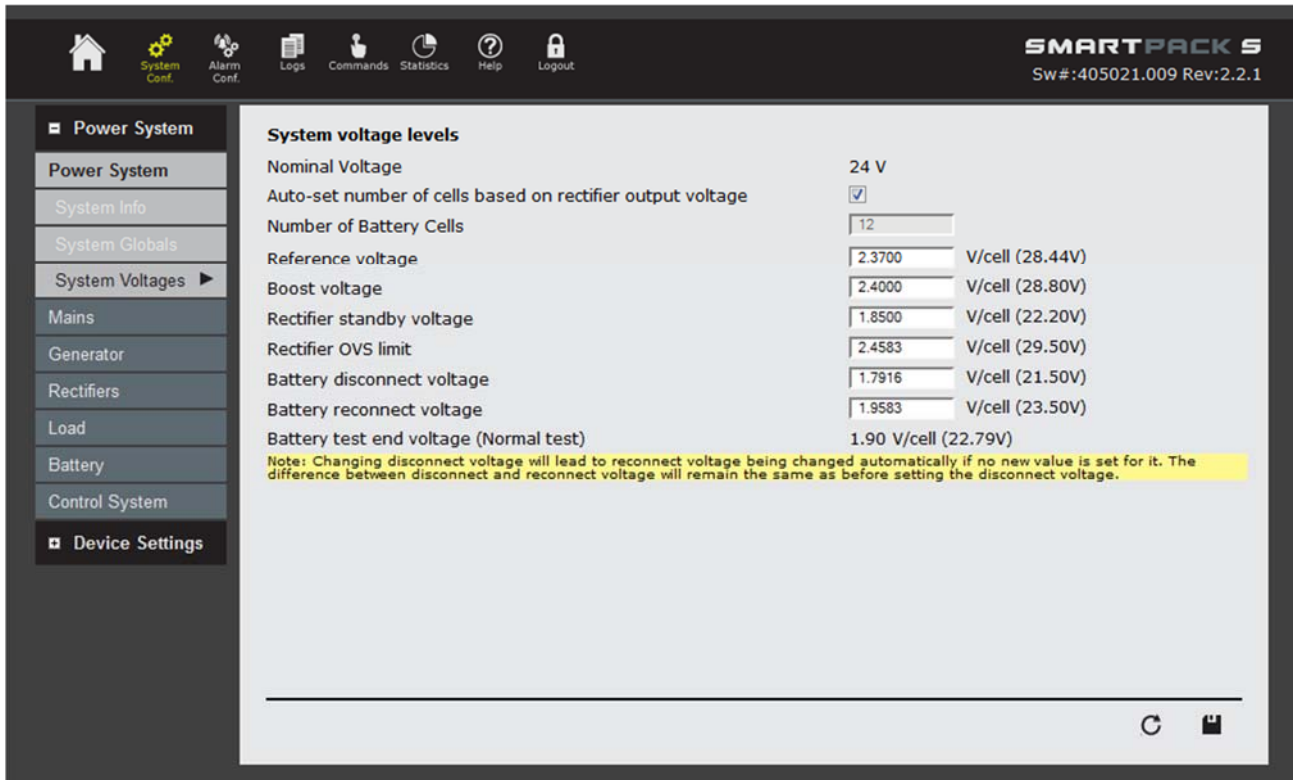


Figure 3. System Configuration Tab

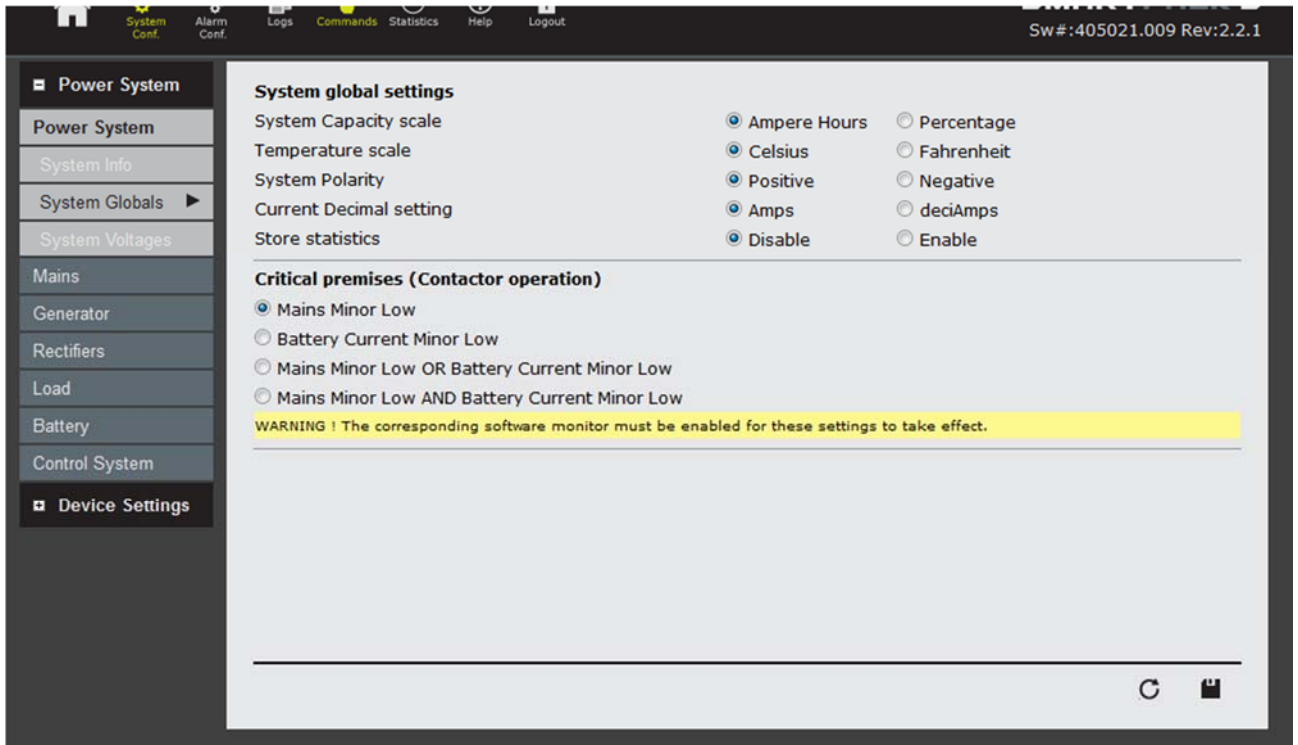
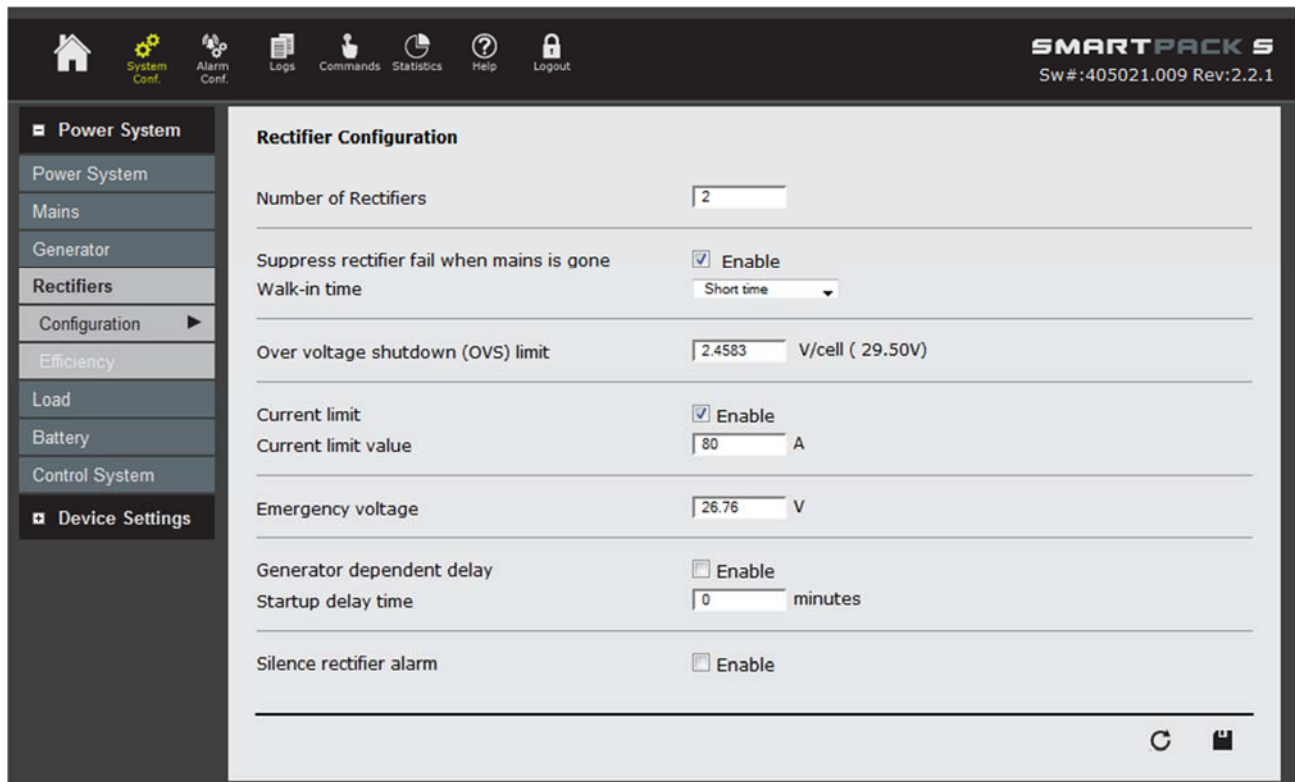


