



TRYSTAR®

Egress Lighting Solutions
*CENTRALIZED EMERGENCY
LIGHTING INVERTERS*

Designed with a high Peak Overload Capability to accommodate inrush from LED fixtures / drivers!



UL 924 Listed:
“Emergency Lighting Equipment”
“Auxiliary Lighting & Power Equipment”

Meeting NFPA 101 & 111 Standards
As “Life Safety Equipment”

In accordance with:

- ANSI / NFPA 101 Life Safety Code
- Article 700 of ANSI / NFPA 70, National Electric Code
- International Building Code

NFPA 101 “LIFE SAFETY CODE”

Trystar engineers and manufactures the industry’s highest quality centralized emergency lighting inverters, capitalizing on many years of expertise. We have an enviable reputation for quality, which is reflected in the design, workmanship, and performance of our products.

Our centralized emergency lighting inverters **meet or exceed all (3) sections of the NFPA 101 “Life Safety Code”**, including section **7.9.3.1.3** (the level which most of our competitors do not meet). Below is an excerpt from the NFPA 101 “Life Safety Code”, 2021 Edition. **Note:** 7.9.3.1.4 does not pertain to battery systems for emergency lighting, therefore not included below.

7.9.3 Periodic Testing Of Emergency Lighting Equipment

7.9.3.1

Required emergency lighting systems shall be tested in accordance with one of the four options offered by 7.9.3.1.1, 7.9.3.1.2, 7.9.3.1.3, or 7.9.3.1.4.

1. Functional testing shall be conducted monthly, with a minimum of 3 weeks and a maximum of 5 weeks between tests, for not less than 30 seconds, except as otherwise permitted by 7.9.3.1.1(2).
2. * The test interval shall be permitted to be extended beyond 30 days with the approval of the authority having jurisdiction.
3. Functional testing shall be conducted annually for a minimum of 1.5 hours if the emergency lighting system is battery powered.
4. The emergency lighting equipment shall be fully operational for the duration of the tests required by 7.9.3.1.1(1) and (3).
5. Written records of visual inspections and tests shall be kept by the owner for inspection by the authority having jurisdiction.

7.9.3.1.2

Testing of the required emergency lighting systems shall be permitted to be conducted as follows:

1. Self-testing / self-diagnostic battery-operated emergency lighting equipment shall be provided.
2. Not less than once every 30 days, self-testing / self-diagnostic battery-operated emergency lighting equipment shall automatically perform a test with a duration of a minimum of 30 seconds and a diagnostic routine.
3. Self-testing / self-diagnostic battery-operated emergency lighting equipment shall indicate failures by a status indicator.
4. A visual inspection shall be performed at intervals not exceeding 30 days.
5. Functional testing shall be conducted annually for a minimum of 1.5 hours.
6. Self-testing / self-diagnostic battery-operated emergency lighting equipment shall be fully operational for the duration of the 1.5 hour test.

7. Written records of visual inspections and tests shall be kept by the owner for inspection by the authority having jurisdiction.

7.9.3.1.3

Testing of the required emergency lighting systems shall be permitted to be conducted as follows:

1. Computer-based, self-testing / self-diagnostic battery-operated emergency lighting equipment shall be provided.
2. Not less than once every 30 days, emergency lighting equipment shall automatically perform a test with the duration of a minimum of 30 seconds and a diagnostic routine.
3. The emergency lighting equipment shall automatically perform annually, a test for a minimum of 1.5 hours.
4. The emergency lighting equipment shall be fully operational for the duration of the tests required by 7.9.3.1.3(2) and (3).
5. The computer-based system shall be capable of providing a report of the history of the tests and failures at all times.

Trystar's Lighting Inverters' Compliance With NFPA 101 "Life Safety Code"

In terms of monitoring, testing, data recording, and recordkeeping, the following matrix illustrates the Trystar centralized emergency lighting inverters that meet or exceed NFPA 101 (up through and including section 7.9.3.1.3).

Each of the models in this matrix use local basic monitoring with an RS232 connection or USB port... or the **Intellistat** (TS with touchscreen, or standard) monitor. The **Intellistat** performs an **"Egress Lighting Integrity Test"** which meets and exceeds NFPA 101 section 7.9.3.1.3 – see the back cover for details! In addition, usage of either the **Intellistat TS** monitor or the **Net-Minder's™** series of adapters can provide remote communication of system status and test logs via Ethernet TCP/IP, MODBUS TCP, MODBUS RS485, BACnet/IP, or BACnet MS/TP.

