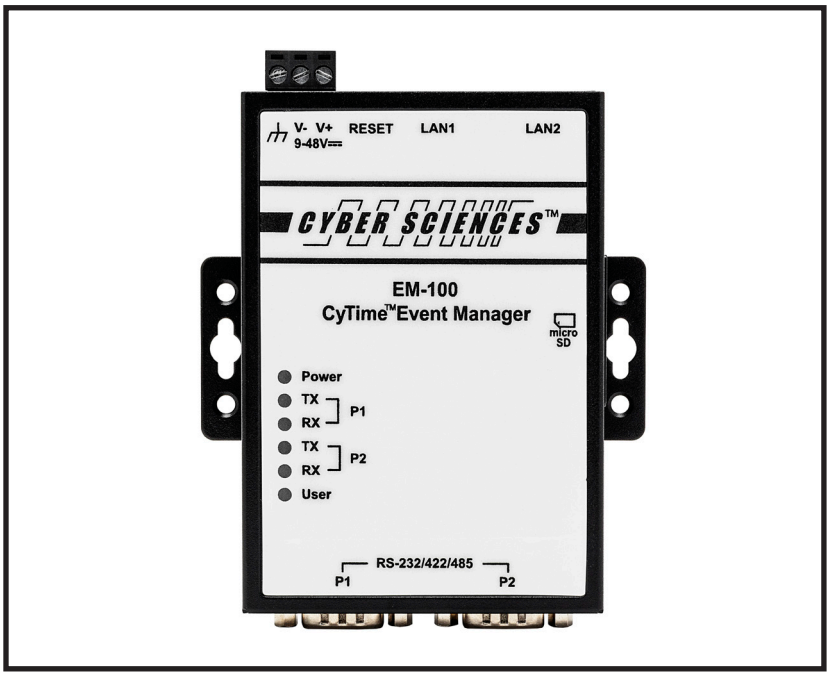
INSTRUCTION BULLETIN

USER'S GUIDE

CyTime™ Event Manager EM-100



CyTime Event Manager

SAFETY PRECAUTIONS

Important safety precautions must be followed before attempting to install, service, or maintain electrical equipment. Carefully read and follow the safety precautions outlined below.

DANGER

HAZARD OF ELECTRIC SHOCK, EXPLOSION, OR ARC FLASH

- Only qualified workers should install this equipment. Such work should be performed only after reading this entire set of instructions.
- NEVER work alone.
- Before performing visual inspections, tests, or maintenance on this equipment, disconnect all sources of electric power. Assume that all circuits are live until they have been completely de-energized, tested, and tagged. Pay particular attention to the design of the power system. Consider all sources of power, including the possibility of backfeeding.
- Apply appropriate personal protective equipment (PPE) and follow safe electrical practices. For example, in the USA, see NFPA 70E.
- Turn off all power supplying the equipment in which the device is to be installed before installing and wiring the device.
- Always use a properly rated voltage sensing device to confirm that power is off.
- Beware of potential hazards, wear personal protective equipment, and carefully inspect the work area for tools and objects that may have been left inside the equipment.
- The successful operation of this equipment depends upon proper handling, installation, and operation. Neglecting fundamental installation requirements may lead to personal injury as well as damage to electrical equipment or other property.
- Observe all electrical codes dictating the maximum current allowable for each wire size. If the current goes above the maximum ratings, the wiring could overheat, causing damage to the equipment

Failure to follow these instructions can result in death or serious injury.

NOTE:

Electrical equipment should be serviced by qualified personnel. No responsibility is assumed by Cyber Sciences, Inc. for any consequences arising out of the use of this material. This document is not intended as an instruction manual for untrained persons.

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Introduction

The CyTime™ Event Manager provides the ability to view and monitor input/output *(I/O)* status from multiple Sequence of Event Recorders *(SERs)* in one easy to read web interface. The Event Manager also allows the user to consolidate events from all downstream SERs pertaining to a single incident, providing powerful event reconstruction analysis. This valuable resource can help identify power loss events quicker, saving time and money for power restoration in critical power applications.

Product Overview

The CyTime Event Manager hardware platform is a DIN rail mounted unit programmed with the Event Manager software pre-installed. License keys allow for the monitoring from 25 to an unlimited number of SERs, depending on the application.

Features and Benefits

Monitor numerous SERs from one browser: Get quick analysis of each SER on the network, with an easy to understand User Interface *(UI)*.

Quick analysis of SERs: Quick overview of SER system communication status with easy to identify colored indicators for both comm status and time of last event.

Event Log Screen: View at one time the event logs from all connected devices on the network. The event log contains items: Date / Time, Device Name, IP Address, Channel, Event Type, Status, Time Quality, Sequence of Events, Delta Time.

I/O Status Screen: Instantly view all I/O status ON/OFF indicators down to each circuit per each SER located on the system.

Diagnostic Screen: Quickly ascertain diagnostics on each individual system device. The Diagnostic screen shows: Device Name, IP, Catalog Number *(SKU)*, HW, FW, Time Source Setup, Time Source Actual, Time Quality, PTP State, PTP Key.

Easy installation and setup: Setup is simple and straightforward. With access from a standard web browser and simple to use set-up tools, you'll be up and running quickly.

