

# INSTALLATION, OPERATION AND MAINTENANCE (IOM)

## EVECTRIX EVHP SMART HARMONY PANEL MANUAL

Electrify, Optimize, and Revolutionize Your Dream House by EVECTRIX

*INSTALLATION, WIRING, OPERATION, and MAINTENANCE MANUAL*

**NEX-EVHP SMART HARMONY PANEL-4CH**

**HARMONY PANEL WITH 4 CONTACTORS**

**EVECTRIX SMART ELECTRICAL LOAD MANAGEMENT SYSTEMS**



## PRODUCT OVERVIEW

The EVECTRIX NEX-EVHP Smart Harmony 4CH panel is an advanced and smart electrical load-management controller designed to optimize power distribution in constrained electrical systems. The unit is equipped with three NEMA-rated 40 Amp contactors, enabling connection and control of up to four 208/240 V appliances, including the Level 2 EV charger, Heat Pump, DHW tank, Dryer, and Range, each supporting a maximum operational load of 40 Amp. This architecture makes the system ideal for applications where the existing electrical panel lacks sufficient capacity for additional dedicated circuits, such as a Level 2 EV charger or a new high-performing heat pump.

### The system supports two operating modes:

- **Networked Mode:** Enables integration with multi-unit environments such as townhouses, MURBs, and condominiums, and allows seamless communication with the EVECTRIX ILMS Panel for coordinated building-wide load management.
- **Standalone Mode:** Designed for single-family detached homes, providing intelligent load control without the need for networked infrastructure.

The NEX-EVHP Smart Harmony 4CH (4 contactors) panel delivers a flexible, scalable, future-proof solution for managing high-demand electrical appliances while maintaining safety, compliance, and optimal utilization of available service capacity by avoiding the costly and prolonged panel upgrade scenarios.

### \* PRODUCT SPECIFICATION

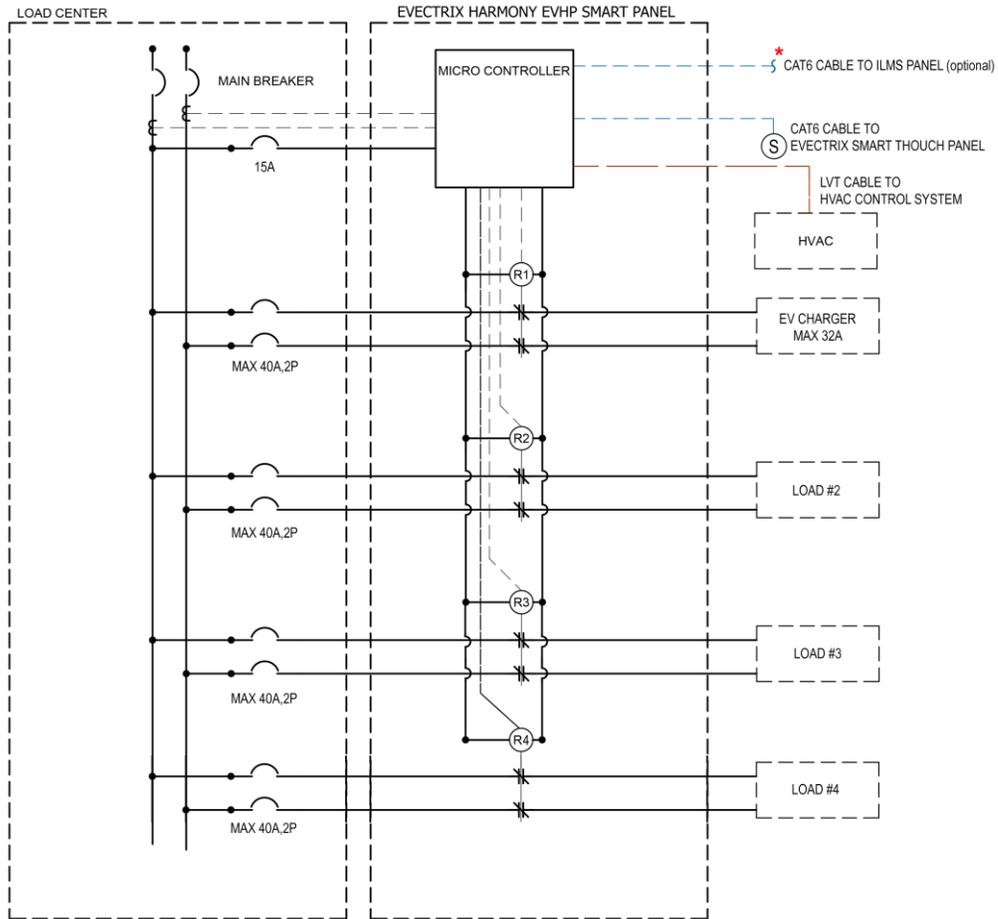
INPUT: 208/240 VAC 5A CONTROL  
 VOLTAGE: 24 VDC 2A  
 DIMENSION : 13.85"x25"x6.2"  
 CT CAPACITY : Up-to 200A  
 WORKING TEMPERATURE : -20°C to +40°C STORAGE  
 TEMPERATURE : -20°C TO +40°C  
 OUTPUT: 4 X 208/240 VAC UP TO 40A per contactor ENCLOSURE TYPE: NEMA 3R  
 WEIGHT: 28 lb

