8/16 STAGE 200A/400A MODULAR SOLAR CHARGE REGULATOR WITH COMMS

PVLink PNP RMD-200

The Benbro PVLink pnp is an 8 x 25 Amp array stage commercial solar charge regulator which is suitable for -48V hybrid systems. It can also control an additional 8 x 25 Amp stage slave and can support Ethernet Connectivity.

The PVLink PnP RMD-200 consists of

- The RMD-200 Sub Rack (inc PSU Card & I/O Card
- ASR-25 Array Stage Regulators (up to 8)
- ASR Controller
- Communications and Logging option

The RMD-200 sub-rack is a 19" rack mountable chassis of which the top 3RU contains the ASR Controller, the power supply, Data logging card slots and ASR-25 array stage regulators. The lower 6RU (RMD-200) provides cable termination points for power via buss bars, terminals and Load circuit breakers and the signal connections via the Input / Output board as well as optional communications card.

Under normal operation the ASR-25 regulators will be slave-switched by the ASR Controller in sequence to effect regulation of charge through the solar array stages into the battery bank(s).

The RMD-200 utilises battery voltage sensing to effect the charge regime as recommended by battery manufacturer for Float, Boost and Equalisation charging. Battery voltage is measured using a dedicated Battery Sense cable pair.

The display provides visual indication of the system status including system Voltage, current, temperature, AH logging and alarm status.

The ASR 200 supports Ethernet connectivity with SNMP and embedded web browser capability.

SPECIFICATIONS

ELECTRICAL	
Nominal Battery Voltage	-48V
Operating Supply Range	20V-85V d.c. ASR Controller, 20V-65V d.c. ASR-20
Quiescent Current	71mA average (no alarms / 4 × ASR-20 modules in Boost Mode & backlight off)
Ambient Temp and Humidity	0-55 °C Temperature 5 - 95% Relative Humidity
ASR-25 Operating Modes	Regulator operates stand-alone or slave-switched
ASR Controller	Controller/Monitor for maximum 16 × ASR-25 modules
ASR-25 Peak Solar Current	25 Amps d.c. each ASR-25
RMD-200 Max Solar Capacity	200 Amps (8 × ASR-25 modules) @ 48V d.c.
Maximum Load Current	55 Amps
Load Distribution RMD-200	5 × 16A & 5 × 32A 1P Miniature Circuit Breakers
Regulation Type	Voltage triggered sequential series switching with hysteresis
ASR-25 Switching Element	2 N-Channel Power MOSFETs (Solid State) with 8mς R_{on}
Polarity	Positive common (subrack chassis isolated to 1kV)
Array Blocking Diodes	Not Included (to be fitted externally as required)
Battery Voltage Measurement	Can use 2 separate Battery Sense inputs (avoids V_{drop} error)
Battery Temperature Sensor	External 15m shielded sensor supplied standard
Temperature Compensation	0 to -10mV/°C/Cell programmable (***25℃ default)***
Charge Regime	Three Stage (Boost-Equalize-Float)
Equalisation Period	Programmable (0mins-99mins)
CHARGE STATUS INDICATORS	
ASR Controller	LCD displays continuous charge status information as: BST Indicates Boost mode EQU Indicates Equalize mode FLT Indicates Float mode
ASR-25	Mode LED displays continuous charge status info as: On Indicates Float Mode Flashing Indicates Equalization Mode OFF Indicates Boost Mode Solar On LED indicates solar charging is occurring
ALARMS / SENSORS	
ASR Controller	Urgent: Red LED with SPCO clean contact o/p Non Urgent: Amber LED with SPCO clean contact o/p LCD Indicates type of alarm
ASR-25	High Voltage: Red LED Low Voltage: Red LED
Programming	Parameters stored in EEPROM. Programmed using *scroll, set and confirm* keypad. Includes: Alarm activation and deactivate voltages Outputs normally energised (NE)/normally de-energised (N-DE) Battery Charge Settings Factory DEFAULTS can be retrieved at any time
Audible Alarm	Piezo alarm can be enabled/disabled for Urgent Alarms
LCD	16 Characters × 2 Lines with backlight (features time-out)

Output (label) **1A SPCO Contact 60V DC**	Low Volts Urgent (LV-U) High Volts Urgent (HV-U) Low Volts Non-Urgent (LV-NU) High Volts Non-Urgent (HV-NU) Load Disconnect (LD) Load Circuit Breaker Trip (CB) ASR Controller Fail (CF) Battery Breaker Isolate (BI) ASR-20 Fail (AF) Solar Panel Theft (SR) Alarm relays configurable N/C or N/O using PCB jumper on Alarm/Pwr Supply Card
Input (label)	Battery Voltage Sense (BS1, BS2) - one only required Temperature Sense (TS) Solar Theft Loop (SR) Battery Breaker Aux Contact (BI1-BI4)
High Voltage Urgent Alarm	User programmable ON :50.0V to 67.0V OFF : 48.0V to 57.0V
Low Voltage Urgent Alarm	User programmable ON :36.0V to 48.0V OFF : 36.0V to 60.0V
Equalisation Period	User programmable 0-99 min
Temperature Compensation	User programmable 0-10mV/°C/Cell linear
Measured Voltage Range	36V-72V (displays VERROR for out-of-range)
Measured Temperature Range	-20°C - 70°C
Temperature Sensor Fail Alarm	Temp sense out-of-range gives ASR Controller Fail Alarm. Defaults to 25°C internal regulation.
Load Disconnect Mechanism	Not installed in this product (Option)
Load Disconnect Alarm	Not installed in this product (Option)
Load CB Trip Alarm	10mA (4K7) minimum load required
Solar Remove Loop Max Resistance	100Ω
Voltage Triggered Alarm Delays	0-60sec ON delay. Instantaneous OFF
MECHANICAL	
RMD-200 9RU 19" Subrack	Dimensions mm 400(H) × 435(W) × 242(D)[1] 1. Total width 482mm
ASR-25	Dimensions mm 128(H) × 40(W) × 174(D) Fits backplane subrack DIN 41494 part 5 and IEC 297-3
ASR Controller Card	Dimensions mm 128(H) × 100(W) × 174(D) Fits backplane subrack DIN 41494 part 5 and IEC 297-3
RMD-200 Subrack Weight	15kg (5 × ASR-25)
Battery Connections, RMD-200	**Common** busbar 4 × M8 studs max 70 mm^2 (+B1, +B2, +B3, +B4) **Common** busbar 3 x M8 stud spare (COM, AUX 1, AUX 2) **Active** busbar 4 × M8 studs max 70 mm^2 (-B1, -B2, -B3, -B4) **Active** busbar 1 x M8 stud spare (AUX1)
Load Connections, RMD-200	**Common** 10mm^2 Feed through DIN-Rail Terminal Strip **Active** 25mm^2 Miniature Circuit Breaker
Solar Array Stage Connections, RMD-200	**Common** 16 mm^2 Feed through DIN-Rail Terminal Strip **Active** 16 mm^2 Feed through DIN-Rail Terminal Strip
Chassis Earth	M6 copper stud
Solar Shunt	400A or 200A
Load Shunt	50A
Ventilation	Natural ventilation only for un-enclosed installation

Load Circuit Breaker Covers	Clear perspex covers prevent accidental trip
Ingress protection	IP40
INPUT / OUTPUT CARD	
Alarms	Krone IDC connector
Battery/Temperature Sensor	Phoenix COMBICON pre-wired plug 2.5 mm^2
Solar Theft Loop	Phoenix COMBICON pre-wired plug 2.5 mm^2
Temperature Sense Shield	Spade lug connection (optional) to chassis or common