

# AcuDC 240 Series

## DC Power and Energy Meters



### FEATURES

- DC Energy Management Systems
- Power Distribution for Telecommunication Room
- Solar Photovoltaic Systems
- Wind Power Generation
- DC Excitation System
- Industrial DC Control Systems
- Metallurgy and Electroanalysis Industries
- EV Charging Monitoring
- Data Center
- Cellular Tower Energy Monitoring



ISO9001 Certified



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# AcuDC 240 Series DC Power Meter



## INTRODUCTION

AcuDC 240 series power meter can be used for monitoring and controlling in DC systems. These meters can measure a wide range of parameters such as voltage, current, power and energy. It supports bi-directional current measurement, digital inputs for switch monitoring and relay outputs for remote controlling as well as an over-range alarming feature for voltage and current. Large signals, such as voltage and current can be converted to smaller signal using analog output. All data in the meter is accessible via RS485 using open Modbus RTU protocol. The large 3 line LCD display also provides easy to read real-time data directly on the meter front.

## APPLICATIONS

- DC Energy Management Systems
- Power Distribution for Telecommunication Room
- Solar Photovoltaic Systems
- Industrial DC Control Systems
- Metallurgy and Electroplating Industries
- Wind Power Generation
- DC Excitation Systems
- Light Rail Transit Systems
- EV Charging Monitoring
- Data Center
- Cellular Tower Energy Monitoring

## FEATURES

- DC power system metering
- Monitor and control power switches
- Alarming and analog output
- Standard 72x72mm, allows for drawer type panel installation
- Three line high-definition LCD display
- Accessible with SCADA, PLC systems
- Easy installation, simple wiring
- Data Logging: Offers 3 assignable historical logs where the all of the metering parameters can be recorded.
- The onboard memory is up to 4 MB and each log size is adjustable.

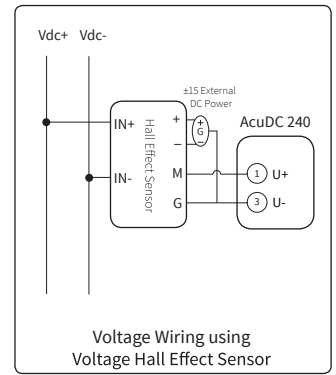
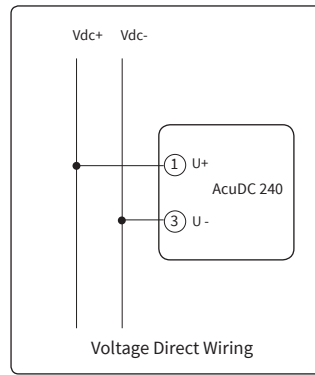
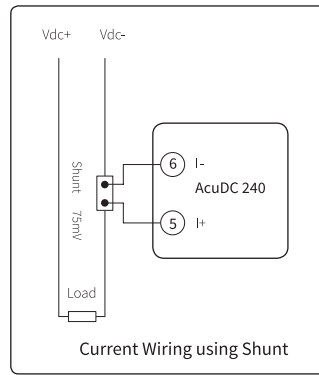
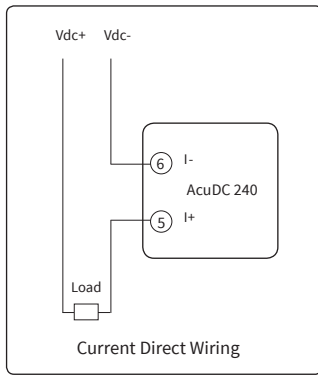


