

20A Relay Controller

Installation Guide

Control full circuit loads with the 20A Relay Receiver in an incredibly small form factor. The controller may be linked to self-powered wireless switches, wireless sensors, and/or central controllers to facilitate energy savings and automation with no new wires.

SPECIFICATIONS

Electrical

Power Input: 100-277 VAC 50 or 60 Hz
Standby Power: <0.5W
Max Power Use: <0.5W

Outputs

1 - 20A Latching Form A Relay w/ Arc Suppression

Inputs

1 - EnOcean Wireless Antenna

Maximum Load

20A

General Duty: 20A
Tungsten (Incand.): 20A
Fluorescent Ballast: 20A
Motor Load: 1HP

Wireless

Range: 50-150 feet (typical)
Frequency: 902 MHz

Transmit EEP: A5-38-08, MENU button to transmit Link packet

Mounting: Outside of junction box w/ threads or inside junction box (metal reduces range)

Dimensions: 2.11 x 1.73 x 1.09 inches
(54 x 44 x 28 mm)

Operating Specifications

Operating Temp: 32° to +122°F (0° to +50°C)
Storage Temp: -4° to +176°F (-20° to +80°C)
Humidity: 10-95% non-condensing
Power Up State: Auto, Open, or Closed
Memory Storage: 25 links

Firmware version: 3.3.1.5

Certifications

ETL: UL 60730 (U.S.)
ETL: CSAc22.2#14-05 (Canada)
CE: IEC 60730
ETL: UL 2043 (Plenum)
IEC61000-4-5 (Surge)
FCC: SZV-STM300U (United States)
IC: 5713A-STM300U (Canada)

Compatible Devices

Wireless Switch
Key Card Switch
Control Transmitter
Wireless Occupancy Sensor
Window/Door Sensors
Light Sensor
Central Command

EnOcean Equipment Profiles

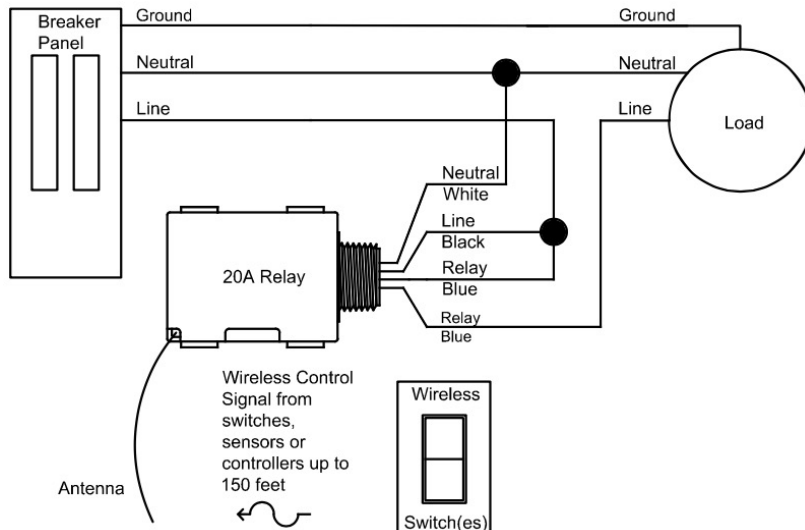
F6-02-01, F6-02-02, F6-03-01, F6-03-02
F6-04-01, F6-02-01, F6-02-02
F6-02-01, F6-02-02, Proprietary
A5-07-01, A5-07-02, A5-07-03
D5-00-01, A5-30-01
A5-06-02, A5-06-03
A5-38-08 - untimed commands only

Package Contents

(1) Controller
(1) Instruction Sheet

Equipment Needed

• Wire Nuts/Connectors
• Electrical Tape



CAUTION:

- This product is intended only for use indoors and in dry locations.
- For best results, link transmitters to controllers prior to final installation.
- Install and use in accordance with these instructions, electrical codes, and regulations.
- If unsure about any part of these instructions, consult an electrician.

CHOOSE THE OPTIMAL MOUNTING LOCATION

The long-term reliability and wireless performance of the Controller is strongly influenced by the mounting location. Choose a mounting location carefully.

