iWSN-9601 Series Quick Start

v1.0, Sep. 2023

Packing List

In addition to this guide, the package includes the following items



iWSN-9601 Series



Screw driver



Split Core CT



4 M4*16L Mounting Screws

Model Name	Split Core CTs
iWSN-9601-□□□-ME-IP33 (□□□: 160, 240, 360)	6
iWSN-9601-PCP-ME-IP33	None

Technical Support

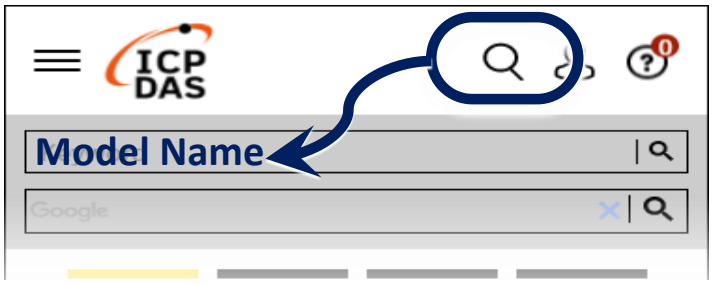
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www.icpdas.com

Resources

How to search for drivers, manuals and spec information on ICP DAS website.

- For Mobile Website

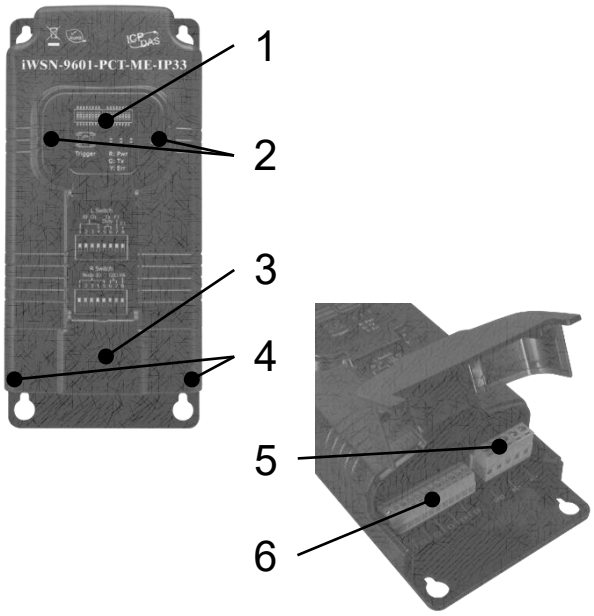


- For Desktop Website



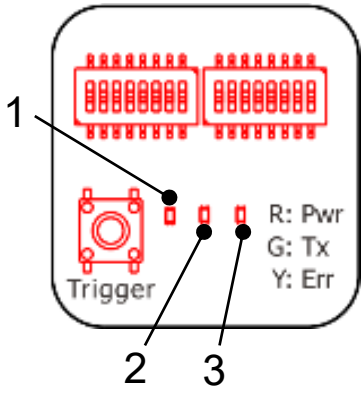
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1. Appearance



No.	Descriptions
1	LED panel cover. The LEDs statuses are shown here. Loosening two screws and opening the cover can configure the module by the DIP switches and trigger button.
2	The screws for LED panel cover.
3	Connector protector. Loosening two screws and open the protector can wire the CTs and voltage input cables into the module.
4	The screws for connector protector.
5	The connector for CT wiring
6	The connector for voltage input wiring

2. LED indicators



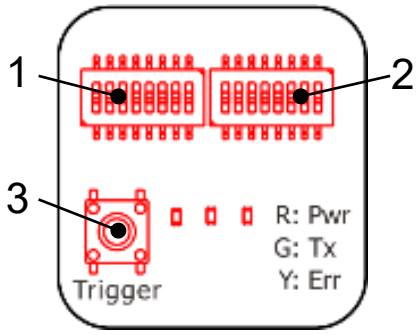
No.	Descriptions	Color
1	Power indicator (PWR)	Red
2	RF data transmission indicator (Tx)	Green
3	Error status indicator (Err)	Yellow

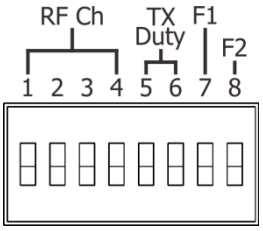
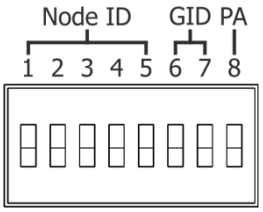
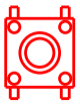
The meanings of the LED actions are described as follows.

