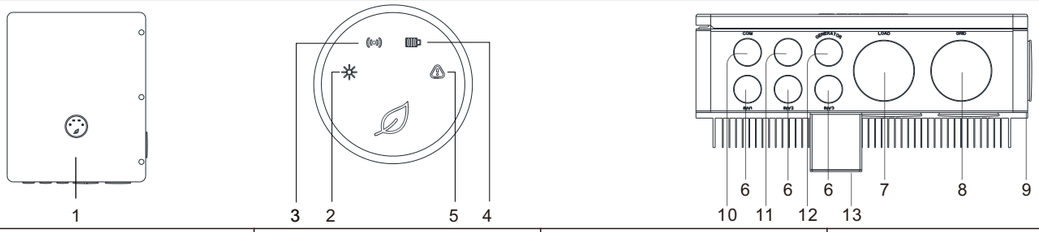
SYN 200-XH-US Quick Guide

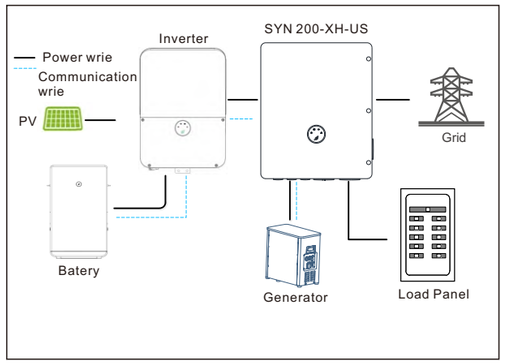
## 1. Overview



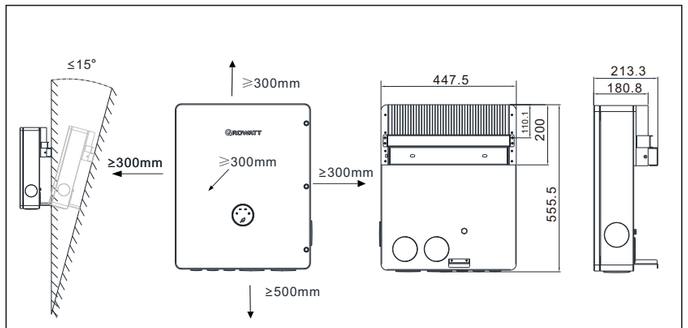

| | | | |
|---|---|---|---|
| 1：Front panel | 2：Grid indicator | 3：Communication indicator | 4：Status Indicator |
| 5：Fault indicator | 6：Inverter wiring port | 7：Load wiring port | 8：Grid wiring port |
| 9：Heat sink | 10：COM wiring port | 11：Reserved wiring port | 12：Generator wiring port |
| 13：Wall mount bracket | | | |

