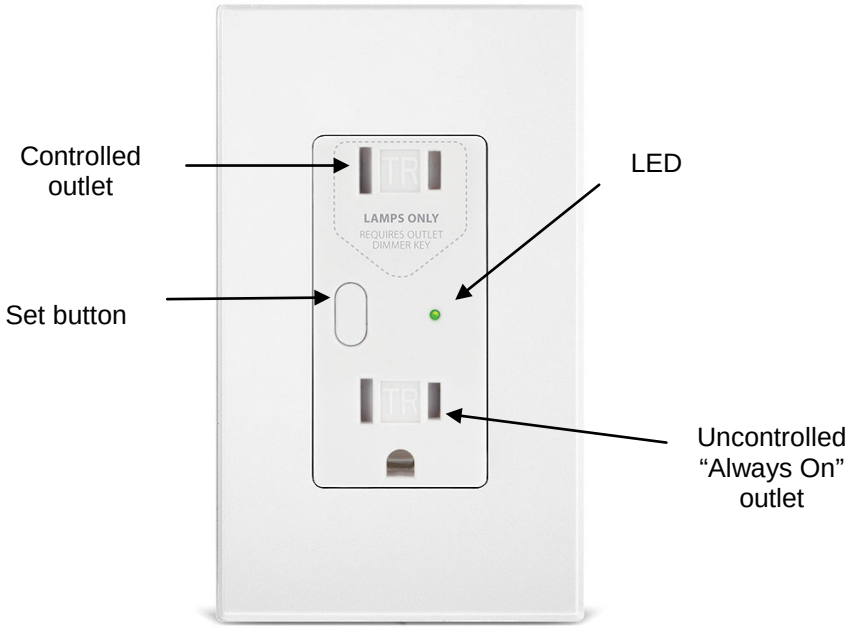
OutletLinc™ Dimmer

Owner's Manual

INSTEON® Remote Control Dimmer Outlet (Dual-Band) (#**2472D**)

About OutletLinc Dimmer

The award-winning OutletLinc Dimmer is the most elegant remote-control lamp dimmer in the world. The top outlet gives you INSTEON remote and automatic control of dimmable lamps up to 300 watts. The bottom outlet is a standard, always-on 15 amp receptacle. Because OutletLinc is dual-band, it also acts as an Access Point for battery-powered INSTEON devices, as well as a wireless electrical phase bridge. Plus, it comes with the Outlet Dimmer Key, a razor-thin piece that fits over lamp plugs and prevents non-dimmable loads from being plugged into—and possibly damaging—the remote-controlled top outlet.



Features and Benefits

- Elegant, built-in, clean and professional look for remotely controlling lamps
- One remotely-controllable outlet and one standard (always on) outlet with a total load capacity of 15 Amps
- Remote-controlled outlet handles incandescent lamps up to 300W
- Tamper-resistant: ETL-tested shutter mechanism for protection against improper object insertion and electric shock. Conforms to NEC Article 406.11
- Load sense enabled on remote-controlled outlet (manually switching load on/off will turn outlet on/off)
- Auto-off temperature sensor
- Dual-band: communicates simultaneously over both radio frequency (RF) and the powerline
- Functions as an Access Point for RF-only devices
- Functions as an electrical phase bridge
- Local on/off control via Set button
- Remotely controls other INSTEON devices

- X10 compatible
- Beeper and dual-color LED for easy setup
- 32 brightness levels and ramp rates
- All settings saved in non-volatile memory, even through power outages
- Wires into standard J-box exactly the same as a standard outlet
- Comes with the innovative Outlet Dimmer Key
- Two-year warranty

What's in the Box?

- OutletLinc Dimmer
- Outlet Dimmer Key
- Three wire nuts
- Quick Start Guide

Installation

CAUTIONS AND WARNINGS

Read and understand these instructions before installing and retain them for future reference.

