

**WARNINGS**

- **HAZARD OF ELECTROCUTION, SHOCK, EXPLOSION, OR ARC FLASH. CAREFULLY READ AND FOLLOW INSTRUCTIONS:**
- **TO AVOID FIRE, SHOCK OR DEATH,** turn OFF all power supplying equipment before working on or inside the equipment. Use a properly rated voltage sensing device to confirm power is OFF.
- Follow safe electrical work practices. See NFPA 70E in the USA, or applicable local codes.
- This equipment **MUST** be installed and serviced by an electrician or other qualified personnel with the requisite knowledge, training and experience related to the installation and operation of this equipment.
- Product may use multiple voltage/power sources. Be sure all sources of power have been disconnected before servicing.
- Do not depend on this product for voltage indication.
- Only install this product on insulated conductors.
- If the meter appears damaged or defective, first disconnect all power to the meter, and then call or e-mail Technical Support for assistance.

**DO NOT EXCEED 346V Line to Neutral or 600V Line to Line (L-L).** This meter is equipped to monitor loads up to 346V Line to Neutral (L-N). Exceeding this voltage will cause damage to the meter and danger to the user. Always use a Potential Transformer (PT) for voltages in excess of 346V L-N or 600V L-L. VerifEye-branded meters are 600 Volt Over Voltage Category III devices.

For use in a Pollution Degree 2 or better environment only. A Pollution Degree 2 environment must control conductive pollution and the possibility of condensation or high humidity. Consider the enclosure, the correct use of ventilation, thermal properties of the equipment, and the relationship with the environment. Installation category: CAT II or CAT III.

Provide a disconnect device to disconnect the meter from the supply source. Place this device in close proximity to the equipment, and within easy reach of the operator, and mark it as the disconnecting device. The disconnecting device shall meet the relevant requirements of IEC 60947-1 and IEC 60947-3 and shall be suitable for the application. In the US and Canada, disconnecting fuse holders can be used. Provide over-current protection and disconnecting device for supply conductors with approved current limiting devices suitable for protecting the wiring. If the equipment is used in a manner not specified by the manufacturer, the protection provided by the device may be impaired.

For the complete safety information for this product, see the full user guide at [www.leviton.com](http://www.leviton.com).

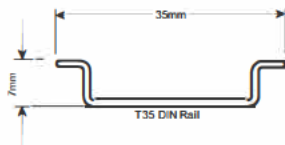
PKA3464-10-00-0A

**INSTALLATION INSTRUCTIONS****ENGLISH****DIN Rail Mount****1. Attach DIN rail.**

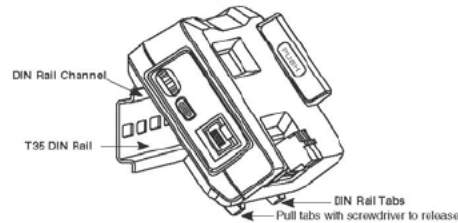
Attach a section of T35 DIN rail within a suitable UL-approved enclosure.

**NOTE:**

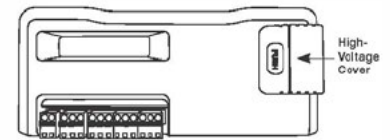
- Leave enough clearance for voltage, CT, and communications wires to route within enclosure.
- The customer must supply the UL-approved enclosure.

**2. Mount.**

- Press the top-edge of the meter's DIN rail channel into the DIN rail.
- Push the meter firmly towards the DIN rail until it clicks into place.

**3. Remove the high-voltage cover.**

**WARNING: RISK OF ELECTRICAL SHOCK. DO NOT ENERGIZE METER WHEN VOLTAGE COVER IS REMOVED.**

**4. Connect voltage leads.**

**WARNING: RISK OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH. DO NOT ENERGIZE METER WITH VOLTAGE COVER REMOVED. FOLLOW ALL STATE AND FEDERAL ELECTRICAL CODES.**

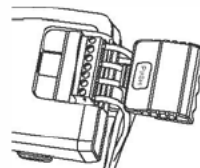
USE #14 AWG THHN, 600V AC rated wire to connect the voltage leads (L1, L2, L3 and N, as needed) to the meter through a dedicated disconnect or circuit breaker.