## 2. Installation

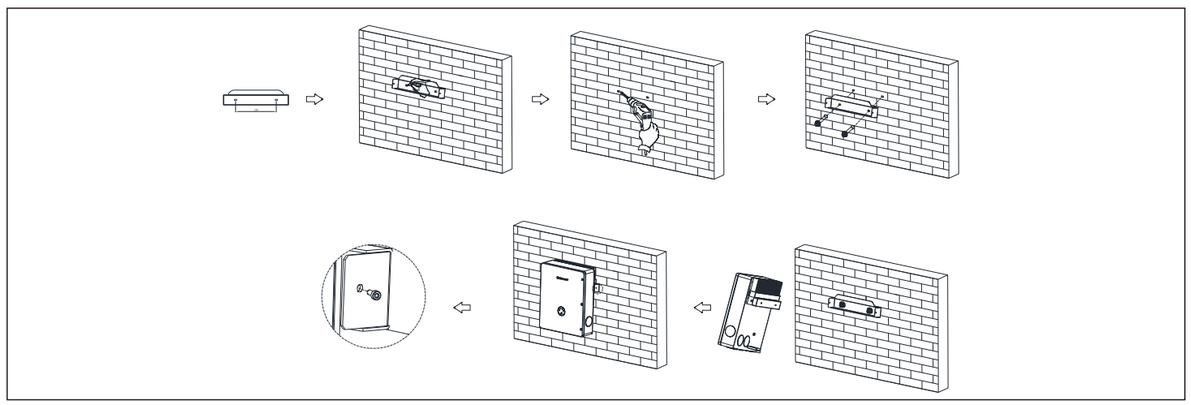
### 2.1 System overview



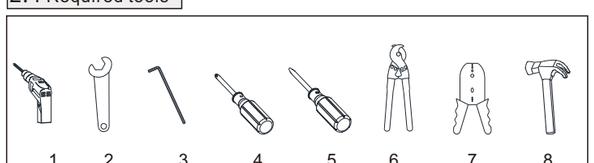

### 2.2 Installation requirements




### 2.3 Wall mounting



### 2.4 Required tools

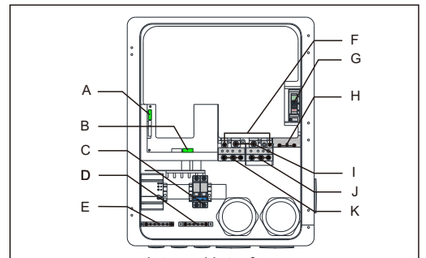



| No. | Name | Size | No. | Name | Size |
|---|---|---|---|---|---|
| 1 | Electric drill | Φ6mm | 2 | wrench | Φ10mm |
| 3 | Allen wrench | Φ5&6&8mm | 4 | Cross rise | Φ5mm |
| 5 | From flat | Φ1mm | 6 | Wire cutter | / |
| 7 | Wire stripper | / | 8 | hammer | / |

## 3. Electrical connection

### 3.1Electrical connection

| | | | | | |
|---|---|---|---|---|---|
| A | Inverter communication port | B | Generator control port | C | Inverter wiring port |
| D | Inverter Ground Terminals | E | Inverter Neutral Terminals | F | Generator wiring port |
| G | Grid switch | H | Grid wiring port | I | Load Panel wiring prot |
| J | Main Neutral Terminals | K | Main Ground Terminals | | |



Internal interface

Cables prepared by the customer:

| | Use | Type | Size |
|---|---|---|---|
| 1 | Grounding Conductors (Load/Generator/Inverters) | Yellow-green jacketed or solid bare copper | 7~1/0 AWG(Load/Generator) 8~6 AWG(Inverters) |
| 2 | AC output conductors (Load/Grid) | Multi-color jacket, copper | 0-4/0AWG |
| 3 | Generator Input conductors | | 4~0 AWG |
| 5 | Inverter Input conductors | | 6~5 AWG |
| 6 | 12V power output conductors | Red and black multi-color copper | 16~14 AWG |
| 7 | Communication cable | CAT5E suggested | / |

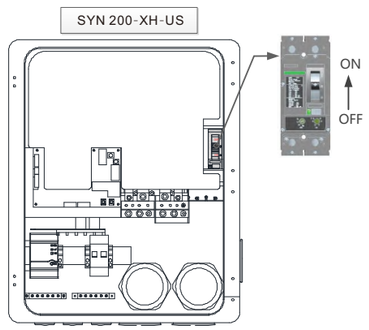
**Note:**
It is recommended to use two or three polychromatic multi-core copper cables cables for Grid/Load/ Generator/ Inverter connection. Recommended using yellow-green single multi-core cables for PE connection. Recommended using shielded twisted pair cable for RS485 connection.

### 3.2 Connecting the SYN 200-XH-US to the Grid and Load panel.

1.Release the Allen screws of the upper cover and open the upper cover.
2.Pull down the main breaker until it shows OFF. Ensure that the main breaker is OFF.
3.Install a conduit of the required diameter into the Grid conduit entry. Use the conduit holder to support the conduit.
4.Pass the cable from the load panel through the Loads conduit.
5.Pass the grid cable through the Grid conduit.
6.Connect the neutral and grounding cables to the corresponding neutral and grounding terminals. Tighten the terminal screws with a torque of 221 in*lbs / 22.5 N*m.
7.Connect Line 1 and Line 2 cables from the AC loads panel to the load terminal Load L1 and LoadL2. Tighten the terminal screws with a torque of 221 in*lbs / 22.5 N*m.
8.Connect the Line 1 and Line 2 from grid to the Grid L1 and Grid L2 of breaker terminal. Tighten the terminal screws with a torque of 221 in*lbs / 22.5 N*m.

