POWERSCOUT™ 3037
REVENUE-GRADE SINGLE-POINT POWER METER

ADAPT TO ANY PROJECT
The PowerScout 3037 comes in four basic configurations depending on whether a display or Ethernet port are desired. Instead of having one specific meter for a single job, the PowerScout 3037 can adapt to nearly any project requirement.

All PowerScout 3037 models have a broadband power supply (80-600VAC) and can be paired with a variety of current transformers, from split cores that measure <1A up to large RoCoils designed for measuring 4000A. In addition, communication protocols are field-selectable. Easily toggle between Modbus or BACnet using ViewPoint software.

QUICK & EASY SETUP
Configuring the PowerScout 3037 for a new project is faster than ever before, thanks to the standard USB port. To configure, simply connect the meter to a PC using a USB cable, then use ViewPoint software to select CT type, communication protocol, and other parameters. The meter is powered by the USB port while connected to a PC. Have several meters that require the same configuration? Save your setup table in ViewPoint and use it over and over.
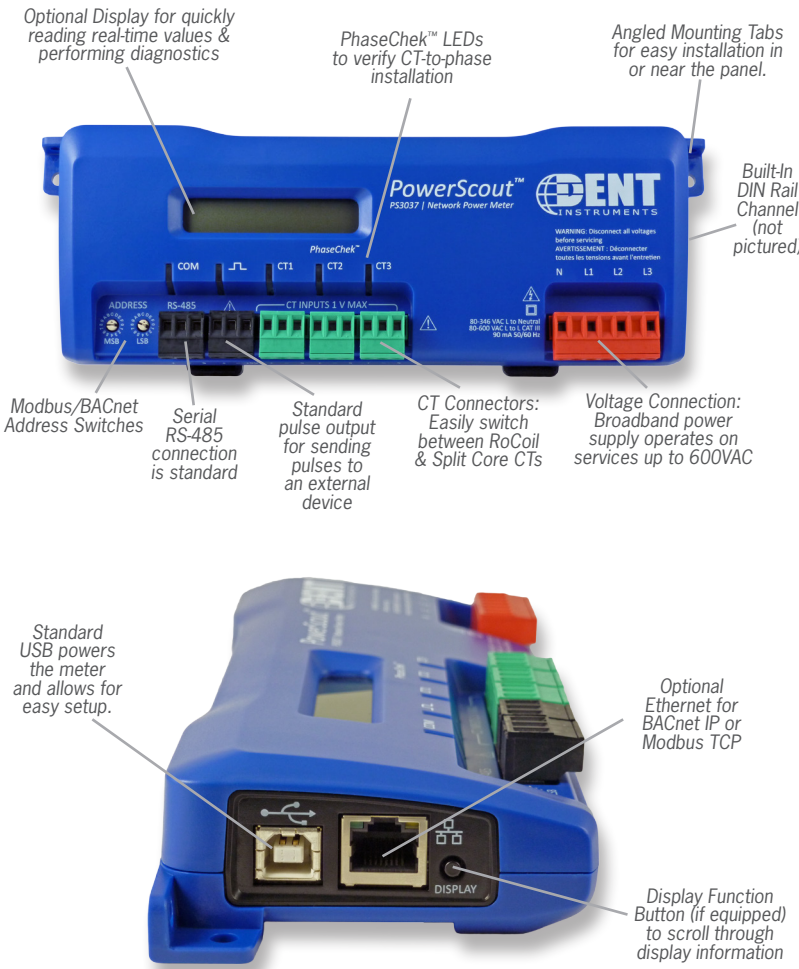
FASTEST & EASIEST INSTALLATION
The PowerScout 3037 is compact enough to facilitate in-panel mounting. Or, use the built-in DIN rail channel, which is compatible with TS35/7 rail for quick and easy mounting near the circuit panel.

