



## Installation Instructions

*Please Read Before Installing*

### System Bridging Timeclock™

RA-SBT, RB-SBT

120/127 V~ 50/60 Hz (18 V~ / 0.3 A adapter)

## Overview

The *System Bridging Timeclock* (SBT) bridges two *RadioRA* systems, providing a total of 64 Zone Controls and 24 Master Controls. The SBT also provides an RS-232 interface, contact closure inputs, and an astronomical time clock.

Each SBT covers approximately 2500 square ft. (232 m<sup>2</sup>) of living space.

Up to 3 RF Signal Repeaters may be used with the SBT for each system to extend the communications range.

## Important Notes

**Codes:** Install in accordance with all local and national electrical codes.

**Power:** Use only the adapter provided by Lutron with the SBT.



**Caution** - Using an adapter not rated for the following specifications could damage the SBT and possibly overheat the adapter.

- Input: 120/127 V~ 50/60Hz
- Output: 18 V~ / 0.3 A Class 2

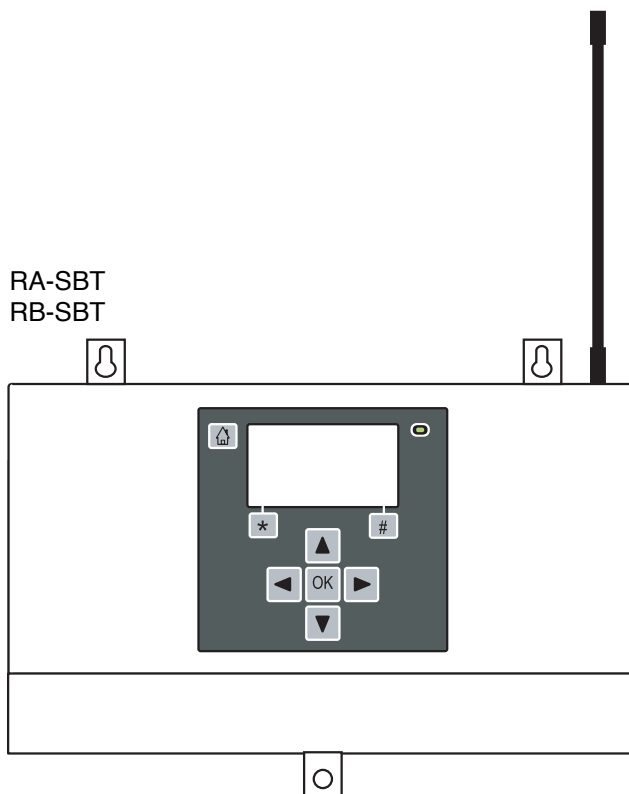
**Environment:** Ambient operating temperature: 0-40°C, 32-104°F, 0-90% humidity, non-condensing. Indoor use only.

**Cleaning:** To clean, wipe with a clean damp cloth. **DO NOT** use any chemical solutions. Do not paint the SBT.

**Mounting:** **DO NOT** ground the SBT. **DO NOT** mount the SBT in a metal enclosure.

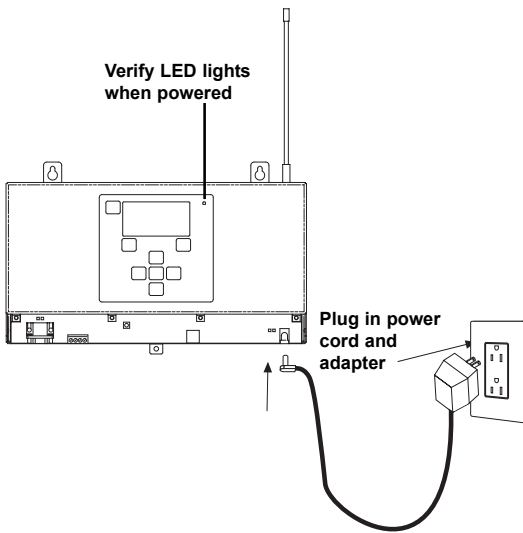
**RF Device Placement:** Master Controls and Zone Controls that are to be controlled by the SBT must be located within 30 ft. (9 m) of the SBT or an RF Signal Repeater.

**Setup:** The SBT will not function until it is addressed and programmed. See the *System Bridging Timeclock* Setup and Programming Guide.



