

## **Brief Product Summary**

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# **Product = PR1210(L) & PR2410(L) Regulators**

Fully encapsulated, Suitable for marine applications, 10Amp, 2 Stage



**PR1210 12V (Flooded batteries)**



**PR1210L 12V (Gel batteries)**



**PR2410 24V (Flooded batteries)**



**PR2410L 24V (Gel batteries)**

# Product = PL20, PL40, PL60 Regulators

12-48V, fully programmable, inc generator, wind, & event control



**PL20**

(20A Charge, 20A Load)



**PL40**

(40A Charge, 7A Load)



**PL60**

(60A Charge, 30A Load)



**PL20 (cover off)**

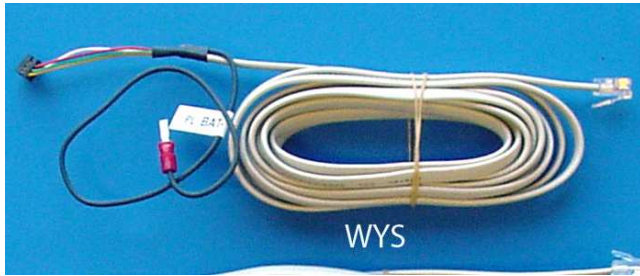


**PL40 (cover off)**



**PL60 (cover off)**

# Product = PL Regulator Accessories



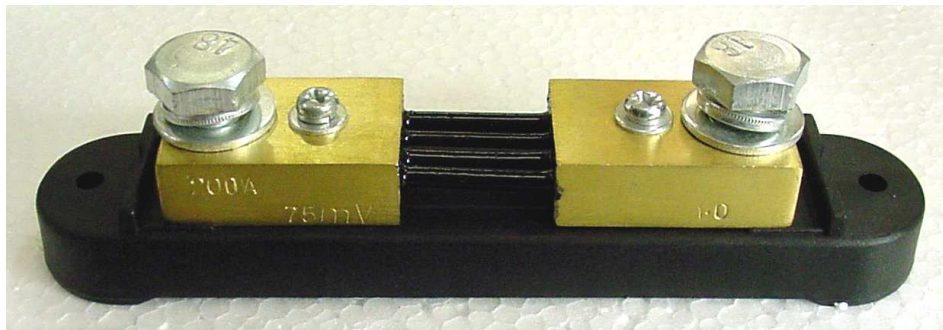
**WYS Shielded Cable**  
PL20/40 to accessory



**WZS Shielded Cable**  
PL60 to accessory



**WXS Shielded Cable**  
accessory to accessory  
or extension to WYS/WZS



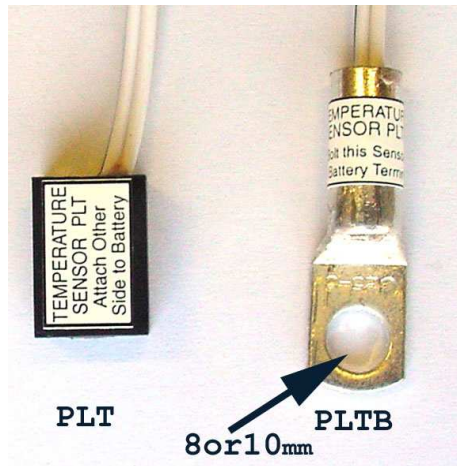
**SH200 Shunt (200Amp)**



**PLS2 Shunt Adapter**



# Product = PL Regulator Accessories (continued)



**PLT & PLTB** (Batt Temp Sensors)

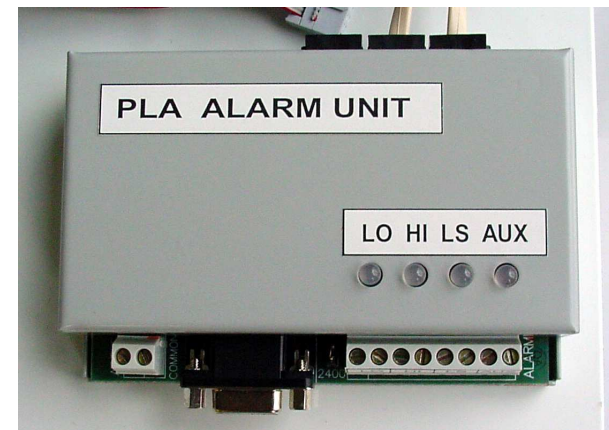


**PLI RS232 Serial Interface**



*New Keypad*

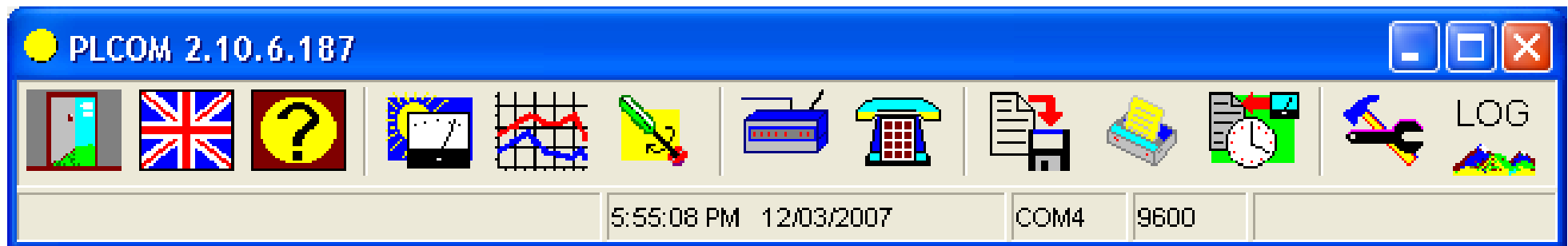
**PLM Remote Monitor** (inc backlight & alarm)



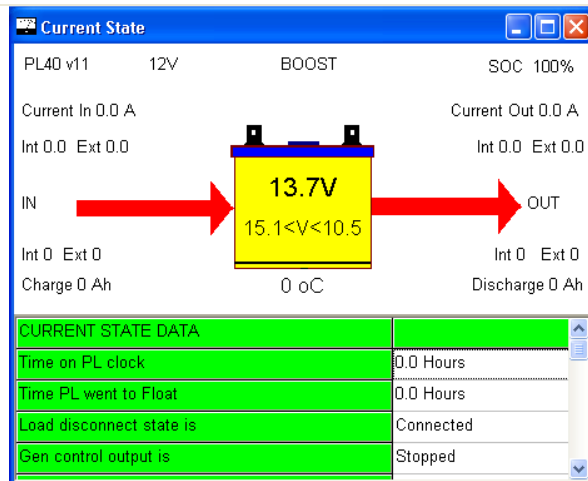
**PLA Synchronisation / Alarm Unit**

# Product = PLCOM software (free from website)

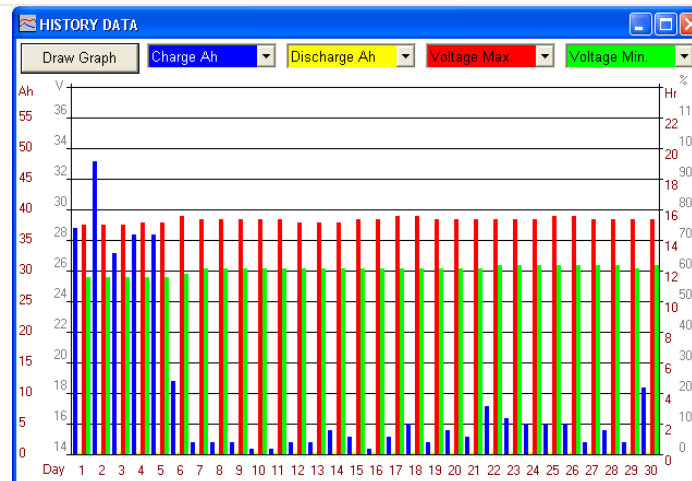
Remotely configure regulator settings, download history, etc via serial port




