

Wire Box

Installation User Manual

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1 Information on this Manual

1.1 Validity

This manual contains installation, commissioning information of the Wire Box. With this manual, users are able to install and operate the Wire Box easily. This manual does not cover any details concerning equipment connected to the Wire Box.

1.2 Target Group





This manual is for qualified persons who will operate, maintenance, service and repaired inverters.

1.3 Storage of the manual

Store this manual where it will be accessible at all times. We assume no liability for any damage caused by failure to observe these instructions. For possible changes in this manual, SHENZHEN GROWATT NEW ENERGY TECHNOLOGY CO.,LTD accepts no responsibilities to inform the users.

2 Symbols Used

The following types of safety instructions and general information appear in this document as described below:

Symbol	description
	Read the manual
	DANGER indicates a hazardous situation which, if not avoided, will result in death or serious injury.
	CAUTION indicates a hazardous situation which, if not avoided, could result in minor or moderate injury.
	NOTICE indicates a situation which, if not avoided, could result in property damage.

3 IMPORTANT SAFETY INFORMATION



The Wire Box must be installed in compliance with national and local laws. We strongly recommend read all instructions in this manual and notice, the symbols of the single paragraphs before installing or using the product.



For all types of maintenance or repair (not covered in this manual), please contact the manufacturer. Prohibited changes may damage the device and things in general, causing the loss of product warranty.



Electrical connections must always be made correctly and with the correct polarity in order to avoid possible damage to the device, PV inverter or the photovoltaic panels.

4 Glossary

AC

Abbreviation for "Alternating Current"

PV

Abbreviation for photovoltaic

5 Product Description

5.1 OVERVIEW

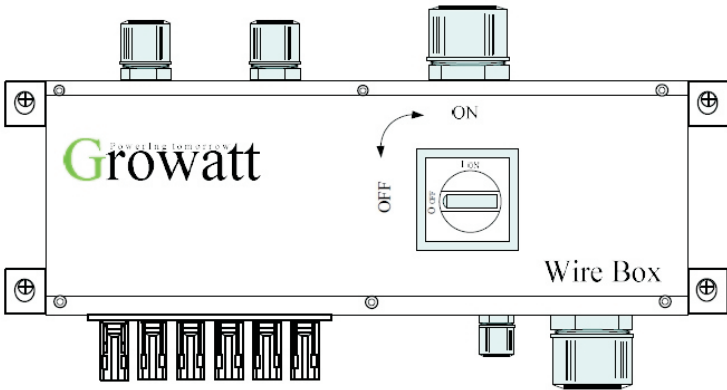
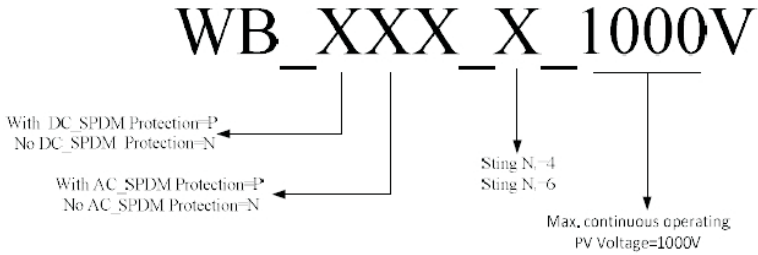


Figure 1: Wire Box

5.2 MODEL DEFINITION



5.3 GENERAL PARAMETER

Table_1: Wire Box General Specifications

Abbreviation for "Alternating Current"

Model	WB_PPX_6_1000V
Max.String number (input)	6
Max. continuous operating input Current*	12 A for each string
PV Sting protection fuses	12A/1000Vdc
Polarity	3P+N+PE
Nominal AC Voltage	230Vac/400V
Degree of protection	IP65
Weight	6.3Kg
Dimension (H x W x D)	552x258x165mm/21.7x10.2x6.5inch

CE Marking

The equipment described in this manual adheres to the following directives:
LV Directive 2006/95/EC.

NOTICE

Please size the fuses according to the type of photovoltaic modules that it uses for your plant. Max rating value 20 A.