PowerScout instruments are line-powered and do not require external power. Its power supply can accommodate service voltages ranging from 80-600V (phase-to-phase). DENT's patented PhaseChek™ circuitry includes a 3 bi-color LED indicator display that confirms proper CT-to-phase placement and orientation.

Use the standard USB connection to easily power and configure the PowerScout 3037 at your office or in the field. Once connected to the panel, USB can also be used to verify setup and check real-time values.

REVENUE-GRADE PERFORMANCE
The PowerScout 3037 features revenue-grade ANSI C12.20-2010 qualified Class 0.2 performance. Paired with the appropriate DENT CTs, the PowerScout 3037 is ideal for high-accuracy applications like demand response or tenant submetering.

COMMUNICATIONS: INDUSTRY-STANDARD MODBUS OR BACNET
Communications interface to the PowerScout 3037 can be accomplished through serial RS-485 or USB, or optional Ethernet. The PowerScout can use either the BACnet IP or MS/TP protocol or Modbus TCP or RS-485 protocol for sending commands or retrieving data.

STANDARD PULSE OUTPUT
Send kWh or other pulses to an external device. The pulse output is used to generate system kWh pulses for devices, such as data loggers, that can accept pulses, but do not have BACnet or Modbus capability.

POWERSCOUT 3037 ANATOMY

Optional Display for quickly reading real-time values & performing diagnostics

PhaseChek™ LEDs to verify CT-to-phase installation

Angled Mounting Tabs for easy installation in or near the panel.

Built-In DIN Rail Channel (not pictured)

Modbus/BACnet Address Switches

Serial RS-485 connection is standard

Standard pulse output for sending pulses to an external device

CT Connectors: Easily switch between RoCoil & Split Core CTs

Voltage Connection: Broadband power supply operates on services up to 600VAC

Standard USB powers the meter and allows for easy setup.

Optional Ethernet for BACnet IP or Modbus TCP

Display Function Button (if equipped) to scroll through display information

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POWERSCOUT™ SPECIFICATIONS

TECHNICAL

SERVICE TYPE	Single Phase, 3 Phase - 4 Wire (WYE), 3 Phase - 3 Wire (Delta)
POWER	From L1 Phase to L2 Phase. 80-600VAC CAT III 50/60Hz, 70mA Max. Non-user replaceable .5 Amp internal fuse protection
POWER OUT	**PS3037:** Unregulated 5VDC output, 140 mA Max, resetting fuse **PS24:** Unregulated 5VDC output, 500 mA Max
VOLTAGE CHANNELS*	80-346 Volts AC Line-to-Neutral, 600V Phase-to-Phase, CAT III
CURRENT CHANNELS	**PS3037:** 3 channels, 0.52 VAC max, 333 mV CTs, 0-4,000A **PS24:** 3 24 channels, 0.67 VAC max, 333 mV CTs, 0-5,000A
MAXIMUM CURRENT INPUT	**PS3037:** 158% of current transducer rating (mV CTs) to maintain accuracy. Measure up to 4000A with RoCoil CTs **PS24:** 200% of current transducer rating (mV CTs) Measure up to 5000A with RoCoil CTs
MEASUREMENT TYPE	True RMS using high-speed digital signal processing (DSP)
LINE FREQUENCY	50/60 Hz
WAVEFORM SAMPLING	12 kHz
PARAMETER UPDATE RATE	**PS3037:** .5 seconds **PS24:** 1 second
MEASUREMENTS	Volts, Amps, kW, kWh, kVAR, kVARh, kVA, kVAh, aPF, dPF.
ACCURACY	**PS3037:** 0.2% (<0.1% typical) ANSI C12.20-2010 Class 0.2 **PS24:** 1% (<0.5% typical) for V, A, kW, kVAR, kVA, PF.
RESOLUTION	0.01 Amp, 0.1 Volt, 0.01 watt, 0.01 VAR, 0.01 VA, 0.01 Power Factor depending on scalar setting
LED INDICATORS	Bi-color LEDs (red and green): 1 LED to indicate communication, 3 LEDs for correct CT-to-phase installation (per meter element).
PULSE OUTPUT	**PS3037:** Open Collector, 5mA max current, 30V max open voltage **PS24:** Open Collector, 75mA max current, 40V max open voltage

