

Differences between the Siemens SENTRON PAC2xxx, PAC3xxx, and PAC4xxx

The differences in structure among the Siemens SENTRON PAC2xxx, PAC3xxx, and PAC4xxx power monitoring series are summarised below, focusing on their physical placement, measurement accuracy, communication capabilities, and compliance status.

SENTRON PAC Family Comparison Matrix

Technical Category	PAC2xxx Family (e.g., PAC2200)	PAC3xxx Family (e.g., PAC3120, PAC3220)	PAC4xxx Family (e.g., PAC4220)
Primary Device Application	Cost-sensitive sub-metering and individual breaker tracking.	Standard automation integration, feeder monitoring, and PLC bridging.	High-end power quality network analysis and historical tracking.
Enclosure & Installation Style	Compact DIN Rail Mounting (or specialised distribution setups).	Square Panel Mount (96×96 mm Front); select models have blind DIN rail alternatives (PAC3200T).	Square Panel Mount (96×96 mm Front panel integration).
Integrated Communication Interfaces	Modbus RTU or Modbus TCP (hardwired variant decided upon purchase).	Integrated Modbus RTU or single/dual-port Modbus TCP.	Upgraded dual-port Modbus TCP supporting up to 12 parallel links.
Expansion Slot Capabilities	None (No modular physical plug-ins supported).	1 Slot available for optional PROFINET, PROFIBUS, or alternative networks.	2 Slots available for dual communication modules and extra physical I/O expansion.
Supported Network Configurations	1-phase, 2-phase, or 3-phase (up to 3-wire or 4-wire connections).	1-phase, 2-phase, or 3-phase (3-wire or 4-wire configurations).	1-phase, 2-phase, or 3-phase (3-wire or 4-wire configurations).
MID Billing Certification Status	Yes (Dedicated factory-calibrated MID variants are available).	Yes (Dedicated MID variants are available for modern models like PAC3120/3220).	No (Engineered as an analytical instrument rather than a direct tenant sub-billing meter).
Active Energy Accuracy Limits	Class 1 (Baseline industrial energy compliance).	Class 0.5S (Standard high-precision industrial automation billing).	Class 0.2 / Class 0.2S (Laboratory/revenue grade high-precision resolution).
Harmonics & Waveform Distortion Limits	Total Harmonic Distortion (THD) baseline viewing only.	Individual odd harmonics tracked up to the 31st harmonic.	Full harmonic network capture up to the 64th harmonic.
Onboard Historical Data Memory	Minimal (Only tracks real-time points and running total variables).	None (Relies entirely on external SCADA or PLC network recording).	Integrated Storage (Equipped with up to 8 GB internal memory for logging events, load profiles, and dips/swells).

Some Sentron types compare

Unit Model	Base & Optional Communication Protocols	Network Configuration (Phase/Wire)	MID Certification Status	Accuracy Limits (Active Energy)	Harmonic Limits & Features
PAC2200	Modbus TCP or Modbus RTU (Fixed variant via hardware selection)	1-phase, 2-phase, or 3-phase (up to 3-wire/4-wire)	Yes (Dedicated MID variants available)	Class 1 (IEC 62053-21) / Class B (MID)	Total Harmonic Distortion (THD) only
PAC3100	Modbus RTU (Integrated); No optional slots	1-phase, 2-phase, or 3-phase (3-wire/4-wire)	No	Class 1 (IEC 62053-21)	No structural harmonics tracking
PAC3120	Modbus RTU (Integrated)	1-phase, 2-phase, or 3-phase (3-wire/4-wire)	Yes (Dedicated MID variants available)	Class 1 (IEC 61557-12)	THD for Voltage and Current
PAC3200	Modbus TCP (Integrated). Optional: PROFINET, PROFIBUS, Modbus RTU	1-phase, 2-phase, or 3-phase (3-wire/4-wire)	No	Class 0.5S (IEC 62053-22)	Odd harmonics up to the 31st
PAC3200T	Modbus TCP (Integrated). Optional via Proxy: PROFINET	1-phase, 2-phase, or 3-phase (3-wire/4-wire)	No	Class 0.5% (IEC 61557-12)	THD and asymmetry limits
PAC3220	2x Modbus TCP (Dual RJ45 port). Optional: PROFINET, PROFIBUS	1-phase, 2-phase, or 3-phase (3-wire/4-wire)	Yes (Dedicated MID variants available)	Class 0.5S (IEC 62053-22)	Odd harmonics up to the 31st
PAC4200	Modbus TCP (Integrated). Optional: PROFINET, PROFIBUS, Modbus RTU Gateway	1-phase, 2-phase, or 3-phase (3-wire/4-wire)	No	Class 0.2 (IEC 61557-12)	Comprehensive tracking up to the 64th
PAC4220	2x Modbus TCP (Dual port, 12 links). Optional: PROFINET, PROFIBUS	1-phase, 2-phase, or 3-phase (3-wire/4-wire)	No	Class 0.2 (IEC 61557-12)	Comprehensive tracking up to the 64th
Sentron 9410	Dual-port Modbus TCP, Modbus RTU, ION Protocol, IEC 61850, DNP3	1-phase, 2-phase, or 3-phase (3-wire/4-wire)	No (Meets ANSI C12.20 Revenue class)	Class 0.2S (Ultra-high precision)	Individual harmonics up to the 63rd + Waveform capture
Sentron 9810	Dual-port Modbus TCP, Modbus RTU, ION Protocol, IEC 61850, DNP3, DLMS	1-phase, 2-phase, or 3-phase (3-wire/4-wire)	No (Meets ANSI C12.20 Revenue class)	Class 0.1 (Laboratory grade standard)	Advanced grid analysis up to the 127th + Transient recording

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