Figure 4. System Global Settings



SMARTPACK 5
Sw#:405021.009 Rev:2.2.1

Rectifier Configuration

Number of Rectifiers:

Suppress rectifier fail when mains is gone: Enable

Walk-in time:

Over voltage shutdown (OVS) limit: V/cell (29.50V)

Current limit: Enable

Current limit value: A

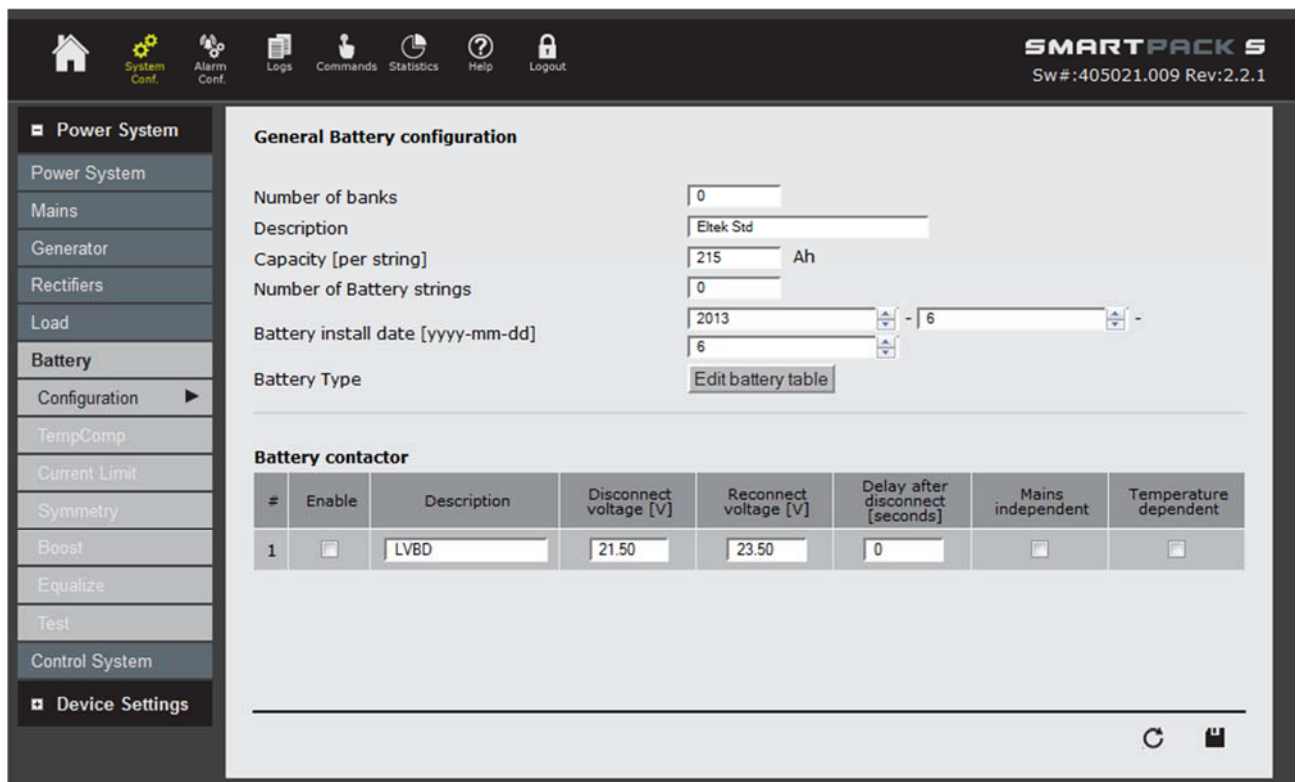
Emergency voltage: V

Generator dependent delay: Enable

Startup delay time: minutes

Silence rectifier alarm: Enable

Figure 5. Rectifier Configuration



SMARTPACK 5
Sw#:405021.009 Rev:2.2.1

General Battery configuration

Number of banks:

Description:

Capacity [per string]: Ah

Number of Battery strings:

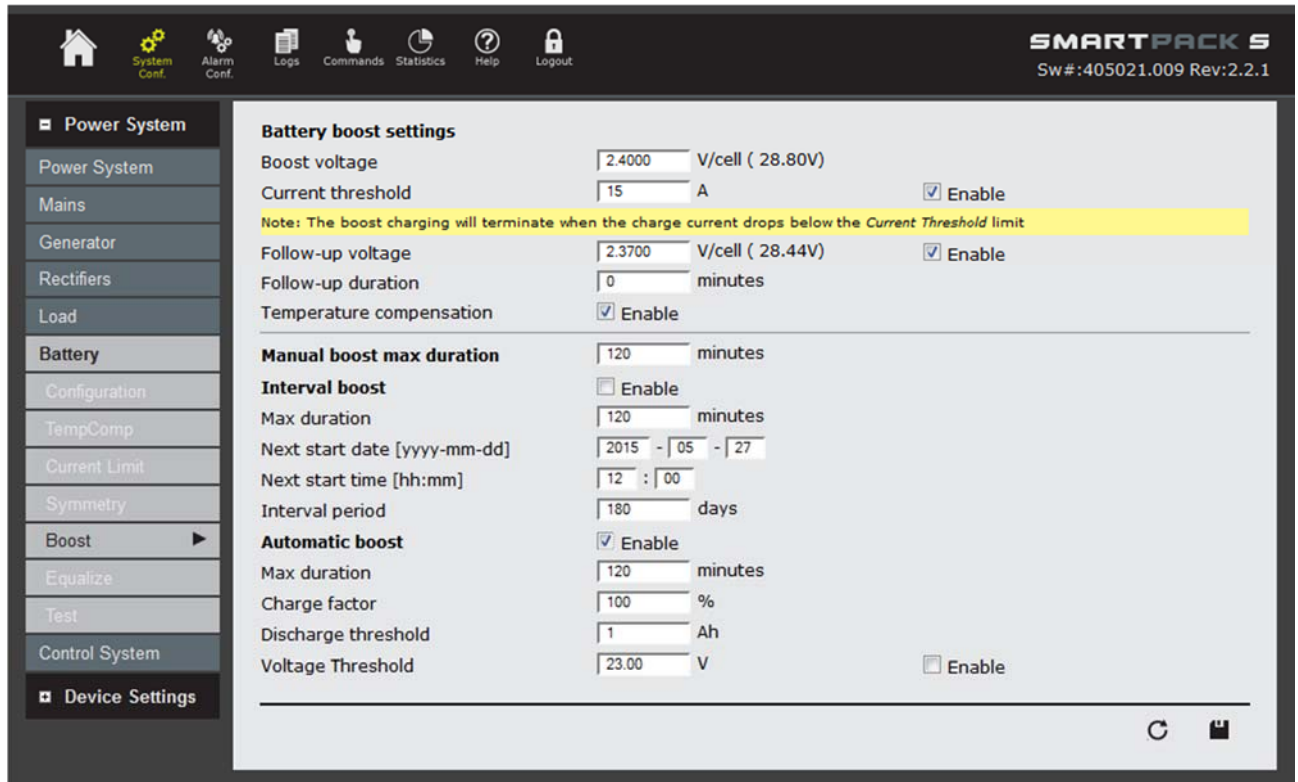
Battery install date [yyyy-mm-dd]: - -

Battery Type:

Battery contactor

#	Enable	Description	Disconnect voltage [V]	Reconnect voltage [V]	Delay after disconnect [seconds]	Mains independent	Temperature dependent
1	<input type="checkbox"/>	<input type="text" value="LVBD"/>	<input type="text" value="21.50"/>	<input type="text" value="23.50"/>	<input type="text" value="0"/>	<input type="checkbox"/>	<input type="checkbox"/>

Figure 6. Battery Configuration



SMARTPACK S
Sw#:405021.009 Rev:2.2.1

Power System

- Power System
- Mains
- Generator
- Rectifiers
- Load
- Battery**
 - Configuration
 - TempComp
 - Current Limit
 - Symmetry
 - Boost
 - Equalize
 - Test
- Control System

Device Settings

Battery boost settings

Boost voltage V/cell (28.80V)
 Current threshold A Enable

Note: The boost charging will terminate when the charge current drops below the Current Threshold limit

