

# AC/DC Battery Charger ABC Series



## Features:

- 2 modules can be connected in parallel
- The Charger can be fully programmed by RS-232
- Built-in battery low voltage startup function
- Built-in FAN&FAN OFF silent mode
- Built-in 5A Backup Charge
- Compatible with Lead Acid, LiFePO4, Gel and AGM batteries
- High efficiency and high reliability
- Withstand 2G vibration test
- Advanced Protection Features
  - Battery reverse polarity protection (by fuse)
  - Output over voltage / short circuit protection
  - AC Input over/under voltage or protection
  - Internal over temperature protection
- Voltage / temperature compensation with battery temperature sensor



MODEL		ABC-1225	ABC-1250	ABC-1280
		ABC-2412	ABC-2425	ABC-2440
DC OUTPUT	Rated Current	25A	50A	80A
		12.5A	25A	40A
	Backup Charge Current	5A	5A	5A
		2.5A	2.5A	2.5A
	Main / Backup charge Output	1/1	2/1	2/1
	Charging Voltage	5~15V		
		10~30V		
	Battery Type	Lead Acid / LiFePO4 / Gel /AGM		
AC INPUT	Fuse	15A x 2 / 12V	35A x 2	30A x 3
		10A x 2 / 24V	15A x 2	15A x 3
	Nominal Voltage	100VAC~240VAC		
	Voltage Range	90VAC~264VAC		
	Frequency Range	47Hz~63Hz		
	Power Factor@Full Load	120VAC : >0.92 230VAC : >0.9	120VAC : >0.97 230VAC : >0.87	120VAC : >0.97 230VAC : >0.87
