DC/DC Charger ADC-1250

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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 E11

MODEL		ADC-1250
OUTPUT	Rated Power	750W
	Absorption Voltage DIP S1	0 : 14.4V / 28.8V ±1% 1 : 14.7V / 29.4V ±1%
	Float Voltage DIP S2	0 : 13.5V / 27V ±1% 1 : 13.8V / 27.6V ±1%
	Recharge Voltage DIP S3	0 : 12V / 24V ±1% 1 : 12.8V / 25.6V ±1%
	Charge Current DIP S4	0 : 100% 1 : De-Rating 50%
	Charging Control DIP S6 & S5	00 : Charger 1 : bulk->absorption->float->recharge 01 : Charger 2 : bulk->absorption->OFF->recharge 10 : Power Supply 1 : Constant Voltage by DIP S2 11 : Power Supply 2 : Constant Voltage by DIP S3
	Battery Voltage **Level DIP S7**	0 : 12V / 50A ±1% 1 : 24V / 25A ±1%
	Battery Type	Lead Acid/LiFePO4/Gel/AGM/Program(DIP S8)
	Fuse	35A x 2
INPUT	Voltage Range	10V ~ 34V ±1%
	Efficiency (Max.)	12V : 92% 24V : 97%
	Parasitic Current (ignition OFF)	< 5mA
	Type	Battery / Alternator / DC Source
	Fuse	35A x 3

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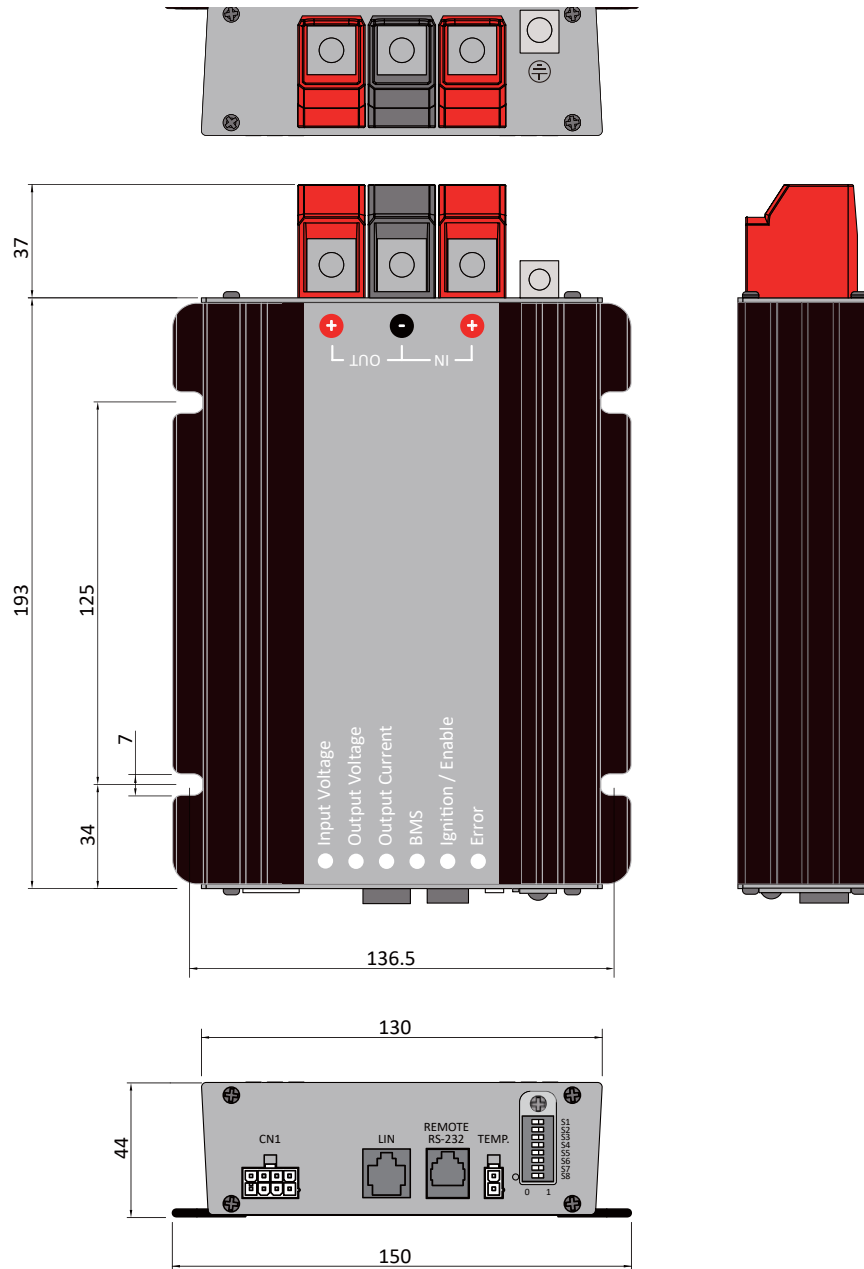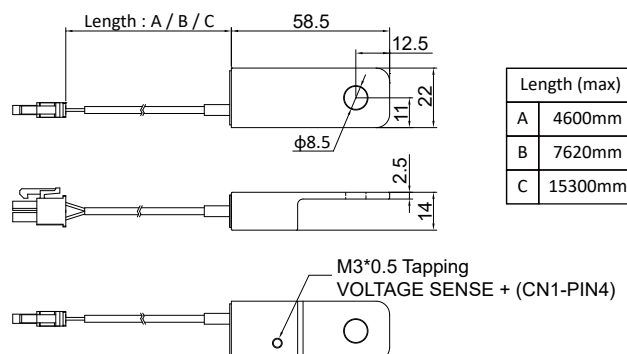| MODEL		ADC-1250
ENVIRONMENT	Working Temperature	12V :-40 ~ +60℃ (De-rating by case temperature) 24V :-40 ~ +60℃
	Storage Temperature	-40 ~ +85℃
	Relative Humidity	95% , non condensing
	Vibration	IEC68-2-6
Safety & EMC	Safety Standards	Meet EN62368
	EMC Standards	Meet CE
	E-mark	Meet
PROTECTION	Output Battery Reverse	Polarity reversed protection shutdown by auto- recovery
	Output Battery Under Voltage	<10V / <20V Rescue charge
	Output Battery Over Voltage	>17V / >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
	Input Over Voltage	>34V Shutdown
	Charger Over Temperature	Alarm by case temperature 60℃ De-rating by case temperature 65℃ Shutdown by case temperature 70℃
Others	Dimension(WxDxH)	130mm x 193mm x 44mm
	Weight (KG)	1.3KG

