

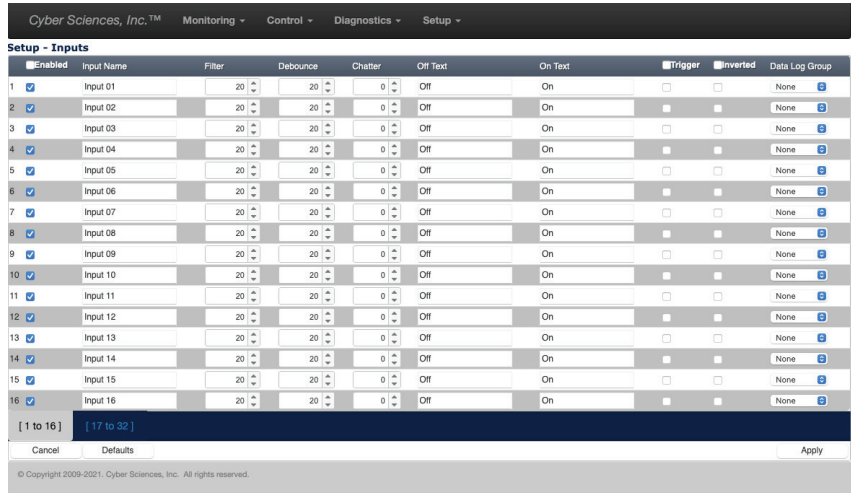
Sequence of Events Recording (SER)

Setup and Monitoring Using any Web Browser

- SER typical monitored points:**
- Breaker status: open/closed/tripped
 - Relay trip signal: normal/trip
 - Control switches: open/close commands
 - Control scheme status: auto/manual/test
 - Auto-transfer switch (ATS) status: normal/emergency/test
 - UPS status: normal/transfer/bypass
 - Generator status: stopped/running
 - Battery status: normal/alarm
 - TVSS, transformer temperature, fan status and other auxiliary contacts and alarms