	Efficiency at 230VAC	87%	90%	90%
	Fuse	5A x 1	10A x 1	15A x 1

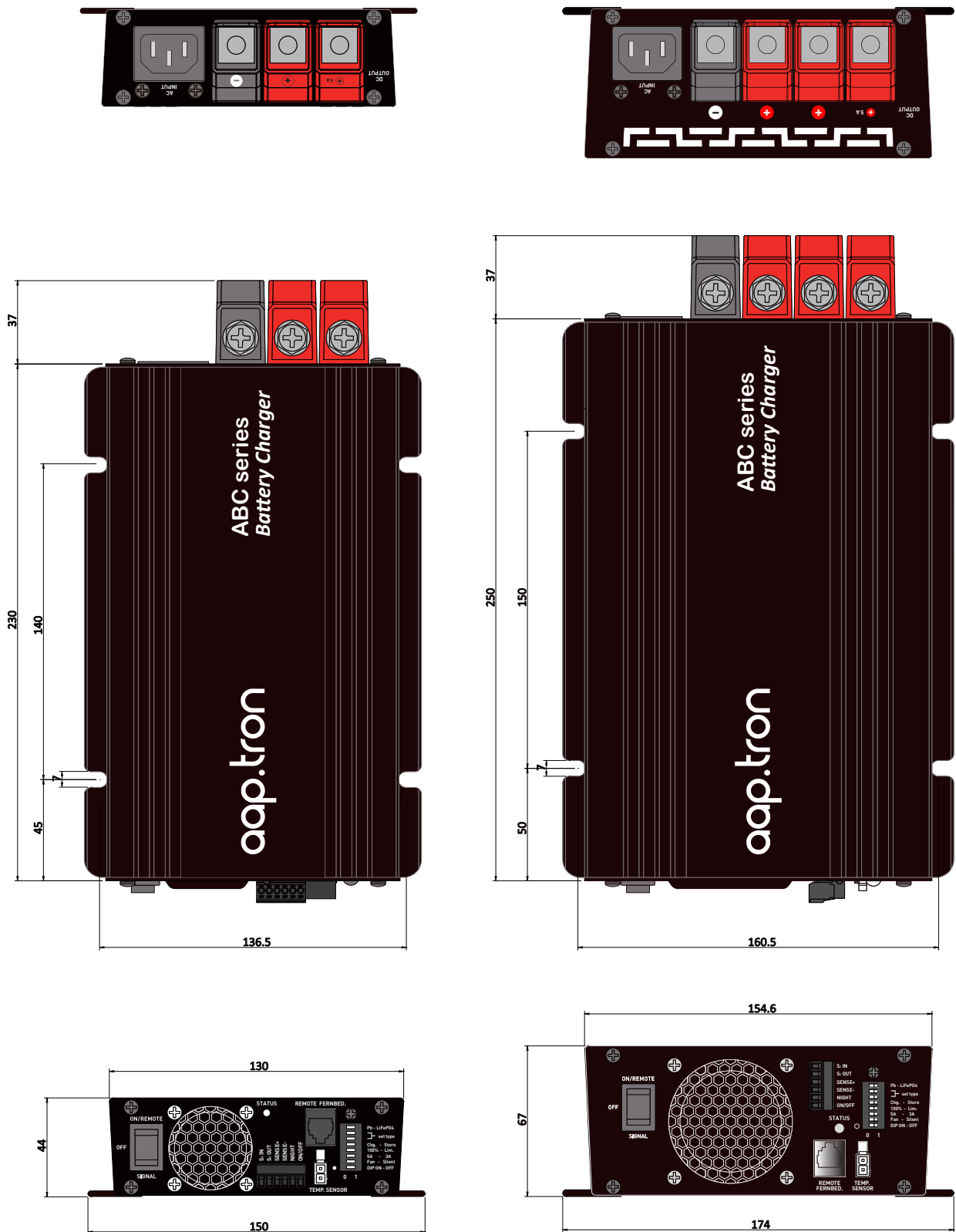
MODEL		ABC-1225	ABC-1250	ABC-1280
		ABC-2412	ABC-2425	ABC-2440
ENVIRONMENT	Working Temperature	-20 ~ +60°C (De-rating by Ambient temperature > 40°C )		
	Storage Temperature	-40 ~ +85°C		
	Relative Humidity	95% , non condensing		
	Vibration	IEC68-2-6		
Safety & EMC	Safety Standards	Meet EN62368		
	EMC Standards	Meet CE Class B		
	E-mark	Meet		
PROTECTION	Output Battery Reverse	Polarity reversed protection shutdown by auto- recovery		
PROTECTION	Output Battery Under Voltage	<10V DC Rescue charge		
		<20V DC Rescue charge		
	Output Battery Over Voltage	>17VDC Shutdown		
		>34VDC Shutdown		
	Output Battery Over Temperature	>52°C +-5°C Shutdown by battery temperature sensor (Optional) Temperature sensor type : KTY81-210		
	Output Short Circuit	3 seconds continuous output <1A, after shutdown		
	Input Under Voltage	De-rating : <100VAC Shutdown : <80VAC		
	Input Over Voltage	>264VAC or >374VDC Shutdown		
Others	Charger Over Temperature	De-rating : Ambient temperature > 40°C Shutdown : Ambient temperature > 60°C		
	Dimension W x D x H (mm)	150x230x44	174x250x67	212x250x67
	Weight (KG)	1.4	2.6	3.3