LED Actions	Descriptions
Red LED is always OFF	No power
Red LED is always ON	Working power is given
Both Green and Yellow LEDs are ON	Module is initializing
Both Green and Yellow flash 5 times per second	Detecting hardware errors during initializing.
Green LED is always ON, Yellow LED flashes quickly and periodically.	Invalid Node ID (Node ID 0 is reserved, and can't be used)
Green and yellow LEDs interactively flash 3 times afterwards turned ON simultaneously.	Detecting 50Hz AC frequency. The 60Hz won't have any indication.
Green and Yellow LEDs are OFF, afterwards Green LED flashes depended on the Tx duty or while receiving an RF command.	The module has finished the initialization, and starts to work.
Yellow LED flashes twice per second	Detecting errors during operating.

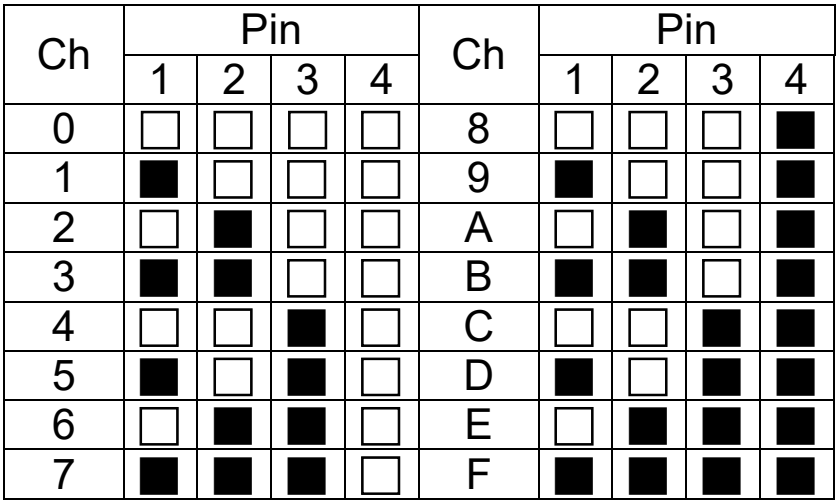
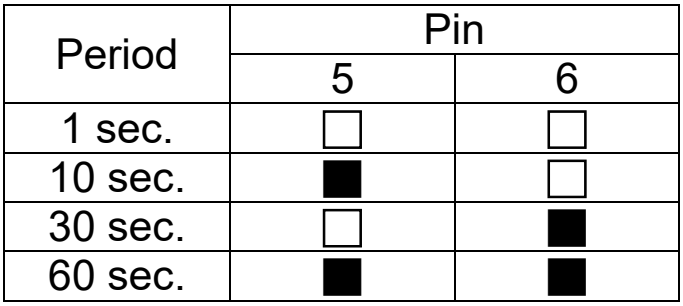
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3. DIP switch & trigger button



No.	Definitions	Descriptions
1		L Switch for configuring the RF channel, Tx period and AC wiring types.
2		R Switch for configuring the Node ID, RF group ID and the PA function.
3		Trigger button for forcing to transmit data once. Holding it 5 seconds will reset the module.

The Configurations and descriptions of L Switch and R Switch are as follows.

