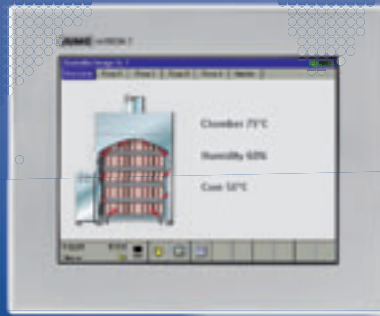




More than **sensors + automation**



Meat Processing Technology

Innovative solutions for your success





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Dear Reader,

Food – including sausage and meat – is an integral part of our everyday life. But only manufacturers know how much the production and processing of food depends on processes that run reliably and measurement technology that works accurately.

JUMO, your reliable partner, is always at your side to help when you have questions and to provide quick solutions. We do so regardless of whether you want to monitor your process by temperature, humidity, or pH-value. Of course we also support you in controlling your cleaning and in 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 sixty years. This has helped us become a professional partner for the meat industry.

We place special emphasis on regular new development cycles, continuous improvement in existing products, and constantly making production methods more economical. This is the only way we will achieve the highest level of innovation.

JUMO offers only the best for you in the meat industry as well: a wide range of solutions for the most diverse applications. Our solutions support you in implementing HACCP concepts or IFS standards.

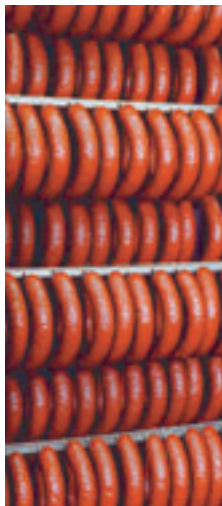
This brochure will give you an overview of JUMO products and systems for meat industry. Of course we would also be happy to develop individual solutions for you, completely customized to your requirements.

The ultimate result of these solutions is consistently good quality!

Best regards,
Christina Hoffmann

PS: For detailed information about our products arranged by type and product group number, please visit www.industry.jumo.info.

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Measurement and control systems

Optimal solutions for the production of dry, cooked, or boiled sausage can only be guaranteed if the measuring and control technology is precisely attuned to the processes. JUMO systems are the perfectly suited for this task.



Sensors

Temperature probes

Temperature is an important factor in meat processing technology. JUMO has a large selection of sensors available for your measuring and monitoring requirements.

Our temperature probes are especially designed for the applications used in meat processing and provide you with optimum safety and reliability.

Humidity sensors

In addition to temperature, humidity is an especially important consideration in curing, drying, and storing sausage products. JUMO provides hygrometric sensors for this purpose to monitor the storage or ripening process and to ensure consistent quality for your products. JUMO humidity sensors with hair measuring element are sturdy and washable. They are available with standardized current and voltage outputs and with passive resistance outputs.

Pressure transmitter

Whether you need vacuum cutting or autoclaving, we have the right pressure transmitter for your process.

JUMO provides a variety of proven and reliable pressure measuring instruments with different front-flush process connections to meet your requirements.

JUMO screw-in RTD temperature probe

With connecting cable
Type 902050



JUMO FOODtemp

Insertion RTD temperature probe
Type 902350



JUMO Wtrans receiver

For RTD temperature probes with wireless transmission of the measured values
Type 902931



JUMO Wtrans RTD temperature probe

With wireless measured value, with temperature-resistant electronics, can be used up to 125 °C
Type 902930



JUMO dial thermometers

Bimetal sensing system
Type 608002



JUMO STEAMtemp

Push-in RTD temperature probe in steam-tight version
Type 902830



Hygro/hygrothermal transducers

Hygrometric
Type 907031



JUMO psychrometer

Humidity transducer



JUMO DELOS SI

Electronic pressure switch, high-precision, programmable, display, stainless steel case, also suitable for high medium temperatures
Type 405052



JUMO dTRANS p30

Pressure transmitter
Type 404366



Measurement and control systems

Controllers, recorders, and indicators

Controlling and regulating

In addition to devices for measuring temperature and humidity, many processes also require regulating and control devices. JUMO offers a wide selection of models to meet this need. The JUMO mTRON T is an especially important device in this context. It was developed especially for use in meat processing.

The JUMO product range extends from transmitters to temperature monitors and our multifunctional process controller, providing a complete measurement chain to support all your processes.