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## Mechanical Drawing:

Unit: mm



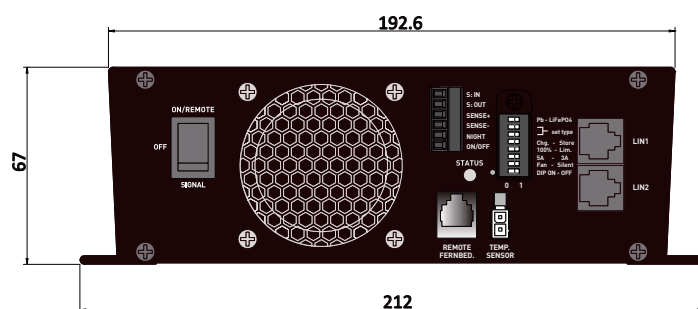
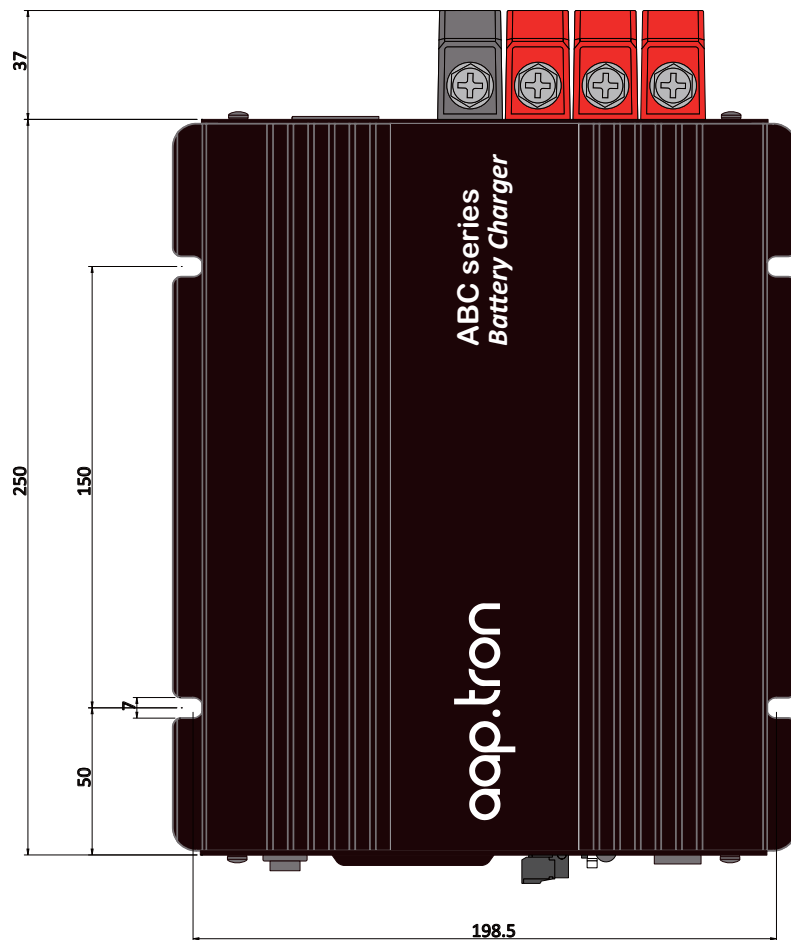
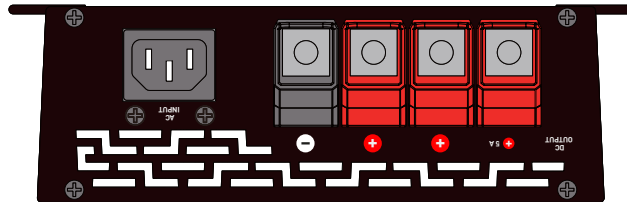
ABC-1225 / 2412

ABC-1250 / 2425

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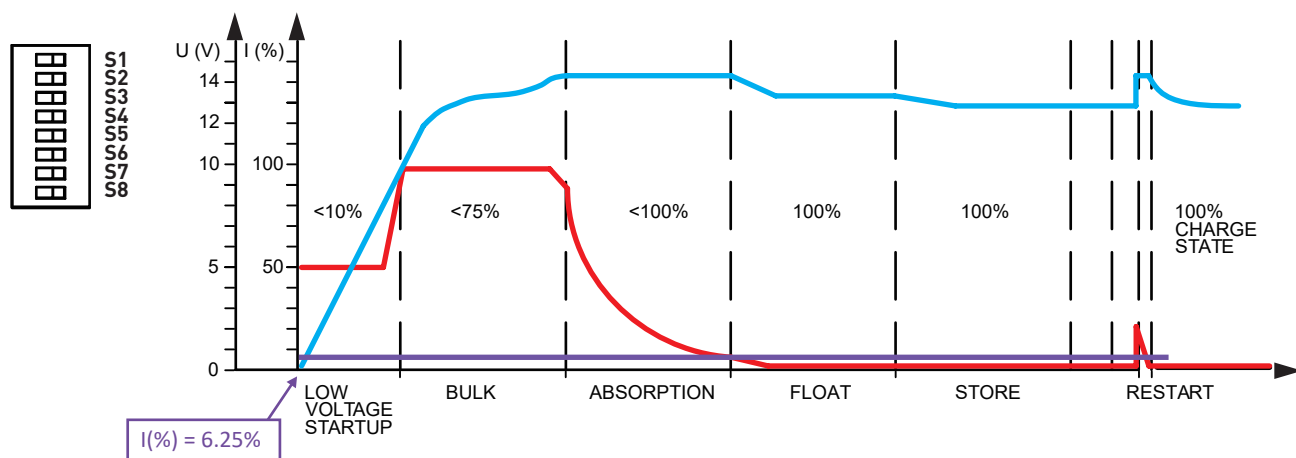
*Mechanical Drawing:*

