



More than **sensors + automation**



# Food Technology

Innovative solutions for your success



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## Dear Reader,

Food is an integral part of our everyday lives. But only manufacturers know just how much the production of food depends on reliable processes and accurate measurement technology.

Here, JUMO is at your side as a reliable partner to help when you have questions and to provide you with quick solutions. We do so regardless of whether you monitor your process through pressure, temperature, conductivity, or pH value. We're also at your side for controlling the cleaning process or reducing production costs.

So how do we do it? By applying years of experience and professional expertise. JUMO has been a leading manufacturer of measurement and control systems for more than 70 years. This has helped us become an expert partner for the food industry.

We place great value on regular new developments, constant improvement of existing products, and on increasingly economic production methods because only this path allows us to achieve the highest degree of innovation for you.

We at JUMO offer you only the best in the food industry as well – in particular a multitude of solutions for the most varied applications.

Our solutions support you in implementing HACCP concepts or the IFS standard.

This brochure provides an overview of JUMO products and systems for the food industry. Of course, we would also be happy to develop individual solutions that are completely customized to your requirements.

The ultimate result of these solutions is high quality that is consistent!

Detailed information about our products can be found under the product group number at [www.industry.jumo.info](http://www.industry.jumo.info).

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# Temperature

Temperature is the most important measurand in the food industry. It affects the raw materials that are used and must be precisely controlled as well as monitored to prevent variations in quality. The first-class systems from JUMO help with this task.



Approvals and interfaces:



### Temperature sensors for the food industry

Temperature is measured in many applications in the food industry, especially in process technology.

Whether your production uses the high or low temperature range, you can rely on the accuracy of our temperature probes. We have the right probe for processes that are subject to extreme conditions and that have wide temperature fluctuations.

For enclosed, hygienically-demanding processes we offer thermowells and products made of stainless steel 1.4404/1.4435 (316L) that are constructed according to hygienic guidelines. These products are electrolytically polished and manufactured with surface roughness  $Ra \leq 0.8 \mu m$ .

JUMO Wtrans is the ideal product if you cannot use a cable (e.g. in rotating containers, production lines, or at great heights). The device can be used flexibly so that it transmits measured values accurately via wireless transmission. A high temperature version is now available as a product upgrade which can be used up to a temperature of 125 °C.

#### JUMO dTRANS T1000

Temperature sensor with IO-Link  
Type 902915



#### JUMO PROCESStemp

RTD temperature probes for process technology with ATEX approval  
Type 902820



#### JUMO FOODtemp

Food insertion RTD temperature probes  
Type 902350



#### JUMO Dtrans T100

Food insertion RTD temperature probe with CIP-compliant conical seal  
Type 902815



#### JUMO DELOS T

Electronic temperature switch with display and analog output  
Type 902940



#### JUMO RTD temperature probe

For the food and pharmaceutical industry  
Type 902810



#### JUMO Wtrans receiver

For RTD temperature probes with wireless data transmission  
Type 902931



#### JUMO Wtrans T

RTD temperature probe with wireless data transmission and temperature-resistant electronics which can be used up to 125 °C  
Type 902930





# Liquid analysis

For the manufacturing, storage, and processing of food JUMO offers measurement technology for the classical parameters such as temperature, pressure, and humidity. In addition, JUMO also offers measurement technology and sensors for liquid-chemical measurements such as pH value and conductivity measurement.



Approvals and interfaces:



## Liquid analysis

A balanced and proven product range is available for the most important parameters such as pH value, redox, and electrolytic conductivity. Other than handheld measurement devices to ensure quality control (through insertion pH value measurement in meat and cheese) online measurement technology is also available for continuous measurement. When packaging, bottles, and plants are disinfected the process can be monitored for measurements of free chlorine, chlorine dioxide, hydrogen peroxide, peracetic acid, and ozone.

In addition to the tried and tested JUMO CTI-750 inductive conductivity measuring devices in plastic or stainless steel case, the delivery program for CIP/SIP technology now also includes the JUMO tecLine CR-4P conductive four-electrode conductivity sensor. Holders and fittings with process connections typically used in food technology are available for these sensors.

Safe use in hygienic areas is guaranteed due to the construction from FDA-listed materials as well as the wide range of process connections manufactured in accordance with hygienic guidelines.

### JUMO CTI-750

Conductivity transmitter  
Stainless steel case  
Type 202756



### JUMO tecLine Ci

Hygienic inductive conductivity and temperature sensor  
Type 202941



### JUMO retractable fitting, pneumatical

With hygienic process connection  
Type 202823



### JUMO tecLine HY

Hygienic HeavyDuty electrodes for measuring pH value  
Type 201022



### JUMO dTRANS pH/CR/AS 02

Compact multichannel transmitter/controller series for liquid analysis  
Type 202551, 202552, 202553



### JUMO tecLine CR-4P

Conductive four-electrode conductivity sensor  
Type 202930



### JUMO digiLine Ci HT10

Head transmitter with inductive conductivity sensor  
Type 202761



### JUMO AQUIS touch P/S

Modular multichannel measuring devices with integrated controllers and recording function  
Type 202580, 202581





## JUMO digiLine

### Intelligent, bus-compatible connection system for digital sensors used in liquid analysis

JUMO digiLine is a bus-compatible connection system for digital sensors used in liquid analysis which simultaneously offers Plug and Play functionality. JUMO digiLine allows for the simple establishment of sensor networks in which a wide variety of sensors can be interconnected in different bus

topologies (linear, star). 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.