**NOTES:**

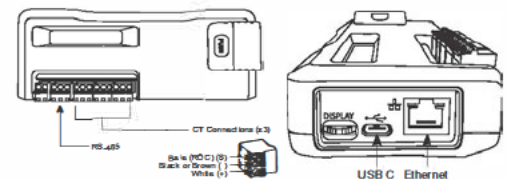
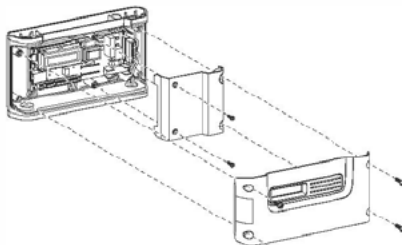
- Do not exceed 346V L-N or 600V L-L.
- The meter is powered through the voltage between L1 and L2. For single-phase installations in which no L2 exists, install a jumper from N to L2. This connection provides power to the meter, maintaining L1-N as the metering voltage reference.

**5. Attach high-voltage cover.**

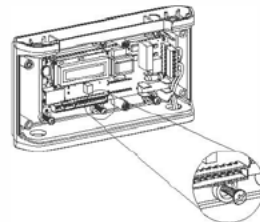
Meter is IP30 TouchSafe™ (with internal cover installed).

**6. Connect CT and communications wiring.**

Use only 333.3 mV (1/3 V) output CTs or RbCals.

**Wall Mount****1. Remove covers.****2. Mount.**

Use the enclosure as a template.

**3. Follow steps 3 to 6 above to complete the installation.**

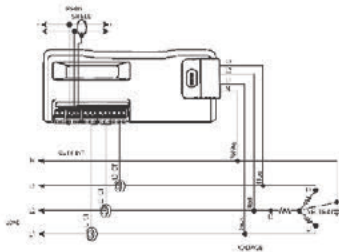
## Wiring

### WARNINGS:

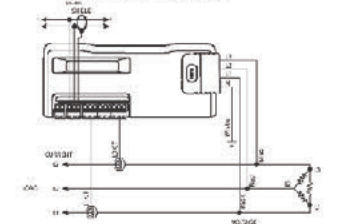
- **TO AVOID FIRE, SHOCK, OR DEATH; TURN OFF POWER** at circuit breaker or fuse and test that power is **OFF** before wiring!
- **HIGH-VOLTAGE MAY BE PRESENT.** To be installed by an electrician or other qualified personnel only.

Configurations shown, are for service types available in the METER SETUP drop-down menu.

#### 4 WIRE, 3 PHASE WYE



#### 3-WIRE, 3-PHASE DELTA



### TYPICAL LOADS:

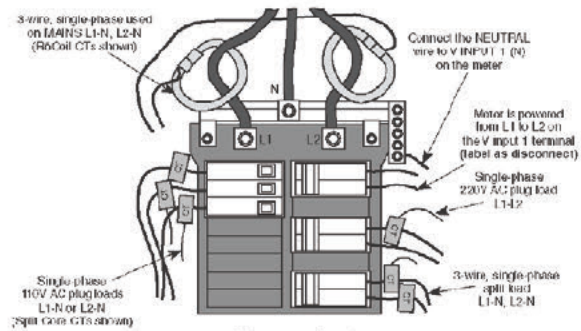
Single-phase L1-N or L2-N 110V AC: lighting, appliance, or living zone

Single-phase L1-L2 220V AC: water heater or equipment with no neutral wire

Split-phase L1-L2 220V AC: service entrance, dryers, or equipment with neutral wire

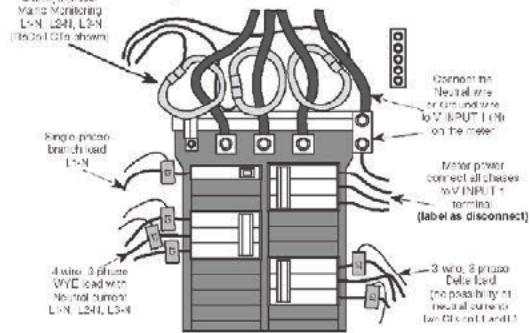
### Example 1

#### Wiring in a 3-Wire, Split-Phase Service Panel



### Example 2

#### Wiring in a 4-Wire, 3-Phase Service Panel



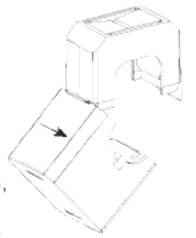
## Navigating the Meter's Display

KWH KW	SYS:50.02 SYS:50.23	KWH KW	1:453.2 2:445.3 3:800.2	CT2 Type: RoCoil Rating: 4000
KVA KVAR	SYS:50.02 SYS:50.23	KVA KVAR	1:50.23 2:4000 3:800.2	CT3 Type: RoCoil Rating: 4000
V	1:120.2 2:120.4 3:120.2	VAR	1:50.23 2:4000 3:800.2	SN: P031501001 FW: v2.10
A	1:50.23 2:4000 3:800.2	SYS aPF: 1.0 PK Demand: 12874	RS485: 115200 Addr: 1	Protocol: BACnet 192.168.100.101
W	1:50.23 2:4000 3:800.2	CT1 Type: RoCoil Rating: 4000		

## Current Transformer Basics

To ensure safety and maintain UL listings, use only CTs provided by Leviton.