*Unit: mm*



**ABC-1280 / 2440**

**Dip Switch:** - Return amps=6.25% of rated current.



S1	S2	S3	S4	Battery type / Charge program
0	0	0	0	<b>Lead-Acid</b> : ABSORP 14.4V ( 2-6 hour), FLOAT 13.5V (24h), STORE 13.2V continuous, RESTART every 4 day 1 hour or voltage 30sec. below 12.8V
0	0	1	0	<b>GEL</b> : ABSORP 14.4V ( 6-12 hour), FLOAT 13.8V (48h), STORE 13.5V continuous, RESTART every 4 day 1 hour or voltage 30sec. below 12.8V
0	1	0	0	<b>AGM1</b> : ABSORP 14.4V ( 1.5-5 hour), FLOAT 13.5V (24h), STORE 13.2V continuous, RESTART every 4 day 1 hour or voltage 30sec. below 12.8V
0	1	1	0	<b>AGM2</b> : ABSORP 14.7V ( 1.5-5 hour), FLOAT 13.6V (24h), STORE 13.2V continuous, RESTART every 4 day 1 hour or voltage 30sec. below 12.8V
1	0	0	0	<b>LiFePO4 13.9V</b> : ABSORP 13.9V (0.16-1 hour), FLOAT 13.9V (24h), STORE 13.5V continuous, RESTART every 10 day 0.5 hour or voltage 30sec. below 13.2V
1	0	1	0	<b>LiFePO4 14.2V</b> : ABSORP 14.2V (0.16-1 hour), FLOAT 13.6V (24h), STORE 13.4V continuous, RESTART every 10 day 0.5 hour or voltage 30sec. below 13.2V
1	1	0	0	<b>LiFePO4 14.4V</b> : ABSORP 14.4V (0.16-1 hour), FLOAT 13.8V (24h), STORE 13.5V continuous, RESTART every 10 day 0.5 hour or voltage 30sec. below 13.2V
1	1	1	0	<b>LiFePO4 14.6V</b> : ABSORP 14.6V (0.16-1 hour), FLOAT 13.8V (24h), STORE 13.5V continuous, RESTART every 10 day 0.5 hour or voltage 30sec. below 13.2V
0	0	0	1	<b>POWER 12V</b> : STORE 12V continuous
0	0	1	1	<b>POWER 12.8V</b> : STORE 12.8V continuous
0	1	0	1	<b>POWER 13.5V</b> : STORE 13.5V continuous
0	1	1	1	<b>POWER 13.8V</b> : STORE 13.8V continuous
1	0	0	1	<b>LiFePO4 13.9V</b> : STORE 13.2V continuous
1	0	1	1	<b>LiFePO4 14.2V</b> : STORE 13.2V continuous
1	1	0	1	<b>LiFePO4 14.4V</b> : STORE 13.2V continuous
1	1	1	1	<b>LiFePO4 14.6V</b> : STORE 13.2V continuous

**Notice:** No charge allowed if Temp Sensor not connected to charger when the battery type sets to LiFePO4.

**Note:** For LeFePo4 battery, the absorption charge time is 50% of the bulk charge time. The others type of the battery is the 300% of the bulk charge time.

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S5	Main Charge Current
0	100%
1	De-rating to 72%

