Functional Devices, Inc.™

RIB™

Wi-Fi RIB™

EXPAND YOUR **NETWORK**
EXPAND YOUR **CONTROL**

A1848

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Functional Devices, Inc.™

RIB™
Wi-Fi RIB™

RIBTW24B-WI-N4

RIBTW2401B-WIUI-N4

What is a Wi-Fi RIB?

Our Wi-Fi RIB is the I/O device for the next wireless generation of Building Automation & Energy Management Systems. The Internet of Things is happening today and Functional Devices is proud to introduce their new Wi-Fi RIB, offering the ability to turn devices on/off wirelessly, as well as monitor your network remotely. Our Wi-Fi RIB can be used in an individual Ad-Hoc setting or implemented into a much larger Building Automation System, where many of the devices can be active.

Why use a Wi-Fi RIB?

As technology continues to move forward in the wireless applications of Building Automation & Energy Management Systems, the more reason to use a Wi-Fi RIB is evident. By using a Wi-Fi network, setup can become easier and less expensive than the traditional hard wire used in previous networks. By incorporating our Wi-Fi RIB into your network, devices can easily be installed in those hard to get to places—especially for retrofit applications.

Where would you use a Wi-Fi RIB?

Anywhere in a Building Automation System or Industrial Control System where cost reduction and ease of installation is critical, a Wi-Fi RIB can be your answer. Whether retrofitting or with new installation within educational, medical and commercial/industrial facilities, a wireless Wi-Fi RIB can do the job for you.

From the design engineering aspect to the installation of the Wi-Fi RIB, lower cost and flexibility enables our wireless device to be the solution. If you want to wirelessly monitor temperature, humidity or static pressure, for example, our Wi-Fi RIB is the solution. If you want the ability to turn Variable Frequency Drives (VFD) on/off, again our Wi-Fi RIB is the solution. Even with external devices such as rooftop AHU units where energy and installation savings opportunities are present, let Functional Devices be your solution.

Is a Wi-Fi RIB secure?

Yes, our Wi-Fi RIB products are secure within your network. From a network standpoint, there can be different security options available, such as

1. A network firewall, where its purpose is to prevent unauthorized Internet users from accessing private networks connected to the Internet. This is where rules are implemented to restrict unauthorized Internet users access to a private network. Typically, these rules are an IT Systems Administrator function where he/she has the authority to make changes to their networks.
2. Also, through a Router and/or Access Point (AP) where security settings can be defined with a network name (SSID), along with the Wi-Fi Protected Access protocol (WPA2) and security certification program, a password must be used for access availability. If you need assistance, your IT Systems Administrator can assist with these settings.

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RIBTW24B-WI-N4

On/Off control throughout network

- **Parking Lot Lights**
- **Air Handling Units**
- **Unit Ventilators**

RIBTW2401B-WIUI-N4

On/Off/Monitor
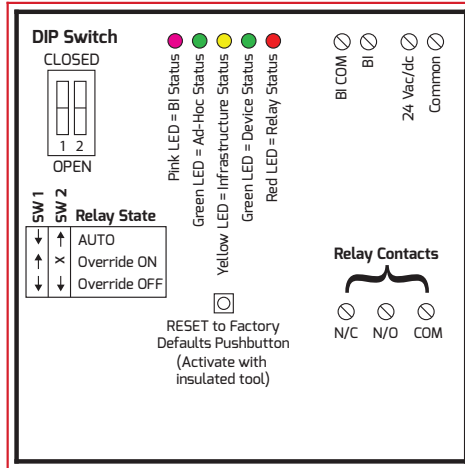
Control with results throughout network

- **Temperature**
- **Humidity**
- **Current**
- **Flow**
- **Pressure**
- **Level**
- **Proximity**

RIBTW24B-WI-N4

IEEE 802.11 b/g/n compatible (G)
54 Mbps Data Rate
IP Static Address

Digital Input

Input Voltage
24Vac/dc

DIP Switch

CLOSED

Local Relay
Overide
Switch

1 2

OPEN

Pink LED = BI Status
Green LED = Ad-Hoc Status
Yellow LED = Infrastructure Status
Green LED = Device Status
Red LED = Relay Status

BI COM
BI
24 Vac/dc
Common

SW 1	SW 2	Relay State
↓	↑	AUTO
↑	X	Override ON
↓	↓	Override OFF

RESET to Factory
Defaults Pushbutton
(Activate with
insulated tool)

Relay Contacts

N/C   N/O   COM

Relay Contacts
(1) SPDT 20Amp

Reset Button
(Factory settings)

RIBTW2401B-WIUI-N4

Universal Inputs (2)

Local Relay
Overide Switch

Reset Button

Universal Input 1

+ 5V   UI1   COM

Universal Input 2

+ 5V   UI2   COM

	Relay Operation
AUTO OFF ON →	SW 1
→ ← X	SW 2

RESET to Factory
Defaults Pushbutton

(Activate with insulated tool)