Items	Descriptions
RF Ch ■ : Up □ : Down	
TX Duty ■ : Up □ : Down	
F1/F2	N/A

Ch	Pin 1	Pin 2	Pin 3	Pin 4	Ch	Pin 1	Pin 2	Pin 3	Pin 4
0	□	□	□	□	8	□	□	□	■
1	■	□	□	□	9	■	□	□	■
2	□	■	□	□	A	□	■	□	■
3	■	■	□	□	B	■	■	□	■
4	□	□	■	□	C	□	□	■	■
5	■	□	■	□	D	■	□	■	■
6	□	■	■	□	E	□	■	■	■
7	■	■	■	□	F	■	■	■	■

Period	Pin 5	Pin 6
1 sec.	□	□
10 sec.	■	□
30 sec.	□	■
60 sec.	■	■

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Items	Descriptions

Node ID (NID)

■ : Up
□ : Down

NID	Pin 1	2	3	4	5	NID	Pin 1	2	3	4	5
0	□	□	□	□	□	16	□	□	□	□	■
1	■	□	□	□	□	17	■	□	□	□	■
2	□	■	□	□	□	18	□	■	□	□	■
3	■	■	□	□	□	19	■	■	□	□	■
4	□	□	■	□	□	20	□	□	■	□	■
5	■	□	■	□	□	21	■	□	■	□	■
6	□	■	■	□	□	22	□	■	■	□	■
7	■	■	■	□	□	23	■	■	■	□	■
8	□	□	□	■	□	24	□	□	□	■	■
9	■	□	□	■	□	25	■	□	□	■	■
10	□	■	□	■	□	26	□	■	□	■	■
11	■	■	□	■	□	27	■	■	□	■	■
12	□	□	■	■	□	28	□	□	■	■	■
13	■	□	■	■	□	29	■	□	■	■	■
14	□	■	■	■	□	30	□	■	■	■	■
15	■	■	■	■	□	31	■	■	■	■	■

