

NEX-ILMS

Intelligent Load Management System

Datasheet

Issued: Nov 2025

Version : 1.5



PRODUCT OVERVIEW

The EVECTRIX ILMS Smart Panel is an advanced, intelligent electrical load-management system that incorporates an industrial-grade PLC controller. Designed to operate as a master control unit, the ILMS can network with and manage up to 250 EVHP Smart Harmony Panels within a single installation. The system operates exclusively in a networked configuration, making it suitable for townhouse developments, multi-unit residential buildings (MURBs), and condominium applications where real-time monitoring of main electrical service capacity and consumption is required.

Because each ILMS installation must be project-specific, the panel is engineered, configured, and customized to meet the site's unique electrical and operational requirements. As a result, the ILMS requires bespoke programming that varies based on project scope, system topology, connected loads, and integration requirements

KEY FEATURES

- ▶ Continuously evaluates real-time service capacity, load profiles, and operating conditions to determine safe, adaptive power thresholds for downstream equipment.
- ▶ Implements a hierarchical control scheme that allocates power based on predefined priority levels, ensuring that critical loads remain energized while non-essential loads are cycled or curtailed.
- ▶ Optimizes available electrical capacity by dynamically distributing resources across connected devices, maximizing system utilization without exceeding service limits.
- ▶ Predictively redistributes electrical demand to prevent overload conditions, minimize peak demand, and improve overall system stability and efficiency.
- ▶ Monitors for abnormal operating conditions and initiates automated corrective actions, including system isolation, fault recovery procedures, or rapid ESD activation to maintain personnel and equipment safety.
- ▶ Provides granular adjustment of operational parameters, enabling precise configuration of load priorities, thresholds, schedules, and control logic to suit project-specific requirements.

TYPICAL USE CASES & BENEFITS

- ▶ Buildings with Limited Electrical Service Capacity – Avoiding costly and prolonged panel upgrade scenarios.
- ▶ Multi-Residential Applications (MURBs, Condominiums, Townhouses).
- ▶ Mixed-Load Management Beyond EV Charging, Heat Pumps, etc.
- ▶ Seamlessly integrates with EVEMS and Harmony smart panels to coordinate a broad range of controllable loads.
- ▶ Load Shedding & Resilience Management

* TECHNICAL SPECIFICATIONS

- Max Units (Networked) : 250 per ILMS Harmony panel
- Communication : Cat5/Cat 6
- Monitoring Capacity : Up-to 5000A 3PH
- Dimensions : Per schematic (customizable)
- Control System INPUT: 120VAC - 15A
- Control Voltage 24 VDC 2A
- Working Temperature : -20°C to +40°C
- Storage Temperature : -20°C TO +40°C
- Enclosure Type: NEMA 3R
- Weight: 28 lbs

*Specifications are subject to change without prior notice.

1. Emergency Shutdown (ESD) – Level 1:

Communication Loss Response :

The ILMS continuously supervises communication links between each distributed panel and the central monitoring system.

If communication with any panel is lost, the event is classified as a critical fault condition.

Upon detection:

- ▶ All contactors, thermostats, and controlled outputs within the affected panel are immediately de-energized.
- ▶ The panel transitions to a safe, non-operational state to prevent unintended load activation.

This automated shutdown ensures maximum safety in scenarios where monitoring integrity cannot be confirmed.

2. Emergency Shutdown (ESD) – Level 2:

System-Level Fail-Safe Design :

All controlled contactors within the ILMS architecture are configured as Normally Open (NO) by default as the hardware safety position.

As a result:

- ▶ In the event of a control system failure, such as a loss of communication, a power outage, or an internal equipment malfunction, the contactors will remain open (OFF).
- ▶ This fail-safe configuration prevents inadvertent energization of connected loads and eliminates the risk of uncontrolled power delivery.

This design approach ensures that any failure within the control hierarchy defaults to the safest possible electrical state.

3. Redundant Central Monitoring System :

The ILMS central monitoring platform utilizes a dual-redundancy architecture, operating two independent supervisory systems in parallel.