4-20mA ONLY,
when used,
requires jumper
to be installed

UI1   UI2
420   420

COM
DI

General
Purpose
Dry Contact
Input

Pink LED = DI Status
Green LED = Ad-Hoc Status
Yellow LED = Infrastructure Status
Green LED = Device Status
Red LED = Relay Status

Input
Voltage
24Vac/dc

COM
24Vac
24Vdc

24V Optional
Power Input

Term A: (Not used)
Term B: 120 Vac
Term C: Neut

120 Vac Optional
Power Input

Relay Contacts

COM   N/C   N/O
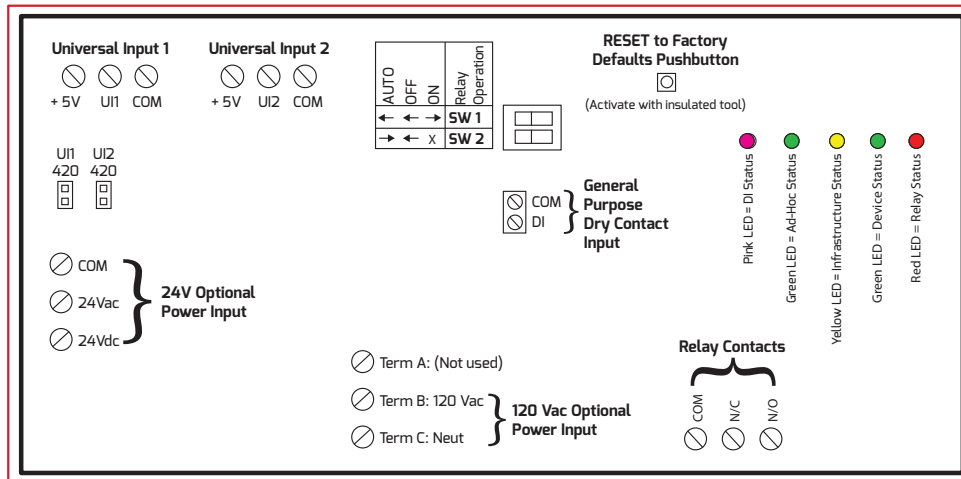
IEEE 802.11 b/g/n compatible (G)
54 Mbps Data Rate
IP Static Address

