JUMO

MORE THAN SENSORS
AND AUTOMATION

Heating and Air-Conditioning Industry

Innovative solutions for your success

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Dear Reader,

We all prefer a nice warm room. As manufacturers of heating and air-conditioning systems, you know just how important it is for all the components involved to be reliably controlled and monitored.

Here, JUMO is at your side as a reliable partner to help when you have questions and to provide you with quick solutions. We can do so no matter how you want to control and regulate your plant and no matter how you would like to protect it.

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

We place great value on steady new developments, continuous improvement of existing products, and on production methods that are always becoming more economical. Only this path allows us to achieve the highest degree of innovation for you. Here at JUMO we provide only the best for your heating and air-conditioning tasks with a wide range of solutions for a variety of applications.

In an expanding market as diverse as the heating and air-conditioning industry, measurement and control technology must always be up to date.

This brochure provides an overview of JUMO products and systems for the heating and air-conditioning industry. Of course, we are also happy to work together with you to create customized solutions for individual requirements.

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

Detailed information about our products can be found using the provided product group number at www.jumo.net.

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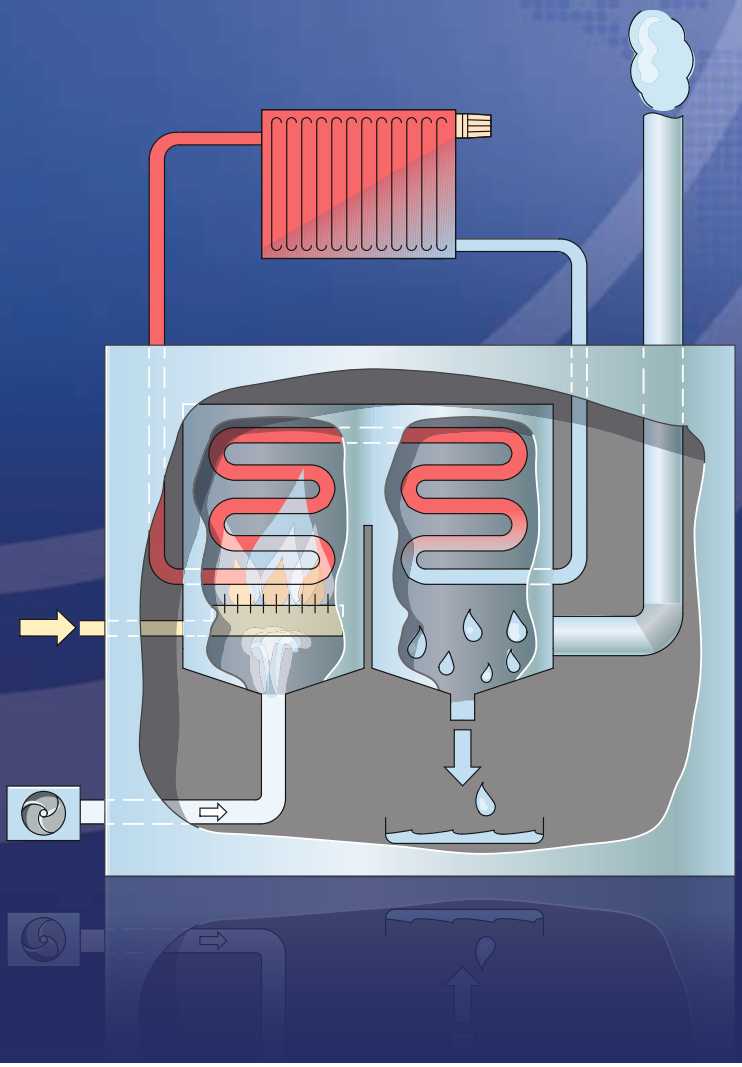
Condensing boilers

The condensing boiler offers a highly sophisticated solution as a classic plant for heat generation. JUMO has years of experience in this area and as a result, can provide all the necessary measurement and control products to perfectly equip this type of plant. For many years JUMO has been a reliable partner to the heating industry. Whether in the context of joint development at the start of a product phase, or when adapting products during their lifecycle, JUMO always strives to develop the best-possible solution for reliable control of the condensing boiler.



