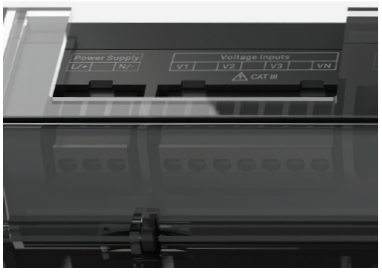
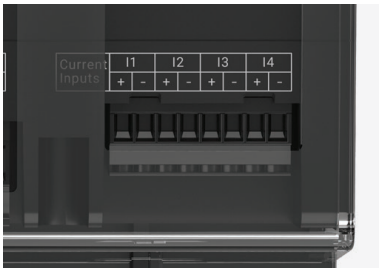
AcuRev 1320

DIN Rail Power & Energy Meter
Datasheet









DESCRIPTION

The AcuRev 1320 Series is a revenue-grade IEC 62053 Class 0.1S DIN-rail power and energy meter for tenant billing with power quality monitoring, data logging and industrial communications. Its terminal design simplifies panel installation wiring, while the compact form factor makes efficient use of available panel space.

Two models are available, the AcuRev-1321 revenue-grade energy meter and AcuRev-1322 power quality analyzer according to IEC 61000-4-30 Class S and IEC 62586.

FEATURES

+ IEC 62053-22 Class 0.1S compliant energy measurement for revenue-grade applications.
+ AcuRev-1322 integrates IEC 61000-4-30 Class S PQ for harmonic, flicker, event detection and waveform.
+ AcuRev-1322 is IEC 62586-2 compliant for PQ measurement performance
+ Dual-source energy with switching logic to detect active sources to independently record and isolate energy data
+ Independent channel mapping pairs any current input voltage reference for power calculation and energy accumulation
+ Current channel remapping and current input direction to resolve wiring errors
+ 3 independent configurable data loggers and 1 trend logger alongside audit and system logs.
+ 3 DI for status, SOE, or pulse input and 1 DO for event, alarm, or pulse output
+ Sequence of events 2 ms resolution for recording digital input changes
+ Dual Ethernet and RS485 ports supporting Modbus RTU, Modbus TCP, BACnet MS/TP, and BACnet/IP.
+ Human-Machine Interface (HMI) for real-time data visualization, PQ, and device configuration.
+ DIN-rail mounting for compact installation in electrical panels and distribution equipment.

KEY FEATURES

Revenue-Grade Accuracy

+ Meets IEC 62053-22 Class 0.1S standards for accurate metering in tenant billing applications.
+ Measures three voltage inputs supporting a range of 69-480 VAC L-N / 830 VAC L-L.
+ Supports multiple service configuration, including 1E2W, 2E3W 1-Phase, 2E3W Delta, 2E3W Network, 3E4W High-Leg Delta, and 3E4W Wye systems.

Flexible Wiring Configuration

+ Software configurable current channel remapping allows to assign logical channels to inputs, resolve wiring errors and simplifying installation.
+ Forward or reverse configuration of the current input direction allows to rectify reversed current connections.
+ Each current inputs can be paired with any voltage input for flexible power calculation and energy accumulation, when enabled.

Dual Source Energy

+ Separately records energy by active source for dual-source applications, such as utility grid and solar photovoltaic generation. Source selection is controlled by switching logic, allowing measured energy to be attributed to either the grid or generation source.

Power Quality Monitoring

+ AcuRev-1322 provide Class S power quality monitoring as per IEC 61000-4-30 Class S and IEC 62586 measurement method.
+ Supports power quality monitoring with 1-cycle measurement update and data aggregation.
+ Detects power quality events including voltage sag, swell, unbalance, and interruption.
+ Captures waveforms triggered manually, or by digital inputs and PQ events.
+ Harmonics measurement, THD, crest factor, K-factor and other power quality parameters.

Data Logging and System Logs

+ Includes 3 data loggers and 1 trend logger that can be independently configured for periodic measurement.
+ Audit logs provide a secure trail focused on metering integrity and compliance used in audits.
+ System event logs are a useful diagnostic logs that stores system records for operation, troubleshooting, and fault detection.