DIN Rail Mounted: The CyTime Event Manager is an easy to install DIN rail mounted device, with simple connection to the system network via Ethernet cable.

Robust Hardware Solution: The CyTime Event Manager software is contained within a compact RISC based computer. Rated for higher heat applications *-40° to 167°F, (-40° to 75°C).*

Ordering Information

Table 1— CyTime Event Manager Catalog Numbers

	Catalog no.	Description	—Voltage rating— Control power
Event Manager	EM-100-25	CyTime Event Manager, DIN Rail Mount (25 Unit Support)	9-48 Vdc
	EM-100-UNL	CyTime Event Manager, DIN Rail Mount (Unlimited Unit Support)	9-48 Vdc
Software Upgrade	EM-100-UPG	CyTime Event Manager Upgrade (Upgrade from 25 to Unlimited Unit Support)	N/A

① *The Unit Support option (number of SERs identified) is activated by a software license key, unique to each Event Manager. When ordered, this key is installed at the factory. When an EMS-100-UPG is ordered as a field-upgrade to an existing EMS-100-25 Event Manager, a new key is provided via a license certificate.*

Product Dimensions

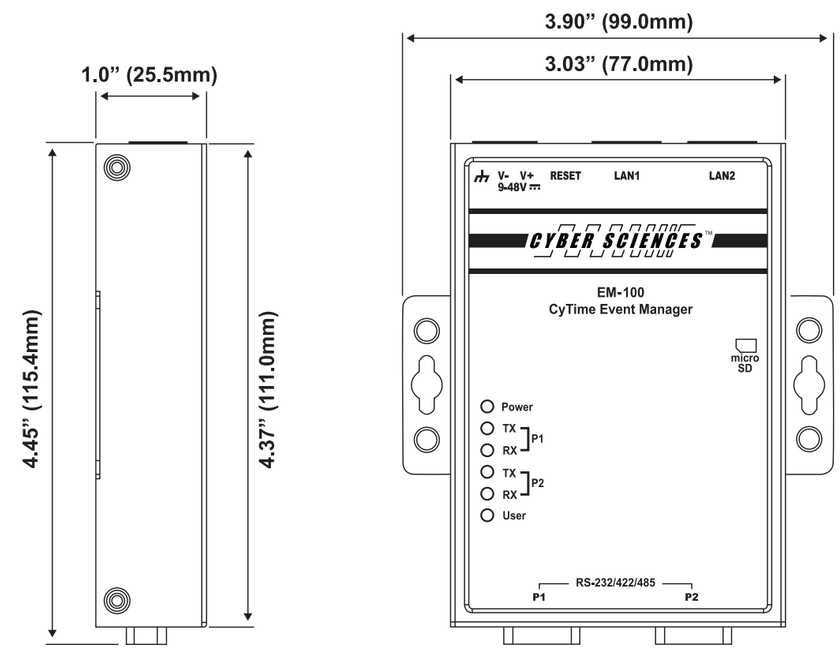


Figure 1. CyTime Event Manager dimensions

Mounting Considerations

The CyTime Event Manager is designed to be mounted on a standard DIN rail in the orientation shown below. When choosing a mounting location, consider the following:

- Allow for easy access
- Allow space for all wires to be neatly routed away from the device
- Allow sufficient ventilation to stay within the operating temperature limits of the device -40° to 167°F, *(-40° to 75°C)*

Typical locations for mounting the Event Manager include the following:

- Power equipment cell or compartment
- Office or raised-floor environment
- Auxiliary control panel or cabinet

DIN-rail Mounting

The CyTime Event Manager is mounted to a standard DIN rail by engaging the top edge first, then locked into place as shown below: (figure 2)

1. Start by engaging the upper edge of the DIN-mounting brackets with the top of the DIN rail as shown
2. Then push the bottom of the unit until the bottom latch of the DIN mount snaps into place

To uninstall, pull down on the lower DIN mounting clip and pull the bottom of the unit towards you. (reverse of the installation)

NOTE: The CyTime Event Manager is shipped with a DIN rail kit. The user will need to install the DIN rail mounts to the main unit. Installation is easy, and all the hardware required is provided. A phillips head screwdriver is needed for installation.

