

# SAVANT

## Dual 300W Forward Phase Dimmer - Lighting Module (Supports 1-Inch On-Center Load Centers) Quick Reference and Installation Guide

### Box Contents

- (1) Forward Phase Dimmer Module
  - GPM-H2FPD05-21 w/Pigtail
- (1) Product Information and Regulatory Insert (009-1950)
- (1) Quick Reference and Installation Guide (this document)



### Specifications

Environmental	
Temperature	-22° to +122° F (-30° to +50° C)
Humidity	Up to 90% Relative Humidity (non-condensing)
Location	Indoor Use unless installed in a NEMA 3R rated enclosure

Dimensions and Weights				
	Length	Width	Height	Weight
Module	4.98 inch (12.65 cm)	1.98 inch (5.03 cm)	2.80 inch (7.11 cm)	.5 lbs (.23 kg)
Shipping	7.48 inch (19.0 cm)	4.17 inch (10.60 cm)	1.69 inch (4.29 cm)	1.0 lbs (.45 kg)

Power	
Input Power (powers the module)	120V AC (+/-10%) @ 60 Hz, 0.1A (max)
Input Power (from feeder breaker)	120V AC @ max load power
	300VA 2.5A @ 120V AC max per channel
Load Power	600VA 5.0A @ 120V AC max per channel (when just one channel is used)
Features of Automatic Action	Type 1 Action

Standards	
Wireless	Bluetooth Low Energy (BLE) 2.4 GHz radio frequency

Regulatory			
	FCC Part 15	UL	ICES 003
Safety and Emissions			
Contains FCC ID: PUU-QP2FPD05	Contains IC: 10798A-QP2FPD05		
RoHS	Compliant		

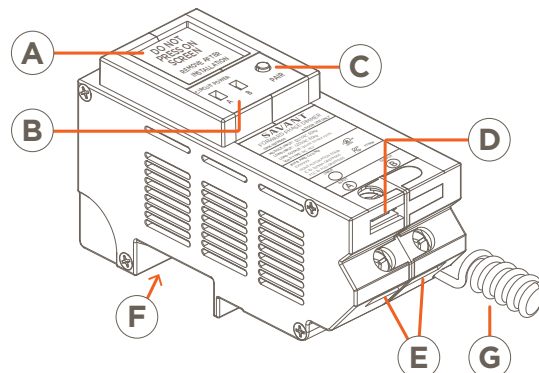
Recommended Load Center Types	
Refer to the <a href="#">Features</a> section to the right for compatibility info.	

Supported Load Types	
Standard Configuration	<b>Dimmable circuits</b> - Incandescent, halogen, magnetic low-voltage transformer, and forward phase dimmable fluorescents
Minimum Power	> 6W (See <a href="#">Output Power Minimums</a> section)

Electrical and Safety Characteristics	
Screw Tighten Torque	3.0 Nm
Wire / Conductor Type	Copper (Cu) only
Pollution Degree	2
Purpose of Control	Operating Control, Smart Relay Control Module or the equivalent
Software	Class A
Impulse Voltage	2500V

Construction of Control	
Open Type	Independently mounted for flush mounting
Minimum Supported Release	
Savant OS	da Vinci 10.1.1

### Descriptions



Multi-Page LCD screen can display the following:

- Energy usage in watts at the output.
- Percentage of brightness at the output.
- Firmware, Mac Address, and FCC/IC Info.
- Real time Bluetooth status connectivity icon.

**Manual Load Switches** - Toggle to the ON position to switch load on. Toggle switch to AUTO for normal operation. Switch A controls output A and Switch B controls output B.

**PAIR Button** - The PAIR button is a multi-use button. The duration that the button is pressed and held determines the function that gets initiated.

**Press and Release** - Cycles through the screens on the LCD (POWER > DIMMER > INFO 1 > INFO 2).

**Press and hold** - Press and hold for 2 seconds to put module into pairing mode. Press and hold for 5 seconds to reset.

**Input Power Connection** - Connect the 120V AC output from the feeder breaker to this input. See the [Wiring](#) section.

**Output Connections** - The connections are labeled OUTPUT A and OUTPUT B. Connect each output to a separate load. See the [Wiring](#) section.

