AcuDC-261

Dual Port EV Charging Meter MID
Datasheet

DESCRIPTION

AcuDC-261 is certified under EU Measuring Instruments Directive (MID) for direct connected DC metering and is designed for billing systems that require revenue grade accuracy in accordance to EN 50470-4 Class C and IEC 62053-41 Class 0.5. The meter is UL Recognized and used in DC metering solutions for improved monitoring and analysis in highly accurate billing applications. Ideal for industries like EV charging stations, OEM design, data centers, and renewable energy storage.

FEATURES

+ Certified to EN50470-4 Class C and IEC 62053-41 Class 0.5 accuracy
+ Cable loss compensation for true energy measurement
+ MID certified and Eichreicht compliance for EU and German markets
+ UL Recognized for compliant and safe integration into DC applications
+ Direct connected voltage measurement, at 0.1% accuracy from 60V to 1000V
+ Current measurement via shunt sensor, at 0.2% accuracy
+ Bidirectional energy measurement for each current and system total
+ Measures two DC Current input
+ Modbus RTU over RS485, and Modbus TCP/IP via Ethernet for data query and configuration
+ Configuration and reading display via HMI
+ Supports transaction log for recording complete EV charging sessions
+ Supports EichLog for detailed, tamper-evident process logging

KEY FEATURES

Revenue Grade Accuracy

+ EN 50470-4 Class C and IEC 62053-41 Class 0.5 rated accuracy.
+ 0.1% voltage accuracy, 0.2% accuracy on current, 0.5% accuracy for power, energy, and charge.
+ Complies with NIST Handbook 44 and OCPP requirement of 0.1Wh resolution.

Transaction Log

+ Transaction-based energy measurement for EV charging applications.
+ Per-transaction energy measurements are recorded in the transaction log, including start and stop readings, timestamps, and transaction identifiers.
+ OCMF formatted transaction data with digital signature, enabling verifiable and transparent billing can be exported to software.
+ Supports more than 60,000 transaction records.

Cable Loss Compensation

+ Corrects for energy reading measurement deviations caused by long cable runs, ensuring precise and reliable power and energy measurements.

Anti-Tampering Seals

+ Electronic metrology seal detects and prevents unauthorized configuration changes.
+ Tamper-proof physical seal protects against unapproved opening.
+ Paired with a sealed shunt to offer a complete sealed offering.

EichLog (Tamper- Evident Event Log)

+ Records legal relevant event logs to maintain metrological integrity, legality, and trust of measurement results.
+ Compliance for Germany legal metrology framework (Eichrecht) and PTB standards.
+ Logs events in accordance with PTB / Eichrecht requirements, includes measurement-related configuration changes, seal status changes, verification failures, time synchronization deviations, and fatal errors.
+ Up to 6,000 EichLog records.

Dual Channel and Direct Voltage Input

+ Monitor two channels of current with a single meter.
+ Measurements for DC electrical parameters from one voltage input and two current inputs.
+ Two DC current input via shunt sensor at 0.2% accuracy.
+ Direct connected voltage measurement at 0.1% accuracy from 60V to 1000V.

Multi-Protocol Support

+ Industry standard Modbus RTU via built-in RS485 communication port for data query and acquisition.
+ Modbus TCP/IP via 100 Mbps Ethernet Port.

Global Market Compliance

+ Certification for North American, European and international markets.
+ Meets or exceeds requirements for CTEP, NTEP, Eichrecht, LNE, MID.
+ MID and UL Recognized certification.
+ German Eichrecht PTB-A 50.7, PTB-8.51-MB10-Krypto, REA 6A certified .

APPLICATIONS

+ DC Fast Electric Vehicle Charging Stations
+ Data Centers
+ Renewable Energy Generation & Storage
+ DC Energy Management Systems
+ Power Distribution Systems
+ Industrial DC Control Systems
+ DC Grids
+ Light Rail Transit (LRT) Systems
+ Cellular Tower Monitoring

SPECIFICATIONS

Metering

PARAMETERS	ACCURACY	RESOLUTION	STANDARD	UPDATE RATE	RANGE
Voltage	0.1%	0.01V		20ms & 100 ms	60.00~1000.00V
Current	0.2%	0.001A		20ms & 100 ms	AcuDC-261-1000V-400A-P2: 0 ~ 400A AcuDC-261-1000V-600A-P2: 0 ~ 600A
Power	0.5%	1W		20ms & 100 ms	-9999.999~9999.999 kW
Energy	0.5%	0.1Wh	IEC 62053-41	100 ms	-999999999999.999~999999999999.999 kWh
Charge	0.5%	0.0001Ah		100 ms	-999999999999.999~999999999999.999 Ah
Current Demand	0.5%	0.001A		Configurable	AcuDC-262-1000V-A1-P2: 20.000 ~ 50000A AcuDC-262-1000V-A2-P2: 20.000 ~ 50000A AcuDC-262-1000V-A3-P2: 20.000 ~ 50000A
Power Demand	0.5%	1W		Configurable	-9999.999~9999.999 kW
Ripple Factor	N/A	0.001%		100 ms	0.000~100.000%