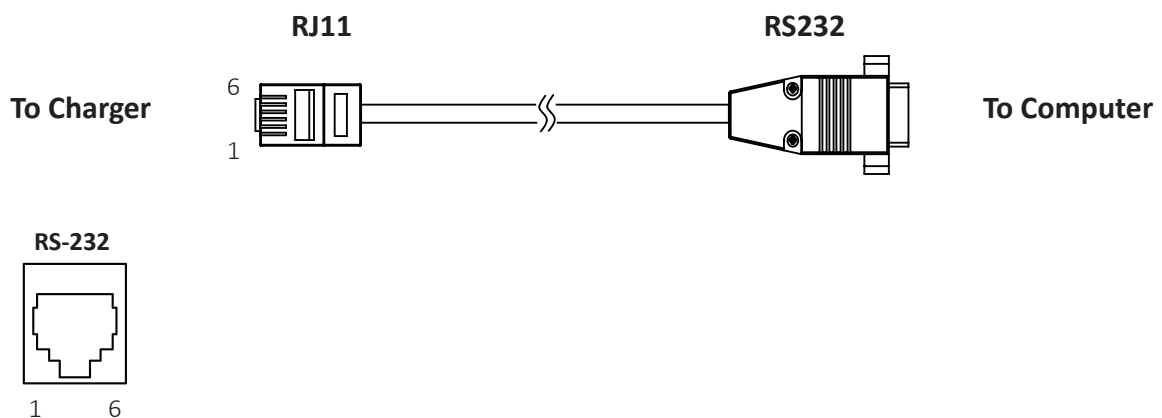
S6	Backup Charge Current
0	5A
1	3A

S7	FAN
0	FAN NORMAL
1	FAN SILENT Charger de-rating

S8	Setting
0	Enable DIPS1~S7
1	Program

## **RS-232:**

Please follow below demonstration to make communication cable



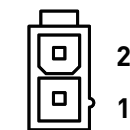
CHARGER		RJ11 to RS232				RS232 to USB	
RJ11 (Female)		RJ11(Male)		RS232(Female)		RS232(Male)	
PIN	Description	PIN	Description	PIN	Description	PIN	Description
1	Not used	1	N/A	N/A		N/A	
2	GND	2	GND	5	GND	5	GND
3	RX	3	RX	3	RxD	3	TxD
4	TX	4	TX	2	TxD	2	RxD
5	Not used	5	N/A	N/A		N/A	
6	5VP	6	N/A	N/A		N/A	

# AC/DC Battery Charger ABC Series



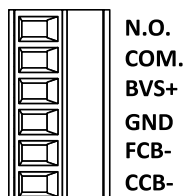
**Temp:**

1	Temp.
2	GND



**TEMP.  
SENSOR**

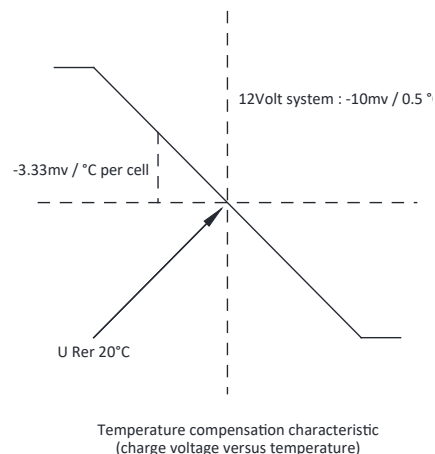
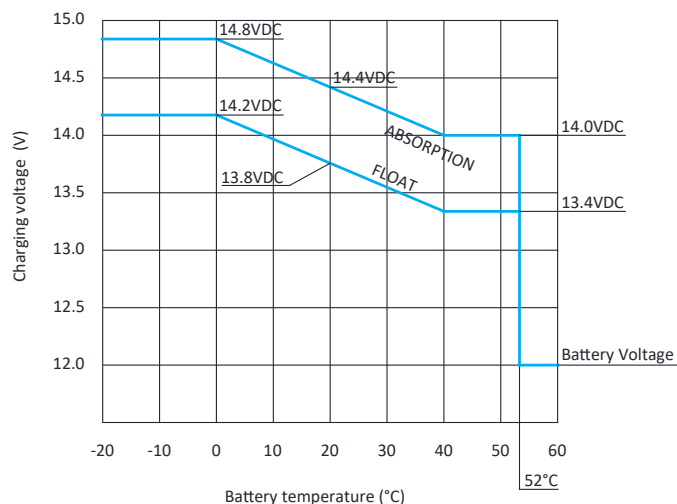
**Black Terminal:**



PIN	NAME	Function	Explanation
1	N.O.	Charging Relay Normally Open	Charger OFF : PIN1&PIN2 open
2	COM.	Charging Relay Common	Charger ON : PIN1&PIN2 short
3	BVS+	Battery Voltage Sense	Charge compensation by short Battery+
4	GND	GND	Battery-
5	FCB-	FAN OFF	FAN OFF by short PIN4 Disable backup charge
6	CCB-	Remote Charger ON / OFF	Main switch to ON : Charger OFF by short PIN4 or ARB-1 Main switch to REMOTE : Charger ON by short PIN4 or ARB-1