## SPECIFICATIONS

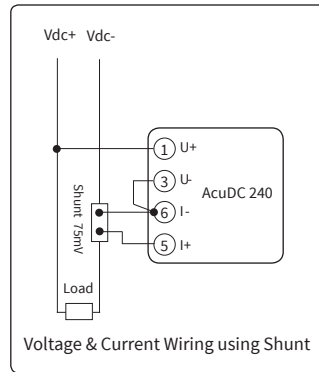
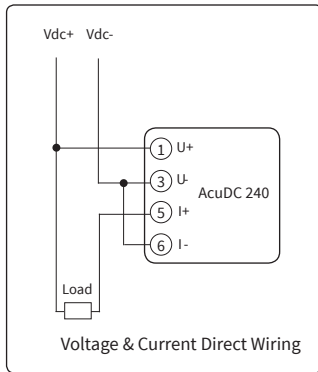
| Function      |                                                                                                                                                |                  | AcuDC 241 | AcuDC 242 | AcuDC 243 |
|---------------|------------------------------------------------------------------------------------------------------------------------------------------------|------------------|-----------|-----------|-----------|
| METERING      | Voltage                                                                                                                                        | V                | ●         |           | ●         |
|               | Current                                                                                                                                        | I                |           | ●         | ●         |
|               | Power                                                                                                                                          | P                |           |           | ●         |
|               | Energy                                                                                                                                         | E                |           |           | ●         |
|               | Ampere-hour                                                                                                                                    | Ah               |           |           | ●         |
| I/O           | 2DI+2AO                                                                                                                                        | Support DI count | ○         | ○         | ○         |
|               | 2DI+2RO                                                                                                                                        |                  | ○         | ○         | ○         |
|               | 2DI+2DO                                                                                                                                        |                  | ○         | ○         | ○         |
|               | 2DI+ ±15Vdc                                                                                                                                    |                  | ○         | ○         | ○         |
| DATALOGGING   | All metering parameters can be recorded (Voltage, Current, Power, Energy, Ampere-hour, DI Count);<br>Interval 1 minute;<br>Can record 4 months |                  |           |           | ○         |
| COMMUNICATION | RS485 , Modbus RTU                                                                                                                             |                  | ○         | ○         | ○         |
| DISPLAY       | LCD                                                                                                                                            |                  | ●         | ●         | ●         |
| DIMENSIONS    | 72×72×64.5mm (Cutout: 68×68 mm) / 2.835×2.835×2.539 inch (Cutout: 2.677×2.677 inch)                                                            |                  |           |           |           |

Note: ●Standard; ○Optional Blank: Not Available

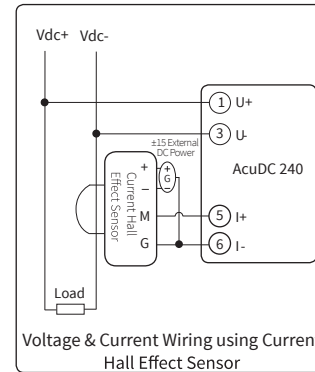
## TYPICAL WIRING



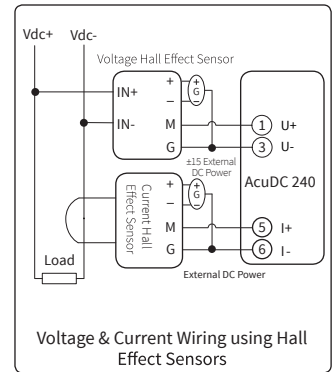
**NOTE:** Hall effect sensor can also be powered using the  $\pm 15V$  power supply from the X5 module.



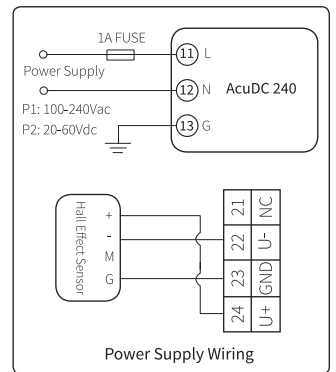
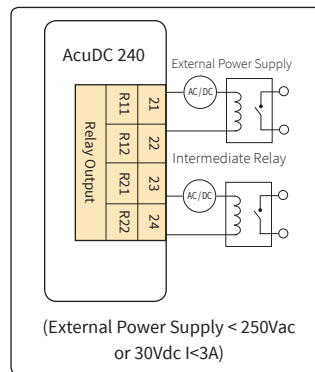
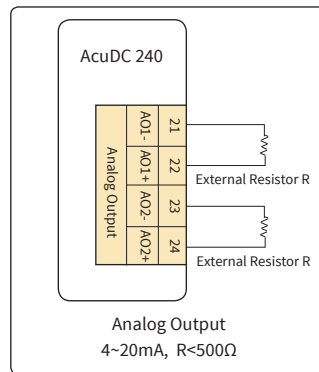
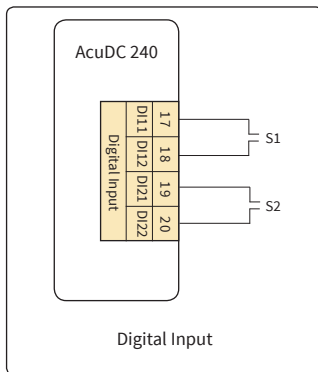
**NOTE:** A physical jumper from terminal 3 to 6 must be connected.



