

PoE EMERGENCY INTELLIDRIVE



This Instruction Manual provides instructions on how to connect a GENISYS PoE IntelliDrive to transform it into a GENISYS PoE Emergency IntelliDrive providing Emergency Lighting Control Functions within a GENISYS PoE Lighting System.

IMPORTANT SAFEGUARDS

READ AND FOLLOW ALL SAFETY INSTRUCTIONS.

- Do not use outdoors.
- Do not let connected cables touch hot surfaces.
- Do not mount near gas or electric heaters.
- Equipment should be mounted in locations and at heights where it will not readily be subjected to tampering by unauthorized personnel.
- The use of accessory equipment not recommended by the manufacturer may cause an unsafe condition.
- Do not use this equipment for other than intended use.
- Installation and servicing should be performed by qualified personnel.
- The supply connections of the communication cables with RJ45 fittings should be installed where access is restricted to authorized personnel.
- The connections from the Emergency Source of Power and the PoE Midspan must be secure and installed where access is restricted to authorized personnel.
- For use in 0 °C minimum, 50 °C maximum ambient temperatures.
- Installation must comply with local codes, the NEC, and NFPA 101.

SAVE THESE INSTRUCTIONS

Description and Operation

PoE Emergency IntelliDrive

The GENISYS PoE IntelliDrive is a PoE Powered Device (PD) that regulates power from PoE Power Sourcing Equipment (PSE) and distributes it to LED light fixtures and various control accessories. It also processes information from and to the PSE and control accessories enabling the GENISYS software to provide control of the lighting system and gather performance data on the lighting system.

The GENISYS PoE IntelliDrive has two operating modes (states):

- (1) Normal lighting mode
- (2) Emergency lighting mode

When properly connected to a Network Switch, a PoE Midspan with an Emergency Power Source, and designated Emergency LED Light Fixtures, the GENISYS PoE IntelliDrive becomes a GENISYS PoE Emergency IntelliDrive, an Emergency Lighting Control Device (ELCD) providing the following Emergency Lighting Control Functions (ELCFs) in a GENISYS PoE Lighting System:

- Interpreting a normal power status signal to determine if the system should operate in a normal power state or an emergency power state. The Network Switch employs *link signaling* to negotiate and maintain a data connection with other equipment on its network. The GENISYS PoE Intellidrive employs a Link Monitor process (reference IEEE 802.3 Clause 24) to determine the presence or absence of this *link signaling*, which serves as the normal power status signal. The presence of *link signaling* indicates normal power status, while the absence of *link signaling* indicates a loss of normal power.
- Controlling the light output level of the Emergency LED Light Fixtures depending on if the system is in a normal power state or an emergency power state. Refer to the section Emergency LED Light Fixture Selection for instructions on how to achieve light levels for compliance with the applicable code (e.g., NFPA 101).
- Distributing normal power to the connected Emergency LED Light Fixtures when in a normal power state or emergency power when in an emergency power state.

Additional System Components

Network Switch

The Network Switch, either PoE or non-PoE, provides data to be transferred between the GENISYS software and the PoE Emergency IntelliDrive. The Network Switch also provides *link signaling* which is inherent to all network switches to negotiate and maintain the data connection to other network equipment. This *link signaling* is the normal power status signal to the PoE Emergency IntelliDrive. When normal power is interrupted, the Network Switch ceases sending *link signals* and the PoE Emergency IntelliDrive recognizes that the system has entered an emergency power state.

PoE Midspan and Emergency Source of Power

The PoE Midspan passes the data between the Network Switch and the PoE Emergency IntelliDrive. Additionally, it adds (injects) PoE power to its output for supplying the PoE Emergency IntelliDrive. The PoE Midspan is supplied normal power from the normal source of power for normal mode operation. Additionally, the PoE Midspan is supplied emergency power from the Emergency Source of Power for emergency mode operation, such that it provides emergency power to the PoE Emergency IntelliDrive when normal power is disrupted.