120Vac
Input
Voltage

Relay Contacts
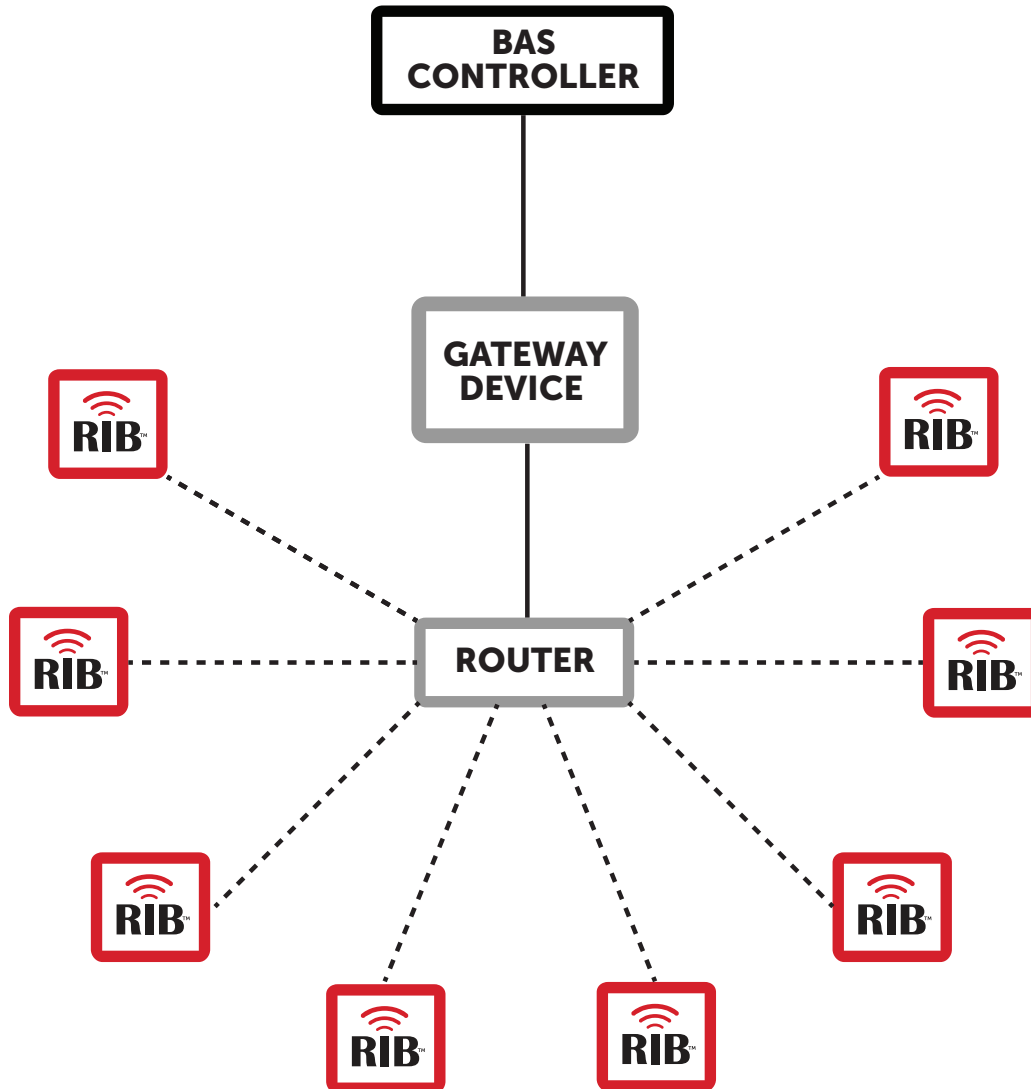(1) SPDT 20Amp

Functional Devices, Inc.™

Ad-Hoc Wireless Application

Single Zone Application
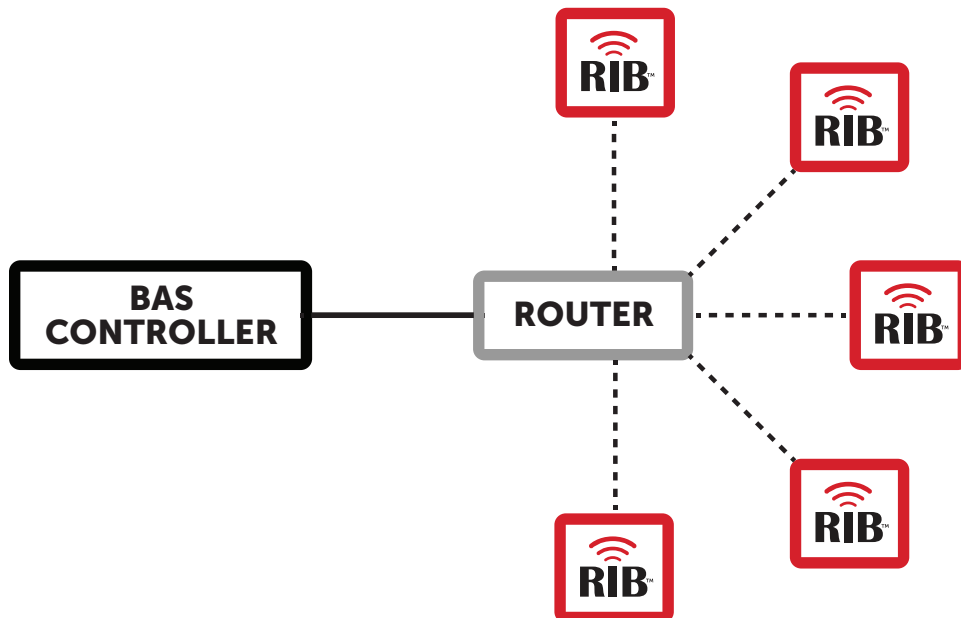
Single Wireless Zone Application
(using Gateway)

