



ENERGY | ALLOCATION | SYSTEM | INFORMATION

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# AcuPanel-EASI-48

## Installation Guide

48 Channel Subpanel  
Energy Code Compliance Metering



C12.20 .2 CLASS

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This AcuPanel-EASI-48 Installation Guide provides informational and operational guidance regarding the use of the panel. While effort has been made to ensure the accuracy, reliability, and completeness of the information at the time of publication, Accuenergy assumes no responsibility for any errors, omissions, or misunderstandings in this document and reserves the right to modify its content at any time without prior notice.

Users should verify with Accuenergy or their authorized local representative that the document in use is the latest version and strictly adhere to the installation, operation, and maintenance procedures specified herein. Accuenergy shall not be held liable for any damages or consequences resulting from improper use or failure to comply with the provisions of this document.

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Safety Notice

Please read this document carefully before the installation, operation, or maintenance of the AcuPanel-EASI-48.

If the equipment is used in a manner not specified by Accuenergy, the protection provided by the equipment may be impaired.

All maintenance work must be performed by a qualified professional who has received formal training and has experience with high voltage and high current devices.

Ensure power is disconnected before wiring or servicing the panel.

De-energize and lock out all circuits before installation.

Do not install or disconnect CTs on energized conductors.

Follow all applicable electrical codes.

Disconnecting means and overcurrent protection may be required as per code requirements.

Ensure CT polarity and phase alignment are correct.

Accuenergy is not responsible or liable for any damages or injuries caused by improper submeter installation and/or operation.

**NOTE:** THERE IS NO REQUIRED PREVENTIVE MAINTENANCE OR INSPECTION NECESSARY FOR SAFETY. HOWEVER, ANY REPAIR OR MAINTENANCE SHOULD BE PERFORMED BY THE FACTORY.

**DISCONNECT DEVICE:** A SWITCH OR CIRCUIT-BREAKER MUST BE INCLUDED IN THE INSTALLATION.

IT SERVES AS THE DESIGNATED DISCONNECT DEVICE FOR THIS EQUIPMENT.

THE SWITCH MUST BE LOCATED IN CLOSE PROXIMITY TO THE EQUIPMENT AND WITHIN EASY REACH OF THE OPERATOR. THE SWITCH SHALL BE MARKED AS THE DISCONNECTING DEVICE FOR THE EQUIPMENT.

Important Symbols

-  **ELECTRIC HAZARD SYMBOL:** Indicates the presence of electrical hazards and dangerous voltages that may result in electric shock, serious injury, or death if proper procedures are not followed.
-  **WARNING SYMBOL:** Indicates a hazardous circumstance, if not considered, may result in injury or death.
-  **INFO:** Provides additional information before an action shall be taken by the user.

1. Overview

The AcuPanel-EASI-48 is a factory-assembled, NEMA 4X-rated energy-monitoring subpanel designed for enterprise-level submetering in large commercial buildings and industrial facilities. It includes two AcuRev 4100 multi-channel submeters in a compact pre-wired enclosure, each with its own voltage reference and communication ports, simplifying installation for electrical contractors and ensuring compliance with major energy codes.

Typical Applications

- Energy code compliance for ASHRAE 90.1, IECC C406.10, and California Title 24
- High-density branch-circuit and feeder-level metering for large commercial buildings and industrial facilities
- Monitoring up to 48 mixed-phase circuits
- Interior and exterior lighting
- HVAC

2. Product Components Included

- A** AcuPanel-EASI-48 Subpanel
- B** Two AcuRev 4100 Multi-Channel Submeters
- C** Four Wall Mount Lugs and Screws
- D** Screwdriver
- E** Angled Slim Patch Ethernet Cable
- F** AK-03 Kit Includes Three Inline Fuses
- G** Quick Setup Guide (Not Pictured)



