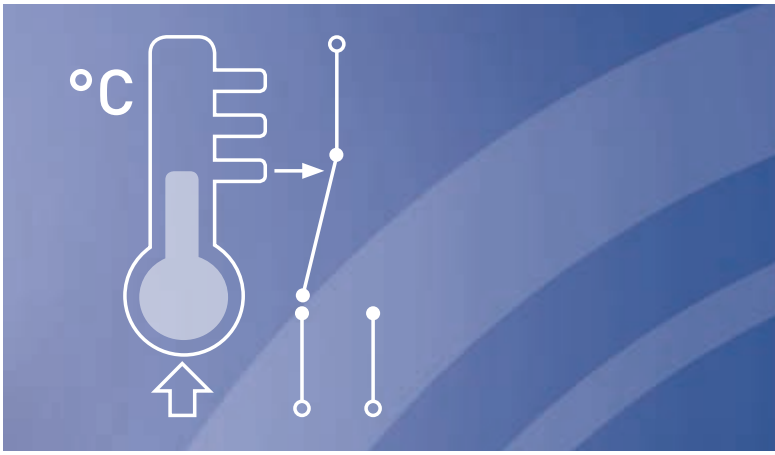
Thermostats

Innovative solutions for the toughest requirements



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Dear Reader,

The production of electromechanical thermostats has a long tradition at JUMO. We have been manufacturing thermostats to serve the world market for more than 70 years. Development focuses on continuous improvements so that we remain on the cutting edge of technology. Consistently improving our products is the only way we can be ready to respond to the requirements of future markets.

Thermal processes frequently require monitoring and control. Electromechanical thermostats allow you to reliably monitor and control a process without expending any additional auxiliary power. In many sectors of industry, maximum and minimum temperatures must be guaranteed. That is why companies in heating and air conditioning, the plastics industry, compressor construction, medical technology, and the food industry choose electromechanical products for reliable monitoring and control of their processes.

Another advantage that contributes to choosing electromechanical thermostats is that they are impervious to electromagnetic interference. Our products have demonstrated through decades of practical applications that they meet high quality requirements.

This brochure will give you an overview of the various product series covered by electromechanical thermostats and bimetal temperature switches.

You're sure to find the right product in our product range. You can also take advantage of our strength to adapt our products to your processes and requirements.

PS: Further information about our products can also be found at www.jumo.net.

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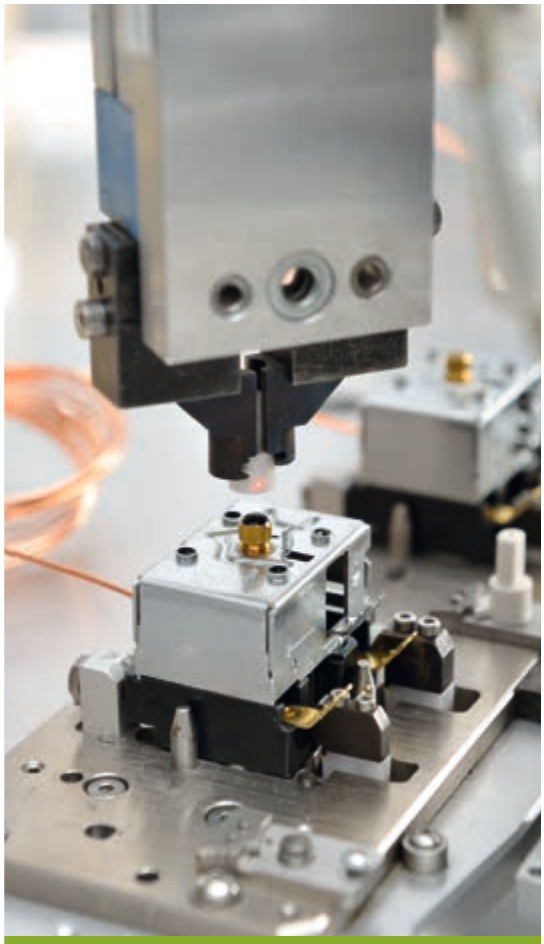
Thermostat production

JUMO thermostats have a worldwide reputation for reliability and high quality. One reason for this is our high rate of internal manufacturing. This ability allows us to have a direct effect on the production of the critical elements of our thermostats. Furthermore, we use a large number of consistent measures for supplier qualification to have another decisive influence on the quality of our products.

