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# Solera® Awning Smart Arm™

## Installation and Owner's Manual

(For Aftermarket Applications)

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# Solera® Awning Smart Arm™

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## Introduction

The Solera® Smart Arm™ 12V DC Power Awning features a touch pad that is nested in the awning arm, so the awning can be extended and retracted without going inside the unit.

It also features an optional infrared sensor that will activate the awning's security lights if a moving heat source is detected. It also has an optional wind sensor that will automatically retract the awning in case of severe winds.

The awning light has a new low voltage alert system. If the voltage gets below 10.5V the awning light will automatically start flashing when in use. Also, the awning light has three stages of brightness: low, medium and high.

Additional information about this product can be obtained from [lci1.com/support](http://lci1.com/support) or by downloading the free myLCI app. The app is available on iTunes® for iPhone® and iPad® and also on Google Play™ for Android™ users.

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## Safety

### ⚠ WARNING

THE "WARNING" SYMBOL ABOVE IS A SIGN THAT AN INSTALLATION PROCEDURE HAS A SAFETY RISK INVOLVED AND MAY CAUSE DEATH OR SERIOUS INJURY IF NOT PERFORMED SAFELY AND WITHIN THE PARAMETERS SET FORTH IN THIS MANUAL. ALWAYS WEAR EYE PROTECTION WHEN PERFORMING THIS INSTALLATION PROCEDURE. OTHER SAFETY EQUIPMENT TO CONSIDER WOULD BE HEARING PROTECTION, GLOVES, AND POSSIBLY A FULL FACE SHIELD, DEPENDING ON THE NATURE OF THE INSTALLATION PROCEDURE.

### ⚠ CAUTION

MOVING PARTS CAN PINCH, CRUSH OR CUT. KEEP CLEAR AND USE CAUTION.

### ⚠ WARNING

THIS MANUAL PROVIDES OPERATIONAL PROCEDURES FOR THE SOLERA SMART ARM AWNING. OPERATING THE SOLERA SMART ARM AWNING IN ANY OTHER MANNER THAN DESCRIBED MAY RESULT IN PERSONAL INJURY, DAMAGE TO THE RECREATIONAL VEHICLE UNIT OR THE AWNING ASSEMBLY AS WELL AS VOIDING THE LIPPERT COMPONENTS LIMITED WARRANTY.

## Prior to Installation

All fasteners supporting the awning assembly must have a backer within the structure of the wall of the unit. Refer to the unit manufacturer for proper location.

This manual will refer to the "drive side" and "idler side" throughout for various instructions. The "drive side" is the right hand side of the awning when facing the awning from the exterior of the unit. The "idler side" is the left hand side of the awning when facing the awning from the exterior of the unit.

**NOTE:** If replacing a power awning with the Smart Arm, please verify that the wiring meets all requirements as stated in section, Smart Arm Wiring Diagram, in this document. If replacing a manual awning or adding a new awning to the unit please install new wiring to meet the requirements as stated.

## Resources Required

- 1-3 people, depending on task
- Cordless or Electric Drill or Screw Gun
- Appropriate Drive Bits
- 7/16" Socket
- #14 x 1 1/4" Screws
- Rivet Gun (if needed)
- Screwdriver
- Wire Cutters/Strippers
- Non-Permanent Method of Marking
- Scissors/Utility Knife
- Silicone Sealant or Putty Tape
- Silicone Lubricant



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## Installing The Awning Rail (If Necessary)