Follow-up voltage V/cell (28.44V) Enable
 Follow-up duration minutes
 Temperature compensation Enable

Manual boost max duration minutes

Interval boost Enable
 Max duration minutes
 Next start date [yyyy-mm-dd] - -
 Next start time [hh:mm] :
 Interval period days

Automatic boost Enable
 Max duration minutes
 Charge factor %
 Discharge threshold Ah
 Voltage Threshold V Enable


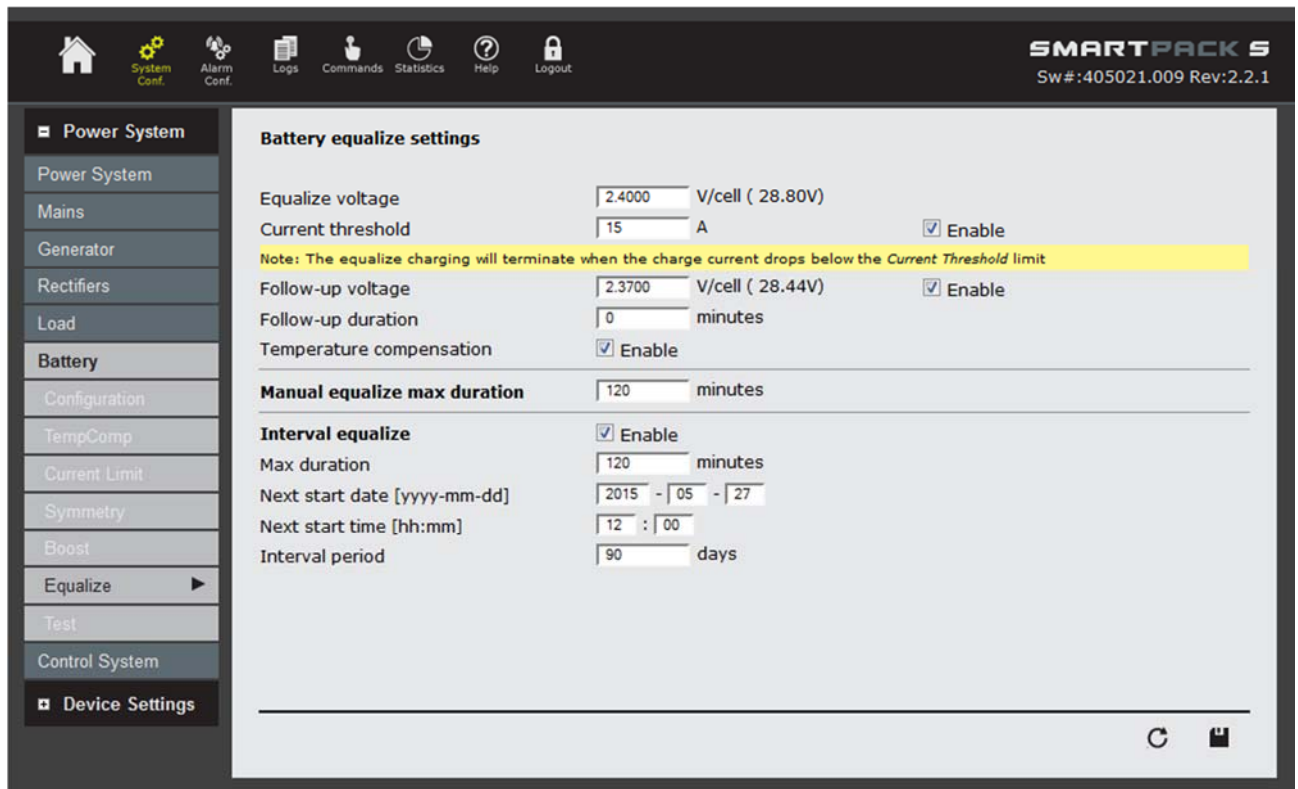
C 

Figure 7. Battery Boost Settings



SMARTPACK S
Sw#:405021.009 Rev:2.2.1

Power System

- Power System
- Mains
- Generator
- Rectifiers
- Load
- Battery**
 - Configuration
 - TempComp
 - Current Limit
 - Symmetry
 - Boost
 - Equalize
 - Test
- Control System

Device Settings

Battery equalize settings

Equalize voltage V/cell (28.80V)
 Current threshold A Enable

Note: The equalize charging will terminate when the charge current drops below the Current Threshold limit

Follow-up voltage V/cell (28.44V) Enable
 Follow-up duration minutes
 Temperature compensation Enable

Manual equalize max duration minutes

Interval equalize Enable
 Max duration minutes
 Next start date [yyyy-mm-dd] - -
 Next start time [hh:mm] :
 Interval period days


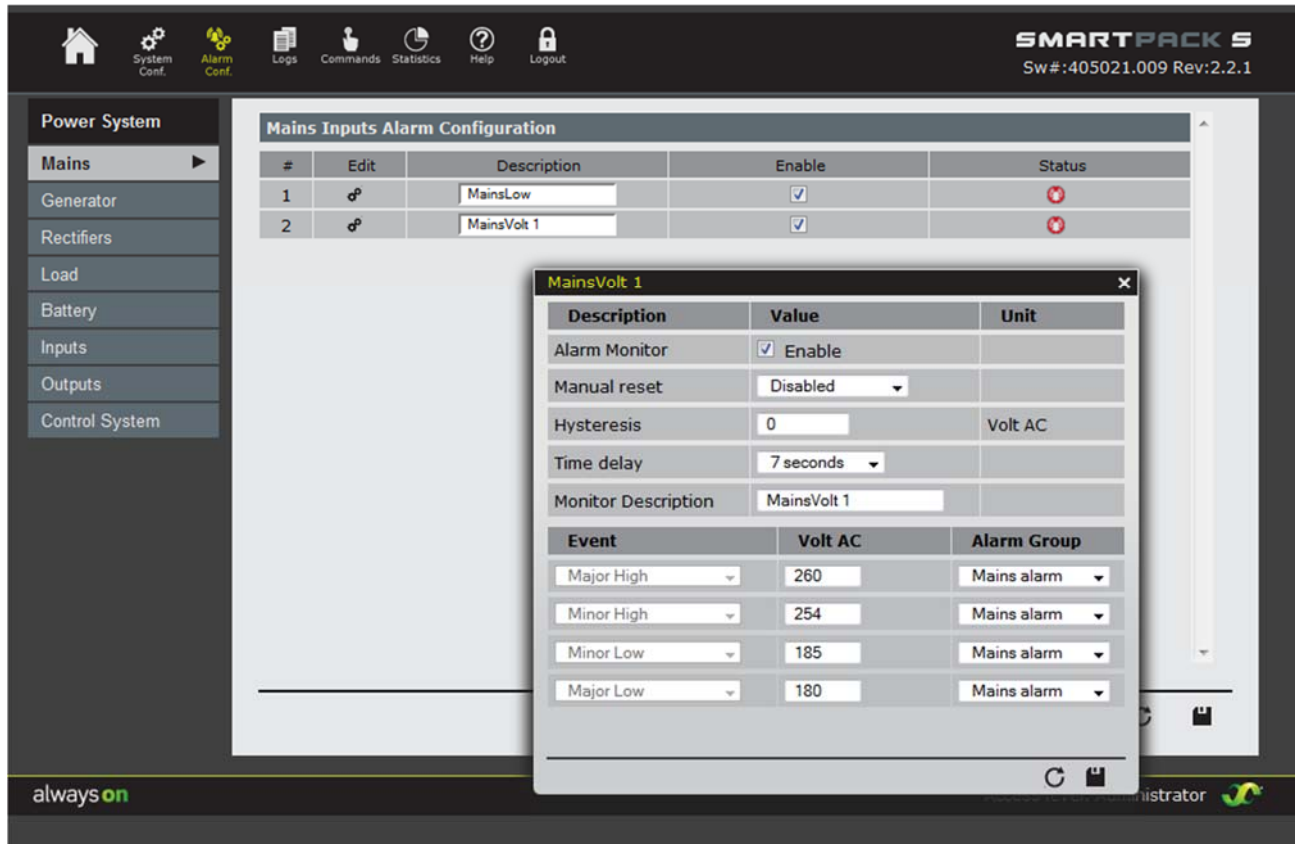
C 

Figure 8. Battery Equalize Settings



SMARTPACK S
Sw #:405021.009 Rev:2.2.1

Power System

- Mains
- Generator
- Rectifiers
- Load
- Battery
- Inputs
- Outputs
- Control System

Mains Inputs Alarm Configuration

#	Edit	Description	Enable	Status
1		MainsLow	<input checked="" type="checkbox"/>	
2		MainsVolt 1	<input checked="" type="checkbox"/>	

