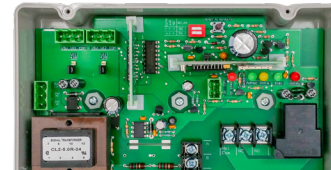
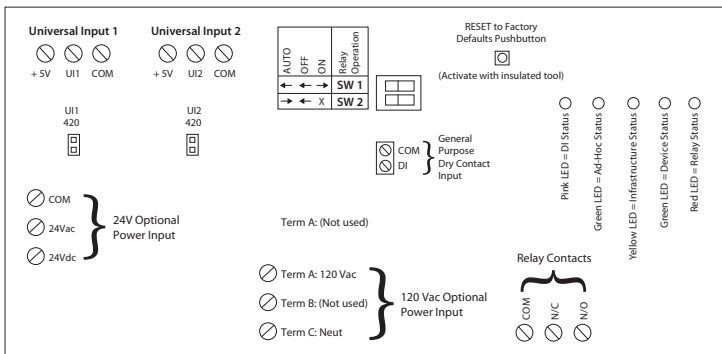




NETWORK COMPATIBLE RELAY

RIBTW2401B-WIUI-N4

Wifi IEEE 802.11 b/g Network Enclosed I/O Device: One Discrete Output (20 Amp Relay SPDT + Override), One Discrete Input (Dry Contact, Class 2); Two Universal Inputs; 24 Vac/dc, 120 Vac Power



Shown
With
Cover

Code Version 5.1.31.0



SPECIFICATIONS

Relays & Contact Type: One (1) SPDT Continuous Duty Coil
Expected Relay Life: 10 million cycles minimum mechanical
Operating Temperature: -30 to 140° F
Operate Time: 18ms
Pink LED: Digital Input Status
Green LED: Wifi Ad-Hoc Status
Yellow LED: Wifi Infrastructure Status
Green LED: Device Status
Red LED: Relay Status
Dimensions: 4.28" x 7.00" x 2.00" with .75" NPT Nipple
Approvals: UL Listed, UL916, C-UL
Housing Rating: UL Accepted for Use in Plenum, NEMA 4X
Gold Flash: No
Relay Override Switch: DIP Switch Control
Wifi: IEEE 802.11 b/g/n Compatible, (G)
 54 Mbps Data Rate
 -95 dBm Sensitivity
 +16 dBm Output Power
 (WPA-PSK or WPA-2-PSK Available)
 Supports PING and ARP
 DSSS Modulation
Security: Customer can choose to have Webpage and Controller Commands authentication-secured with Username and Password.

Contact Ratings:
 20 Amp Resistive @ 277 Vac
 5 Amp Resistive @ 480 Vac
 20 Amp Ballast @ 277 Vac
 16 Amp Electronic Ballast @ 277 Vac (N/O)
 10 Amp Tungsten @ 120 Vac (N/O)
 1110 VA Pilot Duty @ 277 Vac
 770 VA Pilot Duty @ 120 Vac
 1 HP @ 120 Vac
 2 HP @ 277 Vac

Power Input Ratings:
 158 mA Max @ 24 Vac
 110 mA Max @ 24 Vdc
 55 mA Max @ 120 Vac

Available TCP/IP Settings:
 • IP Address (Static)
 • Port Number
 • Subnet Mask
 • Gateway Address
 • Ad-Hoc mode (Default)
 • Infrastructure mode
 • Scan for wireless networks

Device Settings:
 • Local Override
 • Reset to Network Defaults Pushbutton

Power Input (Use one):
 24 Vac = Terminal Strip (20 Vac min. ; 28 Vac max.)
 24 Vdc = Terminal Strip (24 Vdc min. ; 28 Vdc max.)
 120 Vac = Terminal Strip

Device Settings by Network:
 • Power up default relay state
 • Host name and location labels
 • Relay bound to digital input
 • Username and Password security:
 Note: There will be no security if password field is left blank. A password may be entered that will secure the webpage as well as Controller Commands. Eight alpha-numerical characters case-sensitive.

CAUTION: Remove all connections to UI 1 and UI 2 when setting input.

Universal Input: Configurable by internal device web page, accessible in either Ad-Hoc or Infrastructure.

- Analog value returned, user configurable min. and max. scale, and label, 0-5 Vdc, 0-10 Vdc, or 4-20 mA*, connect between UI and Com.
- Direct temperature reading from Type T2 Thermistor. Connect between +5 Vdc and UI input.
- Digital Input, connect between +5 Vdc and UI input.