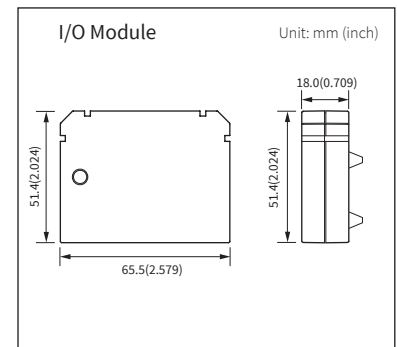
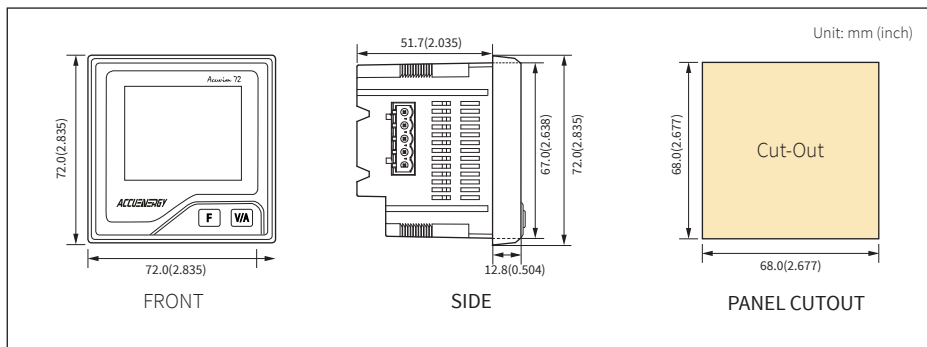
**NOTE:** Hall effect sensor can also be powered using the  $\pm 15V$  power supply in the X5 module.



**NOTE:** Hall effect sensor can also be powered using the  $\pm 15V$  power supply from the X5 module.



## DIMENSIONS



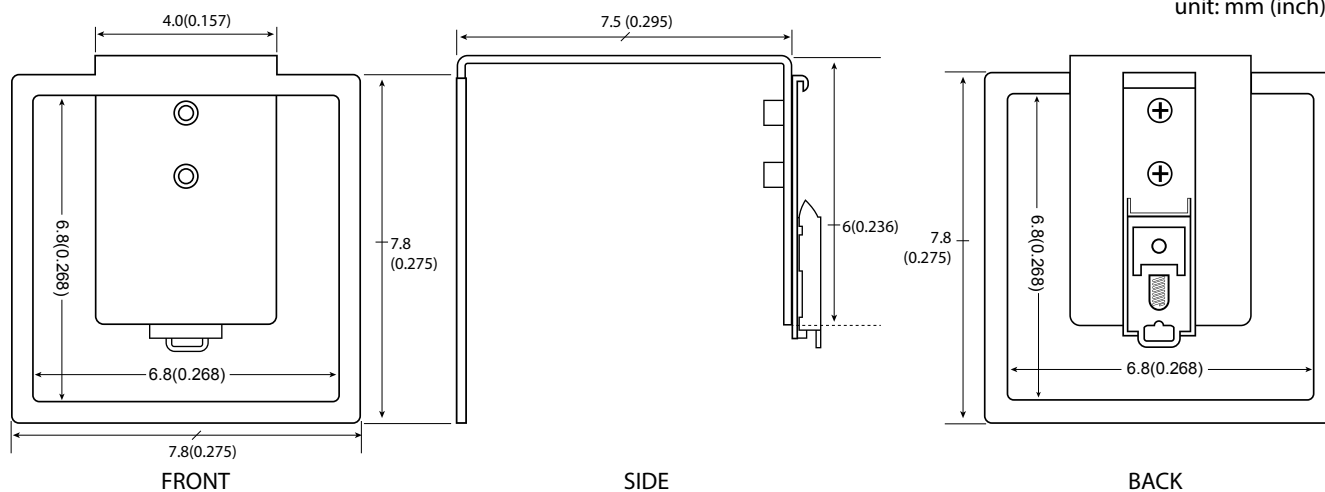
## AcuDC 240 Series *DIN Rail Mounting Adapter*