Figure 2-1 AcuPanel-EASI-48 Components

 **Current transformers are ordered separately. Verify the CT model, ratio, and cable length before installation.**

### 3. Appearance and Dimensions

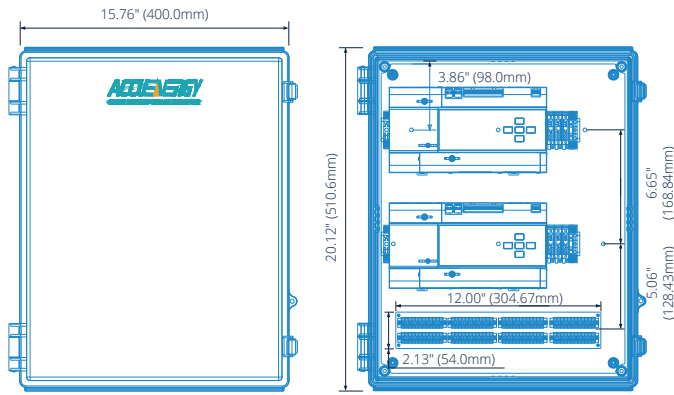


Figure 3-1 AcuPanel-EASI-48 Exterior Dimensions

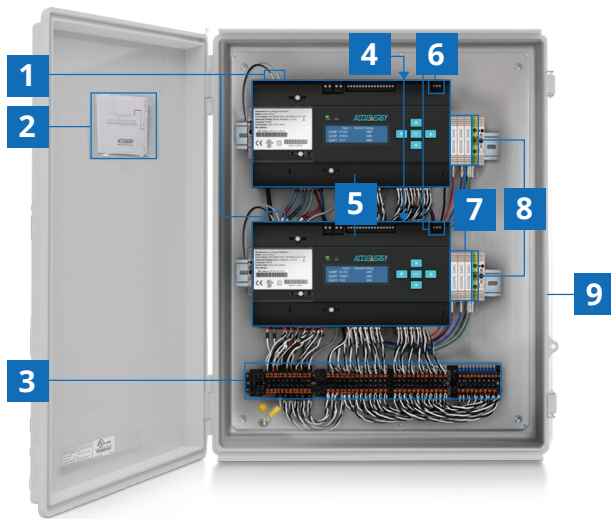


Figure 3-2 AcuPanel-EASI-48 Interior Mapping

- |   |                                             |   |                   |
|---|---------------------------------------------|---|-------------------|
| 1 | AcuRev 4100 Submeter Power Supply Terminals | 6 | RS485 Terminals   |
| 2 | Wiring Configuration Document               | 7 | Voltage Terminals |
| 3 | 48 Current Transformer Terminals            | 8 | Ground Terminals  |
| 4 | Dual Ethernet Ports                         | 9 | NEMA 4X Enclosure |
| 5 | Pre-Wired AcuRev 4100 Submeters             |   |                   |

### 4. Installation

#### 4.1 Mounting Tools

- |                   |                                 |
|-------------------|---------------------------------|
| 1. Electric Drill | 5. Conduit Knockout Punch Tool  |
| 2. Level          | 6. Cable/Conduit Fittings       |
| 3. Wire Cutter    | 7. Grommets and Cable Retention |
| 4. Side Cutter    |                                 |

#### 4.2 Mounting the Panel

Installation of a subpanel involves exposure to hazardous voltages. The process must be performed by a qualified or licensed electrician.



Before commencing wiring or servicing of the subpanel, ensure to de-energize and lock out all the circuits.

The AcuPanel-EASI-48 is designed for vertical surface mounting using the provided hardware. Select a structurally suitable mounting surface that can support the weight of the enclosure and the installed wiring.

Typical mounting surfaces may include electrical distribution panels, rated equipment backboards, concrete or masonry walls, or other suitable surfaces, provided that the mounting surface complies with applicable electrical codes.

#### Surface Mounting

##### Step 1: Select an Optimal Mounting Location

The mounting location should be easily accessible, dry, and free from excessive vibration or heat. The panel is NEMA 4X/IP66 rated for indoor or outdoor use.

##### Step 2: Position the Enclosure

Place the AcuPanel-EASI-48 against the mounting surface in the required orientation. Ensure sufficient clearance around the enclosure for conduit connections and door swing.

