**RIB**® **Functional Devices, Inc.**™

LRN  CLR

RIBW21BAO-EN3

WDWS-EN3     WWS-EN3     WKC-EN3     WVSCM-EN3     WVSWM-EN3

## Getting Started

- Plan where you will mount each receiver and transmitter.
  - Avoid transmitting along a length of wall, sharp angles and large obstructions.
  - Avoid mounting inside a metal enclosure.
  - Typical range is 100' line of sight.
- Link devices to each other before installing. See linking instructions (per application) on following pages.
  - All RIBs must be powered during Link.
- PHC Gateway Controller can link with a RIB and be Bi-directional.
- Relay state at power-up can be set to ON, OFF or LAST STATE (default).
- Each Relay can be Linked to up to 30 transmitters of any combination.

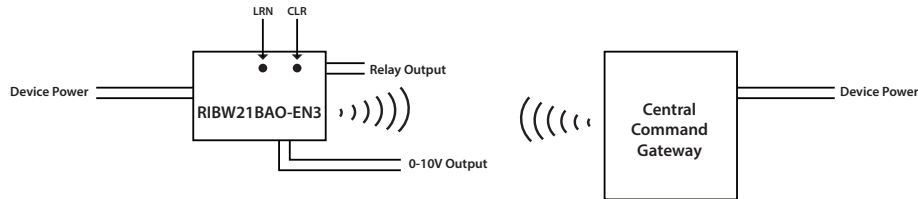| 902 MHz Model | Power Input  (Vac) | Contact Rating (A) | Transmission Source | EEP |
|---|---|---|---|---|
| RIBW21BAO-EN3 | 120-277 Vac | 20 | Status Change/Heartbeat | A5-11-01 |
| WDWS-EN3 | None | NA | Contact Closure | D5-00-01 |
| WWS-EN3 | None | NA | Button Press | F6-02-02 |
| WKC-EN3 | None | NA | Insert/Remove Card | F6-04-01 |
| WVSCM-EN3 | None | NA | Occupancy Detected | A5-07-01 |
| WVSWM-EN3 | None | NA | Occupancy Detected | A5-07-01 |

Functional Devices, Inc.'s EnOcean® Manufacturer ID is 0x055.

**Compatible Device from other Manufacturers**
PHC Gateway Controller     EEP  A5-38-08      0x02 (Dimming Profile)
Light Level Sensor     EEP A5-06-02

# Building Automation Applications

## Bi-directional Mode: RIBW21BAO-EN3 and a Central Command Gateway



- Both devices must be able to receive and transmit.
- Gateway can control the realy and 0-10V outputs of the RIB.
- RIBWxxB-EN3 Re-transmits status every 70-140 seconds.
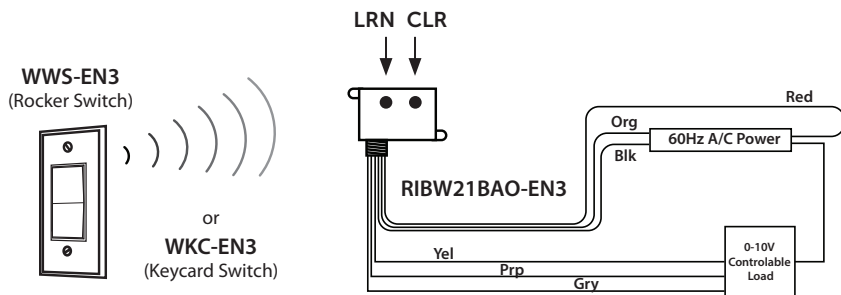- Optional modes: Repeater, (see pages 4)

Bi-directional Link Procedure
1. Apply power to RIB.
2. Get RIB in Learn mode by pressing the LRN button for ½ second. (LED will blink).
3. Transmit Link telegram from Central Command Gateway
   - LED on RIB will stay ON for 4 seconds to acknowledge and then transmit a Link telegram

Note: To clear memory, hold CLR button for 3 seconds.

