Acuvim IIBN

BACnet Power And Energy Meter Datasheet









DESCRIPTION

Specifically designed to track energy consumption and collect real-time data within building automation and control applications, the Acuvim IIBN power and energy meter combines a built-in BACnet-IP communication module with revenue grade accuracy. Compatible with a variety of electrical services, the easy-to-read display features multiple energy parameters such as voltage, amps, power factor, harmonics and more while the convenient web interface provides quick access to critical real-time data.

FEATURES

+ Revenue Grade: ANSI C12.20 Class 0.2 & IEC 62053-22 class 0.2s
+ Built-in BACnet-IP communication module ensures easy integration into building automation systems
+ BTL Listed for Smart Sensor (B-SS) and BACnet Smart Actuator (B-SA)
+ Available compatibility with multiple CT output options including 5A, mA, RCT (Rogowski), or 333mV
+ Secure, mobile-friendly web server provides real-time meter reading and configuration
+ Three form factors: Panel mount meter with digital display, DIN rail mount transducer, or built into an AcuPanel pre-wired enclosure

KEY FEATURES

BACnet Certification

+ The Acuvim IIBN is BTL Listed for Smart Sensor (B-SS) and BACnet Smart Actuator (B-SA) by the BACnet Testing Laboratory to ensure standard compliance, reliability, and interoperability with a variety of commercial and industrial building automation and control systems.

Revenue Grade Certification

+ Ideal for high-precision data collection or cost allocation, the Acuvim IIBN meets stringent ANSI C12.20 Class 0.2 and IEC 62053-22 0.2s class revenue grade accuracy requirements for superior power and energy monitoring across all four quadrants.

Works in Any Electrical System

+ Accurately measure essential electrical parameters in single element, two element, or three element systems and can be field-configured to adapt to any system. Directly measure up to 400V L-N or 690V L-L without the need for a potential transformer (PT) or voltage transformer (VT).

Supports All CT Types

+ Ideal for both new and retrofit metering installations the Acuvim IIBN supports a variety of current transformer types including solid-core, split-core, and flexible Rogowski coil CTs.

Built-In Web Server

+ The built-in web server allows efficient, real-time access to all metering data from a web interface with an Internet connection without the need for complicated port forwarding solutions. Use a browser in any computer, laptop, or mobile device to view over 100 essential parameters to keep track of energy consumption.

Secure Access to Data

+ To deter against malicious cyber attacks, critical energy data transmitted between the meter and access point is secured via industry-standard TLS 1.2 encryption for superior cybersecurity.



APPLICATIONS

+ Building Automation and Control Systems
+ Energy Management Systems
+ Industrial Facility Metering
+ Commercial Buildings
+ Tenant Submetering

SPECIFICATIONS

Metering

PARAMETERS		ACCURACY	RESOLUTION	RANGE
Voltage		0.2%	0.1V	10V~1000kV
Current Current		0.2%	0.1mA	5mA~50000A
Power		0.2%	1W	-9999MW~9999MW
Reactive Power		0.2%	1var	-9999Mvar~9999Mvar
Apparent Power		0.2%	1VA	0~9999MVA
Power Demand		0.2%	1W	-9999MW~9999MW
Reactive Power Demand		0.2%	1var	-9999Mvar~9999Mvar
Apparent Power Demand		0.2%	1VA	0~9999MVA
Power Factor		0.2%	0.001	-1.000~1.000
Frequency		0.02%	0.01Hz	45.00~65.00Hz (50 or 60Hz type) 300.00Hz~500.00Hz (400Hz type)
Energy	Primary	0.2%	0.1kWh	0-99999999.9kWh
	Secondary	0.2%	0.001kWh	0-999999.999kWh
Reactive Energy	Primary	0.2%	0.1kvarh	0-99999999.9kvarh
	Secondary	0.2%	0.001kvarh	0-999999.999kvarh
Apparent Energy	Primary	0.2%	0.1kVAh	0-99999999.9kVAh
	Secondary	0.2%	0.001kVAh	0-999999.999kVAh