OutletLinc is intended for installation in accordance with the National Electric Code and local regulations in the United States or the Canadian Electrical Code and local regulations in Canada. Use indoors only. OutletLinc is not designed nor approved for use on power lines other than 120V 60Hz, single phase. Attempting to use OutletLinc on non-approved power lines may have hazardous consequences.

- Use only indoors or in an outdoor-rated box
- Be sure that you have turned off the circuit breaker or removed the fuse for the circuit you are installing OutletLinc in. Installing OutletLinc with the power on will expose you to dangerous voltages.
- Connect only copper or copper-clad wire to OutletLinc
- OutletLinc may feel warm during operation. The amount of heat generated is within approved limits and poses no hazards. To minimize heat buildup, ensure that the area surrounding the rear of OutletLinc is as clear of clutter as possible.
- Each OutletLinc is assigned a unique INSTEON ID, which is printed on the device's label.
- To reduce the risk of overheating and possible damage to other equipment, use OutletLinc's dimmer outlet to control no more than 300 Watts of 110VAC incandescent lamps only. Dimming an inductive load, such as a fan or transformer, could cause damage to the dimmer, the load bearing device, or both. If the manufacturer of the load device does not recommend dimming, use a non-dimming INSTEON on/off switch. USER ASSUMES ALL RISKS ASSOCIATED WITH DIMMING AN INDUCTIVE LOAD.
- You will need a flathead screwdriver, a Philips screwdriver and a voltage meter to install OutletLinc Dimmer

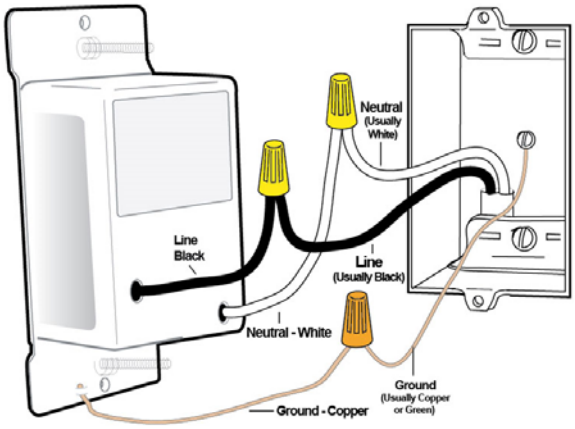
Identifying the Electrical Wires in your Home

To install OutletLinc, you will need to identify the following four wires:

- Line - usually black, may also be called Hot or Live, carries 110VAC electricity into the outlet
- Neutral - usually white
- Ground - bare copper wire or metal fixture (if grounded)

If you are having difficulties identifying wires, consult an electrician to help you.

IMPORTANT: If you are not knowledgeable about or and comfortable with electrical circuitry, you should have a qualified electrician install OutletLinc for you. If you have any questions, please consult an electrician or call 800-762-7845.



1) Turn off the circuit breaker (or remove fuse) supplying power to the outlet location.
2) Remove the existing wallplate from the outlet you are replacing. Then, unscrew the outlet itself and pull it out from the junction box.
3) Disconnect the wires from the outlet you are replacing. If the wires cannot be detached by unscrewing them, cut the wires where they enter the switch and then strip ½" of insulation off the ends.
4) Twist together the bare copper OutletLinc wire to the Ground wire with a wire nut.
5) Twist together the white OutletLinc wire to the Neutral wire with a wire nut.
6) Twist the black OutletLinc wire to the Line wire with a wire nut.
7) Ensure all connections are solid with no exposed copper (other than Ground).
8) Carefully install and screw OutletLinc into electrical box, then install Decora trim-plate.
9) Turn circuit breaker back on.

   OutletLinc LED will blink red for about 1 minute then turn solid red.