Main PLCOM Window



Current Status



History Data

 **Control Settings**

SET


REG


MODE


EVNT

GEN

CAL



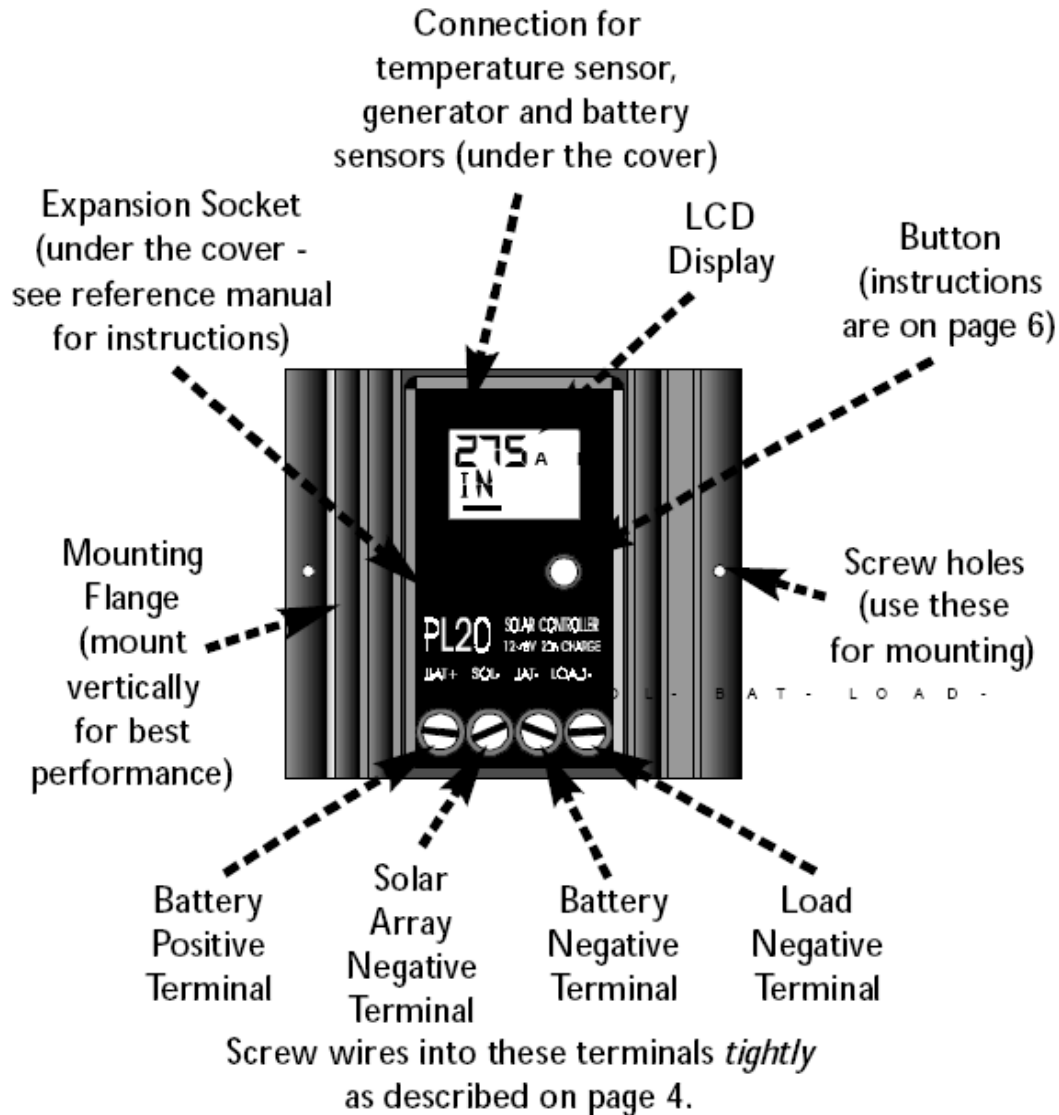




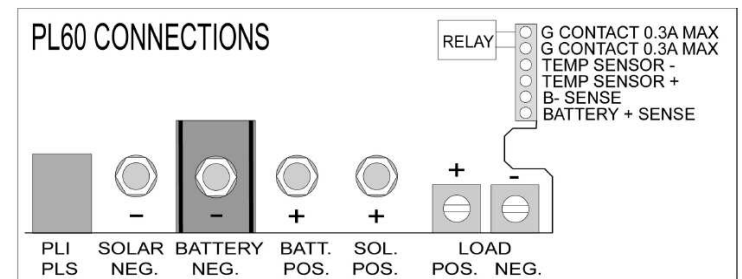
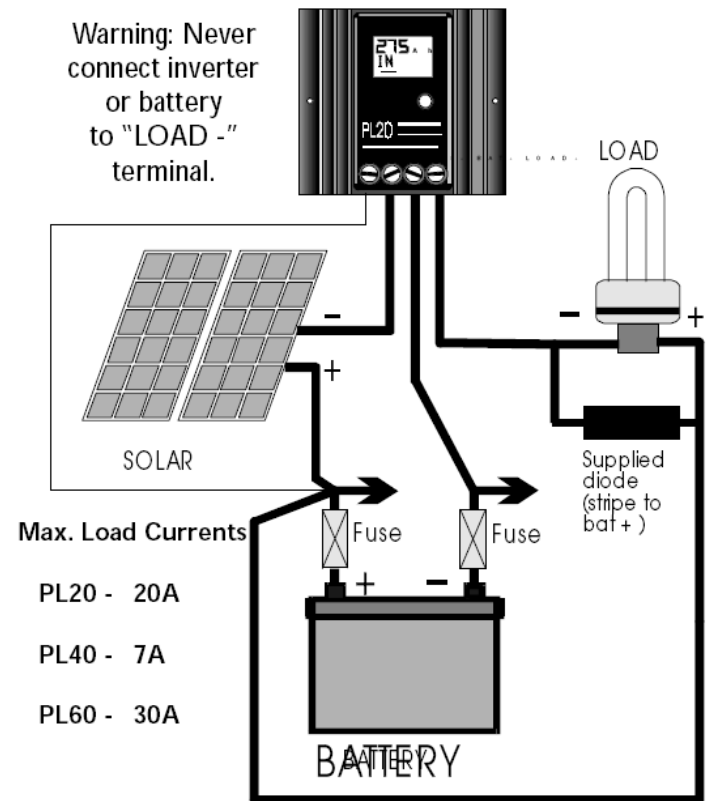
PL Time	0.0	Hours
System Voltage Setting	24	V
Program Setting	4	
Settings Lockout flag	Adjust	
LSET load switch toggle	On	
LOFF Load Disconnect Voltage	24.2	V
L ON Load Reconnect Voltage	27.6	V
LDEL Delay before disconnect	1	min
Set Regulator State - B,E,A,F	BOST	

Control Settings

# PL User Manual Connection Diagrams



**Warning: The PL regulator is for DC current ONLY**



# PL Regulator Features

**Adjustable:** All settings are adjustable, and are stored in non volatile memory so you don't lose your custom set up if the unit needs to be disconnected from the battery.

**Display:** User friendly LCD display. Each number has a label.

**Energy metering:** Daily Load and Charge Ah plus State of Charge, all recorded for 30 days.

**Four Stage Regulation:** Boost, Absorption, Float, and Equalisation available as appropriate for the battery type.

**History:** Records Charge and Load Ah, Max and Min battery voltages, SOC, and Float times for the last 30 days. You can tell how much energy was really collected and used. This history can be very useful when diagnosing a system problem.

**Generator Control:** A sophisticated generator controller is included, with four different modes of control, and a quiet time option.

**Event Control:** A powerful event controller/timer allows the Load and/or General Purpose terminal to turn on or off a wide range of loads (eg pumps, lights, motors etc.), under a user specified set of conditions.

**Alarm:** There is an adjustable high or low battery voltage alarm output, which can drive an external alarm device.

**Second Battery:** When the main battery is full, the PL can supply a signal to switch a relay, so that some or all of the array can charge a second battery. The second battery charging is also controlled.

**Remote control:** The PLM remote display allows all functions to be accessed from up to 100 metres away. Fits in a standard light switch mounting plate.

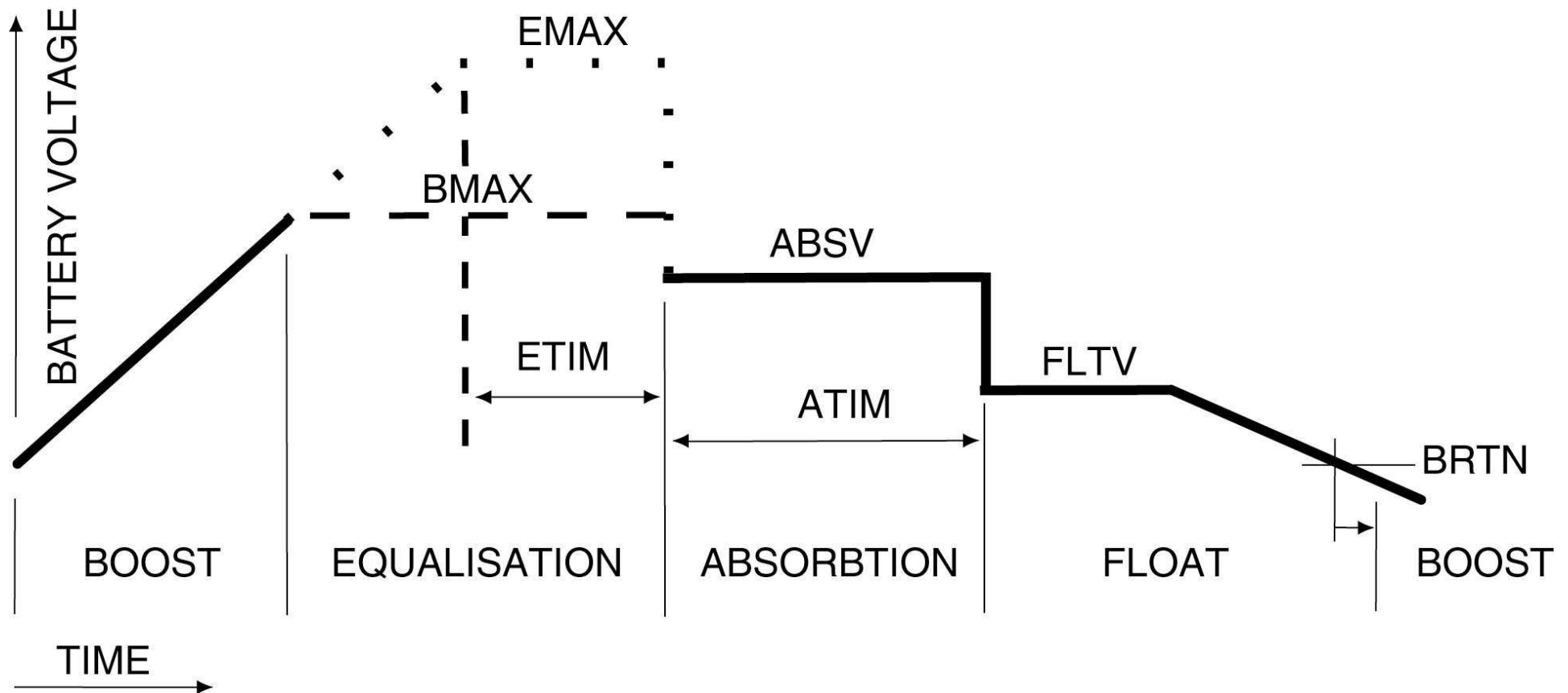
**Data Comms:** Communication with a computer is possible via the optional PLI interface. This allows fast downloading of all data and adjustment of settings. Can be used via a modem for remote sites etc.

