FanLinc™

Owners Manual

INSTEON® Remote Control Light & Fan Controller (Dual-Band) (**#2475F**)

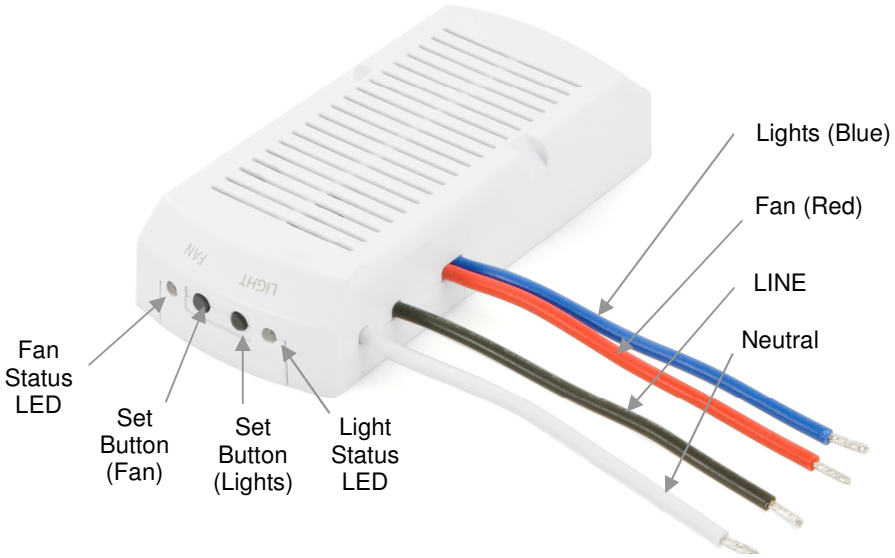
INSTEON

SMARTHOME®

About FanLinc

FanLinc is designed to easily incorporate both fan speed and light control within your INSTEON network. It is a dual-load responder simultaneously acting as a light fixture dimmer plus a 4 speed fan controller (Off, Low, Medium & High).

The solution is to pair FanLinc (installed in fan cowling or junction box above fan) with controllers such as KeypadLinc, RemoteLinc 2, software and other controllers.



Features & Benefits

- 4 Speed Fan controller (Off, Low, Medium & High)
- 300 Watt Incandescent Dimmer
- Easy setup
- X10 Compatible (1 address for light, 1 address for fan)
- Dual-band – Acts as an Access Point and bridges phases
- Specially designed to fit inside most ceiling fan cowlings
- Dual Set Buttons and Dual LEDs for simple scene programming
- Beeper for setup ease
- All settings stored in stable memory which is maintained even without power
- 2 year Warranty

What's in the Box?

- FanLinc
- Wire Nuts
- 1 Cable Tie
- Quick-Start Guide

Optional Accessories

Accessory	Part #	Link
KeypadLinc	2486D6	http://www.smarthome.com/2486DWH6.html
RemoteLinc	2440	http://www.smarthome.com/2440.html
RemoteLinc 2	2444A2WH4 2444A2WH8	http://www.smarthome.com/2444A2WH4.html
HouseLinc	2413UH, 2413SH	http://www.smarthome.com/2413UH.html
SmartLinc	2412N	http://www.smarthome.com/2412N.html

Installation

CAUTIONS AND WARNINGS

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

FanLinc 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. FanLinc is not designed nor approved for use on power lines other than 120VAC, 50Hz / 60Hz, single phase. Attempting to use FanLinc on non-approved power lines may have hazardous consequences.

