

PDA 1252 Portable Power Analyzer



Monitor and Analyze on Site:

Power Disturbances, Disruptions & Harmonics

Power Quality issues cause business problems such as:

- Lost productivity, idle people and equipment
- Lost orders, good will, customers and profits
- Lost transactions and orders not being processed
- Revenue and accounting problems such as invoices not prepared, payments held up, and early payment discounts missed
- Customer and/or management dissatisfaction
- Overtime required to make up for lost work time

According to *Electric Light and Power* magazine, 30 to 40 percent of all business downtime is related to power quality problems.



The screenshot shows two overlapping web pages. The top page is CNN.com, displaying a search bar and a navigation menu. The bottom page is MSNBC, featuring a large headline: "Utility worker error spurs huge L.A. blackout" and a sub-headline: "Great against city". Below the headline is a large image with the word "BLACKOUT" overlaid. To the right of the image is a navigation menu with categories like "MAIN PAGE", "HOW IT HAPPENED", "THE BLACKOUT EXPLAINED", "TIMELINE", "HYDRO Q & A", "FINAL REPORT", "ELECTRICITY TERMS", "NEWS STORIES", "BACKGROUND", "EMERGENCY ADVICE", "ENERGY WARNING", "BLACKOUTS HISTORY", "BY THE NUMBERS", "STATE OF EMERGENCY", "ENERGY SOURCES", "CBC ARCHIVES", "PERSPECTIVE", "IN THEIR OWN WORDS", "WHEN THE LIGHTS WENT OUT", "GETTING IT ON THE WEB", "BLACKOUT BABY", and "PERSONAL STORIES".

Below the MSNBC article is a table titled "CL&P Outages (Updated Hourly)". The table lists towns in Connecticut and the number of customers affected. The total estimated customers interrupted is 817.

| Town Name | Customers Served | Estimated Customers Interrupted | % of Total |
|--|------------------|---------------------------------|------------|
| Cornwall | 1187 | 20 | 1.68 |
| New Hartford | 3157 | 1 | 0.03 |
| New London | 13176 | 8 | 0.06 |
| Stamford | 47279 | 785 | 1.66 |
| Stonington | 10445 | 3 | 0.03 |
| Total Estimated Customers (Interrupted) | | 817 | |

The sensitivity of today's electronic equipment makes it susceptible to Power Disturbances. For some devices, a momentary disturbance can cause scrambled data, interrupted communications, a frozen mouse, system crashes and equipment failure.

Berkeley Lab Study Estimates \$80 Billion Annual
Cost of Power Interruptions ... Research News,
Berkeley Lab, February 2, 2005

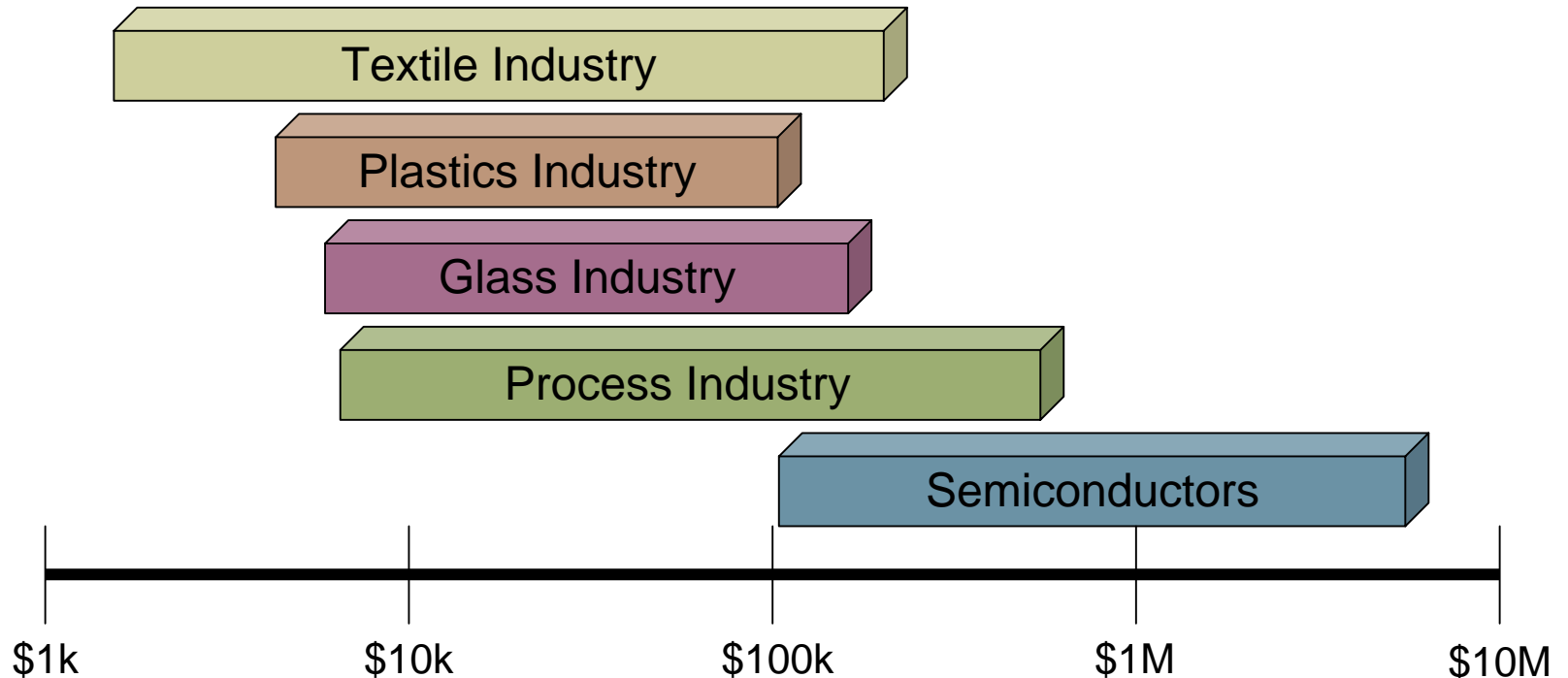
\$50 billion per year in the USA is lost as a result of
power quality breakdowns Bank of America
Report

A manufacturing company lost more than \$3 million
one day last summer in Silicon Valley when the
“lights went out.” ... New York Times January 2000

