

# ELITE<sup>pro</sup>™

## Technical Information

### TECHNICAL SPECIFICATIONS

Inputs	4 channels of current, 0-6,000A (with current sensors having 333mVac output, ordered separately) 3 channels of voltage, 0-600V (AC or DC)
Power	Volts, Amps, Watts, kWh, Volt-Amps, kVAh, Volt-Amps-Reactive, kVARh, Power Factor
Measurement Type	True RMS
Frequency	DC, 50 or 60 or 400 Hz
Accuracy	<1% of reading, exclusive of sensor (0.2% typical)
Resolution	Better than 0.1% FS for all parameters; 12 bit A/D (1 part in 4,096)
Memory	Standard 25,000 measurements, or High-memory 100,000 measurements
Sampling Frequency	7.28kHz (128 points per current waveform)
Recording Intervals	3, 15, 30 seconds 1, 2, 5, 10, 15, 20, 30 minutes 1, 12, 24 hours

### A VARIETY OF COMPATIBLE VOLTAGE CLIPS

Numerous voltage clips options are available to meet your project needs. Choose from Shark Clips, Colored Leads, "Croc" Clips or Fused Croc Clips.



Shark Clips    Colored Leads    Croc Clips    Fused Croc Clips

### EASY INSTALLATION

Installation and connection of the ELITE<sup>pro</sup>™ are both simple and straightforward. Magnetic strips on the housing facilitate mounting inside electrical cabinets. A variety of snap-on CTs and clip-on voltage leads connect to almost any load without turning it off. The ELITE<sup>pro</sup>™ can monitor up to four single-phase loads, two three-phase (3-wire) Delta loads or one three-phase (4-wire) Wye load.

### CONTACT INFORMATION



DENT Instruments, Inc  
Energy & Power  
Measurement Solutions

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### COMMUNICATION SPECIFICATIONS

Baud Rate	Up to 57,600 (direct) or 14,400 (modem)
<b>MECHANICAL SPECIFICATIONS</b>	
Operating Temperature	-7 to + 60°C (20 to 140°F)
Operating Humidity	5% to 95% non-condensing
Battery Life	3 years at 1 minute sampling, >10 years with Line-Power Supply option. "Low Battery" LED
Weight	340 gm (12 oz)
Dimensions	8 x 15 x 6 cm (3.2" x 5.9" x 2.4")

### COMMUNICATION OPTIONS

Communicate with your ELITE<sup>pro</sup>™ using separate and unique methods depending on your needs.



#### DIRECT CONNECT

A 9-pin serial port on each instrument connects directly to most computers via a null-modem RS232 cable at a 57,000 baud rate. This feature comes standard on all ELITE<sup>pro</sup>™ models. Optional USB adapter (pictured above) available for use with PCs without a serial port.

#### ETHERNET PORT

An Ethernet port option allows for direct connection to a LAN using a TCP/IP interface.

#### PHONE MODEM

Use existing land lines with the internal modem option for unattended communication using the software's AutoPoll™ or AutoHost™ features at a 14400 baud rate.

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## PRO SERIES



# ELITE<sup>pro</sup>™

## RECORDING POLY PHASE POWER METER



- Measures up to four channels of current (0-6,000 amps) and three channels of voltage (0-600V AC or DC).
- User-defined recording intervals of 3, 15, 30 seconds or 1, 2, 5, 10, 15, 20, 30 minutes or 1, 12, or 24 hours.
- Expandable memory from 25,000 records standard to 100,000 records with the high-memory option), allows for weeks to months of recording time.
- Better than 1% accuracy (<0.2% typical).
- Communications via direct RS232 connection or optional internal modem or Ethernet port. Get real-time access to multiple loggers automatically.
- ELOG™ Windows-based software package for programming, set-up, communicating, data retrieval and analysis. Easy data exporting to almost any analysis programs such as Excel® and Access®.
- Installs in minutes.
- Powered by battery, external power, or from the phases of service being measured (Line-Powered Option).
- Rugged and compact—only 8 x 15 x 6 cm (3.2" x 5.9" x 2.4") and just 340 grams (12 ounces) to easily fit out of sight inside breaker panels and switch gear.
- Weather-tight enclosure available for outdoor or harsh environments.
- UL Listed and CE Compliant for added safety.



# ELITE<sup>PRO</sup>™ DETAILS

## 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. For over 17 years, 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.

