



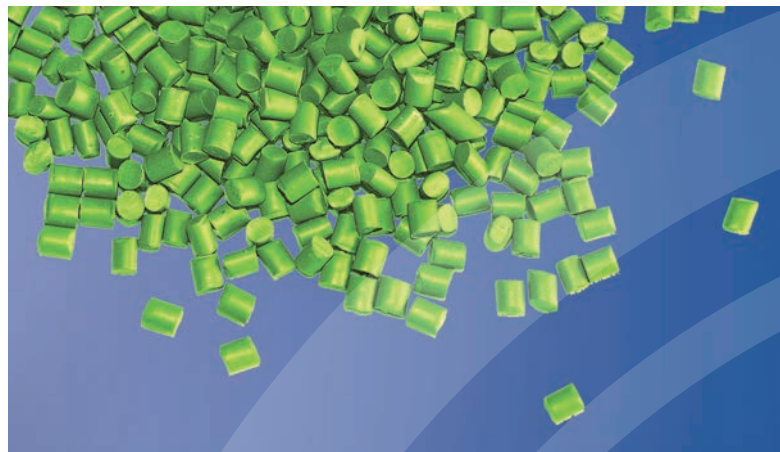
More than **sensors + automation**



Plastics and Packaging Technology

Innovative solutions for your success





Dear Reader,

Plastics and packaging are an integral part of everyday life. But only manufacturers realize how much the production of these materials depends on reliable processes and accurate measurement.

As your partner, JUMO is always at your side to help when you have questions and to provide solutions. We support you whether you want to use pressure or temperature to monitor product quality, lower production costs, or improve productivity.

So how do we do it? By applying our experience and professional expertise.

JUMO has already been a leading manufacturer of measurement and control systems for more than 60 years, and consequently, has been a professional partner to the plastics and packaging industries.

New developments, improvements to existing products, and more economical production methods are particularly important to us because only by following this strategy can the highest level of innovation be ensured.

JUMO provides only the best for plastics and packaging technology with a number of solutions for a variety of different applications.

This brochure provides an overview of the JUMO products that are available for plastics and packaging technology. Of course we would be delighted to work out specific, individually customized solutions together with you.

With this in mind – here's to consistently good quality!

PS: Detailed information about our products can be found under the specified type/product group number at www.industry.jumo.info.

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Temperature

Temperature is the most important measurement variable in the plastics and packaging industries. It affects the materials that are used here and has to be accurately controlled as well as monitored. JUMO has first-rate systems to help you with these processes.



The effect of temperature on plastics and packaging

When it comes to the production of technical/high-tech plastic parts, accurate temperature measurement has a crucial role to play in the entire manufacturing process. The thermal process stability is not just vital for an injection-molding machine or an extruder, it is also important to the hot runner, the molds, and the mold inserts. In addition, the requirements of mold cooling have become more strict.

Due to the use of new materials, process temperatures are progressively rising at the same time as manufacturing tolerances are falling, which increases the demands being made on temperature sensors. JUMO is taking this trend into account firstly by using more sensors and secondly by improving their quality characteristics.

Nowadays, mold and hot runner optimizations are geared to meeting the thermal demand of the melt. Such an optimization could correctly define the accuracy requirements or optimum sensor positioning. The optimization could also extend the service life of mineral-insulated thermocouples, probes with bayonet connection, and melt sensors.

Screw-in melt thermocouples / Screw-in melt RTD temperature probes
Type 901090, 902090



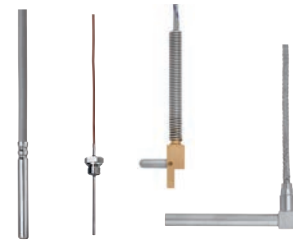
Push-in thermocouples / RTD temperature probes with bayonet lock
Typ 901190, 902190



RTD surface temperature probes
Type 902550



Push-in RTD temperature probes / Screw-in RTD temperature probes / Push-in thermocouples with cable
Type 902150, 902050, 901150



Mineral-insulated resistance thermometers according to EN 60 751
Type 902210, 902250



JUMO dTRANS T02
Programmable 4-wire transmitter (smart transmitter)
Type 707020



Mineral-insulated thermocouples according to DIN 43 710 and EN 60 584
Type 901240, 901250



JUMO Wtrans B
Programmable head transmitter with radio transmission
Typ 707060





Pressure

Just like temperature, pressure also has a crucial role to play in the production of plastics and packaging. We have therefore developed a variety of high-quality pressure measuring devices.



