



IR-310-RM

Quick Start Guide

Apr 2013 Version 1.0

IR-310-RM – IR Controlled 10-ch High Power Relay Module

Package Contents:

- One IR-310-RM Module
- CA-0910 (RS-232 cable)
- One CA-IR-SH2251-5 (IR emitter cable)
- One CA-IR-001 (IR receiver cable)
- One IR Learning Remote (L108E)
- One FRA05-S12-SU (12 V_{DC} power supply)
- One 1C016 (Flat-head Screwdriver)
- One Steel Joint Plate (To join two IR-310-RMs)
- Two Rack Mount Brackets
- Two Wall Mount Brackets



Note:

If any of these items are missed or damaged, contact the local distributors for more information. Save the shipping materials and cartons in case you want to ship in the future.

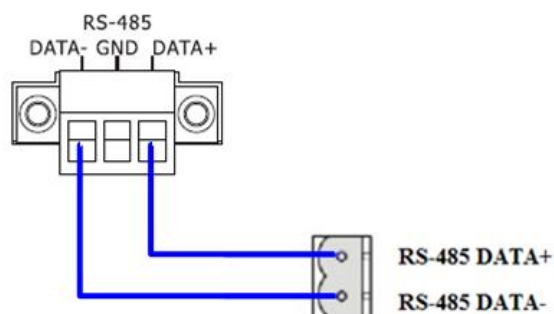
1. Installation

1.1 Wire Connection of Serial Port

Table 1: Pin assignments of serial port

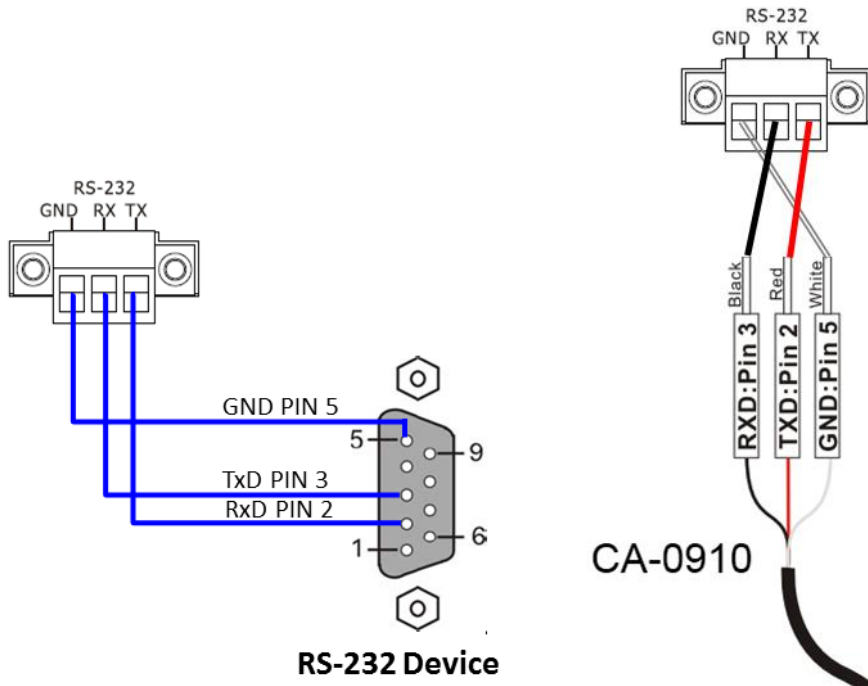
Serial port	Pin
RS-485	DATA+
	GND
	DATA-
RS-232	TxD
	RxD
	GND

