



More than **sensors + automation**



JUMO variTRON

Innovative solutions for your success



JUMO variTRON

Automation system





The advantages at a glance

- ▶ PLC according to IEC 61131-3 (CODESYS V3.5)
- ▶ Integrated measurement recording with up to 240 channels, up to 20 batches, and up to 10 measurement groups
- ▶ Applications with the programming environment Node-RED
- ▶ Support of numerous fieldbus systems such as Modbus RTU/TCP, PROFINET, EtherCAT, and BACnet/IP
- ▶ Modern communication protocols such as OPC UA and MQTT
- ▶ Connection of modern web panels in different formats for visualization and operation
- ▶ Individual customer solutions due to highly flexible device and functional concept (functionally as well as look and feel)
- ▶ Easy integration of new software functions via CODESYS PLC
- ▶ High speed performance
- ▶ Flexible operating philosophy
- ▶ Integration of customer-specific parameters using JUMO's own Config and Process Value Editor (CPVE).
- ▶ Easy adaptation of hardware inputs and outputs
- ▶ Customer-specific operation and visualization of several operator stations via CODESYS Remote TargetVisu and CODESYS WebVisu
- ▶ Integrated JUMO Web Cockpit
- ▶ Precise measured value acquisition via modules with high-quality, configurable analog inputs (universal)
- ▶ Reliable control technology via modules with independent PID controllers including autotuning function

Powerful foundation

JUMO variTRON central processing units



JUMO variTRON 300

Compact automation system with optional wireless interface



JUMO variTRON 500

Highly scalable and high-performing automation system

Product name	JUMO variTRON 300	JUMO variTRON 500
Type	705003	705002
CPU	1× 800 MHz	4× 800 MHz
Serial interface	1× RS485 Modbus RTU	2× RS232/RS485 Modbus RTU (optional extra)
USB host	1	2
Ethernet interface	2	1 (1 more as an optional extra)
Wireless interface	Optional extra	–
Recording channels	Up to 60	Up to 240
Batches	Up to 10	Up to 20
Measurement groups	Up to 10	Up to 10
Internal memory	Up to 1 million measured values	Up to 20 million measured values
The data analysis is performed using the JUMO smartWare Evaluation software package, which requires a license [see pg. 8]		



Processes you can touch

Clear visualizations and simple operation with touchscreens

Visualization with CODESYS WebVisu

- ▶ Enables visualization in the web browser
- ▶ Based on HTML5 and supported by almost all browsers
- ▶ Can be used on computers, tablets, and smartphones, but also on web panels (panel with web browser)

Visualization with CODESYS Remote TargetVisu

- ▶ Enables visualization on externally connected panels (without web browser)
- ▶ Runs in a separate file and not in a web browser
- ▶ Can be used on all compatible panels

JUMO web panels can be used with CODESYS WebVisu or Remote TargetVisu!

Product name	JUMO variTRON web panels
Type	705070
Display	TFT color screen with capacitive touch or resistive touch technology, which can be operated with gloves in some cases
Screen resolution	480 × 272 to 1920 × 1080
Screen size (diagonal)	4.3 to 21.5 inch
Visualization	CODESYS WebVisu or CODESYS Remote TargetVisu
Interfaces	USB and Ethernet (how many depends on version)
Protection type	IP53 to IP69 (front)
Special features	Special versions for the food industry with protection type IP69 (front side), Smart series for installation in critical areas (accessories required)
Voltage supply	DC 24 V; PoE with JSmart series
Approvals	UL, DNV GL (depending on version)

Wide range of possibilities

JUMO variTRON modules

Relay and controller modules as well as various analog and digital input and output modules are available as module variants. These include: the analog input module with universal inputs for thermocouples, RTD temperature probes, and voltage or current standard signals. As a result the same hardware can be used to precisely acquire and digitize a highly diverse range of process variables. JUMO variTRON enables simultaneous operation of a large number of control loops and therefore masters even

demanding processes without any problems. The control loops operate completely independently without requiring resources from the central processing unit. Through expansion slots the inputs and outputs of each controller module can be individually expanded and adapted. In addition, thyristor power controllers can be connected to the central processing unit via EtherCAT or PROFINET. JUMO digiLine sensors for liquid analysis can be connected directly.