BAS
CONTROLLER

GATEWAY
DEVICE

ROUTER

RIB™

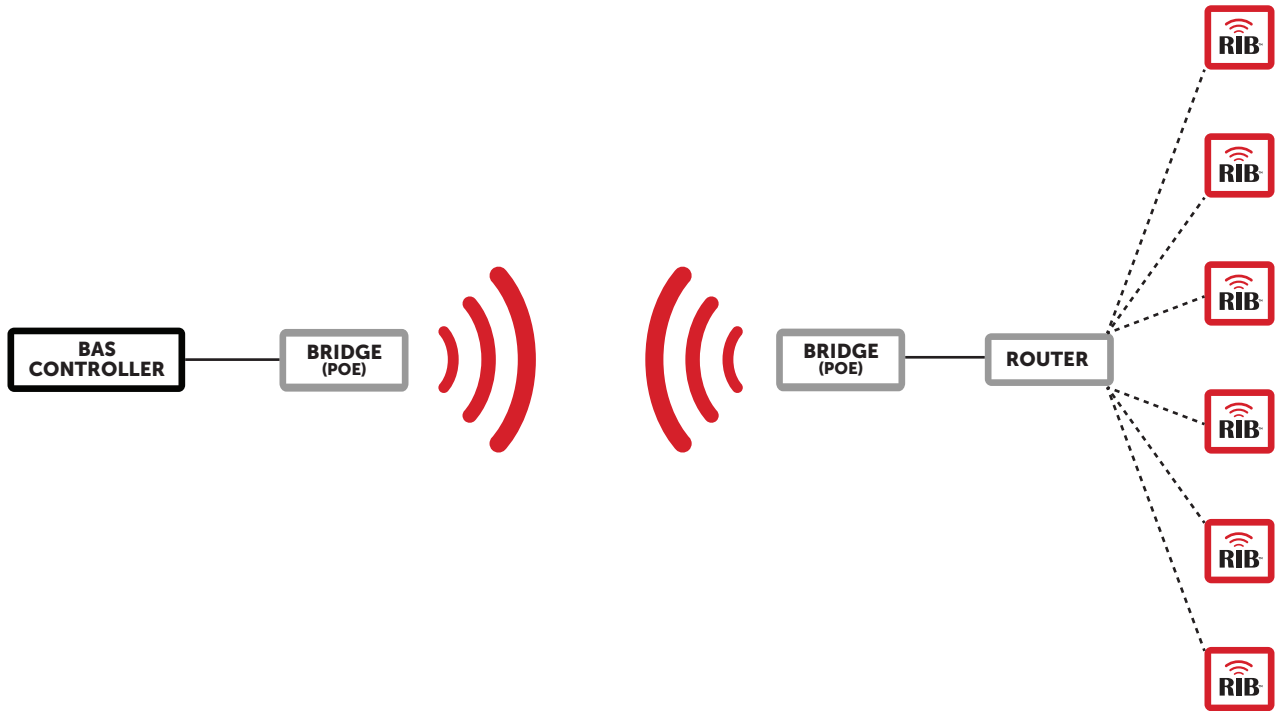RIB™

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Multi-Device/Multi-Zone Application Wireless Zone
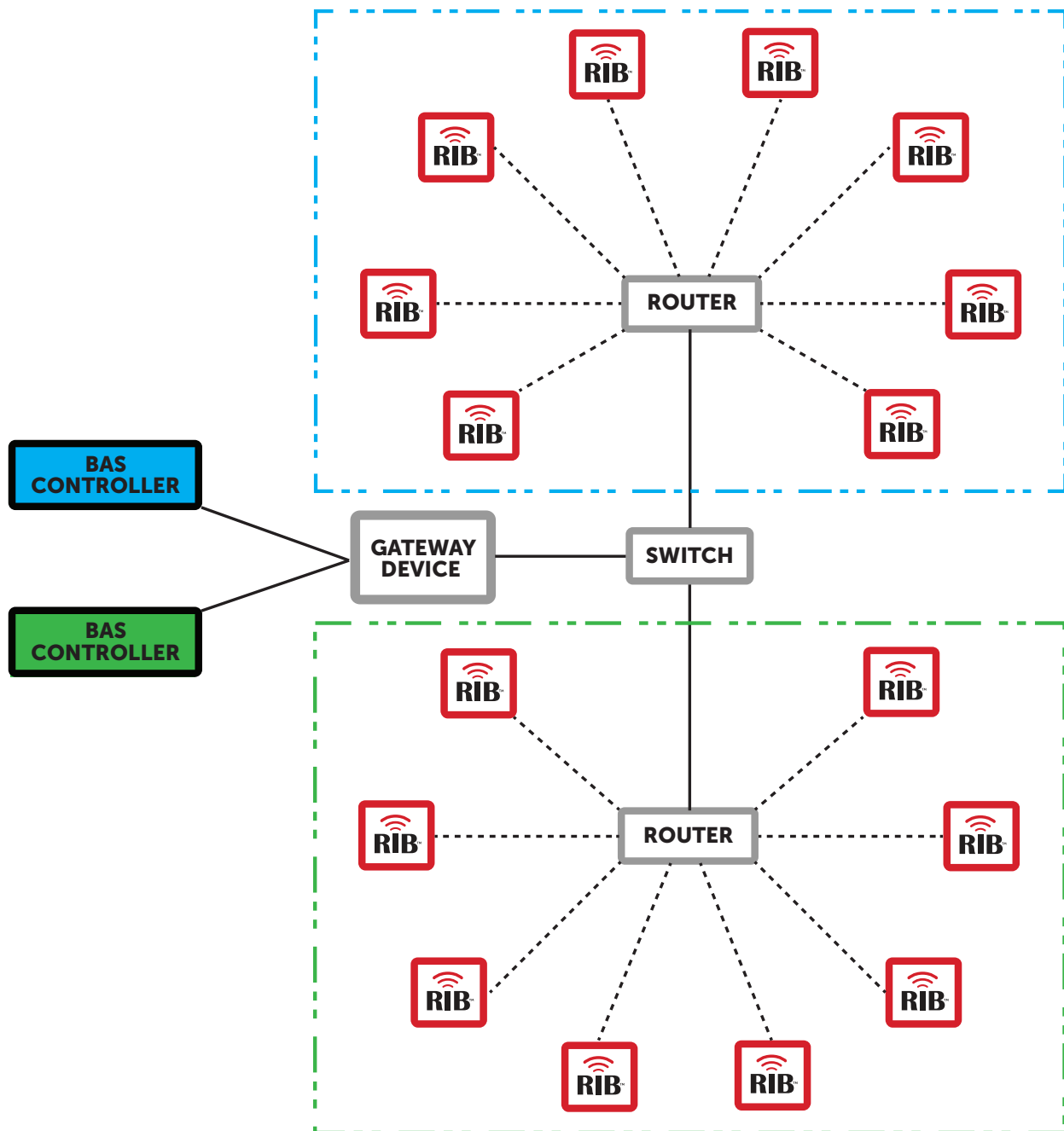
Multi-zone Application
(using Proprietary Software)

