

### Features:

- Universal AC input with active PFC
- Compatible with Lead Acid, Li-ion, Gel and AGM batteries
- Support optional remote controller (CR-1)
- Voltage / temperature compensation with battery temp. sensor (Optional)
- 2-stage fan speed control
- Dry contact for alarm
- High efficiency and high reliability
- Built-in battery rescue function
- Built-in Engine Start Battery (ESB) output function
- Protection: Short Circuit / Over Voltage / Over Temperature / Brown-out
- Withstand 2G vibration test
- RS-232 communication interface
- Output power OK signal

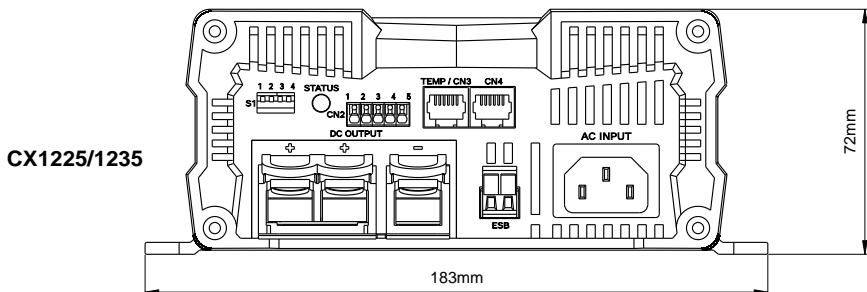
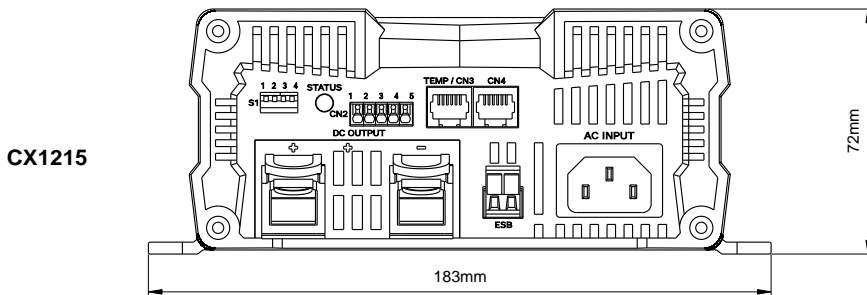
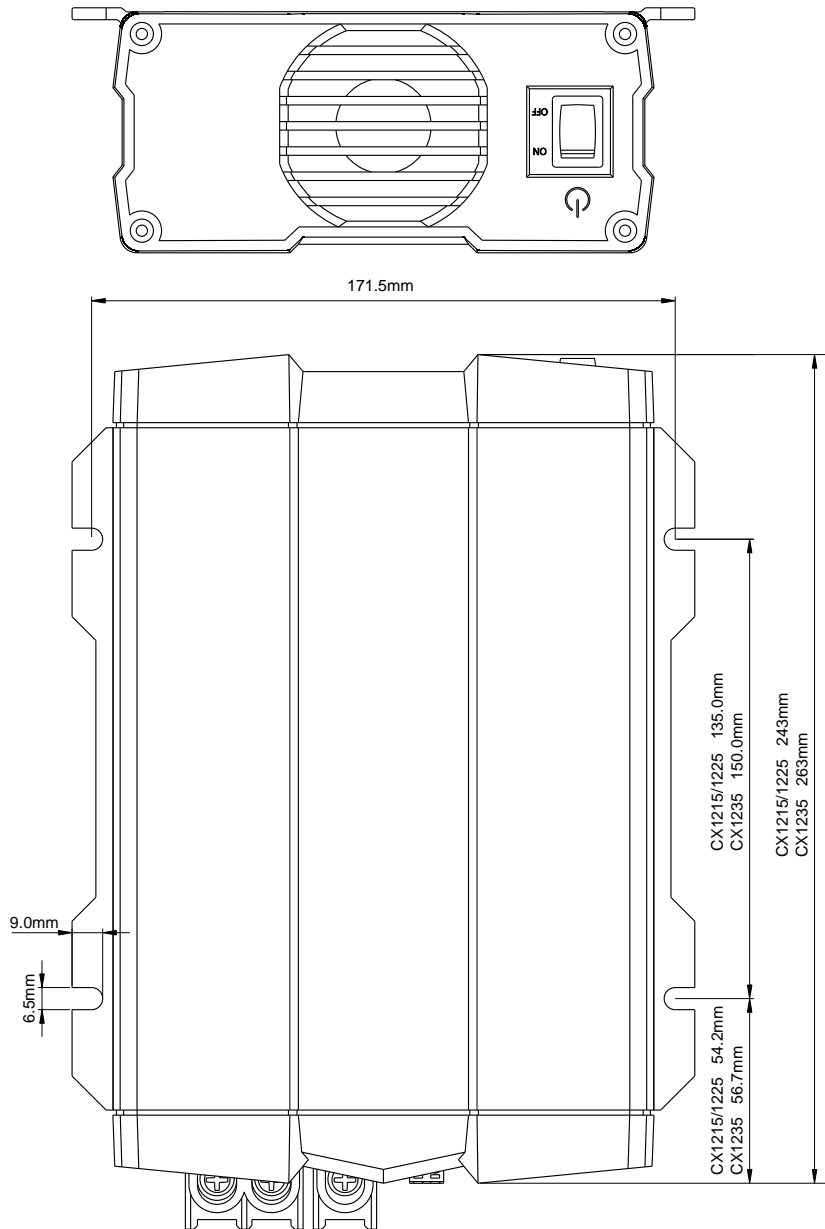


