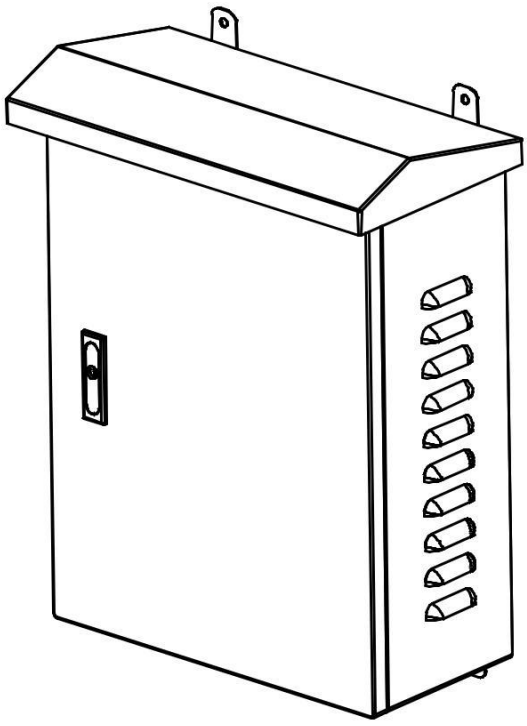
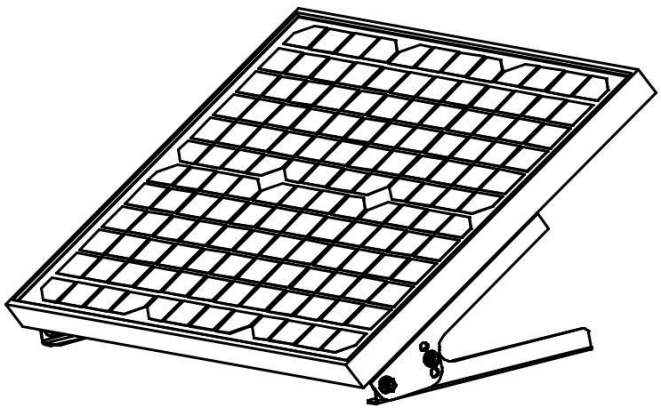
Solar Power Control box

Installation Manual

GRITAL GROUP
AUTOMATIC SYSTEMS





Contents

1. General Overview

This product is a stand-alone solar system. Transferring sun light through the solar panel, the solar system can charge the battery and provide power to the 12V / 24V gate opener motor. The solar panel can be operated independently and without extra power support. It is suitable for the application in the suburbs where the power facilities are difficult to build, or the supporters of environment protection and green energy.

2. Safety Instructions

This Manual should be read and completely understood by a professional installer before the installation.
Grital has no responsibility regarding the product failure cause by an incorrect installation.