## Installation

- 1. Find a suitable location for the SBT.** Place the SBT in a convenient and accessible location. See RF Coverage Diagrams on page 5.
- 2. Mount the SBT.** Mount SBT to wall using the appropriate mounting hardware provided (see Mounting Diagram). Orient the processor's antenna for optimal performance. For most installations, the antenna should be oriented vertically. **Note: DO NOT** ground the SBT. **DO NOT** mount the SBT in a metal enclosure.
- 3. Apply power to the SBT.**

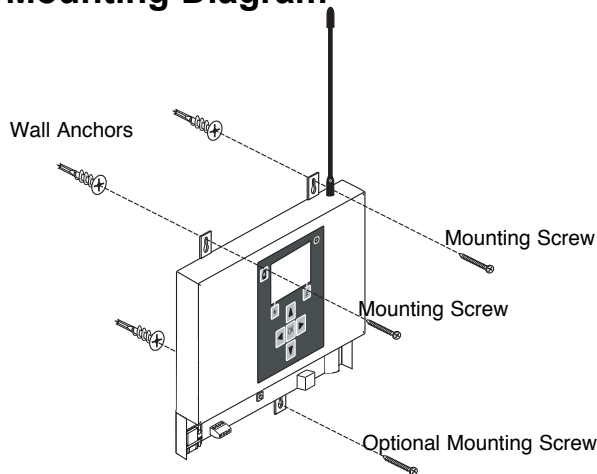


- 4. Configure the SBT.** Use the SBT display to set configuration.
- 5. Connect Serial Link (if applicable).** Connect a standard DB9 male connector to the RS-232 connector on the SBT for communications with other equipment.
- 6. Connect external input closures (optional).** The SBT accepts three low-voltage dry contact closures. Connect wiring for closures to input terminal block if desired (see Wiring Diagram—page 3).

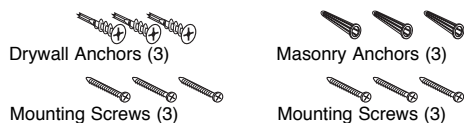
### When using the input closures:

Verify compatibility of external devices. The input closures are intended for use with devices that provide outputs in the form of dry contact closure outputs. The input closures may be used with ground-referenced, solid-state outputs if the outputs have an on-state saturation voltage of less than 2 V<sub>DC</sub> and an off-state leakage of less than 50  $\mu$ A. Dry contact or solid-state outputs must be capable of switching 18 V<sub>DC</sub> at 10 mA. The outputs must stay in the closed or open states for at least 40 msec in order to be recognized by the SBT. If there is any question as to whether the contact closure device is compatible with these specifications, contact the manufacturer of that device.

## Mounting Diagram

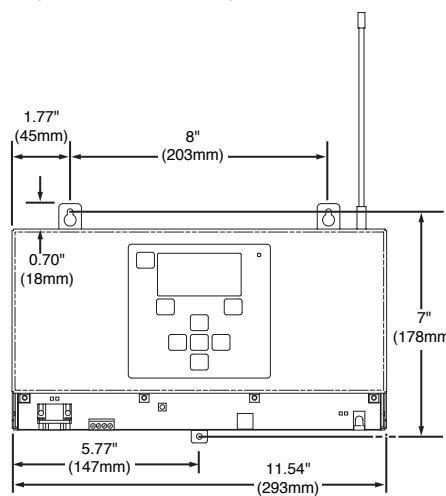


Included:

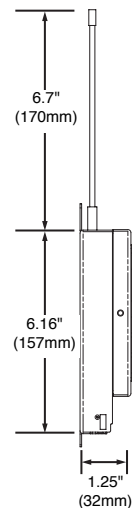


## Dimensions

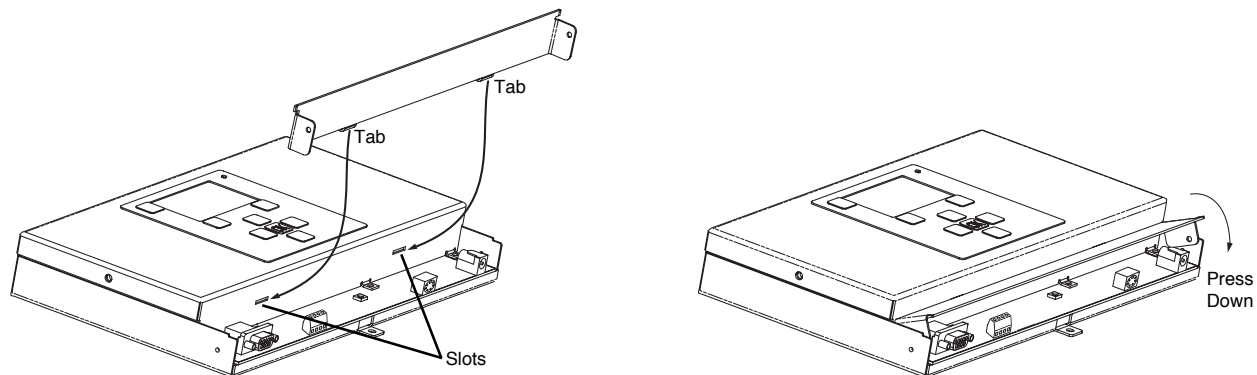
Front View  
(Port Cover removed)



