

Event Manager EM-100



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

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.

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

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Open Source Software Components

This Trystar, Inc. device is provided with certain open source software components (collectively, “OSS”) developed by third parties. Refer to the section on “Included Software Licenses”. (Section 6 of this document)

INTRODUCTION

The Trystar 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 Trystar Event Manager hardware platform is a DIN rail mounted unit. License keys allow for the monitoring from 25 to an unlimited number of SERs, depending on the application.

Features and Benefits

Easy Setup of Event Manger via Web Interface: Simple setup using standard web browser.

Status Monitoring of Unlimited SERs from One Web Browser: Get quick analysis of each SER on the network, with an intuitive user interface.

Remote Firmware Update of any SER on the Network: Easily update firmware on any SER located on the network, configure time synchronization settings, input and output settings.

Custom Templates: Create custom templates to use when duplicating settings such as input naming, time synch input protocol, and others on setup of multiple SERs.

Password Management: Manage and change passwords of connected SER devices.

Event Logs: View at once, the event logs from all connected devices on the network.

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

Diagnostics: Quickly and easily ascertain diagnostics on each individual system device.

Ordering Information

Table 1— Trystar Event Manager Catalog Numbers

	Catalog no.	Description
Trystar Event Manager	EM-100-25	Trystar Event Manager, DIN Rail Mount (25 Unit Support)
	EM-100-UNL	Trystar Event Manager, DIN Rail Mount (Unlimited Unit Support)
	EM-100-UPG	Trystar Event Manager Upgrade (Upgrade from 25 to Unlimited Unit Support) ^①

^①The 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

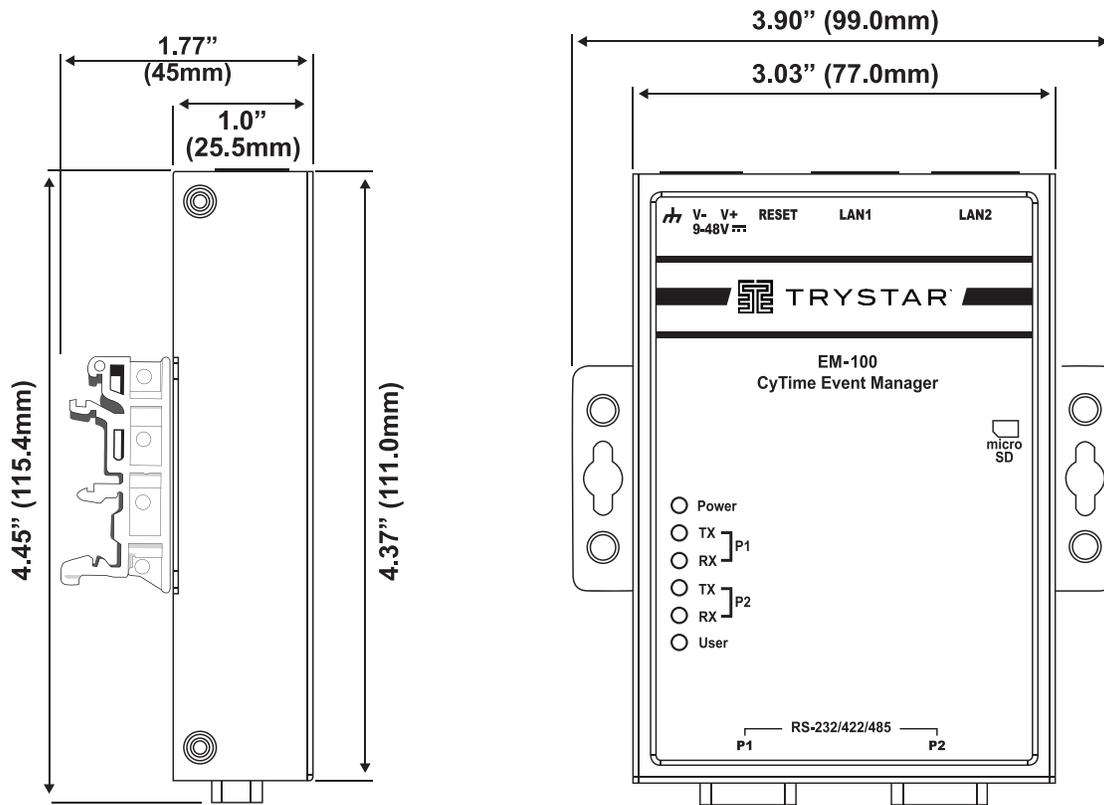


Figure 1. Trystar Event Manager dimensions

EVENT MANAGER INSTALLATION

Mounting Considerations

The Trystar 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 -40o to 167oF, (-40o to 75oC)

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 Trystar 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 Trystar 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.

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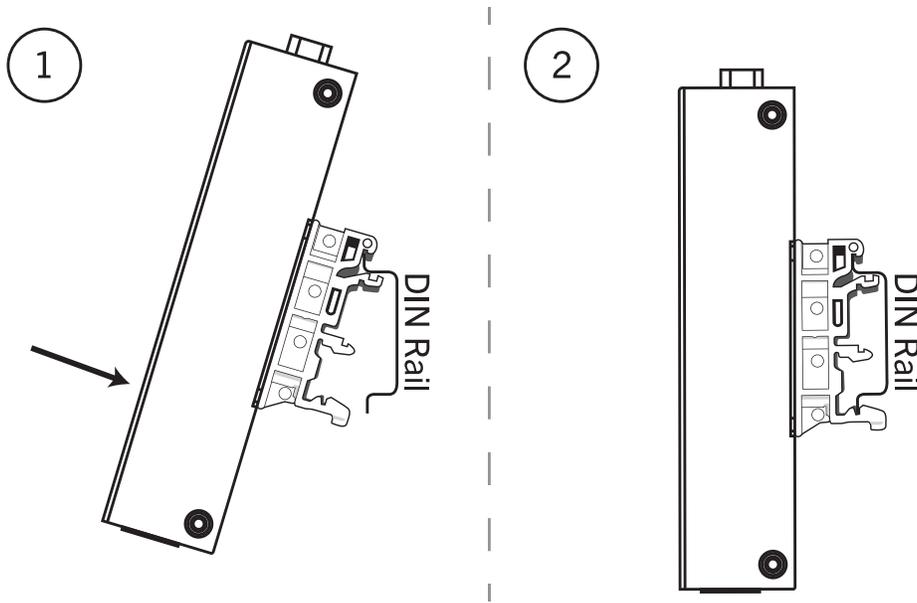
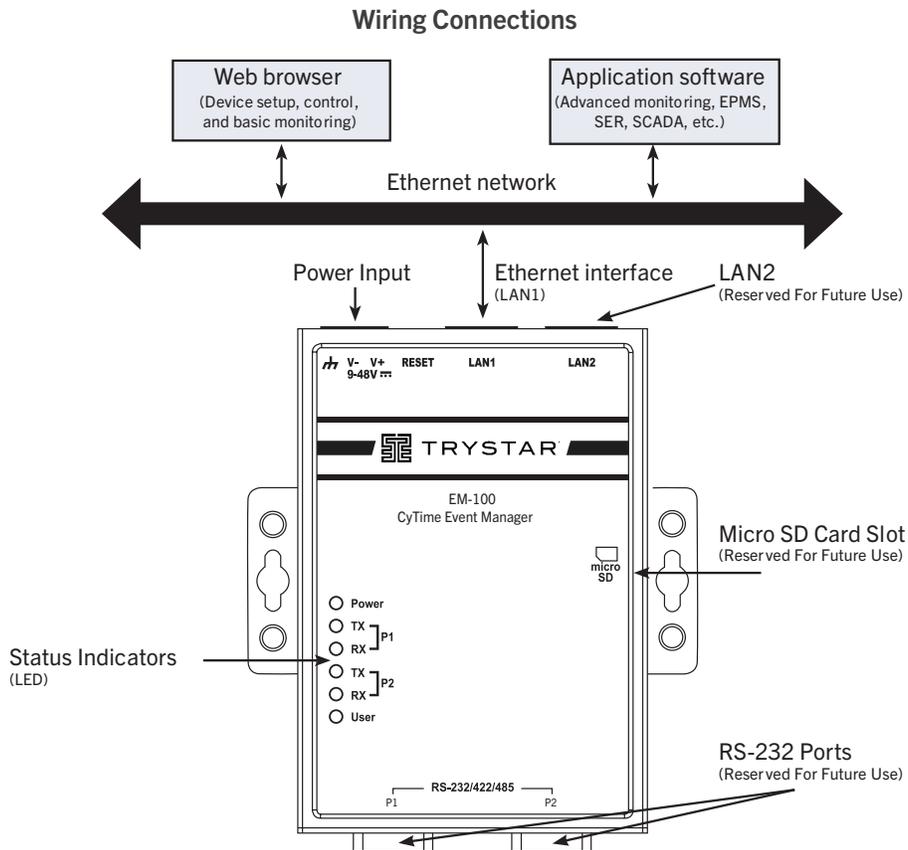