“A voltage sag in a paper mill can waste a whole
day of production - \$250,000 loss” ... Business
Week, June 17,, 1996

Half of all computer problems and one-third of all
data loss can be traced back to the power line
... Contingency Planning Research, LAN Times





Source: EPRI "The Economics of Custom Power", September 2000

Losses per Voltage Sag



Momentary Outages create problems when computers and clocks reset, equipment stalls, and work stops.

| <i>Category</i> | <i>Cost of Momentary Interruption (\$/kW Demand)</i> | |
|--|--|----------------|
| | <i>Minimum</i> | <i>Maximum</i> |
| Industrial | | |
| Automobile Manufacturing | \$5.0 | \$7.5 |
| Rubber and Plastics | \$3.0 | \$4.5 |
| Textile | \$2.0 | \$4.0 |
| Paper | \$1.5 | \$2.5 |
| Printing(Newspapers) | \$1.0 | \$2.0 |
| Petrochemical | \$3.0 | \$5.0 |
| Metal Fabrication | \$2.0 | \$4.0 |
| Glass | \$4.0 | \$6.0 |
| Mining | \$2.0 | \$4.0 |
| Food Processing | \$3.0 | \$5.0 |
| Pharmaceutical | \$5.0 | \$50.0 |
| Electronics | \$8.0 | \$12.0 |
| Semiconductor Manufacturing | \$20.0 | \$60.0 |
| Commercial | | |
| Communications, information processing | \$1.0 | \$10.0 |
| Hospitals, banks, civil service | \$2.0 | \$3.0 |
| Restaurants, bars, hotels | \$0.5 | \$1.0 |
| Commercial shops | \$0.1 | \$0.5 |

Source: EPRI "The Economics of Custom Power", September 2000

| IEEE Categories Std 1159-1995 | | IEC Categories EN 50160-2000 |
|----------------------------------|--------------------|--|
| Short Duration Variations | Typical Duration | |
| Instantaneous Sag | 0.5 – 30 cycles | <p>Supply voltage dip</p> <p>A sudden reduction of the supply voltage to a value between 90% and 1% of the declared voltage, followed by a voltage recovery after a short period of time. The duration is 10 ms-1 min. Momentary Sag30 cycles - 3 s</p> |
| Momentary Sag | 30 cycles – 3 sec. | |
| Temporary Sag | 3 sec – 1 min. | |
| Instantaneous Swell | 0.5 – 30 cycles | <p>Temporary power frequency over voltage</p> <p>An over voltage, at a given location, of relatively long duration. Momentary Swell30 cycles - 3 s</p> |
| Momentary Swell | 30 cycles – 3 sec. | |
| Temporary Swell | 3 sec – 1 min. | |
| Momentary Interruptions | 0.5 – 30 cycles | <p>Supply interruption</p> <p>A short interruption (up to three minutes) caused by a transient fault. Temporary Interruption3 s - 1 min.</p> |
| Temporary Interruptions | 30 cycles – 3 sec. | |

For Electric Utilities Control of Voltage and Prevention of Outages is Power Quality

SAIRFI – Outage

MAIFI – Momentary Outage

SARFI is an acronym for System Average RMS Variation Frequency Index. It is a power quality index that provides a count or rate of voltage sags, swells, and/or interruptions for a system.

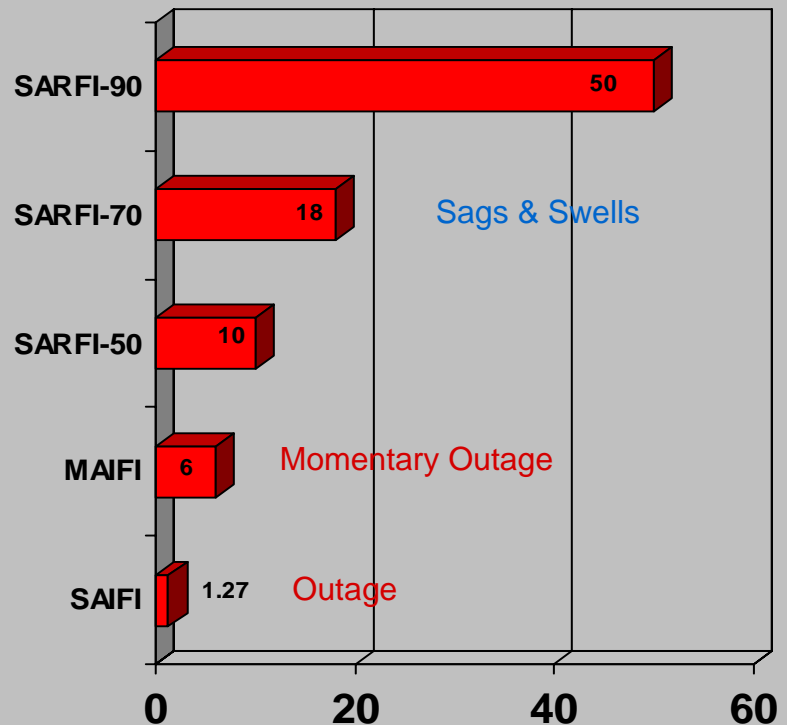
SARFI_x corresponds to a count or rate of voltage sags, swell and/or interruptions below a voltage threshold.

For example, SARFI90 considers voltage sags and interruptions that are below 0.90 per unit, or 90% of a system base voltage. SARFI70 considers voltage sags and interruptions that are below 0.70 per unit, or 70% of a system base voltage.

The SARFIX indices assess short-duration RMS variation events, only those events with durations less than 60 seconds are included in its computation.

