

DESCRIPTIVE BULLETIN

RGM6010

BACnet/IP communicating multifunction power meter



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01 RGM6010 power
meter/transducer

RGM6010 was designed to be the perfect device for green initiatives, LEED certified projects, smart buildings and all kinds of smart energy projects. RGM6010's metrology is industry recognized as superior, providing revenue-testable 0.2% energy accuracy with compliance to modern ANSI and IEC accuracy standards. The unit uses advanced DSP technology, high sampling rates and 24-bit analog-to-digital conversion to measure and analyze power accurately and reliably.

Features

- Multifunction measurements of AC voltage, current, power and energy
- Industry-recognized superior 0.2% energy class accuracy
- BACnet/IP 100BaseT Ethernet protocol
- Available in meter or transducer version
- Highly reliable industrial-rated design

Applications

- LEED projects
- Smart buildings
- Commercial energy management
- HVAC efficiency monitoring
- Building management systems

RGM6010 is ABB's industry-leading revenue-grade power meter with native BACnet/IP protocol. This meter is designed to integrate seamlessly into existing and new building management systems using the popular BACnet protocol. Available as either a meter or a transducer, the unit allows users to gather data on voltage, current, power and energy usage throughout a facility.

RGM6010 with BACnet: The green choice

RGM6010 meter with BACnet/IP supports building energy management strategies, LEED certification and other green building initiatives.

By letting you track energy use and power quality from wherever you are, the meter gives you the information you need to respond to power quality problems when they arise and accurately identify cost-saving measures.



Table 1: BACnet objects

Volts A-N	VARh net	Positive Watts, 3-phase, average demand	Volts, A-N THD
Volts B-N	kVARh net	Positive kWatts, 3-phase, average demand	Volts, B-N THD
Volts C-N	Frequency	Positive VARS, 3-phase, average demand	Volts, C-N THD
Volts A-B	Neutral	Positive kVARs, 3-phase, average demand	Amps, A THD
Volts B-C	Current	Negative Watts, 3-phase, average demand	Amps, B THD
Volts C-A	Whr received	Negative kWatts, 3-phase, average demand	Amps, C THD
Amps A	kWhr received	Negative VARs, 3-phase, average demand	
Amps B	Whr delivered	Negative kVARs, 3-phase, average demand	
Amps C	kWhr delivered	Positive VARs, 3-phase, max. average demand	
Total Watts	Whr net	Positive kVARs, 3-phase, max. average demand	
Total kWatts	kWhr net	Negative Watts, 3-phase, max. average demand	
Total VARs	Total Whr	Negative kWatts, 3-phase, max. average demand	
Total kVARs	Total kWhr	Negative VARs, 3-phase, max. average demand	
Total VA	Positive VARh	Negative kVARs, 3-phase, max. average demand	
Total kVA	Positive kVARh	Positive Watts, 3-phase, max. average demand	
Total PF	Negative VARh	Positive kWatts, 3-phase, max. average demand	
Total VAh	Negative kVARh	VARs, 3-phase, average demand	
Total kVAh		kVARs, 3-phase, average demand	
Total VARh		VARs, 3-phase, max. average demand	
Total kVARh			

The 62 pre-defined objects in the RGM6010's BACnet IP protocol.

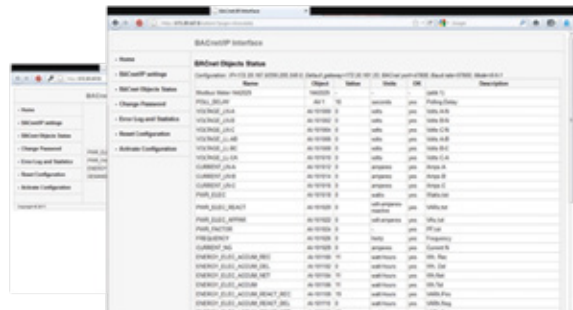
Table 2: Superior accuracy

Voltage L-N	0.2%	0-9999 V or kV
Voltage L-L	0.4%	0-9999 V or kV scalable
Current	0.2%	0-9999 A or kA
± Watts	0.5%	0-9999 Watts, kWatts, MWatts
± Wh	0.5%	5-8 digits programmable
± VARs	1.0%	0-9999 VARs, kVARs, MVARs
± VARh	1.0%	5-8 digits programmable
VA	1.0%	0-9999 VA, kVA, MVA
VAh	1.0%	5-8 digits programmable
PF	1.0%	± 0.5-1.0
Frequency	± 0.01 Hz	45-65 Hz
% Load bar	1-120%	10-segment resolution

