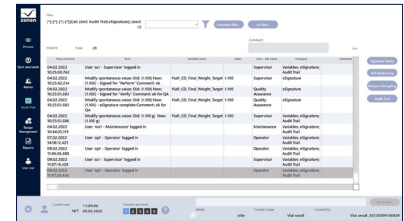# Alarms and Chronological Event List

Audit Trail / Sequence of Events

To ensure high productivity and save resources it is important to identify errors and their causes quickly so we can respond directly to the situation. With its alarm capabilities and the documentation of events in the Chronological Event List (CEL), zenon provides all the necessary tools. With preconfigured functions, the simple setting of parameters, and full compatibility with standards such as FDA CFR 21 Part 11, zenon ensures complete traceability of process chains.

ADMINISTRATION AND DISPLAY

zenon offers the following options for displaying alarms and events:

▸ Alarm Message List (AML): Displays alarms with all relevant information.

▸ Chronological Event List (CEL/Audit Trail/Sequence of Events): Lists process-relevant events and zenon system messages in chronological sequence.

These lists can be individually adapted. The functionalities are fully preconfigured in zenon and can be used without any programming.configuring individual

LIMIT VALUES

If limit values of variables are breached, an alarm or a fault report is triggered. User define which limit violations trigger an alarm and/or cause an entry in the Chronological Event List during the engineering phase. For automatic, event-controlled reactions, you can link these breaches with functions. The linked function can also be executed manually, at the press of a button in an alarm screen. If flittering values often exceed limit values, alarms and

messages can be suppressed in a defined hysteresis range or by a threshold value.

ALARMS

Alarms can be configured in many ways in zenon. The allocation takes place, for example, according to alarm groups, alarm classes, and alarm areas. If alarms require acknowledgment or a second acknowledgement, it is ensured that the alarm was acknowledge in a traceable manner. All actions are logged in detail. The acknowledgment of an alarm in zenon Service Engine can be combined with acknowledgment from the PLC by setting an acknowledgment bit.

ALARM MESSAGE LIST

The Alarm Message List displays current and historical alarms. Diverse criteria for filtering alarms are predefined in zenon Engineering Studio. In addition, filters can also be created in Service Engine and saved there for any given user. Alarm shelving is also an option with zenon. This allows selected alarms to be placed on a waiting list and resubmitted automatically at a later time. Additional context can also be given to alarms by enabling or requiring the input of alarm causes and comments.

CHRONOLOGICAL EVENT LIST (CEL) AND AUDIT TRAIL

The Chronological Event List (CEL) shows process-related events and zenon system messages in a chronological sequence. Just as with alarms, there is also a variety of filter criteria in the CEL. The alarms and Chronological Event List benefit from full redundancy capability, simple administration, and excellent performance, as well as fulfilling FDA 21 CFR Part 11 requirements.

FAST FACTS

▸ Compatibility with FDA CFR 21 Part 11
▸ Administration of Alarms, Audit Trail/Sequence of Events and Chronological Events
▸ Definition via limit values or central threshold values
▸ Grouping and prioritization
▸ Comprehensive filter possibilities
▸ High performance
▸ Immediate redundancy capabilities
▸ Graphical display with a clear overview

Alarms and Chronological Event List
Audit Trail

Time stamping	▸ Real-time stamping (externally from the PLC) ▸ External and internal timestamp ▸ Time stamping possible in milliseconds
Saving and export	If not otherwise defined, zenon records all alarms without exception. Alarm logs can be configured to your individual requirements. All data can be exported to different file formats.
Limit values	Limit values can be defined by: ▸ States of bit variables ▸ Value ranges of analog variables ▸ Conditions of string variables
Memory	zenon administers entries for alarms and to the CEL without limitation. To make them visible, current alarms are saved in a freely configurable ring buffer.
Filter	In addition to the freely definable filters, the following predefined filters can be used: ▸ Online alarms ▸ Historical alarms ▸ Shelved alarms ▸ Only pending alarms, unacknowledged alarms, etc. ▸ Minimum time that alarms need to queue ▸ Groups, classes, areas, variable name, identification ▸ Limit text ▸ Times ▸ Equipment Model
Groups and classes	Alarm groups and alarm classes serve to logically group alarms and allow prioritization. A name, color, and a function can be allocated to each group or class.
Siemens S7-PDIAG	▸ Display and management of process diagnosis reports from Siemens S7-PDIAG in zenon. ▸ Import of projected reports from S7-PDIAG and use as normal limit values.
Deactivation	Deactivation option for alarms and the CEL for maintenance work (can be related to groups, classes or individual messages as an option). Selective alarm suppression in Service Engine (e.g. for maintenance activities). Pending alarms can be suppressed using the shelving function.
Redundancy	Alarm message lists fully support redundancy.
Contextualization	Comments Alarm causes