



# SAVANT

## Dual 500W Adaptive Phase Dimmer - Lighting Module (Supports Eaton CH Load Centers) Quick Reference and Installation Guide

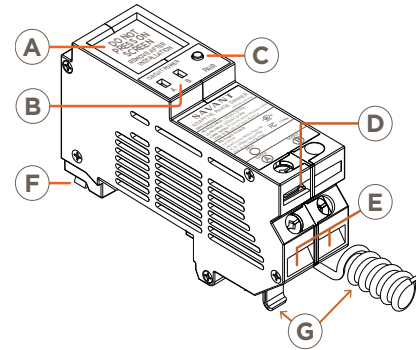
### Box Contents

- (1) Adaptive Phase Dimmer Module (Eaton CH)
  - GPM-CP2APD10-21 Plug-on Neutral -or-
  - GPM-C2APD10-21 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	4.96 inch (12.6 cm)	1.46 inch (3.7) cm	3.39 inch (8.61 cm)	.58 lbs (.26 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			
Load Power	500VA max per channel (4.16A @ 120V AC max per channel)			
Features of Automatic Action	Type 1 Action			
Standards				
Wireless	Bluetooth Low Energy (BLE) 2.4 GHz radio frequency			
Regulatory				
Safety and Emissions	FCC Part 15 	UL 	ICES 003	
Contains FCC ID: PUU-QP2APD10		Contains IC: 10798A-QP2APD10		
RoHS	Compliant			
Recommended Load Center Types				
Refer to the <b>Features</b> section for compatibility information.				
Supported Load Types				
Standard Configuration	<b>Dimmable circuits</b> - LEDs, incandescent, halogen, electronic low-voltage (solid state) transformers, magnetic low-voltage transformers, fluorescents, and dimmable compact fluorescents.			
Minimum Power	> 6W (See the <b>Output Power Minimums</b> 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:

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

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

**C 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 the module into pairing mode. Press and hold for 5 seconds to reset.

**D Input Power Connection** - Connect the 120V AC output from a feeder breaker to this input. See the **Wiring** section below.

**E Output Connections** - The connections are labeled OUTPUT A and OUTPUT B. Connect each output to a separate load. See the **Wiring** section below.

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

**Neutral** - The dimmer module's model number indicates the type of neutral connection:

- **Plug-On Neutral** - Positioned on the bottom of the module is a neutral clip that plugs directly onto the neutral bar.
- G** - **Pigtail Neutral** - A neutral wire protrudes from the rear of the module and is wired to the neutral bar.

**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 a neutral bus bar.

### Features

- Each output can control dimming loads up to 500 VA (volt-ampere).
- The GPM-CP2APD10-21 and GPM-C2APD10-21 dimmer modules are compatible with Eaton CH ¾ inch load centers.
- Both forward and reverse phase dimming is supported.
- 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 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 (load)	Incandescent	MLV	LED
Adaptive Phase	500W	400W	150W

## Output Power Minimums

The minimum sized load supported with the GPM-CP2APD10 or GPM-C2APD10 adaptive 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 wired to each output on a Savant Lighting Dimmer Module. Each adaptive phase dimmer module contains a Channel Load Circuit A and a Channel Load Circuit B.
- The total current drawn 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 the 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 breaker panel spaces needed, add the number of spaces required for each feeder breaker to the number of spaces needed for each dimmer module.
  - A single pole circuit breaker requires one space.
  - A 2-pole circuit breaker requires 2 spaces.
  - Each dimmer module requires two spaces.
- When plugging either the GPM-CP2APD10 or GPM-C2APD10 dimmer module into an electrical panel, the module won't fully seat onto the bus bar if there is a wire installed in the neutral bar directly under the module's neutral clip.
- Adding both an MLV and an ELV load to the same dimmer module is Not Supported. Doing this can damage the module.
- MLV and ELV loads that are wired to separate dimmer modules, but fed by the same feeder breaker, is permitted.