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Mechanical Drawing:

ADC-1250 *Unit: mm*

Input Voltage
Output Voltage
Output Current
BMS
Ignition / Enable
Error

37
193
125
7
34
136.5

CN1   LIN   REMOTE RS-232   TEMP.
130
44
150

Temperature Sensor
(Optional Accessory)

Length : A / B / C   58.5   12.5
22   11   φ8.5
2.5   14

M3*0.5 Tapping
VOLTAGE SENSE + (CN1-PIN4)

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

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Dip Switch:
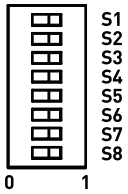
S1	Absorption Voltage
0	14.4V / 28.8V
1	14.7V / 29.4V

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

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

S4	Charge Current
0	100%
1	De-rating 50%

S6	S5	Mode	Charging Control
0	0	Charger mode 1	bulk→absorption→float→recharge
0	1	Charger mode 2	bulk→absorption→OFF→recharge (LiFePO4)
1	0	POWER mode 1	Constant Voltage by DIP S2
1	1	POWER mode 2	Constant Voltage by DIP S3

S7	Battery Voltage Level
0	12V / 50A
1	24V / 25A

S8	Setting
0	Program
1	Enable DIPS1~S7

RS-232:

Please follow below demonstration to make communication cable

RJ11   **RS232**

To ADC   6   1   **To Computer**

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REMOTE RS-232

6   1
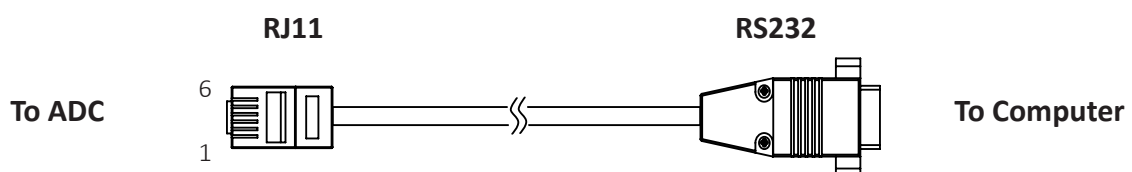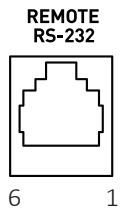
ADC Series		RJ11 to RS232				RS232 to USB	
RJ11 (Female)		RJ11(Male)		RS232(Female)		RS232(Male)	
PIN	Description	PIN	Description	PIN	Description	PIN	Description
1	5VP	1	N/A	N/A		N/A	
2	GND	2	GND	5	GND	5	GND
3	RX	3	RX	3	RxD	3	TxD
4	TX	4	TX	2	TxD	2	RxD
5	PON_Sig	5	N/A	N/A		N/A	
6	N/A	6	N/A	N/A		N/A	

Temp:

1	Temp.
2	GND

TEMP.