Condensing boiler

Operating principle

Condensing boiler technology is based on burning fossil energy sources such as oil or gas. The energy source is brought into the combustion chamber of the boiler plant, where it burns and releases thermal energy and exhaust gases. Released thermal energy is transferred to the water, which flows past the combustion chamber in pipes. This water has already been preheated in a condensation heat exchanger, using the thermal energy from the exhaust gases. That is how optimum raw material efficiency is achieved.

Monitoring the service water temperature

Maintaining high standards of hygiene in the storage of service water requires strict regulation of the water temperature in the storage media. The maximum service water temperature must not exceed 60 °C, but it also cannot fall below 55 °C. RTD temperature probes from JUMO provide safe and reliable solutions for monitoring the temperature of the service water. Of course, these solutions can also be transferred to all areas of temperature measurement in heating systems.

JUMO MIDAS S05
OEM pressure transmitter
Type 401010

JUMO heatTHERM
Panel-mounted thermostat
Type 602030/31

JUMO miroTRON
Electronic thermostat with optional PID two-state controller function
Type 701080/81/90/91

JUMO STB/STW
Safety temperature limiter and monitor
Type 701150

JUMO safetyM TB/TW 08
Temperature limiter and monitor according to DIN EN 14597 as built-in and DIN-rail device
Type 701160, 701170

RTD temperature probe
For DIN EN 14597
Type 902006

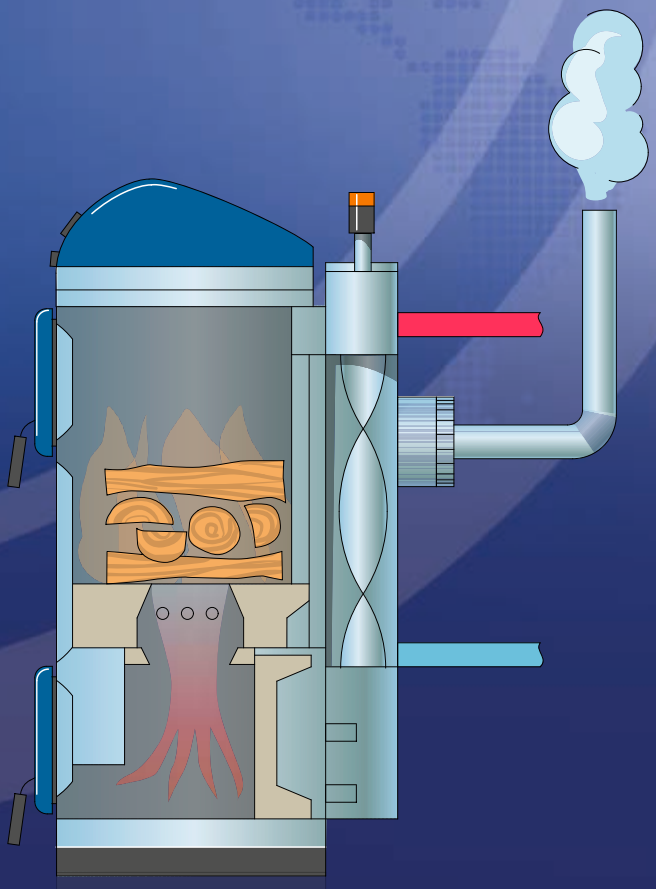
Screw-in RTD temperature probe
With form B terminal head
Type 902020

Push-in RTD temperature probe
Type 902150

JUMO hydroTRANS series
Humidity and temperature transmitter with optional CO_2 module for HVAC applications
Type 907042/43/44/45

Solid fuel boilers

Heating with solid fuels inevitably always results in high temperatures which are generated by flames. Here in particular, a reliable and continuous operation of all safety systems is essential. JUMO provides you with exactly the right solutions: safely - reliably - progressively. Always with a finger on the pulse of technology for the safety of your boiler plants.