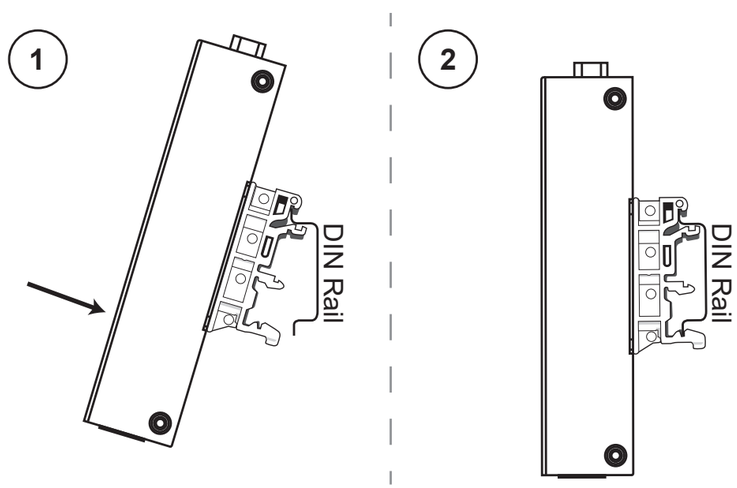
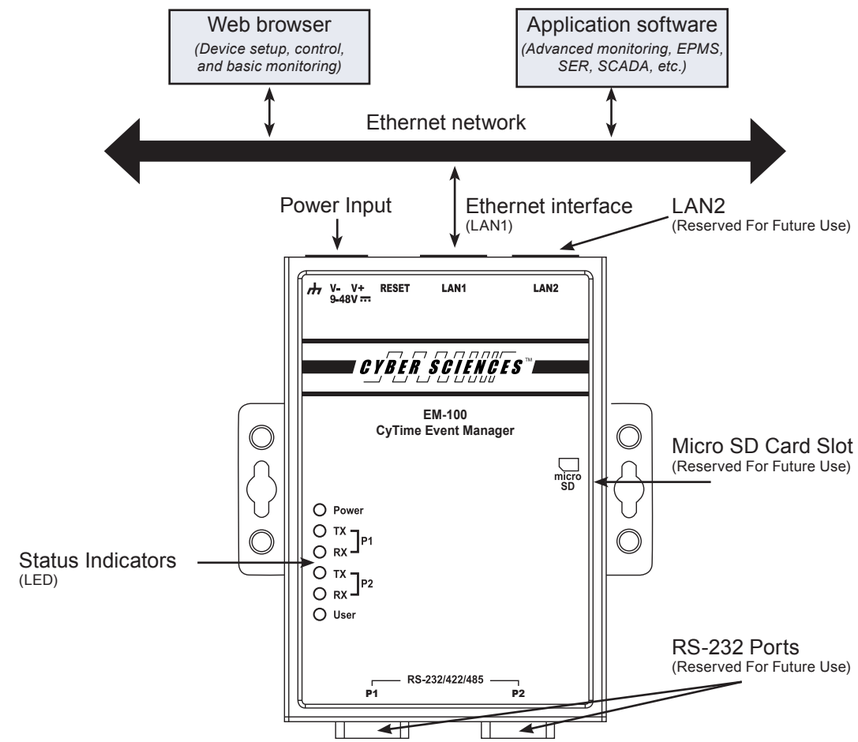


Figure 2. DIN-rail mounting (side views)

Wiring Connections



① *The LED indicators (P1, P2) are serial port indicators (reserved for future use), and do not light up during normal operation. The LED indicator (User) does not light up during normal operation*

Figure 3. CyTime Event Manager functionality overview

Unit Properties

The CyTime Event Manager hardware is a palm sized industrial computer with 1GHz processor, 2 serial ports, 2 ethernet ports and a Micro SD slot. Both Serial ports, one ethernet connection and the Micro SD slot are reserved for future upgrades.

The unit is to be mounted to a standard DIN rail or similar type application, and has a heat rating up to 167°F *(75°C)*

ATTENTION

This equipment is intended to be used in Restricted Access Locations

- Be sure to disconnect the power cord before installing and/or wiring the device
- Observe all electrical codes dictating the maximum current allowable for each wire size. If the current goes above the maximum ratings, the wiring could overheat, causing damage to the equipment

Wiring Requirements

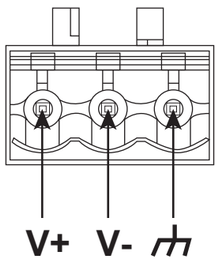


Figure 4. Terminal Block

NOTE: Do not run signal or communication wiring and power wiring in the same wire conduit. To avoid interference, wires with different signal characteristics should be routed separately. This equipment is intended to be used in restricted access locations.

Connecting the Power

Connect the 9 - 48 VDC power line to the terminal block, which is connected to the unit. If powered correctly, the Power LED will glow a solid 'green'. *(see figure 4 for proper installation)*

The terminal block is suitable for 12 - 30 AWG *(3.3 to 0.05mm²)* wire

Input Rating: 9 to 48 VDC, 0.45 to 0.084 A

Grounding: Run the ground connection from the terminal block connector to the grounding surface prior to wiring the power.

Connecting to the Network

The Ethernet ports are located on the top or bottom of the unit (depending on the mounting orientation). Make sure the pin assignments on the Ethernet cable match the chart shown *(figure 5)*.

The LED indicator in the upper left corner glows a solid green when the computer establishes a connection with a 100 Mbps Ethernet network *(figure 6)*. The LED will flash on/off when packets are being transmitted or received. The LED indicator in the upper right corner glows a solid orange when the computer establishes a connection with a 1000 Mbps Ethernet network *(figure 6)*. The LED will flash on/off when packets are being transmitted.

