AcuPanel 9106X

Multi-Circuit Submetering Panel Installation Guide



c UL us

UL 508A

ACCUENERGY

Copyright © 2026 v1.0.0

All Accuenergy brands and trademarks in this document are the property of Accuenergy Inc. All other brands and trademarks may be the property of the respective owners of these rights.

This instruction may not be altered, copied or reproduced in whole or in part by any means without the expressed written consent of Accuenergy.

Please read this installation guide carefully before installation, operation, and maintenance of the AcuPanel 9106X.

The information contained in this document is believed to be accurate at the time of publication, however, Accuenergy assumes no responsibility for any errors which may appear here and reserves the right to make changes without prior notice as part of continuing improvements. Please ask the local representative for the latest product specifications before ordering.

The following symbols appear throughout this documentation and on the AcuPanel 9106X, in addition to the electrical warning of danger or safety risk during the installation, commissioning and operation.



Electrical Shock Hazard: Contains information about procedures which must be followed to prevent the risk of electric shock and danger that can result in personal injury or death.



Safety Warning: Contains information about circumstances which if not considered may result in personal injury or death.



Info: An advance notice to provide additional information before an action is taken by the user.

Installation and maintenance of the AcuPanel 9106X shall only be performed by qualified, competent professionals who have received training and have experience with high voltage and current devices.

Accuenergy shall not be responsible or liable for any damage caused by improper installation and/or operation.

Table of Contents

Introduction 5

- Overview 5

Package Contents 6

Appearance and Dimensions 7

Safety and Critical Installation Requirements 8

Panel Mounting Procedure 9

- Mounting Tools 9
- Typical Mounting Surfaces 9
- Mounting the Panel 9

9106X Panel Wiring 10

- Voltage Wiring 10
- Current Transformers Wiring 11
- Communications Wiring 13
- Ground Connection 15

Network Integration 16

Commissioning Checklist 17

Post Power-Up Troubleshooting 18

Accessing Energy Data 19

- On-Device Display 19
- Phase & CT Verification 19
- Meter Configuration 19

Product Specifications 20

Support & Resources 21

Introduction

Overview

The AcuPanel 9106X is a multi-circuit submetering panel featuring a pre-installed AcuRev 2100 submeter in a NEMA 4X-rated polycarbonate enclosure. Depending on configuration, it delivers revenue-grade energy metering and power quality analysis for up to 18 single-phase, or either 6 or 9 polyphase circuits simultaneously.

Its self-powered design draws operating power directly from the voltage measurement inputs, eliminating the need for a separate control power supply.



Figure 1 AcuPanel 9106X Multi-Circuit Submetering Panel

Typical Applications

- Commercial complexes and malls
- Apartments, condominiums, and multi-tenant buildings
- Hospitals and public service facilities
- Hotels and office buildings
- Tenant submetering and billing
- Branch circuit monitoring
- Energy management systems and LEED projects
- Data centres

Package Contents

Info

Carefully open the packaging of the panel and do not use excessive force.

Inspect all the contents of the package are not damaged before installing the panel.

A	AcuPanel 9106X Multi-Circuit Submetering Panel
B	Pre-installed AcuRev 2100 Multi-Circuit Submeter
C	Four Wall Mount Lugs and Screws
D	SnapOn CT Connectors
E	Wi-Fi Antenna (As Per Order)
F	Optional Control Power (Not Pictured)
G	Quick Setup Guide (Not Pictured)