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# Lighting Applications

## Simple Lighting Control: *RIBW21BAO-EN3  and WWS-EN3 or WKC-EN3*



### WWS-EN3 Modes        *Continued on Page 3*

**A.  Dimming Mode**
- Relay activates when Rocker ON is pressed and released, and the Analog Output ramps to previous value.
- Relay activates when Rocker ON is held, and the Analog Output ramps up from minimum until ON is released.
- When Rocker OFF is pressed and released, the Analog Ouptut ramps down to minimum, and then the Relay deactivates.
- If the Relay is activated, the Analog Output will ramp up or down when the Rocker ON or OFF is held, and the Analog Output will go to MAX if Rocker ON is pressed and released.
- Optional modes: Repeater

Dimming Mode Link Procedure
1. Apply power to RIB.
2. Press and hold LRN button on RIB for ½ second.  LED will blink slowly.
3. Press and release the button on the switch you are linking three times quickly.
4. Press and release the button on the switch you are learning three times quickly.
5. LED on RIB will stay ON for 4 seconds indicating telegram reception.
6. To link another switch, repeat steps 2-4.

**B.  Rocker Mode**
- Relay activates when Rocker ON is pressed; relay deactivates when Rocker OFF is pressed.
- Optional modes: Repeater (see page 4)

Rocker Mode Link Procedure
1. Apply power to RIB.
2. Press and hold LRN button on RIB for ½ second.  LED will blink slowly.
3. Press and hold LRN button on RIB for 3 seconds until LED pattern changes to FLASH, FLASH, OFF (2 flashes).
4. Press and release the button on the switch you are learning three times quickly.
5. LED on RIB will stay ON for 4 seconds indicating telegram reception.
6. To learn another switch, repeat steps 2-5.

### WKC-EN3 Mode

Momentary Mode
- Relay activates when card is inserted and deactivates when card is removed.
- Optional modes: Repeater (see page 4)

Momentary Mode Link Procedure
1. Apply power to RIB.
2. Press and hold LRN button on RIB for ½ second. LED will blink slowly.
3. Press and hold LRN button on RIB for 3 seconds until LED pattern changes to FLASH, FLASH, OFF (2 flashes).
4. Press and hold LRN button on RIB for 3 seconds until LED pattern changes to FLASH, FLASH, FLASH, OFF (3 flashes.)
5. Insert and remove the card on the switch you are learning three times quickly.
6. LED on RIB will stay ON for 4 seconds indicating telegram reception.
7. To learn another switch, repeat steps 2-6.

C. Momentary Mode
- Relay activates while switch is pressed and deactivates when switch is released.
- Optional modes: Repeater (see page 4)

Momentary Mode Link Procedure
1. Apply power to RIB.
2. Press and hold LRN button on RIB for ½ second. LED will blink slowly.
3. Press and hold LRN button on RIB for 3 seconds until LED pattern changes to FLASH, FLASH, OFF (2 flashes).
4. Press and hold LRN button on RIB for 3 seconds until LED pattern changes again, to FLASH, FLASH, OFF (3 flashes)
5. Press and release the button on the switch you are learning <u>three</u> times quickly.
6. LED on RIB will stay ON for 4 seconds indicating telegram reception.
7. To learn another switch, repeat steps 2-6.

D. Toggle Mode
- Each press and release of the switch causes the relay to change state.
- Optional modes:  Repeater (see page 4)

Toggle Mode Link Procedure
1. Apply power to RIB.
2. Press and hold LRN button on RIB for ½ second. LED will blink slowly.
3. Press and hold LRN button on RIB for 3 seconds until LED pattern changes to FLASH, FLASH, OFF (2 flashes).
4. Press and hold LRN button on RIB for 3 seconds until LED pattern changes again, to FLASH, FLASH, FLASH, OFF (3 flashes).
5. Press and hold LRN button on RIB for 3 seconds until LED flashes continuously.
6. Press and release the button on the switch you are learning <u>three</u> times quickly.
7. LED on RIB will stay ON for 4 seconds indicating telegram reception.
8. To learn another switch, repeat steps 2-7.