Figure 2. DIN-rail mounting (side views)



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. Trystar Event Manager functionality overview

Unit Properties

The Trystar 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.

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

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.

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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)

Wire recommended: 18 AWG (Beldon 8760 or similar).

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.

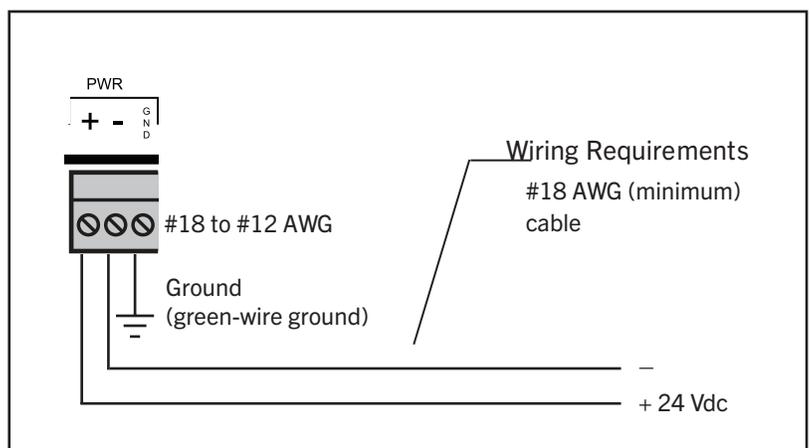


Figure 4. Control Power Connections

Connecting to the Network

The Ethernet port (LAN 1) is located on top of the unit.

The LED indicator in the upper left corner glows a solid green when the Event Manager establishes a connection with a 100 Mbps Ethernet network (figure 5). 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.

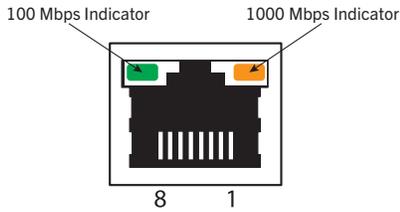


Figure 5. Ethernet Port

Initial Communications Setup

Option	Description	Default
IP address	IP address of the Event Manager	169.254.1.10
Subnet mask	IP Subnet mask of your network	255.255.0.0
Default gateway	Default gateway (router) address	0.0.0.0

EVENT MANAGER SETUP

Web Server Setup - Quick Start

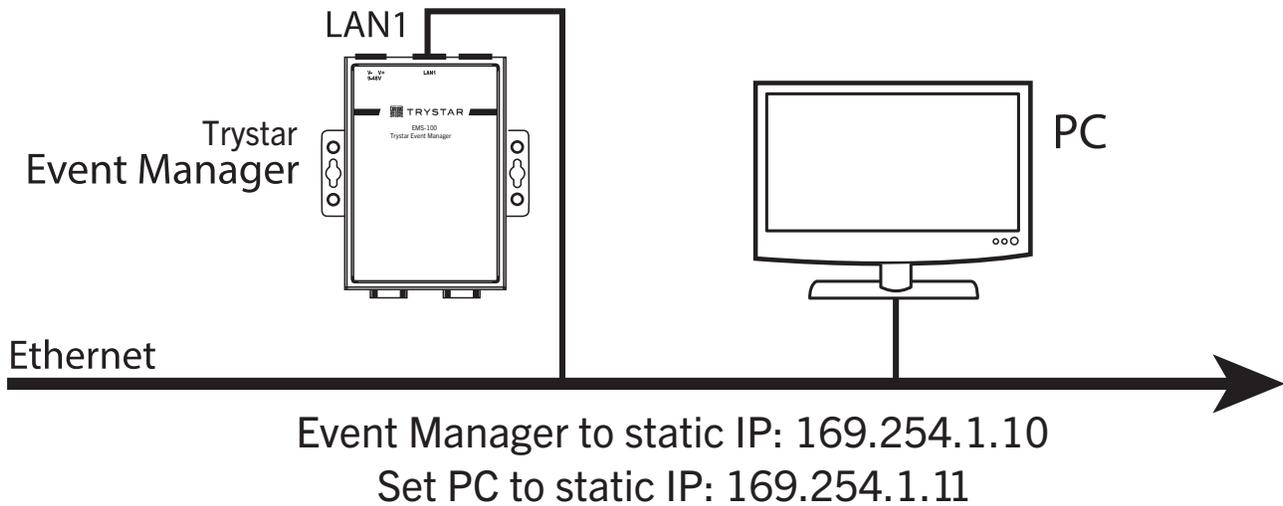


Figure 6. Initial Setup Connection

Network Setup

Direct Connection to PC:

Note: It is recommended the user change the username and password upon setup of the Event Manager for security purposes

1. Connect the Trystar 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 6)
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.
6. Enter the default user name (admin) and password (admin) and click the 'Login' button to access the Event Manager. (Figure 7)

