

## Modeva and Load Assembly



As a unit, the MODEVA and Load Assembly provides wireless and wired control of an existing or new hard wired AC lighting circuit. Equipped with a 2.4Ghz radio for wireless RF communications it uses a capacitive touch sensor under a painted glass user interface. The MODEVA and Load Assembly can be equipped with non-dimmable and dimmable outputs. It replaces an existing light switch where the circuitry has both phase and neutral conductors. This controller must be installed in accordance with local and national electrical codes. When installing this product, read the instructions carefully. Failure to follow them could damage the product or cause hazardous conditions. Check the ratings given in the product guide to make sure the product is suitable for your application.

The Installer must be a trained, experienced service technician.

MODEVA and Load Assembly can be installed in standard single, double, or triple electrical gang boxes. It cannot be ganged with other devices in a wall box.

### CAUTION

- For supply connections, use wires rated 18AWG, for at least 75°C.
- For control of permanently installed lamp fixtures only.
- To reduce the risk of overheating and possible damage to other equipment, do not install the MOSFET Dimmer Load Assembly in a receptacle, a motor-operated appliance, or a transformer-supplied appliance.

## Environment

Ambient operating temperature for the MODEVA/ Load Assembly is 0-40°C (32-104°F), 0-90% humidity, non-condensing. This equipment is intended for indoor use only. The TRIAC and MOSFET dimmers will feel warm to the touch under normal operating conditions.

## Load Specifications

The following table provides the load ratings at absolute maximum based on the load type in a single gang wall box.

| Actuator       | Ratings     |           |                 |                          |
|----------------|-------------|-----------|-----------------|--------------------------|
|                | Voltage     | Frequency | Power / Amperes | Load Type                |
| Relay Actuator | 120-240 Vac | 50/60 Hz  | 4.1 A           | Resistive                |
|                | 120-240 Vac | 50/60 Hz  | 4.1 A           | General Purpose          |
|                | 120-240 Vac | 50/60 Hz  | 500 W           | Incandescent / Halogen   |
|                | 120-240 Vac | 50/60 Hz  | 250 VA          | ELV / MLV                |
|                | 120-240 Vac | 50/60 Hz  | 250 W           | CFL / LED                |
| TRIAC Dimmer   | 120 Vac     | 60 Hz     | 2.9 A           | Resistive                |
|                | 120 Vac     | 60 Hz     | 650 W*          | Incandescent / Halogen   |
|                | 120 Vac     | 60 Hz     | 250 VA          | MLV                      |
|                | 120 Vac     | 60 Hz     | 1/10 HP         | Motor                    |
| MOSFET Dimmer  | 120 Vac     | 60 Hz     | 2.9 A           | Resistive                |
|                | 120 Vac     | 60 Hz     | 350 W**         | Incandescent / Halogen   |
|                | 120 Vac     | 60 Hz     | 250 VA          | ELV / Electronic Ballast |
|                | 120 Vac     | 60 Hz     | 250 W           | CFL / LED                |

ELV = Electronic Low Voltage transformer MLV= Magnetic Low Voltage transformer

Note: Many ELVs/MLVs require a minimum load. Please consult manufacturers' requirements before using with a WBI actuator.

Minimum load for TRIAC actuator: 10W

\*TRIAC dimmer can be used in multi-gang applications at 650W if ganged with a Relay actuator. If used in a multi gang installation with another TRIAC or MOSFET dimmer, the maximum output is 400W.

\*\*The MOSFET dimmer can be used in multi-gang applications at 350W if ganged with a Relay actuator. If used in a multi-gang installation with another MOSFET or a TRIAC dimmer, the maximum output is 250W.

## Multigang Installation

The MODEVA and Load Assembly comes in single, double and triple gang configurations; the double and triple gang assemblies may be any combination of relay, switches, MOSFET Dimmer or TRIAC Dimmer. The table below provides the derated output based on the configuration.

| Actuator     | Ratings |           |                 |                    |
|--------------|---------|-----------|-----------------|--------------------|
|              | Voltage | Frequency | Power / Amperes | Load Type          |
| TRIAC Dimmer | 120 Vac | 60 Hz     | 2.9 A           | Resistive          |
|              | 120 Vac | 60 Hz     | 2.9 A           | General Purpose    |
|              | 120 Vac | 60 Hz     | 400 W           | Incandescent       |
|              | 120 Vac | 60 Hz     | 250 VA          | Electronic Ballast |

| Actuator      | Ratings |           |                 |                    |
|---------------|---------|-----------|-----------------|--------------------|
|               | Voltage | Frequency | Power / Amperes | Load Type          |
| MOSFET Dimmer | 120 Vac | 60 Hz     | 2 A             | General Purpose    |
|               | 120 Vac | 60 Hz     | 250 W           | Incandescent       |
|               | 120 Vac | 60 Hz     | 250 VA          | Electronic Ballast |

## Overload Condition

If a MOSFET or TRIAC Dimmer is continuously overloaded, a thermal shut down will occur to protect the solid state circuitry.