JUMO portable pH-meter

Microprocessor controlled
Type 202710



JUMO AQUIS 500 pH

Transmitter/controller
for pH-value
Type 202560



JUMO mTRON T

Measuring, control, and
automation system
Type 705000



JUMO cTRON

Compact controller with timer
and ramp function
Type 702070



JUMO di 08

Digital indicator
Type 701530



JUMO di eco

Digital indicator
Type 701540





Recording, archiving, and evaluating

With the JUMO LOGOSCREEN range of paperless recorders, measurement values that require verification can be recorded, archived, and evaluated in an easy and tamper-proof way. The new JUMO LOGOSCREEN nt generation in particular features an integrated Web server (online visualization on a PC), a remote alarm option in the event of a malfunction, and batch documentation.

Visualization with the SVS3000

The visualization software SVS3000 enables you to visualize process data in real-time or as a historical trend on your PC. The diverse protocolling functions with batch-related protocol creation facilitate the evaluation of archived production data. Prefabricated library elements ensure a simplified application creation of the objects to be visualized.

JUMO IMAGO F3000

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



JUMO LOGOSCREEN nt

Paperless recorder with stainless steel front, TFT display, CompactFlash® card, USB interfaces and Ethernet with integrated Web server
Type 706581



JUMO SVS3000

Plant visualization software with batch-related data report and evaluation in a network
Type 700755



JUMO IMAGO 500

Multichannel process and program controller
Type 703590



JUMO safety M TB/TW

Temperature limiter and monitor to DIN EN 14597 for mounting in panel or on C-rail
Type 701160



JUMO DICON touch

2-channel process and program controller with paperless recorder and touchscreen
Type 703571





Meat production process

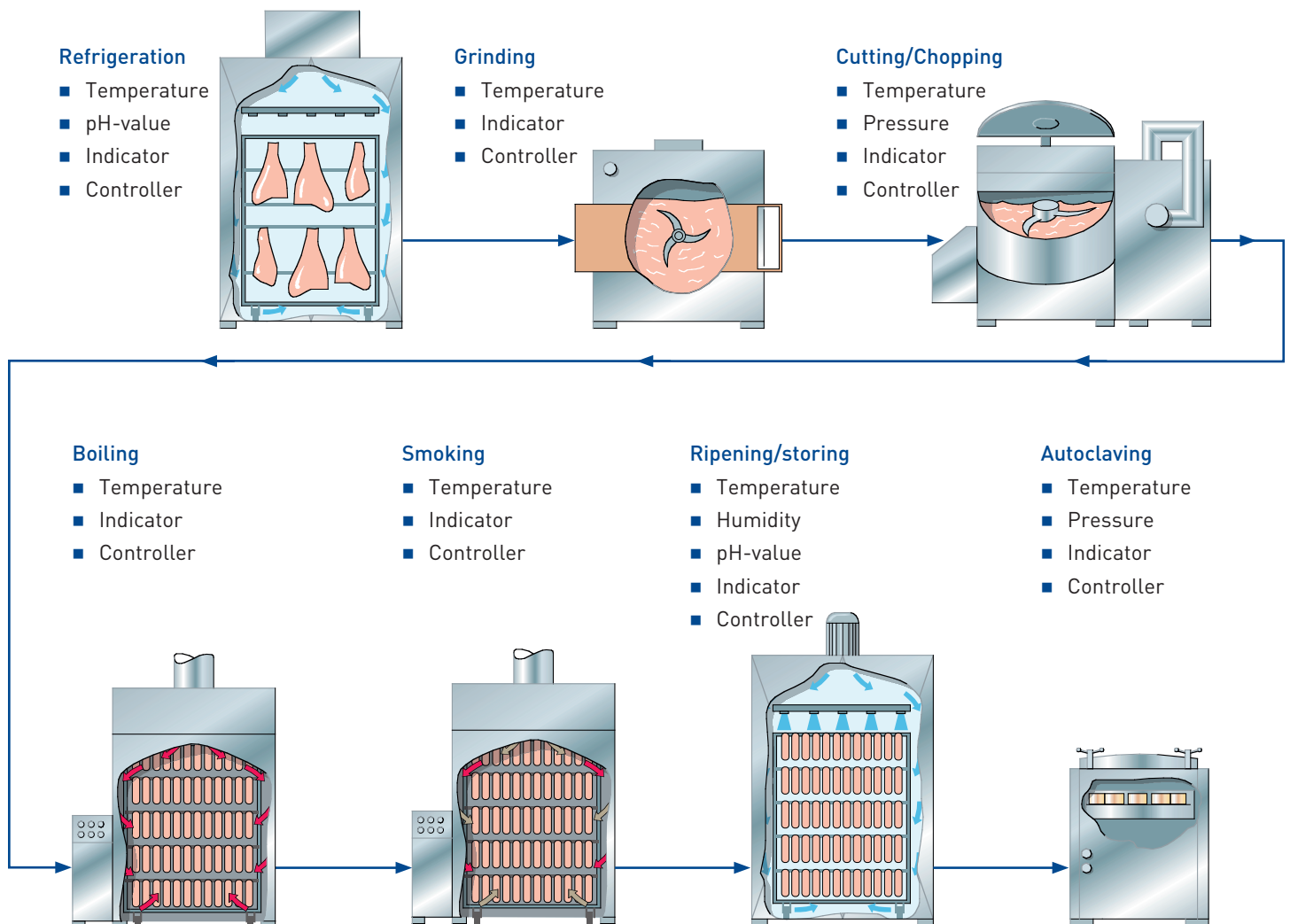
The processes in meat processing and the sausage production can be reduced to a few basic processes. In all these processes, temperature measurement and control are of prime concern. We hope to inspire you with our solutions for this industry in the following pages.

