

PST-DC-UPS-1212-10A

DC Input UPS Battery Back Up

Electrical Specifications

Maximum continuous pass-through current		10 A
Maximum pulsed pass through current		13 A for 10 seconds 18 A for 1 second With currents above these values the 10 A in-line fast acting fuse will blow. See Figure 2.
Maximum steady state voltage		15 V
Maximum transient voltage		22 V, transients above 22 V are damped by TVS diodes. See note 1.
Operating temperature range		-10C(low temperature range pending testing) to 70C
Storage temperature range		-20C to 100C
Switch-over transition time	Main Power to Auxiliary Battery Auxiliary Battery to Main Power	less than 300 microseconds less than 160 microseconds
Maximum charge voltage		0.5 V less than the Main Power voltage. The charging circuit is current limited, so the charge voltage will vary depending on the state of charge of the Auxiliary Battery. See note 4.
Type of battery charged		12 V lead acid (VRLA, SLA, and other lead acid batteries)
Charge algorithm		Constant current until the Auxiliary Battery voltage reaches 13.4 V. Taper charge above 13.4 V to 14.1 V if Main Power is 14.6 V. See note 4.
Charge current		Maximum 1.5 A \pm 20% at 25C internal temp, reduced as temperature increases. See Figure 1.
Nominal battery voltage		12 V
Recommended Auxiliary Battery capacity		1 to 33 Amp Hours
N values	13.6 V to 9 V set at factory -- See notes 2, 3.	The voltage at which the Main Power is shut off and the Auxiliary Battery is connected to the load. See Chart 1.
P values	12.9 V to 6 V set at factory -- See notes 2, 3.	The voltage at which the Auxiliary Battery is shut off from the load to protect the Axillary Battery from over discharge. See Chart 1.

Protection

If 10A fast acting fuses are connected as shown in Figure 2, then the unit will be protected from over load and reverse polarity connection (an additional fuse on the load is required if the load can source current). If there is an overload or reversed polarity connection, the fuse will blow and protect the unit from damage.

If the above noted maximum ambient temperature, maximum pass-through current and maximum voltage are not exceeded, then the unit will not overheat.

Physical Specifications

Weight	140 grams or about 4.9 Ounces		
Dimensions	Length	107mm	4.22 inch
	Width	70mm	2.76 inch
	Height base	11mm	0.44 inch
	Height base plus terminals	19mm	0.75inch
Connections			
<p>6 Quick Disconnect 6.35mm (0.250") spade terminals. See Figure 2. 3 Ground terminals (pins 1,2,3) Auxiliary Battery positive (pin 6) Load positive (pin 5) Main Power positive (pin 4)</p>			

Note 1:

TVS diodes are internally connected to the Main Power and Auxiliary Battery connectors allowing a 1msec maximum of 600J/m sec transient damping at 30C, (derated to 340J/m sec. at 70C) for transients above 22 V. Input transients and noise are also reduced by 2.2uf 50 V ceramic capacitors that are also internally connected to Main Power and Auxiliary Battery connectors.

Note 2:

The N and P switch point values are sensed at the Main Power and Auxiliary Power terminals. At 10A the wires that connect to these terminals and the in-line fuses will drop some voltage. This can be accommodated by ordering a DC UPS with a 0.1 V to 0.5 V lower N and P switch point.

Note 3:

In order to switch back to the original load state (Main Power on Load or Auxiliary Battery on Load) 0.5 V higher than the N or P value is required. This Hysteresis is for added stability and higher noise immunity.

Note 4:

A voltage of 0.5 V higher on the Main Power terminal than the Auxiliary Battery is required to charge the Auxiliary Battery. This is to make sure no reverse current can flow from Auxiliary Battery to Main Power. The maximum Auxiliary Battery voltage is 0.5 V less than the Main Power voltage. A minimum of 13.4 V on the Main Power terminal is required to charge the Auxiliary Battery fully.

Note 5:

Use of PST-DC-1212-10A without the Auxiliary Battery connected can result in undesired operation.