Obtain the desired settings from your network administrator for:
 -IP Address
 -Subnet Mask
 -Default Gatewa

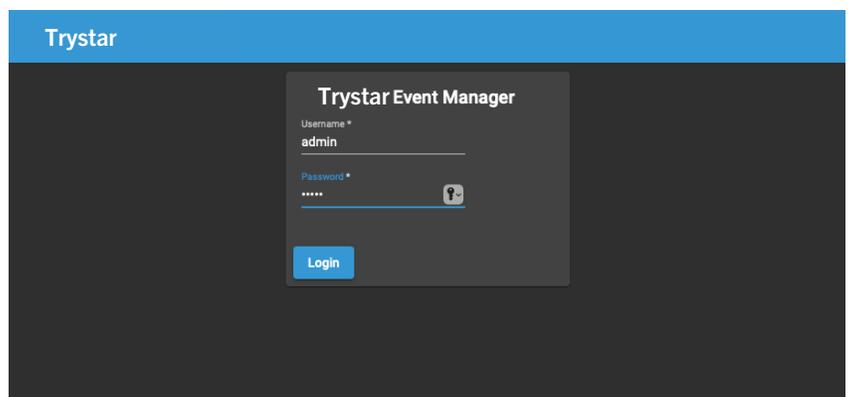


Figure 7. Login Screen

7. Navigate to the 'Setup' page (Figure 8). 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 Trystar 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 programmed a new IP address into the unit.

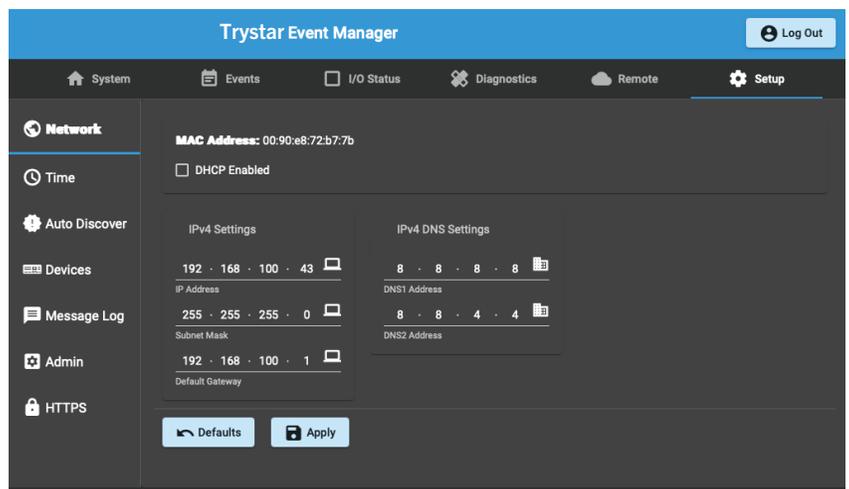


Figure 8. Setup Page

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

Step 1: The Login screen will populate once the IP address is reached. Once at the login screen, the default ID is 'admin' and the Password is 'admin'.

NOTE: *it is recommended the username and password be changed from the default settings for security purposes.*

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

Step 3: Select the 'Time' button (Figure 10) 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 and the time sync options (NTP or Manual), and daylight savings time setting.

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 11) - 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 12). Select the 'Import' button, and a .csv file with list of unit IPs can be uploaded.

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

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 13)

- Admin Button – (Figure 14) 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



Figure 9. Network Button



Figure 10. Time Button



Figure 11. Auto Discover Button



Figure 12. Devices Button



Figure 13. Message Log Button



Figure 14. Admin Button



Figure 15. HTTPS

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:**
 - a. **Reboot:** click the reboot button to reboot the Event Manager.
 - b. **Upgrade:** click the upgrade button to update the Event Manager software.
 - c. **Restore:** click the restore button to reset the Event Manager back to factory settings.

Storage Information	
Location	Size
Database Size	1 MB
Disk Total	6692 MB
Disk Free	5237 MB
Disk Used	1155 MB
Disk Used %	19 %
Memory Total	499 MB
Memory Free	383 MB
Memory Used	116 MB

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Close Export

Figure 16. Storage

Version: 1.3.1

Component	Version
Platform	1.4 Build 19020110
OS	4.4.0-clp
apache	2.4.25
mysql	10.1.44
php	7.0.33-0
cyapi	1.3.0.0
cydb	75
cyemserver	1.3.1.2
cyweb	1.3.1.2

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Close Export

Figure 17. Version

Figure 18. Admin

USING THE EVENT MANAGER

System Page

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 SER’s status. The Trystar 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 - an event has happened in the last 12 hrs. (*Green*), Event Hour - an event has happened in the last 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.trystar.com/brands/cyber-sciences/

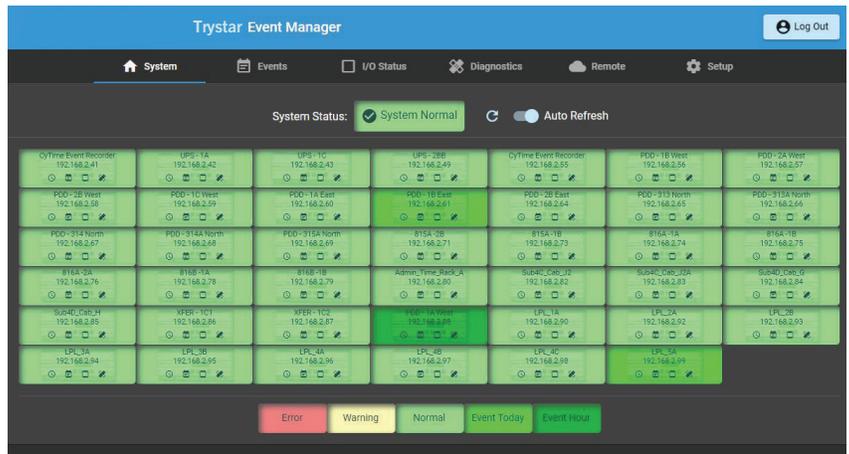


Figure 19. System Page

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.

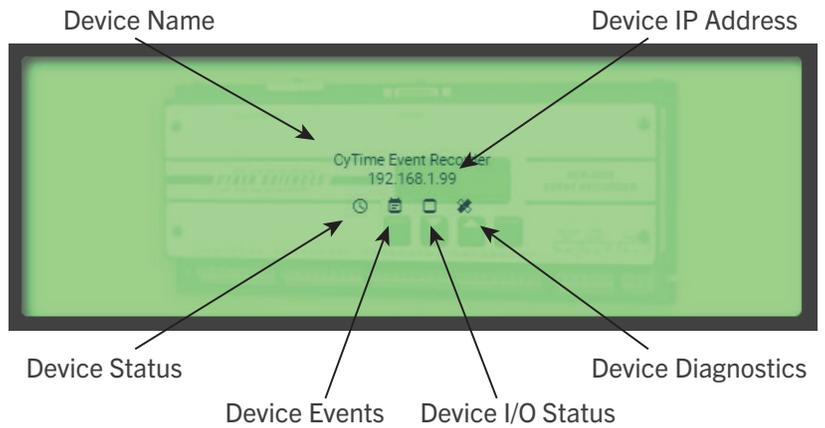


Figure 20. SER Status Block

SER Status

There are four (4) buttons associated within each SER's graphical block on the Systems page.

