iWSN-200U Quick Start

v1.5, February 2022

Packing List

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



iWSN-200U
(Includes antenna)



Screw Driver

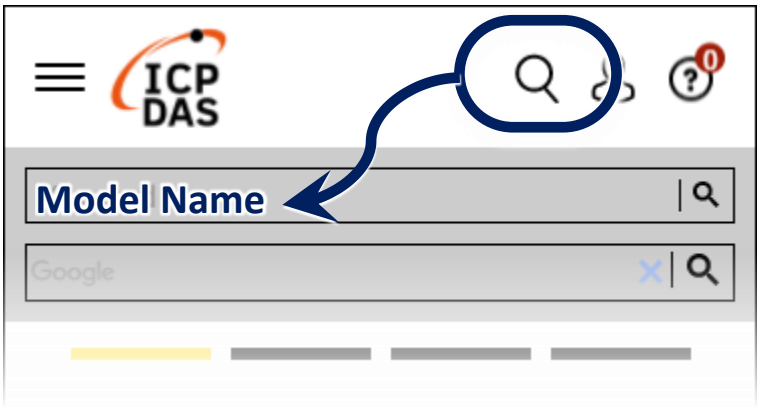
Technical Support

service@icpdas.com
www.icpdas.com

Resources

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

- For Mobile Web

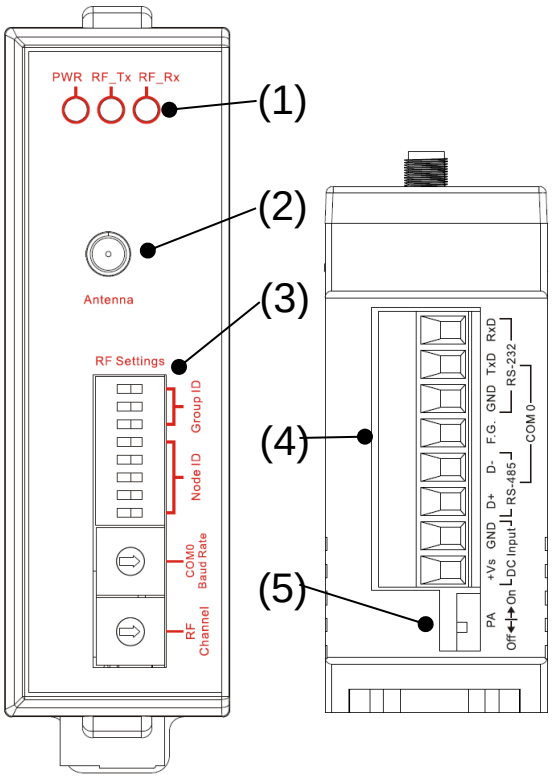


- For Desktop Web



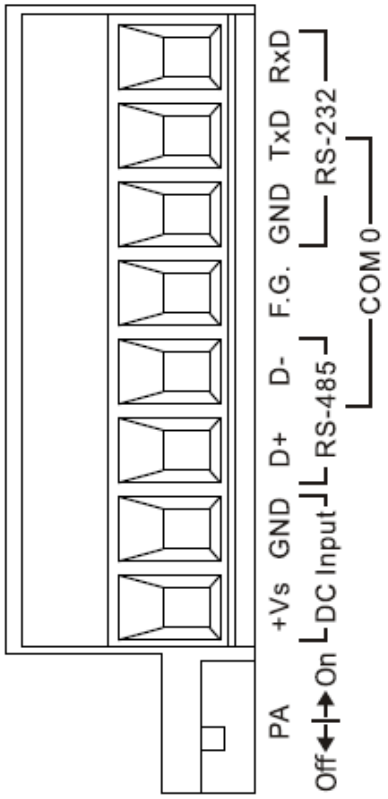
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1. Appearance



Number	Instructions
1	LED indicators
2	Antenna connector (type RP-SMA)
3	DIP and rotary switch of Communication parameter setting
4	Terminal
5	DIP switch of PA

2. Pin assignments



Pin	Name	Instructions
8	RxD	RS-232
7	TxD	
6	GND	
5	F.G	Shield ground
4	D-	RS-485
3	D+	
2	GND	+10V~+30VDC
1	+Vs	

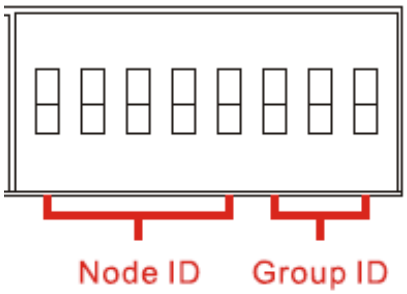
Note: the RS-232/RS-485 interface can't be used simultaneously.