- Do not use on services greater than 600V AC.
- CTs are 333.3 mV (1/3V) output voltage or RoCoil.
- Select CTs with the appropriate current range for the circuit (5-120% of CT rating recommended).
- Ensure arrow points towards load (or as instructed by CT label).
- Place CT on first conductor of voltage reference. Example: for L1-L2 circuits without neutral, place CT on L1.
- Observe wiring color and polarity: For millivolt CTs, the white wire is (+) and the black wire is (-). For RoCoils, the white is (+), brown is (-), and the bare shield wire connects to the terminal marked "S".



Using the LCD Screen

The meter features a navigation thumb wheel, which allows the user to scroll up or down and select menu options on the LCD screen; however, you must use Power Meter Viewer software to configure the meter.

TECHNICAL SPECIFICATIONS	
Service Types	Single phase, split phase, three phase four wire (WYE), three phase three wire (Delta)
Voltage Input Channels	90/240V AC line to neutral, 60/120V L-L CAT III For 48 Circuit Models Only: Two independent voltage reference inputs
Current Channels	3 channels, 0-525V AC max, 333 mV CTs, 0-4,000+Amps depending on current transformer
Maximum Current Input	150% of current transformer rating (mV CTs) to maintain accuracy. Measure up to 4,000A with RSCoil CTs
Measurement Type	True RMS using high speed digital signal processing (DSP) with continuous sampling
Line Frequency	50-60 Hz
Power	From L1 Phase to L2 Phase (0-600V AC RMS CAT III 50/60 Hz, 500 mA AC Max) Use of 12V auxiliary output requires 120V AC minimum input voltage
AC Protection	0.5A Fuse 200 kA interrupt capacity
Power Out	Unregulated 12V DC output, 200 mA, self-protecting fuse
Waveform Sampling	10 kHz
Parameter Update Rate	1 second
Measurements	Volt, Amp, kW, kVAR, kVA, aPF, dPF, kW demand, kVA demand, Import (Received) kWh Export (Delivered) kWh, kVAh, kVAh, Import (Received) kWh, Export (Delivered) kWh, Net kVAh, THD, Theta, Frequency, All parameters for each phase and system total
Accuracy	0.2% ANSI C12.20 Class 0.2
Resolution	Values reported in IEEE 754 single precision floating point format (32 bit)
Indicators	24-line display, 16 color backlight
Alarm Output	Voltage Phase Loss Alarm (SPDT Relay - 30V DC) only
Communication	
Hardware	RS-485, Ethernet, and USB (for configuration only)
Supported Protocols	Modbus™ RTU or TCP (Request frame, Slave Response protocol, MS/TP) Modbus™ SunSpec IEEE 754 single precision floating point mode Modbus™ TCP BACnet™
Max. Communication Length (RS485)	1,200 meters total length Belden 1,120A or equivalent cable with Data Range of 100K bits/second or less
RS-485 Loading	1 Element
Communication Rate (baud)	Modbus 9600 (Default), 19200, 38400, 57600, 76800, 115200 BACnet 9600 (Default), 19200, 38400, 76800
Data Bits	8
Parity	None, Even, Odd
Stop Bit	2, 1
Termination	None provided
Mechanical	
Wire Connections & Voltage	12-22 AWG 600V AC, Voltage connection must be #14 AWG or larger and rated 600V AC
Mounting	Enclosure or Panel Mount
High-Voltage Cover	IP30 (embedded version)
Operating Temperature	-4 to 140°F (-20 to +60°C)
Humidity	5% to 95% non condensing
Enclosure	ABS Plastic, 94-V0 flame rating, connections sized for 1-inch EMT conduit
Dimensions	(L) 12.3 in x (W) 9 in x (H) 3.1 in (L) 33.7 cm x (W) 25.1 cm x (H) 9.0 cm (enclosure version) (L) 10.5 in x (W) 9.8 in x (H) 3.1 in (L) 26.7 cm x (W) 24.1 cm x (H) 9.0 cm (mounting plate version)
PCBA Dimensions	(L) 8.5 in x (W) 6.5 in x (H) 2.5 in (216 cm x 216 cm x 6.4 cm)
VeriEye S7 Configuration Utilities Minimum System Requirements	
Operating System	Windows® 7, Windows 8, Windows 10
Communications Port	USB or Ethernet connectivity
Certifications	FCC Part 15 Class A

