

Igor® PoE Emergency Mode Linear Device Node—Max

Model: ND60-99-T-F-EM

Igor Network and Device Nodes provide the data connectivity and power distribution architecture to create a fully functioning PoE lighting control system. The Igor Gateway software communicates bi-directionally with the Nodes to control lighting for each Space, as well as to receive signals from sensors and other devices to improve occupant comfort and optimize energy savings.

Emergency Mode Linear Nodes

Igor Emergency Network Nodes (*-EM) are a key component to installing a Power over Ethernet emergency lighting system. These Nodes are UL 924-FTBR listed for use as emergency LED drivers. When combined with a central emergency power source such as a generator, inverter or UPS*, they provide a fully code compliant emergency lighting solution. During normal operation, these Nodes offer full range dimming and control of the LED fixtures and automatically switch into emergency lighting mode when normal building power is lost.

In addition to the emergency lighting functionality, Linear Network Nodes act as an intelligent hub for the PoE lighting network. They receive power and data from the PoE network switch, interact with connected devices, and pass power and data downstream to any daisy-chained Device Nodes via the Igor Bus. As LED fixtures and sensors are connected and configured, the Node will automatically report those devices back to the Igor Gateway software for easy plug and play functionality. Each Network Node is also DHCP-enabled and will automatically receive an IP address from the local network to simplify installation and setup.



Product Specifications

Specifications subject to change without notice.

| Item | Model: ND60-99-T-F-EM | Igor PoE Emergency Linear Device Node—Max |
|------------------------|-----------------------|--|
| Electrical | Igor Bus Interface | Low voltage power and data interface with auto-discovery of downstream devices for connecting multiple Igor Nodes in a daisy-chain configuration |
| | Input Voltage | 44-57VDC |
| | Peak Operating Power | 99W max |
| | Nominal Standby Power | 2.0W |
| | Igor Bus Connection | Two unshielded female RJ45 jack for use with CAT5e/6/6A cable to Igor Network or Device Nodes |
| | Node Power Monitoring | Node energy data is automatically sampled every minute and stored in the Igor Cloud Portal. Accuracy: $\pm 3\%$ |
| | Device Type | Class 2 electrical device |
| LED Driver Outputs | Output Channels | Flexible configuration options for up to two (2) individual white fixtures or one (1) tunable white fixture |
| | Driver Design | Constant current LED driver design, programmable in 10mA increments from 100mA to 2000mA. |
| | Dimming | Full Range dimming control from 1% to 100% in increments as fine as 0.01%. Multiple dimming modes including Analog CCR (constant current reduction), PWM and Hybrid (CCR & PWM) mode. |
| | Output Voltage Range | 12-48VDC |
| | Rated Output Power | 75W per channel; 80W max total for both channels |
| | Protection | Short circuit and open circuit protection |
| | Connections | Spring cage terminals accept 16-24 AWG conductors. Luminaire LED engine circuits MUST be isolated; MUST NOT have an electrical path to Ground or to the luminaire housing. Common anode and common cathode circuit designs are not supported by this Node model's LED drivers. |
| Emergency Operation | LED Driver Output | Default Level: 100% (adj.) |
| Sensor I/O Connections | Power Supply | One +24VDC terminal for powering external sensors, 150mA total capacity shared between Sensor I/O and RS-485 Serial Bus connections |
| | Sensor Inputs | Three inputs, which can be individually configured via software, for the following signal types: Analog: 0-10VDC NPN: Dry contact PNP: 24VDC Active-Hi |
| | Connections | Spring cage terminals accept 16-24 AWG conductors |

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|------------------------------|--------------------------|--|
| USB Connection | Electrical Ratings | +5VDC / 0.5A / 2.5W |
| | Data Rate Supported | 12Mbit/sec |
| | Connection | USB 2.0 Type A Female |
| RS-485 Serial Bus Connection | Power Supply | +24VDC, 150mA total capacity shared between RS-485 Serial Bus and Sensor I/O connections |
| | Communication | RS-485, Half-Duplex, 115.2Kbaud |
| | Characteristic Impedance | 120 Ω |
| | Connection | Molex Micro-Latch™ 53254 Male Pin (mating plug is Molex 51065-0400) |
| PoE Power | Electrical Ratings | 44-57 VDC / 2.0A / 99W |
| | Connection | JST VH-Series B2P-VH-FB-B(LF)(SN) or equivalent |
| Environment | For indoor use only | |
| | IP Rating | IP20 |
| | Sound Rating | Class A |
| | Maximum Case Temp. | 85°C |
| | Operating Temperature | 0°C to 70°C |
| | Operating Humidity | 10% to 80% RH non-condensing |
| | Storage Temperature | -20°C to 85°C |
| Safety & EMC | Storage Humidity | 5% to 95% RH non-condensing |
| | Safety Standards | UL 2108, CAN/CSA C22.2 No. 9 UL 1598C, CAN/CSA C22.2 No. 250.0-08, CSA B-79A UL 2043, Suitable for Use in Air Handling Spaces (Plenum Rated) UL 924, CAN/CSA C.22.2 No. 141-15 - Emergency Lighting* *Emergency power source equipment must be UL 924 listed and adequately sized to provide minimum 90-minute runtime based on lighting load. |
| | Flicker | Compliance with IEEE 1789-2015 Recommended Practices for Modulating Current in High-Brightness LEDs for Mitigating Health Risks to Viewers. (Also see the " Flicker-Free LED Lighting Control " description, page 4.) |
| | EMC Emissions | Compliance to EN 55015:2013 |
| | EMC Immunity | Compliance to EN 61547:2009 |
| | FCC | Compliance to Title 47 Part 15 Subpart B Section 15.109 |
| Other | EU | RoHS Compliant |
| | Dimensions Overall | 14.13" (359mm) Length x 1.19" (31mm) Width x 0.69" (18mm) Height |