Product name	Multichannel controller module	Relay module 4-channel	Analog input module 4-channel	Analog input module 8-channel
Type	705010	705015	705020	705021
Features	<ul style="list-style-type: none">- Up to 4 independently configurable PID control loops with a fast cycle time and proven control algorithms- Independent operation- Math and logic functions- Counting input up to 10 kHz	<ul style="list-style-type: none">- 4 relay outputs that are controlled via the system bus by digital signals- Changeover contact in each case (230 V/3 A)- Switching statuses are displayed with LEDs	<ul style="list-style-type: none">- 4 high-quality, user configurable analog inputs for RTD temperature probes, resistance transmitters, thermocouples, current 0(4) to 20 mA, voltage 0(2) to 10 V- All inputs are galvanically isolated from each other- Customer-specific linearization possible- Limit value monitoring function- Additional digital input	<ul style="list-style-type: none">- 8 high-quality analog inputs for RTD temperature probes Pt100, Pt500, Pt1000 in two-wire circuit- Limit value monitoring function- Additional digital input



Product name	Analog output module	Digital input and output module 12-channel	Digital input and output module 32-channel
Type	705025	705030	705031
Features	<ul style="list-style-type: none"> - 4 user configurable analog outputs 0(4) to 20 mA or 0(2) to 10 V - Adjustable output behavior in case a malfunction occurs 	<ul style="list-style-type: none"> - 12 digital inputs or outputs - Each channel can be configured as an input DC 0/24 V or output DC 24 V - Capacity per output: 500 mA - Switching statuses are displayed with LEDs 	<ul style="list-style-type: none"> - 32 channels with 17 fixed digital outputs - 3 expansion slots for 5 digital inputs or outputs each - Capacity per output: 500 mA - Switching statuses are displayed with LEDs



Product name	Router module 2-port	Router module 3-port	Router module 1-port
Type	705041	705042	705043
Features	<ul style="list-style-type: none"> - System bus expansion via 2 RJ45 sockets (1 Bus In, 1 Bus Out) - Enables distribution of modules along several DIN rails or control cabinets 	<ul style="list-style-type: none"> - System bus expansion via 3 RJ45 sockets (1 Bus In, 2 Bus Out) - Enables distribution of modules over several DIN rails or control cabinets 	<ul style="list-style-type: none"> - System bus expansion via 1 RJ45 socket - Enables the side by side placement of modules via lateral system bus connection

JUMO smartWARE Evaluation

Digital data evaluation with JUMO variTRON

Record with the automation system – analyze conveniently and intuitively with JUMO smartWARE Evaluation

Your advantages when recording data with the JUMO variTRON system

- ▶ JUMO variTRON 300 and 500 both have an integrated recording function for all incoming measured values
- ▶ Additional recording of the measurement status according to NAMUR NE107
- ▶ Buffering of process data recording in case of network failure
- ▶ Recording of data from CODESYS such as program variables in the JUMO variTRON system
- ▶ Recording of fieldbus data such as PROFINET, BACnet, and EtherCAT
- ▶ Convenient configuration with intuitive setup program

Product name	JUMO variTRON 300	JUMO variTRON 500
Type	705003	705002
Recording channels:	Up to 60	Up to 240
Batches:	Up to 10	Up to 20
Measurement groups:	Up to 10	Up to 10
Internal memory:	Up to 1 million process values	Up to 20 million process values

Your advantages with process data evaluation

- ▶ Browser-based process data evaluation via individual, customizable dashboards
- ▶ Fast navigation and dashboard selection based on intuitive device and plant overviews
- ▶ Cross-plant batch evaluation with flexible filter functions
- ▶ Data archive (Datastore) with manipulation detection based on digital certificates
- ▶ "Run anywhere": can be installed on desktop, server, or cloud using Docker technology
- ▶ Reduced costs for software administration, as maintenance is only required in one place