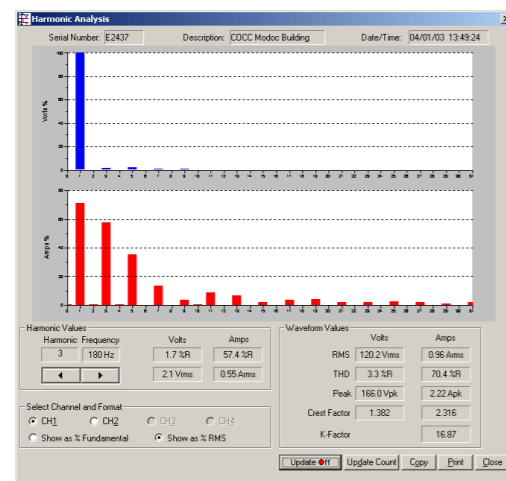
Since the company's emergence in 1988, we have performed energy measurement studies for a wide range of utility, government, and private clients. This unique customer perspective has strongly influenced the design of our products, reflected in their ease of installation and use. DENT products provide 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 by measuring, storing, and analyzing key electrical parameters such as Volts, Amps, Volt-Amps (VA), Volt-Amps Reactive (VAR), kilowatts (kW), Kilowatt Hours (kWh), and Power Factor.

Key applications include measurement and verification (M&V) studies, electrical load profiling, new technology assessment, and energy audits leading to improved energy efficiency, conservation, and management.

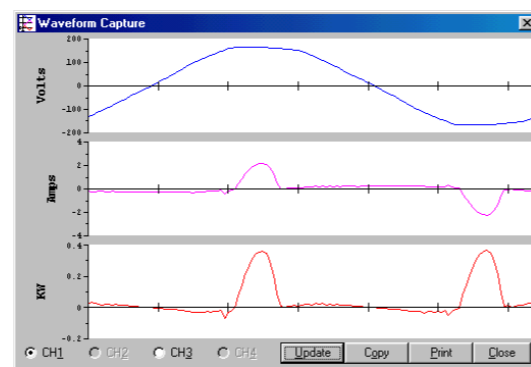
## A POWERFUL AND VERSITILE TOOL TO MEASURE YOUR ENERGY USAGE

The ELITE<sup>pro</sup>™ is a complete solution for pinpointing electric usage and quantifying consumption by measuring, storing, and analyzing Volts, Amps, Watts, Volt-Amps (VA), Volt-Amps reactive (VAR), Kilowatts (kW), Kilowatt Hours (kWh), kVAh, kVARh, and Power Factor—up to 144 different parameters! The ELITE<sup>pro</sup>™ also offers some power quality features such as the ability to view in real-time voltage, current, and power waveforms and calculate harmonics to the 63rd order. The ELITE<sup>pro</sup>™ can be mounted anywhere with its magnetic back and is available in an optional weather-tight enclosure.

Measurements are stored in on-board memory at recording intervals defined by the user, which can be as short as three seconds or as long as once every 24 hours. Regardless of the recording interval, the ELITE<sup>pro</sup>™ has a sampling frequency of 7.68kHz (128 points per sample) and samples the sensors every three seconds when on external power or once per minute when using its internal battery. This fast sampling rate allows real-time display of voltage and current waveforms and harmonics.



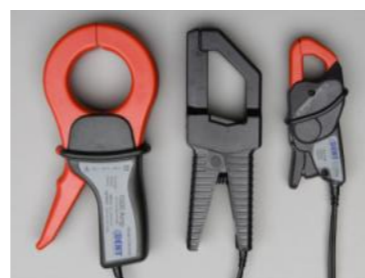
Harmonics Analysis



Waveform Capture

## CURRENT TRANSFORMERS

The ELITE<sup>pro</sup>™ can be equipped with a wide selection of current transformers. Choose from compact and economical Split-Core CTs, convenient Clamp-On style CTs, or the versatile Rogowski Flex CTs. Each type offers its own particular advantages depending on your application. DENT CTs can be interchanged to meet your varying project requirements as they are not hardwired to the power meter.



DENT's popular 1000A, 500A and 150A Clamp-On style Current Transformers. All DENT CTs are interchangeable on the ELITE<sup>pro</sup>™, allowing a level of flexibility not found on other commercial power meters.

## FIELD-PROVEN TO BE TOUGH AND RELIABLE

Measuring in at only 8 x 15 x 6 cm (3" x 6" x 2") and weighing only 340 grams (12 ounces), the ELITE<sup>pro</sup>™ was designed to fit inside panels for safety and convenience. Its rugged plastic housing is even supplied with a magnetic strip to facilitate mounting.

Our Weathertight enclosure delivers stronger environmental integrity, separate 4mm voltage plugs, water-tight twist-lock connectors for both the current leads and the power and communication cables. This option for the ELITE<sup>pro</sup>™ will meet the most stringent requirements of remote data logging.