2

1
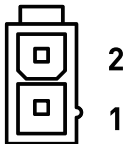
CN1:

1	Ignition (Active HIGH)
2	BMS+ (Active HIGH)
3	BMS- (Active LOW)
4	Voltage Sensor + (0-32V)
5	Charging Relay Common *
6	Charging Relay Normally Open *
7	OTA Relay Common
8	OTA Relay Normally Open

CN1

5

1
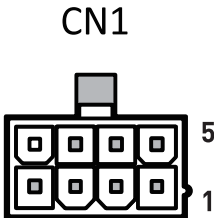
* Charger mode 2 : If the battery temperature is lower than 10 C, the relay (CN1-PIN5 & 6) close.

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Charging Curve at Battery Temperature Compensation:

Graph 1 (left): Charging voltage (V) vs Battery temperature (°C)
- 14.8VDC
- 14.4VDC
- 14.2VDC
- 14.0VDC
- ABSORPTION
- 13.8VDC
- FLOAT
- 13.4VDC
- Battery Voltage
- 52°C

Graph 2 (right):
- 12Volt system : -10mv / 0.5 °C
- -3.33mv / °C per cell
- U Rer 20°C

Temperature compensation characteristic
(charge voltage versus temperature)
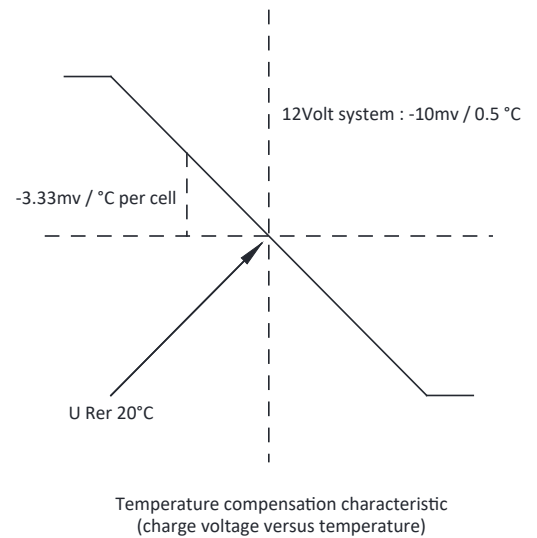
*In the absorption =14.4V and float =13.8V situation. Please follow this rule in other situation.

Charging Curve:

Charing stage	BULK(CC)	ABSORPTION(CV)	FLOAT	RECHARGE	FLOAT	BULK(CC)
	14.4/28.8V					
	13.8/27.6V					
	12.8/25.6V					
	Current					
	Voltage					
	Return amps =6.25% of rated current					
	BULK 2min~8hours	ABSORPTION 0.25hours~24hours	FLOAT 2weeks	RECHARGE 85mins	FLOAT 2weeks	BULK 2min~8hours
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, ADC will turn from FLOAT to BULK.
Charing spec	Charging at rated current	14.4V / 28.8V until the current drops to 6.25% of rated current	Stay at 13.8V / 27.6V	14.4V / 28.8V with rated current	Stay at 13.8V / 27.6V	

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Charger Curve VS Case Temperature De-rating Curve:

Charging Current

100%

10%

-40   0   60 65   70
                    (OTA)

Case Temperature (°C)

Rescue (pre-charging) Curve:

Rating Current

6.25%
Rating Current

10V   11V
20V   22V
(Func 15 Value)

