

## Palladiom HVAC Controller Installation

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### Overview

Install the Palladiom HVAC controller (SMC5500050407, SMC5300020401, and SMC55-RESI), adhering to the following criteria for proper product performance:

1. The Palladiom HVAC controller relay outputs are pilot duty rated and are not intended to drive fan motors directly.
2. The HVAC controller relay outputs should only switch 24 V~/24 V== NEC® Class 2 or SELV/PELV power supplies.
3. For the fan-speed relay outputs, use a fan motor relay control board designed for the HVAC system. If a control board is not available, use interlocked external relays that connect to the fan motor. Do not connect this controller directly to fan motors. See page 2 for wiring examples.
4. Mount the controller in an IP20 (minimum) or NEMA Type 1 (minimum) enclosure that complies with all local and national codes for your installation.

### Affected Models

This application note pertains to the following Palladiom HVAC controllers:

1. myRoom FCU controllers (SMC5500050407, SMC5300020401)
2. HomeWorks QS Palladiom HVAC controller (SMC55-RESI)

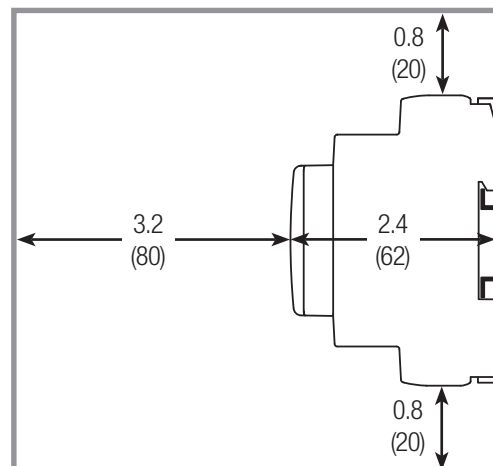
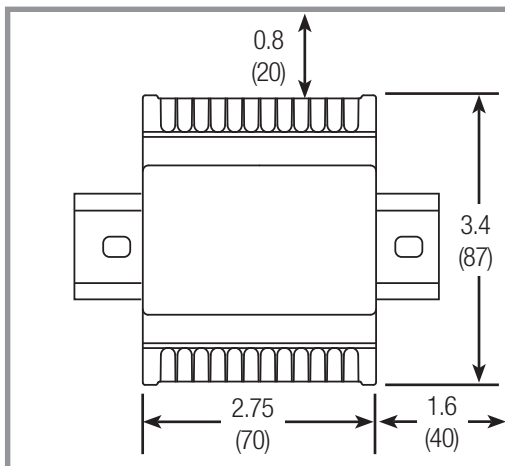
### Mounting Details

Mount the controller in an enclosure designed for the specific environmental conditions and to prevent contact with electrical conductors. Follow all local and national codes. Use of metal enclosures to improve the electromagnetic immunity of the controller system is recommended. Allow for the specified clearances shown below.

In addition, if any NEC® Class 1 (hazardous voltage) circuits or devices are included in the enclosure with the controller, provide physical separation between any NEC® Class 1 and NEC® Class 2 (low-voltage) circuits. Provide informational labeling and physical barriers in accordance with best practices and local/national codes for your installation.

### Minimum Clearances

Measurements shown as: inches (millimeters)



## Wiring Details

### Powering the Controller and Controller's Relays

Use 24 V~ (50/60 Hz +/-10%) or 24 V== (+/-10%) to power the controller. Lutron recommends using 24 V~ or 24 V== external relays switched by the controller. The HVAC system can provide a 24 V~ source (if available), or use a 24 V== power supply from the Lutron system's QS link (QS-PS-DH-1-75 or MQSPS-DH-1-30). If a Lutron power supply is used, confirm the power supply can provide enough Power Draw Units (PDUs):

- The controller requires 5 PDUs, or 4 W/6 VA.
- External relays require one PDU per 33 mA. For example, a 33 mA relay will consume 1 PDU.

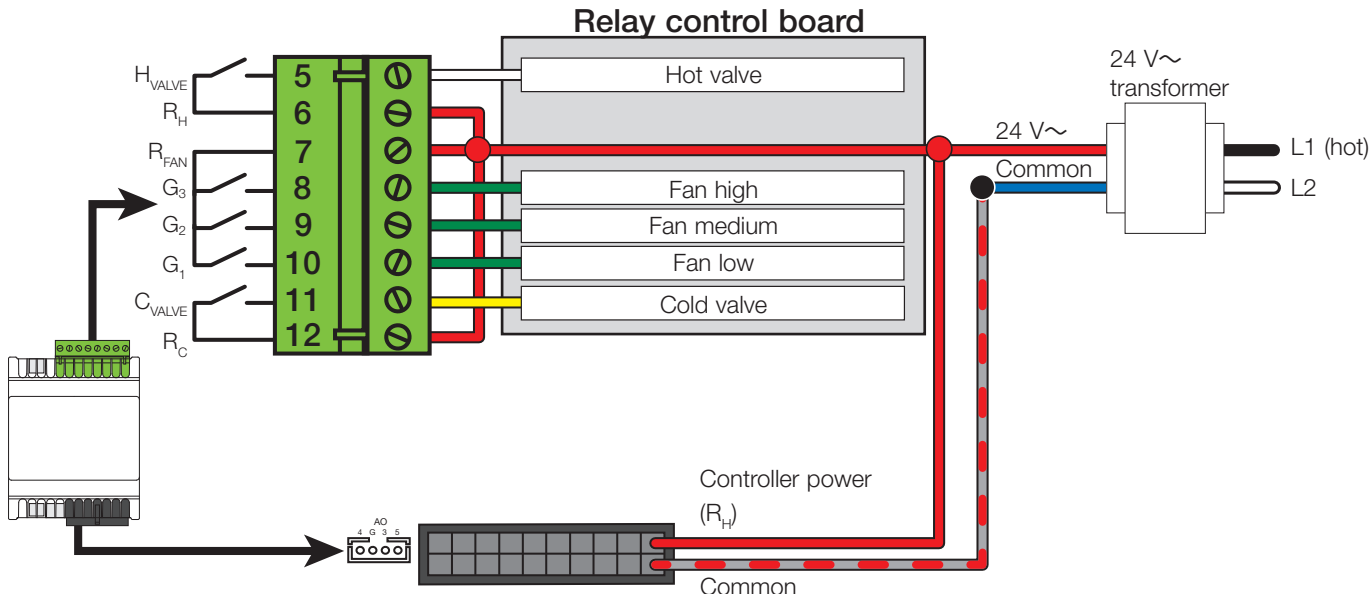
Wiring examples are shown on the next page. For more information, see "Power Draw Units on the QS Link" (P/N 369405) on [www.lutron.com](http://www.lutron.com)