PQ events are common, the typical Distribution Customer sees over 85 events per year

Typical Distribution Customer



Source: EPRI "The Economics of Custom Power", September 2000

Transmission Level Customers see more and bigger events

Utility Sources:

- Lightning
- PF Correction Equipment
- Faults
- Switching

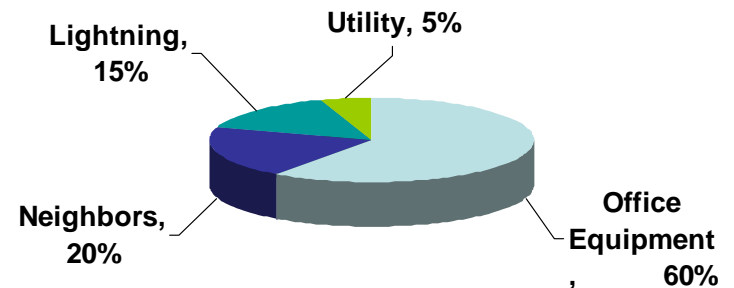
Internal Sources:

- Individual Loads – Motors, ASD, Lighting, Elevators, Coolers, HVAC
- Office Equipment and Computers, (anything with a switching Power Supply or “Energy Efficient”)
- Wiring
- Changing Loads

Most PQ Problems are created Internally

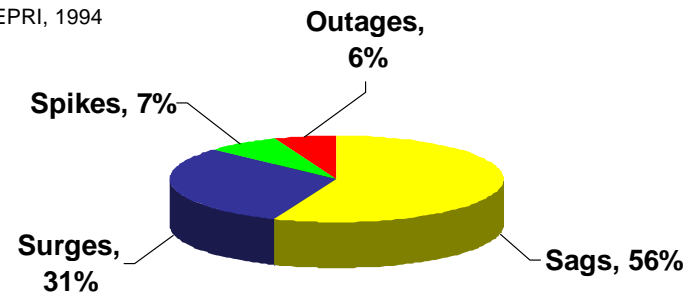
Sources of Power Quality Disturbances




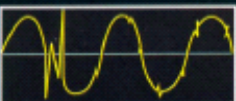

Source: Florida Power Study 1993



Types of Power Quality Disturbances

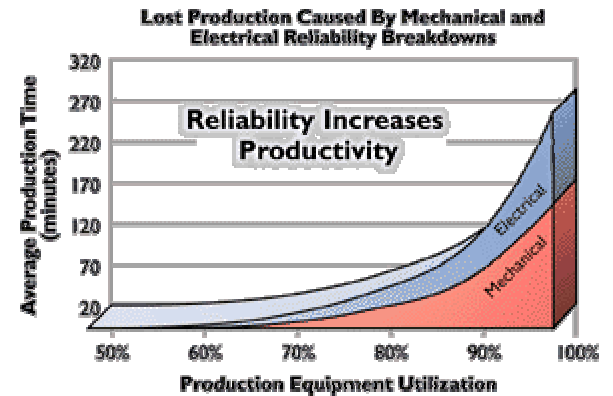
Source: EPRI, 1994



| MATCHING POWER SYSTEM PROBLEMS WITH SOLUTIONS | | | | | |
|--|---|---|---|---|--|
| PROBLEM | DESCRIPTION | DURATION | CAUSE | EFFECT | POSSIBLE SOLUTION |
| TEMPORARY INTERRUPTION/ LONG-TERM OUTAGE  | Planned or accidental total loss of power in a localized area of community | Temporary (2 sec.-2 min.) Long-term (over 2 min.) | Equipment failure, weather, animals, human error (auto accidents, kites, etc.) | Systems shut down | <ul style="list-style-type: none"> o Uninterruptible power supply o Uninterruptible power supply with generator |
| MOMENTARY INTERRUPTION  | Very short planned or accidental power loss | Milliseconds to a second or two | Switching operations attempting to isolate an electrical problem and maintain power to your area | Equipment trips off, programming is lost, disc drive crashes | <ul style="list-style-type: none"> o Uninterruptible power supply o Motor generator o Standby power supply |
| SAG/SWELL  | Decrease (sag) or increase (swell) in voltage | Milliseconds to a few seconds (sags or swells longer than a few seconds are called undervoltages or overvoltages) | <ul style="list-style-type: none"> o Major equipment start-up or shutdown o Short circuits (faults) o Undersized electrical circuit | Memory loss, data errors, dim or bright lights, shrinking display screens, equipment shutdown | <ul style="list-style-type: none"> o Relocate computer to a different electrical circuit o Voltage regulator o Power Conditioner o Uninterruptible power supply o Motor generator |
| TRANSIENT/NOTCH  | <p>A transient is a sudden change in voltage up to several thousand volts (also called impulse or spike).</p> <p>A notch is a disturbance of opposite polarity from the waveform.</p> | Microseconds | Utility switching operations, starting and stopping heavy equipment or office machinery, elevators, welding equipment static discharges, and lightning | Processing errors, data loss, burned circuit boards | <ul style="list-style-type: none"> o Surge suppressor (for transients) o Power conditioner o Motor generator |
| NOISE/HARMONIC DISTORTION  | Noise is an unwanted electrical signal of high frequency from other equipment. Harmonic distortion is alteration of the pure sine wave due to non-linear loads on the power supply. | Sporadic | Noise is caused by electromagnetic interference from appliances, microwave and radar transmissions, radio and TV broadcasts, arc welding, heaters, laser printers, thermostats, loose wiring, or improper grounding. Harmonic distortion is caused by non-linear loads. | Noise disturbs sensitive electronic equipment but is usually not destructive. It can cause processing errors and data loss. Harmonic distortion causes motors, transformers and wiring to overheat. | <ul style="list-style-type: none"> o Electrically separate non-linear loads and wire per Appendix A to limit harmonic distortion o Isolation transformer o Power conditioner o Uninterruptible power supply o Motor generator |

High Speed Waveform Capture is the Most Important PQ Troubleshooting Tool

- Power Quality Monitoring Provides a continuous “Health Check” of a facility’s Power System ... for example:
 - Harmonic interaction between loads and power conditioning equipment spotted
 - High Inrush currents from equipment startup detected
 - Transients from Load Switching are seen
- It provides Data to see, diagnose and avert looming problems – “like squeaky brakes on a car”
 - Trends can be detected
 - JIT Equipment Maintenance Programs can be established
- It acts like a “Black Box” on an airplane to tell you what, when, and where a Power Quality Event occurred ... to prevent it from reoccurring



Continuous PQ Monitoring Detects, Records, and Leads to the Prevention of PQ Problems

PQ Monitors Must Detect and Record the 7 Types of PQ Problems:

1. Transients
2. Interruptions
3. Sag/Under Voltage
4. Swell/Over Voltage
5. Waveform Distortion
6. Voltage Fluctuations
7. Frequency Variations

These include Flicker and Compliance to ITI(CBEMA), IEEE and ISO Standards

Plus they must ...

