Delta Electronics, Inc.

UNOnext

Troubleshooting: RS485

V20220225

Smarter. Greener. Together.

RS485

Following the documents: UNOnext quick start guide and UNOnext Modbus RTU the *Building Management System* (BMS) system retrieves the UNOnext data via RS485 interface. If there is any trouble, please check the items below to verify the environment and device settings in the RS485 bus. All referred documents can be found at https://isdweb.deltaww.com/resources.

Wi-Fi connection LED (green)
Wi-Fi power LED (red)
Terminal block
Filter reset DIP switch Adapter connector
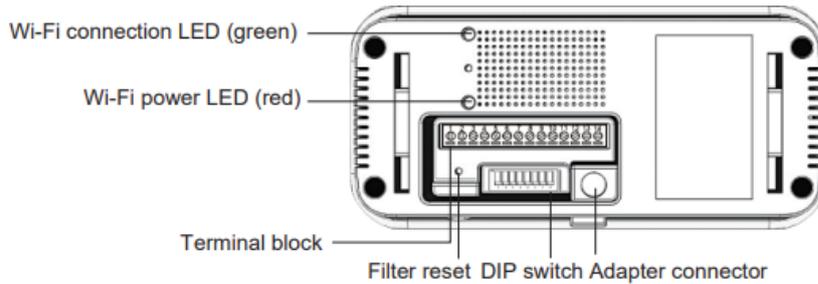
Table1. Terminal block pin function definition

Pin	Pin name	Definition
1	GND	Ground
2	AI1	Analog input-1 External temperature sensor
3	AI2	Analog input 2
4	NO4	Digital output - HF
5	NO3	Digital output - MF
6	NO2	Digital output - LF
7	NO1	Digital output – ON/OFF
8	B2	Modbus slave B
9	A2	Modbus slave A
10	B1	Modbus host B
11	A1	Modbus host A
12	GND	Ground
13	Vin	9-24V DC input
14	Vout	9-24V DC output

Table2. DIP switch function definition

Number	Switch Definition	ON	OFF
1	Modbus terminal resistor		■
2	Modbus slave position [3]		■
3	Modbus slave position [2]		■
4	Modbus slave position [1]		■
5	Modbus slave position [0]		■
6	Maximum fan speed [1]		■
7	Maximum fan speed [0]		■
8	Control mode selection		■

* The above are the default states of the DIP switches

Environment Settings

1. Check for correct power from the 9-24V DC input or adapter is correct.

   If the power supply is normal and the UNOnext hardware is normal, the power led is on. If the power supply

   is normal but the power led is not on, **please send UNOnext back for repair**.
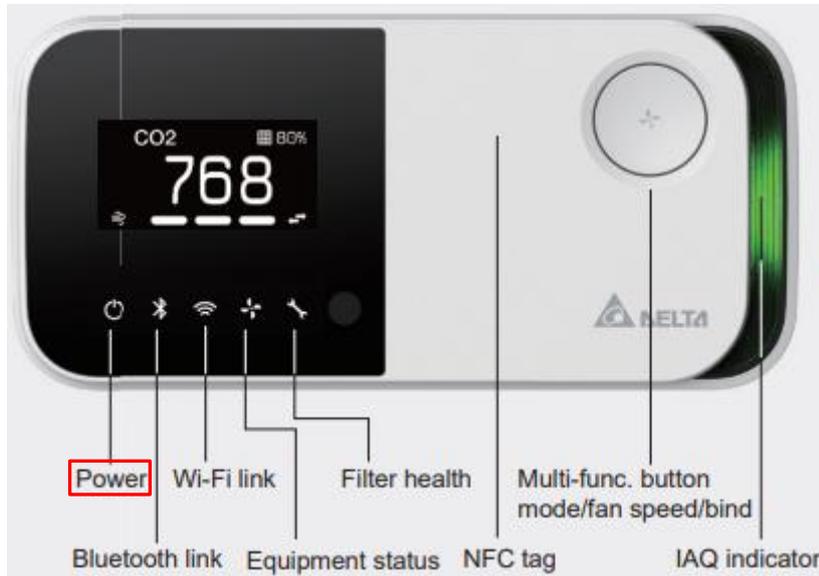
2. Check that A2 (+) and B2 (-) are properly connected to Modbus RTU client.

3. Check the cable specifications.

   It is recommended to use **a 22AWG/24AWG multi-core shielded twisted pair cable** or above to achieve the

   best performance for UNOnext.

4. Check that the signal and power wire are in the same conduit or not.

   It is recommended to **separate the signal and power wire into separate conduit**. Or use the individual power

   supply for UNOnext.

   Please refer the following suggested RS485 wire specs:

   Twisted Pair Cable

● 22-24AWG twisted pair, shielded jacketed communication cable.
● Characteristic impedance of 100-120 ohms.
● Capacitance of 17 pF/ft conductor-to-conductor or less. 18AWG cable does not meeting this specification.
● Braided or aluminum foil shield.
● Velocity of propagation of 66% or higher.

   Example compatible cable products are Belden 9841, Belden 82841 and Windy City Wire 42002-S

Device Settings

1. Check the Modbus RTU slave address settings.

   The Modbus RTU slave address is set by DIP switch from [2] to [5] in the back of UNOnext. The DIP definition corresponding to the slave address is shown as below table.

Modbus Salve Address		PIN No. of DIP switches			
Decimal	Hexadecimal	2	3	4	5
208	0xD0	↓	↓	↓	↓
209	0xD1	↓	↓	↓	↑
210	0xD2	↓	↓	↑	↓
211	0xD3	↓	↓	↑	↑
212	0xD4	↓	↑	↓	↓
213	0xD5	↓	↑	↓	↑
214	0xD6	↓	↑	↑	↓
215	0xD7	↓	↑	↑	↑
216	0xD8	↑	↓	↓	↓
217	0xD9	↑	↓	↓	↑
218	0xDA	↑	↓	↑	↓
219	0xDB	↑	↓	↑	↑
220	0xDC	↑	↑	↓	↓
221	0xDD	↑	↑	↓	↑
222	0xDE	↑	↑	↑	↓
223	0xDF	↑	↑	↑	↑

2. Check the UART settings.

   The UART settings for UNOnext as:

   - Baud: 9600 by default, also supports 38400, 57600, 115200 modified by Modbus RTU protocol. (See UNOnext Modbus RTU)

   - Data-bit: 8

   - Parity: None

   - Stop-bit: 1

3. If the UNOnext daisy-chained for longer distances, please pull up the DIP switch [1] to enable Modbus terminal resister to try.

4. Try a factory reset.

If the problem is still not solved after checking and modifying the above device settings, please try to restore the factory settings.

<u>METHOD</u>: After booting, press the filter reset key three times duration one second to execute factory reset.

After factory reset, all settings will be cleaned.

Note. If all actions do not resolve the problem, please contact your dealer for assistance.