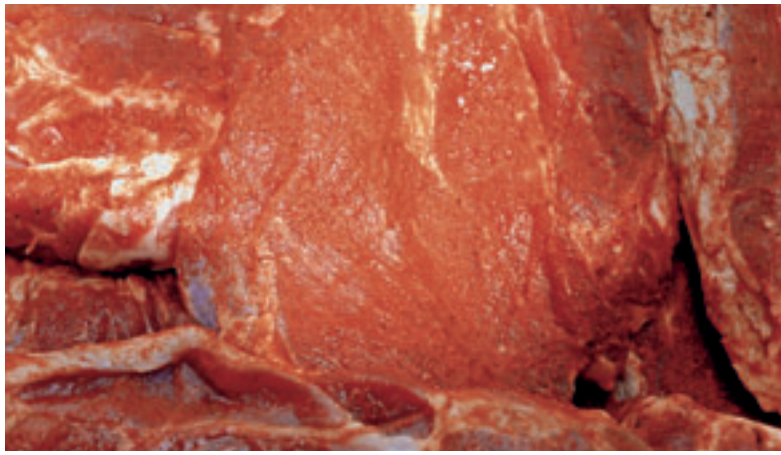


Meat processing

After slaughtering and carving, the most important consideration is refrigerating the meat until further processing. Depending on specific local requirements, the meat is refrigerated or frozen while being transported to the next processing station. The basic processes of grinding, cutting, smoking, cooking, and ripening are applied differently depending on whether the final product is dry sausage, boiled sausage, or cooked sausage. For example, there is no cooking process in the production

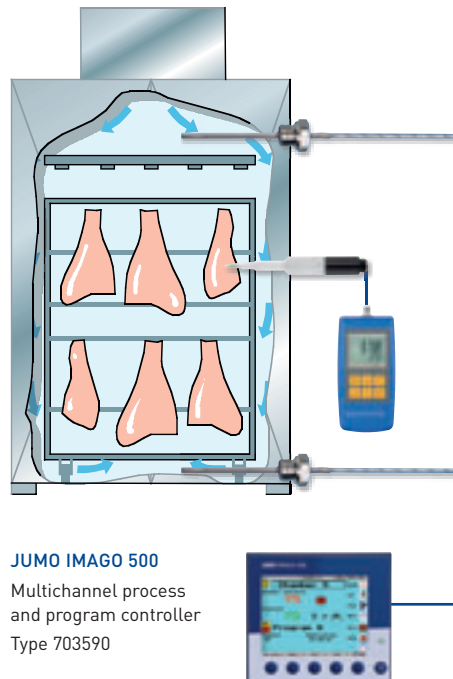
of dry sausage. Products are handled and stored differently depending on the type of sausage and the required shelf life. The correct storage temperature must also be maintained. For example, no refrigeration is required for sausage that has been autoclaved in jars or cans. On the other hand, refrigeration is indispensable when storing boiled sausage. For various types of smoked sausage, the length of the smoking time determines whether or not refrigeration is necessary.





Refrigeration

pH-value measurements in fresh meat with the JUMO pH-insertion electrode. The importance of the pH-value for meat is based on the fact that the pH-value has a significant effect on quality factors of the meat. The pH-value can be used to draw conclusions about color, tenderness, taste, water binding capacity, and shelf life. After slaughtering, biochemical decay processes begin in meat that affect the pH-value. Measuring the pH-value provides information about the speed of these processes and about meat quality.