1. Be Easy to use
2. Be Suitable for continuously monitoring indoors and outdoors
3. Interface with Standard PQ Analysis Software like ... PQDif
4. Be fast enough to capture high speed events that produce equipment problems
5. Have enough storage to save the waveforms you need
6. Have PQ Analysis Tools that produce usable, actionable recommendations

EIG's Line of High-end Meters

- Power professionals world-wide rely on EIG products for their power monitoring and communication applications.
- EIG meters provide high speed waveform capture, advanced power quality, multiport communications and control.



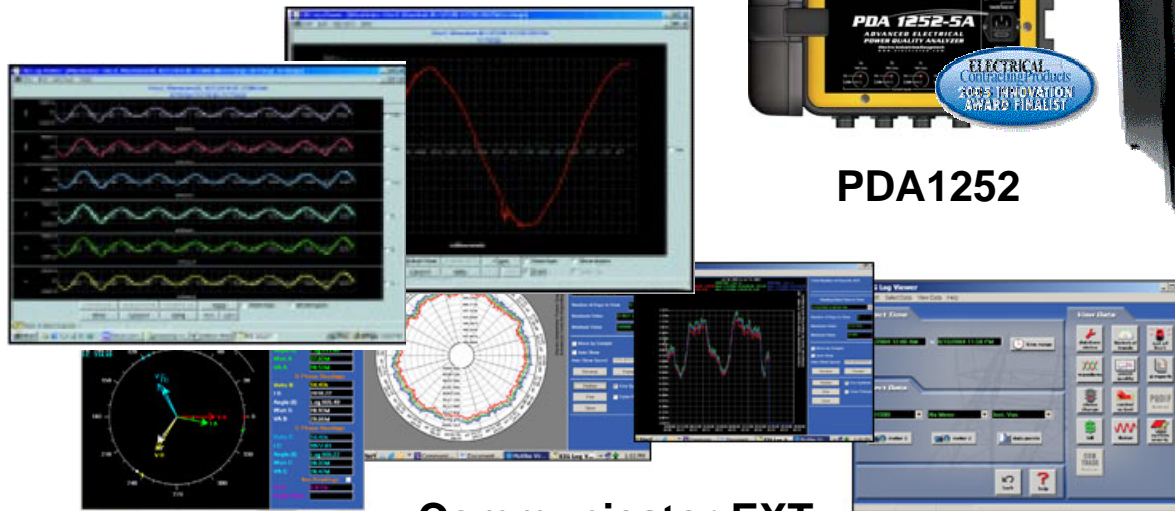
Nexus 1252



PDA1252



Nexus 1272



Communicator EXT



Shark Series

Unmatched Power Quality and Power Analysis and Monitoring in one rugged box:

1. Industry Leading Power Quality Monitoring
2. Advanced Waveform Capture
3. Automated Power Quality Analysis
4. Money Saving Demand Analysis
5. The best Choice for Extended Monitoring Indoors and Out
6. Problem Catching Circuit Analysis Tools
7. Easy to install and easy to use ... Up and Running in Minutes

The only Simply Powerful Power Analyzer



[PDA 1252 Web Page](#)

A Powerful Power Quality Monitor and Analyzer built with Revenue Meter Toughness and Reliability

PDA 1252

Summary of PDA 1252 Capabilities

www.electroind.com

- Monitor and Record Power Quality
- Capture and Record All Seven Types of Power Quality Problems including Flicker
- Isolate and Troubleshoot Complex Power Quality Problems
- Display and Record Real Time Power Quality Data, Waveforms, Demand Management Information, and complex 3 phase Electrical Measurements (V,I,F, PF, kW, kWh, kVA, kvar, kvarh, etc)
- Measure Compliance to ITI-CBEMA , ISO, and IEEE Power Quality Standards
- Record Load Flow and Plot Historical Trends for PQ, Power, and Electrical Measures
- Easy to use Advanced Analysis Software, *Communicator EXT gets you up and running in minutes*
- Comprehensive Artificial Intelligence Generated Power Quality Reports for Fast Diagnosis and Immediate Solutions to PQ Events and Problems when they happen, AiReports EXT
- Watertight Outdoor Enclosure designed for Extended PQ Monitoring Indoors and Outdoors
- Easy Setup Tools get you going quickly and check your set up



[PDA 1252 Web Page](#)

A Powerful Power Quality Monitor and Analyzer built with Revenue Meter Toughness and Reliability

Event/out-of-limit Log

- 1024 events
- Out of limit recording
- High-speed input event recording
- Outage detection

Waveform Log

- 16 to 512 samples per cycle
- Up to seven channels
- Voltage & Current triggers
- External event triggers
- Voltage Sag/Surge Recording
- Fault Recording
- Multiple Trigger Recording

Harmonic/Distortion Analysis

- Up to 255th Order
- Log for later analysis
- View waveform records

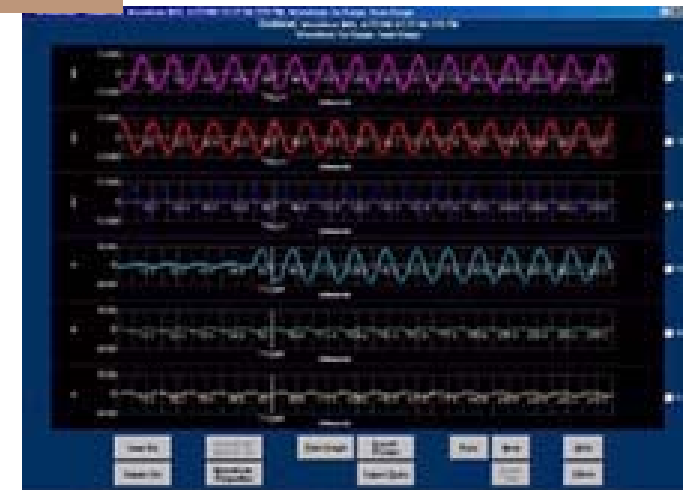
Recording capabilities:

- Voltage surges and sags
- EN50160 Flicker Analysis
- Current fault signatures
- Harmonics and Interharmonics
- Graphical waveforms recorded
- Transient events on a cycle by cycle basis