LIGHTING INVERTERS COMPLIANCE		
	7.9.3.1.3	
	Local	Remote
eLITE Model ELE 5.3kW-18kW	Intellistat Monitor ✓	NetMinder ✓
UltraLITE Model ELC 600W-2kW	Standard Monitor w/ RS232 ✓	NetMinder ✓
UltraLITE Model ELU 1.5kW-14kW	Standard Monitor w/ RS232 Intellistat TS ✓	NetMinder Intellistat TS ✓
FastLITE Model FST 525W-2.2kW	Standard Monitor w/USB Port Intellistat TS	----- Intellistat TS ✓
EON Model EL3 10kW-55kW	Intellistat TS ✓	Intellistat TS ✓

Note: The “eLITE Model ELN” (550W – 1.5kW) is provided with a basic standard monitor, and is compliant with NFPA 101, 7.9.3.1.1. The “TrueLITE Model ELS” (58.5kW – 112.5kW) is provided with an advanced diagnostic monitor with LCD display, and is compliant with NFPA 101, 7.9.3.1.2.

UL 924 LISTINGS & ENGINEERED LIFE SAFETY

All Trystar centralized emergency lighting inverters are UL 924 Listed as both “Emergency Lighting Equipment” and “Auxiliary Lighting and Power Equipment”. The following sections detail each of these UL Listings, as they relate to NFPA 101 compliance.

UL 924 “Emergency Lighting Equipment”

This UL Listing covers electrical emergency lighting and power equipment for use **in accordance with** ANSI / NFPA 101 “Life Safety Code”, Article 700 of ANSI / NFPA 70 “National Electric Code”, and the “International Building Code” (IBC).

Emergency power equipment is intended to supply sufficient electrical energy for emergency luminaire operation, or to distribute and manage the electrical energy for emergency luminaires from a remote emergency supply source. Emergency power equipment with batteries has a test switch and visible or audible indicators to report the readiness of the emergency supply.

UL 924 “Auxiliary Lighting & Power Equipment”

This UL Listing covers equipment intended to be used in conjunction with a facility emergency lighting and power system. The equipment may consist of battery assemblies, unit equipment, remote light sources, illuminated signs, or related devices.

Such equipment ***has not been investigated for compliance*** with the performance criteria of Article 700 of the ANSI / NFPA 70 “National Electric Code”, the ANSI / NFPA 101 “Life Safety Code”, or the “Uniform Fire Code”.

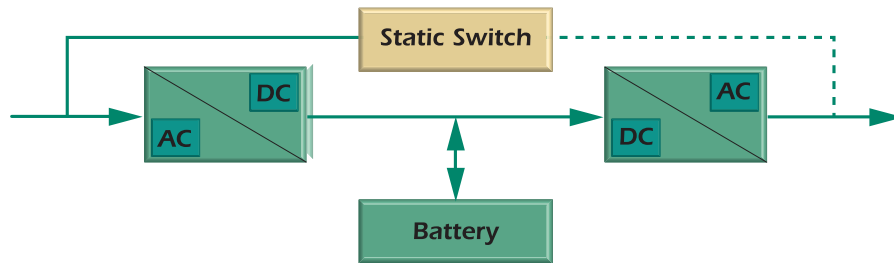
This equipment is for use in unclassified locations; and is intended for indoor dry locations only, unless marked for damp or wet locations.

Note: These UL 924 sections are excerpts reprinted from the “Online Certifications Directory” with permission from UL, © 2015 UL LLC. Bold italics above have been used by Trystar for explanatory contrast between the two UL 924 listings. The UL 924 “Auxiliary Lighting & Power Equipment” section references equipment that “has not been investigated for compliance” for use as Emergency Lighting Equipment, meaning UL has not investigated this equipment.

ENGINEERED LIFE SAFETY

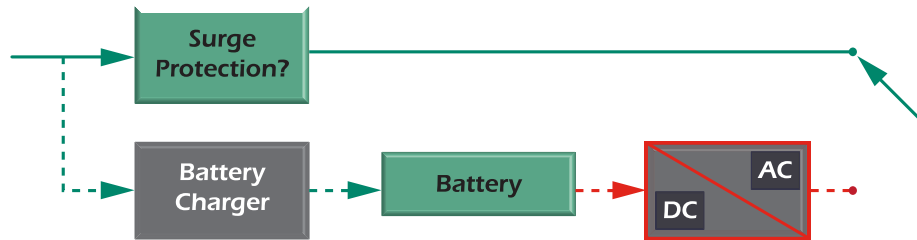
COMPARE THE FOLLOWING TWO EMERGENCY LIGHTING INVERTER TOPOLOGIES:

Continuous System Performance Verification (Double Conversion, On-Line Design)



System performance is ensured, system continually self-checks 24 hours / day; 7 days / week. Provides clean, conditioned and regulated power to LED drivers and electronic ballasts that are being utilized for egress lighting.