JUMO screw-in RTD temperature probe
With connecting cable
Type 902050

JUMO pH-insertion electrode
For measurements in meat, cheese, vegetables, etc.
Type 201030/62

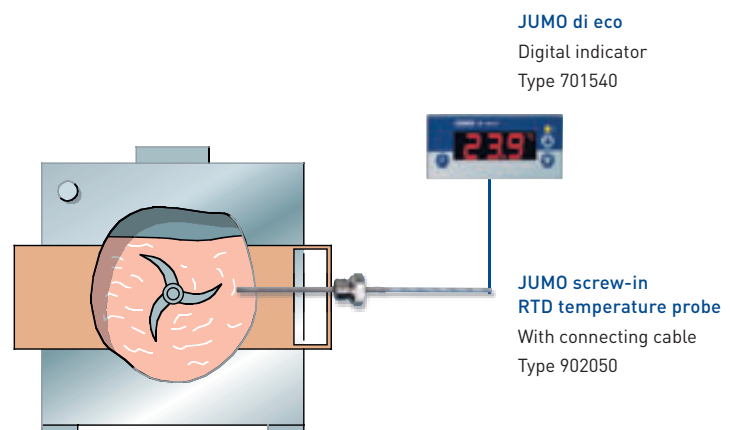
JUMO portable pH-meter
Microprocessor controlled
Type 202710

JUMO IMAGO 500
Multichannel process and program controller
Type 703590

Grinding

Temperature control in the refrigeration grinder during grinding with JUMO di eco. Grinding is one of the basic processes in the meat industry. It is performed with special devices of different sizes ranging from hand-operated grinders to large industrial systems.

It is important not to expose meat to any large fluctuations in temperature, especially not in the range above 7°C. Because of this, the cold chain must be maintained during grinding as well and if necessary additional refrigeration must be used during processing.



JUMO di eco
Digital indicator
Type 701540

JUMO screw-in RTD temperature probe
With connecting cable
Type 902050



Cutting/chopping

Monitoring the temperature and pressure during vacuum cooking-cutters. Vacuum cutters are designed to improve the color of meat and cutting quality. Using a vacuum cooking-cutter system also saves the cost of separately boiling pieces of meat, which, for example, is the case in the production of cooked sausage. The temperature plays an enormous role in these devices, since it is one of the basic factors determining the final quality of the sausage.

JUMO dial thermometers

Bimetal sensing system

Type 608002

JUMO screw-in RTD temperature probe

With connecting cable

Type 902050

JUMO dTRANS p30

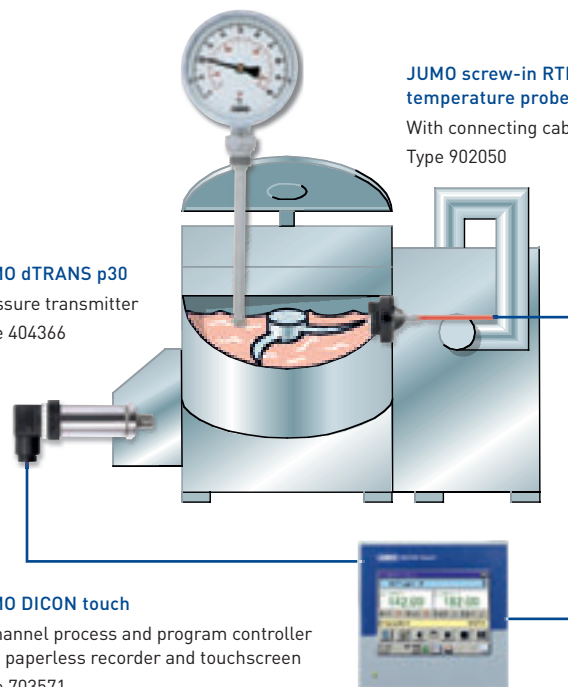
Pressure transmitter

Type 404366

JUMO DICON touch

2-channel process and program controller with paperless recorder and touchscreen

Type 703571



Cooking

Temperature control in the kettle. The temperature of the hot water must be controlled while cooking or brewing in kettles.

When using steam-tight insertion probes the user can also record the core temperature of the cooked sausage.