AcuDC 240 Series DIN Rails adapter provide easy installation of panel-mount AcuDC 240 series meter on DIN rail in all models and IO options.



### DIMENSIONS

unit: mm (inch)





## TECHNICAL SPECIFICATIONS

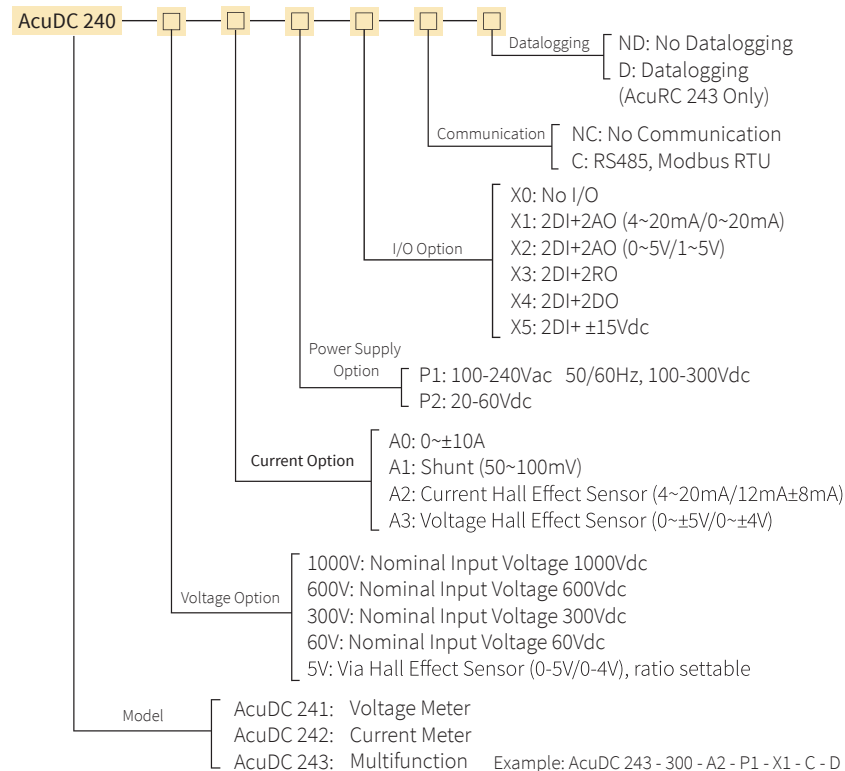
| Parameter              | Accuracy   | Resolution | Range           |
|------------------------|------------|------------|-----------------|
| Voltage                | 0.2%       | 0.001V     | 0~1200V         |
| Current                | 0.2%       | 0.001A     | 0~±50000A       |
| Power*                 | 0.5%       | 0.001kW    | 0~±60000kW      |
| Energy*                | 0.5%       | 0.01kWh    | 0~9999999.99kWh |
| Drift with Temperature | <100ppm/°C |            |                 |
| Stability              | 0.5%/year  |            |                 |