Installation Attention：

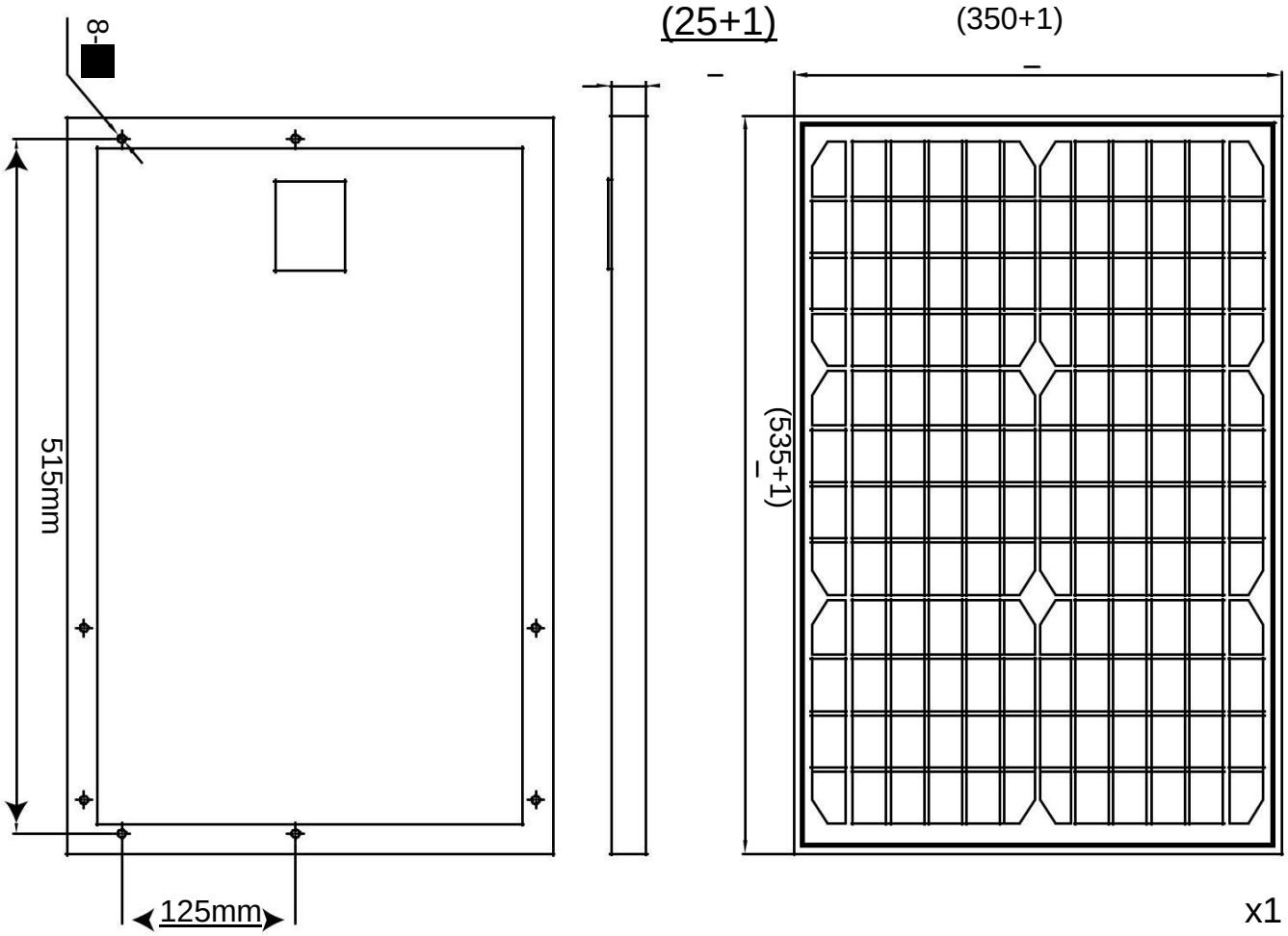
- Be aware any potential risk during the installation process. And please follow the local rules and regulations.
- Do not alter the mechanism of this solar system and accessories. Inadequate tools may cause an electric shock, fire or other damages.
- Do not process the installation and operation if the manual did not be read and understood completely.
- To avoid electricity shock, please switch off the power and battery before the installation or clearance.
- Do not use the damaged or off-gauge wire.
- Ensure the specifications and voltage are match to the solar panel and battery.
- Avoid the water inflow to the solar system and ensure no short circuit happened.

