



P@WERSIDE®

Get an Eagle's-Eye, Real-Time View of the Grid

Meet the microPMU

Precision synchrophasor measurements and actionable intelligence for modern distribution networks

Modern Distribution Grids Require a New Level of Visibility

Unseen electrical issues in power grids can lead to major problems. With the now-constant evolution of the distribution grid, utilities need greater visibility into their rapidly changing conditions to stay ahead of far-reaching issues.

Traditional power monitoring tools remain essential for power quality assessment, event capture and site-level troubleshooting. Microphasor measurement units, or uPMUs, add a complementary layer of visibility by providing continuous, time-synchronized measurements that reveal how conditions evolve across the grid in near real-time. This helps to:

**Understand system
behavior**

**Identify root causes
of problems**

**Plan maintenance
and troubleshoot**

Utilities need continuous, synchronized measurements that reveal what's happening across the grid.

Illuminate Hidden Power Issues with microPMU

Get distribution-level precision with system-wide awareness

The high-speed **microPMU synchrophasor measurement device** from Powerside delivers continuous, GPS time-stamped power quality measurements and recording, giving grid operators a real-time view of system performance.

By continuously taking synchronized snapshots of key data points like voltage, current and frequency across multiple locations, the microPMU provides the visibility needed to monitor system conditions, validate grid behavior and make faster, more informed operational decisions.



Ensure stability with millidegree-angle accuracy

100–120
evaluations per second

0.01%
total vector error (TVE)
for industry-leading measurement accuracy

Continuous monitoring of:

- [Voltage](#)
- [Current](#)
- [Frequency](#)
- [Apparent, active and reactive powers](#)
- [Displacement power factor](#)
- [Phasor measurements](#)

Ideal for:

- [Distribution grids](#)
- [Microgrids](#)
- [DER integration](#)
- [Power generation systems](#)
- [Smart-grid projects](#)

Purpose-built to help utilities monitor and analyze increasingly complex distribution grids.



Power Deeper Visibility Across the Distribution Grid

Rather than serving a single application, the microPMU supports a wide range of operational and planning needs across the distribution network.

Microgrid Stability

Monitor critical loads and points of interconnection with synchronized measurements that help operators maintain stability and verify proper grid synchronization.

Distribution System Awareness

Continuously monitor voltage and current profiles to improve state estimation, detect topology changes and better understand system behavior as operating conditions evolve.

Root Cause Investigation

When disturbances occur, continuous high-resolution recording at 60–120 samples/cycle data captures the complete sequence of events, enabling more precise root cause and post-mortem analysis.

DER Monitoring and Planning

Assess DER impacts on power quality and grid stability while monitoring feeder voltage, current and low-load conditions.

Futureproof Your Grid with Best-in-Class Phasor Measurements

The Powerside microPMU combines real-time situational awareness of critical grid operations with high-fidelity data for actionable insights that help you maintain maximum performance now and into the future.



Precision Beyond Traditional PMUs

With a 0.01% TVE, the microPMU delivers approximately 100x greater measurement resolution than conventional transmission PMUs, revealing subtle system behavior that would otherwise go undetected.



Actionable Intelligence

Continuous, synchronized measurements provide operators with the localized awareness needed to pinpoint grid issues and respond more quickly to changing conditions.



High-Fidelity Diagnostics

Continuous time-series data enables faster troubleshooting and deeper operational insights than traditional event-based monitoring.



Integrated Grid Intelligence

The microPMU integrates seamlessly with either on-premise, traditional servers or cloud-based, high-capacity analytics platforms, such as the **PingThings® Predictive Grid** platform, delivering predictive analytics that support smarter planning and more resilient grid operations.