Group ID

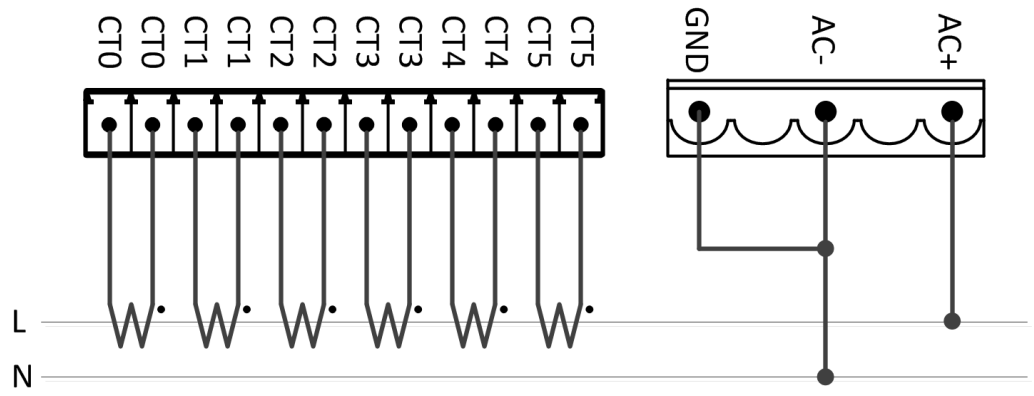
■ : Up
□ : Down

RF Group ID	Pin 6	7
0	□	□
1	■	□
2	□	■
3	■	■

PA

■ : Up
□ : Down

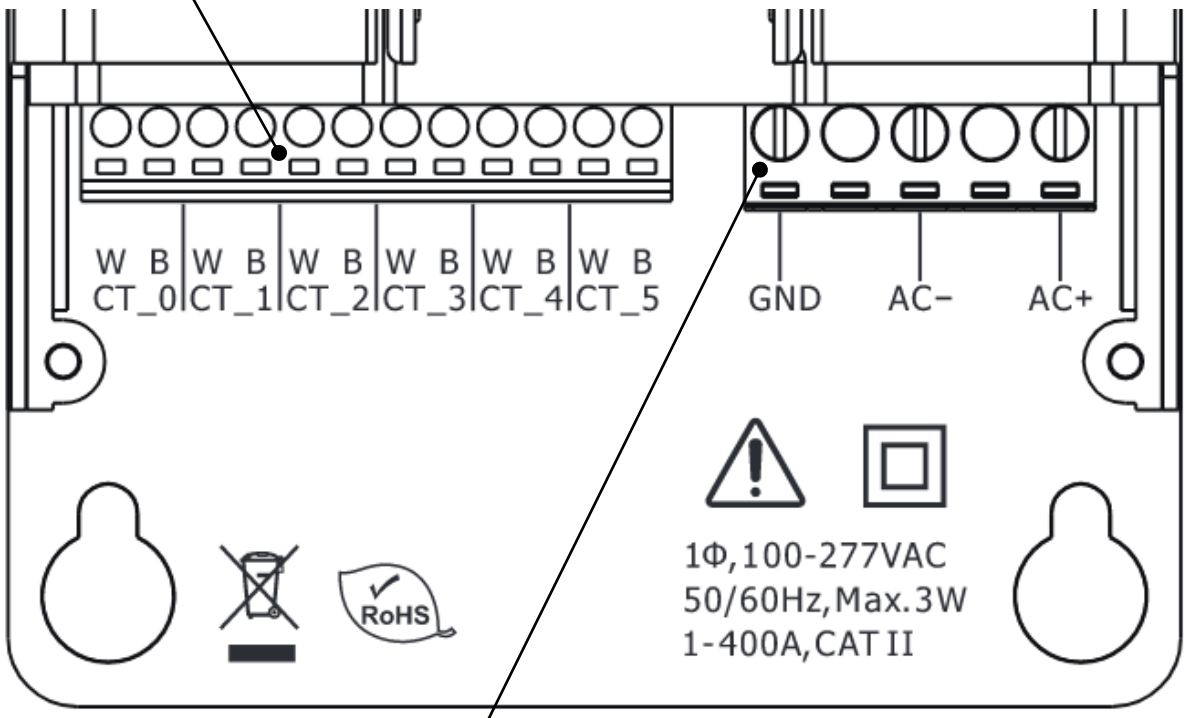
PA Function	Pin 8
Enable (only for factory test)	■
Disable	□

Wiring Types	Wiring Methods
Single Phase 2 Wire 1CT	

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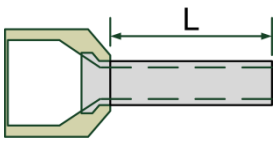
4. Pin assignments

CT input connector. CT_0/1/2/3/4/5 is used for 6 single-phase current measurements. The terminal labeled W is for connection to the CT white (or red) wire and the terminal labeled B is for connection to the CT black wire.



AC voltage input connector. AC+ and AC- are connected to the L-phase and N-phase of the single-phase power supply. Normally, GND must be shorted to AC-. If AC+ and AC- are used in the three-phase voltages (for line voltage measurement), GND can be connected to the N-phase in order to minimize the voltage measurement error. If the three-phase power supply does not have an N-phase, GND can be connected to FG or shorted to AC-.

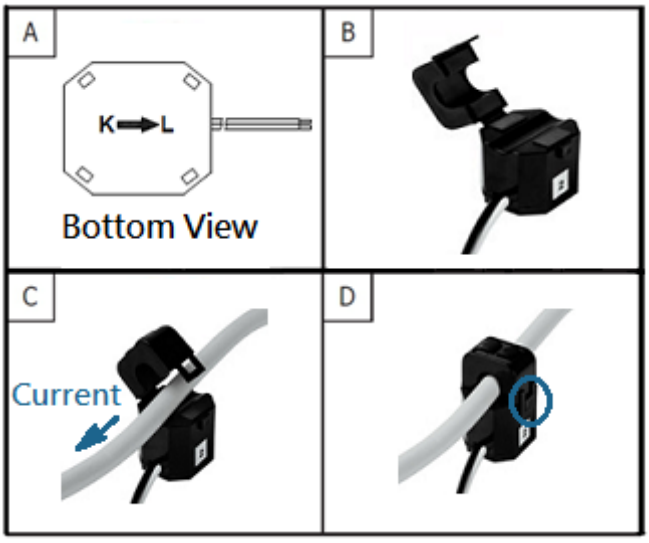
When connecting the wire to CT and voltage input connectors, the twin cord end terminal must be used, and the dimensions are recommended as the table.