Operation and Maintenance

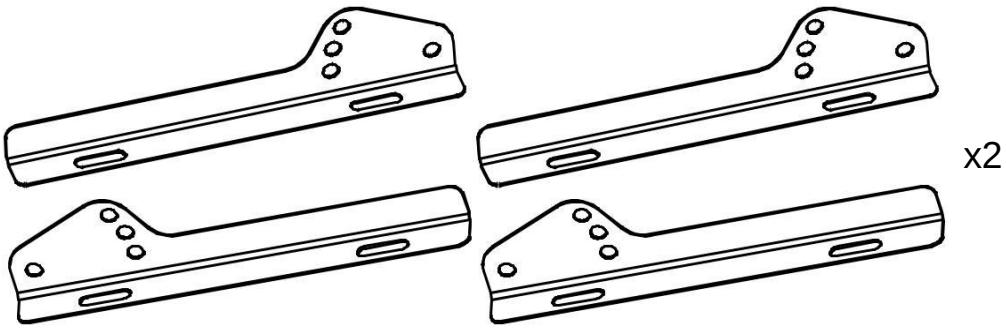
- Do not allow the kids operating the Power System and play around.
- Please contact the installer if the failure couldn't be solving.
- As occasion requires, please hang on warning signs for reminding other people.
- Do not disassemble the Power System personally. Otherwise, it may cause an electric shock or fire.
- High temperature environment may cause hot surface. Please avoid touching directly
- Please stop the operation and contact the installer imminently if the Power System dropped, impacted or damaged.

3. Product Contents

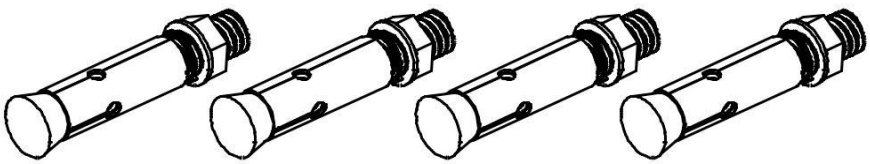
3.1 Solar Panel and Accessories



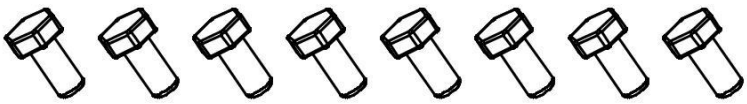
x1



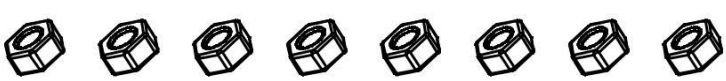
x2



x4 (M6)