Solid fuel boilers

Operating principle

A solid fuel boiler can be fired with all solid fuels, which of course also includes firewood. The air needed for the combustion process is provided by the natural draft method. Fuels are placed on a grate and burn upwards or downwards, depending on the type of plant. The resulting thermal energy is transferred to the heating water via a heat exchanger.

Monitoring the exhaust gas temperature in bivalent operation

A frequent mode of operation for solid fuel boilers is bivalent operation with a condensing boiler. Here, an exhaust gas temperature monitor must ensure that only one plant is used for energy generation at a time. The exhaust gas temperature monitor measures the temperature in the exhaust pipe of the solid fuel boiler. When a temperature of 80 °C is reached, the condensing boiler is locked with the help of the exhaust gas temperature monitor. JUMO heatTHERM-AT is optimally designed for the new boiler types.

JUMO MIDAS S05/S06
OEM pressure transmitter
Type 401010, 401011

Multirange and differential pressure transmitter
For non-aggressive gases
Type 402006

Differential pressure monitor
For air, smoke, and exhaust gases
Type 404201

JUMO flowTRANS US series
Ultrasonic flowmeters
Type 406050, 406051

JUMO heatTHERM
Panel-mounted thermostat
Type 602030/31

JUMO heatTHERM-AT
Surface-mounted thermostat
Type 603070

JUMO miroTRON
Electronic thermostat with optional PID two-state controller function
Type 701080/81/90/91

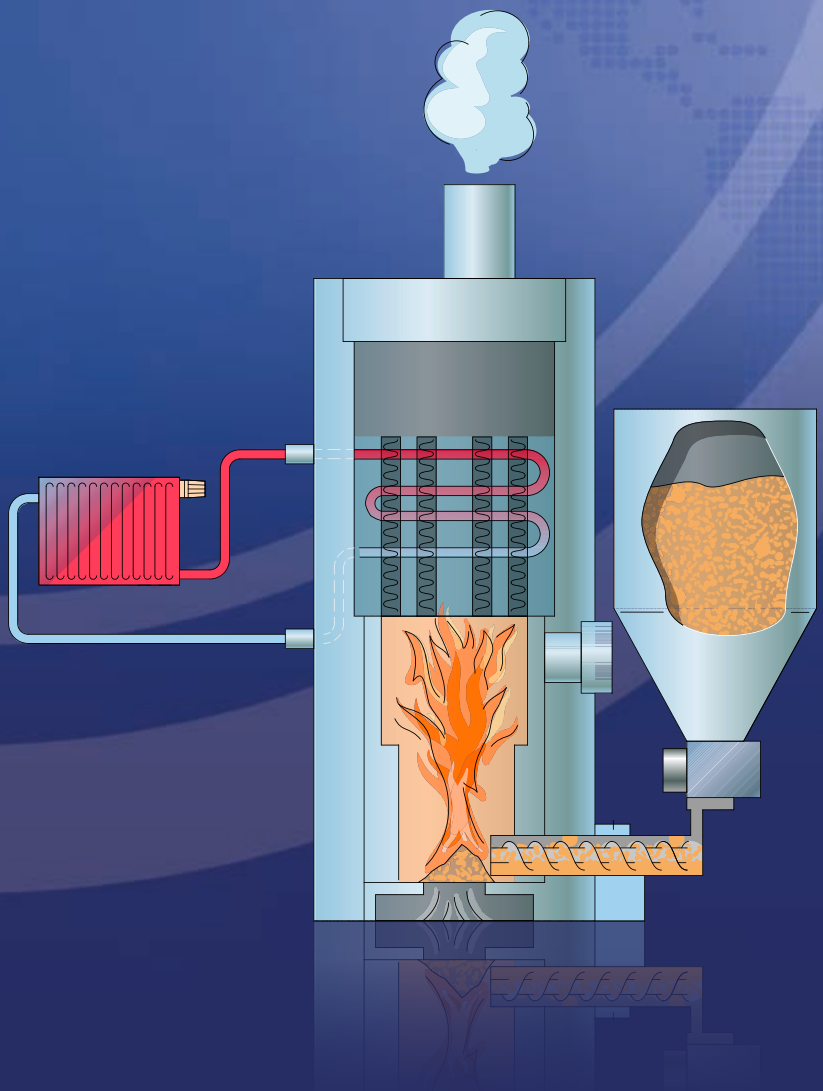
Screw-in thermocouple
With terminal head J
Type 901030