Multi-Protocol Communication

+ Built-in RS485 interface supports Modbus RTU and BACnet MS/TP.
+ Dual Ethernet ports for Modbus TCP and BACnet/IP communication.
+ HTTPS Integrated Webserver provides access for real-time readings and meter configuration.
+ HTTP/HTTPS data log post and connection to AcuCloud server.
+ SNTP based time synchronization.

Alarm Monitoring

+ Supports 20 alarms, monitoring up to 40 parameters using configurable logic combinations and logs up to 200 alarm records.

Integrated I/O Functions

+ 3 configurable digital inputs for status monitoring, 2 ms SOE logging, or pulse input.
+ 1 digital output configurable for event and alarm triggering or pulse output.

Multi-Tariff Time of Use

+ Supports 4 tariffs (sharp, peak, valley, normal) with 14 schedules, 14 segments, weekend settings, 12 seasons, 30 holidays per year, and a 10-year holiday calendar for regional billing.

APPLICATIONS

+ Energy Management in Industrial and Commercial Buildings
+ Submetering for Tenant Billing
+ Data Center and PDUs
+ Power Quality Monitoring
+ Integration with Building Management Systems (BMS)
+ Distributed Energy Resources (DER) Monitoring
+ Railway and Subway Systems
+ Industrial & Utilities Applications
+ Grid and PV Energy Source Monitoring

SPECIFICATIONS

Metering

PARAMETERS	ACCURACY	RESOLUTION	RANGE
Voltage	0.1%	0.001 V	69-480 VAC L-N / 830 VAC L-L
Current	0.1%	0.001 A	0.005 A ~ 10000 A
Active Power	0.1%	0.001 kW	-10000 ~ 10000 kW
Reactive Power	0.1%	0.001 kvar	-10000 ~ 10000 kvar
Apparent Power	0.1%	0.001 kVA	0 ~ 10000 kVA
Power Factor	0.1%	0.001	-1.000 ~ 1.000
Frequency	0.002 Hz	0.001 Hz	42.5 Hz ~ 69 Hz
Active Energy	0.1%	0.001 kWh	0 ~ 99999999.9 kWh
Reactive Energy	0.1%	0.001 kvarh	0 ~ 99999999.9 kvarh
Apparent Energy	0.1%	0.001 kVAh	0 ~ 99999999.9 kVAh
Current Demand	0.1%	0.001 A	0.005 A ~ 10000A
Active Power Demand	0.1%	0.001 kW	-10000 ~ 10000 kW
Reactive Power Demand	0.1%	0.001 kvar	-10000 ~ 10000 kvar
Apparent Power Demand	0.1%	0.001 kVA	0 ~ 10000 kVA
Voltage Unbalance	1%	0.001 %	0 ~ 150%
Current Unbalance	1%	0.001 %	0 ~ 150%
Voltage Harmonics	1%	0.001 %	0 ~ 100%
Current Harmonics	1%	0.001 %	0 ~ 100%
Meter Running Time		Second	0 ~ 4294967295

Electrical

Control Power

Operating Range	100 V-300 VAC, 50 Hz / 60 Hz; OVC III 100 V-480 VAC*, 50 Hz / 60 Hz; OVC II
Burden	<6W
Withstand Capacity	3600 VAC, 50/60Hz for 1 Minute

**480VAC limited to L-L connections.*

Input

VOLTAGE INPUT *(3 CHANNELS)*

Metering Range	69-480 VAC L-N / 830 VAC L-L, CAT III
Withstand Capacity	4 kV RMS for 1 Minute
Pickup Voltage	10 VAC
Accuracy	0.1%

CURRENT INPUTS *(4 CHANNELS)*

Nominal Current	mA model: 80 mA, 100 mA mV model: 333 mV, 120 mV Rogowski Coil
Range	mA model: 0 – 120 mA mV model: 0 – 400 mV
Pickup	mA model: 0.06 mA mV model: 0.25 mV
Maximum Voltage	1.2 V
Accuracy	0.1%

Communications

RS485

Baud Rate (bps)	9600, 19200, 38400, 57600, 76800, 115200
Protocols	Modbus RTU, BACnet MS/TP