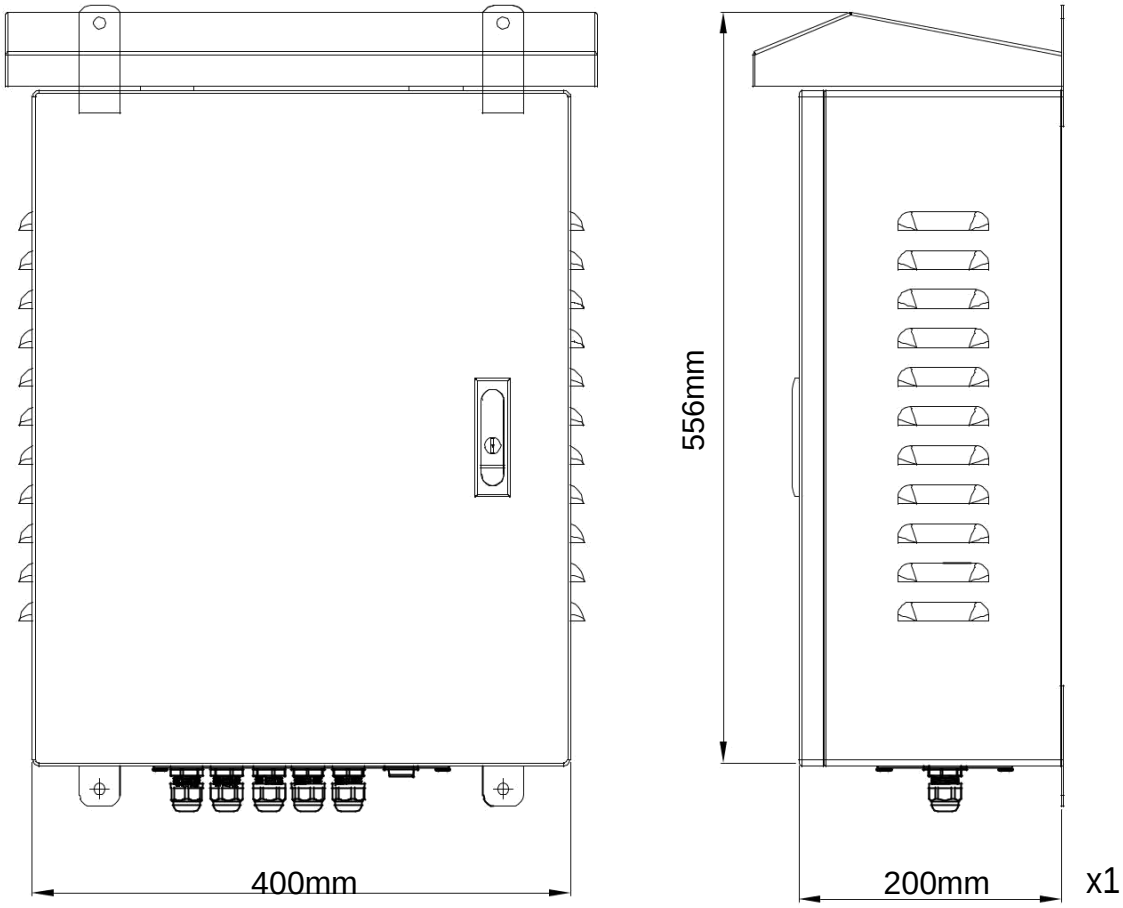


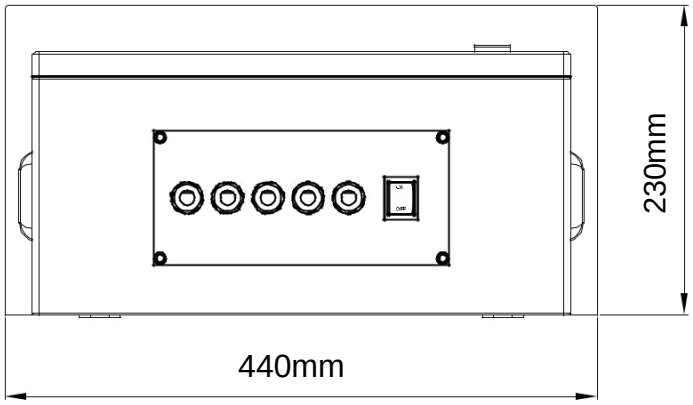
x8

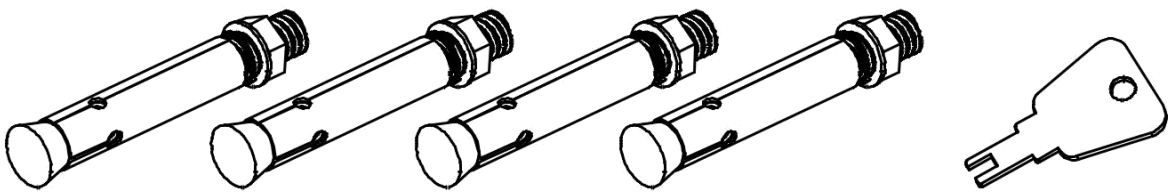


x8

3.2 Control Box and Accessories







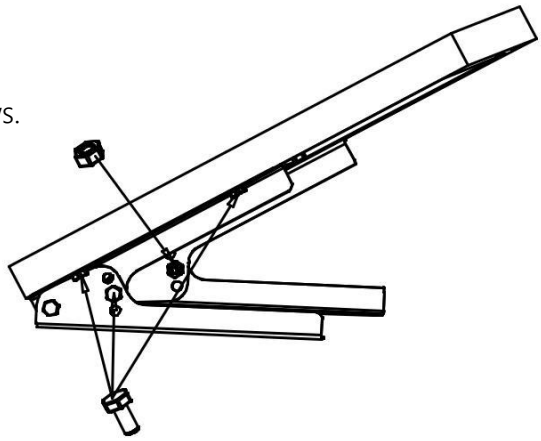
x4 (M8) x1

4. Installation

4.1 Solar Panel

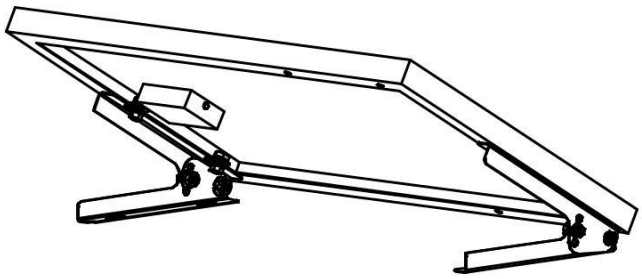
1. Make a hole on the wall or ground.
2. Fasten the bracket on the wall or ground with M6 screws.