**Protection:** Protected against short circuits, reverse flow, and lightning. Low battery load disconnect function built in. Current limiting in the event of over temperature or over current. Full conformal coating protects against corrosion.

**External Shunts:** Up to two external shunts can be added using optional DC isolated PLS2 shunt adaptors. Inverter and/or battery charger current and other external currents can be included in the Ah readings and SOC.

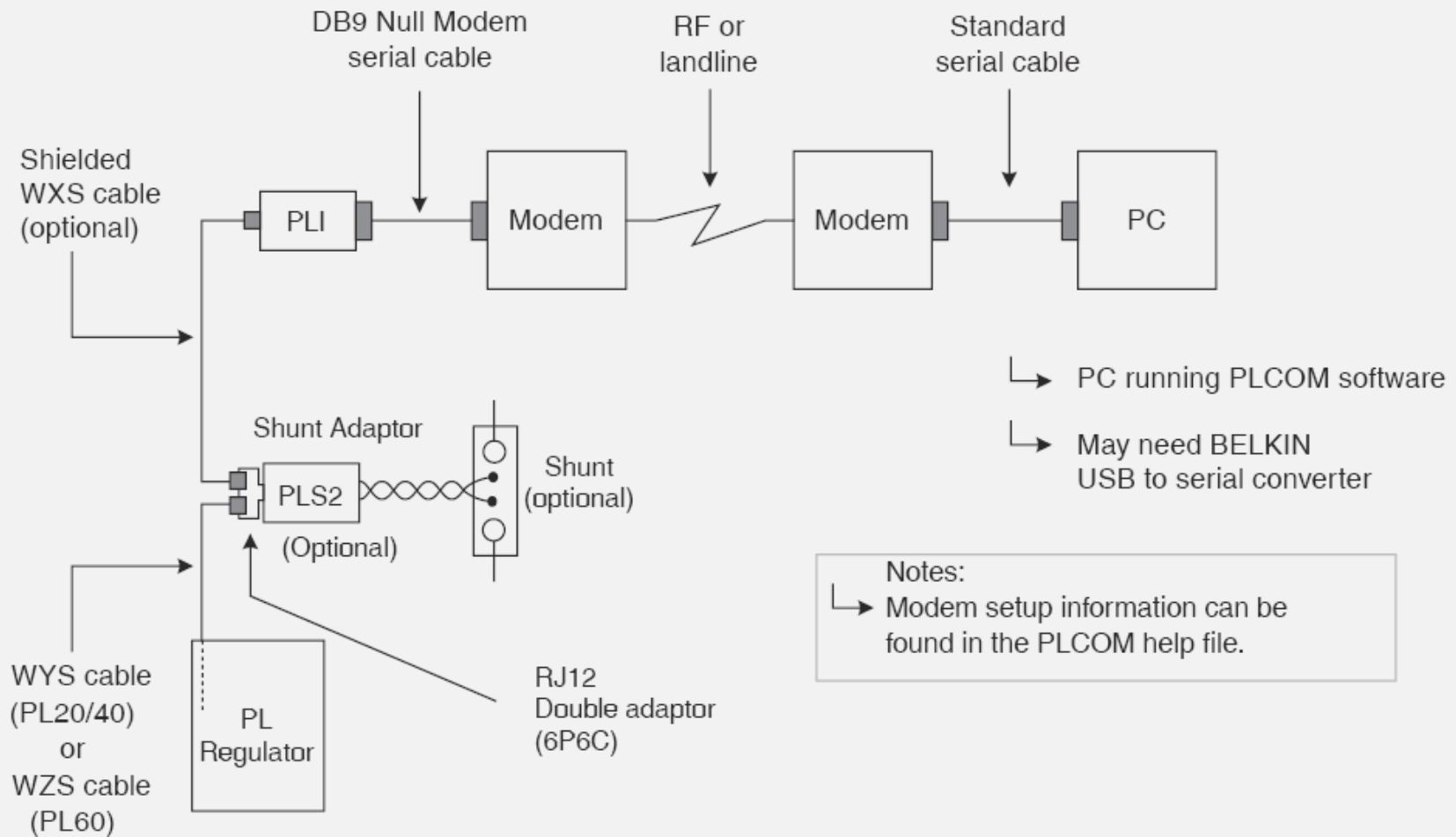


# PL Series Battery Charge Regulation Cycle



**Four stage charging algorithm incorporating true Pulse Width Modulated (PWM) constant voltage control (slow switching 'On/Off' option selectable if required)**

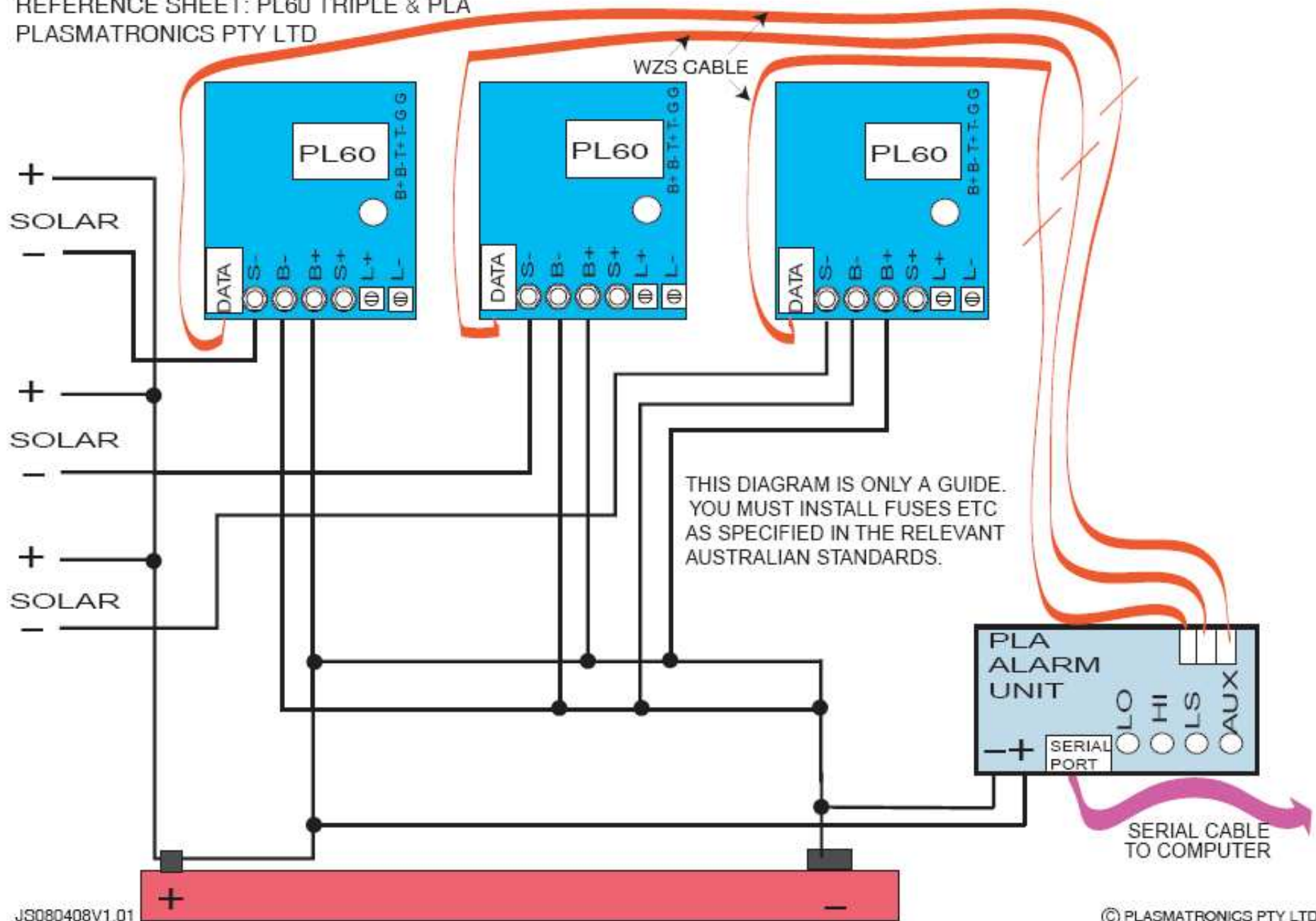
## PL Regulator - Remote monitoring via modem



This diagram is for reference only. Wiring and fuses etc. must be installed as specified by the relevant Australian Standards.