COMMUNICATIONS

DIRECT	User selectable Modbus/BACnet Master Slave Token Passing protocol (MS/TP) or (optional) BACnet IP/Modbus TCP over Ethernet.
MAX DISTANCE	1200 meters with Data Range of 100K bits/second or less
BAUD RATE	9600 (Modbus default), 19200, 38400, 57600, 76800 (BACnet default), 115200
DATA BITS	8
PARITY	None, Even, Odd
STOP BIT	2, 1
DATA FORMATS	Modbus or BACnet

MECHANICAL

OPERATING TEMPERATURE	-20° to 60°C (-4° to 140°F)
HUMIDITY	5% to 95% non-condensing
ENCLOSURE	**PS3037:** ABS Plastic, 94-V0 flammability rating **PS24** (optional): PC UL 94 5V
WEIGHT (EXCLUDING CTS)	**PS3037:** 340 g (12 ounces) **PS24 Without Enclosure:** 369 g (13 oz) **PS24 With Enclosure:** 610 g (21.5 oz)
DIMENSIONS	**PS3037:** 24.2 x 8.5 x 4.0 cm (9.5" x 3.3" x 1.6") **PS24 Without Enclosure:** 25.5 x 16.5 x 3.2 cm (10.0" x 6.5" x 1.3") **PS24 With Enclosure:** 27.8 x 18.8 x 13.0 cm (10.9" x 7.4" x 5.1")

VIEWPOINT SOFTWARE

OPERATING SYSTEM	Windows® 8, Windows® 7 (32/64 bit), Windows® Vista (32/64 bit), or Windows® XP
COMMUNICATIONS	RS-485 & USB standard. Ethernet available. One USB Port required on PC.

SAFETY

POWERSCOUT 3037 (All) PS3037-S-N, PS3037-S-D, PS3037-E-N, PS3037-E-D	UL Listed and CE Mark Conforms to UL Std 61010-1 Certified to CSA Std C22.2 No. 61010-1
POWERSCOUT 24 N Serial PS24-N-S (circuit board only)	UL Recognized, CE Mark Conforms to UL Std 61010-1 Certified to CSA Std C22.2 No. 61010-1
POWERSCOUT 24 D Serial PS24-D-S (with indoor enclosure)	UL Listed, CE Mark Conforms to UL Std 61010-1 Certified to CSA Std C22.2 No. 61010-1
POWERSCOUT 24 N Ethernet PS24-N-E (circuit board only)	UL Recognized Conforms to UL Std 61010-1 Certified to CSA Std C22.2 No. 61010-1
POWERSCOUT 24 D Ethernet PS24-D-E (with indoor enclosure)	UL Listed Conforms to UL Std 61010-1 Certified to CSA Std C22.2 No. 61010-1

MODBUS REGISTER/BACNET OBJECT DESCRIPTIONS (PARTIAL LIST)

System True Energy +/- (kWh)	Individual Phase to Phase Voltages
Instantaneous Total True Power +/- (kW)	Individual Phases True Energy +/- (kWh)
Peak Demand (Adjustable Window) (kW)	Individual Phases True Power +/- (kW)
Maximum Instantaneous Power +/- (kW)	Individual Phases Reactive Energy +/- (kVARh)
Minimum Instantaneous Power +/- (kW)	Individual Phases Reactive Power +/- (kVAR)
System Reactive Energy +/- (kVARh)	Individual Phases Apparent Energy kVAh)
System Apparent Energy (kVAh)	Individual Phases Apparent Power (kVA)
System 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 Line to Neutral Voltages (Volts)
Average Line to Line Voltage (Volts)	Individual Phases Line to Line Voltages (Volts)
Average Line to Neutral Voltage (Volts)	PS3037: Net system true energy (kWh)