**NOTE:** Awning rail not included.

1. Position the awning rail along the line where roof and wall meet or:

A. For pitched awnings: A minimum of 6" above doors or windows

B. For flat awnings: A minimum of 4" above doors or windows

**NOTE:** The awning rail must be level and parallel with the floor line of the unit (**Fig.1**).

2. After determining the awning rail's proper location, mark its position with a non-permanent method of marking.

3. Seal the back of the awning rail.

4. Align the awning rail on the wall and secure with #10 x 3/4" screws, using all fastener holes.

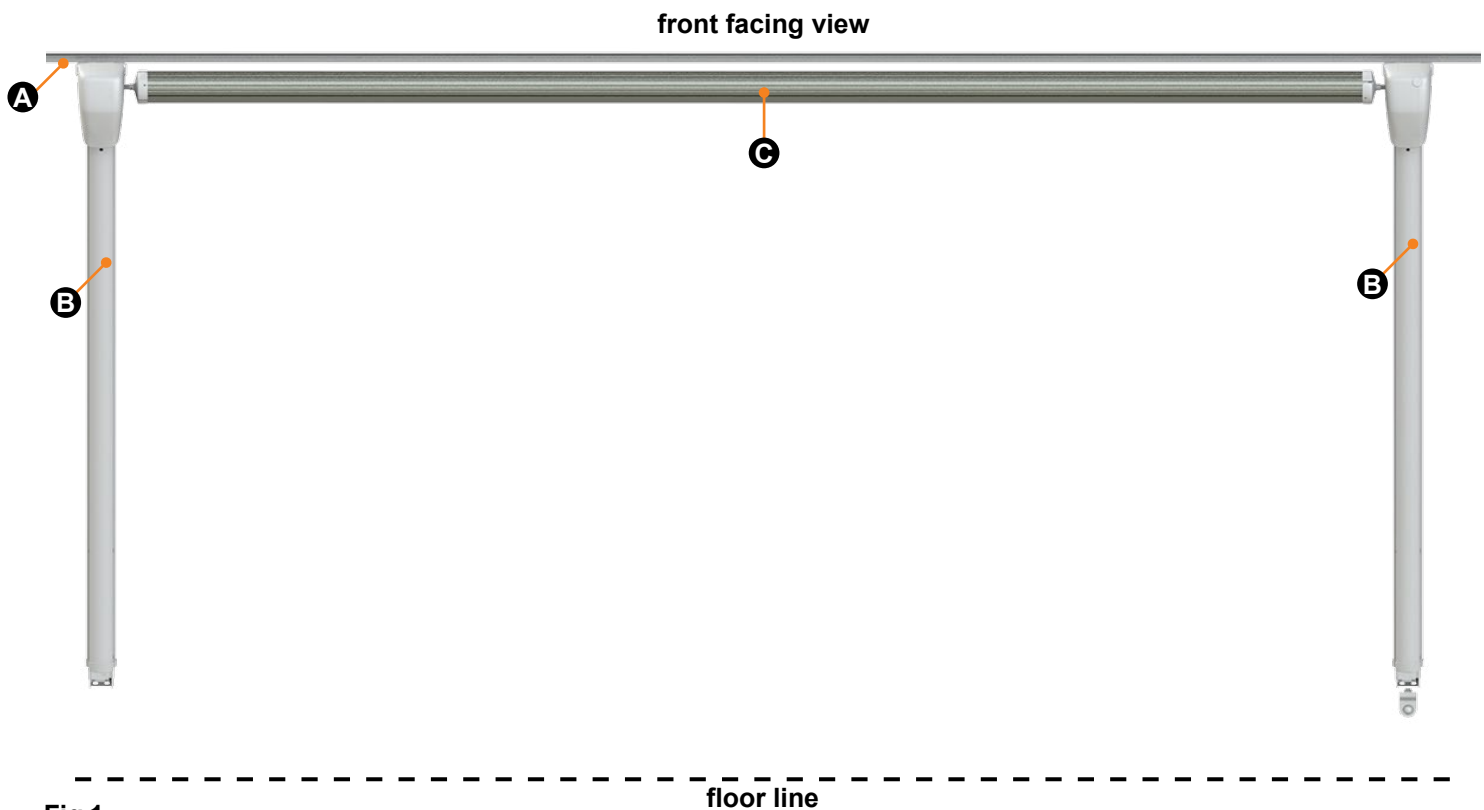


Fig.1

| Letter | Description          |
|--------|----------------------|
| A      | Awning Rail          |
| B      | Support Arm Assembly |
| C      | Roll Tube Assembly   |

## Installation

1. On the awning rail, mark the position of the centerlines of the support arm assemblies. Make sure that the support arm assemblies will not interfere with any lights, vents or other obstructions.

2. Using a non-permanent method of marking, mark a perpendicular line from the awning rail down to the floor line. This is the centerline of the support arm assembly (Fig.2).

3. Insert the drive head assembly shaft into the end cap (Fig.3). Align the holes and secure with waxed screw. Repeat process for idler head assembly at opposite end.

**NOTE:** Keep the head of the wax screw  $\frac{1}{8}$ " from fastened to avoid compromising the structural integrity of the wax screw.