\* Specifications are subject to change without prior notice.

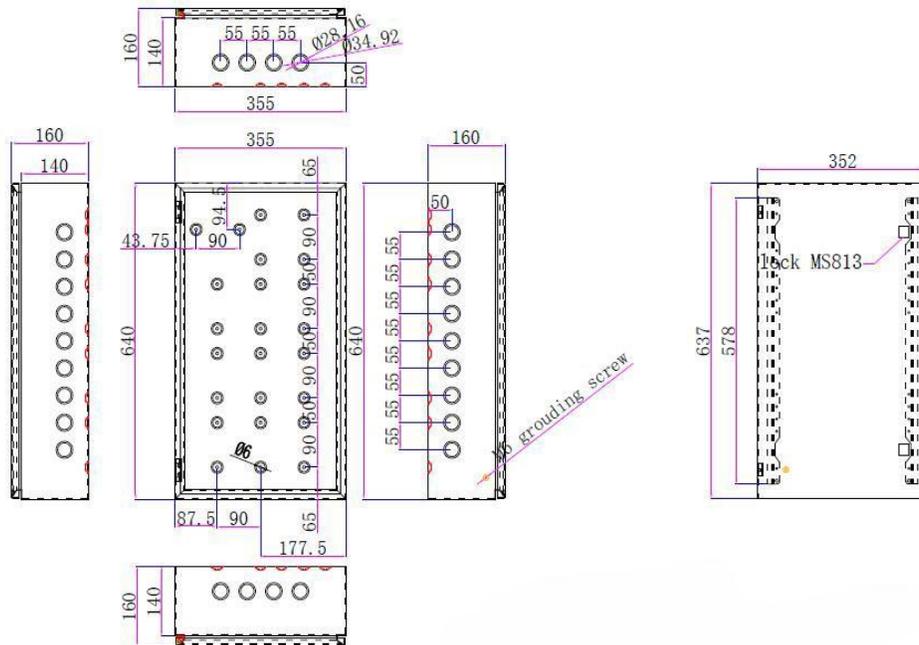
#### PACKAGE CONTENTS:

Harmony Smart Panel X 1  
 Split Core Current Transformers (CT) (Max 200A) X 2  
 Smart Heat Pump Thermostat Touch Panel X 1  
 Mounting Brackets X 4  
 Keys X 2

