

# General Specifications

Model NTPC001  
Exaquantum  
Sequence of Events Recorder



GS 36J40A10-01EN

## PROBLEM

Unplanned incidents and equipment trips have the potential to cause equipment, fire and environmental damage, reduced production rate and quality, and in the worst case, loss of life.

## SOLUTION

Exaquantum Sequence of Events Recorder (Exaquantum/SER; hereafter referred to as 'SER') provides a centralized interface for users to access and analyze alarms & events and process data from a wide range of underlying systems. This data forms the basis for Root Cause Analysis (RCA) and trip analysis to lower or remove the possibility of future recurrences.

## BENEFITS

- Integrated view of alarm and event messages provides users with visibility across the site for improved analysis
- Increases user efficiency when performing RCAs and trip analysis
- Allows past incidents to be further analyzed for failure patterns
- Regulatory compliance is supported by the availability of a detailed audit trail

## KEY FEATURES

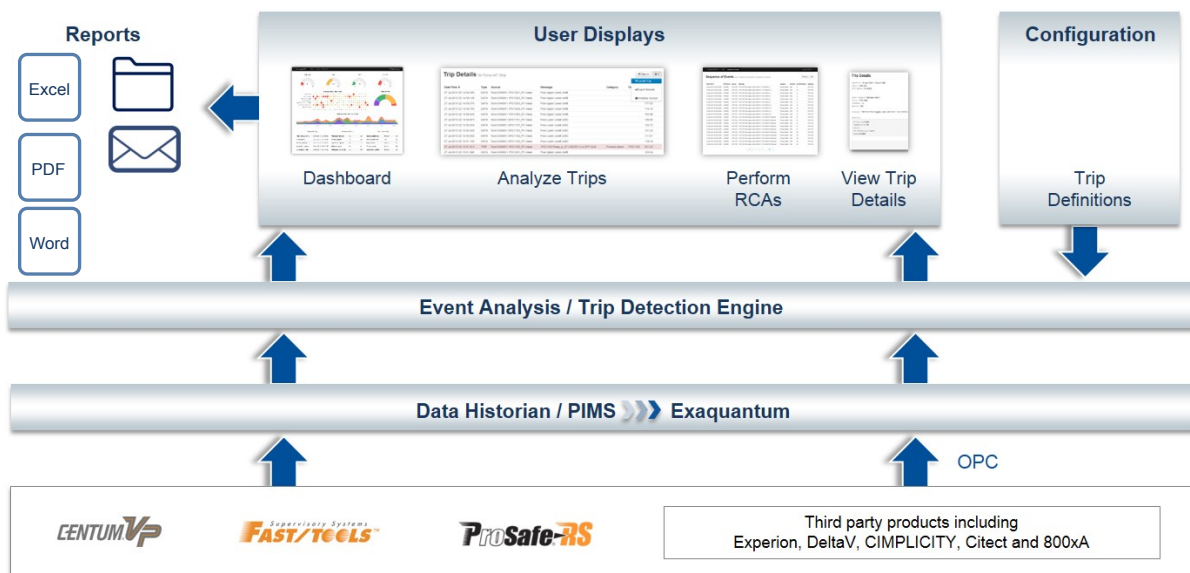
- Intuitive web user interface providing access to a centralized database of alarm and event messages
- At-a-glance overview of the latest events and trips
- Users can view the details surrounding trip occurrences
- Data can be exported to a .csv file for use in external applications, such as Microsoft Excel
- Dashboard entry screen immediately highlighting areas of concern
- Access to custom filters via shortcut links

## INTRODUCTION

SER accesses Exaquantum Historian alarms & events and process data that is being continuously collected and stored from all attached plant systems.

SER can configure trip conditions, allowing a trip to be created when an incident occurs for later analysis. All alarms, events and relevant process data for a given period of time, before and after the trip, is recorded, aiding users in determining the causes and knock-on effects of each trip.