ELITE<sup>pro</sup>™ in Weathertight Enclosure

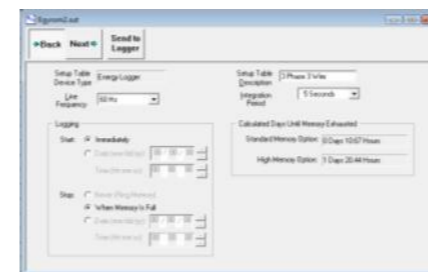
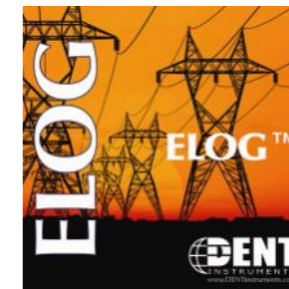
# OPTIONS & SOFTWARE

## ELITE<sup>PRO</sup> METERS WITH OPTIONAL LINE POWER SUPPLY

The ELITE<sup>pro</sup>™ can be powered from the phases of the service being measured. The Line-Powered ELITE<sup>pro</sup>™ option eliminates the need for external power at the job site and avoids draining precious battery life. The Line-Powered ELITE<sup>pro</sup>™ option is available on all new ELITE<sup>pro</sup>™ and as an upgrade to existing instruments. Even if power to the instrument is lost, recording continues using the internal battery (if the recording interval is one minute or greater). Typical battery life, even without the Line-Power option is **three years** when the recording interval is one minute or longer.

## POWERFUL SOFTWARE

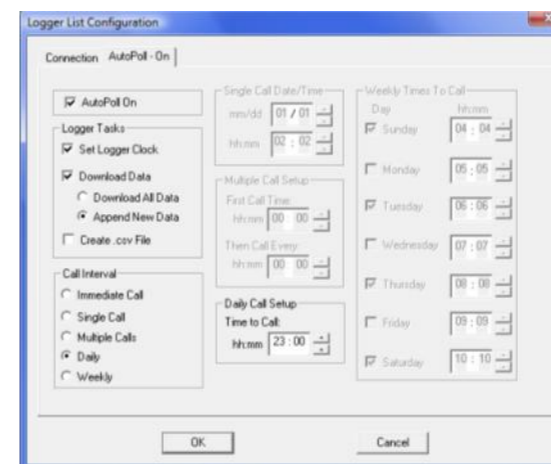
The Windows-based ELOG™ software package is used to program the meter, display metered values, and retrieve and analyze the collected data. ELOG™ graphically displays recorded data, performs analysis and facilitates automatic remote data collection. Data is also easily exported to popular spreadsheet and database programs for additional analysis.



ELOG Setup Dialog Box 1: Specify when logger should start/stop logging and indicates how much memory remains.



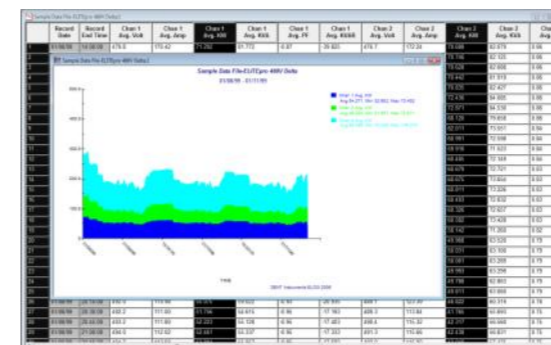
ELOG Setup Dialog Box 2: Configure your logger to meet your metering needs.



When equipped with the optional on-board modem, multiple DENT loggers can be accessed remotely.



Instantaneous Channel Values: See information about your logger and what your logger is recording in real time.



In-Depth Data Analysis; Display your data graphically.

## MAKING A CASE FOR ENERGY MANAGEMENT

Today's escalating energy costs put increasing pressure on businesses and organizations to proactively manage their energy use. There is a growing sense of urgency to understand energy consumption patterns and to develop effective actions to manage their associated expenses.

Gaining the upper hand on electrical costs often begins with some comprehensive detective work: taking measurements, locating energy "hogs," and understanding time-of-use issues. As facility managers, engineers, and electrical supervisors know, the price of electricity is more than simply kWh. Peak demand charges and power factor penalties can drive operating costs through the roof.

Load profile studies and energy audits can provide the baseline data necessary for a comprehensive energy management program. Armed with solid data, energy managers find it possible to reduce demand, contain costs, improve equipment performance, identify energy conservation measures, and curtail use during periods of high energy costs.

Obtaining usage and consumption data by submetering is sound business practice. Benefits can include capturing lost revenues from retail, building, and department tenants; verifying cost savings on capital projects; scheduling preventative maintenance on equipment and optimizing performance of the entire facility.

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