Logging and Load Profiles

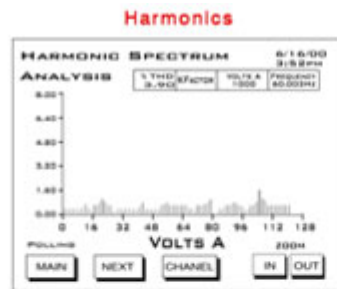
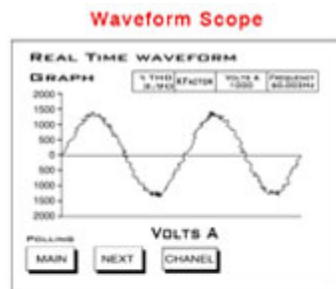
- Voltages, Current, PF, Watt/VAR/VA, Frequency
- Logs for both Instantaneous and Average Readings

High Speed Pictures
of Your PQ
Problems



PQDiff Converter for Utility PQ Monitoring
Applications - EPRI Approved

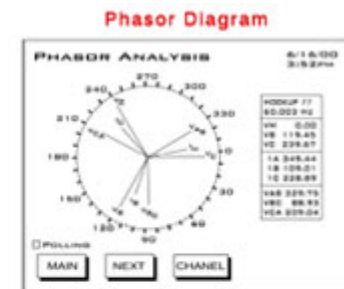
- Graphical Touch Screen Interface
- Large 320 x 240 Pixel Display
- Extra Bright Cold-Cathode Fluorescent Display
- Easily View All Nexus Parameters
- NEMA 4 Rated Enclosure
- Real Time Trending
- Real Time Oscilloscope View
- Harmonic Spectrum Presentation
- EN50160 Flicker Screens
- View Out of Limit Alarms



Alarms Mode

| ID | EVENT | VALUE | SD | SETTINGS |
|----|------------------|----------|----|----------|
| 1 | 15 kVpA VOLTS ON | 14.990 N | IN | 11.200 |
| 2 | THD VOLTS AN | 2.56 N | IN | 73.00 |
| 3 | THD VOLTS BN | 2.56 N | IN | 73.00 |
| 4 | THD VOLTS CN | 2.728 N | IN | 73.00 |
| 5 | THD S A | 2.96 N | IN | 73.00 |
| 6 | THD S B | 2.57 N | IN | 73.00 |
| 7 | THD S C | 2.73 N | IN | 73.00 |
| 8 | 15 kVpA VOLTS ON | 1.600 N | IN | 0.000 |
| | | | IN | 3.700 |

Navigation buttons: MAIN, NEXT, NEXT GROUP.



Real Time Trending

TIME OF USE READINGS REGISTER ACCUMULATIONS

| VAR | VAR | DEL WATT | REC WATT |
|----------------------|------------------|----------|----------|
| 00000000000000000000 | 0000000000011816 | 02 | 01 |
| 00000000000000000000 | 0000000000098221 | 03 | 04 |
| 0000000000012026 | 0000000001121713 | | |
| 0000000000001198 | 0000000001217891 | | |

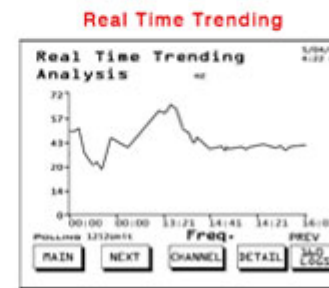
Navigation buttons: MAIN, NEXT, DEMAND, NEXT GROUP.

Real Time Readings

REAL TIME POWER READINGS DETAILS

| | INSTANT | AVERAGE | PREDICTED |
|-------|---------|---------|-----------|
| WATTS | 3606.8 | 3606.8 | 3606.8 |
| VARS | -21.0 | -21.0 | -26.0 |
| VA | 3607.0 | 3607.0 | 2867.1 |
| PF | -0.999 | -0.999 | LEAD |

Navigation buttons: MAIN, NEXT, DEMAND.



EN50160 Flicker

Flicker-Instantaneous

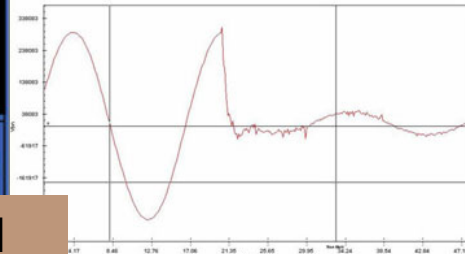
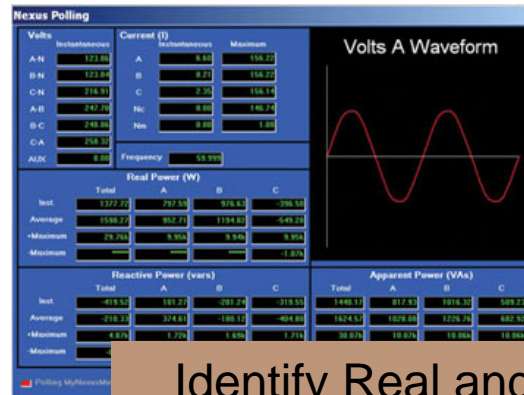
| TIME | START/Next | STOP | Current | Next PFT | Next PFT |
|------|---------------------|---------------------|---------------------|----------|----------|
| | 12/29/2004 16:20:63 | 06/06/0000 00:00:00 | 05/04/2005 16:03:22 | 36sec | 36sec |

| STATUS | Active | FREQ | VOLTAGE |
|--------------|-----------|---------|-----------------|
| FREQUENCY | | | |
| Rise | 60 Hz | Volts A | 0.046 14.299 kV |
| Current | 60.078 Hz | Volts B | 0.062 14.302 kV |
| FALL VOLTAGE | | Volts C | 0.057 14.278 kV |