The MOSFET Dimmer is equipped with an additional overload detection circuit that detects a catastrophic overload / short and shuts down the dimmer to protect the solid state circuitry.

## Air Gap Switch

The TRIAC and MOSFET Load Assemblies are equipped with an air gap switch (relay) to ensure that the load is safely turned off and that there is no leakage current to the fixture during routine lamp maintenance. The air gap switch engages each time the load is dimmed completely off under normal operation. It can be engaged manually for routine maintenance by removing the MODEVA user interface and sliding the Service Mode switch to the OFF position.

## Class-2 Output

The Load Assembly provides +12VDC power to devices on the S5bus. The Load Assemblies can operate in parallel to supply a higher total load capacity than that achievable by a single Load Assembly. However, the total output is derated as per the table below for accommodating the stability of the power supply circuitry. The total available output power must be shared with the MODEVA User Interface. Refer to the following table for Class-2 Output ratings.

| Number of Load Assemblies | Nominal Voltage | Voltage at Maximum Load | Output Rating |
|---------------------------|-----------------|-------------------------|---------------|
| 1                         | +12VDC          | +11.0VDC                | 200mA         |
| 2                         | +12VDC          | +11.0VDC                | 400mA         |
| 3                         | +12VDC          | +11.1VDC                | 600mA         |
| 4                         | +12VDC          | +11.1VDC                | 700mA         |
| 5                         | +12VDC          | +11.2VDC                | 800mA         |
| 6                         | +12VDC          | +11.2VDC                | 900mA         |

If the class-2 output is overloaded and the power supplies go into fold back mode (power supplies will constantly reset), remove power from the system and then remove the load. Double check that the load does not exceed the maximum output power. If the power cannot be removed from the system first, disconnect the offending load. The Load Assemblies will take up to 30 seconds to fully recover from the overload condition and return to normal operation.

## Installation

The Load Assembly is designed to operate in a Service Mode without the MODEVA User Interface during installation and maintenance. When installing the Load Assembly, make all wire connections and verify proper operation before installing the MODEVA User Interface.

⚠ Locate the fuse panel and remove fuses or ensure the breaker is in the OFF position before installing the Load Assembly.

- Pull the class-2 wires for Ground (Brown), +12VDC (Red) and S5-bus (Orange) and digital inputs into the wall box (See Wiring Diagrams). Make the connections using a dolphin DC-1000P Super B connector or equivalent type connector to the S5-bus or digital input harnesses and connect them to the appropriate header on the Load Assembly.
- Prepare the line voltage wiring by stripping back the insulation 16mm (5/8th inch).
- Connect the Green (Earth) Cable attached to the Load Assembly Strap to Earth.
- Wire the Load Assembly as described in the Wiring Diagrams. Depending on gang assembly using the appropriate 10, 12, 14, 16 or 18 AWG wire nut.
- Push all wires back into the wall box and fasten the control to the wall box using the supplied mounting screws. Be sure not to pinch or disconnect any of the wires. DO NOT connect the Glass MODEVA User Interface at this time.
- Ensure the intended load(s) are connected to the circuit.
- Replace the fuses in the fuse panel or move the breaker to ON before continuing.
- Allow the Load Assembly to power up. To verify power, the green Service Mode LED will blink rapidly for 2 seconds.
- To test the Load Assembly, slide the Service Mode switch to the ON position (LED will light). Confirm the intended lighting load is turned on. NOTE: In Service Mode, the TRIAC and MOSFET Dimmers will only switch on and off the load (no dimming).
- To prepare the Load Assembly for normal operation with the MODEVA User Interface, slide the Service Mode switch to OFF (LED will turn off).
- Connect the 6-pin harness of the MODEVA User Interface to the MODEVA System Interconnect on the Load Assembly.
- Align the guide posts on the MODEVA Assembly with the guide post holes on the Load Assembly and allow the magnets of the MODEVA Assembly to snap to the Load Assembly Mounting Strap.

13. The MODEVA User Interface will display start up behavior and then enter a self test mode for the first 20 seconds of operation.

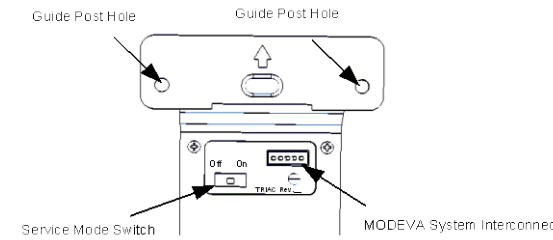


Figure 1 Service mode

## Start-Up Behavior

Upon start-up the LEDs on the User Interface will cycle 5 times. During the first 20 seconds after start-up, the MODEVA will be in self-test mode. Any intended input to the user interface will produce a toggle on and toggle off of all LEDs and load.

- After the MODEVA completes the self test mode, it will resume its intended programmed application.