#### Measure various liquid analysis measurands with just one system

- Measurands: pH value, temperature, redox potential, conductivity, oxygen concentration, turbidity, disinfection measurands
- For industrial applications in the process, food, pharmaceutical, and water industry
- Fail-safe digital data transfer for optimal process monitoring
- Modular system: for individual measuring points as well as for establishing sensor networks
- Plug and Play function for connection to transmitters from the JUMO AQUIS touch series: facilitates the replacement of expended sensors or the brief exchange of sensors for calibration purposes
- JUMO digiLine electronic components can continue to be used even when the sensor becomes worn
- Simple and reliable calibration of sensors as well as comprehensive measuring point management: both can be easily done on a PC with the JUMO DSM (Digital Sensor Management) software tool

#### Ready for measurement in just 3 steps – thanks to Plug and Play

1) Connect sensor

2) Sensor is detected automatically

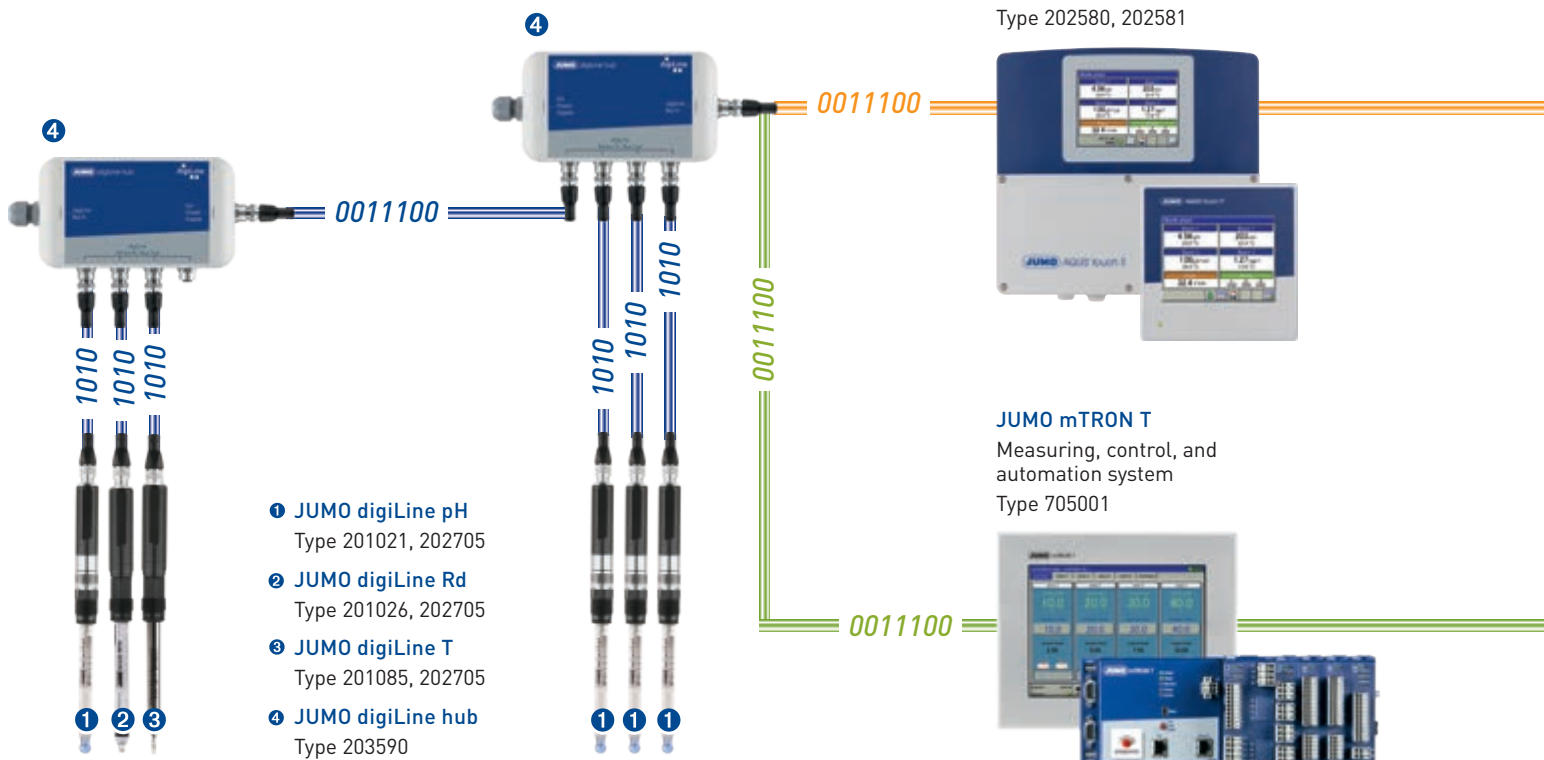
3) Sensor is linked up and ready for measurement

Dist. bodies	Parameter	
1 digital sensor 1	pH	☑
2 digital sensor 2	pH	☑
3	tc sensor	
4	tc sensor	
5	tc sensor	
6	tc sensor	

Sensor	HW-Address	
pH	00001 A	
pH	00001 B	



## System structure digiLine



### Connection option 1

The multichannel measuring devices in the JUMO AQUIS touch series were designed especially for liquid analysis. They are ideal as a central platform for the display and further processing of measurement data. Up to 6 JUMO digiLine sensors can be connected to the modular devices and as many as 25 sensors can be connected in total using corresponding input modules and interfaces. In addition to measured value acquisition, up to 4 independent control loops can be implemented and process values can be recorded in a tamper-proof manner with an integrated paperless recorder.