Fair licensing model: only pay for what you really use

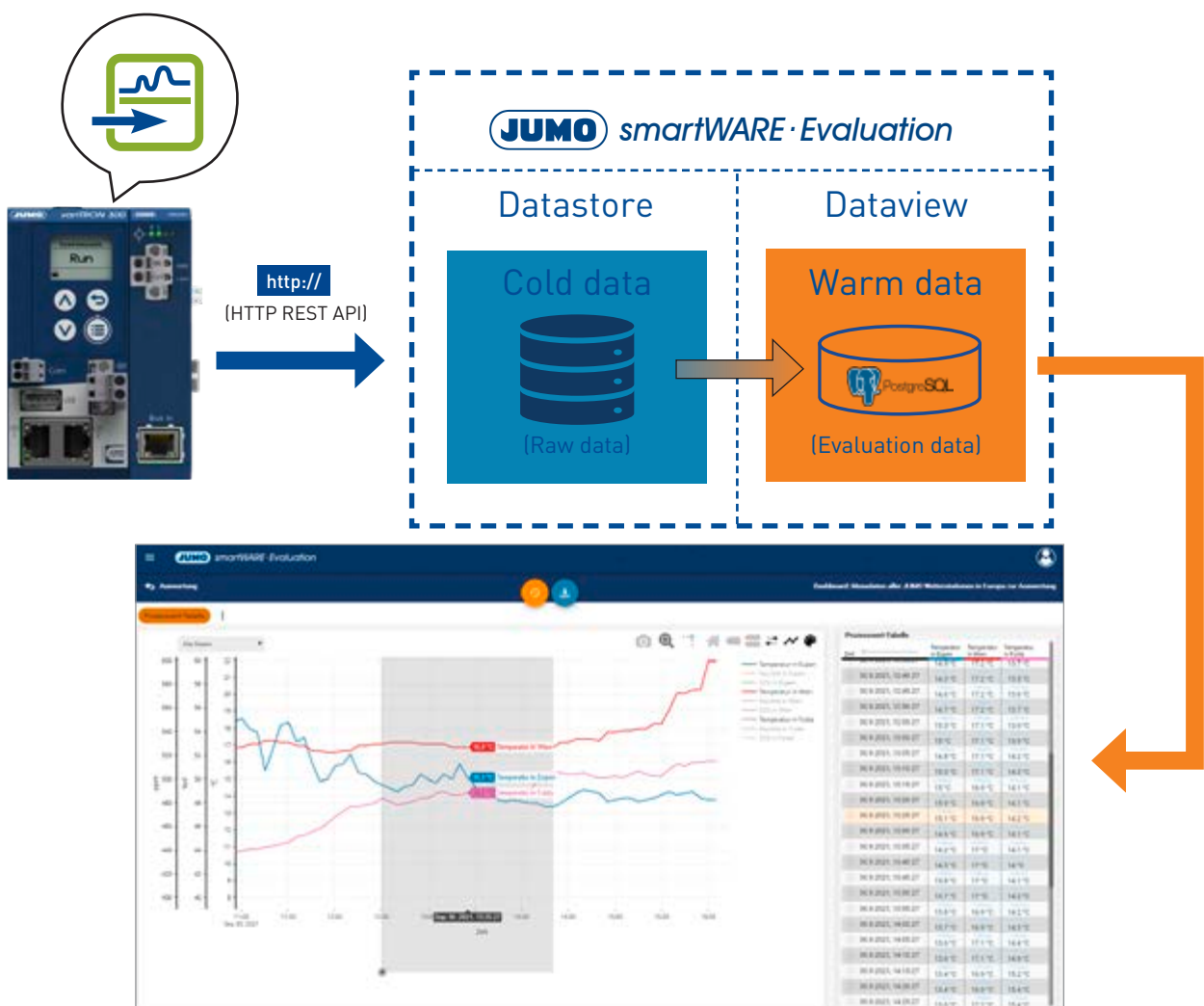
- ▶ Unlimited number of users
- ▶ License model based on the number of signals and batches that are evaluated
- ▶ Evaluation of up to 1500 signals

→ **Easily scalable, costs remain manageable and plannable**

Record, archive, evaluate

JUMO variTRON automation systems allow you to record your important process data and transfer it securely via Ethernet to the Datastore ("cold data") using the REST API interface. Manipulation detection allows it to provide a high degree of security for your recorded raw data. You deter-

mine how many signals you license for evaluation. These can then be visualized and evaluated as "Warm Data" in Dataview with all common browsers via individual dashboards.



From JUMO variTRON directly to the cloud

Visualize, analyze, and control processes



Highly-scalable and high-performing IoT platform

Worldwide access to your process information



Highly-scalable and high-performing digitization platform based on the JUMO Cloud

Billing not based on client accesses

- ▶ Compatible with JUMO variTRON family and connectable via Ethernet (JUMO variTRON as gateway)
- ▶ Maximum transparency in your processes with customizable user rights and dashboards
- ▶ Unlimited access to the dashboards using as many end devices (clients) as required – common web browsers are used so that installing software, browser plug-ins, or add-ons is not necessary
- ▶ More efficient reporting made possible due to outstanding report and export functions
- ▶ Alarm management through data evaluation, preparedness planning, and monitoring/remote alarm functions (text message, email, push message, phone call)

Many valuable properties:

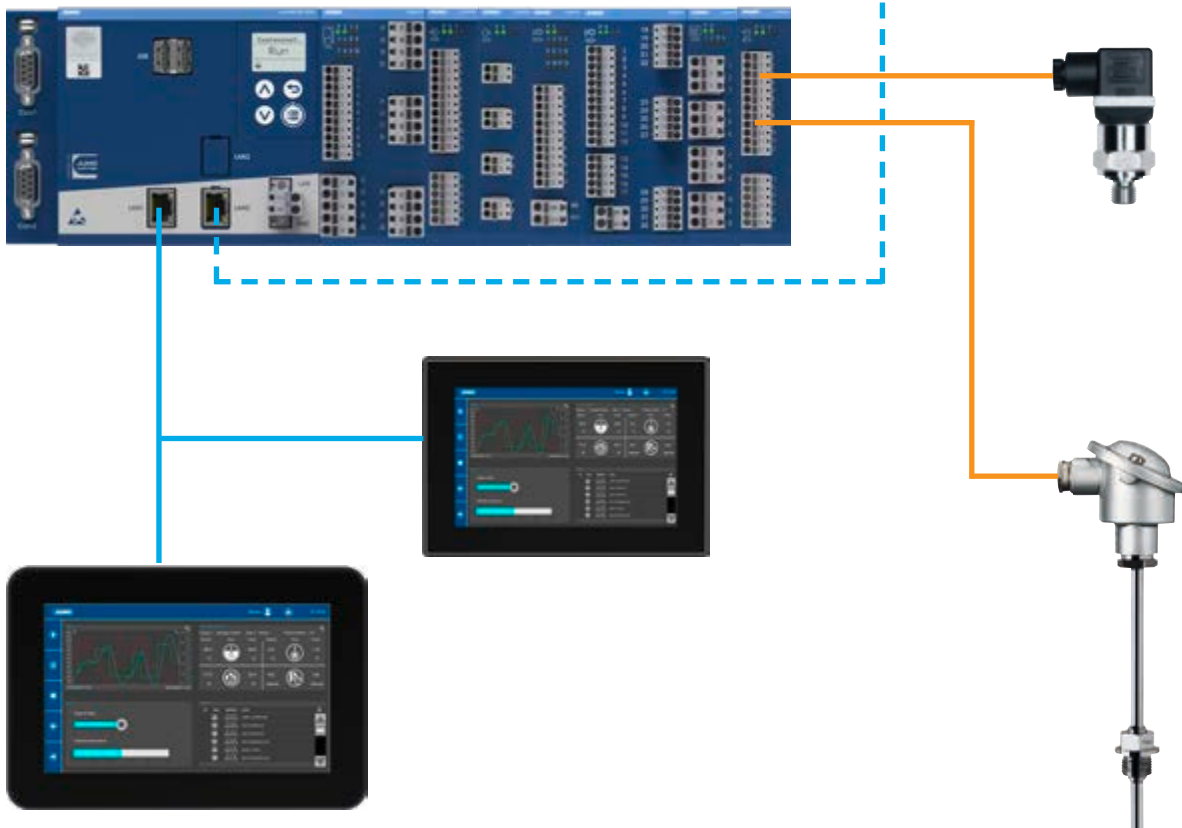
- ▶ Process visualization through editor with integrated animation and test tool as well as vector-based, self-scaling process screens
- ▶ End-to-end encryption, HTTPS, TLS, two-factor authentication (OTP)
- ▶ Extensive trend displays and reports with various diagrams, comparison functions, and export functions
- ▶ Timer and timer programs with unique events and series
- ▶ Modern drivers and protocols such as OPC UA, MQTT, and REST API

System structure – JUMO variTRON 500

With the JUMO Cloud

- ▶ JUMO variTRON 500 can be connected directly as a gateway to the JUMO Cloud or JUMO smartWARE SCADA
- ▶ Web panels are connected directly via Ethernet
- ▶ The modules enable the connection of sensors and plants that are to be regulated or controlled