Side View

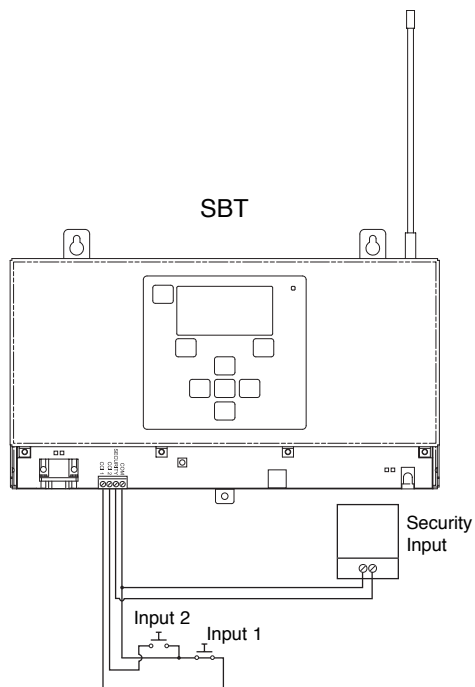


## Port Cover Installation

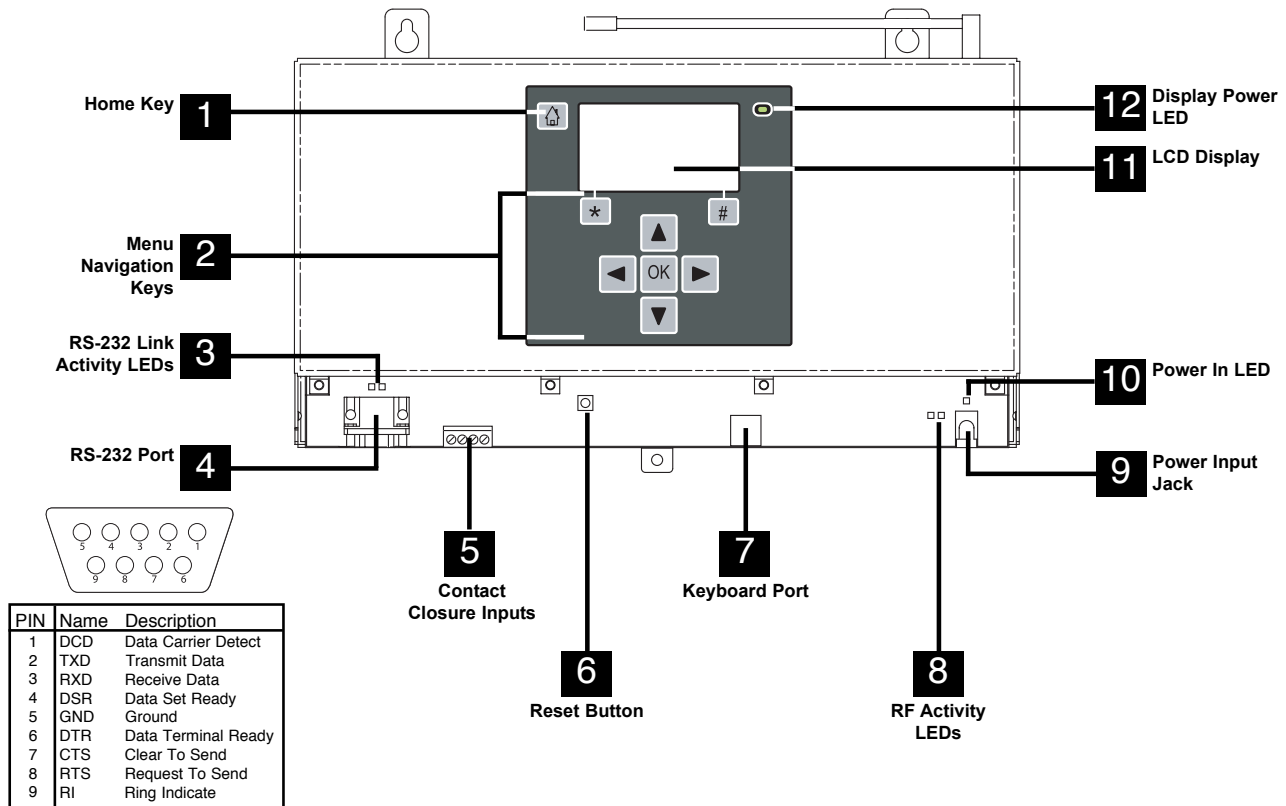


The Port Cover can be removed for access to the Reset Button and Diagnostic LEDs. The cover is removed by gently pulling up on the front edge to disengage the snaps. Replace the cover by inserting the two tabs on the back of the cover into the slots on the SBT. Gently press down on the front edge to engage the snaps.

