

Switchboard Draw-out Meter digital replacement solutions



Switchboard Draw-out Meter upgrade solutions

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SIEMENS

Siemens draw-out meter replacement solution

Siemens PDS Power Monitoring offers advanced power monitors that can replace the old draw-out electromechanical meters commonly found in older switchgear. Siemens has developed a fast and easy retrofit using our PAC Series meter design. This retrofit enables the end user to install a revenue accurate digital meter in the existing watt-hour meter case with no modification to the wiring or electrical equipment. The PAC meters come with standard with either Modbus Ethernet TCP/IP communications or Modbus RTU and optional Profibus DP communications, enabling the user to integrate the meter into a new or existing power monitoring system or plant distributed control system with ease.

Key benefits

- Easy installation – no shutdown required – reuses existing wiring and current transformers.
- Retrofit kits fit into existing large or small switchboard/panel meter cases.
- Quickly upgrade switchgear with old or broken meters.
- New meters provide onboard communications to integrate with monitoring networks.
- Since existing gear stays intact, it is a cost-effective solution for highly regulated installations (e.g., asbestos wiring).
- Low replacement costs.
- Improves and simplifies meter upgrade projects
- Provides the benefit from more accurate metering for Power, Energy and alarming
- Reduces or eliminates spare parts inventory required for old, outdated meters.
- Simplifies maintenance and testing.

Old versus New



Old watt-hour meters:

Data available:

- Watt-hours
- Manually read dials
- No communications
- Poor accuracy - even if calibrated



New PAC Series Meters:

Data available:

- Voltage (per phase / phase-neutral)
- Current (per phase)
- Apparent, active and reactive power per phase and total)
- THD for voltage and current
- Power factor (per phase and total)
- Alarm/event recording
- Real-time network communications
- Revenue accurate readings

Installation

Replacing the outdated Watt-Hour meters has never been easier. The Siemens retrofit PAC Series meter design enables the end user to install a revenue accurate digital meter in the same location as old Watt-Hour meter. This design reuses the existing draw out meter case and all current transformers, as well as voltage and control power tabs already installed in the gear. No cutting of the existing switchgear. No external enclosures. No need to shut down process lines.

Simply remove the old Watt-Hour cover, short out the draw-out mechanism with the built-in shorting plugs, switches or other methods (varying by manufacturer), and draw out the old meter and replace the cage with the new Siemens solution.

See manufacturer's recommendations on how to remove your specific model and follow all regulations when working on electrical equipment.