Input

CURRENT INPUTS *(EACH CHANNEL)*

Nominal Current Options	① 5A, ② 1A, ③ 1A (333mV) ④ 1A (100mV Rope CT) ⑤ 1A (80mA/100mA/200mA)
Metering Range	① 0-10A, ② 0-2A, ③ 0-1.2A, ④ 0-1.2A, ⑤ 0-1.2A
Pickup Current	① 5mA, ② 1mA, ③ 5mA, ④ 5mA, ⑤ 5mA
Withstand	20Arms Continuous, 0.1% of Nominal 100Arms for 1 second, Non-Recurring
Burden	0.05VA (Typical) @ 5A RMS
Accuracy	0.2% Full Scale

VOLTAGE INPUTS *(EACH CHANNEL)*

Nominal Full Scale	400Vac L-N, 690Vac L-L (+20%)
Withstand	1500Vac Continuous 2500Vac, 50/60Hz for 1 Minute
Input Impedance	2MΩ per Phase
Metering Frequency	45Hz~65Hz, 300Hz~500Hz
Pickup Voltage	10Vac
Accuracy	0.2% Full Scale

ENERGY ACCURACY

Active	Class 0.2s (According to IEC 62053-22) Class 0.2 (According to ANSI C12.20)
Reactive	Class 2 (According to IEC 62053-23)

HARMONIC RESOLUTION

Metered Value	63rd Harmonic (50Hz or 60Hz type) 15th Harmonic (400Hz type)

Communications

Ethernet	10M/100M BaseT BACnet-IP

Control Power

Universal	AC or DC

AC/DC CONTROL POWER

Operating Range	100~415Vac, 50/60Hz; 100~300Vdc Category III, Pollution degree 2
Burden	5W
Frequency	50/60Hz
Withstand	3250Vac, 50/60Hz for 1 minute

Operating Environment

Operating Temperature	-25°C to 70°C -13°F to 158°F
Storage Temperature	-40°C to 85°C -40°F to 176°F
Relative Humidity	5% to 95% Non-Condensing

Standard Compliance & Certifications

Measurement Standard	IEC 62053-22; ANSI C12.20
Environmental Standard	IEC 60068-2
Safety Standard	IEC 61010-1, UL 61010-1, IEC 61557-12
EMC Standard	IEC 61000-4/-2-3-4-5-6-8-11, CISPR 22, IEC 61000-3-2, IEC 61000-6-2/4
Outlines Standard	DIN 43700, ANSI C39.1
BTL	BTL Listed for B-SA

