AcuPanel 9104X-DC

ACCUENERGY

Pre-Wired DC Control Panel
Datasheet

DESCRIPTION

Designed for monitoring and controlling DC systems, the AcuPanel 9104X-DC features the AcuDC 240 DC power & energy meter. The NEMA 4X polycarbonate enclosure offers protection from dust, water, extreme temperatures, and other harsh environmental conditions, making it suitable for both indoor and outdoor applications. The factory pre-wiring minimizes the risk of errors during installation. Thorough quality testing ensures that each AcuPanel 9104X-DC delivers reliable, long-term performance.

FEATURES

+ Built-in AcuDC 240 DC power & energy meter.

+ 0.2% accuracy on voltage and current; 0.5% on power and energy.

+ Self-powered design supports line-to-neutral connections without external power supply.

+ Durable polycarbonate enclosure with NEMA 4X rating for indoor & outdoor use.

+ Pre-cut entry points for easy cable routing.

+ Pre-wired & factory-assembled components for quick installation, no extra testing required.

+ Secure design with lockable housing provides additional protection against unauthorized access.

+ UL Listed and UL 508A certified for safe and dependable operation.

KEY FEATURES

Revenue Grade DC Metering

+ Featuring AcuDC 240 DC power & energy meter.
+ 0.2% accuracy on voltage and current & 0.5% on power and energy.
+ 0.1 Wh resolution for energy measurement.
+ Includes cable loss compensation for current, voltage, energy, and power.

Designed for Renewable Energy

+ Tailored for renewable energy such as DC coupled BESS and renewable production monitoring.
+ Compatible with Accuenergy's high-accuracy HAB DC current sensors, HAK Hall Effect sensors, and HV2 DC voltage sensor.
+ Providing detailed insights through accumulated totals and historical data logs.

UL Certified

+ UL Listed confirms the AcuPanel 9104X-DC has been thoroughly tested to meet UL safety standards for its intended use and environment.
+ UL 508A certification validates proper design and assembly using UL-approved components, reducing risks of electrical hazards.
+ Every AcuPanel 9104X-DC unit is rigorously tested to ensure reliable long-term performance.

Self-Powered Design

+ Reduces installation time and enables quick deployment.
+ Ideal for OEM projects requiring efficient and streamlined setup.

Custom OEM Solutions

+ Showcase your logo with custom branding.
+ Integrate specialized OEM components such as gateways, cellular modems, or power supplies.
+ Adjust panel dimensions to meet specific space or equipment requirements.
+ Consult our energy metering specialists to design a tailored panel solution for unique applications.

Pre-Wired in Factory

+ All components are pre-wired in the factory.
+ Colour-coded and clearly labelled for easy identification.
+ Eliminates wiring errors and simplifies future maintenance.
+ Accelerates installation and deployment while ensuring dependable long-term performance.

NEMA 4X Enclosure

+ Built with NEMA 4X rated polycarbonate enclosure.
+ Provides protection against dust, water, extreme temperatures, and harsh environmental conditions.
+ Suitable for both indoor and outdoor applications.
+ Safeguards sensitive metering equipment.

Secure Design

+ Includes a lockable enclosure to prevent unauthorized access.
+ Ensures data integrity and extends the lifespan of critical metering devices.

APPLICATIONS

+ DC Energy Management Systems
+ Power Distribution Systems
+ Renewable Energy
+ Industrial DC Control Systems
+ Metallurgy & Electroplating Industries

+ Light Rail Transit Systems
+ Electric Vehicle Charging
+ Data Centers
+ Cellular Tower Monitoring
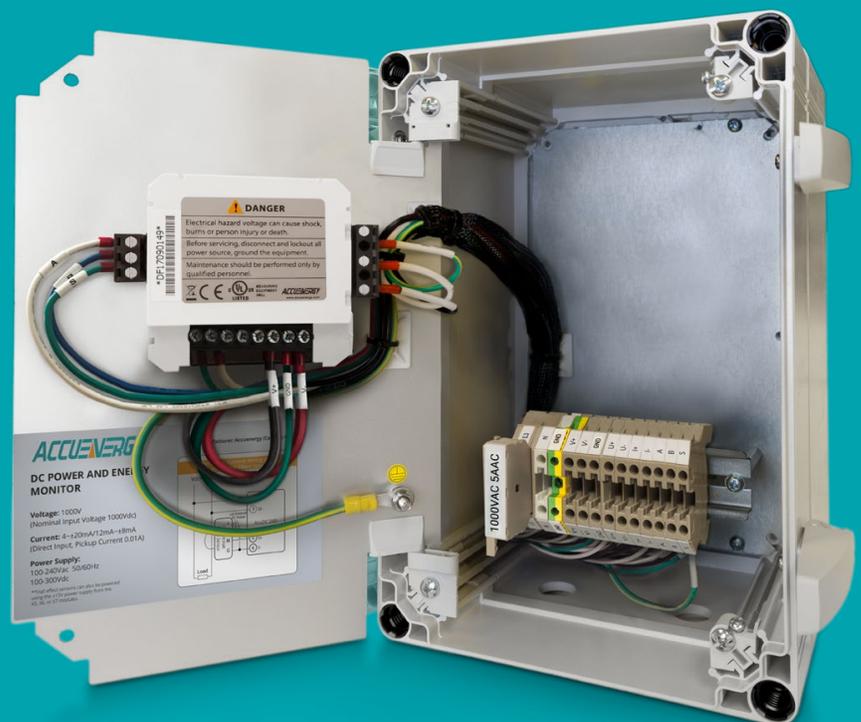
ACUPANEL SPECIFICATIONS

