

RFU-IO-433

433 MHz RF Wireless I/O Module, Single-Slot I/O Expansion Board

Features

- 433 MHz Radio Frequency
- 16 RF channels with 100 kHz channel spacing
- Provides RF Baud Rates from 650 to 57600 bps
- RF output power default 10 dBm, maximum 19 dBm
- Provides 4 Group IDs numbered from 0 ~ 3.
- Wireless line of sight (LOS) transmission range of up to 300 meters at an RF Baud Rate of 9600 bps and output power 10 dBm.
- Modbus RTU communication protocol.
- Modbus station ID: 1 ~ 32.
- Supports I/O pair-connection mode.
- Supports repeater mode

Introduction

RFU-IO-433 is a 433 MHz RF wireless I/O unit that uses the Modbus communication protocol. A remote Modbus master can use a 433 MHz wireless converter, such as the RFU-433, to convert Modbus commands into 433 MHz signals to control the I/O module on the RFU-IO-433, thereby implementing a wireless I/O solution. The RFU-IO-433 can achieve a transmission distance of 300 meters at a wireless baud rate of 9600 bps in a line-of-sight environment. To address potential environmental interference, the RFU-IO-433 offers multiple wireless baud rate options, ranging from 57600 bps to 650 bps, allowing users to make adjustments. Additionally, users can adjust the wireless channel and group ID to avoid interference between adjacent 433 MHz networks. The RFU-IO-433 supports repeater mode to overcome communication distance and dead zone issues. The RFU-IO-433 also provides I/O pair-connection mode for remote I/O control without a host. These features can be configured via rotary and dip switches, making system maintenance and equipment replacement simple and convenient.