1

2

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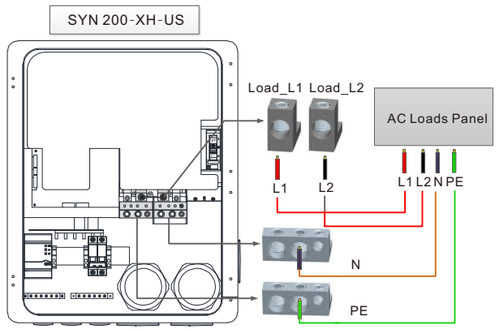


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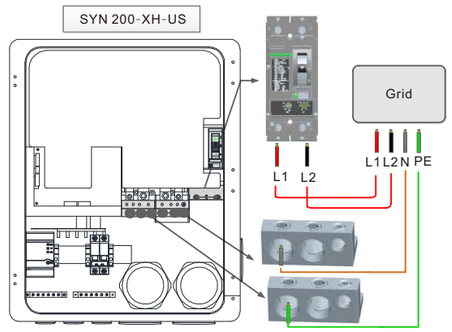


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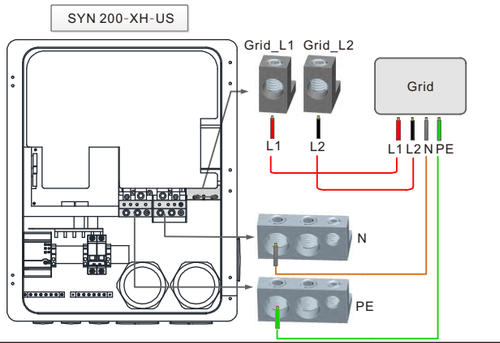
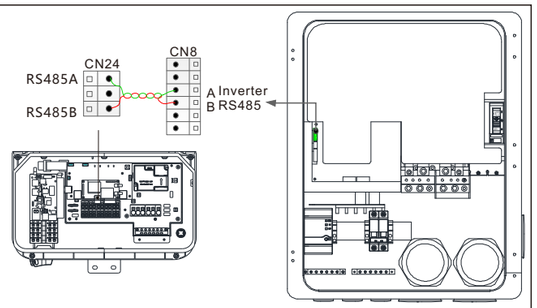


### 3.4 Connecting the SYN 200-XH-US to the Inverter

3.4.1 Inverter communication cables installation:

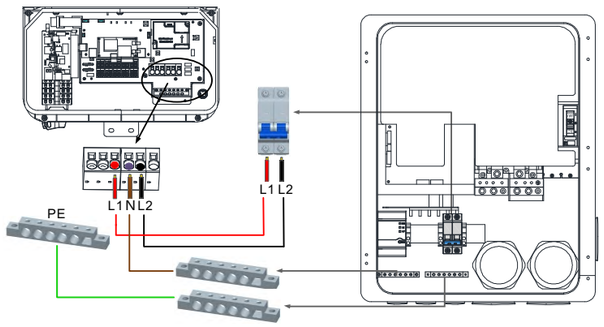
1.Install a conduit of the required diameter into the COM conduit entry. Use the conduit holder to support the conduit.
2.Pass the shielded communication cable through the COM conduit, One end of the communication cable is connected to the 6-pin connector CN8 of the SYN 200-XH-US, and the other end is connected to the 3-pin connector CN24 of the MIN TL-XH-US inverter.
You must install the communication cable with the MIN TL-XH-US inverter, otherwise the system will not work normally.




Communication connection between SYN 200-XH-US and Inverter

3.4.2 Installation inverter AC power cables :

1.Install a conduit of the required diameter into the INV conduit entry. Use the conduit holder to support the conduit.
2.Pass the cable through the INV conduit.
3.Connect the neutral and grounding cables to the corresponding neutral and grounding terminals. Tighten the terminal screws with a torque of 142 in*lbs / 22.5 N*m.
4.Connect the GRID L1 and GRID L2 terminal of the MIN TL-XH-US inverter to the INV Breaker terminal of SYN 200-XH-US. Tighten the terminal screws with a torque of 17.5 in*lbs / 22.5 N*m.



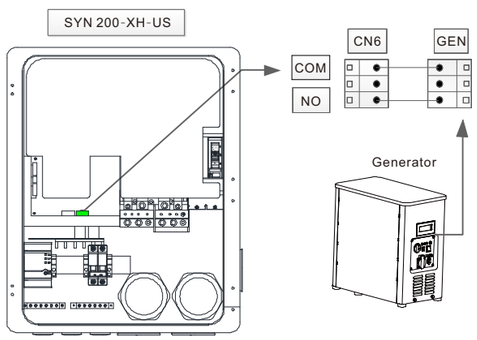

Power cable connection between SYN 200-XH-US and Inverter

### 3.5 Connecting the SYN 200-XH-US to Generator

You must install the communication cable with the Generator first, and then install the power cables.