Pin	Signal
1	MDI0+
2	MDI0-
3	MDI1+
4	MDI2+
5	MDI2-
6	MDI1-
7	MDI3+
8	MDI3-

Figure 5. Pin Assignments

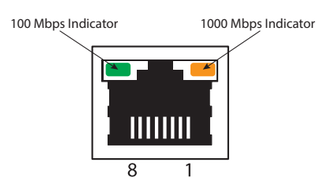


Figure 6. Ethernet Port

Web Server Setup - Quick Start

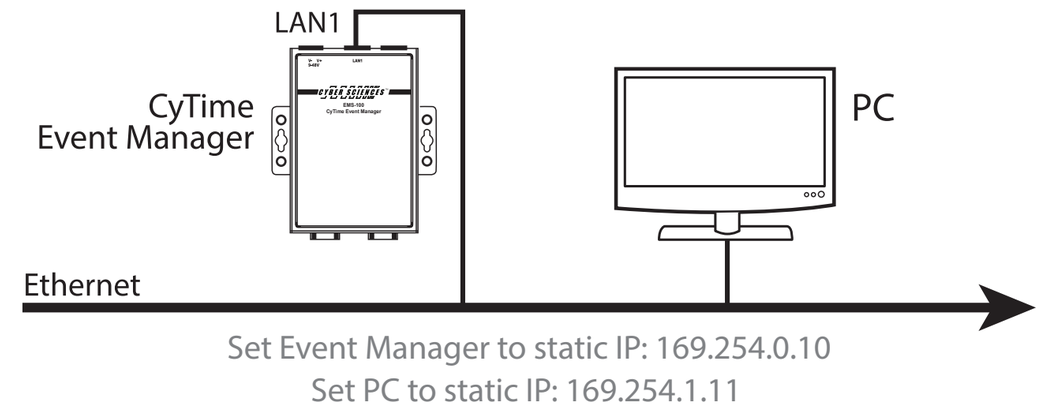


Figure 7. Initial Setup Connection

Network Setup

Obtain the desired settings from your network administrator for:

-IP Address

-Subnet Mask

-Default Gateway

Direct Connection to PC:

1. Connect the CyTime Event Manager LAN1 Port to your PC, using a standard Ethernet patch cable. (The unit auto-detects wiring polarity, a special crossover cable is not required)

2. Set PC to use static IP address of: 169.254.1.11 *(figure 7)*

3. Apply power to the Event Manager

4. Open a standard web browser, such as a CHROME™ browser

5. Type the default IP address of the Event Manager *(169.254.1.10)* into the web browser *(figure 7)*

6. Enter the default user name (admin) and password (admin) and click the 'Login' button to access the Event Manager (see figure 8)

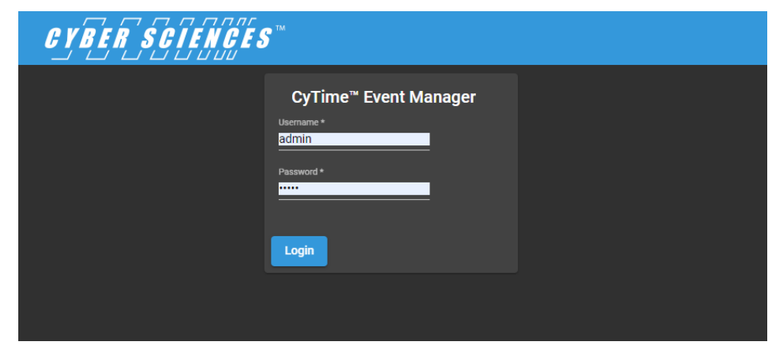


Figure 8. Login Screen

7. Navigate to the 'Setup' page *(figure 9)*. Here you will set up the network. Click the 'Network' tab on the far left of the Setup page *(figure 10)*. Enter the IP credentials of your network, and hit 'Apply'. The CyTime Event Manager will then re-boot. Once the unit has re-booted, then log into the unit with the existing IP address again, or the NEW IP address if you've just programed a new IP address into the unit.

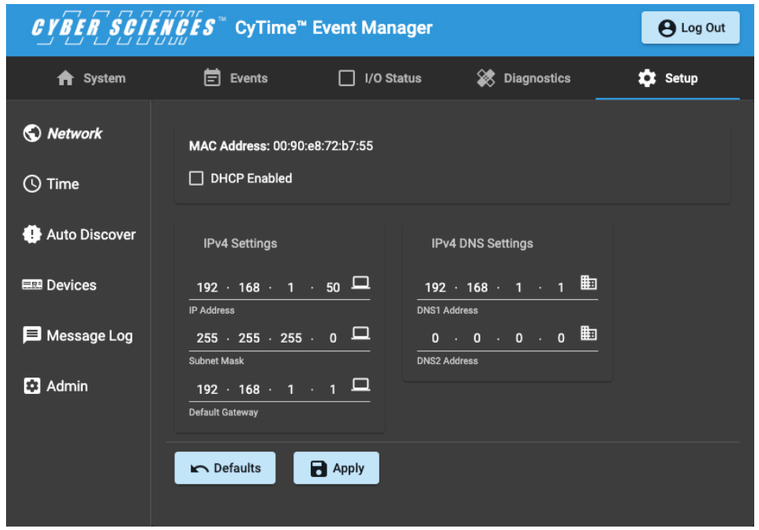


Figure 9. Setup Page

8. Disconnect the Ethernet patch cable and connect the Event Manager to the local area network

9. Restore your PC to its previous network settings. *(e.g., 'Obtain IP address automatically')*

Software Setup

After installation of CyTime Event Manager, the unit must be connected to the network for it to recognize the Sequence of Event recorders on that network.

Figure 10. Network Button

Step 1: The Login screen will populate once the IP address is reached. Once at the login screen, the default ID and Passwords are both: 'admin'. Once logged in, the CyTime Event Manager software will be opened.