Thermostat manufacturing

Thermostat manufacturing at our location in Fulda, Germany fulfills all the criteria for meeting market requirements today and in the future. Depending on the thermostat series, customized manufacturing of customer-specific versions or economical large-scale series production is possible. Of course we offer short delivery times and an excellent on-time delivery track record for the entire manufacturing process thanks to our stable processes. We ensure that our products can be adapted to changing conditions through continuous improvements in all areas.

Automated filling station for measuring systems



Automated adjustment of thermostats in large-scale series production

Measuring system production at a high level

The core element of every electromechanical thermostat is the measuring system. As a result the manufacturing process for our measuring systems is subject to the highest requirements to ensure the quality of our products. Automated processes such as membrane production or adding the filling medium have integrated monitoring systems. Measuring systems are not released for further use until they have successfully completed all test steps.

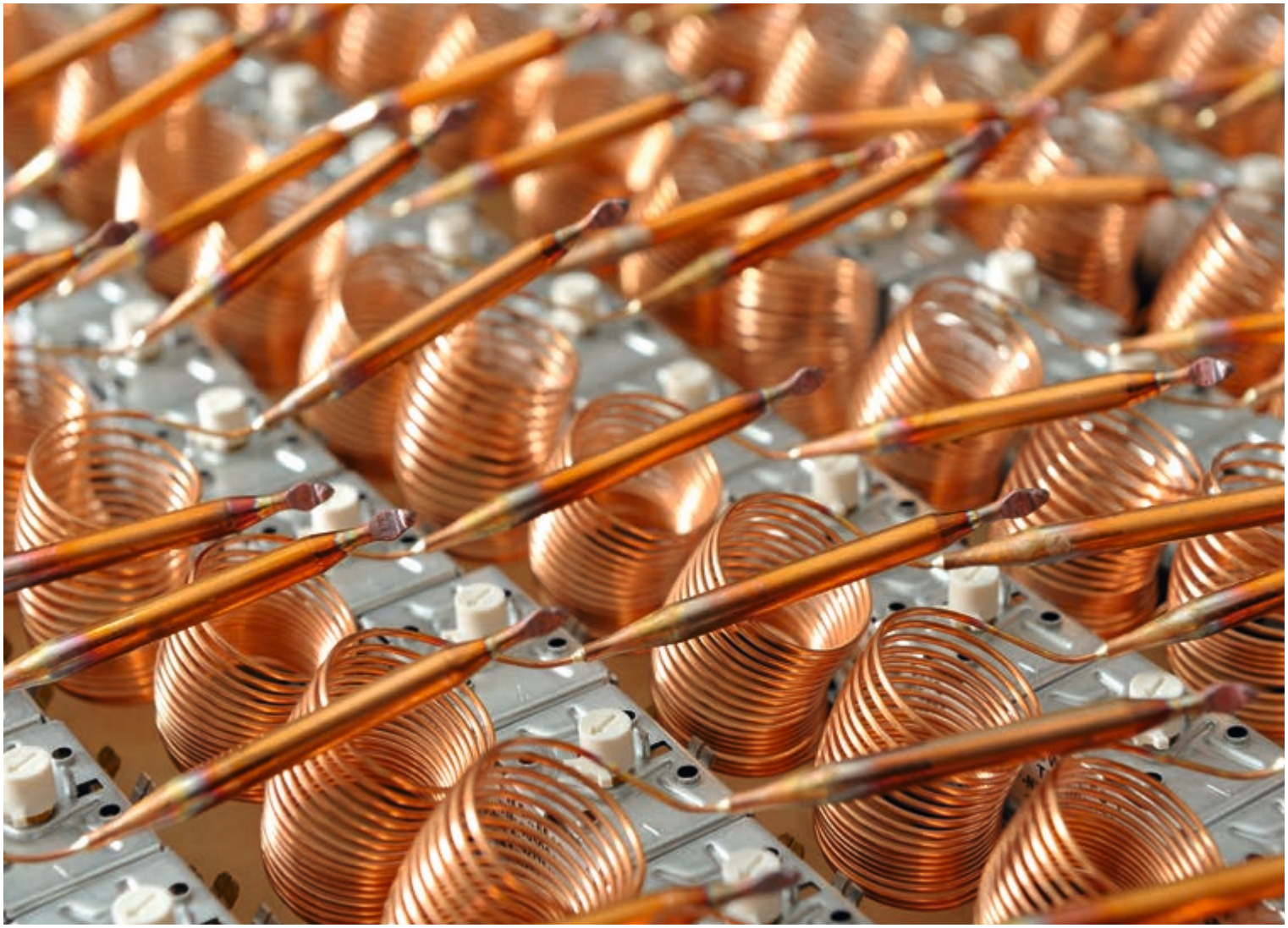
Reliable adjustment through automation

The introduction of the JUMO heatTHERM series several years ago was based on the very latest production technology. Devices are adjusted in an economic fashion by an automatic adjusting mechanism that has now taken over numerous steps which were previously performed manually. The reproducible processes are subject to constant control and further development. Additionally, they are always adapted to technical progress.

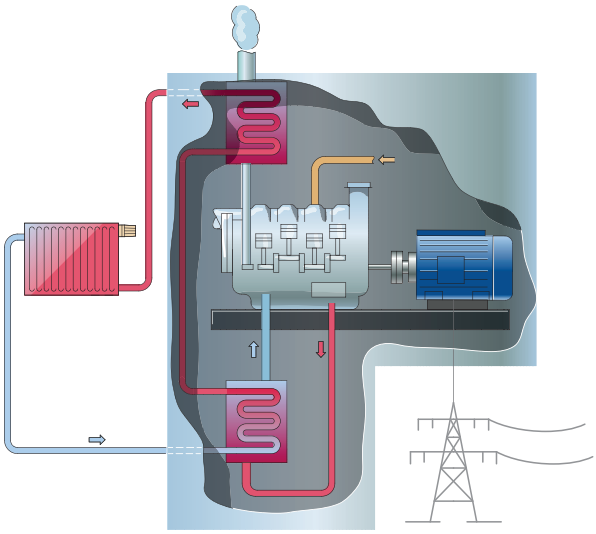
Thermostats

Panel-mounted and surface-mounted thermostats

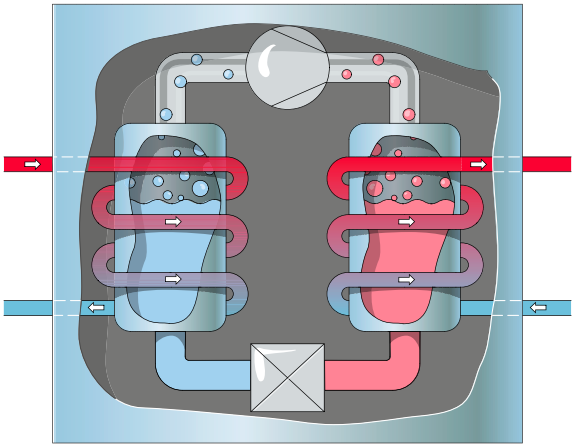
A wide variety of product groups featuring different housing dimensions, technical features, and manufacturing batch sizes ensure that you will find the right thermostat for your application in the JUMO product portfolio.



