

RFU-400 Quick Start

RS-232/RS-485 to 429/433MHz Modem

1. Packing List

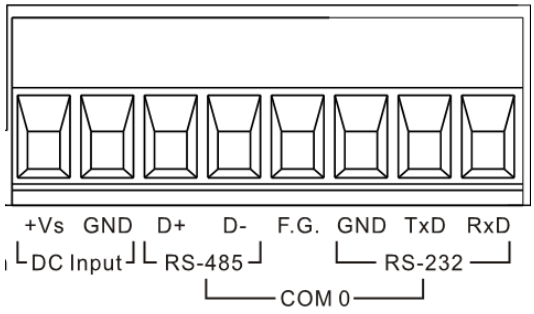
The RFU-400 Package includes the following items:

- RFU-400 Module
- Screwdriver
- ANT-104-01
- Quick Start

2. Specifications & Features

- Frequency Range: **429.1750 MHz ~ 429.9250 MHz** and **433.1 MHz ~ 434.6 MHz**
- Channel Spacing: 12.5 kHz for 429 MHz band and 100 kHz for 433 MHz band
- Channel Number: 16
- Output Power: 10 dBm / 19 dBm
- Modulation Technique: GFSK
- Group ID: 0 ~ 7
- RF Data Rate: 650, 9600, 38400, 115200 bps
- Communication distance: 1000 m (in open areas with 9600 bps RF Data Rate)
- Antenna Connector: SMA
- Serial Port: COM 0 (RS-232 and RS-485 bypass)
- COM Port Data Rate: 1200 ~ 115200 bps
- COM Port Data Format: N,8,1 / O,8,1 / E,8,1
- LED: PWR, RF_Tx, RF_Rx
- 2500 Vrms photocouple isolation on power.
- ±4 kV ESD to contact.
- Reverse polarity protection and Short protection on power.
- Power requirement +10 V_{DC} ~ +30 V_{DC}.
- Power consumption 1 W @ 24 V_{DC}.
- Operating Temperature: -25℃ ~ +75℃.
- Storage Temperature: -30℃ ~ +80℃.
- Humidity: 10 to 90% RH (Non-condensing)
- Module Dimensions (not include antenna): 33 mm x 106 mm x 85 mm (W x L x H)
- Antenna Dimension: 108 mm x Ø10mm

3. Pin Assignment

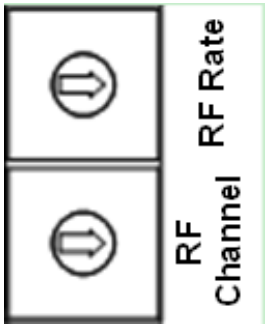


Pin	Description
+Vs	+10 ~ +30 V_{DC}
GND	Power Ground
D+	RS-485 Logic High
D-	RS-485 Logic Low
F.G.	Frame Ground
GND	RS-232 Ground
TxD	RS-232 Transmit Data Pin
RxD	RS-232 Received Data Pin

4. LED

LED	Behavior	Description
PWR	On	+10 ~ +30 V_{DC} Power On
	Off	Power Off
RF_Tx	On	RF is transmitting data
	Off	RF is no data to transmit
RF_Rx	On	RF is receiving data
	Off	RF is no data to receive