Step 2: Return to the 'Setup' page. Here the user can continue the setup process.

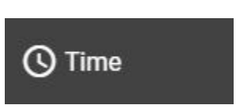


Figure 11. Time Button

Step 3: Select the 'Time' button *(figure 11)* on the left side of the 'Setup' page. Here you will set up the time clock associated with the network. Select the time zone appropriate for the location of the network, set the date format the user wishes to display and the time sync options, and finally the daylight savings time setting.

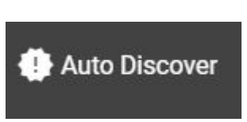


Figure 12. Auto Discover Button

Step 4: Identify SERs on the network: There are 3 ways in which to 'load' the SERs onto the Event Manager. First, make sure you're on the 'Setup' page.

1. 'Auto Discover' tab *(figure 12)* - Automatically identify any SERs located on the network. Type in an IP range, and select 'Add Route to List'.

2. 'Devices' tab *(figure 13)* Here the user can manually set up each SER on the network by using it's corresponding IP address.

3. Import Button - On the 'Setup' page, select the 'Devices' tab *(figure 13)*. Select the 'Import' button, and a .csv file with list of unit IPs can be uploaded.

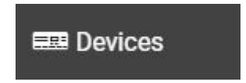


Figure 13. Devices Button

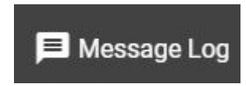


Figure 14. Message Log Button

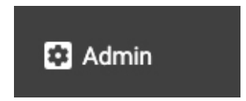


Figure 15. Admin Button

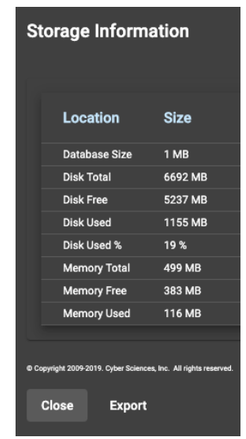


Figure 16. System Button

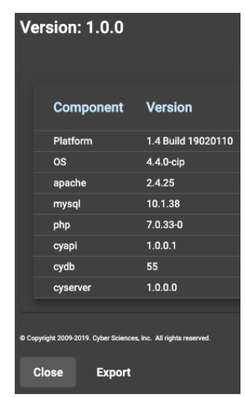


Figure 17. System Button

Message Log Button – In the message log area, the user can create exportable message files from the SERs on the network for trouble shooting and support purposes. The user can also filter the search query, and adjust the number of items viewed per page. *(figure 14)*

Admin Button – *(figure 15)* Here, the user can see system variables such as device storage, version numbers, licensing, upgrades, restore factory settings, and others. *(figure 18)*

- **Storage:** View the storage and disk space of the Event Manager. *(figure 16)*
- **Version:** View the software version of the Event Manager. *(figure 17)*
- **Authentication:** Here you can change the User Name and/or Password associated with the Event Manager. Once the user name and password have been changed, the default user name and password will no longer be effective.
- **Licensing:** An Event Manager with 25 unit support can be upgraded to the unlimited unit support version with the purchase of an upgrade keycode (EM-100-UPG). The upgraded keycode can be entered here. *(see pg. 5 - Ordering information)*
- **Database Actions:** Use the export database button to create a data file report (.csv) that is downloaded to your computer. All the information contained in the database will be enclosed in the .csv file.
- **System Actions:** Reboot: click the reboot button to reboot the Event Manager. Upgrade: click the upgrade button to update the Event Manager software. Restore: click the restore button to reset the Event Manager back to factory settings.

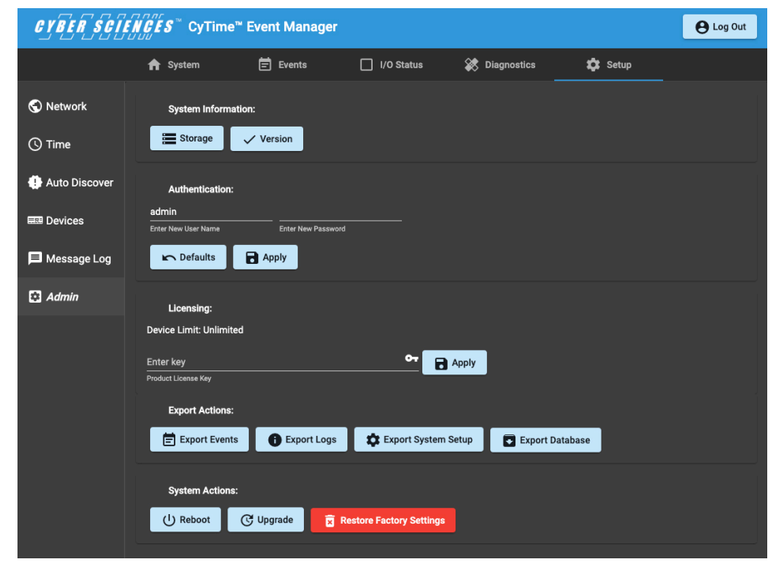


Figure 18 Admin

System Page

Once the SER devices have been located on the network, the Event Manager is ready to use.

