DRANETZ™

THE STANDARD FOR ENERGY & POWER MEASUREMENT

General Product Catalog
2010

www.dranetz.com

Dranetz provides more than just Power Quality and Energy Management products in a range of permanent systems as well as portable instruments. We also provide Electrical Safety Testers, superior Multi-function Measurement Systems and Data Acquisition instruments.

Power Quality

Power quality problems cost businesses billions of dollars each year in lost revenue, process improvements, and scrapped product. For nearly 50 years, Dranetz has worked with companies, utilities, and government agencies to understand the cause of these disturbances, resolve problems, and provide proactive methods for preventing future problems. Dranetz Power Quality analyzers (Power Visa, PX5, PowerGuide 4400 and Power 1000) are designed to monitor, record, analyze, and report on all power parameters and anomalies, available in a range of capabilities and options to fit any budget. All of the Dranetz portable power quality instruments are equipped with 8 fully differential channels designed to measure both AC and DC voltages, current, power, and many other characteristics of electricity.


Power 1000


Encore Series

Encore Series 61000 is the first truly modular and configurable instrument to shatter the traditional 8-channel (4 voltage/4 current) instrument format. Now you can have your choice of voltage, current and data acquisition modules to build from one to four instruments in a single compact, cost-effective format. Uniquely designed with a modular chassis platform, these instruments can be completely customized to meet each specific monitoring application.


Energy Platform EP1

Energy Management

The EnergyPlatform EP1 is the most comprehensive, easy to use portable energy analyzer in the world. Dranetz EP1 takes all of the Dranetz historic energy monitoring platforms and combines them into one state of the art 21st century monitor. The EP1 is ideal for measuring energy efficiency, GREEN energy initiatives, energy allocation monitoring, or basic power measurements.

The Encore Series (ES210, ES220, and ES230) family of energy monitors are compact, cost effective and easy to use. They record all of the parameters to fit any electrical energy application and have several options for communications including Ethernet and Serial. Combined with the Encore Series software, this enables users to monitor, record, and report on all energy management initiatives.


Encore Series

Data Acquisition

For temporary but critical on-site data acquisition, the portable, high-speed MeasuringPAD offers a convenient, economical alternative to an elaborate test and measurement installation. This sturdy handheld instrument can be used in a wide range of manufacturing, laboratory, plant operations and quality control applications. Rapidly collecting, monitoring, and displaying multiple sensor inputs, it is ideal for troubleshooting, maintenance, process tuning, fault recording, trend analysis, and much more.


MeasuringPad

Multi-Function Measurement Systems

The DranTech Line of Multi-function Measurement Systems, or digital dataloggers are the premier line in the industry. Combining all of the requirements that users have wanted for many years, these instruments have been designed to meet nearly all application requirements. Meeting all of the international standards for safety, the DranTech line also sets the standard for operator protection with its patented Automatic Blocking Mechanism. These instruments are ideal for rugged field use, as well as highly accurate for laboratory requirements.


Multi-function Measurement Systems

Safety

The Dranetz line of Electrical Safety Testers sets the standard for all other instruments in the world. These instruments test all aspects of electrical safety for manufacturers, healthcare facilities, and service organizations against the world's toughest standards.


DranEST III


DraniSO 5000D

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Dranetz has long been recognized as the world's number one source for power monitoring equipment and services. From versatile handheld power quality and energy monitors used for temporary applications, to permanently installed systems for continuous power quality, energy and process improvement, trust the experts at Dranetz to find a solution that's right for your business, from those who have been in the business for over forty years.

Power quality, reliability problems and energy waste cost businesses billions of dollars each year in lost revenue, process improvements, and scrapped product. Over the years, Dranetz has worked with companies, utilities, and government agencies to understand the cause of these disturbances, resolve problems, and provide proactive methods for preventing future problems. We also have a commitment to industry-wide education—sharing our knowledge through our leadership within the IEEE and other industry organizations, delivering power monitoring seminars, authoring technical articles, participating in professional conferences, and writing books such as The Dranetz Handbook for Power Quality Analysis.