Software

SWITCH

Proprietary
Software

SWITCH

ROUTER

ROUTER

ROUTER

ROUTER

ROUTER

ROUTER

Long Distance Control

BAS CONTROLLER — BRIDGE (POE)))) (((BRIDGE (POE) — ROUTER — RIB (x6)
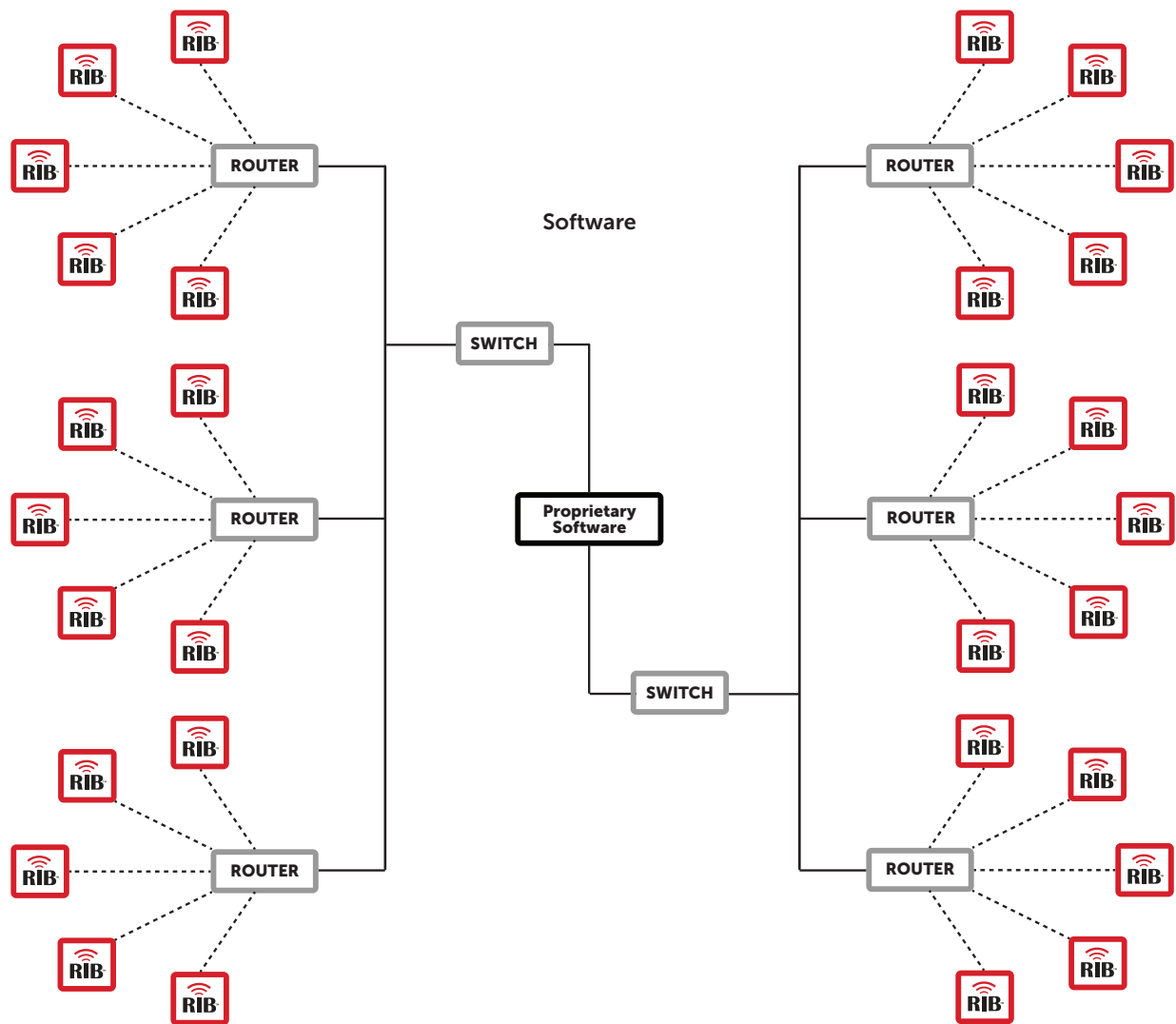
Energy Savings Application
(Wireless Temperature Control)