Note: Typical results are more accurate. Applies to 3-element WYE and 2-element delta connections. Add 0.1% of full scale plus 1 digit to accuracy specs for 2.5-element connections.

RGM6010 BACnet/IP through the web

The RGM6010 meter's BACnet/IP comes standard with a web interface. Use the BACnet/IP interface to remotely set up the BACnet/IP configuration and track energy usage through the internet with any standard web browser. You do not need to be on site — you can check on your buildings from anywhere in the world. There is also a Modbus TCP socket that can be used to simultaneously poll Modbus TCP through the same device.



Traceable watt-hour test pulse for accuracy verification

The RGM6010 device is a traceable revenue meter. It contains a utility-grade test pulse, allowing power providers to verify and confirm that the meter is performing to its rated accuracy. This is an essential feature required of all billing-grade meters.

Front-mounted IrDA communication

Uniquely, the RGM6010 meter also has an optical IrDA port, allowing the unit to be set up and programmed using a remote laptop PC without the need for a communication cable.

To configure the meter, just point at it with an IrDA-equipped PC.



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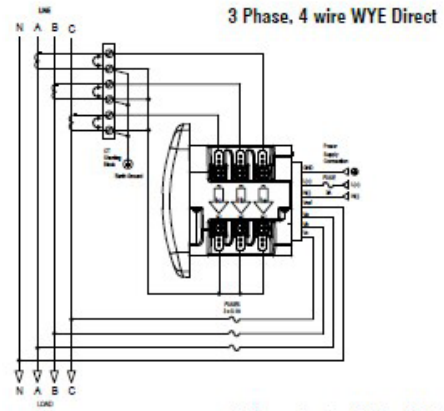
Additional features:

- Utility block and rolling average demand
- Adjustable demand profiles
- Max. and min. available on most of the parameters
- Voltage provides instantaneous max. and min. for surge and sag limits

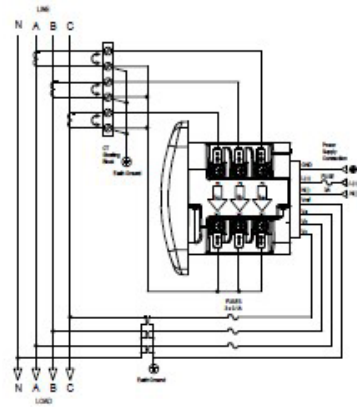
Table 3: Ordering information

RGM6010	—	*	—	*	—	*	—	*	Description
Base unit									RGM6010
System frequency		5							Frequency option 50 Hz
		6							Frequency option 60 Hz
Current input				1A					Current input 1 A
				5A					Current input 5 A
Software (THD)						THD			THD, limit alarms and one KYZ pulse output
Power supply								HI	HI - AC/DC power supply (90–265) V AC or (100–370) V DC
								LDC	LDC - low voltage DC power supply (18–60) V DC

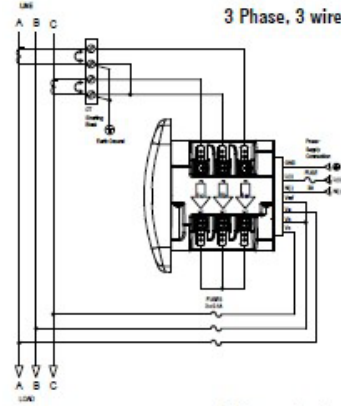
To order, please fill out ordering guide.