Benefits of Power Monitoring

- Cost reduction Determine where energy costs can be reduced without affecting production quality.
- Problem avoidance Proactive power monitoring can increase reliability and prevent failures from occurring by seeing problems before they result in failures and downtime.
- Knowledge Understand your facility and its electrical system operation and interactions.
- Answers Quickly react to problems:
  - Should a failure occur monitoring provides immediate information to reduce troubleshooting & downtime. Time is truly money!
  - Determine source of problem as soon as possible – was it the supply, system, or equipment?

Steps Towards Substantial Savings

TYPICAL SAVINGS

- Determine payback on replacing which equipment with more energy efficient models . . 3-5%
- Re-schedule load sequences to reduce demand peak charges and off-peak rates 5-25%
- Cost benefit analysis on adding capacitor banks to decrease power factor penalty 1-3%
- Reduce un-essential loading thru use of adjustable speed drives, sensors, or switches . . 5-15%
- Determine extent of losses in transformers and other distribution equipment; minimize losses or resize equipment 1-5%
- Identify source of PQ-related process interruptions and minimize or correct with properly sized mitigation equipment . . . . . $k-$M
- Extend scheduled maintenance and minimize unscheduled maintenance . . . . . $k-$M
- Determine feasibility of alternative energy sources . . . . . $k-$M

Diagnosing the Problem: Power Quality Products Family

PowerVisa

PowerGuide 4400

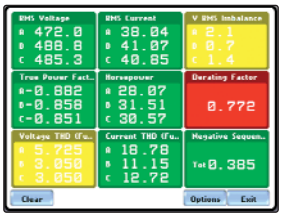
PowerXplorer PX5-400

PowerXplorer PX5

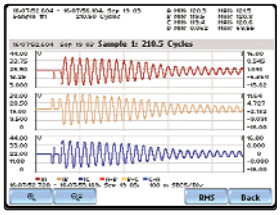
Dranetz Power Quality Product Family (PowerVisa, 4400, PX5, and PX5-400) are the perfect instruments for a wide variety of applications such as power studies, motor testing, alternative energy integration/testing, system commissioning/compatibility, telecomm, inrush, fault recording, energy surveys or general troubleshooting. Our PQ products identify the source (transients, harmonics, waveshape events, RMS variations, and much more) and results can be further analyzed with our industry leading DranView Software.

Features & benefits include:

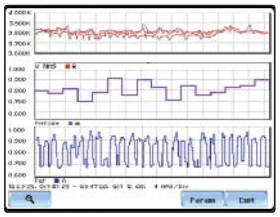
- Four instruments to choose from – one for every budget; with ROIs typically in a few months
- Automatic Setups for quick and easy start, and Wizard Step-by-Step Setups for custom setups
- Graphical color touch screen user interface provides a clear picture of what happened and why
- Data Acquisition (4 Voltage AC/DC; 4 Current AC/DC) at 0.1% accuracy over nominal range
- Sags/Dips, Swells, Interruptions, Harmonics, Flicker. IEC 61000-4-30 Class A, IEEE 1159 & 519
- Transients: low and medium frequency plus 1MHz sampling for high freq transients for PX5 & PX5-400
- Demand, Energy, W, VA, VAR, PF and others available along with PQ
- Unique PQ Status Report provides at-a-glance determination of electrical system status
- AnswerModules provide direction of source of event along with unique MotorQuality panel (PowerXplorer, PowerGuide)
- PX5-400 adds 400Hz synch for shipboard and aircraft systems diagnostics