Application examples



Schematic view of a combined heat and power plant



Schematic view of a heat pump or air conditioner

JUMO heatTHERM
Panel-mounted thermostat
Type 602031

Surface-mounted single thermostat
ATH series
Type 603021

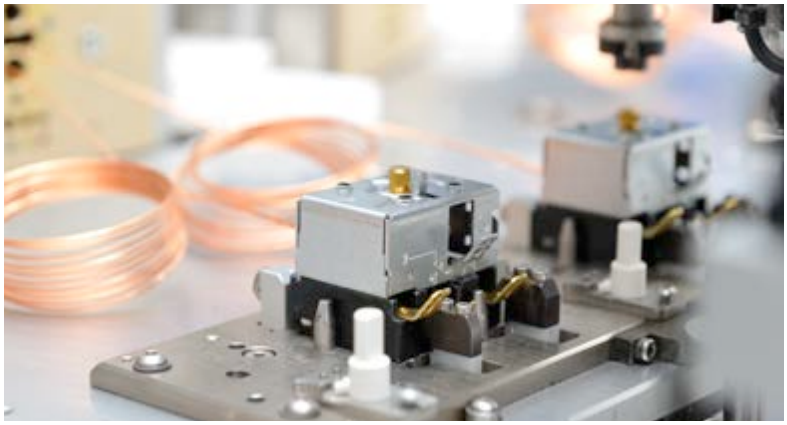
JUMO frostTHERM-AT
Type 604100

Temperature monitoring in cooling circuits of combined heat and power plants

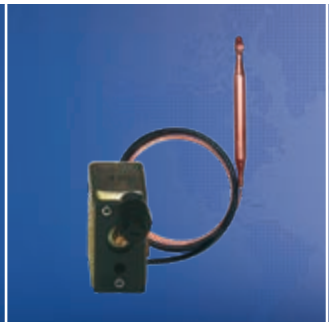
To ensure safe and reliable motor operation in combined heat and power plants, the temperature of the lubricating oil that is used in the cooling circuit must not exceed the optimum working point. To exclude the possibility of overheating, JUMO safety temperature limiters ensure that the plant is switched off safely and reliably if the set temperature value of the plant is exceeded. Regardless of which plant malfunction is responsible for the temperature increase, the plant always switches off because our thermostats operate without auxiliary power and because they are independent of other components.

Temperature monitoring on the outdoor unit of a heat pump or air conditioner

Keeping the outdoor unit free of frost damage is important when a heat pump or air conditioner is in operation. The JUMO frostTHERM-AT is used to detect when outside temperatures are around the freezing point and to introduce appropriate countermeasures. The probe line of the frost protection thermostat, which is active along its entire length, is arranged on the air intake of the outdoor unit in a meandering pattern. The probe line is available in lengths up to 12 m, which ensures temperature monitoring on a large surface without auxiliary power.