In addition, SER acts as a Sequence of Events recorder (SOE) providing an integrated view of all the alarm and events suitable for performing RCAs.

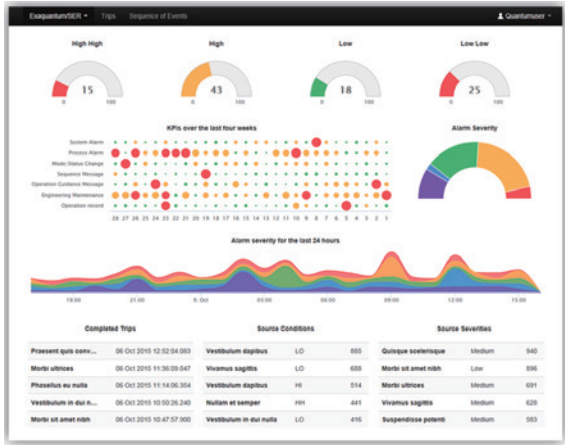


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## CAPABILITIES

### Web User Interface

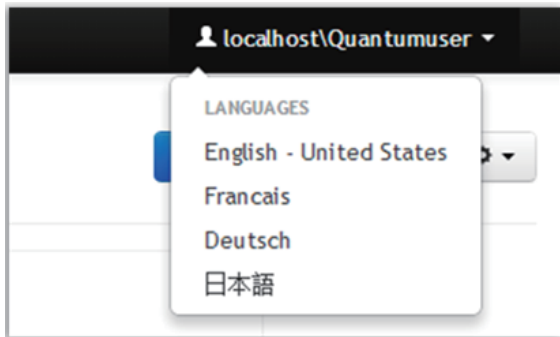
SER user access is provided via an intuitive web user interface, eliminating the need for specific client software. A central navigation area provides links to each of the reports, localization options and other Exaquantum products.



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### Localization

The SER user interface allows seamless switching between installed languages. SER is provided with US English by default with support for additional languages on request – please contact your local Yokogawa office for more information.



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### Highlight Critical Events

Providing the ability to highlight certain records based on a set of criteria improves the efficiency of searching through large volumes of alarm and events for specific entries. Filtering can reduce the number of entries but often it is the entries that lead up to specific events are as important. This is when highlighting the critical events is useful as the pre and post critical events can still be viewed.

### Trip Detection

If trip detection is required, trip conditions are configured using SER's Trip Detection Configuration Tool, grouped by event source and category.

Each trip condition will have:

- A unique name and description
- One or more trip event conditions including optional process data
- Pre-trip and post-trip detection event time spans, such as 120 minutes before the trip detection and 60 minutes following the trip detection for which all events and process data will be recorded

Each received alarm and event is compared against the configured trip conditions and if a match occurs then a trip will be created with the trip monitor copying alarms & events and process data surrounding the trip into a dedicated secure area. Trip conditions can be optionally set to prevent more than one active trip at a time from occurring.

