# 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

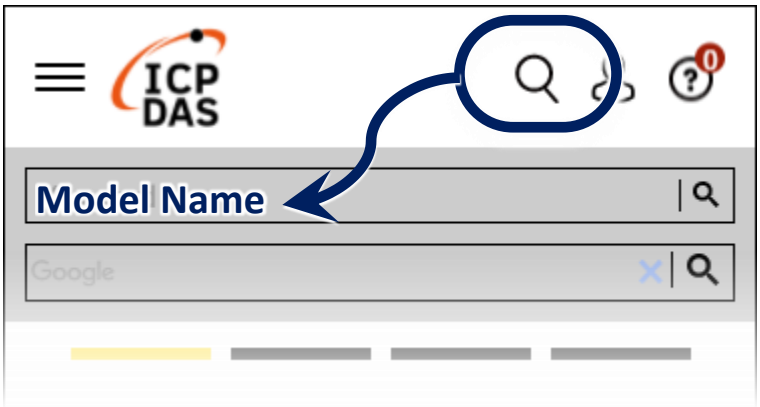
## Technical Support

service@icpdas.com
www.icpdas.com

## Resources

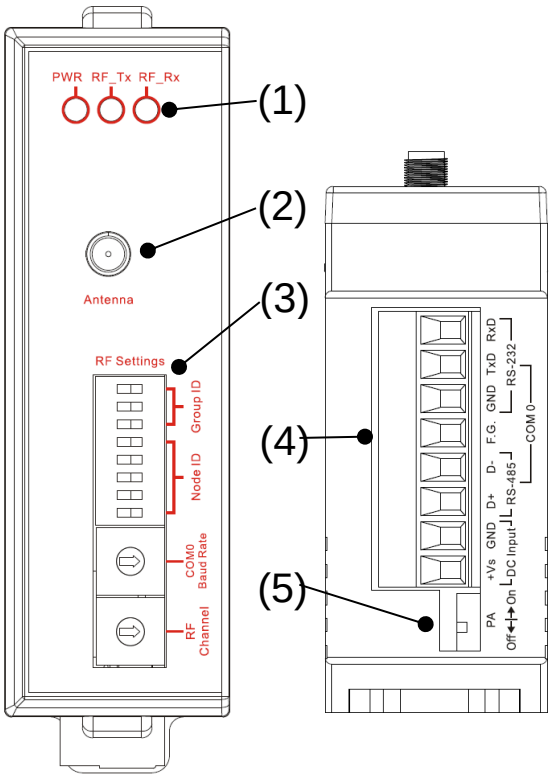
How to search for drivers, manuals and spec information on ICP DAS website.

- For Mobile Web



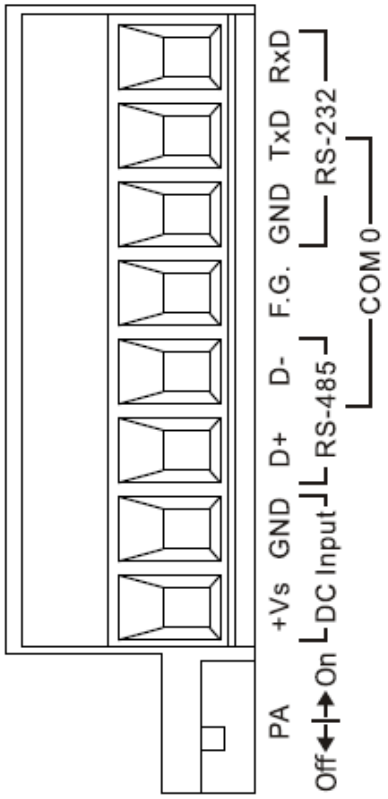

- For Desktop Web

# 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



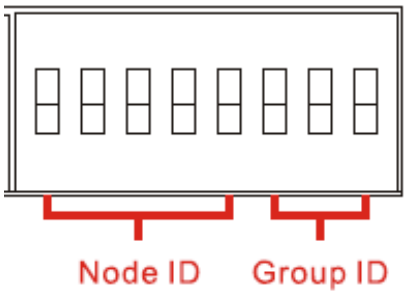

| Pin | Name | Instructions |
|---|---|---|
| 8 | RxD | RS-232 |
| 7 | TxD | |
| 6 | GND | |
| 5 | F.G | Shield ground |
| 4 | D- | RS-485 |
| 3 | D+ | |
| 2 | GND | +10V~+30VDC |
| 1 | +Vs | |

