

BROCHURE

# RGM40 — Compact DIN rail mounted energy and power quality meter



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The RGM40 is one of the smallest energy and power quality meters in the world. It was designed specifically for DIN rail installation where space is at a premium.

The meter provides 0.2% class energy accuracy and advanced power quality features. These include recording PQ waveform events at up to 512 samples per cycle and harmonic readings to the 40th order.

The RGM40 meter has extensive memory for storing load profiles, system events, limits and alarms. It has either RS485 or Ethernet communication that brings data back to existing software for energy analytics and predictions. The meter is compatible with MV90 and many different power monitoring software systems.

The RGM40's voltage measurement range is up to 576 V L-N; current inputs can be ordered for 333 mV current transformers. It has a separate power input connection and utilizes an extended range power supply with voltage up to 300 V AC, eliminating the need for a separate control power transformer. The RGM40 is ideal for machine-level monitoring, solar, wind and other applications with limited installation space.

## Features

- Compact DIN rail mounted meter designed for small footprint applications
- Meets ANSI C12.20 0.2 accuracy class
- Power quality features include waveform recording at 512 samples/cycle and harmonic analysis
- Extensive memory for storing load profiles, system events and limits/alarms
- System events log and passwords for security
- Modbus, BACnet/IP or DNP3 for easy software integration
- RS485 or 10/100BaseT Ethernet communication

## Applications

- Machine-level monitoring
- Power quality metering
- Energy management
- Commercial submetering
- Cost allocation and sub-billing
- Industrial metering
- Medical equipment monitoring
- Solar/wind/micro-turbine power generation metering
- Applications where installation space is limited
- Compatible with MV90 and SCADA applications
- Supports 333 mV CT applications



## RGM40 — Compact DIN rail mounted energy and power quality meter

### Advanced revenue meter

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01 Historical trending  
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02 Power quality log

- ANSI C12.20 0.2 accuracy class
- Traceable watt-hour test pulse
- Utility block and rolling average demand
- Historical load profiling
- Transformer and line loss compensation
- CT/PT compensation
- Line frequency time sync
- Sealable voltage and current inputs

Measured parameters	Accuracy	Display range
Voltage L-N	0.1%	0–9999 scalable V or kV
Voltage L-L	0.2%	0–9999 scalable V or kV
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	±2.0%	1 to 99.99%

Note: Applies to 3-element Wye and 2-element Delta connections. See full accuracy specifications in the RGM40 Meter User Manual. Neutral current 2% accuracy.

#### Extensive data logging capability (V2 & higher)

##### Historical logs:

- Three assignable historical logs
- Independently programmed trending profiles
- Up to 64 parameters per log
- Real time clock for timestamping



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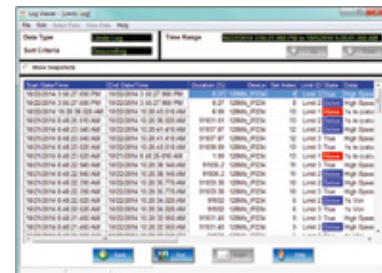
#### System events log

To protect critical billing information, the meter records and logs the following with a timestamp:

- Demand resets
- Password requests
- System startup
- Energy resets
- Critical data repairs
- Log resets
- Log reads
- Programmable settings changes

#### Power quality log

- Provides magnitude and duration of an event
- Includes timestamps and alarm value
- 2,048 events available

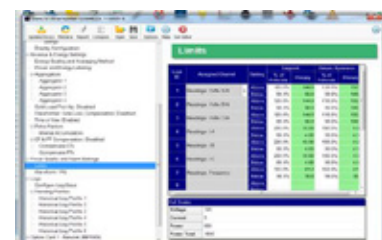


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#### Limit alarms (V6 option)

##### Limit events:

- Up to eight limits
- Voltage imbalance
- Current imbalance
- Based on % of full scale settings



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Power quality measurement

03 Power quality event

Waveform recording

The RGM40 meter records at up to 512 samples per cycle for a voltage sag or swell or a current fault event. The unit provides pre- and post-event recording capability.