The effect of pressure on plastics and packaging production

Pressure control is one of the technical requirements for a safe operational process (in injection molding machines, for example). In extruders, on the other hand, correct pressure ensures proper extrusion and control of visual product details. Accordingly, this measurement variable directly influences the quality of the products being manufactured and should be continuously monitored.

JUMO provides a variety of pressure measuring systems to safeguard your processes. Different device versions are available depending on the field of application. We also take individual customer requirements into account.

As plastics and packaging are often manufactured at high temperatures, our product range also includes melt pressure transmitters that can be used at temperatures as high as 480 °C.

JUMO MIDAS series

Type 401002, 401005, 401010



JUMO 4 ADM-35

Melt pressure transmitter
Type 404450



JUMO dTRANS p30

Pressure transmitter
Type 404366



JUMO dTRANS p31

Pressure transmitter for elevated media temperatures
Type 402050



JUMO dTRANS p20

Process pressure transmitter
Type 403025



JUMO dTRANS p33

Pressure transmitter and level probe for use in hazardous areas
Type 404753





Control

Proper temperature control and the right sensor design are required to ensure thermally optimized solutions in plastics processing. JUMO systems are ideal for this task.



Plastics and Packaging Technology

Temperature Pressure **Control** Recording Monitoring Automation

Accurately and efficiently

Modern, microprocessor-based temperature controllers and control systems are no longer just used to control a parameter, they also have a wide range of process monitoring tasks to perform. For example, the response time of a temperature control system can appreciably influence the control accuracy of an entire control circuit.

The increasingly complex tasks are mainly being performed by intelligent, distributed control systems with a high level of basic functionality. They are also highly adaptable to allow such tasks as integration into the bus structure of a production system.

In addition the JUMO product portfolio ranges from transmitters to temperature monitors to multifunctional process and program controllers. This portfolio can provide devices for the complete measurement chain to support all your processes.

JUMO mTRON T – Central processing unit

Measuring, control, and automation system with controller module and input/output modules
Type 705000



JUMO mTRON T – Multifunction panel 840

Measuring, control, and automation system
Type 705060



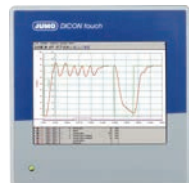
JUMO IMAGO 500

Multichannel process and program controller
Type 703590



JUMO DICON touch

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



JUMO cTRON 04/08/16

Compact controller with timer and ramp function
Type 702070



JUMO eTRON M

Electronic microstatat
Type 701060





Recording

Are you familiar with the JUMO LOGOSCREEN? With the devices of this paperless recorder range you are best equipped to record, archive, and evaluate the measurement values that require verification in an easy and tamper-proof way.



Recording, archiving, and evaluating

With JUMO LOGOSCREEN your process data can be reliably recorded and archived in a tamper-proof way. The data is either evaluated directly at the device or on a PC using the JUMO PCA3000 evaluation software. The batch reports can be printed out in customized forms.

But that's not all there is to it: the new generation paperless recorder – the JUMO LOGOSCREEN nt – has an on-line process data visualization option as well as various limit monitoring procedures, a remote alarm in the event of malfunction, and simultaneous recording of three totally independent batch processes.

Because measurement data is continuously recorded, JUMO paperless recorders give you the crucial advantage of using evaluated data to explicitly optimize your process, thus efficiently increasing plant productivity over the long term.

It is imperative that you record the measurement data, especially when the filling systems are involved in aseptic applications, so that the production process is documented without interruption.

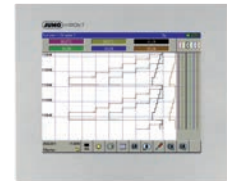
JUMO mTRON T – Central processing unit

Measuring, control, and automation system with controller module and input/output modules
Type 705000



