DC/DC Charger ADF Series

Features:

- The converter can be fully programmed by RS-232
- Built-in battery rescue(pre-charging) function
- Compatible with Lead Acid, LiFePO4, Gel and AGM batteries
- High efficiency and high reliability
- Withstand 2G vibration test
- Advanced Protection Features
  - Input / output Polarity Reversed protection by fuse
  - Input over & under Voltage Protection
  - Output over voltage / short circuit protection
  - Internal over temperature protection

- Built-in Buck Boost Converter (Support 24V to 12V & 12V to 24V)
- Voltage / temperature compensation with battery temperature sensor (Optional)

CE

MODEL		ADF-121250	ADF-122425	ADF-241250	ADF-242425
OUTPUT	Rated Power	720W			
	Absorption Voltage DIP S1	0 : 14.4V ±1% 1 : 14.7V ±1%	0 : 28.8V ±1% 1 : 29.4V ±1%	0 : 14.4V ±1% 1 : 14.7V ±1%	0 : 28.8V ±1% 1 : 29.4V ±1%
	Float Voltage DIP S2	0 : 13.5V ±1% 1 : 13.8V ±1%	0 : 27V ±1% 1 : 27.6V ±1%	0 : 13.5V ±1% 1 : 13.8V ±1%	0 : 27V ±1% 1 : 27.6V ±1%
	Recharge Voltage DIP S3	0 : 12V ±1% 1 : 12.8V ±1%	0 : 24V ±1% 1 : 25.6V ±1%	0 : 12V ±1% 1 : 12.8V ±1%	0 : 24V ±1% 1 : 25.6V ±1%
	Battery Current DIP S4	0 : Lead Acid 1 : LifePO4			
	Charging Current	50A	25A	50A	25A
	Fuse	35A x 2			
INPUT	Voltage Range	10V ~ 17V ±1%	10V ~ 17V ±1%	24V ~ 34V ±1%	24V ~ 34V ±1%
	Efficiency (Max.) (FullLoad)	93%	94%	92%	97%
	Parasitic Current (ignition OFF)	< 5mA			
	Type	Battery / Alternator / DC Source			
	Fuse	35A x 3			

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MODEL		ADF-121250	ADF-122425	ADF-241250	ADF-242425
ENVIRONMENT	Working Temperature	-40 ~ +60℃ (De-rating by case temperature)			
	Storage Temperature	-40 ~ +85℃			
	Relative Humidity	95% , non condensing			
	Vibration	IEC68-2-6			
Safety & EMC	Safety Standards	Meet EN62368			
	EMC Standards	Meet CE			
	E-mark	Meet			
PROTECTION	Output Battery Reverse	Polarity reversed protection by fuse			
	Output Battery Under Voltage	<10V Rescue charge	<20V Rescue charge	<10V Rescue charge	<20V Rescue charge
	Output Battery Over Voltage	>17V Shutdown	>34V Shutdown	>17V Shutdown	>34V Shutdown
	Output Battery Over Temperature	>52℃ +-5℃ Shutdown by battery temperature sensor			
	Output Short Circuit	3 seconds continuous output <1A, after shutdown			
	Input Reverse	Polarity reversed protection by fuse			
	Input Under Voltage	<10V Shutdown		<20V Shutdown	
	Input Over Voltage	>17V Shutdown		>34V Shutdown	
	Charger Over Temperature	Alarm by case temperature 60℃ De-rating by case temperature 65℃ Shutdown by case temperature 70℃			
Others	Dimension(WxDxH)	150mm x 213mm x 44mm			
	Weight (KG)	1.45KG			

