



Client Model No. OC-SW121080  
 Product Name : 12V-2/4/8A Switching Mode Automatic Battery Charger

Issue Date: Apr-01-2009  
 Rev: 1.06

Battery Type: For 6AH-160AH 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 :	80	max.	mAac
1-4	Input Current consumption at 240Vac input, output 13.5V 8A loading	1.0	±10%	Aac
1-5	Nominal Efficiency: at 240Vac input, output 13.5V 8A	>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	3-10.5	±0.5 Vdc
2-3-2	Soft Start Charging output current control:	Subject to Charging rate selected	1 / 2 / 4	±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:	Stop charging if battery voltage cannot reach 10.5V after 6hrs	6	±0.5 Hours
2-4-1	Bulk Charging Activity conditions:	Battery Voltage is above 10.5V	10.5	±0.5 Vdc
2-4-2	Bulk Charging Current control:		2 / 4 / 8	±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:	Stop charging if battery voltage cannot reach 14V after 24hrs	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 / 0.6 / 1.2	±0.1/±0.2/±0.4 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:	Subject to charging rate selected	1 / 2 / 2	±0.5/±1.0/±1.0 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 / 2 / 4	±0.2/±0.5/±1 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. mAac
2-11	Battery flow back current (to the charger) when connected to 12V battery, AC Power disconnected :		1	Max. mAac

**3 LED Indication & push button description**

	Bulk	Absorption	Float(Full)	Rejuvenation	FAULT
	Blue	Green	Green	Yellow	RED
3-1	OFF	OFF	OFF	OFF	OFF
3-2	OFF	OFF	OFF	FLASH	OFF
3-3	FLASH	OFF	OFF	OFF	OFF
3-4	ON	OFF	OFF	OFF	OFF
3-5	OFF	ON	OFF	OFF	OFF
3-6	OFF	FLASH	OFF	OFF	OFF
3-7	OFF	OFF	ON	OFF	OFF
3-8	OFF	OFF	ON	OFF	OFF
3-9	OFF	OFF	FLASH	OFF	OFF
3-10	OFF	OFF	OFF	OFF	ON
3-11	OFF	OFF	OFF	OFF	FLASH
3-12	FLASH	OFF	OFF	OFF	FLASH
3-13	ON	OFF	OFF	OFF	FLASH
3-14	OFF	OFF	OFF	OFF	FLASH

	8A	4A	2A
8A	GREEN	OFF	OFF
4A	OFF	GREEN	OFF
2A	OFF	OFF	GREEN

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

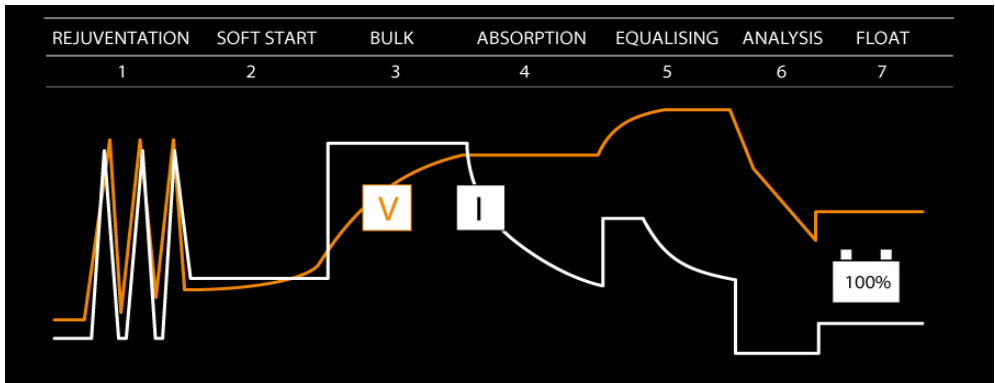
	Equalisation
Equalisation is Selected	RED