| MODEL                       |   | CX1215   | CX1225                          | CX1235                          | CX1250                           | CX1280                           |
|-----------------------------|---|--|---------------------------------|---------------------------------|----------------------------------|----------------------------------|
| Output                      | Battery Type  | Lead Acid / Li-ion / Gel / AGM   |                                 |                                 |                                  |                                  |
|                             | Standard Boost Charge Voltage   | 14.4V / 14.7V (Select by S1-1)   |                                 |                                 |                                  |                                  |
|                             | Standard Float Charge Voltage   | 13.8V / 13.5V (Select by S1-2)   |                                 |                                 |                                  |                                  |
|                             | Main Rated Current  | 15A  | 25A                             | 35A                             | 50A                              | 80A                              |
|                             | Current Range   | 0 ~ 15A  | 0 ~ 25A                         | 0 ~ 35A                         | 0 ~ 50A                          | 0 ~ 80A                          |
|                             | Main Output   | 1  | 2                               | 2                               | 3                                | 3                                |
|                             | ESB Output  | 1  | 1                               | 1                               | —                                | —                                |
|                             | ESB Output Voltage / Current  | 13.8V / 2A   | 13.8V / 2A                      | 13.8V / 2A                      | —                                | —                                |
|                             | Battery Charging Mode   | 3 - stage charging capability (IUOU)   |                                 |                                 |                                  |                                  |
| Single Output Current Limit | 15A   | 25A  | 35A                             | 40A                             | 40A                              |                                  |
| Input                       | Voltage Range   | 90 ~ 264VAC (refer to de-rating curve)   |                                 |                                 |                                  |                                  |
|                             | Power Factor (Typ.)   | PF > 0.92 at full load   |                                 |                                 |                                  |                                  |
|                             | Frequency Range   | 47 ~ 63Hz  |                                 |                                 |                                  |                                  |
|                             | Efficiency (Typ.) at 230VAC   | 87%  | 87%                             | 87%                             | 87%                              | 87%                              |
|                             | AC Current (Typ.)   | 2.5 A / 100VAC<br>1.07A / 240VAC   | 4.1 A / 100VAC<br>1.8A / 240VAC | 6.2 A / 100VAC<br>2.8A / 240VAC | 8.24 A / 100VAC<br>3.6A / 240VAC | 13.3 A / 100VAC<br>5.4A / 240VAC |
| Leakage Current             | For earth < 1mA / 240VAC  |  |                                 |                                 |                                  |                                  |
| Protection                  | Short Circuit   | Current is reduced to < 1A continued 30sec. , fan will operate 30 seconds then turn off  |                                 |                                 |                                  |                                  |
|                             | Over Voltage  | 17.5V ±1%, Protection type: Shut down output (recovery after resetting AC power on)  |                                 |                                 |                                  |                                  |
|                             | Over Temperature  | Charger Over Temperature 100 ±5°C detected by heat sink<br>Battery Over Temperature 52 ±5°C (Optional device - COTEK temperature sensor), connect on CN3<br>Protection type: Auto recovery after heat sink temperature goes down to 50°C |                                 |                                 |                                  |                                  |
| Function                    | Alarm Signal  | NC. / NO. Relay contact output (Please refer to page 5 Alarms Signal & Fan Control )   |                                 |                                 |                                  |                                  |
|                             | Power Mode  | Supply 13.2V Current limit output voltage  |                                 |                                 |                                  |                                  |
|                             | Temperature Compensation  | -10mV / 0.5°C with COTEK temperature sensor  |                                 |                                 |                                  |                                  |
|                             | Charging Sleep Mode   | By Remote Controller and S1-4 DIP switch (Please refer to page 4-5)  |                                 |                                 |                                  |                                  |
|                             | Remote Controller   | Support COTEK Remote Controller CR-1 setting Function (CN3 or CN4)   |                                 |                                 |                                  |                                  |
| Environment                 | Working Temp.   | -20 ~ 60°C (refer to de-rating curve)  |                                 |                                 |                                  |                                  |
|                             | Working Humidity  | 20 ~ 90% RH non-condensing   |                                 |                                 |                                  |                                  |
|                             | Storage Temp., Humidity   | -40 ~ +85°C, 20 ~ 90% RH   |                                 |                                 |                                  |                                  |
|                             | Temp. Coefficient   | ±0.03% (0 ~ 50°C)  |                                 |                                 |                                  |                                  |
|                             | Vibration   | 10 ~ 500Hz, 2G 10min. / 1cycle period for 60min. each along X, Y, Z axes   |                                 |                                 |                                  |                                  |
| Safety & EMC                | Safety Standards  | UI458 (only for CX1235/1250/1280) , Certified EN 60335-1, EN 60335-2-29  |                                 |                                 |                                  |                                  |
|                             | Withstand Voltage   | I/P-O/P: 4242VDC, I/P-FG: 1768VDC, O/P-FG: 700VDC  |                                 |                                 |                                  |                                  |
|                             | Isolation Resistance  | I/P-O/P: 100M Ohms / 500VDC  |                                 |                                 |                                  |                                  |
|                             | EMC Standards   | Certified EN 61204-3; EN 55014-1<br>Certified EN 61000-3-2, -3-3; EN 61000-6-3<br>Certified IEC 61000-4-2, 3, 4, 5, 6, 8, 11; EN 61000-6-1; EN 55014-2   |                                 |                                 |                                  |                                  |
| Others                      | Dimension (WxHxD)   | 183x72x243mm   | 183x72x243mm                    | 183x72x263mm                    | 213x77x272mm                     | 213x77x312mm                     |
|                             | Packing   | 1.6kg  | 1.7kg                           | 1.9kg                           | 3.1kg                            | 4.0kg                            |
| Note                        | <p>1. All parameters not specially mentioned are measured at 230VAC input, rated load and 25°C of ambient temperature.</p> <p>2. The charger is considered a component which will be installed into a final equipment. The final equipment must be re-confirmed that it still meets EMC directives.</p> <p>3. Before charging, make sure the battery charger and battery specifications are compatible.</p> <p>4. When using sleep mode, please refer to charging current vs. Ambient temperature de-rating curve.</p> <p>5. Optional Remote Controller (CR-1).</p> |  |                                 |                                 |                                  |                                  |

