



# PowerScout™ Series

## NETWORKED POWER METERS

*High Performance Instruments  
for Energy Measurement*

- Over 50 measured parameters for energy measurement, monitoring and diagnostics
- 3 or 18 channels for multi-circuit or branch -circuit monitoring
- Single or 3-phase energy and power meter for submetering applications
- Mix-and-match a full range of Split-Core or RōCoil™ Rogowski-style current transformers available
- PhaseChek™ LED indicators ensure correct CT orientation during installation†
- Line-Powered; 60-600V Phase-Phase Power Supply\*
- Data updates occur every 0.5 seconds
- ETL and CE Mark

\*Use on 120/240V, 208/120V, 480/277V or 580/335V, 380/220V services; 50 or 60 Hz  
† Patent Pending



*Flexible and precise solutions for real-time energy measurement and monitoring applications.*

*NOTE: All descriptions, specifications and performance features described herein are subject to change without notice. © 2009 DENT Instruments, Inc.*

## DEPENDABLE INSTRUMENTS FOR PRECISE ENERGY MEASUREMENT

DENT's PowerScout™ Series networked power meters are submetering devices designed to provide timely and accurate consumption data necessary to gain the upper hand on electrical costs in today's escalating energy market. These meters can capture kWh/kW energy and demand data as well as virtually all relevant energy parameters for diagnostics and monitoring on three-phase or single-phase circuit installations. The PowerScout's™ flexibility, size, and ease-of-use make them ideal tools for gathering detailed consumption information in commercial, industrial, government and retail environments.

## VERSITILE PERFORMANCE ON SINGLE OR THREE-PHASE ELECTRICAL SERVICES

The PowerScout™ uses direct connections to each phase of the voltage and various interchangeable CT options such as split-core current transformers or flexible RōCoils™ (for large loads or large cables and busbars) to monitor current on each phase. All DENT CTs are internally shunted with ETL and CE mark for intrinsically safe operation on energized conductors. Special high-accuracy CTs are available for existing CT secondary monitoring. The PowerScout™ is available with or without enclosure, depending on the site environment.

The PowerScout™ makes over 50 total electrical measurements which are derived from the voltage and current inputs. Electrical load diagnostic parameters such as power factor (both Apparent and Displacement) and line frequency are captured in addition to energy and demand values. A 4-wire 3-phase version is available for monitoring and Neutral phase on potentially unbalanced loads.

## EQUIPPED WITH INDUSTRY STANDARD COMMUNICATIONS

Communications interface to the PowerScout™ is through an RS-485 serial connection using the industry standard Modbus protocol. Up to 254 PowerScout™ meters may be connected to a single RTU or datalogger for monitoring and recording power usage at multiple locations within a single site. DENT's proprietary ViewPoint™ software utility allows you to easily configure the PowerScout™ for the connected CTs and to check readings.

## IDEAL FOR FOOL-PROOF INSTALLATION

The PowerScout™ requires no external power and its power supply can accommodate service voltages ranging from 60-600V (phase to phase). The simple installation is accomplished by connecting the color-coded voltage leads and clearly labeled CTs. DENT's patent pending PhaseChek™ circuitry includes a 3 LED indicator display that confirms proper CT to phase installation. The PowerScout™ automatically adjusts for CT orientation—greatly reducing set-up time and all but eliminating installation errors.

## MULTI-CIRCUIT OR BRANCH CIRCUIT MONITORING

The PowerScout™ 18 is a versatile, multi-channel (CT) instrument. The modular design allows it to be configured for monitoring multiple electrical circuits, sharing a common voltage source or for current only monitoring of branch circuits. It can be supplied with virtually any combination of DENT's internally-shunted split-core, RoCoil™, or clamp-on CTs and is equipped with an RS-485 Modbus interface. Monitor up to 6 three-phase electrical devices with the PowerScout™ 18. Optional Din rail mounting, stand-offs, or convenient rugged enclosures are available.

Data updates occur every 0.5 seconds and with accuracy better than 1% (depending on CT), the PowerScout™ 18 is well suited for data center monitoring, tenant sub-metering and for accountability metering in commercial, retail and industrial facilities.