JUMO · CLOUD



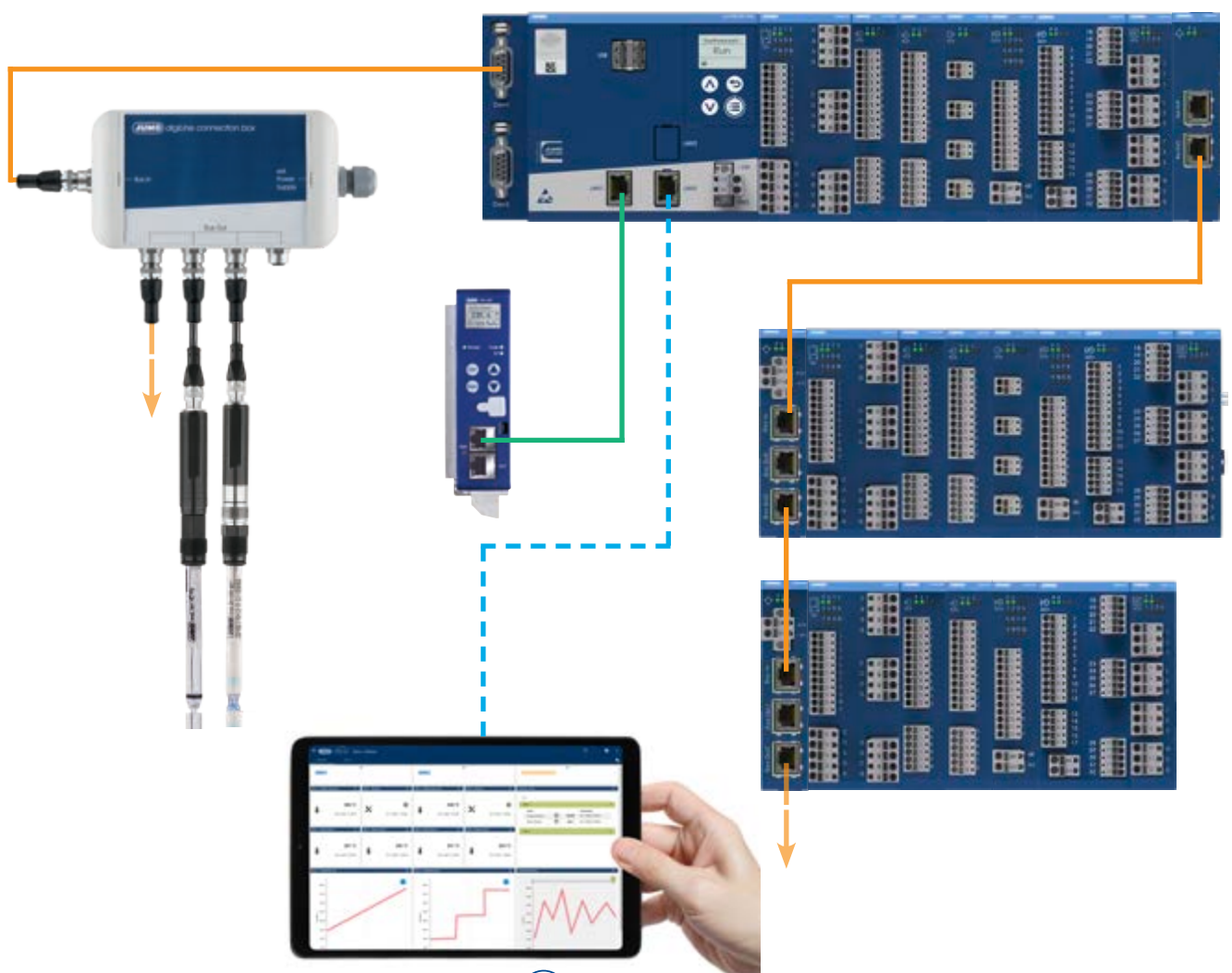
System structure

System expansion with router modules

JUMO variTRON 500

With thyristor power controllers, JUMO digiLine, and JUMO smartWARE SCADA

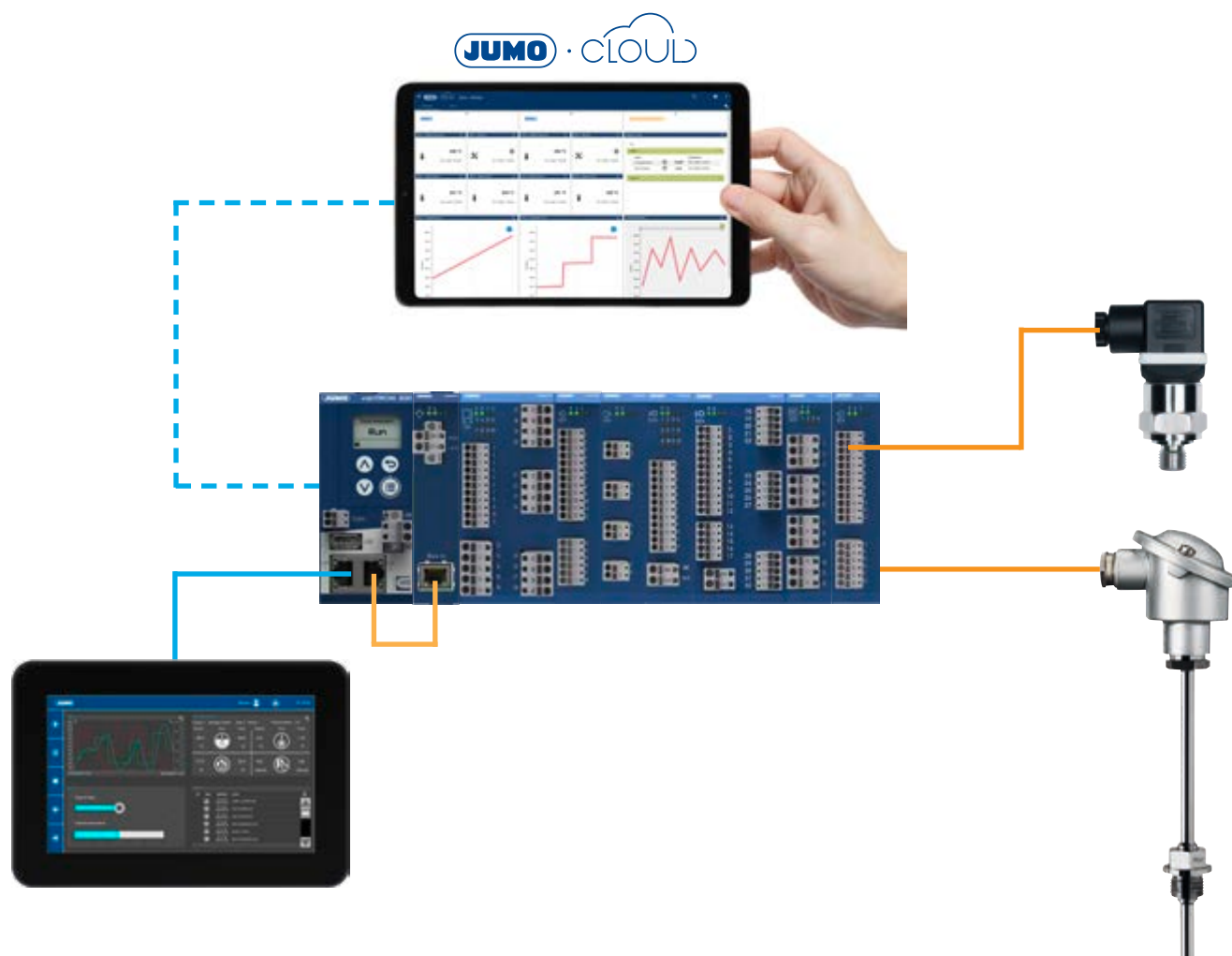
- ▶ JUMO variTRON 500 can be extended via router modules in the control cabinet and even further – up to a maximum distance of 100 m
- ▶ Thyristor power controllers can be connected via EtherCAT or PROFINET
- ▶ Digital sensors, such as JUMO digiLine, can be connected via the COM port
- ▶ JUMO variTRON 500 can be connected directly as a gateway to the JUMO Cloud or JUMO smartWARE SCADA