A



B



C



D



E



Appearance and Dimensions

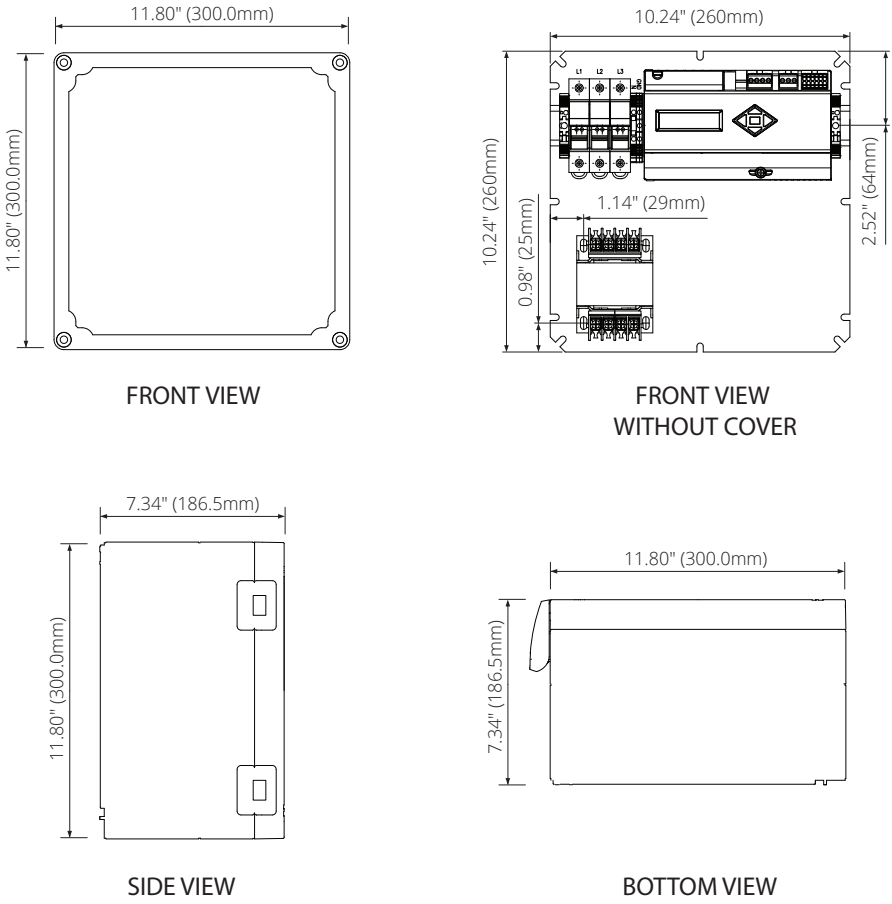


Figure 2 AcuPanel 9106X Dimensions

Safety and Critical Installation Requirements



Electrical Hazard

Installation of AcuPanel 9106X must only be performed by qualified or licensed electrical personnel following proper electrical safety procedures.

AcuPanel 9106X Installation Safety

- Before commencing the wiring or service of the submetering panel, ensure to de-energize and lock out all circuits.
- Short the secondary of the CT before disconnecting. Do not install or disconnect CTs or leave the secondary of the CT open on an energized conductor.
- Ensure 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.
- Verify the service is fully disconnected before making any voltage connections. Connect the common ground point of the AcuPanel 9106X to the facility grounding system.
- Ensure proper protective earthing and compliance with electrical safety standards.

Panel Mounting Procedure

Mounting Tools

1.	Electric Drill
2.	Level
3.	Wire Cutters
4.	Side Cutters
5.	Conduit Knockout Punch Tools
6.	Grommets and Cable Retention

Typical Mounting Surfaces

Select a structurally suitable mounting surface that can support the weight of the enclosure and wiring including electrical distribution panels, electrical backboard, concrete or masonry walls, or other suitable surfaces, provided that the mounting surface complies with applicable electrical codes.

Mounting the Panel

Step 1: Select the Mounting Location

Choose a mounting location that is easily accessible, dry, and free from excessive vibration or heat. The NEMA 4X panel is rated for indoor or outdoor use.

Step 2: Mount the Enclosure

Mount the enclosure vertically on a wall using the four corner mounting lugs supplied.

Step 3: Ensure Adequate Clearance

Ensure sufficient clearance around the enclosure for conduit entry and door swing.

Step 4: Install Conduit Connections

Drill conduit entry holes at appropriate locations on the enclosure as per application requirement. Openings include reference voltage and current inputs, RS485 and Ethernet connections. Seal unused openings with appropriate fittings to maintain the NEMA 4X rating.

Info

The AcuPanel 9106X is **NOT** pre-drilled for conduit.

All conduit holes must be drilled on-site by the installer to ensure connections are properly sized and located for the application.

9106X Panel Wiring

Factory Wired Connections

Control power and voltage reference wiring from the meter to the panel terminals are pre-wired and tested at the factory level.