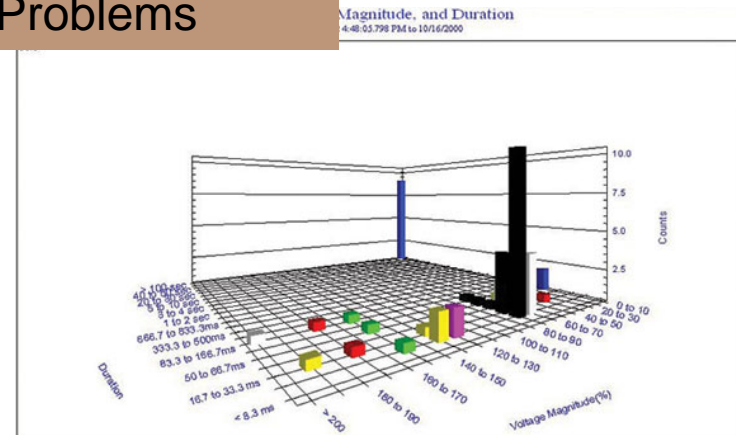
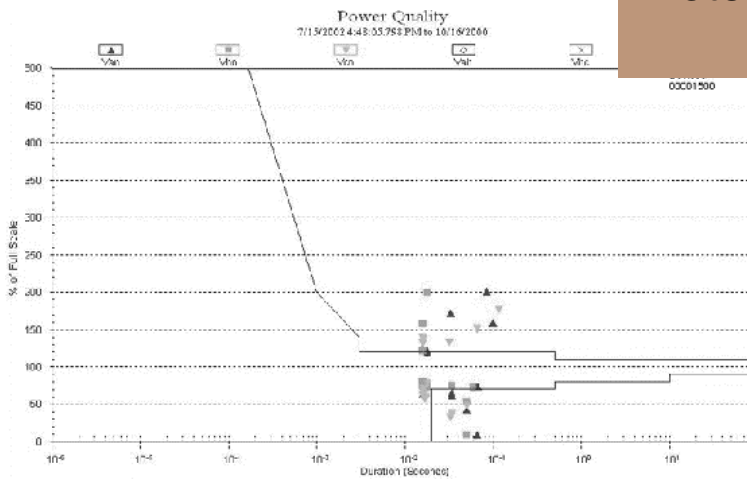
Navigation buttons: MAIN, NEXT, INST, LONG YEAR, LONG YEAR, STOP, RESET.

Real Time Display of Power Quality Data, Waveforms, Harmonics, and Energy Flow

- 1024 CBEMA Events
- Transient Recording
- Sag/Swell Analysis
- Graphical Plotting in 3D Format



Identify Real and Potential Equipment Problems



Separate log for ITI-CBEMA Data

- Flicker and Power Quality Compliance Monitoring
- Short-Term Readings: PST- 10 Min/Logging & Monitoring
- Long Term Readings: PLT – 4 Hr/Logging & Monitoring
- Log Viewer: View Graphed Values. Pst and Plt for Va, Vb and Vc or displayed values, including Max & Min.
- Polling: Pinst, Pst, Pst Max, Pst Min, Plt, Plt Max, Plt Min values
- Interharmonic Analysis at waveform also available

EN 50160 Flicker

Time
Start/Reset: 10/12/2004 17:43:51
Stop: 00/00/0000 00:00:00
Current: 10/28/2004 03:01:59
Next PST: 8 min, 1 sec
Next PLT: 58 min, 1 sec

Status
Active

Frequency
Base: 60 Hz
Current: 60.008 Hz

Base Voltage: 120 Volts

Flicker Monitoring
Start Stop Reset

Instantaneous Short Term Long Term

| | PINST | Voltage Reading |
|---------|-------|-----------------|
| Volts A | 0.379 | 242.628V |
| Volts B | 0.290 | 243.143V |
| Volts C | 0.190 | 245.419V |

Analyze and Predict Light and CRT Flicker Problems

Polling Flicker Readings
OK Help Print

Event/out-of-limit Log

- Records 1024 events
- Out of limit recording
- High-speed input event recording
- Outage detection
- Extensive limit setting capabilities with multiple limits per selected quantity

Waveform Log

- 16 to 512 samples per cycle
- Up to seven channels
- Voltage & Current triggers
- External event triggers
- Voltage Sag/Surge Recording
- 100 Amp Fault Recording
- Current Fault Analysis