3. Fasten the solar panel on the bracket.

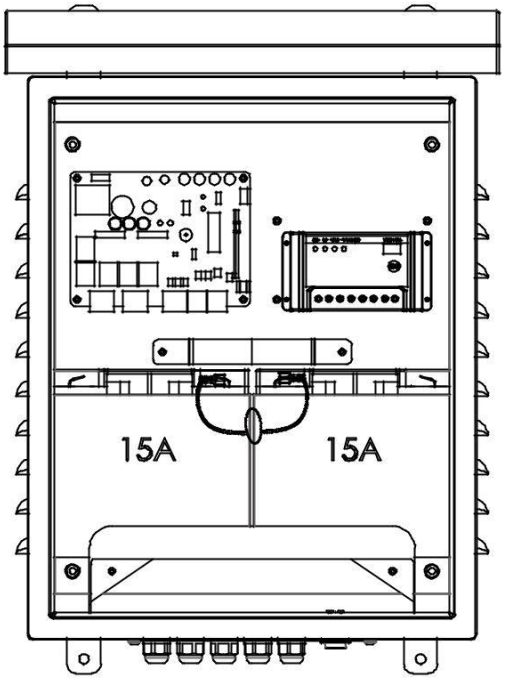
*** Connect two solar panels in series makes the Charging time shorter**

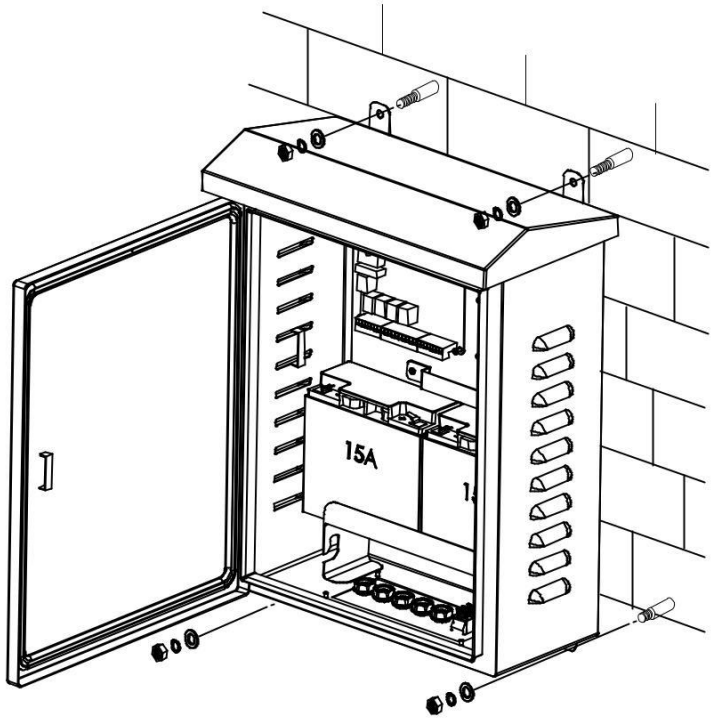


4.2 Control Box

1. Make a hole on the wall or ground.
2. Fasten the electrical enclosure on the wall with M8 screws.
3. Please see the internal configuration diagram below.