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16/04/08 V1.11 CL  
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REFERENCE SHEET: PL60 TRIPLE & PLA  
PLASMATRONICS PTY LTD



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# Product = DINGO 20/20 (Negative Gnd Regulator)

12-48V, fully programmable, inc generator, wind, & event control

**New**



**New**

*Modular System Design*

20A Charge | 20A Load

# Product = DINGO 20/20 (Negative Gnd Regulator)

## What's the same?

- All the best features of the PL series



## What's new?

- **Negative Ground...**

This makes it much easier to use in vehicles and easier to understand for people used to working with vehicle systems.

- **Enhanced one button interface...**

Now includes *Reverse gear* for going backwards, and *Fast Forward* for setting very large number (e.g. Battery capacity)

- **LED backlighting...**

makes the display readable in any light conditions.

- **Hidden Wiring...**

All the wires are covered. Wiring to the unit can be kept out of sight inside the wall or behind the mounting panel.

- **More terminals...**

A terminal for every wire. Wiring is simpler and quicker. No need for External electrical commoning points or busbars.

- **New Communications Bus.**

Rugged new RS485 bus that allows unprecedented flexibility in system design with many new modular accessories.

- **More Data Storage...**

512 days worth of system history data can be stored (99 days accessible via the regulators display).

- **Generator Terminals...**

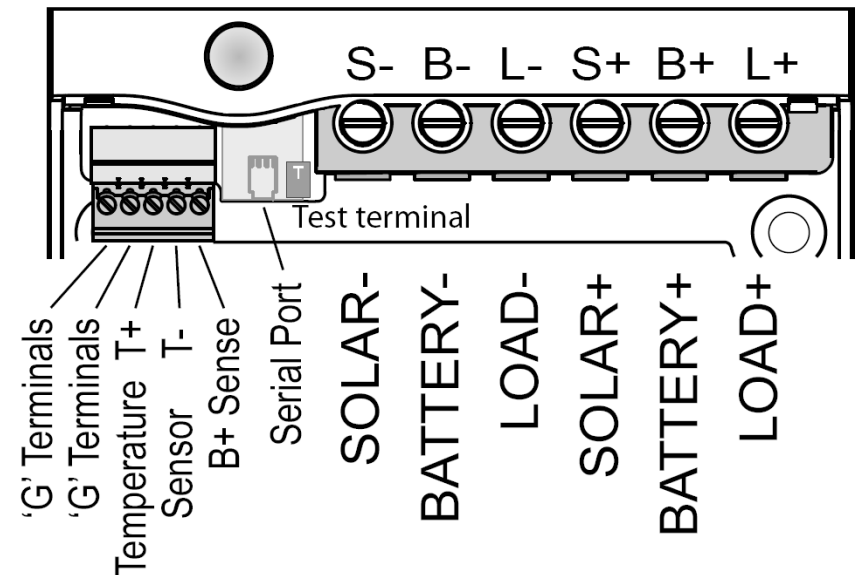
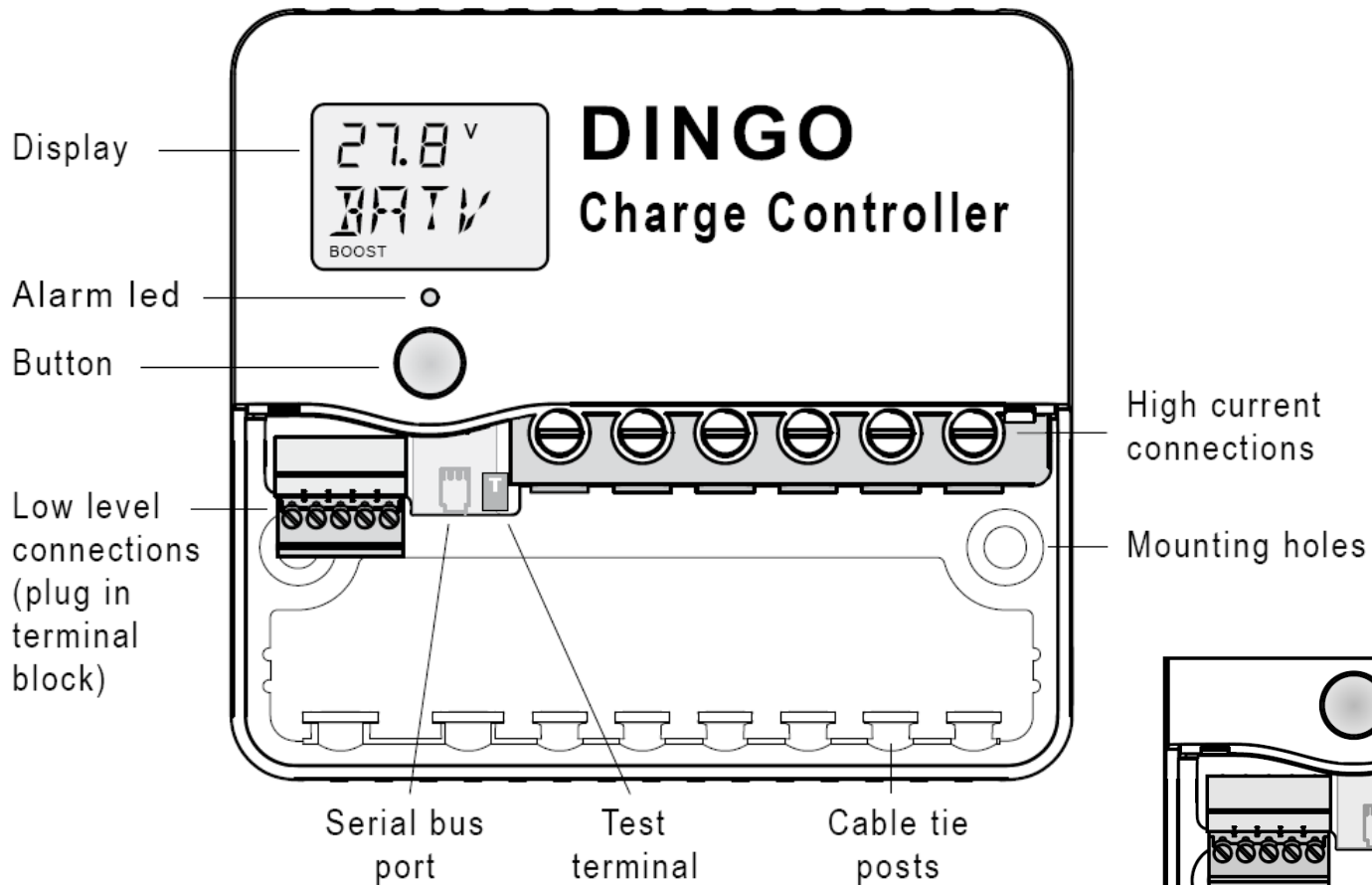
Voltage free contacts, as required by many generator start systems, are now included in the basic controller (like PL60 has).