**120V AC Connection** - Plugs into the 120V AC bus bar in the electrical panel. This connection powers the module.

**Pigtail Neutral** - A neutral wire protrudes from the module's rear and gets wired to the neutral bar in the electrical panel.

**TIP!** Modules with an external neutral wire (pigtail) are supported in Plug-On Neutral electrical panels. In these cases, the pigtail neutral must be connected directly to the neutral bus bar.

### Features

- Each output can control dimming loads up to 300 VA (volt-ampere).
- The GPM-H2FPD05 dimmer module is compatible with Schneider Homeline, Eaton BR, Siemens, and CE Powermark Gold load centers with a one-inch on-center bus bar.
- Modules are forward phase (leading edge) type dimmers.
- Built-in energy monitoring; +/- 3% accuracy / 1 sec sample time.
- Communicates over the air using Bluetooth Low Energy (BLE).
- Color LCD display for easy identification and load status.

## Output Power Maximums

The maximum wattage per channel that each type of load the dimmer module supports is shown below. Use the table to determine the number of loads that can safely be wired to each module's output.

Dimmer Type	Incandescent	MLV	LED
Forward Phase	300W	240W	Not Recommended

## Output Power Minimums

The minimum sized load supported with the GPM-HP2FPD05 forward phase dimmer is 6 watts. A load of less than 6 watts can cause the bulb to glow, flash, and/or flicker when the dimmer slider is moved to its minimum position. Loads that are less than 6 watts are not supported.

## Important Information

- Use the **Branch Circuit Minimum Size of Conductors** table below to determine the amperage of the feeder breaker. For example, if the wire feeding each channel load circuit is a #14 AWG, the feeder breaker should be no larger than 15 amps. When the wire size is #12 AWG, the feeder breaker should be no larger than 20 amps.



**HELPFUL!** A channel load circuit is defined as the circuit attached to each output on a Savant Lighting Dimmer Module. Each forward phase dimmer module contains a Channel Load Circuit A and a Channel Load Circuit B.

- The total current draw from all the loads connected to a dimmer module should not exceed 80% of the size of the feeder breaker. For example, when a 15 amp feeder breaker is installed, the maximum current drawn from all loads should not exceed 12 amps or 1440 watts. With a 20 amp feeder breaker installed, the maximum current drawn should not exceed 16 amps or 1920 watts.
- To determine the number of electrical panel spaces needed, add the number of spaces required for each feeder breaker to the number of spaces needed for the dimmer module
  - A single pole circuit breaker requires one space.
  - A two pole circuit breaker requires 2 spaces.
  - Each dimmer module requires two spaces.
- On Eaton type dimmer modules, when plugging the module into an electrical panel, the module won't fully seat onto the bus bar if a wire is installed in the neutral bar directly under the module's neutral clip.



**ELECTRIC SHOCK!** The 120V AC, 60 Hz source poses an electrical shock hazard that has the potential to cause serious injury to installers and end users.



**CAUTION!** Risk of Electric Shock - More than one disconnect switch may be required to de-energize the device before servicing.



**IMPORTANT!** A licensed electrician is required to install Savant's lighting modules.

### Branch Circuit Minimum Size of Conductors (General circuit wiring, Copper Conductors)

15A	20A	30A	40A	50A	60A
#14 AWG	#12 AWG	#10 AWG	#8 AWG	#6 AWG	#4 AWG

**NOTE:** This wiring requirement was based on the National Electric Code (NEC) (ANSI/NFPA70), Canadian Electric Code, Part 1 (CEC), and local codes Minimum Size of Conductors.

## Installation into an Electrical Panel

1. Switch off the main breaker so there is no power supplied through the electrical panel.
2. Position and install the feeder breaker into a slot in the electrical panel. On Eaton styled dimmer modules, the neutral clip on the bottom of the module must sit on a portion of the neutral bar where no neutral wire is installed beneath it. With a wire installed in the hole in the neutral bar just under the neutral clip, the module won't seat properly.
3. Press firmly until the breaker fully seats onto the appropriate bus bars. The dimmer module is typically installed alongside the feeder breaker installed in step 2 above, but doesn't have to.

