

LightLEEDer Fire Alarm Override Programming Technical Bulletin

This Technical Bulletin will outline the programming required for a Fire Alarm Override operation using conditional programming. This may be required of an Emergency power or Normal power LightLEEDer panels and is part of the requirements outlined in NFPA 7.8.1.2.2 for a UL924 listed Emergency lighting controller.

The Objective is to Override the EM lighting relays in the ILC panel to an ON state, and hold them ON, blocking other control commands during the Fire Alarm event based on a maintained contact closure from the Fire Alarm system. This does not block any UL924 power loss events from also forcing EM load relays ON. This Override will continue to hold them ON after a power loss and after normal power has been restored if the fire alarm output signal is still closed. As part of NFPA requirements, the Dimmer outputs are set to go to a high level adequate for egress lighting.

Required Hardware:

One of the LightSync Input Modules which include the LSIM, LSCIM, LSOSI, LSOS8I, or LSCOS8I that can accept a dry contact-maintained type 2-wire closure from the Fire Alarm system.

Overview:

During a fire alarm event, the Fire Alarm system sends a normally open maintained dry contact closure to one of the LightSync Input Modules inputs, or multiple inputs if more than one zone is required. This will override the lights ON and set the dimming to the required egress level in all the panels as desired. The LightSync Input Module is typically mounted directly in the ILC EM relay panel or can be remotely mounted.

Fire Alarm Override Operation Programming:

The input is programmed as a Maintained ON/Off type and in this example, we will use “LightSync Device 03” set as a “Type 4 Input”, and then input 1 will be set as a “Type A: Maintained On/Off” as shown in Figure 1.

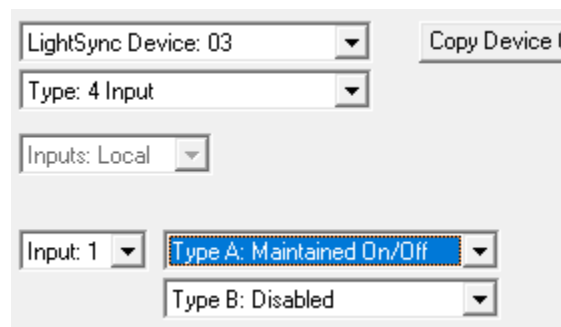


Figure 1

The next step is to create the Conditional Logic sequence to support the Fire Alarm Override operation which is done in the “**Relay Output Options**” programming area and on a relay-by-relay basis.

First, choose the relay to be overridden, in our example, we are operating Panel Node: 01, Relay: 01 (**RLY:01.01**).

Next, go to “**Conditionals – Force Relay On**” and select Condition A to be an “**ON In Closed**” for an ON Input to be closed as the action, then select the “**Node 01**” for the node the device is connected to, then “**Device 03**”, “**Input 1**” that was configured in Figure 1.

At the bottom of the screen, you will set the Priority for **1st = On**, **2nd = Off**, **3rd = Hold** to insure the On operation has priority, see Figure 2.