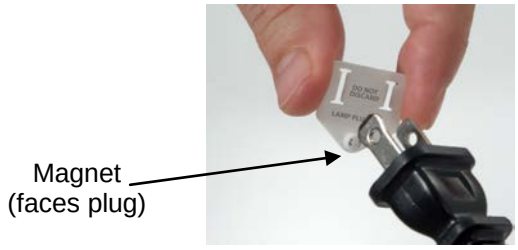
10) Slip the OutletLinc Dimmer Key over the prongs of your lamp's plug so the circular magnet protrusion faces the lamp's plug.
11) Plug lamp into top outlet on OutletLinc.

    The lamp will turn on and the OutletLinc LED will turn on green.

12) If the lamp does not turn on, turn it on manually using the lamp's switch.
13) Tap OutletLinc's Set button.

    Lamp will turn off (if on) and on (if off).

    LED will be green when lamp is on and red when it is off.



Local Control and Status

Set Button
Tap the Set button to toggle connected lamp on and off. Press and hold (as per instructions) to manage other properties and INSTEON scenes (as per instructions below)

Load Sense
If outlet is off, then turning on the connected load (e.g. lamp) via manual adjustment (e.g. rotating lamp's on/off knob) will result in the outlet turning on.

Beeper

- Single beep: transition from one setup mode to another
- Double-beep: successful scene addition or removal
- Continuous beeps for 3 seconds: unsuccessful scene management or 4-minute setup timeout

LED

LED	
Steady-on green	Load is on (at any dim level)
Steady-on red	Load is off
Blinking red slowly	Device is plugged in without Dimmer Key installed, or
	Dimmer Key removed from OutletLinc (10 seconds), or
	Dimmer Key missing and INSTEON message received, or
	OutletLinc Dimmer is overheating
Optional blink-on-traffic is turned on, and blinking red quickly	Dimmer off and INSTEON traffic received
Optional blink-on-traffic is turned on, and blinking green quickly	Dimmer on and INSTEON traffic received

Setting up INSTEON Scenes

One or more INSTEON responders that respond to an INSTEON controller create an INSTEON scene. When the scene is activated (devices turned on), all devices return to the states they were at when the scene was programmed.

INSTEON scenes let you activate dramatic whole-room changes at the touch of a button. For example, you can set all the lights in a scene to dim to 50% or turn certain lights on while turning others off, all with the tap of a single INSTEON controller button.

INSTEON scenes are easy to set up; just follow the directions below.

Adding OutletLinc to a Scene as an INSTEON Responder

1) Plug lamp into bottom outlet and use lamp's switch to turn it on.
2) Plug lamp (with dimmer key installed) into top outlet.

LED will turn green.

3) Press and hold the scene controller button until it beeps.[1]

   Controller's LED will blink.

4) Press and hold OutletLinc's Set button until it double-beeps.

   OutletLinc's LED will flash once and return to green.

   Controller will double-beep[2] and its LED will stop blinking.

5) Confirm that scene addition was successful by tapping on then off on the controller's scene button.

   The light plugged into OutletLinc will toggle on and off.

6) If you wish to adjust the light's scene on-level and/or ramp rate:

   a. Using your scene controller, adjust the light's brightness to correspond with the ramp rate desired (see *Setting the Ramp Rates* for more information).

   b. Double-tap OutletLinc's Set button.

      OutletLinc will beep once.

   c. Using your scene controller, adjust the light's brightness to the desired brightness (on-level) for your scene.

   d. Return to Step 3.

Removing OutletLinc From a Scene as an INSTEON Responder

If you are going to discontinue using OutletLinc, it is very important that you remove it from all of its scene controllers. Otherwise, the controllers will retry commands repetitively and creating network delays.

1) Press and hold the controller's scene button until controller beeps.[3]

   Controller's LED will begin blinking.

2) Press and hold the Scene button until Controller beeps again.[4]

   Controller's LED will continue blinking.

3) Press and hold Set button on OutletLinc until it double-beeps.

   OutletLinc's LED will flash once and return to steady green (or red).

   Controller's LED will stop blinking.

4) Confirm that unlinking was successful by tapping the button you just unlinked from on the controller.

   OutletLinc will no longer respond.