- Use only indoors or in outdoor rated box
- Be sure that you have turned off the circuit breaker or removed the fuse for the circuit you are installing FanLinc in. Installing FanLinc with the power on will expose you to dangerous voltages.
- Connect only copper or copper-clad wire to FanLinc
- FanLinc 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 FanLinc air vents is as clear of clutter as possible.
- To reduce the risk of overheating and possible damage to other equipment, use FanLinc Load output to control no more than 300 watts of 120VAC incandescent lamps plus no more than 1 Amp of Fan load. Dimming an inductive load (by connecting to the Light load wire), 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 phillips head screwdriver and a voltage meter to install FanLinc

Identifying the Electrical Wires in your Home

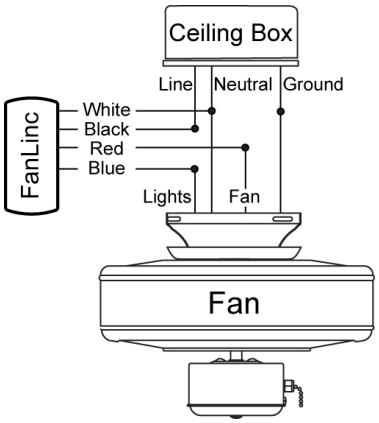
To install FanLinc, you will need to identify the following four wires:

- LINE - usually black, may also be called HOT or LIVE, carries 120VAC electricity into the outlet
- NEUTRAL - usually white
- LOAD – Usually Blue or Red
- 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, and comfortable with, electrical circuitry, you should have a qualified electrician install this device for you. If you have any questions, please consult an electrician.

1) Using your fan's pull chains, turn light On and set fan to highest speed **NOTE:** All fan and light controls will be done through FanLinc once installed
2) Turn off the circuit breaker (or remove fuse) supplying power to the fan's location
3) Identify Line, Neutral and Load lines for light and fan separately
4) Remove the light and/or fan from the electrical box
5) Disconnect the wires from the ceiling fan and/or light
6) As necessary, strip ½ inch of insulation off the wire ends
7) Connect FanLinc's White wire and the fixture's neutral wire to the house NEUTRAL with a wire nut
8) Connect FanLinc's Blue [light] wire to the fixture's Light with a wire nut
9) Connect FanLinc's Red [fan] wire to the fixture's Fan with a wire nut
10) Connect FanLinc's Black wire to LINE with a wire nut
11) Ensure all connections are solid, no exposed copper (other than ground)
12) Turn circuit breaker back on



*FanLinc Set Light LED will be on **Green (by default)***

*Fan LED will be on **RED***

13) To test Light, tap the Light Set Button

*Light will toggle between **Green** (On) and **Red** (Off)*

14) To test Fan, tap the Fan Set Button once

*FanLinc will **(Beep)***

*LED will blink **Green***

(Note: fan motor will not actually engage by tapping FanLinc buttons, only INSTEON signals from a linked controller to FanLinc will activate the fan motor)

15) Tap Blue a 2nd time

*FanLinc will **(Beep)-(Beep)***

*LED will blink **Green faster***

16) Tap Blue a 3rd time

*FanLinc will **(Beep)-(Beep)-(Beep) very quickly***

*LED will blink **Green faster still***

17) Tap Blue a 4th time

*LED will go on **RED***

IMPORTANT: SET UP ALL DESIRED MANUAL SCENE MANAGEMENT BEFORE REPLACING COWLING AND RE-MOUNTING TO CEILING. SEE "SETTING UP INSTEON SCENES"

18) Optional: Cover LED's with black electrical tape to avoid unwanted glowing at night which may be visible in some fan cowlings

If using software and you program LED's off, they remain on until you send a FanLinc a fan command from an INSTEON controller

19) Carefully remount cowling with FanLinc inside (or in electrical box above). Certain installations may require the use of a UL rated cable tie (included) to secure FanLinc to the fan bracket. Run cable tie

in the notches on the FanLinc case; ensure that cable tie and wires will not interfere with any moving parts.

INSTEON Scenes

Scene: One or more INSTEON responders (like FanLinc) which respond to an INSTEON controller. When the scene is activated (turned "on"), all devices return to the states they were at when the scene was programmed.