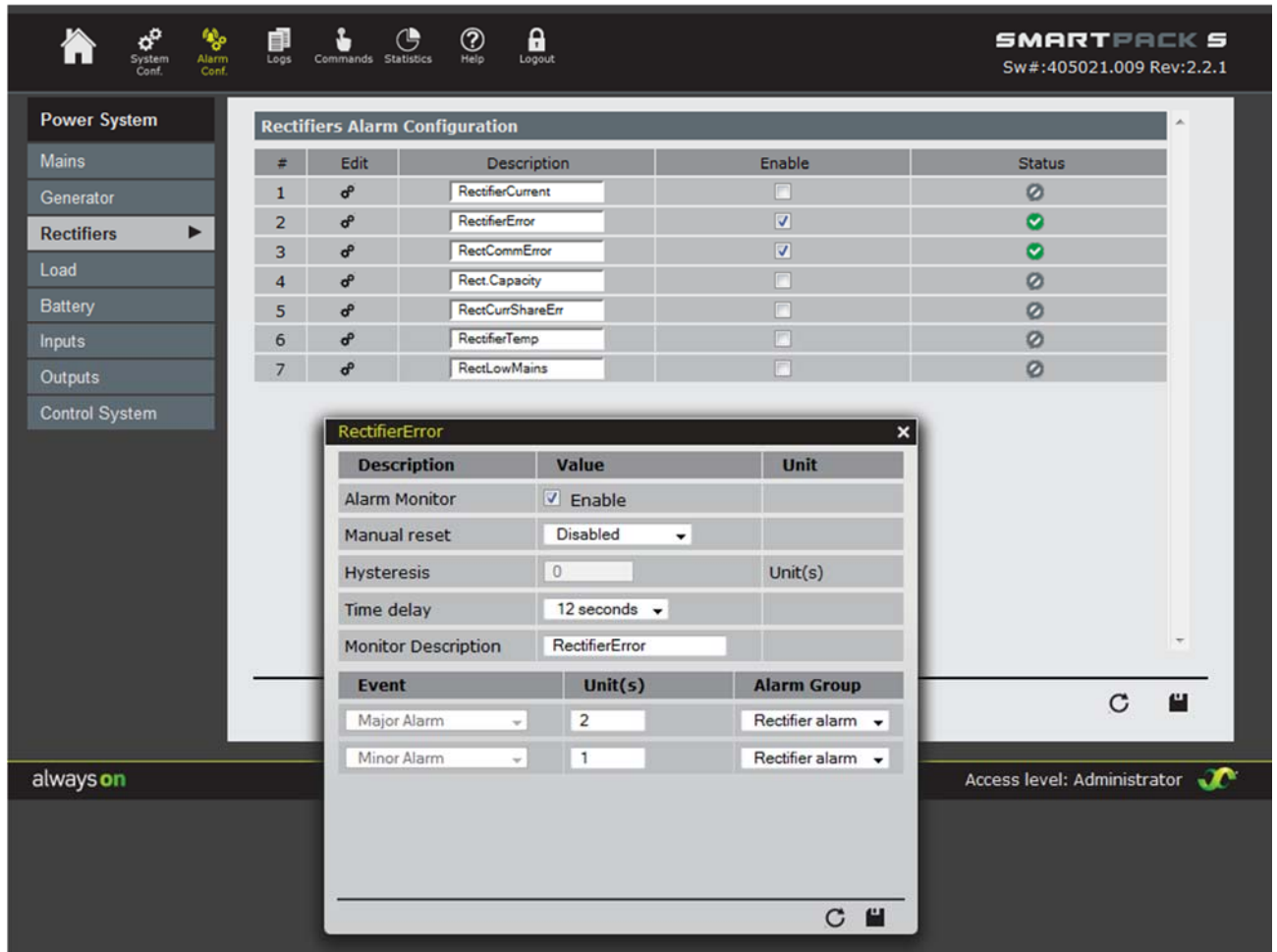
MainsVolt 1

Description	Value	Unit
Alarm Monitor	<input checked="" type="checkbox"/> Enable	
Manual reset	Disabled	
Hysteresis	0	Volt AC
Time delay	7 seconds	
Monitor Description	MainsVolt 1	

Event	Volt AC	Alarm Group
Major High	260	Mains alarm
Minor High	254	Mains alarm
Minor Low	185	Mains alarm
Major Low	180	Mains alarm

always on

Figure 9. Mains Input Alarm Configuration



The screenshot displays the SMARTPACK 5 software interface. The top navigation bar includes icons for Home, System Conf., Alarm Conf., Logs, Commands, Statistics, Help, and Logout. The top right corner shows 'SMARTPACK 5' and 'Sw#:405021.009 Rev:2.2.1'. A left sidebar lists 'Power System' categories: Mains, Generator, Rectifiers (selected), Load, Battery, Inputs, Outputs, and Control System. The main area shows the 'Rectifiers Alarm Configuration' table:

#	Edit	Description	Enable	Status
1		RectifierCurrent	<input type="checkbox"/>	
2		RectifierError	<input checked="" type="checkbox"/>	
3		RectCommError	<input checked="" type="checkbox"/>	
4		Rect.Capacity	<input type="checkbox"/>	
5		RectCurShareErr	<input type="checkbox"/>	
6		RectifierTemp	<input type="checkbox"/>	
7		RectLowMains	<input type="checkbox"/>	

A 'RectifierError' configuration dialog is open, showing the following settings:

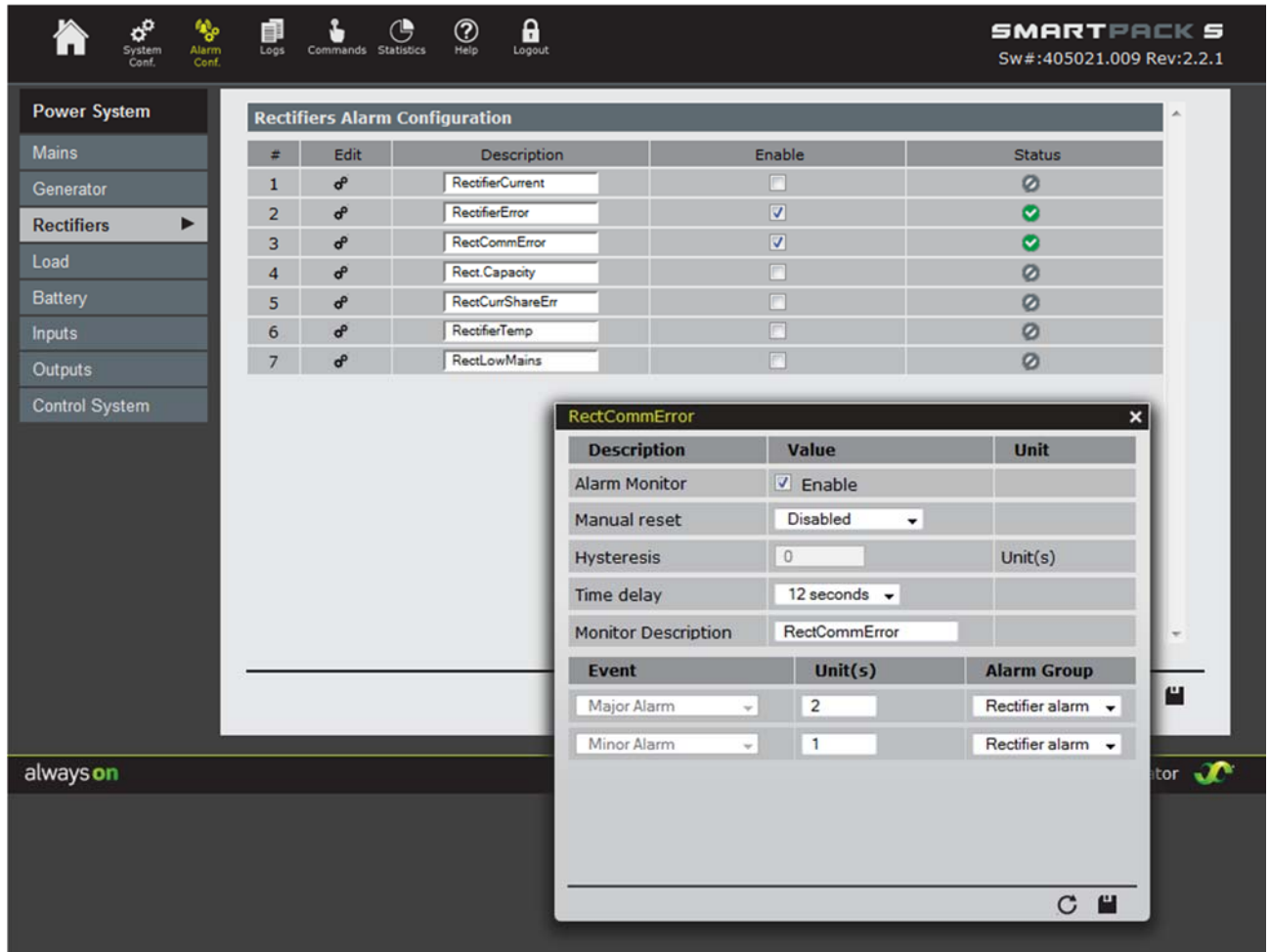
Description	Value	Unit
Alarm Monitor	<input checked="" type="checkbox"/> Enable	
Manual reset	Disabled	
Hysteresis	0	Unit(s)
Time delay	12 seconds	
Monitor Description	RectifierError	

Below these settings is an 'Event' table:

Event	Unit(s)	Alarm Group
Major Alarm	2	Rectifier alarm
Minor Alarm	1	Rectifier alarm

The bottom of the interface shows 'always on' on the left and 'Access level: Administrator' on the right.

