Data Recording

zenon provides comprehensive tools for archiving and report creation. You always have an accurately archived and prepared data collection process and therefore a solid basis for competent and quick decisions. The variety of functions of data recording in zenon enables you to implement individual requirements without extra programming efforts.

RECORDING

The zenon Historian records process data on a lasting basis and archives it as desired – without any 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 flittering 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

Each set of data that is saved in an archive also contains, in addition to the variable value, the time stamp in milliseconds and the variable status. The data can, therefore, also be historically sorted at any time for accurate analysis. Generally, zenon internally uses a resolution of a millisecond, even with external time-stamping.

FAST FACTS

- Unlimited number of archives and unlimited number of variables per archive; can be freely scaled
- Archives work in parallel
- Different archive types in parallel
- Time stamping in milliseconds
- Fully redundancy capable
- High performance from proprietary binary data format

ARCHIVE FILES AND EXPORTING

zenon saves archive files in its own binary data format. This makes the archives extremely powerful. They can be easily synchronized with redundant systems, easily administered and the data cannot be manipulated externally. The latter is primarily important for the requirements of FDA 21 CFR Part 11. However, all data can also be saved in CSV, dBase, XML or in an SQL database. When saving into an SQL database the data are stored in clear text and are still completely readable for the zenon Service Engine.

CYCLICAL CREATION OF ARCHIVES AND EXTERNAL STORAGE

zenon divides archives into individual archive files cyclically. In order to keep an archive from becoming incredibly large, aggregated archives can be created. The time distance can be freely adjusted. However, archives can also be started and stopped through functions, for example, with a step or batch change. To save space on the data medium, archives can be automatically stored externally in data formats such as XML, CSV or dBase, as well as copied to backup systems or deleted.

Data Recording

Aggregated archives	Aggregated archives serve to compress data. They calculate, over a freely selectable time period, the sum, average value, maximum and minimum and save the calculated values into a new archive.
Archives in multiple project administration	Values from a sub-project can be archived in the archive of a superordinate project. Values from several pieces of equipment and different projects can therefore be saved together and thus compared for optimal analysis. The supplying zenon server can even be a CE terminal.
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.
zenon SQL Server	The zenon SQL Server saves data in an 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 the zenon Service Engine. If the SQL Server is temporarily unavailable the data can be buffered locally. Thus, files cannot be lost (only works with redundant zenon systems).
Data server model for Windows CE	The CE terminal acts as a data server that provides the values to a PC server. The PC and CE terminal run the same project. In this way, the benefits of the synchronization methods of zenon's network redundancy are leveraged to full effect.
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 the "hard disk data recording".
Archive drivers	For special applications, data can be written to a hard disk in a RAW binary format. This data can be evaluated with tools from third-party manufacturers.
Historical alarms and CEL	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.
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.