- **Accessories...**

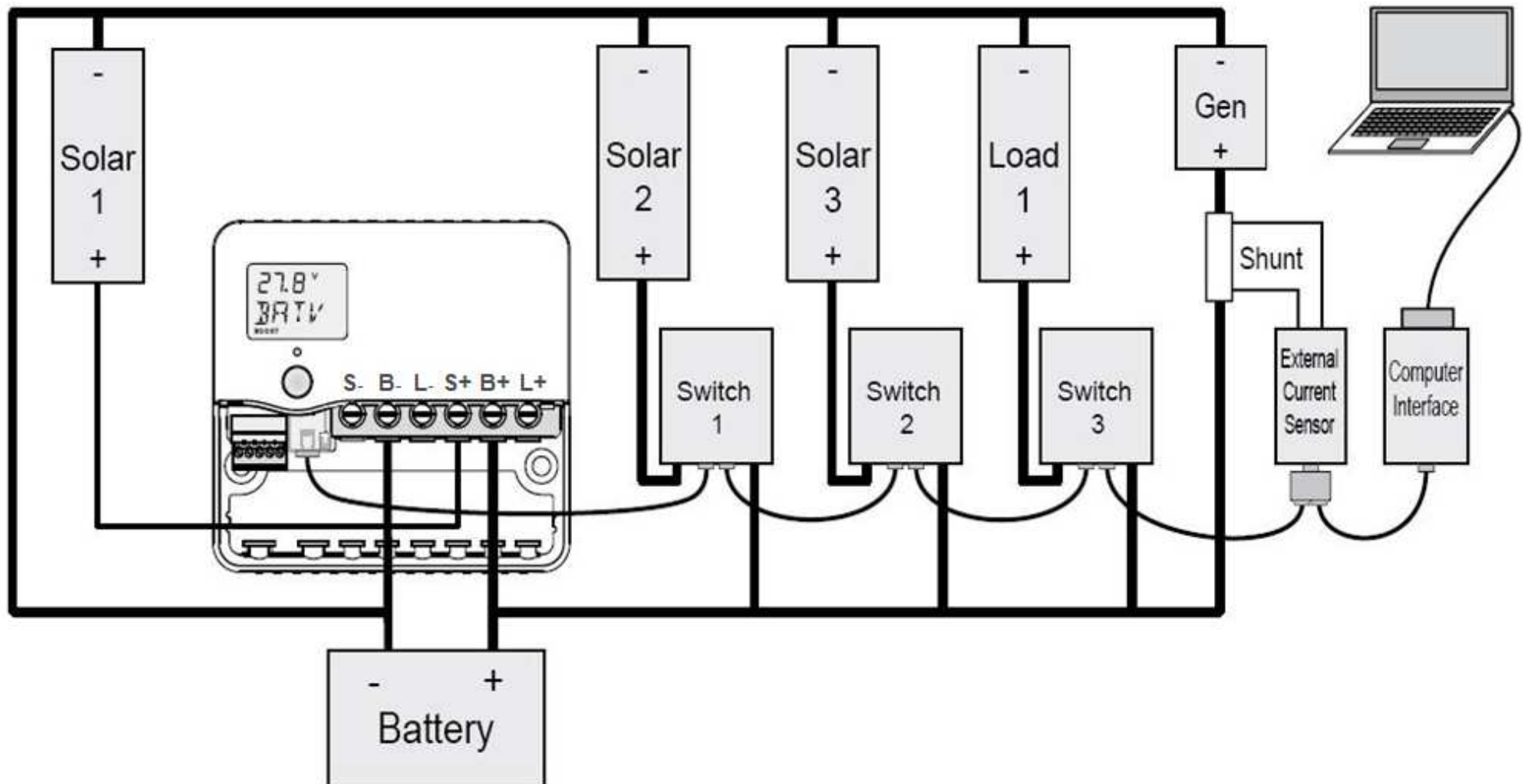
- The **DSA** reads external charge or load currents. You can use up to 4 per system.
- The **DUSB** provides a USB interface to a PC. This allows the user to download data from the controller & change settings.
- The **D232** provides an RS232 interface (DTE) designed for remote computer access via a modem.
- *Future accessories will include switching charge/load modules for huge system expansion, MPPT modules, etc.*



# DINGO Controller



# DINGO Expansion via Modular System



# Product = PRISM software (for DINGO regulators)

Remotely configure regulator, download history, etc via USB or RS232 port

**PRISM**

Device Window Language Tools Help

Summary: Device31796 History Table: Device31796 History Graph: Device31796 Settings: Device31796 Interactive View : Device31796

**Settings Lockout:** (click to toggle)

**Settings Adjustable**

**System**

Time: 10:13  
Sync to PC Time  
VOLT: 12V  
PROG: 4 ...

**REG**

BMAX: 14.2 Volts  
EMAX: 14.0 Volts  
ETIM: 0.0 hours  
EFRQ: 45 days  
ABSV: 14.0 Volts  
ATIM: 2.0 hours  
FLTV: 13.8 Volts  
HYST: 0.4 Volts  
BRTN: 12.3 Volts  
CHRG: 20.0 Amps  
BFRQ: 15 days  
TCMP: 0

**Mode**

LSET: 1 ...  
GSET: 2 ...  
BSET: 0 ...  
BAT2: 14.0 Volts  
PWM: 1 ...  
BCAP: 100 Ah  
ALRM: 11.4 Volts  
Reset Device...  
Reset PROG4 settings...

**Generator**

GMOD: 0 ...  
GON: 11.5 Volts  
GOFF: 13.8 Volts  
GDEL: 10 mins  
GEXD: 30 days  
GRUN: 1.0 hour

**LOAD**

LOFF: 11.3 Volts  
LON: 12.8 Volts  
LDEL: 10 mins

**Events**

STRT: Time > {value}  
(setting): 0  
STOP: Time > {value}  
(setting): 250  
EMOD: 2 ...  
TMOD: Always active  
(setting): 0

**Actions**

Synchronize to PC Time  
Export Settings  
Import Settings

Information on the currently selected property:

**PROG**

Program number  
Double click to edit

This property can be assigned the following values:

- 0: Flooded Battery. NO night light. Low battery disconnect
- 1: Sealed Battery. NO night light. Low battery disconnect
- 2: Flooded Battery. Night light. Low battery disconnect
- 3: Sealed Battery. Night light. Low battery disconnect
- 4: User configured settings

12.1<sup>V</sup>  
BATV  
BOOST GEN

Queried 9.94 sec ago : Again in 90.06

Device31796

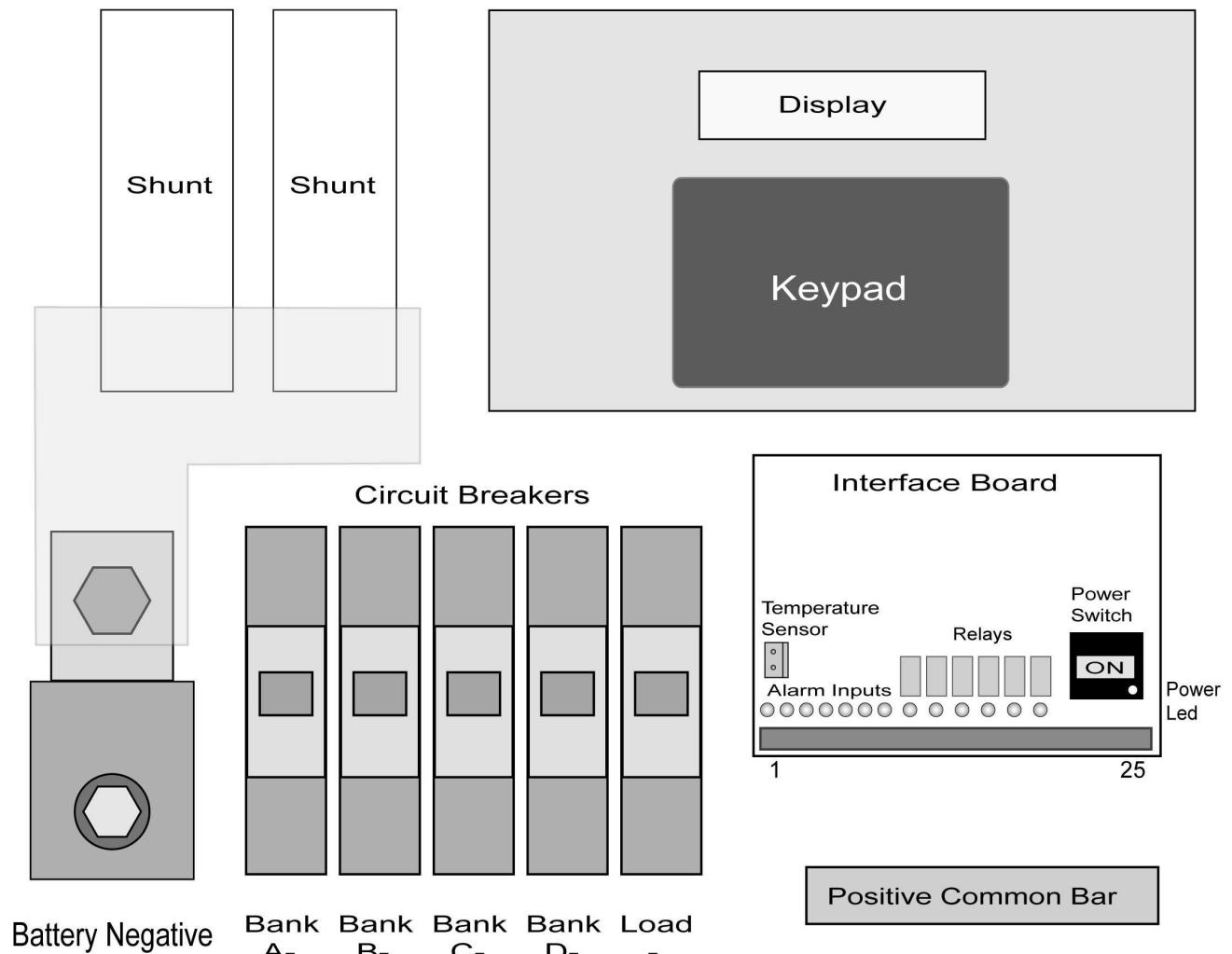
# **Product = SPSD (Bank Switching Regulator)**