Advanced Features

Changing the LED Brightness (or Turning Off LED)

1) Press and hold Set button until it beeps.

   LED will blink green.

[1] If the controller does not have a beeper, wait until its LED begins blinking.
[2] Most models
[3] For devices without beepers, hold until LED begins blinking (this may take 10+ seconds).
[4] For devices without beepers, hold until LED begins blinking (this may take 10+ seconds).

2) Press and hold Set button until it beeps again.

LED will blink red.

3) Press and hold Set button until it beeps a third time.

LED will stop blinking and its intensity will be equal to that of the connected lamp.

4) Use an OutletLinc scene controller of OutletLinc to adjust the LED to the desired brightness.

5) Once you have reached the desired LED brightness, tap the Set button

OutletLinc will beep once and return to ready mode.

Setting On-Level

On-level is the brightness level at which the light you are controlling will turn on. The default on-level is 100%, but is adjustable from off to 100% brightness.

OutletLinc's on-level can be assigned to a controller as part of a scene (see *Adding OutletLinc to a Scene as an INSTEON Responder*). The on-level for local control can only be adjusted via software.

Setting the Ramp Rate[1]

The ramp rate is the time it takes the OutletLinc Dimmer load to transition from full-off to full-on (and vice versa). The default ramp rate is 0.5 seconds, but is adjustable from 0.1 seconds to 9 seconds (locally at OutletLinc Dimmer) or 9 minutes (via software such as HouseLinc*), with 32 ramp rates available.

1) Ramp rate is set using the load's brightness level as an indicator for the ramping speed. Using an OutletLinc scene controller, adjust the load to the brightness level which corresponds to the desired ramp rate using this table:

Desired Ramp Rate in Seconds[2]	Brightness Level
Instant	100%
0.2 seconds	85%
0.3 seconds	70%
0.5 seconds (default)	55%
2 seconds	45%
4.5 seconds	30%
8.5 seconds	5%

2) Once you reach the appropriate brightness, double-tap OutletLinc's Set button.

OutletLinc will beep.

3) Wait 4 minutes before changing any other settings on OutletLinc Dimmer.

*Note: you may set ramp rates of up to 9 minutes via INSTEON compatible software.

[1] Setting the ramp rate does not change or affect the on-level brightness.
[2] If the load is ramping to less than full brightness, then the time it will take will be proportionately less. For instance, if the load is going to half-brightness, the time it will take for a given ramp rate will be halved.

Using OutletLinc as a Phase Bridge

OutletLinc automatically bridges the electrical phases in your home (via communications with dual-band devices on the opposite phase). Use the following procedure to confirm that the phases are bridged:

1) Start Phase Bridging Detection Mode by tapping the Set button on OutletLinc four times quickly

   OutletLinc will begin beeping and LED will be green.

2) Check the LED behavior of the other dual-band devices. If they are not blinking green,[1] try relocating the other device.

3) If the "other" dual-band device is blinking green[2] the devices are within range and on opposite phases) tap OutletLinc's Set Button

   LED will return to green if load is on, or turn red if load is off.

Adding OutletLinc to a Scene as an INSTEON Controller

Follow the steps below if you wish to use OutletLinc as a scene controller via its Set button.

1) Tap the Set button (if present) on the responder you wish to control until it is on.

2) If desired, adjust the responder load to the state you wish it to be at when the scene is activated from OutletLinc (e.g. 50%, 25% or even off).[3]

3) Press and hold OutletLinc's Set button until it beeps.

   OutletLinc's LED will blink green.

4) Press and hold the responder's Set button until it beeps and/or LED flashes.

   OutletLinc will double-beep and its LED will stop blinking.

5) Confirm that scene addition was successful by tapping the Set button on OutletLinc

   The responder will respond appropriately.

6) If you wish to link multiple responders to OutletLinc, repeat steps 1-4 with for each responder.