Connector Type	L (mm)
CT	6 ~ 7
Voltage	7

5. CT installation

K→L on the bottom of split CT indicates the current direction. If the real current direction is different from the mark K→L, the negative value of power factor will be obtained. After finishing the CT installation, please confirm if the safety lock buckle of the CT is locked correctly.



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The iWSN-9601 series modules can only be used with the specific CTs. Only the model name iWSN-9601-PCT-ME-IP33 doesn't include CTs. Please check the accessories of the product website or contact to the ICP DAS distributor to purchase the CTs for this model if necessary. Different model name provides different size of CTs, they are described below.

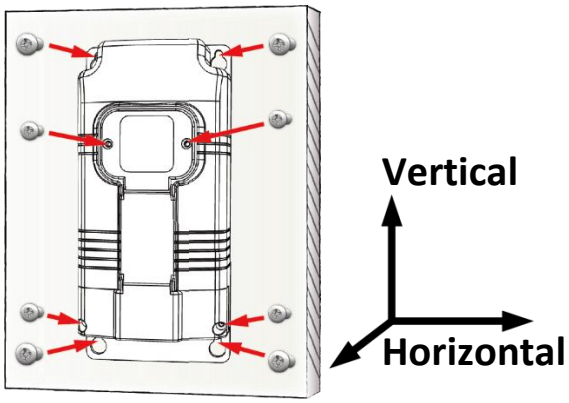


Unit: mm

Model Name	Type and Rating	Size A	Size B
iWSN-9601-PCT-ME-IP33	Split CT, Max. 400 A	-	-
iWSN-9601-160-ME-IP33	Split CT, 100 A	15.7	29
iWSN-9601-240-ME-IP33	Split CT, 200 A	23.6	45.2
iWSN-9601-360-ME-IP33	Split CT, 400 A	35.7	57.5

6. Module Installation

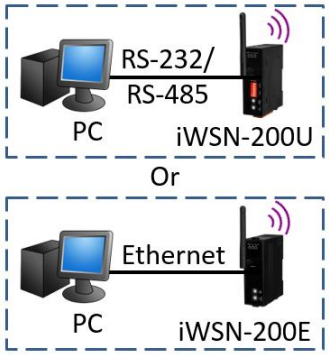
The iWSN-9601 series provide the IP33 rating enclosure which can effectively prevent the modules from the influence of the fire sprinkler systems. Users need to install the module vertically and screws up the LED panel cover and connector protector properly to guarantee the IP33 rating performance.

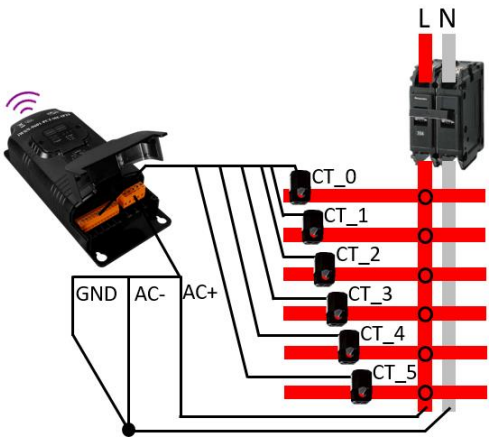


7. Operations

Users can prepare a PC and iWSN-200U (or iWSN-200E) for data collection of iWSN-9601 series modules.

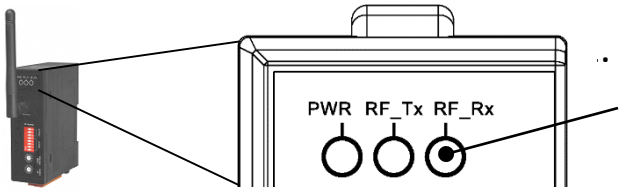
1. Configure the RF channel and Group ID of iWSN-200U/E to the same configuration of the iWSN-9601 series modules.
2. Set the Node ID (1 ~ 31), wiring type and Tx duty, and finish the wiring connection. The Node ID must be unique in a sub-network (the same RF channel and group ID). The architecture might look like as the right-hand-side figure.





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3. Turn ON the iWSN-200U/E and iWSN-9601 series module to start the data collection. The RF_Rx LED of the iWSN-200U/E flashing once indicates the iWSN-200U/E has received one message from the iWSN-9601 series module.