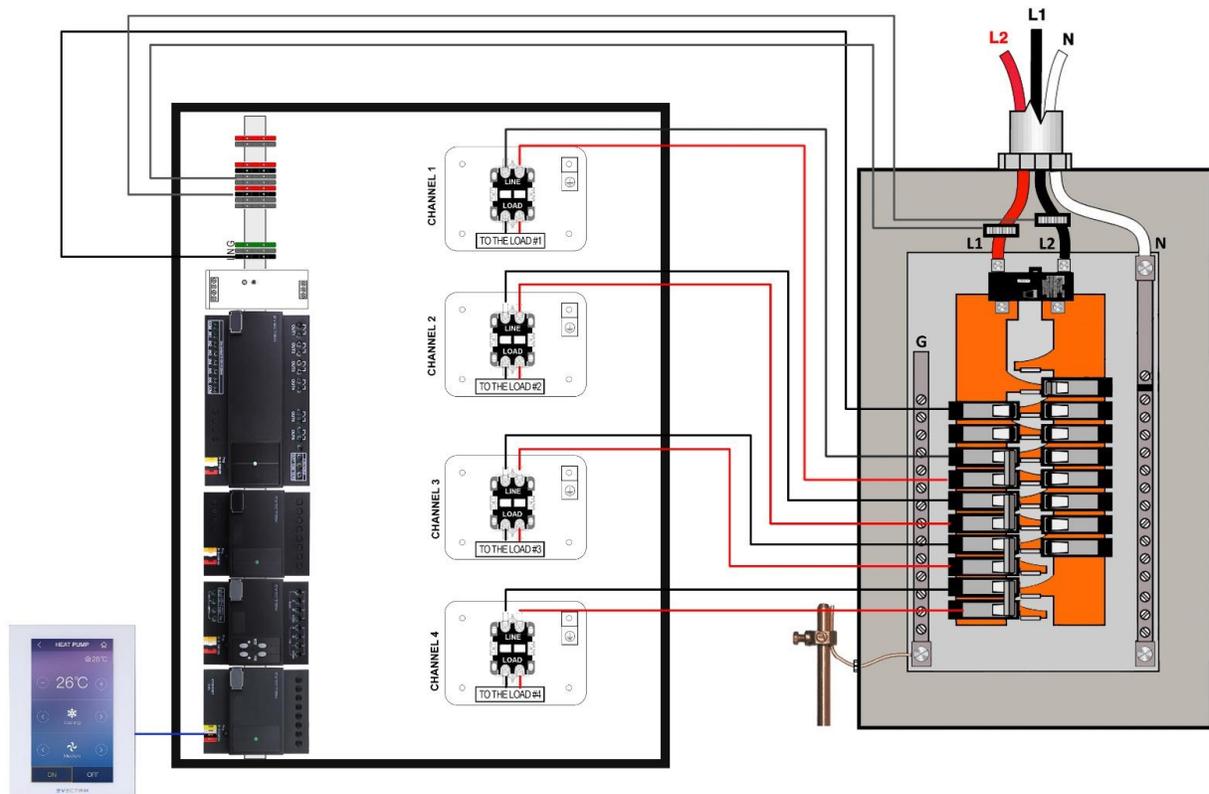
## EVectriX Smart Harmony Panel Wiring Schematics



### Enclosure Dimensions



## EVECTRIX EVHP SMART HARMONY PANELS ILLUSTRATION / REQUIRED WIRING TO THE EVECTRIX SMART TOUCHPAD/THERMOSTAT + MAIN ELECTRICAL EXISTING PANEL



### KEY FEATURES

- **Single-Mode or Multi-Mode Operation:**  
Supports standalone operation for single-family homes or whole networked operation for MURBs, townhouses, and condominium environments.
- **Real-Time Load Monitoring:**  
Continuously measures the electrical demand of connected appliances and, in multi-unit applications, monitors the main service panel for available capacity via CT's.
- **Dynamic Load Allocation:**  
Intelligently distributes available electrical capacity among level 2 EV chargers, any Heat Pumps with the EVECTRIX associated smart touchpad/programmable thermostat, domestic hot-water (DHW) systems (both electric and HP versions), dryers, ranges, etc., ensuring safe and efficient operation while considering limited available capacity.
- **Retrofit-Friendly Design:**  
Provides a cost-effective alternative to utility or main-panel upgrades, maximizing the use of existing electrical infrastructure with a fraction of the cost of the panel's upgrade, which in many townhouses and MURB's settings could also be impossible due to the structural and financial constraints.

- **Integrated Smart Touchpad / Programmable Thermostat Control:**  
Offers advanced HVAC integration, including temperature setpoints, fan speed control, zoning, weekly scheduling, night setback mode, and EV-priority override functionality.
- **Flexible System Architecture**  
Operates independently in standalone mode or as part of a coordinated, multi-panel network through integration with the EVECTRIX ILMS panels.



## SAVE THESE INSTRUCTIONS.

This manual provides critical safety guidelines and precautions intended for the safe installation, operation, and maintenance of the product. Thoroughly read and fully comprehend all instructions before utilizing this product. Failure to comply with these guidelines could result in serious personal injury, death, or property damage. Retain this manual with the product (outside of the panel/enclosure, indeed) to ensure continual access for reference and compliance purposes. Specifications, descriptions, and illustrations provided herein were accurate at the time of publication. However, due to continuous product enhancements, regulatory changes, and technological advancements, these details are subject to modification without prior notice. It is highly recommended to request the latest updated version of this manual by emailing [info@evectrix.com](mailto:info@evectrix.com) before initiating any activity related to this product, including, but not limited to, installation, operation, or maintenance of any of the EVECTRIX panels and products.



## SAFETY DEFINITIONS

Safety symbols included in this manual are designed to alert users to potential hazards associated with product misuse or incorrect installation, operation, or maintenance. Pay careful attention to these symbols and their corresponding explanations to fully understand potential risks. Safety warnings alone cannot eliminate all risks. Users must follow recommended safety measures and employ professional judgment and appropriate accident prevention practices to mitigate hazards effectively. These instructions and warnings should not be considered substitutes for comprehensive safety training or adherence to relevant local codes and regulations.