### Connection option 2

In addition, JUMO digiLine sensors can also be connected to the universal measuring, control, and automation system JUMO mTRON T. This way entire automation solutions can be implemented. Thanks to its scalability, the system can be individually adapted to the respective task. An integrated PLC is used to integrate up to 62 JUMO digiLine sensors.



# Pressure

In addition to temperature, pressure also plays a major role in many areas of food production. To support you in monitoring and controlling these processes we have developed a variety of high-quality pressure measuring devices.



Approvals and interfaces:



## Pressure measurement technology – powerful and reliable

Hygienic requirements in food technology are associated with measures to suppress the multiplication of microorganisms (e.g. hygienic design or cleaning and disinfecting technology). Here, the process pressure as well as the level are among the decisive measurands. JUMO offers a variety of proven and reliable pressure measuring devices with different front-flush process connections to meet these requirements.

Other than the diaphragm seals for contaminated, extremely hot, highly-viscous, or especially corrosive media, CIP and SIP capable measuring devices (up to 200 °C) are also part of the product range. Contact between the hot medium and a stainless steel or ceramic membrane can occur directly.

Some plant engineers even have to install several connection systems to meet the requirements of different end customers. To facilitate cost effectiveness and simplicity, a modular and elastomer-sealed process connection adapter system was constructed according to hygienic guidelines: JUMO PEKA, page 14/15.

### JUMO dTRANS p30/31

Pressure transmitters  
Type 402050, 404366



### JUMO dTRANS p35

Pressure sensor with IO-Link  
Type 402058



### JUMO dTRANS p20 series

Pressure and differential pressure transmitters  
Type 403022, 403025



### JUMO TAROS S46 H

Hygienic pressure transmitter  
Type 402071



### JUMO DELOS SI

Electronic pressure switch, highly precise, programmable, with display, stainless steel case, also suitable for high medium temperatures  
Type 405052



### JUMO Wtrans p

Pressure transmitter with wireless data transmission  
Type 402060





# Flow

One of the most important measurands in liquid food is flow measurement. The magnetic-inductive measurement method is most commonly used in this industry. In addition, JUMO offers differential pressure transmitters that can be used to determine flow velocity for gases, etc. The result is that we have the right solution for all your applications, regardless of whether you're measuring the flow of gas or liquids.



## Precision flow measurement for continuous monitoring and controlling

JUMO helps you to design safe processes in the food industry with precise flowmeters that have long-term stability. Depending on the application, we can provide the right flowmeters for liquids, gases, or vapors. We can also provide ATEX approval or hygienic process connections if required.

The JUMO product range comprises a wide range of devices. Orifice plates and Pitot probes offer the greatest device variety. When these are combined with differential pressure transmitters they also provide the best measuring accuracy.

We offer electromagnetic flowmeters especially for flow measurements in liquids. JUMO flowTRANS MAG H10 was especially developed for hygienic applications. The device is particularly flexible and available with a large variety of nominal widths, measuring tube linings, materials, and hygienic process connections.

### JUMO flowTRANS MAG H10

Electromagnetic flowmeter  
Type 406061



### JUMO dTRANS p20

Differential pressure transmitters  
Type 403022, 403023



### JUMO PINOS L02

Calorimetric flow sensor  
Type 406041



### MID flow transmitter

Type 406010



### Fittings for flowmeters

Type 406090





# JUMO PEKA

The JUMO PEKA process connection adapter system is available for hygienic applications. It is suitable for temperature, pressure, and conductivity measuring devices. The hygienic design guarantees you optimum process safety for whatever measurand you may need.



Approvals and interfaces:



## Hygienic design combined with maximum flexibility

The adapter system is available for temperature, pressure, and conductivity measuring devices. The parts of the hygienic adapter system that come into contact with the product are made of 1.4435 (316L) stainless steel and are equipped with FDA-compliant seals. Because of its cavity-free mounting and hygienic design, the system is easy to clean as well as specifically geared to the requirements of the food, pharmaceutical, and biotechnology industries.

The rigid adaptor with rotatable adapter protects the flush-mounted O-ring against damages caused during mounting while at the same time allowing the user to set the optimal direction of the measuring device. The measuring device's thread ensures that it can be mounted and removed any number of times. This feature simplifies mounting, cleaning, and maintenance processes.

The system's different process connections (welding socket, orbital welding socket, clamp, aseptic according to DIN 11864-1, and VARIVENT®) make it versatile and suitable for every application.

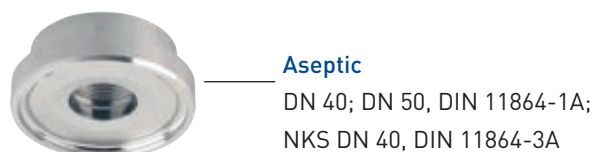
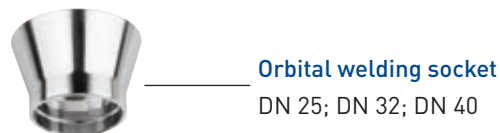
The system can be combined with many temperature probes and pressure transmitters.

## Process connection JUMO PEKA\*



\*Process connection in the data sheet of the respective measuring device: 997.