Emergency LED Light Fixtures

Emergency LED Light Fixtures are supplied power and are controlled by the PoE Emergency IntelliDrive like any other LED light fixture when in the normal power state. In an emergency power state, the Emergency LED Light Fixtures are driven at 20% of their full output power level, independent of their ON/OFF/Dim state at the time of loss of normal power. Refer also to “Emergency LED Light Fixture Selection.”

Installation / Wiring Diagram

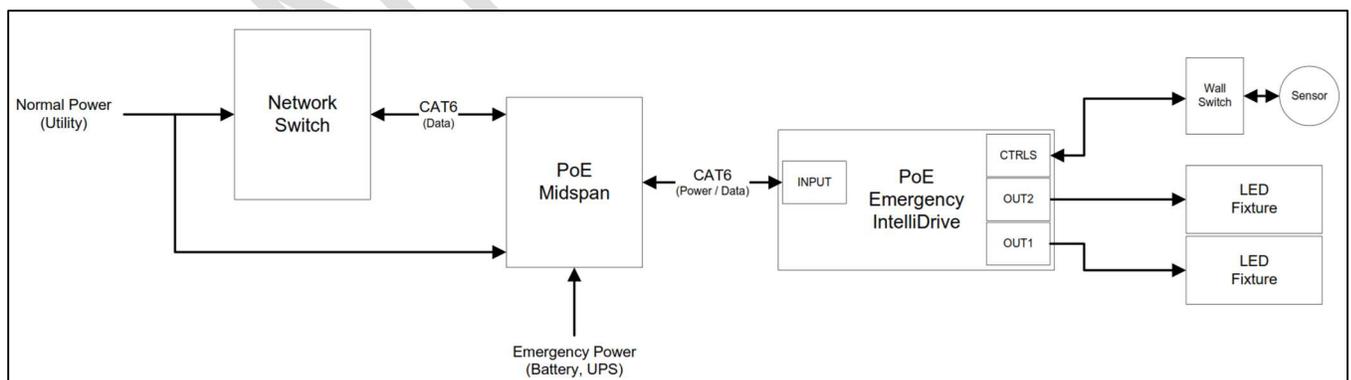


Illustration 1



Installation

Refer to Illustration 1.

- 1) Mount the PoE Emergency IntelliDrive by the mounting tabs. The PoE Emergency IntelliDrive should be located and positioned nearby the Emergency LED Light Fixture such that the output cables do not exceed 3m (10 ft.) in length. Ensure that the PoE Emergency IntelliDrive is fastened securely in place.
- 2) Connect the Network Switch to normal power. DO NOT connect the Network Switch to an Emergency Power Source, such as an uninterruptable power supply (UPS) or battery backup inverter, as the Network Switch must be able to directly sense the status of normal power and provide the proper normal power status signal.
- 3) Connect the PoE Midspan to normal power and to an Emergency Power Source (battery, UPS).
- 4) Connect the Network Switch ports intended for controlling Emergency LED Light Fixtures to input ports on the PoE Emergency Midspan with CAT6 cables.
- 5) For each input port of the PoE Emergency Midspan connected to the Network Switch, connect its corresponding output port to the input port of a PoE Emergency IntelliDrive with a CAT6 cable not to exceed 100m (328 ft.) in length.
- 6) Connect the Emergency LED Light Fixtures to the output ports of the GENISYS PoE Emergency IntelliDrives with category cables not to exceed 3m (10 ft.) in length.
- 7) Connect any GENISYS PoE control accessories (Wall Switch, Motion Sensor) that are intended to be operational under normal power to a PoE Emergency IntelliDrive CTRLS port.
- 8) Place an “EMERGENCY CIRCUITS” label on each GENISYS PoE Emergency Intellidrive.

Operation

The GENISYS PoE Emergency IntelliDrive and its attached Emergency LED Light Fixtures and GENISYS PoE control accessories can be commissioned and operated like any GENISYS PoE IntelliDrive and GENISYS PoE Lighting System. There is no additional software configuration or settings required for the GENISYS PoE Emergency IntelliDrive to operate within a GENISYS PoE Lighting System.