Field-Wired Connections by Installer

The installer needs to carry out the external load voltage, current transformer, and communication wiring to the meter terminals as described in the following sections.

Voltage Wiring



Electrical Hazard

De-energize the source panel before making any wiring connections.

Verify with a meter that all conductors are de-energized.

Step 1: Connect the Load Voltage Reference

Connect the A, B, C load voltage leads and N to the terminal blocks labelled L1, L2, L3, and N in the AcuPanel 9106X.

Depending on the control power of the panel, a transformer is included in the panel. No separate control power supply is required. The voltage reference will supply control power to the entire enclosure through the control transformer.

Step 2: Install the Inline Fuses

It is recommended to install inline fuses with the voltage reference A, B, and C voltage lead connections for overcurrent protection.

Step 3: Verify the Wiring Configuration

Select the correct wiring configuration for the monitored circuit type.

Refer to the corresponding wiring diagram on the inside of the enclosure door.

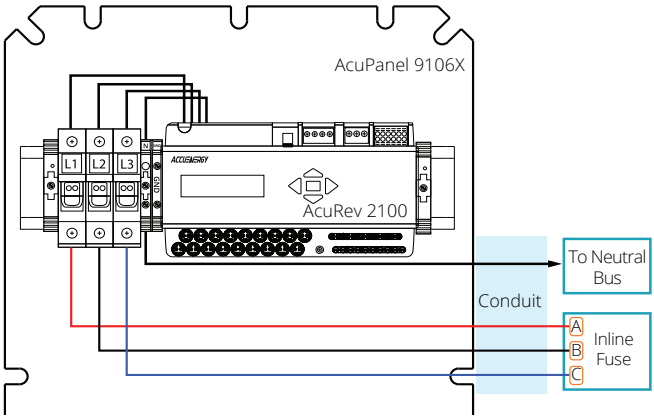


Figure 3 Voltage Connection

Current Transformers Wiring

Electrical Hazard

Never leave CT secondaries open-circuited on energized conductors. Short the secondary terminals before removing any CT.

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

Step 1: Installing the Current Transformers

Clamp or install selected CTs around each monitored conductor. Ensure to orient the CT polarity arrow points towards the load and away from the source. Follow the wiring diagram and instructions provided by the CT manufacturer.

Step 2: Routing the Secondary Cables

Route the CT secondary cables through the conduit to the AcuPanel 9106X. Keep the CT leads away from high-voltage conductors to avoid interference.

Step 3: Connecting the SnapOn CT Connectors

Connect CT secondary leads to the input terminals of the SnapOn connector. Each connector is clearly labelled by channel.

Push-in the SnapOn connector to the designated input terminal of the AcuRev 2100 multi-channel meter.

For Rogowski coil CTs, connect the integrator output to the corresponding channel SnapOn input. Ensure the coil overlap joint is properly closed around the conductor.

Compatible current transformers include 333 mV split-core or Rogowski coil CTs, 80 mA or 100 mA CTs, 5A CTs using the AcuCT C converter for the 80 mA or 100 mA current input.

.

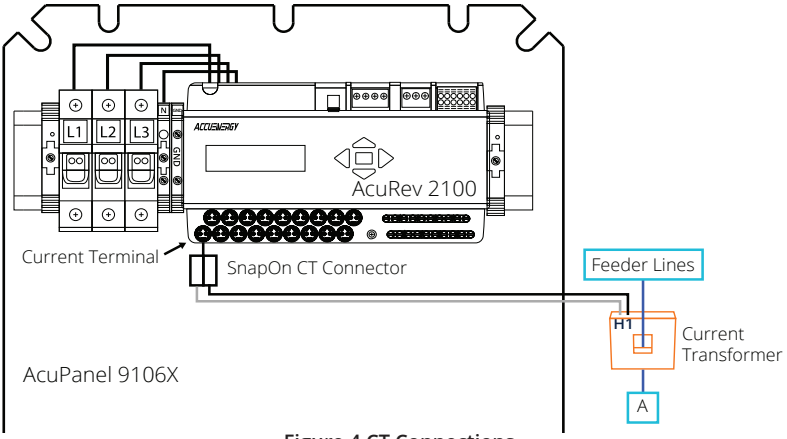


Figure 4 CT Connections

Info

Refer Current Transformers for further information.