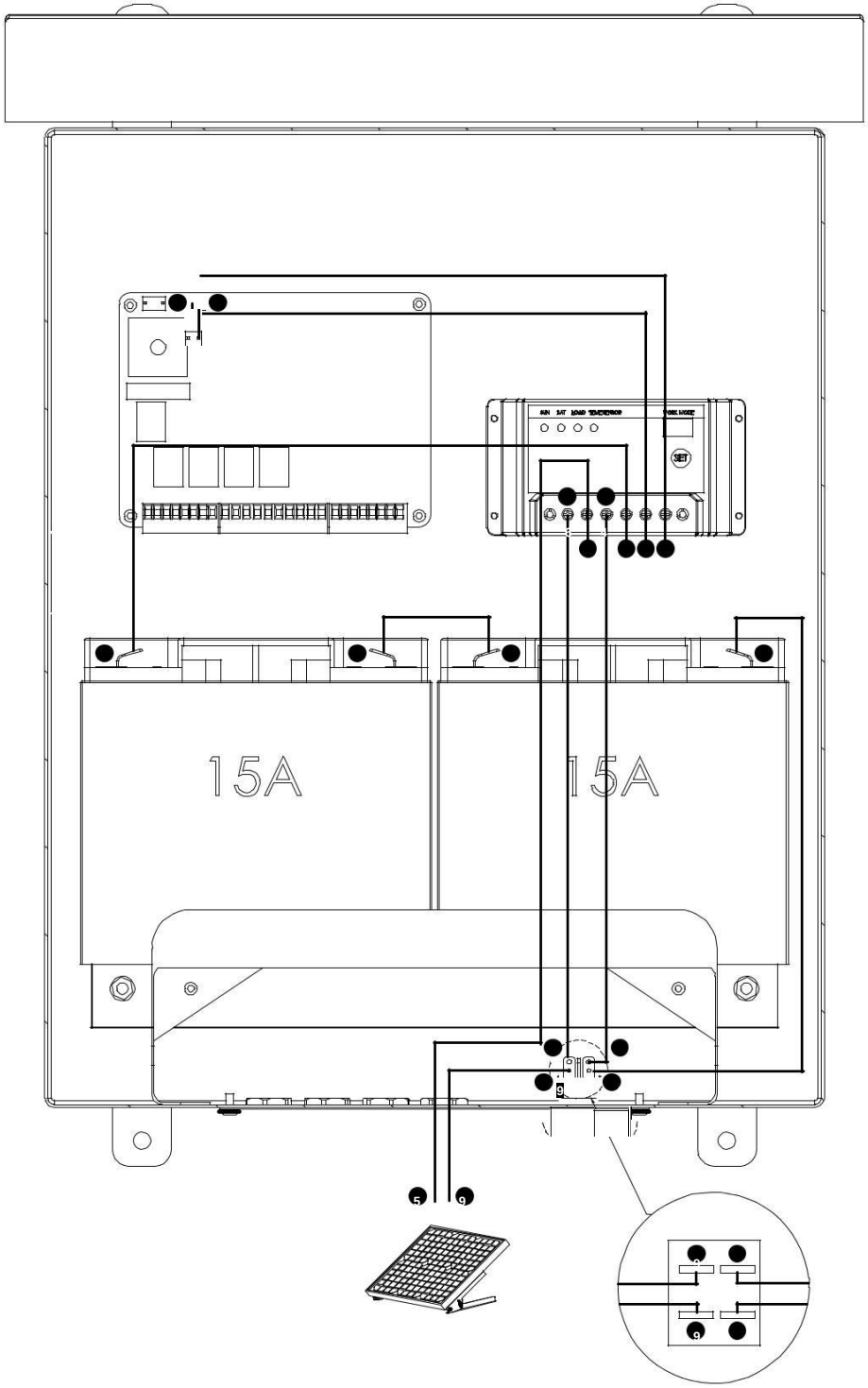




5. Wire connection

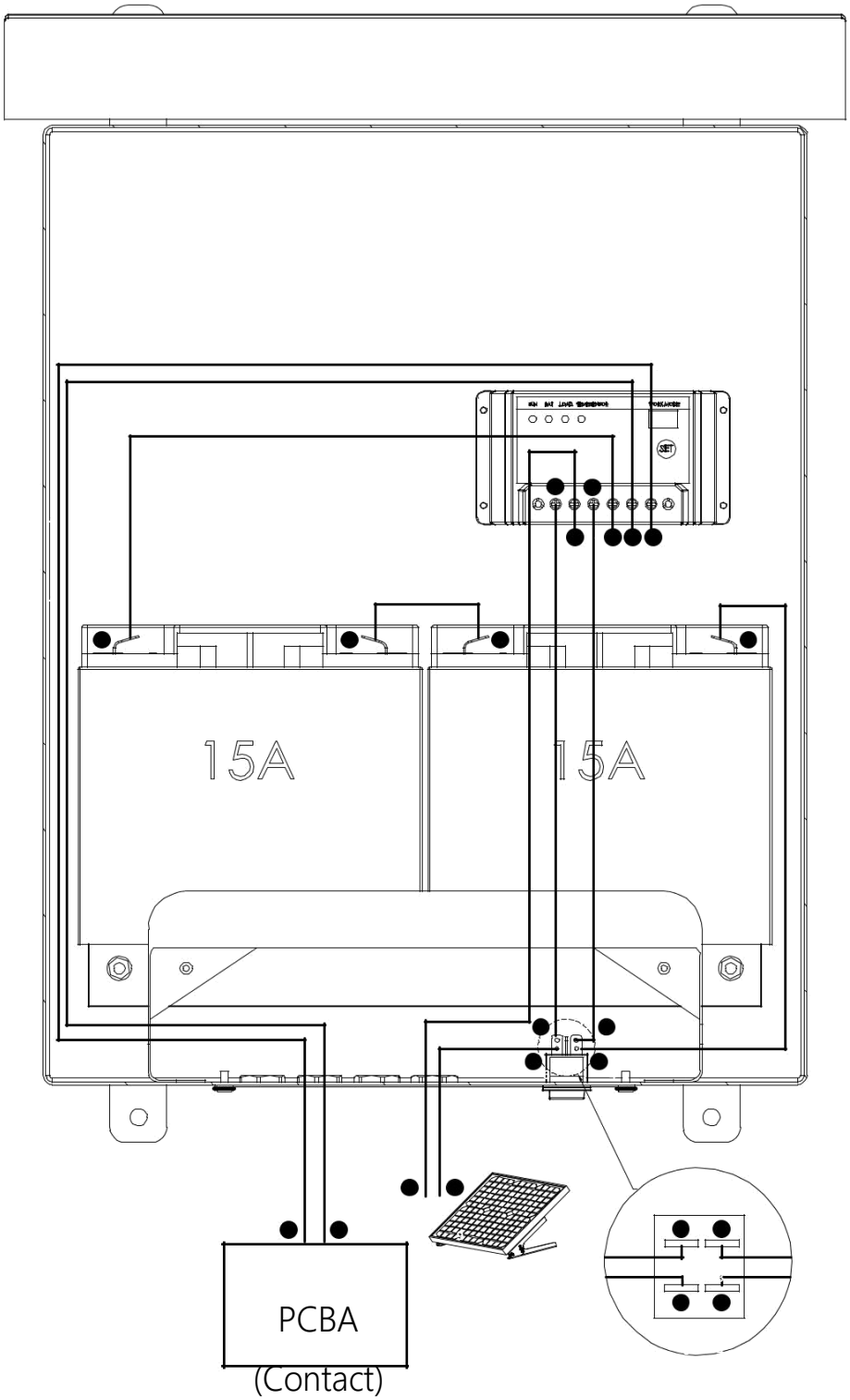
5.1 Swing Gate Opener

- Switch off power before the connection.
- And switch on power after the connection.