Maintenance

The GENISYS PoE Emergency Intellidrive does not require any routine maintenance.

The Emergency Lighting in a GENISYS PoE Lighting System should be tested periodically as specified in NFPA 101: "Life Safety Code." A monthly test should be conducted for 30 seconds, and an annual test should be conducted for 90 minutes.

The Emergency Lighting can be tested as follows:

1. There are three methods that can be used to place the GENISYS PoE Emergency IntelliDrive into Emergency Lighting mode.
 - a) Using a connected computer terminal to the Network Switch, "shut off" the individual Network Switch port that communicates with the specific PoE Emergency Intellidrive under test, or
 - b) Disconnect (unplug) the CAT6 cable between the Network Switch port and the PoE Midspan that communicates downstream with the specific PoE Emergency Intellidrive under test, or
 - c) Remove normal power from the Network Switch.
2. Verify the Emergency LED Light Fixtures transition to their emergency light level within 10s.
3. If normal power has not been removed from the PoE Emergency Midspan simultaneously with the Network Switch, remove normal power from the PoE Emergency Midspan. Verify the Emergency LED Light Fixtures remain on for the duration of the test.
4. Restore the normal power status signal to the Network Switch by reversing one of the methods identified in step 1.
5. If normal power has not been restored to the PoE Emergency Midspan simultaneously with the Network Switch, restore normal power to the PoE Emergency Midspan.
6. Once communication has been restored to the PoE Emergency Intellidrives, verify the Emergency LED Light Fixtures can be controlled via the GENISYS PoE Lighting System.

Emergency LED Light Fixture Selection

Light fixtures that are selected to be Emergency LED Light Fixtures must be able to provide the level of illumination required by NFPA 101: "Life Safety Code" when operating at 20% of their rated power at their installed height.

The GENISYS PoE Emergency Intellidrive has two 2.1A maximum constant current outputs and can provide a maximum of 48W between the two outputs over an output voltage range of 20.5V to 25.5V. Emergency LED Light Fixtures must be compatible with these specifications.



Lighting design software can be used with certified .ies files for the Emergency LED Light Fixtures to verify that the illumination requirements in the emergency power state will be met at their intended installation height.

It is ultimately the responsibility of the Designer/Specifier to ensure that the LED light fixtures that are selected and installed as Emergency LED Light Fixtures in a GENISYS PoE Lighting System assure the regulatory compliance of that system.

Emergency Power Source Selection

The Emergency Power Source for the PoE Emergency Midspan must be able to provide the power needed to operate the PoE Emergency Midspan, the connected PoE Emergency IntelliDrives, the connected Emergency LED Light Fixtures operating at 20% of their rated power, and any connected PoE control accessories for a minimum of 90 minutes.

For example, in emergency mode, to operate one GENISYS PoE Emergency Intellidrive with a load of two 23W Emergency Light Fixtures each operating at 20% of their rated power (4.6W each) and estimating the losses in the Intellidrive at 15%, the Emergency Power Source would need the capacity to deliver a minimum of 10.8W. Estimating system losses for the PoE Midspan and cabling at another 15% and including an advisable 15% engineering margin, the minimum capacity would increase to 15W, or 22.5Wh, since this must be supplied for a minimum of 1.5 hours. The total capacity of the Emergency Power Source should be selected considering the total number of GENISYS PoE Emergency Intellidrives used for the system. If the Emergency Power Source was supplying five 24-port PoE Midspans, with each port connected to a PoE Emergency Intellidrive, 120 total, and using the estimates above, the Emergency Power Source would need a minimum rating of 1800W, or 2700Wh. Assumptions and estimates should be carefully considered on a case-by-case basis.

It is ultimately the responsibility of the Designer/Specifier to ensure that the Emergency Power Source selected and installed in a GENISYS PoE Lighting System assures the regulatory compliance of that system.

Additional Resources

Additional resources for installing, commissioning, and operating a GENISYS PoE Lighting System can be found at www.genisyslighting.com.