## Contact Closure Input Wiring Diagram



## Operation

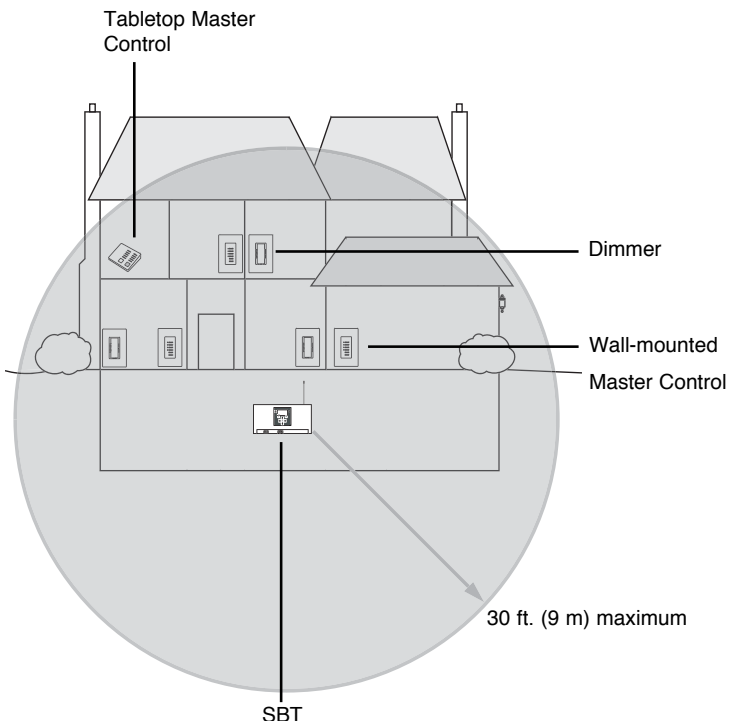


1. **Home Key:** Returns the user to the Home Screen.
2. **Menu Navigation Keys:** Used to navigate the various menus and screens for the processor.
3. **RS-232 Link Activity LEDs:** The LEDs will illuminate when there are any RS-232 signals being transmitted (TX LED) or received (RX LED) on that link.
4. **RS-232 Port:** Standard 9-Pin male connector for connecting to an external control system (A/V system, HVAC, etc.).
5. **Contact Closure Inputs:** Used for control by external systems, such as A/V, Security, etc..
6. **Reset Button:** Used to reset the SBT.
7. **Keyboard Port:** Allows a computer keyboard to be connected to the SBT for ease of programming and navigation. Standard PS/2 keyboard connector.

8. **RF Activity LEDs:** The LEDs will illuminate when there are any RF signals being transmitted (TX LED) or received (RX LED).
9. **Power Input Jack:** Input jack for the 18 V~ adapter. Center pin is positive.
10. **Power In LED:** This LED illuminates when power from the adapter is present at the Power Input Jack.
11. **LCD Display:** Displays programming and diagnostic information. The LCD Display will shut off after 60 minutes of inactivity. To restore the display, simply press any key.
12. **Display Power LED:** This LED will illuminate when the LCD Display has power.