Date/Time	Type	Server	Source	Message	Category	Severity	Conditions
27 Sep 2015 23:58:34.310	SDE	AMD-301-ORCT	IFC1105	IFC1105	Flow Upper Link (SMA PV = 27.2 KGS) LL Receiver	900 LL	IFC1105
27 Sep 2015 23:58:34.310	SDE	AMD-301-ORCT	IFC1104	IFC1104	Flow Upper Link (SMA PV = 27.2 KGS) LL Receiver	900 LL	IFC1104
27 Sep 2015 23:58:34.310	SDE	AMD-301-ORCT	IFC1103	IFC1103	Flow Upper Link (SMA PV = 27.2 KGS) LL Receiver	900 LL	IFC1103
27 Sep 2015 23:58:34.310	SDE	AMD-301-ORCT	IFC1102	IFC1102	Flow Upper Link (SMA PV = 27.2 KGS) LL Receiver	900 LL	IFC1102
27 Sep 2015 23:58:34.310	SDE	AMD-301-ORCT	IFC1101	IFC1101	Flow Upper Link (SMA PV = 27.2 KGS) LL Receiver	900 LL	IFC1101
27 Sep 2015 23:58:21.310	SDE	AMD-301-ORCT	IFC1105	IFC1105	Flow Upper Link (SMA PV = 20.7 KGS) LL	900 LL	IFC1105
27 Sep 2015 23:58:21.310	SDE	AMD-301-ORCT	IFC1104	IFC1104	Flow Upper Link (SMA PV = 20.7 KGS) LL	900 LL	IFC1104
27 Sep 2015 23:58:21.310	SDE	AMD-301-ORCT	IFC1103	IFC1103	Flow Upper Link (SMA PV = 20.7 KGS) LL	900 LL	IFC1103
27 Sep 2015 23:58:21.310	SDE	AMD-301-ORCT	IFC1102	IFC1102	Flow Upper Link (SMA PV = 20.7 KGS) LL	900 LL	IFC1102
27 Sep 2015 23:58:21.310	TRIP	AMD-301-ORCT	IFC1101	IFC1101	Flow Upper Link (SMA PV = 20.7 KGS) LL	900 LL	IFC1101

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The top part shows a list of trips with columns for Date/Time, Trip Name, IFC Name, Source, and Message. The bottom part shows a detailed view of a trip with columns for Category, Date/Time, Source 1, Source 2, Message, Severity, Condition 1, and Trip Name.

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**Reports**

The SER web user interface enables users to create both Sequence of Event (SOE) and trip reports that are highly customizable through the use of filters. The reports can be printed or exported for use in external applications such as Microsoft Excel. Report filter definitions can also be saved and reused, saving users time when running commonly used queries. The saved filter definitions can also be accessed via shortcut links.

**Integration with Control and Safety Systems**

The Exaquantum Historian collects and stores alarm and event messages and process data from control and safety systems into a centralized database providing SER users with a detailed picture of the overall plant activity.

**Data Catch-up**

Yokogawa has uniquely extended Exaopc's (Yokogawa's OPC Server) implementation of OPC HDA to include Historical Alarms and Events (HAE). This allows Exaopc to automatically buffer all alarm and event messages and process data that is received by Exaopc when the Exaquantum Historian is not available.

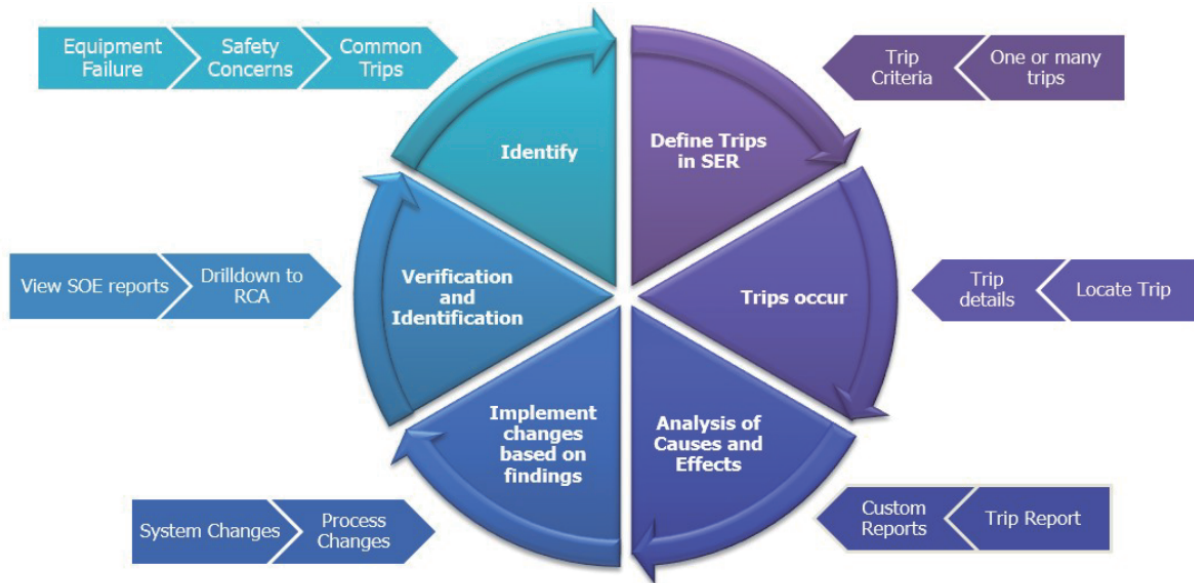
Once the connection has been restored, alarm and event messages and process data collected by Exaopc will be automatically passed to the Exaquantum Historian, allowing missing trips to be recognized by SER.