PERIODIC SYSTEM PERFORMANCE VERIFICATION (STANDBY, OFF-LINE DESIGN)



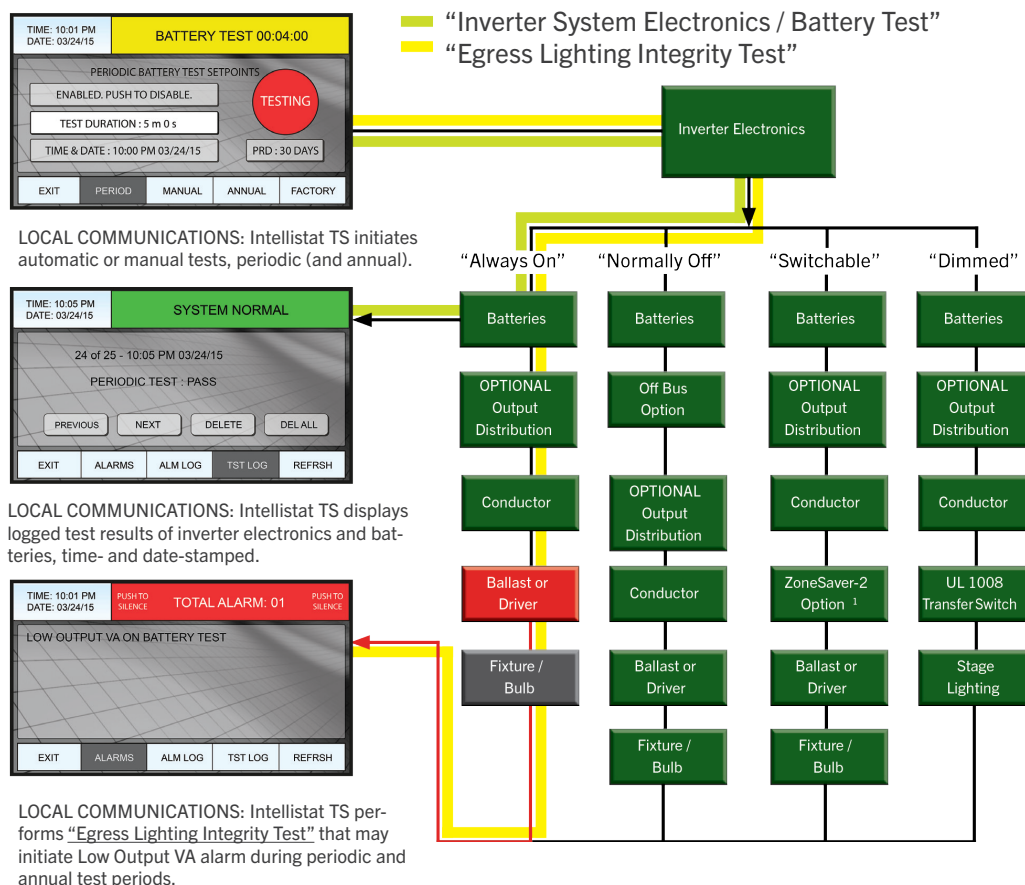
System performance is verified under only two conditions: 1) if / when it is periodically tested, and 2) during an emergency. MAY NOT provide surge protection, and DOES NOT provide power conditioning or regulated voltage to LED drivers and electronic ballasts that are being utilized for egress lighting. Inverters promoting 98+ % efficiency are typically off-line or standby designs, or “operating” in a bypass / standby mode.

NFPA 101 — 7.9.3.1.3 WITH EGRESS LIGHTING INTEGRITY TEST

The following illustration depicts the NFPA 101 — 7.9.3.1.3 compliance of Trystar's emergency lighting inverters; by providing an automatic, computer-based, self-diagnostic test of the inverter system electronics and batteries, and **logging the results with a time and date stamped pass / fail indication**. During this test, the **Intellistat** (TS or standard) monitor also performs an **“Egress Lighting Integrity Test”**, which exceeds the NFPA 101 — 7.9.3.1.3 requirements. Regardless of the **emergency lighting design (illustrated below)**, the automatic NFPA-compliant test performed checks the inverter system and batteries, as well as the individual circuits leading to the emergency fixtures. The **Intellistat** compares power consumption during the test period with user-defined load capacity, and analyzes the data. If service is required, the **Intellistat** will provide a “low output VA” alarm.

This illustration reflects (4) different emergency lighting design scenarios. The **“Always On”** design is highlighted to illustrate two diagnostics taking place during the same test.

Note: This illustration depicts automatic or manual periodic testing. In addition, the Inverter Electronics are monitored 24/7 with status displayed and communicated.



LOCAL & REMOTE COMMUNICATIONS

(Status / Alarm Examples)

- Battery Test Pass
- Battery Test Fail
- Inverter Fail
- Monitored Breaker Trip

REMOTE COMMUNICATIONS with NetMinder

(Status / Alarm Examples)

- BACnet TCP/IP
- BACnet MS/TP
- Ethernet TCP/IP
- MODBUS TCP
- MODBUS RS485

¹ ZoneSaver-2 is a UL 924 Listed “Load Control Relay” used to bypass a local control device in the case of an emergency, to ensure full illumination of egress lighting.

² A UL 1008 Listed “Automatic Transfer Switch” (ATS) is used to transfer branch circuits between normal and emergency power, allowing dimmable lighting fixtures to function as essential emergency lighting.

Contact us and/or consult our website for additional details about this product and other Trystar [emergency lighting inverters](#).



TRYSTAR®