Figure 10. Rectifiers Alarm Configuration



The screenshot displays the SMARTPACK S software interface. The top navigation bar includes icons for Home, System Conf., Alarm Conf., Logs, Commands, Statistics, Help, and Logout. The main menu on the left lists Power System components: Mains, Generator, Rectifiers (selected), Load, Battery, Inputs, Outputs, and Control System. The central panel shows the 'Rectifiers Alarm Configuration' table:

#	Edit	Description	Enable	Status
1		RectifierCurrent	<input type="checkbox"/>	
2		RectifierError	<input checked="" type="checkbox"/>	
3		RectCommError	<input checked="" type="checkbox"/>	
4		Rect.Capacity	<input type="checkbox"/>	
5		RectCurrShareErr	<input type="checkbox"/>	
6		RectifierTemp	<input type="checkbox"/>	
7		RectLowMains	<input type="checkbox"/>	

An overlay dialog titled 'RectCommError' is open, showing configuration details:

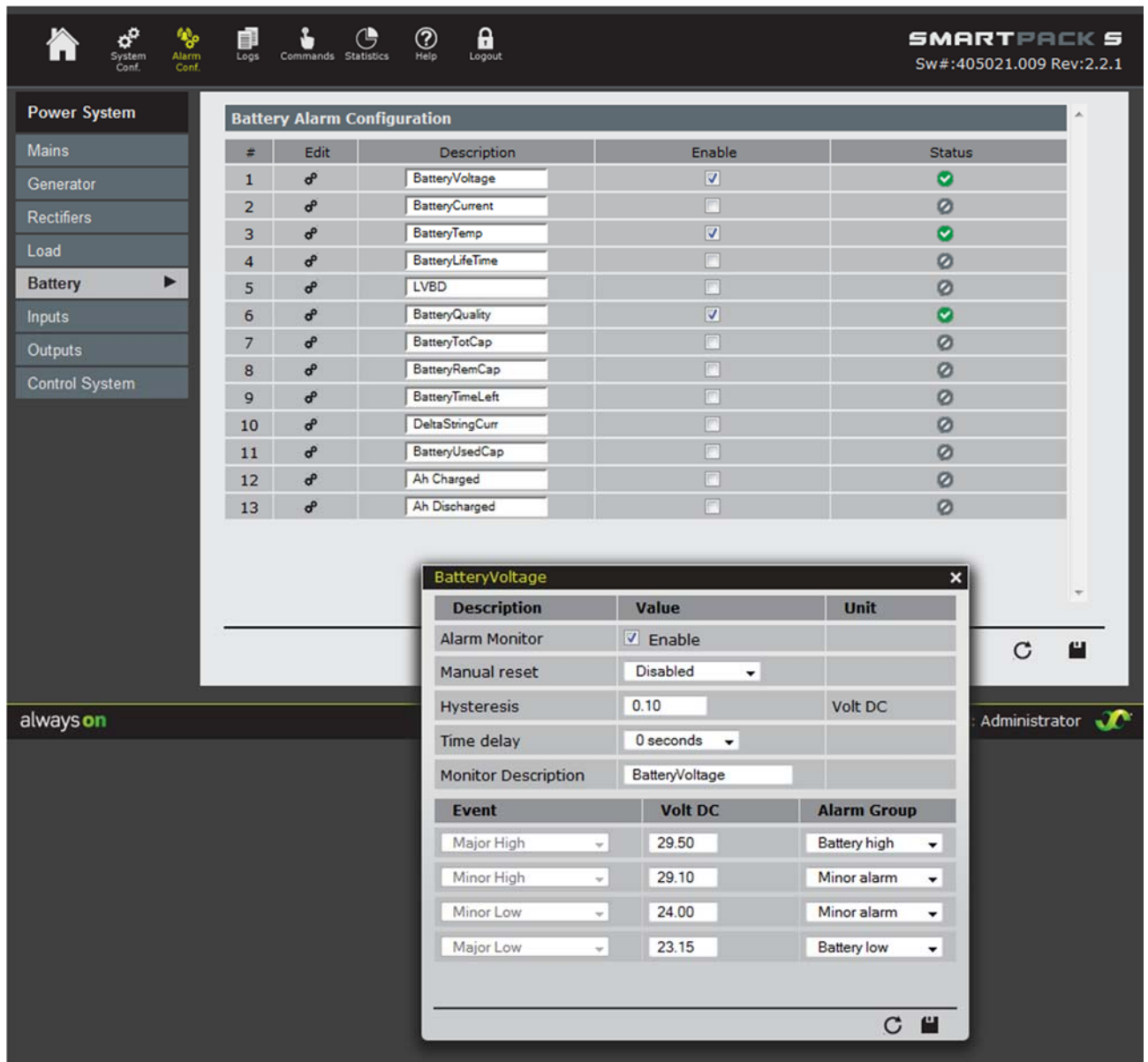
Description	Value	Unit
Alarm Monitor	<input checked="" type="checkbox"/> Enable	
Manual reset	Disabled	
Hysteresis	0	Unit(s)
Time delay	12 seconds	
Monitor Description	RectCommError	

Below these fields is an 'Event' configuration table:

Event	Unit(s)	Alarm Group
Major Alarm	2	Rectifier alarm
Minor Alarm	1	Rectifier alarm

The interface also features a footer with the 'always on' logo and a 'monitor' indicator.

Figure 11. Rectifiers Communication Alarm



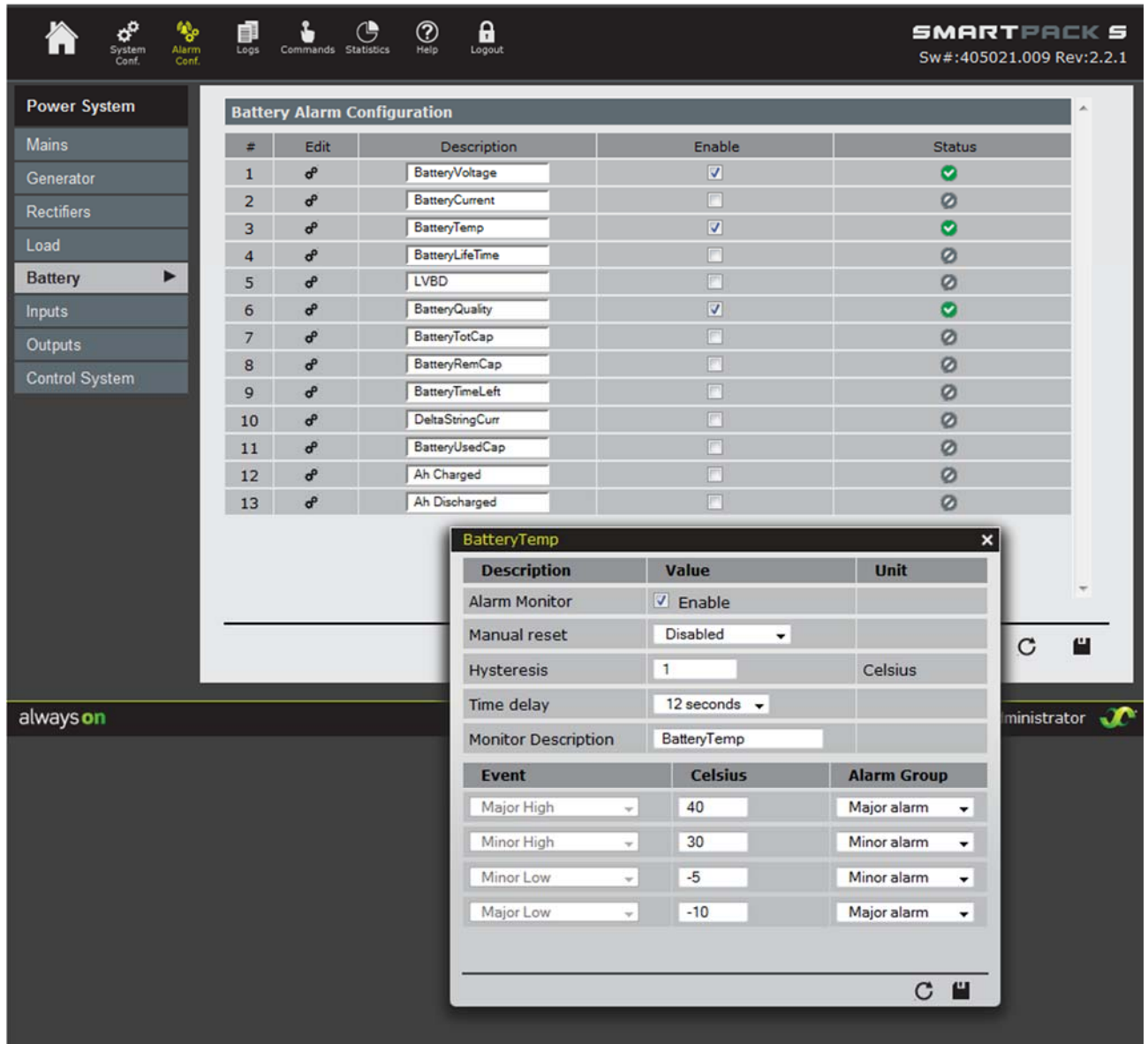
The screenshot displays the SMARTPACK S software interface. The top navigation bar includes icons for Home, System Conf., Alarm Conf., Logs, Commands, Statistics, Help, and Logout. The main menu on the left lists Power System components: Mains, Generator, Rectifiers, Load, Battery (selected), Inputs, Outputs, and Control System. The central panel shows the 'Battery Alarm Configuration' table with 13 rows of alarm settings. A 'BatteryVoltage' configuration dialog is open, showing various parameters and thresholds.

