

Analyzing power problems  
 to determine a solution



Model SPA2000

# POWER QUALITY ANALYZER

A major hidden expense for dealers supporting micro-processor-based equipment is intermittent power problems. Initially, power problems appear to be a hardware or software failure. These power issues lead to numerous service calls and the unnecessary replacement of components in an effort to isolate and solve malfunctions.

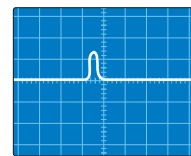
Power quality problems take the form of swells, sags, brownouts, spikes or any combination. These power problems can result in disruption, degradation and

destruction of electronic components.

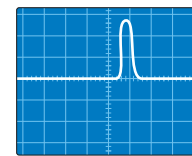
The Power Quality Analyzer is designed to record a wide range of power disturbances. The results are presented in an easy to understand format that eliminates the often difficult step of interpreting the results of power monitoring. The format also makes it easier for dealers to explain power issues to their customers. Power quality continues to grow in importance as technology advances and power grids age.

## Benefits of Using a Power Analyzer:

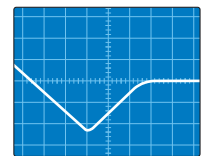
- ▶ Easily and Quickly Identify Power Quality Issues
- ▶ Eliminate Unnecessary Service Calls and Returned Equipment
- ▶ Generate Detailed Reports Outlining Power Problems.
- ▶ Utilize Smart Power Engineers to Solve Complex Power Quality Problems.



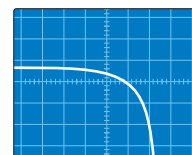
SPIKES



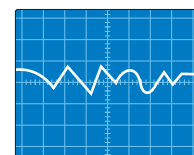
SURGES



SAGS



BLACKOUTS



NOISE

# Power Quality Analyzer Report

Solving power quality problems that affect microprocessor-based products can be expensive and time consuming. The Power Quality Analyzer will detect power problems many other devices cannot. The report allows you to look at power problems from a microprocessor's point of view.

Put a Smart Power Systems Engineer on your staff! Each Power Quality Analyzer report has a unique identifier which enables an engineer at Smart Power Systems to retrieve a report from the database and drill down in more detail in the event of a complex power quality problem.

Report ID: **0102122906153804**  
 Account ID:  
 First Name:  
 Last Name:  
 Customer Name: **Quality Dealer**  
 Customer Address:  
 City: State: Zip:  
 Country:  
 Phone Number:  
 Date of Survey: **12-29-2007**  
 Date:  
 Location: **Location 1(PO-NR)**

## SUMMARY BY CATEGORY

HN Sag	HN Swell	HN Transient	NG Swell	NG Transient	High Freq.	Low Freq.	Outage
19 (26 Cycle) to 107 (3 Cycle) V 82	- V 0	18.8 to 37.5V 8	7 V (3 Cycle) 1	2.0 to 17.2 V 405	- Hz 0	- Hz 0	- 0

### HN Sag

110-120 V 0	102-110 V 37	96-102 V 14	<96 V 31
----------------	-----------------	----------------	-------------

### HN Swell

126-132 V 0	132-144 V 0	144-165 V 0	165+ V 0
----------------	----------------	----------------	-------------

### HN Transient

10-25 V 6	25-100 V 2	100-330 V 0	330+ V 0
--------------	---------------	----------------	-------------

### NG Swell

0-3 V 0	3-6 V 0	6-12 V 1	12+ V 0
------------	------------	-------------	------------

### NG Transient

2-8 Vp 256	8-13 Vp 12	13-25 Vp 4	25+ Vp 0
---------------	---------------	---------------	-------------

### Outage

1-2 Cycle 0	2 Cycle - 2 min 0	2-15 min 0	15 min + 0
----------------	----------------------	---------------	---------------

DISRUPTIVE	DEGRADATION	DESTRUCTIVE
------------	-------------	-------------

DETAILED BY CATEGORY

Many terms are used to describe power line disturbances. Below are some of power line disturbances recorded by Power Quality Analyzer followed by definitions of the terms.

- Sag** - An operating voltage of 90% of nominal volts or less
- Swell** - More than one cycle above 10% of nominal
- Dropout** - Power loss of 1 ms to 1 s
- Outage** - More than 1 s of power loss Positive
- Transient** - A momentary overvoltage of 4 ms or less Negative
- Transient** - A momentary undervoltage of 4 ms or less
- Frequency Variation** - +/- 1Hz of fundamental frequency (50 or 60Hz)

02/10 PNT7000720

1-800-882-8285

