



AUTOMATIC STORM SHUTTER CONTROL




INSTALLATION MANUAL

This manual provides instructions for installing the **DryLanai™** Wall Controller, synchronizing and locating the Rain Sensors and verifying the performance of the **DryLanai™** Automatic Storm Shutter Control System.

Your safety and the safety of others are very important.

Important safety messages have been provided throughout this manual and are repeated at the beginning of these instructions in accordance with electrical safety regulations. Always read and obey all safety messages.

 This is the safety alert symbol. This symbol alerts you to potential hazards that can kill or hurt you and others.

All safety messages follow the safety alert symbol and the word "**WARNING.**"

This means:

 **WARNING**

You can be killed or seriously injured if you don't follow instructions. Safety messages will tell you what the potential hazard is and how to reduce the chance of injury.

 **WARNING Electrical Shock Hazard**

Disconnect electrical power at the circuit breaker box before installing or servicing the **DryLanai™** Controller. Failure to do so can result in death or electrical shock.

**WARNING**

This product must be connected to a grounded, metal, permanent wiring system; or an equipment-grounding conductor must be run with the circuit conductors and connected to the equipment-grounding terminal or lead on the product.

**WARNING**

To reduce the risk of fire, electric shock or injury to persons, installation work and electrical wiring must be done by a qualified person or persons in accordance with all applicable codes and standards. The controller is for indoor use only.

**WARNING**

This product has no user serviceable parts. Do not open the Wall Controller enclosure or attempt to perform alterations or maintenance on the Controller wiring. All servicing should be performed by an authorized service representative.

**WARNING**

To reduce the risk of fire or electric shock, install this controller only with tubular roll down shutter operator/motors rated maximum 2.75A each.

**WARNING**

This appliance has been evaluated for fire and shock only, not entrapment. The controller may be used only with louver and shutter operators for which the application has been evaluated by UL or other electrical safety agencies. The maximum weight of each shutter shall not exceed 350 pounds.

What you need

What Is Required To Install the **DryLanai™** Automatic Storm Shutter Control?

- Read all Warnings prior to installation
- Tools, Parts and Materials
- Knowledge of all governing codes and ordinances

What Steps Should Be Followed To Install the **DryLanai™** Automatic Storm Shutter Control?

- Turn Off Electrical Power
- Connect Wall-Mounted Controller
- Locate Rain Sensors
- Check Operation

Important: Read and Save These Instructions.

Doing so will:

- Make installation easier.
- Help you in the future if you have questions.
- Help if you have an electrical inspection.

You need to:

- Carefully open the cartons containing the **DryLanai™** Wall Controller and Rain Sensors. Make sure that all required components are present.
- Observe all governing codes and ordinances.
- Install the Wall Controller as specified in these instructions.
- Be a qualified installer. Installation must be performed by a qualified service technician. The Wall Controller must be installed to meet all national and local electrical codes and ordinances.

Tools and Materials Needed

Assemble the required tools and parts before starting installation:

- Electrical circuit tester
- 1/8" Phillips screwdriver
- Wire stripper
- Small level
- White insulated 12 gauge stranded copper wire
- Green insulated 12 gauge stranded copper wire

What you need

Parts Supplied

- Wall Controller with eight pre-wired 14 gauge stranded pigtails
- Controller Mounting Bracket
- 8 Twist-On Wire Connectors
- 6 ea #6 x 3/4" Flat Head Machine Screws (Phillips)
- 1 ea #6 x 3/4" Flat Head Self Tapping Screw (Phillips)
- 1 ea #4 x 3/8" Flat Head Thread Forming Screw (Phillips)
- 3/16" x 1" Wall Anchor
- One, two or three Rain Sensor modules

Electrical Requirements

It is the installer's responsibility to assure that the electrical installation is in conformance with all national and local codes and ordinances.

Customer must have:

- 120 Volt, 60 Hz, AC-only, 15 or 20 Amp fused electrical supply
- Copper Wire Only
- NEMA Enclosure (Junction Box) sized in accordance with NEC Article 314.