ETHERNET

Type	10 / 100Mbps
Protocols	Modbus TCP, BACnet/IP, HTTPS Web Server, HTTP/HTTPS Data Post, SNTP

I/O Options

DIGITAL INPUTS (3 DI)

Type	Dry Contact
External Power Supply	20 ~ 30VAC / 20 ~ 60VDC
Maximum Pulse Frequency	50 Hz with 50% Duty Cycle (10 ms ON, 10 ms OFF)
SOE Resolution	2 ms
On-State Voltage	15 V
Off-State Voltage	5 V
Isolation Voltage	2500 VAC

DIGITAL OUTPUT *(1 DO)*

Type	Photo-MOS
Voltage Range	0 ~ 30 VAC / 0 ~ 60VDC
Maximum Load Current	100 mA
Maximum Pulse Frequency	25 Hz with 50% Duty Cycle (20ms ON, 20ms OFF)
Isolation Voltage	2500 VAC

Standard Compliance & Certifications

Measurement Standard	IEC 62053-22 Class 0.1S
Power Quality Standard	IEC 61000-4-30 / IEC 61000-4-7 / IEC 61000-4-15, IEC 62586
EMC Standard	EN61326-1
Environmental Standard	RoHS 2 (EN50581)
Safety	LVD (EN61010-1), IEC/UL 61010-1, IEC 61010-2-30, IEC 62052-31
Certifications	CE, MID (EN50470-3), UL, CTEP, Measurement Canada

SPECIFICATIONS

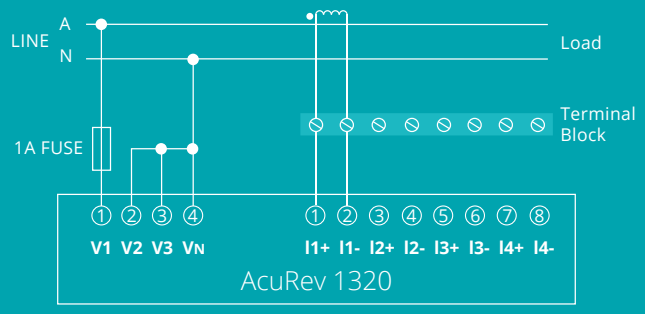
Operating Environment	
Location	Indoor
Pollution Degree	2
Rated Operating Range	–25 °C to +70 °C (-13 °F to +158°F), 0 % to 75 % RH, Non-Condensing
Limit Range of Operation	–40 °C to +85 °C (-40 °F to +185°F), 0 % to 95 % RH, Non-Condensing
Range for Storage and Shipping	–40 °C to +85 °C (-40 °F to +185°F), 0 % to 95 % RH, Non-Condensing
Altitude	0m to 2000m
Ingress Protection Rating	IP54: Panel mount front. IP30: Panel mount rear, DIN rail mount, I/O modules. Recommend installing in a cabinet or enclosure with an IP54 rating or higher.