# Occupancy Detection

A.  Manual ON–Auto OFF:  *RIB receiving from both an Occupancy / Vacancy Sensor (WVSWM-EN3  or  WVSCM-EN3) and a Wall Switch (WWS-EN3)*
- Relay activates when Rocker ON is pressed. Relay deactivates when Rocker OFF is pressed <u>or</u> 30 minutes after last detection of occupancy.
- It may take up to 2 minutes for the RIB to respond to the Occupancy / Vacancy Sensor immediately following Link.
- Optional modes: Repeater (see page 4)

Manual ON – Auto OFF Learn Procedure
1. Be sure the Occupancy / Vacancy Sensor is charged
2. Apply power to RIB.
3. Press and hold LRN button on RIB for ½ second.  LED will blink slowly.
4. Trigger a Teach telegram from the Occupancy / Vacancy Sensor by pressing the Menu button once.
5. LED on RIB will stay ON for 4 seconds acknowledging telegram reception.
6. Press and hold LRN button on RIB for ½ second.  LED will blink slowly.
7. Press and release rocker switch <u>three</u> times quickly.
8. LED on RIB will stay ON for 4 seconds acknowledging telegram reception.
9. To learn another switch, repeat steps 6-8.

B.  Auto On:  *RIB and an Occupancy / Vacancy Sensor (WVSWM-EN3  or  WVSCM-EN3)*
- Relay activates when occupancy is detected and deactivates 30 minutes after last detection of occupancy.
- It may take up to 2 minutes for the RIB to respond to the Occupancy / Vacancy Sensor immediately following Link.
- Optional modes:  Repeater (see page 4)

Occupancy / Vacancy Sensor Only Learn Procedure
1. Charge the Occupancy / Vacancy Sensor per instructions.
2. Apply power to RIB.
3. Press and hold LRN button on RIB for ½ second. LED will blink slowly.
4. Trigger a Teach telegram from the Occupancy / Vacancy Sensor by pressing the Menu button once.
5. LED on RIB will stay ON for 4 seconds acknowledging telegram reception.
6. Repeat steps 3-5 for additional Occupancy / Vacancy Sensors.

# Optional Modes

## Relay State

- Relay state after power-up can be set to ON, OFF or LAST STATE
- Relay state after power-up is LAST STATE by default.

Setting Relay State to OFF at Power-up:
1. While device is not powered, press and hold the LRN button.
2. Power-up the device.
3. Wait approximately 3 seconds until the LED blinks 3 times.
4. Release the LRN button.
Relay will always be OFF at power-up.

Setting Relay State to ON at Power-up:
1. While device is not powered, press and hold the CLR button.
2. Power-up the device.
3. Wait approximately 3 seconds until the LED blinks 2 times.
4. Release the CLR button.
Relay will always be ON at power-up.

Setting Relay State to LAST STATE at Power-up: (Default Mode)
1. While device is not powered, press and hold the LRN and CLR buttons.
2. Power-up the device.
3. Wait approximately 3 seconds until the LED blinks 1 time.
4. Release the LRN and CLR buttons.
Relay will return to LAST STATE at power-up.

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## Repeater Mode

- Activating Repeater Mode allows relay to repeat signals from other EnOcean devices within range. The relay "hears" the signal and echoes it but will not respond to it unless it has been linked to the transmitting device.
- Relay will allow a signal to be repeated up to two times.

Enabling Repeater Mode
1. Apply power to RIB.
2. Press and hold LRN button on RIB for ½ second. LED will flash slowly.
3. Press and hold the CLR button for 3 seconds until LED blinks *twice* indicating Repeater Mode is enabled.

Disabling Repeater Mode
1. Apply power to RIB.
2. Press and hold LRN button on RIB for ½ second. LED will flash slowly.
3. Press and hold the CLR button for 3 seconds until LED blinks *three* times indicating Repeater Mode is disabled.