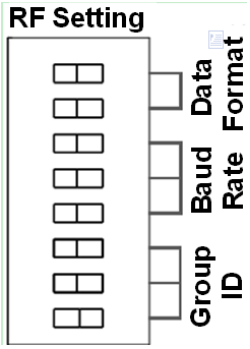
5. Rotary Switch

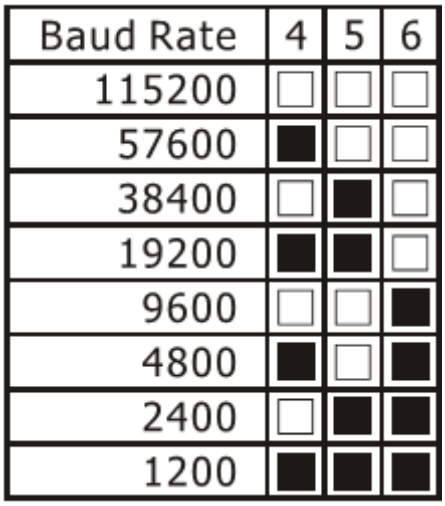
Switch Name		Description			
	** RF Rate (bps)	0	A	Auto the same with COM data rate	
		1	B	115200 bps	
		2	C	38400 bps	
		3	D	9600 bps	
		4	E	650 bps	
		F*		Check Firmware Version	
	RF Channel (MHz)	**0:** 429.8125 **/** 433.1000		**1:** 429.8250 **/** 433.2000	
		2: 429.8375 **/** 433.3000		**3:** 429.8500 **/** 433.4000	
		4: 429.8625 **/** 433.5000		**5:** 429.8750 **/** 433.6000	
		6: 429.8875 **/** 433.7000		**7:** 429.9000 **/** 433.8000	
		8: 429.9125 **/** 433.9000		**9:** 429.9250 **/** 434.0000	
		A: 429.1750 **/** 434.1000		**B:** 429.1875 **/** 434.2000	
		C: 429.2000 **/** 434.3000		**D:** 429.2125 **/** 434.4000	
		E: 429.2250 **/** 434.5000		**F:** 429.2375 **/** 434.6000	

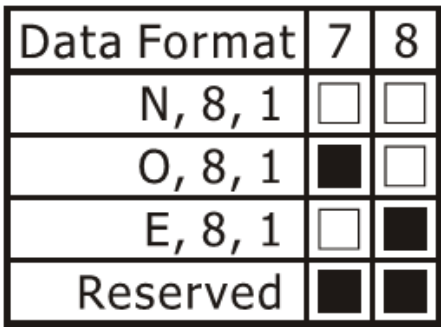
* The com port will send firmware version string such as "V01.00" once per 2 seconds.

** RF Rate switch **0 ~ 4 are 429 MHz** band, and **A ~ E are 433 MHz** band.

6. DIP Switch

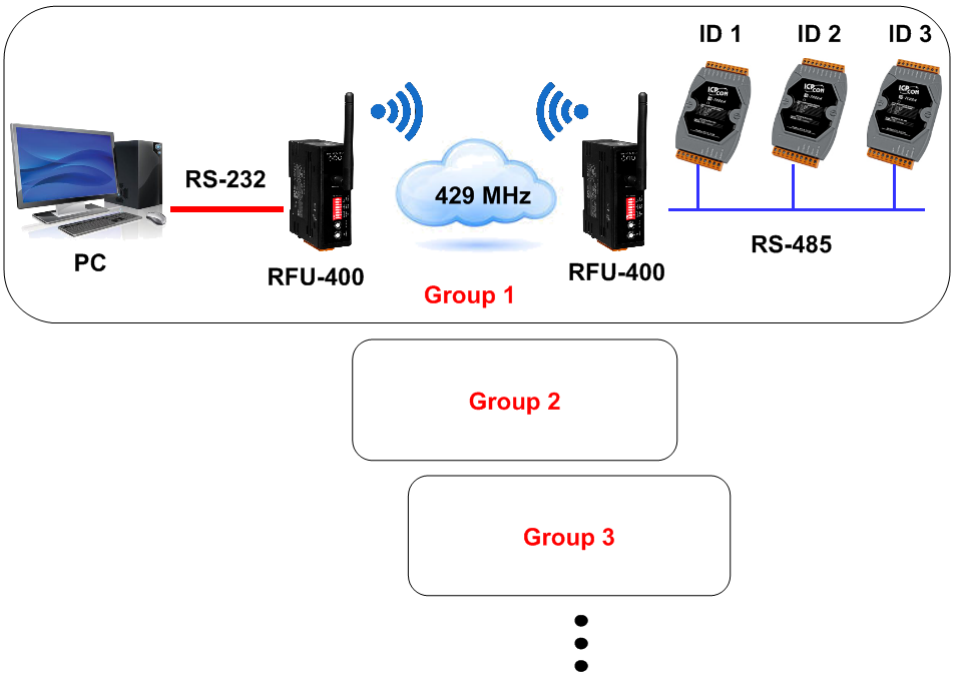
<table>
<tr><th></th><th>Pin</th><th>Switch Name</th><th colspan="2">Discription</th></tr>
<tr><td rowspan="3">
</td><td>1 ~ 3</td><td>Group ID</td><td colspan="2">RFU-400 of the same ID can communicate with each other.</td></tr>
<tr><td>4 ~ 6</td><td>COM Baud Rate

