

Solution Package

UPS Performance Verification

Maximize the value of your UPS investment by ensuring its performance



Getting Value from Your UPS Investment

Uninterruptible power supply (UPS) systems are critical components of a cohesive power reliability program. But just because a UPS is running, does not mean that it is fully operational or that it can protect your system. UPS systems are complex electro-mechanical devices, and they can have technical limitations in resolving potential power quality issues. Just as important, any individual UPS system may not be operating efficiently. If you have a UPS, your operations can be in danger without you even knowing about it.

The Limitations of UPS Systems

You invested in a UPS to keep your equipment and operations running, no matter what might happen to the power supply. You may believe you are immune to the impacts of power quality problems, but your UPS may not be protecting you adequately because of two key factors:

- UPS systems are technically limited in their ability to mitigate power quality phenomena. Generally, UPS systems cannot resolve high-ground current, inductive noise, system harmonics, phase imbalance, low-power factor, or susceptibility to lightning or RFI/EMI. Additionally, if the UPS bypass source is a generator, other problems may surface, such as frequency stability under load variations and higher-source impedance.
- A UPS can fail if not maintained properly. Ensuring optimal operation of the UPS system is critical. Of particular importance is monitoring for performance degradations before they become catastrophic failures.

Information Delivers Power

The Encore Series 61000 System[®] UPS Performance AnswerModule[®] delivers the information you need to ensure protection by your UPS. By monitoring the broad spectrum of power quality phenomena, the Encore Series System provides answers to key performance questions:

- ***Is my UPS doing its job?***
The Encore Series System monitors the full range of power quality phenomena, from microsecond impulsive transients to sustained interruptions and interharmonics. UPS internal meters generally lack the bandwidth, sampling rate or trigger/capture algorithms to perform these important functions.
- ***Is my UPS delivering clean power output, even if the quality of the electricity supply is compromised?***
The Encore Series System's unique cross-triggering capabilities, coupled with time synchronization down to the sub-cycle level, allow for accurate and precise determination of the UPS's ability to provide clean power output. The UPS Verification AnswerModule compares the input to the output of the UPS, determining its effectiveness rating and power efficiency — clearly indicating any disturbance that the UPS is unable to mitigate.

A UPS protects against costly downtime...

Encore® Series System supports the UPS — and everything down the line

• *Is my UPS causing any harmonic pollution to the supply side power?*

The AC-DC converters, typically integrated in the front end of a UPS unit, can be sources of harmonic currents if they are not adequately filtered, potentially affecting upstream equipment. The Encore Series System provides information about conditions on the electric supply that are masked by the UPS. If those conditions remain “hidden,” they can degrade beyond the ability of the UPS to correct them.

Protect Your Investment

Investment in a UPS can be a substantial expense for any company. The addition of the Encore Series System UPS Performance Verification package is a small, incremental cost of the UPS system and just a tiny fraction of the cost of facility downtime.

Event Time		UPS Site	UPS INPUT MONITOR			UPS OUTPUT MONITOR			
Event Type	CH	Characteristics	Event Type	CH	Characteristics	Status			
2013-02-11 23:24:58	Server Room 1	Instantaneous Sag	A	Mag = 190.83V (0.69pu), Dur = 0.033s (2.00 cyc.), Upstream Sag	None	n/a	n/a	Pass	
2013-02-12 04:02:21	Testing Lab	Instantaneous Sag	B	Mag = 235.45V (0.85pu), Dur = 0.067s (4.00 cyc.), Upstream Sag	None	n/a	n/a	Pass	
2002-02-12 21:02:21	Server Room 2	Instantaneous Sag	A	Mag = 252.07V (0.91pu), Dur = 0.050s (3.00 cyc.), Upstream Sag	None	n/a	n/a	Pass	
2013-02-13 01:41:25	Customer Center	Instantaneous Sag	A	Mag = 196.67V (0.71pu), Dur = 0.1667s (10.00 cyc.), Upstream Sag	None	n/a	n/a	Pass	
2013-02-13 04:21:51	Customer Center	Instantaneous Sag	B	Mag = 58.17V (0.21pu), Dur = 0.5s (30.00 cyc.), Category = 2, Upstream Sag	Transient	B	Mag = 252.07V (0.91pu), Max Deviation (Peak-to-Peak = 124.2V (0.32pu), Dur = 0.1s(6.00 cyc.), Frequency = 345 Hz	Fail	

The Encore® Series System automatically compares input and output data to verify that your UPS is operating properly, and identifies problems on the utility feed.

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Monitoring Points

UPS Input

Three phase incoming voltages and currents, DC bus voltage, DC bus current.

UPS Output

Three phase output and neutral-to-ground voltages and currents.

Package Configuration

- Encore Series Software with UPS Verification Answer Module.
- (2 minimum) Encore Series 61000 DataNodes® with cross-triggering.



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