## Code Compliance & Installation Requirements

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, including but not limited to;

- The Canadian Electrical Code (CEC).
- All relevant U.S. state and national electrical codes.
- Applicable provincial and municipal regulations, including the British Columbia Electrical Safety Regulations, when installed within B.C. or other Canadian territories.

The EVECTRIX Smart Harmony Panel is intended exclusively for installation and servicing by certified, licensed, and authorized electricians or electrical contractors operating under a valid electrical permit.

<b>DANGER</b>
DANGER INDICATES A HAZARDOUS SITUATION WHICH, IF NOT AVOIDED, WILL RESULT IN DEATH OR SERIOUS INJURY.

<b>WARNING</b>
WARNING indicates a hazardous situation which, if not avoided, could result in death or serious injury.

<b>CAUTION</b>
CAUTION indicates a hazardous situation which, if not avoided, could result in minor or moderate injury.

<b>NOTICE</b>
NOTICE indicates information considered important, but not hazard-related (e.g., messages)

### **INSTALLATION, AND LIABILITY DISCLAIMER + ONE-YEAR LIMITED WARRANTY REQUIREMENTS**

The EVectriX Smart Harmony Load Management Module (LMM) must be installed exclusively by a qualified, licensed, and certified local electrician who knows all of the safety protocols, city bylaws, electrical codes etc. The installer must possess comprehensive knowledge of and compliance with all applicable national, state, provincial, and local electrical and building codes, including requirements for municipal permits and inspections.

Before proceeding with the installation, carefully review this manual and ensure strict adherence to all provided instructions and safety guidelines. This manual, or a complete copy thereof, must remain accessible and accompany the EVectriX Smart Harmony Load Management Panel at all times for reference by authorized personnel.

While every effort has been made to ensure the accuracy and completeness of this documentation, the manufacturer reserves the right to make modifications, improvements, or changes to this document and the product described herein without prior notice or obligation. The manufacturer expressly disclaims any liability arising from such modifications.

Furthermore, the manufacturer cannot anticipate every scenario or condition that might pose a risk or hazard during the installation or operation of the product. It is the installer's responsibility to evaluate site-specific risks and implement all necessary precautions to ensure safe installation and operation.

Compliance with these instructions does not eliminate all the risks associated with the installation and use of electrical equipment. The manufacturer shall not be liable for any direct, indirect, incidental, or consequential damages arising from improper installation, servicing, or use of the EVectriX Smart Harmony Load Management Module. The manufacturer cannot anticipate every circumstance that might involve a hazard.

SYMBOL	MEANING
	<p>Read Operator’s Manual. To reduce the risk of injury, the installer and user must read and understand the operator’s manual before using this product.</p>
	<p>Ground. Consult with local electrician to determine grounding requirements before operation.</p>
	<p>Electric Shock. Improper connections can create an electrocution hazard or severe injury or death.</p>
	

**DANGER**

ELECTRICAL SHOCK HAZARD. MAY CAUSE INJURY OR DEATH. DISCONNECT ALL SOURCES OF POWER SUPPLY BEFORE SERVICING, AND DO NOT OPEN THE PANEL IF YOU ARE NOT A CERTIFIED ELECTRICIAN.

**WARNING**

BE CERTAIN THAT THE POWER FROM THE UTILITY IS TURNED OFF AND ALL BACKUP SOURCES ARE LOCKED OUT BEFORE STARTING THIS PROCEDURE. FAILURE TO DO SO COULD RESULT IN SERIOUS INJURY OR DEATH.

REMEMBER, AUTOMATIC START GENERATORS WILL START UPON LOSS OF UTILITY MAINS POWER UNLESS LOCKED IN THE “OFF” POSITION.

**CAUTION**

CONSULT WITH YOUR LOCAL MUNICIPAL, STATE AND NATIONAL ELECTRICAL CODES FOR PROPER MANDATORY WIRING METHODS.

**NOTICE**

NOTICE indicates information considered important, but not hazard-related (e.g., messages) Improper treatment of equipment can damage it and shorten its life.

- Use equipment only for its intended uses.
- Do not expose equipment to excessive moisture, dust, dirt or corrosive vapors.
- Remain alert at all times while working on this equipment. Never work on the equipment when you are physically or mentally fatigued.
- If connected devices overheat, turn them off and turn off their circuit breaker or fuse.

