



MORE THAN SENSORS
AND AUTOMATION



Automation and Process Control Systems

Innovative solutions for the toughest requirements





Seamless integration from the sensor to the cloud

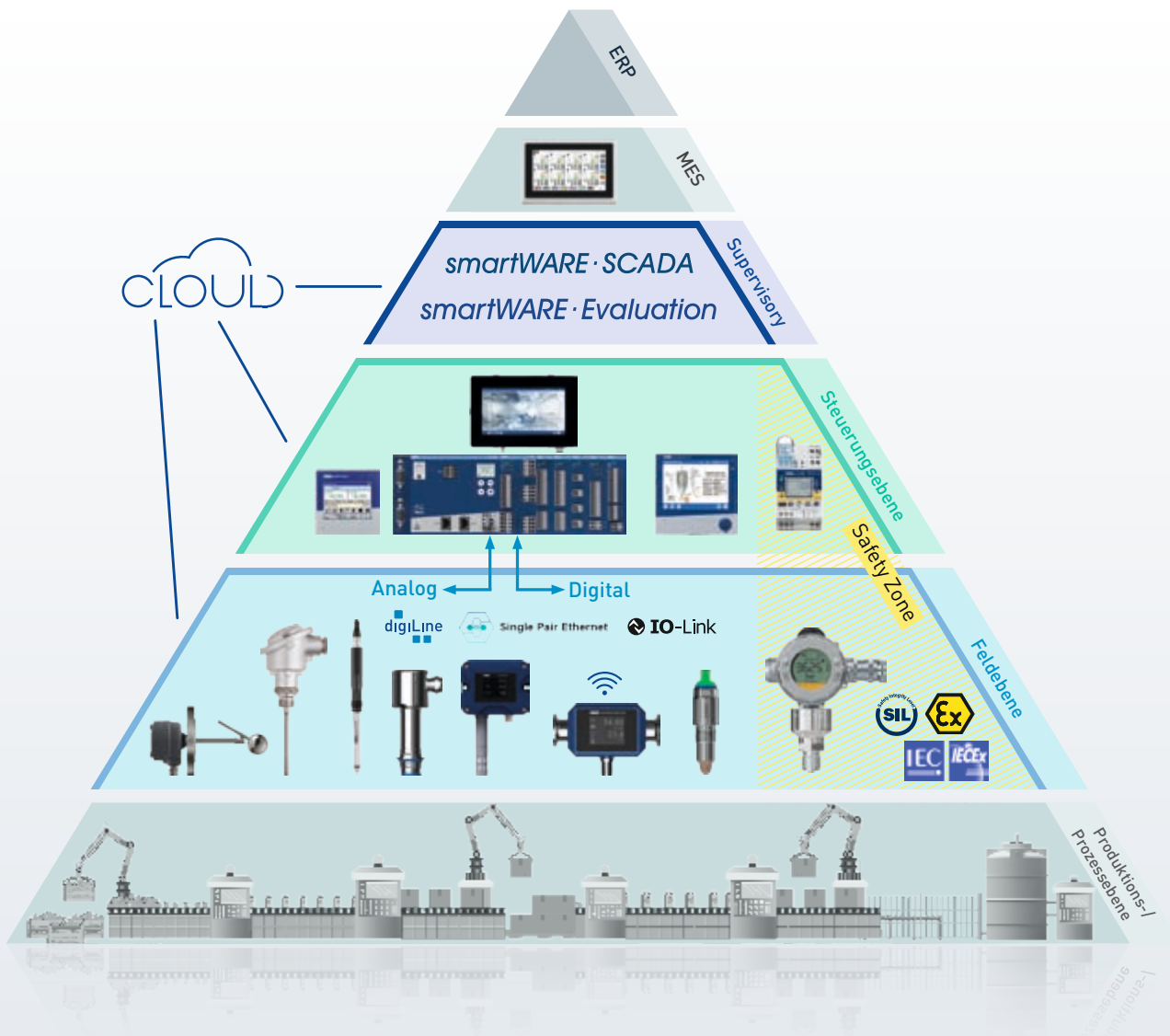
We provide expert advice from the field to the control level and effectively summarize the relevant stages of the automation pyramid for the production and process industry. After all, our wide-ranging portfolio not only includes scalable automation systems and integrated process control systems, but also analog and digital sensor technology for almost all relevant industrial measurands, which include the safety zone. The resulting complete solution is characterized by the perfect interaction of all components and can therefore become a decisive factor for your competitiveness and future viability.

