

# RioExpress Quick Start Guide



## Cable Replacement

Thank you for buying the RioExpress Industrial Wireless I/O. This quick start guide covers the use of a pair of RioExpress modules to replicate (mirror) I/O signals for cable replacement. The G308-04E2 Starter Kit contains a pair of RioExpress units and the accessories needed to get started right out of the box.

**Step 1: Set one unit as the Master.** Note that both units come with the same default settings. Select one unit to be the Master and move the upper left DIP switch to the "Master" position. See Figure 1 & 2 below for proper settings.

**Step 2: Attach whip antenna** to each unit.

**Step 3: Apply power** to both units. It is best to power the Slave unit first.

The RioExpress units are now replicating (mirroring) I/O signals from one unit to the other. It can be that simple. The following sections explore the features of the RioExpress.

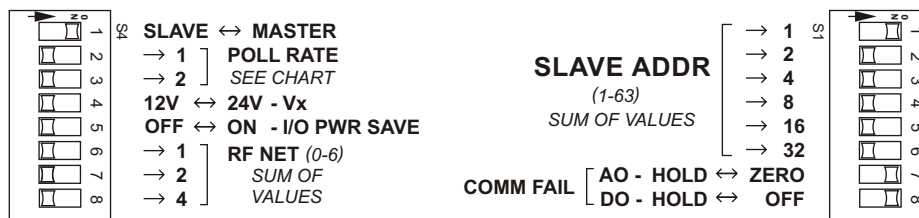


Figure 1 (Master Unit Settings)

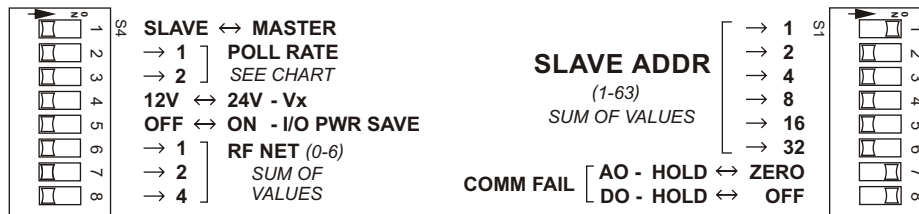


Figure 2 (Slave Unit Settings)

## I/O Signals

The inputs of one unit are replicated as the outputs of the other. On the MASTER unit connect a jumper wire from DI1 to GND. The DI1 LED on the MASTER unit will turn on and the DO1 on the SLAVE unit will turn on a fraction of a second later. The units are shipped with the Analog Inputs set to 0-20mA (4-20mA). Use a 4-20mA current generator to input an analog signal on AI1 of the MASTER or SLAVE unit. You can measure the corresponding current output signal on the IO1 of the other unit. The VO1 on the other unit will also output a corresponding 0-5V (1-5V) signal. If you desire to use a 0-5V (1-5V) input signal, remove the cover and select the 0-5V input on the Analog Input selection DIP switch. To remove the cover, power off the unit, unscrew the antenna, loosen the gold antenna connector mounting nut and remove the four screws on the top of the cover.

## LED Indicators

After applying power on each unit, the CPU LED will be on solid for one second. The TX1 and RX1 LEDs will then blink as the radio is configured. The CPU LED will then blink once per second. When the Master unit is powered up, it will transmit a message to the Slave unit and the Slave unit will reply (about four times per second in the continuous polling rate). This is indicated by the blinking of the TX1 and RX1 LEDs. With the units in the same room all three of the Received Signal Strength Indicator (RSSI) LEDs should be on indicating a strong RF signal.

## LED Enable Push Button

Except for the CPU LED, the LEDs will time out after 30 minutes and turn off to conserve energy. If the LEDs time out press the LED enable push button next to the CPU LED to enable the LEDs for another 30 minutes. Repeatedly pressing the LED enable push button will toggle the LEDs on and off.

## Communications Failure Action

To demonstrate the Comm Fail Action move the Slave Address Bit 1 DIP switch selection to the OFF position on the SLAVE unit. This will cause the units to stop communicating, and in the continuous poll rate, the MASTER and SLAVE units will time out after 20 seconds. Once the communications failure timeout has elapsed, the DO5 Comm. Fail output will turn on. With the COMM FAIL AO and DO set to ZERO and OFF respectively, the analog outputs will go to zero, and the relay outputs will turn off. Return the Slave Address Bit 1 DIP switch selection to the ON position on the SLAVE unit. After eight seconds of solid communications in the continuous poll rate the units will exit Comm Fail mode.

## Solar Application Settings

The RioExpress has several power saving features. A recommended low power configuration setting is depicted in Figure 3 and Figure 4.

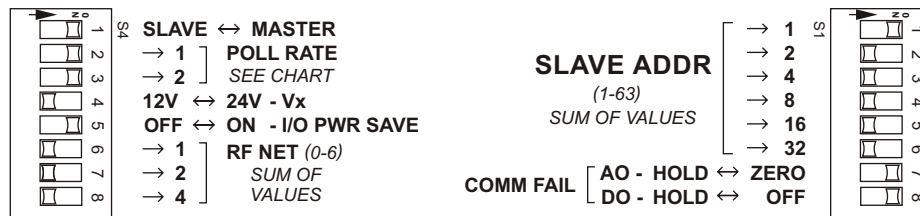


Figure 3 (Master Unit Settings, Solar)

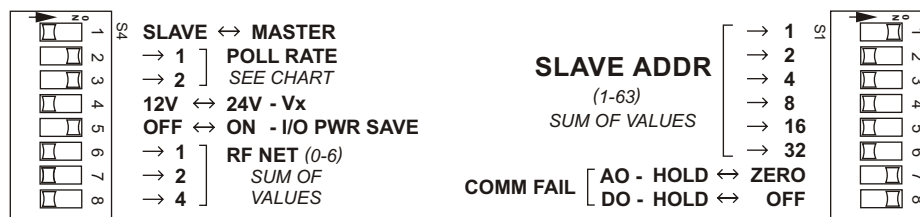


Figure 4 (Slave Unit Settings, Solar)

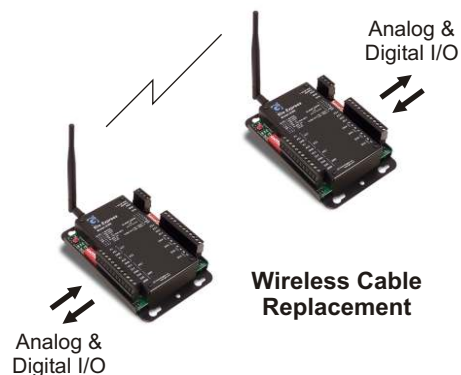
In this configuration the POLL RATE is set for once every minute and I/O PWR SAVE is turned on. The MASTER will poll the SLAVE, then both units will enter Power Save Mode for 58 seconds, then power-up for 2 seconds before the MASTER polls the SLAVE again. While in Power Save Mode the radio, sensor excitation voltage and digital input wetting voltage will be turned off. Depending on the power consumption of the sensors connected to the RioExpress a 1-5 Watt solar module and a 2-12AHR battery may be used for input monitoring installations.

Refer to the RioExpress User's Guide for more information, including information needed to use the RioExpress as a Modbus Slave Wireless I/O device.

For Sales and Support contact G3 Technologies, Inc.

### G308-04-E2 Starter Kit Content

- 2 ea. Model G308-04, RioExpress Wireless I/O
- 2 ea. Whip Antenna
- 2 ea. Wall Cube Power Supply, 12Vdc
- 1 ea. RioExpress Quick Start Guide
- 1 ea. RioExpress User's Guide



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