[Reporting Errors and Feedback](#)

If you identify inaccuracies or have feedback or concerns regarding this manual, please contact EVECTRIX support at [support@evectrix.ca](mailto:support@evectrix.ca) or call us directly at +1(604) 283-1329 prior to any installation!

[Legal Notice and Disclaimer of Liability](#)

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[Regulatory Compliance](#)

The installer is solely responsible for ensuring compliance with all national, state, provincial, and local electrical codes and safety regulations. Failure to adhere to these requirements may result in legal penalties and will void any product warranty.

### One-Year Limited Warranty Terms

EVECTRIX EV SOLUTIONS LTD. provides a One-Year Limited Warranty covering defects in the integrated controls of the Harmony Smart Panel, starting from the date of the purchase order. This warranty exclusively applies to components supplied by EVECTRIX and explicitly excludes associated labor costs, consequential damages, or transportation expenses. All warranty claims must be reviewed and verified by the EVECTRIX EV SOLUTIONS LTD. technical team following testing and inspection of the returned and non-performing product.

### One-Year Limited Warranty Coverage

EVECTRIX EV SOLUTIONS LTD. ("EVECTRIX") warrants that the integrated controls of the Harmony Smart Panel (the "Product") shall be free from defects in materials and workmanship for a period of one (1) year from the date of shipment (the "Warranty Period"). This One-Year Limited Warranty exclusively covers equipment and components supplied by EVECTRIX and expressly excludes any ancillary equipment, labor charges, transportation costs, or any consequential damages.

EVECTRIX EV Solutions LTD. products "The Manufacturer" provides a one-year limited warranty that the products shall be free from defects in materials and workmanship under normal use and service for a period of 12 months from the date of the delivery to be the purchaser, provided that installation, commissioning, operation and maintenance are carried out strictly in accordance with the Supplier's Installation, Operation, and maintenance Manual "IOM"

### Exclusions and Limitations

This warranty shall be considered void under any of the following conditions:

Improper installation, misuse, neglect, or insufficient maintenance. This includes, but is not limited to, installation performed by individuals or entities who are not certified and authorized local electrical contractors, failure to obtain required municipal or city permits, or failure to have the installation inspected and approved by the relevant municipal or city authorities.

Unauthorized repairs, modifications, or alterations made by any personnel or entity other than EVECTRIX or its authorized service providers without prior written consent from EVECTRIX.

Exposure to electrical surges, extreme environmental conditions, misuse, or external damage unrelated to manufacturing defects.

Non-compliance with applicable national, state, provincial, and local electrical codes, regulations, and safety standards during installation and operation.

### Limitations of Liability

TO THE MAXIMUM EXTENT PERMITTED BY APPLICABLE LAW, EVECTRIX DISCLAIMS ALL OTHER WARRANTIES, WHETHER EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, IMPLIED WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, AND NON-INFRINGEMENT. EVECTRIX SHALL NOT, UNDER ANY CIRCUMSTANCE, BE LIABLE FOR INDIRECT, INCIDENTAL, SPECIAL, OR CONSEQUENTIAL DAMAGES, INCLUDING, BUT NOT LIMITED TO, LOSS OF BUSINESS, PROFITS, DATA, OR INTERRUPTION OF BUSINESS OPERATIONS, EVEN IF ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

### Warranty Claims and Responsibilities

Claims under this warranty must be submitted in writing to EVECTRIX within the Warranty Period and must include proof of purchase and a detailed description of the claimed defect. In addition, EVECTRIX will only accept warranty claims for which the official warranty form provided inside the panel enclosure, and has been duly completed and signed by a certified installer immediately upon completion of

installation and prior to handover to the end user. The completed warranty form must be submitted via email to [info@evec trix.com](mailto:info@evec trix.com). The warranty submission will only be considered valid upon receipt of a written acknowledgment from the EVECTRIX team confirming satisfactory compliance with all requirements.

EVECTRIX retains the exclusive right to inspect, test, and determine whether an alleged defect is covered under this warranty, or not.

If a defect is verified and approved by the EVECTRIX technical department team, EVECTRIX's sole responsibility, at its discretion, is to repair or replace the defective Product or component.

Customers are responsible for all transportation, shipping, handling, and related costs associated with returning the Product for warranty service.

Replacement parts provided under warranty do not extend the original Warranty Period.

#### [Governing Law & Jurisdiction](#)

This warranty shall be governed by and interpreted according to the laws of Metro Vancouver, British Columbia, Canada, without regard to conflict of law provisions. Any dispute arising under this warranty shall be exclusively resolved by the courts within this jurisdiction.