JUMO cTRON

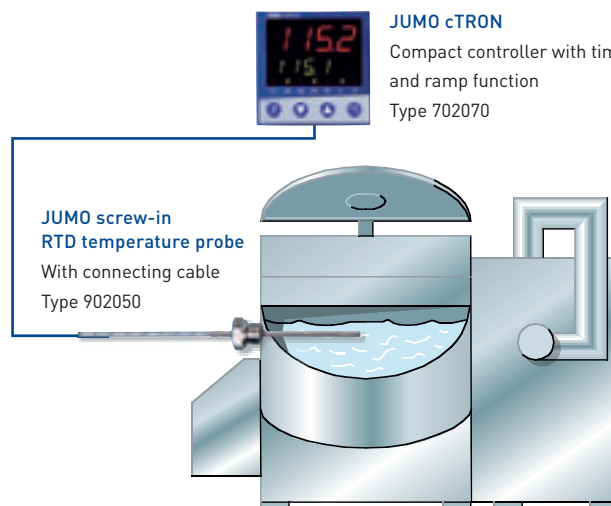
Compact controller with timer and ramp function

Type 702070

JUMO screw-in RTD temperature probe

With connecting cable

Type 902050



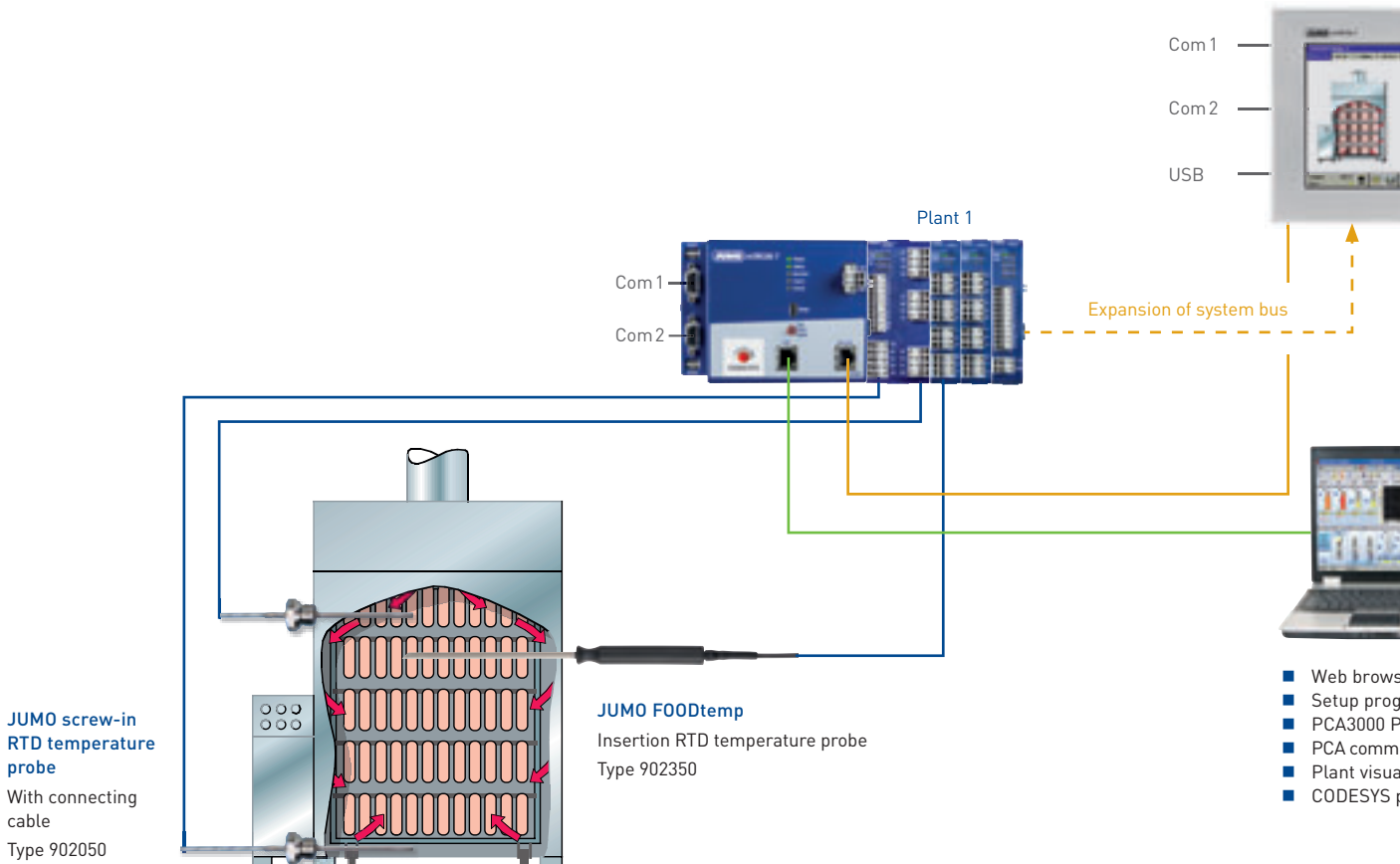


Boiling/cooking

Control of cooking and smoking processes with JUMO mTRON T

Two key processes in sausage production are cooking and smoking. Usually cooking and smoking chambers are used for this purpose. In large industrial plants today the two processes are frequently combined in "continuous" or "semi-continuous" systems. JUMO mTRON T with its special industry solution for the meat processing technology is very suited for this task. Using the JUMO mTRON T system, up to nine ripening, cooking, smoking, and air conditioning facilities working individually can now be operated and controlled and the process measured values can be logged for quality assurance. The central unit – the heart of the JUMO mTRON T –

contains nine asynchronous program generators with an available pool of 99 programs. Nine record groups including batch logging are integrated into the multifunction panel (HMI), ensuring allocation of the logged process data. The documentation of the measured process values is free from any kind of data manipulation, which is of great importance to the meat processing industry. With its modular system structure and the integrated PLC, the JUMO mTRON T automation system can be optimally adapted to control applications for ripening, cooking, smoking, and air conditioning facilities.



