

# LOC3 Detector Output Type Selection

The LOC3's two detector outputs can connect to other equipment using one of two interface configurations. In order to choose the right one, you'll need to know what your equipment expects.

This guide describes the interfaces and how to configure the LOC3 for each. A few of the terms are technical, but hopefully your equipment's user instructions uses similar terms.

The LOC3 is designed with “optically-isolated” outputs on the detection outputs. This is known as an “**isolated**” output. But if the equipment connecting to these outputs has its own optical isolator, these isolators must be omitted in the LOC3. This is a “**direct**” output.

If you order the LOC3 *kit*, you will choose the appropriate components for isolated or direct outputs when you assemble the circuit board. But if you order the *assembled* LOC3, those components must be selected and installed before the LOC3 is shipped to you.

If you are ordering an *assembled* LOC3 at <http://electronics.mdodd.com/loc3.html>, use the information below to determine the output type (isolated or direct) needed for the LOC3 to work with your equipment, then specify that output type in the drop-down list near the Add to Cart button. You don't have to do this if you're ordering a LOC3 *kit*.

**Are you connecting the LOC3 to an SYC2 or SYC3 Staging Yard Controller?** The SYC has its own optical isolator, so if you are interfacing to an SYC2/SYC3, specify the **direct** output type.

If you plan to connect the LOC3's two outputs to two different equipments, or you have questions, select the **Contact me** option on the drop-down list, and I will send you an email before assembling your LOC3.

## Isolated output

Refer to Figure 1. Here, your equipment does not contain an optical isolator, so the LOC3 must have one. Making a connection between the “+” and “-” pins on your equipment signals an “occupied” state, and this is exactly what the LOC3 does.

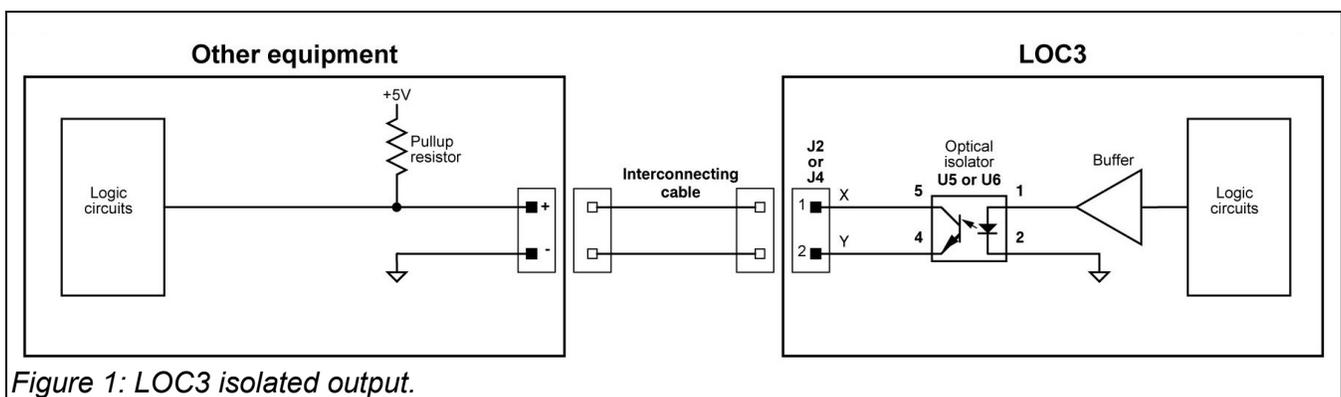


Figure 1: LOC3 isolated output.

If your equipment's instructions say that it can connect to an “open-collector transistor” or “relay contacts,” then the LOC3 needs the *isolated* output. This “open-collector” or “relay contacts” interface is very common. Just be sure that your equipment expects a circuit *closure* to signal “occupied.”

## Direct output

Refer to Figure 2 on the next page. Here, the other equipment *does* contain an optical isolator. Since one isolator cannot feed another without additional components, we must replace the LOC3's isolator

with jumper wires.

It is more common for other equipment to *not* have an isolator, but having one, like the SYC3, is better practice. The isolator protects the delicate logic circuits from voltage spikes that might be picked up by the cable between the LOC3 and the equipment. Without the isolator, the spikes are fed directly into the logic circuits. The LOC3 has a buffer, so *its* logic circuits are protected in the direct output configuration.

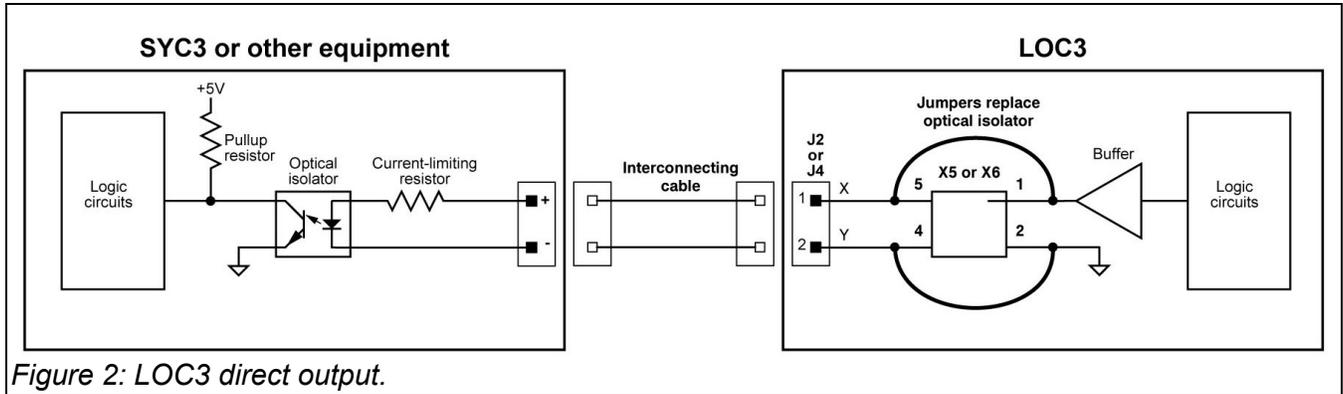


Figure 2: LOC3 direct output.

With the direct output, the LOC3 applies approximately +5V to pin 1 of J2 or J4 to signal “occupied,” and 0V (connected to common) to signal “vacant.” Verify that your equipment will work with these voltage levels, and doesn’t require some other voltage like 9V or 12V. The LOC3 has no provision to produce a different voltage or a negative voltage. Also, the +5V “occupied” signal is not capable of actuating an external relay.