* 4-20 mA, when used, requires jumper to be installed on UI set for 4-20 mA input. Jumper MUST be removed when UI input used as anything other than 4-20 mA.

For application manual, please visit: www.functionaldevices.com

Wi-Fi RIB™ – Getting Started

Note: *Ad-Hoc Mode must be used for set-up and may be used for permanent use.*

1. Make note of current computer IP settings and restore settings when finished. If you are unsure of settings, contact your network administrator.
2. Make sure computer is set to DHCP mode, then connect to Wi-Fi RIB™ as follows.
3. Connect and apply power to the Wi-Fi RIB™ (24Vac or 24Vdc recommended for setup to avoid Line Voltage wiring; all settings will be maintained when power is removed.) The green Device Status LED will flash at a rate of once per second and the green Ad-Hoc Status LED will stay lit while in Ad-Hoc Mode, yellow Infrastructure Status LED will remain off while in Ad-Hoc Mode (see Device LEDs for other LED indications.)
4. View Wi-Fi connections on the computer. Look for the network called “RIBTW2401B-WIUI” and connect. This establishes a connection between the Wi-Fi RIB™ and the computer in an Ad-Hoc network.
5. In any Internet web browser such as Safari®, Firefox®, or Internet Explorer®, type in the default factory address of 192.168.100.10 and press enter.
Note: If a password has been entered on Setup page for Authentication Security, authentication may be required after pressing enter.

Main Page – (Click “Main” link at top of page to return to this page)

In the web browser window, you should see the Wi-Fi RIB™ main web page. You will be able to control the relay and read status. To change the state of the relay, click the “on” or “off” button and click “Set Relay”. At the bottom of the page you can see: status of relay, last command, universal inputs 1 and 2 and their associated digital inputs, DI 1 and DI 2 (webpage allows one or both universal inputs to be configured as digital inputs and are usable as such, in addition to the general purpose digital input.)

Setup Page – Network and operational settings (Click “Setup” link at top of page.)

Note: *Settings can be viewed on Main Page status or in the xml status page.*

1. Change the RIB default IP address, port number, subnet mask, or gateway if desired – click save after each setting.

Note: *The Wi-Fi RIB™ ships from the factory with a default IP address of 192.168.100.10, default gateway of 192.168.100.1, and default subnet mask of 255.255.255.224, and has a unique MAC address for use on the internet or on an internal intranet or network. If at anytime an incorrect address is used or address is forgotten, the Wi-Fi RIB™ may be returned to factory defaults by pressing the RESET pushbutton on the Wi-Fi RIB™ until the Device Status LED flashes rapidly (approx. 5 seconds).*

2. Choose to enable Username/Password Authentication security, or not. To enable security, enter up to eight alpha-numerical characters in the Password field case-sensitive. (Username defaults to admin and cannot be changed.)
3. Set “Device Name” and click save. Set “Device Location” and click save. (Up to 16 characters.)
4. “Default Relay Setting” determines the state to which the relay will default upon return from deliberate power-cycle or due to power loss. Make selection for relay to come on, stay off, or return to last commanded state. After power-up, the relay will follow commanded states if communications are restored, unless bound to digital input.
5. “General Purpose Digital Input/Relay Binding” allows the relay to be controlled from the Dry Contact GP Digital Input if desired. If bound, the relay will follow the state of the Digital Input (typical application: motion-detector closes dry contact input, relay turns on light). If unbound, the Digital Input may be used as a general-purpose status input or otherwise (independent of relay).
6. “Universal Input 1 Setup” and “Universal Input 2 Setup” are used to setup input to analog 0-5 V, 0-10 V, or 4-20 mA; or Thermistor input in Degrees F or C. Analog inputs use min. and max. of scale and units set by user. Min. and max. are not used when T2 Thermistor selected.

Web Page – To enter the Wi-Fi RIB™ into Infrastructure Mode or to return to Ad-Hoc Mode. (Click “Wifi” link on top of page)

***Note 1:** If a mistake is made setting up the Wi-Fi RIB™, it may be necessary to manually return to Ad-Hoc Mode. Pressing the RESET pushbutton (about 5 seconds) on the Wi-Fi RIB™ will return it to factory default settings, including returning it to Ad-Hoc Mode.*

***Note 2:** You may scan for the desired router if in range, or enter the name and security type of the router – the Wi-Fi RIB™ will retain the router information if power is removed from the Wi-Fi RIB™ and will find the router once power is restored to the Wi-Fi RIB™ if the router is in range.*

1. To scan for routers in range, click “Scan For Wireless Networks” to find search list of Wifi routers of desired infrastructure network and select router.