➤ RS-485 Connection



RS-485 Device

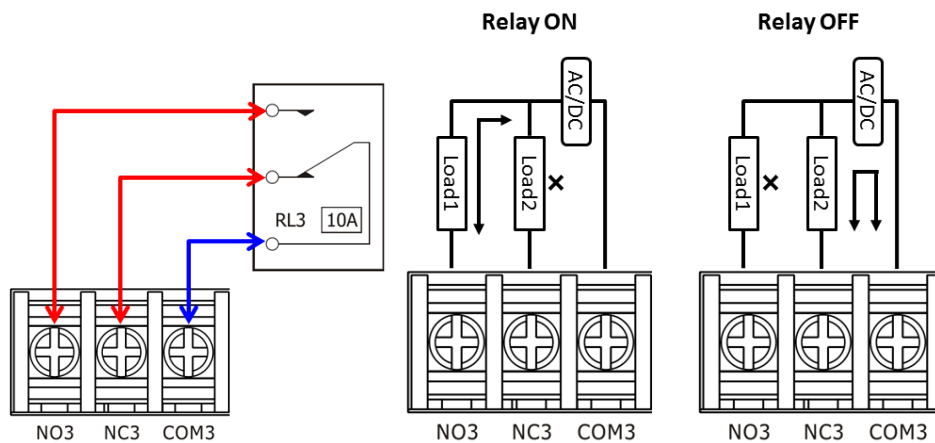
➤ **RS-232 Connection**



1.2 Wire Connection of Relay Terminal

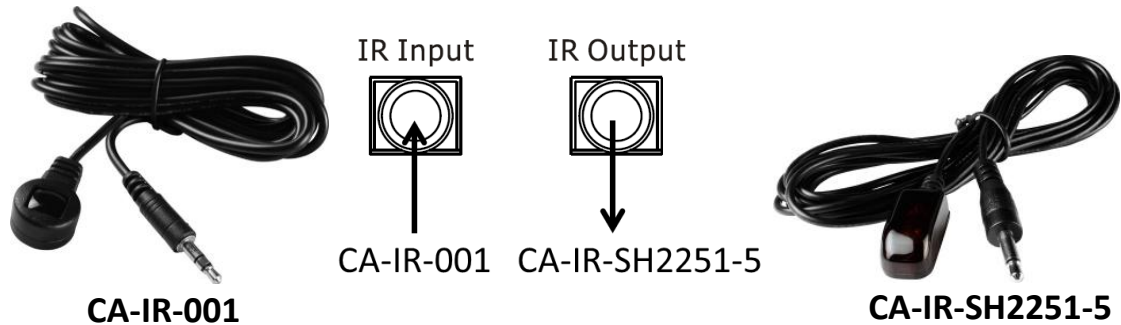
Table 2: Pin assignments of relays (# = 0 ~ 9)

Pin of Relay	Description
NO#	Normally Open
NC#	Normally Closed
COM#	Common



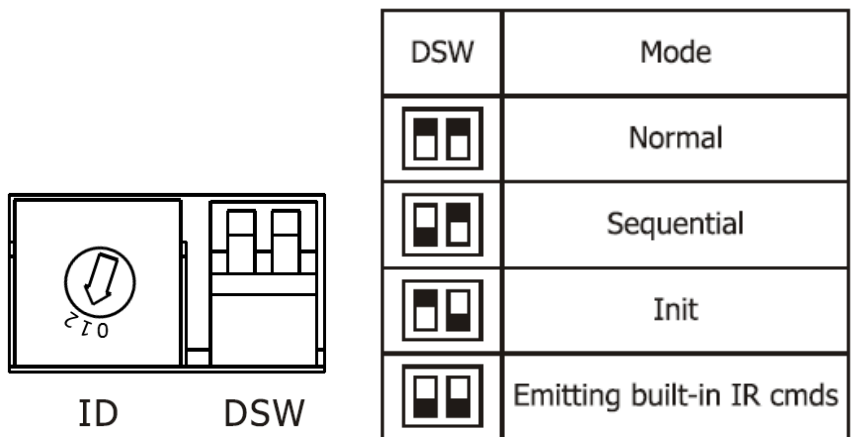
1.3 IR Interface

Please use IR receiver cable **CA-IR-001** for IR input jack and IR emitter cable **CA-IR-SH2251-5** for IR output jack.



1.4 Rotary and DIP Switch

The hardware Modbus address (Net ID) is decided by the rotary switch (ID = 1 ~ 15) where ID = 0 makes IR-310-RM apply software Net ID (1 ~ 247). The DIP switch provides four mode of operation as follows.



