



Client Model No. OC-SW121160
 Product Name : 12V-2/8/16A Switching Mode Automatic Battery Charger

Issue Date: Apr-01-2009
 Rev: 1.06

Battery Type: For 6AH-300AH 12V GEL, Sealed, WET, Calcium battery

1 AC power input Characteristics		Normal	Withstand	Unit
1-1	Input Voltage :	220-240	200-260	Vac
1-2	Input Frequency :	50/60	47-63	Hz
1-3	Unload input current :	120	max.	mAac
1-4	Input Current consumption at 240Vac input, output 13.5V 16A loading	1.8	±10%	Aac
1-5	Nominal Efficiency: at 240Vac input, output 13.5V 16A	>80%		

2 Charging Output Control Characteristics				Unit
2-1 Charging Flow :		Manual Rejuvenation Charge→Battery condition check→ Soft Start Charge→Bulk Charge→ Absorption Charge→Manual Equalising Charge→Analysis→Float Charge(Full)		
2-2-1	Manual Rejuvenation Charge Activity conditions:	Pressing the "Select Equalisation" button (hold for 3S) and the battery is connected		
2-2-2	Manual Rejuvenation Charge Time limited:	24	±0.5	Hours
2-2-3	Manual Rejuvenation Charge Stop condition:	Pressing the "Select Equalisation" button again (hold for 3S) in the Rejuvenating stage then the charger restarts.		
2-3-1	Soft Start Charging Activity conditions:	Battery Voltage is between 3 Vdc - 10.5Vdc		
2-3-2	Soft Start Charging output current control:	1 / 4 / 8	±0.5±1.0±1.5	Adc
2-3-3	Soft Start mode transit to Bulk mode when Battery voltage is over:	10.5	±0.5	Vdc
2-3-4	Soft Start Charging Time limited:	6	±0.5	Hours
2-4-1	Bulk Charging Activity conditions:	Battery Voltage is above 10.5V		
2-4-2	Bulk Charging Current control:	2 / 8 / 16	±10%	Adc
2-4-3	Bulk mode transit to Absorption mode when Battery voltage is over(Subject to Battery type selected)	14.1/14.4V/14.7	±0.15	Vdc
2-4-4	Bulk Charging Time(Tcc) Limited:	24	±1	Hours
2-5-1	Absorption Charging Output Voltage control:	Subject to Battery type selected		14.1 / 14.4V / 14.7 ±0.15 Vdc
2-5-2	Absorption Charging Time(Tcv) Limited:	Force to Float mode when Time-out		Tcv=1/2Tcc and 4≤Tcv≤8 ±0.5 Hours
2-5-3	Absorption Charging transit to Analysis or Float Charging when charging current is drop to	0.3 / 1.2 / 2.5	±0.1±0.4±0.8	Adc
2-6-1	Equalising Charge Activity conditions:	(Only Sealed&WET/Calcium Battery type have this charging Mode)		
a) Selection Equalisation charging function---Pressing "Select Equalisation "button (less than 3 second),				
b) If selected "Calcium" battery type, Equalisation function will be presented automatically.				
2-6-2	Max. Equalising Charging output Voltage control:	Subject to Battery type selected		(GEL) Forbidden / 15.5 / 16.2 ±0.3 Vdc
2-6-3	Equalising Charging current control:	1 / 2 / 2.5	±0.5±1.0±1.5	Adc
2-6-4	Equalising Charging Time(Teq) Limited:	When charging Sealed/WET Battery with Equalisation Selected: Teq1=Tcv and 1≤Teq≤3		±0.2 Hours
		When charging Calcium Battery :		12 ±1 Hours
2-6-5	Equalising Charging Transit to Analysis when Battery voltage is reach Max. Equalising Charging output Voltage and after this 30 minutes			
2-7	Analysis process control: Stop charging for five minutes, the full LED will Flashing if the battery voltage is drop below	12.5	±0.2	Vdc
2-8-1	Float Charging output Voltage control:	13.8	±0.15	Vdc
2-8-2	Max. Float Charging current control:	Subject to Charging rate selected		1 / 4 / 8 ±0.5±1±2 Adc
2-8-3	Restart to Bulk charging when the battery voltage is below:	13.0	±0.3	Vdc
2-9	Unload output voltage when disconnected to the battery :	0.5	Max.	Vdc
2-10	Output short-circuit current when disconnected to the battery :	1	Max.	mAdc
2-11	Battery flow back current (to the charger) when connected to 12V battery, AC Power disconnected :	1	Max.	mAdc