5.2 Sliding Gate Opener

- Switch off power before the connection.
- And switch on power after the connection.
- Connect the Wire 1&2 to Contact of PCBA.



6. LED Display of Power Controller

- Charging

When the system is connected properly and the solar panel power supply is charging, LED (1) will shows green light constantly.

- Battery：

When battery voltage is under the normal condition, LED (2) shows green light constantly.

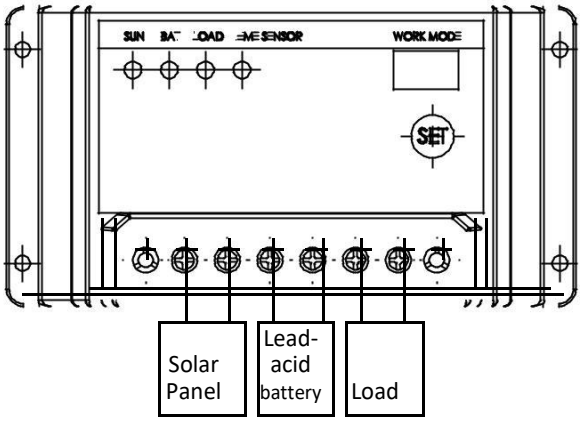
- ✧ LED (2) flashing with GREEN light → Battery is full capacity.
- ✧ LED (2) shows YELLOW light → Battery is under voltage.
- ✧ LED (2) shows RED light → Battery has no output.

- Working mode setting：

Press SET with 5 seconds until figures showed on the screen. Figures can be changed by each press. Each figure has different working modes. Please make sure the system is set on "16".

- Indications of LED

LED	Method
Solar panel connected correctly, but LED(1) OFF.	Please check the solar panel connection is connected
LED(1) Flashing	Please check the battery connection is correctly
LED(3) ON, but no output	Please inspect whether the load connection is correct
LED(3) flashing rapidly, no output	**Output short circuit** Checking the connection and press the SET button and the controller will reboot within 30 seconds.
LED(3) flashing slowly, no output	Please reduce the loading of the output and press the SET button. The controller will reboot within 30 seconds.
LED(2) RED light ON, no output	Waiting for charges



LED (1)：State of Solar Panel

LED (2)：State of Battery

LED (3)：State of Power Output

7. Specifications

7.1 Solar Panel

Pmax	25Wp
Tolerance	+/- 3%
Vmp	36V
Imp	0.69A
Voc	43.2V
Isc	0.75A
Max system V	1000VDC
Module application	Class A
Test condition	1000W/m2, AM1.5, 25oC

7.2 Solar Power Controller

Rated charge current	20A
Rated load current	20A
System voltage	12V/24V AUTO1
Overload, Short circuit protection	1.25 times of rated current for 60 seconds ; 1.5 times of rated current for 5 seconds overload protection. ≥ 3 times of rated current for short circuit protection.
No load losses	<6 mA
Charging circuit reduction	<0.26V
Discharge circuit reduction	<0.15V
Overvoltage protection	17V/34V
Working temperature	Industrial grade: -35℃ to +55℃
Raising charging voltage	14.6V/29.2V (keep 30min) (only for over discharge)
Direct charging voltage	14.4V/28.8V (keep 30min)
Float charging voltage	13.6V/27.2 (until Charging return voltage)
Charging return voltage	13.2V/26.4
Temperature compensation	-5mV/OC/2V (Raising, direct, float, and charging return voltage)
Under voltage	12.0V/24.0V
Over discharge voltage	11.1V/22.2V
Discharging return voltage	12.6V/25.2V
Control method	Adopted the Pulse Width Modulation(PWM)

* Please confirm the correct voltage are set for whole system (solar panel, battery and loading).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