### Mechanical Drawings:

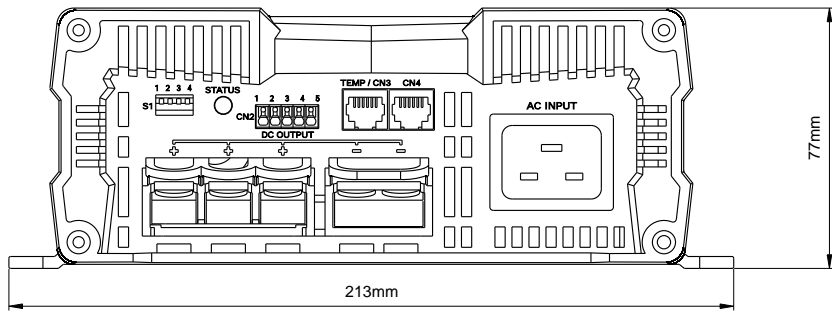
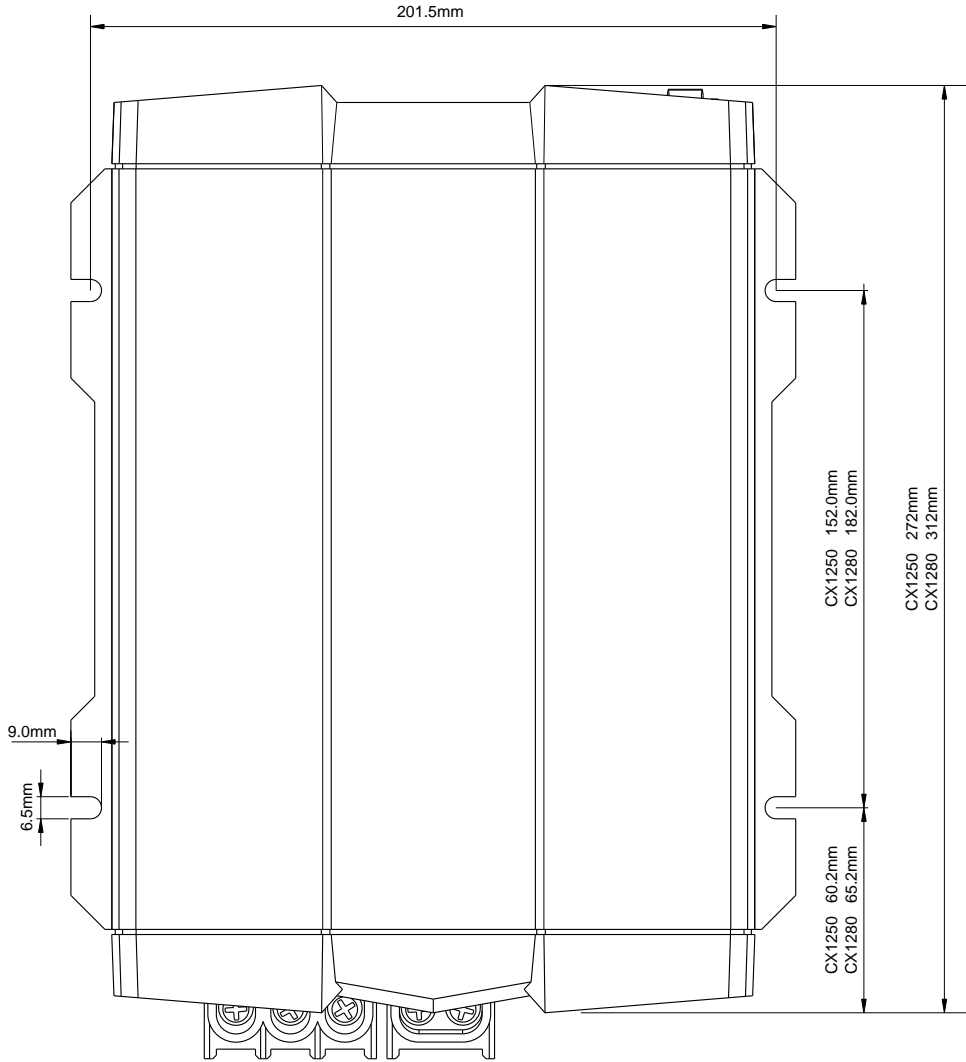
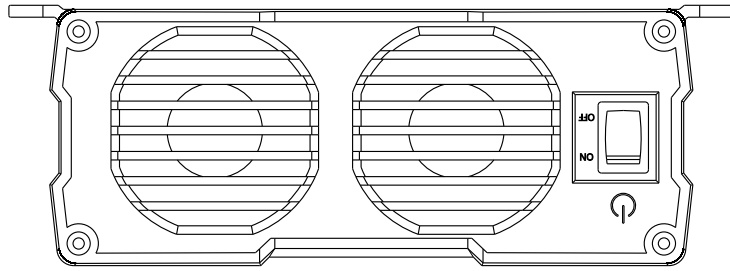
Unit : mm[inch]