## Process connection adapter





# Humidity

Do you produce dry, pulverized products? If you do, relative humidity certainly plays the decisive role in your production process. JUMO also offers you reliable measuring systems for this purpose so that optimum support for your production monitoring is provided.



Approvals and interfaces:





## Humidity sensors

Measuring humidity plays an important part for powder production. This is especially so in the production of hygroscopic substances. The hygrothermal transducers of the 907037 series are an ideal solution for measuring humidity and temperature under extreme process conditions such as in explosion-proof areas.

The device series is based on 30 years of experience in industrial humidity measurement. The capacitive humidity sensor measures precisely and reliably. In addition, it is resistant to normal contamination and many chemicals. The measuring probes are also available with a large graphical display. On it, the process can be easily monitored and traced back up to one year.

The greatest advantage of the hygrothermal transducer with intelligent interchangeable probe (type 907027) is the pluggable probe which can be replaced in just seconds. Calibration data stored directly in the probe means that probes can be replaced when necessary without any loss of accuracy. Moreover, precision calibration procedures and the latest microprocessor technology guarantee reliable measurement and excellent measuring accuracy throughout the entire operating range.

### JUMO industrial measuring probe

For humidity, temperature, and derived variables  
DIN 43710 and DIN EN 60584  
Type 907037



### JUMO hygrothermal transducer, capacitive

With intelligent interchangeable probes  
Type 907027





# Control

Optimal solutions in the manufacturing of food can only be guaranteed if, in addition to the sensor design, the control of the measurands is also correct. JUMO systems are ideal for this task.



Approvals and interfaces:



## Control

High-precision controllers are required whenever multiple physical measurands such as time, temperature, or pressure must be precisely monitored in a process. Our electronic microstats can be used to regulate cooling and temperature control quickly and precisely. Our compact controller series JUMO diraTRON and JUMO meroTRON have been developed for more complex requirements. As a result, most control tasks can be solved with them. Fieldbus interfaces provide the connection to process control systems.

The JUMO IMAGO F3000 was specifically designed for cooking and smoking systems in the meat processing industry. The JUMO IMAGO 500 process controller with color screen and 50 time planning programs offers optimum operator control and can be used in processes with diverse recipes for a variety of different foods. With up to 8 control channels the single device can regulate, monitor, and control different processes such as flow, pressure, temperature, or level of a plant. Accurate adjustment is particularly important with processes in the food industry to prevent such consequences as overheating. This can be achieved with an integrated cascade controller in the JUMO IMAGO 500.

### JUMO mTRON T

Measuring, control, and automation system  
Type 705000



### JUMO diraTRON

Compact controllers  
Type 702110, 702111, 702112, 702113, 702114



### JUMO IMAGO F3000

Process controllers for boiling, smoking, and air conditioning systems  
Type 700101



### JUMO IMAGO 500

Multichannel process and program controller  
Type 703590



### JUMO DICON touch

Two-channel/four-channel process and program controller with paperless recorder and touchscreen  
Type 703571



### JUMO meroTRON

Modular one-channel/two-channel controller with PLC function  
Type 703051, 703052, 703053, 703054





# Recording

Are you familiar with the JUMO LOGOSCREEN type series? The devices in this paperless recorder family are ideally equipped to acquire, archive, and evaluate measured values that must be verified in a simple and tamper-proof manner.



Approvals and interfaces:



## Recording and visualization, evaluation and archiving

The recording and archiving of measurement data – especially when the obligation to provide evidence must be met – has long been part of JUMO's measurement technology and portfolio. Paperless recorders were designed as a high-quality replacement for paper recorders. They have developed significantly with plant visualization, monitoring functions, and web server connection.

### JUMO LOGOSCREEN 601

In addition to its 5.7" touchscreen, the basic device of the series offers various digital interfaces, up to 6 universal inputs, the recording of a batch report, plant visualization, and limit value monitoring.

### JUMO LOGOSCREEN 700

The flagship of the series is highly scalable and can be equipped with up to 18 measurement inputs. It is also possible to generate 10 customer-specific process screens and up to 5 batch reports. JUMO screen recorders meet the requirements of FDA 21 CFR Part 11 for the electronic recording of process data as the latest hash algorithms make the data tamper-proof.

## Automation systems

Our proven JUMO mTRON T measurement, control, and automation system offers comprehensive recording functions. JUMO variTRON allows you to benefit not only from the recording in the device, but also from the intuitive visualization and evaluation in the software. JUMO smartWARE Evaluation also ensures tamper-proof archiving of measured values and other data.

### JUMO LOGOSCREEN 601

Paperless recorder with touchscreen  
Type 706521



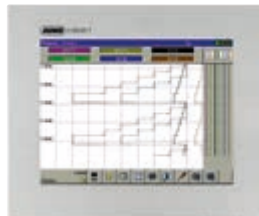
### JUMO LOGOSCREEN 700

Highly scalable paperless recorder  
Type 706530



### JUMO mTRON T – Multifunction panel 840

Measuring, control, and automation system  
Type 705060



### JUMO mTRON T – Central processing unit

Measuring, control, and automation system with controller module as well as input and output modules  
Type 705001



### JUMO variTRON and JUMO smartWARE Evaluation

Automation system and software for evaluation and visualization of measurement data recorded by JUMO variTRON  
Type 705002, 705003, 701840





# Monitoring

Because food quality is significantly influenced by temperature, JUMO provides reliable solutions for monitoring the temperature in processes.