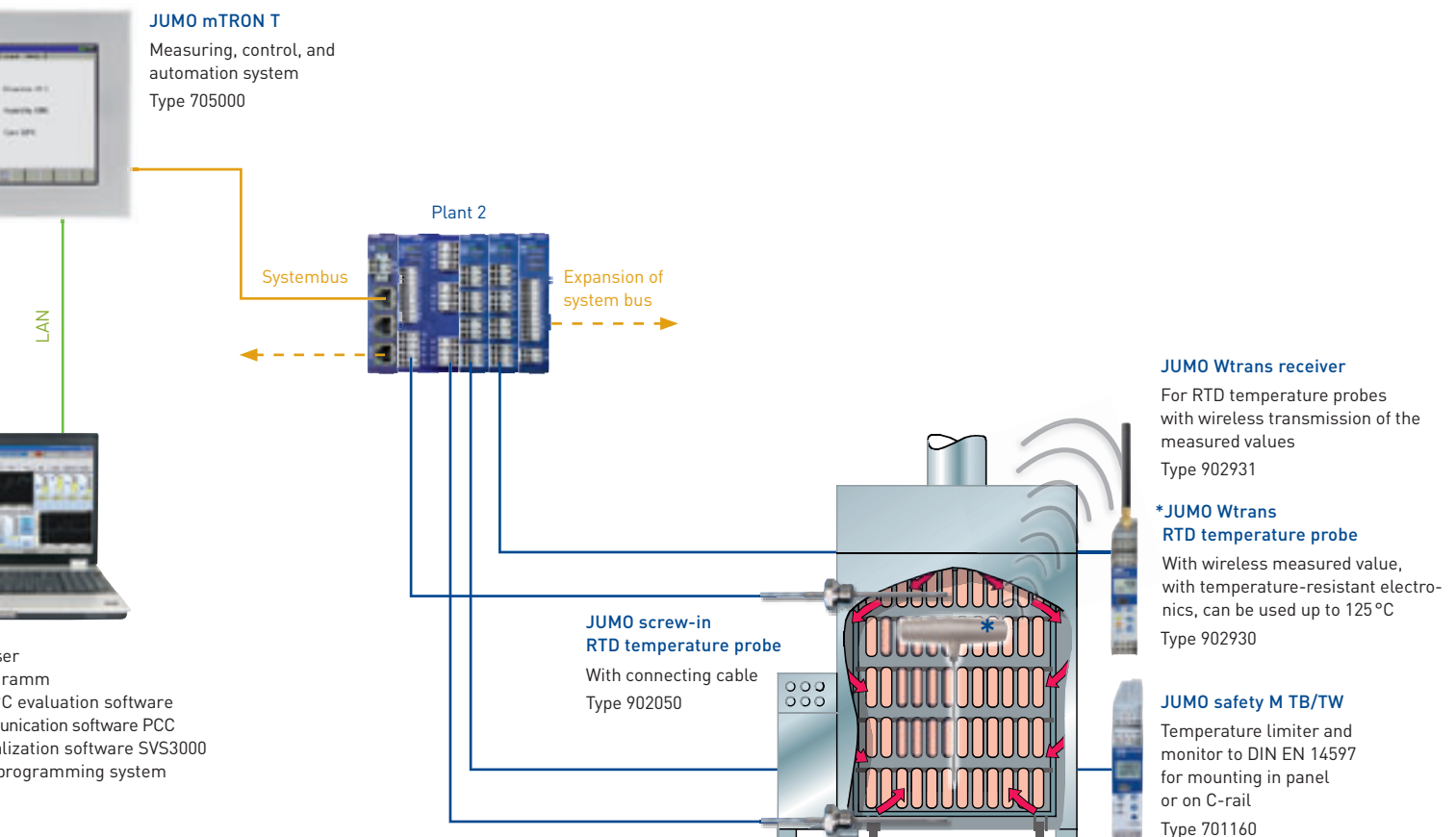


Smoking

Recording the core temperature in continuous systems

Ideally, products for recording the core temperature can be fitted with a Wtrans wireless transmitter. In this case the temperature can be recorded continuously by wireless means. This makes it possible to record the temperature precisely and without interruptions in continuous systems, an advantage not only for documentation but also for system control.

Using Wtrans wireless transmitters saves money for new installations, maintenance work, and repairs because the installation requires no cables. When fitted with electronics that provide high-temperature stability, the system can be exposed to temperatures of up to 125°C.





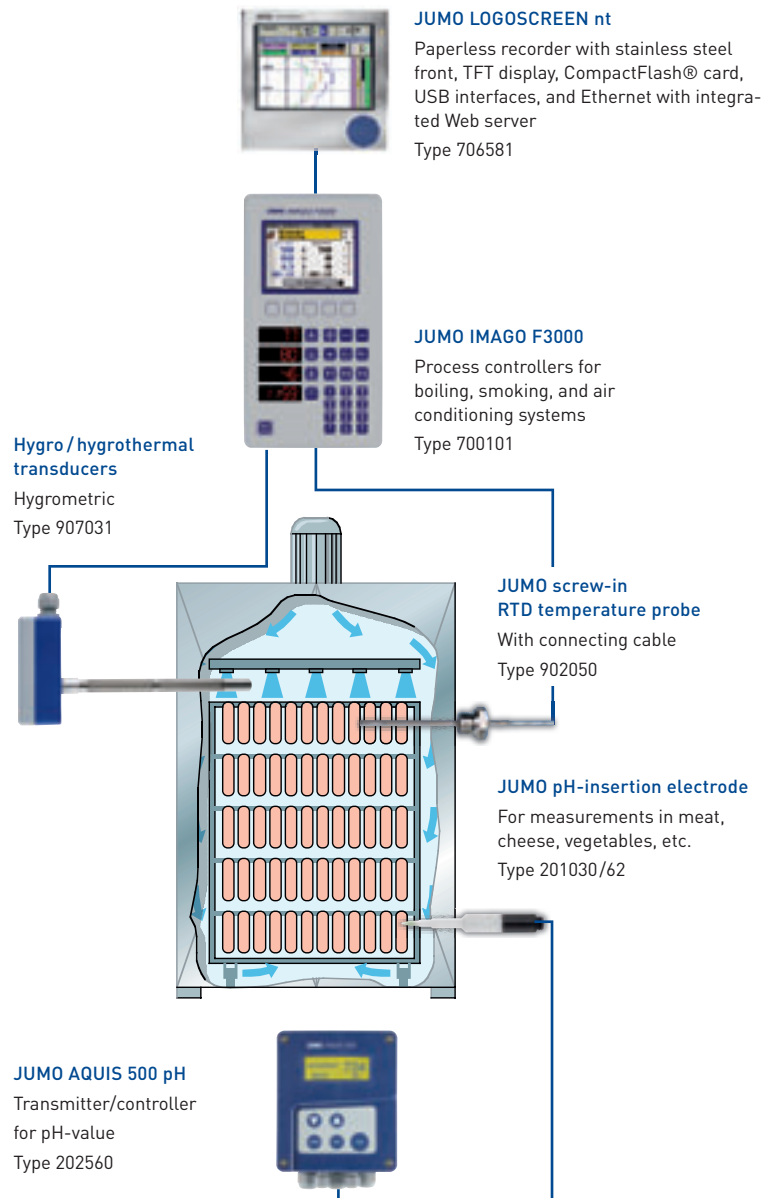
Ripening/storing

Controlled curing in dry sausage production

Ripening and drying play the most important role in dry sausage production. Products must be dried to a residual water content that meets the requirements of food regulations. It is important for water to be released at an even rate and not too quickly. Otherwise the high quality of the final product cannot be guaranteed. To prevent drying errors, the relative humidity should be in equilibrium with the aw (water activity) value of the dry sausage at the beginning of the drying process. Program controllers IMAGO F3000 and IMAGO 500 are ideal for this application.

pH-value measurement in meat and sausage products

The pH-value is related to the capacity of meat to bind water. Meat has its lowest capacity to bind water at a pH-value of about 5. There is no uniform optimum value for sausage making. The best value varies from one final product to another. In the production of dry sausage, for example, the meat should have a low water binding capacity to ensure even drying. The pH-value should therefore be about 5.