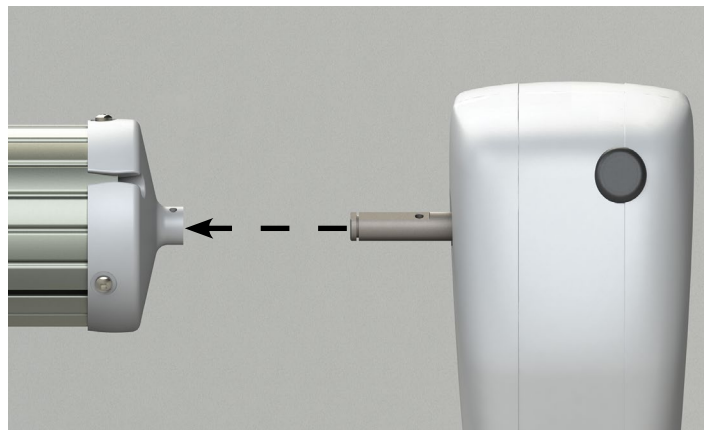


Fig.3

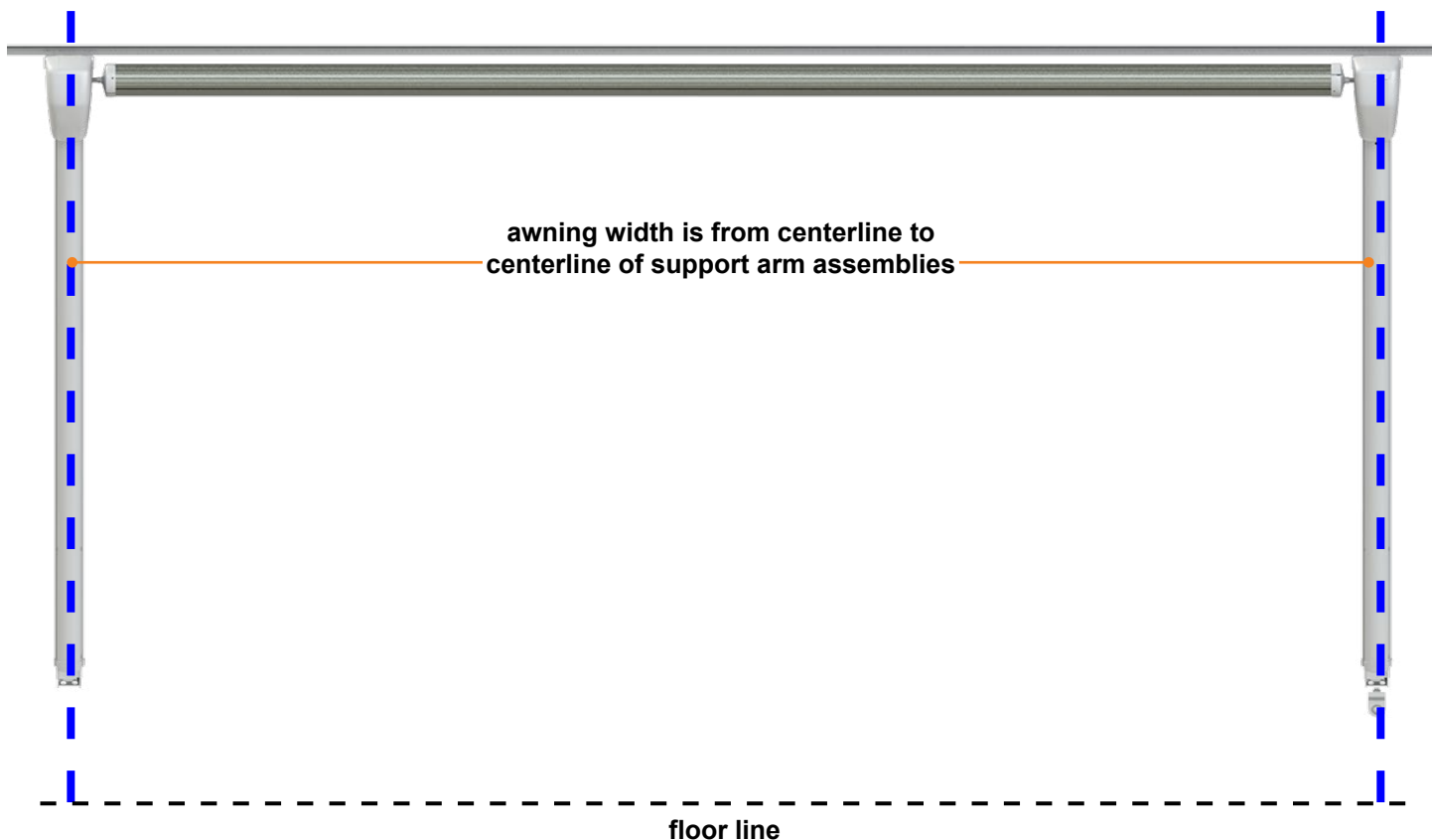


Fig.2

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4. Use a screwdriver to spread open either end of the awning rail channel on the installation end (**Fig.4A**).
5. To protect the fabric from damage during installation, file any sharp edges or burrs from the awning rail channel.
6. Use silicone lubricant and spray the inside of the awning rail channel (**Fig.4B**).



**Fig.4**

7. Remove the tape from the fabric. Unroll a small portion of fabric.

**NOTE:** The next steps will require three people: One to feed the polycord into the awning rail channel, two to walk the support arm assemblies along the awning rail while the fabric slides into position.

8. Slide the polycord into the awning rail channel and walk the support arm assemblies and fabric down the awning rail channel until the support arm assemblies are in line with the previously made centerline marks.

9. Lift the support arm assembly up and secure by setting the awning assembly to the desired height and attaching the top of the drive side arm to the side of the unit with two #14 x 1 1/4" screws (**Fig.5**). Repeat this procedure for the idler side support arm.



**Fig.5**

**NOTE:** Best practice for setting the awning height is to push the top of the support arm assemblies up to be flush with the bottom of the awning rail. The awning height can be adjusted lower if desired, but make sure that the distance from the awning rail to the top of the support arm assemblies is consistent at both ends of the awning.

10. Using scissors or a utility knife, cut the zip ties used to secure both the support arm assembly and the top of the mount arm (**Fig.6**).

### ⚠ WARNING

FAILURE TO MAINTAIN CONTROL OF THE OUTER ARM WHILE CUTTING THE ZIP TIE MAY RESULT IN SERIOUS INJURY OR PROPERTY DAMAGE.



**Fig.6**

## Installation of Smart Arm™ Touch Pad

1. At the top of the drive side mount arm, locate the red power wire and the black ground wire from the controller. Place the red wire on battery power and the black wire on battery ground. Wait 5 seconds and then place the red "EXT IN" wire from the controller on the battery power.

2. Touch the loose end of the red wires in step 1 to the positive post on the battery. Touch the loose end of the black wires in step 1 to the negative post on the battery.

**NOTE:** It is also possible to use the manual override to extend the awning.

3. Fully extend the awning.

4. Wires can be separated at this time.

5. Finish the task of securing the mount arms. Make sure the awning assembly is square on the unit prior to completion. Use two #14 x 1 1/4" screws in one of the provided locations in the middle of the arm (**Fig.7**), and two #14 x 1 1/4" screws (**Fig. 8**) in the bottom of the arm.

**NOTE:** Four rivets with 3/16" grip range can be used in place of the two middle and two lower screws on laminated walls.

