

seeTouch™

SO Wallstation Installation Guide

Please Read

Low-Voltage PELV (Class 2: USA)

24 V  30 mA

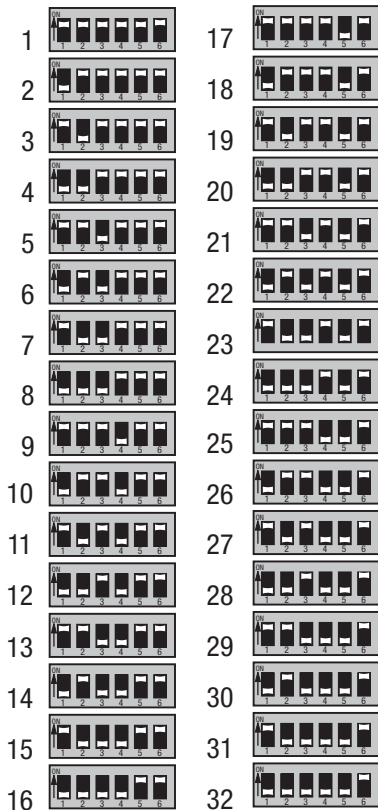
- SO-1B
- SO-2B
- SO-3B
- SO-4B
- SO-4S
- SO-4SIR
- SO-4NRL
- SO-5B
- SO-6B
- SO-7B
- SO-2W
- SO-3W
- SO-3WRLL
- SO-3WD
- SO-5WRL

24 V  80 mA

- SO-1BO
- SO-2BO
- SO-3BO
- SO-4BO
- SO-4SO
- SO-4SIR0
- SO-4NRL0
- SO-5BO
- SO-6BO
- SO-7BO
- SO-2WO
- SO-3WO
- SO-3WRLO
- SO-3WDO
- SO-5WRL0

Wallstation Switch Settings for System Addressing

See Step 4 for additional information.



Wiring Notes

- Control Link Wiring
 - Power: Two #12 AWG (2.5 mm²) PELV (Class 2: USA) wires. Connect to terminals 1 and 2.
 - Data: Two shielded #18 AWG (1.0 mm²) PELV (Class 2: USA) wires (twisted, shielded pair). Connect to terminals 3 and 4.

Lutron offers a one-cable, non-plenum, low-voltage solution (P/N GRX-CBL-46L), and a one-cable, plenum, low-voltage solution (P/N GRX-PCBL-46L). Cable is available in 250 ft. (76 m) and 500 ft. (152 m) spools. Check availability outside the U.S.

Add (-250) or (-500) to the end of the P/N to specify the desired spool length.

- Sensor/Contact Closure Input Connector Wiring (optional):
 - Three #18 AWG (1.0 mm²) PELV (Class 2: USA) wires.
- Connect the wallstation to the control link inside the wallstation's wallbox or in a junction box (provided by others) located no more than 8 ft. (2.5 m) from control.
- Control link wiring must **not** be run in the same raceway as line voltage.
- Total control link length is **not** to exceed 2000 ft. (610 m) unless the signal is boosted using a link booster (P/N MX-RPTR).
- The drain/shield wire must be maintained throughout the control link. Do **not** connect the shield to earth/ground.
- Refer to the system installation guide and Lutron job drawings for power cable and data cable (control link) wiring restrictions and limitations.
- Control link requires a link terminator (LT-1) at each end of the control link. Refer to the LT-1 instruction sheet for location and installation information.

Wallstation circuits are classified as Class 2 circuits (USA) and PELV circuits (IEC). As Class 2 circuits, they comply with the requirements of NFPA® 70, National Electrical Code® (NEC®). As PELV circuits, they comply with the requirements of IEC 60364-4-41, VDE 0100 Part 410, BS7671:1992, and other equivalent standards. When installing and wiring to these wallstations, follow all applicable national and/or local wiring regulations. External circuits connected to input, output, RS232, DMX512, and other communication terminals of wallstations must be supplied from a listed Class 2 source or comply with the requirements for PELV circuits, as applicable in your country.



CAUTION!

- Read all instructions carefully before starting installation.
- Lutron recommends that wallstations be installed by a qualified electrician.
- Do not connect high-voltage power to low-voltage terminals. Improper wiring can result in personal injury or damage to the control or to other equipment.
- Use only a cloth with warm water and mild soap to clean faceplates (no chemical cleaners).

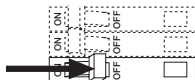
Installation



Warning! Always turn OFF the circuit breaker/MCB or remove the main fuse from the power line before doing any work. Failure to do so can result in serious personal injury.