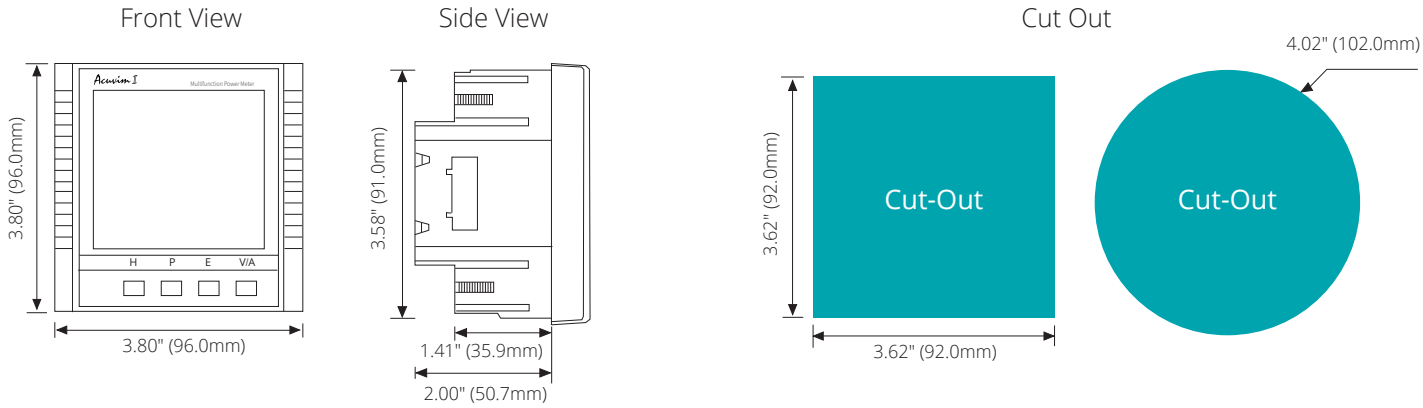
FUNCTION LIST

Function	Parameters
Frequency	Hertz
Phase A Voltage	Volts
Phase B Voltage	Volts
Phase C Voltage	Volts
Average Voltage	Volts
Line Voltage AB	Volts
Line Voltage BC	Volts
Line Voltage CA	Volts
Average Line Voltage	Volts
Phase A Current	Amperes
Phase B Current	Amperes
Phase C Current	Amperes
Average Current	Amperes
Netural Current	Amperes
Phase A Active Power	Kilowatts
Phase B Actuve Power	Kilowatts
Phase C Active Power	Kilowatts
Total Active Power	Kilowatts
Phase A Reactive Power	Kilovolt_amperes_reactive
Phase B Reactive Power	Kilovolt_amperes_reactive
Phase C Reactive Power	Kilovolt_amperes_reactive
Total Reactive Power	Kilovolt_amperes_reactive
Phase A Apparent Power	Kilovolt_amperes
Phase B Apparent Power	Kilovolt_amperes
Phase C Apparent Power	Kilovolt_amperes
Total Apparent Power	Kilovolt_amperes
Phase A Power Factor	Power_factor
Phase B Power Factor	Power_factor
Phase C Power Factor	Power_factor
Total Power Factor	Power_factor
Voltage Unbalance Factor	Percent
Current Unbalance Factor	Percent
Load Type	N/A
Active Power Demand	Kilowatts
Reactive Power Demand	Kilovolt_amperes_reactive
Apparant Power Demand	Kilovolt_amperes

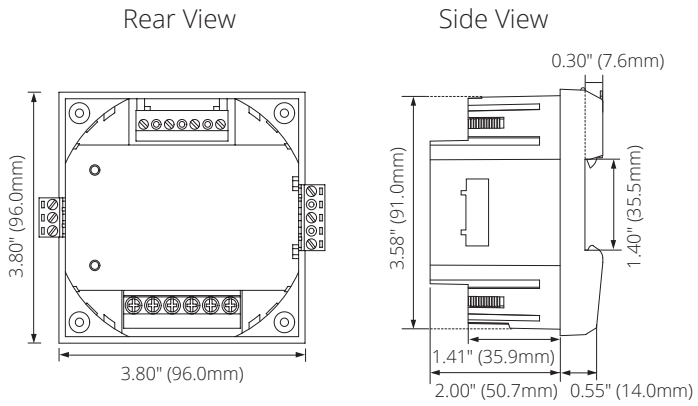
Function	Parameters
Phase A Current Demand	Amperes
Phase B Current Demand	Amperes
Phase C Current Demand	Amperes
Import Active Energy	Kilowatt_hours
Export Active Energy	Kilowatt_hours
Import Reactive Energy	Kilowatt_hours
Export Reactive Energy	Kilowatt_hours
Energy Total	Kilowatt_hours
Energy Net	Kilowatt_hours
Reactive Energy Total	Kilowatt_hours
Reactive Energy Net	Kilowatt_hours
Apparent Energy	Kilowatt_hours
Phase A Import Active Energy	Kilowatt_hours
Phase A Export Active Energy	Kilowatt_hours
Phase B Import Active Energy	Kilowatt_hours
Phase B Export Active Energy	Kilowatt_hours
Phase C Import Active Energy	Kilowatt_hours
Phase C Export Active Energy	Kilowatt_hours
Phase A Import Reactive Energy	Kilowatt_hours
Phase A Export Reactive Energy	Kilowatt_hours
Phase B Import Reactive Energy	Kilowatt_hours
Phase B Export Reactive Energy	Kilowatt_hours
Phase C Import Reactive Energy	Kilowatt_hours
Phase C Export Reactive Energy	Kilowatt_hours
Phase A Apparent Energy	Kilowatt_hours
Phase B Apparent Energy	Kilowatt_hours
Phase C Apparent Energy	Kilowatt_hours
Phase A Voltage THD	Percent
Phase B Voltage THD	Percent
Phase C Voltage THD	Percent
Average Voltage THD	Percent
Phase A Current THD	Percent
Phase B Current THD	Percent
Phase C Current THD	Percent
Average Current THD	Percent

