

# PB358-DIN Series:

## 138W PSU for Battery Backup System



### FEATURES

- Low noise output
- Independent rectifier & battery charging current limiting
- Front panel adjustable battery charging current limit
- Advanced monitoring and control
- 2 step float charger or 3 step fast charger, switch selectable
- Automatic battery-connections and fuse-fail testing
- Battery low voltage disconnect switch and electronic circuit breaker in battery positive.
- Front panel battery start button
- Optional battery temperature probe for battery float voltage temperature compensation
- Automatic and manual battery condition testing (BCT)
- Full rated output for  $T_a = 0$  to  $50^\circ\text{C}$ , derated to 50% at  $T_a = 70^\circ\text{C}$
- Four form-C alarm relays and alarm/status LEDs: Mains OK, Rectifier OK, Battery OK, and Fault
- Optional Ethernet interface with embedded HTML webpage server and SNMP V1 support
- Screw terminal and IEC60320 C14 appliance inlet options

### SPECIFICATIONS

INPUT	
Voltage	190-264Vac, 190-400Vdc
Current	1.4A max.
Inrush current	15A on cold start
Frequency	45-65Hz
OUTPUT - AC MAINS OPERATION	
Output voltage	See table
Output current	See table
Line regulation	0.2% typ.
Load regulation	1.3% max.
Rectifier current limit*	Constant current $> 6/7.5/15V_{out}$ Hiccup $< 6/7.5/15V_{out}$
Battery charging current limit	Constant current $> LVD$ volts Front panel adjustable
Short circuit prot'n	Indefinite, autoresetting
Overvoltage prot'n* <sub>(Latching)</sub>	15.5-19.5V/31.5-39.0V/62.0-73.0V
Ripple & noise * <sub>(BW=20MHz)</sub>	$< 50mV_{p-p} / < 100mV_{p-p} / < 100mV_{p-p}$
Efficiency*	86%/87%/ 88% typ. at 100% load * (13.8Vout / 27.6Vout / 55.2Vout)
STANDARDS	
Safety	AS/NZS60950.1
Protection Degree	IP20
Protection against shock	Class I, with PE connection
EMC RF emissions	AS/NZS CISPR 11, Class B, Grp 1
Harmonic current	AS/NZS 61000.3.2
Isolation Input to output	4242Vdc, 1 minute
Input to ground	2121Vdc, 1 minute
Output to ground	707Vdc, 1 minute

ALARMS & CONTROLS	
Relays	Four voltage-free form-C contacts 32Vdc, 1A
Mains OK Relay	OK / Fail
Rectifier OK Relay	OK / Fail, overtemp or shutdown
Battery relays	Determined by DIP switch
	DIP switch 3 = OFF (Default)
Battery OK Relay	OK / Battery low voltage
Fault Relay	Battery disconnected or fuse fail, battery overvoltage, battery overtemperature or BCT Fail
	DIP switch 3 = ON
Battery OK Relay	OK / Battery low voltage, battery disconnected or fuse fail, battery overvoltage, battery overtemperature or BCT Fail
Fault Relay	BCT in progress / not in progress
Controls External shutdown*	Input for ext. voltage-free contact Closure reduces rectifier output voltage to 9.6V / 19.4V / 39.1V
Control button (pushbutton)	1s: clear BCT or bat discon. alarm 5s: manually start or abort BCT 10s: reset microcontroller
Battery start button	Closes battery low voltage disconnect switch. Allows load to be started from battery if mains power is not available.
LED's	Four green alarm / status LED's
Mains OK LED	ON: Mains OK / OFF: Mains fail
Rectifier OK LED	ON: Rectifier OK 0.5s flash: External shutdown 0.1s flash: Rectifier overtemp. prot'n OFF: Rectifier fail
Battery OK LED	ON: Battery OK, charger = float 1s flash: Battery OK, charger = bulk 0.5s flash: Battery OK, charger = absorp. 0.2s flash: Battery OK, BCT pending 0.1s flash: Battery OK, battery test or BCT OFF: Battery low voltage
Fault LED	OFF: No faults

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### ALARMS & CONTROLS CONTINUED

Fault codes	Battery fault, 1-11 flashes in 5 seconds 1 flash: Battery disconnected or fuse fail 2 flashes: Battery overvoltage 3 flashes: Battery overtemperature 4 flashes: BCT fail
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### BATTERY MANAGEMENT

Battery connections test	Battery connections & fuse tested automatically every 5 minutes
Battery charger	2 or 3 step selected by DIP switch 2
2 step	Bulk / float
3 step	Bulk / absorption / float
Parameters	Float voltage: 2.30 V/cell @ 25°C Absorption voltage: 2.40 V/cell @ 25°C Max. absorption time: 2 hours Absorption taper current: 4% I <sub>rated</sub> Absorption enable threshold: 2.00 V/cell
Battery condition test (BCT)	Enabled/disabled by DIP switch 1 State of battery tested by allowing battery to power the load for a period of time while monitoring battery voltage.
Parameters	Automatic BCT interval: 1 week BCT duration: 60 minutes BCT fail threshold: 2.04 V/cell Float time before BCT: 24 hours
Battery overtemperature	50°C
Battery overvoltage alarm	2.50 V/cell, temperature compensated
Battery low voltage disconnect switch and overload protection	MOSFET switch in battery positive
Low voltage disconnect	1.75V/cell, 10 second delay
Electronic circuit breaker*	I <sub>LOAD</sub> = 15A/7.5A/3.75A 300ms typ., auto-resetting
Battery reverse polarity prot'n	Front panel fuse
Batt. to load voltage drop*	0.25V/0.13V/0.10V max. at 10A/5A/2.5A
Battery low voltage alarm	1.80 V/cell
	* (13.8V <sub>out</sub> / 27.6V <sub>out</sub> / 55.2V <sub>out</sub> )