Recommended:

- A time-delay fuse or circuit breaker
- A separate circuit

How the DryLanai™ Automatic Storm Shutter Control Works

The DryLanai™ Automatic Storm Shutter Control System consists of a Controller, which is mounted on a wall inside the home, and one or more Rain Sensors, which sit on the porch or lanai floor.

The storm shutters can be raised and lowered using the touch controls on the front panel of the Controller.

When rain drops strike the grid on the front surface of any Rain Sensor, the Rain Sensor sends a radio frequency (RF) signal to the Controller, which automatically closes all the shutters. When rain is over, the shutters can be raised again using the touch switches on the front panel of the Controller.

Installing the Wall Controller



Figure 1

! WARNING Electrical Shock Hazard. Disconnect electrical power at the circuit breaker box before installing or servicing the **DryLanai™** Controller. Failure to do so can result in death or electrical shock.

New Storm Shutter Installation

- If the **DryLanai™** Wall Controller is being installed with new storm shutters, follow these instructions:
 - A two- or three-gang electrical wall box has been installed where the Wall Controller will be mounted.
 - Attach the Mounting Bracket to the wall box with the 6 Flat Head Machine Screws (included). Be careful not to over-tighten the screws so that bending of the bracket occurs. Secure the bottom of the bracket to the wall below the electrical box with the Flat Head Self Tapping Screw (See Figure 2). The 3/16" x 1" Wall Anchor (included) may be used to improve the grip of the Self Tapping Screw if needed.
 - Electrical wires from the circuit breaker box and from the shutter motors have been run to the wall box.

Installing the Wall Controller

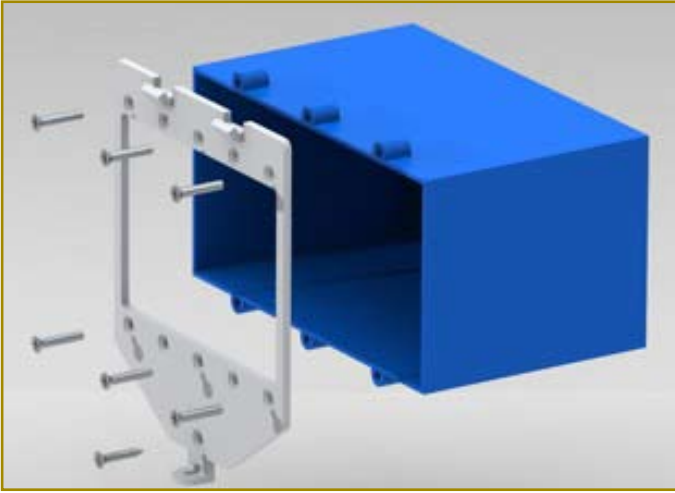


Figure 2

- Identify wires from circuit breaker (See Diagram, Figure 3):

Line (Hot) = Black

Neutral = White

Ground = Green or Bare Copper

- Identify wires from shutter motors (See Diagram, Figure 3):