For best radio performance:

- Straighten antenna out and away from metal.
- Create separation distance away from interfering electronics such as fluorescent tube ends, electronic transformers/power supplies, motors, etc.
- Mounting inside metal enclosures reduces the range.
- Obstructions of metal, concrete, and dense building materials will reduce the range. Mount higher and away from obstructions to maximize the range.
- Installation above a hot fixture may result in overheating or melting. Confirm operating environment does not exceed temperature or humidity specs.
- Site survey tools are available to help fine-tune wireless communications.

INSTALLATION

1. **PLAN** - Identify best mounting locations for receiver and transmitter. Perform range test to confirm operation prior to installation. Switch OFF breaker before making connections.
2. **CONNECT** - Make connections to the Controller following wiring diagram and local electrical codes. Restore power.
3. **TEST** - Press SELECT button to toggle output.
4. **LINK** Transmitters and Receivers following Linking Instructions below.

OPERATION

Use the Controller to switch power to loads. Compatible loads include LED, fluorescent lighting, motors, etc.

LINKING INSTRUCTIONS

Note: The Controller must be powered on while linking. After linking, the Controller retains all settings in the event of power loss. Link up to 25 devices.

SIMPLE LINKING

Use Simple Link Mode for common applications:

1. **HOLD** the MENU button until the relay clicks (about 5 seconds), then release. The receiver will toggle a steady pattern indicating Simple Link Mode is active: — — — —
2. **TRANSMIT** the Link Signal by triple pressing the top button on switches or single pressing the Link (or teach) button on sensors. Relay pauses in ON position for 3 seconds when the link is created, then toggling resumes. Link additional transmitters (up to 25) as needed. (Relay pauses in OFF position for 3 seconds when the link is deleted.)
3. **WAIT** 30 seconds for Link Mode to exit automatically (toggling stops).

Simple Link Mode operating behavior

- **Manual Switch Control** (top button ON / bottom button OFF, hold to dim): Link any switch.
- **Motion Sense Auto ON / Auto OFF:** Link only Occupancy sensors.
- **Manual Switch ON / Motion Sense Auto OFF:** Link both Occ. Sensors & Switches.
- **Window/Door Sensor:** Closed ON / Open OFF.
- **Key Card Control:** Card in ON, Card out OFF
- **Control Transmitter:** ON and OFF.
- **Master Dimming Control:** Link an Area Controller with 0-10V input as master.
- **Other Functionality:** See instructions on page 2

ADDITIONAL FUNCTIONS

TEST FUNCTION:

Press and release the **SELECT** button to toggle Relay ON and OFF.

SENSOR LINK TEST MODE

After linking, press the Link button on a sensor 6 times to activate the Link Test Mode. Subsequent presses from any linked sensor will cause the relay to toggle confirming the sensor is linked and testing the reliability of wireless communications. Link Test Mode will time out after 60 seconds of no activity.

CLEAR ALL LINKS

1. Activate Simple Link Mode by holding the MENU button until the Controller starts toggling.
2. Hold the **SELECT** button for 10 seconds to Clear All Links from the Controller.

SELECTIVE LINK DELETION

To remove one Link from Controller and leave others unaffected:

1. **HOLD** the MENU button to activate Link Mode. The toggling output confirms Link Mode is active.
2. **TRANSMIT** the Link Signal by triple pressing the top button on switches or single pressing the Link (or teach) button on sensors. Relay pauses in OFF position for 3 seconds when the link is deleted, then toggling resumes.
3. **WAIT** 30 seconds for Link Mode to exit automatically (toggling stops).

REPEATER MODE

Repeater function is DISABLED by default and may be enabled on specific controllers to extend the range by retransmitting all packets 1 or 2 times. Repeater mode may be changed using Advanced Setup instructions.
Transmit -> Repeater 1x -> Repeater 2x -> Receive

ADVANCED SETUP

Advanced Setup uses the Status LED to navigate a hierarchy of menus with blink patterns in one of 3 colors: Amber, Green, and Red. The relay output does not toggle while using Advanced Setup. Navigation overview:

1. Hold MENU button 15 seconds until Status LED blinks Amber pattern.
2. Press SELECT button to cycle through blink count options.
3. Press MENU button to enter/save menu item.
4. Hold MENU for 5 seconds to exit menu option.

