

Feature:

- Bi-directional All-in-One Design
- Compact Size
Highly Integration = Installation hassle-free
- Certified by UL
UL458 & Supplement SA / CSA C22.2 No. 107.1-01
UL1741 / CSA C22.2 No. 107.1-01 / KKK-A-1822F (For Ambulance)
- 5-in-1 Operating Modes
1. Inverter mode 2. Charger mode 3. Power Sharing 4. Power Generation
5. Power Support



| | | SC-1200-112 | SC-1200-124 | SC-1200-212 | SC-1200-224 |
|------------------------------------|---|--|---------------------------|--------------------------------------|---------------------------|
| Inverter Mode | | | | | |
| Input | Nominal Voltage | 12 VDC | 24 VDC | 212 VDC | 24 VDC |
| | Input Voltage Range ($\pm 0.5V$) | 10.5 ~ 16.5 VDC | 21.0 ~ 33.0 VDC | 10.5 ~ 16.5 VDC | 21.0 ~ 33.0 VDC |
| | Input Over-Voltage Protection ($\pm 0.5V$) | 16.5 VDC | 33.0 VDC | 16.5 VDC | 33.0 VDC |
| | Input Over-Voltage Warning ($\pm 0.5V$) | 15.5 VDC | 31.0 VDC | 15.5 VDC | 31.0 VDC |
| | Input Under-Voltage Protection ($\pm 0.5V$) | 10.5 VDC | 21.0 VDC | 10.5 VDC | 21.0 VDC |
| | Input Under-Voltage Warning ($\pm 0.5V$) | 11.0 VDC | 22.0 VDC | 11.0 VDC | 22.0 VDC |
| | Input Current (Max) | 132 A | 66 A | 132 A | 66 A |
| | No Load Current | < 3.0 A @12.5V | < 1.5 A @25V | < 3.0 A @12.5V | < 1.5 A @25V |
| | Stand-By Current | < 0.4 A | < 0.2 A | < 0.4 A | < 0.2 A |
| Output | Continuous Output Power | 1200 VA \pm 3% | | | |
| | Surge Power | Load 101%~115% (1 Min) / 2400 VA (2 Sec) | | | |
| | Frequency | 50/60 Hz \pm 0.3 Hz (User-selectable) | | | |
| | Output Voltage | 100 / 110 / 115 / 120VAC \pm 3% | | 200 / 220 / 230 / 240VAC \pm 3% | |
| | Max. Efficiency (Full Load) | 89% | 90% | 89% | 90% |
| | Output Waveform | Pure Sine Wave (THD < 5% @ 12.5V/25V/115VAC, linear load) / (THD < 3% @ 12.5V/25V/230VAC, linear load) | | | |
| | INV. AC Output* | 12A MAX | | 6A MAX | |
| | AC Output* | 30A MAX | | 22A MAX | |
| Protection | Input Protection | Over / Under Voltage, Reverse Polarity (Internal Fuse) | | | |
| | AC Output Protection | Short-Circuit, Overload | | | |
| | AC Input Protection | 30 Amp Circuit Breaker | | 16 Amp Circuit Breaker | |
| | Temperature protection | Shutdown | | | |
| | Battery Temperature protection | By a RJ-11 connector to battery Temperature sensor | | | |
| Charger Mode | | | | | |
| AC input | Nominal Voltage / Frequency | 110 VAC, 50 / 60Hz (User-selectable) | | 230 VAC, 50 / 60Hz (User-selectable) | |
| | Input Voltage Range | 90 ~ 132 VAC | | 180 ~ 264 VAC | |
| | Input Frequency Range | 50Hz:47 ~ 53 Hz / 60Hz:57 ~ 63 Hz | | | |
| | Nominal Current | 8.2A (@110VAC) | | 3.9A (@230VAC) | |
| | Efficiency (Max.) | >88% | | | |
| | AC Input* | 30 A MAX | | 16 A MAX | |
| | Power Factor Correction (PFC) | >0.95 (Max.) | | | |
| Auxiliary DC Output | Output Voltage | Battery Voltage | | | |
| | Output Current | 20A Max | | | |
| DC Output | Charging Current Range | 12.5 / 25 / 37.5 / 50A | 6.25 / 12.5 / 18.75 / 25A | 12.5 / 25 / 37.5 / 50A | 6.25 / 12.5 / 18.75 / 25A |
| | Max. Output Voltage | 14.4 VDC @ GEL TYPE | | 28.8 VDC @ GEL TYPE | |
| | Battery Temperature Compensation | -25 mV per $^{\circ}C$ | -50 mV per $^{\circ}C$ | -25 mV per $^{\circ}C$ | -50 mV per $^{\circ}C$ |
| | Battery Control (3-stage Battery Chargers) | Bulk / Absorption / Float | | | |
| Signal and Control | Remote Control Panel (Optional) | CR-20C / CR-16B / CR-8 | | | |
| | Remote Control Terminal | Controls the inverter ON / OFF operation | | | |
| | Dry Contact Terminal | By a relay | | | |
| | Relay Specification | 30 Amp / 120 VAC @ 110V system | | 16 Amp / 250 VAC @ 230V system | |
| Environment | | | | | |
| Operating Temperature Range | Full Load | -20 $^{\circ}C$ ~ 50 $^{\circ}C$ * | | | |
| | Power de-rating | 40 W / $^{\circ}C$, 51~60 $^{\circ}C$ | | | |
| | Storage | -30 $^{\circ}C$ ~70 $^{\circ}C$ | | | |
| Operating Humidity Range | Max 93%, Non-condensing | | | | |
| Cooling | Temperature & Load Controlled Cooling Fan | | | | |