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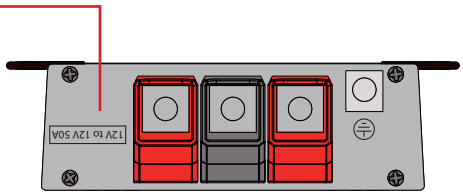
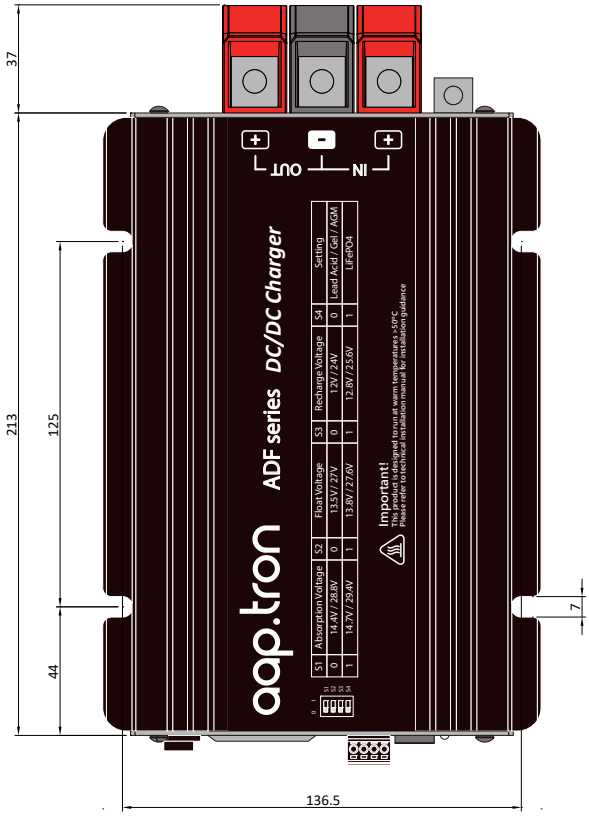
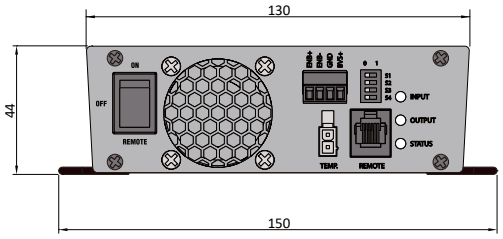
Mechanical Drawing:

Model	Label
ADF-121250	12V to 12V 50A
ADF-122425	12V to 24V 25A
ADF-241250	24V to 12V 50A
ADF-242425	24V to 24V 25A

Unit: mm

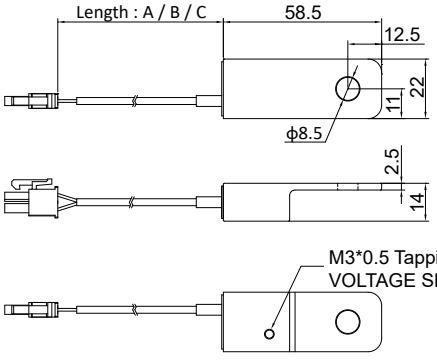






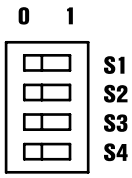
Temperature Sensor

(Optional Accessory)



Length (max)	
A	4600mm
B	7620mm
C	15300mm

Front Panel Dip Switch



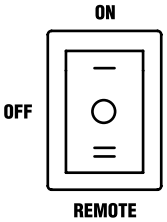
S1	Absorption Voltage
0	14.4V / 28.8V
1	14.7V / 29.4V

S2	Float Voltage
0	13.5V / 27V
1	13.8V / 27.6V

S3	Recharge Voltage
0	12V / 24V
1	12.8V / 25.6V

S4	Setting
0	Lead Acid / Gel / AGM
1	LifePO4

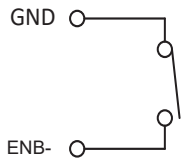
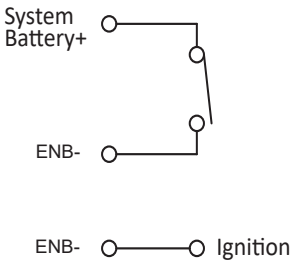
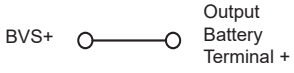
Main Switch



I = ON
O = OFF
II = REMOTE

Front Panel black terminal

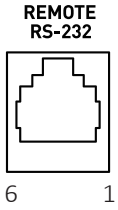
PIN1 = ENB+ (Ignition)
PIN2 = ENB-
PIN3 = GND
PIN4 = BVS+ (Battery+ Voltage Sensor)

Contact	Function	Wiring	Description
GND ESB-	Remote ON / OFF	Put switch between GND and ESB- Wire size: 20~24AWG 	Power ON: short Power OFF: open
ESB+ (Ignition)		Put switch between battery+ and ESB+ Wire size: 20~24AWG 	Power ON: short Power OFF: open Power ON: ignition Power OFF: NO ignition
BVS+	Battery Voltage Sense		Change compensation by short battery+

Temp:

1	Temp.
2	GND

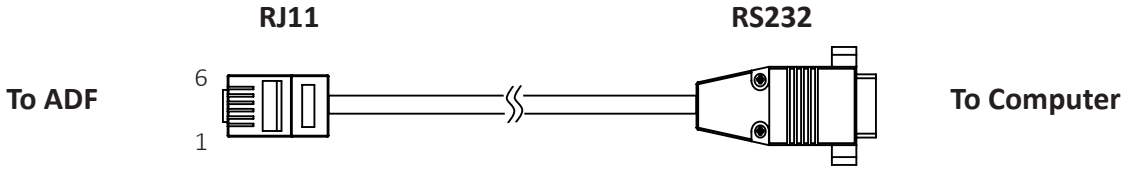
REMOTE PORT (Support REMO-781 ,REMO-781G)



ADF Series		RJ11 to RS232				RS232 to USB	
RJ11 (Female)		RJ11(Male)		RS232(Female)		RS232(Male)	
PIN	Description	PIN	Description	PIN	Description	PIN	Description
1	5VP	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	PON_Sig	5	N/A	N/A		N/A	
6	N/A	6	N/A	N/A		N/A	

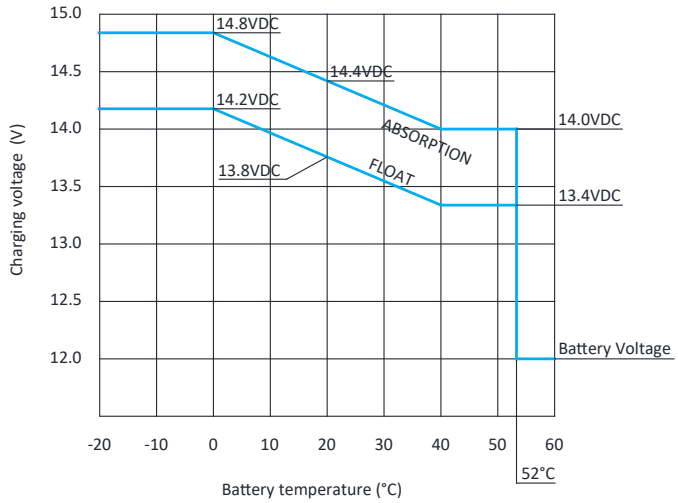
RS-232:

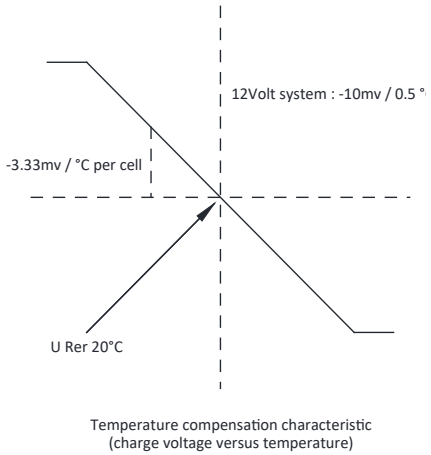
Please follow below demonstration to make communication cable