Screw-in RTD temperature probe
With connection line
Type 902050

Surface RTD temperature probe
With connection line
Type 902550

Pellet heating systems

Measurement and control technology is needed in every heating system, including those that work with pellet heating. The selection and dimensioning of this heating system always depends very much on the requirements of the customer and on the spatial conditions on site. For this purpose, it is particularly important to have a reliable partner for measurement and control technology who can offer flexible and customer-specific system solutions. JUMO always strives to work with you to implement the optimum solution for your project.



Pellet heating systems

Operating principle

Fuel in the form of the wood pellets is fed into the combustion boiler in larger pellet heating systems by a screw conveyor or a suction device. The burning process is ignited electrically so that the supplied pellets can burn. Thermal energy is generated in the process which is then transferred to the heating water. The resulting exhaust gases rise to the top and flow through a heat exchanger system. This is where the heat that they contain is delivered to the heating water before the now cooled exhaust gases are directed out into the atmosphere via the chimney.

Temperature visualization

The greater the heat output of a pellet heating system becomes, the more important it is to permanently control the temperatures currently occurring in the process. You can read the current process temperature at any time with the JUMO diraVIEW digital indicator series. Because you can program the minimum and maximum values, you can also reliably control your process. The color change of the alarm text from red to green – or vice versa – further supports monitoring and provides a visual aid for process control.