VIEWPOINT™ SOFTWARE: QUICK AND EASY SET-UP, CONFIGURATION, & DIAGNOSTICS

DENT's ViewPoint software utility allows you to easily configure the PowerScout for the connected CTs and to check real-time values to ensure that the meter is properly configured. ViewPoint is the quick and easy way to:

- Switch between communication protocols
- Verify meter installation
- Check real-time values before leaving the job site
- Read and write to specific registers
- Set the data scalar setting
- Update PowerScout firmware

ViewPoint
PowerScout Utility

POWERSCOUT™ SERIES
NETWORKED POWER METERS

HIGH PERFORMANCE INSTRUMENTS FOR ENERGY MEASUREMENT

INDUSTRY'S MOST DEPENDABLE & PRECISE ENERGY MEASUREMENT
The PowerScout series networked power meters are designed to provide timely and accurate consumption data to gain the upper hand on electrical costs in today's escalating energy market. PowerScout 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 data in commercial, industrial, government and retail environments.

MAXIMUM VERSATILITY & FLEXIBILITY
Every PowerScout features field-selectable Modbus or BACnet protocols, interchangeable split-core or flexible RoCoil CTs, and direct USB setup. Connect via RS-485 or optional Ethernet and use the optional back-lit display (PS3037) to verify setup and check real time values. The PowerScout makes over 50 total electrical measurements, including energy and demand.

PowerScout™ 24
Multi-Circuit Monitor

FEATURES

- PowerScout meters monitor voltage, current, power, energy, and many other electrical parameters on single and three-phase systems.
- The PowerScout uses either BACnet or Modbus protocol and features digital pulse outputs. Available with Serial-only or with Ethernet.
- Positive and negative Modbus registers/BACnet objects allow for the PowerScout to be used on net metering projects.
- Mix-and-match a full range of Split Core or RoCoil™ Rogowski-style CTs
- PhaseChek™ LED indicators confirm proper CT orientation.
- Line-Powered*: 80-600V Phase-to-Phase Power Supply.
- Data updates occur every 0.5 seconds (PS3037) or once every second (PS24).
- PS3037: Revenue grade. ANSI C12.20-2010 Class 0.2
- PS3037: DIN rail or panel mount
- PS3037: Optional back-lit display available for verifying setup and checking real time values.
- UL and CE Mark†

APPLICATIONS

- Tenant Submetering
- Net Metering
- Data Center Monitoring
- Commercial
- Retail
- Industrial

Use on 120/240V, 480/277V, 580/355V, or 380/220V services. 50 or 60 Hz.