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

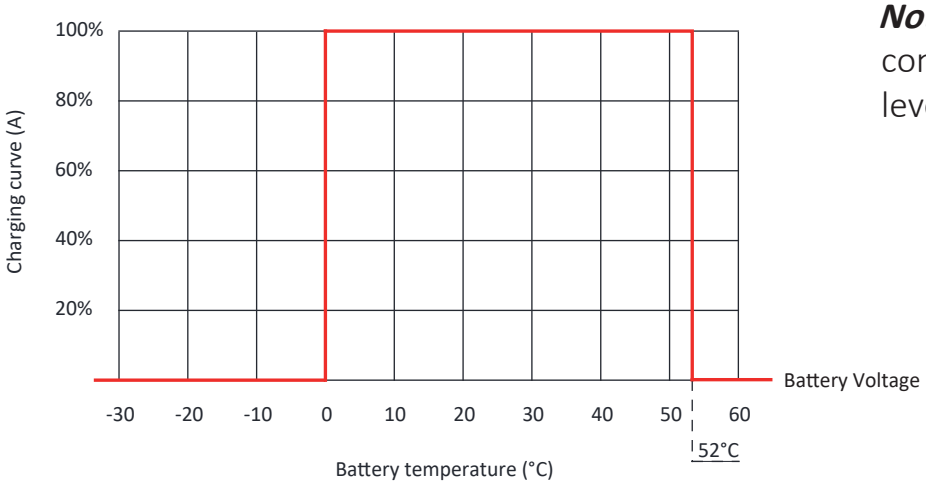
*Battery type = Lead-acid, GEL and AGM





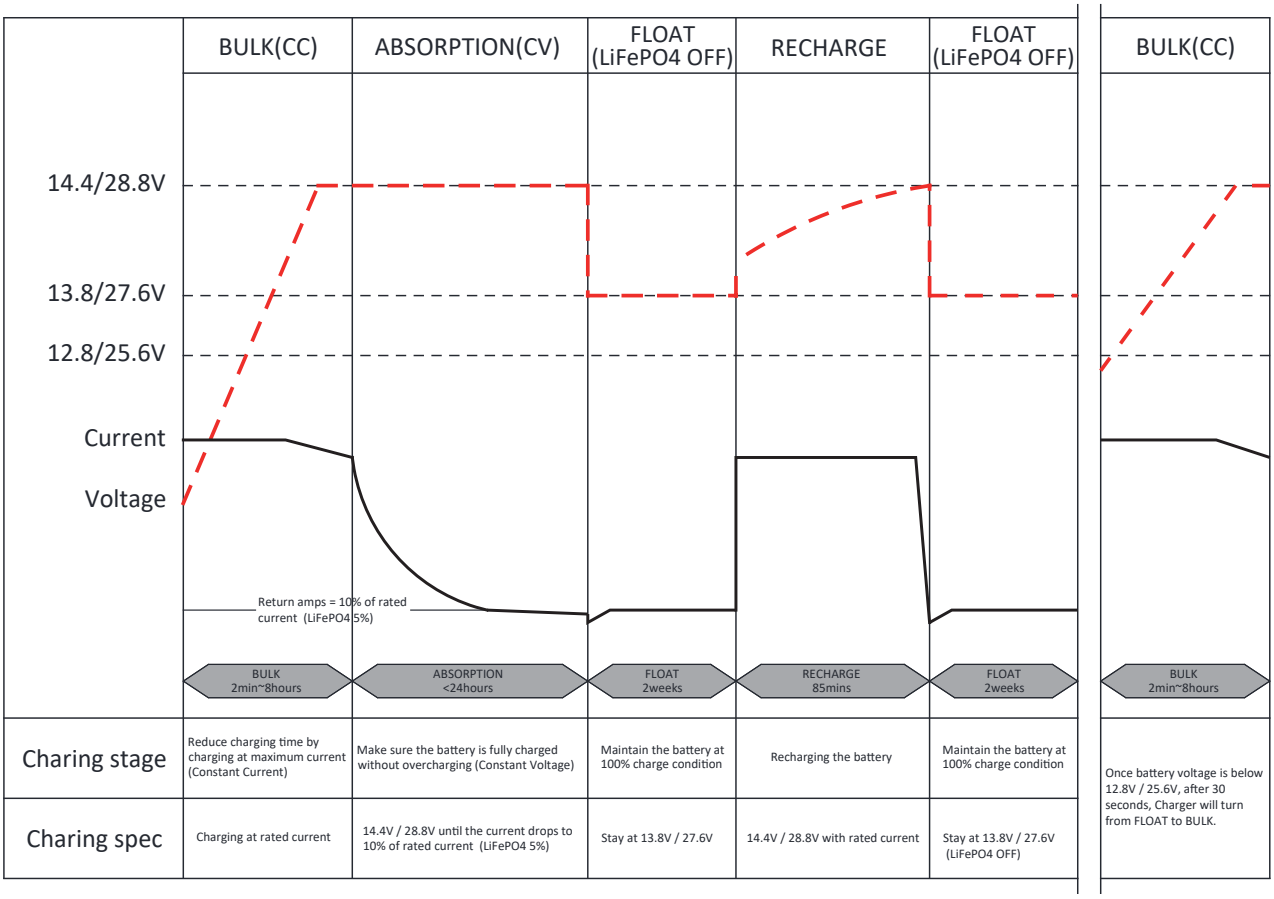
*In the absorption =14.4V and float =13.8V situation. Please follow this rule in other situation.