5.4 DESCRIPTION AND COMPOSITION OF THE WIRE BOX

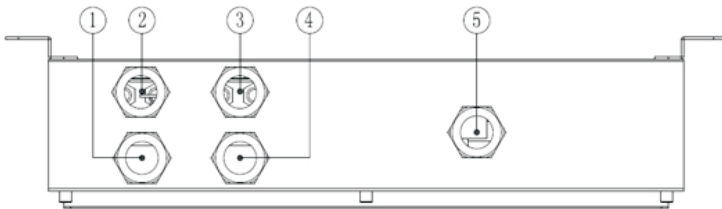


Figure2: Output view of the Wire Box

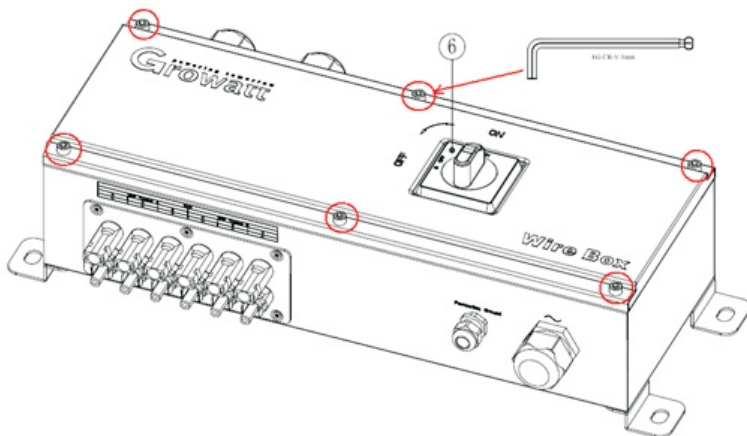


Figure3: General outside view

If you want to open wire box, first, put the switch to the "OFF" position. Then you can use the appropriate tools to unscrew the screws on the cover (such as Figure3).

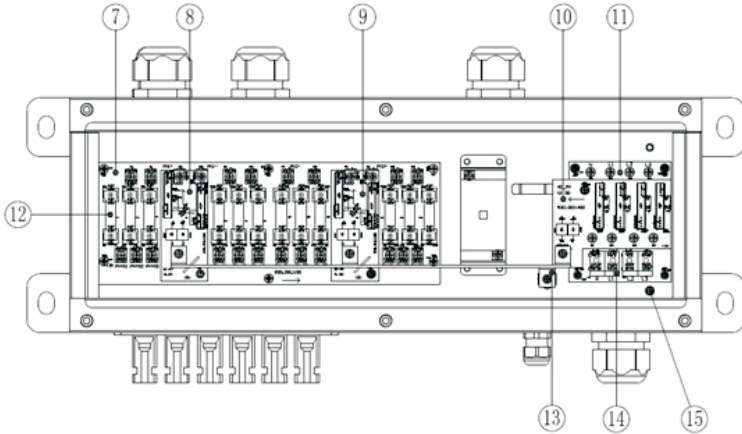


Figure4: General inside view of the Wire Box

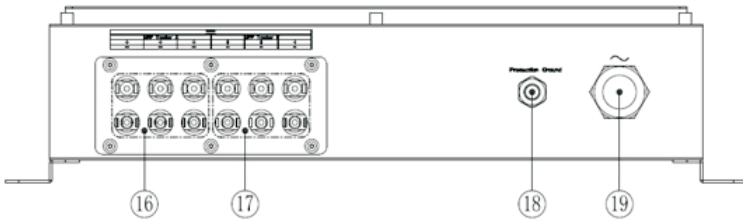


Figure5: Input view of the Wire Box

- ① PV cable gland (MPPT Tracker A +)
- ② PV cable gland (MPPT Tracker A -)
- ③ PV cable gland (MPPT Tracker B -)
- ④ PV cable gland (MPPT Tracker B +)
- ⑤ AC output cable gland
- ⑥ AC Switch
- ⑦ DC input board
- ⑧ DC_SPD module(For MPPT Tracker A)
- ⑨ DC_SPD module(For MPPT Tracker B)
- ⑩ AC_SPD module(For MPPT Tracker B)

- AC input board
- String fuses
- The lightning protection ground terminal.
- AC input terminal
- The Grid PE terminal
- Input connectors(MPPT Tracker A)
- Input connectors(MPPT Tracker B)
- The lightning protection ground cable gland
- AC output cable gland

6 INSTALLATION

DANGER

- > All wiring and electrical installation should be conducted by a qualified personnel.
- > Danger to life due to high voltages in the inverter.
- > Before installation, please make sure all PV strings and Utility are disconnected.
- > The electrical installation of the Wire Box must be carried out in accordance with the National Electrical Code. National Electrical Code wiring method should be used. All cables used and connected to the device or under field voltage, must comply with the minimum insulation requirements of 1000Vdc (For PV input) and 600Vac (For AC output). In case the low voltage cables are carried together with the cables from the photovoltaic field, the installer must ensure that the main electrical insulation conditions are guaranteed.

CAUTION

If you are using a model without internal switch it is mandatory to insert an external “Disconnect Device” properly sized by the installation company.

BEFORE YOU BEGIN

When you receive the equipment verify that packaging is not damaged.

Pay attention when removing the packaging in order to avoid scratches.

The Wire Box must be handled with care, any bumps and falls could damage the equipment.

The manual must be carefully preserved and must be examined before any operation on the equipment.

Packing list:

Item	Number
Wire Box	1
User manual	1
Ring terminal	2
Expansion tube	4
Screw	4

6.1 Selecting the Installation Location

This is guidance for installer to choose a suitable installation location, to avoid potential damages to device and operators.

- The wall selected to install the inverter must be strong and firm enough to support and bear the weight of the Wire Box for a long period time.
- The location selected must be suitable for Wire Box' dimension.
Do not install the Wire Box on structures constructed of flammable or thermo labile materials.
- Never install the inverter in environment of little or no air flow, nor dust environment.
- The Ingress Protection rate is IP65 which means the inverter can be installed outdoors and indoors.
- The humidity of the installation location should be 0~95% without condensation.
- The ambient temperature of the inverter should be -25°C~+60°C.