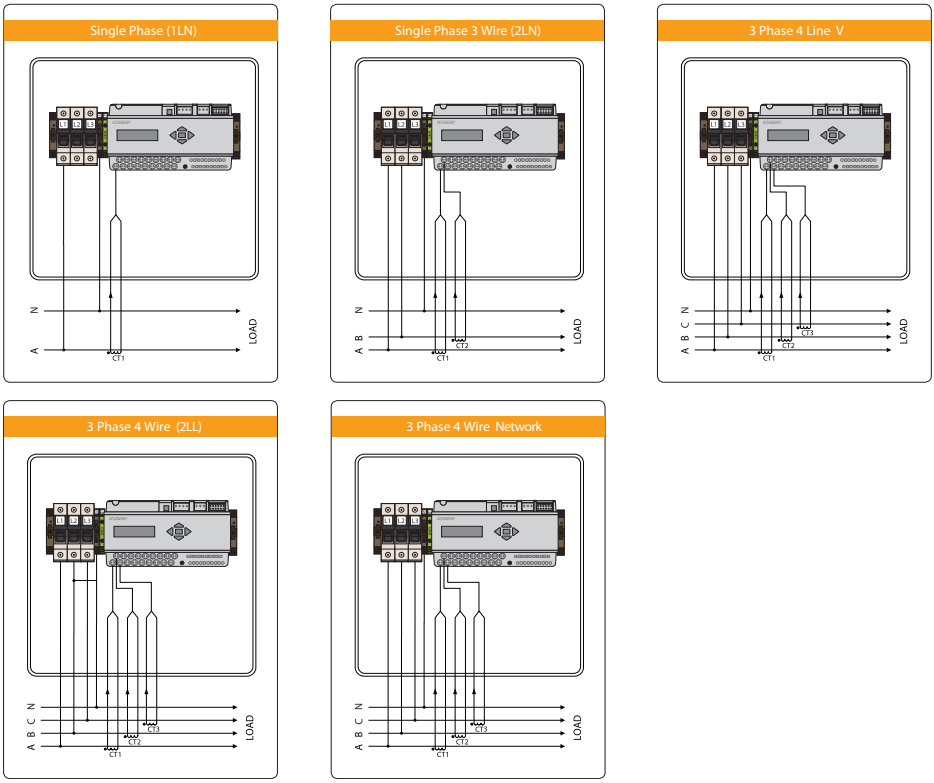


Figure 5 AcuPanel 9106X Wiring Diagrams

Communications Wiring

RS485 Wiring

Step 1: Connect the RS485 Wires

Connect the RS485 A+, B−, and S terminals on top of the AcuRev 2100 meter, to establish RS485 communication. Ensure to check for correct polarity.

Step 2: Terminate the RS485 Bus

Terminate the RS485 bus with a 120Ω resistor at each physical end of the bus if multiple devices are daisy-chained, as required by network configuration.

Ethernet and Wireless Communication

Step 1: Connect Ethernet

Connect an Ethernet cable to either of the dual Ethernet ports on the AcuRev 2100 for network communication. Configure the meter's network settings and the host system as required.

Step 2: Confirm Communication Option

Available hardware such as Wi-Fi antenna and network protocols supported by WEB2 module depend on the ordered panel configuration.

Step 3: Connect Wi-Fi Antenna

For a panel ordered with the WEB2 module, an additional Wi-Fi antenna is included with the package.

Connect the antenna at the designated connector. Do not connect the antenna to an unspecified meter port.