1 - ACTIVATE ADVANCED SETUP

- A. Hold MENU button 15 seconds until Status LED blinks Amber pattern.
- B. Jump to 2 - Link Mode or 3 - Setup.

2 - LINK MODE: AMBER MENU BLINKS 1-5

- A. Press SELECT button to cycle blink count and choose a Link Mode. Different devices may be linked in different modes.
- B. Transmit Link Signal with fast triple press of switch button or single press of Link button on sensors. Status LED will pause Green when link is added. If Link Signal is transmitted a second time, Status LED will pause Red indicating link is removed.
- C. Optional - Press MENU button to see Green blinks indicating number of devices linked in the active mode. Red blink means no devices linked. Hold MENU button 5 seconds to return to Amber Menu.
- D. Wait 60 seconds or hold MENU button for 5 seconds to return to Operating Mode.

3 - SETUP: AMBER MENU BLINKS 6-7

- A. Press SELECT button to cycle to Config (6 Amber blinks) options.
- B. Press MENU button to activate Green Menu.
- C. Press SELECT button to cycle through Green blink options.
- D. Press MENU button to activate Red Menu.
- E. Press SELECT button to cycle through Red blink options or hold SELECT button to adjust level if applicable.
- F. Press MENU button to save selection.
- G. Hold MENU button for 5 seconds to return to Green Menu.
- H. Hold MENU button for 5 seconds to return to Amber Menu.
- I. Hold MENU button for 5 seconds to exit to Operating Mode or power cycle or wait 60 seconds to exit.

Table 1 - Amber Menu

Amber Blink count	Options	Hold MENU button 15 seconds until Status LED blinks Amber pattern. Press SELECT button to cycle through Amber blink counts. See Diagram.
1	Link Mode 1 Equal to Simple Link Mode	Switches: Rocker Mode (top button ON / bottom button OFF) triple press to link. Occ sensor: Manual ON / Auto OFF w/ switch linked, Auto ON / Auto OFF with no switch, 15 min default timeout. Window/Door Sensor: Closed ON / Open OFF. Control Transmitter: synchronize state. Central Command: synchronize state.
2	Link Mode 2	Switches: Momentary button, triple press to link. Keycard: In ON / Out OFF, triple insertion to link. Occ Sensor: Auto ON / Auto OFF, 15 min default timeout. Window/Door Sensor: HVAC Mode, 5 min Off Delay, 5 min Minimum Off Time.
3	Link Mode 3	Switches: Toggle button, triple press to link. Occ Sensor: Auto ON / OFF, 5 min timeout.
4	Link Mode 4	Switches: Scene button (recall specific dim level, adjust level with SELECT button), triple press to link/save.
5	Clear Mode	Selective Clear: triple press switch button or transmit Link Signal from sensor to selectively delete from all modes. Clear Links: Hold SELECT button for 5 seconds to clear all links. Clear All: Hold SELECT button for 15 seconds to restore factory defaults, solid red for 10 seconds confirms clear all success.
6	Config Options	See Table 2 - "Config Options Green Menu."

Table 2 - Config Options Green Menu (6 Amber Blinks)

Green Blink count	Config Options	Activate 6 blink Amber Menu, Press MENU to enter. Press SELECT button to cycle through Green blink counts. See Diagram.
1	Auto-OFF timeout	1: disabled (default), 2: 5 min, 3: 10 min, 4: 15 min (occ. default), 5: 20m, 6: 25m, 7: 30m, 8: 60m, 10: Other
2	Repeater	1: 1x repeating, 2: 2x repeating, 3: OFF (default).
3	Power up state	1: Auto (default), 2: State Memory, 3: Normally Closed, 4: Normally Open.
4	Status reporting	1: A5-38-08 (default), 2: A5-11-01, 3: disabled (when enabled transmits on change and every 2 +/- minutes by default).
5	Invert relay	1: Relay asserted Closed (default). 2: Relay asserted Open: inverted logic.
6	Load type	1: AC loads only (default): arc suppression enabled. 2: DC loads: arc suppression disabled.
7	Set Daylighting Threshold	Set the Daylighting Threshold between 10% and 90%. Hold SELECT button to adjust. LED blinks indicates Daylighting Threshold setting: RED 1 - 9x.