##### Step 3: Install the Mounting Lugs

Install the four wall-mount lugs into the four corner mounting holes at the rear of the enclosure. Mount the enclosure vertically by securing the screws through the lugs into the mounting surface.

##### Step 4: Verify the Installation

Confirm that the enclosure is stable, level, and firmly secured. Verify that the door opens and closes freely and that adequate space remains for conduit and cable connections.

#### Conduit and Cable Connections

All conduit and cable connections must enter through the bottom or sides of the enclosure. Remove the required openings using an appropriate knockout punch tool or approved method.

##### Step 1: Install Conduit

Install conduit between the distribution panel and the AcuPanel-EASI-48. Route the voltage leads, CT secondary cables, and communication cables through the conduit.

Install appropriate conduit fittings and grommets.

##### Step 2: Verify Cable Entry

Verify that all conduit and cables are securely installed inside the panel and that cable routing does not interfere with the enclosure door or internal components.



Unused openings must be sealed with appropriate fittings to maintain the NEMA 4X rating.

#### 4.3 Voltage & Control Power Wiring

Verify with a meter that the source panel and conductors are fully de-energized before making any voltage connections.



Ensure proper protective earthing and compliance with electrical safety standards.

#### Factory-Wired and Field-Wired Connections

The submeter control power, voltage reference, and current input terminal connections are completed at the factory, as seen in Figure 3-2. No field wiring is required for these internal connections.

The installer only needs to connect the external voltage reference, CT secondary leads, communication cables, and facility ground as described below.

### Step 1: Connect Voltage Reference

Connect the voltage reference wires to the panel terminal blocks labelled L1, L2, and L3.

Connect the N lead to the neutral bus in the distribution panel.

The voltage reference provides power to the entire enclosure, and an additional control power supply is not required.

**i** Each of the two submeters in the EASI-48 operates independently with its own voltage reference and wiring configuration.

Meter 1 and Meter 2 must be wired independently.

### Step 2: Install Inline Fuses

Install the inline fuses supplied on the voltage-reference leads.

### Step 3: Connect Ground

To complete the ground path, connect the common ground point of the AcuPanel-EASI-48 to the facility grounding system.

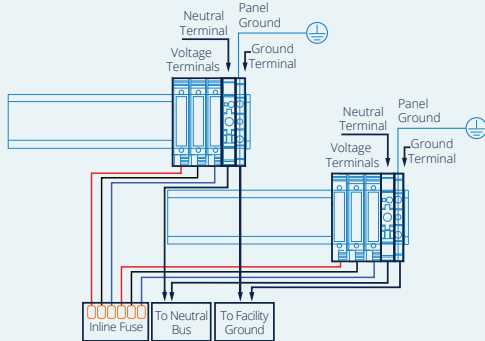


Figure 4-1 Voltage Connection

## 4.4 Current Transformers Wiring

Short-circuit the secondary of the CT before disconnecting. Do not leave the secondary of the CT open-circuited on an energized conductor.

**!** Ensure the polarity of the CT aligns with the connected phase correctly.

To reduce the risk of electric shock, always open or disconnect the circuit from the building power distribution system before installing or servicing current transformers.

### Step 1: Install and Orient the CT

Clamp or install selected CTs around each monitored conductor according to the Accuenergy current transformer or manufacturer's installation guide. Ensure the CT polarity arrow points toward the source.

### Step 2: Route the CT Leads

Route CT secondary cables through the conduit into the panel and keep CT leads away from high-voltage conductors to avoid interference.

### Step 3: Connect the Current Transformers

Connect the CT secondary leads to the appropriate current input terminals inside the panel. Current terminals for Meter 1 are CT1 to CT24 and Meter 2 are CT25 to CT48.

### Step 4: Verify the CT Connection

Ensure that the CT leads are terminated at the correct polarity terminals on the panel.