Item	Instructions	
PA	ON	Maximum power of wireless output
	OFF	Normal power of wireless output

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3. Communication Parameter

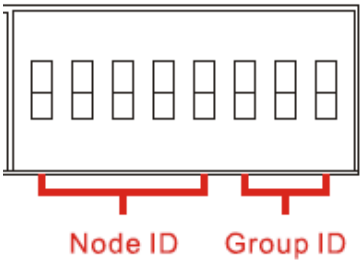
The communication parameters are set using the rotary switch and the DIP switch. After the adjustment, the module needs to be powered on again to enable the new parameter setting.



<table>
<tr><th>Name</th><th>Instructions</th></tr>
<tr><td>Group ID

■: ON
□: OFF</td><td>
<table>
<tr><th rowspan="2">Group</th><th colspan="3">Pin</th></tr>
<tr><th>6</th><th>7</th><th>8</th></tr>
<tr><td>0</td><td>□</td><td>□</td><td>□</td></tr>
<tr><td>1</td><td>■</td><td>□</td><td>□</td></tr>
<tr><td>2</td><td>□</td><td>■</td><td>□</td></tr>
<tr><td>3</td><td>■</td><td>■</td><td>□</td></tr>
<tr><td>4</td><td>□</td><td>□</td><td>■</td></tr>
<tr><td>5</td><td>■</td><td>□</td><td>■</td></tr>
<tr><td>6</td><td>□</td><td>■</td><td>■</td></tr>
<tr><td>7</td><td>■</td><td>■</td><td>■</td></tr>
</table>
</td></tr>
</table>

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Name	Instructions
Node ID ■: ON □: OFF (Note): Node ID = 0 is reserved. If the DIP switch is switched to Node ID = 0, it will be defaulted to Node ID = 1.	

Node	Pin				
	1	2	3	4	5
0	□	□	□	□	□
1	■	□	□	□	□
2	□	■	□	□	□
3	■	■	□	□	□
4	□	□	■	□	□
5	■	□	■	□	□
6	□	■	■	□	□
7	■	■	■	□	□
8	□	□	□	■	□
9	■	□	□	■	□
10	□	■	□	■	□
11	■	■	□	■	□
12	□	□	■	■	□
13	■	□	■	■	□

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Name	Instructions

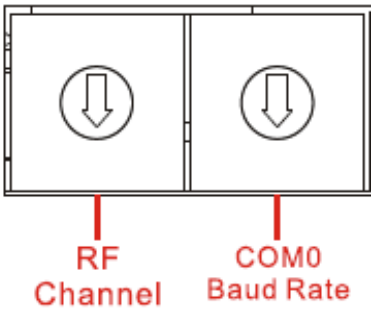
Node ID

■: ON

□: OFF

Node	Pin				
	1	2	3	4	5
14	□	■	■	■	□
15	■	■	■	■	□
16	□	□	□	□	■
17	■	□	□	□	■
18	□	■	□	□	■
19	■	■	□	□	■
20	□	□	■	□	■
21	■	□	■	□	■
22	□	■	■	□	■
23	■	■	■	□	■
24	□	□	□	■	■
25	■	□	□	■	■
26	□	■	□	■	■
27	■	■	□	■	■
28	□	□	■	■	■
29	■	□	■	■	■
30	□	■	■	■	■
31	■	■	■	■	■

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Rotary switch	Instructions			
COM0 Baud Rate (n, 8, 1)	0	115200	4	9600
	1	57600	5	4800
	2	38400	6	2400
	3	19200	7	1200
	8 ~ F = Reserved			
RF Channel	0 ~ F = ch 0 ~ ch F			

4. LED indicators

The module provides three LED indicators, including power (PWR), wireless transmission (RF_Tx) and wireless reception (RF_Rx) status. The table below will show the LED's status.