Device Status

The Device Status 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.

Device Events

When selecting the Device Events button, the user is directed towards the embedded events web page on the SER itself. After SER login, access is granted to the SER's Event Log page. Here the user has all the functionality of the SER's event Log. *(refer to SER Instruction Bulletin for operating instructions)*

Device I/O Status

When selecting the Device 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)*

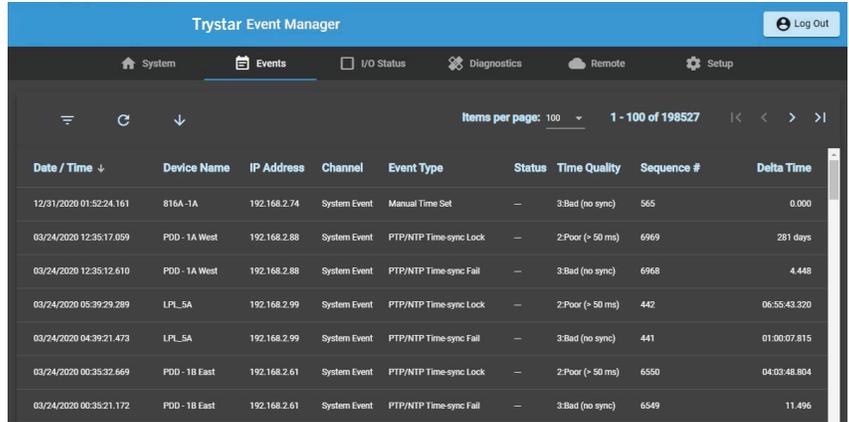
Device Diagnostics

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)*

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.

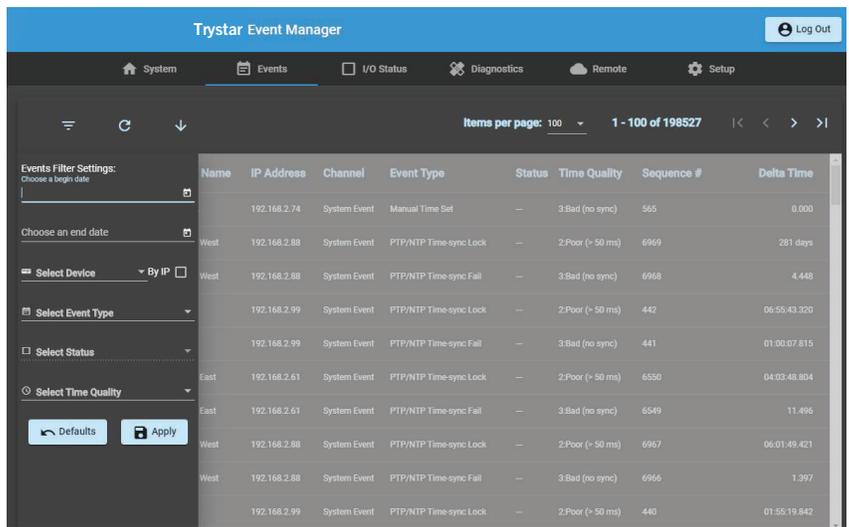
Filtering the settings: The user can filter the events shown by: Date, Device Name or IP Address, Event Type, Status ON/OFF and Time Quality. To filter, click on the filter button and configure the settings to include only the desired data. Once the appropriate filters are added, hit the 'Apply' button 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.



The screenshot shows the 'Trystar Event Manager' interface with the 'Events' tab selected. The table below lists event logs with columns for Date / Time, Device Name, IP Address, Channel, Event Type, Status, Time Quality, Sequence #, and Delta Time.

Date / Time ↓	Device Name	IP Address	Channel	Event Type	Status	Time Quality	Sequence #	Delta Time
12/31/2020 01:52:24.161	816A-1A	192.168.2.74	System Event	Manual Time Set	—	3:Bad (no sync)	565	0.000
03/24/2020 12:35:17.059	PDD-1A West	192.168.2.88	System Event	PTP/NTP Time-sync Lock	—	2:Poor (> 50 ms)	6969	281 days
03/24/2020 12:35:12.610	PDD-1A West	192.168.2.88	System Event	PTP/NTP Time-sync Fail	—	3:Bad (no sync)	6968	4.448
03/24/2020 05:39:29.289	LPL_5A	192.168.2.99	System Event	PTP/NTP Time-sync Lock	—	2:Poor (> 50 ms)	442	06:55:43.320
03/24/2020 04:39:21.473	LPL_5A	192.168.2.99	System Event	PTP/NTP Time-sync Fail	—	3:Bad (no sync)	441	01:00:07.815
03/24/2020 00:35:32.669	PDD-1B East	192.168.2.61	System Event	PTP/NTP Time-sync Lock	—	2:Poor (> 50 ms)	6550	04:03:48.804
03/24/2020 00:35:21.172	PDD-1B East	192.168.2.61	System Event	PTP/NTP Time-sync Fail	—	3:Bad (no sync)	6549	11.496

Figure 21. Events Page



The screenshot shows the 'Trystar Event Manager' interface with the 'Events' tab selected. The 'Events Log Filter' sidebar is open on the left, showing filter settings for Name, IP Address, Channel, Event Type, Status, Time Quality, and Sequence #. The main table displays filtered event logs.

Name	IP Address	Channel	Event Type	Status	Time Quality	Sequence #	Delta Time
192.168.2.74	192.168.2.74	System Event	Manual Time Set	—	3:Bad (no sync)	565	0.000
West	192.168.2.88	System Event	PTP/NTP Time-sync Lock	—	2:Poor (> 50 ms)	6969	281 days
West	192.168.2.88	System Event	PTP/NTP Time-sync Fail	—	3:Bad (no sync)	6968	4.448
192.168.2.99	192.168.2.99	System Event	PTP/NTP Time-sync Lock	—	2:Poor (> 50 ms)	442	06:55:43.320
192.168.2.99	192.168.2.99	System Event	PTP/NTP Time-sync Fail	—	3:Bad (no sync)	441	01:00:07.815
East	192.168.2.61	System Event	PTP/NTP Time-sync Lock	—	2:Poor (> 50 ms)	6550	04:03:48.804
East	192.168.2.61	System Event	PTP/NTP Time-sync Fail	—	3:Bad (no sync)	6549	11.496
West	192.168.2.88	System Event	PTP/NTP Time-sync Lock	—	2:Poor (> 50 ms)	6967	06:01:49.421
West	192.168.2.88	System Event	PTP/NTP Time-sync Fail	—	3:Bad (no sync)	6966	1.397
192.168.2.99	192.168.2.99	System Event	PTP/NTP Time-sync Lock	—	2:Poor (> 50 ms)	440	01:55:19.842

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)



Figure 23. I/O Status Indicators

Input Channels vs. Output Channels - Output channels are represented with dotted lines around them. In the example below, the SER shown has 32 channels w/no outputs.

