



Application

Data Center Operations

Situation

Just as the digital economy is redefining business operations, it is setting new standards for electric power reliability and quality. Downtime – undesirable for any business – is catastrophic for data centers where even the smallest interruption of power quality can cause equipment failure, data corruption and data loss.

Businesses that rely on 24/7 operation have responded to their power reliability and quality needs by installing redundant capabilities that typically include uninterruptible power supply (UPS) systems and backup generators. To ensure the proper operation of these systems and provide ongoing monitoring of power conditions, many companies employ comprehensive power monitoring systems.



DHL Airways is an industry leader in customer service. To provide critical reliability at its new customer service facility, DHL chose a Toshiba 7000 series UPS system. As a final layer of security, DHL installed a

Signature System™ power monitoring system on the input and output of the UPS.

Signature System Benefits

DHL's customer service center in Tempe, Arizona serves more than 50% of the United States and is critical to the company's customer service functions. Their new, high-reliability facility is required to be on-line 24 hours a day, 7 days a week. To provide the required "high nines" reliability, DHL selected a Toshiba 7000 series UPS system, comprising three 300 kVA parallel redundant units, and a Signature System power monitoring system.

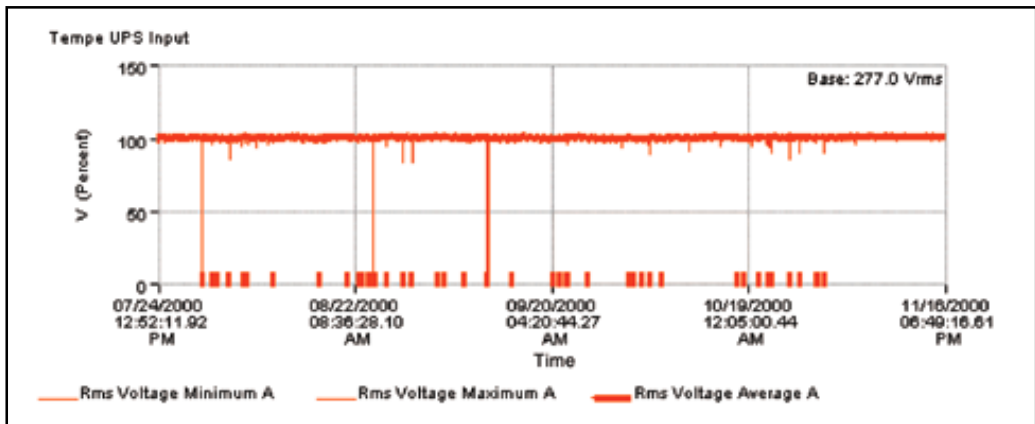
The Signature System monitors the input and output of the UPS on a continuous basis to verify optimal power quality, providing:

- Web-based access to all power quality monitoring information from any location, so that DHL's power management staff can measure and manage power quality worldwide
- Capture of the full range of monitoring data, including factors typically missed by other monitoring systems
- Verification of UPS performance
- Trending of power reliability and quality data
- Enterprise-wide applicability of the Signature System, allowing installation of additional monitoring points throughout the company's facility network

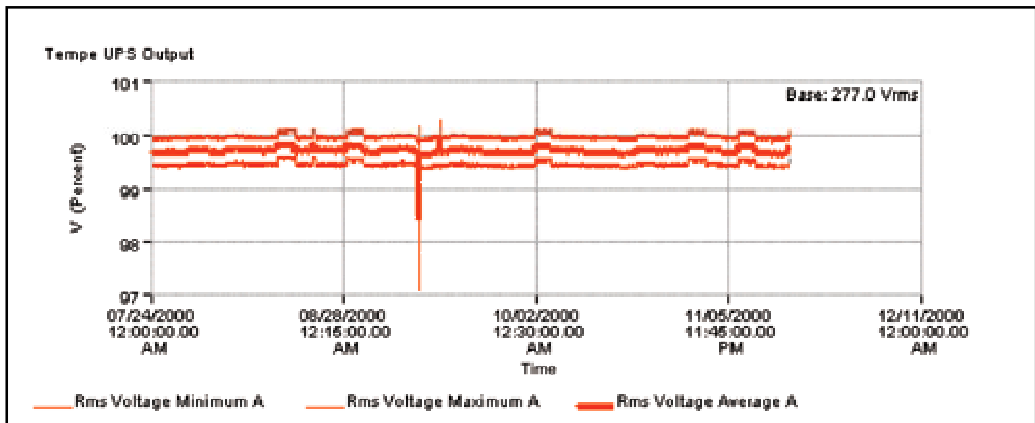
Downtime is catastrophic for data centers — even the smallest power interruption can cause equipment failure...

Results

During the first six months of the facility's operation, the Signature System verified the expected performance of the UPS and detected no events generated within the facility. Conversely, routine monitoring of the supply from the utility documented more than 50 disturbances in just the first three months. These disturbances included sags and transients that could have threatened unprotected loads and placed unanticipated stress on the UPS. After DHL contacted its local utility, an investigation identified a faulty relay, which was corrected. Although the UPS successfully overrode the supply-side disturbances, those disturbances, left unchecked, eventually could have compromised the longevity of the UPS.



This example of power quality trend at the UPS input indicates interruptions, voltage sags, and transients on the utility supply.



The trend of the voltage at the UPS output indicates excellent voltage regulation characteristics and support of the critical loads during all of the supply system disturbances.