### OPTIONS

Battery Temperature Probe	Float voltage temperature compensation of -3.3mV/°C/cell Add - T to model for 2.5m cable and -T5 to model for 5m cable
Ethernet interface	Internal card providing 10BaseT / 100BaseTx Ethernet interface supporting an embedded HTML webserver and SNMP V1. Add -N to model number.

### ENVIRONMENTAL

Operating temperature	0-50°C: 100% rated power (138W) >50°C: derate linearly -2.5%/°C to 50% rated power (69W) at 70°C
Overtemperature prot'n	Automatic & auto-resetting Rectifier 90°C max. internal temp. limiter
Humidity	5-90% RH non-condensing
Cooling	Natural convection

### MECHANICAL

Case size	63.0 W x 123 H x 133 D (mm)
Weight	775g
Mounting Rail	TS35 DIN Rail
Input	IEC
	Blank
Output and battery	4-way screw terminal for 0.2-4mm <sup>2</sup> wire
Alarms, battery temperature sensor and external shutdown	16-way push-in spring connectors for 0.2-1.5mm <sup>2</sup> wire

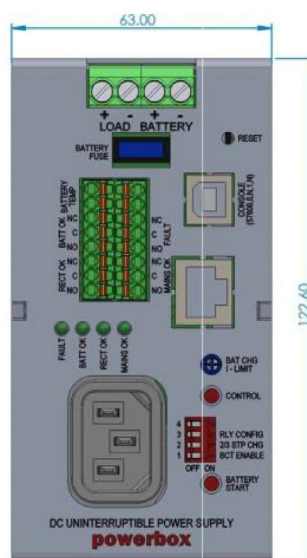
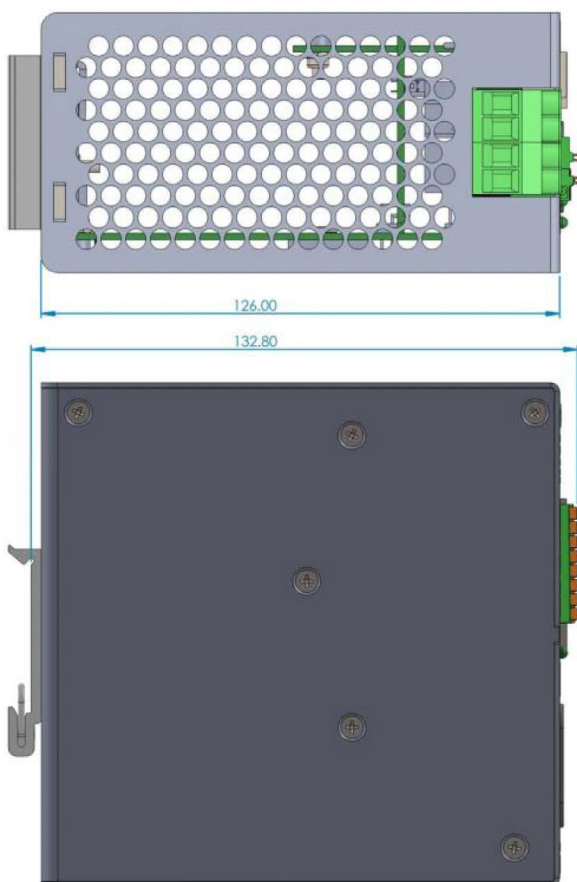
### SELECTION TABLE

Model Number	Output Voltage	Rated Total Output Current	Maximum Load Current	Battery Charging Current Limit	Output Power	Notes
PB358-12DIN & PB358-12DIN-IEC	13.8Vdc	10.0A	10.0A	0.5 to 10A Setpoint = 2.0A	138W	50mm clearance required on left, right, top and bottom.
PB358-24DIN & PB358-24DIN-IEC	27.6Vdc	5.0A	5.0A	0.2 to 5A Setpoint = 1.0A	138W	
PB358-48DIN & PB358-48DIN-IEC	55.2Vdc	2.5A	2.5A	0.1A to 2.5A Setpoint = 0.5A	138W	

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## EXTERNAL VIEW: PB358-DIN-IEC-N



Model PB358-\*\*DIN-IEC-N shown.  
Input: IEC60320 C14 appliance inlet.  
Output and Battery: Screw terminals suitable for 4mm<sup>2</sup> conductors.  
Alarms: Push-in spring connections suitable for 1.5mm<sup>2</sup> conductors.

## EXTERNAL VIEW: PB358-DIN-IEC-N

PB358-DIN Series Derating Curve