Output channels are represented by dotted lines

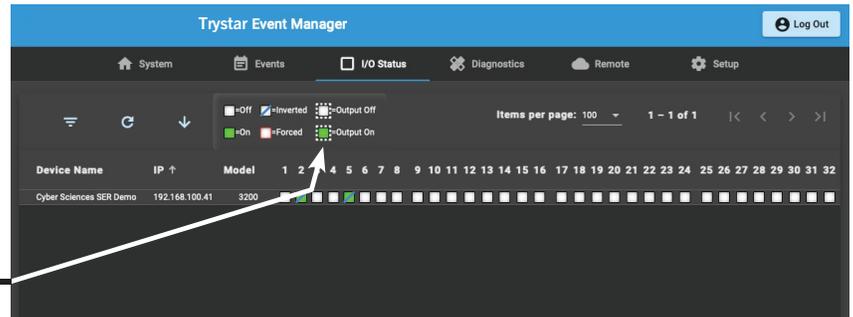


Figure 24. I/O Status Page

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.

The screenshot shows the 'Trystar Event Manager' interface with the 'Diagnostics' tab selected. The table below represents the data shown in the interface:

Device Name	IP	Catalog	HW	FW	Time Source Setup	Time Source Actual	Time Quality	PTP State	PTP Key	Diagnostics
CyTime Event Recorder	192.168.2.41	SER-3200-PTP-B1	2.20	Build 1 PTP (IEEE 1588) slave	PTP (IEEE 1588)	PTP (IEEE 1588)	0:Good (< 1ms)	Slave	Valid	OK
UPS - 1A	192.168.2.42	SER-3200-P2X2-C1	2.20	Build 1 PTP (IEEE 1588) slave	PTP (IEEE 1588)	PTP (IEEE 1588)	0:Good (< 1ms)	Slave	Valid	OK
UPS - 1C	192.168.2.43	SER-2408-P2X2-B2	2.20	Build 1 PTP (IEEE 1588) slave	PTP (IEEE 1588)	PTP (IEEE 1588)	0:Good (< 1ms)	Slave	Valid	OK
UPS - 2BB	192.168.2.49	SER-3200-P2X2-B1	2.20	Build 1 PTP (IEEE 1588) slave	PTP (IEEE 1588)	PTP (IEEE 1588)	2:Poor (> 50 ms)	Slave	Valid	OK
CyTime Event Recorder	192.168.2.55	SER-3200-PTP-C1	2.20	Build 1 NTP	NTP	NTP	2:Poor (> 50 ms)	Not Applicable	Valid	OK
PDD - 1B West	192.168.2.56	SER-3200-PTP-C1	2.20	Build 1 NTP	None (manual/external)	None (manual/external)	3:Bad (no sync)	Not Applicable	Valid	OK
PDD - 2A West	192.168.2.57	SER-3200-PTP-C1	2.20	Build 1 NTP	None (manual/external)	None (manual/external)	3:Bad (no sync)	Not Applicable	Valid	OK
PDD - 2B West	192.168.2.58	SER-3200-PTP-C1	2.20	Build 1 NTP	None (manual/external)	None (manual/external)	3:Bad (no sync)	Not Applicable	Valid	OK
PDD - 1C West	192.168.2.59	SER-3200-PTP-C1	2.20	Build 1 NTP	None (manual/external)	None (manual/external)	3:Bad (no sync)	Not Applicable	Valid	OK
PDD - 1A East	192.168.2.60	SER-3200-PTP-C1	2.20	Build 1 NTP	None (manual/external)	None (manual/external)	3:Bad (no sync)	Not Applicable	Valid	OK

Figure 25. I/O Diagnostics Page

Remote Page

The Remote page provides a single interface for configuring multiple SER devices across a facility network. This interface allows the user to update firmware, manage user accounts, enable / disable FTP, configure time settings and configure inputs and outputs for any or all SER devices on the network.

The menu structure utilized on the Remote page is patterned after the SER device web interface for familiarity and to minimize training.

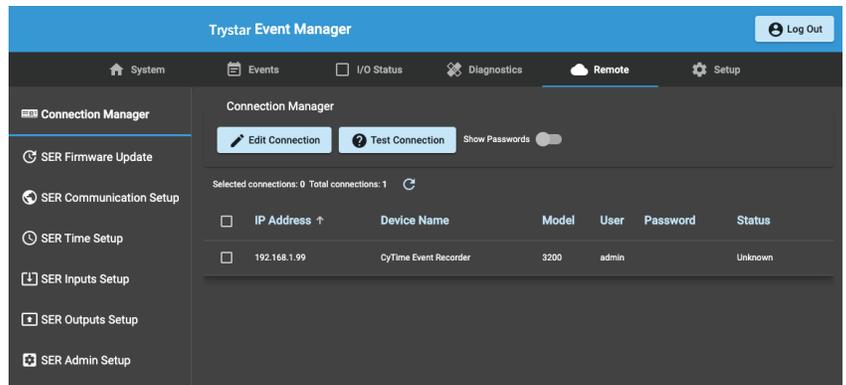


Figure 26. Connection Manager Page

Connection Manager

The Connection Manager is the interface that enables all of the Remote management functions. This interface provides essential information, including login credentials for each device. It is important to ensure each SER device in your system is included in the device list and the login information is correct.

To check the information stored in the Event Manager about each device and to confirm communications:

Step 1: Select all or any SER device using the check boxes on the left of the interface.

Step 2: Click the ‘Test Connection’ button. (Figure 27)

Step 3: Review the status field to confirm a ‘Valid’ response.

A status of ‘Valid’ tells you communications to the SER device are good and the login credentials are accurate. A status response of ‘Invalid’ tells you the communications to the SER device are good, but the login credentials are not accurate. To correct this issue:

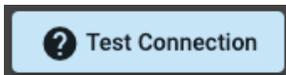
Step 1: Verify the correct account login information for each device.

Step 2: Select each device using the check boxes on the left. If multiple devices have the same login credentials, they can all be selected at one time.

Step 3: Click the ‘Edit Connection’ button. A box will appear prompting you to enter the proper user name and password for the selected devices. Click ‘Ok’ to save your entry.

Step 4: To verify the new settings, click the ‘Test Connection’ button and check the status has changed to ‘Valid’. Now you are ready to proceed with remote management of your SER devices.

A status response of ‘No comms’ tells you there is an issue communicating to the device. Check each device showing a communication error and restore communications.