*Battery type = LiFePO4



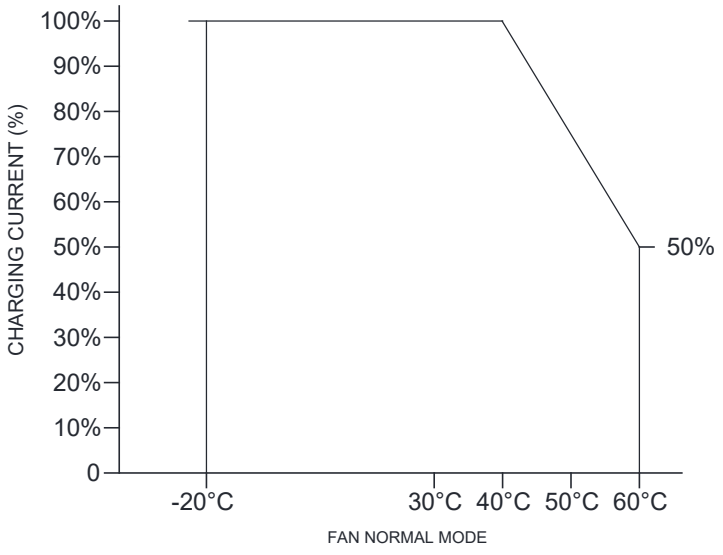
***Notice*:** No temperature compensation on voltage level when setting LiFePO4

Charging Curve:

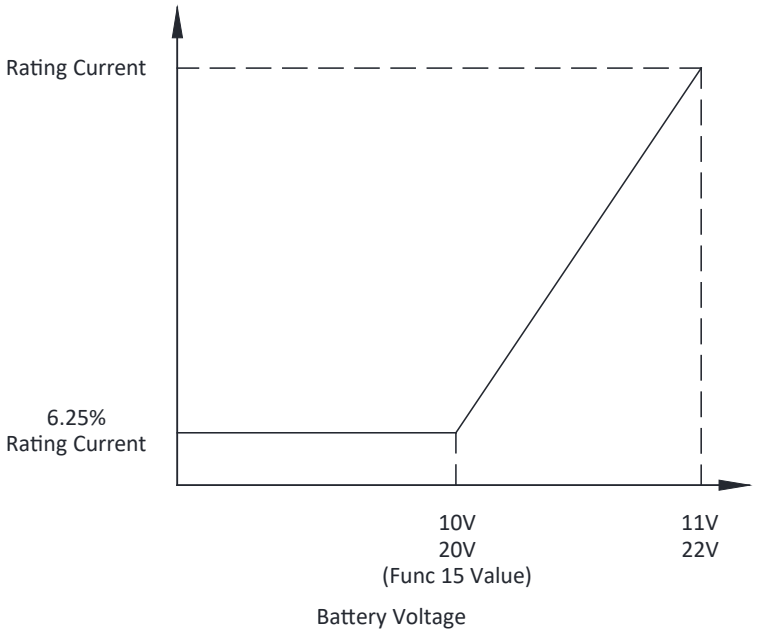


Charing stage	Reduce charging time by charging at maximum current (Constant Current)	Make sure the battery is fully charged without overcharging (Constant Voltage)	Maintain the battery at 100% charge condition	Recharging the battery	Maintain the battery at 100% charge condition	Once battery voltage is below 12.8V / 25.6V, after 30 seconds, Charger will turn from FLOAT to BULK.
Charing spec	Charging at rated current	14.4V / 28.8V until the current drops to 10% of rated current (LiFePO4 5%)	Stay at 13.8V / 27.6V	14.4V / 28.8V with rated current	Stay at 13.8V / 27.6V (LiFePO4 OFF)	

Charger Curve VS Case Ambient Temperature De-rating



Rescue (pre-charging) Curve:



Display LED:

1 ◯ INPUT

2 ◯ OUTPUT

3 ◯ STATUS

Input & Temp. Voltage	LED1	Status
Red light Quickly		Over Voltage Protection Shutdown
Red light Slowly		Under Voltage Protection Shutdown
Red light Continuously		Charger Over Temperature Protection Shutdown
Orange light Quickly		Over Voltage Alarm
Orange light Slowly		Under Voltage Alarm
Orange light Continuously		Charger Over Temperature Alarm
Green light Continuously		Normal

Output	LED2	Status
Red light Quickly		Over Voltage Protection Shutdown
Red light Slowly		Battery Over Temperature Protection Shutdown
Red light Continuously		Short Circuit Protection Shutdown
Orange light Quickly		Over Voltage Alarm
Orange light Slowly		Battery Over Temperature Alarm
Orange light Continuously		Battery Under Voltage Alarm (Pre-Charge)
Green light Continuously		Normal

Output Current	LED3	Status
Green light Continuously		C.V. & Float
Orange light Quickly		C.V. & De-rating
Orange light Slowly		C.V. & Bulk
Orange light Continuously		C.V. & Absorption