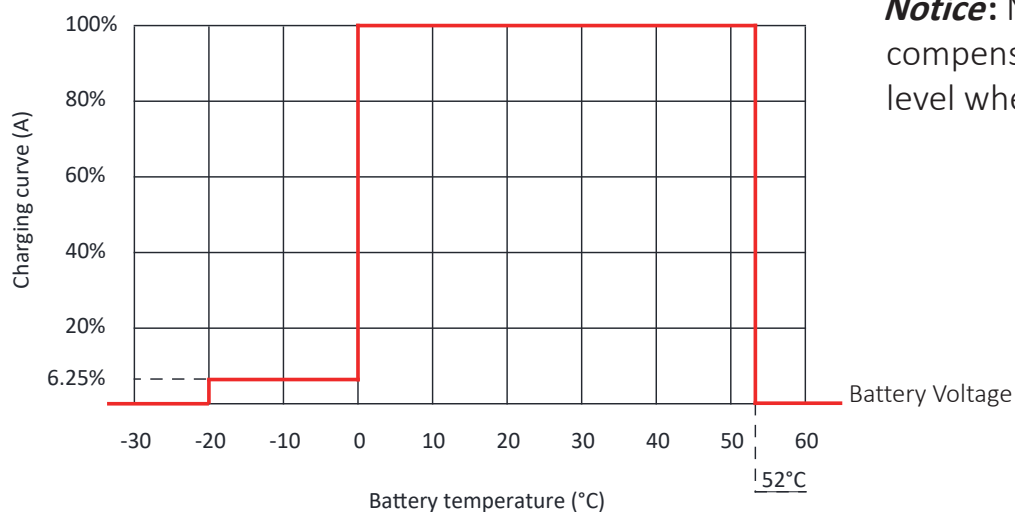
**The de-rating curve of Temperature compensation on voltage level:**

\*Battery type = Lead-acid, GEL and AGM

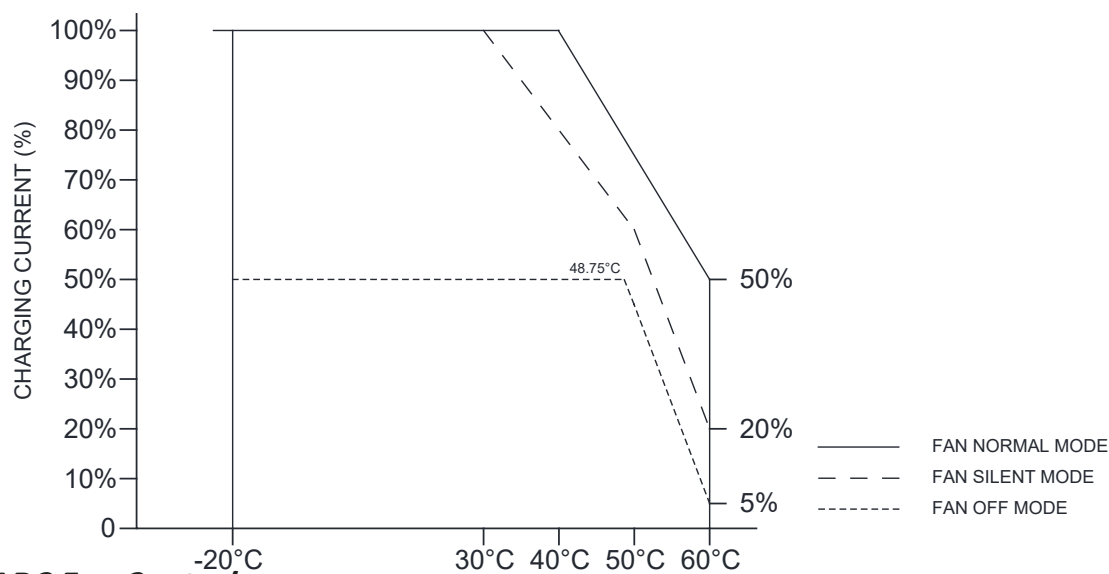


\*In the absorption =14.4V and float =13.8V situation. Please follow this rule in other situation.