\* 0.2% accuracy on Power and Energy available upon request

| Voltage              |                                                                                                                 |
|----------------------|-----------------------------------------------------------------------------------------------------------------|
| <b>Input Range</b>   |                                                                                                                 |
| Voltage              | Direct Input 0~1000V; Via Hall Effect Sensor 0~1200V                                                            |
| Input Impedance      | 2MΩ                                                                                                             |
| Load                 | <0.6W                                                                                                           |
| Accuracy             | 0.2%                                                                                                            |
| <b>Current</b>       |                                                                                                                 |
| Input Range          | 0~±10A (Direct Input, pick up current 0.01A)<br>0~±50000A (Via Shunt or Hall Effect Sensor, programmable range) |
| Shunt                | 50~100mV (programmable)                                                                                         |
| Hall Effect Sensor   | 0~±5V/0~±4V, 4~20mA/12mA±8mA                                                                                    |
| Power Consumption    | 2W (Max)                                                                                                        |
| Accuracy             | 0.2%                                                                                                            |
| <b>Digital Input</b> |                                                                                                                 |
| Type                 | Dry Contact                                                                                                     |
| Isolation Voltage    | 2500Vac                                                                                                         |
| Communication        |                                                                                                                 |
| Type                 | RS485, half duplex, Optical Isolated                                                                            |
| Protocol             | Modbus-RTU                                                                                                      |
| Baud rate            | 1200~38400bps                                                                                                   |
| Isolation Voltage    | 2500Vac                                                                                                         |

| Output                            |                                                                                     |
|-----------------------------------|-------------------------------------------------------------------------------------|
| <b>Relay Output (RO)</b>          |                                                                                     |
| Type                              | Mechanical contact, Form A                                                          |
| Max Load Voltage                  | 250Vac/30Vdc                                                                        |
| Max Load Current                  | 3A                                                                                  |
| On Resistance                     | 100mΩ (Max)                                                                         |
| Isolation Voltage                 | 4000Vac                                                                             |
| Mechanical Life                   | 5 × 10 <sup>6</sup> times                                                           |
| <b>Digital Output (Photo-Mos)</b> |                                                                                     |
| Load Voltage Range                | 0~250Vac/dc                                                                         |
| Load Current                      | 100mA (Max)                                                                         |
| Max Output Frequency              | 25Hz, 50% duty cycle                                                                |
| Isolation Voltage                 | 2500Vac                                                                             |
| <b>Analog Output (AO)</b>         |                                                                                     |
| Range                             | 4~20mA/0~20mA; 0~5V/1~5V                                                            |
| Accuracy                          | 0.5%                                                                                |
| Load Capacity                     | Current type, max load resistance: 750 Ohm<br>Voltage type, max load current: 20 mA |
| Power Supply                      |                                                                                     |
| Input                             | (P1) 100~240Vac, 50/60Hz, 100~300Vdc<br>(P2) 20~60Vdc                               |
| Consumption                       | 3W (typical value)                                                                  |
| Environment                       |                                                                                     |
| Operation Temperature             | -25°C ~ +70°C                                                                       |
| Storage Temperature               | -40°C ~ +85°C                                                                       |
| Humidity                          | 5%~95% Non-condensing                                                               |
| Standard Compliance               |                                                                                     |
| Safety Standard                   | IEC 61010-1                                                                         |
| EMC Standard                      | IEC 55011, IEC 61000-6-2, IEC 61000-3-2<br>IEC 61000-3-3                            |

## ORDERING INFORMATION



### VOLTAGE HALL EFFECT SENSOR ORDERING INFORMATION (0~5V output)

0.2% accuracy for Power and Energy

#### Special Order

Please contact your local Accuenergy representative for further details

### CURRENT HALL EFFECT SENSOR ORDERING INFORMATION (4~20 mA output)

#### Special order

Please contact your local Accuenergy Representative for further details

Note:

When the input voltage is above 1000V, or the system design requires an isolation sensor, the voltage input can be selected as Via Hall Effect Sensor (0~5 V). The Voltage Hall Effect Sensor output range requires 0~5 V.

## ORDERING INFORMATION

**Model**

**DC DIN**