The wall selected to install the inverter must be strong and firm enough to support and bear the weight of the inverter for a long period time

NOTICE

Do not install the device in a position where it is directly exposed to direct sunlight, high temperature may reduce the life of the device.

6.2 Installation guide

DANGER

In order to avoid electrical shock or other injury, inspect existing electronic or plumbing installations before drilling holes.

The Wire Box is mounted on the wall below in the inverter, and the distance is D between Wire Box and the inverter.

- 1) Mark the positions where you need to drill holes refer to table_3.
- 2) Drill four holes for screws, fasten the Wire Box against the wall with expansion bolts.

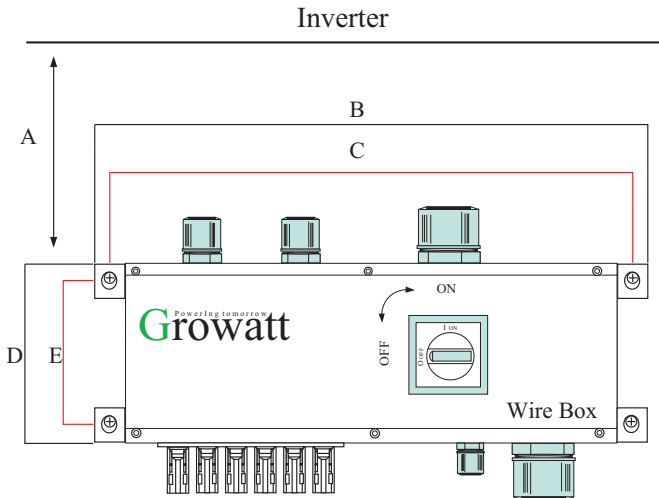


Figure6: Wall mounting via fixing holes

Table_3:

Definition	A	190mm
Distance from the inverter	B	552mm
The length of wire box	C	522mm
Width of wire box	D	180mm
	E	135mm

7 ELECTRICAL CONNECTION AND START UP

DANGER

Before handling any cable use suitable instruments to make sure that there is no dangerous voltage and use appropriate protection tools.

DANGER

Any operation which does not comply with these instructions could create a situation of danger for the installer / operator and/or damage the device.

DANGER

Before connecting, turn off dc switch of the inverter, at the same time, switch off AC breaker .

CAUTION

For details of each single operation to be carried out, the instructions given in this chapter and all the safety warnings must be read carefully and followed step by step

Cable selection guide

	Diameter(mm)	Area(mm ²)	AWG
PV cable	2.05~2.59	4~6	12~10
PE cable	2.59	6	10
AC cable	2.59	6	10

7.1 Connect Wire Box and inverter.

After the wire box fixed on the wall, make AC cable (L1/L2/L3/N/PE) of Wire Box go through the inverter AC output waterproof gland and shell, fasten AC lines to the white terminal of the inverter, tighten four screws, fasten cable gland. Then plug in four pairs PV output terminals to inverter.

7.2 Onnect AC input lines and lightning GND of the wire box.



The lightning protection ground which is different from the PE of the wire box.

Before connecting the AC cable of Wire Box, please make sure the power grid have been disconnected. Open the cover, as shown in Figure3, make AC cable go through AC cable gland and fasten L1/L2/L3/N to AC input terminal .Crimp ring terminal to PE line ,then tighten it to PE terminal as shown in Figure4(15), then fasten cable gland .As the same way, connect the lightning protection ground line to the right position as shown in Figure4 (13).Cover the lid, ensuring AC switch to point OFF state, tighten all screws.

7.3 Connect PV string.



Electrical connections must always be made correctly and with the correct polarity in order to avoid possible damage to the device, PV inverter or the photovoltaic panels.

Before connecting, please make sure the dc switch of the inverter has been disconnected. The wire box, WB_PPX_6_1000V, up to 6 strings directly connectable. Each input operating current and operating voltage requirements do not exceed the product parameters (see the Table_1). Plug in four/six pairs PV terminals.

7.4 Commission system.

First ,turn on the switch to the power grid , and put the AC switch on the wire box to the “ON” position, and then make the DC switch on the inverter to the “ON” position, waiting for the inverter connect to the power Grid.

8 Principal wiring box components

AC switch

Voltage	Utilisation category	Current
415 V AC	AC22A	40A

String fuse

The standard string protection fuses installed on the inverter have the following features:

Voltage	Rating	Type	Size
1000V DC	Max. 20A	gPV	10*38mm

 **NOTICE**

In any electrical system, fuses are used to protect electronic devices from overcurrent damage. If not protected, overcurrent may cause the electronic device malfunction, overheating, damage and even fire. Please size the fuses according to the type of photovoltaic modules that it uses for your plant. Max rating value 20 A.

 **NOTICE**

Please size the fuses according to the type of photovoltaic modules that it uses for your plant. Max rating value 20 A.

Growatt can supply fuse kits of different rating

Code	Rating	Quantity
FUSEKIT8A	8A	10
FUSEKIT10A	10A	10
FUSEKIT12A	12A	10
FUSEKIT15A	15A	10
FUSEKIT20A	20A	10