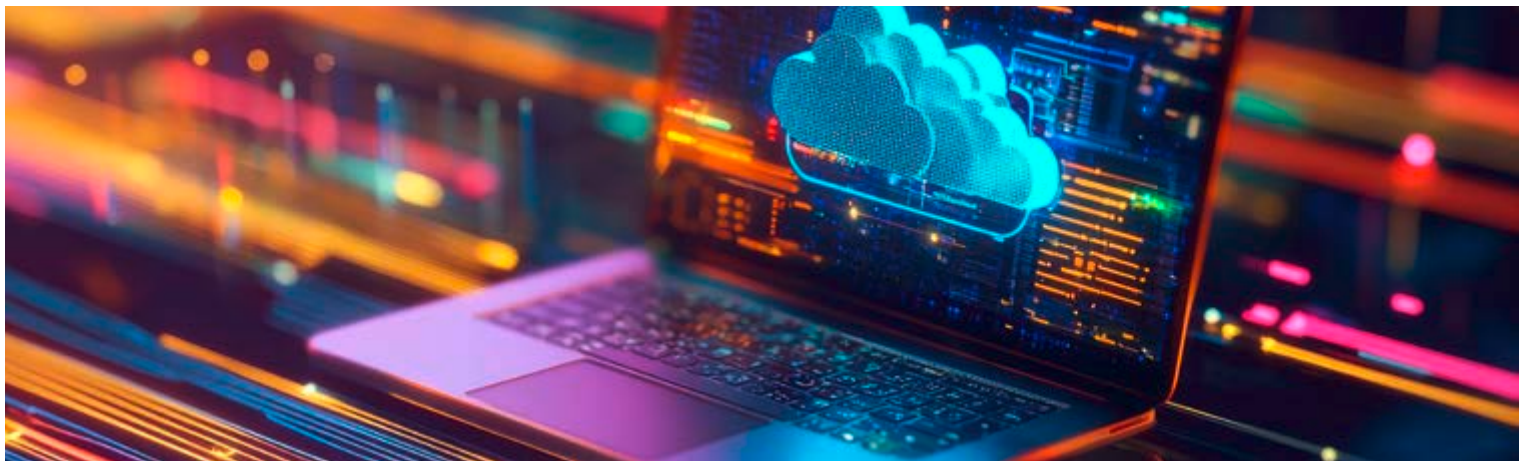


Technologically matured machine-to-machine communication

Data exchange between sensors, control systems, and evaluation tools is part of the JUMO system landscape. All integrated devices communicate status data in real time so that they can optimally orchestrate processes and process sequences on this basis. The key "conductors"

here are Single Pair Ethernet and IO-Link, which transfer the data to the cloud either directly or via the JUMO variTRON devices as a gateway. These technologies can be applied in a wide range of industries so that the most diverse industrial requirements can be met with them.





JUMO variTRON automation system

The JUMO variTRON family is based on the JUMO JUPITER platform, which offers numerous advantages when developing products. It is already the standard approach in many industries today. Great emphasis was placed on the scalability of hardware and software. The result is a modular, flexible and, above all, sustainable platform. After all, thanks to modern software architecture and continuous further development of the JUMO variTRON family, our controllers ensure that you are well prepared for all market changes and equipped for the challenges of tomorrow.