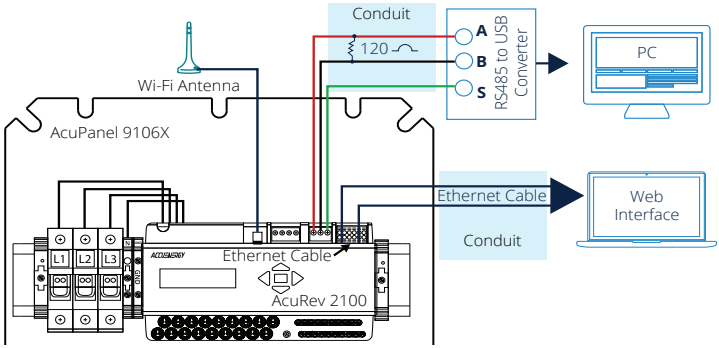


Figure 6 Communications Wiring

Ground Connection

Step 1: Locate the Ground Terminal

Locate the factory-installed common ground terminal inside the AcuPanel 9106X enclosure. All internal components are pre-wired to this ground point at the factory.

Step 2: Connect to Facility Ground

Connect the panel's common ground terminal to the facility grounding system in accordance with applicable local electrical codes to complete the ground path.

Step 3: Verify the Ground Connection

Verify that the ground connection is secure and provides a continuous grounding path before energizing the panel.

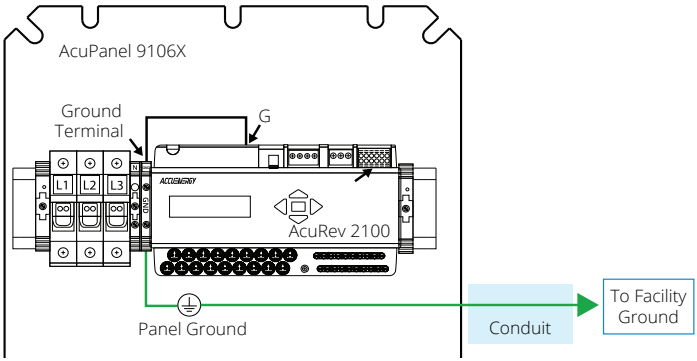


Figure 7 Ground Connection

Network Integration

The AcuPanel 9106X can be integrated into Building Management Systems (BMS), Energy Management Systems (EMS), or an AcuLink 810 gateway for centralized monitoring. Select an integration path based on the communication interface and optional modules installed.

Communication Interface / Optional Module	Integration Path	Connection Requirements
RS485	Modbus RTU	Set the Address and Baud Rate to Match the Master Device.
RS485	BACnet MS/TP	Ethernet Connection.
RS485	AcuLink 810 Gateway	Used for Local Data Storage and Access Web Interface.
WEB2	Modbus TCP	Ethernet Connection.
WEB2	BACnet/IP	Ethernet Connection with built in WEB2 and Configurable on Web Interface.
WEB2	SNMP / MQTT	Ethernet Connection and Configured on Web Interface.
WEB2 / AcuLink 810	AcuCloud	Ethernet Connection. Configure on Web Interface or use AcuLink 810 as an Upstream Data Path to Cloud Based Energy Management.

Commissioning Checklist

Check	Acceptance Criteria	Result
Pre-Energization Checklist	• CT connections secure and correctly phased. • Voltage wiring connections verified. • Panel clean of tools and debris. • All enclosure covers installed and latched.	Pass / Fail
Grounding	• Panel common ground terminal connected to facility ground.	Pass / Fail
Power-Up Verification	• AcuRev 2100 LED illuminates upon power-up. • Real-time electrical parameters are visible. • Voltage and current readings match expected values.	Pass / Fail
Phase & CT Verification	• Per-phase voltage, current, and power factor verified. • Readings match connected load before final acceptance.	Pass / Fail

Post Power-Up Troubleshooting

Observed Error	Possible Cause	Recommended Action
No Display	No Control Power	Check Voltage Wiring and Source Breaker
Display On, but Readings are Zero	CT Leads Not Connected	Verify CT Snap-On Connectors are Fully Seated on AcuRev 2100
Negative Power Reading	CT Installed Backwards or on Wrong Phase	Swap CT polarity or Correct in Software. Reassign Channel if Needed.
Zero Current Reading	Open CT Circuit, or CT Ratio Not Programmed	Check CT connections. Ensure CT Secondary is not Open-Circuited or Program CT Ratio.
Voltage Mismatch	Wrong Phase Connection or Wiring Mode	Verify Wiring Configuration Matches Actual Circuit Type.
Incorrect Energy Readings	Wrong CT Ratio or Phase Mismatch	Reconfigure CT Ratio. Verify CT Channels Matches Voltage Reference Phases.
Erratic or Fluctuating Readings	CT Leads Near High-Voltage Conductors	Reroute CT Cables Away from Power Conductors.
No RS485 Communication	Incorrect Wiring Polarity, Wrong Address or Baud Rate	Check RS485 A+ and B− Polarity. Verify Modbus Address and Baud Rate Match the Master Device.