 **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 Breaker Panel

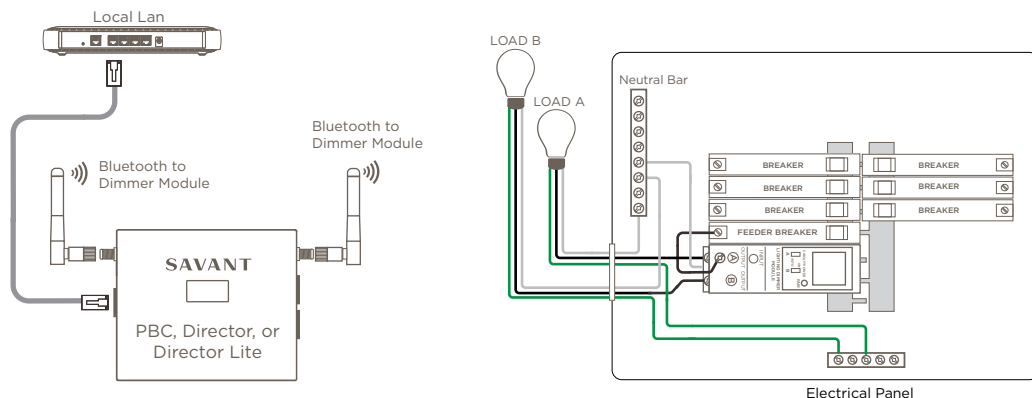
1. Switch off the main breaker so there is no power supplied through the electrical panel.
2. Position and install the feeder breaker into a slot in the electrical panel. Press firmly until the breaker fully seats onto the appropriate bus bars.
3. Position and install the Adaptive Phase Dimmer Module into 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. Both the plug-on and pigtail-style modules have a neutral clip.
4. Press firmly until fully seated 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 the electrical panel but connects to only one phase (120V AC). This connection powers the module.

5. 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.

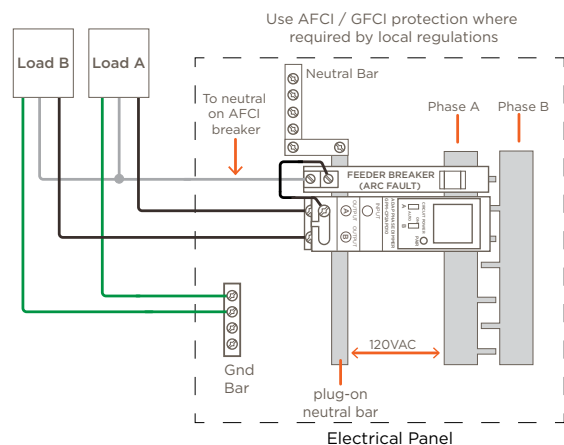


**HELPFUL!** The diagram shows an electrical panel that doesn't contain a plug-on neutral bus bar. However, both plug-on neutral and non plug-on neutral panels are supported

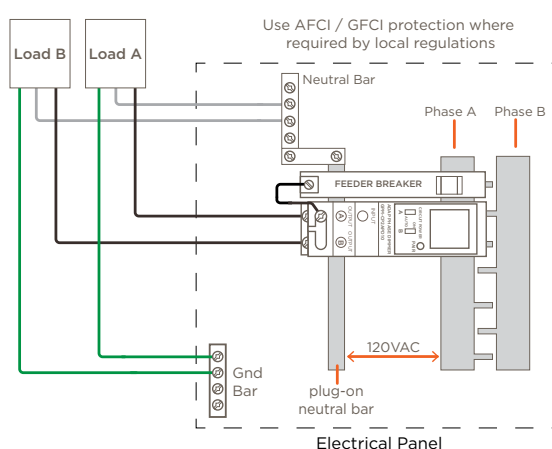
## Wiring

The next few diagrams cover a few basic installations. When making the 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.