MODEL: CX1215/1225/1235



Unit : mm[inch]

MODEL: CX1250/1280



### Charging Mode Setting (S1):

| Status                                       | 1   | 2   | 3   | 4   | 12V 24V CC/CV | 12V / 24V Float |
|--|-----|-----|-----|-----|---------------|-----------------|
| CC turn to CV voltage                        | ON  | X   | OFF | X   | 14.4V / 28.8V | ---             |
|  | OFF | X   | OFF | X   | 14.7V / 29.4V | ---             |
| Float voltage                                | X   | ON  | OFF | X   | ---           | 13.5V / 27.0V   |
|  | X   | OFF | OFF | X   | ---           | 13.8V / 27.6V   |
| Power Mode<br>(Current limit output voltage) | OFF | OFF | ON  | X   | 13.2V / 26.4V |                 |
|  | OFF | ON  | ON  | X   | 13.8V / 27.6V |                 |
|  | ON  | OFF | ON  | X   | 14.4V / 28.8V |                 |
| REMOTE                                       | ON  | ON  | ON  | X   | ---           | ---             |
| Fan force ON / OFF                           | X   | X   | X   | ON  | ---           | ---             |
|  | X   | X   | X   | OFF | ---           | ---             |

X: Not applicable  
 ---: Not applicable

### Charging Status and Indicator:

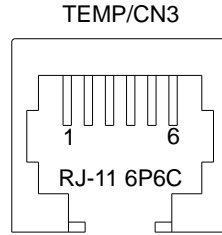
| Charging status | LED Status                             |           | Alternation in the charging Status  | Default setting |                  |
|-----------------|--|-----------|---|-----------------|------------------|
| Bulk-1          | Orange fast                            | .....     | Charging voltage >10.2V and < float voltage                                     |                 |                  |
| Bulk-2          | Orange slow                            | - - - - - | 1.Charging voltage > Float voltage and charging current >= Rating current       | - -             | 6 hours          |
|                 |  |           | 2.Charging voltage = CV voltage and charging current < Rating current           | 2 minutes       |                  |
| Absorption-1    | Orange solid                           | —————     | Charging current > 6% of rated current (±1%)                                    | 6 hours         |                  |
| Absorption-2    | Green solid                            | —————     | Charging current < 6% of rated current (±1%)                                    | 8 hours         |                  |
| Float           | Green flash                            | . . . . . | 1.Charging voltage >12.8V   | 336 hours       | Unlimited circle |
|                 | LED colour change by the status change |           | 2. The voltage goes up to CV voltage to charge the battery once every 336 hours | 85 minutes      |                  |
| Float to Bulk-1 |  | - -       | Charging voltage < 12.8V  | 30 sec.         |                  |