Specifications

Voltage	
Connections	L1, L2, L3, N
Voltage Measurement Range microPMU	0 to 750 Vac L-E
Voltage Measurement Range microPMU-LV	0 to 28 Vac L-E
Voltage Measurement Channels	Line-to-Earth
Frequency Range	Nominal 50 Hz, 60 Hz
Sampling Rate	25,600 samples/s at 50 Hz and 30,720 samples/s at 60 Hz
Isolation	Up to 5100 Vac isolation to Earth, UL/IEC 61010 tested
Total Vector Error (TVE)	Typical TVE: $\pm 0.01\%$ Typical short-term TVE stability for differential measurements: $\pm 0.002\%$
Amplitude Resolution	0.0002% FS (2 PPM)
Amplitude Accuracy microPMU ($\pm\%$ rdg $\pm\%$ FS)	$\pm 0.050\%$ (10 Vac to 750 Vac L-E) Typical: $\pm 0.010\%$ (120 Vac to 600 Vac L-E)
Amplitude Accuracy microPMU-LV ($\pm\%$ rdg $\pm\%$ FS)	$\pm 0.050\%$ Typical: $\pm 0.010\%$ (1.5 Vac to 28 Vac L-E)
Angle Resolution	0.001° (noise floor - useful for short-term difference measurements)
Angle Accuracy ($\pm\%$ FS)	$\pm 0.010^\circ$ (Standard deviation) Typical: $\pm 0.003^\circ$

Current	
Measurement Channels	8 inputs, differential Low Range: 0.333 Vrms; High Range: 10 Vpk Impedance: 33.3 k Ω Note: 3-phase current channels streamed via IEEE C37.118.2-2011 Communication Protocol
Current Range	0 to 6000 A with split-core CTs
Angle Accuracy ($\pm\%$ FS)	$\pm 0.040^\circ$ (Standard deviation) Typical: $\pm 0.025^\circ$
Magnitude Accuracy ($\pm\%$ FS)	$\pm 0.050^\circ$ (Standard deviation) Typical: $\pm 0.010^\circ$ (At 50/60 Hz, 2.5% FS to 120% FS)
Sampling Rate	25,600 samples/s at 50 Hz and 30,720 samples/s at 60 Hz

Measured Parameters	
Watts (Power)	The sum of per-phase active fundamental power
Volt-Amps (Apparent Power)	The sum of the per-phase product of RMS voltage and current, taken over the measurement interval
Power Factor	Fundamental power factor ratio of Watts to Volt-Amps
Vars (Volt-Amps Reactive)	Fundamental Vars

Modes of Operations	
High Accuracy Mode	Streaming, according to IEEE C37.118.2-2011, no recording Parameters streamed: 3 voltage and 3 current phasor angle and magnitude, frequency, ROCOF Parameters recorded: active/reactive power, power factor Latency: 5 sec typical
Low Latency Mode	Streaming, according to IEEE C37.118.2-2011, no recording Parameters streamed: 4 voltage and 4 current phasors, frequency, 4 analog channels Latency: 50 msec typical

Technical Specifications	
Dimensions (L x W x H)	4.33 X 2.89 X 3.08 in (11.0 X 7.34 X 7.82 cm), 35 mm DIN rail mountable
Operating Environment	Temp: -4 to +149°F (-20 to +65°C), +131°F (+55°C) with PM2 AUX load Humidity: 5 - 95% RH (inside use) Altitude: <2000 m above sea level (fixed/non moving location)
Power Supply	AC: 24 Vac ±10% at 50/60/400 Hz, 1.5 A max DC: ±24 to 48 Vdc ±10% (polarity independent), 1 A max Optional PM1 and PM2 modules: 100 to 240 Vac 50/60 Hz and 120 to 370 Vdc Power over Ethernet (PoE) compatible
Internal Memory	32 GB, up to 30 days of synchrophasor data
Communication	Ethernet port RJ-45, 10/100
Communication Protocols	FTP or HTTP (secure FTPS and HTTPS), IEEE C37.118.2-2011
Dimensions (L x W x H)	4.33 X 2.89 X 3.08 in (11.0 X 7.34 X 7.82 cm)
Mounting	DIN Rail (35 mm)

microPMU Outputs	
Streaming	IEEE C37.118.2-2011 via UDP and TCP
Reporting Rate	10, 12, 15, 20, 30, 60, or 120 frames per second configurable
HTTP / HTTPS	Maintenance and configuration of webpage access via HTTP / HTTPS
FTP	Data Extraction (only available in High Accuracy mode)



Power the Future with Greater Visibility

As distribution systems become more dynamic, visibility becomes more valuable. The microPMU delivers the synchronized, high-resolution measurements utilities need to operate a more reliable and resilient grid.

Request a quote today

powerside.com/request-a-quote

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