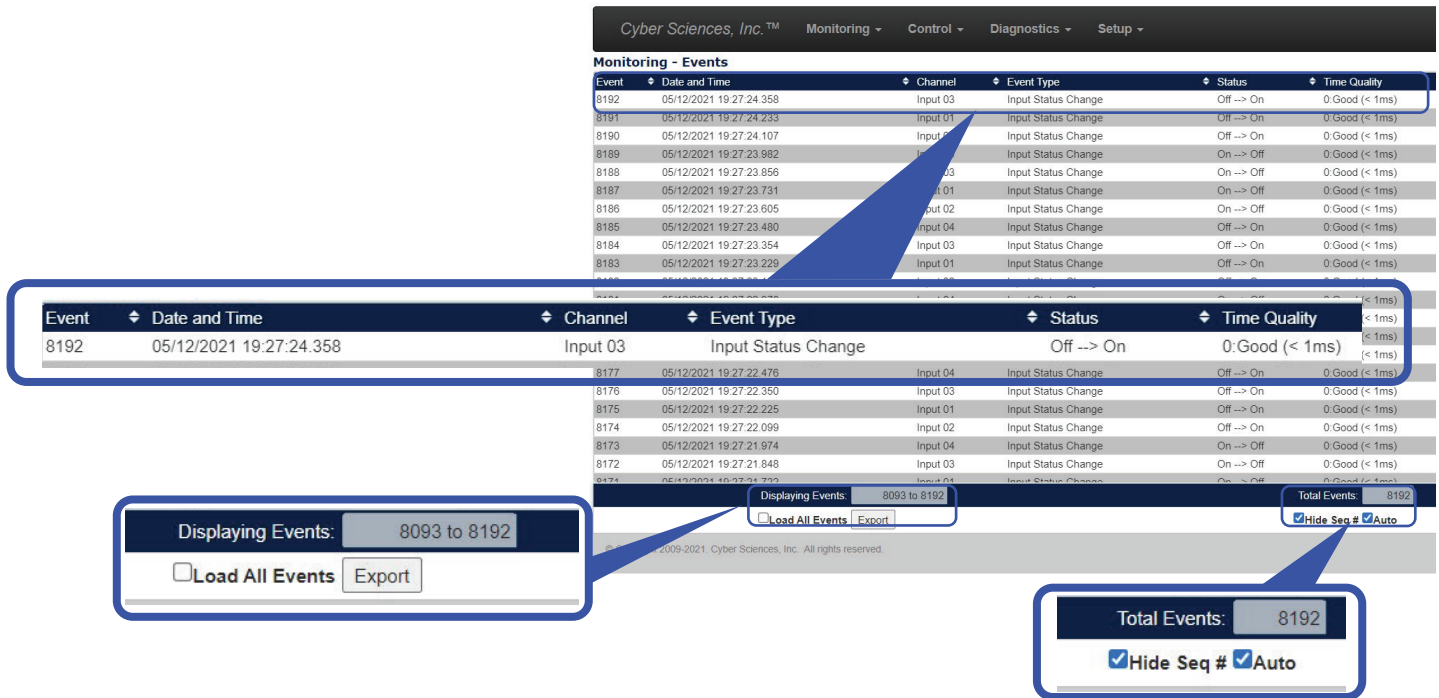
Customize

CyTime™ Event Recorders offer simple setup using a web browser—no proprietary software required. An embedded web server hosts user-friendly pages for setup and monitoring. Digital inputs have user-configurable filter, debounce and chatter functions. Each input can be customized with descriptive name (32-char. max.), and assigned text to describe on and off states.



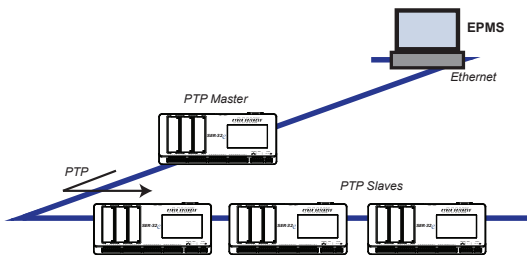
View Events, Export to Excel, Access via Modbus TCP

The CyTime™ Event Recorder's Events web page displays detailed information for all event records, sortable by any field. An Export button makes it easy to save data to Excel for further analysis or reports. These tools are useful during commissioning or troubleshooting, even if the same data is also integrated into a comprehensive power monitoring system, building management system or other host software.



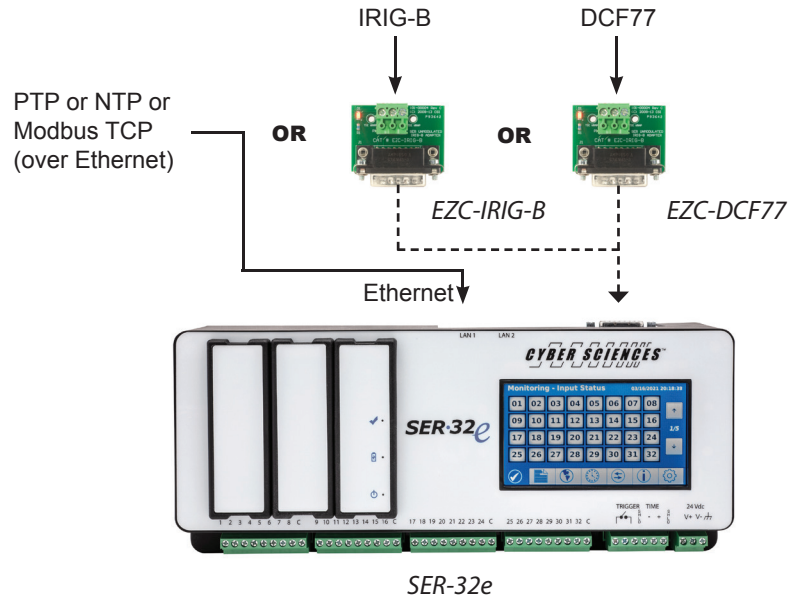
Sequence of Events Recording (SER)