#	Edit	Description	Enable	Status
1		BatteryVoltage	<input checked="" type="checkbox"/>	
2		BatteryCurrent	<input type="checkbox"/>	
3		BatteryTemp	<input checked="" type="checkbox"/>	
4		BatteryLifeTime	<input type="checkbox"/>	
5		LVBD	<input type="checkbox"/>	
6		BatteryQuality	<input checked="" type="checkbox"/>	
7		BatteryTotCap	<input type="checkbox"/>	
8		BatteryRemCap	<input type="checkbox"/>	
9		BatteryTimeLeft	<input type="checkbox"/>	
10		DeltaStringCurr	<input type="checkbox"/>	
11		BatteryUsedCap	<input type="checkbox"/>	
12		Ah Charged	<input type="checkbox"/>	
13		Ah Discharged	<input type="checkbox"/>	

Description	Value	Unit
Alarm Monitor	<input checked="" type="checkbox"/> Enable	
Manual reset	Disabled	
Hysteresis	0.10	Volt DC
Time delay	0 seconds	
Monitor Description	BatteryVoltage	

Event	Volt DC	Alarm Group
Major High	29.50	Battery high
Minor High	29.10	Minor alarm
Minor Low	24.00	Minor alarm
Major Low	23.15	Battery low

Figure 12. Battery Voltage Alarm Settings



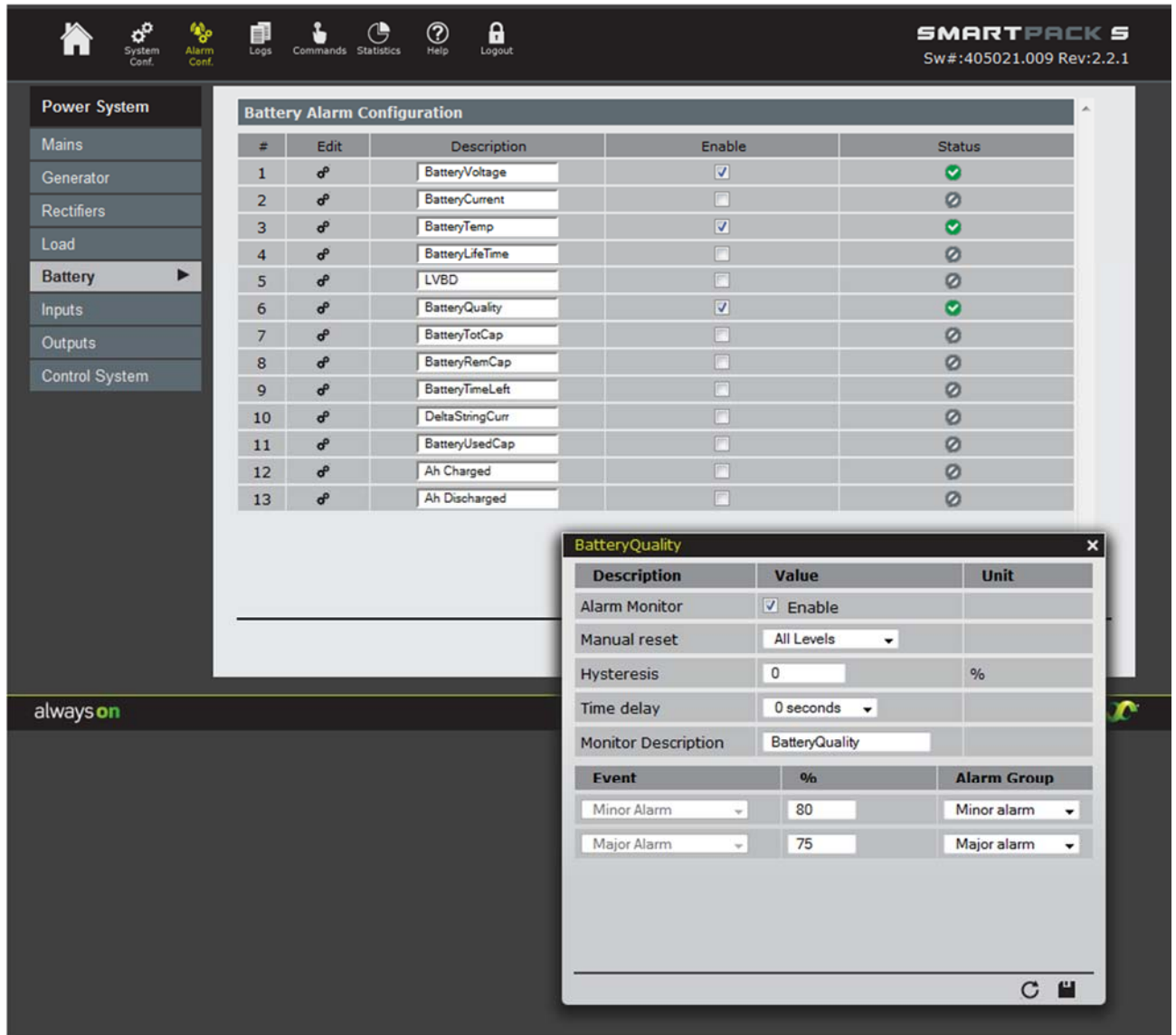
The screenshot displays the SMARTPACK 5 interface for configuring battery alarms. The main window shows a table of 13 alarm configurations. A dialog box titled 'BatteryTemp' is open, showing detailed settings for the temperature alarm.

#	Edit	Description	Enable	Status
1		BatteryVoltage	<input checked="" type="checkbox"/>	
2		BatteryCurrent	<input type="checkbox"/>	
3		BatteryTemp	<input checked="" type="checkbox"/>	
4		BatteryLifeTime	<input type="checkbox"/>	
5		LVBD	<input type="checkbox"/>	
6		BatteryQuality	<input checked="" type="checkbox"/>	
7		BatteryTotCap	<input type="checkbox"/>	
8		BatteryRemCap	<input type="checkbox"/>	
9		BatteryTimeLeft	<input type="checkbox"/>	
10		DeltaStringCurr	<input type="checkbox"/>	
11		BatteryUsedCap	<input type="checkbox"/>	
12		Ah Charged	<input type="checkbox"/>	
13		Ah Discharged	<input type="checkbox"/>	

Description	Value	Unit
Alarm Monitor	<input checked="" type="checkbox"/> Enable	
Manual reset	Disabled	
Hysteresis	1	Celsius
Time delay	12 seconds	
Monitor Description	BatteryTemp	

Event	Celsius	Alarm Group
Major High	40	Major alarm
Minor High	30	Minor alarm
Minor Low	-5	Minor alarm
Major Low	-10	Major alarm