'N' point suffix:	The voltage at which the Main Power is shut off and the Auxiliary Battery is connected to the load:	Reason for choosing this value:
N13.1	13.1 V \pm 0.2 V	When the car ignition is switched off, the load is disconnected from the Main Battery and runs off the Auxiliary Battery.
N12.4	12.4 V \pm 0.2 V	Point at which 80% charge is left in the Main Battery.
N12.2	12.2 V \pm 0.2 V	Point at which 60% charge is left in the Main Battery.
N11.9	11.9 V \pm 0.2 V	This allows the load to be powered by the Main Battery most of the time, but the Main Battery will still start the car (barely).
'P' point suffix:	The voltage at which the Auxiliary Battery is shut off from the load:	Reason for choosing this value:
P11.6	11.6 V \pm 0.2 V	Point at which 20% charge is left in the Auxiliary Battery.
P10	10 V \pm 0.2 V	When deep cycling of the Auxiliary Battery is desired.
P6	6 V \pm 0.2 V	When longest possible system operation is desired regardless of loss of Auxiliary Battery cycle life.

Chart 1
'N' and 'P' examples

Charge Current

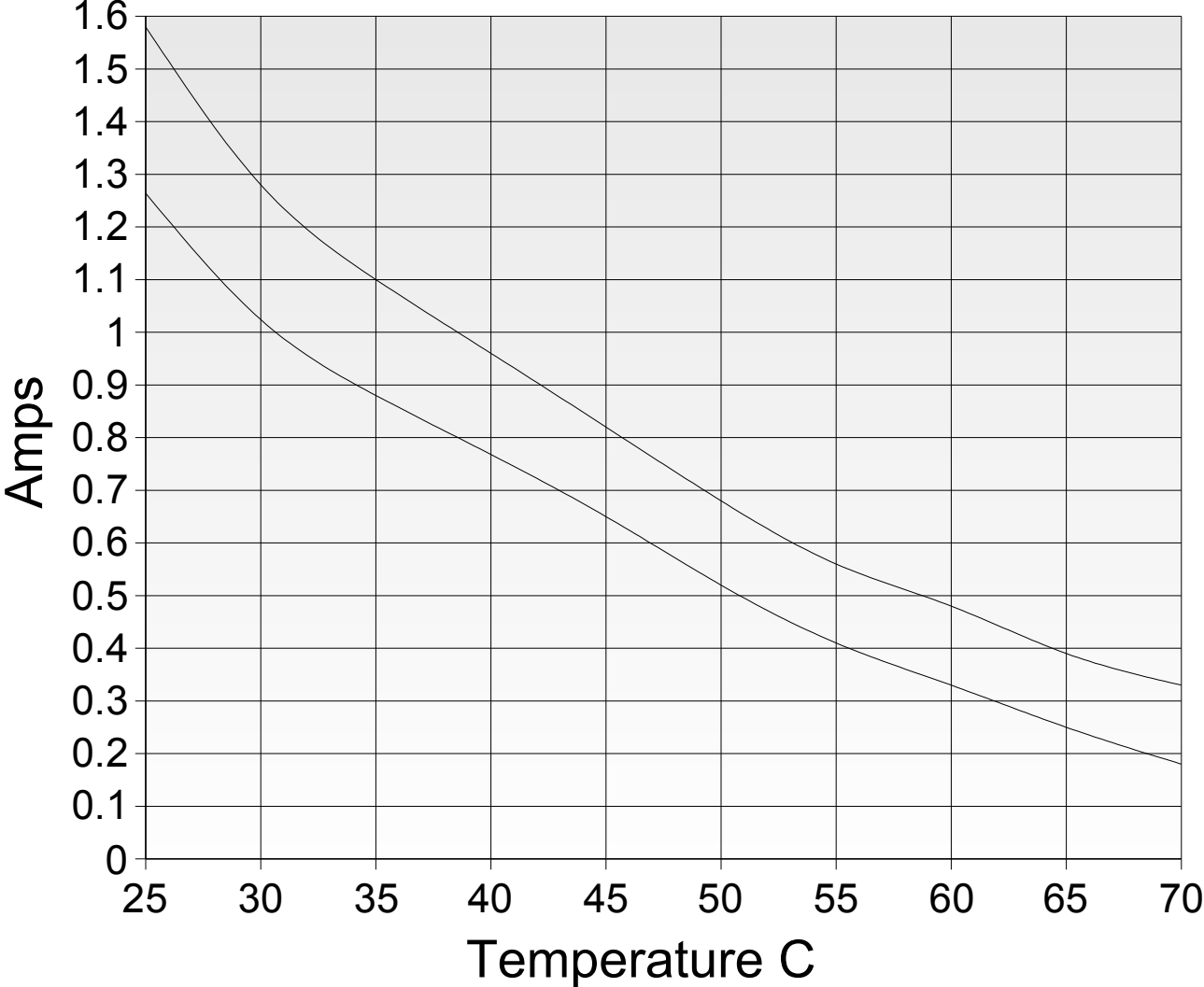


Figure 1
The maximum charge current will be between the upper and lower lines.
Most units tend to be closer to the upper line.

Connection diagram

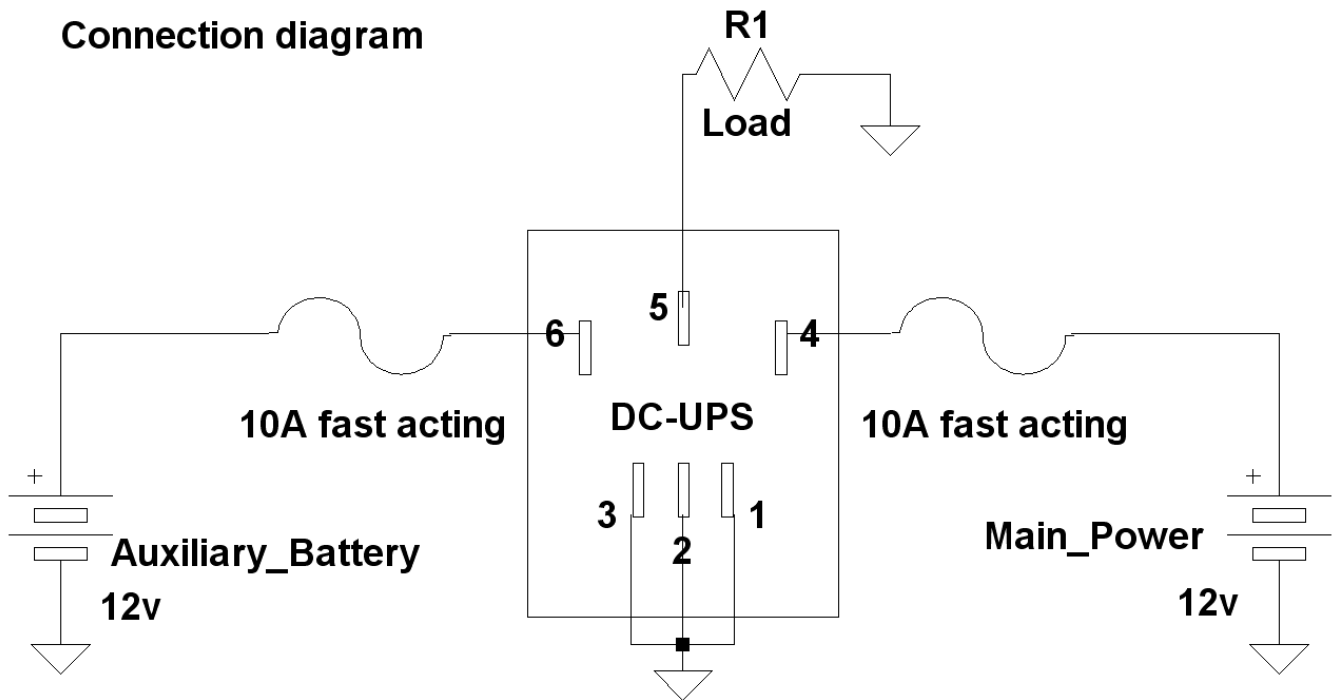


Figure 2

Connection diagram:

Please note the use of 10 A fast acting fuses.

The unit has been characterized for Bussman ATM 10 A fast acting fuses,
but other equivalent 32 V fast acting fuses will work.

Warning: The warranty is void if the above noted 10 Amp fuses are not installed.

Warning: The warranty is void if batteries other than 12 V lead acid batteries are used.