Accessing Energy Data

On-Device Display

The AcuRev 2100 provides real-time readings per channel without any additional software. Available parameters include:

- Line and phase voltage
- Per channel current
- Active, reactive, and apparent power
- Power factor
- Frequency
- Cumulative energy, kWh import and export
- Demand
- 30-minute window of peak demand
- Voltage and current THD with harmonics up to the 31st order

Phase & CT Verification

The AcuRev 2100 supports CT polarity correction through software configuration. No physical rewiring is required in most cases.

Step 1: Verify Phase Readings

Check the per-phase voltage, current, power, and power factor readings against the expected values for the connected load. Confirm that the voltage and current measurements correspond to the correct phases.

Step 2: Check CT Polarity

If a channel shows negative power or energy flowing in the wrong direction, use the CT polarity correction feature in the meter configuration to flip the CT orientation in software.

Verify that per-phase voltage, current, and power factor readings align with expected values for each connected load before accepting final commissioning.

Meter Configuration

If manual configuration is required, the following settings must be programmed on the AcuRev 2100 meter.

- **Wiring Mode:** Set to match the primary circuit type for each channel.
- **CT Ratio:** Set to match the primary rating of the CTs for each channel.
- **Communication Address:** Assign a unique Modbus device address. The default address is 1.

Product Specifications

AcuPanel 9106X Specification	Description
Enclosure	NEMA 4X Polycarbonate
Dimensions	300.0 mm × 300.0 mm × 186.5 mm 11.81" (W) × 11.81" (H) × 7.34" (D)
Meter	AcuRev 2100 Multi-Circuit Submeter
Current Inputs	18 Single-Phase or 6 or 9 Polyphase Circuits Simultaneously
CT Input Types	333 mV or Rogowski Coil 80 mA or 100 mA
Nominal Voltage	Up to 400 V L-N / 690 V L-L
Wiring Configuration	Single Phase Single Phase 3 Wire 3 Phase 4 Wire
Control Power	P1: 100 - 415 VAC, 50/60 Hz, 100 - 300 VDC P3: 480 VAC P4: 600 VAC
Accuracy	ANSI C12.20 Class 0.5 IEC 62053-22 Class 0.5S
RS485 Port	1 Modbus RTU
Protocols	RS485 includes Modbus RTU, BACnet MS/TP WEB2 Communications Module includes Modbus TCP, BACnet/IP, MQTT.
Display	LED
Operating Temperature	-25°C to +70°C -13°F to +158°F
Certifications	UL 508A, UL 61010-1

Support & Resources

Resource	Details
Product Datasheet	https://www.accuenergy.com/acupanel-9106x-datasheet
User Manual	https://www.accuenergy.com/acurev-2100-manual
Firmware Updates	accuenergy.com/support/firmware
AcuCloud Login	acucloud.accuenergy.com
Commissioning	Remote or on-site programming available.

Accuenergy Commissioning Service

Accuenergy provides on-site or remote commissioning for all AcuPanel systems.

Contact fieldservices@accuenergy.com to request services.

MAKE ENERGY USAGE SMARTER

For additional help please reach out to:

Accuenergy Sales
Email: marketing@accuenergy.com
Tel: 416-497-4100 ext. 1

Accuenergy Technical Support
Email: support@accuenergy.com
Tel: 416-497-4100 ext. 3

ISO 9001, 14001 & 45001 Certified

ISO 27001 & 50001 Certified



Accuenergy Inc.
Los Angeles - Toronto - Pretoria
North America Toll Free: 1-877-721-8908
Web: www.accuenergy.com

Revision Date: October 2026 Version: 1.0.0

Specs Subject To Change Without Notice.