3 LED Indication & push button description

	Bulk	Absorption	Float(Full)	Rejuvenatio	FAULT
	Blue	Green	Green	Yellow	RED
3-1	A.C power connected , battery disconnected.....	OFF	OFF	OFF	OFF
3-2	Manual Rejuvenation charging.....	OFF	OFF	FLASH	OFF
3-3	Soft Start charging.....	FLASH	OFF	OFF	OFF
3-4	Bulk charging.....	ON	OFF	OFF	OFF
3-5	Absorption charging.....	OFF	ON	OFF	OFF
3-6	Equalisation charging.....	OFF	FLASH	OFF	OFF
3-7	Analysis mode.....	OFF	OFF	ON	OFF
3-8	Float charging with Battery analyse is over 12.5V.....	OFF	OFF	ON	OFF
3-9	Float charging with Battery analyse is below 12.5V.....	OFF	OFF	FLASH	OFF
3-10	Output Clip shorted or battery Reverse.....	OFF	OFF	OFF	ON
3-11	Battery Condition check, battery is defective.....	OFF	OFF	OFF	FLASH
3-12	Soft Start Charging 6 hours timer-out.....	FLASH	OFF	OFF	FLASH
3-13	Bulk charging 24 hours timer-out.....	ON	OFF	OFF	FLASH
3-14	Charger over-temperature protected.....	OFF	OFF	OFF	FLASH

	16A	8A	2A
16A	GREEN	OFF	OFF
8A	OFF	GREEN	OFF
2A	OFF	OFF	GREEN

	Calcium	Sealed/WET	GEL
Calcium	RED	OFF	OFF
Sealed/WET	OFF	RED	OFF
GEL	OFF	OFF	RED

Equalisation
 Equalisation is Selected **RED**

Remark: Equalisation is disabled when GEL battery is selected

- 3-14 Press "Select Charging Rate" button: Select charging current , select sequence is 2A → 8A → 16A
- 3-15 Press "Select Battery Type" button: Select battery type , select sequence is GEL → Sealed / WET → Calcium
- 3-16 Press "select Equalisation" button: Press "Select Equalisation" button (less than 3S) to select Equalisation function. Press "Select Equalisation" button (over than 3S) to select Rejuvenation charging.

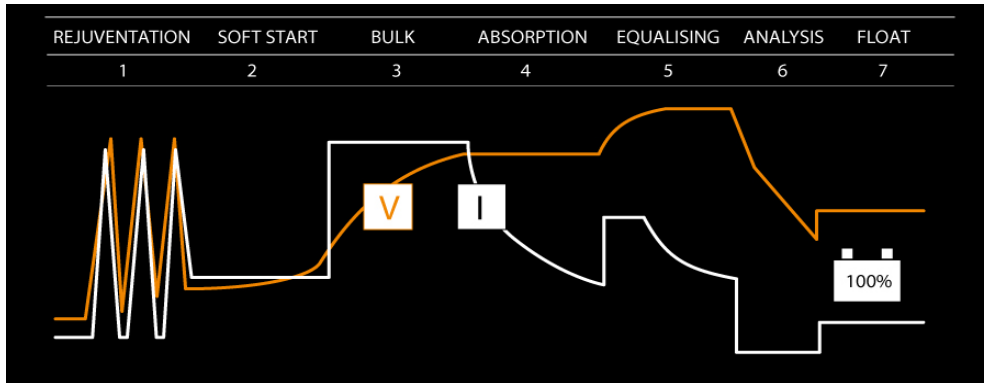
4 Safety & Protection

4-1	Safety Standards:	EN 60335-1, EN 60335-2-29, AS/NZS
4-2	EMC Standards:	EN 55014, C-Tick
4-3	Input-Output insulation test :	3000Vac 50/60Hz with 1 minutes, 5mAac
4-4	Cooling:	By FAN forced air
4-5	Build-in temperature protection	
4-6	Output short-circuit, reverse polarity Protection	