Removing OutletLinc from a Scene as an INSTEON Controller

If you are no longer going to use an INSTEON responder that OutletLinc controls, it is very important that you remove its scene membership. Otherwise, OutletLinc will retry every scene command repetitively, creating network delays.

1) Tap the button or Set button on the responder you wish to remove.

2) Press and hold the OutletLinc's Set button until it beeps.

   OutletLinc's LED will blink green.

3) Press and hold OutletLinc's Set button until it beeps again.

   OutletLinc's LED will blink red.

4) Press and hold the responder's Set button until it double-beeps and/or its LED blinks.

   OutletLinc will double-beep and its LED will stop blinking.

5) Confirm that unlinking was successful by tapping the Set button on OutletLinc.

   The responder will no longer respond.

[1] Or not blinking at all for single colored LEDs
[2] Or not blinking at all for single colored LEDs
[3] If the responder is a multi-scene device, tap the scene button you wish to control until its LED is in the desired state (on or off).

Blink LED on INSTEON Traffic

This feature can be enabled (and subsequently disabled) via compatible software packages.

Beep on Local Set Button Presses

This feature can be enabled (and subsequently disabled) via compatible software packages.

Factory Reset

The factory reset procedure clears all settings from OutletLinc, including INSTEON links, on-levels, ramp rates, X10 addresses, etc.

1) If possible, remove all scene memberships prior to performing the factory reset.
2) Turn off circuit breaker.
3) Press and hold OutletLinc's Set button. Do not let go.
4) Have a friend turn on the circuit breaker.

   As you continue to press and hold, OutletLinc will begin to emit a long beep.

5) When beep stops, release Set button.

   The OutletLinc LED will turn on solid green and then turn off.
   After a few seconds, OutletLinc will double-beep.
   LED state depends upon other factors (see the LED status table for more information).

X10 Programming

Instructions on setting X10 primary address and scene addresses can be found online:

http://www.smarthome.com/insteon-x10-programming.html

Specifications

General	
Product Name	OutletLinc Dimmer - INSTEON Remote Control Dimmer Outlet (Dual-Band)
Brand	Smarthome
Manufacturer Product Number	2472D
UPC	White - 2472DWH: 813922010251 Almond - 2472DAL: 813922010220 Light Almond - 2472DLAL: 813922011630 Black - 2472DBK: 813922010237 Gray - 2472DGY: 813922011364 Ivory - 2472DIV: 813922010244 Brown - 2472DBR: 813922011357

FCC ID	SBP2472D	
Patent Number	7,345,998 US, International Patents Pending	
Warranty	2 Years, Limited	
INSTEON		
INSTEON ID	1	
INSTEON	256 responder groups and 1 controller group	
Brightness Levels	32 (256 with software)	
Maximum Scene Links	400	
Scene Commands Supported as Controller	On	Off
Scene Commands Supported as Responder	On	Off
	Press and Hold Bright	Press and Hold Dim
	Incremental Bright	Incremental Dim
	Fast On	Fast Off
Software Configurable	Yes, Always	
RF Range	150’ Open air	
X10 Support	Yes	
X10 Addresses	1 max, unassigned by default	
INSTEON Device Category	0x01 Dimmable Lighting Control	
INSTEON Device Subcategory	0x21	
INSTEON Product Key (IPK)	0x000068	
Mechanical		
Mounting	Standard, single gang wall box	
Wires	3, 14 gauge	
Wires	Black - Hot	
	White - Neutral	
	Bare Copper - Ground	
Case Color	White	
Set Button	1, color matched to unit	
Plastic	UV Stabilized Polycarbonate	
Beeper	Yes	
LED	Dual Color, Green and Red	
Dimensions	4.1" H x 1.73" W x 1.73" D	
Weight	120 grams / 0.26 pounds	
Operating Environment	Indoors	
Operating Temperature Range	32-104 F	
Thermal Overload Protection	Disables controlled outlet until condition resolved and operated	

	with ON command or front button push.
Operating Humidity Range	0-85% Relative Humidity
Electrical	
Voltage	120VAC +/- 10%, Split, Single Phase
Frequency	60Hz
Maximum Dimmer Load	300 Watts
Load Type(s)	Incandescent
Surge Resistance	Up to 500 VAC
Retains all settings without power	Yes, all saved in Non-volatile EEPROM
Standby power consumption	< 1 watt
Safety Approved	ETL (Intertek Testing Services)
Certifications	FCC, IC Canada