JUMO mTRON T – Multifunction panel 840

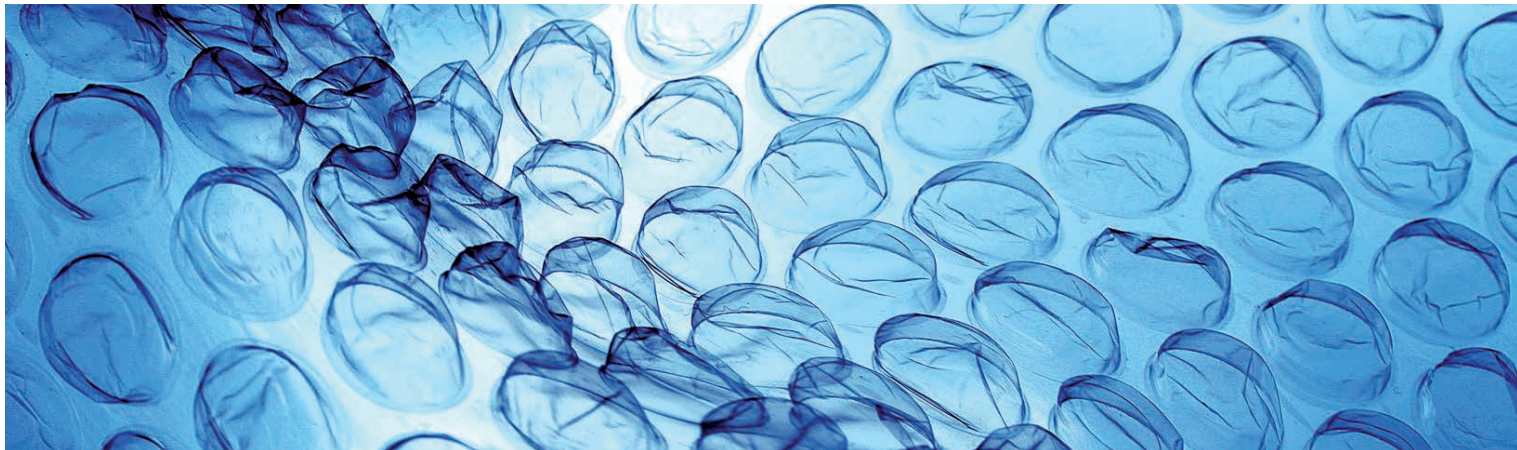
Measuring, control, and automation system
Type 705060



JUMO LOGOSCREEN nt

Paperless recorder with TFT display, CompactFlash® card, and USB interfaces
Type 706581





Monitoring

Because temperature has a decisive effect on the quality of the plastic components JUMO has developed reliable temperature monitoring technology.



Monitoring systems with electronic or electromechanical thermostats

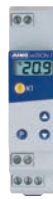
Any deviation from the required temperature value directly affects the accuracy of the weight and size of the finished parts. Temperature monitoring is therefore a crucial factor in plastics processing. Monitoring the temperature in drying systems and temperature control units is particularly important.

In pellet drying systems the correct ratio between the temperature and the relative humidity has to be monitored to achieve optimum dryness. In temperature control units the prescribed temperature must be maintained. If the temperature is exceeded, the plastic pellets can be irreversibly damaged.

To prevent this type of irreversible damage JUMO can provide electronic or electromechanical thermostats to consistently monitor your system. This has the crucial advantage that – should the maximum system temperature be reached – the DIN EN 14597 compliant thermostats shut down to stay within safe parameters.

JUMO eTRON T

Digital thermostat
Type 701050



JUMO safetyM TB/TW

Temperature limiter/temperature monitor according DIN EN 14 597
Type 701160



JUMO safetyM TB/TW 08

Temperature limiter/temperature monitor acc. to DIN EN 14 597
Type 701170



JUMO safetyM STB/STW

Safety temperature limiter/safety temperature monitor acc. to DIN EN 14597
Type 701150