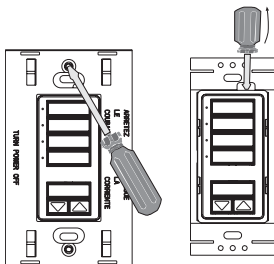
Prewiring: The control links require special wiring considerations. Refer to the system installation guide and Lutron job drawings for wiring restrictions and limitations that apply to your specific project.

1. **Turn Power OFF.** Turn power OFF at circuit



breaker/MCB (or remove fuse).

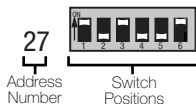
2. **Mount Wallbox.** Mount standard U.S. 1-gang wallbox, 2.75 in. (70 mm) deep (available from Lutron; P/N 241-519). Check availability outside the U.S.
3. **Prepare Wallstations.** Remove the faceplate, adapter (for insert version), and button assembly from the wallstation to access the address switches.



4. **Address Wallstations.** Address all wallstations on the control link. Refer to Lutron job drawings for any preassigned job-specific address for each control. For proper system operation, each wallstation on a link **must** have a unique address. For the maximum number of wallstations per control link, please refer to the system installation guide.

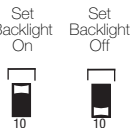
Please refer to page 2 of this installation guide for the correct positions of the switches for each system address. For systems with up to 32 wallstations on the control link, set switches 1-5 to one of the positions (1-32) illustrated in the figure.

For example, to assign the wallstation to address 27, set the switches as follows:



Note: Switches 7, 8, and 9 are factory-set to define the control type.

5. **Set Backlight Option.** Your wallstation is factory-set for the backlight to be on. Set the backlight for on or off using switch 10.

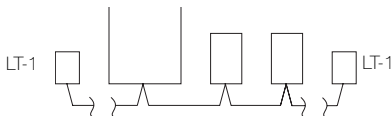


6. **Prepare wires.** Strip insulation from wires so that 3/8 in. (9.5 mm) of bare wire is exposed.



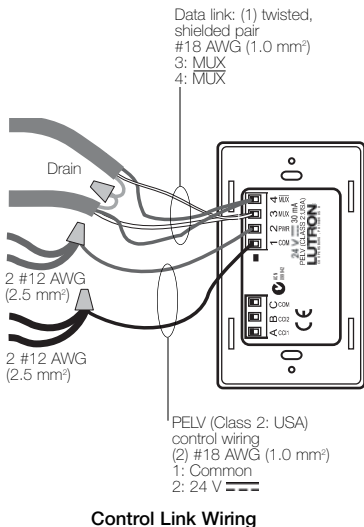
Each wallstation terminal accepts up to two #18 AWG (1.0 mm²) wires.

Note: Wiring must be done in a daisy-chain and 1-to-1 configuration, as shown below.



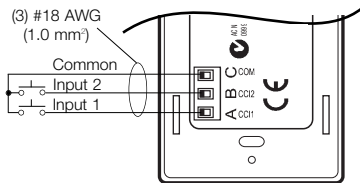
Control link requires a link terminator (LT-1) at each end. Refer to the LT-1 instruction sheet for location and installation.

7. **Connect the Wallstation to the Control Link.** Connect two #18 (1.0 mm²) shielded, twisted pair wires to terminals 3 and 4 of the wallstation's control link connector. Shielding (drain) of the twisted pair wires must be connected together as shown, but do not connect the shielding to earth/ground or the wallstation. Two #12 AWG (2.5 mm²) power wires will not fit in the terminal blocks; however, #12 AWG (2.5 mm²) is necessary due to voltage drop on the wire. Use wire connectors and #18 AWG (1.0 mm²) wire to make the connections in the wallbox, as shown at right.



Note: Use the wire connector required by local code (those shown are common in the US).

8. **Connect the Wallstation to external contact closure inputs (optional).** If using one contact closure input, connect the input to terminal A of the wallstation sensor/contact closure input connector. If using two contact closure inputs, connect the inputs to terminals A and B. Connect the common side of the contact closure inputs to terminal C.

