# General Specifications

## GS 36J40A10-01EN

the worst case, loss of life.

Unplanned incidents and equipment trips have the

Exaquantum Sequence of Events Recorder

(Exaquantum/SER; hereafter referred to as 'SER')

for Root Cause Analysis (RCA) and trip analysis to

· Integrated view of alarm and event messages

provides users with visibility across the site for

Increases user efficiency when performing RCAs and

· Allows past incidents to be further analyzed for failure

Regulatory compliance is supported by the availability

lower or remove the possibility of future recurrences.

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

potential to cause equipment, fire and environmental

damage, reduced production rate and quality, and in

PROBLEM

SOLUTION

BENEFITS

trip analysis

patterns

improved analysis

of a detailed audit trail

## Model NTPC001 Exaquantum Sequence of Events Recorder

## **E**xaquantum

KEY FEATURES

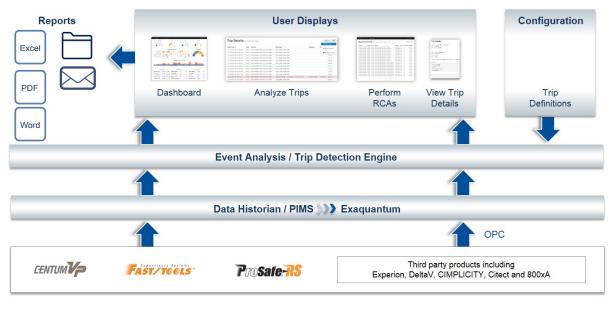
- Intuitive web user interface providing access to a centralized database of alarm and event messages
- At-a-glance overview of the latest events and trips
- Users can view the details surrounding trip occurrences
- Data can be exported to a .csv file for use in external applications, such as Microsoft 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

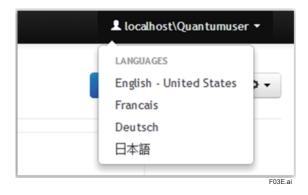
#### Web User Interface

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.



#### 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.



#### **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.

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27 Sep 2015 23:58:34.310	506	AMD-301-OPC7	1/101104	1001104	Flow Upper LineA UnbA	PV +	27.2 KM5M	LL	Recover	Process Marr		900	LL
27 Sep 2015 23:58:34.310	806	AMD-301-0PC7	1FIC1103	1FXC1103	Flow Upper LineA UnbA	PV -	27.2 KM3H	LL.	Recever	Bode/Status	Change	900	44
27 Sep 2015 23:50:34.310	506	AMD-301-0PC7	1FIC1102	1FIC1102	Flow Upper LineA. UnbA.	PV =	27.2 KM3H	LL.	Recever	Seguence Me	and the second se	900	LL
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27 Sep 2015 23:58:21.310	508	AMD-301-0PC7	1/101105	1PIC1105	Flow Upper LineA UnitA.	PV -	20.7 KM3H	UL.		Engineering	Weinfenance	900	LL
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27 Sep 2015 23:58:21.310	506	AMD-301-OPC7	1FIC1103	1FIC1103	Flow Upper LineA UnitA	PV -	20.7 KM3H	LL.		Special Orde	r Mennage	900	LL.
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24 Feb 201	5-08-20 19 800	29001100	CMMS	2FIC1103	25C1100File Lover Level UnitC PV + 40.1 Ktr/3HLD			
24 Petr 20	15-01-20-10-000	2502102,30	CAME	20101102	21C182/New Lover Lines Unit: PV = 45.5 KB/SHLO			
24 Feb 201	10-06 19:32 200	2901100	CARE	25(0100	25C1100/Few Lower Levels UNIC PV + 50.2 KB/3/HLO Recover	1		
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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

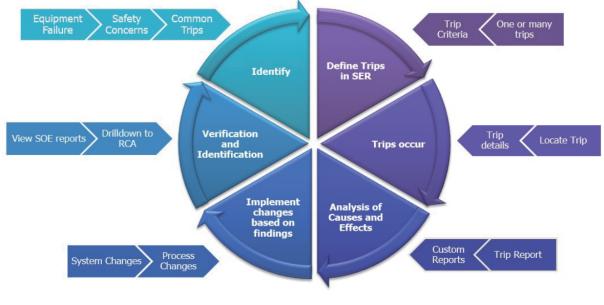
Yokogawa has uniquely extended Exaopc's (Yokogawa's OPC Server) implementation of OPC HDA to include Historical Alarms and Events (HAE). This allows Exaopc to automatically buffer all alarm and event messages and process data that is received by Exaopc when the Exaquantum Historian is not available. 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 Specifications
Exaquantum/SER Server	As listed in the Exaquantum R3.02 GS 36J04A10-01E for an Exaquantum Server
Exaquantum/SER Web Server	As listed in the Exaquantum R3.02 GS 36J04A10-01E for an Exaquantum Web Server
Exaquantum/SER Web Clients	As listed in the Exaquantum R3.02 GS 36J04A10-01E for an Exaquantum Web Client

Component	Software Specifications		
Exaquantum/SER Server	As listed in the Exaquantum R3.02 GS 36J04A10-01E for an Exaquantum Server		
Exaquantum/SER Web Server	As listed in the Exaquantum R3.02 GS 36J04A10-01E for an Exaquantum Web Server		
Exaquantum/SER Web Clients	As listed in the Exaquantum R3.02 GS 36J04A10-01E for an Exaquantum Web Client		

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
Model	NTPC001	Exaquantum/SER Product
	-S	Basic Software License
Suffix Codes	1	New Order (with Media)
	1	English version
	-SVDD	Enter the number of Exaquantum/ SER Server Licenses (01 - 99)
	-SDDD	Sequence of Events Recorder 50% Server License Discount
	-WCDD	Enter the number of New per-seat Exaquantum/SER Web Client Licenses (01 - 99)
	-WDDD	Enter the number of New per-seat Exaquantum/SER Web Client Licenses (01 - 99) discounted by 50%

#### Maintenance Service for Exaquantum/SER

		Description
Model	NTMC001	Maintenance Servise for Exaquantum/SER
	-S	Annual Contract
	1	Always 1
	1	Always 1
Suffix Codes	-SVDD	Enter the number of Exaquantum/ SER Server Licenses (01 - 99)
	-WCDD	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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- Other company names and product names mentioned in this General Specification are registered trademarks of their respective companies.