AcuPanel 9104X-DC

Compatible Meters	
	 AcuDC 240
Application	Indoor or outdoor installations that require exceptional environmental protection and weather resistance
Safety Certifications	UL508A
NEMA Rating	NEMA 4X
Material	Polycarbonate
Direct Sunlight Protection	Opaque Cover Option The ultimate meter LCD protection against direct UV radiation.
Anti-Corosive	●
Dust Proof	●
Suitable for Indoor Use	●
Suitable for Outdoor Use	●

EACH STANDARD, PRE-WIRED ENCLOSURE INCLUDES:

+ Terminal blocks for current transformer input

+ Shorting blocks for current transformers

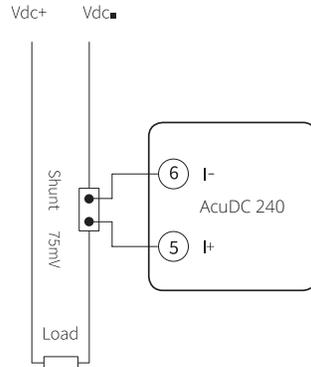+ Terminal blocks for voltage inputs
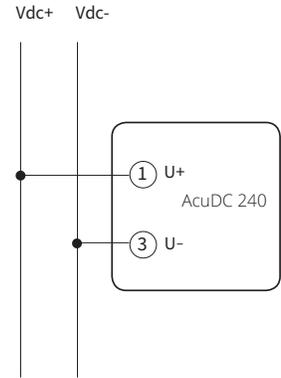
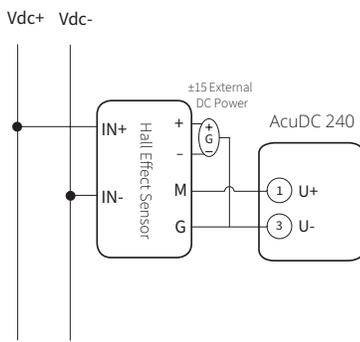+ Industrial-grade fuse

WIRING DIAGRAMS

Current Direct Wiring

Vdc+ Vdc-

6 I−
AcuDC 240
5 I+

Load

Current Wiring Using Shunt

Vdc+ Vdc

Shunt 75mV

6 I−
AcuDC 240
5 I+

Load
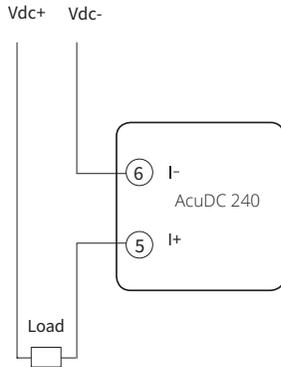
Voltage Direct Wiring

Vdc+ Vdc-

1 U+
AcuDC 240
3 U−

Voltage Wiring using Voltage Hall Effect Sensor[*]

Vdc+ Vdc-

±15 External DC Power

IN+ +
IN− −
Hall Effect Sensor
M
G

+ G −

AcuDC 240

1 U+
3 U−

Voltage & Current Direct Wiring

Vdc+ Vdc-

1 U+
3 U−
AcuDC 240
5 I+
6 I−

Load

Voltage & Current Wiring using Shunt[*]