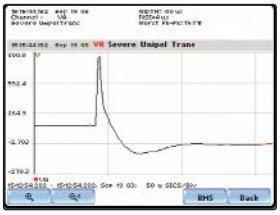
Status Report



Inrush Waveshapes



Multi-Channel Trends



High Freq Transients

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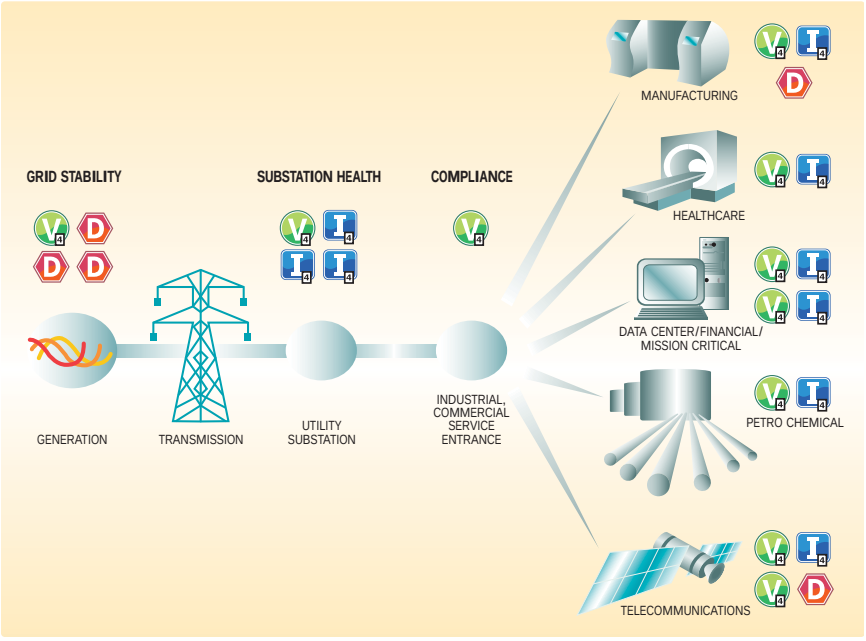
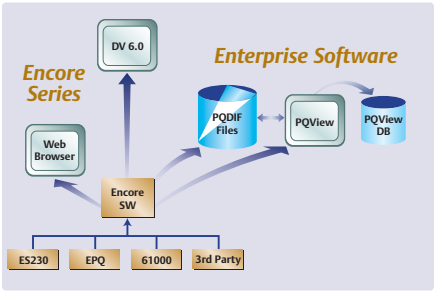
Proactive Monitoring: Encore Series Systems

Dranetz's Encore Series of permanent and proactive monitoring systems for power quality, energy & demand, and process monitoring in a space saving modular and configurable instrument. The 61000 "build your own system" allows you to set up your monitoring system to match your specific needs, whether it is 4 channel voltage, 4 channel current or 8 channel digital input, or a combination of those in the 4 input module slots. You can choose from our standard, switchgear mount, or rack mount with or without the color touch LCD (61STD, 61SGD, 61SG, 61RMTD, and 61RMT, respectively).

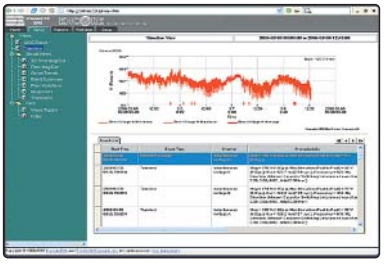
Features & benefits include:

- Access data and setups via your web-browser communicating to Encore Series Software (ESS) running on a PC, laptop, or server.
- Meets and exceeds IEEE and IEC Power Quality monitoring standards: IEC 61000-4-30:2008 Class A, IEEE 1159, 1159 1453 and others.
- Encore Series Software works with Windows XP/Vista/7 providing web browser based user interface supporting up to 100 plus instruments.
- Additional analysis and visualization using PQView enterprise software or DranView software for large system management.
- Answer Modules interpret data, identifying sag directivity, PF correction capacitor detection/directivity, energy usage analysis/reporting, UPS performance, reliability benchmarking and more.
- 61000 instrument database is 1G flash circular memory and communicated to ESS via 10/100M LAN or land/GSM/GPRS modem. 3G/4G available.





ESS with Enterprise SW



Time Line with Event List

Reducing Energy Costs & Energy Management

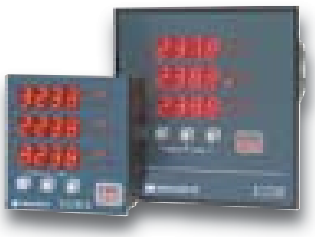
When and where electricity is consumed is invaluable information to have when developing energy reduction strategies, which can include lighting upgrades, HVAC replacement, installation of high efficiency motors and/or adjustable speed drives and other cost saving measures. The data provided by Dranetz instruments arm the user with the information necessary to understand your facility, its loads and energy usage profile. This information, combined with your local utilities rate structure enables you to intelligently target areas of your facility in order to provide the best return on your energy reduction budget. Not only can you reduce your overall energy usage but utility charges such as power factor penalties and time of use demand penalties can be targeted for reduction by mitigating such problems or shifting loads to less expensive times of the day.