INSTEON scenes let you activate dramatic lighting moods at the touch of a button. For example, you can set all the lights in a scene to dim to 50% and have the ceiling fan spinning slowly, all with the tap of a button on any INSTEON controller. INSTEON scenes are easy to set up, just follow the directions below.

Add FanLinc's Light to a Scene as a Responder

Follow the steps below to add your light to an INSTEON scene.

1) Press & hold the scene controller button until it beeps[1]

   Controller's LED will blink

2) Tap FanLinc's Light Set button until the connected light is on

   *Light's LED will be **GREEN***

3) Press & hold FanLinc's Light Set button until FanLinc double-beeps

   *Light's LED will flash once & return to **GREEN***

   *Controller will **(Beep)-(Beep)**[3] and its LED will stop blinking*

4) Make sure the fan's lights are connected to the assembly, confirm that the scene addition was successful by tapping On / Off on your scene controller

   The Light Connected to FanLinc will toggle between On and Off

5) If you wish to adjust the light's scene On-Level and/or Ramp Rate

   Adjusting Ramp Rate:

   a. Using your Scene Controller, adjust the light's brightness to correspond with the ramp rate desired (Ramp Rates)

   b. Double-Tap FanLinc's Fan Set Button

   c. Return to step #1 above

   Adjusting On-Level:

   a. Using your scene controller, adjust the light's brightness to the desired brightness for your scene

   b. Return to Step #1

6) If you wish to add FanLinc's light to more scenes, simply repeat these steps

Add FanLinc's Fan to a Scene as a Responder

Follow the steps below to add your ceiling fan to an INSTEON scene.

[1] If the controller does not have a beeper, wait until its LED begins blinking
[3] Most models

1) Tap FanLinc's Fan Set button until FanLinc's Beeper & LED indicate the desired fan speed

NOTE: For your safety the fan will not spin when the Fan Set button is pressed, only incoming INSTEON commands will initiate fan speed control.

Tap	Fan Speed	Beeper	LED
1st	Low	Single Beep	Blinks Green Slow
2nd	Medium	Double Beep	Blinks Green Medium
3rd	High	Fast Double Beep	Blinks Green Fast
4th	Off	None	Red

Fan's LED will be in the desired state (see table above)

2) Press & hold the scene controller Set button until it beeps[1]

Controller's LED will blink

3) Press & hold FanLinc's Fan Set button until FanLinc double-beeps

*Fan's LED will **(Beep)-(Beep)** and the LED will return to previous state.*

*Controller will **(Beep)-(Beep)**[1] and its LED will stop blinking*

4) If you wish to add your fan to more scenes, simply repeat these steps

5) Temporarily hang the fan from the mounting ring so the fan can spin safely and without obstruction. Then while safely clear of the fan blades press On / Off on your scene controller

*Fan's LED will toggle between **Green** scene state and **RED (Off)***

Remove FanLinc from a Scene

If you are going to discontinue using FanLinc, it is very important that you Un-link it from all of its scene controllers. Otherwise, the controllers will retry commands repetitively, creating network delays. These instructions remove FanLinc from a scene for which it is a responder. Whenever possible, use software for managing links.

WARNING: Prior to proceeding, use the pull chain to turn the fan motor to Off.

1) Tap the button you wish to unlink. Press & hold the controller's Set button until Controller beeps[2]

Controller's LED will blink

2) Press & hold the Set button until controller beeps again[1]

Controller's LED will continue blinking

3) If you wish to remove FanLinc's **Light** from the scene – press & hold FanLinc's Light Set button until it double-beeps

*Light's LED will flash once & return to steady **GREEN** (or **RED**)*

4) If you wish to remove FanLinc's **Fan** from the scene – press & hold FanLinc's Fan Set button until it double-beeps

*Fan's LED will flash once & return to blinking **GREEN** (or steady **RED**)*

Controller's LED will stop blinking

[1] Most models
[2] For devices without beepers hold until its LED begins blinking (this may take 10+ seconds)

5) *Temporarily hang the fan from the mounting ring so the fan can spin safely and without obstruction. Then while safely clear of the fan blades press On / Off on your scene controller*

6) Confirm that Unlinking was successful by tapping the button you just Unlinked from on the Controller

FanLinc's LEDs, light and/or fan will no longer respond

NOTE: If you have a controller such as SwitchLinc linked to both the fan and light on FanLinc and you unlink SwitchLinc from either fan or light, you must re-link to the other feature to have it continue to control the other feature.