Vdc+ Vdc-

Shunt 75mV

1 U+
3 U−
AcuDC 240
6 I−
5 I+

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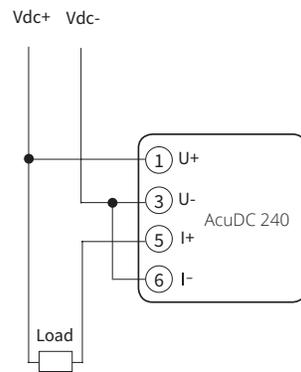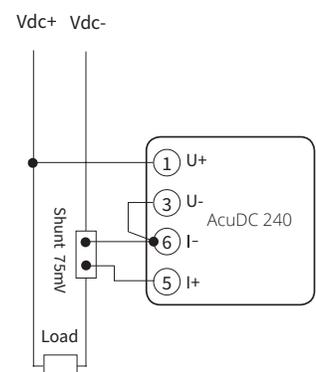
Voltage & Current Wiring using Current Hall Effect Sensor[**]

Vdc+ Vdc-

1 U+
3 U−

±15 External DC Power

Current Hall Effect Sensor
+ −
M
G

+ G −

AcuDC 240

5 I+
6 I−

Load
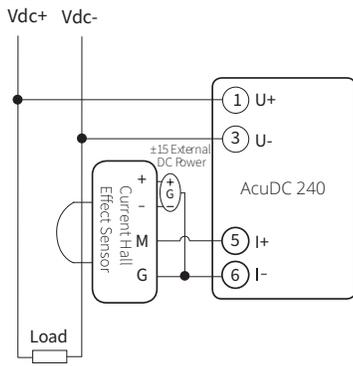
Voltage & Current Wiring using Hall Effect Sensors[**]

Vdc+ Vdc-

Voltage Hall Effect Sensor

IN+ +
IN− −
M
G

+ G −

1 U+
3 U−

±15 External DC Power

Current Hall Effect Sensor
+ −
M
G

+ G −

AcuDC 240

5 I+
6 I−

Load

External DC Power

Digital Input

AcuDC 240

Digital Input

DI11 17
DI12 18
DI21 19
DI22 20

S1
S2
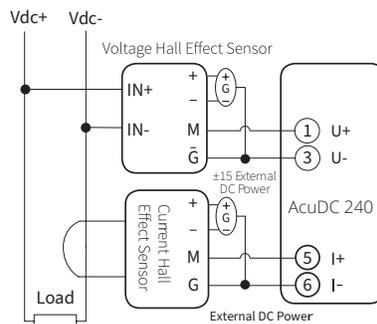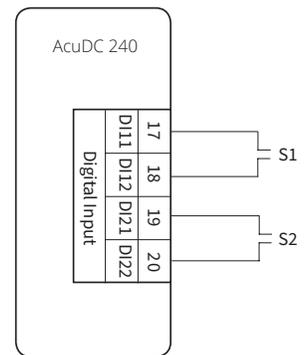
Analogue Output 4~20mA, R<500Ω

AcuDC 240

Analogue Output

AO1− 21
AO1+ 22
AO2− 23
AO2+ 24

External Resistor R
External Resistor R
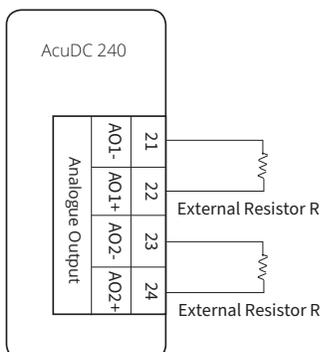
External Power Supply < 250Vac or 30Vdc I < 3A