12 or 24 or 48V, up to 4 solar banks (300A max), Pos/Neg Gnd, low EMI



Standard Cabinet SPSP

# SPSD INTERNAL LAYOUT DIAGRAM



## Interface board signal terminal connections

Terminal	Function	Terminal	Function
1	Alarm Common Input	13	Generator Control
2	Alarm 1	14	Generator Control
3	Alarm 2	15	Logic Fail Alarm
4	Alarm 3	16	Logic Fail Alarm
5	Alarm 4	17	Load Voltage Alarm
6	Alarm 5	18	Load Voltage Alarm
7	Alarm 6	19	Solar Bank Switch Fail Alarm
8	Alarm 7	20	Solar Bank Switch Fail Alarm
9	Battery Low Voltage Alarm	21	Serial Port RS232 RX
10	Battery Low Voltage Alarm	22	Serial Port RS232 TX
11	Battery High Voltage Alarm	23	Serial Port Signal Ground
12	Battery High Voltage Alarm	24	Serial Port RS485 S+
		25	Serial Port RS485 S-



# Product = SPSP (Bank Switching Regulator)

12 or 24 or 48V, up to 4 solar banks (200A max), Pos/Neg Gnd, low EMI



19" RACK Mount SPSP

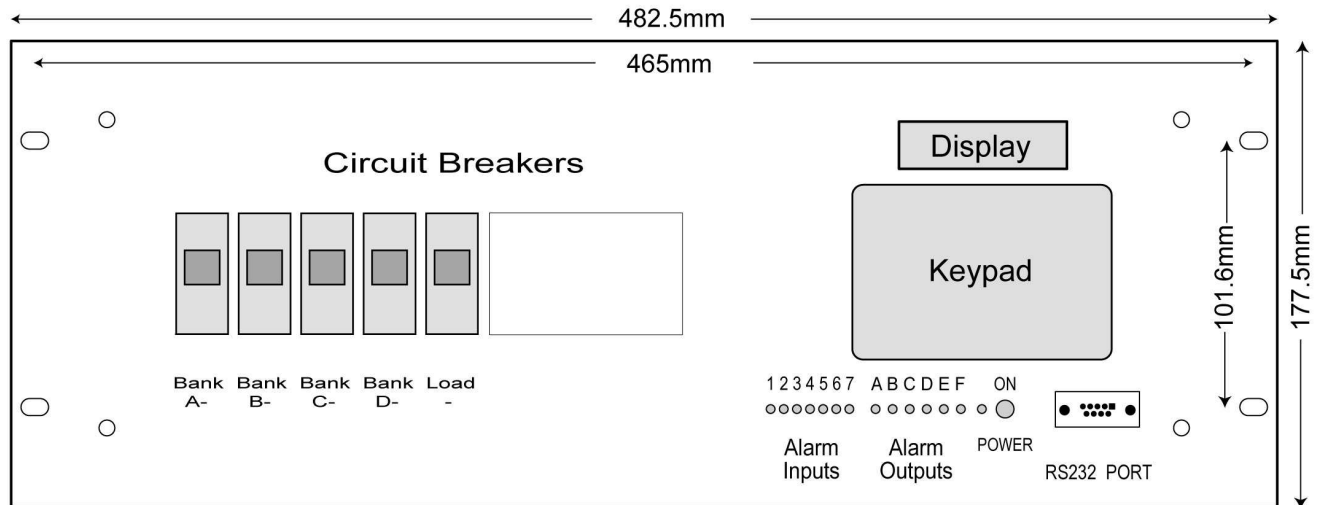
# **Product = SPSP (Bank Switching Regulator)**

12 or 24 or 48V, up to 4 solar banks (200A max), Pos/Neg Gnd, low EMI

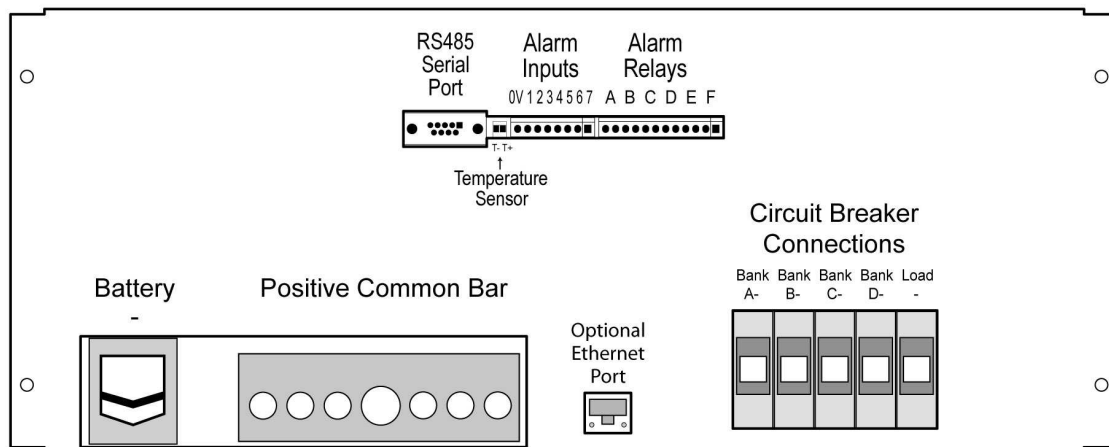


19" RACK Mount SPSP (Back View)

# SPSD Rack Mount exterior



Front View



Back View

Rack Height 4U Depth 285mm

ALLOW 1U (44mm) ABOVE & BELOW FOR COOLING AIR FLOW

## Indicator and signal terminal connections

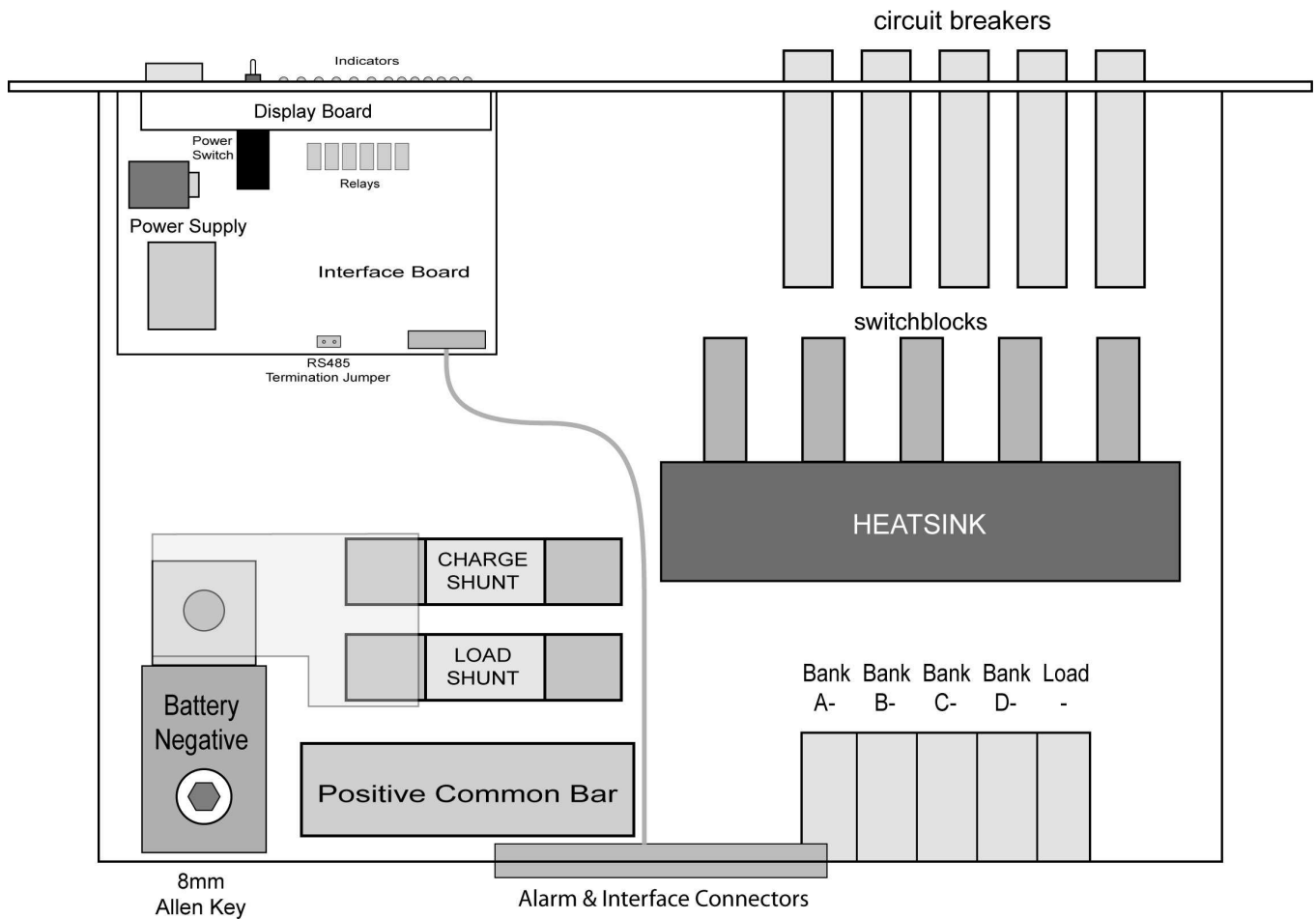
Terminal	Function	Terminal	Function
0V	Alarm Common Input (Bat-)	A	Battery Low Voltage Alarm
1	Alarm Input 1	B	Battery High Voltage Alarm
2	Alarm Input 2	C	Generator Control
3	Alarm Input 3	D	Logic Fail Alarm
4	Alarm Input 4	E	Load Voltage Alarm
5	Alarm Input 5	F	Solar Bank Switch Fail Alarm
6	Alarm Input 6	(alarm outputs are voltage free contact pairs)	
7	Alarm Input 7		