### Important Notice

Installation and commissioning of the Harmony Smart Panel must be performed exclusively by a licensed and certified electrician in accordance with all applicable national and local electrical codes and standards. Prior to installation, the installer must thoroughly review the accompanying Installation, Operation, and Maintenance (IOM) Manual and adhere to all relevant safety protocols and regulatory requirements.



### Warning: Risk of Severe Injury or Death

**The Harmony Smart Panel operates at 208/240 VAC, which presents a significant risk of electric shock, serious injury, or fatality. Only qualified, and certified local electrical contractor with permit should handle this equipment, using extreme caution throughout the installation process.**

### Mandatory Safety Precautions

- **De-energize the power supply** before beginning installation. Use certified voltage testing equipment to **confirm the complete absence of electrical power** prior to any work.

### DANGER

Electrical shock hazard. May cause injury or death. Disconnect all sources of power supply before servicing, and do not open the panel if you are not a certified electrician.

- **Unauthorized access, modification, repair, or disassembly** of the panel is strictly prohibited and voids all warranties.
- The panel must not be installed in proximity to **flammable substances, explosive atmospheres, or volatile chemicals**, or in **confined or poorly ventilated areas**, or attics, or an area with a direct exposure to sun light.
- **Proper grounding and adequate ventilation** are essential and must be verified during installation to mitigate risks of electrical hazards, fire, or equipment overheating.

### Disclaimer

Failure to comply with these instructions may result in personal injury, property damage, and/or voiding of product warranties. The manufacturer assumes and considers **no liability** for damages or injuries resulting from improper installation, unauthorized servicing, or non-compliance with applicable codes and safety standards.

## INSTALLATION PROCEDURE

### Step 1: Preparing for Installation



1. Turn off the primary power source, and ensure no current/power is available.
2. Choose the designated location for the PANEL.

### Step 2: Conductor Connections

- Run a dedicated power cable (15A) and connect it to the terminals on the 2A 120 VAC breaker provided inside the smart panel.