AcuDC 240

Relay Output

R11 21
R12 22
R21 23
R22 24

External Power Supply
AC/DC
Intermediate Relay
AC/DC

Power Supply Wiring

1A FUSE

Power Supply

11 L
12 N   AcuDC 240
13 G

P1÷100-240Vac
P2÷20-60Vdc

Hall Effect Sensor
+
−
M
G

21 NC
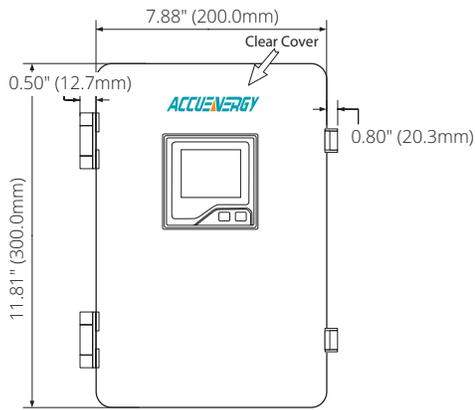22 U−
23 GND
24 U+
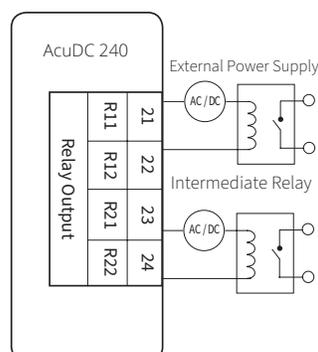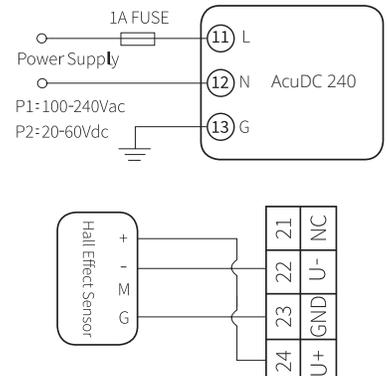
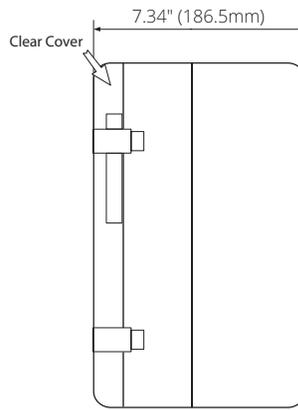*A physical jumper from terminals 3 to 6 must be connected.

**Hall effect sensors can also be powered using the ±15V power supply from the X5 module.
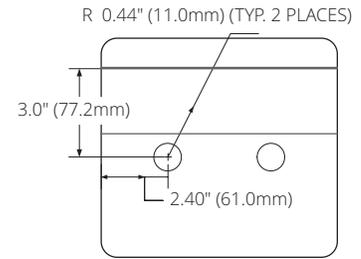
DIMENSIONS

AcuPanel 9104X-DC Waterproof Polycarbonate Panel

7.88" (200.0mm)

Clear Cover

0.50" (12.7mm)

0.80" (20.3mm)

11.81" (300.0mm)

Front View

7.34" (186.5mm)

Clear Cover

Side View

R 0.44" (11.0mm) (TYP. 2 PLACES)

3.0" (77.2mm)

2.40" (61.0mm)

Bottom View

ACCESSORIES & COMPONENTS

AcuPanel 9104X-DC Opaque Cover

The opaque cover is designed to protect the meter screen from potential damage caused by prolonged exposure to direct sunlight. By effectively shielding the screen, it prevent the LCD display from fading, discoloring, or deteriorating over time, ensuring that the meter maintains its visibility and functionality even in the long run.

Data Acquisition & Wireless Mesh

The AcuLink 810 is an intelligent data acquisition server and gateway that aggregates utility data from multiple meters and field sensors within a facility. AcuMesh complements this by creating a Wireless Mesh Network for Modbus-RTU devices, offering a cost-effective solution for monitoring energy flow, industrial processes, HVAC, and more.

USB RS485 Converter

Plug-and-play USB to serial RS485 converter offering dependable and straightforward connection between the AcuDC 240 meter and devices equipped with a USB port.

DC Current Transformers

Accuenergy's DC sensors are designed for exceptional accuracy and revenue-grade performance, delivering reliable measurements across diverse use cases. Customers can choose from split-core DC sensors, Hall Effect sensors, or DC shunts.

ORDERING INFORMATION

AcuPanel 9104X-DC Pre-Wired DC Control Panel

+ Pre-Wired Panel	- Meter Model	- Voltage Option	- Current Option	- Power Supply	- I/O Module Option*	- Opaque Cover†
AcuPanel 9104X: NEMA 4X Polycarbonate Panel	**DC243:** AcuDC 240	**1000V:** Nominal Input Voltage 1000Vdc	**A0:** 0~±10A	**P1:** 100-240Vac 50/60Hz, 100-300Vdc	**X0:** No I/O	**OPAQUE**
		600V: Nominal Input Voltage 600Vdc	**A1:** Shunt (50~100mV)	**P2:** 20-60Vdc	**X1:** 2DI+2AO (4~20mA/0~20mA)	
		300V: Nominal Input Voltage 300Vdc	**A2:** Current Hall Effect Sensor (4~20mA/12mA±8mA)		**X2:** 2DI+2AO (0~5V/1~5V)	
		60V: Nominal Input Voltage 60Vdc	**A3:** Voltage Hall Effect Sensor (0~±5/0~±4V)		**X3:** 2DI+2RO	
		5V: Via Hall Effect Sensor (0-5V/0-4V), ratio settable			**X4:** 2DI+2DO	
					X5: 2DI+ ±15Vdc	

Ordering Example:	AcuPanel 9104X-DC243-1000V-A0-P1-X0
	AcuPanel 9104X-DC243-300V-A2-P2-X3-OPAQUE

† *Include the opaque cover for panel installations where the meter LCD display will be exposed to direct sunlight.*