Black: On
White: Off</td><td colspan="2">
</td></tr>
<tr><td>7 ~ 8</td><td>COM Data Format

Black: On
White: Off</td><td colspan="2">
</td></tr>
<tr><td rowspan="2">
</td><td colspan="2" rowspan="2">Adjust RF Power</td><td>On</td><td>Maximum RF Power</td></tr>
<tr><td>Off</td><td>Normal RF Power</td></tr>
</table>

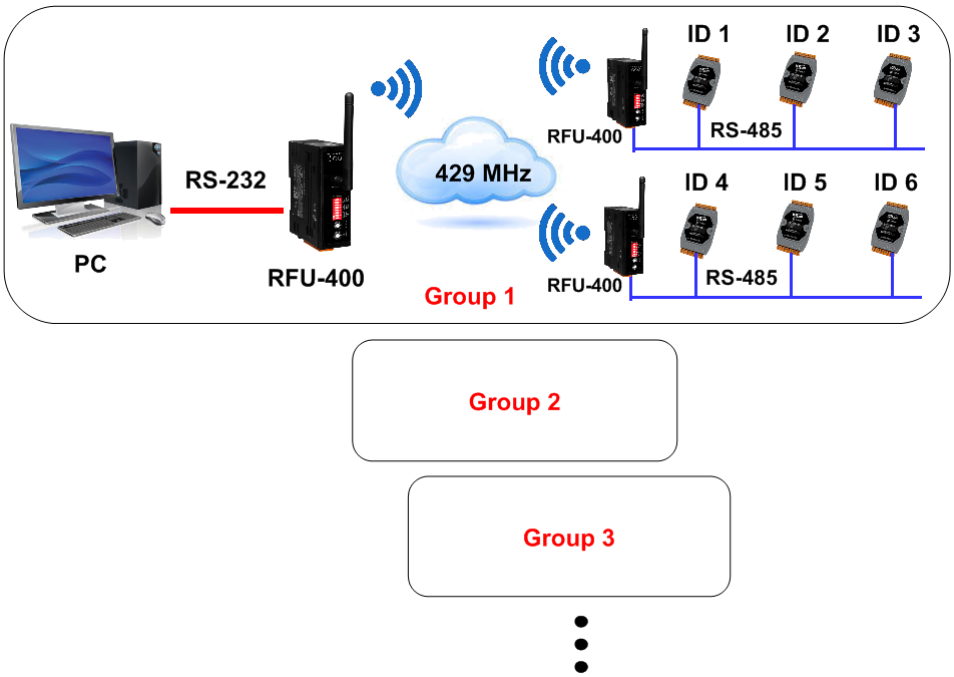
7. Application Example

Ex1: 1 - 1 Transfer



PC controls RS-485 modules 1 ~ 3 through RFU-400.

Ex2: Multi - 1 Transfer



PC controls RS-485 modules 1 ~ 3 through a RFU-400 and modules 4 ~ 6 through another RFU-400 with the same group ID.