. The flash of RF_Rx LED indicates the iWSN-200U/E gets the data from iWSN-9601 series module

4. Users can use the PC with iWSN Utility to get the data or directly access the iWSN-200U/E registers via Modbus RTU/TCP protocol, about the definitions of the Modbus register please refer to the iWSN-200U/E user manual.

8. Product Specifications

Model Name	iWSN-9601-PCT-ME-IP33	iWSN-9601-160-ME-IP33 iWSN-9601-240-ME-IP33 iWSN-9601-360-ME-IP33
EMS Protection		
EFT(IEC 61000-4-4)	+/- 500 V	
ESD(IEC 61000-4-2)	+/- 4 kV Contact	
LED Indicators		
Status	1 for Power, 1 for Tx, and 1 for Error	
AC Power Measurement		
Wiring	1P2W-1CT	
Loops	6	
Input Voltage	Single phase 2 wire x 1, 58 - 277 VAC	
Input Current	Max. 400 A	-160: Max. 100 A -240: Max. 200 A -360: Max. 400 A
Input Frequency	50/60 Hz	
Wh Accuracy (PF=1)	Better than 2%	Better than 1%
Power Parameter Measurement	True RMS voltage (Vrms), True RMS current (Irms), Active Power (kW), Active Energy (kWh), Power Factor (PF), Frequency, and timestamp (YYYY/MM/DD HH:MM:SS)	
Categories	CAT II	
Data Update Rate	1, 10, 30, or 60 seconds	
Antenna		
Type	Built-in Omni-directional antenna	

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Power		
Consumption	3 W	
Input Type	Single phase 58 - 277 VAC	
CT		
Includes CTs	0 (*Note)	6
CT Type	Split core CT	
Max. Current	Depended on the selection (Max. 400 A)	-160: Max. 100 A -240: Max. 200 A -360: Max. 400 A
Inside Diameter	Depended on the selection (Max. 36 mm)	-160: 16 mm -240: 24 mm -360: 36 mm
Leading Cable	8 m	
RF		
Channels	0 ~ 15	
Group ID	0 ~ 3	
Radio Frequency	433.1000 ~ 434.6000 MHz	
Transmission Power	9±1 dBm (Typical)	
Transmission Distance (LoS)	100 m	
Node ID	1 ~ 31	
Working Duty	1, 10, 30, or 60 seconds	
Mechanical		
Dimensions (mm)	85 x 184 x 47 (W x L x H)	
Installation	Wall-mount	
Ingress Protection Rating	IP33	
Environment		
Operating Temper.	-30 °C ~ +50 °C	
Storage Temper.	-40 °C ~ +55 °C	
Humidity	10 ~ 90% RH, Non-condensing	
Altitude	Max. 2000 m	

Note: Please check the accessories of the product website or contact to the ICP DAS distributor to purchase the CTs for this model if necessary.

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Caution



1. Danger

The meter contains hazardous voltages, and should never be disassembled. Failing to follow this practice will result in serious injury or death. Any work on or near energized meters, meter sockets, or other metering equipment could induce a danger of electrical shock. It is strongly recommended that all work should be performed only by qualified industrial electricians and metering specialist. ICP DAS assumes no responsibility if your electrical installer does not follow the appropriate national and local electrical codes.

2. Warning

ICP DAS assumes no liability for any damage resulting from the use of this product. ICP DAS reserves the right to change this manual at any time without notice. The information furnished by ICP DAS is believed to be accurate and reliable. However, no responsibility is assumed by ICP DAS for its use, not for any infringements of patents or other rights of third parties resulting from its use.

3. Product Warranty & Customer Support

ICP DAS warrants all products free from defects in material and workmanship for a period of one year from the date of shipping. During the warranty period, we will, at our position, either repair or replace any product that proves to be defective. To report any defect, please contact ：+886-3-597-3366 or service@icpdas.com. Please have the model name, serial number and a detailed problem description available when you call. If the problem concerns a particular reading, please have all meter readings available. When returning any merchandise to ICP DAS, a return SN. is required.

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