**OPC Interfaces**

The Exaquantum Historian can collect and store alarm and event timestamps with a time resolution of 1 millisecond for use by SER.

Alarms, events and process data received from non-Yokogawa OPC servers can be connected to the Exaquantum Historian.

Additionally, Yokogawa can supply custom Exaopc interfaces to provide missing capabilities such as OPC HDA for equipment supporting only OPC DA. An Exaopc interface is also available to convert OPC DA to OPC A&E.



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## ■ HARDWARE AND SOFTWARE REQUIREMENTS

### Minimum Hardware and Software Specifications

Component	Minimum Hardware and Software Specification
<b>Exaquantum/SER Server</b>	For detailed specification information, refer to the following description in "Exaquantum GS (GS 36J04A10-01E)." Hardware: ● Hardware Operating Environment "Exaquantum Server" Software: ● Software Operating Environment "Exaquantum Server"  For detailed supported revision, please refer to "GS 36J40W10-01EN."
<b>Exaquantum/SER Web Server</b>	For detailed specification information, refer to the following description in "Exaquantum GS (GS 36J04A10-01E)." Hardware: ● Hardware Operating Environment "Web Server" Software: ● Software Operating Environment "Exaquantum Web Server"  For detailed supported revision, please refer to "GS 36J40W10-01EN."
<b>Exaquantum/SER Web Clients</b>	For detailed specification information, refer to the following description in "Exaquantum GS (GS 36J04A10-01E)." Hardware: ● Hardware Operating Environment "Exaquantum Use PCs" Software: ● Software Operating Environment "User PCs for Exaquantum/Explorer, Exaquantum/Web Client"  For detailed supported revision, please refer to "GS 36J40W10-01EN."

The Exaquantum/SER Release Notes provide exact details of the supported hardware and software.

If SER will be installed on a different version of Exaquantum, please contact Yokogawa for assistance.

## ■ MODELS AND SUFFIX CODES

### Exaquantum/SER Product

		Description
<b>Model</b>	NTPC001	Exaquantum/SER Product
<b>Suffix Codes</b>	-S	Basic Software License
	1	Always 1
	1	English version
	-SV□□	Enter the number of Exaquantum/SER Server Licenses (01 - 99)
	-SD□□	Sequence of Events Recorder 50 % Server License Discount
	-YYYY	Select an Option Code
<b>Option Codes</b>	/WC□□	Enter the number of New per-seat Exaquantum/SER Web Client Licenses (01 - 99)
	/WD□□	Enter the number of New per-seat Exaquantum/SER Web Client Licenses (01 - 99) discounted by 50 %

### Maintenance Service for Exaquantum/SER

		Description
<b>Model</b>	SV3NTMC001	Maintenance Service for Exaquantum/SER
<b>Suffix Codes</b>	-S	Annual Contract
	1	Always 1
	1	Always 1
	-SV□□	Enter the number of Exaquantum/SER Server Licenses (01 - 99)
	-YYYY	Select an Option Code
		-N -R
<b>Option Code</b>	/WC□□	Enter the number of New per-seat Exaquantum/SER Web Client Licenses (01 - 99)

## ■ ORDERING INFORMATION

Specify the model and suffix codes.

## ■ TRADEMARKS

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