Energy Platform EP1 from Dranetz is an innovative and essential tool for any electrical energy monitoring application. Whether you want to understand your utility costs, improve efficiency, install energy savings devices, explore alternative energy solutions or even determine your carbon footpint, Energy Platform provides the essential monitoring tools to meet your energy monitoring needs. Energy Platform's ¼ VGA color touch display, AC and DC capabilities, automatic setups, easy to read reports and EPRW report writer software provide a simple to use, yet powerful tool for any application.

- Advanced Demand, Energy, Harmonics and Power Analysis - Perfect for energy reduction/savings and alternative energy applications
- High accuracy & High resolution – 0.1% V&I, 256 samples/cycles - continuous monitoring
- Easy to use - Automatic setup, intuitive color touch screen
- Easy to read colorful Demand & Energy reports
- Carbon Footprint Calculator – Evaluate environmental impact
- AC and DC monitoring applications
- Triggered event detection on all parameters. Sag/Swell RMS detection, +/- 10% of nominal
- Eight Channels, 4 voltage & 4 current. Channel D Differential
- Automatic Energy Audit reporting software - EPRW software included, no license.
- DranView 6 software compatible - now has new Energy Audit report

Utilizing the Encore Series Energy DataNode's along with the Encore Series Software, a facility can easily view their instantaneous and historic demand/energy (as well as many other parameters), and associated costs at each point, whenever they need. Additionally, Dranetz Encore Series Software has built-in reporting and analysis to know at any time where, when and how much energy us used. The available Energy Usage Answer Module provides reporting based upon your utility cost structure, giving you the power to know where to apply energy reduction initiatives and track ROI/savings over time to continually manage energy usage. This system proactively and continually monitors and when the programmed thresholds (limits) are exceeded can send out alarm notifications to as many individuals as needed. These notifications can be in the form of email, pager, or the increasingly popular text message to a cell phone.

ES230



ES230S

PowerVisa

PowerGuide 4400

PowerXplorer PX5-400

PowerXplorer PX5

Dranetz Power Quality Product Family (PowerVisa, 4400, PX5, and PX5-400) also monitor demand and energy, adding an energy monitoring benefit to our industry leading power quality monitoring tools. Both PQ and energy monitoring are important to many users, whether such surveys are conducted separate or at the same time. Why buy two products when one Dranetz can meet all of your power monitoring needs? All of our three phase PQ instruments also record, trigger and trend W, VA, VAR, demand, energy and other important parameters needed for a complete energy survey. Our powerful, yet easy to use DranView software not only provides advanced PQ analysis and reporting but also includes our new energy report writer that provides advanced energy reporting, including time of use, peak demand, carbon footprint calculations and other important features.

Solutions for Equipment and System Test Applications

Power 1000 (1000 Vrms, 1000 Hz)

Universal Power Measuring Instrument

- Complete power and energy analysis of electric supply, wind turbines, photovoltaic systems, and power outputs from up to 1kHz frequency converters.
- Eight isolated channels with 100kHz sample rate per channel to record Vrms, Irms, Power, Harmonics, Flicker, Unbalance and more.
- Transient at 1300vpk as short as 10usec; Vrms to 1000 V.

DranEST III+

Automated Electrical Safety Testers

- Provides safety verification for Laboratory & Hospital equipment to both North American and International standards.
- Automatic Test reports also for electrical appliances & IT equipment to IEC standards.
- Performs ground bond testing; protective conductor resistance; insulation resistance; leakage current; high voltage and function tests, including power.

DranISO 5000D

Digital High-Voltage Insulation Tester

- Insulation measurement for cables, motors, generators.
- Test voltages to 5000V with non-destructive measurement of insulation resistance.
- Time dependent Insulation Testing – Polarization Index and Absorption Ratio
- Data management and report generation for up to 1,600 measurements.