JUMO MIDAS S05
OEM pressure transmitter
Type 401010

JUMO heatTHERM
Panel-mounted thermostat
Type 602030/31

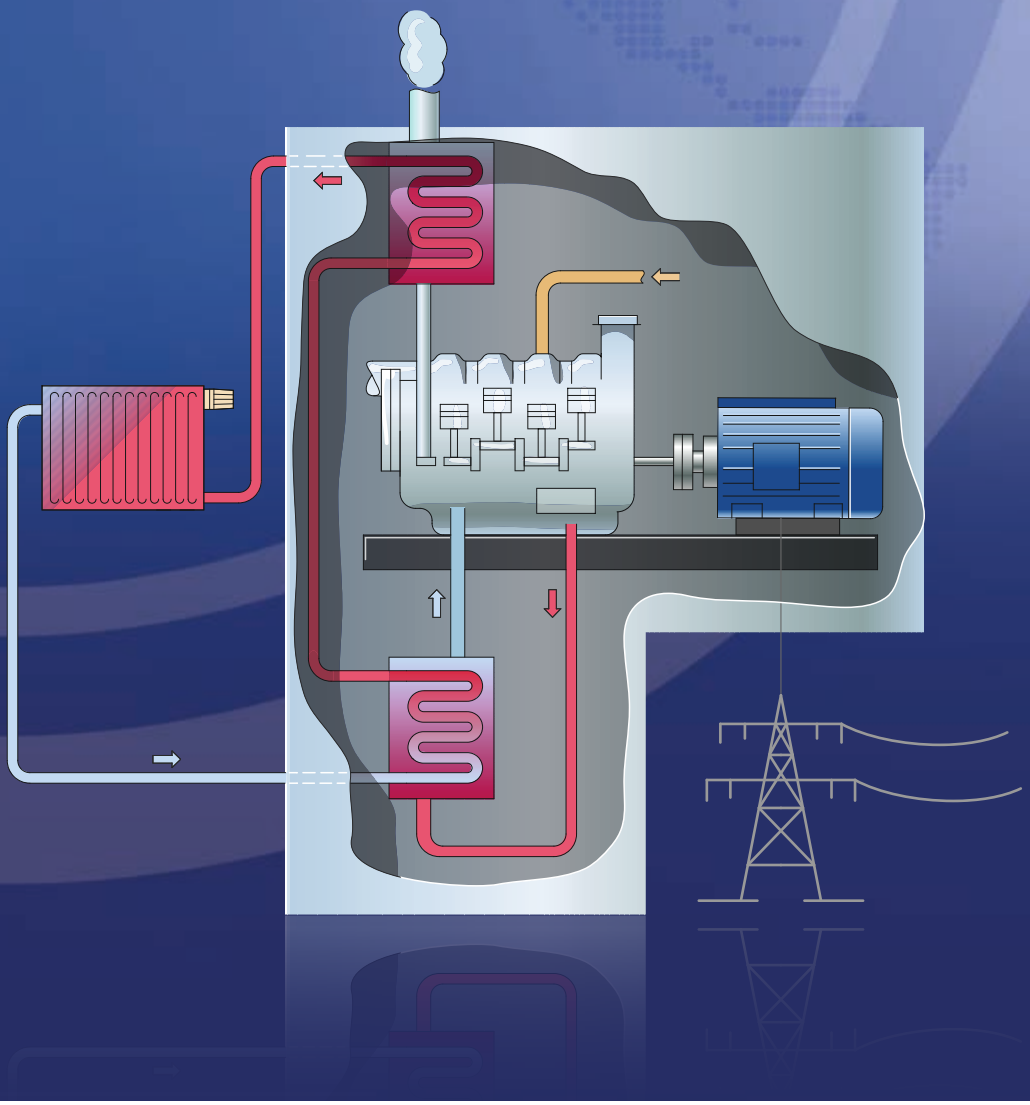
JUMO miroTRON
Electronic thermostat with optional PID two-state controller function
Type 701080/81/90/91

Screw-in thermocouple
With terminal head J
Type 901030

Mineral-insulated thermocouple
With compensating cable
Type 901250

Combined heat and power plants

This innovative concept for heat generation also produces – quite incidentally – current for your daily use. The complexity of a combined heat and power plant makes optimal coordination of all components particularly important. By using measurement and control technology from JUMO, all components are guaranteed to always be within the correct temperature range. This allows you to benefit from combined heat and power generation without any stress.



Combined heat and power plants

Operating principle

In the combined heat and power plant (CHP), an internal combustion engine designed for gas or diesel operation powers a generator. It converts the mechanical energy generated in the engine into electrical energy. The combustion engine is protected from overheating by cooling water. During the cooling process the water in the cooling circuit is heated up to approx. 80 to 90 °C. To cool it down, it is passed through a heat exchanger, where it releases the excess thermal energy to a heating circuit. The heating water, that has already been preheated to approx. 70 °C, then passes through an exhaust gas heat exchanger. This is where the heating water absorbs part of the exhaust gas heat that is generated during engine operation, which is how it reaches its final utilization temperature of 90 to 100 °C.

Monitoring pressure and temperature in the cooling circuit of a combustion engine

The lubrication and cooling of an internal combustion engine is vital for its safe and reliable operation. Important parameters here are pressure and temperature: optimal control of oil pressure and temperature, for example, prevents damage to the bearings. In the cooling circuit, on the other hand, a slight overpressure helps to shift the coolant boiling point to 115 °C. Here, too, the temperature as well as the pressure must be monitored. A thermostat monitors critical temperature values without the use of auxiliary energy and shuts down the CHP unit in an emergency.

