Cyber Sciences, Inc.

Increase Patient Safety and Satisfaction by Protecting Your Facility and Electrical System

CYBER SCIENCES™

24%

Between 2009 and 2017 power outages increased an estimated 24%

18%

of the healthcare industry experiences an outage at least once per month

+1hr

36% of those outages lasted more than an hour

Provide Increased Patient Care & Safety

Healthcare facilities are an integral part of our society. Communities turn to them during times of emergencies as well as for help in managing their everyday and long term healthcare needs. In the healthcare industry, always-on power is key for patient safety and acute care. When the loss of power can result in patient injury or loss of life, *failure to provide reliable power is not an option.*

Prepare for Unavoidable Disruptions

With ever increasing disruptions in utility power, confidence in the Emergency Power Supply System's ability to move from normal to stand-by power is essential. Regular testing of these systems increases the probability of identifying reliability issues and reduces risks of losing emergency power.

In the past, this might involve a team of healthcare facility professionals with stopwatches and clipboards walking across acres of property to take readings and write reports. Over the last 10 years, most healthcare facilities have automated this testing. Remote monitoring systems have certainly increased the efficiency and consistency of performing and documenting testing. However, with so much on the line, the need for the most accurate data is crucial in maintaining equipment and ensuring reliability.

Promote Confidence with Precision Timing

The Cyber Sciences Sequence of Events Recorder enables any remote monitoring system used for automated testing to deliver the most precise data for evaluation and assessment of the Emergency Power Supply System (EPSS). Because healthcare facilities are required by many local, state and federal agencies to conform to regulatory requirements, it is critical the installation, testing and periodic maintenance of the EPSS equipment is performed correctly, with the expectation emergency power is available within 10 seconds of a power disruption to Life Safety and Critical Branch loads...

Timing matters!

Cyber Sciences is the industry leader for precision time synchronization, ensuring all equipment is "in-tune" to one time clock with 1 millisecond accuracy. Sequence of Events Recorders monitor and record the status changes of inputs from equipment such as the automatic transfer switches (ATS), switchgear breakers and uninterrupted power systems (UPS). This provides the confidence to know the system is operating exactly as designed and if any changes occur over time, threatening system stability.

Event Reconstruction

x2

The number of blackouts related to weather events has doubled since 2003

$27 billion

Power outages in the U.S. cost business over $27 billion annually

Know What Happened and Why

What about when a power event does happens? As evidenced by the impact of recent natural disasters on hospitals, there is no guarantee compliance to testing and maintenance procedures can prevent a failure of the emergency power system during a disaster. When the lights go out, understanding the root cause of the issue and how it cascaded in the system is paramount to getting things back up and running as soon as possible.

The Sequence of Events Recorder captures power incidents in detail from the first event to the last in precise order so you have the information you need to take decisive action, quickly and reduce the effect of the power outage. This data is easily integrated into any power monitoring system for enhanced analysis allowing for quicker recovery, as well as preventing possible future recurrences.

When Sequence of Events Recorders are paired with the Cyber Sciences CyTime™ Event Manager, you can quickly and easily preform analysis of all pertinent events event logs by filtering the data to see exactly what you need.

'The U.S. Healthcare Industry
reported an average yearly loss
of $60,000 per facility outage'

CyTime Sequence of
Events Recorder

Features / Benefits

- **Status Monitoring** of 24 or 32 digital inputs

- **Event Recording** with 1 ms time stamp accuracy

- **Elapsed Time, Stop-watch Function:** 1 ms

- **Operations Counters** per input with individual reset

- **Web Interface** for setup and monitoring

- **Remote Control** of (On/Off) input status via Modbus TCP, RESTful API

- **Waveform Trigger** to capture by power meter

- **Clock Sync:** (IN) via PTP, IRIG-B, NTP or others

- **Time Master:** (OUT) via PTP, IRIG-B, DCF77, ASCII, 1per10, Inter-SER

- **Color Touchscreen:** For easy menu navigation, device set up, diagnostics and input status viewing.**

- **Extended Control Power Ride-through:** To ensure critical events are captured during power loss/outage.**

** SER-32e Only

Our Solutions

Cyber Sciences is the global leader in precision time solutions for critical power facilities, including data centers, hospitals, industrial applications, universities, airports, microgrids, and alternative energy.

Key applications include sequence of events recording and GPS time synchronization. We help healthcare facilities ensure the reliability, efficiency and safety of their normal and emergency power systems.

CyTime Sequence of Events Recorders

CyTime™ Sequence of Events Recorder (SER) models SER-32e, SER-3200 and SER-2408 record status changes time-stamped to 1 ms. Time synchronization is achieved via PTP (IEEE 1588), IRIG-B, DCF77, NTP, Modbus TCP or an RS-485 signal from another SER. An embedded web server allows setup over a network using a standard browser, plus easy access to all events, status and even custom pages.

Sequence of Events Recorders

	SER-2408	SER-3200	SER-32e
Digital Inputs	24	32	32
Relay Outputs	8 (Solid State)	N/A	Output Module*
High Speed Trigger Output	Yes	Yes	Yes
Input Voltage	24 Vdc	24 Vdc	24 Vdc
Time Source (IN) Protocols	PTP, NTP, IRIG-B, DCF77, Inter-SER, Manual	PTP, NTP, IRIG-B, DCF77, Inter-SER, Manual	PTP, NTP, IRIG-B, DCF77, Inter-SER, Manual
Time Sync (OUT) Protocols	PTP, IRIG-B, DCF77, 1 per 10, ASCII / Inter-SER	PTP, IRIG-B, DCF77, 1 per 10, ASCII / Inter-SER	PTP, IRIG-B, DCF77, 1 per 10, ASCII / Inter-SER
Clock Accuracy - <100 ms	Yes	Yes	Yes
Communications	Modbus TCP, FTP	Modbus TCP, FTP	Modbus TCP, RESTful API
HTTPS Security	No	No	Yes
Color Touchscreen	No	No	Yes
Expansion Slots (For I/O Modules)	No	No	Yes

* Relay outputs are supported in separate output modules designed for the SER-32e expansion slots.

CyTime Event Manager

The CyTime™ Event Manager provides the ability to view and monitor I/O status from multiple Sequence of Event Recorders (SERs) in one easy to understand web interface. This helps to provide an overall view of the diagnostic health of the critical power system.

This intuitive, simple to use tool lets users take better advantage of precision time recordings of status changes in electrical equipment. Where critical power applications are concerned, the Event Manager helps easily identify I/O status and speed up troubleshooting efforts when an event has occurred.

The Event Manager also allows the consolidation of events from all downstream SERs pertaining to a single incident, providing fast and powerful event reconstruction analysis. A valuable resource to help identify power loss events quicker, saving time and money for power restoration in critical power applications.

CyTime Event Manager

Event Manager

Memory	512 MB
Storage	8 GB
Communications: Modbus TCP	Yes
Input Voltage	9 to 48 Vdc
Time Source (IN)	NTP or Manual
Dimensions (W x H x D)	3.90 x 4.37 x 1.0 in. (99 x 111 x 25.5 mm)

Features / Benefits

- **Easy Setup** of Event Manager via web interface

Status Monitoring of unlimited SERs from One Web Browser

- **Remote Firmware Update** any SER located on the network

- **Custom Templates** for use in duplicating settings for setup of multiple SERs

- **Password Management** of all connected SER devices

- **Event Log** view from all connected SERs

- **I/O Status** view of all I/O status

- **Diagnostics information** on any SER on the network

For more information, visit:

www.cyber-sciences.com