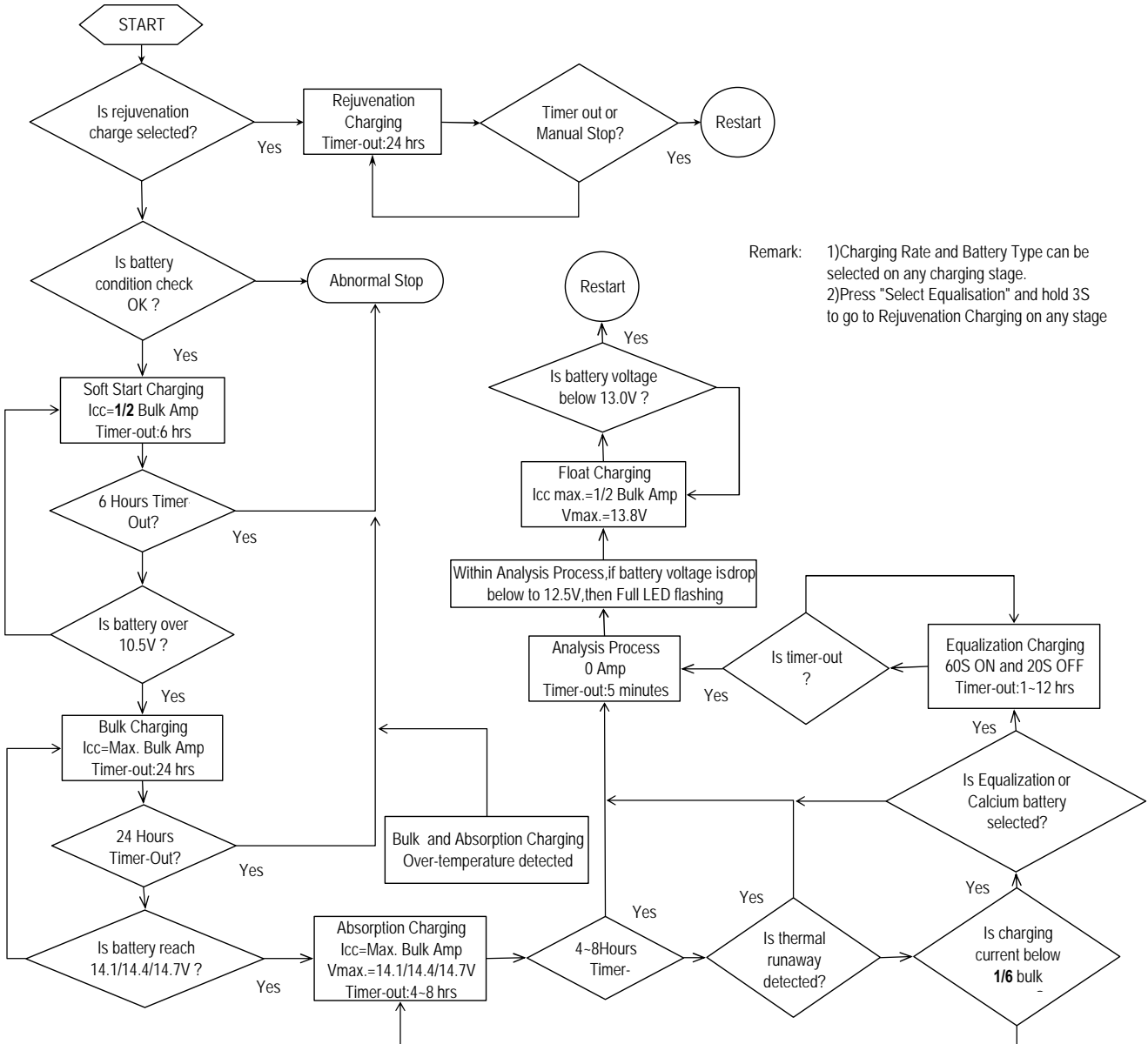
5 Electrical Cable & Physical Parameters

5-1	Input Connector:	6 feet VDE H03VVH2-F 2X0.75mm ² with 2PIN SAA plug.
5-2	Output cord :	4 feet 12AWG X2 105°C with Anderson connector.
5-3	Extend cord:	2 feet 12AWG X2 105°C with Battery Clip.
5-4	Plastic Enclosure Dimension :	230.8 (L) x 132(W) x 76 (H) mm
5-5	Operating temperature :	0 to 40°C
	Storage temperature :	-25 to 85°C
5-6	Operating Humidity range :	0 to 90% RH
	Weight:	1.3Kg

6 Charging Curve :



7 Charging Flow Chart :



Remark: 1)Charging Rate and Battery Type can be selected on any charging stage.
2)Press "Select Equalisation" and hold 3S to go to Rejuvenation Charging on any stage