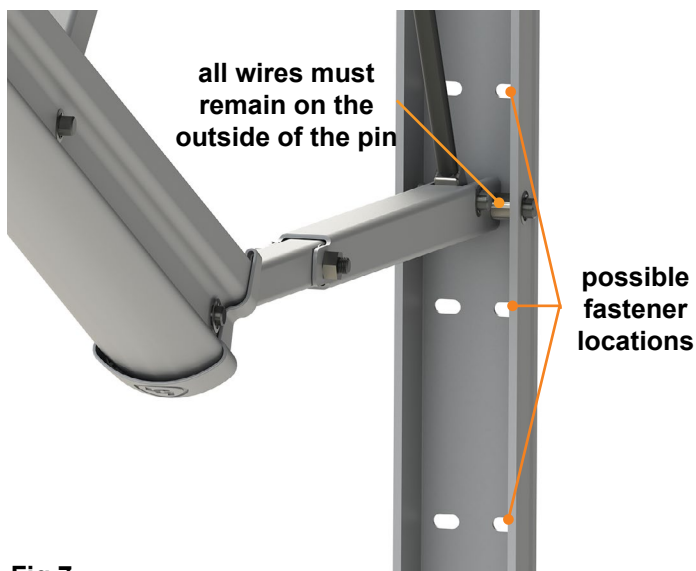


Fig.7

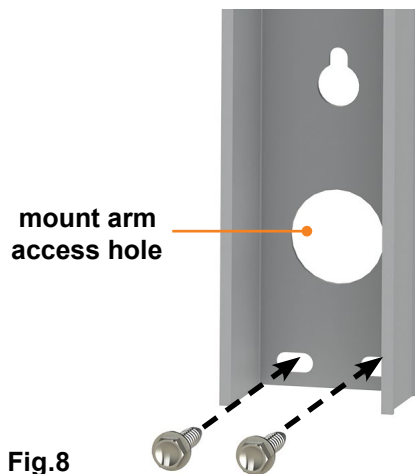


Fig.8

6. At this point, determine whether this is a top or bottom wire installation. Remove the wire covers from the wall mount on the drive side, including the small wire cover at the lower portion of the wall mount if installing a bottom wire connection.

7. If it is a bottom wire installation, pull the power wire [red (POWER)/black (GROUND)] and the switch wire [red (EXT IN)/black (RET IN)/green (LGT IN)] down from the top of the arm to the bottom.

8. Remove the Smart Arm Touch Pad from the wall mount by removing the snap clip on the right side of the touch pad (**Fig.9**). This will allow the touch pad to be removed from the arm (**Fig.9**).

9. Run the wires from the unit through the provided access hole in the mount arm (**Fig.8**).

**NOTE:** If top install, make sure all wires are always on the outside of the pin that secures the pitch arm to the mount arm. (**Fig.7**).

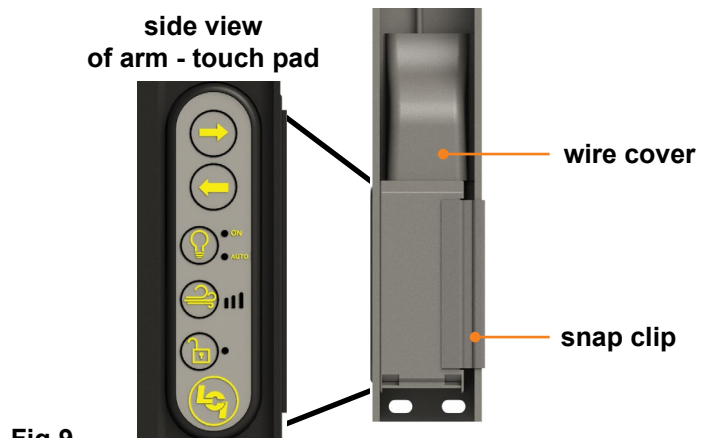


Fig.9

10. Connect the red 12 AWG power wire from the unit to the power wire on the Smart Arm Touch Pad. The black wire is ground.

11. Connect the extend "EXT IN" and retract "RET IN" wires to the switch inside the unit.

12. If the LED Light option has been chosen complete the instructions in that section before moving to step 13.

13. Tuck loose wiring into the hole in wall of the unit and seal with silicone sealant or butyl tape.

14. Reinstall the Smart Arm Touch Pad and snap clip (Fig.9).

15. Reinstall the wire covers.

16. Power to the Smart Arm Touch Pad will time out after five minutes of being idle.

## Installing the LED Light - Optional

1. The light wire is under the 4-inch wire cover at the top of the arm (Fig.10). Remove the wire cover.

2. Connect the red power wire from the light to the red 20 AWG light wire in the arm.

3. Connect the black ground wire from the light to the black 20 AWG wire in the arm.

4. The light wire must be routed over the top of the mounting arm (Fig.10).

5. Connect green wire marked "LGT IN" to the light power wire from the unit.

**NOTE:** The ground wire from the light switch inside the unit will be capped off.

**NOTE:** The controller for the LED light is equipped with a low voltage alert system which causes the light to flash in low voltage situations. If the voltage gets below 11V DC, the awning light will automatically start flashing when in use.

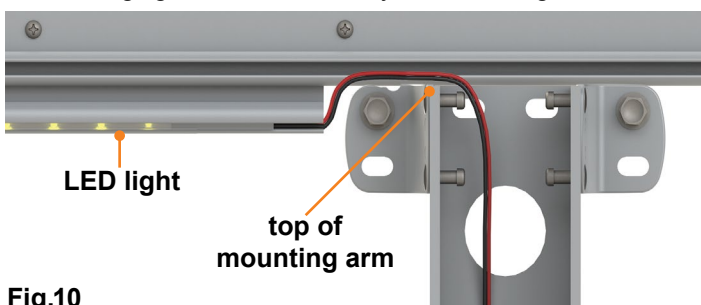


Fig.10

## Installing The Wind Sensor - Optional

### Installation of the Wind Sensor

**NOTE:** When ordered for installation the Wind Sensor will be already installed by Lippert Components. If installation instruction is needed see [TI-277](#) or visit the Lippert Components website: <https://www.lci1.com/support-solera-reg-smart-arm> and select Solera® Smart Arm Wind Sensor Installation Guide.