Approvals and interfaces:



## Plant monitoring with electronic or electromechanical thermostats

Deviations from the required process temperature have a direct effect on the properties of the food that is produced. Temperature monitoring is therefore a crucial factor in the food industry.

It is especially important to monitor this parameter in all plants in which it is critical for the actual temperature not to exceed or fall below a specific temperature range as otherwise the end product would be detrimentally and irreversibly affected. An example of this type of process is temperature control of chocolate.

To prevent such irreversible damage, JUMO offers you electronic or electro-mechanical thermostats that constantly monitor your plant. The decisive advantage: if the maximum or minimum temperature of the plant is reached then the thermostats, which are approved according to DIN EN 14597, switch off to be on the safe side.

### JUMO safetyM STB/STW/Ex

Safety temperature limiters/monitors according to DIN EN 14597  
Type 701150, 701155



### JUMO safetyM TB/TW

Temperature limiter/monitor according to DIN EN 14597 as insertion and DIN-rail device  
Type 701160, 701170



### Surface-mounted thermostat

ATH series  
Type 603021



### JUMO heatTHERM-AT

Surface-mounted thermostat  
Type 603070



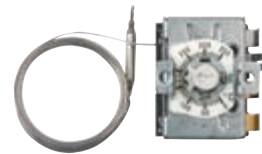
### JUMO heatTHERM

Panel-mounted thermostat EM series  
Type 602021



### JUMO heatTHERM

Panel-mounted thermostat  
Type 602031



### JUMO frostTHERM-AT/-DR

Frost protection thermostat  
Type 604100



### JUMO frostTHERM-ATE

Electronic frost protection thermostat  
Type 604170





# Automation and visualization

Problem-free processes require reliable systems. JUMO offers those as well: from transmitters to simple indicating devices to our JUMO mTRON T automation system. This way, JUMO can automate and visualize your entire process.



Approvals and interfaces:





## Transmitters

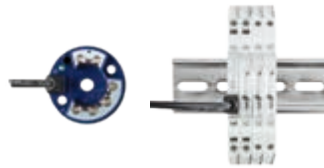
Transmitters designed for industrial applications acquire the temperature with a Pt100 RTD temperature probe with two-wire or three-wire connection technology. The output signal 4 to 20 mA is available as temperature-linear. The continuous analog signal path produces extremely rapid response times for the output when the temperature changes. This results in a low-noise output signal that is immune to interference. Maximum precision is ensured by range-specific amplification – even in small measuring ranges. The transmitter can be adapted to the measuring task via digital communication.

## Digital indicating device

Digital indicators enable a precise on-site display of process values. They also allow you to keep an eye on values that are important for a smooth production process.

### JUMO dTRANS T05

Programmable two-wire transmitter  
Type 707050, 707051



### JUMO dTRANS T06

Multifunctional four-wire transmitter in mounting rail case  
Type 707071



### JUMO Wtrans B

Programmable head transmitter with wireless transmission  
Type 707060



### JUMO dTRANS T03

Two-wire or three-wire transmitter  
Type 707030



### JUMO dTRANS T09

Cable transmitter for temperature  
Type 707090



### JUMO diraVIEW

Digital indicator  
Type 701510, 701511, 701512, 701513, 701514





# JUMO variTRON 300 and 500

## Automation system

The automation system from JUMO has a modular design and is highly scalable. JUMO variTRON is based on the JUMO JUPITER hardware and software platform. CODESYS PLC transforms the system into a PLC, which can implement a wide range of control applications.



### Features:

- High speed performance
- Flexible operating philosophy
- Simultaneous operation of more than 120 control loops
- Modern communication interfaces (e.g. OPC UA and MQTT)
- Integration of various fieldbus systems such as PROFINET, EtherCAT, Modbus TCP/RTU, and BACnet
- Many degrees of freedom in software and hardware
- Easy integration of new software functions via CODESYS PLC
- Easy adaptation of hardware inputs and outputs
- Customer-specific operation and visualization of several operator stations via CODESYS Remote TargetVisu and CODESYS WebVisu
- More than 30 intelligent connection modules
- Panels in various formats (portrait or landscape, 4:3 or 16:9)
- Integrated JUMO Web Cockpit
- Integrated measurement recording with up to 240 channels, up to 20 batches, and up to 10 measurement groups
- Optional wireless interface (JUMO variTRON 300)



## JUMO Cloud and JUMO smartWARE SCADA

### Highly-scalable and high-performing IoT solutions

Enhance JUMO variTRON with the right IoT solution: use the JUMO Cloud for worldwide access to your measurement data and benefit from data management by JUMO – including backups. Or operate JUMO smartWARE SCADA on your own servers. The software also offers many different interfaces and protocols.