Applications

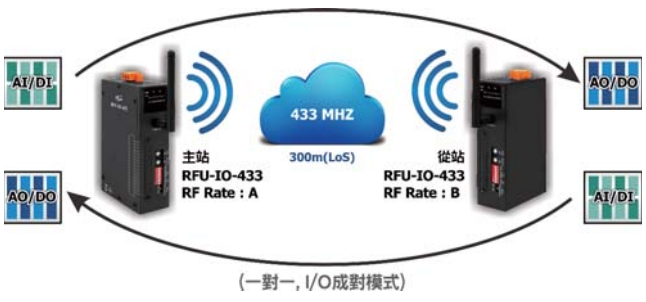
■ RF I/O Mode



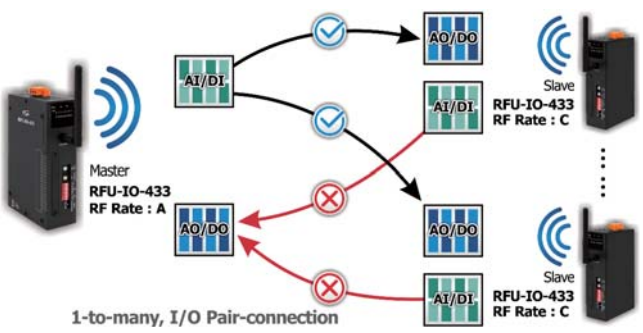
■ Repeater Mode



■ 1-to-1 Pair-connection Mode



■ 1-to-many Pair-connection Mode



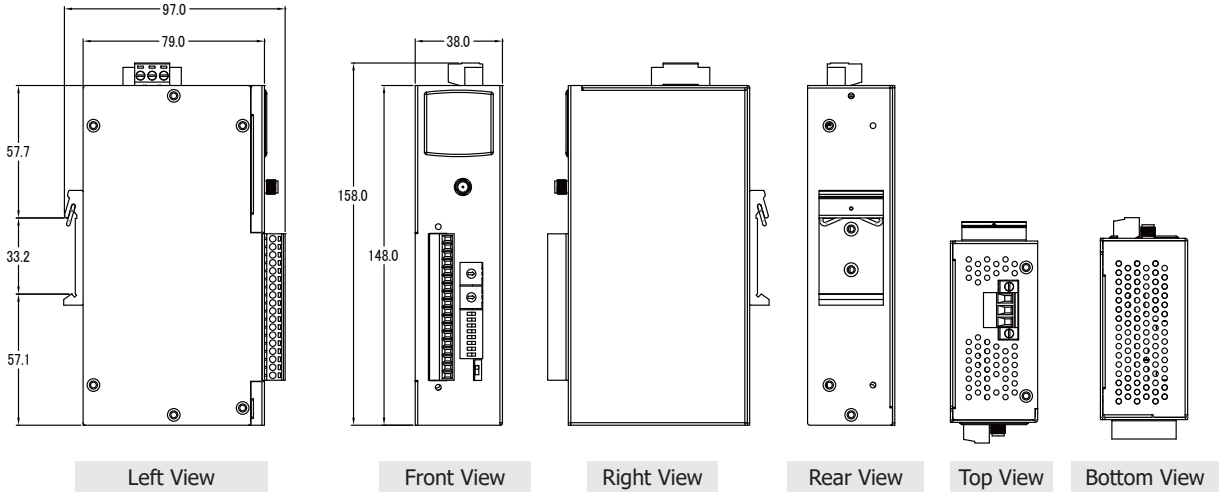
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System Specifications

Model	RFU-IO-433
EMS Protection	
EFT (IEC 61000-4-4)	+/- 1 kV
ESD (IEC 61000-4-2)	+/- 4 kV Contact
Surge (IEC 61000-4-5)	+/- 1 kV
LED Indicators	
Status	PWR * 1, Tx * 1, Rx * 1
RF	
Antenna	0 dBi Omni directional, RP-SMA
Baud Rate	650 ~ 57600 bps
Channels	433.1 MHz ~ 434.6 MHz
Group ID	0 ~ 3
Protocol	Modbus RTU
Radio Frequency	433.1 MHz ~ 434.6 MHz
Transmission Power	Default 10 dBm, Max 19 dBm
Transmission Distance (LoS)	300 m (9600 bps, output power 10 dBm)

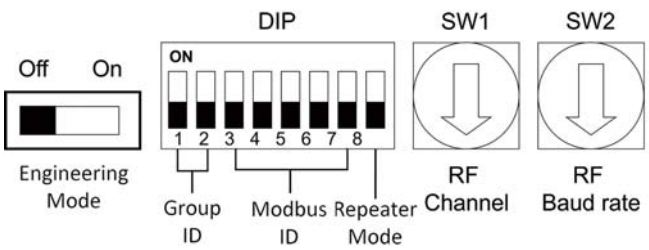
Model	RFU-IO-433
Antenna	
Dimensions (mm)	108 mm x 10 mm
I/O Expansion	
Slots	XV series I/O board * 1
Power	
Input Range	+10 VDC ~ +30 VDC
Consumption	3 W @ 24 VDC
Power	
Input Type	+10 ~ +30 VDC
Consumption	0.3 W
Mechanical	
Dimensions (mm)	150 mm x 38 mm x 97 mm
Installation	DIN-Rail
Environment	
Operating Temperature	-25°C ~ +75°C
Storage Temperature	-30°C ~ +80°C
Humidity	10 to 90% RH (Non-condensing)

Dimensions (Units: mm)



Pin Assignments

CONN	Pin	Description
 +Vs GND F.G	+Vs	Power: +10 ~ +30 V
	GND	
	F.G.	Frame Ground



XV-board supported list

DIO Expansion	Multi-Function Expansion
XV107 (A)	XV303
XV110	XV305
XV111 (A)	XV306
XV161-SL	XV307
Relay Output Expansion	XV308
XV116	XV310
XV119	XV315
Encoder/Frequency/Counter Input	PWM Output Expansion
XV484	XV488

Ordering Information

RFU-IO-433 CR	■ 433 MHz RF Wireless I/O Module, Single-Slot I/O Expansion Board (RoHS)

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