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|---------------|-----------------------|---|
| Other (Cont.) | Mounting Options | Enclosure design allows for multiple mounting orientations via two pairs of mounting holes at 90° angle from each other. Mounting holes are spaced 350mm apart. |
| | Origin | Made in USA |

Flicker-Free LED Lighting Control

IEEE 1789-2015 contains the IEEE Recommended Practices for Modulating Current in High-Brightness LEDs for Mitigating Health Risks to Viewers and essentially sets the standard for flicker-free lighting. Flicker can be caused by PWM dimming of the light source, including LEDs. Igor PoE Node LED drivers can be programmed for multiple dimming modes, including PWM dimming. Igor drivers implement their PWM dimming mode at a frequency of 1250Hz, which is within the IEEE 1789-2015 standard's "Recommended Operating Area."

Other Igor driver dimming modes include Analog CCR (Constant Current Reduction) dimming, which doesn't cause any flicker of the light source; and Hybrid dimming mode, which utilizes both Analog CCR and PWM dimming. In Hybrid mode, Analog CCR dimming is used at dimming levels >10% and PWM is used at levels <10% to offer very precise low level lighting control and smooth fade on/fade off functionality.

Remote Mounting

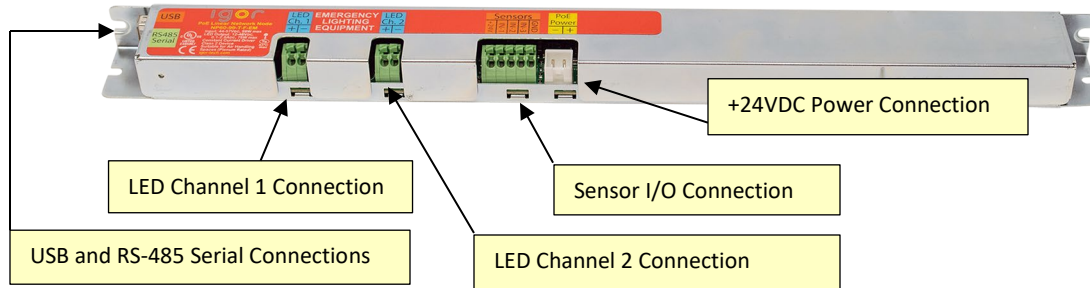
Applications that call for remote mounting of the Igor Nodes separate from the LED fixture are acceptable. Please follow the maximum wiring distances listed in Table A below when selecting an appropriate cable wire gauge.

| | | AWG Wire Size | | | | | | |
|---------------------|------|---------------|-----|-----|-----|-----|----|-----------------------|
| | | 12 | 14 | 16 | 18 | 20 | 22 | |
| Output Current (mA) | 350 | 900 | 566 | 356 | 224 | 141 | 89 | Max Cable Length (ft) |
| | 500 | 630 | 396 | 249 | 157 | 99 | 62 | |
| | 700 | 450 | 283 | 178 | 112 | 70 | 44 | |
| | 1000 | 315 | 198 | 125 | 78 | 49 | 31 | |
| | 1100 | 286 | 180 | 113 | 71 | 45 | 28 | |
| | 1400 | 225 | 141 | 89 | 56 | 35 | 22 | |
| | 1750 | 180 | 113 | 71 | 45 | 28 | 18 | |

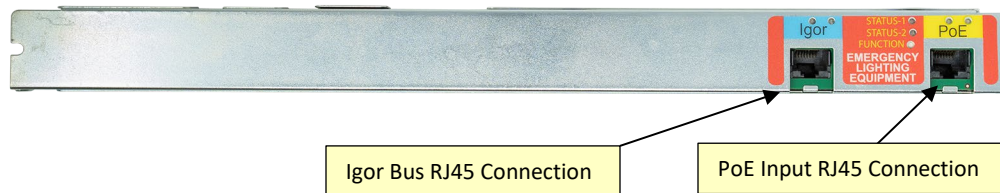
Table A. Max cable length (ft.) between Node and LED fixture (based on 1V drop)

Node Connections

Linear Emergency Device Max Node Top:



Linear Emergency Device Max Node Bottom:



END.