PC SOFTWARE BASED

ROUTER

Unit Ventilators

Classroom	Classroom	Classroom	Classroom	Classroom
ROUTER		ROUTER		ROUTER
Classroom	Classroom	Classroom	Classroom	Classroom

Wi-Fi RIB Installations

RIB
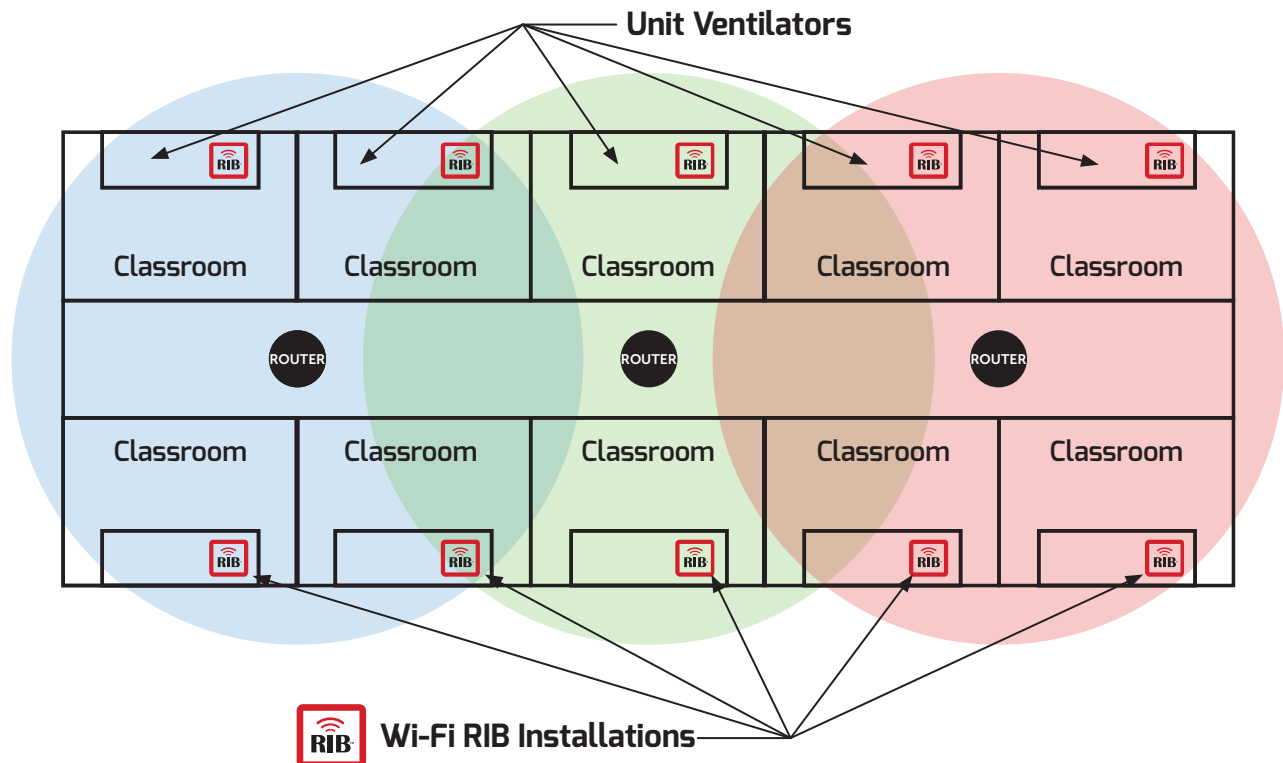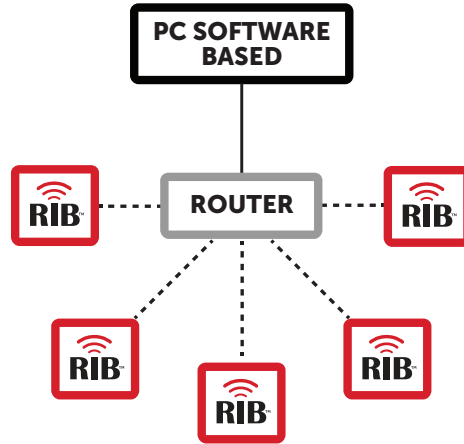
Energy Savings Application
(Building Automation System)