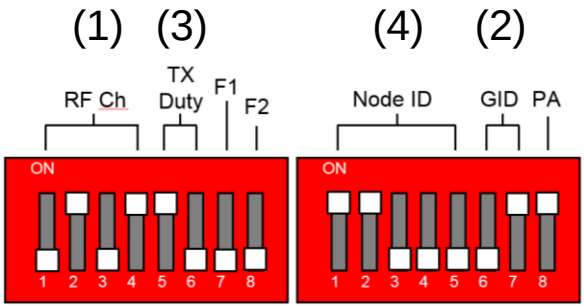
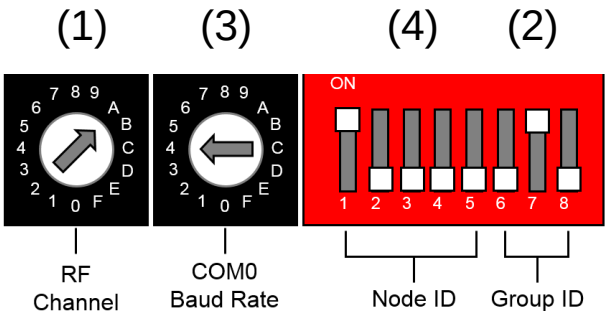
Indicator		Color	Status	Instructions
Power status	PWR	Red	ON	Power on
			OFF	Power off
Wireless transmission status	RF_Tx	Green	Flashing	Wireless data has been transmitted
			OFF	No data be transmitted
Wireless reception status	RF_Rx	Yellow	Flashing	Wireless data has been received
			OFF	No data be received

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5. Application example

iWSN-200U supports Modbus RTU communication protocol, users can read the data sent by iWSN-110X-160-ME against Modbus table on the computer. Among them, the RF Channel and Group ID of the two modules must be the same, so that the wireless can communicate.



iWSN-110X-160-ME			iWSN-200U		
					
1	RF Channel	0x0A	1	RF Channel	0x0A
2	Group ID	0x02	2	Group ID	0x02
3	TX Duty	0x01 (10 seconds)	3	COM0 Baud Rate	0x04 (9600 bps)
4	Node ID	0x03	4	Node ID	0x01 (Modbus node 1)

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6. The test method of signal strength

Please refer to section 5 for the application example architecture and the following steps:

- Step 1: Please confirm the Node ID of the iWSN-110X-160-ME (for example, the Node ID of the example in Section 5 is 0x03), then switch the DIP switch to ON and power on, after powering on the iWSN-110X-160-ME will take the initiative to transmit information.

- Step 2: Confirm the storage address of iWSN-200U after receiving iWSN-110X-160-ME's data. For example: the Node ID of iWSN-110X-160-ME is 0x03, when iWSN-200U receives the data sent by iWSN-110X-160-ME, it will put its signal strength in the Low byte of address 40844. (Note: For other address information, please refer to the Modbus table of each iWSN sensor)

↓ Keyin the sensor's Node ID 1~31 to calculate the address

Node ID of iWSN Sensor	Note:
3	(1) The maximum length of data that can be polled for each command of iWSN-200U is 72 words (Uint16/int16) (2) The maximum length of data that can be polled for each command of iWSN-200E is 125 words (Uint16/int16)

iWSN-200U / iWSN-200R (Base1, Dec)	Function code	Property	Data type	Description	Remarks
40844	03, 04	R	Uint16	[High byte] Automatic response time period of iWSN sensor.	(Bit7~Bit6) 00: Bit0~Bit5 mean the unit is second. 01: Bit0~Bit5 mean the unit is minute. 10: Bit0~Bit5 mean the unit is hour. 11: Reserved. (Bit5~Bit0) Refer the unit of Bit7 and Bit6 to define the time scale. Value 1 to 63: Mean 1~63 unit of time. Value 0: Reserved.
				[Low byte] The receiving signal strength of iWSN-200 series.	The value range is 0~255, the larger the value, the better the signal, and it is recommended to be at least 120 or more.

- Step 3: Read the signal strength stored in iWSN-200U through RS-232 or RS-485 on the computer. For example: The Modbus station number of iWSN-200U is 1, use command code 03 and data length 1 to read out a Uint16 data, in which the Low byte value range is 0~255 (0x00~0xFF), the larger the value, the better the signal. It is recommended to be at least 120 (0x78) or above.

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