**NOTE:** For identification of Wind Sensor components refer to figures 11 and 12.



Fig.11

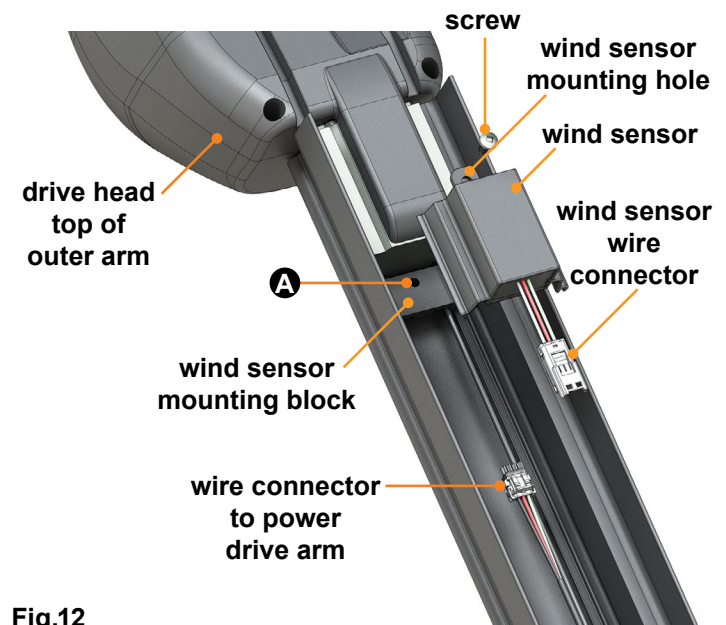


Fig.12



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## Installing The Infrared (IR) Sensor - Optional

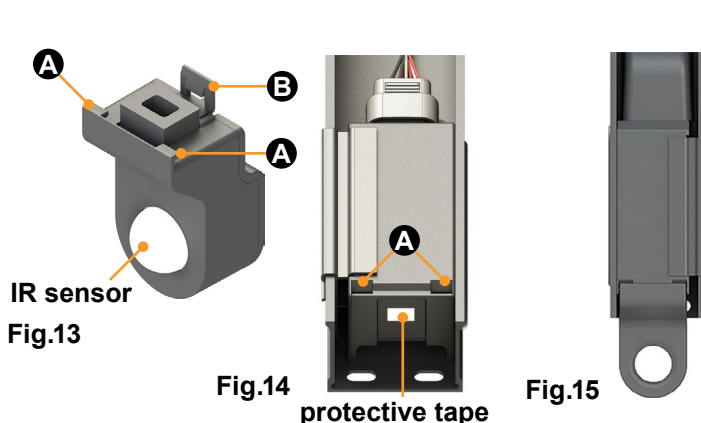
### Prior to Installation

1. Verify the unit's battery is fully charged and connected to the electrical system.
2. To turn the awning on, press and hold the lock button (Fig.16A) for three seconds. The button's green LED indicator light will illuminate when the awning is on.
3. Press and hold the extend arrow button (Fig.16B) until the awning is fully extended.

**NOTE:** IR Sensor (Fig.13) will be shipped "loose" (unattached) to the Smart Arm Touch Pad.

### Installation of the IR Sensor

1. Locate the Smart Arm Touch Pad at the bottom of the mount arm on the drive head side (Fig.16).
2. Locate the lower wire cover of the mount arm on the drive side and slide it up to access the small wire cover. Remove the small wire cover from the mount arm (Fig.16).
3. Remove the Smart Arm Touch Pad from the mount arm by removing the snap clip on the right side of the touch pad (Fig.16). Lift touch pad from the mount arm to install the IR sensor.
4. Remove the protective tape covering the connection pins at the bottom of the Smart Arm Touch Pad (Fig.14).



5. Insert the IR Sensor (Fig.13) into the bottom of the Smart Arm Touch Pad (Fig.15), with the white sensor facing out. Line up notches on the front of the touch pad (Fig.14A) and tabs of the IR sensor (Fig.13A), then push the IR sensor up and back to lock into place.

**NOTE:** The tab on the back of the IR sensor (Fig.13B) will snap onto a tab at the bottom of the touch pad. No additional wiring is required.

6. Reinstall the Smart Arm Touch Pad and snap clip (Fig.16).
7. Reinstall the small wire cover.
8. Locate the lower wire cover of the mount arm on the drive side and slide it down to the small wire cover.

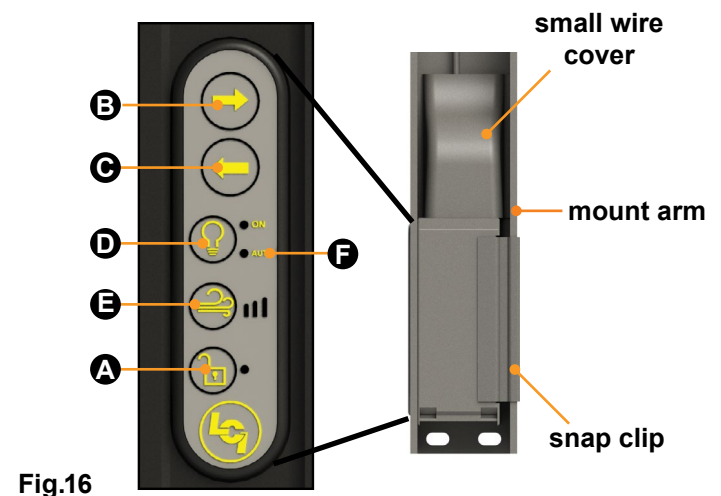
## Operation

### ⚠ WARNING

MOVING PARTS CAN PINCH, CRUSH OR CUT. HOLDING THE TOUCH PAD FROM BOTH SIDES CAN CAUSE SERIOUS BODILY INJURY IF THE AWNING IS RETRACTED COMPLETELY. PRESS THE BUTTONS FROM THE TOUCH PAD SIDE ONLY.

### Extending the Awning

1. Verify the unit's battery is fully charged and connected to the electrical system.





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2. To turn the awning on, press and hold the LOCK/UNLOCK button (**Fig.16A**) for three seconds. The green LED will illuminate when the awning is on.

3. Press and hold extend arrow button (**Fig.16B**) until the awning is extended completely.

**NOTE:** The wind sensor must be installed in order for the Auto Extend feature to function.

**NOTE:** Auto Extend ONLY: in order to use the "Auto Extend" feature, press the extend arrow button (**Fig.16B**) twice within two seconds.

