

DESCRIPTIVE BULLETIN

RGM6000

Multifunction power and energy meter



ABB's RGM6000 meter is one of the industry's highest performance revenue-grade panel meters. With a sampling rate of over 400 samples per cycle, the meter excels in accuracy, with readings rated at ANSI C12.20 0.2 CL and IEC 62053- 22 0.2S classes. The meter has an easy-to-read, bright red LED display, with intuitive navigation. The RGM6000 meter is ruggedly designed, using intrinsically safe current inputs.

01 RGM6000 meter

Features

- 0.2% class accuracy — 400+ samples/cycle with 24-bit ADC
- Measures voltage, current, power, frequency, energy and maximum demand
- Optional KYZ pulse and standard IrDA port
- Power quality measurements (THD and alarm limits)
- Large, bright red LED display with intuitive navigation
- % of load bar for analog meter perception
- Optional RS485 Modbus and DNP3 protocols
- Optional 10/100BaseT Ethernet
- Fits both ANSI and DIN cutouts
- Superior quality — rugged design

Applications

- Utility metering
- Commercial metering
- Substations
- Industrial metering
- Power generation
- Campus metering
- Submetering
- Analog meter replacement

Table 1: Superior accuracy

Measured parameters	Accuracy % of reading	Display range
Voltage L-N	0.1%	0–9999 V or kV scalable
Voltage L-L	0.1%	0–9999 V or kV scalable
Current	0.1%	0–9999 A or kA
± Watts	0.2%	0–9999 W, kW, MW
± Wh	0.2%	5 to 8 digits programmable
± VARs	0.2%	0–9999 VARs, kVARs, MVARs
± VARh	0.2%	5 to 8 digits programmable
VA	0.2%	0–9999 VA, kVA, MVA
VAh	0.2%	5 to 8 digits programmable
PF	0.2%	± 0.5 to 1.0
Frequency	0.01 Hz	(45 to 65) Hz
THD	5.0%	0 to 100%
% load bar	1–120%	10-digit resolution scalable

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.

- 02 Front view
- 03 Side view
- 04 Rear view

Communication and pulse output

- Optional RS485 port offers Modbus communication and baud rates from 9,600 to 57, 600 (485P option)
- Optional 10/100BaseT Modbus TCP Ethernet port (INP10 option)
- Optional communication includes a fixed energy pulse mapped to positive energy

Easy to install and use

- Simple faceplate programming
- Set up through PC
- Phasor diagram showing wiring status
- Auto scroll of meter readings (programmable)
- Analog-style % of load bar
- Shallow panel depth
- Color-coordinated voltage and current inputs

Rugged and safe voltage and current inputs

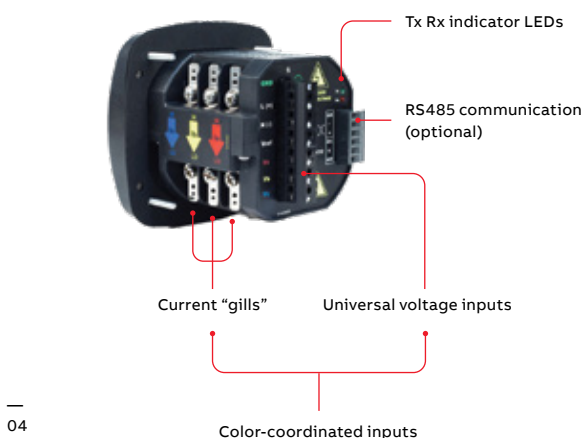
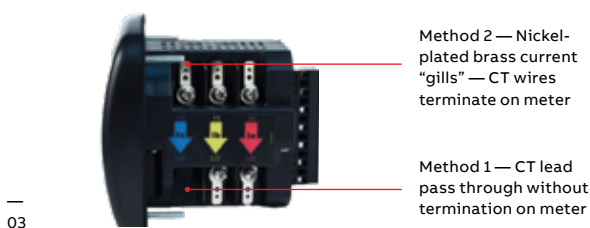
The RGM6000 meter is designed for harsh electrical applications in both high voltage and low voltage power systems. This feature is especially important in power generation, utility substation and critical user applications. This meter's structural and electrical design was developed based on the recommendations and approval of many of our utility customers.

High isolation universal voltage inputs

- Voltage inputs allow measurement of up to 416 volts line to neutral and 721 volts line to line
- One unit will perform to specification on 69 volt, 120 volt, 230 volt, 277 volt and 347 volt power systems

Short circuit safe current inputs use a unique dual input method:

- **Method 1** — CT lead pass-through — The CT lead passes directly through the meter without any physical termination on the meter. This ensures that the meter cannot be a point of failure on the CT circuit. This method is preferable to utility users when sharing relay class CTs. No burden is added to the secondary CT circuit.
- **Method 2** — Current "gills" — The meter also provides ultra-rugged termination pass-through bars that allow the CT leads to be terminated on the meter. The RGM6000 meter's stud-based design ensures that your CTs will not open in a fault condition.