More information
on our website →



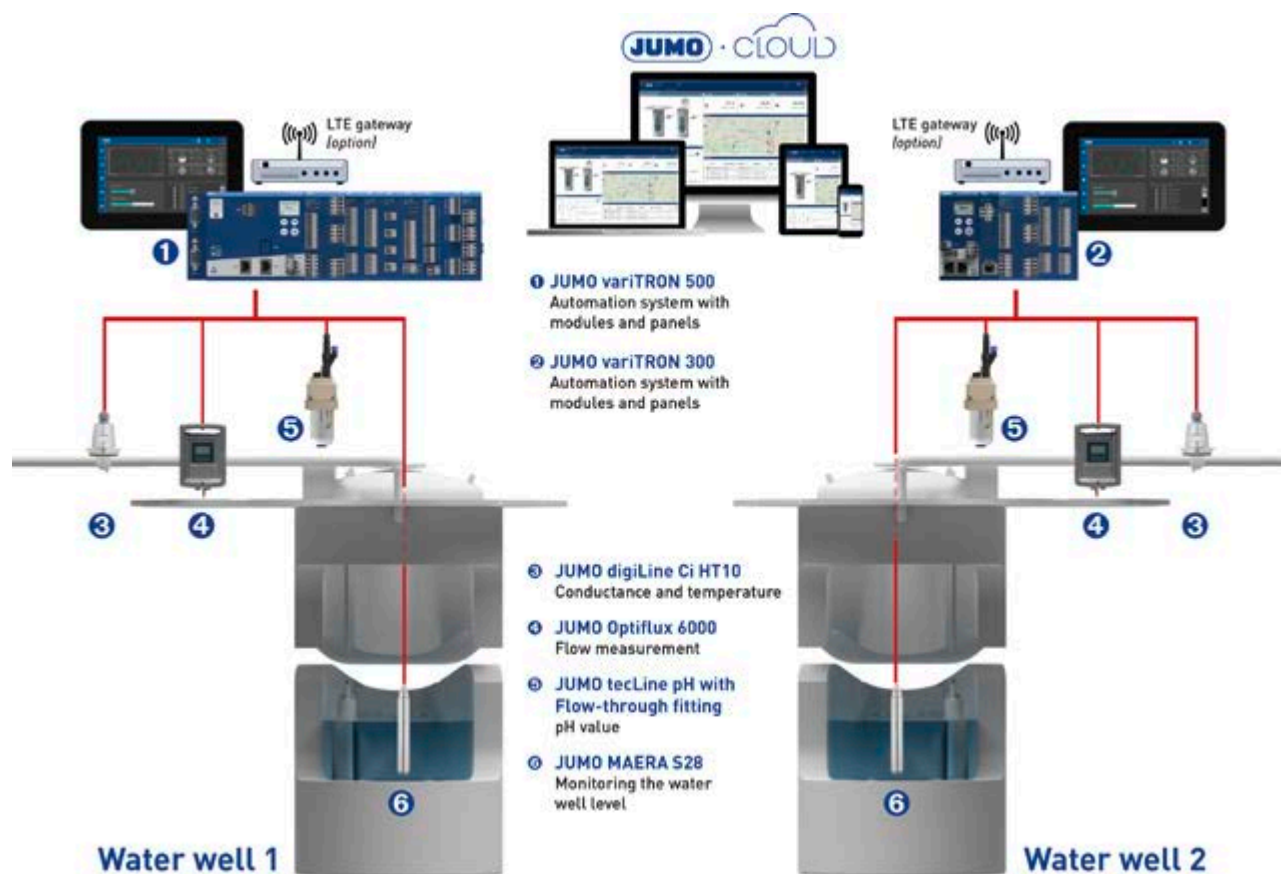
System structure

The modular design of the JUMO variTRON series consists of a powerful PLC that can be combined with various I/O modules depending on the requirement. These include a wide range of input and output modules, a unique hardware controller, and several communication modules that enable seamless integration into

existing systems. Particularly noteworthy is the flexibility with regard to visualization, which allows for adaptation to individual customer requirements. In addition to their variable structure, the universally applicable automation systems impress with their simple, application-oriented, and user-friendly configuration concept.