2. To enter the name and security type of the router, click “Other Network, and enter Mode, Network Name, Password Type (WEP, WPA), then press Join”. The green Ad-Hoc Status LED will extinguish and the yellow Infrastructure Status LED will begin flashing at a rate of once per second until the Wi-Fi RIB™ establishes connection to router and then stay on once completely connected (see Device LEDs for other LED indications).

The Wi-Fi RIB™ will be entered into the infrastructure network on the router. You must now go back to view wireless networks on the computer to connect to the same network to find the Wi-Fi RIB™. Once Wi-Fi RIB™ is connected to a router, you must wirelessly connect the laptop or controller to the same router to see and control the Wi-Fi RIB™ since it’s on different network.

Device LEDs – A description of all LED indications

- **Green Device Status LED:** Flashes at rate of once per second (LED will be on 1/2 second and off 1/2 second). Hesitation in LED may be seen when the Wi-Fi RIB™ is answering HTTP commands.
- **Green Ad-Hoc Status LED:** On solid while in Ad-Hoc mode. LED will be off when in Infrastructure Mode.
- **Yellow Infrastructure Status LED:** Flashes at rate of once per second (LED will be on 1/2 second and off 1/2 second) when Wi-Fi RIB™ is searching for router either during original connection, after power cycle of router or Wi-Fi RIB™, or network activity intended to disconnect Wi-Fi RIB™. LED will be off when in Ad-Hoc Mode.
- **Pink Digital Input Status LED:** On if Digital Input is closed, off if open.
- **Red Relay Status LED:** On if relay is activated (N/O closed, N/C open), off if deactivated (N/O open, N/C closed).

Sources of Relay Control and Order of Precedence

The relay may be controlled over the Wifi network by the web page or HTTP commands, by the general purpose Digital Input (if binding is set to Bound on the setup page), or manually by the override DIP switches on the Wi-Fi RIB™. The Digital Input (if binding activated) takes precedence over Wifi network commands, the DIP switches take precedence over both the Digital Input (if binding activated) and the Wifi network commands.

Wi-Fi RIB™ – Control and Status by HTTP Commands and XML

HTTP Get commands to control relay and get status bypassing Wi-Fi RIB™ webpage. Status returned in XML format.

Note: If password has been entered for Authentication Security on Setup page, URL usage (for all URLs below) must include admin/password as follows:

Before... (no admin/password used)

After... (with admin/password)

<http://192.168.100.10/ribon.htm?>

<http://admin:password@192.168.100.10/ribon.htm?>

To change password from controller:

<http://admin:oldpass@192.168.100.10/config.htm?Pass=newpass>

To turn relay on and off:

<http://192.168.100.10/ribon.htm?>

<http://192.168.100.10/riboff.htm?>

To configure relay power up state:

<http://192.168.100.10/config.htm?pwr=on>

<http://192.168.100.10/config.htm?pwr=off>

<http://192.168.100.10/config.htm?pwr=last>

To configure whether relay is bound or unbound to digital input:

<http://192.168.100.10/config.htm?dry=on>

<http://192.168.100.10/config.htm?dry=off>

To set name and location:

[http://192.168.100.10/config.htm?host=user defined text*](http://192.168.100.10/config.htm?host=user%20defined%20text*) (16 characters max)

[http://192.168.100.10/config.htm?loc=user defined text*](http://192.168.100.10/config.htm?loc=user%20defined%20text*) (16 characters max)

* Follow standard URL encoding. Avoid non-alphanumeric characters as they may be interpreted as Escape Codes and may cause errors.

To reset device:

<http://192.168.100.10/reset.htm>

To configure Universal Inputs 1 and 2:

The universal inputs can be set up via 4 different methods; manually through the web page via a PC/Smart Phone, sending HTTP GET commands to the device over the network from a controller, or thru a web browser, or by clicking on predefined setup links, similar to bookmarks in a web browser, or clickable links within a Word document.

There are 5 different modes that the universal inputs support.