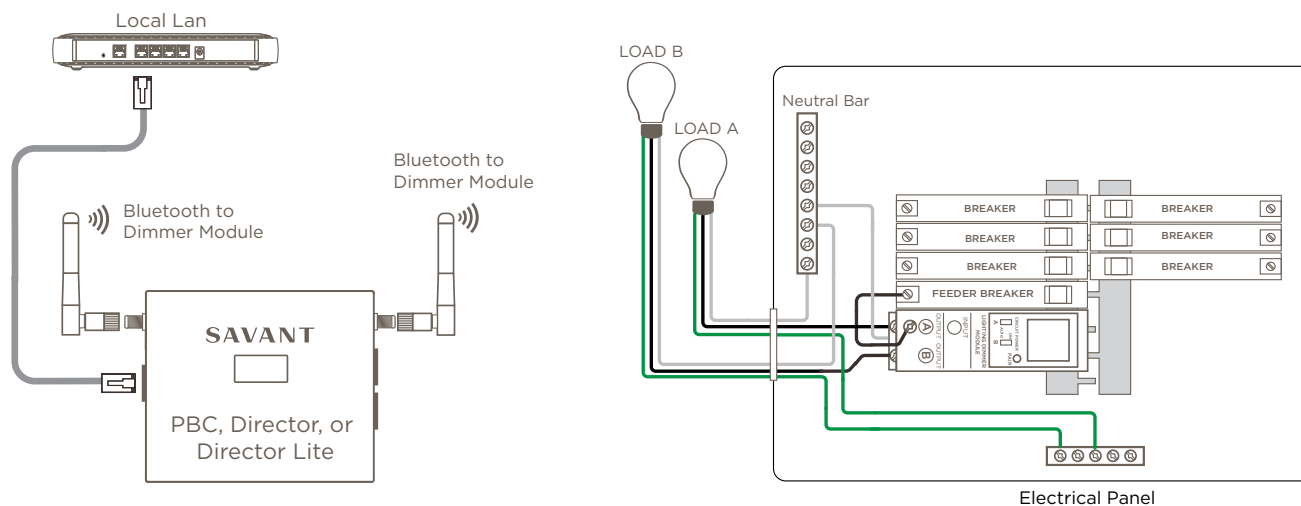


**HELPFUL!** A dimmer module fills two slots in an electrical panel but connects to only one phase (120V AC). This connection powers the module.

4. Refer to the [Wiring](#) section to make the appropriate connections.

## System Overview

The complete system is shown below for reference. The controller (PBC, Director, or Director Lite) communicates with the dimmer module over Bluetooth and communicates with the Savant Host over Ethernet.

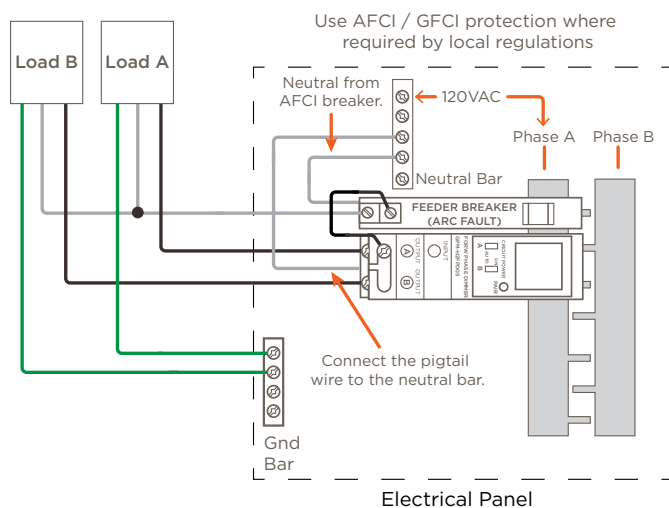


**HELPFUL!** The diagram shows an electrical panel that doesn't contain a plug-on neutral bus bar. However, both plug-on neutral and non-plug-on neutral panels are supported.