Application example:

Well monitoring with JUMO variTRON – from the sensor to the JUMO Cloud



Mineral water is drawn from water wells. Similarly, breweries also draw their water from deep wells that must be monitored. Results are documented and reports are regularly sent to the respective authorities. Most operators run several water wells, which are usually far away from each

other, so that personnel requirements are very high. The in-line acquisition of the measured values from the individual water wells via JUMO variTRON 500, along with their depiction in the JUMO Cloud, present a solution that significantly reduces the workload and can also be automated if required.



JUMO variTRON 500 touch

Touch panel with integrated central processing unit for the automation system

The JUMO variTRON 500 touch is the latest and most intuitive member of the family. After all, its touch panel allows for direct operation on the device, which considerably simplifies handling and accelerates workflows. The clear and concise design of the display ensures that all the necessary information is visible at a glance and adjustments can be made with just a few touches.

Introducing our control panel

As a PLC according to IEC 61131-3, the device enables simple integration of new software functions, so that even complex measurement, control, automation, and control solutions can be implemented with a high degree of flexibility. The support of more than 120 control loops allows the simultaneous monitoring and control of multiple processes, so that different process variables in different parts of a plant can be controlled at the same time. In addition, the JUMO variTRON 500 touch offers a true USP with the possibility of combining 2 visualization technologies (PLC and firmware) in a hybrid UI.



Your advantages:

- Easy application development with CODESYS V3.5 and Node-RED
- Creation of clear process and plant visualizations as well as user interfaces
- Control technology with independent PID controllers incl. autotuning function and simultaneous operation of up to 120 control loops
- Support for numerous fieldbus systems such as PROFINET, Modbus TCP/RTU, and EtherCAT
- Process data recording of up to 240 channels and 20 batches
- Communication via modern protocols such as OPC UA and MQTT
- Easy integration of new software functions via CODESYS Store
- Connection of up to 32 JUMO wireless sensors
- Use in harsh environments thanks to protection rating IP69K
- Lower investment costs thanks to combination of touch panel and central processing unit



JUMO variTRON 300 and 500

Classic operation, modern technology

In contrast to the JUMO variTRON 500 touch, the JUMO variTRON 300 and 500 models offer modern operating concepts without an integrated touch panel. Interaction is possible either via additional web panels or browser-based via the CODESYS web visualization. The devices are conventionally mounted on a DIN rail and are designed for use in a control cabinet.

Which device is the right one?

The decision between the JUMO variTRON 500 or the JUMO variTRON 300 depends primarily on the requirements of the respective application. JUMO variTRON 500 is usually the product of choice for complex processes that require high computing power and flexibility. After all, the system enables more control loops and extended process data recording. The smaller brother JUMO variTRON 300 is a high-quality PLC entry-level model which is designed for small and medium-sized applications. Its strength is the optional wireless interface, which means it can also be used in wireless processes.

Your advantages:

- Easy application development with CODESYS V3.5 and Node-RED
- Control technology with independent PID controllers incl. autotuning function and simultaneous operation:
JUMO variTRON 300: up to 32 control loops
JUMO variTRON 500: up to 120 control loops
- Support for numerous fieldbus systems such as PROFINET, Modbus TCP/RTU, and EtherCAT
- Process data recording:
JUMO variTRON 300: up to 60 channels and 10 batches
JUMO variTRON 500: up to 240 channels and 20 batches
- Communication via modern protocols such as OPC UA and MQTT
- Easy integration of new software functions via CODESYS Store
- **JUMO variTRON 300:** connection of up to 32 wireless sensors from JUMO





Web panels

Clear visualization and simple operation via touchscreen

Our web panels are quickly and easily connected to the automation systems of the JUMO variTRON family via Ethernet and can be configured according to individual requirements. The capacitive or resistive touchscreens, which are available in different sizes and resolutions, enable intuitive system operation. Process visualization can be carried out either via CODESYS WebVisu or CODESYS Remote TargetVisu. Each method offers its own specific features and benefits.