If the primary monitoring system experiences a fault or becomes non-operational:

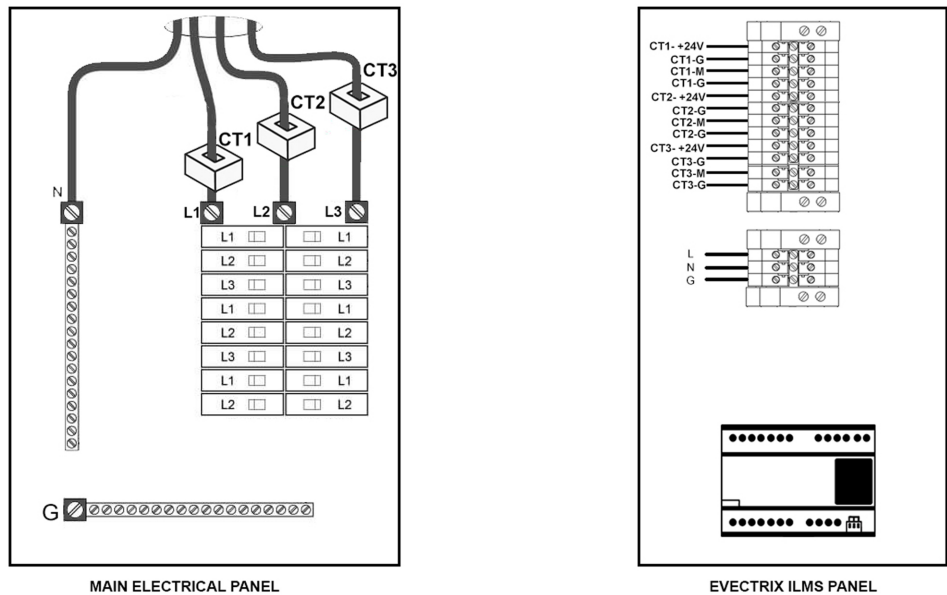
- ▶ The secondary system automatically assumes complete control without manual intervention.
- ▶ This transfer ensures continuous monitoring, command execution, and fault-handling capability.

The redundancy framework significantly enhances system reliability, minimizes operational downtime, and maintains uninterrupted load-management functionality.

PACKAGE INCLUDED :

- 1 X Intelligent Load Management System (ILMS) Panel
- 3 X Split Core Current Transformers (CT) (based on Main Electrical service size)
- 4 X Mounting Brackets
- 2 X Keys

WIRING AND CONNECTION



SYSTEM ARCHITECTURE & INTEGRATION

- ▶ **Main Service Monitoring** : The ILMS interfaces with the building's main electrical feeder via certified energy-measurement devices such as current transformers (CTs) or equivalent metering hardware to continuously monitor total service consumption and available capacity in real time.
- ▶ **Integrated Communication with EVECTRIX EVEMS Platforms** : The ILMS communicates directly with EVECTRIX energy-management systems, including the NEX Series, Harmony Panels, and other EVEMS platforms, to coordinate and modulate downstream power delivery across controlled loads.
- ▶ **Scalable Multi-Unit / Multi-Building Control** : In significant residential or mixed-use developments, the ILMS can supervise multiple networked smart panels, enabling coordinated load management suitable for condominiums, townhouses, and MURB applications.
- ▶ **Coordination of Mixed Load Types** : As the central control authority in the EVECTRIX ecosystem, the ILMS enables integrated management of diverse load categories, including the level 2 EV chargers, all types of Heat Pumps (air-to-air HP, air-to-water HP, Geo HP, etc.), domestic hot-water heaters & DHW HP, dryers, and other non-essential loads, extending system intelligence well beyond EV charging, only.

IMPORTANT NOTICE

- ▶ The ILMS and Harmony panels are factory-programmed by EVECTRIX with the project-specific main panel rating. If the building's electrical service capacity is modified at any time, the ILMS programming must be updated accordingly. It is the installer's responsibility to notify and coordinate with the EVECTRIX Technical Support Team to ensure reprogramming is correctly applied. Failure to update system programming may impair system performance, for which EVECTRIX assumes no responsibility or liability.
- ▶ A hardwired Internet connection is required for firmware updates, remote diagnostics, and system enhancements. This connection must be terminated directly at the ILMS panel. This product, certified by Intertek in accordance with SPE-1000, must be installed in strict compliance with all applicable Canadian / USA electrical and building regulations.