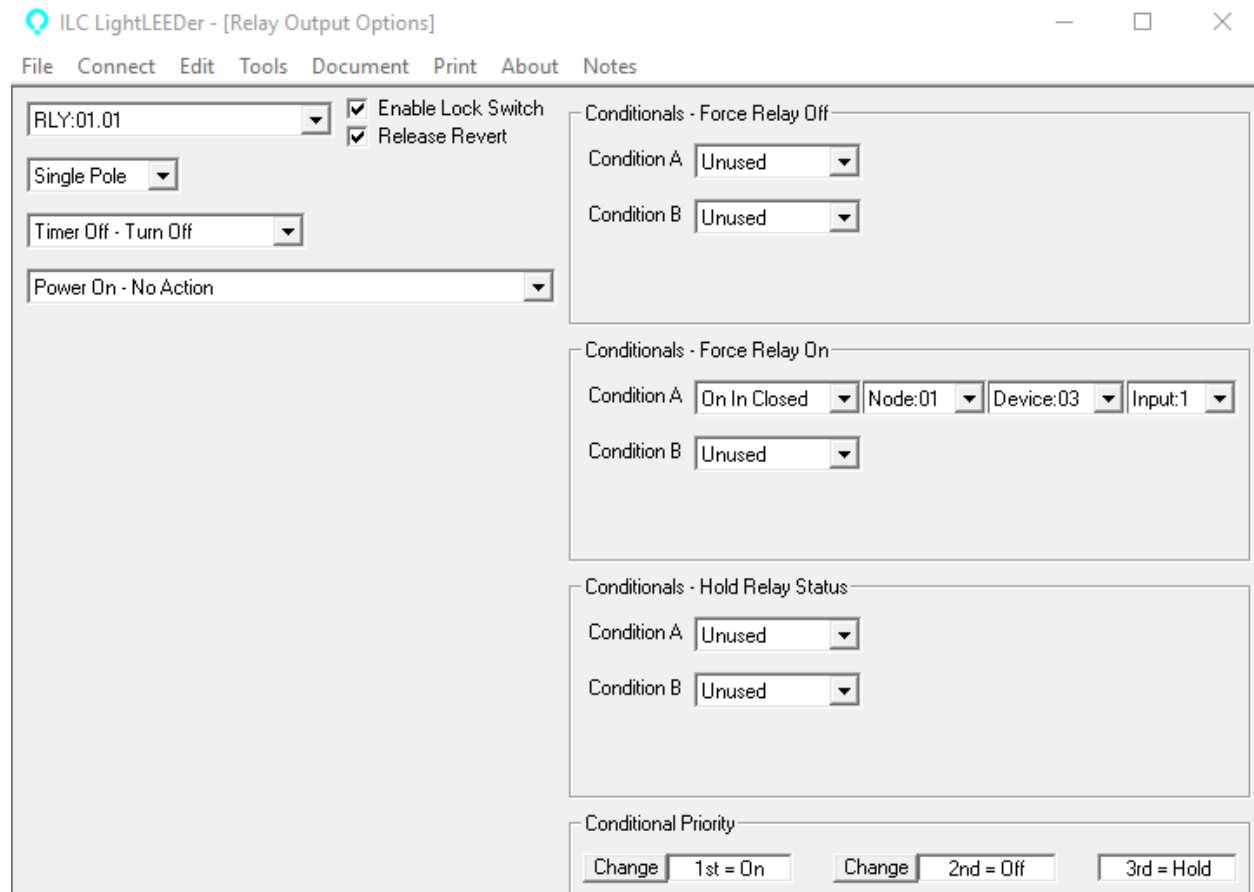


Figure 2

This conditional operation will take priority over all other commands to keep the relay in an ON override state and if the panel loses power and is then re-energized this operation will be checked during start-up and will continue to take priority. Other conditions can be an “Override OFF”, or to “Hold Relay State” and may be needed for shedding power or holding the current state based on building use.

The conditional control can also be set to track 2 inputs which in this case you would use condition A and Condition B and will be asked if this is a “Logic: AND” requiring both closures to trigger an action, the “Logic: OR” type condition will trigger with either closure. This can be used for alarm zoning or if more than one alarm system is used for an override of the relays, see Figure 3.

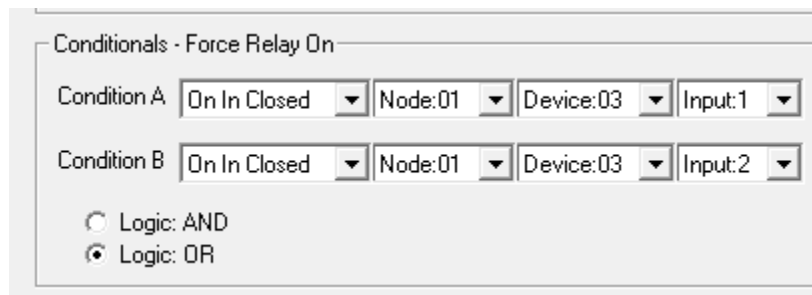


Figure 3

If more than 2 input conditions are required, an LSCIM or LSCOSI module is required and will support multiple conditional statements within the conditional input module before sending the closure command to the panel. Refer to the LightSync Expanded Conditional Input Module Software Manual for additional programming information.

If the Fire Alarm system can only provide a Normally Closed output that open when alarmed (often referred to as a supervised output) then the Condition can easily be changed by using an “On Input Open” rather than the “On Input Closed” condition shown above in Figure 3

You may also want to check the “**Release Revert**” option at the top, this will capture a last state of the relay before entering the conditional override and return it to that state when the conditional override is no longer true. This is important for public area lighting that may be controlled by a timer or switch input, where the area may have been ON or OFF before the fire alarm event and you would like the relay to return to the previous state as the alarm is cleared.

With the release revert option selected the panel will also scan for a currently maintained input closure(s) such as an occupancy sensor input and consider it the previous state for return, this is important in corridors where the area was vacant before the fire alarm event but is now occupied as the alarm is cleared returning the load to the occupied ON state.