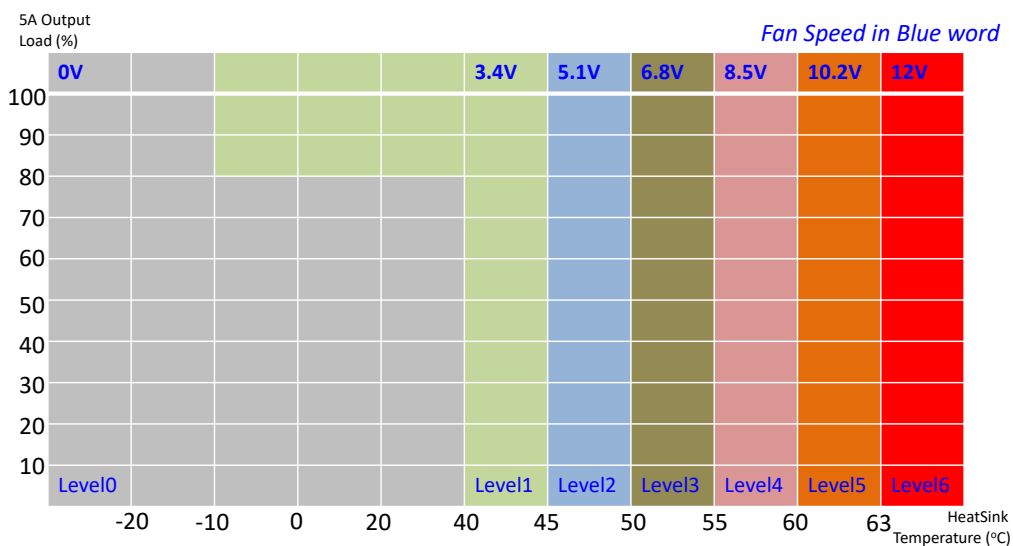
\*Battery type = LiFePO4



## Charging Current VS Ambient Temperature De-rating Curve:











## ABC Fan Control:



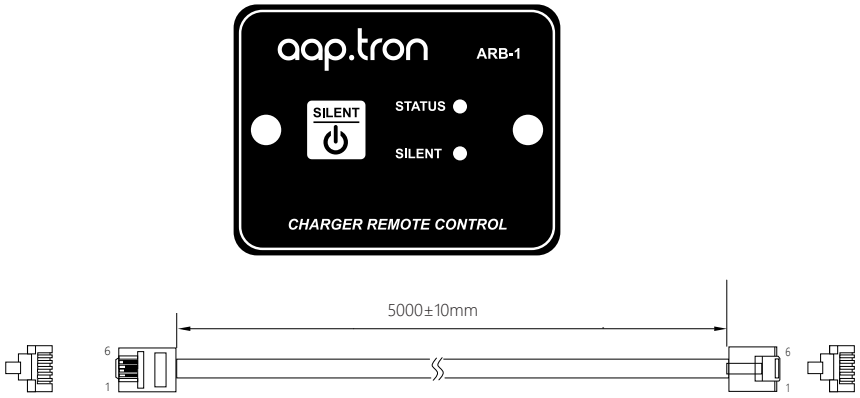
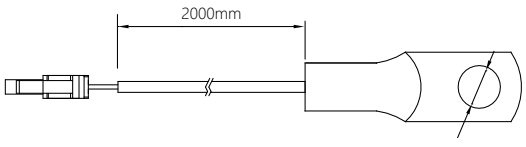
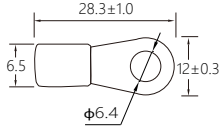
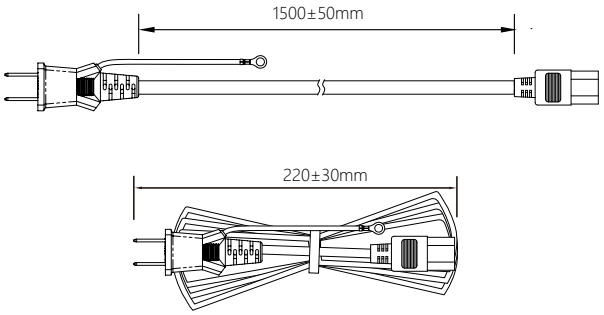


## **ABC Display LED:**

Charger Status LED	Display	Status
Green light Slowly		C.V.--> Store
Green light Continuously		C.V.--> Float (SOC=100%) or POWER mode (S4 set 1)
Orange light Continuously		C.V.--> Absorption
Orange light Slowly		C.C.--> Bulk
Orange light Quickly		C.C.--> De-rating
Red light Continuously		Critical abnormal protection shutdown (Output fuse broken or Output short circuit)
Red light Slowly		Abnormal protection shutdown (Battery/Charger over voltage or temperature)
Red light Quickly		AC Input abnormal protection shutdown (Over/Under voltage)
No light		Charging OFF (AC Input fuse broken)