Autoclaving

Monitoring the temperature/time curve when preserving sausage with LOGOSCREEN nt

A process that has long been commonly used to preserve sausage is canning or preserving. This type of sausage is packaged in closed containers (jars/cans). They are preserved in an autoclave to provide extended shelf life.

Depending on the type of preservation involved, a specific temperature/time program must be followed to achieve the required F-values.

Measured values from the autoclave and the core temperature of the sausage are recorded and archived with the LOGOSCREEN nt for documentation.

JUMO LOGOSCREEN nt

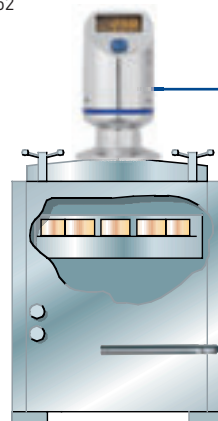
Paperless recorder with stainless steel front, TFT display, CompactFlash® card, USB interfaces, and Ethernet with integrated Web server
Type 706581

JUMO DICON touch

2-channel process and program controller with paperless recorder and touchscreen
Type 703571

JUMO DELOS SI

Electronic pressure switch, high-precision, programmable, display, stainless steel case, also suitable for high medium temperatures
Type 405052



JUMO STEAMtemp

Push-in RTD temperature probe in steam-tight version
Type 902830



JUMO mTRON T – Your System

The scalable measuring, control, and automation system

System layout

JUMO mTRON T is modularly designed and uses an Ethernet-based system bus and integrated PLC, even for non-centralized automation tasks. The universal measuring, control, and automation system combines JUMO's extensive process know-how with a simple, application-oriented, and user-friendly configuration concept.

The core element of JUMO mTRON T is the **central processing unit** with a process image for up to 30 input/output modules. The CPU has higher-level communication interfaces including web server. The system has a PLC (CODESYS V3) for individual control applications, program generator, and limit value monitoring functions as well as math and logic modules.

The following components are available as **input/output modules**: the **four-channel analog input module** with four electrically isolated universal analog inputs for thermocouples, resistance thermometers, and standard signals. These modules enable precise recording and digitizing of process variables with the same hardware which simplifies planning, resource management, and stockkeeping. **Multichannel controller modules** support up to four independent PID control loops with a fast cycle time and proven control algorithm without placing any load on the central unit. The system allows for simultaneous operation of up to 120 control loops and meets the needs of demanding control processes.

Optional slots can be used to extend and adapt the inputs and outputs of each controller module individually. The **multifunction panel** provides visualization of data as well as convenient operation of the controller and program generators. User-dependent access to parameter and configuration data of the overall system is also possible. Recording functions of a high-quality paperless recorder, including web server, are implemented as a special feature. Proven PC programs with standard predefined screen templates are available for reading and evaluating historical data.

A setup program is used for **hardware and software configuration** as well as project design for control tasks and recording measurement values. Users can create their own highly efficient automation solutions with CODESYS editors in accordance with IEC 61131-3. The entire application is recorded in a single project file.

Meat processing technology

Measurement and control systems Meat production process JUMO mTRON T



Com 1
RS422/485 or RS232,
Modbus master/slave

Com 2
RS422/485 or RS232,
Modbus master/slave
or PROFIBUS-DP slave

Expansion of
system bus



LAN

System bus



Com 1
RS422/485 or RS232,
Modbus master/slave
connection
Barcode scanner

Com 2
RS422/485 or RS232,
Modbus master/slave

USB
Host and device

- Web browser
- Setup program
- PCA3000 PC evaluation software
- PCA communication software PCC
- Plant visualization software SVS3000
- CODESYS programming system

Expansion of
system bus



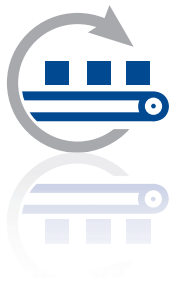


Services & Support

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





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