Troubleshooting

Problem	Possible Cause	Solution
Controlled load turns off for a moment when I plug a device into the bottom outlet.	Protect Feature – OutletLinc protects its controlled load circuitry by momentarily turning the controlled load off when certain types of high-inrush devices are plugged in.	Leave your device plugged in, or try plugging your device into another outlet.
LED won't come on.	OutletLinc is not getting power.	Make sure circuit breaker is on.
		Check the junction box wires to ensure all connections are tight and no bare wires are exposed.
OutletLinc won't add to scene as a responder.	The controller may have dropped out of linking mode or linked to another device.	Try relinking OutletLinc to the controller.
	The INSTEON signal may not be getting to the "vicinity" of OutletLinc.	Make sure phases are bridged. Add additional INSTEON devices and/or move around existing INSTEON devices.
	Large appliances, such as refrigerators or air conditioners, may be producing electrical noise on the powerline.	Install a power line noise filter (FilterLinc #1626-10) to filter electrical noise and minimize signal attenuation.
	Other electrical devices, such as computers, televisions or power strips, may be absorbing the INSTEON signal.	
The controller turns OutletLinc off, but not on.	Ramp rate may be extremely slow.	Relink to controller with a faster Ramp Rate. See *Setting the Ramp Rate.*
	OutletLinc may be linked at off.	Press the Set button once to turn on the lamp, then relink with the controller.
OutletLinc is taking a long time to respond to a controller.	The controller may be sending commands to a different responder that is no longer in use. Commands for the unused responder are being resent and	Unlink any unused responders from the controller. HINT: If you are using home automation software such as HouseLinc, you can easily check scene membership and eliminate unnecessary links.

Problem	Possible Cause	Solution
	slowing down communication signals to OutletLinc.	If the above doesn't work, perform a factory reset on the controller.
The load turned on by itself.	Another controller, a timer or stray X10 signals could have triggered OutletLinc.	Monitor for recurrence and remove reason if you can determine what it is. If necessary perform a factory reset.
	The OutletLinc sensed a change in the connected table lamp and triggered the load sense feature.	Disable load sense (via compatible software such as HouseLinc) or make sure a standard incandescent bulb is used.
The load doesn't appear to turn on right away.	The ramp rate may be set too slow.	Set a faster ramp rate. See *Setting the Ramp Rate.*
OutletLinc is locked up.	A surge or excessive noise on the power line may have glitched it.	Remove power to OutletLinc by turning off the circuit breaker for five seconds, then turning it back on. If that doesn't work, perform a factory reset.
An LED bulb plugged into OutletLinc does not turn off completely when I send an OFF command.	Since LEDs require so little power, the load sensing current that runs through OutletLinc may be enough to power the bulb.	Add to the load with more LEDs or higher wattage bulbs, generally higher than a 5 Watt load. Add one incandescent bulb to soak up the sense current.
The OutletLinc LED is blinking red even though I haven't put it into unlinking mode.	The Outlet Dimmer Key may not be properly installed.	Be sure the protruding magnet of the Outlet Dimmer Key faces away from OutletLinc and towards the plug of the load. See *Installing OutletLinc Dimmer.*
		Be sure the Outlet Dimmer Key lies completely flush against OutletLinc.