Time Synchronization Made Simple



Automatic Time Sync (within 100 microseconds)

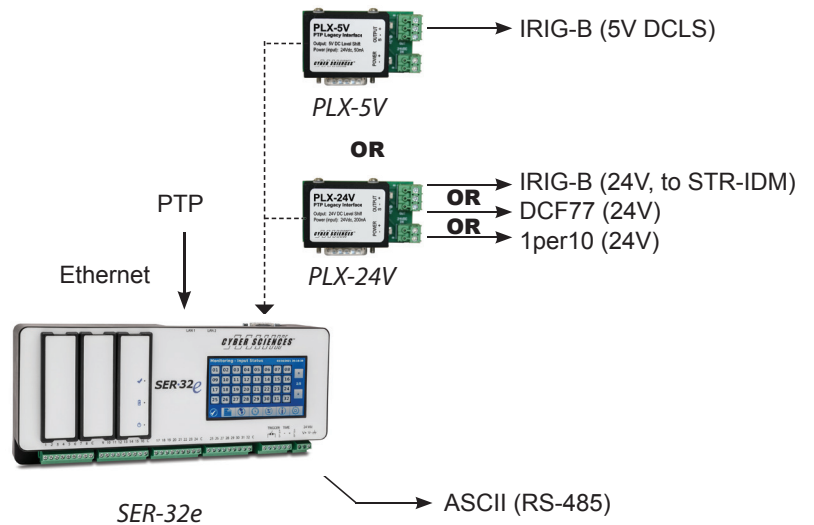
Cyber Sciences enables hi-res (sub-millisecond) time synchronization over the same Ethernet network used for the Electrical Power Monitoring System (EPMS). Set the time in the first CyTime Event Recorder, and all other SER devices sync automatically over Ethernet. The breakthrough technology: PTP (Precision Time Protocol), per IEEE Std 1588. Time-sync input (time source) options are shown below:



No PTP? No Problem.