Common Ft-21 style

Replacements




Form	Meter being replaced (Manufacturers' Model or Case Number)	No. of Elements	Case Description
5	GE DS-63, DSM-63, DSW-63, GE KV series, GE ES series, GE EV, Sangamo	2	GE Small case (S1)
6	GE DS-65, DSM-65, DSW-65, GE KV series, GE ES series, GE EV	2.5	GE Small case (S1)
8/9	GE DS-66, DSM-66, DSW-66, GE KV series, GE ES series, GE EV	3	GE Small case (S1)
5	GE DSW-63 (KYZ Pulse Output)	2	GE Small case (S1)
6	GE DSW-65 (KYZ Pulse Output)	2.5	GE Small case (S1)
8/9	GE DSW-66 (KYZ Pulse Output)	3	GE Small case (S1)
5	GE DS-63, DSM-63, DSW-63, GE KV series, GE ES series, GE EV with electronic register (R)	2	GE Small case but 1 9/16" deeper than standard S1 case
6	GE DS-65, DSM-65, DSW-65, GE KV series, GE ES series, GE EV with electronic register (R)	2.5	GE Small case but 1 9/16" deeper than standard S1 case
8/9	GE DS-66, DSM-66, DSW-66, GE KV series, GE ES series, GE EV with electronic register (R)	3	GE Small case but 1 9/16" deeper than standard S1 case
5	GE DSW-63 with electronic register (R) and KYZ Pulse Output	2	GE Small case but 1 9/16" deeper than standard S1 case
6	GE DSW-65 with electronic register (R) and KYZ Pulse Output	2.5	GE Small case but 1 9/16" deeper than standard S1 case
8/9	GE DSW-66 with electronic register (R) and KYZ Pulse Output	3	GE Small case but 1 9/16" deeper than standard S1 case
5	GE DS-53, DSM-53, DSW-53	2	GE Small case with hard wired connections
6	GE DS-55, DSM-55, DSW-55	2.5	GE Small case with hard wired connections
5	GE DS-43	2	GE Medium case
6	GE DS-43	2.5	GE Medium case
5	GE DS-38	2	GE Medium case with cover mounting to cradle
6	GE DS-38	2.5	GE Medium case with cover mounting to cradle
9	GE DS-64, DSM-64, DSW-64, Sangamo Large case	3	GE Large case
9	GE DSW-64	3	GE Large case
9	GE DS-64, DSM-64, DSW-64 with electronic register (R)	3	GE Large case but 1 9/16" deeper than standard case
9	GE DSW-64 with electronic register (R) and KYZ Pulse Output	3	GE Large case but 1 9/16" deeper than standard case
9	GE DS-54	3	GE Large case with hard wired connections
2- 5's	GE DS-67 (Two 2 elements)	2, 2	GE Large case
2- 6's	GE DS-69 (Two 2 1/2 elements)	2.5, 2.5	GE Large case
9	GE DS-44	3	GE Extra large case
9	GE DS-39	3	GE Extra large case with cover mounting to cradle
5	Westinghouse/ABB (CB-2F, D2B-2F, D4B-2F, D5B-2F), Alpha, L&G 2510, PSI	2	Westinghouse FT-21 Small case
6	Westinghouse/ABB (CB-8F, D2B-8F, D4B-8F, D5B-8F), Alpha, L&G 2510, PSI	2.5	Westinghouse FT-21 Small case
8/9	Westinghouse/ABB (D4B-3F, D5B-3F, CB-7F, D2B-7F, D4B-7F, D5B-7F), Alpha, L&G 2510, PSI	3	Westinghouse FT-21 Small case
5	Westinghouse/ABB (CB-2F, D2B-2F, D4B-2F, D5B-2F), Alpha, L&G 2510, PSI	2	Westinghouse FT-32 Large case w/ switches on top & bottom
6	Westinghouse/ABB (CB-8F, D2B-8F, D4B-8F, D5B-8F), Alpha, L&G 2510, PSI	2.5	Westinghouse FT-32 Large case w/ switches on top & bottom
8/9	Westinghouse/ABB (CB-3F, D2B-3F, D4B-3F, D5B-3F, CB-7F, D2B-7F, D4B-7F, D5B-7F), Alpha, L&G 2510, PSI	3	Westinghouse FT-32 Large case w/ switches on top & bottom
5	Westinghouse/ABB (CB-2F, D2B-2F, D4B-2F, D5B-2F), Alpha, L&G 2510, PSI	2	Westinghouse FT-31 Large case with switches on bottom only
6	Westinghouse/ABB (CB-8F, D2B-8F, D4B-8F, D5B-8F), Alpha, L&G 2510, PSI	2.5	Westinghouse FT-31 Large case with switches on bottom only
8/9	Westinghouse/ABB (CB-3F, D2B-3F, D4B-3F, D5B-3F, CB-7F, D2B-7F, D4B-7F, D5B-7F), Alpha, L&G 2510, PSI	3	Westinghouse FT-31 Large case with switches on bottom only
5	Westinghouse "Old" CB-2F	2	Westinghouse "Old" CB (2 thumb screw cover) Small case
6	Westinghouse "Old" CB-8F	2.5	Westinghouse "Old" CB (2 thumb screw cover) Small case
8/9	Westinghouse "Old" CB-3F, "Old" CB-7F	3	Westinghouse "Old" CB (2 thumb screw cover) Small case
2- 6's	Westinghouse D_B-32F (Two 2.5 elements meters)	2.5, 2.5	Westinghouse FT-32 Large case w/ switches on top & bottom
2- 5's	Westinghouse D_B-38F (Two 2 elements meters)	2, 2	Westinghouse FT-32 Large case w/ switches on top & bottom
5	JEM10, JEMSTAR, Transdata...	2	Basler style small case
6	JEM10, JEMSTAR, Transdata...	2.5	Basler style small case
9	JEM10, JEMSTAR, Transdata...	3	Basler style small case
5	Schlumberger (Q1000, Quantum, Fulcrum), JEM2, Transdata...	2	Basler style large case
6	Schlumberger (Q1000, Quantum, Fulcrum), JEM2, Transdata...	2.5	Basler style large case
9	Schlumberger (Q1000, Quantum, Fulcrum), JEM2, Transdata...	3	Basler style large case
5	Schlumberger (Q1000, Quantum, Fulcrum), JEM2, Transdata...with KYZ Pulse Output	2	Basler style large case
6	Schlumberger (Q1000, Quantum, Fulcrum), JEM2, Transdata...with KYZ Pulse Output	2.5	Basler style large case
9	Schlumberger (Q1000, Quantum, Fulcrum), JEM2, Transdata...with KYZ Pulse Output	3	Basler style large case

SETRON PAC power meters for your power monitoring applications.

Compact and high performance, the SETRON PAC meter family measures power values for electrical systems or individual loads. They provide important information for assessing the system state and the power quality. With integrated communication interface as standard, these power monitoring devices represent the perfect choice for efficient power management.



Function Overview

		 PAC3100			 PAC3200			 PAC4200		
Number of variables		>30			> 50			> 200		
Number of metered values	Voltage, current, power, power values, frequency, power factor (min./max. values)	•			•			•		
Basic measurements	THD, unbalance for current and voltage	–			•			•		
	Phase angle, phase displacement angle, harmonics for voltage and current	–			–			•		
Power flow	Meters (import and export) for apparent, active, reactive power	–	•	•	•	•	•	•	•	•
	Measuring accuracy class IEC 62053 active, reactive power	1	3		0.5S	2		0.2S	2	
	Load profile recording with time stamp	–			–			•		
Additional functions	Operating hours counter	–			•			•		
	Max. number setpoints	–			6			12		
	Boolean logic for setpoints / inputs	–	–		•	–		•	•	
	Event recording with time stamp	–			–			•		
System integration and communication	Ethernet interface (Modbus TCP)	–			10 Mbit/sec			10/100 Mbit/sec		
	RS485 (Modbus RTU)	Integrated			Optional			Optional		
	PROFIBUS DP (V1)	–			Optional			Optional		
	Integrated gateway: Ethernet <-> RS485 (Modbus)	–			–			•		
	Number of digital inputs / digital outputs	2	2		1	1		2	2	

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