FUNCTION LIST

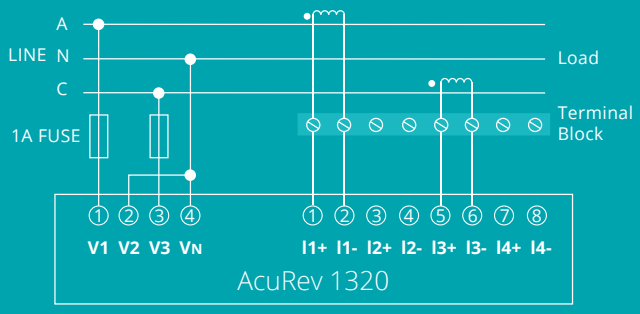
ACCURACY	**AcuRev-1321**	**AcuRev-1322**
Revenue-Grade Accuracy	IEC 62053-22 Class 0.1S	IEC 62053-22 Class 0.1S
REAL-TIME		
RMS, Active Power, Reactive Power, Apparent Power	200 ms Update	1 Cycle Update
ENERGY		
Import / Export / Net / Total (kWh/kvarh/kVAh)	•	•
DEMAND		
Block Interval and Sliding Window Demand	•	•
HARMONICS		
2nd to 63rd Harmonics, THD / TOHD / TEHD, Crest Factor, THFF, K-Factor	200 ms Update	With Aggregation
ADVANCED METERING		
Independent Input Channel	•	•
Dual Source Energy	•	•
ALARMS		
20 Alarm Monitors; AND / OR Logic; 200 Records of Alarm Log	•	•
LOGGING		
Max / Min with Timestamps	•	•
SOE to Log DI Changes, 200 Records with 2 ms Resolution	•	•
System Log of 5000 Events	•	•
DATA LOGGING		
3 Data Loggers and 1 Trend Logger	•	•
I/O		
3 DI and 1 DO	•	•
COMMUNICATIONS		
RS485 Modbus RTU, BACnet MS/TP	•	•
Ethernet Modbus TCP, BACnet/IP, Web Server, HTTP/HTTPS Push, SNTP	•	•
FIRMWARE		
Firmware Update via Ethernet / RS485	•	•
PQ COMPLIANCE		
IEC 61000-4-30/4-7/4-15	-	Class S
FLICKER		
Pinst, Pst, Plt	-	•
PQ EVENTS		
Voltage Sag / Swell / Interruption, Current Swell, Voltage Unbalance, Current Unbalance	-	Up to 200 Events
WAVEFORM		
Waveform Recording (Manual / PQ Event / DI Trigger), Configurable Sample Rate, & Pre / Post Trigger	-	Up to 200 Waveforms