| | SC-1200-112 | SC-1200-124 | SC-1200-212 | SC-1200-224 |
|------------------------------|--------------------------------|-------------|--|-------------|
| Safety and EMS | | | | |
| Safety Standards | UL458 & Supplement SA / UL1741 | | EN 62368-1 | |
| E-mark | --- | | Certified CISPR 25; ISO7637-2 | |
| EMC Standards | Certified FCC Class A* | | EN55032 Class A*, EN55024 Class A* | |
| | | | EN61000-3-2, 3-3, EN61000-4-2, 3, 4, 5, 6, 8, 11 | |
| Other | | | | |
| Dimension (W x H x D) | 251 x 116 x 386mm | | | |
| Net Weight | 4.55Kg | | | |

*Max Inverter output define inverter 100% load output at Vac =100V / 200V

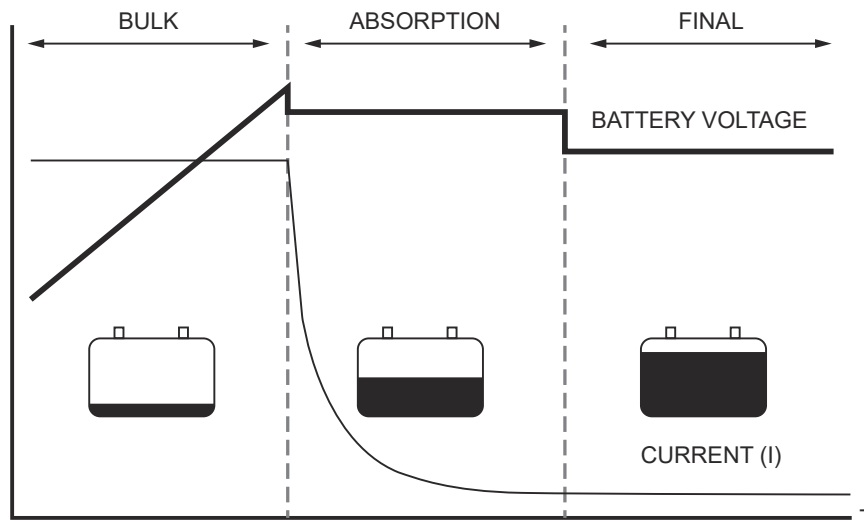
*Max AC output define AC input current + Inverter output current, cannot over AC input limit.