JUMO MIDAS S05

OEM pressure transmitter
Type 401010

JUMO heatTHERM

Panel-mounted thermostat
Type 602030/31

Surface-mounted thermostat

ATH series
Type 603021

JUMO miroTRON

Electronic thermostat with optional PID two-state controller function
Type 701080/81/90/91

JUMO Cloud and JUMO smartWARE SCADA

Highly-scalable and high-performing IoT solutions
Type 701810, 701820

JUMO variTRON

Automation system
Type 705002, 705070

JUMO LOGOSCREEN 601

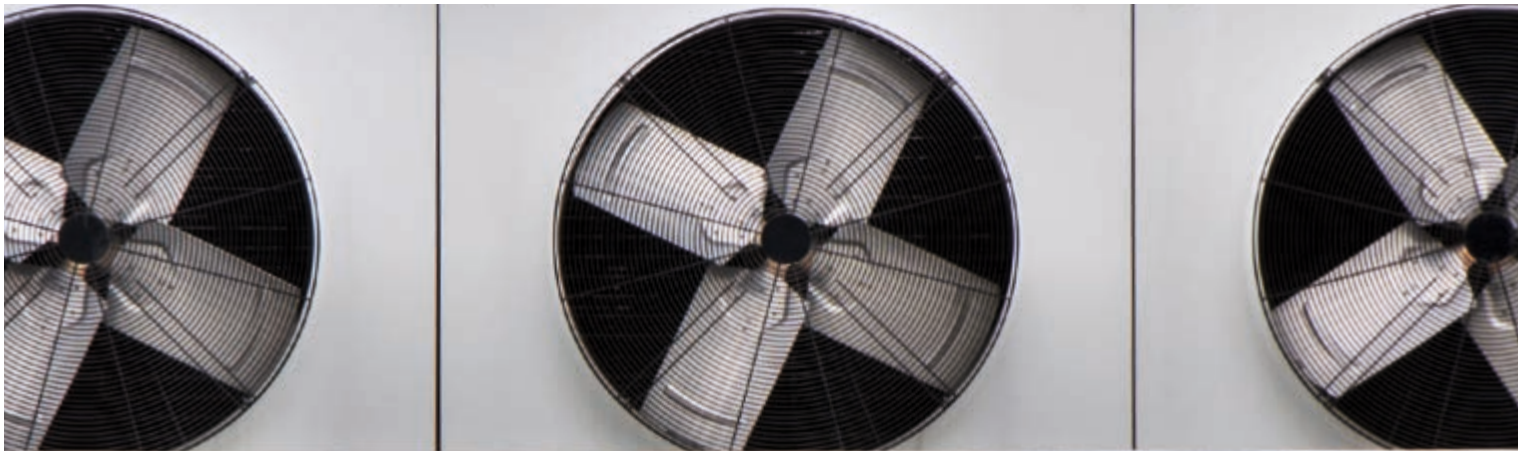
Paperless recorder with touchscreen
Type 706521