† PS3037 and PS24D (with enclosure) are UL Listed. PS24N (without enclosure) is UL Recognized. CE Mark on PS3037 and PS24 Serial models.
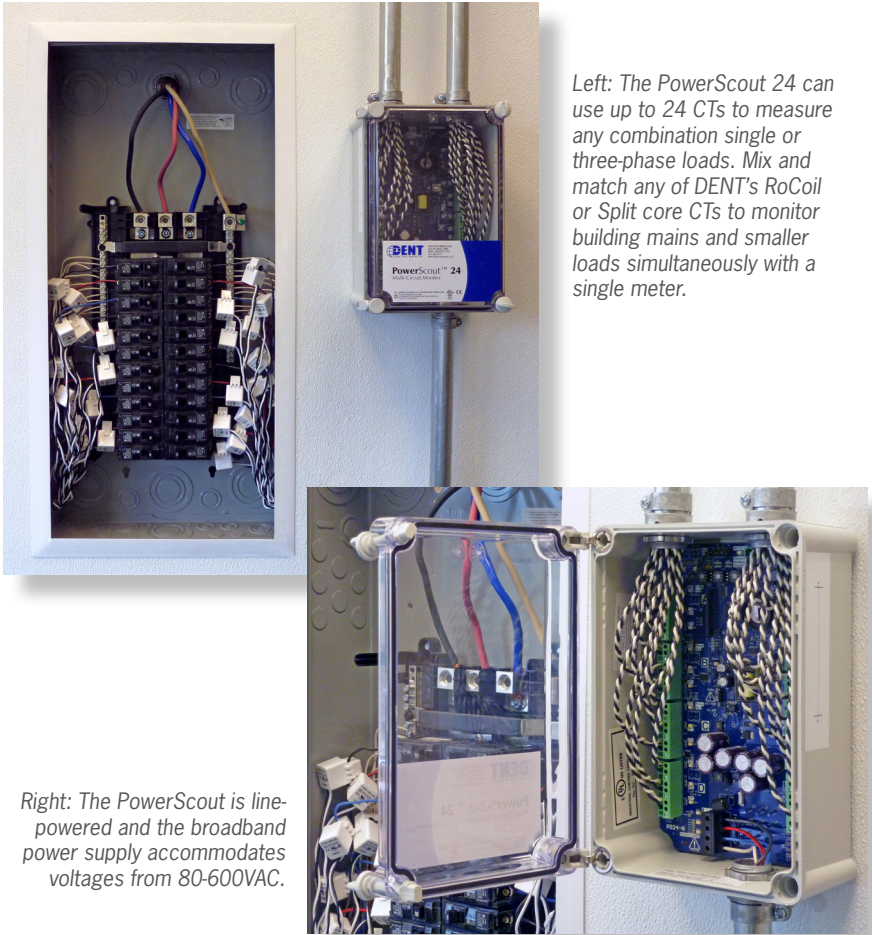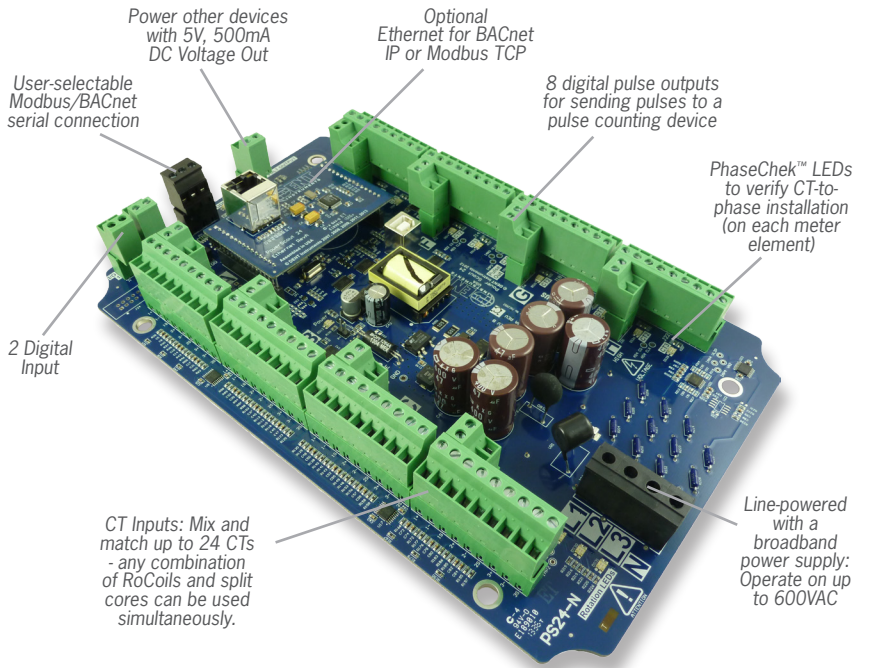
WARRANTY 5 YEAR WARRANTY