JUMO variTRON 300

With JUMO Cloud

- ▶ JUMO variTRON 300 can be expanded with modules via the router module 1-port
- ▶ The device can be connected directly as a gateway to the JUMO Cloud or JUMO smartWARE SCADA
- ▶ Web panels are connected directly via Ethernet

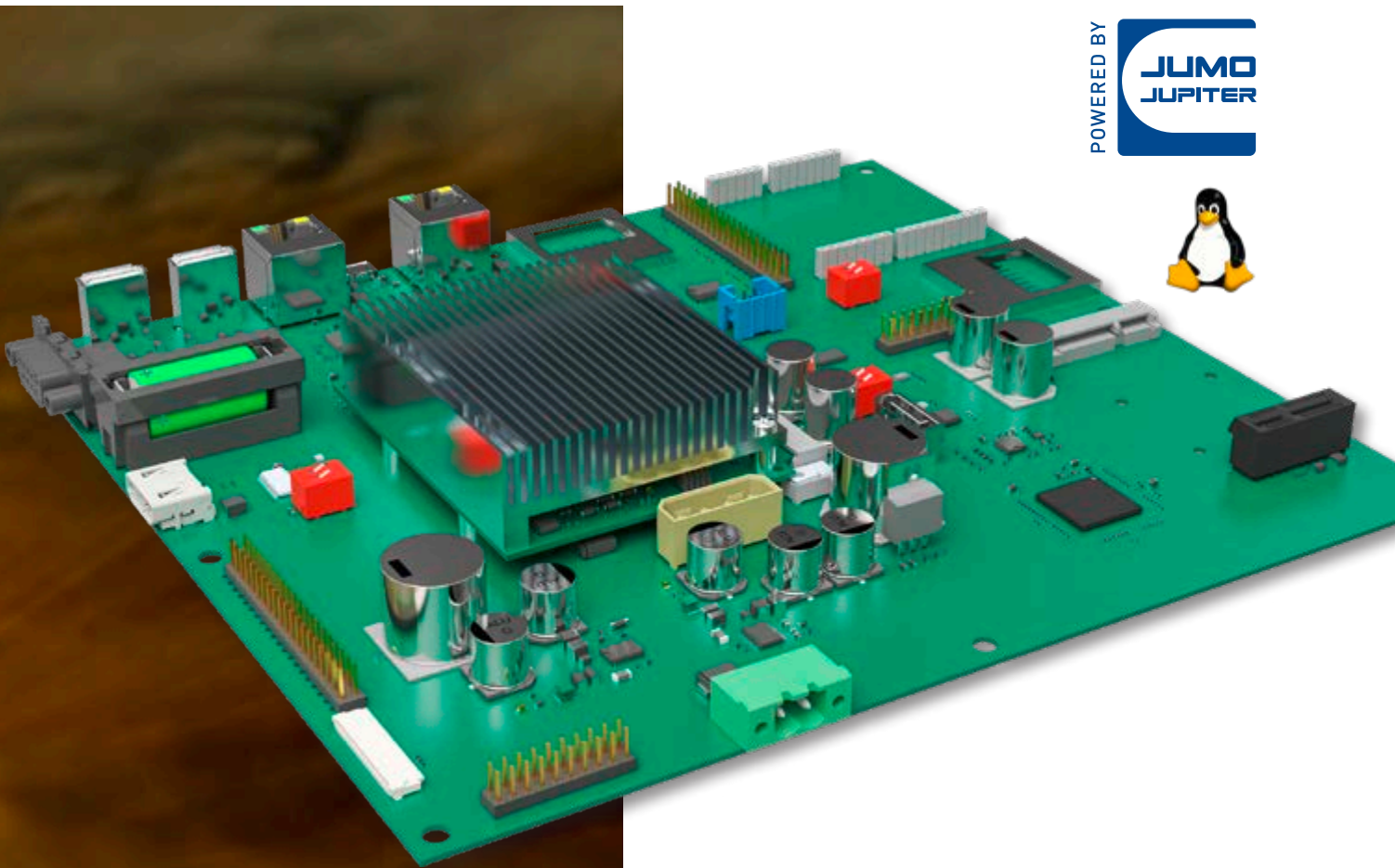


On to JUPITER!