### Failure Indicator:

| Failure status  | LED Status            |             | Description  | Activate                           | Recovery              |
|-----------------|-----------------------|-------------|--|------------------------------------|-----------------------|
| Input or Output | Red solid             | —————       | Voltage is reduced to <1V ,Continued 30 sec., FAN turn on 30 sec then turn off.            | Output <1V                         | AC Reset, Output > 9/ |
|                 |                       |             | AC I/P unstable  | <85V,>270V                         | >90V,<264V            |
|                 |                       |             | Output FUSE blown  | Voltage difference >0.5V,>0.1 sec. | AC Reset              |
| Temperature     | Red fast              | .....       | Battery over heat ( the indicator available when COTEK temperature sensor connected only)  | >52                                | <45                   |
|                 |                       |             | Battery in cold condition(the indicator is available when COTEK temp. sensor is connected) | <-18                               | >-10                  |
|                 |                       |             | Charger over heat (Heat Sink)  | >100                               | <50                   |
| Battery Voltage | Red slow              | - - - - -   | Battery over voltage   | >17.5V                             | AC Reset , <15.7V     |
|                 |                       |             | Battery under voltage or output under voltage in CC mode.                                  | <10.2V                             | >10.5V                |
| Fan Abnormality | Red light flash twice | - . . . . - | Fan abnormality  | - . . . . -                        | - . . . . -           |
| ESB Failure     | Red light slow ones   | . . . . .   | ESB no output / output short   | <1V & 30 sec.                      | AC Reset              |

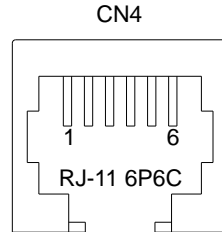
### TEMP/CN3

|   |          |
|---|----------|
| 1 | R_VCC    |
| 2 | GND      |
| 3 | TEMP     |
| 4 | BAT-     |
| 5 | DATA I/O |
| 6 | NC.      |



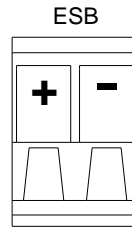
### CN4:

|   |          |
|---|----------|
| 1 | R_VCC    |
| 2 | BAT-     |
| 3 | NC.      |
| 4 | BAT-     |
| 5 | DATA I/O |
| 6 | NC.      |



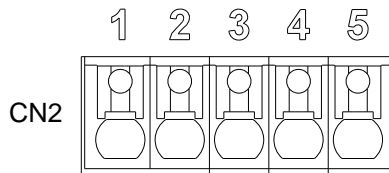
### ESB Connectors:

|   |     |
|---|-----|
| + | VCC |
| - | GND |



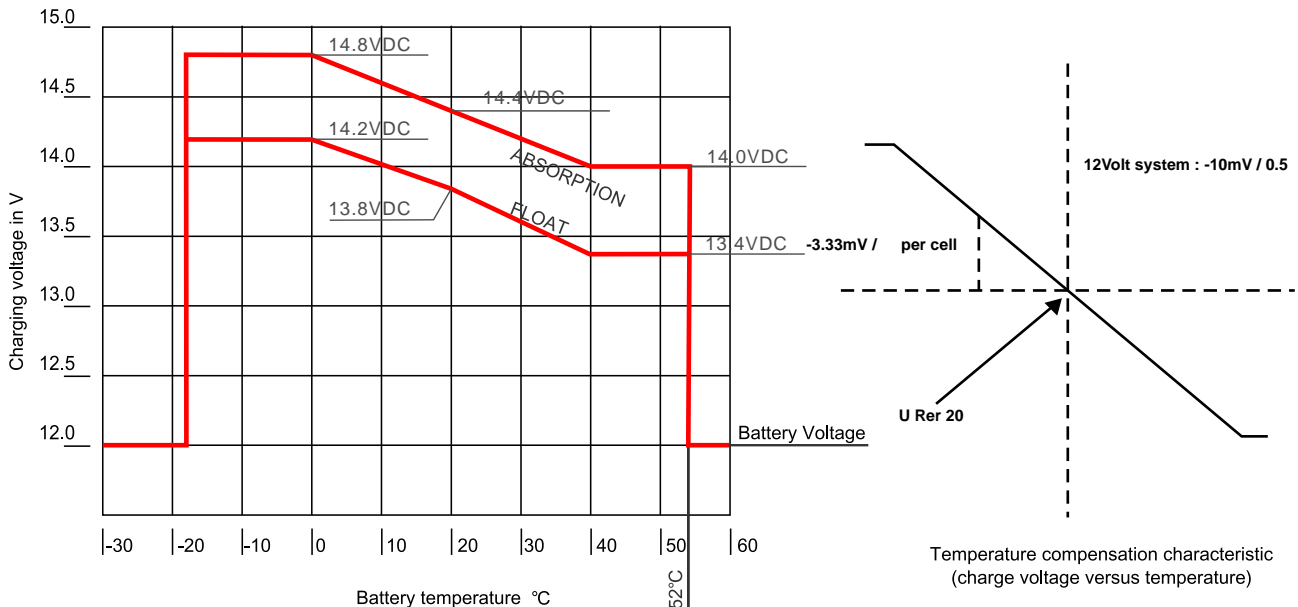
### Alarms Signal and Fan Control Connectors Pin Definition(CN2):

|   |                    |
|---|--------------------|
| 1 | Normally Closed    |
| 2 | Normally Open      |