LED and Beeper Behavior

LEDs

Fan LED	
Green blink slow	Setup: Set scene speed to Slow
Green blink medium	Setup: Set scene speed to Medium
Green blink fast	Setup: Set scene speed to Fast
Red steady on	Setup: Set scene speed to Off
Green steady on	Fan is On
Red steady on	Fan is Off

Light LED	
Blinking Green	Setup: Awaiting X10 address
Blinking Red	Setup: Awaiting X10 address removal
Green	Light is On
Red	Light is Off

Beeper

Beeper	
Single Beep	Enter Setup Mode (or transition to next Setup Mode)
Double-Beep	Setup successful, return to Ready Mode
3 Second Beep	Return to Ready Mode (either after setup time-out or user-initiated Set Button Tap)
Fast Beeps	On transition to next fan speed

Advanced Features

The following settings are available for programming only via compatible software:

- Enable/Disable LEDs
- LED Blink on traffic
- Programming Lock

Using FanLinc as a Phase Bridge

FanLinc automatically bridges phases in your home (via communications with dual-band devices on the "other phase"). Use the following procedure to confirm that the phases have been bridged:

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

   *FanLinc will begin **(Beeping)** and its LED will turn steady **GREEN***

2) Check the LED behavior of the "other" dual-band devices. If they are not blinking, try moving the "other" device.

3) If the LED on the "other" dual-band device is blinking, the devices are within range and on opposite phases. Tap FanLinc's Light Set Button to exit Phase Bridging Detection Mode.

   *LED will return to **GREEN** if light is on, or turn **RED** if light is OFF*

   Note: If the FanLinc is being phase-bridged, its LED status will be:
   RED = same phase / GREEN = opposite phase

Returning FanLinc to Factory Default Settings

NOTE: All Settings and Scenes will be erased.

Option 1

1) If possible, remove all scene memberships prior to performing the factory reset (see Remove FanLinc from a Scene above)

2) Press & hold the Light Set button on FanLinc until it beeps

   *LED will blink **GREEN***

3) Press & hold the FanLinc's Light Set button until it beeps again

   *FanLinc's LED will blink **RED***

4) Double-tap the Light Set button,

   Both FanLinc's LEDs and the fan light will turn off

   *FanLinc will **(Beep)***

5) Within 1 second, press & hold the Fanlinc's Light Set button releasing after the long beep stops (>5 seconds)

   *FanLinc will emit a long, continuous **((((((Beep))))))** for >5 seconds*

   *As soon as you release the Light Set button, the FanLinc LED will turn on solid green and then turn off. After a few seconds, FanLinc will **(Beep)-(Beep)** and the LED will turn **GREEN** and the fan light will turn on*

Option 2

1) If possible, remove all scene memberships prior to performing the factory reset (see Remove FanLinc from a Scene above)
2) Turn circuit breaker Off
3) While Pressing & holding FanLinc's Light Set button, have a friend turn circuit breaker back on

   *As you continue to press & hold, FanLinc will emit a long continuous **(((((Beep)))))***

4) Continue to press & hold the Light Set button for >5 seconds, release when beeping stops

   *As soon as you release the Light Set button, the FanLinc LED will turn on solid green and then turn off. After a few seconds, FanLinc will **(Beep)-(Beep)** and the LED will turn **GREEN** and the Fan light will turn on*

X10 Programming

Instructions on setting X10 primary address can be found online:

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

Specifications

General		
Product Name	FanLinc – INSTEON In-Line, Dual-Load Module	
Brand	Smarthome	
Manufacturer Product Number	2475F	
UPC	813922011548	
FCC ID	SBP2475F	
Patent Number	7,345,998 US, International Patents Pending	
Warranty	2 Years, Limited	
INSTEON		
INSTEON ID	1	
Scenes	2 Responder Groups	
Maximum Scene Links	400	
Scene Commands Supported	On	Off
	Brighten	Dim
	Fast On	Fast Off
Software Configurable	Yes	
RF Range	> 150' Open Air	
X10 Support	Yes	
X10 Addresses	2 max	
Beeper	Yes	

Operation				
Light Dimmer			Fan Controller	
INSTEON	Scene/Group 1		INSTEON	Scene/Group 2
X10				
Brightness Levels	32		Fan Speeds	4 (Off, Slow, Medium & Fast)
Dimmer Control	On, Off, Fast On, Fast Off and Dim / Brights + X10 commands		Fan Control	On, Off, Fast On, Fast Off and Dim / Brights + X10 commands
			Brightness =: - Off - 1% - 49% - 50% - 99% - 100%	Fan is: - Off - Slow - Medium - Fast
LED	Dual Color, Green & Red		LED	Dual Color, Green & Red
LED	Green = ON Red = Off Setup = Varies		LED	Green = ON Red = Off Setup = Varies
Set Button	Black		Set Button	Black
X10	1 Address, unassigned by default		X10	1 Address, unassigned by default

Mechanical	
Wires	4, 16 gauge
Wires	Black – Hot / Line
	Blue – Light Load
	Red – Fan Load
	White - Neutral
Case Color	White
Plastic	UV Stabilized ABS
Dimensions	66.46mm L x 33.017mm W – 9.75mm D
Weight	22g (0.05 lb)
Operating Environment	Indoors
Electrical	
Retains all settings without power	Yes, all saved in Non-volatile EEPROM
Voltage	120VAC, Single Phase
Frequency	50/60Hz
Maximum Dimmer Load	300 Watts

Maximum Fan Load	1 Amp
Safety Approved	ETL

Troubleshooting

Problem	Possible Cause	Solution
FanLinc won't add as a scene responder	FanLinc may be out of range	Try moving an Access Point or other plug-in module closer to FanLinc
	The INSTEON signal may not be getting to the "vicinity" of Responder	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 power line	Install a power line noise filter (e.g. #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	
FanLinc will not turn on light	Ramp Rate may be Extremely Slow	Add to scene again, with fast Ramp Rate
	Pull chain on fan light is not in "ON" position	Use pull chain to turn light on
	Controller may be Linked at OFF	Add to scene again, at desired brightness
FanLinc is taking a long time to respond to scene triggers	Controller may be sending commands to a Responder(s) that is no longer in use	Remove all unused Responders from the Controller. HINT: If you are using HouseLinc software, you can easily check scene membership and eliminate unnecessary Links
		If the above doesn't work, perform a factory reset on the Controller
Fan speed is too slow or does not turn on	Pull chain on fan is not set to HIGH	Use pull chain to set fan to highest speed setting
The light is buzzing when on or dim.	The light dimming component inside FanLinc "chops" the power line sine wave to reduce the power.	The bulb filaments are vibrating. Use rough-service, 130 Volt, or appliance-grade bulbs to reduce the noise.
FanLinc is no longer responding.	Glitch	Power cycle: Turn appropriate circuit breaker Off, wait 10 seconds and turn back on
		Perform a factory reset on FanLinc and set up links again

If you have tried these solutions, reviewed this Owner's Manual, and still cannot resolve an issue you are having with FanLinc, please call: 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 & Industry Canada Compliance Statement
This device complies with FCC Rules Part 15 and Industry Canada RSS-210. 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.

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:

Smarthome
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.