

# 20A Dimming Area Controller Installation Guide

Control any 0-10V compatible load including LED drivers, fluorescent ballasts, motor controllers, actuators, etc., using wireless signals from self-powered wireless switches, wireless sensors, and/or gateways, etc. The controller is compatible with all 120VAC, 240VAC, or 277VAC circuits.

## SPECIFICATIONS

### Electrical

Power Input: 100-277 VAC 50 or 60 Hz  
 Standby Power: <0.5W  
 Max Power Use: <0.8W

### Outputs

1 - 20A Latching Form A Relay  
 1 - 0-10V output, 100mA sink / 1mA src  
 (50mA src with Aux Pwr - see option D)  
 1 - Aux Power, 10mA@12VDC,  
 50mA@10VDC

### Inputs

1 - EnOcean Wireless Antenna  
 1 - 0-10V input 0.1mA source

### Maximum Load

General Duty: 20A  
 Tungsten (Incand.): 20A  
 Fluorescent Ballast: 20A  
 Motor Load: 1HP  
 Range: 50-150 feet (typical)  
 Frequency: 902 MHz

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

**Transmit EEP:** A5-38-08 (default) or A5-11-01, MENU button transmits Link Signal

**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: 10-90% non-condensing  
 Power Up State: Auto, Open, or Closed  
 Link Capacity: 25 links  
 User Settable "Preferred Level"

**Firmware version:** 3.3.1.3

### Certifications

ETL: UL 60730 (U.S.), CSA22.2#14-05  
 (Canada), UL 2043 (Plenum)  
 CE: IEC 60730, 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

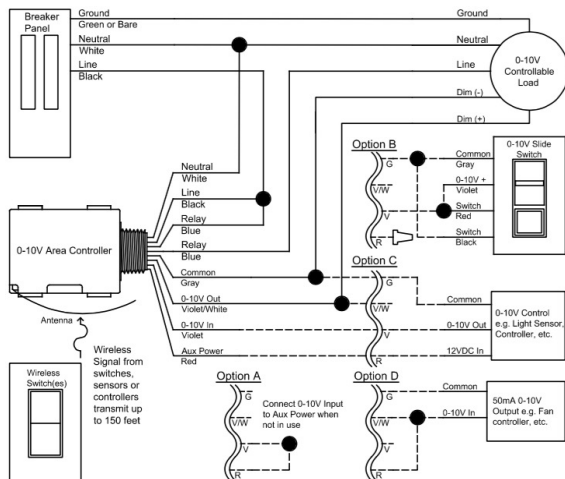
F6-02-01, F6-02-02, F6-03-01, F6-03-02  
 F6-04-01, F6-02-01, F6-02-02  
 F6-02-01, F6-02-02, Proprietary  
 A5-07-01, A5-07-02, A5-07-03  
 D5-00-01, A5-30-01  
 A5-06-02, A5-06-03  
 A5-38-08 - untimed commands only

## 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. Hold to dim.
4. **LINK** Transmitters and Receivers following Linking Instructions below.

## OPERATION

Use the Controller to dim and switch power to loads. Compatible loads include 0-10V controlled LED and 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. Hold to dim.

### 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) or Dim (7 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.
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 or 0-10V input), 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."
7	Dim Options	See Table 3 - "Dim 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: Scene A (Default: 100%), 4: Scene B (Default: 0%).
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 indicate Daylighting Threshold setting: RED 1 - 9x.

Table 3 - Dim Options Green Menu (7 Amber Blinks)

Green Blink count	Dim Options	Activate 7 blink Amber Menu, Press MENU to enter. Press SELECT button to cycle through Green blink counts. See Diagram.
1	N/A	Reserved
2	Set 100% output trim level	Set 0-10V output by holding SELECT or adjusting 0-10V input control. Press MENU button to save current level as 100%.
3	Set 1% output trim level	Set 0-10V output by holding SELECT or adjusting 0-10V input control. Press MENU button to save current level as 1%. Adjust 0-10V input to voltage corresponding to level for maximum output, then back off slightly and press MENU to save current input level as 100% (0% level may be at higher or lower voltage than 100% level).
4	Set input 100% level	Adjust 0-10V input to voltage corresponding to level for minimum output, then back off slightly and press MENU to save current input level as 0% (0% level may be at higher or lower voltage than 100% level).
5	Set input 0% level	Adjust 0-10V input to voltage corresponding to level for minimum output, then back off slightly and press MENU to save current input level as 0% (0% level may be at higher or lower voltage than 100% level).
6	Occupancy Dim Behavior	1 - (default) occupied: Preferred level, unoccupied: Scene B. 2 - occupied: Scene A, unoccupied: Preferred level. 3 - occupied: Scene A, unoccupied: Scene B. Manual override is active until occ/unocc status change.
7	Scene A	Scene A may be recalled when occupied. Default: 100%. Adjust with 0-10V input or SELECT button. Press MENU to save.
8	Scene B	Scene B may be recalled when unoccupied. Default: 0%. Adjust with 0-10V input or SELECT button. Press MENU to save.