RIBTW24B-WI-N4

Access Point

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RIB

ACCESS POINT
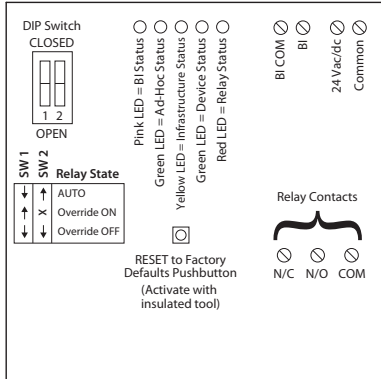
RIB

RIB

RIB

Air Handling Unit
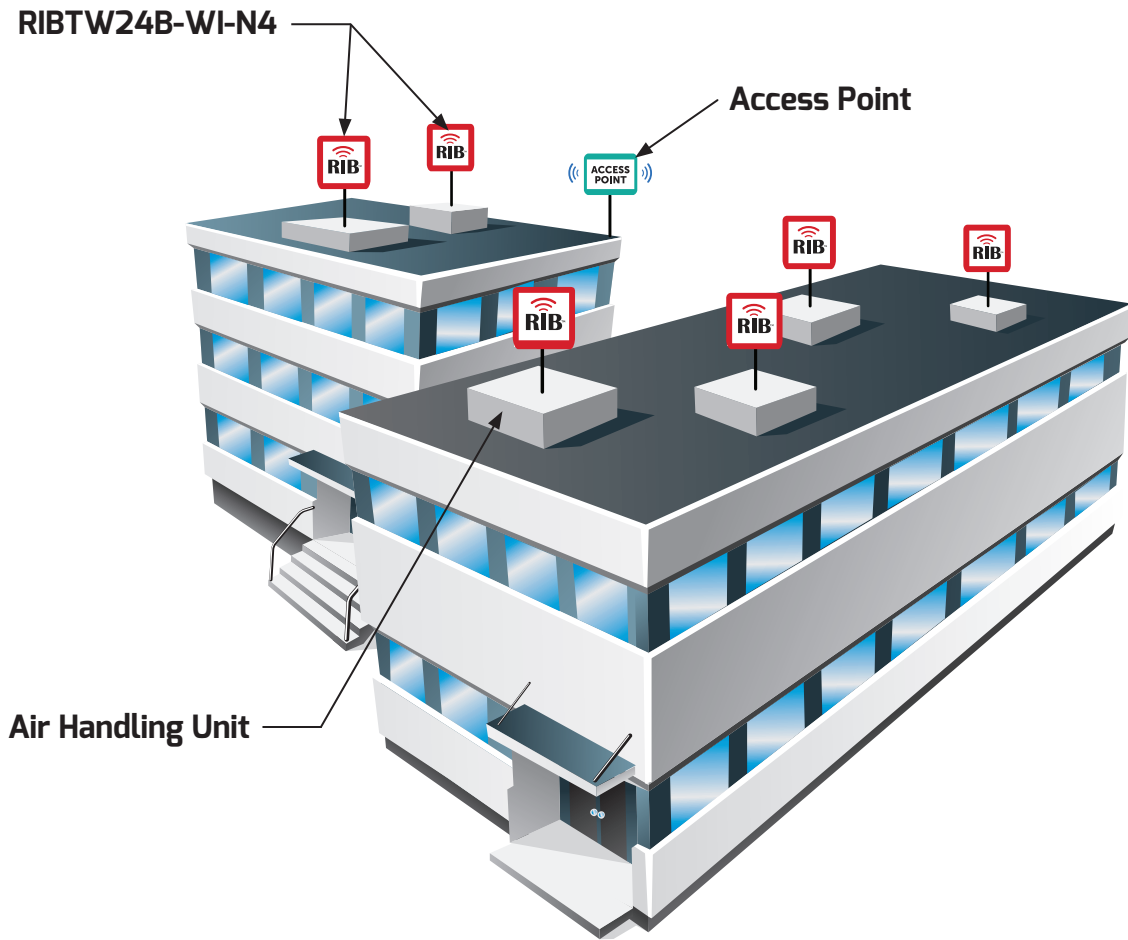
Automated Demand Response

"Load Shed Application"

RIBTW24B-WI-N4 BULLETIN

RIBTW24B-WI-N4

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

DIP Switch CLOSED

1 2

OPEN

SW 1	SW 2	Relay State
↓	↑	AUTO
↑	✕	Override ON
↓	↓	Override OFF

Pink LED = BI Status
Green LED = Ad-Hoc Status
Yellow LED = Infrastructure Status
Green LED = Device Status
Red LED = Relay Status

BI COM   BI   24 Vac/dc   Common

Relay Contacts

RESET to Factory Defaults Pushbutton (Activate with insulated tool)