Figure 13. Battery Temperature Alarm Settings



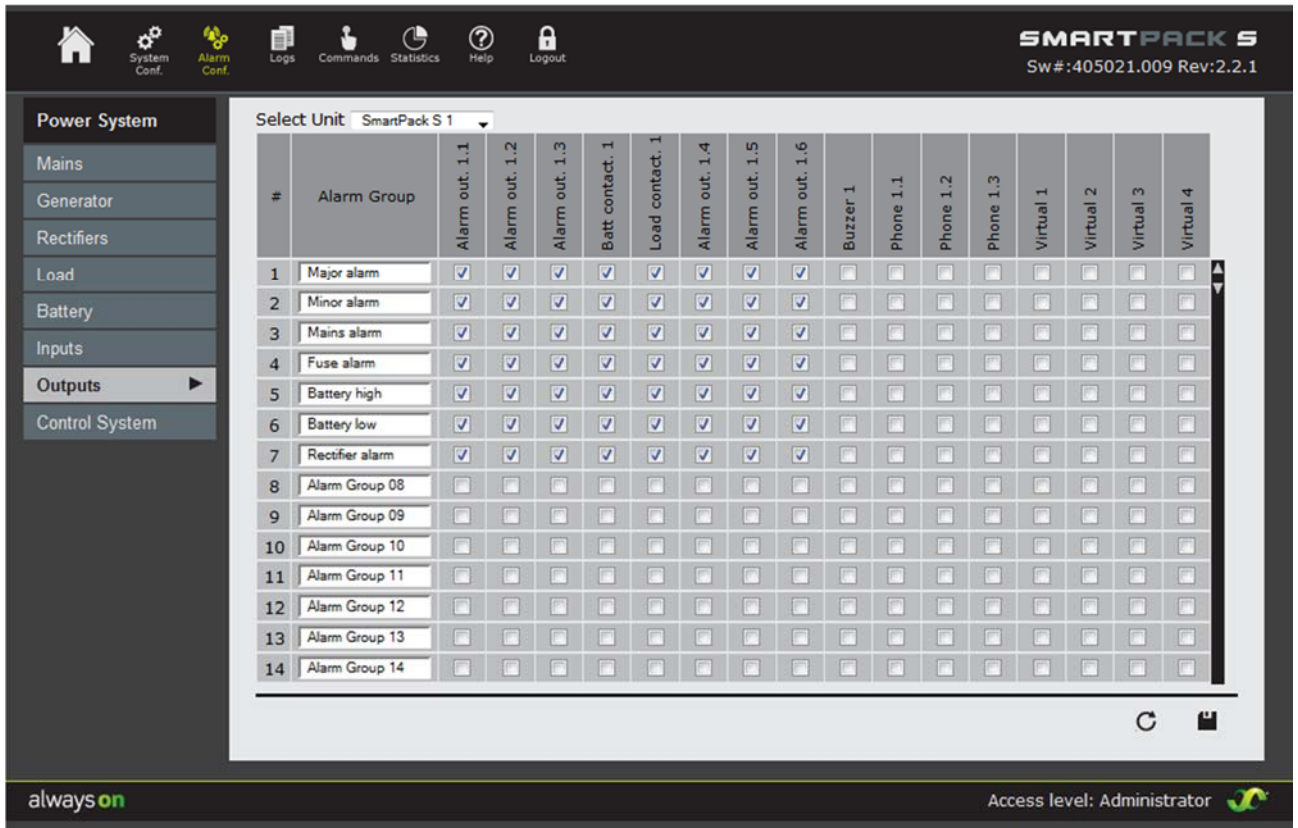
The screenshot displays the SMARTPACK 5 software interface. The top navigation bar includes icons for Home, System Conf., Alarm Conf., Logs, Commands, Statistics, Help, and Logout. The main menu on the left lists Power System components: Mains, Generator, Rectifiers, Load, Battery (selected), Inputs, Outputs, and Control System. The central area shows the 'Battery Alarm Configuration' table with 13 rows of alarm settings. A 'BatteryQuality' settings dialog box is open in the foreground, showing configuration options for the alarm monitor, manual reset, hysteresis, time delay, and event thresholds.

#	Edit	Description	Enable	Status
1		BatteryVoltage	<input checked="" type="checkbox"/>	
2		BatteryCurrent	<input type="checkbox"/>	
3		BatteryTemp	<input checked="" type="checkbox"/>	
4		BatteryLifeTime	<input type="checkbox"/>	
5		LVBD	<input type="checkbox"/>	
6		BatteryQuality	<input checked="" type="checkbox"/>	
7		BatteryTotCap	<input type="checkbox"/>	
8		BatteryRemCap	<input type="checkbox"/>	
9		BatteryTimeLeft	<input type="checkbox"/>	
10		DeltaStringCurr	<input type="checkbox"/>	
11		BatteryUsedCap	<input type="checkbox"/>	
12		Ah Charged	<input type="checkbox"/>	
13		Ah Discharged	<input type="checkbox"/>	

Description	Value	Unit
Alarm Monitor	<input checked="" type="checkbox"/> Enable	
Manual reset	All Levels	
Hysteresis	0	%
Time delay	0 seconds	
Monitor Description	BatteryQuality	

Event	%	Alarm Group
Minor Alarm	80	Minor alarm
Major Alarm	75	Major alarm

Figure 14. Battery Quality Alarm Settings



The screenshot shows the 'Battery Output Alarm Settings' interface in SMARTPACK S. The left sidebar lists 'Power System' components: Mains, Generator, Rectifiers, Load, Battery, Inputs, Outputs, and Control System. The main area is titled 'Select Unit SmartPack S 1' and contains a table for configuring alarms.

#	Alarm Group	Alarm out. 1.1	Alarm out. 1.2	Alarm out. 1.3	Batt contact. 1	Load contact. 1	Alarm out. 1.4	Alarm out. 1.5	Alarm out. 1.6	Buzzer 1	Phone 1.1	Phone 1.2	Phone 1.3	Virtual 1	Virtual 2	Virtual 3	Virtual 4
1	Major alarm	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2	Minor alarm	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3	Mains alarm	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4	Fuse alarm	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5	Battery high	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6	Battery low	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7	Rectifier alarm	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8	Alarm Group 08	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9	Alarm Group 09	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10	Alarm Group 10	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
11	Alarm Group 11	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
12	Alarm Group 12	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
13	Alarm Group 13	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
14	Alarm Group 14	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

at the bottom left: **always on** at the bottom right: Access level: Administrator

Figure 15. Battery Output Alarm Settings



The screenshot shows the 'Control System' settings in SMARTPACK S. The left sidebar lists 'Power System' components: Mains, Generator, Rectifiers, Load, Battery, Inputs, Outputs, and Control System. The main area shows a table of control units and a detailed configuration window for 'CtrlUnitError'.

#	Edit	Description	Enable	Status
1		CtrlUnitError	<input checked="" type="checkbox"/>	

CtrlUnitError

Description	Value	Unit
Alarm Monitor	<input checked="" type="checkbox"/> Enable	
Manual reset	Disabled	
Hysteresis	0	Unit(s)
Time delay	0 seconds	
Monitor Description	CtrlUnitError	
Event	Unit(s)	Alarm Group
Major Alarm	1	Major alarm
Minor Alarm	1	Minor alarm

at the bottom left: **always on** at the bottom right: Access level: Administrator