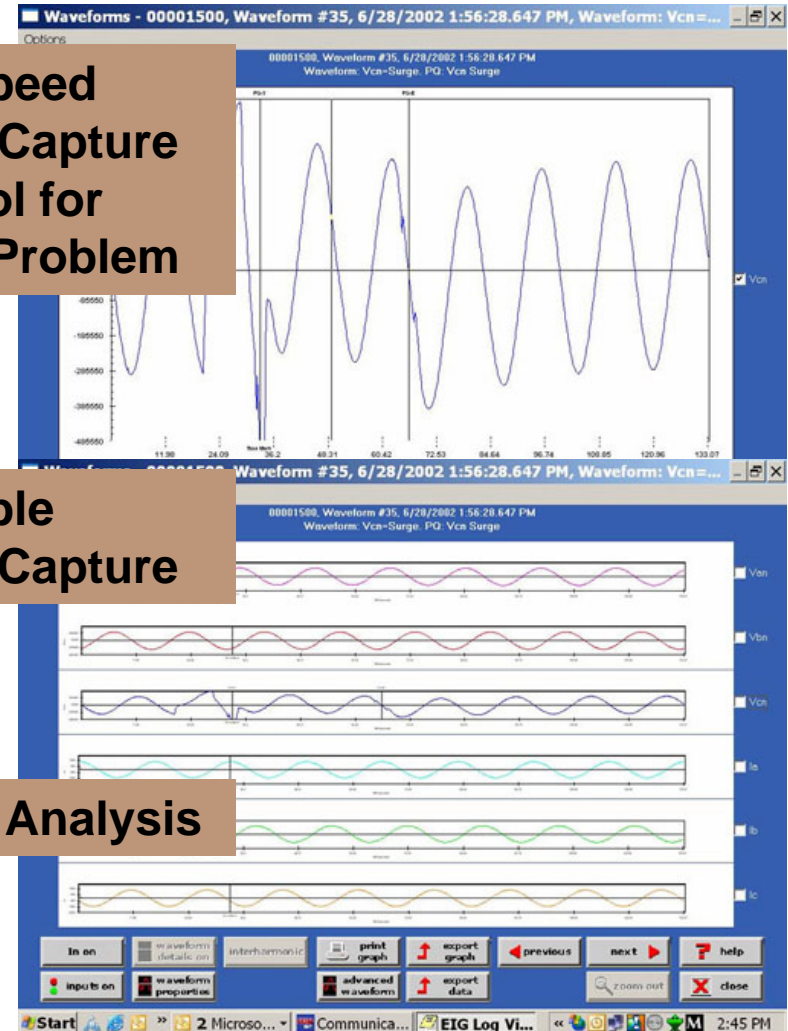
Harmonic/Distortion Analysis

- Up to 255th Order
- Log for later analysis
- View waveform records

**High Speed
Waveform Capture
the Tool for
Fixing PQ Problem**

**Flexible
Waveform Capture**

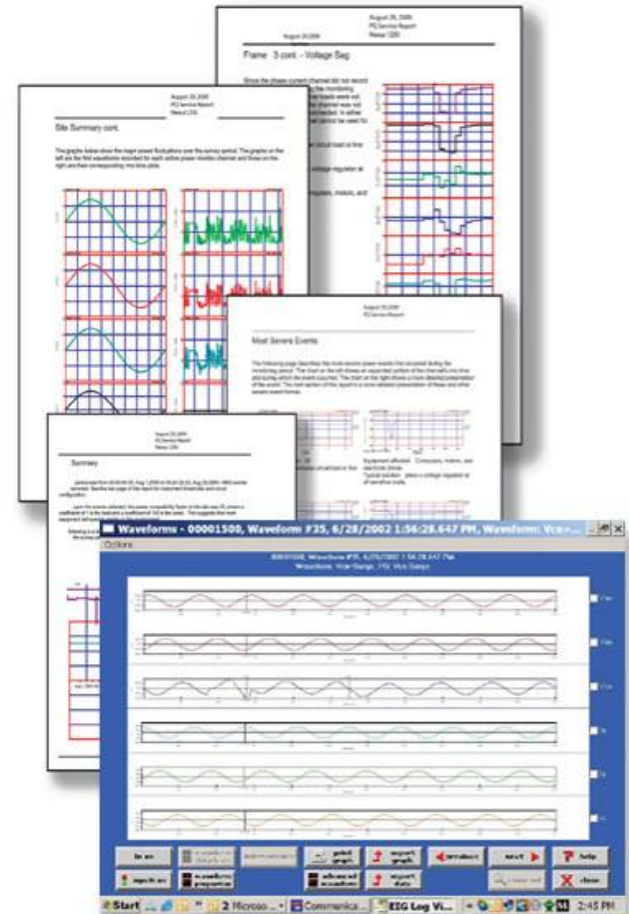
High Speed Analysis



PQDiff and Comtrade Converter for Utility PQ Monitoring Applications - EPRI Approved

Advanced Power Quality Reporting

- Turn Raw Data from all Nexus Series meters into Answers
- Uses Artificial Intelligence to Diagnose Cause of Events and Recommend Action
- Comprehensive Analysis and Reporting of PQ Conditions
- Index Severity of Events
- General Accuracy Better than 80%
- Access Through Communicator Tool Bar
- PDF Format for E-mail Transfer of Reports
- Usable, Actionable Reports



A Team of Power Quality Experts at Your Fingertips

- Extensive On-Board Mass Memory - Up to 4 meg of mass memory insures flexibility for monitoring applications
- Multiple Log Profiles – The meter allows for multiple logs with different intervals

| 1252 | Memory | Log 1 | Log 2 | CBEMA | Limit | Waveforms | Flicker | Input | Output | Events |
|----------|--------|----------|----------|-------|-------|-----------|---------|-------|--------|--------|
| Standard | 2 meg | 85 Days | 133 Days | 512 | 1024 | 63 | 1536 | 1024 | 256 | 1024 |
| Advanced | 4 meg | 555 Days | 133 Days | 512 | 1024 | 95 | 5120 | 1024 | 256 | 1024 |

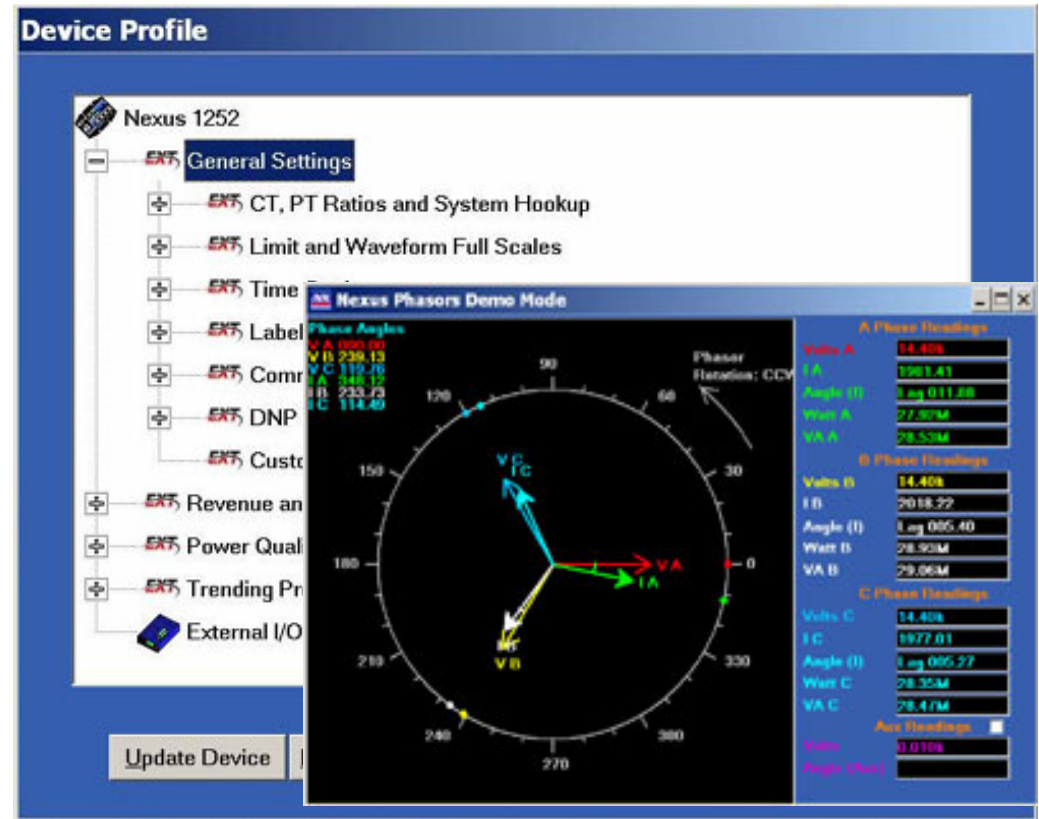
Assumes 4 values logged every 15 minutes

