

Troubleshooting a Stuck Switch

Troubleshooting a stuck switch strictly occurs on the low voltage side of the system. Low voltage is safe to work with; however, we strongly recommend hiring an electrician if you have little or no electrical experience.

To troubleshoot, follow the steps listed below:

1. **Check the output voltage.** If you have a stuck switch, the transverter will feel warm (even hot) to the touch. Use a meter to confirm that this is the problem. The transverter will read between 0.1-5.0 VDC if there is a stuck switch. If you read 0 VDC, the transverter is dead and you will need to replace it before continuing to Steps 2-6.
2. **Isolate the problem relay/load.** Disconnect the switch common wire on the low voltage side of the transverter (labeled "switch"). There should be a bundle of wires connected to this "switch" wire. After the wire nut is removed and the bundle of wires disconnected, systematically tap the wires one at a time to the transverter's "switch" wire. Doing this will complete the circuit without the need of the wall switches. The common wire that contains the stuck load will cause the relay to click when it is touched to the transverter. To determine the location of the stuck switch, follow one of the options below, based on the system's set up:
 - **Relays are labeled as to what they control.** If there are multiple low voltage switch legs in the problem wire run found above, you will need to isolate the wires to determine which relay is the problem. This is simply done by tracing the wires to each relay that is connected. Once the relays on the run have been determined, continue tapping the common wire to the transverter so the relay clicks with each tap. Follow the sound/vibration of the relay to locate which one it is and what it controls.
 - **Relays are not labeled as to what they control.** If none of the relays are labeled as to what they control, you will need a helper to complete this step. As said in Step 2 above, the stuck load will cause the relay to click with each touch of the common to the "switch" wire of the transverter. As the problem relay clicks, the corresponding room light will turn ON and OFF. Your assistant can be in the home, walking around to locate the room that is flashing ON and OFF in correspondence to your wire tapping at the panel.
3. **Disconnect the problem switches controlling that light.** Now that the location of the stuck switch has been determined, disconnect the switches that control this room light. As the units are disconnected, be sure that the resulting bare wire ends are kept from touching.
4. **Power up the system.** After the problem switches are disconnected, reconnect all of the low voltage commons to the "switch" wire of the transverter. As the connections are made, no relay clicking sounds should occur. At this point, the system should be restored and the rest of the switches should operate freely.

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5. **Verify the voltage of the transverter.** A stuck switch causes the transverter to overheat which weakens it overtime and will eventually cause it to fail. After the stuck switch is removed, it is important to ensure the transverter is still putting out proper voltage. With a meter, check the output voltage. The system requires the transverter to put out a minimum of 28.5 VDC to operate. If the transverter reads a lower output, the unit will need replaced to fully restore the system. If the transverter reads between 0.1 and 5.0 VDC, then the stuck switch has not been resolved. This means there could be a switch controlling the room light that was missed when the others were disconnected or there could be another stuck switch present. Go back to Step 2 and repeat, going through every low voltage common and repeat the steps for each wire that shows a stuck relay.
6. **Replace the faulty switches.** The switches that were disconnected in Step 3 need to be replaced to ensure this problem does not happen again. Make sure to replace with Touch-Plate or similar 2-wire, contact closer type switches to ensure compatibility.

Feel free to contact us with any questions.

Common Questions

What is a stuck switch? A switch is defined as “stuck” when, after the initial button press occurs, the button fails to resume its normal neutral position. It remains in the engaged state, similar to if one was holding the switch down with his finger. This causes a continuous signal being sent to the transverter, which in turn, continues to power the corresponding relay. Since the transverter is now devoted to powering this one light, no other lights in the building will operate. All lights will be frozen in their last state until the issue is resolved.

Why does it occur? The most common cause is normal wear and tear. After many years of use, the switch parts can become worn. The button does not spring back as freely as it should and sometimes gets stuck in the depressed position. Other causes are switches that have been painted or wall-papered. The extra material coating the switch and cover decreases the amount of space for the button to move and often causes it to stick.

How can I keep from getting a stuck switch? Keep your switches in excellent condition. Make sure they are clean and never paint or wallpaper them. If over time you notice a switch seems to press a little differently (the button may feel “mushy” as the parts wear, it may tend to stick on one corner, etc), replace it immediately. Keeping the switches in good order will help to eliminate this problem.