JUMO VIBROtemp

Screw-in RTD temperature probes with plug connector
Type 902040

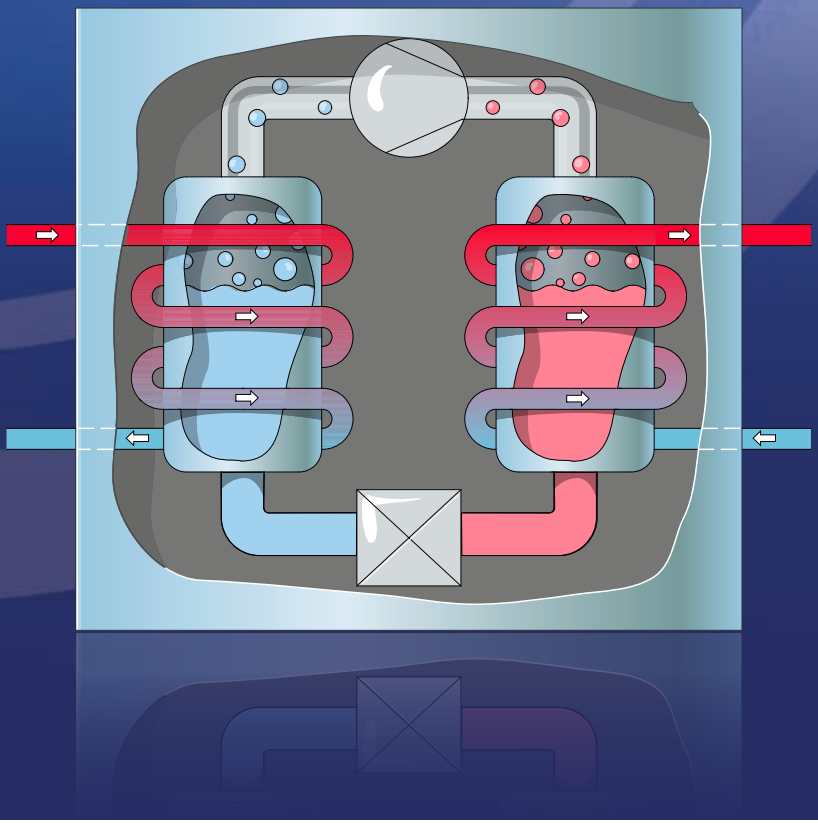
Mineral-insulated thermocouple

With compensating cable
Type 901250



Air conditioners/heat pumps

In an automatic home ventilation system, air conditioners provide optimum air conditions in modern buildings. The separation of these devices into an outdoor and an indoor unit places different demands on the measurement and control technology. JUMO controllers adapt effortlessly to this task. The wide range of JUMO products for the various fields of measurement and control technology ensures that you will always find the solution you need.



Air conditioners

Operating principle

Air conditioners work according to the Carnot principle. They always consist of at least 2 units – 1 outdoor and 1 indoor. Refrigerant continuously circulates between the 2 units. In the indoor unit, the refrigerant is heated by space heating and it evaporates. If the refrigerant in the form of steam now encounters an ambient temperature lower than its own temperature in the outdoor unit, it gives off heat to the outdoor unit and in so doing, returns to the liquid state. It is then pumped back to the indoor unit, where it can once again absorb the residential heat. The advantage for devices that operate under this principle is that in the in-between seasons (with outdoor temperatures between 5 and 15 °C), they also act as a heat pump so that they help to reduce heating costs.

Frost protection of the outdoor unit

Protecting the outdoor unit of an air conditioner from frost damage is a very important task that the JUMO frostTHERM-AT can perform. The thermostat already reacts to a "frost path" of 30 cm due to the winding course of the capillary line over the outdoor unit. If the preset temperature occurs on such a path, the thermostat then switches on the selected heating unit or switches off the plant. Condensation and frost damage are avoided.

JUMO MIDAS S05
OEM pressure transmitter
Type 401010

JUMO heatTHERM
Panel-mounted thermostat
Type 602030/31

JUMO heatTHERM P300
3-phase panel-mounted thermostat
Type 602090

JUMO frostTHERM-AT/-DR/-ATE
Frost protection thermostats
Type 604100, 604170

JUMO miroTRON
Electronic thermostat with optional PID two-state controller function
Type 701080/81/90/91

JUMO variTRON
Automation system
Type 705002, 705070

JUMO LOGOSCREEN 601
Paperless recorder with touchscreen
Type 706521

JUMO VIBROtemp
Screw-in RTD temperature probes with plug connector
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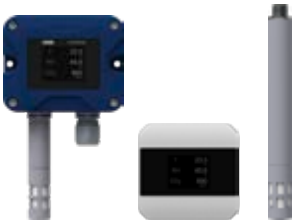

Services & Support

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

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