* If the meter has the INP10 Ethernet option, it will have an RJ45 jack instead of RS485 connectors.

Specifications

Voltage inputs:

- (20–416) Volts line to neutral, (0–721) 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 V
- Input wire gauge max (12 AWG/2.5 mm²)

Current inputs:

- Class 10: (0.005 to 10) A, 5 A CT nominal secondary, 10 A maximum
- Class 2: (0.001 to 2) A, 1 A nominal CT 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 volts 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 measures readings simultaneously
- Harmonic THD (% of total harmonic distortion)

Update rate:

- Watts, VAR and VA every 6 cycles
- All other parameters every 60 cycles

Power supply:

- Option D2: (90 to 265) V AC @ 50/60 Hz or (100 to 370) V DC, universal AC/DC supply/5 VA max.
- Option D: (18 to 60) V DC/3.5 W max.

Communication format (optional):

- 2 Com ports (back and faceplate)
- RS485 port through backplate (485P)
- IrDA through faceplate
- 10/100BaseT Ethernet Modbus TCP/IP (INP10)
- Com port baud rate: (9,600 to 57,600)
- Com port address: 0–247
- 8-bit, no parity
- Modbus RTU, ASCII or DNP3 protocols

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.
- RGM6000 – mounts in 96 mm DIN and ANSI C39.1 4" round cutouts

Meter accuracy:

- See page 1

Compliance:

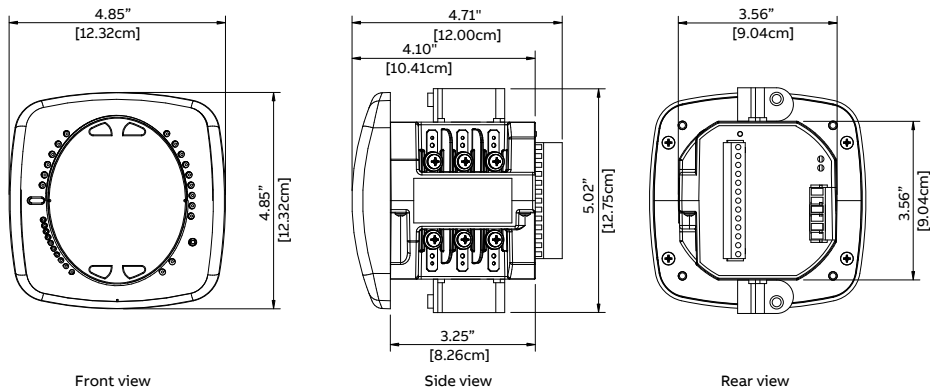
- ANSI C12.20-2010 Accuracy, Class 0.5 CL
- IEC 62053-22 Accuracy, Class 0.5S*
- IEC 62053-23 Edition 1 Class 2
- CE (IEC 61000-6-2 & IEC 61000-6-4 & IEC 61326-1)*
 - IEC 61000-4-2 (Electrostatic Discharge)*
 - IEC 61000-4-3 (Radiated EM Immunity)*
 - IEC 61000-4-4 (EFT)*
 - IEC 61000-4-5 (Surge Immunity)*
 - IEC 61000-4-6 (Conducted Immunity)*
 - IEC 61000-4-8 (Magnetic Immunity)
 - IEC 61000-4-11 (Voltage Variations Immunity)*
 - IEC/CISPR 11, Class A (Conducted, Radiated Emissions)*
- IEEE C37.90.1 (Surge Withstand)
- IEEE C62.41 (Surge Immunity)
- EU Directive 2011/65/EU (RoHS 2 Directive)
- REACH Compliant
- Certified to UL 61010-1 and CSA C22.2 No. 61010-1, UL File: E250818

*Third-party lab tested

Table 2: Ordering information

RGM6000	*	-	*	-	*	-	*	-	*	Description
Base unit										RGM6000
System frequency	5									Frequency option 50 Hz
	6									Frequency option 60 Hz
Current input		1A								Current input 1 A
		5A								Current input 5 A
THD			0							No THD option
			THD							THD, limit alarms and one KYZ pulse output
Power supply (substitute LV PS)										No LDC
					LDC					Low voltage DC power supply to substitute standard AC/DC power supply
Ethernet option								E		10/100 RJ45 Ethernet port

Dimensional drawings



Wiring diagrams