SER Firmware Update

The SER Firmware Update provides the ability to update the firmware in any or all SER devices across an entire facility. This capability simplifies device updates and ensures all the devices in your sequence of events recording system are performing at the highest level.

To update the firmware your SER devices:

Step 1: The first step to completing a firmware update is to ensure you have a good communications connection and the proper login credentials for each device. This can be done by selecting the ‘Connection Manager’ under the ‘Remote’ tab and clicking the ‘Test Connection’ button. Ensure the Status for each device is ‘Valid’. If not see the Connection Manager section above.

Step 2: Download the latest fi rmware fi le from Cyber-Sciences’ web site (www.trystar.com). To find the latest firmware files, navigate to “Our Support > Downloads”. Select the latest firmware file for each of your devices and save them to a known location on your computer.

Step 3: To select the firmware to download, click the ‘Select SER Firmware’ button (Figure 28) and navigate to the downloaded firmware file. Click on the ‘downloaded firmware zip’ file and click the ‘OK’ button to select the file.

Step 4: Next select any or all the SER devices to update by clicking the check boxes on the left of the device list. When devices are selected, you will notice the ‘Start Firmware Update’ button will become active. (Figure 29)

Step 5: To begin the update, click the ‘Start Firmware Update’ button. You will need to confirm your desire to update the firmware before the update will begin. Once the firmware update begins, a status box will provide feedback that the update has started. The update will take approximately 2-5 minutes. The ‘Status’ will change to ‘Completed successfully’ when the fi rmware update is complete.



Figure 28. Select SER Firmware Button

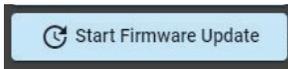


Figure 29. Start Firmware Update Button

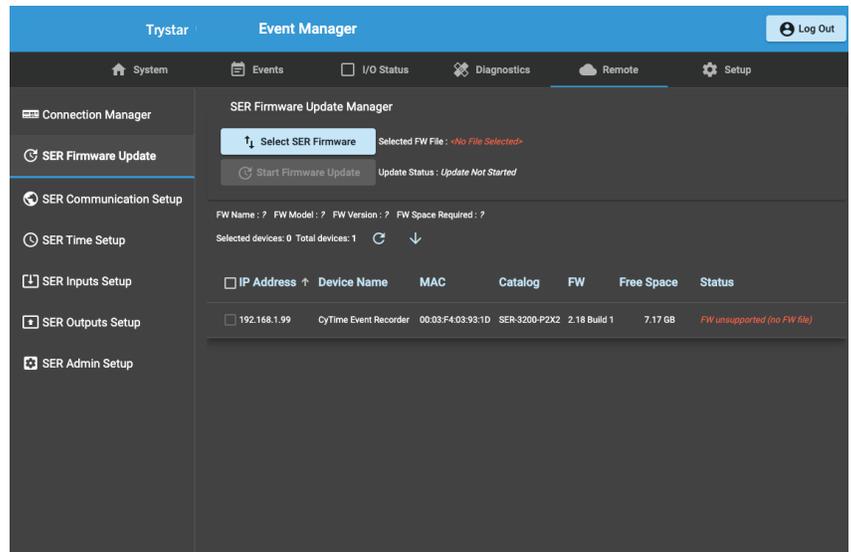


Figure 30. SER Firmware Update Page

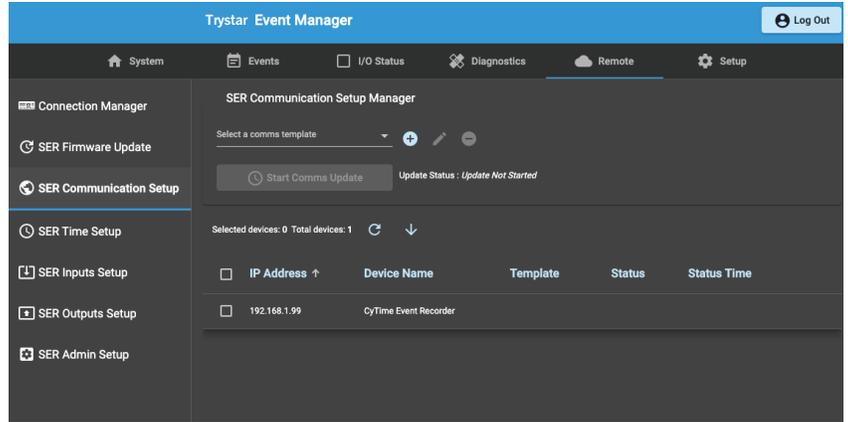


Figure 31. SER Communication Setup Page

SER Communication Setup

The SER Communications Setup allows you to configure the Device ID and Device Name, and the ability to enable or disable FTP communications to the SER device (SER-3200 and SER-2408). These items are configured by applying a template to any or all SER devices in your system.

To demonstrate the creation of a template, we will use the example of disabling FTP communications.

Step 1: To begin, click the (+) button at the top of the window. A dialogue will open named ‘Create Comms Template’. (Figure 31)

Step 2: Name the template a meaningful name such as ‘Disable FTP’.

Step 3: To configure FTP status only and not Device ID or Device Name, leave the settings for Device ID and Device Name as <IGNORE>. This selection ensures these values will not be updated in the remote devices.

Step 4: Next, click the small down arrow above ‘FTP Enabled’ and select ‘Disable’.

Step 5: Click ‘Ok’ to save the template.

You will notice the ‘Disable FTP’ template will be shown at the top of the window.

Step 6: Select any or all SER devices in your system you desire to have FTP communications disabled using the check boxes on the left of the window.

Step 7: Click the ‘Start Comms Update’ (Figure 32) to apply the template. You will see the status change from pending, to In progress, to Completed Successfully. You will notice the ‘Disable FTP’ template will be shown under the ‘Template’ column for each device the template was applied.

To Enable FTP, you can simply create a new template to ‘Enable FTP’ and apply it to the desired SER devices.