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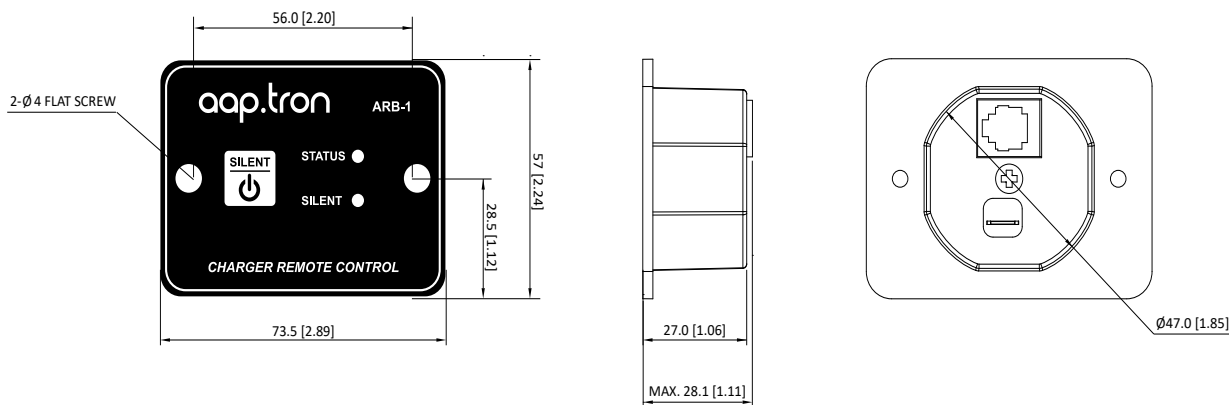
## Accessory:

Description	Diagram
Remote control & cable (Optional)	 <p>unit:mm</p>
Temperature sensor	 <p>unit:mm</p> <p>Type : KTY81-210</p>
Ring terminal (Standard +Spare) ABC-1250 : 4 + 1 ABC-1225 : 3 + 1	 <p>unit:mm</p>
AC cable	 <p>unit:mm</p>

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**ARB-1** (Optional)

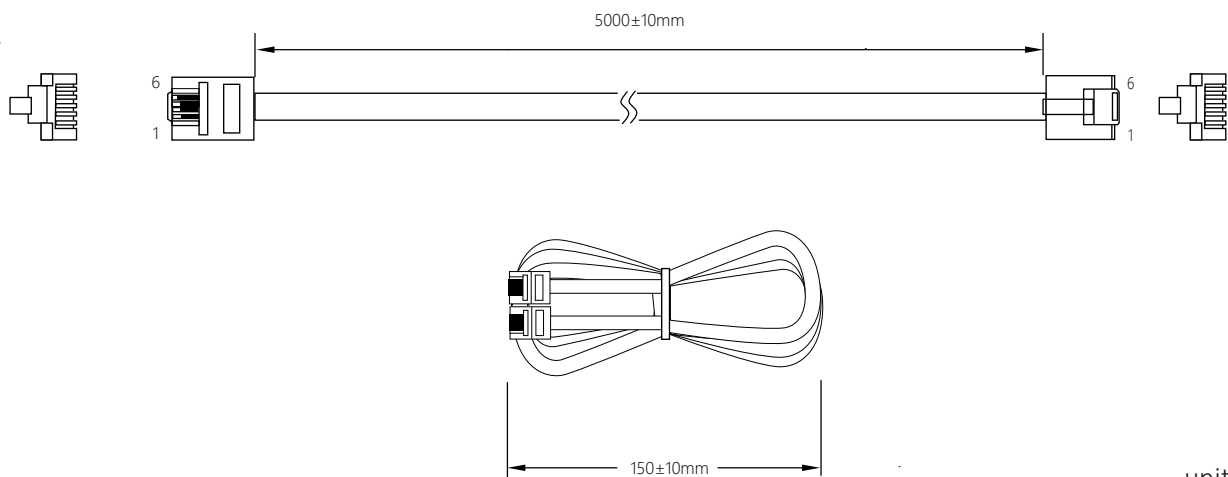
**Mechanical Drawing:**



**Key Status:**









KEY	STATUS
Tap once	FAN NORMAL-> FAN SILENT-> FAN OFF-> FAN NORMAL
Long press for two seconds	Charger OFF

**Remote Cable:**





unit:mm

## **ARB-1 Status LED :**

Charger Status LED	Display	Status
Green light Slowly		C.V.--> Store
Green light Continuously		C.V.--> Float (SOC=100%) or POWER mode (S4 set 1)
Orange light Continuously		C.V.--> Absorption
Orange light Slowly		C.C.--> Bulk
Orange light Quickly		C.C.--> De-rating
Red light Continuously		Critical abnormal protection shutdown (Output fuse broken or Output short circuit)
Red light Slowly		Abnormal protection shutdown (Battery/Charger over voltage or temperature)
Red light Quickly		AC Input abnormal protection shutdown (Over/Under voltage)
No light		Charging OFF (AC Input fuse broken)

## **ARB-1 Silent LED :**

Charger Silent LED	Display	Status
Green light Slowly		FAN SILENT
Green light Continuously		FAN OFF
No light		FAN NORMAL