**NOTE:** The awning fabric should always be above the roll tube. However, if the extend button is engaged too long or extend is hit inadvertently instead of retract, the awning will roll up backward. This is not a defect. To correct the fabric orientation, press the retract arrow button (**Fig.16C**). The awning will then extend to its correct orientation and normal operation can resume.

### **⚠ CAUTION**

**DO NOT TIE DOWN THE ROLL TUBE, SCREEN ROOM OR LIVING ROOM AFTER AWNING HAS BEEN EXTENDED. TYING DOWN THE ROLL TUBE ONCE THE AWNING IS EXTENDED WILL NOT ALLOW THE FREE-FLOATING SUPPORT ARMS TO WORK AS DESIGNED AND MAY CAUSE DAMAGE TO THE AWNING OR UNIT.**

#### **Retracting the Awning**

1. Verify the unit's battery is fully charged and connected to the electrical system.

2. To turn the system on, press and hold the LOCK/UNLOCK button (**Fig.16A**) for three seconds. The green LED will illuminate when the system is on.

3. Press and hold the retract arrow button (**Fig.16C**) until the awning is fully retracted.

#### **LED Lights - Optional**

The awning can be ordered with or without the LED light strip installed on the awning fabric.

#### **For units shipped prior to 7/26/17.**

1. Press and hold the LOCK/UNLOCK button (**Fig.16A**) for three seconds to turn on the awning controller. The green LED will illuminate when the system is on.

2. Then press the light button (**Fig.16D**) to turn on the LED light strip.

3. The lights will stay on until the light button (**Fig.16D**) is pressed again.

#### **For units shipped after 7/26/17.**

1. Press the light button (**Fig.16D**) to turn on the LED light strip.

2. There are three light levels available:

A. Press light button (**Fig.16D**) once for the low setting or 10% illumination.

B. Press light button (**Fig.16D**) twice for the medium setting or 30% illumination.

C. Press the light button (**Fig.16D**) three times for the high setting or 100% illumination.

D. Press the light button (**Fig.16D**) four times to turn off the LED light strip.

**NOTE:** The light goes to 100% illumination if it is off and then is turned on by an external light input, by CAN bus or if motion is detected by the optional IR sensor with the AUTO mode on.

#### **IR Sensor - Optional**

For additional safety and security, the optional IR Sensor will automatically turn on the LED lights if a moving heat source is detected during "no-light" conditions. The IR Sensor range reaches out approximately 8 feet in a 180-degree radius from where it is mounted on the unit.

1. Press and hold the light button for 3-5 seconds and the red LED auto light (**Fig.16F**) will turn on. The IR sensor is now operational.

2. To discontinue IR sensor function, press and hold the light button (**Fig.16D**) 3-5 seconds, and the red auto light will turn off. The IR sensor is no longer operational.

**NOTE:** When the light is activated it defaults to full light.

**NOTE:** The light will deactivate if no movement is detected after three minutes.



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## ⚠ CAUTION

DO NOT STAKE OR OTHERWISE AFFIX SCREEN ROOM OR LIVING ROOM AFTER AWNING HAS BEEN EXTENDED. SECURING THESE OPTIONS ONCE THE AWNING IS EXTENDED WILL NOT ALLOW THE FREE-FLOATING SUPPORT ARMS TO WORK AS DESIGNED AND MAY CAUSE DAMAGE TO THE AWNING OR UNIT.

## ⚠ CAUTION

DURING INCIDENTS OF HIGH WIND, HEAVY RAIN OR EXTENDED TIME AWAY FROM THE UNIT, IT IS ADVISABLE TO RETRACT THE AWNING COMPLETELY TO PREVENT DAMAGE TO THE AWNING AND THE UNIT.

### Wind Sensor - Optional

The optional Wind Sensor will automatically retract the awning if severe wind is detected, based on the wind setting level programmed by the operator.

1. Press and hold the LOCK/UNLOCK button (**Fig. 16A**) for three seconds to unlock the controller. The green LED light will illuminate.
2. Press the wind button (**Fig.16E**) from 1 - 3 times, depending on the amount of wind sensitivity desired.
3. The amount of wind sensitivity will be displayed via the three LED lights next to the button.

**NOTE:** The levels of wind sensitivity range from 1 - 3. Level 1 requires more wind (least sensitive) to trigger the feature. Level 3 requires less wind (most sensitive) to trigger the feature.

**NOTE:** When the awning is activated by the Wind Sensor, the awning light will flash as a notification it is preparing to close.

**NOTE:** Any time the awning is retracted for any reason (by the operator or due to strong wind) the desired level of wind sensitivity will need to be set (see Operation - Step 1 to set sensitivity). The awning can also be extended without activating the wind sensor.

### One Touch Feature

For the auto-extend feature to function, the wind sensor must be installed. To use the "One Touch" feature, press the extend arrow button (**Fig. 16B**) twice within two seconds.

### Adjusting Pitch

**NOTE:** The awning will pitch itself to purge the pooling of excess water and may dump a significant amount of water without notice.

**NOTE:** Pitch can be set by adjusting the pitch arm to tip one side of the awning to allow water runoff.

1. Extend the awning to the fully open position.
2. Choose the side of the awning for optimum shade or convenient water runoff.
3. Pull downward on the joint of the pitch arm until desired pitch is set (**Fig.17A**). Belleville washers and bolt (**Fig.17B**) allow for the joint to remain in the position set by the operator.

**NOTE:** The awning can be retracted without resetting the pitch.

**NOTE:** If the pitch arm does not hold position, it can be tightened by adjusting the bolt (**Fig.17B**) in the center of the joint.