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## Alarm Mode

- Activating Alarm Mode requires all learned contact switches (WDWS-EN3) to transmit a CLOSED telegram before relay will activate. Relay will deactivate if any contact switch transmits an OPEN telegram.
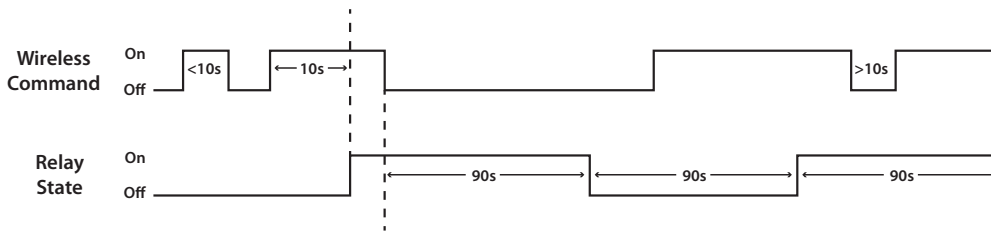
Enabling Alarm Mode
1. Apply power to RIB.
2. Press and hold LRN button on RIB for ½ second. LED will flash slowly.
3. Press and hold LRN button on RIB for 3 seconds until LED pattern changes to FLASH, FLASH, OFF (2 flashes).
4. Press and hold the CLR button for 3 seconds until LED blinks *twice* indicating Alarm Mode is enabled.

Disabling Alarm Mode
1. Apply power to RIB.
2. Press and hold LRN button on RIB for ½ second. LED will flash slowly.
3. Press and hold LRN button on RIB for 3 seconds until LED pattern changes to FLASH, FLASH, OFF (2 flashes).
4. Press and hold the CLR button for 3 seconds until LED blinks *three* times indicating Alarm Mode is disabled.

## Delay Mode



- Typically used with Hotel Room Energy Control (see page 6).
- Activating Delay Mode allows the relay to ignore *temporary* changes in switch states.
- The Delay Mode causes a delay of 10 seconds before relay will turn ON and a delay of 90 seconds before it will turn OFF. It also prevents the relay from activating following a deactivation for 90 seconds.
- The OFF delay allows the load to continue to run while the switch or transmitter is temporarily open. This is helpful when monitoring window and door contacts that may be briefly opened and then closed. If the contact remains open for longer than 90 seconds the relay will deactivate.
- The ON delay prevents the relay from immediately responding to a closed contact.
- The 90 second OFF to ON delay is intended specifically for HVAC units so that they will not short cycle.

Enabling Delay Mode
1. Apply power to RIB.
2. Press and hold LRN button on RIB for ½ second. LED will flash slowly.
3. Press and hold LRN button on RIB for 3 seconds until LED pattern changes to FLASH, FLASH, OFF (2 flashes).
4. Press and hold LRN button on RIB for 3 seconds until LED pattern changes again, to FLASH, FLASH, FLASH, OFF (3 flashes).
5. Press and hold the CLR button for 3 seconds until LED blinks *twice* indicating Delay Mode is enabled.

Disabling Delay Mode
1. Apply power to RIB.
2. Press and hold LRN button on RIB for ½ second. LED will flash slowly.
3. Press and hold LRN button on RIB for 3 seconds until LED pattern changes to FLASH, FLASH, OFF (2 flashes).
4. Press and hold LRN button on RIB for 3 seconds until LED pattern changes again, to FLASH, FLASH, FLASH, OFF (3 flashes).
5. Press and hold the CLR button for 3 seconds until LED blinks *three* times indicating Delay Mode is disabled.

# Clearing ID's from Memory

## Global Clear (Reset to default settings)

Clears all linked devices, disables optional modes, turns relay OFF, and sets 0-10V output to minimum.