The system page allows for quick status updates on any previously identified SERs connected to the network. A simple color code indicator will alert the user to that SERs status. The CyTime Event Manager automatically updates this screen every 30 seconds when the 'Auto Refresh' button is turned to the ON position. The user can update at any time by clicking the 'Refresh Data' icon ( ) next to the 'Auto Refresh' button.

Color status indicators are as follows: Error *(Red)*, Warning *(Yellow)*, Normal *(Light Green)*, Event Today *(Green)*, Event Hour *(Dark Green)*. There is also a 'System Status' indicator that accesses the overall status of the system.

For More Information on Sequence of Event Recorders visit: www.cyber-sciences.com

CyTime SER Instruction Bulletin
(IB-SER-01)

CyTime SER Reference Guide
(IB-SER-02)

EZC Instruction Bulletin
(IB-EZC-01)

PLX Instruction Bulletin
(IB-PLX-01)

STR-IDM Instruction Bulletin
(IB-IDM-01)

Tech Note: Hi-res Time Sync using PTP/1588
(TN-100)

Tech Note: SER System Architectures
(TN-101)

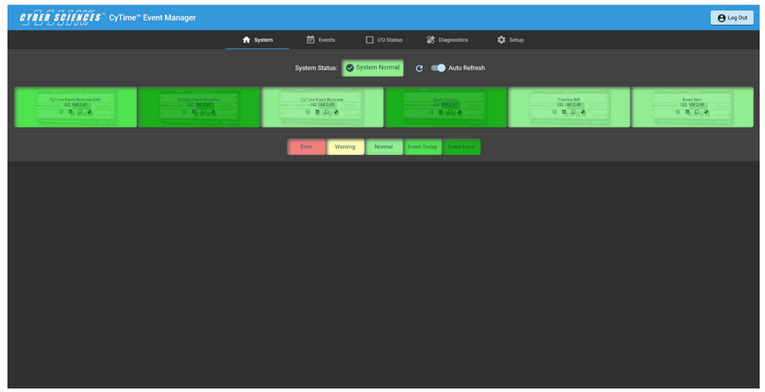


Figure 19. System Page

Accessing the SERs from the System Page

Each SER that is identified by the Event Manager will be displayed on the System Page as a graphical 'block'. SER identification will be by name *(if one has been assigned)* or by IP address of that device.

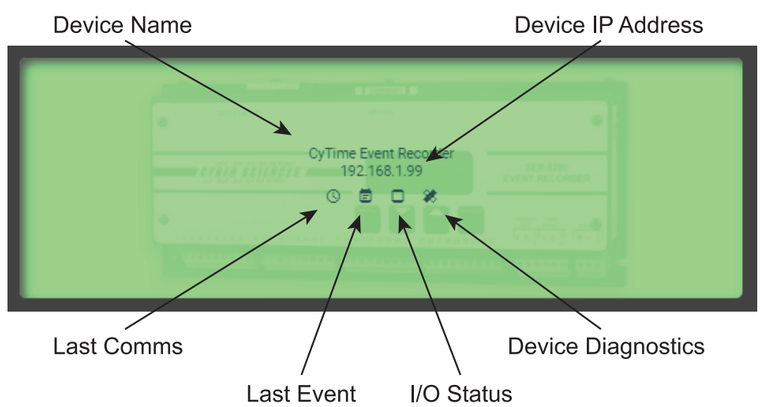


Figure 20. SER Status Block

SER Status

There are four *(4)* buttons associated within each SERs graphical block on the Systems page.

Last Comms

The Last Comms button brings up basic information about the SER connected to the network. Items such as: name of device, IP address and status of last communication with the Event Manager.

Last Event

When selecting the Last Event button, the user is directed towards the embedded events web page on the SER itself. After SER login, access is granted to the SERs Event Log page. Here the user has all the functionality of the SERs event Log.
(refer to SER Instruction Bulletin for operating instructions: IB-SER-01)

I/O Status

When selecting the I/O status button of an SER from the System Page, the user is re-directed to the embedded I/O status web page on the SER itself. Here, the user can see the I/O status of channels on that particular device.
(refer to SER Instruction Bulletin for operating instructions: IB-SER-01)

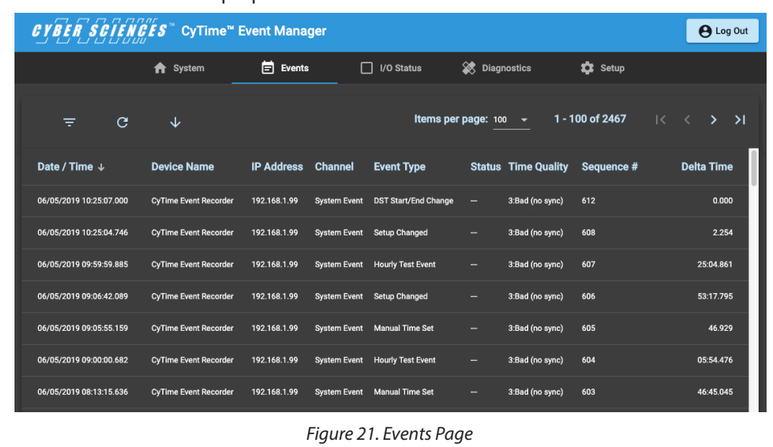
Device Diagnostics

Clicking the Device Diagnostics button on any of the SERs located on the System Page will route the user to the Diagnostics page embedded on the SER itself. Here the user can see the Diagnostics information for that particular unit. (*refer to SER Instruction Bulletin for operating instructions: IB-SER-01*)

Events Page

The Events Page *(figure 21)* offers a look at the past events for all SERs located on the network. The user can also select the items viewed per page, and sort the content by Date of Event or Time of Event. The SER device name is shown here *(if user has named the device)*, also shown are the IP Addresses of each SER on the network, the Channel, Event Type, Status, Time Quality, Sequence of Events, and Delta Time.