*Max AC input current Limit by the Breaker

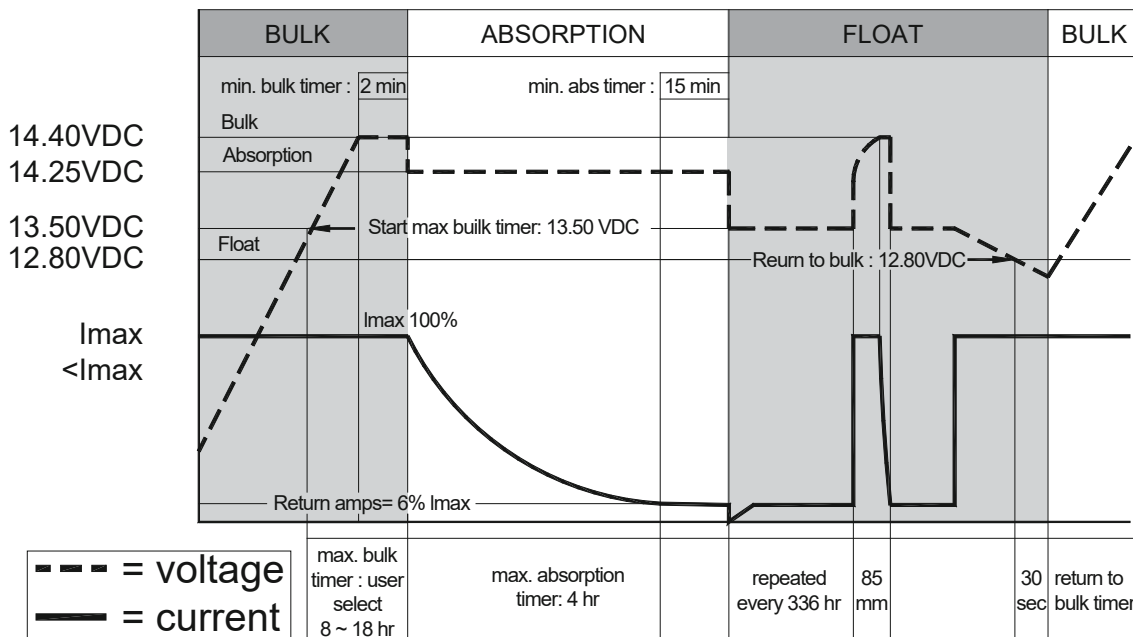
*For SC-1200 -112 and -124, the operating temperature range certified by UL Safety Standard is -20°C ~ 40°C.

*SC series is a class A product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

■ The Battery Charger

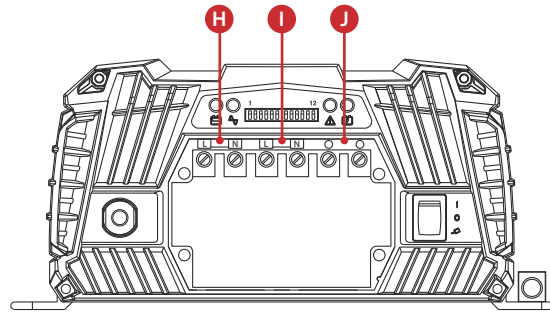
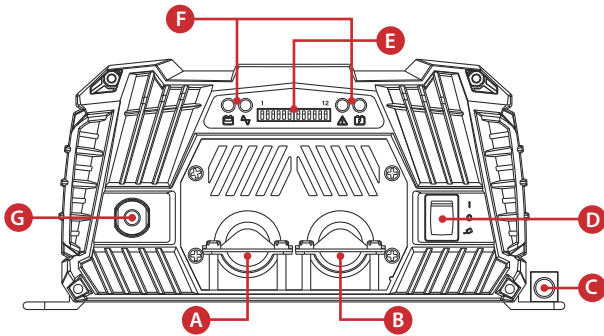


Three step charge system



Charge characteristic of three-step plus charging method

■ Front panel



- (A) AC Output
- (B) AC Input
- (C) Chassis ground
- (D) Main switch
- (E) DIP switch
- (F) Function LED
- (G) AC input breaker
- (H) AC Output terminal (L/N)
- (I) AC Input terminal (L/N)
- (J) AC In/Output ground terminal

■ Function LED

BAT : Display input voltage

| LED Status | DC12V | DC24V |
|------------|--------------|--------------|
| Red | < 11.0V | < 22.0V |
| Orange | 11.0 ~ 11.5V | 22.0 ~ 23.0V |
| Green | 11.5 ~ 15.0V | 23.0 ~ 30.0V |
| Orange | 15.0 ~ 15.5V | 30.0 ~ 31.0V |
| Red | >15.5V | >31.0V |

Load: Display AC loads (PF=1)

| LED Status | SC-1200 / SC-2000 |
|------------|-------------------|
| Red | > 115% |
| Orange | 100 ~ 115% |
| Green | 0 ~ 100 % |
| Dark | Charger Mode |

Charger : Display Charger Stage

| LED Status | SC-1200 / SC-2000 |
|------------------|-------------------|
| Orange Blink | Bulk |
| Orange | Absorption |
| Green | Float |
| Red | Charger Error |
| Green Fast Blink | Active |
| Green Slow Blink | Equalization |
| Dark | Inverter Mode |