## Mounting Diagram

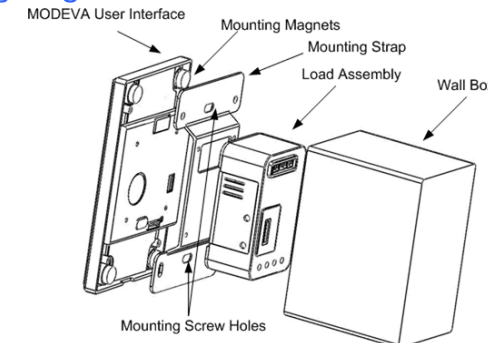


Figure 2 MODEVA and Load Assembly Exploded

The MODEVA and Load Assembly is supplied with two 1/4" 6/32 screws, two 3-pin S5bus harnesses and a two pin pig-tail harness for the digital input.

## Wiring Diagrams

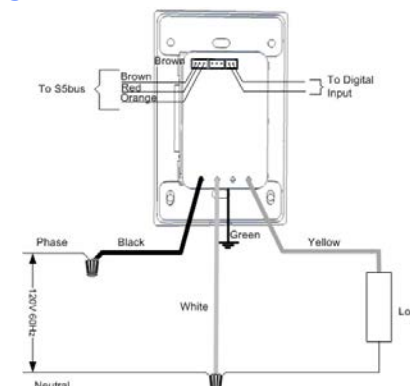


Figure 3 Single Gang Wiring Diagram

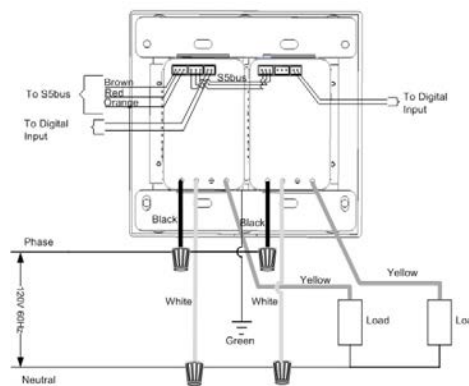


Figure 4 Double Gang Wiring Diagram

In double and triple gang configuration, DO NOT connect the loads in parallel

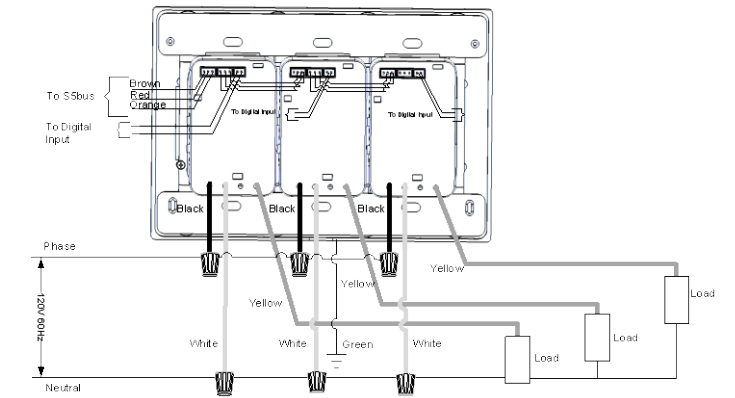


Figure 5 Triple Gang Wiring Diagram

In double and triple gang configurations, refer to the wiring diagram for S5-bus, and digital input connections. It is not necessary to connect each Load Assembly on the S5bus in all cases.

## Low Voltage Adapter

The MODEVA can be equipped with the Low Voltage Adapter (LVA). This allows the MODEVA to act as a remote, +12VDC powered device only.

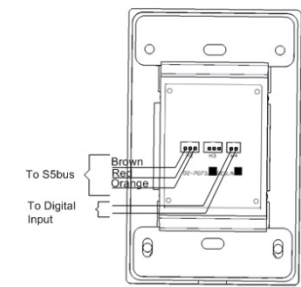


Figure 6 Low Voltage Adapter Wiring Diagram

This device contains FCC ID: GTC027060TXR.



This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

This equipment 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 when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference, in which case the user will be required to correct the interference at his own expense. Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

## Troubleshooting

| Problem  | Resolution  |
|--|---|
| Lights do not turn on  | <ul style="list-style-type: none"> <li>Circuit breaker is off.</li> <li>Wires are shorted. Make sure the line voltage wires are still tightly seated with the wire nuts after pushing the assembly in the wall box.</li> <li>Lamps are faulty. Replace lamps.</li> <li>MODEVA User interface is disconnected or faulty.</li> <li>Over-load condition on the MOSFET dimmer. Confirm the load does not exceed the maximum load rating.</li> </ul> |
| Lights do not function as described on user interface                      | Switch software incorrectly configured or has not been commissioned. Contact INNCOM.  |
| Switch does not communicate with IRAS (In Room Automation System) controls | Switch has not been properly commissioned or bound for the guestroom. Contact INNCOM.   |
| Switch feels warm  | The TRIAC and MOSFET will dissipate some heat into the user interface. It will cause the switch to feel warm to the touch.  |