**AcuDC 240 Series**

DC Power and Energy Meters

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**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

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ISO9001 Certified
**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**

<table>
<thead>
<tr>
<th>Function</th>
<th>AcuDC 241</th>
<th>AcuDC 242</th>
<th>AcuDC 243</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>METERING</strong></td>
<td>Voltage</td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td></td>
<td>Current</td>
<td>I</td>
<td>I</td>
</tr>
<tr>
<td></td>
<td>Power</td>
<td>P</td>
<td>P</td>
</tr>
<tr>
<td></td>
<td>Energy</td>
<td>E</td>
<td>E</td>
</tr>
<tr>
<td></td>
<td>Ampere-hour</td>
<td>Ah</td>
<td></td>
</tr>
<tr>
<td><strong>I/O</strong></td>
<td>2DI+2AO</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Support DI count</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>2DI+2RO</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>2DI+2DO</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>2DI+ ±15Vdc</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>DATALOGGING</strong></td>
<td>All metering parameters can be recorded (Voltage, Current, Power, Energy, Ampere-hour, DI Count); Interval 1 minute; Can record 4 months</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>COMMUNICATION</strong></td>
<td>RS485 , Modbus RTU</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>DISPLAY</strong></td>
<td>LCD</td>
<td>✔</td>
<td>✔</td>
</tr>
<tr>
<td><strong>DIMENSIONS</strong></td>
<td>72x72x64.5mm (Cutout: 68x68 mm) / 2.835x2.835x2.539 inch (Cutout: 2.677x2.677 inch)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Note: ✔ Standard; ◯ Optional  Blank: Not Available
**TYPICAL WIRING**

- **Current Direct Wiring**
- **Current Wiring using Shunt**
- **Voltage Direct Wiring**
- **Voltage Wiring using Voltage Hall Effect Sensor**
- **Voltage & Current Direct Wiring**
- **Voltage & Current Wiring using Shunt**
- **Voltage & Current Wiring using Current Hall Effect Sensor**
- **Voltage & Current Wiring using Hall Effect Sensors**
- **Power Supply Wiring**

**DIMENSIONS**

- **Digital Input**
- **Analog Output**
- **Voltage & Current Wiring using Hall Effect Sensors**
- **Voltage Wiring using Current Hall Effect Sensor**
- **Load**

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

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Accuracy</th>
<th>Resolution</th>
<th>Range</th>
</tr>
</thead>
<tbody>
<tr>
<td>Voltage</td>
<td>0.2%</td>
<td>0.001V</td>
<td>0~1200V</td>
</tr>
<tr>
<td>Current</td>
<td>0.2%</td>
<td>0.001A</td>
<td>0~±50000A</td>
</tr>
<tr>
<td>Power*</td>
<td>0.5%</td>
<td>0.001kW</td>
<td>0~±60000kW</td>
</tr>
<tr>
<td>Energy*</td>
<td>0.5%</td>
<td>0.01kWh</td>
<td>0~9999999.99kWh</td>
</tr>
<tr>
<td>Drift with Temperature</td>
<td>&lt;100ppm/°C</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Stability</td>
<td>0.5%/year</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

* 0.2% accuracy on Power and Energy available upon request

### Voltage
- **Input Range**
  - Direct Input: 0~1000V, Via Hall Effect Sensor: 0~1200V
- **Input Impedance**: 2MΩ
- **Load**: <0.6W
- **Accuracy**: 0.2%

### Current
- **Input Range**: 0~±10A (Direct Input, pick up current 0.01A)
- **Shunt**: 50~100mV (programmable)
- **Hall Effect Sensor**: 0~±5V/0~4mA, 4~20mA/12mA±8mA
- **Power Consumption**: 2W (Max)
- **Accuracy**: 0.2%

### Digital Input
- **Type**: Dry Contact
- **Isolation Voltage**: 2500Vac

### Communication
- **Type**: RS485, half duplex, Optical Isolated Modbus-RTU
- **Protocol**: Modbus-RTU
- **Baud rate**: 1200~38400bps
- **Isolation Voltage**: 2500Vac

### Ordering Information

#### AcuDC 240

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<th>DC DIN</th>
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<td>AcuDC 243</td>
<td>Multifunction</td>
</tr>
</tbody>
</table>

### Output

#### Relay Output (RO)
- **Type**: Mechanical contact, Form A
- **Max Load Voltage**: 250Vac/30Vdc
- **Max Load Current**: 3A
- **On Resistance**: 100mΩ (Max)
- **Isolation Voltage**: 4000Vdc
- **Mechanical Life**: 5 × 10⁶ times

#### Digital Output (Photo-Mos)
- **Range**: 0~250Vac/dc
- **Load Voltage**: 100mA(Max)
- **Load Current**: 25Hz, 50% duty cycle
- **Isolation Voltage**: 2500Vac

#### Analog Output (AO)
- **Range**: 4-20mA/0~20mA; 0~5V/1~5V
- **Accuracy**: 0.5%
- **Load Capacity**: Current type, max load resistance: 750 Ohm

### Power Supply
- **Input**: (P1) 100-240Vac, 50/60Hz, 100-300Vdc
  - (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
  - IEC 61000-3-3

### Relays
- **Voltage**: 250Vac/30Vdc
- **Max Load Voltage**: 100mA(Max)
- **Load Current**: 25Hz, 50% duty cycle
- **Isolation Voltage**: 2500Vac

### Digital Outputs
- **Type**: Form A
- **Max Load Voltage**: 250Vac/dc
- **Max Load Current**: 100mA
- **Isolation Voltage**: 2500Vac

### Analog Outputs
- **Range**: 4-20mA/0~20mA; 0~5V/1~5V
- **Accuracy**: 0.5%
- **Load Capacity**: Current type, max load resistance: 750 Ohm

### 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

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**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

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**ORDERING INFORMATION**

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**Example:** AcuDC 243 - 300 - A2 - P1 - X1 - C - D

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**Accuenergy Corp.**

**Los Angeles-Toronto-Beijing**

North America Toll Free: 1-877-721-8908

Web: www.accuenergy.com

Email: marketing@accuenergy.com

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