POWERSCOUT™ 24
HIGH-PERFORMANCE MULTI-CIRCUIT MONITORING

POWERSCOUT 24 ANATOMY

- Power other devices with 5V, 500mA DC Voltage Out
- Optional Ethernet for BACnet IP or Modbus TCP
- User-selectable Modbus/BACnet serial connection
- 8 digital pulse outputs for sending pulses to a pulse counting device
- PhaseChek™ LEDs to verify CT-to-phase installation (on each meter element)
- 2 Digital Input
- CT Inputs: Mix and match up to 24 CTs - any combination of RoCoils and split cores can be used simultaneously.
- Line-powered with a broadband power supply: Operate on up to 600VAC

Left: The PowerScout 24 can use up to 24 CTs to measure any combination single or three-phase loads. Mix and match any of DENT's RoCoil or Split core CTs to monitor building mains and smaller loads simultaneously with a single meter.

Right: The PowerScout is line-powered and the broadband power supply accommodates voltages from 80-600VAC.

MAXIMUM FLEXIBILITY FOR HIGH-DENSITY MONITORING

The PowerScout 24 is a versatile, multi-channel 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 or RoCoil CTs. Monitor any combination of up to 8 three-phase or 24 single-phase electrical devices with the PowerScout 24.

With data updates every 1 second and accuracy better than 1% (depending on CT), the PowerScout 24 is well-suited for data center monitoring, tenant sub-metering, and for accountability metering in commercial, retail, and industrial facilities.

The PowerScout 24 is available as a bare circuit board (UL Recognized) or with a convenient rugged enclosure (UL Listed).

COMMUNICATIONS: INDUSTRY-STANDARD MODBUS OR BACNET

Communications interface to the PowerScout 24 can be accomplished through standard serial RS-485 or USB, or optional Ethernet. The PowerScout can use either the BACnet IP or MS/TP protocol or Modbus TCP or RS-485 protocol for sending commands or retrieving data.

FOOL-PROOF INSTALLATION

The PowerScout series instruments are line powered and do not require external power. Its power supply can accommodate service voltages ranging from 80-600V (phase-to-phase). DENT's patented PhaseChek™ circuitry includes a 3 LED indicator display that confirms proper CT-to-phase installation.

OTHER STANDARD FEATURES

Pulse Output

The PowerScout 24 features 8 digital outputs - one per meter element. Use these digital outputs to send kWh or other pulses to a pulse counting device, such as a datalogger.

Pulse Input

The PowerScout 24 has two digital input ports which are used to count, accumulate, and scale pulses received from non-DENT external pulse initiating meters such as gas, water, or other electrical meters.

Power Out

In addition, the PowerScout 24 has a 5VDC, 200mA power out to power other devices such as a radio or gateway device.

POWERSCOUT™ TRANSFORMERS

PowerScout meters can be equipped with a wide selection of current transformers. Choose from compact and economical Split-Core CTs or the versatile Rogowski Flex CTs. Each type offers its own particular advantages depending on your application. DENT CTs are interchangeable to meet your varying project requirements. All DENT CTs are internally shunted and carry UL or ETL certification and CE Mark for intrinsically safe operation on energized conductors.