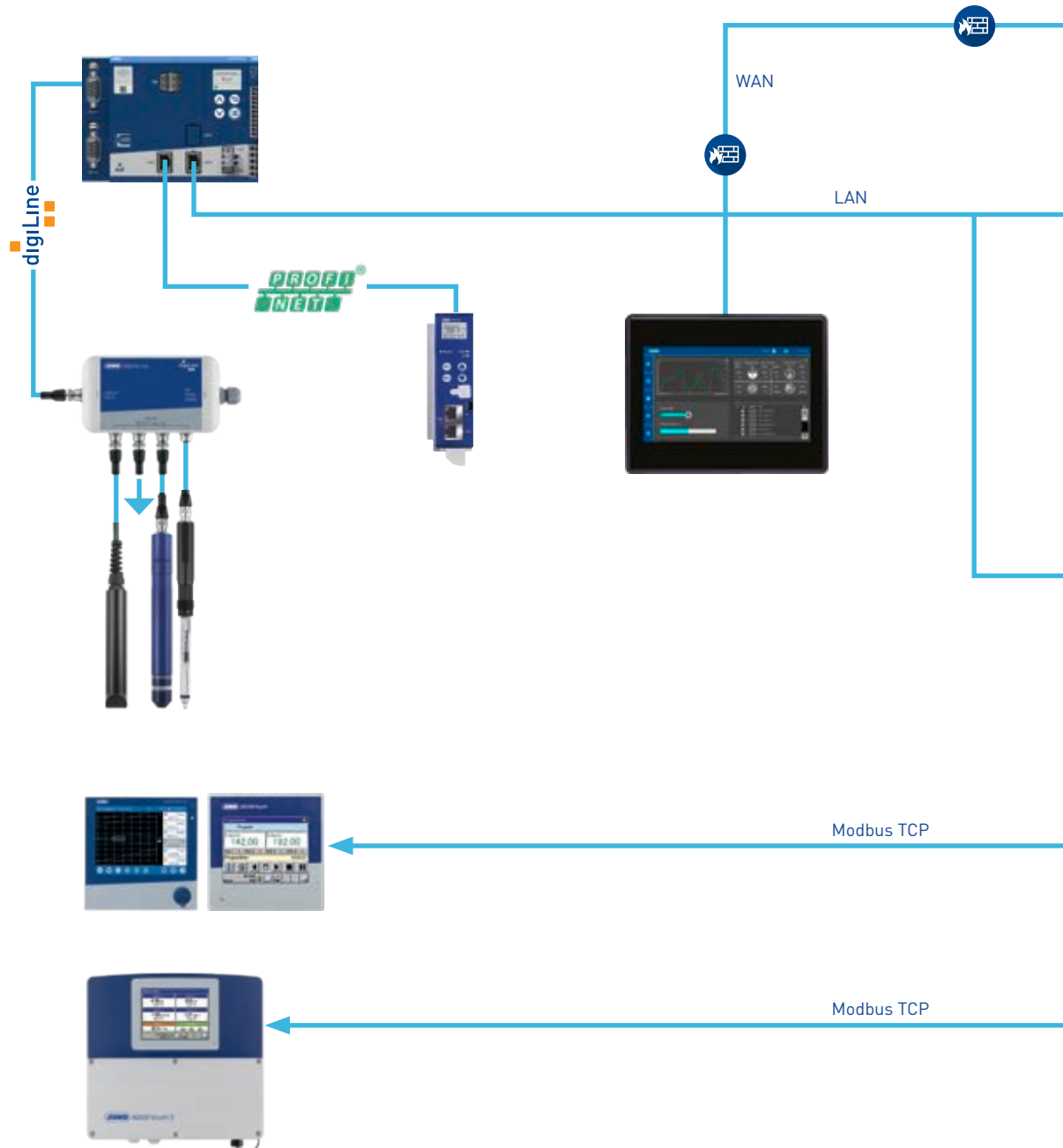


#### Features:

- Compatible with JUMO variTRON 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 via common web browsers, without having to install software, browser plug-ins, or add-ons
- 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)
- 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