DIMENSIONS

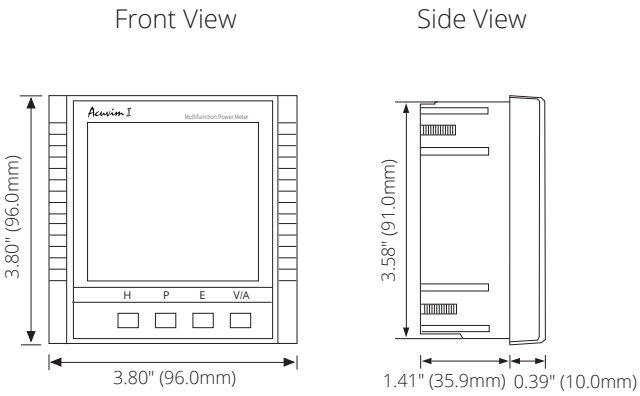
Acuvim IIBN Dimensions



DIN Mount Meter Dimensions



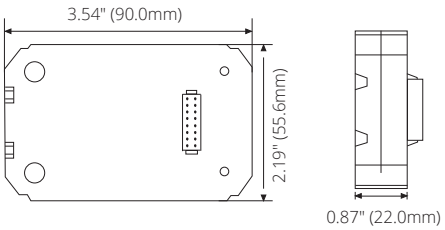
External Display Module Dimensions



Note: *1. Display module is connected with a six foot 10 pin RJ45 cable, if you need a longer cable please specify that in the ordering statement.*

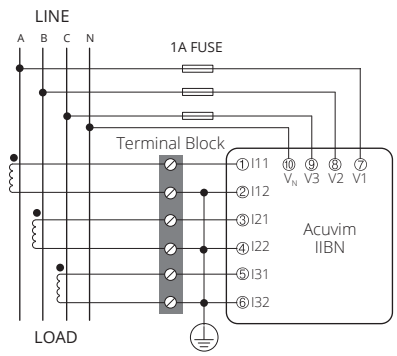
2. Display module opening size and Acuvim IIBN body openings are exactly the same size.

Communication Module Dimensions

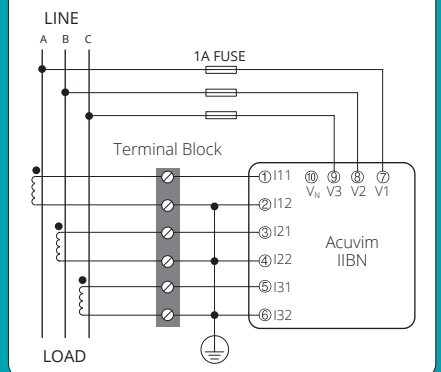


WIRING DIAGRAMS

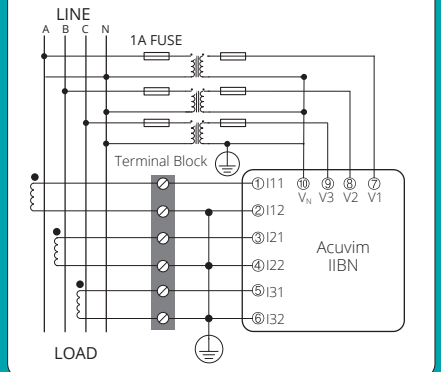
3 Phase 4 Wire (3LN, 3CT)