Battery Voltage

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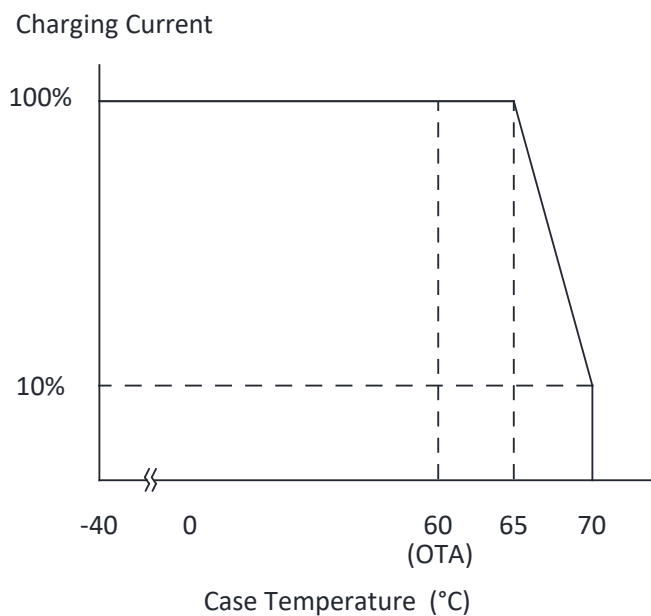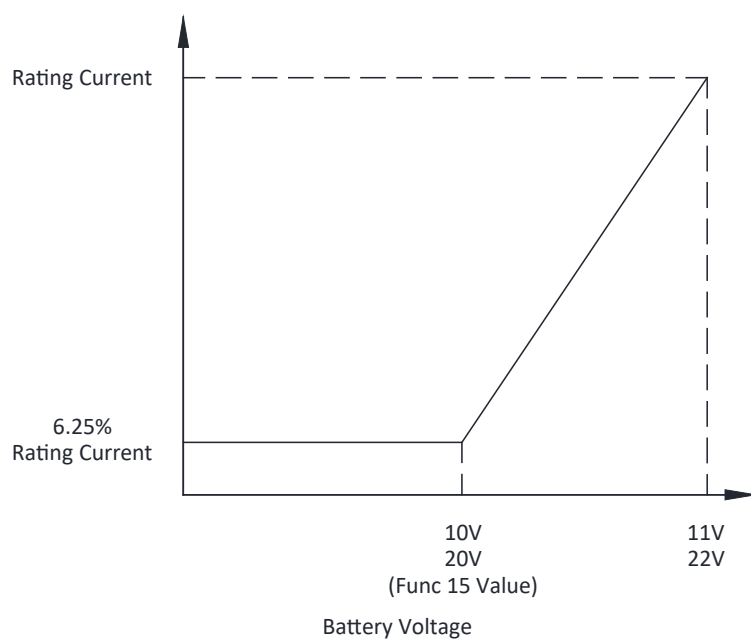
Display LED:
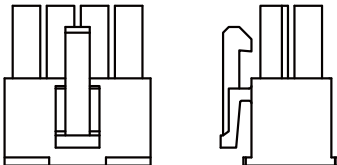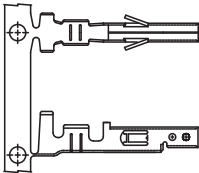
Input Voltage	LED1	Status
Green light Continuously		Normal
Orange light Slowly		Under Voltage Alarm
Orange light Quickly		Over Voltage Alarm
Red light Slowly		Under Voltage Protection Shutdown
Red light Quickly		Over Voltage Protection Shutdown

Output Voltage	LED2	Status
Green light Continuously		Normal
Orange light Slowly		Under Voltage Alarm
Orange light Quickly		Over Voltage Alarm
Red light Continuously		Short Circuit Protection Shutdown
Red light Quickly		Over Voltage Protection Shutdown

Output Current	LED3	Status
Green light Continuously		C.V. & Float
Orange light Continuously		C.V. & Absorption
Orange light Slowly		C.C. & Bulk
Orange light Quickly		C.C. & De-rating
No light		Charging OFF

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BMS	LED4	Status
Green light Continuously	🟩	FUNC14 Setting 1 BMS+ > FUNC17 or BMS- Input to GND
Red light Continuously	🟥	FUNC14 Setting 1 BMS+ < FUNC17-0.3V & BMS- Input floating
No light		FUNC14 Setting 0 (Default)

Ignition	LED5	Status
Green light Continuously	🟩	Ignition Input Action
No light		Ignition Input no signal

Error	LED6	Status
Green light Continuously	🟩	Normal
Orange light Continuously	🟧	Input or Output Abnormal Alarm
Orange light Slowly	🟧 🟧 🟧	Battery Abnormal Temperature Alarm
Orange light Quickly	🟧 🟧 🟧 🟧 🟧	Charger Over Temperature Alarm
Red light Continuously	🟥	Input or Output Abnormal Protection Shutdown
Red light Slowly	🟥 🟥 🟥	Battery Abnormal Temperature Protection Shutdown
Red light Quickly	🟥 🟥 🟥 🟥 🟥	Charger Over Temperature Protection Shutdown

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Accessory:

Description	Diagram
4.2mm Mini-Fit Power Connector	**Type : CR-H423M-2x04**
4.2mm Mini-Fit Female Crimp Terminal	**Type : CR-T423F1**