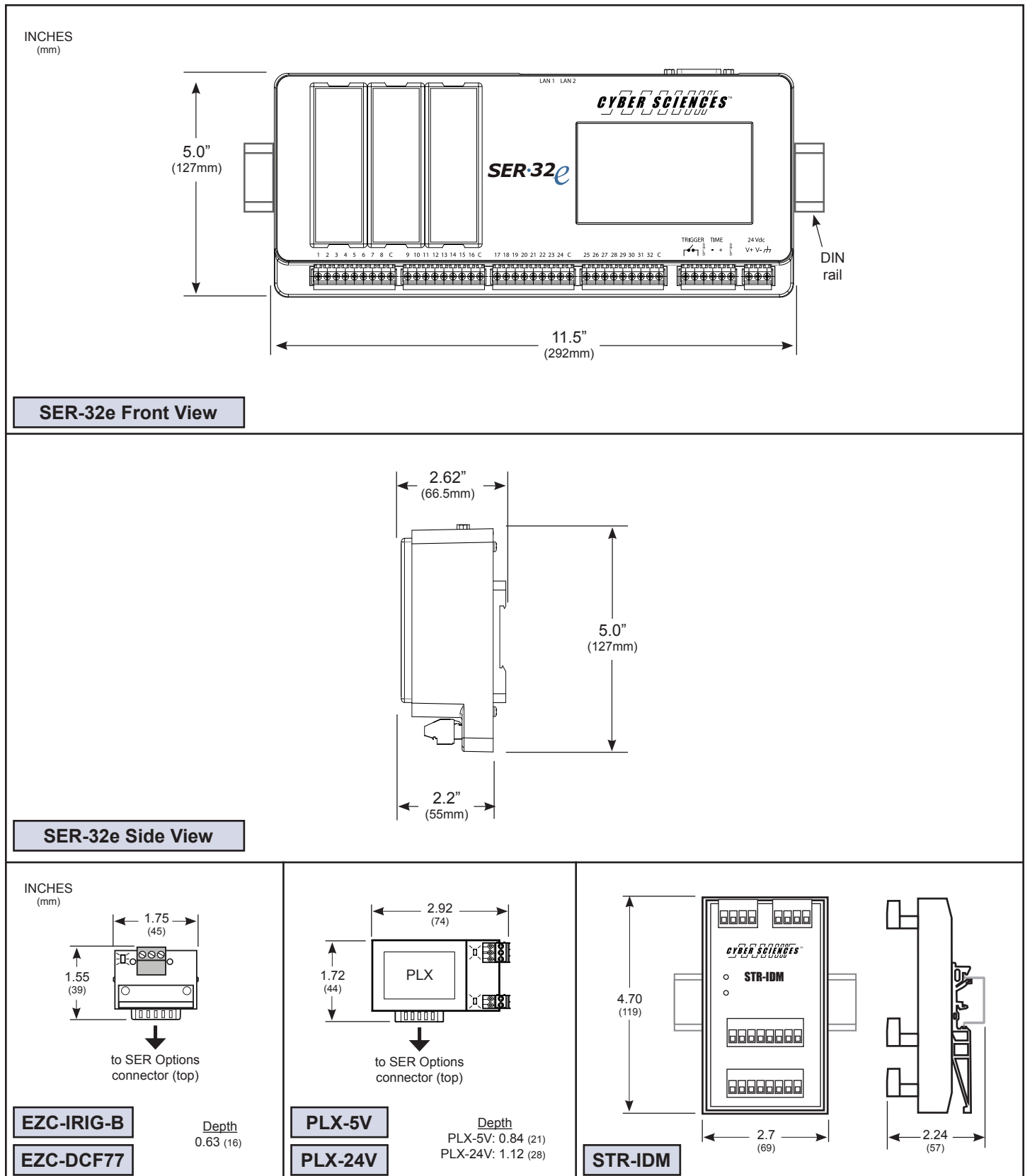
CyTime SER Output Legacy Protocols

CyTime Event Recorders don't simply leverage the power of PTP for themselves. Any SER-32e configured to accept PTP or NTP as its time input can in turn output the legacy protocol required by complementary devices, such as relays or meters. IRIG-B, DCF-77, 1 per 10 or ASCII time outputs are available directly from the SER through a small wiring adapter, PTP Legacy Interface (PLX-5V or PLX24V), according to the required protocol and voltage supported by the target device.



Sequence of Events Recording (SER)

Dimensions



Sequence of Events Recording (SER)