Surface-mounted thermostats

ATH type series
Type 603021



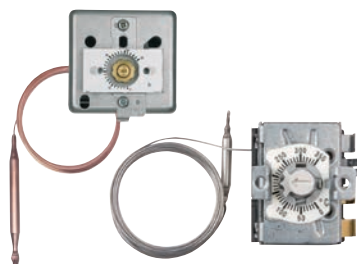
JUMO heatTHERM-AT

Add-on or room thermostat
Type 603070



JUMO heatTHERM

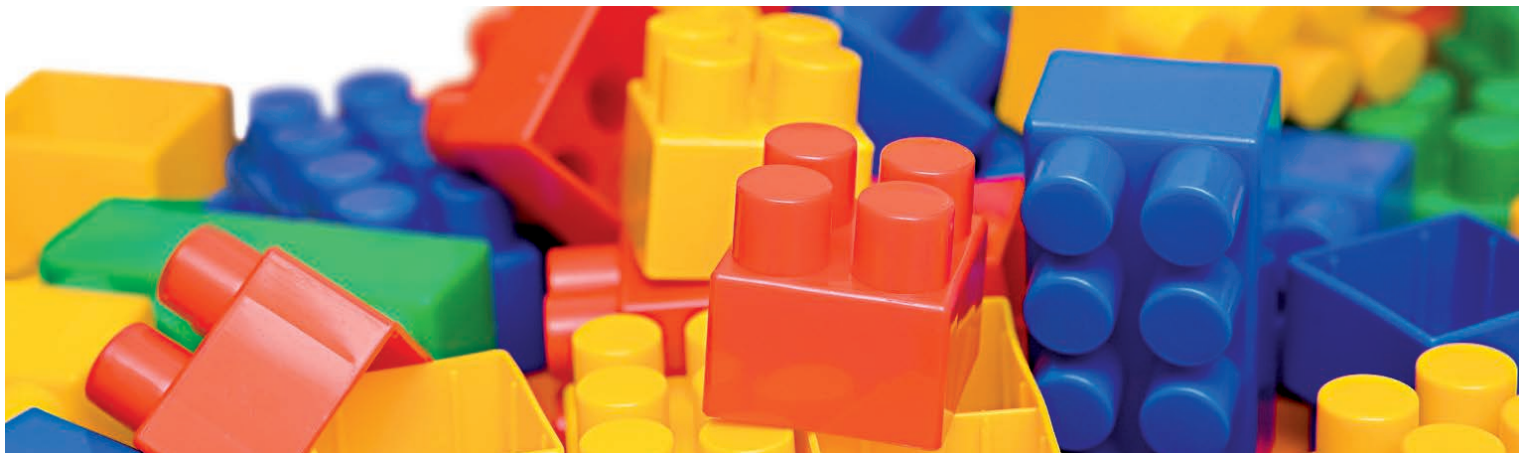
Panel-mounted thermostat type series EM
Type 602021, Typ 602031



Bimetal temperature switch

Type 608301





Automation

To ensure that your automation processes run smoothly you need reliable thyristor power switches for contactless switching of the A.C. load.



Power under control with JUMO thyristor power switches

A typical application for thyristor power switches is switching resistive inductive loads with a high number of switching actuations. The control and power sections are electrically isolated from one another by optocouplers. The control signal range is compatible with the logic outputs of the JUMO controller. The power section works as a no-voltage switch. That means whatever the timing of the control signal change, switching is only ever actuated at voltage zero. This avoids fluctuation voltages. The input status is indicated by an LED.

JUMO TYA-201
Thyristor power controller
Type 709061



JUMO TYA-202
Thyristor power controller
Type 709062



JUMO TYA-432
Thyristor power switches
Type 709010/709020



Visualize your processes with SVS3000, display measurement values on-site

JUMO SVS3000 plant visualization software allows effective operator control, visualization, and documentation. A key feature is batch documentation, which saves the data obtained from the processes that have a reference to the relevant batch.

An extremely helpful and user-friendly operator interface with a full range of functions is available.

Digital indicators display your measurement values in the process.

JUMO plant visualization software SVS3000
Type 700755



JUMO di308
Digital indicator
Type 701550



JUMO di08
Digital indicator
Typ 701530





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.

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Temperature Pressure Control Recording Monitoring Automation



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

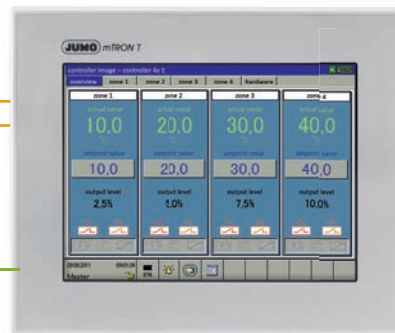
Com 2
RS422/485 or RS232,
Modbus master/slave
or PROFIBUS-DP slave

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



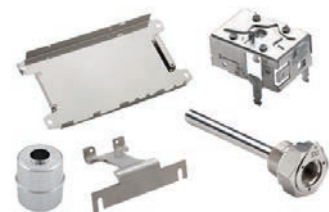
Electronic modules

- 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