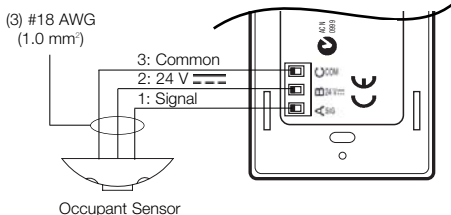


Contact Closure Input Wiring

Notes for Contact Closure Inputs:

Verify compatibility of external contact closure input devices. The contact closure inputs can be used with either dry contact closures or ground-referenced solid-state outputs. If the output is a dry contact closure, the contact must be rated for 10 V $\overline{\text{---}}$ and 0.5 mA. If the output is solid-state, the output must be an open collector configuration (NPN) with an on-state saturation voltage of less than 2 V $\overline{\text{---}}$ at 0.1 mA and an off-state leakage current of less than 50 μA at 5 V $\overline{\text{---}}$. The outputs must stay in the closed or open states for at least 40 msec in order to be recognized by the wallstation. If there is any question as to whether the device is compatible with these specifications, contact the manufacturer.

9. **Connect Wallstation to Occupant Sensor (optional).** Some *seeTouch* wallstation models are capable of supplying power for and receiving a control signal back from a 24 V $\overline{\text{---}}$ occupant sensor. Connect the three occupant sensor wires to the sensor/contact closure input connector as shown.



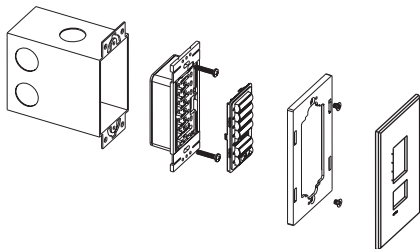
Occupant Sensor Wiring

Notes for Occupant Sensors:

- When using non-Lutron occupant sensors, verify compatibility of sensor signal output (dry contact closure or solid-state output). If the output is a dry contact closure, the contact should be rated for 20 V $\overline{\text{---}}$ and 0.5 mA. If the output is solid-state, the output must be an open collector, an active-high, or an active-low configuration. The solid-state output must be less than 6 V $\overline{\text{---}}$ when pulled low and greater than 18 V $\overline{\text{---}}$ when pulled high. The solid-state output must have an off-state leakage current less than $\pm 60 \mu\text{A}$. The output must stay in the closed or open states for at least 40 msec in order to be recognized by the wallstation. If there is any question as to whether the occupant sensor is compatible with these specifications, contact the manufacturer.

Notes for Occupant Sensors (continued):

- The total current drawn for the connected occupant sensor must not exceed 50 mA. An auxiliary power supply must be used if this rating is exceeded.
- One Lutron occupant sensor per control.
- For more information on installation and operation of the occupant sensor, please refer to the occupant sensor installation guide and the system installation guide.



Typical Mounting Diagram

10. **Mount Wallstation.** Carefully mount and align the wallstation as shown. Screw top and bottom screw into the control and wallbox. Replace faceplate, adapter (for insert versions), and button assembly.

11. **Turn Power ON.** Turn ON control breaker, replace main fuse, or attach the wallstation link to the processor.

Troubleshooting

Symptom

Cause

LEDs are blinking in unison every few seconds.

- Miswire or loose connection at the control link data lines 3 and 4.
- LT-1 is not installed at the ends of the control link.

Wallstation buttons do not work.

- Wallstation is incorrectly addressed.
- Wallstation has not been programmed or has been programmed incorrectly in the processor or controller.

LEDs do not light.

- Miswire or loose connection at wallstation(s) or processor on the control link common and power connections 1 and 2.

Contact closure inputs or sensor input do not produce the desired result in the system.

- Miswire or loose connection at wallstation sensor/CCI connector.
- Wallstation is incorrectly addressed.
- Wallstation has not been programmed or has been programmed incorrectly in the processor or controller.

Contact and Warranty Information

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LIMITED WARRANTY

Lutron will, at its option, repair or replace any unit that is defective in materials or manufacture within one year 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. *This warranty is in lieu of all other express warranties, and the implied warranty of merchantability is limited to one year from purchase. This warranty does not cover the cost of installation, removal or reinstallation, or damage resulting from misuse, abuse, or improper or incorrect repair, or damage from improper wiring or installation. This warranty does not cover incidental or consequential damages. Lutron's liability on any claim for damages arising out of or in connection with the manufacture, sale, installation, delivery, or use of the unit shall never exceed the purchase price of the unit.*

This warranty gives you specific legal rights, and you may also have other rights which vary from state to state. Some states do not allow limitations on how long an implied warranty lasts, so the above limitation may not apply to you. Some states do not allow the exclusion or limitation of incidental or consequential damages, so the above limitation or exclusion may not apply to you.

These products may be covered under one or more of the following U.S. patents: 4,835,343; D436,930; D453,742; D456,783; D461,782; D465,460; D465,770; D466,090; D466,091; D466,484; D475,024; D475,025; D490,061; and corresponding foreign patents. U.S. and foreign patents pending.

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