Remark: Equalisation is disabled when GEL battery is selected

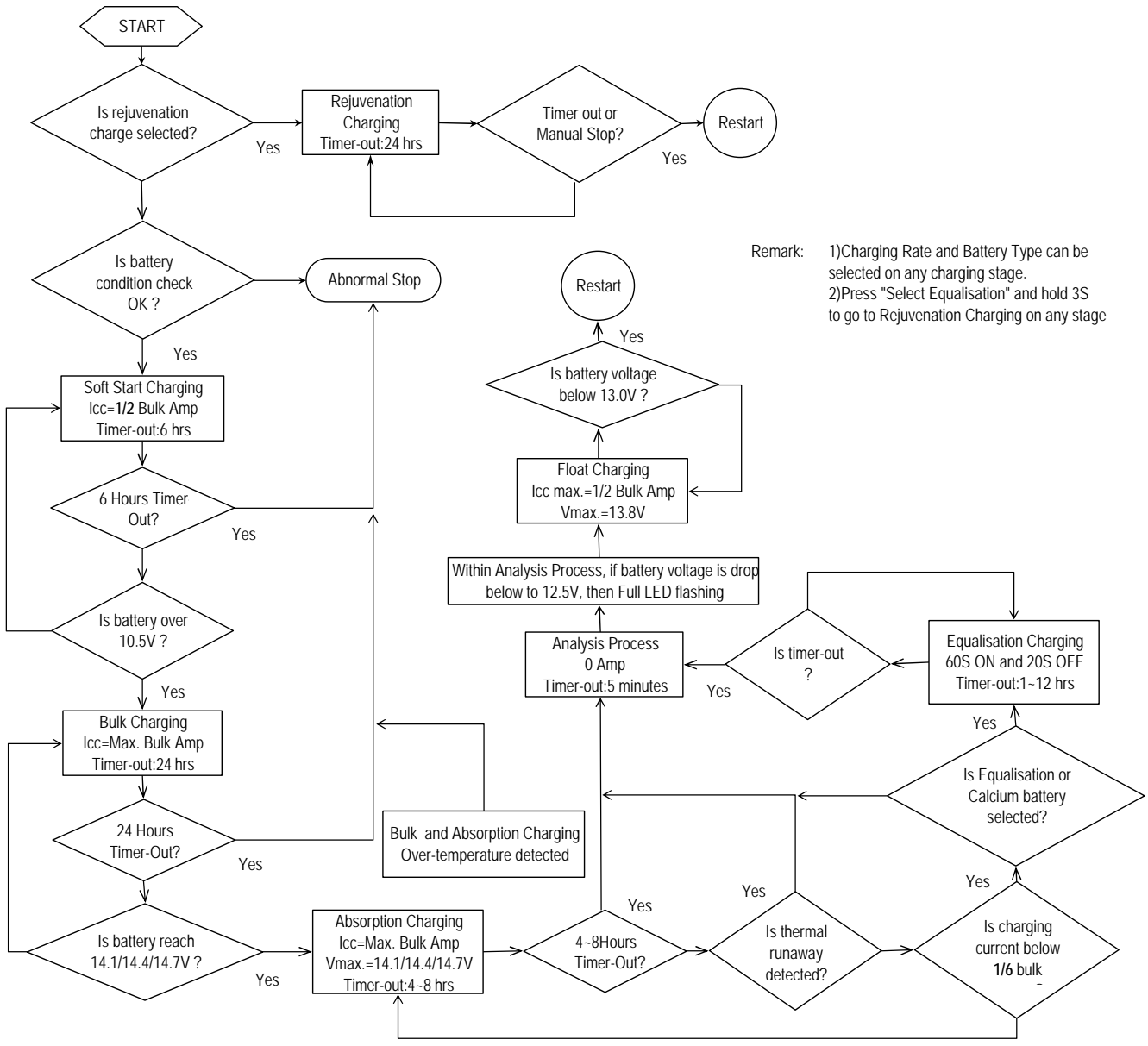
- 3-14 Press "Select Charging Rate" button: Select charging current , select sequence is 2A → 4A → 8A
- 3-15 Press "Select Battery Type" button: Select battery type , select sequence is GEL → Sealed / WET → Calcium
- 3-16 Press "select Equalisation" button: Press "Select Equalisation" button (less than 3S) to select Equalisation function.  
Press "Select Equalisation" button (over than 3S) to select Rejuvenation charging.

4 Safety & Protection			5 Electrical Cable & Physical Parameters		
4-1	Safety Standards:	EN 60335-1, EN 60335-2-2, AS/NZS	5-1	Input Connector:	6 feet VDE H03VVH2-F 2X0.75mm <sup>2</sup> with 2PIN SAA plug.
4-2	EMC Standards:	EN 55014 C-Tick	5-2	Output cord :	4 feet 16AWG X2 105°C with Quick connector.
4-3	Input-Output insulation test :	3000Vac 50/60Hz with 1 minutes, 5mAac	5-3	Extend cord:	2 feet 16AWG X2 105°C with Battery Clip.
4-4	Cooling:	By Natural cooling	5-4	Plastic Enclosure Dimension :	190 (L) x 92(W) x 55 (H) mm
4-5	Build-in temperature protection		5-5	Operating temperature :	0 to 45°C
4-6	Output short-circuit, reverse polarity Protection		5-6	Operating Humidity range :	0 to 90% RH
				Storage temperature :	-25 to 85 °C
				Weight:	860g

### 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