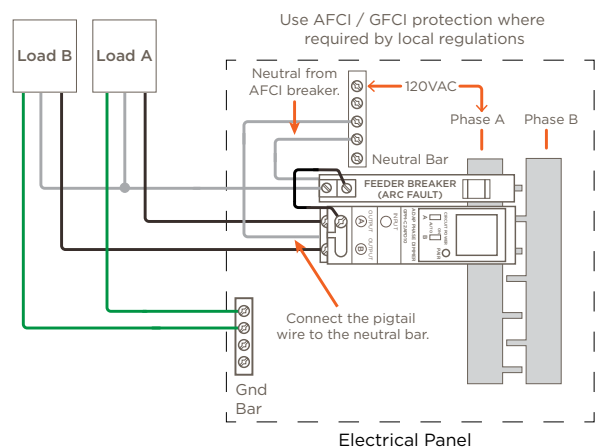
### Plug-on Neutral Panel with ARC Fault Breakers



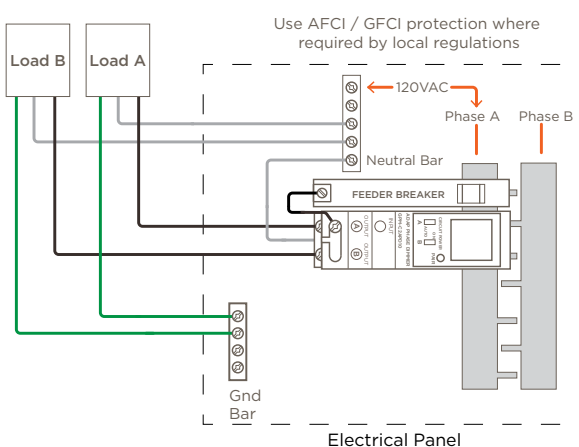
### Plug-on Neutral Panel with Standard Breakers



### 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 electrical 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 or 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 that a dimmer module is functioning correctly. The setup requires:

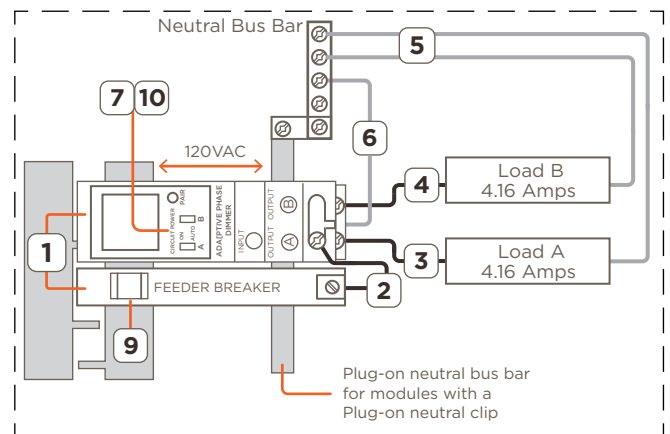
- Adaptive Phase Dimmer Module.
- (2) resistive loads (maximum amperage = 4.16 Amps).
- 15 amp circuit breaker.
- Electrical test panel. The type of dimmer module determines the type of electrical panel (plug-on neutral or not).
- 120V AC source



### IMPORTANT!

- When making connections, observe all general electrical best practices including wire sizing guidelines.
- The GPM-CP2APD10 and GPM-C2APD10 modules can accept up to a #14 AWG wire. See the **Branch Circuit Minimum Size of Conductors** table on a previous page for wire sizing information.

1. Plug a feeder circuit breaker and an Adaptive Phase Dimmer Module into an electrical test panel. The feeder breaker should not exceed 15A.
2. Connect the output of the feeder circuit breaker to the INPUT on the dimmer module.
3. Connect a load to Output A.
4. Connect a second load to Output B.
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. Toggle the CIRCUIT POWER switches to AUTO.
8. Apply power to the panel (not shown in diagram).
9. Toggle the feeder circuit breaker 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. Leave the switches in the AUTO position for normal operation.



## Additional Documentation

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

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

## NOTES