	MINI HINGED HSC-020, -050	MIDI HINGED HMC-100, -200	HIGH ACCURACY SHS-0005, -0015	SMALL SPLIT CORE SCS-0050, -0100	MED SPLIT CORE SCM-0100, -0200, -0400, -0600	LARGE SPLIT CORE SCL-0600, -1000	ROCOIL R16, R24, R36, R47	ROCOIL R72
KEY SPECIFICATIONS								
WINDOW SIZE	1 cm (0.4")	2.5 cm (1.0")	1.0 cm (0.4")	1.9 cm (.75")	3.2 cm (1.25")	5.1 cm (2.0")	16": 11.5 cm (4.5") 24": 17.9 cm (7.0") 36": 27.5 cm (10.8") 47": 37.0 cm (14.6")	72": 56.0 cm (22.0")
OUTPUT SIGNAL	333 mV at rated current	333 mV at rated current	333 mV at rated current	333 mV at rated current	333 mV at rated current	333 mV at rated current	131 mV/1000A @ 60 Hz 110 mV/1000A @ 50 Hz	131 mV/1000A @ 60 Hz 110 mV/1000A @ 50 Hz
USEFUL CURRENT RANGE	**20A**: 0.25-30 Amps (PS3037) **20A**: 0.25-40 Amps (PS24) **50A**: 0.25-80 Amps (ALL)	**100A**: 1-158 Amps (PS3037) **100A**: 1-200 Amps (PS24) **200A**: 1-300 Amps (ALL)	**5A**: 0.05-7 Amps, **15A**: 0.15-20 Amps	**50A**: 1-65 Amps **100A**: 2-130 Amps	**100A**: 5-130, **200A**: 4-260, **400A**: 8-520, **600A**: 12-780 Amps	**600A**: 30-780 Amps **1000A**: 20-1300 Amps	**ALL**: 5-4000 Amps (PS3037) **ALL**: 5-5000 Amps (PS24)	5-4000 Amps (PS3037) 5-5000 Amps (PS24)
ELECTRICAL SPECIFICATIONS								
NOMINAL RATING	20, 50 Amps	100, 200 Amps	5 Amps, 15 Amps	50, 100 Amps	100, 200, 400, 600 Amps	600, 1000 Amps	5000 Amps	5000 Amps
ACCURACY	<0.5% at rated current	<1.0% at rated current	+/- 0.5% at rated current	+/- 1% at 10% to 130% of rated current	+/- 1% at 10% to 130% of rated current	+/- 1% at 10% to 130% of rated current	<0.6%** C57.13-2008 Class 1.2	<1%
PHASE SHIFT	<1.5° at rated current	<0.5° at rated current	<0.5° at rated current	<2° at rated current	<2° at rated current	<2° at rated current	< 0.2° at 50/60 Hz	<1° at 50/60 Hz
FREQUENCY RANGE	50 Hz to 400 Hz	50 Hz to 400 Hz	40 Hz to 1 kHz	50 Hz to 400 Hz	50 Hz to 400 Hz	50 Hz to 400 Hz	20 Hz to 5 kHz	40 Hz to 5 kHz
DIELECTRIC STRENGTH	3520 VAC for 1 minute	5200 VAC for 1 minute	5000V around the case 600V rated leads	5000V around the case 600V rated leads	5000V around the case 600V rated leads	5000V around the case 600V rated leads	7400 VAC around coil 1000 VAC rated leads	7400 VAC around coil 1000 VAC rated leads
MECHANICAL SPECIFICATIONS								
DIMENSIONS	2.6 x 2.9 x 4.2 cm (1.04 x 1.16 x 1.64")	4.7 x 4.7 x 7.0 cm (1.85 x 1.85 x 2.76")	6.4 x 2.5 x 5.1 cm (2.5 x 1.0 x 2.0")	5.08 x 5.34 x 1.55 cm (2.0 x 2.1 x 0.6")	8.26 x 8.6 x 2.54 cm (3.3 x 3.4 x 1.0")	12.07 x 12.70 x 3.05 cm (4.8 x 5.0 x 1.2")	Length 16" (40 cm) Length 24" (60 cm) Length 36" (90 cm) Length 47" (120 cm)	Length 72" (183 cm)
WEIGHT	91 g (3.2 oz)	221 g (7.8 oz)	136 g (4.8 oz)	136 g (4.8 oz)	340 g (12 oz)	748 g (26 oz)	16": 136 g (5 oz) 24": 181 g (6 oz) 36": 227 g (8 oz) 47": 272 g (10 oz)	544 g (19 oz)
POLARITY	White lead is positive	White lead is positive	White lead is positive	White lead is positive	White lead is positive	White lead is positive	White lead is positive	White lead is positive