EVECTRIX PANEL POWER  
120VAC DEDICATED 15A



LNG

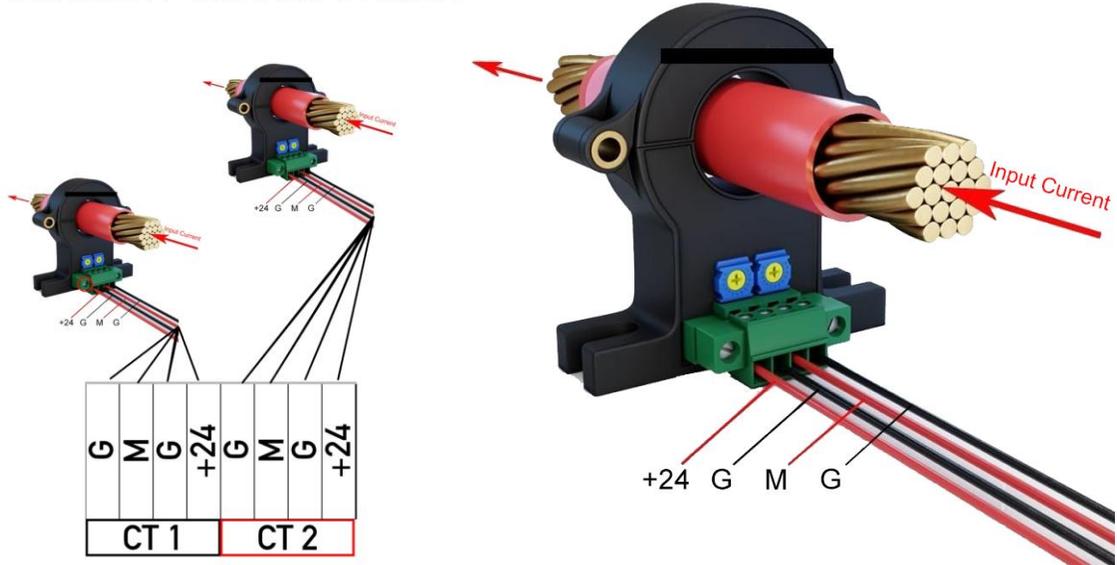
POWER INPUT

- Run a proper wire from the dedicated breaker in the breaker panel to the contactor #1 input(LINE), and run a proper wire from the contactor output(LOAD) terminals to appliance #1. (L1,L2)
- Run a proper wire from the dedicated breaker in the breaker panel to the contactor #2 input(LINE), and run a proper wire from the contactor output(LOAD) terminals to appliance #2. (L1,L2)
- Run a proper wire from the dedicated breaker in the breaker panel to the contactor #3 input(LINE), and run a proper wire from the contactor output(LOAD) terminals to appliance #3. (L1,L2)
- Run a proper wire from the dedicated breaker in the breaker panel to the contactor #4 input(LINE), and run a proper wire from the contactor output(LOAD) terminals to appliance #4 (L1,L2)
- Connect neutral and ground wires to the provided lugs inside the smart panel.
- Install the provided 2XCT (Current transformer) on the main feeder of the breaker panel (L1 & L2) and securely fasten the CTs with a zip tie. Pay attention to the arrow engraved on the CT indicating the current flow.
- Connect CTs wires to the provided terminals inside the smart panel. ( use shielded and stranded 4X18 AWG cable with crimped Ferrules)
- CTs must be securely fastened using one of the two approved methods—screws or zip

ties—with screws preferred. When using screws, drill a pilot hole before mounting the CTs. Ensure proper CT orientation by aligning the directional arrow toward the main breaker, indicating the direction of current flow.

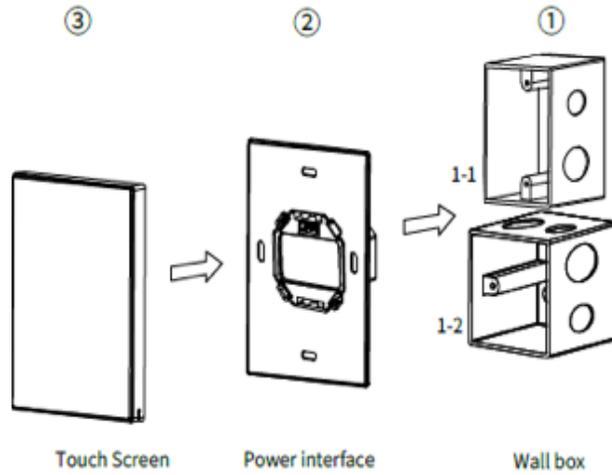
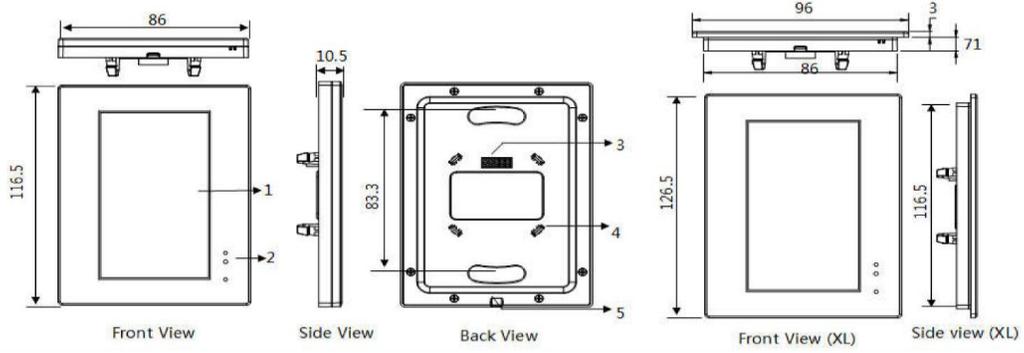
- Ensure all screws on the CT terminals are fully tightened, including the four screws for wire connections and the two screws securing the CT terminal to the CT body.

### CURRENT TRANSFORMER



### Step 3: SMART HP THERMOSTAT TOUCH PANEL INSTALLATION (INDOOR ONLY)

Refer to the separate installation guide for detailed instructions on the smart HP thermostat touch panel setup, in case you need to control an air-to-air Heat Pump or an air to water Heat Pump along with the EVECTRIX smart harmony panel operation.



Smart Touch Panel + Thermostat



- Run a 4-conductor wire (awg18) OR CAT6 CABLE from the SMART thermostat location to the EVHP panel
- The 4-conductor cable will be connected to the following terminals in both the EVECTRIX EVHP Smart Harmony panel and the smart thermostat base: +24V, DATA+, DATA-, and COM.
- Mount the thermostat base in the wall box with provided screws. (6mm)