1. di05 – 0-5Vdc input mode with OPEN or CLOSED feedback. If input is less than or equal to 0.5 Volts, the digital input status will show "OPEN". When the input voltage is greater than or equal to 4.5 volts, the digital input status will show "CLOSED". When the input voltage is in between, the digital input status will show "NULL".
2. 010 – 0-10Vdc input mode.
3. 420 – 4-20mA input mode – with additional hardware jumper installed.
4. therf – Type 2 thermistor input mode with results in Fahrenheit.
5. therec – Type 2 thermistor input mode with results in Celsius.

The 0-5Vdc, 0-10Vdc, and the 4-20mA inputs all support using minimum and maximum scaling (floating point values), and provide a measurement units entry field. i.e. If input is set to 0-5Vdc input, with a minimum scale value of 0.00, and a maximum scale value of 100, with units set to Volts. A 2.5 Volt input would produce a 50% result. If scales were changed to min of 0, and a max of 5, then a 2.5Vdc input would produce a 2.5Vdc one for one result.

Example usage for setup for UI1 and UI2, via controller, or web browser.

[http://192.168.100.10/ config.htm?ui1=di05&min1=0.00&max1=100.00&unt1=Vdc](http://192.168.100.10/config.htm?ui1=di05&min1=0.00&max1=100.00&unt1=Vdc)

[http://192.168.100.10/ config.htm?ui1=therf](http://192.168.100.10/config.htm?ui1=therf)

[http://192.168.100.10/ config.htm?ui2=010&min2=0.00&max2=10.00&unt2=Vdc](http://192.168.100.10/config.htm?ui2=010&min2=0.00&max2=10.00&unt2=Vdc)

[http://192.168.100.10/ config.htm?ui2=therec](http://192.168.100.10/config.htm?ui2=therec)

ui1 = Universal Input Mode 1. Set to any of 5 listed modes above

ui2 = Universal Input Mode 2. Set to any of 5 listed modes above

min1 = minimum scale for use with UI1 in floating point format

max1 = maximum scale for use with UI1 in floating point format

min2 = minimum scale for use with UI2 in floating point format

max2 = maximum scale for use with UI2 in floating point format

unt1 = Units used for UI1 – up to 9 characters of text

unt2 = Units used for UI2 – up to 9 characters of text

Example commands use factory default IP address: 192.168.100.10. If you have changed the IP address of the Wi-Fi, then use your address in the commands.

To read status information:
<http://192.168.100.10/status.xml>

Response will be in the following format:

```
<?xml version="1.0" encoding="utf-8"?>
```

```
<response>
```

<relayState>OVERRIDDEN OFF</relayState>	Other relay states: OFF, OVERRIDDEN ON, ON, BOUND ON, BOUND OFF
<lastCommand>OFF</lastCommand>	Other network command: ON
<digitalInputState>CLOSED</digitalInputState>	Other digital in state: OPEN
<ui1State>0-5V</ui1State>	Other Universal Input 1 settings: 0-10V, 4-20mA, T2 Thermistor F, T2 Thermistor C
<ui1Value>49.85 Percent</ui1Value>	Universal Input 1 analog value (scaled by customer) followed by label (entered by customer)
<di1Value>Closed</di1Value>	Universal Input 1 DI status (analog range 0-5V must be selected and scale set to 0-5)
<ui2State>0-5V</ui2State>	Other Universal Input 2 settings: 0-10V, 4-20mA, T2 Thermistor F, T2 Thermistor C
<ui2Value>49.85 Percent</ui2Value>	Universal Input 2 analog value (scaled by customer) followed by label (entered by customer)
<di2Value>Closed</di2Value>	Universal Input 2 DI status (analog range 0-5V must be selected and scale set to 0-5)
<powerOnState>OFF</powerOnState>	Other default power on states: ON, LASTSTATE
<bindingState>UNBOUND</bindingState>	Other binding state: BOUND
<deviceHostName>Device Name</deviceHostName>	User defined label
<deviceLocation>Device Location</deviceLocation>	User defined label
<deviceVersion>v5.1.31.0 WUI</deviceVersion>	Factory firmware version

```
<bss>
```

```
<valid>0</valid>
```

```
<name>0</name>
```

```
<privacy>0</privacy>
```

```
<wlan>0</wlan>
```

```
<strength>0</strength>
```

```
</bss>
```

```
<scan>0</scan>
```

```
<ver>4615</ver>
```

```
<count>0</count>
```

```
<ssid>WifiRIBsBldg2</ssid> (SSID name of router connected to)
```

```
</response>
```

RIB Wi-Fi Transmitter
Module Information

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy, and if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.