Neutral = White

Ground = Green

See shutter installer's identification of **UP**
and **DOWN** wires

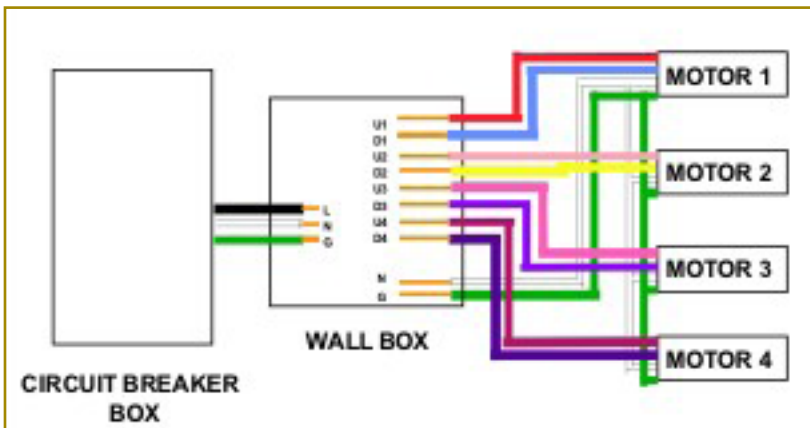


Figure 3

Installing the Wall Controller

- If the wall box is metal, check to ensure the case is connected to earth ground either by metal conduit connection or by a green ground wire from the circuit breaker box. Connect the green ground wire from the shutter motors to the wall box. Cut a 10-inch length of green grounding wire and strip 1/2 inch of insulation from one end and 1/4 inch of insulation from the other end. Connect the 1/2-inch end to the metal wall box and the 1/4-inch end to the "G" terminal of Terminal Block **TS1** on the rear side of the Wall Controller enclosure (See Figure 4).
- If the wall box is plastic, check to ensure that a green ground wire from the circuit breaker box is present. Cut a 10-inch length of green grounding wire and strip 1/2 inch of insulation from one end and 1/4 inch of insulation from the other end. Connect the green ground wire from the circuit breaker box and the green ground wire from the shutter motors and the 1/2-inch end of the 10-inch green wire with a twist-on wire connector, and connect the 1/4-inch end to 10-inch green wire to the "G" terminal of Terminal Block **TS1** on the rear side of the Wall Controller enclosure (See Figure 4).

Important: Do not strip more than 1/4 inch of insulation from black, white and green wires that connect to Terminal Block **TS1**. Insert wires fully into Terminal Block **TS1** so that no bare copper wire is exposed and tighten securely. Tighten screws on Terminal Block **TS1** to at least 4.0 Nm (35.4 lb-in) and no more than 5.0 Nm (44.2 lb-in) to prevent over- or under-tightening.



Figure 4

Installing the Wall Controller

Replacing Existing Wall Switches

- If the **DryLanai™** Wall Controller will replace existing shutter wall switches, follow these instructions:
- Remove the switch cover plate and remove the screws that connect the switches to the electrical wall box. Identify wires from the circuit breaker (See Diagram, Figure 3):

Line (Hot) = Black
Neutral = White
Ground = Green

- Identify wires from shutter motors (See Diagram, Figure 3):

Ground = Green
Neutral = White
Motor **UP** and **DOWN** wires

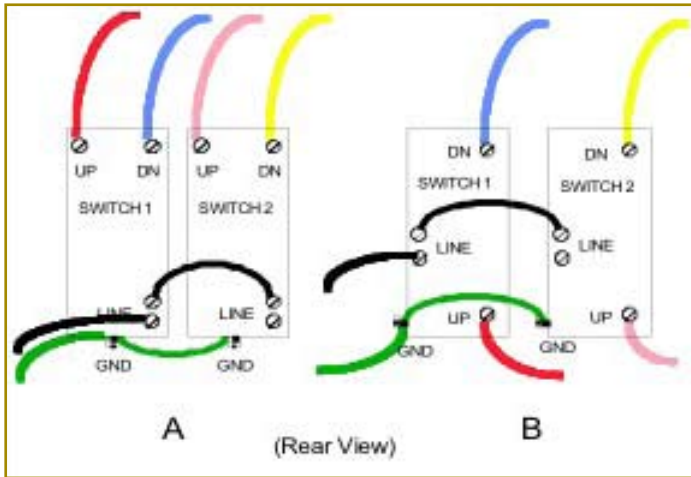


Figure 5

Notes:

1. Figure 5 shows two types of switches (A and B) commonly used in storm shutter installations. Other types may also be used. Examine the terminals and wires carefully to clearly identify which **UP** and **DOWN** wires go with each motor.

2. Neutral (White) wires from the circuit breaker box and the shutter motors will also be present in the electrical wall box, but they are not connected to the switches. In most cases, the Neutral wire from the circuit breaker box and the Neutral wire(s) from the shutter motors will be connected with a twist-on wire connector.

3. **Important:** If a Neutral wire is not present in the electrical wall box, a Neutral wire from the shutter motor circuit must be provided. The Wall Controller will not function without Line, Neutral and Ground connections.