| 3 | COM                |
| 4 | Sleep Mode Control |
| 5 | GND                |



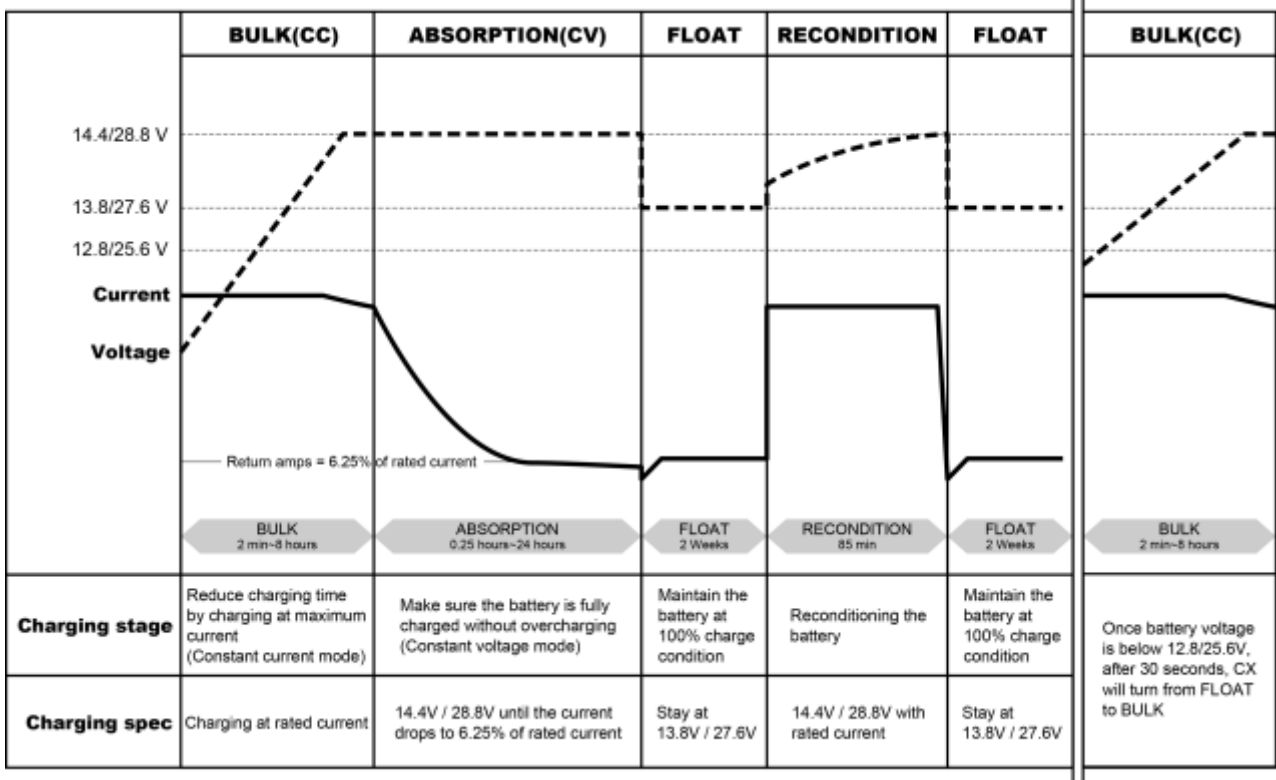
|           |                |
|-----------|----------------|
| 4-5 SHORT | Sleep Mode ON  |
| 4-5 OPEN  | Sleep Mode OFF |