Some awnings are equipped with a two-position pitch arm (**Fig.18**). The two-position pitch arm can be set in the pitch position or snapped into a straight position by pushing the release button (**Fig.18A**) and sliding the sleeve (**Fig.18B**).

**NOTE:** Do not push the joint of any pitch arm up past the point where the two sections are in a straight line. This will put tension on the gas strut, which can cause the strut to break.

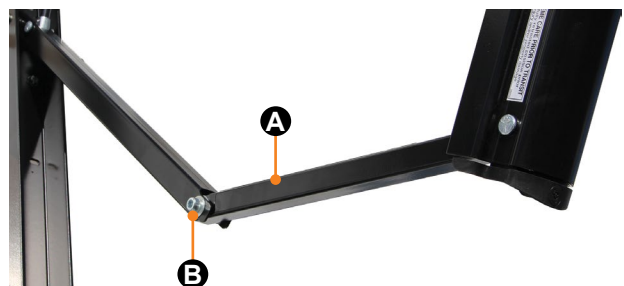


Fig.17

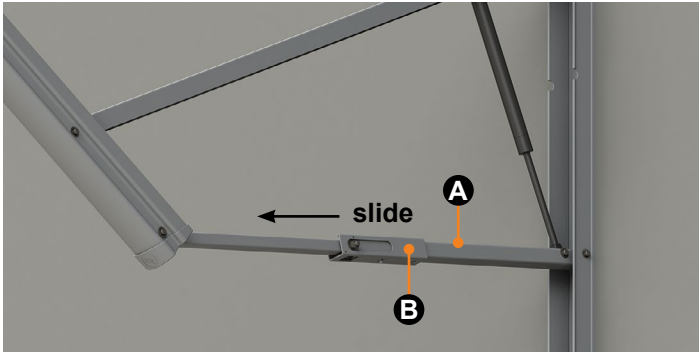


Fig.18

## Troubleshooting

### Manual Override

In the event of power loss or motor failure, the awning can be extended and retracted manually. Perform the following procedure to manually retract the awning.

1. Remove the rubber grommet (**Fig.19A**) from the drive head assembly, exposing the manual override nut on the motor.



Fig.19

2. Using a  $\frac{7}{16}$ " socket and cordless or electric drill or screw gun (**Fig.20**), spin the manual override nut counterclockwise to retract the awning.

**NOTE:** Use caution when retracting the awning manually. The use of a step stool or ladder may be required to completely retract the awning.

3. When the awning is completely retracted, replace the rubber grommet in the drive head assembly (**Fig.19**).



Fig.20

**NOTE:** The motor's internal drive system prevents the awning from moving (extend or retract) on its own. If the motor is damaged or disabled, secure the awning in the retracted position with a strap around both the outer arm and the mount arm (**Fig.21**) before the manual override nut is released.



Fig.21



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#### **Troubleshooting Chart**

| <b>What is Happening?</b>                                    | <b>What Should Be Done?</b>                                                                                                                                                                             |
|--------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Awning won't open or close.                                  | If optional travel locks are installed, make sure that they have been unlocked.                                                                                                                         |
|                                                              | Verify the fuse is good.                                                                                                                                                                                |
|                                                              | Motor overheated, thermal breaker has tripped, auto resets once cooled.                                                                                                                                 |
|                                                              | Check for power at the motor when the switch is in the extended or retracted position.                                                                                                                  |
| Awning pitch won't stay in the flat position.                | Check for bad gas strut.                                                                                                                                                                                |
|                                                              | Check pitch arm bolt for proper tension. High winds can cause the pitch arm to deviate from the flat position due to the built-in safety feature of the awning.                                         |
|                                                              | Make sure all three washers are in the proper location of the pitch arm.                                                                                                                                |
| Awning doesn't close all the way.                            | The awning is considered completely closed as long as the outer arm is overlapping the mount arm. This overlap can vary.                                                                                |
|                                                              | Motor overheated, thermal breaker has tripped, auto resets once cooled.                                                                                                                                 |
|                                                              | Verify the fabric is square from the unit to roll tube and is rolling up straight on the roll tube.                                                                                                     |
| Lights won't work.                                           | There is a resettable fuse that can take up to 30 seconds to reset.                                                                                                                                     |
|                                                              | Make sure to have 12V DC to the red wire on the light.                                                                                                                                                  |
|                                                              | Double check power coming out of the touch pad.                                                                                                                                                         |
| Awning seems to wobble when extending or retracting.         | Make sure the bolts that hold the head to the support arm assemblies are tight.                                                                                                                         |
|                                                              | Make sure the end caps are seated properly on the roll tube.                                                                                                                                            |
|                                                              | Make sure the shaft coming out of the head going to the end cap isn't bent.                                                                                                                             |
|                                                              | Make sure the mount arms are properly secured to the wall.                                                                                                                                              |
|                                                              | Make sure no part of the support arm assemblies is bent.                                                                                                                                                |
|                                                              | Make sure the wear collar spacers are all properly located in the support arm assemblies.                                                                                                               |
| Awning works in the opposite direction of what switch shows. | Wires going to awning have been reversed or switched. Reverse the wires.                                                                                                                                |
| Awning rolls up backward.                                    | This is not a defect. To correct the fabric orientation, simply operate the awning in the retract direction and the awning will then extend to its correct orientation and normal operation can resume. |



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## **Error Codes for Assemblies Produced After May 2018**

### **Level 1 Fault**

If moisture is detected in the main, 12-pin connector (Level 1 fault) the interior extend switch will be locked out, as well as the interior awning light control.

**NOTE:** There will be NO lock-out of the retract function.

If a Level 1 fault is detected, the touchpad lock LED (**Fig.16A**) will blink continuously (same as a low voltage fault) to alert moisture is detected. While the interior extend switch and light will be locked out, the exterior touchpad will remain functional (unless a Level 2 fault is also found). On equipped units, OneControl functionality will not be actively locked out, however water in the connector can prevent operation.