Make sure that the rotary switch is at ID = 1 and DIP switch is in Normal mode for the subsequent manipulation.

1.5 Power Connection

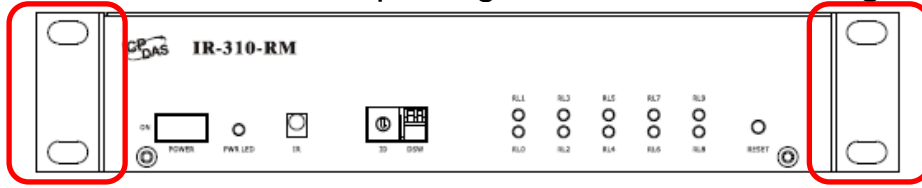
IR-310-RM only supports +12 V_{DC}. The power jack is at the rear of the module. The accompanied FRA05-S12-SU is the power supply for IR-310-RM.



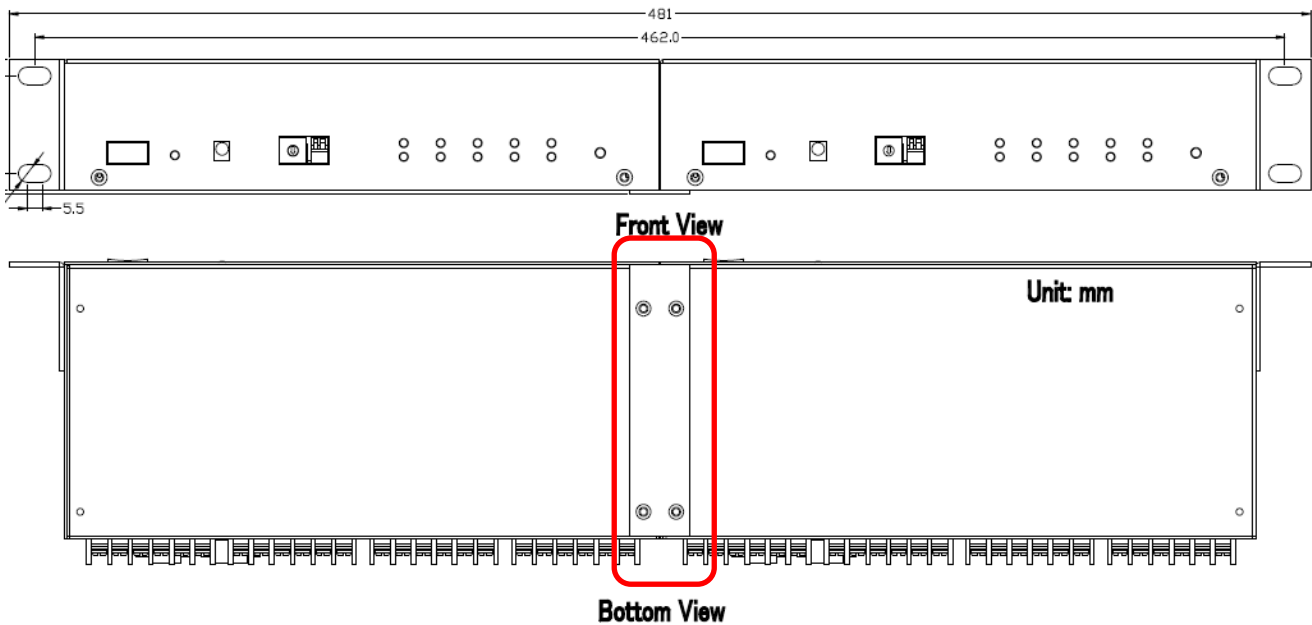
1.6 Rack and Wall Mounting

➤ Rack Mounting

The two rack mount brackets in the package are for rack mounting environment.