**FCC STATEMENT:**  
This device complies with Part 15 of the FCC Rules and ISSED License-exempt RSS standard(s). Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) This device must accept any interference received, including interference that may cause undesired operation. Changes or modifications not expressly approved by Leviton could void the user's authority to operate the equipment. These limits are designed to provide reasonable protection against harmful interference in a commercial installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

This Class A digital apparatus complies with Canadian CAN ICES-3(A)/NMB-3(A).

**TRADEMARK DISCLAIMER:** Use herein of third party trademarks, service marks, trade names, brand names and/or product names are for informational purposes only, and may be the trademarks of their respective owners; such use is not meant to imply affiliation, sponsorship, or endorsement. PowerCheck and TouchSafe are trademarks of Dent Instruments. Modbus is a trademark of Schneider Electric USA, Inc. and BACnet™ is a trademark of ASHRAE.

Internal and External Meter Parts

1. Display

2. High-Voltage Cover

3. CT Connections (x3)

4. Serial RS-485

5. Alarm

6. Thumb Wheel
7. USB-C

8. DIN Rail Channel

9. Ethernet Port

10. Conduit Connection 0.5" (x3)

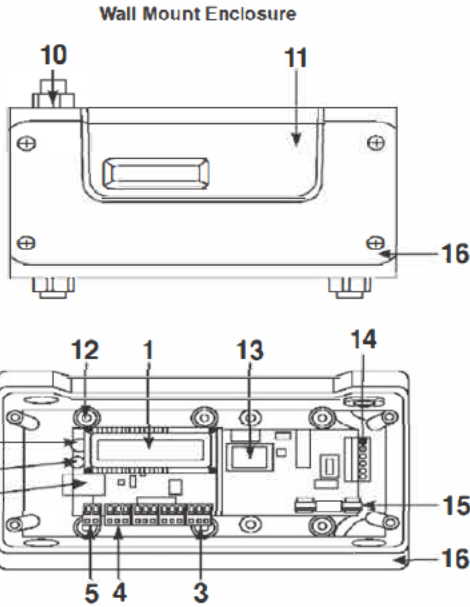
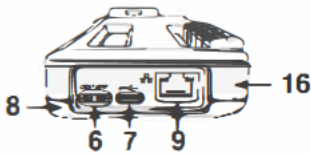
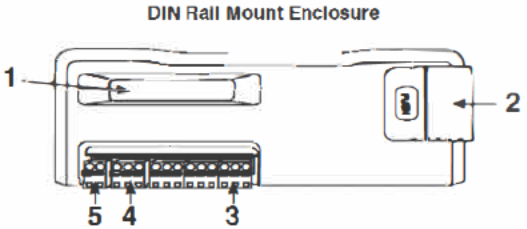
11. Wall Mount Enclosure Top

12. Mounting Holes
13. Circuit Board

14. Voltage Connection

15. High-Voltage Cover

16. ABS Plastic Enclosure



**FCC SUPPLIER'S DECLARATION OF CONFORMITY:**  
Models 70103 and 71003 are sold by Leviton Manufacturing Inc. 201 N. Service Rd. Merville, NY 11747. This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

LIMITED 5 YEAR WARRANTY AND EXCLUSIONS

Leviton warrants to the original consumer purchaser and not for the benefit of anyone else that this product at the time of its sale by Leviton is free of defects in materials and workmanship under normal proper use for five years from the purchase date. Leviton's only obligation is to correct such defects by repair or replacement, at its discretion. This warranty excludes and there is disclaimed liability for labor for removal of this product or reinstallation. This warranty is void if this product is installed improperly or in an improper environment, overloaded, misused, opened, abused, or altered in any manner, or is not used under normal operating conditions or not in accordance with any labels or instructions. There are no other or implied warranties of any kind, including merchantability and fitness for a particular purpose, but if any implied warranty is required by the applicable jurisdiction, the duration of any such implied warranty, including merchantability and fitness for a particular purpose, is limited to five years. Leviton is not liable for incidental, indirect, special, or consequential damages, including without limitation, damage to, or loss of use of, any equipment lost sales or profits or delay or failure to perform this warranty obligation. The remedies provided herein are the exclusive remedies under this warranty, whether based on contract, tort or otherwise.