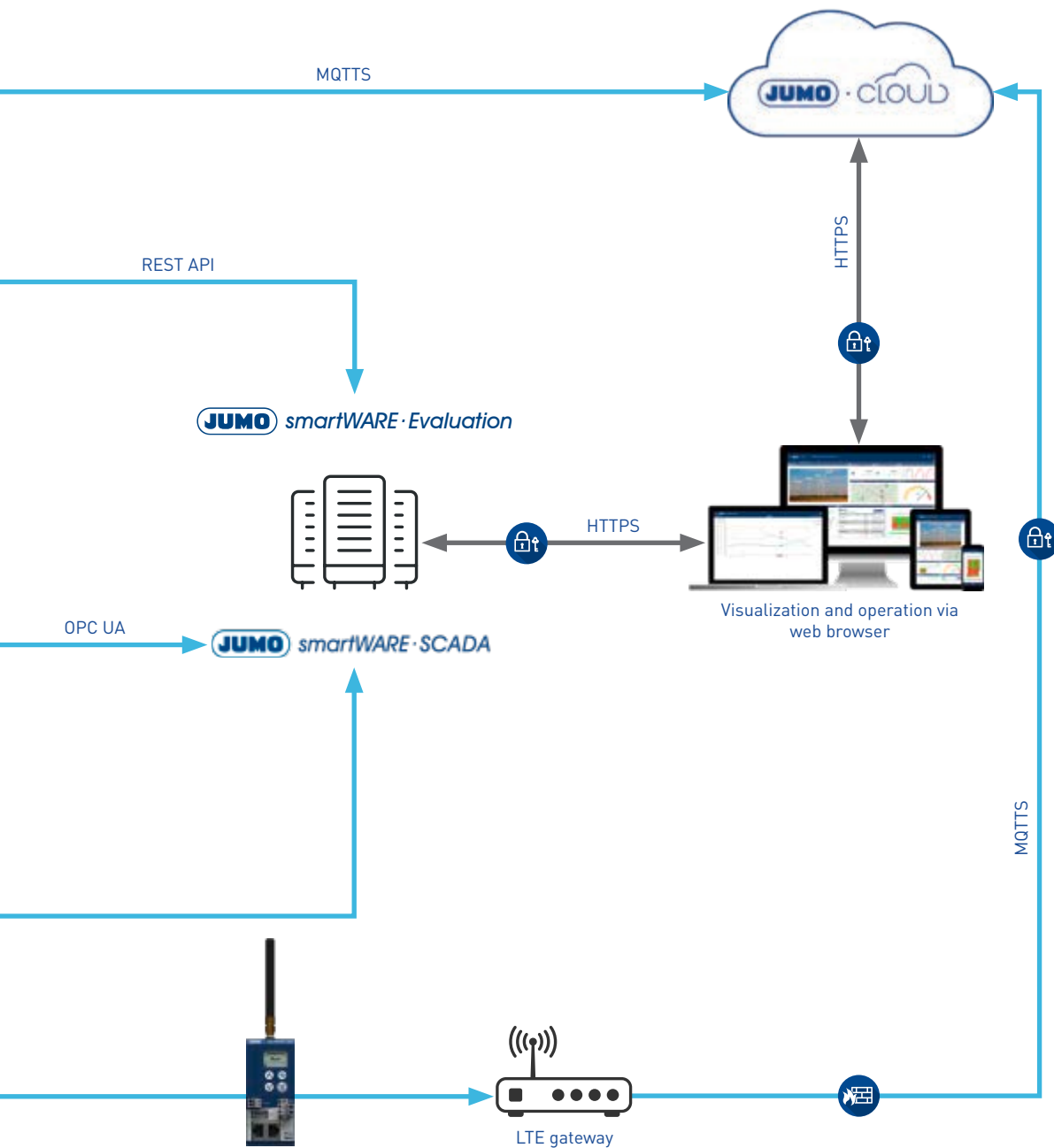


System structure – JUMO variTRON available with JUMO smart





## smartWARE Evaluation, JUMO Cloud, or JUMO smartWARE SCADA





## JUMO mTRON T

### Measuring, control, and automation system – 705001

JUMO presented its mTRON decentralized automation system at the beginning of the new millennium. Today, JUMO mTRON T is used for a wide range of applications. Ultimately, the modular system combines universal measured value acquisition with an intuitive, precise control system.