Charger : Display Charger Stage

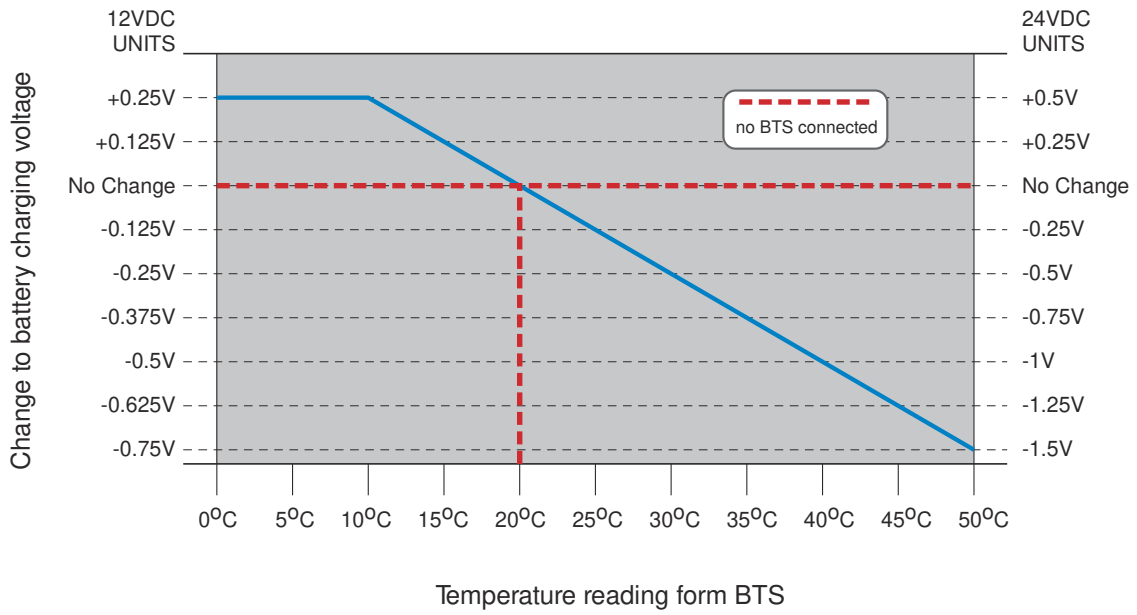
| LED Status | Status |
|-------------------|--------------------|
| Green | Normal |
| Green Slow Blink | OTP |
| Green Fast Blink | UTP |
| Orange | PLL/Frequency Fail |
| Orange Slow Blink | AC in UVP/OVP |
| Orange Fast Blink | AC IN OCP |
| Red | OLP / SCP |
| Red Slow Blink | Battery UVP |
| Red Fast Blink | Battery OVP |

*GEL Battery TYPE No Equalization function

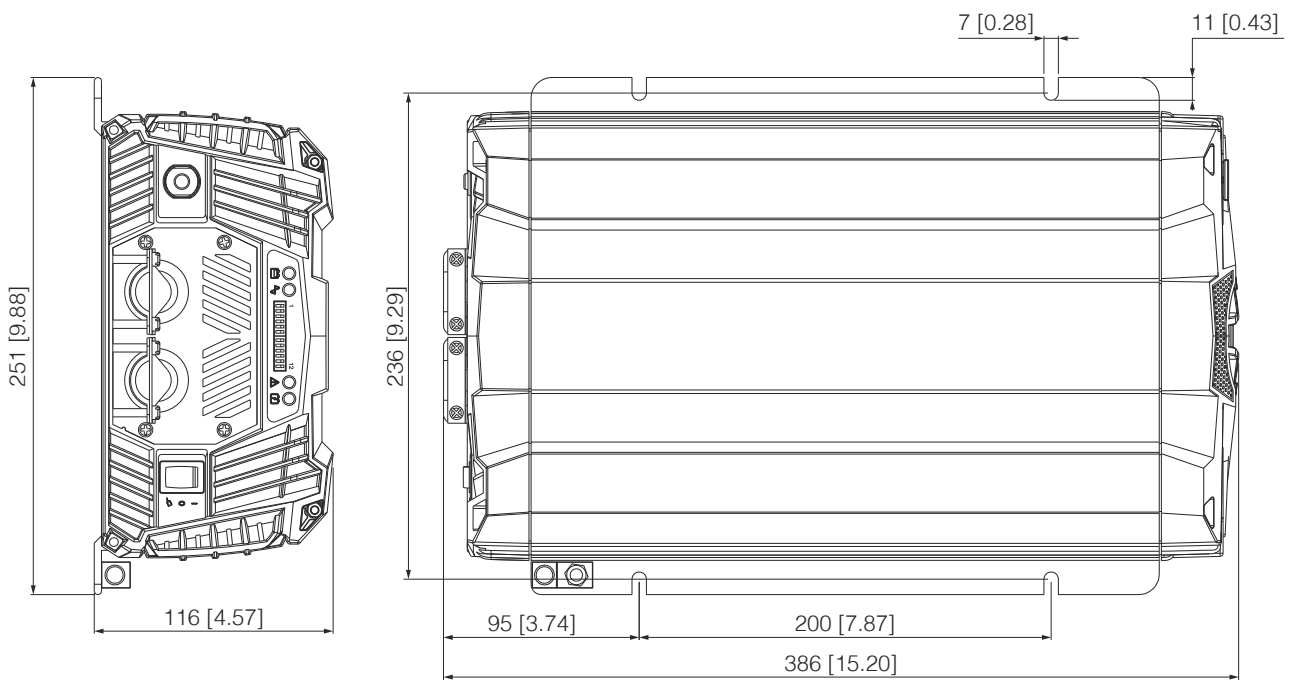
**"Equalization function" can only open with communication