3.5.1 Generator communication cables installation:

1.Pass the shielded communication wire through the COM conduit, One end of the communication cable is connected to the 2-pin connector of SYN 200-XH-US, and the other end is connected to the remote control port of the generator.

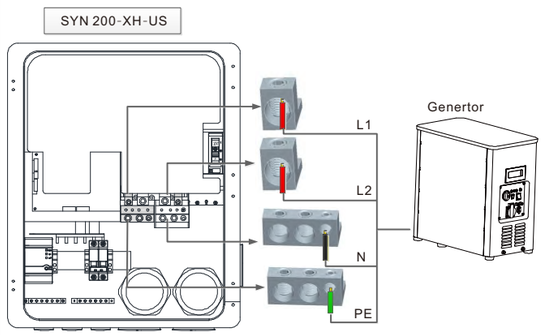



Communication connection between SYN 200-XH-US and Generator

**Note**:The COM/NO signal of CN6 is the remote control switch signal of the generator.

3.5.2 Generator input power cable installation

1.Install a conduit of the required diameter into the generator conduit entry. Use the conduit holder to support the conduit.
2.Pass the cable through the generator conduit.
3.Connect the ground cable to the ground terminal, Tighten the terminal screws with a torque of 142 in*lbs / 22.5 N*m.
4.Connect the L1 and L2 terminal of the generator to the GEN L1 and GEN L2 terminal of SYN 200-XH-US. Tighten the terminal screws with a torque of 17.5 in*lbs / 22.5 N*m.




Connection to the Generator

## 4. LED Indication

| Description | LED color | LED status | SYN 200-XH-US status |
|---|---|---|---|
| Grid indicator | Green | Solid | Connect to the grid |
| Communication indicator | Green | Solid | Communication with the inverter is normal |
| Status indicator | Green | Solid | On-grid works normally |
| | | 1S on and 1S off | Off-grid works normally |
| | | 3S on and 3S off | The generator works normally |
| Fault indicator | Red | Solid | Fault |
| | | 1S on and 1S off | Overload |

Note:If the four indicator lights flash at the same time, it means that the SYN 200-XH-US is upgrading the firmware

## 5. System startup and shutdown operations

### 5.1 System power-on operation, please follow the steps below:

1.Close the DC switch of the ARO battery. Then close the DC switch of the inverter. The battery cannot be woken up if there is no PV input, you need press and hold the battery switch until the indicator light flashes. Please refer to the ARO battery installation manual.
2.Observe whether the inverter and battery indicator report errors. If there is no fault, proceed to the next step.
3.Close the inverter input breaker of the SYN 200-XH-US, as shown in Figure 1.
4.Push the grid input circuit breaker to the "ON" position, indicating that the grid input breaker is closed, as shown in Figure 2.( For versions with circuit breaker).
5.If the grid indicator, communication indicator, and status indicator of the SYN 200-XH-US are all green and the fault indicator is off, it means that the SYN 200-XH-US is working normally.
6.Download and install the mobile APP by scanning the QR code on the inverter. Please refer to the inverter manual for details.
7.It is a very important step to set the inverter off-grid output enable through APP. For specific operations, refer to the off-grid enable function setting of the TL-XH-US inverter.

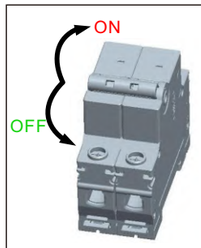



Figure 1

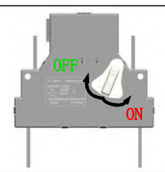

Figure 2

### 5.2 System power-off operation, Please follow the steps below

1.Disconnect the miniature circuit INV_breaker on the SYN 200-XH-US.
2.Disconnect the DC switch of the inverter.Press and hold the battery switch button until the indicator light goes out. Then turn off the DC switch of the ARO battery. Please refer to the ARO battery installation manual.
3.Pull down the Grid breaker switch until the word OFF is displayed, indicating that the circuit breaker is off.
4.Wait and observe that the inverter, battery, SYN 200-XH-US and other indicators are all off, indicating that the system is completely powered off.

## 6. Manual bypass operation

In case of the SYN 200-XH-US is failure, it cannot be switched to the bypass state.In order to ensure household electricity, you can manually switch to the mains bypass state by performing the following operations.
1.Shutdown the entire system,please refer to section 5.2.
2.Make sure that the AC circuit breaker of the grid is disconnected, and manually rotate the white switch counterclockwise to the "ON" position, as shown in the right figure.
3.Power up the entire system,please refer to section 5.1.




## 7. Service and contact

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