RS232 Serial Port is a DB9F connected as a DCE interface 2-TX 3-RX 5-GND 1,6,8 - +5V

RS485 Serial Port is a DB9F with D+ on pin 7, D- on pin 9 and ground on pin 1

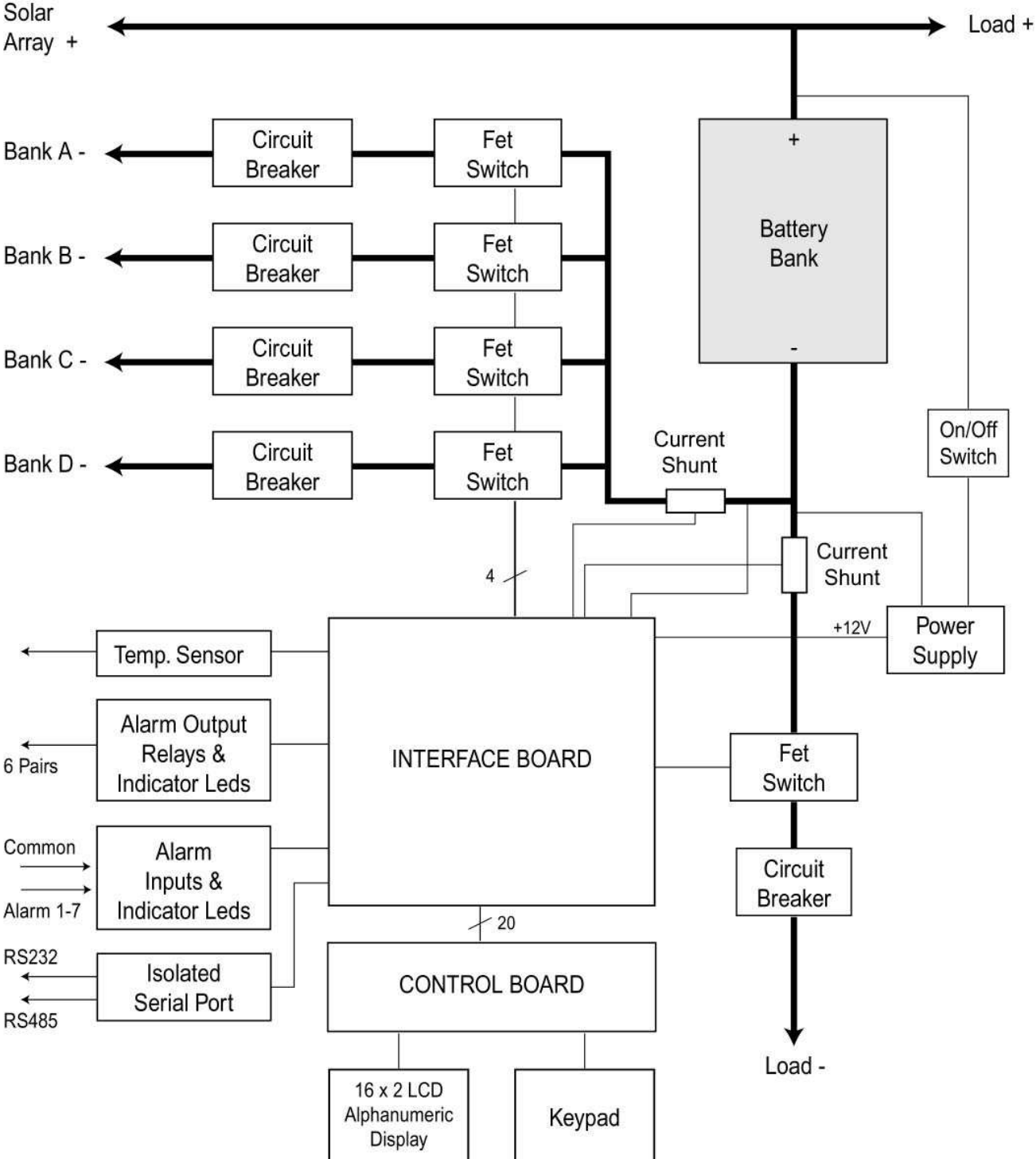
(The signal ground is common to RS232 and RS485 and is isolated from the controller)

# SPSD Rack Mount interior



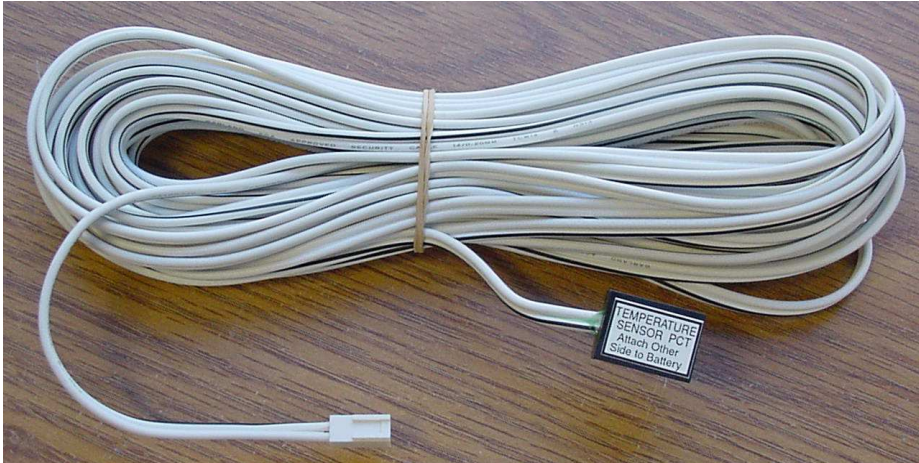
Top View

## SPSD SOLAR CONTROLLER (B version Positive Ground) Block Diagram





# Product = SPSP Regulator Accessories



**PCT** (Batt Temp Sensor, 10m lead)



**‘E-NET’** Ethernet adapter  
for browser control over LAN/WWW

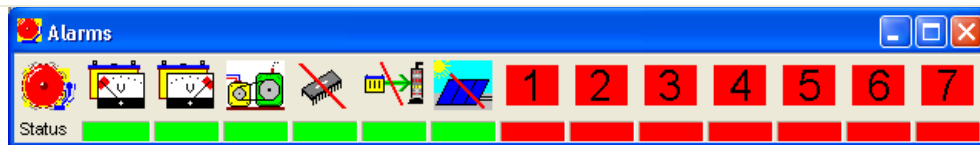
- 10BaseT Ethernet connection.
- TCP/IP, HTTP, DHCP support.
- Fixed IP or DHCP allocated.

# Product = SPSTALK software (\$=POA)

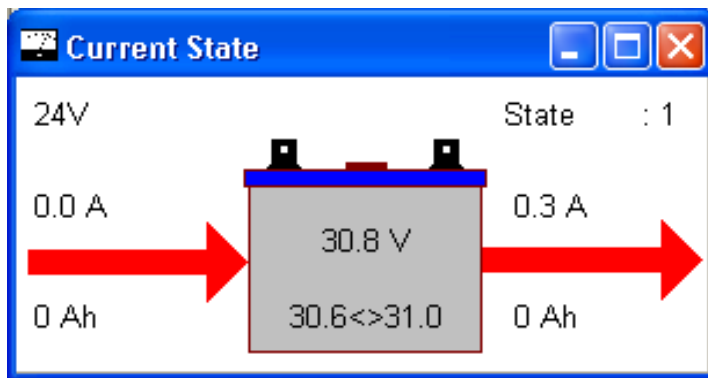
Remotely configure regulator settings, download history, etc via serial port