■ The Battery Charger

Temperature Compensation using BTS



■ Mechanical Drawings



■ Dip switch Function

| Dip Switch | Function |
|------------|-------------------------------|
| S1 | Output Voltage Select |
| S2 | |
| S3 | Frequency Select |
| S4 | AC Input Current Limit Select |
| S5 | |
| S6 | |
| S7 | Battery Type Select |
| S8 | |
| S9 | Charger Current Select |
| S10 | |
| S11 | DC Source on/off |
| S12 | Saving Function on/off |

Output Voltage switch Function (S1,S2)

| Output Voltage | S1 | S2 |
|----------------|-----|-----|
| 100V / 200V | OFF | OFF |
| 110V / 220V | ON | OFF |
| 115V / 230V | OFF | ON |
| 120V / 240V | ON | ON |

Output Frequency switch Function (S3)

| Frequency | S3 |
|-----------|-----|
| 50HZ | OFF |
| 60HZ | ON |

AC Input Current Limit Select (S4,S5,S6)

| AC Input Current 100~120V / 200~240V | S4 | S5 | S6 |
|---|-----|-----|-----|
| 3A / 2A | OFF | OFF | OFF |
| 6A / 4A | ON | OFF | OFF |
| 9A / 6A | OFF | ON | OFF |
| 12A / 8A | ON | ON | OFF |
| 15A / 10A | OFF | OFF | ON |
| 20A / 12A | ON | OFF | ON |
| 25A / 14A | OFF | ON | ON |
| 30A / 16A | ON | ON | ON |

Battery Type Select Function (S7,S8) :

| Battery Type | S7 | S8 |
|--------------|-----|-----|
| GEL | OFF | OFF |
| Flooded | ON | OFF |
| AGM | OFF | ON |
| Customer | ON | ON |

| Battery Type | Bulk | Absorption | Float |
|--------------|--------|------------|--------|
| GEL | 14.40V | 14.10V | 13.60V |
| Flooded | 14.70V | 14.60V | 13.40V |
| AGM | 14.70V | 14.30V | 13.10V |
| Customer | 14.70V | 14.50V | 13.50V |

Charger Current Select Function (S9,S10)

| Charger Current | S9 | S10 |
|-----------------|-----|-----|
| 25% | OFF | OFF |
| 50% | ON | OFF |
| 75% | OFF | ON |
| 100% | ON | ON |

DC Source Output On/Off Function (S11)

| ESB function | S11 |
|--------------|-----|
| OFF | OFF |
| ON | ON |

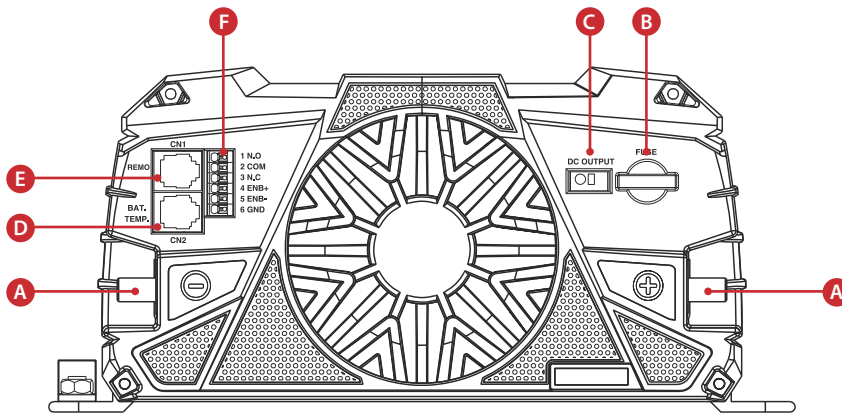
Saving Function Switch ON/OFF Function (S12)

