



1 AC power input Characteristics				Unit
1-1	Input Voltage range :		200-264	Vac
1-2	Input Frequency :		50/60 47~63	Hz
1-3	Unload input current :		80 Max.	mAac
1-4	Input Current consumption at 240Vac:	1) Output 6.6V 4A loading 2) Output 13.5V 4A loading	0.35 0.55	Aac
1-5	Nominal Efficiency:	at 240Vac input, output 13.5V 4A	>78%	

**2 Charging Output Control Characteristics**

2-1 Charging Flow :		Battery condition check→Manual Rejuvenation Charge→ Soft Start Charge→ →Bulk Charge →Absorption Charge→Manual Equalising Charge→Float Charge(Full)										
2-2-1	Manual Rejuvenation Charge Activity conditions:	Pressing the "Select Battery Type" button (Hold for 3 seconds)										
2-2-2	Manual Rejuvenation Charge Time Limited:	Return to previous charging status when timer out	24	±0.5 Hours								
2-2-3	Manual Rejuvenation Charge Stop condition:	Pressing the "Select Battery Type" button again (hold for 3S) in the Rejuvenating stage.										
2-3-1	Soft Start Charging Activity conditions:	6V Battery Voltage is between 1 Vdc - 5.25Vdc	1-5.25	±0.3 Vdc								
2-3-2	Soft Start Charging Activity conditions:	12V Battery Voltage is between 1 Vdc - 10.5Vdc	1-10.5	±0.5 Vdc								
2-3-3	Soft Start Charging output current control:	Subject to Charging rate (1A/2A/4A) selected	0.25 / 0.5 / 1.0	±0.3 Adc								
2-3-4	Soft Start mode transit to Bulk mode when 6V bat. above:		5.25	±0.3 Vdc								
2-3-5	Soft Start mode transit to Bulk mode when 12V bat. above:		10.5	±0.5 Vdc								
2-3-6	Soft Start Charging Time Limited:	Stop charging if 6V battery voltage cannot reach 5.25V after 4hrs	4	±0.5 Hours								
2-3-7	Soft Start Charging Time Limited:	Stop charging if 12V battery voltage cannot reach 10.5V after 4hrs	4	±0.5 Hours								
2-4-1	Bulk Charging Activity conditions:	6V Battery Voltage is over 5.25Vdc	5.25	±0.3 Vdc								
2-4-2	Bulk Charging Activity conditions:	12V Battery Voltage is over 10.5Vdc	10.5	±0.5 Vdc								
2-4-3	Bulk Charging Current control:	Subject to Charging rate (1A/2A/4A) selected	1 / 2 / 4	±0.4 Adc								
2-4-4	Bulk mode transit to Absorption mode when Bat. above:	Subject to 6V Battery type (GEL/AGM&WET/Ca.) selected	7.1 / 7.2 / 7.35	±0.15 Vdc								
2-4-5	Bulk mode transit to Absorption mode when Bat. above:	Subject to 12V Battery type (GEL/AGM&WET/Ca.) selected	14.1 / 14.4 / 14.7	±0.25 Vdc								
2-4-6	Bulk Charging Time( Tcc ) Limited:	Stop charging if 6V battery voltage cannot reach 7V after 24hrs	24	±1 Hours								
2-4-7	Bulk Charging Time( Tcc ) Limited:	Stop charging if 12V battery voltage cannot reach 14V after 24hrs	24	±1 Hours								
2-5-1	Absorption Charging Output Voltage control:	Subject to 6V Battery type (GEL/AGM&WET/Ca.) selected	7.1 / 7.2 / 7.35	±0.15 Vdc								
2-5-2	Absorption Charging Output Voltage control:	Subject to 12V Battery type (GEL/AGM&WET/Ca.) selected	14.1 / 14.4 / 14.7	±0.25 Vdc								
2-5-3	Absorption Charging Time(Tcv) Limited:	Force to Float mode(skip Equalising process) when Time-out	6	±0.5 Hours								
2-6-1	Equalising Charge Activity conditions:	If selected "Calcium" battery type , the Equalisation charging function will be presented automatically.										
2-6-2	Equalising Charging output Voltage control:	6V Calcium battery type selected	8.1	±0.3 Vdc								
2-6-3	Max. Equalising Charging output Voltage control:	12V Calcium battery type selected	16.2	±0.5 Vdc								
2-6-4	Equalising Charging current control:	Subject to Charging rate (1A/2A/4A) selected	<table border="1"> <tr> <td></td> <td>1A</td> <td>2A</td> <td>4A</td> </tr> <tr> <td>CALCIUM</td> <td>0.25</td> <td>0.5</td> <td>1</td> </tr> </table>			1A	2A	4A	CALCIUM	0.25	0.5	1
	1A	2A	4A									
CALCIUM	0.25	0.5	1									
2-6-5	Equalising Charging Time Limited:	When charging Calcium Battery Type:	1/2 (Tcc+ Tcv)	1 minimum Hours								
2-7-1	Float Charging output Voltage control:	Subject to 6V Battery type (GEL/AGM&WET/Ca.) selected	6.7 / 6.75 / 6.8	±0.15 Vdc								
2-7-2	Float Charging output Voltage control:	Subject to 12V Battery type (GEL/AGM&WET/Ca.) selected	13.8 / 13.8 / 13.8	±0.25 Vdc								
2-7-3	Max. Float Charging current control:	Subject to Charging rate (1A/2A/4A) selected	0.5 / 1.0 / 2.0	±0.5 Adc								
2-8	Unload output voltage when battery is disconnected :		0.5 (Max.)	Vdc								
2-9	Output short-circuit current when battery is disconnected :		5 (max.)	mAdc								
2-10	Battery flow back current (to the charger) when connected to 12V battery, AC Power disconnected :		5 (max.)	mAdc								