If a Level 1 Fault has not been detected in the previous 100 seconds, pressing any touchpad button will clear the fault, as will a power cycle on the Smart Arm controller.

### **Level 2 Fault**

If moisture is detected in the touchpad or controller board (Level 2 fault), the touchpad lock LED will also blink continuously. The exterior touchpad extend and light buttons will be locked out until a special touchpad button sequence is performed by the user, which allows for a limited-time operation. The interior switches remain functional on a Level 2 fault, as does OneControl. A power cycle will not clear a Level 2 fault. The following sequence must be performed:

1. Press touchpad extend button
2. Press touchpad retract button
3. Press touchpad light button
4. Press touchpad wind button
5. Hold touchpad unlock button for 10 seconds.

Once this unlock procedure is done, the unlock LED will remain on solid. The touchpad buttons function until the mode times out or the user locks the touchpad by depressing the lock button.

If no buttons are pressed, the controller will re-lock automatically after 3 seconds. If a button is pressed before 3 seconds has passed, the timeout will be extended by another 3 seconds.

**Awning Actively Extending:** If a Level 1 or Level 2 fault is detected while the awning is extending or auto-extending, the awning will take special action to stop extending, and auto-retract to the fully retracted state. The appropriate fault will be set in the controller's memory.

**Awning Actively Retracting:** If a Level 1 or Level 2 fault is detected while the awning is retracting, the awning will not take any special action. The appropriate fault will be set in the controller's memory.

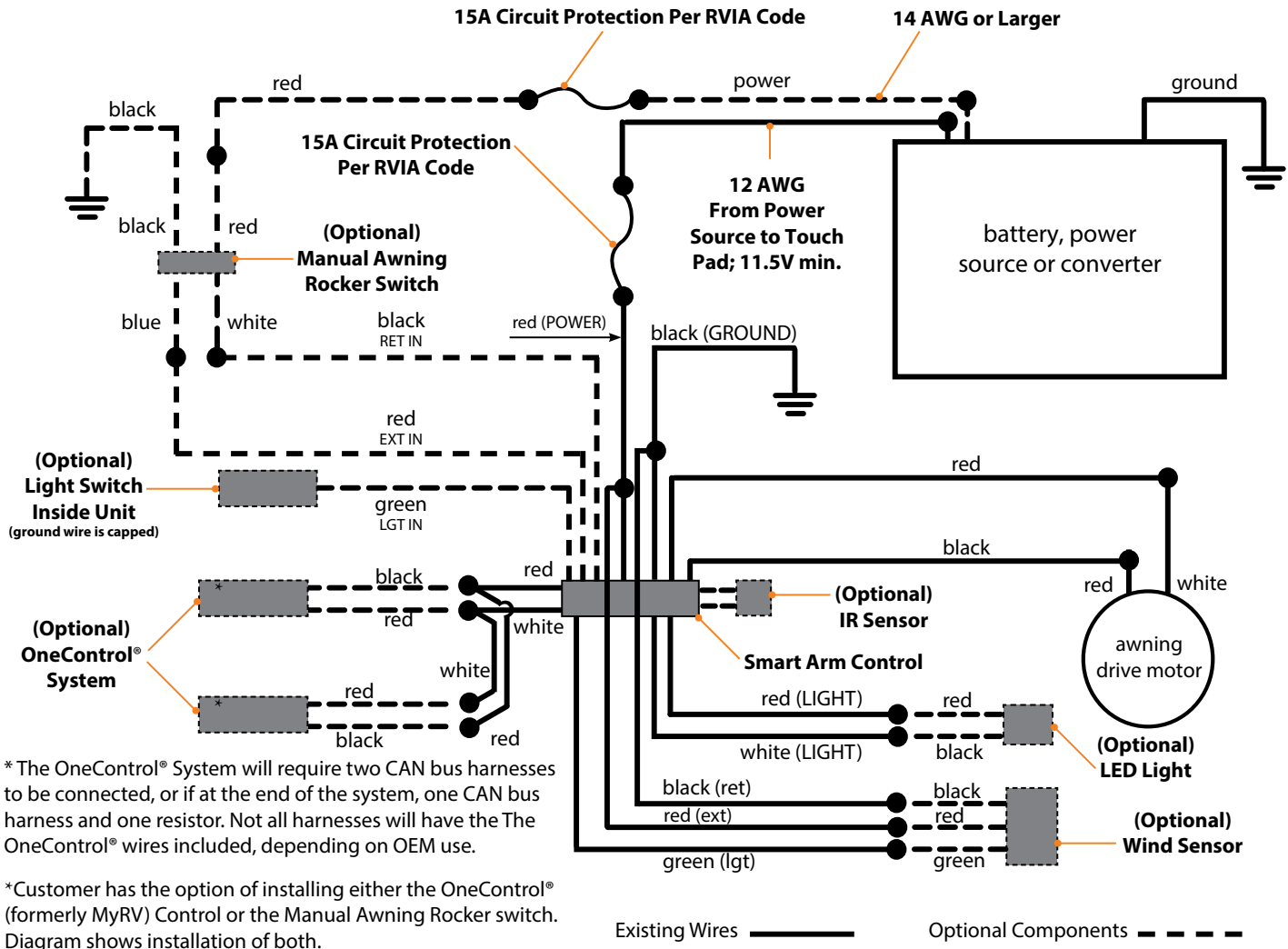


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# Solera® Awning Smart Arm™

Installation and Owner's Manual  
(For Aftermarket Applications)

## Smart Arm Wiring Diagram





# Installation and Owner's Manual

## (For Aftermarket Applications)



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## **Solera® Awning Smart Arm™**

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### **Notes**



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