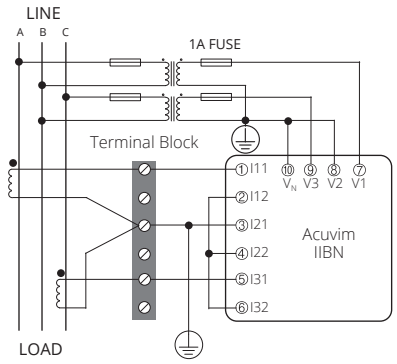
3 Phase 3 Wire (3LL, 3CT)



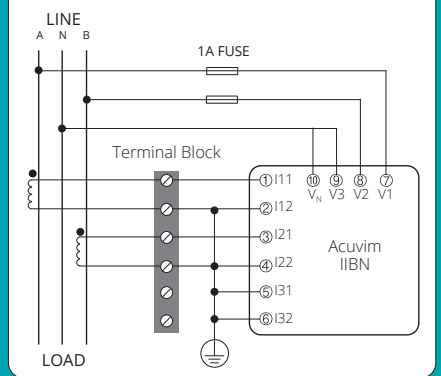
3 Phase 4 Wire with PT (3LN, 3CT)



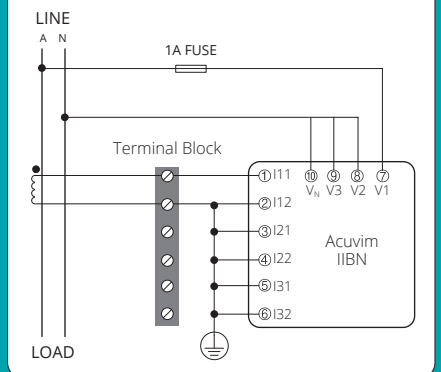
3 Phase 3 Wire with PT and 2 CT(2LL, 3CT)*



Single Phase 3 Wire (1LL, 2CT)

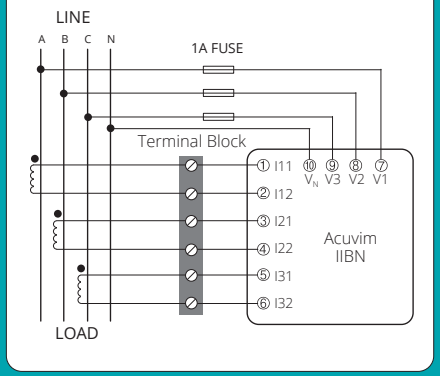


Single Phase 2 Wire (1LN, 1CT)

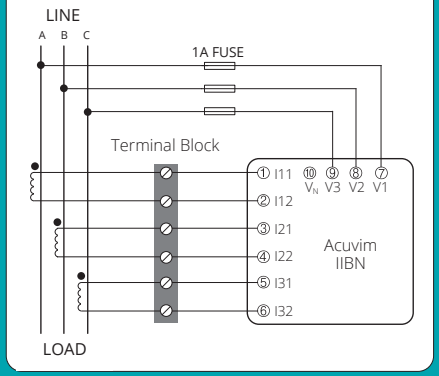


Typical Wiring RCT/mV/mA Current Input

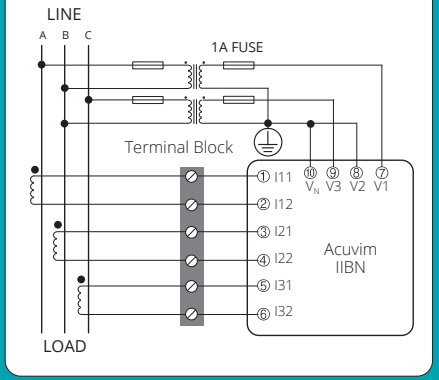
3 Phase 4 Wire (3LN, 3CT)