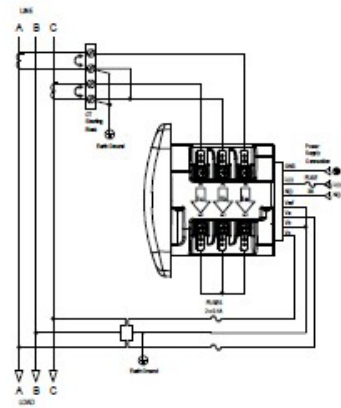
3 Phase, 4 wire WYE with PTs



3 Phase, 3 wire Delta Direct



3 Phase, 3 wire Delta with PTs



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Specifications

Voltage inputs:

- (20–416) volts line to neutral, (20–721) volts line to line
- Universal voltage input
- Input withstand capability — meets IEEE C37.90.1 (surge withstand capability)
- Programmable voltage range to any PT ratio
- Supports: 3-element wye, 2.5-element WYE, 2-element delta, 4-wire delta systems
- Burden: 0.36 VA per phase max. at 600 V, 0.014 VA at 120 volts
- Input wire gauge max. (12 AWG/2.5 mm²)

Current inputs:

- Class 10: (0 to 10) A, 5 A nominal
- Class 2: (0 to 2) A, 1 A nominal secondary
- Fault current withstand (at 23 °C): 100 A for 10 seconds, 300 A for 3 seconds, 500 A for 1 second
- Programmable current to any CT ratio
- Burden 0.005 VA per phase max. at 11 A
- 5 mA pickup current
- Pass-through wire gauge dimension: 0.177"/4.5 mm
- Continuous current withstand: 20 A for screw-terminated or pass-through current connections

Isolation:

- All inputs and outputs are galvanically isolated to 2500 V AC

Environmental rating:

- Storage: (-20 to +70) °C
- Operating: (-20 to +70) °C
- Humidity: to 95% RH non-condensing
- Faceplate rating: NEMA 12 (water resistant)
- Mounting gasket included
- Protection: IP30 — meter front/back, optional DIN rail mounting

Sensing method:

- RMS
- Sampling at 400+ samples per cycle on all channels measured readings simultaneously
- Harmonic THD (% of total harmonic distortion)

Update rate

- Watts, VAR and VA — 100 msec.
- All other parameters — 1 second

Power supply:

- Option D2: (90 to 265) V AC and (100 to 370) V DC universal AC/DC supply
- Option D: (18 to 60) V DC, burden: 10 VA max.

Communication format

- 2 Com ports (back and faceplate)
 - BACnet/IP Ethernet (through backplate)
 - IrDA (through faceplate)
- Modbus TCP
- Baud rate: 57.6 k baud

KYZ pulse:

- Type form A
- On resistance: (23–35) Ohm
- Peak voltage: 350 V DC
- Continuous load current: 120 mA
- Peak load current: 350 mA (10 ms)
- Off-state leakage current @ 350 V DC: 1 mA
- Opto-isolation: 3750 V AC (60 Hz, 1 min.)

Dimensions and shipping:

- Weight: 2 lbs
- Basic unit: (H4.85 x W4.85 x L4.25) in.
- RGM6010 — mounts in 92 mm DIN and ANSI C39.1 4" round cutouts
- RGM6010 — DIN rail-mounted transducer
- Shipping container dimensions: 6" cube

Meter accuracy:

- See page 2

Compliance:

- IEC 62053-22 (Class 0.2S)
- ANSI C12.20 (0.2 Accuracy Class)
- ANSI (IEEE) C37.90.1 Surge Withstand
- ANSI C62.41 (Burst)
- EN 61000-6-2 – Immunity for Industrial Environments: 2005
- EN 61000-6-4 – Emission Standards for Industrial Environments: 2007
- EN 61326-1 - EMC Requirements: 2006
- Certified to UL 61010-1 and CSA C22.2 No. 61010-1, UL File: E250818
- REACH Compliant
- RoHS Compliant

*Third-party lab tested