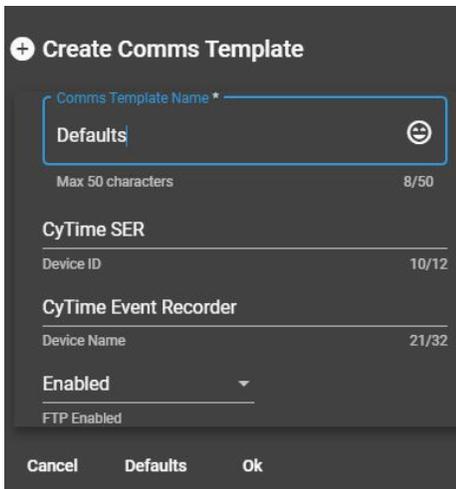


Figure 32. Create Comms Template

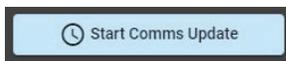


Figure 33. Start Comms Update Button

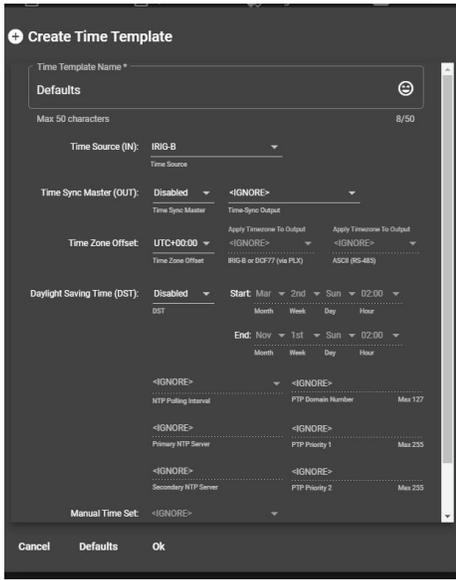


Figure 34. Create Time Template

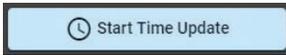


Figure 35. Start Time Update Button

SER Time Setup

The SER Time Setup interface allow you to configure all essential time synchronization settings for SER devices. Possible settings include: Time Source (IN), Time Sync Master (OUT), Time Zone Off set, Daylight Saving Time (DST) with schedule, Manual Time Set and Alternate Date Format.

To configure SER time parameters:

Step 1: Create a template by clicking on the (+) button at the top of the window.

Step 2: Provide a name for the SER time template. (Figure 34)

Step 3: Complete the time synchronization settings as desired.

Step 4: Click 'Ok' to save the template.

You will notice your SER time template will be shown at the top of the window.

Step 5: Select any or all SER devices in your system you desire to have these time synchronization settings using the check boxes on the left of the window.

Step 6: Click the 'Start Time Update' to apply the template. (Figure 35) You will see the status change from pending, to In progress, to 'Completed Successfully'. You will notice your SER time setup template will be shown under the 'Template' column for each device the template was applied to.

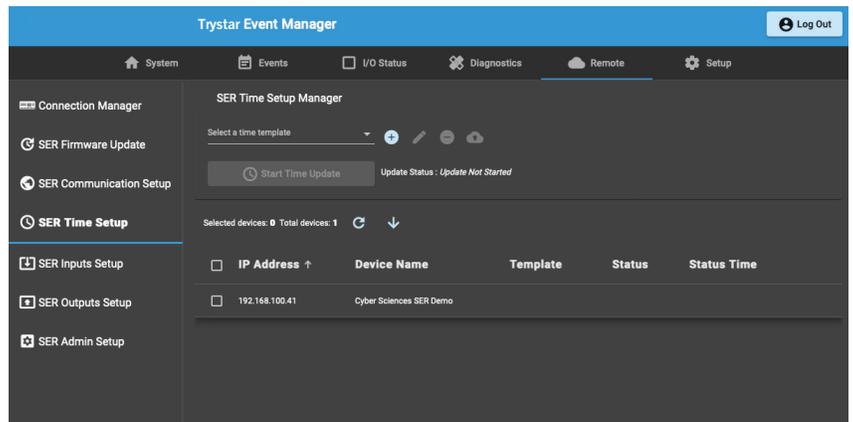


Figure 36. SER Time Setup Page

Note: Templates are model specific, except for SER-3200, which can also be used for SER-32e models.

SER Inputs Setup

The SER Input Setup allows you to configure each input on SER devices from a single interface. Configuration is completed using a template approach. You can create a single template to apply to any or all SER devices or you can create a template for each individual SER device. Templates are model specific, except for SER-3200, which can also be used for the base SER-32e models.

Template parameters include: template name, SER device type selection, enable/disable, input name, filter setting, de-bounce, chatter, Off text, On text, trigger and the selection to invert the input or not for each input on an SER device.

Once you have completed the template, click 'Ok' to save the template.

To apply the template:

Step 1: Select the desired SER Input Setup template from the list.

Step 2: Select the SER device or devices you desire to have the input configuration of the selected template.

Step 3: Click the 'Start Input Update' (Figure 38) button to load the selected template. You will see the status change from 'pending', to 'In progress', to 'Completed Successfully'.

You will notice your SER input setup template will be shown under the 'Template' column for each device the template was applied.

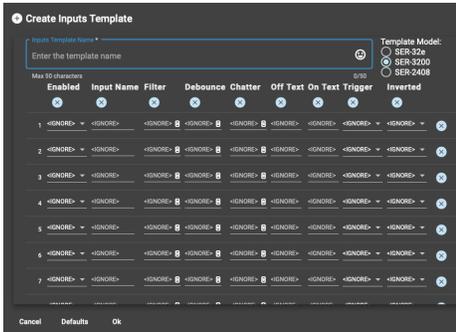


Figure 37. Create Inputs Template

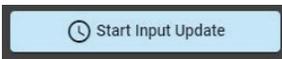


Figure 38. Start Input Update Button

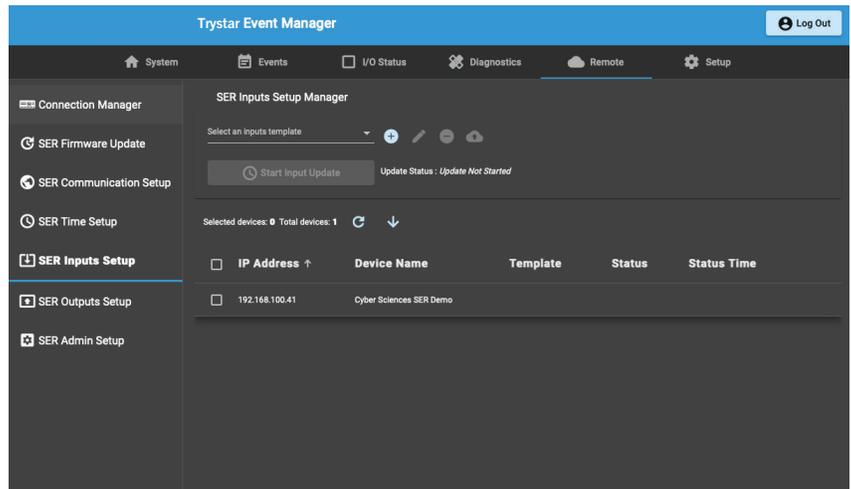


Figure 39. SER Inputs Setup Page

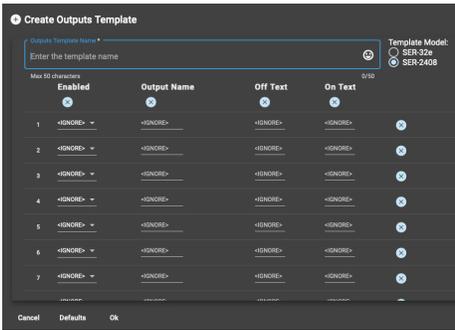


Figure 40. Create Outputs Template

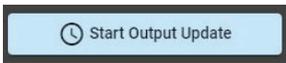


Figure 41. Start Output Update Button

SER Outputs Setup (SER-2408 and SER-32e w/Output Module(s) Only)

The SER Output Setup allows you to configure each output on SER devices from a single interface. Configuration is completed using a template approach. You can create a single template to apply to any or all SER devices or you can create a template for each individual SER device.