All the Storage You'll Need for Real PQ Analysis

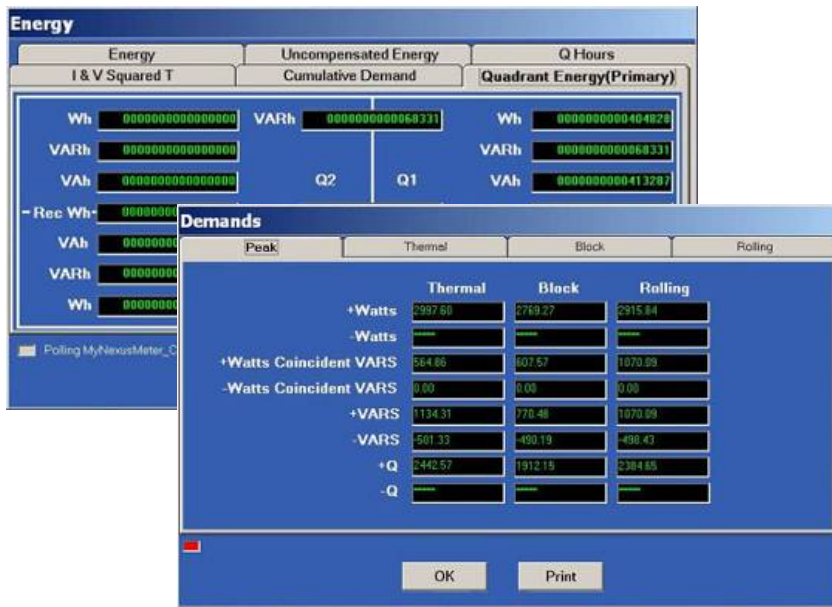
Use logs and trends to watch slower events like daily, weekly, monthly or seasonal voltage variation patterns

Also, a great tool for managing Energy Usage and Demand Charges

- The Nexus Series setup and programming are easy to use and simple. This allows customers to configure the meter for every application quickly and easily.
- The Windows Explorer interface is designed to be self explanatory to customers.
- Obtain analysis without a large investment in time
- New Communicator EXT Software, supporting all new and existing EI products. Update software automatically from internet site.



Up and running in 5 minutes!!!



Time Stamped Max. Demands

- kW Demand Delivered & Received – Max & Min
- kVAR Demand Delivered & Received – Max & Min
- kVAR coincident with kW Demand
- kVA Demand – Max & Min
- Amps - Max & Min
- Voltage - Max & Min
- Timing Options
 - EOI Pulse out
 - EOI Pulse in
 - IRIG-B Input to external GPS Clock

Multiple Demand Windows

- 4 Demand Structures simultaneously
- Types of demand:
 - Fixed, Rolling, Thermal and Predictive Demand
 - Intervals - 1 Second to several hours
 - Up to 255 Subintervals

MV90 Compatibility

- Pulse Values
- Energy in the Interval
- MV90 Time Synchronization

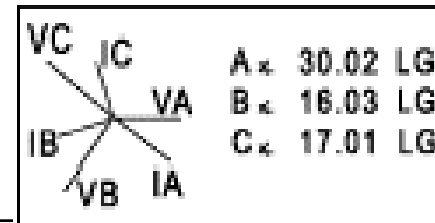
Save Money By Analyzing Power Usage

PDA 1252

Easy to Use in the Field

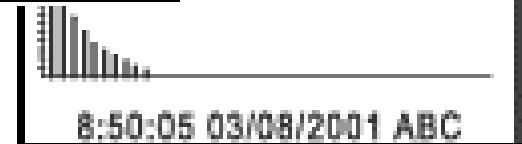
www.electroind.com

- Watertight NEMA 4 Outdoor Enclosure
- Watertight electrical connections
- Lockable enclosure suitable for extended monitoring
- Phasor Diagrams to verify meter set up
- Easy to use software, "5 Minute Setup"
- AiReports for automated PQ Analysis



MONICS THD
003.67

| | |
|------|--------|
| Va-n | 120.94 |
| Vb-n | 120.33 |
| Vc-n | 120.51 |



8:05:05 03/08/2001 ABC

PQ Tools that work for you

PDA 1252

Two Models

www.electroind.com

Low Voltage - PDA1252-1A

1 amp secondary input for low voltage applications.

Work with up to 600 Volts Phase to Phase.

3 clamp on probes available for 100 amps, 1000 amps and 3000 amps primary circuits.

Hi-Voltage – PDA1252-5A

Direct 5 amp input for use with test leads on CTs or with 5 amp rated probes.

Use as a circuit analyzer for verifying CT and PT connections to meters and protective relaying and as a portable power quality monitor.

A PDA 1252 right for your Job



Accessory Items

Optional 1 Amp Model Accessories



MD304, 100:1A clamp on CT with 5ft Male Banana Leads
(Range 10-100A, 600V Rating)
- Includes leads



SR604, 1000:1A, clamp on CT with 5ft Male Banana Leads
(Range 100-1000A, 600V Rating)
- Includes leads



JM830, 3000:1A clamp on CT with 5ft Male Banana Leads
(Range 1000-3000A, 600V Rating)
- Includes leads

Optional 5 Amp Model Accessories



KBTP1, Knife blade test plug with 3ft Male Banana Leads
- For use with test switches



SR632, Clamp On CT, 1000/5A clamp on CT with 5ft Male Banana Leads
(Range 1000/2.5amps, 600V Rating)
- Includes leads

All the Accessories you'll need

PDA 1252

Why buy a PDA1252

www.electroind.com

- Isolate and Troubleshoot Complex Power Quality Problems.
- Prevent Costly Equipment Damage and Downtime
- Increase Efficiency and Reliability
- Display Real Time Data Including Waveforms
- Power Quality CBEMA Compliance
- Load Flow and Historical Trending Capability
- Advanced Analysis Software, *Communicator EXT*
- Optional Artificial Intelligence for Fast Diagnosis and Immediate Solutions, *AiReports EXT*
- Watertight Outdoor Enclosure suitable for long term monitoring

A Powerful Power Quality Monitor and Analyzer built with Revenue Meter
Toughness and Reliability



Unmatched Power Quality and Power Analysis and Monitoring in one rugged box:

1. Industry Leading Power Quality Monitoring
2. Advanced Waveform Capture
3. Automated Power Quality Analysis
4. Money Saving Demand Analysis
5. The best Choice for Extended Monitoring Indoors and Out
6. Problem Catching Circuit Analysis Tools
7. Easy to install and easy to use ... Up and Running in Minutes



[PDA 1252 Web Page](#)

The only Simply Powerful Power Analyzer