The terminals are labelled CT1+/CT1-, CT2+/CT2-, through CT48+/CT48- on the panel interior.

| Meter   | Monitored Channel |
|---------|-------------------|
| Meter 1 | Channels 1 - 24   |
| Meter 2 | Channels 25 - 48  |

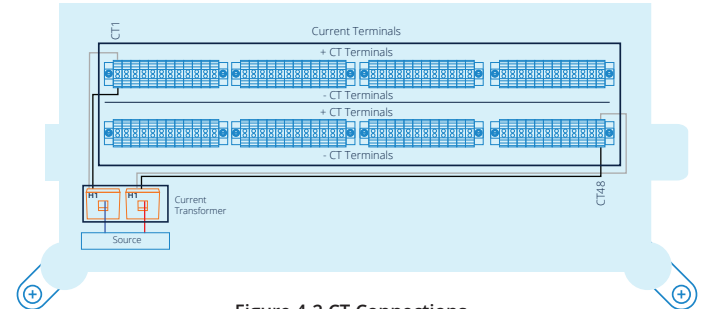


Figure 4-2 CT Connections

### Step 5: Verify the Wiring Configuration

Confirm the wiring matches the actual circuit type. Refer to the wiring diagrams below for wiring configurations.

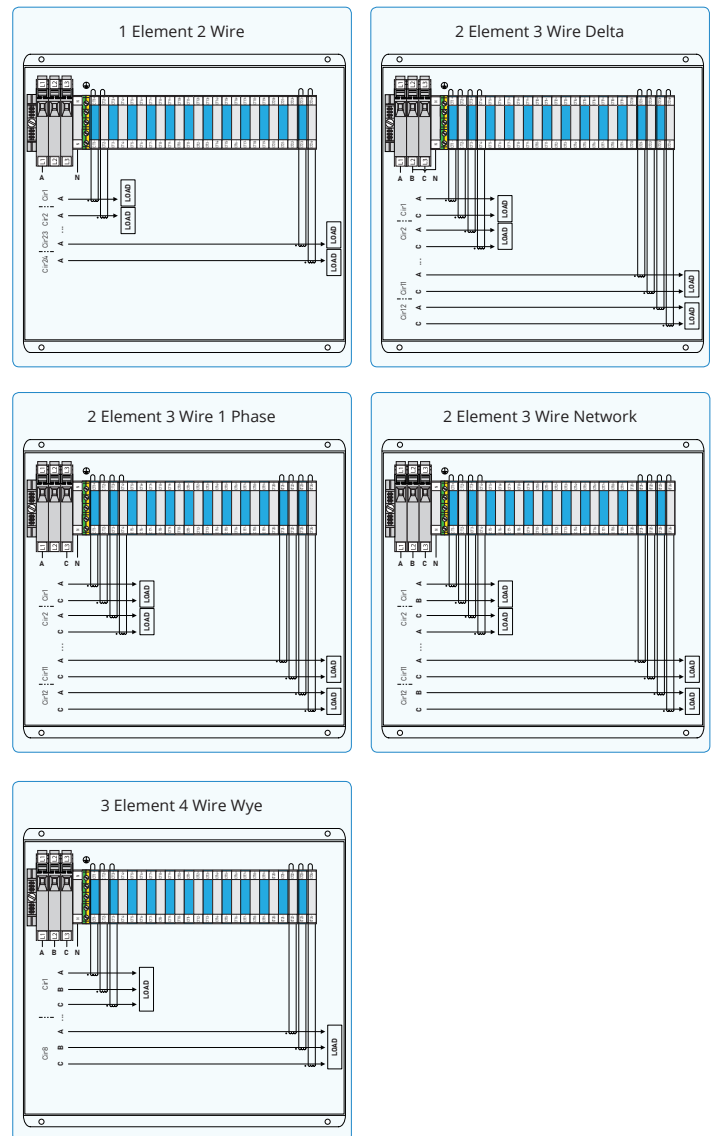


Figure 4-3 Wiring Configurations

4.5 Communication Wiring

The AcuPanel-EASI-48 has independent communication ports for each AcuRev 4100 submeter. Each submeter has dual Ethernet ports and one RS485 port. Assign a unique communication address to each submeter to avoid conflicts on shared RS485 or Ethernet networks.