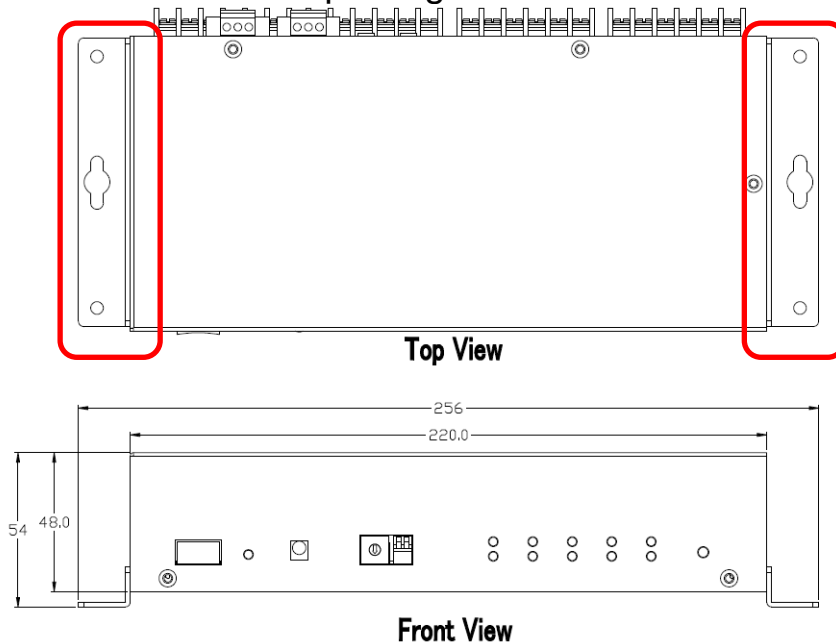


The steel joint plate can join two IR-310-RMs to be of 19" width for an equipment rack.



➤ Wall Mounting

The two wall mount brackets in the package are installed on the case as follows.



2. Configuration Tool for IR-310-RM

There are two ways to configure IR-310-RM: (1) IR utility; (2) Modbus FC100 Commands.

2.1 Configuration Utility – IR Utility (with IR-310-RM Utility)

Please get and install the setup file of IR utility (IR_Util_Setup_Vx_x_x_x.zip) from the accompanied CD or Web. The IR utility includes the IR-310-RM utility.

CD: [\napdos\IR-310-RM\software\utility\](#)

Web: <ftp://ftp.icpdas.com/pub/cd/usbcd/napdos/ir-310-rm/software/utility/>

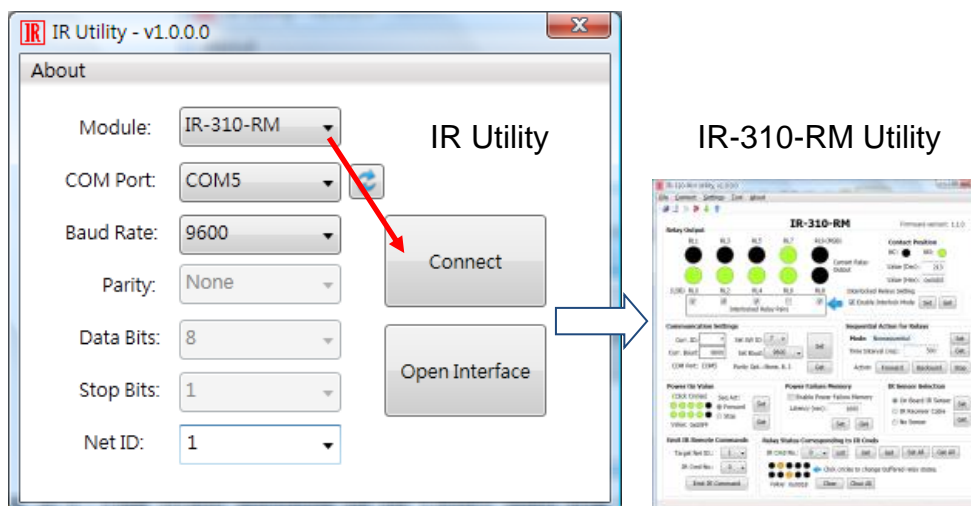
➤ Connect to IR-310-RM

The default communication settings of IR-310-RM are listed as follows.