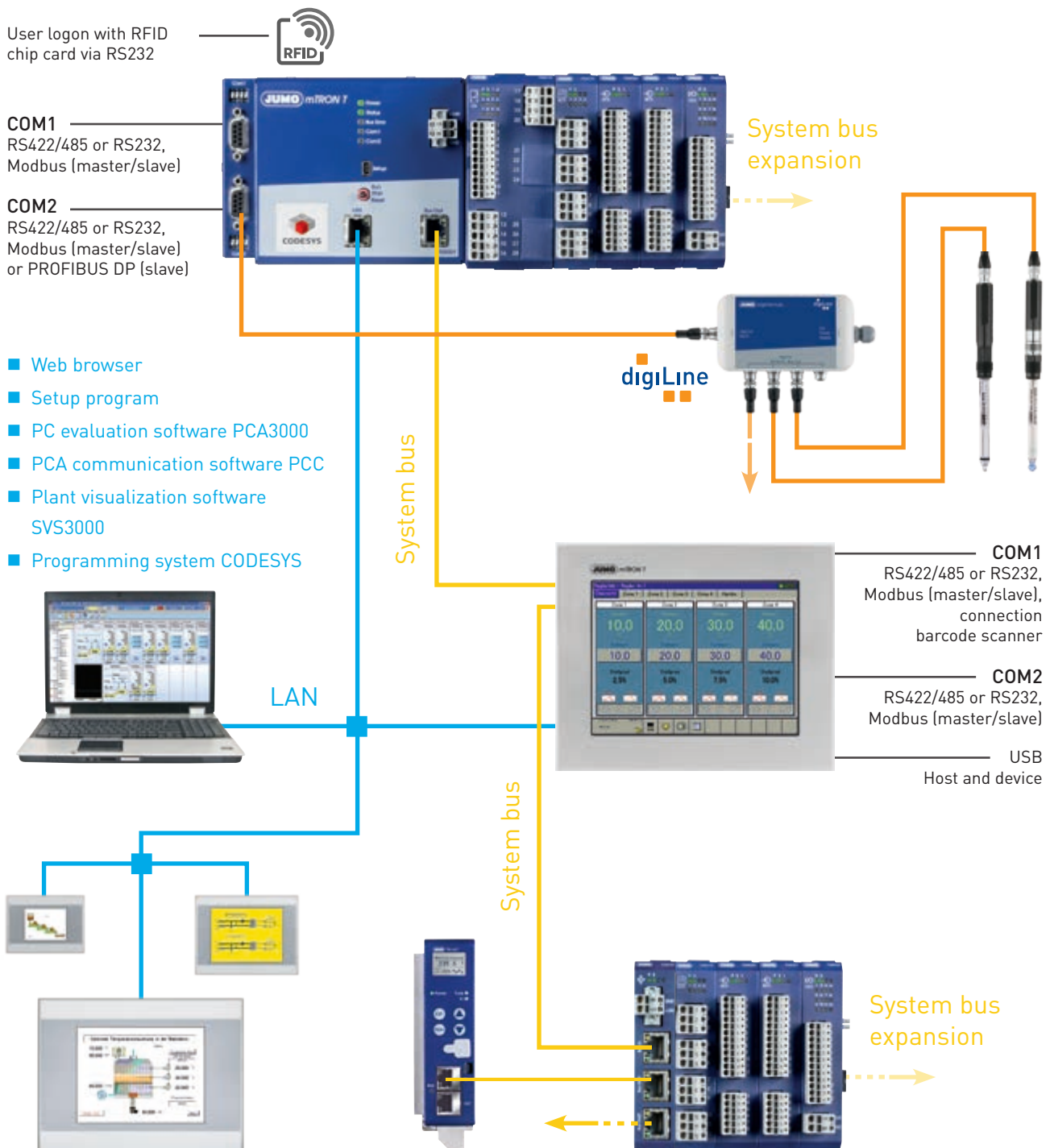


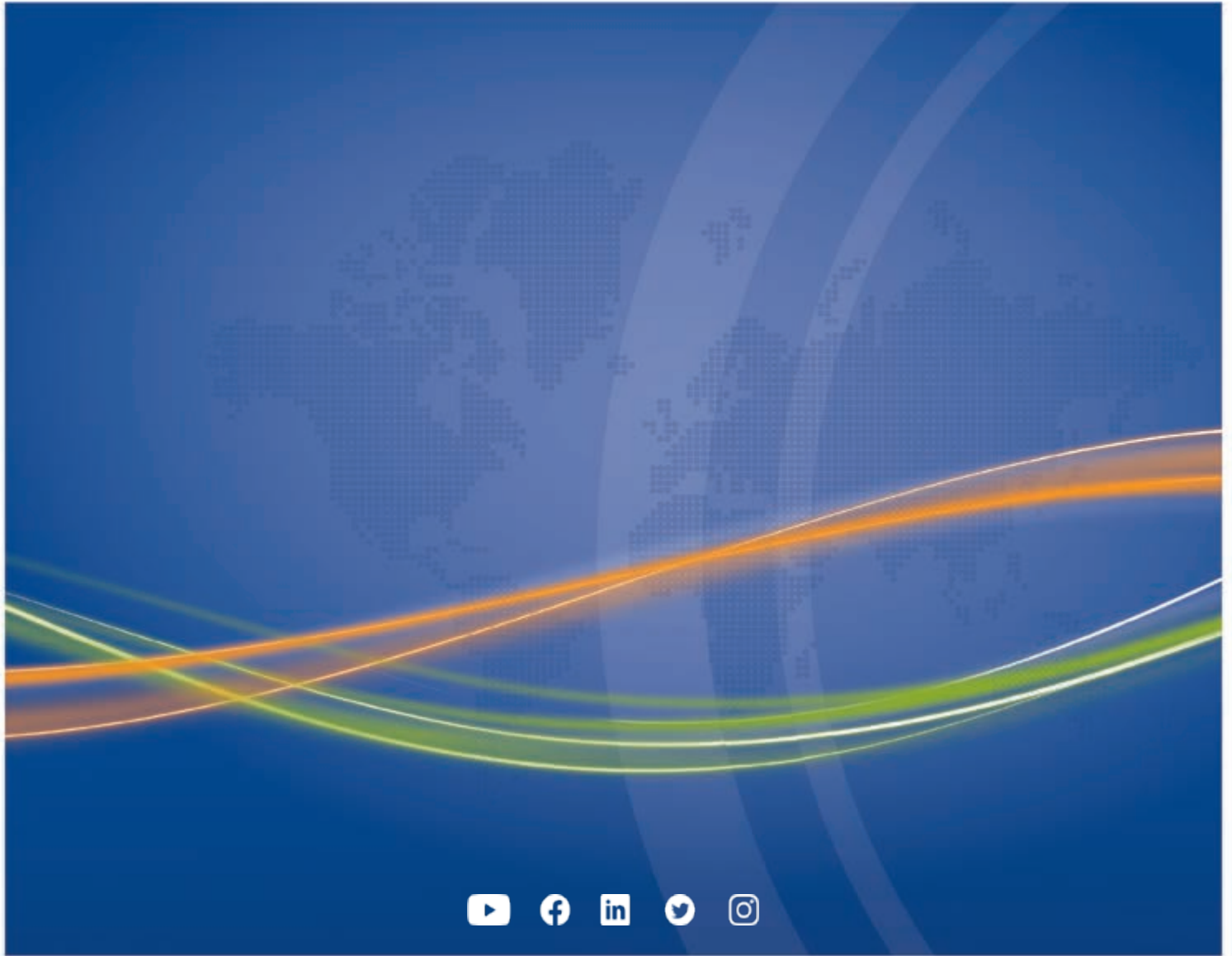
#### Features:

- Process mapping for up to 30 input and output modules
- 9 program generators
- 64 limit value monitoring functions
- Integrated web server
- PLC according to IEC 61131-3 (CODESYS V3.5)
- OPC Server (OPC DA, in connection with PLC CODESYS V3.5)
- Tamper-proof data recording
- Math and logic module
- Meeting the requirements of the AMS2750 and CQI-9 specifications
- Plug and Play when replacing input and output modules
- Battery-buffered RAM
- Quick wiring of operating voltage and system bus by simply plugging the modules together



## System structure – JUMO mTRON T





[www.jumo.net](http://www.jumo.net)

**OneTemp**<sup>o</sup> pty Ltd  
measure | control | record  
**1300 768 887**  
[www.onetemp.com.au](http://www.onetemp.com.au)