Step 1: Set up RS485 Communication

Connect the RS485 A+, B-, and S terminals of each AcuRev 4100 submeter for Modbus RTU or BACnet MS/TP communication. Maintain the correct polarity.

For a multi-device daisy-chain connection, terminate the RS485 bus with a 120 Ω resistor at each physical end of the cable run.

Step 2: Set up Ethernet Communication

Connect an Ethernet cable to either of the two RJ45 Ethernet ports on each AcuRev 4100 submeter. The dual Ethernet ports support RSTP bridging for daisy-chain network topologies.

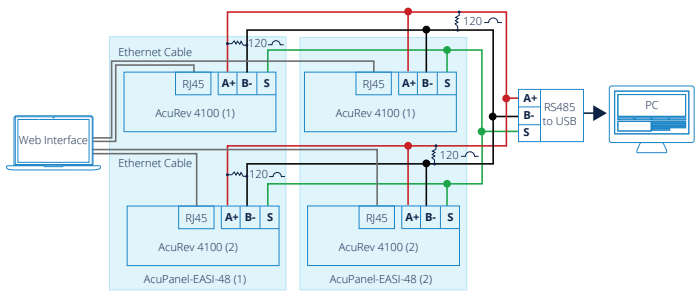


Figure 4-4 Ethernet and RS485 Connection

5. Commissioning & Configuration

5.1 Pre-Energization Checklist

Before energizing the AcuPanel-EASI-48, verify that:

- CT connections are secure and installed in the correct phase for all 48 channels.
- Voltage reference wiring is verified for both submeters.
- Each submeter is assigned a unique communication address.
- No tools or debris are present inside the panel.
- All enclosure covers are installed.

5.2 Power-Up Verification

Step 1: Energize the Monitored Circuit

After completing the pre-energization checks, energize the monitored circuit. Both AcuRev 4100 submeters' should illuminate and display real-time electrical parameters within a few seconds.

Step 2: Verify the Submeter Readings

Verify voltage and current readings on the screen of each submeter. Meter 1 should display measurements for channels 1 - 24, while Meter 2 should display channels 25 - 48.

If readings are zero or incorrect, check the voltage reference wiring and CT secondary wiring to ensure there are no open circuits.

5.3 Submeter Configuration

Accuenergy Commissioning Service

Accuenergy provides on-site or remote commissioning for all AcuPanel-EASI systems. Complete the Accuenergy configuration form and submit it to your Accuenergy project contact. The configuration form must be submitted in digital format only. Scans or photos of handwritten printouts are not accepted. The Accuenergy technical team will remotely conduct channel mapping, virtual meter creation, and CT assignments. Email: [codehelp@accuenergy.com](mailto:codehelp@accuenergy.com) or [fieldservices@accuenergy.com](mailto:fieldservices@accuenergy.com). Call: 1-877-721-8908.

Independent Mode

For independent setup, the following settings must be configured on each of the two AcuRev 4100 submeters:

|                       |                                                                                          |
|-----------------------|------------------------------------------------------------------------------------------|
| Wiring Mode           | Set to match the circuit type: 1EL2W, 2EL3W, 3EL4W Y, 2EL3W Δ, or 2EL3W Network.         |
| CT Ratio              | Set to match the primary rating of the CTs.                                              |
| Communication Address | Assign a unique Modbus device address to each meter.<br>Default:1                        |
| Channel Mapping       | Assign each of the 48 inputs to the correct load category for code compliance reporting. |

5.4 Phase & CT Verification

Step 1: Verify Submeter Readings

Verify that per-phase voltage, current, and power factor readings for both submeters align with the expected values for the connected load.

Step 2: Rectify CT Polarity and Mapping

If a phase shows negative power or energy flowing in the wrong direction, use the CT polarity correction feature in the submeter configuration of the AcuPanel-EASI-48 to rectify the CT orientation in software.