CODESYS WebVisu, based on HTML5

- Visualization in the web browser
- Less required software due to comprehensive browser support
- Can be used on computers, tablets, and smartphones as well as on web panels (panels with web browser)

CODESYS Remote TargetVisu

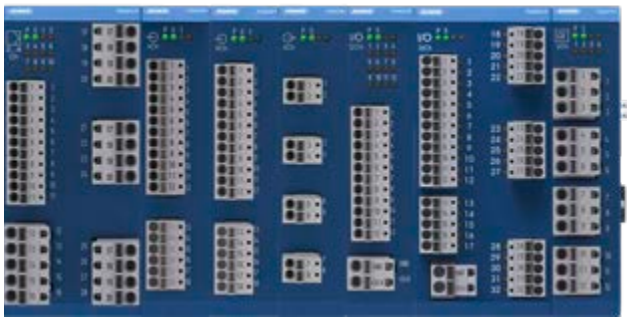
- Visualization on externally connected panels
- Increased safety through implementation in a separate, Internet-independent file
- Can be used on all compatible panels



Peripheral modules for automation systems

Wide range of possibilities

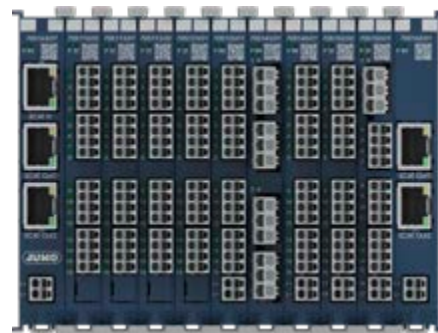
The proven modules of the 7050xx series and the new JUMO I/O system (type 7051xx) offer you 2 input/output systems at the same time. They form the interface between the control unit and the machine hardware so that they enable customized configuration and optimum control processes. Developed for users with a high demand for flexibility and scalability, both I/O systems can be expanded as required and operated in mixed mode. The modules include an exclusive controller module that guarantees independent operation and a high degree of process reliability.



JUMO I/O modules: proven technology for your systems

I/O modules of the 7050xx series

- Proven reliability in the field
- High-quality universal analog inputs



Enhanced flexibility and security through the new JUMO I/O system

I/O modules of the 7051xx series

- Less space required due to narrow and compact design type
- Increased productivity through improved cycle times
- Maximum flexibility due to PUSH IN or plug-in terminals (optional extra)



JUMO variTRON program app

Software for editing process technology programs with JUMO variTRON

Coordinating different processes, tasks, and workflows seamlessly as well as error-free takes time and resources. JUMO's intuitive sequence control, which can be operated with virtually no programming skills, makes the automation of process technology procedures and the linking of process steps child's play thanks to its modular structure, browser-based technology, and configurable program editor. All you need is the JUMO variTRON system with activated program app.

Flexible and intuitive

Predefined process technology steps are available to the user, with which different basic functions are defined. They then only need to be parameterized. The sequence of the individual process steps results in a process technology procedure that can be used in numerous industries and areas. These include the bakery industry, meat processing, thermoprocess technology, environmental simulation, autoclaves, agriculture, and CIP cleaning. Setpoint values, program section time, and process contacts can be defined for each process step. In addition, the plant engineer can use the process steps in the system to ensure that the plant components are not manipulated by the end user.

The plants themselves can be conveniently controlled via a web panel or the JUMO variTRON 500 touch. Here it is possible to start, stop, create, or modify programs. Temporary adjustments can also easily be made. In conjunction with JUMO smartWARE Evaluation, batch evaluations for multiple plants can be implemented.