OUTPUT LEAD	Leads 2.7 m (8 ft) twisted pair, 20 AWG	Leads 2.7 m (8 ft) twisted pair, 22 AWG	Leads 2.7 m (8 ft) twisted pair, 22 AWG	Leads 2.7 m (8 ft) twisted pair, 20 AWG	Leads 2.7 m (8 ft) twisted pair, 20 AWG	Leads 2.7 m (8 ft) twisted pair, 20 AWG	2 m (79") shielded cable	2 m (79") shielded cable
OPERATING TEMPERATURE	-15° to 60° C (5° to 140 °F)	-15° to 60° C (5° to 140 °F)	-20° to 55 °C (-4° to 131 °F)	-20° to 55 °C (-4° to 131 °F)	-20° to 55 °C (-4° to 131 °F)	-20° to 55 °C (-4° to 131 °F)	-20° to +70 °C (-4° to +158 °F)	-20° to +80 °C (-4° to +176 °F)
STORAGE TEMPERATURE	Maximum 105 °C (220 °F)	Maximum 105 °C (220 °F)	Maximum 105 °C (220 °F)	Maximum 80 °C (176 °F)	Maximum 80 °C (176 °F)	Maximum 80 °C (176 °F)	Maximum 80 °C (176 °F)	Maximum 80 °C (176 °F)
CASE PROTECTION	White nylon, UL 94 V-0	White nylon, UL 94 V-0	Epoxy encapsulated housing ABS/PVS UL 94 V-0	Epoxy encapsulated housing ABS/PVS UL 94 V-0	Epoxy encapsulated housing ABS/PVS UL 94 V-0	Epoxy encapsulated housing ABS/PVS UL 94 V-0	PA6 UL 94 V-0	Polypropylene UL 94 V-0 rated
SAFETY SPECIFICATIONS								
SAFETY REQUIREMENTS	UL Recognized: UL STD 61010-1 Certified to: CAN/CSA STD C22.2 No. 61010-1	UL Recognized: UL STD 61010-1 Certified to: CAN/CSA STD C22.2 No. 61010-1	CAN/CSA-C60044-1-2007 pts 1 & 2 ANSI/IEEE C57.13, IEEE C57.13.2	Compliant with IEEE C57.13-1993 CE Mark	Compliant with IEEE C57.13-1993 CE Mark	Compliant with IEEE C57.13-1993 CE Mark	Conforms to UL STD 61010-1 Certified to CAN/CSA STD C22.2 No. 61010	Conforms to UL STD 61010-1 Certified to CAN/CSA STD C22.2 No. 61010
WORKING VOLTAGE	600 VAC Category III	600 VAC Category III	Maximum 600 Vrms UL 506	Maximum 600 Vrms Category III	Maximum 600 Vrms Category III	Maximum 600 Vrms Category III	Maximum 1000 Vrms Category III	Maximum 1000 Vrms Category III

* Installed using best practices with conductor centered in the CT window and ensure any external conductors are a minimum distance of > 2X the diameter of the RoCoil. Accuracy below 20A rated at 1.5% +/- 0.5A when used with DENT ELITEpro/PowerScout meters. RoCoil CTs have been 100% verified to meet the C57.13:2008 Class 1.2 Standard.

FOCUSED ON ENERGY MEASUREMENT

DENT Instruments designs and manufactures data loggers and energy recorders for today's energy professionals. Our products are often the first step in developing strong energy strategies, for maintaining peak operations, and for lowering operating costs. Our company has built a reputation for providing instruments of the highest quality whose robust design, small size and remote data acquisition make them the loggers of choice for companies large and small.

Since the company's emergence in 1988, we have performed energy measurement studies for a wide range of utility, government, and private clients. This unique customer perspective has strongly influenced the design of our products, reflected in their ease of installation and use.

DENT products provide meaningful energy data that is used to accurately allocate energy costs, identify energy cost-savings opportunities and lower utility bills. Our versatile instruments help pinpoint electrical usage and quantify consumption.