Figure 16. Battery Control Unit Alarm Settings

2 Wiring and Cabling

2.1 AC Power Wiring

2.1.1 Each Rectifier requires its own supply. The wiring is shown in Figure 17. AC Power Wiring.



Figure 17. AC Power Wiring

2.2 DC Power Wiring

2.2.1 The DC Wiring is connected to the Load Terminals. It is shown in Figure 18. DC Wiring

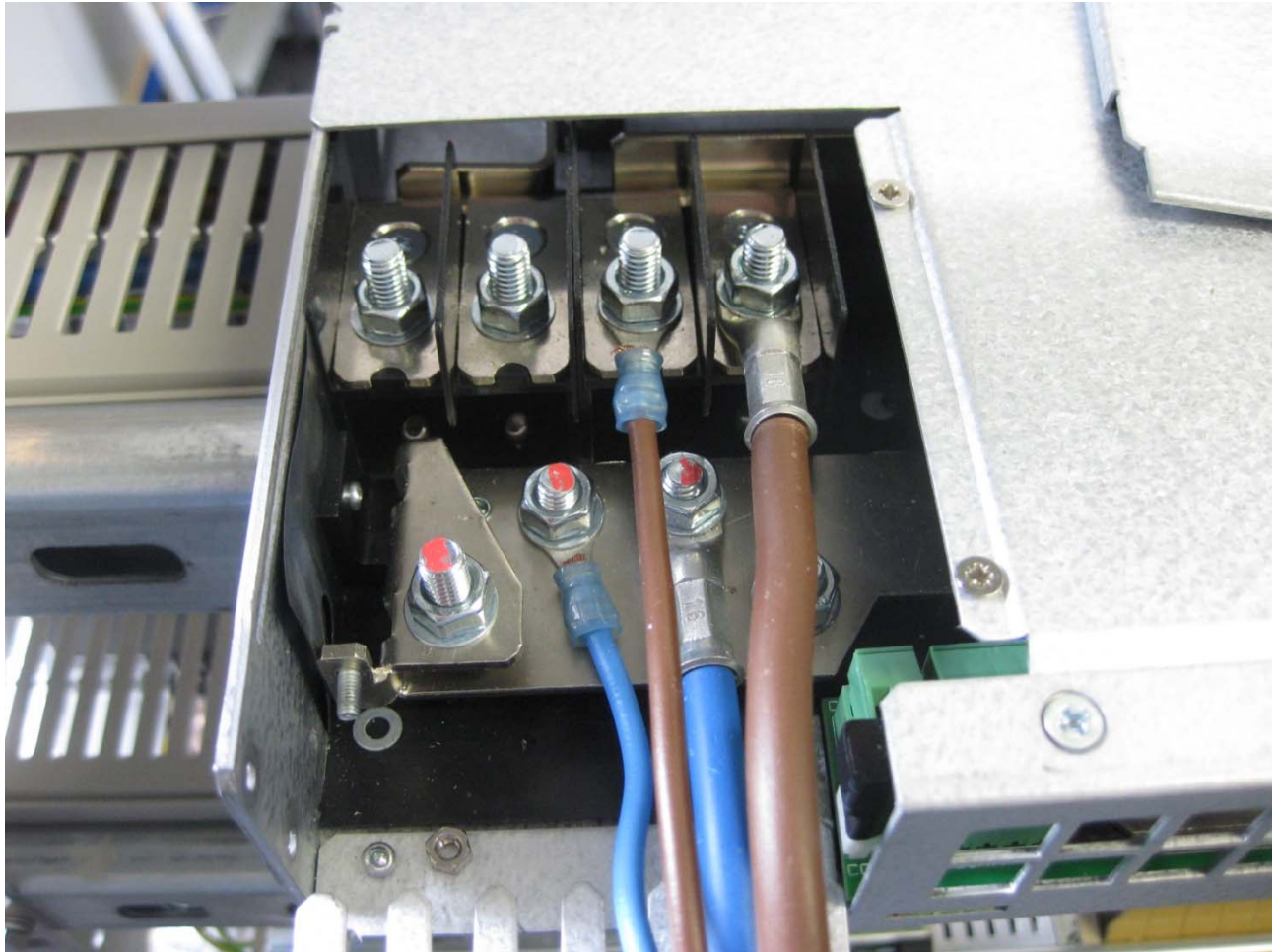


Figure 18. DC Wiring

2.3 Alarm & Temperature Probe Wiring

2.3.1 The temperature and alarm contact wiring are shown in Figure 19. Temperature Probe & Alarm Wiring.

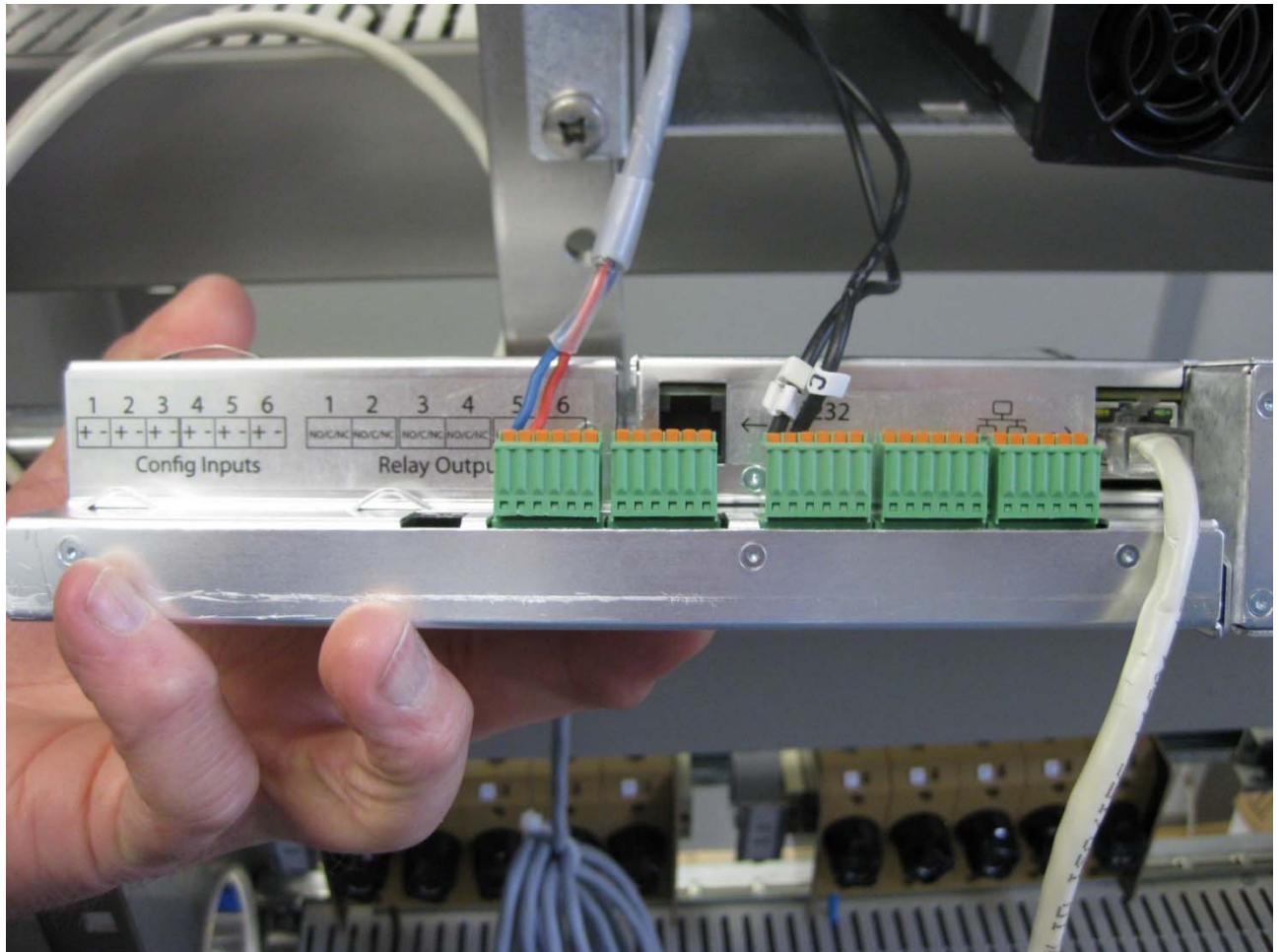


Figure 19. Temperature Probe & Alarm Wiring

2.4 Mods to Earths

2.4.1 Remove the Earth Link that connects the negative DC voltage to the chassis frame as shown in Figure 20. Chassis & DC Negative Earth.



Figure 20. Chassis & DC Negative Earth

2.4.2 Remove the Link alongside the CAN Bus connector as shown in Figure 21. Link adjacent to CAN Bus Connector.

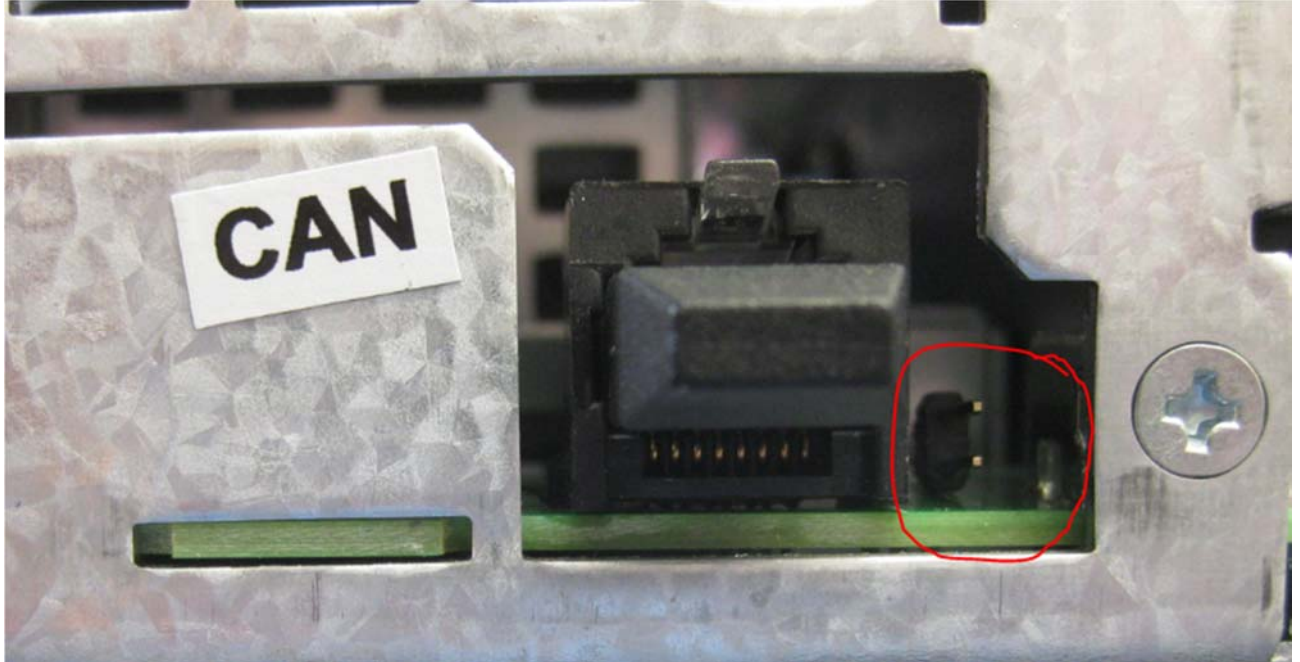


Figure 21. Link adjacent to CAN Bus Connector