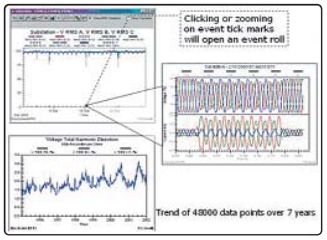
MeasuringPAD

Data acquisition system for maintenance, troubleshooting, and energy measurement

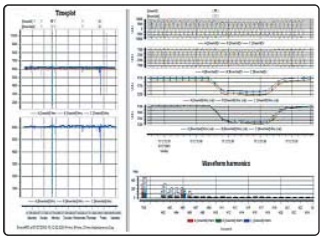
- Used in manufacturing, laboratory, plant operations and quality control applications.
- Applications include vibration monitoring, on-board vehicle logging, performance benchmarking of rotating machinery, energy reduction studies and more.
- Provides live readout and recording of up to 16 analog inputs and 8 digital inputs, with inputs for 0-600V, mA-kA, thermocouples, and strain gauges.

Visualization, Analysis, and Report Writing Software

- Voltage and Current Waveforms, Timeplot for hundreds of parameters, Event Lists.
- Spectrum graphs for harmonics, Mag/Dur Charts for rms variations (CBEMA, ITIC, SEMI F47).
- Statistical tables and Quality of Supply Reports, Phasor Diagrams, User Annotatations



PQView Enterprise Software



DranView Software

Every Day Tools for Every Day Jobs

The DranTech series of digital Multi-Function Measurement System meters and data loggers are the perfect tools for measuring power systems for balancing loads, energy efficiency, electronic circuit analysis and equipment tests, even with highly distorted signals such as adjustable speed drives. Combined with DranWin software and the infrared communications port, momentary and stored measurement data can be read out, visualized, analyzed, stored and documented. Most units have the patented Automatic Blocking Sockets (ABS) system for built in safety and to prevent operator error.

Features & benefits include:

- PRO/XTRA CAT III 1000V, CAT IV 600V DMMs with standard measurements (TRMS AC/DC for V and I, ohms, freq, diode, temperature,min/max, capacitance).
- Drantech ISO Insulation tester (range 5k ohms-3.1G ohms) as well as TRMS multimeter and data logger.
- PL10 Voltage disturbance recorder, data logger and power meter.
- ULTRA High precision multimeter (0.004% and 1.2M counts) and milliohm measurements, plus data logger.
- OUTDOOR All of the standard DMM measurements when operating in environment needing IP-65 (NEMA 4) water and dust resistance.
- PMIT All-in-One Milliohm Resistance Meter, DMM, Data Logger, and Insulation Resistance Tester (outer skin-wick test, lightning protection).

DIFFERENTIATING FEATURES	PRO	XTRA	PL10	ULTRA	OUTDOOR	PMIT	ISO
Basic dc volts accuracy %	0.05	0.05	0.025	0.004	0.05	0.25	0.15
Bandwidth	50kHz	100kHz	100kHz	100kHz	100kHz	1kHz	10kHz
Maximum Display Counts (+/-)	60,000	60,000	310,000	1,200k	12,000	31,000	31,000
True RMS Volts ac/dc	1000V	1000V	600V	600V	1000V	600V	1000V
True RMS Current ac/dc	10A (16A)	10A (16A)	10A (16A)	100mA	10A (16A)		10A (16A)
CAT II/III 600V			CAT III	CAT III		CAT II	CAT III
CAT II/III 1000V	CAT III	CAT III			CAT III		CAT II
CAT IV 600V	CAT IV	CAT IV			CAT IV		
Frequency	100kHz	1MHz	300kHz	100kHz	100kHz	3kHz	300kHz
dBs		Yes	Yes				
Precision MilliOhm & Kelvin							
Connection, 4-wire Measurement				Yes		Yes	
Capacitance; Diode Test	Yes	Yes	Yes		Yes	diode	Yes
Insulation Test @ 50/100/250/500						Yes	Yes+1kV
Power & Energy			Yes				
Voltage Disturbance Recording			Yes				
Memory for Datalogging		540kB	128kB	128kB	540kB	32kB	540kB
Low Pass filter 1KHz	Yes	Yes			Yes		Yes
AC Power Supply Adapter		Yes	Yes	Yes	Yes	Yes	Yes
Housing Protection	IP52	IP52	IP50	IP50	IP65	IP54	IP54
ABS Patented Connections	Yes	Yes	Yes		Yes	Yes	Yes

Specifications are subject to change without notice. Refer to specific product's User Guides for detailed specifications.