Input

CURRENT INPUTS *(Secondary)*	
Imax	400A, 600A
Ist	0.32A for 400A, 0.4 A for 600A
Imin	2.4A for AcuDC-261-1000V-400A-P2-MID; 3A for AcuDC-261-1000V-600A-P2-MID;
In	80A for AcuDC-261-1000V-400A-P2-MID; 100A for AcuDC-261-1000V-600A-P2-MID;
Withstand	30 x Imax for 0.5 Second
Accuracy	0.2%

VOLTAGE INPUTS	
Metering Range	0~1000V
Accuracy	0.1% (60V~1000V)
Extended Metering Range	1000V to 1200V without Specific Accuracy Requirements
Withstand	5.0kV RMS Isolation for 1 Minute
Rated impulse voltage	Uimp: 9600V
Pickup Voltage	10V

ENERGY ACCURACY	
Energy	EN50470-4 Class C, IEC 62053-41 Class 0.5
Charge	0.5%

Statistics

MAX/MIN with Time Stamp	For each Voltage/Current/Power/ Ripple Factor/Voltage Compensated, with timestamp

Communication

Modbus RTU	Modbus RTU via RS485 Port
ETHERNET	Ethernet 10M/100M BaseT Modbus TCP/IP

DC CONTROL POWER	
Operating Range	12V~48Vdc SELV
Burden	<3W

Operating Environment

Operating Temperature	–25°C to +70°C (–13°F to +158°F)
Storage Temperature	–40°C to +85°C (–40°F to +185°F)
Rated Operating Relative Humidity	0% to 75% RH
Operation Limit Relative Humidity	0% to 95% RH
Storage and Shipping Limit Relative Humidity	0% to 95% RH
Altitude	0~2000m
OVC Category	OVC II
Pollution Degree	PD 2

Mechanical

Dimensions	AcuDC-261 Meter 174.0mm x 96.0mm x 71.7mm (6.85" x 3.78" x 2.82") Sealed Shunt 85.0mm x 175.mm x 71.0mm (3.35" x 6.89" x 2.79")
IP Degree or Protection	IP30 for electricity AcuDC-261 IP10 for sealed shunt module. Recommended to install in a cabinet or enclosure with an IP54 rating or higher.
Environment	Indoor and Dry

Standard Compliance & Certifications

Measurement Standard	EN50470-4 Class C, PTB-A 50.7, PTB-8.51-MB10-Krypto, REA 6A
EMC Standard	EN55032 Class A, FFC Part 15 Class A
Safety Standard	UL 61010-1, UL 61010-2-30 Measurement Category II for Measuring Input Circuits, Overvoltage Category II for Mains Circuits.