Table 3: Default communication settings

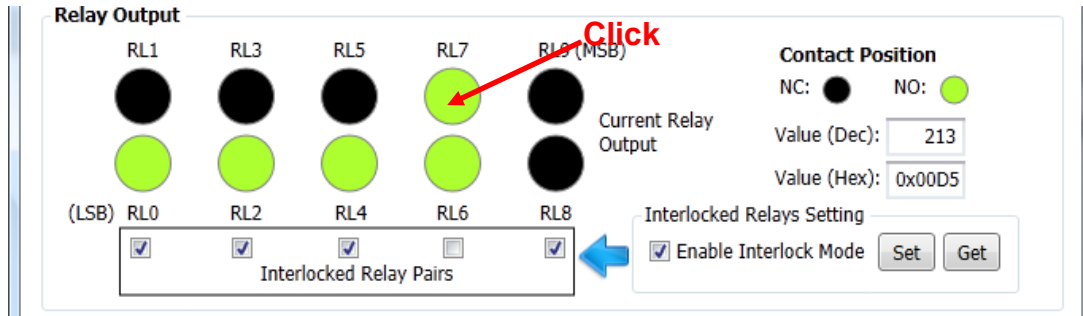
Item	Default value
Baud Rate	9600 bps
Parity/Databits/Stopbits	None/8/1
Modbus Net ID	1 (RSW ID = 1)

Launch IR utility and connect to IR-310-RM with the default communication setting. The window of IR-310-RM utility will appear after connection.



➤ **View and test the current relay outputs**

Current states of 10 relays are indicated in the Relay Output section. Relay states can be changed by clicking the circles.

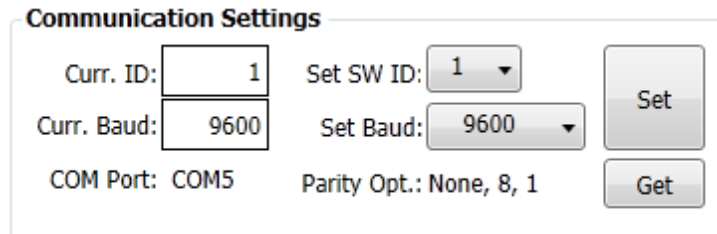


➤ **Set interlocked mode**

Interlocked mode and interlocked relay pairs can be set in the Relay Output section. Check/uncheck the checkboxes and click “Set” button to take effect the setting.

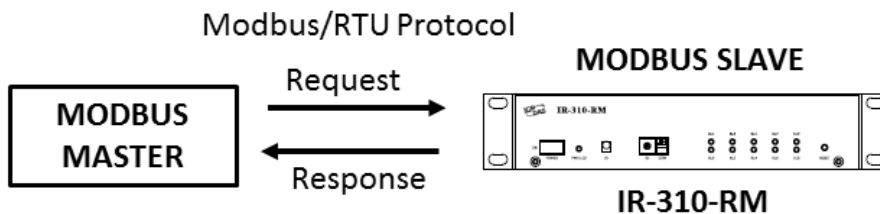
➤ **Communication Settings**

This section provides the setting of baud rate and software Modbus Net ID. Software Modbus Net ID is effective when the value of rotary switch is 0. Please reset the module after clicking the Set button to take effect the communication settings.



2.2 Modbus Commands for IR-310-RM

There are Modbus/RTU commands (FC01/FC05/FC15/FC100) for Modbus master devices to control and configure IR-310-RM. Please refer to Chapter 5 of the *IR-310-RM User Manual* for the details.



3. Relay Control by the IR Remote

Please use an IR learning Remote (such as the accompanied L108E) to learn the IR commands for IR-310-RM.

3.1 Test by L108E

By default, the IR learning remote L108E has stored 12 built-in IR commands as shown in Table 4 for the IR-310-RM with Net ID = 1. Users can press these buttons to test IR remote function immediately.