- Disconnect all wires from the switches and remove the switches from the electrical wall box.
- Attach the Mounting Bracket to the wall box with the 6 flat head machine screws (included). Be careful not to over-tighten the screws so that bending of the bracket occurs. Secure the bottom of the bracket to the wall below the electrical box with the flat head self tapping screw (See Figure 2). The 3/16" x " Wall Anchor (included) may be used to improve the grip of the Self Tapping Screw if needed.
- **If the wall box is metal**, check to ensure the box is connected to earth ground either by metal conduit connection or by a green ground wire from the circuit breaker box. (If the box is grounded, the switches will be grounded by their mechanical connection to the box, and there may not be a green ground wire connection as shown in Figure 5.) The green ground wire from the shutter motors must be connected to the wall box. If this connection does not exist, make the connection before continuing. Cut a 10-inch length of green grounding wire and strip 1/2 inch of insulation from one end and 1/4 inch of insulation from the other end. Connect the 1/2-inch end to the metal wall box and the 1/4-inch end to the "G" terminal of Terminal Block **TS1** on the rear side of the Wall Controller enclosure (See Figure 4).
- **If the wall box is plastic**, check to ensure that a green ground wire from the circuit breaker box is present. Cut a 10-inch length of green grounding wire and strip 1/2 inch of insulation from one end and 1/4 inch of insulation from the other end. Connect the green ground wire from the circuit breaker box and the green ground wire from the shutter motors and the 1/2-inch end of the 10-inch green wire with a twist-on wire connector, and connect the 1/4-inch end to 10-inch green wire to the "G" terminal of Terminal Block **TS1** on the rear side of the Wall Controller enclosure (See Figure 4).

All Installations

- Strip 1/4 inch of insulation from the black (Hot) wire from the circuit breaker box and connect it to the “**L**” terminal of Terminal Block **TS1** on the rear side of the Wall Controller enclosure (See Figure 4).
- Cut a 10-inch length of white wire and strip 1/2 inch of insulation from one end and 1/4 inch of insulation from the other end. Connect the white wire from the circuit breaker box and the white wire from the shutter motors and the 1/2-inch end of the 10-inch white wire with a twist-on wire connector, and connect the 1/4-inch end to 10-inch white wire to the “**N**” terminal of Terminal Block **TS1** on the rear side of the Wall Controller enclosure (See Figure 4).
- Strip 1/2 inch of insulation from the end of each **UP** and **DOWN** wire from the shutter motors. Connect each motor wire to the appropriate wire passing through the rear side of the Wall Controller enclosure with a twist-on wire connector (**U1, D1, U2, D2**, etc. See Figure 4).

Important: Do not strip more than 1/4 inch of insulation from black, white and green wires that connect to Terminal Block **TS1**. Insert wires fully into Terminal Block **TS1** so that no bare copper wire is exposed and tighten securely. Tighten screws on Terminal Block **TS1** to at least 4.0 Nm (35.4 lb-in) and no more than 5.0 Nm (44.2 lb-in) to prevent over- or under-tightening.