WIRING DIAGRAMS

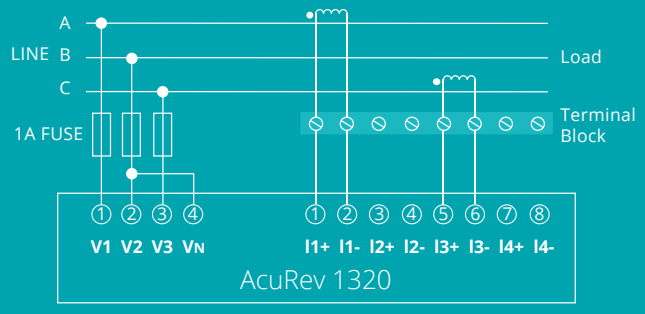
1 ELEMENT 2 WIRE



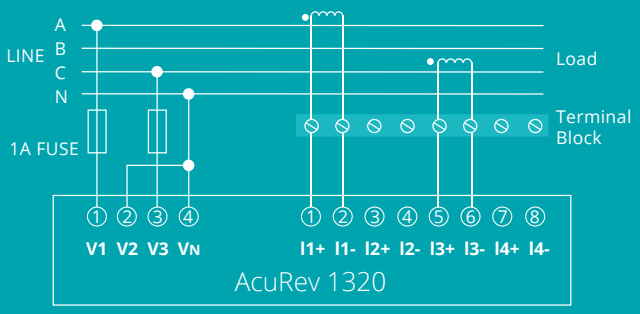
2 ELEMENT 3 WIRE 1 PHASE



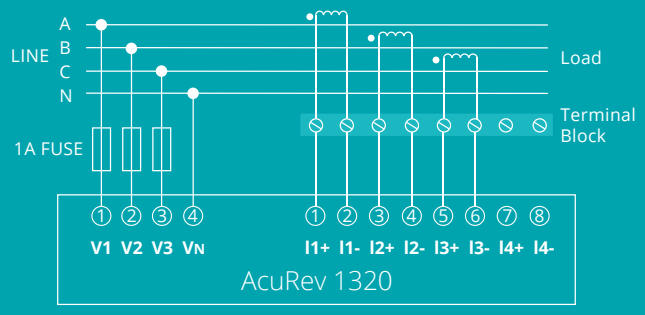
2 ELEMENT 3 WIRE DELTA



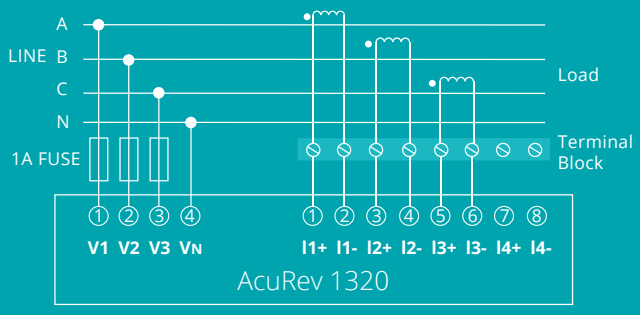
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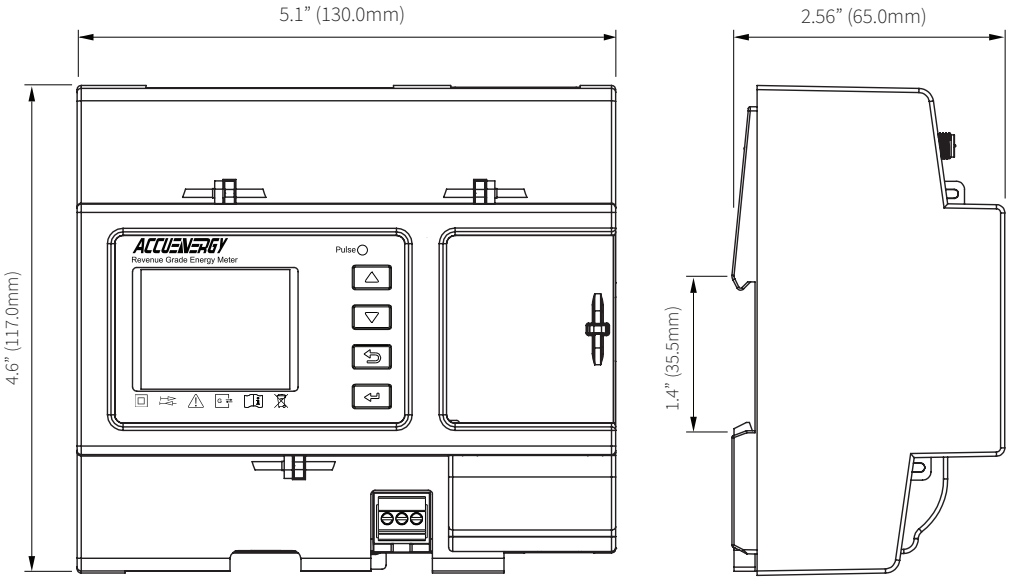
3 ELEMENT 4 WIRE WYE



3 ELEMENT 4 WIRE DELTA



DIMENSIONS



ORDERING INFORMATION

Meter Model	Current Input
AcuRev-1321: Revenue Grade Energy Meter	**mA:** 80mA and 100mA CT Input
AcuRev-1322: Advanced Power Quality Analyzer	**mV:** 333mV and 120 mV Rogowski Coil Input
Ordering Example:	**AcuRev-1321-mA**
	AcuRev-1322-mV

MEASUREMENT CANADA

Meter Model	Current Input	Canadian Metering Application
AcuRev-1321: Revenue Grade Energy Meter	**mA:** 80mA and 100mA CT Input	**MC:** Measurement Canada Approved
AcuRev-1322: Advanced Power Quality Analyzer		
Ordering Example:	**AcuRev-1321-mA-MC**	

CALIFORNIA TYPE EVALUATION PROGRAM (CTEP)

Meter Model	Current Input	California Type Evaluation Program
AcuRev-1321: Revenue Grade Energy Meter	**mV:** 333mV	**CP:** California Type Evaluation Program
AcuRev-1322: Power Quality Analyzer		
Ordering Example:	**AcuRev-1321-mV-CP**	

MID CERTIFIED

Meter Model	Current Input	MID
AcuRev-1321: Revenue Grade Energy Meter	**mA:** 80 mA and 100 mA CT Input	**MD:** Legal Metrology Certification
AcuRev-1322: Advanced Power Quality Analyzer	**mV:** 333 mV and 120 mV Rogowski Coil Input	
Ordering Example:	**AcuRev-1321-mA-MD**	
	AcuRev-1322-mV-MD	

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Specs Subject To Change Without Notice.

ISO 9001, 14001 & 45001 Certified

ISO 27001 & 50001 Certified

BBB ACCREDITED BUSINESS