There is also a Power-On option that may be used for setting a change of state after a power-up to the panel CPU and the default is “**Power On - No Action**”. The panel can be set to scan an input after power-up, commonly used for an occupancy input maintained closure. In this example I have selected “**Power On – On If Input Closed**” for LightSync **Device: 05, Input: 4** as the occupancy input, See Figure 4.

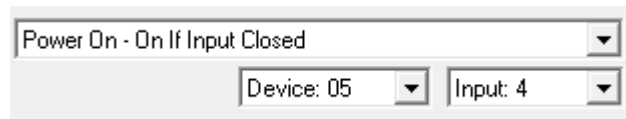


Figure 4

To Meet NFPA requirements the dimmer output must also go to a level adequate to provide egress lighting with the Emergency lighting fixtures during a Fire Alarm event. If the lights have dimming control, then you can set a command in the dimmer control area to change the dimming level with the closure from the Fire Alarm system.

The Fire Alarm Override input uses Command Option 6 and will set the Dimming to 100%, the dimmer level can be adjusted to any % needed to maintain egress lighting, See Figure 5.

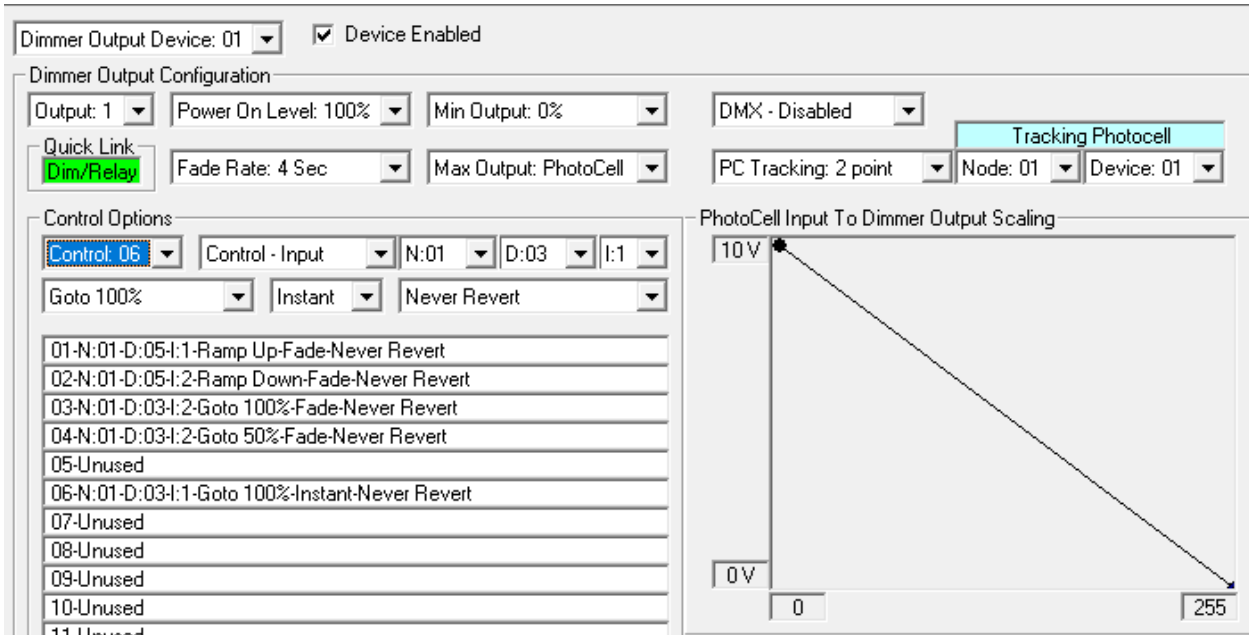


Figure 5

In this example, an LS-G3 MZD station has Ramp Up/Down control with Command Options 1 and 2 and a corridor occupancy sensor input will set the dimmer to 100% on occupancy and 50% when the corridor is vacant, and the sensor opens (set as a “Control - Invert Input”) using Command Options 3 and 4.

Note: The ILC dimmer outputs will automatically open the 0-10VDC dimming control circuit, sending a dimming fixture to 100% when a dimmer module or relay control is lost during a power outage. The dimmer output will also have a “Power-On Level: 100%” command as a default for when power is returned to the controller.

If the Fire Alarm is using a normally closed output, then the Control Option 6 can be set for “Control – Invert Input” to trigger when the input opens, as shown in Figure 6.



Figure 6