Standards-compliant with the zenon Energy Edition

Command input and exchange of data in accordance with IEC 60870

zenon Energy Edition stands for great flexibility and openness in project configuration, with maximum safety. In addition to the industry-specific protocols such as IEC 61850, DNP3 and IEC 60870, zenon offers a great selection of communication drivers that are necessary for the operation of substations.

zenon Energy Edition includes features that have been specially-developed for the requirements of the energy industry. The ergonomic automation of substations is a part of this. As a result of the great diversity of communication drivers, zenon can be easily integrated into existing systems. The IEC 60870-5-101/104 protocol is often used to connect substations to higher-level or lower-level systems. zenon offers the right driver for this.

COMMAND INPUT IN ACCORDANCE WITH IEC 60870

In order to ensure safe processing of commands in accordance with IEC 60870, the zenon driver offers the "Direct Execute" and "Select and Execute" functions. For each command variable, it is possible to individually configure which command mode is to be used.

EXCHANGE OF DATA BETWEEN MASTER AND SLAVE

The driver is designed in such a way that the number of connected IEC 60870 slaves is not limited by the system.

Frequently, it is not just data from zenon as a master of IEC 60870 slaves that is read and written, but data must also be provided as a slave for a possible higher-level system. This requirement is met with the integrated IEC 60870 Process Gateway.

All defined data types of the "information objects" in the standard are supported in zenon. Depending on requirements, the data is transferred with or without a time stamp ("time tag"). In addition, the driver offers the possibility of file transfers, both in reporting as well as command direction (standard and reverse direction).

Each variable in zenon contains, in addition to the actual value and its time stamp, information such as not topical, invalid, substituted, blocked, overflow and time invalid, as well as protocol-specific status information such as the cause of transmission (COT).

The addressing size and ASDU lengths (Application Service Data Unit) can also be configured flexibly and in compliance with standards in zenon. In order to ensure complete recording of the process data, the "sequence of events" described in the standard is supported. A redundant connection compliant with IEC 60870-5-104 Edition 2 can be configured using the driver configuration.

FAST FACTS

▸ IEC 60870-5-101/104 and 103
▸ Master and Slave
▸ Command input using "Direct Execute" or "Select and Execute"
▸ Standards-compliant data types and quality descriptors

zenon

IEC 60870

```mermaid
Selection
of switch
NET_SEL
    │
    ▼
Switching
direction
ON/OFF
    │
    ▼
Parameter setting: select and execute? ──YES──► Sending of select SEL_870 to Hardware
    │                                                    │
    NO                                                   ▼
    │                                          Select confirmed by hardware? ──YES──┐
    │                                                    │                          │
    │                                                    NO ─────────────────────► CANCEL
    │
    ▼
2nd confirmation configured? ──YES──► Confirmation sent
    │                                        │
    NO ─────────────────────────────────────┘
    │
    ▼
Write
command to
hardware
```