**3 LED Indication & push button description**

	Bulk			Absorption			Float(Full)		
	Yellow	Green	Green	Green	Green	Green	Green	Green	Green
3-1	A.C power disconnect , battery connected.....	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
3-2	A.C power connected , battery disconnected.....	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
3-3	A.C power & battery connected , Soft Start charge mode.....	ON	OFF	OFF	OFF	OFF	OFF	OFF	OFF
3-4	A.C power & battery connected , Bulk charge mode.....	ON	OFF	OFF	OFF	OFF	OFF	OFF	OFF
3-5	A.C power & battery connected , Absorption charge mode.....	OFF	ON	OFF	OFF	OFF	OFF	OFF	OFF
3-6	A.C power & battery connected , Equalisation charge mode.....	OFF	ON	OFF	OFF	OFF	OFF	OFF	OFF
3-7	A.C power & battery connected , Float charge mode.....	OFF	OFF	ON	ON	ON	ON	ON	ON

	1A	2A	4A
1A	GREEN	OFF	OFF
2A	OFF	GREEN	OFF
4A	OFF	OFF	GREEN

  

	Calcium	AGM/WET	GEL
Calcium	GREEN	OFF	OFF
AGM/WET	OFF	GREEN	OFF
GEL	OFF	OFF	GREEN

	FAULT	Rejuvenation
3-8	ON	RED
3-9	FLASH	OFF
3-10	OFF	FLASH
3-11	OFF	FLASH

→Remark: Equalisation charging model will be self-started when Calcium battery type selected.

3-12 Press "Select Charging Rate" button: Select charging current , select sequence is 1A → 2A → 4A  
 3-13 Press "Select Battery Type" button: Select battery type , select sequence is GEL → AGM / WET → Calcium  
 3-14 Press "Select Battery Type" button: Press "Select Battery Type" button (Hold for 3S) to select Rejuvenating function.

**4 Safety & Protection**

4-1	Safety Standards:	EN 60335-2, EN 60335-2-29, AS/NZS
4-2	EMC Standards:	EN 55022B, C-Tick
4-3	Primary to Secondary insulation Test :	3000Vac 50/60Hz with 1 minutes, 5mAac
4-4	Build-in temperature protection	
4-5	Output short-circuit, reverse polarity Protection	

**5 Electrical Cable**

5-1	Input Connector:	VDE HO3VVH2-F 2X0.75mm <sup>2</sup> with 2PIN plug, external length 6ft
5-2	Output cord :	18AWG X2C 105°C with Battery Clip , external Length 6 feet.

**6 Enclosure Construction**

6-1	Plastic Enclosure Dimension :	Approx 80 (W) x 180 (L) x 50 (H) mm
6-2	Weight:	Approx 630g

**7 Environmental Characteristics**

7-1	Operating temperature :	0 to 40 °C
7-2	Storage temperature :	-10 to 75 °C
7-3	Operating Humidity range :	90% RH Max
7-4	Cooling	Natural Cooling

**8 Charging Curve :**