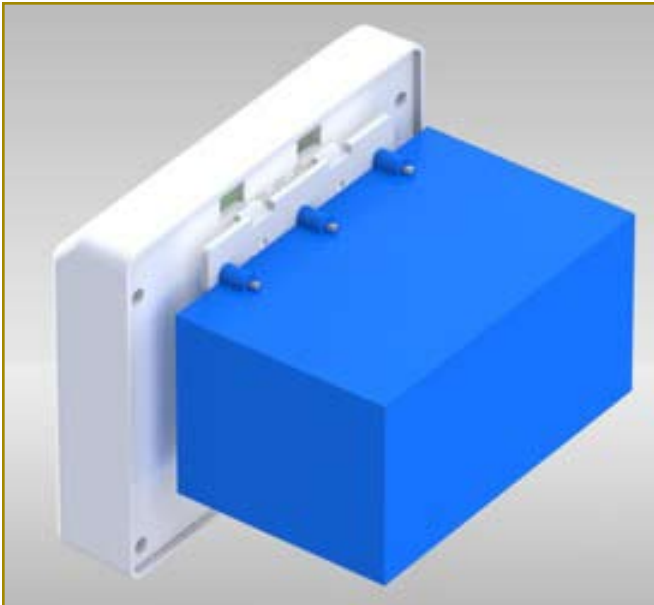


Figure 6

Important: Figure 3 shows wires associated with four shutter motors. The motors are numbered from right to left as viewed from the rear side of the Wall Controller. For installations with fewer than four shutter motors, bend over the stripped segments of unused **UP** and **DOWN** pigtail wires and cap them off with twist-on wire connectors.

- Carefully bend wires into the wall box.
- Attach the Wall Controller enclosure by aligning the two slots on the rear side of the Wall Controller with the two projections at the top of the Mounting Bracket (See Figure 6).
- Slide the Wall Controller enclosure over the Mounting Bracket projections and pull downward until the enclosure is firmly engaged with the Mounting Bracket and flush to the wall.



Figure 7

- Align the tab on the bottom of the Mounting Bracket with the semicircular slot on the base of the Controller enclosure. Complete the installation by attaching the enclosure to the Mounting Bracket with the 3/8" Flat Head Thread Forming Screw supplied with the Controller (See Figure 7).
- Note: Starting the Thread Forming Screw can be made easier by threading the screw into the Controller enclosure and removing it before completing the installation.



WARNING Electrical Shock Hazard

Do not perform the following tests unless the Controller enclosure is securely attached to the Mounting Bracket as described above. Failure to observe this warning can result in death or electrical shock.

Connect electrical power to the Controller at the circuit breaker box.

- The Controller should power up in the **auto** (automatic) mode. The **auto** LED should be lighted.
- Touch the **MODE** switch. The **auto** LED should go out and the **manual** LED should light. Touch the **MODE** switch again. The **manual** LED should go out and the **auto** LED should light.
- Touch the **ZONE 1** switch. The LED above the switch should light. If the **ZONE 1** shutter is up, touch the triangular **DOWN** switch. The **ZONE 1** shutter should begin moving down and continue until closing completely. If the **ZONE 1** shutter is down, touch the triangular **UP** switch. The **ZONE 1** shutter should begin moving up and continue until opening completely. Approximately 60 seconds after touching the **ZONE 1** switch, the LED above the switch should go out.
- If the **ZONE 1** shutter goes up when it should be going down and vice versa, the **UP** and **DOWN** wires from Motor 1 have been connected to the Controller incorrectly. If a shutter other than **ZONE 1** responds to these steps, the wires from the respective motors have been connected to the Controller incorrectly.
- Repeat the two steps above for **Zones 2, 3** and **4** (if present). Record any abnormalities in operation.



WARNING Electrical Shock Hazard

Disconnect electrical power at the circuit breaker box before attempting to change electrical wire connections inside the Controller. Failure to observe this warning can result in death or electrical shock.

- If electrical wire connection changes are required, remove the Controller enclosure only after disconnecting the electrical power at the circuit breaker box. Review All Installations instructions above and change wire connections consistent with observations made while Checking Operation.



WARNING Electrical Shock Hazard

Do not reconnect electrical power at the circuit breaker box before the Controller enclosure is securely attached to the Back Plate. Failure to observe this warning can result in death or electrical shock.

Repeat the steps outlined in Checking Operation above to verify that motor wiring is correct.

Installation of the Wall Controller is Complete

Synchronizing and Locating the Rain Sensors



Figure 8

The Rain Sensors must be synchronized with the Wall Controller in order for them to communicate. Clear the Controller's memory by touching the **ZONE 1**, **ZONE 2** and **MODE** switches simultaneously and continuously until both the **auto** and **manual** lights blink. Then perform the following steps for each Rain Sensor:

1. Bring the Rain Sensor into close proximity with the Wall Controller (4 feet or less)
2. Touch **ZONE 1** switch and **ZONE 2** switches on the Controller panel simultaneously and continuously until all the **ZONE** lights begin to flash.
3. While the lights are flashing, press the pushbutton switch on the rear side of the Rain Sensor. The **signal** light will light up momentarily and the flashing **ZONE** lights will go out.
4. Test to ensure the process was successful by pressing the Rain Sensor pushbutton switch again. The **signal** light on the panel will momentarily light up.
5. Repeat Steps 1 through 4 for all Rain Sensors.