Table 4: Default buttons of L108E

button	IR Cmd#	button	IR Cmd#
+	#192 (10 relays ON)	4	#198 (RL4 ON, others OFF)
-	#193 (10 relays OFF)	5	#199 (RL5 ON, others OFF)
0	#194 (RL0 ON, others OFF)	6	#200 (RL6 ON, others OFF)
1	#195 (RL1 ON, others OFF)	7	#201 (RL7 ON, others OFF)
2	#196 (RL2 ON, others OFF)	8	#202 (RL8 ON, others OFF)
3	#197 (RL3 ON, others OFF)	9	#203 (RL9 ON, others OFF)

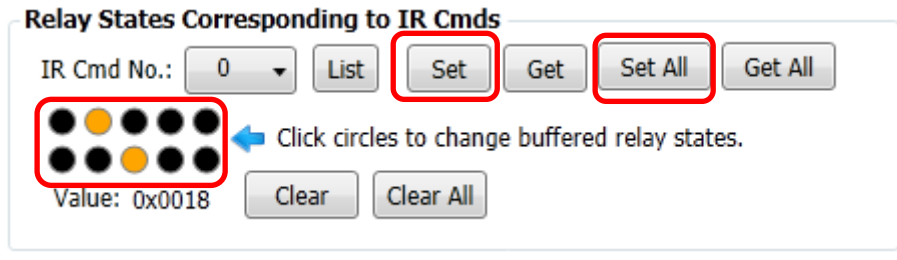
Please refer to the Appendix A of the *IR-310-RM User Manual* for the table of the built-in IR commands numbers. There are *single-relay-controlled IR commands* (#204 ~ #223) in the table, too.

3.2 Steps to learn IR commands by an IR learning remote

A. Download IR-relay-states to IR-310-RM

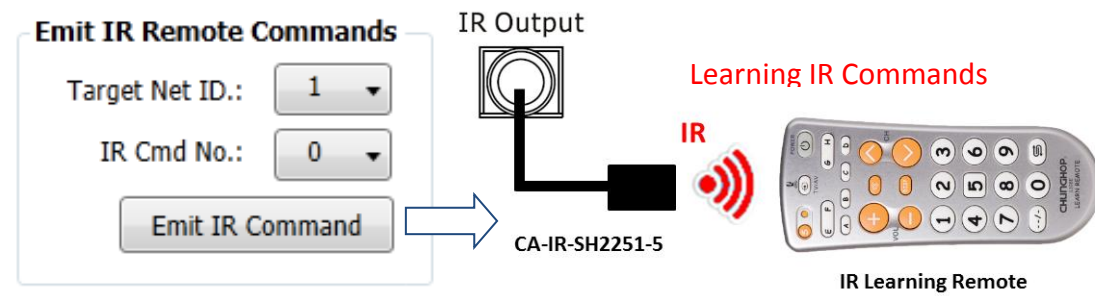
Launch IR-310-RM utility and go to the section of the “Relay States Corresponding to IR Cmds”. IR-relay-state can be buffered in each item (#=0~63) of the “IR Cmd No.” combobox by clicking the circles representing the 10 relays (RL0 ~ RL9). Click a circle ON/OFF means the relay ON(Normally open)/OFF(Normally closed).

- Set button: Download the current IR-Relay-State to IR-310-RM.
- Set All button: Download all buffered IR-Relay-States to IR-310-RM.



B. Emit IR commands for IR learning remote

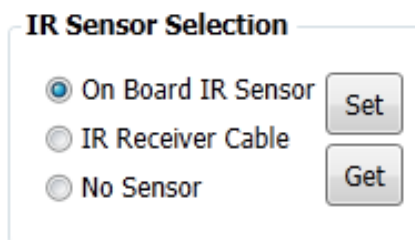
Plug the IR emitter cable (CA-IR-SH-2251-5) in the jack of IR output. Aim the head of the IR emitter cable to the IR emitter of the learning remote (L108E). Go to the “Emit IR Remote Commands” section. Click the “Emit IR Command” to emit the IR command for the specified Net ID.



C. IR Sensor selection

There are three selections of IR sensor sources can be set.

- (1) On-board IR sensor: The sensor is located in the front panel.
- (2) IR Receiver Cable: Use “IR Output” channel. CA-IR-001 needs to be plugged into the “IR Output” jack (3.5 mm audio jack).
- (3) No sensor: Disable the IR remote function.



4. Support

Welcome to contact ICP DAS for product and technical support.

Web: <http://www.icpdas.com>

Email: service@icpdas.com