| Saving function | S12 |
|-----------------|-----|
| OFF | OFF |
| ON | ON |

Power Saving Load Function

| | Saving Wake up Power | Input Saving Mode Power |
|---------|----------------------|-------------------------|
| SC-1200 | > 40 VA | > 20 VA |
| SC-2000 | > 40 VA | > 20 VA |

■ Rear panel



- (A) DC input connector
- (B) Auxiliary DC output Fuse
- (C) Auxiliary DC output
- (D) BAT. TEMP. Port (RJ11)
- (E) Remote port (RJ11)
- (F) Remote control terminal

■ BAT. TEMP. Port (RJ-11)



| Pin Number | Signal Description |
|------------|------------------------------|
| 1 | Not used |
| 2 | GND |
| 3 | Batteries temperature sensor |
| 4 | Battery Detect |
| 5 | Not used |
| 6 | Not used |

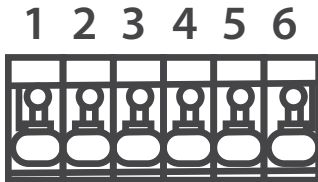
■ Remote Port (RJ-11)

| Pin Number | Signal Description | |
|------------|--------------------|--|
| 1 | Reserved | -- |
| 2 | GND | The same polarity as the battery negative side |
| 3 | RXD | RS232 RXD |
| 4 | TXD | RS232 TXD |
| 5 | RMT | Remote controller panel (positive) |
| 6 | VCC | Internal power for remote controller |

Remote Control & Green Terminal

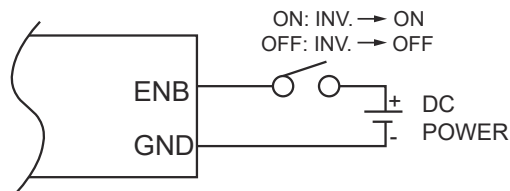
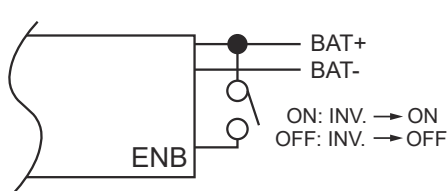
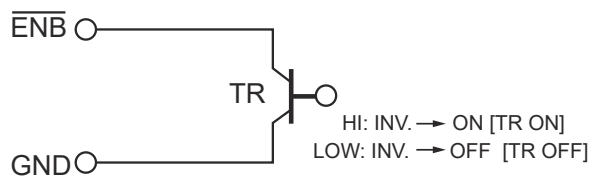
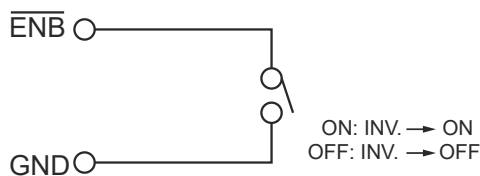
Remote control green terminal may be connected to a Form C relay for "FAULT" indication. When "FAULT" occurs, the relay switches.

Remote control terminal



| Item | Description | Item | Description |
|------|-----------------------------|------|---------------|
| 1 | Dry contact (Normal Open) | 4 | Enable+ (ENB) |
| 2 | Common | 5 | Enable- (ENB) |
| 3 | Dry contact (Normal Closed) | 6 | Ground |

Dry contact terminal definition



Specifications of the Relay

| Maximum Voltage | Load | Contact Rating | | Number of operations | Operating/Storage Temperature |
|-----------------|-----------|----------------|-----|----------------------|-------------------------------|
| | | N.O | N.C | | |
| 250 VAC | Resistive | 1 A | --- | 100,000 | -30°C~75°C |
| 250 VAC | Resistive | --- | 1 A | --- | |
| 24 VDC | Resistive | 1 A | --- | --- | |
| 24 VDC | Resistive | --- | 1 A | --- | |