JUMO variTRON is based on the JUMO JUPITER platform which brings many advantages

The platform approach brings numerous advantages to the development of products. It is already standard in many industries today. During the development of the JUMO JUPITER platform, great emphasis was placed on the scalability of the hardware and software. The result is a modular, flexible, and above all sustainable hardware platform that is combined with a modern software architecture.





The advantages at a glance

- ▶ Modular platform with high scalability in terms of performance, memory, and interfaces
- ▶ Highest flexibility and adaptability for individual customer solutions
- ▶ Real-time Linux operating system
- ▶ Platform approach enables short development cycles
- ▶ Maximum connectivity via Wi-Fi., Bluetooth
- ▶ TFT displays with intuitive operating concepts as well as multi gesture control and animated image transitions
- ▶ High degree of flexibility for customizing software and hardware
- ▶ High standards for Internet security and cryptography

Service & Support



We offer you full support



Service & Support

Our technical support is available to help you with questions and problems.



JUMO Campus

Take a look at our training program with many webinars and seminars on JUMO variTRON.

<http://campus.jumo-en.info>



Video introduction

Our YouTube channel includes a video series on JUMO variTRON.

<https://www.youtube.com/JUM01948>

Get to know JUMO variTRON

Would you like to try out JUMO variTRON for yourself and experience the possibilities live?

Make an appointment – we will be happy to visit you with our sample case.



Find out more about our automation solutions

<http://automation.jumo.info>

System solutions

JUMO Engineering points the way!

What began with a customer application in climate control that required sensor technology, control, recording, and automation has now become the basis for JUMO Engineering. As a system provider who develops complete solutions for you, we take a holistic yet individual approach to meeting your needs in a customized manner. In addition to providing the necessary product portfolio, we also take on the complete planning and project engineering of plants. You benefit from the expertise we have acquired over decades of work-

ing in a variety of industries. Our engineers and technicians are always available to assist with clarification of technical details, workshops, subapplications, and the development of complete solutions. The structured approach covering the creation of the specification sheet, implementation, documentation, and startup through to final training delivers clear and effective solutions. Our global sales organization is available to provide additional information.

Our services

- Feasibility analysis
- Creating a technical concept including product requirements specifications/specification sheet
- Complete project planning and documentation
- Project planning including PLC programming, visualization, network technology, etc.
- Continuous project management
- On-site startup
- Training and support

Your advantages

- JUMO, as the central contact partner, develops a technical system solution for you
- You benefit from our team's extensive expertise with all measurement and automation devices
- Global support through experienced specialists
- A flexible, tailored solution to suit your individual needs and application

In a nutshell

- Precise and prompt communication channels:
This saves you time and prevents mistakes!
- Highly developed expertise for maximum flexibility:
You benefit from fully reliable and proven project planning!
- Technology that has proven itself over decades reduces downtimes:
As a result you get excellent plant availability and process reliability!





Services & Support

It is the quality of our products that is responsible for such a high level of customer satisfaction. But our reliable after-sales service and comprehensive support are also valued. Let us introduce you to the key services we provide for our innovative JUMO products. You can count on them – anytime, anywhere.

JUMO Services & Support – so that it all comes together!

Manufacturing Service



Are you looking for a competitive and efficient system or component supplier? Regardless of whether you seek electronic modules or perfectly fitting sensors – either for small batches or mass production – we are happy to be your partner. From development to production we can provide all the stages from a single source. In close cooperation with your business our experienced experts search for the optimum solution for your application and incorporate all engineering tasks. Then JUMO manufactures the product for you. As a result you profit from state-of-the-art manufacturing technologies and our uncompromising quality management systems.

Customer-specific sensor technology

- Development of temperature probes, pressure transmitters, conductivity sensors, or pH and redox electrodes according to your requirements
- A large number of testing facilities
- Incorporation of the qualifications into application
- Material management
- Mechanical testing
- Thermal test



Electronic modules

- Development
- Design
- Test concept
- Material management
- Production
- Logistics and distribution
- After-sales service



Metal technology

- Toolmaking
- Punching and forming technology
- Flexible sheet metal machining
- Production of floats
- Welding, jointing, and assembly technology
- Surface treatment technology
- Quality management for materials



More than **sensors + automation**



Information & Training



Would you like to increase the process quality in your company or optimize a plant? Then use the offers available on the JUMO website and benefit from the know-how of a globally respected manufacturer. For example, under the menu item "Services and Support" you will find a broad range of seminars. Videos are available under the keyword "E-Learning" about topics specific to measurement and control technology. Under "Literature" you can learn valuable tips for beginners and professionals. And, of course, you can also download the current version of any JUMO software or technical documentation for both newer and older products.