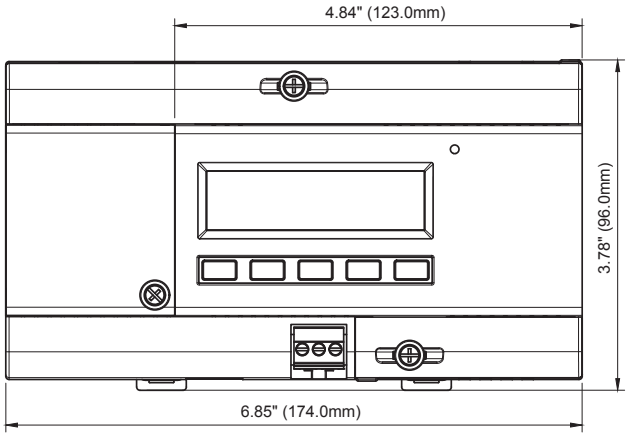
FUNCTION LIST

Function	Parameters
REAL-TIME MEASURING	
Basic	Voltage, ISum, I1, I2, PSum, P1, P2, Ripple Factor U, Ripple Factor I1, Ripple Factor I2,
REAL-TIME ENERGY	
Energy	Import Energy1, Import Energy2, Import Energy Sum, Export Energy1, Export Energy2, Export Energy Sum, Net Energy1, Net Energy2, Net Energy Sum, Total Energy1, Total Energy2, Total Energy Sum,
Charge	Import Charge1, Import Charge 2, Import Charge Sum, Export Charge1, Export Charge2, Export Charge Sum, Net Charge 1, Net Charge 2, Net Charge Sum, Total Charge 1, Total Charge 2, Total Charge Sum,
CABLE LOSS COMPENSATION	
Voltage	V Measure, V Compensated 1, V Compensated 2,
MAX/MIN WITH TIMESTAMPS	Voltage_max, Voltage_min I1_max, I1_min I2_max, I2_min ISum _max, ISum _min P1_max, P1_min P2_max, P2_min PSum _max, PSum _min Ripple Factor U _max, Ripple Factor U _min Ripple Factor I1_max, Ripple Factor I1_min Ripple Factor I2_max, Ripple Factor I2_min
STATISTICS	
MAX with Time Stamp MIN with Time Stamp	Voltage, Current, Power, Ripple Factor are timestamped
TIME	
Device Run-Time	Hours
Device Load-Time	Hours
Device Clock	Year-Month-Date-Hour:Minutes:Seconds, Weekdays
ONBOARD MEMORY	
Bytes	16MB
DISPLAY	
LCD	256x64 Pixel

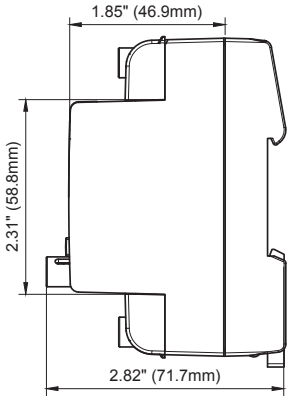
DIMENSIONS

AcuDC-261 MID Dimensions

Front View

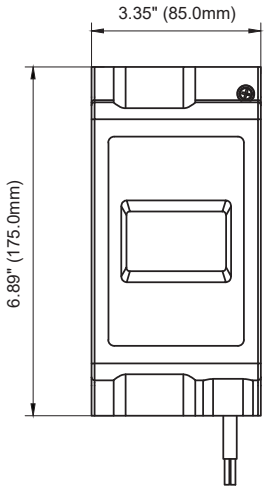


Side View

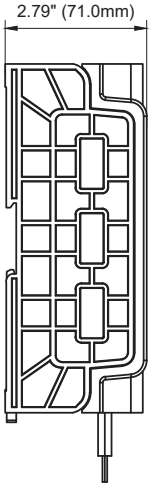


AcuDC-261 MID Sealed Shunt Dimensions

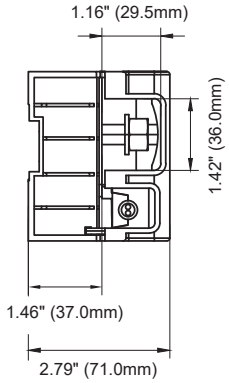
Top View



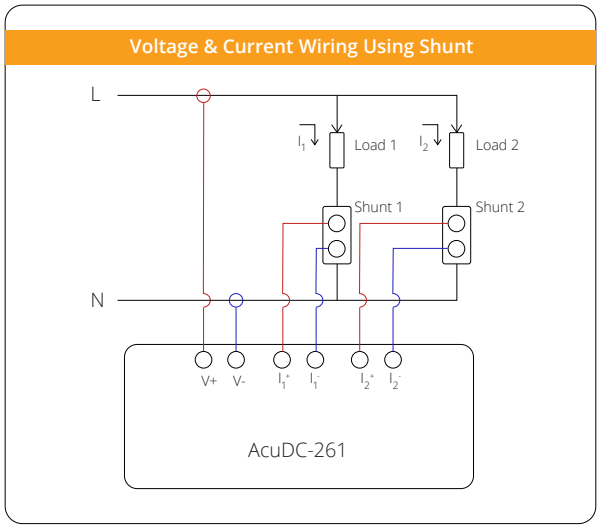
Side View



Front View



WIRING DIAGRAM



ORDERING INFORMATION

Meter Model	Voltage Input	Current Input	Power Supply	MID
AcuDC-261: DC Power Meter	**1000V:** 1000V Direct Connection	**600A:** MID 600A **400A:** MID 400A	**P2:** 12-48 Vdc Input	**MID:** Legal Metrology Certification
Ordering Example:	**AcuDC-261-1000V-600A-P2-MID** **AcuDC-261-1000V-400A-P2-MID**			

ADDITIONAL SHUNT †

Shunt Model	Current Input	MID
AS: AcuShunt	**600A:** 600A **400A:** 400A	**MID:** Legal Metrology Certification
Ordering Example:	**AS-600A-MID** **AS-400A-MID**	

†Note: Additional shunts are sold separately, the AcuDC-261-1000V-600A-P2-MID and AcuDC-261-1000V-400A-P2-MID models include one shunt respectively.

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ISO 9001, 14001 & 45001 Certified