Performing Global Clear
1. Press and hold CLR button on RIB for 3 seconds until LED begins slowly blinking.
   a. Clear Mode will time out and exit in 30 seconds.
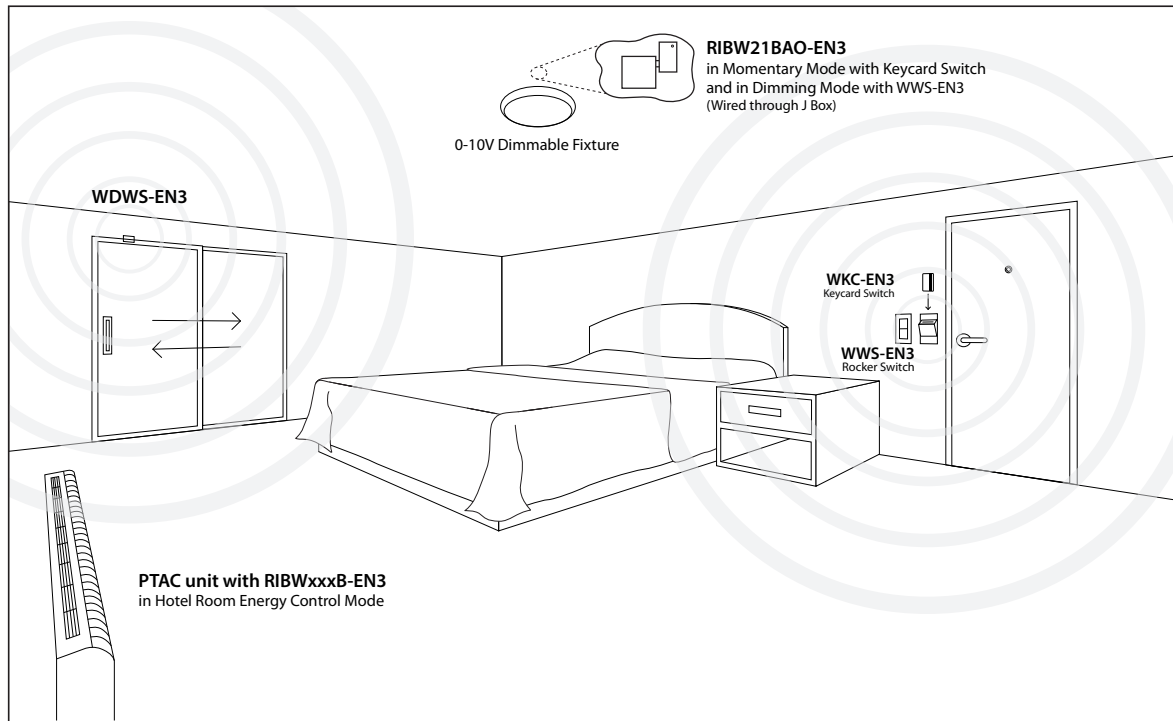
## Single Device Clear

- Allows the user to Un-link a single transmitter from RIB receiver.
- Maintains all optional mode settings.

Performing Single Device Clear
1. Repeating the Link procedure for a currently Linked device will Un-link that device.

# Energy Saving Applications

## RIB with Door/Window Sensor(s) WDWS-EN3



**RIBW21BAO-EN3**
in Momentary Mode with Keycard Switch
and in Dimming Mode with WWS-EN3
(Wired through J Box)

0-10V Dimmable Fixture

**WDWS-EN3**

**WKC-EN3**
Keycard Switch

**WWS-EN3**
Rocker Switch

**PTAC unit with RIBWxxxB-EN3**
in Hotel Room Energy Control Mode

- RIB activates with closed command from WDWS-EN3 and deactivates with open command.
- WDWS-EN3 retransmits contact state every 20-30 minutes.
- Optional modes:  Repeater, Alarm, Delay (see pages 4)

WDWS-EN3 Link Procedure
1.  Charge the WDWS-EN3 per Instructions provided with unit.
2.  Apply power to RIB.
3.  Press and hold LRN button on RIB for ½ second. LED will blink slowly.
4.  Press and release Link button on WDWS-EN3 to transmit Teach telegram.
5.  LED on RIB will stay ON for 4 seconds acknowledging telegram reception.
6.  To learn more WDWS-EN3, repeat steps 3-5.

## Hotel Room Energy Control RIB with *WDWS-EN3 and WKC-EN3*

*Consult factory.*