Template parameters include: template name, enable/disable, output name, Off text, and On text for each output on an SER device. Once you have completed the template, click 'Ok' to save the template. (Figure 40)

Step 1: Select the desired SER Output Setup template from the list.

Step 2: Select the SER device or devices you desire to have the output configuration of the selected template.

Step 3: Click the 'Start Output Update' button to load the selected template. You will see the status change from 'pending', to 'In progress', to 'Completed Successfully'. You will notice your SER input setup template will be shown under the 'Template' column for each device the template was applied.

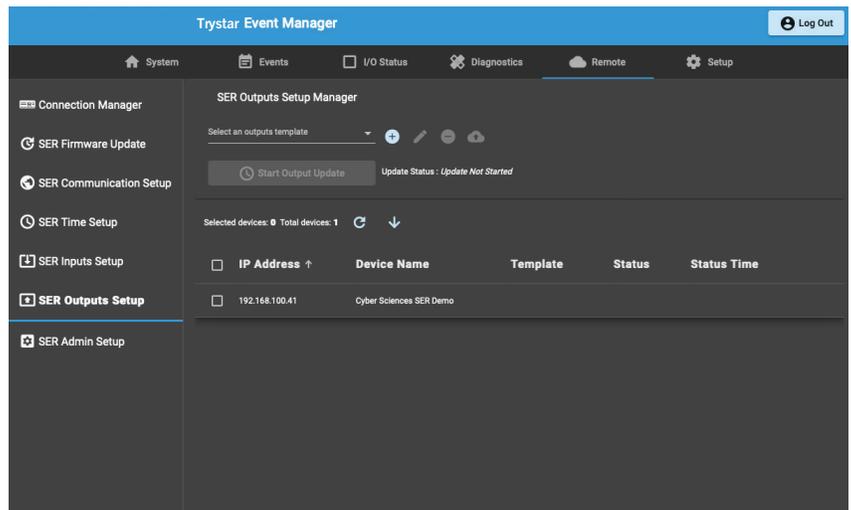


Figure 42. SER Outputs Setup Page

SER Admin Setup

The SER Admin Setup allows you to configure the user account credentials on your SER devices from a single interface. Configuration is completed using a template approach. You can create a single template to apply to any or all SER devices or you can create a template for each individual SER device.

Template parameters include: User Name and Password. (Figure 43)

Once you have completed the template, click 'Ok' to save the template.

To apply the template:

Step 1: Select the desired SER Admin template from the list.

Step 2: Select the SER device or devices you desire to have the account credentials of the selected template.

Step 3: Click the 'Start Admin Update' button to load the selected

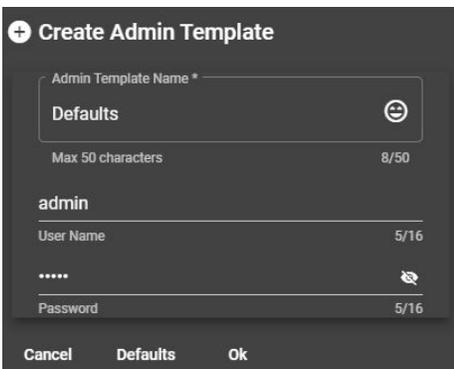


Figure 43. Create Admin Template

Note: If user account credentials for individual SER devices are changed, you will need to update user name and password settings under the ‘Connection Manager’.

template. You will see the status change from ‘pending’, to ‘In progress’, to ‘Completed Successfully’. You will notice your SER input setup template will be shown under the ‘Template’ column for each device the template was applied.

NOTE: If user account credentials for individual SER devices are changed, you will need to update user name and password settings under the ‘Connection Manager’.

STANDARDS / SPECIFICATIONS

Specifications

Electrical		
Control Power	Voltage, operating	9 to 48 VDC
	Power Consumption	4 W
	Input Current	0.45 A @ 9 VDC, 0.084 A @ 48 VDC
Communications		
Ethernet Interface (10/100/1000 Mbps)	HTTP (TCP Port 80) HTTPS (TCP Port 443)	W3C Standard Compliant
	Modbus (TCP Port 502)	Serves as client port only between event manager and SER
	FTP (TCP Port 21)	Serves as client port only between event manager and SER
Memory	Storage	8GB eMMC
	Volatile Memory	512 MB (for application execution)
Mechanical / Environmental		
Mechanical	Mounting	Standard DIN rail (EN 50022, 35 mm x 15 mm)
	Dimensions (W x H x D)	3.90 x 4.37 x 1.00 in (99 x 111 x 25.5 mm)
	Weight	0.64 lb (290 g)
Environmental	Temperature (Operating)	- 40 to 167°F (- 40 to 75°C)
	Temperature (Storage)	- 40 to 185°F (- 40 to 85°C)
	Humidity rating	5 to 95% (non-condensing)

Standards and Certifications

Regulatory		
Regulatory Compliance	Safety	EN 60950-1: 2013, IEC 60950-1: 2013, UL 60950-1
	EMC	EN 55032/24: 2016
	EMI	CISPR 32, FCC Part 15B Class A
	IECEX Certificate no.	IECEX UL 18.0093X
	EMS	IEC 61000-4-2: 2008, ESD: Contact: 4 kV; Air: 8 kV IEC 61000-4-3: 2010, RS: 80 MHz to 1 GHz: 3 V/m IEC 61000-4-4: 2012, EFT: Power: 1 kV; Signal: 0.5 kV IEC 61000-4-5: 2017, Surge: Power: 0.5 kV; Signal: 1 kV IEC 61000-4-6: 2013, CS: 3 V / IEC 61000-4-8 PFMF
	Hazardous Locations	Class I Division 2, IECEX Zone 2: 2019, ATEX Zone 2
	Sustainability	Directive EU 2011/65 + EU 2015/863m, RoHS (“Restriction of Hazardous Substances Directive”) Directive EU 2012/19, Category 6, WEEE (“Waste from Electrical and Electronic Equipment”)

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Moxa Industrial Linux (Debian-based)

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Socket-ccp

Version: 0.1.0

License: MIT

Copyright: Copyright (C) Mohamed Amine Mzoughi

Link: <https://github.com/embeddedmz/socket-cpp>

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rapidxml

Version: 1.13

License: MIT

Copyright: Copyright (c) 2006, 2007 Marcin Kalicinski

Link: <http://rapidxml.sourceforge.net/index.htm>

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ArduinoJson

Version: 6.11.3

License: MIT

Copyright: Copyright (c) 2014-2022, Benoit Blanchon

Link: <https://github.com/bblanchon/ArduinoJson>

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NOTES