### Charging Curve at Temperature Compensation:

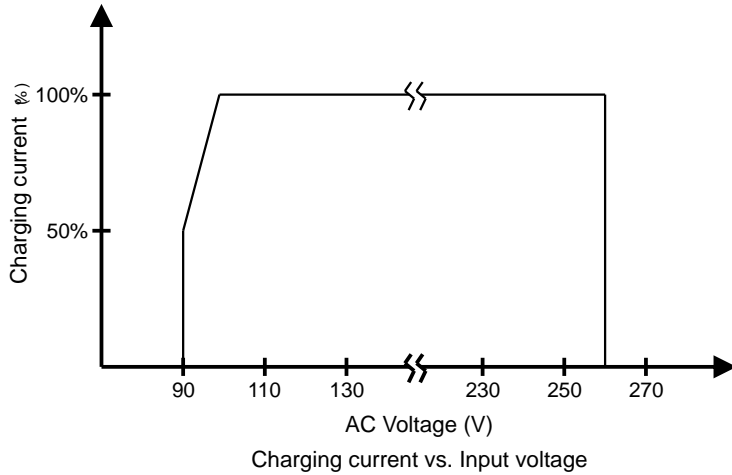


In the CV=14.4V and float =13.8V situation. Please follow this rule in other situation.

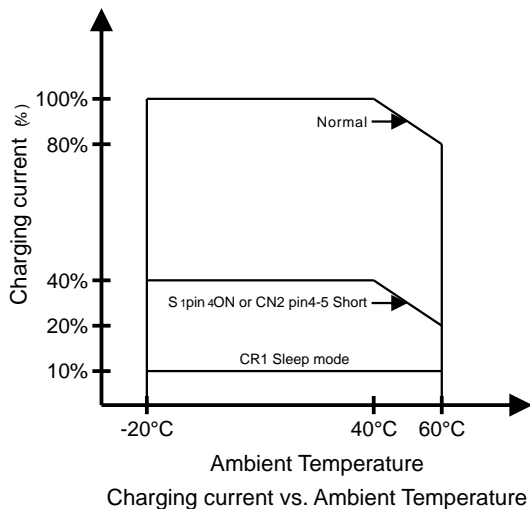
■ **Charging Curve:**



■ **Charging Current vs. Input Voltage Temperature De-rating Curve:**



■ **Charging Current vs. Ambient Temperature De-rating Curve:**



■ **Rescue Battery Curve:**