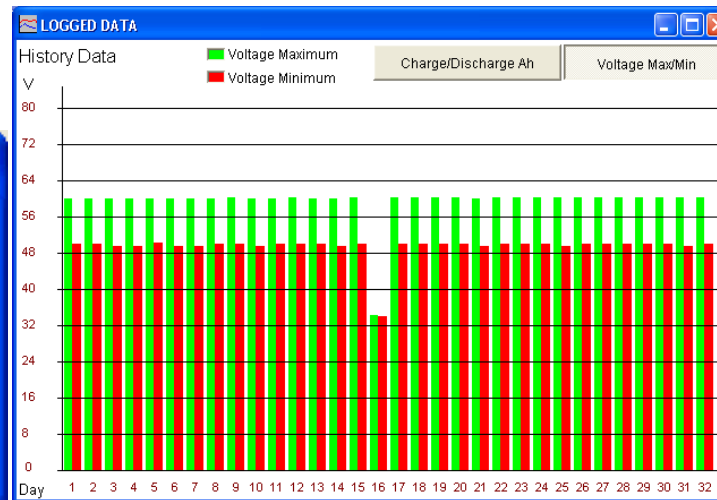
Main SPSTALK Window



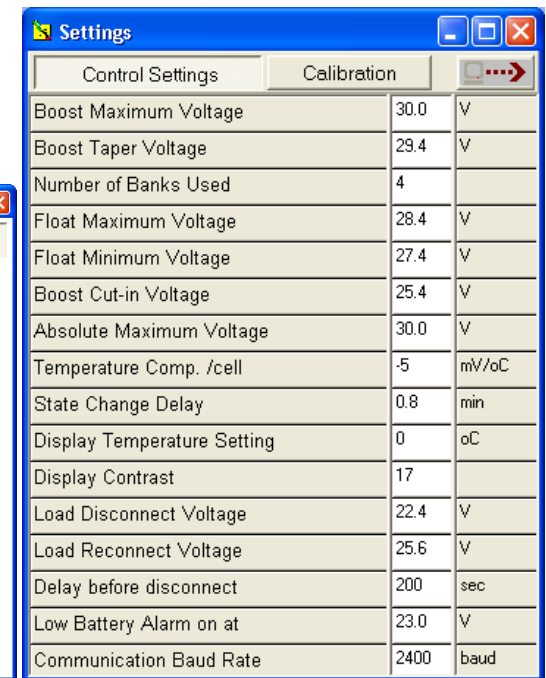
Alarm Status



Current Status



History Data

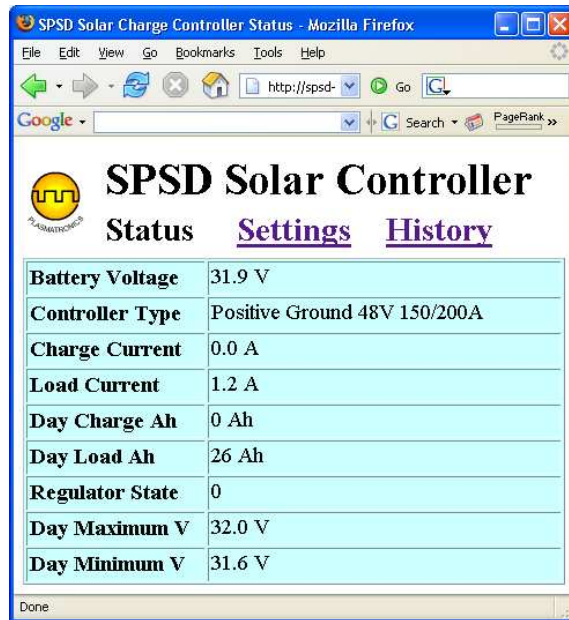
The screenshot shows the Settings window. It has a blue title bar with the text 'Settings'. Below the title bar is a table with two tabs: 'Control Settings' and 'Calibration'. The table lists various settings and their values.

Control Settings	Calibration	
Boost Maximum Voltage	30.0	V
Boost Taper Voltage	29.4	V
Number of Banks Used	4	
Float Maximum Voltage	28.4	V
Float Minimum Voltage	27.4	V
Boost Cut-in Voltage	25.4	V
Absolute Maximum Voltage	30.0	V
Temperature Comp. /cell	-5	mV/oC
State Change Delay	0.8	min
Display Temperature Setting	0	oC
Display Contrast	17	
Load Disconnect Voltage	22.4	V
Load Reconnect Voltage	25.6	V
Delay before disconnect	200	sec
Low Battery Alarm on at	23.0	V
Communication Baud Rate	2400	baud

Control Settings

# Product = SPSD-ENET (Ethernet Adapter) (\$=POA)

Remotely configure regulator settings, download history, etc via network



SPSD Solar Charge Controller Status - Mozilla Firefox

http://spsd-

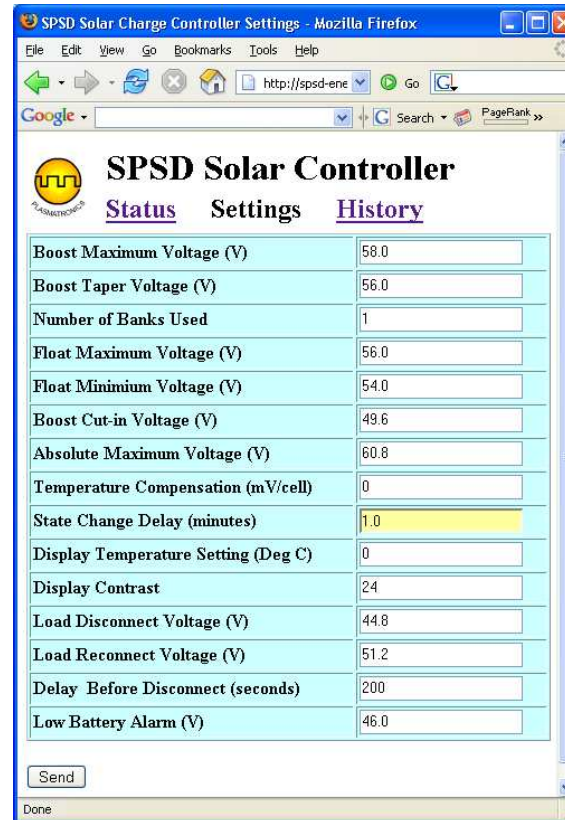
SPSD Solar Controller

[Status](#) [Settings](#) [History](#)

Battery Voltage	31.9 V
Controller Type	Positive Ground 48V 150/200A
Charge Current	0.0 A
Load Current	1.2 A
Day Charge Ah	0 Ah
Day Load Ah	26 Ah
Regulator State	0
Day Maximum V	32.0 V
Day Minimum V	31.6 V

SPSD Status

New



SPSD Solar Charge Controller Settings - Mozilla Firefox

http://spsd-ene

SPSD Solar Controller

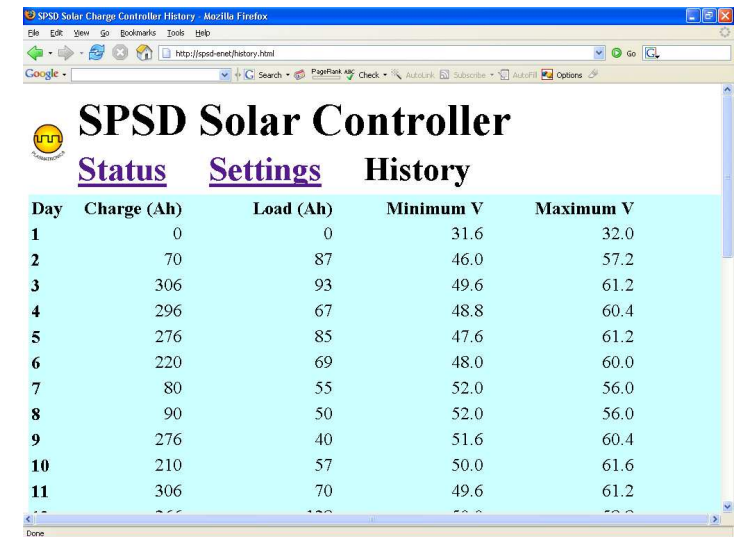
[Status](#) [Settings](#) [History](#)

Boost Maximum Voltage (V)	58.0
Boost Taper Voltage (V)	56.0
Number of Banks Used	1
Float Maximum Voltage (V)	56.0
Float Minimum Voltage (V)	54.0
Boost Cut-in Voltage (V)	49.6
Absolute Maximum Voltage (V)	60.8
Temperature Compensation (mV/cell)	0
State Change Delay (minutes)	1.0
Display Temperature Setting (Deg C)	0
Display Contrast	24
Load Disconnect Voltage (V)	44.8
Load Reconnect Voltage (V)	51.2
Delay Before Disconnect (seconds)	200
Low Battery Alarm (V)	46.0

Send

SPSD Settings

New



SPSD Solar Charge Controller History - Mozilla Firefox

http://spsd-enet/history.html

SPSD Solar Controller

[Status](#) [Settings](#) [History](#)

Day	Charge (Ah)	Load (Ah)	Minimum V	Maximum V
1	0	0	31.6	32.0
2	70	87	46.0	57.2
3	306	93	49.6	61.2
4	296	67	48.8	60.4
5	276	85	47.6	61.2
6	220	69	48.0	60.0
7	80	55	52.0	56.0
8	90	50	52.0	56.0
9	276	40	51.6	60.4
10	210	57	50.0	61.6
11	306	70	49.6	61.2

SPSD History

Password protected access to SPSD regulator via internet browser.

# **SPSD Regulator Features**

- ❖ 12V or 24V or 48V models, 100A – 300A models available.
- ❖ Rugged IP66 sealed case (300A max) or 19” Rack mounting models (200A max).
- ❖ Up to 4 solar banks.
- ❖ Positive or Negative Ground models.
- ❖ Low EMI.
- ❖ Bank (sub array) switching design.
- ❖ Fully adjustable settings.
- ❖ Taper charge without heat.
- ❖ 2 stage boost/float charging.
- ❖ Temperature compensated regulation voltages.
- ❖ Comprehensive metering.
- ❖ Built in Test Programs.
- ❖ Low battery protection.
- ❖ Performance data logging.
- ❖ Remote control & monitoring.
- ❖ Lightning protection.
- ❖ Overload protection.
- ❖ Reverse polarity protection.