Locating the Rain Sensors

One Rain Sensor is required for each screened exposure. For example, if the lanai has screens facing East, South and West, three Rain Sensors are required.

1. Place a Rain Sensor on the floor or on a table within 12 inches of each screened exposure with its detection grid facing the screen. If the shutters go up and down inside the screens, be sure to place the Rain Sensors inside the plane of the shutters, so they will be protected from rain when the shutters are down. This will greatly extend the life of the Rain Sensors.
2. Do not place Rain Sensors in locations where water may accumulate on the floor.
3. Check for viable RF links between the Rain Sensors and the Controller by momentarily pressing the pushbutton switch on the rear side of each Rain Sensor. The **signal** light on the Controller panel will momentarily light up when each Rain Sensor pushbutton switch is pressed.
4. If the **signal** light on the Controller panel does not light up when a particular Rain Sensor pushbutton switch is pressed, move the Rain Sensor closer to the Wall Controller if possible, and away from metal furniture. Repeat Step 3.

Installation of the Rain Sensors is Complete

Liability

PJNF Technologies, Inc. assumes no liability for any damage to original shutter drive equipment (motors, limit switches, slats, etc.) resulting from installation and use of the DryLanai™ Automatic Storm Shutter Control System. Changes or modifications not expressly approved by PJNF Technologies, Inc. could void the warranty and the user's authority to operate the equipment.

LIMITED WARRANTY

PJNF Technologies, Inc. ("PJNF") warrants to purchaser that this DryLanai™ product will be free from defective workmanship and materials, and agrees that it will, at its option, either repair the defect or replace the defective product or part thereof with a new or remanufactured equivalent at no charge to the purchaser for parts or labor for a period of two (2) years, starting with the date of purchase. Batteries are excluded and are not warranted.

Limited Warranty Limits and Exclusions

This Limited Warranty is extended only to the original purchaser of a new product and does not extend to any secondary users. A purchase receipt or other Proof of Purchase date is required for this Limited Warranty to be effective. Neither the installer nor any other person is authorized to make any warranties or to extend the duration of any warranties beyond the time period described herein on behalf of PJNF. Nothing herein is intended to provide warranty coverage to lessees or anyone other than the original purchaser, and no third parties are intended to be beneficiaries of this Limited Warranty.

This Limited Warranty shall be the sole and exclusive warranty granted by PJNF and shall be the sole and exclusive remedy available to the purchaser. Correction of defects, in the manner and for the period described herein, shall constitute full satisfaction of all claims, whether based on contract, negligence, strict liability or otherwise.

This Limited Warranty only covers failures due to materials or workmanship, and does not cover normal wear and tear or cosmetic damage. This Limited Warranty also does not cover any damages or defects in the product which are caused by fire, flood, lightning, accidents, misuse, abuse, neglect, mishandling, modification, faulty installation, improper maintenance, power line surge, operation beyond rated capacity, or use of replacement parts not approved by PJNF. In no event shall PJNF be liable, or in any way responsible, for any damages or defects in the product which were caused by repairs

or attempted repairs performed by anyone other than a PJNF authorized servicer.

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Rights of the Purchaser

This Limited Warranty provides you with specific legal rights. You may also have other rights which vary from state to state. To qualify for warranty consideration under this Limited Warranty, purchaser must immediately notify PJNF at the earlier of the purchaser's discovery of the defect or the time at which the purchaser should have discovered the defect with the exercise of due diligence. Notification of defect and any warranty claim must be made with a brief written description of the problem to PJNF Technologies, Inc. at service@DryLanai.com.

Manufactured by:

PJNF Technologies, Inc.

www.DryLanai.com

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