Specifications

Electrical		
Digital inputs	Number of inputs	32
	Voltage, operating	24 Vdc (-15% to +10%)
	Must turn on/off voltage	20 Vdc (on) / 9 Vdc (off)
	Input impedance	10K ohms resistive, 1 mA
High-speed Trigger Output	Relay type	Form A relay
	Maximum current	100 mA at 24 Vdc nominal
	Contact closure characteristics	Momentary contact closure, duration of 100 ms
Control Power	Voltage, operating	24 Vdc (± 10%)
	Burden, steady state (max.)	7 VA
	Burden, momentary (max.)	Inrush current 0.8 A for 5-8 ms
	Ride-thru	> 10 seconds
Time Synchronization		
Time Source (IN) Protocols Supported	PTP slave	IEEE 1588-2019 (v2.1), E2E Default Profile, per Annex I.
	IRIG-B (via optional EZC-IRIG-B connector)	Unmodulated IRIG-B (5V DCLS) types B004 or B007 (with year)
	DCF77 (via optional EZC-DCF77 connector)	DCF77 (24 Vdc)
	SER inter-device time sync (legacy applications)	RS-485 (IRIG-B or DCF77 time code)
	NTP (SNTP) client	User-configurable NTP primary/secondary servers and update interval
Time-sync Output Protocols Supported	PTP master	IEEE 1588-2019 (v2.1), E2E Default Profile, per Annex I.
	IRIG-B (via optional PLX-5V connector)	Unmodulated IRIG-B (5V DCLS) type B007
	IRIG-B (via optional PLX-24V connector)	IRIG-B (24V DCLS) type B007, compatible with STR-IDM
	DCF77 or 1per10 (via PLX-24V connector)	DCF77 (24 Vdc) or 1 pulse per 10 seconds (24 Vdc)
	RS-485	ASCII / RS-485 (ASCII + Quality) or inter SER time sync (legacy)
Clock	Accuracy	< 100 µs (with time source = PTP, IRIG-B or DCF77)
	Holdover (after initial time sync lock)	5 min. (remains within 100 µs even after loss of sync for up to 5 min.)
Communications		
Ethernet Interface	Ethernet Ports (10/100 Mbps)	Modbus TCP, PTP, NTP, HTTPS, RESTful API
	Serial port (time-sync IN/OUT)	RS-485 (2-wire plus shield)
	Web server (for setup and monitoring)	HTML5, JQuery, JQuery UI, Bootstrap, JSON, CSS3, JavaScript, and AJAX
	Simultaneous TCP connections	44 (32 max allocated to Modbus TCP sockets, port 502)
Mechanical / Environmental / Regulatory		
Mechanical	Mounting	Standard DIN rail (EN 50022, 35 mm x 15 mm)
	Wire sizes supported	#24 to #12 AWG (#26 to #14 AWG for 3-position EZC connectors)
	Dimensions (W x H x D)	11.5 x 5.0 x 2.62 inches (292 x 127 x 66.5 mm)
	Dimensions (W x H x D), in carton	12.5 x 6.5 x 4.5 inches (318 x 165 x 114 mm)
	Weight (Device / Device in package)	2.4 lbs. (1.1 kg) / 3.5 lbs. (1.6 kg)
Environmental	Temperature	-25° to +70° C (Operating) / -40° to +85° C (Storage)
	Humidity rating	5% to 95% relative humidity (non-condensing) at 40° C
	Altitude rating	0 to 3000 meters (10,000 feet)
	Sustainability	RoHS 3 (EU Directive 2015/863), REACH (EC 1907/2006)

Sequence of Events Recording (SER)

Electrical		
Regulatory Compliance	UL Listing	(NRAQ-cULus, UL 61010-1, UL 61010-2-201)
	Global standards	CE Mark, RCM Mark, EN standards
	Emissions / Immunity	EN 61326-1 / IEC 61326-1 : 2012, CISPR 11 Class A (EN 55011) FCC Part 15B Class A
	Country of Origin	USA

Ordering Information

The following models and accessories are available for the CyTime SER-32e

	Catalog no.	Description
CyTime™ Sequence of Events Recorder (SER)	SER-32e	CyTime Event Recorder, 32-inputs
Digital Output Module	eXM-RO-08	Option Module adds 8-outputs to SER-32e, 24 VDC, pluggable screw terminal connector
Digital Input Module	eXM-DI-08	Option Module adds 8-inputs to SER-32e, 24 VDC, pluggable screw terminal connector
Accessories (for SER)	EZC-IRIG-B	EZ connector for SER (IRIG-B input)
	EZC-DCF77	EZ connector for SER (DCF77 input)
	PLX-5V	PTP Legacy Interface (5V DCLS, for unmodulated IRIG-B output)
	PLX-24V	PTP Legacy Interface (24V DCLS, for DCF77, 1per10 or 24V IRIG-B output to STR-IDM)
	STR-IDM	IRIG-B Distribution Module (requires STR-100/IRIG-B or PLX-24V)

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