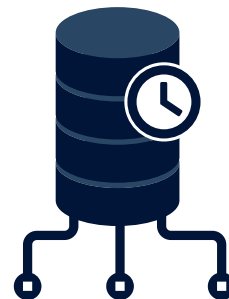


Versatile Data Recording with zenon

zenon provides a flexible solution that enables users to capture process data, alarms and events, and accurately archive and prepare this information so that it can be used to make informed and quick decisions. With a range of functions for data acquisition, zenon can help users meet custom requirements without any extra programming.



EDGE HISTORIAN SERVER

The zenon Edge Historian Server records process data on a lasting basis and archives it as desired – without numerical limitation. An archive can contain any number of type-independent variables (binary variables, numerical variables, string variables). zenon makes a distinction between three types of archives:

- ▶ When a value is changed: each time a value is changed, the value that has changed is recorded. Superfluous entries can be avoided for fluttering values by setting a hysteresis.
- ▶ Cyclical: records all values of an archive cyclically. The minimum cycle time is one second.
- ▶ Event-controlled: if a trigger bit is set positively, all values of an archive are recorded.

TIME STAMP

In addition to the variable value, each set of data that is saved in an archive also contains the time stamp in milliseconds and the variable status. The data can thus be arranged historically and analyzed.

ARCHIVE FILES AND EXPORTING

zenon saves archive files in its own binary data format. This makes the archives extremely powerful. Data in redundant systems can be managed efficiently and third parties cannot

modify the data (a requirement for FDA 21 CFR Part 11). All data can be saved in CSV, XML or in an SQL database. When storing data in zenon Data Storage or saving to a SQL database, the data is stored and remains readable.

CYCLICAL CREATION OF ARCHIVES AND EXTERNAL STORAGE

zenon divides archives into individual archive files cyclically. In order to prevent an archive from becoming incredibly large, aggregated archives can be created with user-defined time intervals. Archives can also be started and stopped through functions; for example, with a step or batch change. To save storage space, archives can be automatically stored externally in data formats such as SQL, XML or CSV, as well as copied to backup systems or deleted.

ALARM AND EVENT DATABASE INTERFACE

- ▶ External Storage

This interface allows alarms and events to be stored not only locally but also on an external SQL server or in zenon Data Storage. This data can be restored in zenon and reused. Alarms and events are updated immediately, e.g. if a comment was added to an alarm or an alarm was cleared.

- ▶ Export Format

In addition, alarms and events can be exported to an SQL server in a format readable by third-party systems. Users can choose the language of the export. Settings available include the language displayed or export language. The export can be customized and the users select the columns to export. Data is saved in real time and without delay, including when it is stored externally or exported. If the data cannot be delivered externally, it is cached locally until the connection is reestablished. Alarms and events are then recorded in full.

FAST FACTS

- ▶ Unlimited number of archives and unlimited number of variables per archive
- ▶ Timestamps in milliseconds for archives, in microseconds for alarms and events
- ▶ High performance from proprietary binary data format
- ▶ Consistent alarm and event data
- ▶ Export alarm and event data to third-party systems
- ▶ Full redundancy capabilities

Data recording

Aggregated archives	Aggregated archives serve to compress data. They calculate, over a defined time period, the sum, average value, maximum, and minimum and save the calculated values into a new archive.
Batch archiving	Batch archiving makes simple allocation of batch descriptions to one archive possible.
Real-time data acquisition (RDA)	Real-time data is recorded in the control system and then transferred to a zenon archive in blocks.
Historian SQL Server Interface	<p>The Historian SQL Server saves data in a SQL database. For the highest performance, the data is first saved in a zenon archive on an interim basis and then written to the SQL database as a block. The data is re-readable in zenon Service Engine.</p> <p>If the SQL server is temporarily unavailable, the data can be buffered locally. This means data cannot be lost (when used in conjunction with redundant zenon systems).</p>
Hard-disk data recording	For simple application cases it is often enough to use a ring buffer for data recording. This is taken care of by zenon with "hard disk data recording".
Historical alarms and CEL	zenon records all alarms and events seamlessly. Alarm logs can be configured to your individual requirements. All data can be exported to different file formats.
Templates	Automatic configuration of Historian with templates (including aggregated archives).
Microsoft Azure	Data from zenon can be exported to Microsoft Azure Service Bus/Event Hubs.