Your advantages:

- Time-controlled and process-controlled sequence control possible
- Customizable graphical user interface
- Individual user right
- A maximum of 300 programs
- Up to 200 process steps
- 200 program sections per program
- 4 simultaneous program sequences
- Up to 10 plant types
- 2 simultaneous client accesses





JUMO variTRON recorder app

Trend visualization of process data in real time

Secure process data acquisition and visualization are crucial for the reliability and efficiency of production processes. The JUMO variTRON controllers are unique on the market thanks to their recorder app and make additional paperless recorders superfluous. Using an integrated recorder screen, critical process parameters can be visualized and evaluated in real time, which leads to improved monitoring, optimization, and quality assurance of processes. This feature is integrated in the firmware of the JUMO variTRON 500 touch, while the JUMO variTRON 500 model offers the function on a web-based platform. The web recorder screen can be used on all common web browsers and web-enabled panels.

Data security creates trust

The use of digital, self-signing certificates in conjunction with hash algorithms ensures maximum security and enables reliable detection of tampering with recorded and archived process data. JUMO variTRON transfers this data easily and without additional software to JUMO smartWARE Evaluation. The stored data and batches can be archived there and visualized in customizable dashboards. Alternatively, we offer the option of transferring the data to the JUMO Cloud or JUMO smartWARE SCADA.

Your advantages:

- Simple, intuitive trend visualization of recorded process data
- PLC with integrated recorder function
- Browser-based live recorder screen (JUMO variTRON 500/500 touch)
- Recorder screen integrated into the JUMO variTRON 500 touch firmware
- Up to 8 analog and 8 digital channels in 1 recorder screen
- Up to 20 recorder groups
- Maximum data security of the recording
- Flexibility through support of Ethernet/IP, PROFINET, Modbus TCP, OPC UA, and EtherCAT





JUMO smartWARE Evaluation

Evaluation and visualization of critical process data from the JUMO variTRON system

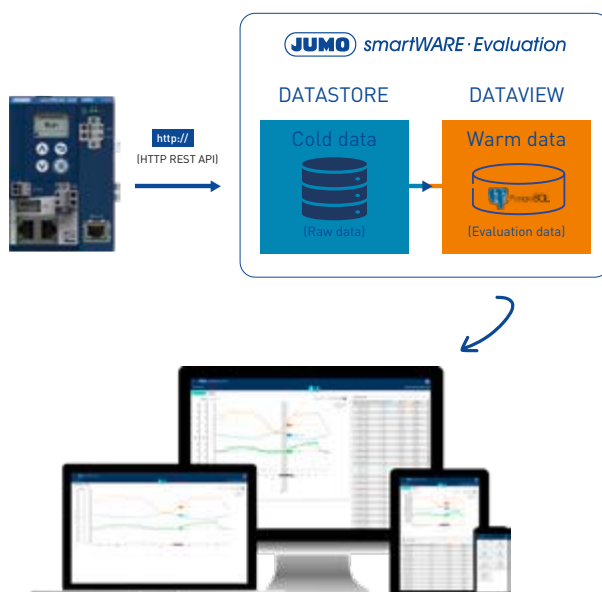
The backup of critical process data is becoming increasingly important in a wide range of industries. JUMO smartWARE Evaluation enables the archiving and visualization of process data recorded by the JUMO variTRON system. Customizable dashboards allow for quick and effective analysis of the recorded measurement data. Batches spanning multiple plants and the option of automated, customer-specific reports round off the flexible use of JUMO smartWARE Evaluation.

Simple handling of process data

The stored process data is transferred to the JUMO smartWARE Evaluation Datastore ("cold data") via Ethernet using the REST API interface and archived. You determine how many signals you want to license for your evaluation. Data stored on a Windows desktop computer or a Linux server can be easily and conveniently visualized as well as evaluated using individual dashboards in any standard browser.