	Samples per cycle	Pre-event cycles	Post-event cycles	Max. waveform per event
V6	256	2	6	16
	512	1	3	8

Note: Sampling rate is based on 60 Hz systems. For 50 Hz systems, multiply by 1.2.

The meter's advanced DSP design allows power quality triggers to be based on a ½ cycle updated RMS. Store up to 170 events in the meter's FIFO buffer.



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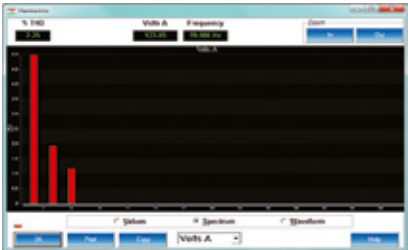
Independent CBEMA (or SEMI F47) log plotting

The meter stores an independent CBEMA or SEMI F47 log for magnitude and duration of voltage events. This lets you quickly view total surges, total sags and duration, without retrieving waveform data.



Harmonic recording to the 40th order

The RGM40 meter provides advanced harmonic analysis to the 40th order for each voltage and current channel, in real time. Using the stored waveforms, harmonic analysis is available to the 255th order.



Standard, basic and advanced options

Features	V1	V2	V6
Multifunction measurement	✓	✓	✓
Basic data logging		✓	
Advanced data logging			✓
Harmonic analysis			✓
TLC and CT/PT compensation	✓	✓	✓
Limit functions			✓
512 samples per cycle waveform recorder			✓

V6 is only available on power panel.

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### Specifications

#### Voltage inputs

- Absolute range: 20–576 volts line to neutral (300 V max. per UL 61010-1), 0–721 volts line to line (600 V max. per UL 61010-1)
- 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:
  - Input impedance: 4 M $\Omega$  per phase
  - 0.36 VA/phase max. at 600 volts, 0.014 VA at 120 volts
- Input wire gauge: #14–26 AWG/0.129–2.08 mm<sup>2</sup>

#### Current inputs

- For mV input — 333 mV secondary output, which equals 5 A
- Fault current withstand (at 23 °C): 100 A for 10 seconds
- Continuous current withstand: 20 A
- Programmable current to any CT ratio
- Burden 0.005 VA per phase max. at 11 A
- Pickup current: 0.1% of nominal

#### Isolation

- All inputs and outputs are galvanically isolated to 2500 volts

#### Environmental rating

- Storage: -20 to +70 °C
- Operating: -20 to +70 °C (UL evaluated to 65 °C)
- Humidity: to 95% RH non-condensing
- Protection: IP 30 (front and back)

#### Sensing method

- True RMS
- Sampling at over 400 sample/cycle on all channels of measured readings, simultaneously
- Harmonics resolution to 40th order
- Waveform recording at up to 512 samples/cycle

#### Update rate

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

#### Power supply

- 90–300 V AC
- VA rating: 10 VA max.; 8 VA nominal

#### Standard communication format

- 2 com ports
  - RS485 serial
  - Micro USB
- Com port baud rate: 1200–57600
- Com port address: 1–247
- 8 bit, parity setting: odd, even, none
- Serial Modbus ASCII/RTU, DNP3 (RS485)
- 10/100BaseT Ethernet Modbus TCP/IP (INP10 option)
- 10/100BaseT BACnet/IP (INP10B option)

#### Dimensions and shipping

- Weight: 2 lbs /0.9 kg
- Basic unit: 4.60"H x 4.89"W x 2.44"L
- DIN rail: top hat 1.38"W x 0.30"H (3.50 cm x 0.75 cm); slotted steel 3.00" (7.62 cm)

#### Accuracy

- See page 3

Note: For 2.5-element programmed units, degrade accuracy by an additional 0.5% of reading.

Note: For 1A (Class 2) nominal, degrade accuracy to 0.5% of reading for watts and energy; all other values 2 times rated accuracy.