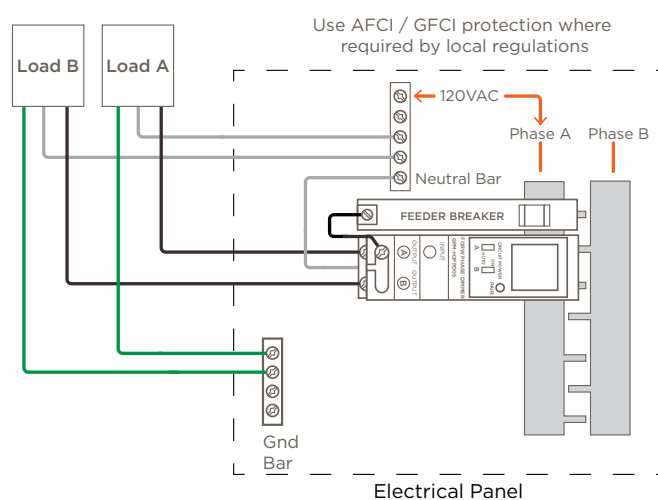
## Wiring

The next few wiring diagrams cover a few basic installations. When making connections, observe all general electrical best practices including local wire sizing guidelines. See the **Branch Circuit Minimum Size of Conductors** table on the previous page.

### Non Plug-on Neutral Panel with ARC Fault Breakers



### Non Plug-on Neutral Panel with Standard Breakers



**HELPFUL!**

- Modules with a pigtail neutral wire can be used in Plug-on Neutral supported panels. The electrician, however, must terminate the module's neutral wire to a neutral bar.
- A Class 2 Surge Protection Device is recommended when installing Savant's power and energy equipment in areas that experience frequent lightning or other transient voltage and current producing phenomena.

## Circuit Test Instructions

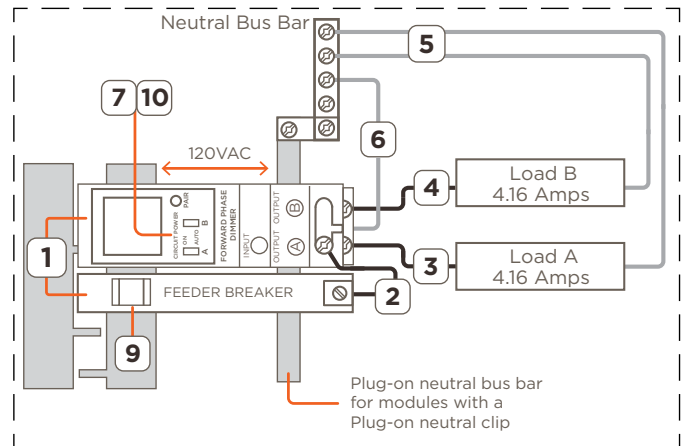
Use the instructions below to test the dimmer modules. The setup requires:

- Forward Phase Dimmer Module.
- (2) resistive loads (maximum amperage = 2.5 Amps).
- 15 amp circuit breaker.
- Electrical test panel. The type of dimmer module determines the type of electrical panel (plug-on neutral or not)
- 120V AC source

### ⚠ IMPORTANT!

- When making connections, observe all general electrical best practices including wire sizing guidelines.
- The GPM-H2FPD05 dimmer module can accept up to a #14 AWG wire. See the **Branch Circuit Minimum Size of Conductors** table on the previous page for wire sizing information

1. Plug a feeder breaker and a Forward Phase Dimmer Module into the electrical test panel. The feeder breaker should not exceed 15A.
2. Connect the output of the feeder circuit breaker to the INPUT port on the dimmer module.
3. Connect a load to Output A on the dimmer module.
4. Connect a second load to Output B on the dimmer module.
5. Connect the unused side of each load to the neutral bus bar or arc fault breaker (when applicable).
6. On modules that contain a neutral (pigtail) wire, connect the neutral wire to the neutral bus bar.
7. Set the CIRCUIT POWER switches on the modules front panel to AUTO.
8. Apply power to the electrical panel (not shown in diagram).
9. Toggle the feeder circuit breaker to On.
10. To test, toggle the CIRCUIT POWER switches A and B to ON and verify both loads switch On. Toggle the CIRCUIT POWER switches to AUTO and verify the loads switch Off.



## Additional Documentation

Further information is available in the documents listed below and can be accessed via the [Savant Customer Community](#).

- Panel Bridge Controller - PoE (PBC-P1000) - QRG
- Savant Panelized Lighting Deployment Guide.
- Savant Power System Deployment Guide - Power and Light App

## NOTES