Your advantages:

- Browser-based display of process data
- Dashboards that are customizable and which span multiple devices
- Fast navigation and dashboard selection thanks to intuitive operating philosophy
- Batch evaluation spanning multiple plants with flexible filter functions
- Automated report generation as PDF, CSV, or Excel file possible
- High degree of data security due to integrated manipulation detection
- Diagnostic information according to NAMUR NE107
- AMS2750 and CQI conformity





JUMO Cloud and JUMO smartWARE SCADA

Valuable tools for process analysis and control

As an innovative IoT platform, the JUMO Cloud is especially designed to enable comprehensive networking and remote monitoring of devices and processes. That way, all plants and processes can be effortlessly monitored from any location via all common web browsers in a central dashboard. Security is guaranteed by end-to-end encryption and 2-factor authentication. JUMO smartWARE SCADA is based on the JUMO Cloud and can also be accessed via the Internet.

Simple and quick system structure

- JUMO variTRON devices can be connected directly as a gateway to the JUMO Cloud or JUMO smartWARE SCADA.
- Sensors with Single Pair Ethernet can transmit their data directly to the cloud without a gateway.
- Web panels are connected directly via Ethernet.
- The I/O modules enable the connection of sensors and plants that are to be regulated or controlled.

Your advantages:

- Maximum process transparency with customizable user rights and dashboards
- Unlimited dashboard access with an unlimited number of end devices (clients)
- No installation of software, browser plugins, or add-ons
- More efficient reporting made possible due to extensive report and export functions
- Alarm management via text message, email, push notification, or phone call
- Process visualization through editor with integrated animation and test tool as well as vector-based, self-scaling process screens
- Detailed trend displays and reports with various diagrams, comparison functions, and export functions
- Timer and programs with unique events and series
- Modern drivers and protocols such as OPC UA, MQTT, and REST API





JUMO sensor technology: safety and efficiency in every beat

What would an orchestra be without musicians or an automation system without sensors? Our sensors are the "musicians" of industrial automation which, in combination with JUMO automation systems, can significantly improve the efficiency of your plants. The wide range of our sensors includes analog and digital sensor technology for the most important industrial measurands. Specific requirements of highly diverse industries are met by a large number of special certifications and approvals including EHEDG, AMS2750, CQI, ATEX, IECEx, SIL 2, and SIL 3. Testing according to CSA ANSI HGV 3.1 ensures safety in direct contact with hydrogen.



Digital sensors for Industry 4.0 applications

Regardless of whether sensors with Single Pair Ethernet (SPE), IO-Link, or JUMO digiLine are used, our digital sensor technologies support seamless and efficient communication between machines. They are therefore not only the basis for modern automation processes, but also key components for advanced data analysis and data processing in real time.

IO-Link technology, on the other hand, provides a robust and flexible platform for the exchange of sensor data and control signals. It also allows detailed diagnostics and real-time feedback from sensors and actuators, which is essential for precise control and monitoring. Communication to the next level is implemented via the IO-Link Master.



Single Pair Ethernet
System Alliance



IO-Link



SPE revolutionizes data transmission by transporting vast amounts of data via a single wire pair and simultaneously ensuring the energy supply via Power over Data Line. The networking of previously difficult-to-reach areas is made possible so that completely new possibilities for industrial and building automation arise. SPE switches are used to connect to the automation or process control system.

JUMO digiLine, an innovative, bus-compatible connection system for digital sensors in liquid analysis, enables the easy setup of sensor networks. A single shared signal line is used for communication with the next evaluation unit or controller. This way plants in which several parameters need to be measured at the same time in different places can be wired efficiently and quickly.

Customized solutions for complex automation requirements

Even the most comprehensive portfolio cannot fulfill every specific and complex automation task. Especially the integration of existing infrastructure into new systems often poses a challenge that requires individual interfaces and specific adaptations. The experienced engineers and technicians in our Engineering department use their extensive expertise along with advanced technologies to ensure the smooth functioning and optimum interoperability of your system components.

We offer you detailed feasibility analyses, the creation of technical concepts including product requirements specification/specification sheet, project planning, and project management as well as project services. Upon request we can also handle the subsequent startup of the systems and provide comprehensive training courses to ensure that your teams can use the new technologies effectively.

Let's shape an automated future together!



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