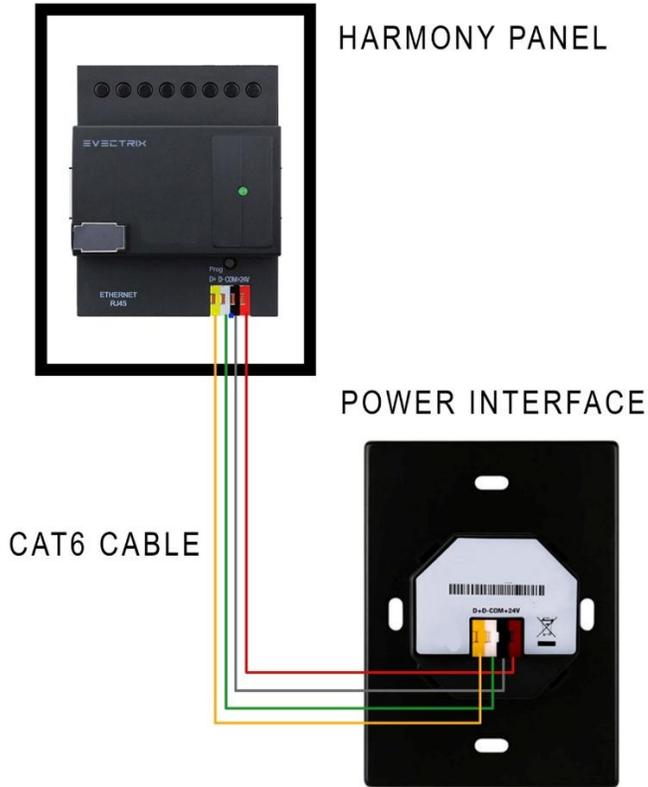
**EVECTRIX Required wiring/schedule from ETHERNET module terminal to the back of the Smart Touchpad / Smart Thermostat connections must be done with CAT5/ 6 Cable as follows:**



**Basic Color Code for T568B**

1. White/Orange
2. Orange
3. White Green
4. Blue
5. White/Blue
6. Green
7. White/Brown
8. Brown

D+	BLUE & GREEN
D-	W. BLUE & W. GREEN
COM	W. ORNAGE & W. BROWN
24V	ORANGE & BROWN



**Step 4: THERMOSTAT ACTUATOR WIRE CONNECTION TO THE HAEAT PUMP LV TERMINALS**

Run proper cable from heat pump indoor unit thermostat connection terminal to the EVHP panel and connect the wires to the following terminals:



- MODE I: HEATING MODE
  - MODE II: COOILING MODE
  - FAN H: G/G1 (FAN/LOW)
  - FAN M : G2 (MEDIUM)
  - FAN L : G3 (HIGH)
- Cable Type: LVT**

**CONFIRM WITH THE HEAT PUMP MANUFACTURER ABOUT COMPATIBILITY WITH A THIRD-PARTY THERMOSTAT BEFORE MAKING ANY WIRING CONNECTIONS. ANY REQUIRED 3<sup>rd</sup> PARTY INTERFACE MUST BE PROVIDED, WIRED BY OTHERS AT THE FIELD.**

## Step 5: ILMS Connectivity in Networkable mode

Connect a 2-wire cable from the ILMS smart panel to the ESD terminals inside the Harmony smart panel.

When the panel operates in standalone mode without an ILMS connection, a jumper wire shall be installed between the ESD terminals.

No polarity is required for this connection.

## Step 6: Secure and Power On

1. Turn on the smart panel breaker, close and lock the panel door, and secure the keys in a safe place. (Keep out of reach of children and any uncertified electrician, which poses a risk of **severe injury, electric shock, or death.**)
2. Energize: Provide electrical power to the Panel and contactors, and check the system and its functionality for at least an hour to ensure all wiring and connections are correctly done.



## ADDITIONAL SAFETY CONSIDERATIONS

- Each contactor must have an additional individual overcurrent protection provided and installed by others (certified electrical contractor) at the field.(MAX 40A)
- Implement lockout/tagout procedures to prevent accidental energization during installation and maintenance.
- Qualified and certified local professionals must perform regular inspections at least once a year to ensure safe and efficient operation. Report of any concern or non-functioning components to EVECTRIX.
- The panel door must remain securely closed during operation.



## COMPLIANCE WITH CANADIAN AND BC ELECTRICAL CODES:



This product must be installed in accordance with the Canadian Electrical Code (CEC) USA Electrical State and national codes including the building and electrical codes, and all applicable provincial and municipal codes, particularly the British Columbia Electrical Safety Regulations, if it is going to be installed in BC, Canada territories. The EVECTRIX Smart Harmony Panel is intended solely for use by certified and authorized electricians, and electrical contractors having a permit. Installation of 208V or 240V connections, whether single-phase, two-phases or three-phases, must comply with local standards regarding wiring methods, conductor sizing, overcurrent protection, and grounding practices. Failure to adhere to these codes and guidelines may result in serious injury, fire hazards, voided warranty, and legal consequences.

Always consult the latest edition of the relevant electrical code before installing.

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