The AcuRev 4100 has built-in phase verification and configurable CT mapping to rectify wiring or CT orientation errors through software. No physical rewiring is required in most cases.

5.5 Post Power-Up Troubleshooting

| Observed Error                                          | Possible Cause                                        | Recommended Action                                                                                                                                  |
|---------------------------------------------------------|-------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------|
| No Display on Either Submeter                           | No Control Power                                      | Check Voltage Wiring and the Source Breaker.                                                                                                        |
| Display Visible, but Readings are Zero on Some Channels | CT Leads Not Connected to those Terminals             | Verify CT Secondary Leads are Connected to the CT Terminals.                                                                                        |
| Negative Power Reading                                  | CT Installed Backwards or CT Installed on Wrong Phase | Swap CT Polarity or Make Correction using CT Polarity Correction Feature in Software. Swap the Phase or Reassign Phases in the Meter Configuration. |
| Zero Current Reading                                    | Open CT Circuit or Incorrect Terminal                 | Check CT Connections at Terminal Block; Ensure CT Secondary is Not Open-Circuited.                                                                  |

|                                  |                                                         |                                                                                       |
|----------------------------------|---------------------------------------------------------|---------------------------------------------------------------------------------------|
| Voltage Mismatch on One Submeter | Wrong Phase Connection or Wiring Mode for That Submeter | Verify Wiring Configuration for That Submeter Matches Actual Circuit Type.            |
| Incorrect Energy Readings        | Wrong CT Ratio or Phase Mismatch                        | Reconfigure CT Ratio; Verify CT Phases Match Voltage Reference Phases.                |
| No RS485 Communication           | Duplicate Device Address or Wiring Polarity             | Check RS485 A+/B- Wiring Polarity; Confirm Each Submeter Has a Unique Device Address. |
| No Ethernet Communication        | Network Conflict or Incorrect IP                        | Verify IP address and Subnet Settings for Each Submeter Independently.                |
| Erratic or Fluctuating Readings  | CT Leads Routed Near High-Voltage Conductors            | Re-route CT Cables Away from Power Conductors.                                        |

## 6. Network Integration

The AcuPanel-EASI-48 contains two independent AcuRev 4100 submeters, each with its own communication ports.

Both submeters can be integrated into a Building Management System (BMS), or Energy Management System (EMS), or connected to an AcuHMI gateway for centralized monitoring.

Each submeter must be configured and addressed independently.

| Integration Path          | Details                                                                                                                                               |
|---------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>BACnet MS/TP</b>       | Connect via one RS485 Port to Configure Device Instance and Baud Rate Independently for Each Submeter.                                                |
| <b>Modbus RTU</b>         | Connect via one RS485 port to Assign a Unique Address and Baud Rate to Each Submeter.                                                                 |
| <b>Modbus TCP</b>         | Connect via Ethernet. Assign a Unique IP Address and Port to Each Submeter. Default: 502                                                              |
| <b>AcuHMI Gateway</b>     | Connect via RS485 or Ethernet of Both Submeters to a Single AcuHMI for Centralized Local Data Storage, Touchscreen Display, and Web Interface Access. |
| <b>AcuCloud / AWS IoT</b> | Available via AcuHMI as an Upstream Data Path; Optional Extended Cloud Data Retention.                                                                |

## 7. Accessing Energy Data

The AcuPanel-EASI-48 provides access to measured electrical data through each individual AcuRev 4100 submeter.

### Step 1: Enter Metering Mode

Press OK to enter the Main Menu. Use Left, Right, Up, and Down arrow keys to select Readings, then press OK.

### Step 2: View Parameters

In the Readings menu, use the Up and Down keys to select Real-Time, then press OK to view the voltage, current, power, power factor, and frequency readings.

Select Energy to view imported, exported, and other energy readings.

Use the Right and Left arrow keys to navigate between available parameters and channels.

### Step 3: View Channel Data

Select the appropriate input channel to view individual circuit

measurements. Meter 1 provides readings for channels 1 - 24, and Meter 2 provides readings for channels 25 - 48.