N/C   N/O   COM

Network Compatible Relay

Shown With Cover

Code Version 3.3.9

c(UL)us LISTED

CE

RoHS

Made in USA
Meets **"Buy American"** of ARRA 2009

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
    FCC, CE, RoHS, Wifi Certified ASD Device
Housing Rating: UL Accepted for Use in Plenum, NEMA 4
Gold Flash: No
Relay Override Switch: DIP Switch Control
Wifi: IEEE 802.11 b/g/n Compatible, (G)
    54 Mbps Data Rate
    –95 dBm Min. Sensitivity
    +16 dBm Max Output Power
    Currently Unsecured Connection
    (WPA-PSK or WPA-2-PSK Available)
    Supports PING and ARP
    DSSS Modulation

Contact Ratings:
20 Amp Resistive @ 277 Vac
20 Amp Ballast @ 277 Vac
16 Amp Electronic Ballast @ 277 Vac (N/O)
10 Amp Tungsten @ 120 Vac (N/O)
2 HP @ 277 Vac
1 HP @ 120 Vac

Power Input Ratings:
200 mA Max @ 24 Vac
200 mA Max @ 24 Vdc

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

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

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

Device Settings by Network:
• Power up default relay state
• Host name and location labels
• Relay bound to digital input

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Wi-Fi RIB™ – Getting Started

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

1. Make sure laptop IP settings are in DHCP mode.

2. Apply power to the Wi-Fi RIB™ (24Vac or 24Vdc); 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).

3. View Wi-Fi connections on the computer. Look for the network called RIBTW24B-WI-N4 and connect. This establishes a connection between the Wi-Fi RIB™ and the computer in an Ad-Hoc network.

4. In any Internet web browser, type in the default factory address of 192.168.100.10 and press 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 and last command.

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

Note: Settings can be viewed on Setup 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 all changes are made. After making any changes to these settings, you will need to reconnect to the RIB at its new address.

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. Set "Device Name" and click save. Set "Device Location" and click save. (Up to 16 characters.)

3. "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.

4. "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).

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) or no password, 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 (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 the Wi-Fi RIB™ is connected to a router in infrastructure mode, you must connect the laptop or controller to the same router/network to see and control the Wi-Fi RIB™.

RIBTW24B-WI-N4 BULLETIN (CONT.)

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
<digtalInputState>CLOSED</digtalInputState>	Other digital in state: OPEN
<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>v3.3.9 WI</deviceVersion>	Factory firmware version

```
<bss>
    <valid>0</valid>
    <name>0</name>
    <privacy>0</privacy>            RIB Wi-Fi Transmitter
    <wlan>0</wlan>                  Module Information
    <strength>0</strength>
</bss>
<scan>0</scan>
<ver>4615</ver>
<count>0</count>
<ssid>WifiRIBsBldg2</ssid>        (SSID name of router RIB is connected to)
</response>
```

RIBTW2401B-WIUI-N4 BULLETIN

RIBTW2401B-WIUI-N4

Wifi IEEE 802.11 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

Network Compatible Relay

Shown With Cover

Code Version 3.3.9

Wi-Fi RIB™

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
Wires:	16″, 600V Rated
Approvals:	UL Listed, UL916, C-UL
	FCC, CE, RoHS, Wifi Certified ASD Device
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
	Currently Unsecured Connection
	(WPA-PSK or WPA-2-PSK Available)
	Supports PING and ARP
	DSSS Modulation

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:
24 Vac = Terminal Strip (20 Vac min. ; 28 Vac max.)
24 Vdc = Terminal Strip (24 Vdc min. ; 28 Vdc max.)
120 Vac = Wht/Blk Wire
Neutral = Wht/Yel Wire

Device Settings by Network:
• Power up default relay state
• Host name and location labels
• Relay bound to digital input

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✱

• Direct temperature reading from Type T2 Thermistor.

• 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.

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RIBTW2401B-WIUI-N4 BULLETIN (CONT.)

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.

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 additional 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. Set "Device Name" and click save. Set "Device Location" and click save. (Up to 16 characters.)

3. "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.

4. "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).

5. "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.

RIB

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.

To turn relay on and off:
http://192.168.100.10/index.htm?relay=on
http://192.168.100.10/index.htm?relay=off

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

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 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* (16 characters max)
http://192.168.100.10/config.htm?loc=user defined text* (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. therc – 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=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=therc

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

RIBTW2401B-WIUI-N4 BULLETIN (CONT.)

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
<digtalInputState>CLOSED</digtalInputState>	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>v3.3.9 WIUI</deviceVersion>	Factory firmware version

<bss>
    <valid>0</valid>
    <name>0</name>
    <privacy>0</privacy>   } RIB Wi-Fi Transmitter
    <wlan>0</wlan>   Module Information
    <strength>0</strength>
</bss>
<scan>0</scan>
<ver>4615</ver>
<count>0</count>
<ssid>WifiRIBsBldg2</ssid>   (SSID name of router connected to)
</response>

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.

RIB