### Wiring the Controller to the HVAC System

The HVAC controller relay outputs should only switch 24 V~/24 V== NEC® Class 2 or SELV/PELV power supplies. If using external relays, confirm sufficient isolation between line-voltage and low-voltage within the relay. Examples for wiring to a relay control board and to interposing external relays are shown below.

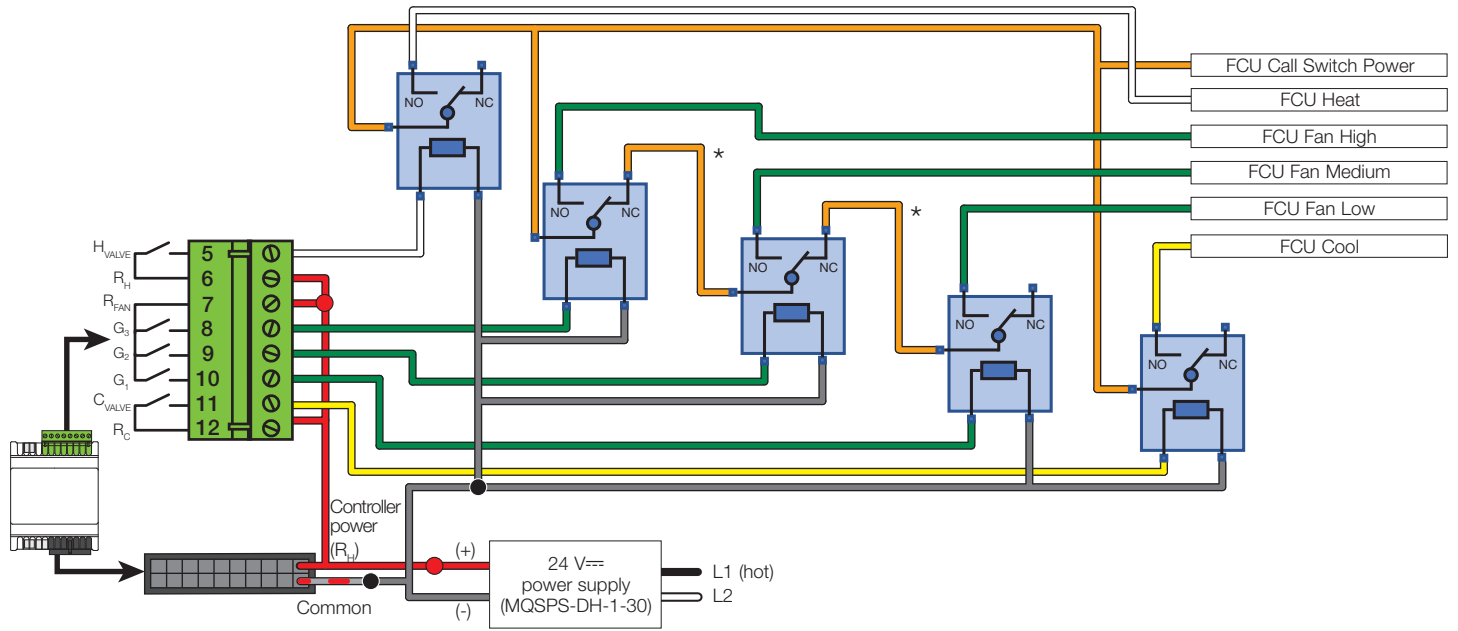
#### Example 1: Wiring to a Fan Coil Unit (FCU) control board or low-voltage inputs at 24 V~

Wire the controller's relay outputs according to the diagram below (4-pipe FCU, On/off valve, 3-speed fan)



**Example 2: Wiring to a Fan Coil Unit (FCU) using interlocked external relays at 24 V<sub>DC</sub>**

Wire the controller's output relays according to the diagram below (4-pipe FCU, On/off valve, 3-speed fan). Note the fan's external relays are interlocked to prevent two speeds from turning on simultaneously. Wire the normally closed (NC) output of the external fan relay to the input of the next fan relay as shown below (\*).



**0-10 V<sub>DC</sub> Signal Wiring**

For 0-10 V<sub>DC</sub> signal wiring, refer to Application Note #651 (048651) "Controlling 0-10 V<sub>DC</sub> Fan/Valve Actuators with a Palladiom HVAC Controller" at [www.lutron.com](http://www.lutron.com).

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