Refer to the AcuRev 4100 User Manual for detailed instructions on submeter navigation, configuration, communication, and data access.

## 8. Product Specifications

| Specification                      | AcuPanel-EASI-48                                                                |
|------------------------------------|---------------------------------------------------------------------------------|
| <b>Enclosure</b>                   | NEMA 4X Polycarbonate                                                           |
| <b>Dimensions</b>                  | 20.12" (L) x 15.76" (W) x 6.3" (D)                                              |
| <b>Meters</b>                      | 2 AcuRev 4100 Multi-Channel Submeters                                           |
| <b>Current Inputs</b>              | 48 Configurable Inputs for Any Combination of One, Two, or Three-Phase Circuits |
| <b>CT Input Types</b>              | 80 mA, 100 mA, 333 mV, Rogowski Coil CTs                                        |
| <b>CT Terminals</b>                | Labelled Push-In CT Input Terminals                                             |
| <b>Nominal Voltage</b>             | 60 - 480 VAC L-N, 60 - 830 VAC L-L                                              |
| <b>Voltage Reference Terminals</b> | 2 (1 Per Meter)                                                                 |
| <b>Wiring Configurations</b>       | 1EL2W, 2EL3W, 3EL4W Y, 2EL3W Δ (up to 480 V), 2EL3W Network                     |
| <b>Control Power</b>               | 100 - 480 VAC, 50/60 Hz, <6W                                                    |
| <b>Frequency Range</b>             | 42.5 - 69 Hz                                                                    |
| <b>Accuracy</b>                    | ANSI C12.20 Class 0.2 / IEC 62053-22 Class 0.2S                                 |
| <b>Ethernet Ports</b>              | 4 (2 Per Meter)                                                                 |
| <b>RS485 Ports</b>                 | 2 (1 Per Meter)                                                                 |
| <b>Protocols</b>                   | Modbus RTU, Modbus TCP, BACnet MS/TP                                            |
| <b>Display</b>                     | LCD                                                                             |
| <b>Digital I/O</b>                 | 8 Digital Outputs, 2 Relay Outputs, 4 Digital Inputs (Per Meter)                |
| <b>Operating Temp.</b>             | - 25 °C to +70 °C (- 13 °F to +158 °F)                                          |
| <b>Storage Temp.</b>               | - 40 °C to +85 °C (- 40 °F to +185 °F)                                          |
| <b>Humidity</b>                    | 0% to 95% RH                                                                    |
| <b>Certifications</b>              | UL 508A, UL 61010-1, IEC 61010-2-30, IEC 62052-31, ANSI C12.20, CE              |

## 9. Support & Resources

|                                |                                                                                                                                                                          |
|--------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Technical Support</b>       | 1-877-721-8908<br><a href="mailto:codehelp@accuenergy.com">codehelp@accuenergy.com</a><br><a href="mailto:fieldservices@accuenergy.com">fieldservices@accuenergy.com</a> |
| <b>Website</b>                 | <a href="https://easi.accuenergy.com">https://easi.accuenergy.com</a>                                                                                                    |
| <b>Datasheet</b>               | <a href="https://easi.accuenergy.com/easi-48-datasheet">https://easi.accuenergy.com/easi-48-datasheet</a>                                                                |
| <b>Brochure</b>                | <a href="https://easi.accuenergy.com/easi-brochure">https://easi.accuenergy.com/easi-brochure</a>                                                                        |
| <b>AcuRev 4100 User Manual</b> | <a href="https://www.accuenergy.com/acurev-4100-manual">https://www.accuenergy.com/acurev-4100-manual</a>                                                                |

## Code Metering Services

| Commissioning                                  | Jump-Start Care                                                                      |
|------------------------------------------------|--------------------------------------------------------------------------------------|
| <b>Remote or On-Site Programming Available</b> | 12-Week Post-Sales Training and Remote Support Program Included with System Purchase |

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Specs Subject To Change Without Notice.



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