Product Service

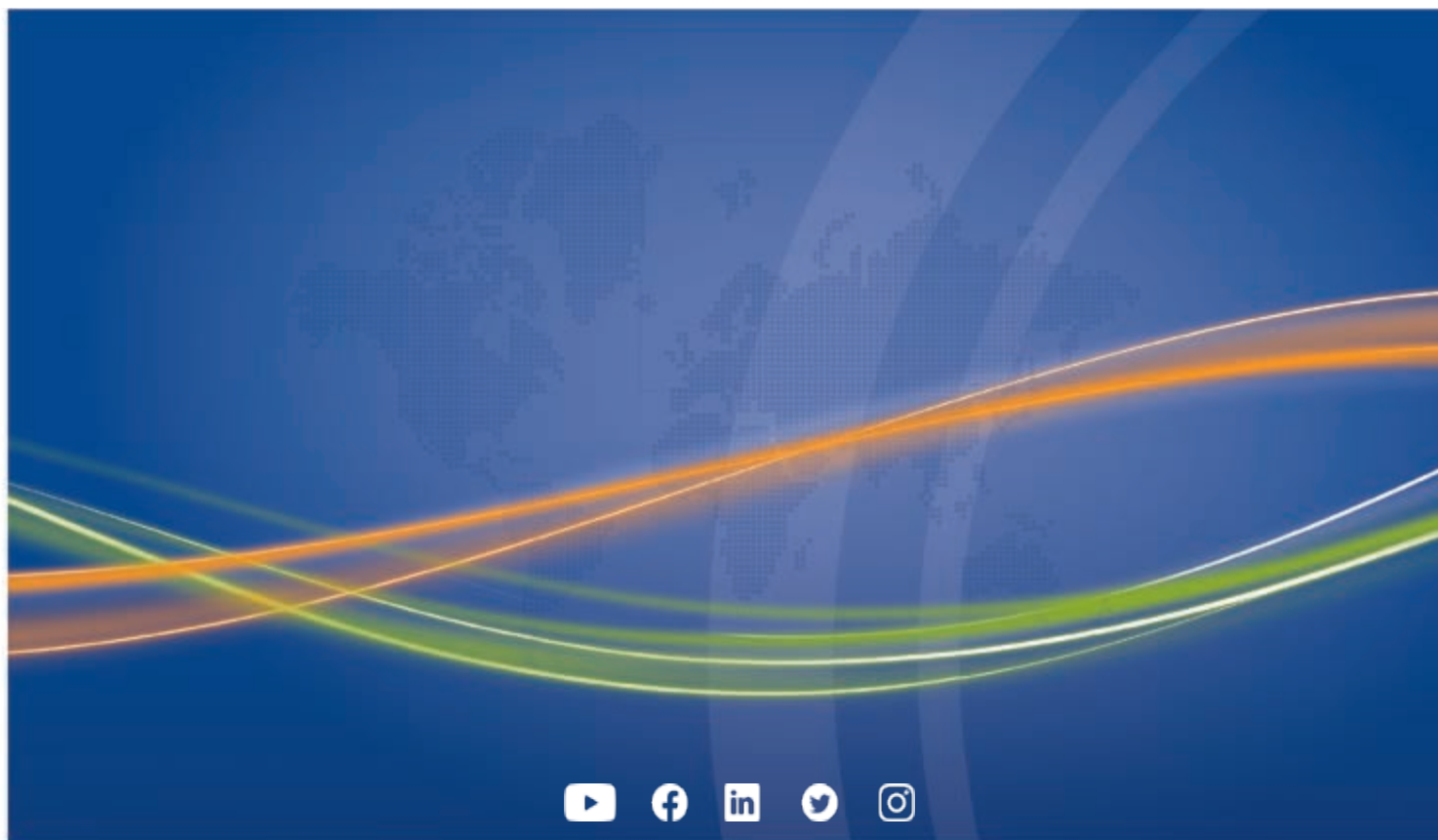


We have an efficient distribution network on all continents available to all of our customers so that we can offer professional support for everything concerning our product portfolio. Our team of professional JUMO employees is near you ready to help with consultations, product selection, engineering, or optimum use of our products. Even after our devices are commissioned you can count on us. Our telephone support line is available to give you answers quickly. If a malfunction needs to be repaired on site our Express Repair Service and our 24-hour replacement part service are available to you. That provides peace of mind.

Maintenance & Calibration



Our maintenance service helps you to maintain optimum availability of your devices and plants. This prevents malfunctions and downtime. Together with the responsible parties at your company we develop a future-oriented maintenance concept and are happy to create all required reports, documentation, and protocols. Because we know how important precise measurement and control results are for your processes we naturally also professionally calibrate your JUMO devices – on site at your company or in our accredited DAkkS calibration laboratory for temperature. We record the results for you in a calibration certificate according to EN 10 204.



www.jumo.net