Filtering the settings: The user can filter the events shown by - Date, Device Name or IP Address, Event Type, Status ON/OFF and Time Quality. To filter, click on the filter button and configure the settings to include only the desired data. Once the appropriate filters are added, hit the 'Apply' button to review the data. The user also has the ability to start the process again by hitting the 'Defaults' button. This will return the filter search to it's basic properties.



Date / Time	Device Name	IP Address	Channel	Event Type	Status	Time Quality	Sequence #	Delta Time
06/05/2019 10:25:07.000	CyTime Event Recorder	192.168.1.99	System Event	DST Start/End Change	—	3:Bad (no sync)	612	0.000
06/05/2019 10:25:04.746	CyTime Event Recorder	192.168.1.99	System Event	Setup Changed	—	3:Bad (no sync)	608	2.254
06/05/2019 09:59:59.885	CyTime Event Recorder	192.168.1.99	System Event	Hourly Test Event	—	3:Bad (no sync)	607	25:04.861
06/05/2019 09:06:42.089	CyTime Event Recorder	192.168.1.99	System Event	Setup Changed	—	3:Bad (no sync)	606	53:17.795
06/05/2019 09:05:55.159	CyTime Event Recorder	192.168.1.99	System Event	Manual Time Set	—	3:Bad (no sync)	605	46.929
06/05/2019 09:00:00.682	CyTime Event Recorder	192.168.1.99	System Event	Hourly Test Event	—	3:Bad (no sync)	604	05:54.476
06/05/2019 08:13:15.636	CyTime Event Recorder	192.168.1.99	System Event	Manual Time Set	—	3:Bad (no sync)	603	46:45.045

Figure 21. Events Page

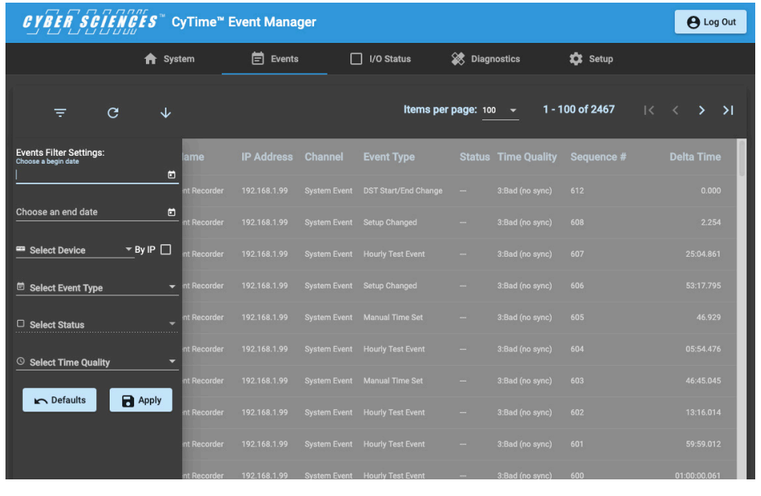


Figure 22. Events Log Filter

Refreshing the Data: The events page can be refreshed by selecting the Refresh Data icon (↻) otherwise the page automatically refreshes every 30 seconds.

Exporting the Data: You can export the event data by clicking on the arrow icon (↓). Event Manager exports a .csv file to your download folder.

I/O Status Page

The I/O Status page shows the current I/O status of each connected device. The status tab shows the state of the unit, per input *(channel)* in a graphical interface. Status indicators show: ON, OFF, Inverted and Forced settings of each channel per each SER device on the network. *(figure 23)*

Input Channels vs. Output Channels - Output channels are represented with dotted lines around them. In the example below, the top 2 SER's shown are 32 channel SERs w/no outputs. The third example is a 24 channel SER with 8 output channels.

☐ = OFF ⟋ = Inverted
■ = ON ☐ = Forced

Figure 23. I/O Status Indicators

Output channels are represented by dotted lines

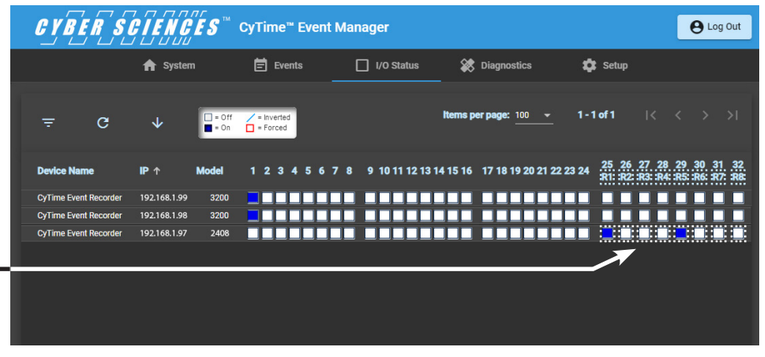


Figure 24. I/O Status Page

Filtering I/O Results

The Filter icon on the I/O page (⚌) adjusts parameters for the I/O Status data. You can view content by user adjusted parameters, or by default settings. Filter by unit IP address, model number or assigned name.