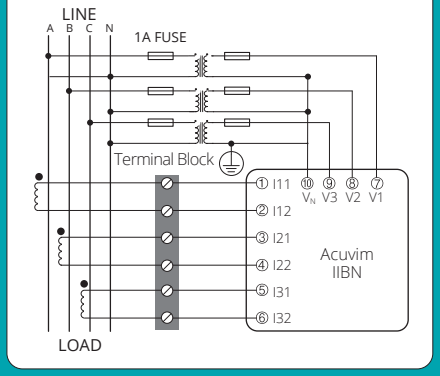
3 Phase 3 Wire (3LL, 3CT)



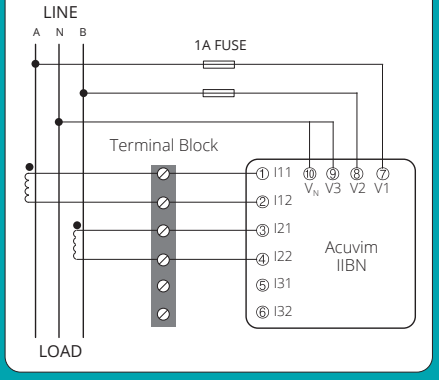
3 Phase 3 Wire with PT and 3CT(2LL, 3CT)*



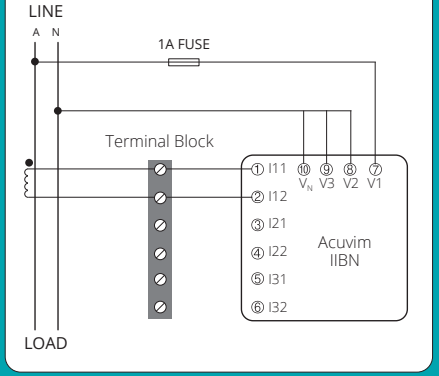
3 Phase 4 Wire with PT (3LN, 3CT)



Single Phase 3 Wire (1LL, 2CT)



Single Phase 2 Wire (1LN, 1CT)



*2CT configuration is optional only in 3 Phase 3 Wire system.

ACCESSORIES

DIN Rail Adapter

The AXM-DIN Rail Adapter is the easy way to mount the Acuvim II Series meter on either horizontal or vertical DIN rail. The adapter quickly secures to the meter and is compatible with all AXM communication modules as well as I/O options.



Protective Display Cover

The Protective Display Cover is designed for Acuvim IIBN Series meters and other 96mm by 96mm display panel meters. Crucial in harsh environments, it increases the IP environmental rating of a meter's display to IP66 or NEMA 4X.



USB RS485 Converter

This plug-and-play USB to Serial RS485 Converter is designed to provide a convenient, reliable USB connection to the Acuvim IIBN Series BACnet meters and other serial devices.



ORDERING INFORMATION

+ Meter Model	Mounting Option	- Current Input	- Power Supply
Acuvim IIBN	**D**: LCD Display *(Panel Mount Meter/Transducer)*	**5A**: 5A/1A *(Input Field Selectable)*	**P1**: 100~415Vac, 50/60Hz, 100~300Vdc
	M: DIN-Rail Mount Transducer without Display *(Optional Remote Display Available)*	**mA**: 80ma/100mA/200mA *(Input Field Selectable)*	**P2**: 20~60Vdc
		RCT: AcuCT-Flex Input	
		333: 333mV Input	

Ordering Example:	**Acuvim IIBN-D-mA-P1**
	Acuvim IIBN-M-333-P2

Note:
1. Accuenergy suggests using USB-RS485 converter for configuration, and 3 CTs per three phase circuits.
2. All fields must be completed to create a part number.
3. Add "-S" after power supply for anti-tampering seal option.
4. Contact Mod-Tronic for 400Hz frequency option.

+ **Accessories *(Optional)***	
REM-DS2:	Remote Display *(Only for Acuvim IIBN DIN-Rail Mount "M" option)*
AXM-DIN:	DIN Rail Adapter
IP66/NEMA4X:	Environmental Protection Cover
USB-RS485:	RS485 to USB converter for connecting meter with computer, maximum distance 1200 meters.
Ordering Example:	**AXM-DIN**

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ACCUENERGY

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