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

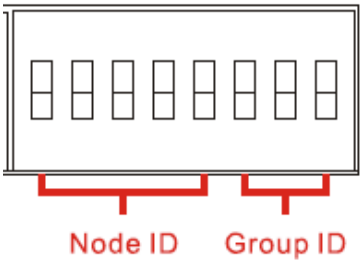
| Item | Instructions | |
|---|---|---|
| PA | ON | Maximum power of wireless output |
| | OFF | Normal power of wireless output |

# 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<br><br>■: ON<br>□: 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>




| Name | Instructions |
|---|---|

Node ID

■: ON

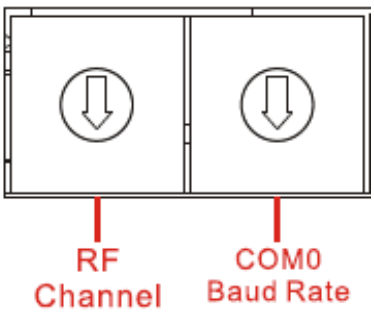
□: OFF

(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 | ■ | □ | ■ | ■ | □ |

| Name | Instructions |
|---|---|
| Node ID<br><br>■: ON<br>□: 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 | ■ | ■ | ■ | ■ | ■ |




| 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

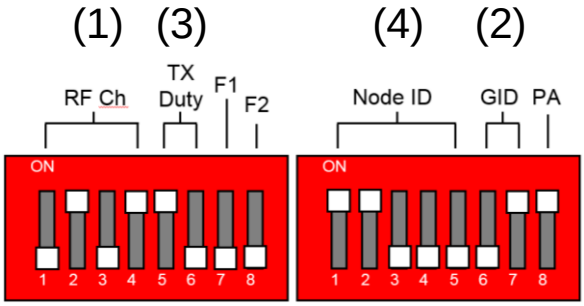
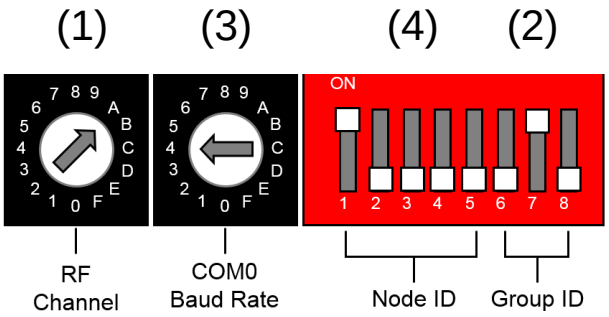
The module provides three LED indicators, including power (PWR), wireless transmission (RF_Tx) and wireless reception (RF_Rx) status. The table below will show the LED's status.

| 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 |

# 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　　PC

| 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<br>(10 seconds) | 3 | COM0 Baud Rate | 0x04<br>(9600 bps) |
| 4 | Node ID | 0x03 | 4 | Node ID | 0x01<br>(Modbus node 1) |

# 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)<br>(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]<br>Automatic response time period of iWSN sensor. | (Bit7~Bit6)<br>00: Bit0~Bit5 mean the unit is second.<br>01: Bit0~Bit5 mean the unit is minute.<br>10: Bit0~Bit5 mean the unit is hour.<br>11: Reserved.<br>(Bit5~Bit0)<br>Refer the unit of Bit7 and Bit6 to define the time scale.<br>Value 1 to 63: Mean 1~63 unit of time.<br>Value 0: Reserved. |
| | | | | [Low byte]<br>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.