#### Compliance

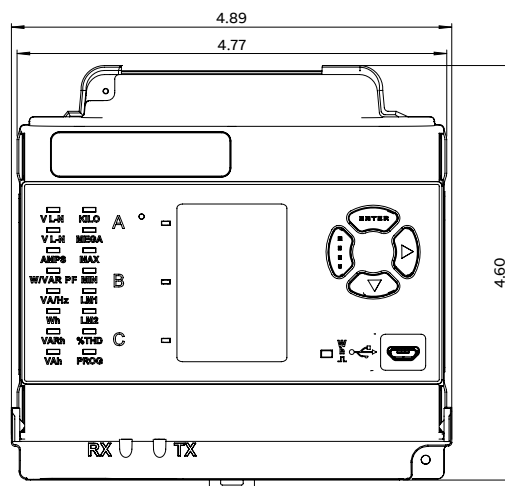
- ANSI C12.20 2015 0.2 CL and ANSI C12.1
- IEC 62053-22 0.2S
- Certified to UL/IEC 61010-1 and CSAC22.2 No. 61010-1, UL File: E250818\*
- CE marked

\*Third-party lab tested

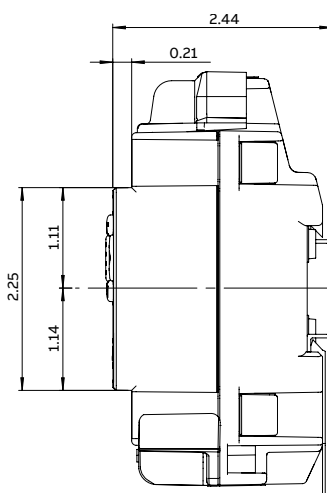
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## Dimensional drawings

04 RGM40 front dimensions

05 RGM40 side  
dimensions

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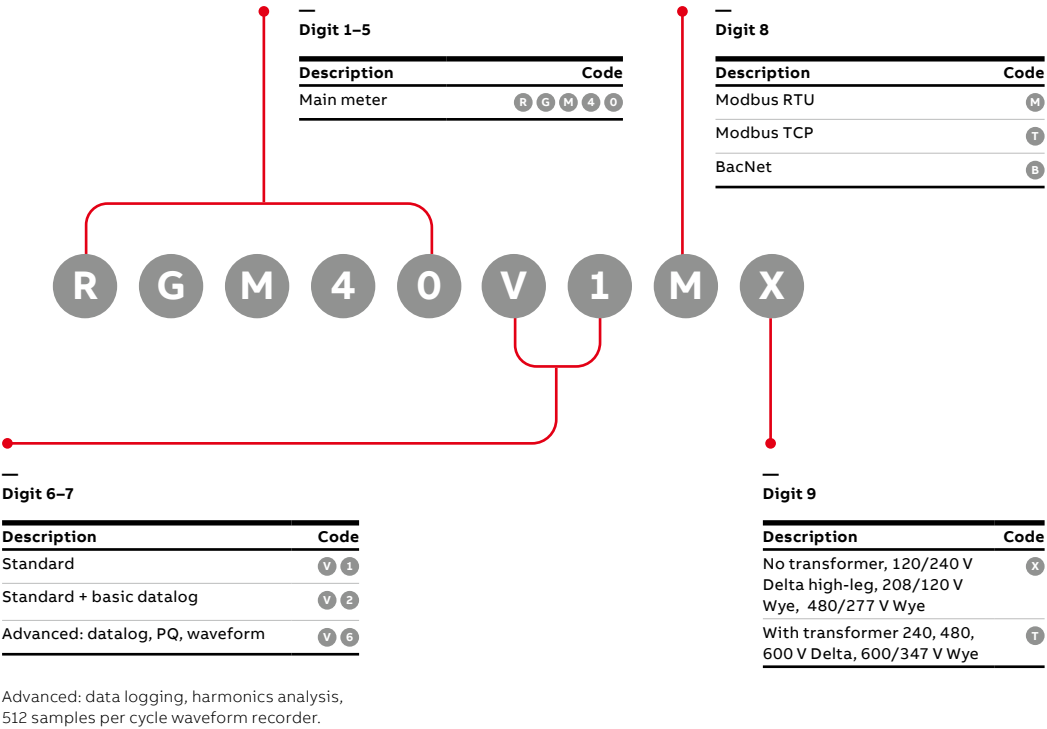


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RGM40 — Compact DIN rail mounted energy and power quality meter

Ordering information, ReliaGear™ neXT power panel only

Power panel RGM40 nomenclature





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