PowerScout™ 18 N version circuit board.

## MODBUS REGISTER ASSIGNMENTS

DETAILED REGISTER DESCRIPTION	
Total Net True Energy (kWh)	Individual Phase—Phase Voltages
Instantaneous Total True Power (kW)	Line Frequency (Hz)
Peak Demand (adjustable Demand window, 15 min typical) (kW)	Individual Phases True Energy (kWh)
Maximum Instantaneous Power (kW)	Individual Phases True Power (kW)
Minimum Instantaneous Power (kW)	Individual Phases Reactive Energy (kVARh)
Total Net Reactive Energy (kVARh)	Individual Phases Reactive Power (kVAR)
Total Reactive Power (kVAR)	Individual Phases Apparent Energy (kVAh)
Total Apparent Energy (kVAh)	Individual Phases Apparent Power (kVA)
Total Apparent Power (kVA)	Individual Phases Apparent Power Factor (aPF)
System Displacement Power Factor (dPF)	Individual Phases Displacement Power Factor (dPF)
System Apparent Power Factor (aPF)	Individual Phases Current (Amps)
Total Current in all phases (Amps)	Individual Phases Line to Neutral Voltages (Volts)
Average Line—Line Voltage (Volts)	Individual Phases Line to Line Voltages (Volts)
Average Line—Neutral Voltage (Volts)	Multiple Meters External Data Synchronization

# PowerScout™ Technical Information

## TECHNICAL SPECIFICATIONS

Service Type	Single Phase, Split Phase, Three Phase, Three Phase Delta, Four Wire (WYE)
Power	From L1 Phase to Neutral Wire. 0.5 Watts; Internal fuse protection
3 Voltage Channels	60-600 Volts AC, Higher AC voltages can be measured with a Potential (voltage) Transformer
3 Current Channels	0-5,000+ Amps depending on current transformer
Measurement Type	True RMS using high-speed digital signal processing (DSP)
Line Frequency	50 and 60Hz
Waveform Sampling	13 kHz voltage and current
Measurements	Volts, Amps, kW, kWh, kVAR, kVARh, kVA, kVAh Apparent Power Factor (aPF) Displacement Power Factor (dPF) All parameters for each phase and for system total
Accuracy	Better Than 1% (<0.5% typical) for V, A, kW, kVAR, kVA, PF excluding sensor
Resolution	Adjustable, 0.1 Amp, 0.1 Volt, 1 watt, 1 VAR, 1 VA, 0.01 Power Factor typical
Indicators	3 LEDs for setup, 1 per phase: Green when voltage and current on the on the same phase, Red when incorrectly wired (PhaseChek™, patent pending), a 4th LED for Power On and communication indication

## COMMUNICATION SPECIFICATIONS

Direct	Modbus over RS-485
Modbus Framing	RTU (binary)
Communication Rate	9600 baud
Data Bits	8
Parity	None
Stop Bit	1
Data Formats	Modbus Protocol

## MECHANICAL SPECIFICATIONS

Operating Temperature	-7 to +60°C (-20 to +140°F)
Humidity	5% to 95% non-condensing
Enclosure	PS3: PC/ABS UL 94 V0 PS18: PC UL 94 5V
Weight (exclusive of CTs)	PS3: 283 g (10 oz) PS18 Without Enclosure: 454 g (16 oz) PS18 With Enclosure: 1361 g (48 oz)
Dimensions*	27.79 x 18.80 x 13.00 cm (10.94" x 7.40" x 5.12") <i>*Not including mounting brackets.</i>

## ORDERING INFORMATION

### POWERSCOUT™ PART NUMBERS (CURRENT TRANSFORMERS ORDERED SEPARATELY)

<b>PS18-N</b>	PowerScout™ 18 (circuit board only)
<b>PS18-D</b>	PowerScout™ 18 (indoor enclosure)
<b>PS3-D</b>	PowerScout™ 3 (indoor enclosure)



The Next Generation **PowerScout™ 3** with Full Utility Metering™.

## CONTACT INFORMATION



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