If you have tried these solutions, reviewed this Owner's Manual, and still cannot resolve an issue you are having with OutletLinc, please call the INSTEON Support Line at 800-762-7845

Certification and Warranty

Certification

This product has been thoroughly tested by ITS ETL SEMKO, a nationally recognized independent third-party testing laboratory. The North American ETL Listed mark signifies that the device has been tested to and has met the requirements of a widely recognized consensus of U.S. and Canadian device safety standards, that the manufacturing site has been audited, and that the manufacturer has agreed to a program of quarterly factory follow-up inspections to verify continued conformance.

FCC and Industry Canada Compliance Statement

This device complies with FCC Rules Part 15 and Industry Canada RSS-210 (Rev. 7). Operation is subject to the following two conditions:

(1) This device may not cause harmful interference, and

(2) This device must accept any interference, including interference that may cause undesired operation of the device.

Le present appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorise aux deux conditions suivantes:

(1) l'appareil ne doit pas produire de brouillage, et

(2) l'utilisateur de l'appareil doit accepter tout brouillage radiolectrique subi, mme si le brouillage est susceptible d'en compromettre le fonctionnement.

The digital circuitry of this device 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 residential installations. 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 and television reception. However, there is no guarantee that interference will not occur in a particular installation. If this device does cause such interference, which can be verified by turning the device off and on, the user is encouraged to eliminate the interference by one or more of the following measures:

- Re-orient or relocate the receiving antenna of the device experiencing the interference
- Increase the distance between this device and the receiver
- Connect the device to an AC outlet on a circuit different from the one that supplies power to the receiver
- Consult the dealer or an experienced radio/TV technician

WARNING: Changes or modifications to this device not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

ETL / UL Warning (Safety Warning)

CAUTION: To reduce the risk of overheating and possible damage to other equipment, do not install this device to control a receptacle, a motor-operated appliance, a fluorescent lighting fixture, or a transformer-supplied appliance.

Gradateurs commandant une lampe a filament de tungstene – afin de reduire le risqué de surchauffe et la possibilite d'endommagement a d'autres materiels, ne pas installer pour commander une prise, un appareil a moteur, une lampe flourescente ou un appareil alimente par un transformateur.

Limited Warranty

Seller warrants to the original consumer purchaser of this product that, for a period of two years from the date of purchase, this product will be free from defects in material and workmanship and will perform in substantial conformity to the description of the product in this Owner's Manual. This warranty shall not apply to defects or errors caused by misuse or neglect. If the product is found to be defective in material or workmanship, or if the product does not perform as warranted above during the warranty period, Seller will either repair it, replace it, or refund the purchase price, at its option, upon receipt of the product at the address below, postage prepaid, with proof of the date of purchase and an explanation of the defect or error. The repair, replacement, or refund that is provided for above shall be the full extent of Seller's liability with respect to this product. For repair or replacement during the warranty period, call the INSTEON Gold Support Line at 800-762-7845 with the Model # and Revision # of the device to receive an RMA# and send the product, along with all other required materials to:

INSTEON
ATTN: Receiving
16542 Millikan Ave.
Irvine, CA 92606-5027

Limitations

The above warranty is in lieu of and Seller disclaims all other warranties, whether oral or written, express or implied, including any warranty or merchantability or fitness for a particular purpose. Any implied warranty, including any warranty of merchantability or fitness for a particular purpose, which may not be disclaimed or supplanted as provided above shall be limited to the two-year of the express warranty above. No other representation or claim of any nature by any person shall be binding upon Seller or modify the terms of the above warranty and disclaimer.

Home automation devices have the risk of failure to operate, incorrect operation, or electrical or mechanical tampering. For optimal use, manually verify the device state. Any home automation device should be viewed as a convenience, but not as a sole method for controlling your home.

In no event shall Seller be liable for special, incidental, consequential, or other damages resulting from possession or use of this device, including without limitation damage to property and, to the extent permitted by law, personal injury, even if Seller knew or should have known of the possibility of such damages. Some states do not allow limitations on how long an implied warranty lasts and/or the exclusion or limitation of damages, in which case the above limitations and/or exclusions may not apply to you. You may also have other legal rights that may vary from state to state.