Refreshing the Data: The events page can be refreshed by selecting the Refresh Data icon (↻) otherwise the page automatically refreshes every 30 seconds.

Exporting the Data: You can export the event data by clicking on the arrow icon (↓). Event Manager exports a .csv file to your download folder.

Diagnostics Page

Quickly ascertain diagnostics on each individual system device. The diagnostics screen shows: Device Name, IP, Catalog Number (SKU), HW, FW, Time Source Setup, Time Source Actual, Time Quality, PTP State, PTP Key, Diagnostics.

Filter Settings - Adjust parameter filters for diagnostic status. View content by user adjusted filters, or by default settings. Filter by Device *(IP)*, Catalog Number *(Product SKU)*, Time Quality, Time Source Setup, Time Source Actual and PTP Port State. To filter, click on the filter button and configure the settings to include only the desired data. Once the appropriate filters are added, hit the 'Apply' button to review the data.

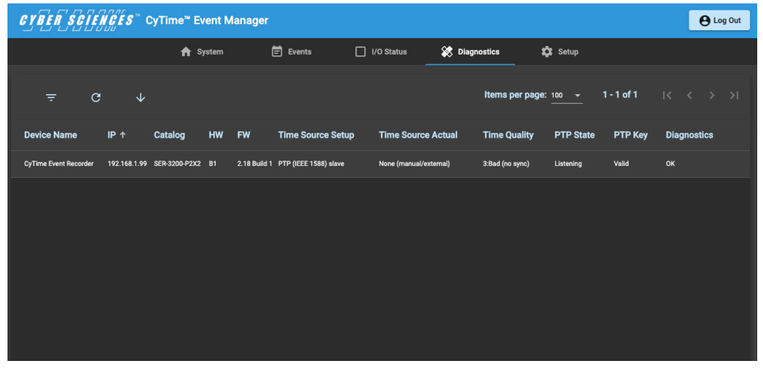


Figure 25. I/O Diagnostics Page

Standards and Certifications

Safety	EN 60950-1, IEC 60950-1, UL 60950-1
EMC	EN 55032/24
EMI	CISPR 32, FCC Part 15B Class A
IECEx Certificate no.	IECEx UL 18.0093X
EMS	IEC 61000-4-2 ESD: Contact: 4 kV; Air: 8 kV IEC 61000-4-3 RS: 80 MHz to 1 GHz: 3 V/m IEC 61000-4-4 EFT: Power: 1 kV; Signal: 0.5 kV IEC 61000-4-5 Surge: Power: 0.5 kV; Signal: 1 kV IEC 61000-4-6 CS: 3 V / IEC 61000-4-8 PFMF
Hazardous Locations	UC-2112-LX, UC-2112-T-LX: Class I Division 2, IECEx Zone 2, ATEX Zone 2. EN 60079-0: 2012+A11: 2013/IEC 60079-0: 2011 Ed.6. EN 60079-15: 2010/ IEC 60079-15: 2010 Ed. 4
Green Product	RoHS, WEEE

Specifications

CPU	Armv7 Cortex-A8 1 GHz
DRAM	512 MB DDR3
Storage	8 GB eMMC
OS	Linux Debian 9 kernel 4.4
Storage Slot	Micro SD slots x 1
Ethernet Ports	Auto-sensing 10/100 Mbps ports (RJ45 connector) x 1, Auto-sensing 10/100/1000 Mbps ports (RJ45 connector) x 1
Serial Ports	RS-232/422/485 ports x 2, software selectable (DB9 male)
Console Port	RS-232 (TxD, RxD, GND), 4-pin header output (115200, n, 8, 1)
Expansion Slots	mPCIe slot x 1
Magnetic Isolation Protection	1.5 kV
Shock	IEC 60068-2-27
Vibration	2 Grms @ IEC 60068-2-64, random wave, 5-500 Hz, 1 hr per axis (without any USB devices attached)
Power Consumption	4 W
LED Indicators	System Power - 1 / LAN - 2 per port (10/100/1000 Mbps) / Serial - 2 per port (Tx, Rx) / User Programmable - User x 1
Housing	Metal
Installation	Wall mounting, DIN-rail mounting (with optional kit)
Weight	290 g (0.64 lb)
Dimensions (with ears)	99 x 111 x 25.5 mm (3.90 x 4.37 x 1.00 in)
Dimensions (without ears)	77 x 111 x 25.5 mm (3.03 x 4.37 x 1.00 in)

Specifications (cont.)

Operating Temperature	-40 to 75°C (-40 to 167°F)
Storage Temperature	-40 to 85°C (-40 to 185°F)
Ambient Relative Humidity	5 to 95% (non-condensing)
Input Voltage	9 to 48 VDC
Input Current	0.084 A @ 9 VDC, 0.45 A @ 48 VDC
MTBF Time	982,882 hrs
MTBF Standards	Telcordia (Bellcore) Standard TR/SR

For More Information on the CyTime Event Manager, go to: www.cyber-sciences.com

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