## RF Coverage Diagrams

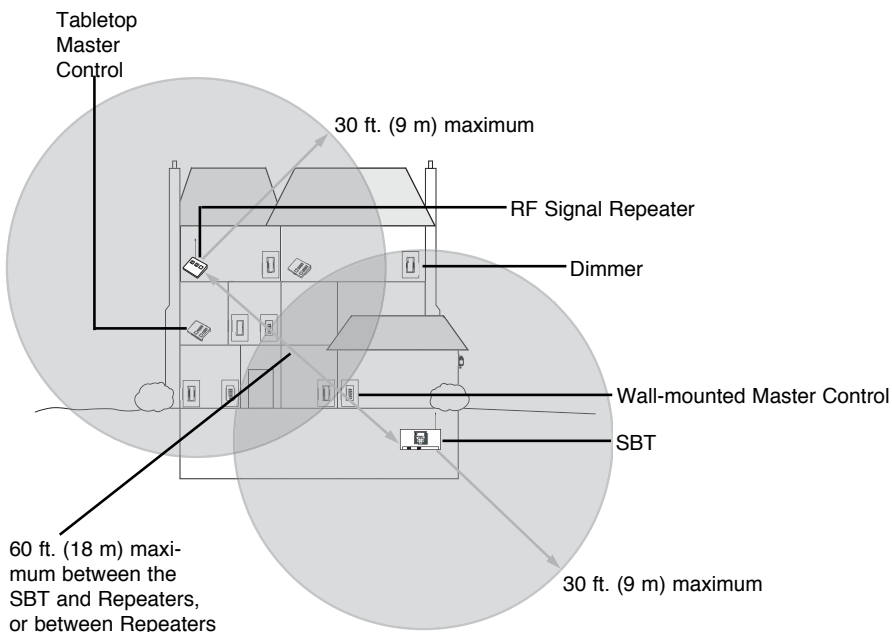
**Home A: 2500 sq. ft. (232 m<sup>2</sup>) or less - all devices within 30 ft. (9 m) of SBT**



### System Communication Notes

- Zone Controls and Master Controls must be located within 30 ft. (9 m) of an RF Signal Repeater or an SBT.
- RF Signal Repeater must be located within 60 ft. (18 m) of an SBT or another RF Signal Repeater.
- Multiple repeaters may be necessary to provide adequate coverage. Up to 3 repeaters per system may be used with the SBT.
- Zone Controls cannot be controlled by the system and Master Controls do not function until they are addressed and programmed. Use the SBT Setup Menus to address system devices.

**Home B: 2500 sq. ft. (232 m<sup>2</sup>) or greater - some RF devices more than 30 ft. (9 m) from SBT**



## Troubleshooting Guide

Symptom	Cause and Action
LCD Display is blank	LCD is shut off. <ul style="list-style-type: none"> <li>• Press any key to restore the LCD.</li> </ul> No power available to SBT. <ul style="list-style-type: none"> <li>• Make sure adapter is plugged in.</li> <li>• Faulty adapter.</li> <li>• Check to make sure circuit breaker is not tripped or OFF.</li> </ul>
Controls not communicating with SBT	No power available to unit. <ul style="list-style-type: none"> <li>• Make sure adapter is plugged in.</li> <li>• Faulty adapter.</li> </ul> SBT not within 30 ft. (9 m) of controls. <ul style="list-style-type: none"> <li>• Place SBT within 30 ft. (9 m) of RF controls.</li> </ul>
SBT functions intermittently	SBT not within 30 ft. (9 m) of controls. <ul style="list-style-type: none"> <li>• Place SBT within 30 ft. (9 m) of RF controls.</li> </ul> No power to Control <ul style="list-style-type: none"> <li>• Check circuit breaker.</li> <li>• Check FASS™ on Dimmers/Switches and their Accessory Controls.</li> <li>• Replace batteries in battery-powered controls.</li> </ul> Controls not addressed. <ul style="list-style-type: none"> <li>• Address controls using the SBT Setup Menus.</li> </ul>

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**Notes:**

## FCC Information

**Note:** 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 in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

**Caution:** Changes or modifications not expressly approved by Lutron Electronics Co. could void the user's authority to operate this equipment.

## Technical and Sales Assistance

If you need assistance, call the toll-free **Lutron Technical Support Center**. Please provide exact model number when calling.

(800) 523-9466 (U.S.A., Canada and the Caribbean)

Other countries call:

Tel: (610) 282-3800

Fax: (610) 282-3090

Visit our Web site at [www.lutron.com](http://www.lutron.com)

## LIMITED WARRANTY

Lutron will, at its option, repair or replace any unit that is defective in materials or manufacture within two years after purchase. For warranty service, return unit to place of purchase or mail to Lutron at 7200 Suter Rd., Coopersburg, PA 18036-1299, postage pre-paid. Telephone the Lutron Technical Support Center toll free at 800-523-9466. After the two year period, a pro-rated warranty applies to this product until eight years after the purchase. For more information regarding this warranty contact your Lutron representative.

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This product may be covered by one or more of the following U.S. patents: 4,835,343; 4,954,768; 5,248,919; 5,399,940; 5,637,930; 5,736,965; 5,798,581; 5,838,226; 5,848,054; 5,905,442; 5,982,103 and corresponding foreign patents. U.S. and foreign patents pending. Lutron, RadioRA, and the RadioRA logo are registered trademarks, and FASS is a trademark of Lutron Electronics Co., Inc.  
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