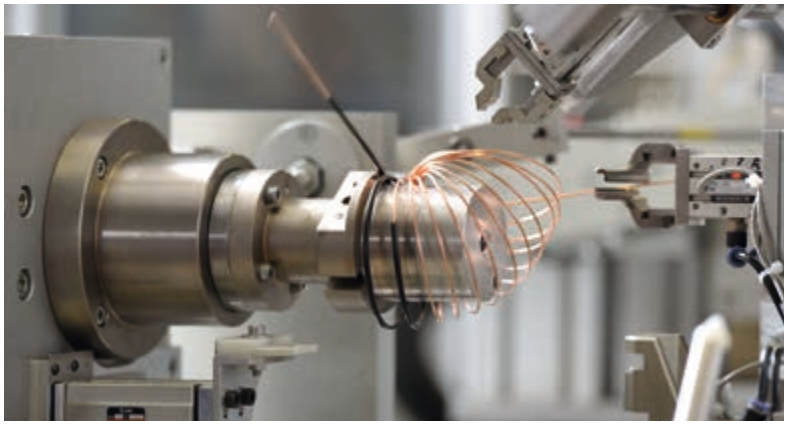
Panel-mounted thermostats



Product name	Panel-mounted thermostats EM series	Panel-mounted thermostats EM series	JUMO heatTHERM Panel-mounted thermostats
Type	602021, 602025	602026	602030, 602031
Features	Batch size according to customer specification, temperature ranges up to 650 °C possible	Batch size according to customer specification	Economic large-scale production, temperature compensation as a standard feature
Areas of application	Heating industry, air-conditioning industry, heating cabinets, plastics industry, oven engineering, general mechanical engineering		
Versions	Temperature controller (TR), temperature monitor (TW), temperature limiter (TB), safety temperature monitor (STW), safety temperature limiter (STB)	Safety temperature monitor (STW), safety temperature limiter (STB)	Temperature controller (TR), temperature monitor (TW), safety temperature monitor (STW), safety temperature limiter (STB)
Switching element	1, 2, 3, or 4 single-pole snap-action switches	Single-pole snap-action switch	Single-pole snap-action switch
Switching capacity	16 A, 230 V	10 A, 230 V	16 A, 230 V
Maximum control range and limit value	500 °C (type 602021) 650 °C (type 602025)	300 °C	350 °C
Approvals	DIN, UL, PED, EAC, DVGW (up to 500 °C)	DIN, UL, PED, DVGW, EAC	DIN, UL, PED, EAC

Panel-mounted thermostats

Product name	JUMO heatTHERM P100 Panel-mounted thermostat	JUMO heatTHERM P300 3-phase panel-mounted thermostat
Type	602051	602090
Features	Entry-level class thermostat	3-phase panel-mounted thermostat
Areas of application	Electric heat generators, heating devices, heating elements, canteen kitchen technology	Screw-in heaters, electric heaters, food industry, canteen kitchen technology and catering sector, electric heat generators, heating devices, heating elements
Versions	Temperature controller (TR)	Safety temperature limiter (STB)
Switching element	Snap-action switch	Switching mechanism which disconnects all contacts at the same time
Switching capacity	**Normally closed contact 1-2 (NC):** AC 230 V, 16 (2.5) A **Normally open contact 1-4 (NO):** AC 230 V, 4 (1) A	**Normally closed contact (NC):** 40 to 480 V, 0.5 to 30 A (5.0 A) **Normally open contact (NO):** AC 40 to 480 V, 0.5 to 2 A (0.3 A)
Maximum control range and limit value	30 to 90 °C, 30 to 120 °C	Limit value permanently set, upon request
Approvals	–	VDE, UL



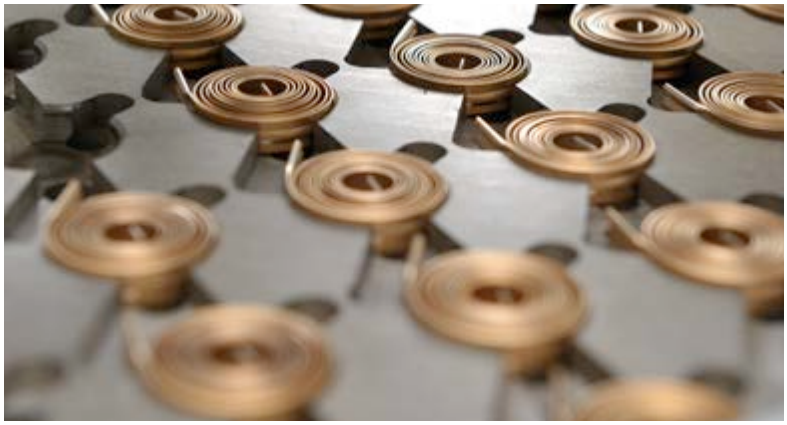
Surface-mounted thermostats

Product name	Surface-mounted single thermostats ATH series	Surface-mounted double thermostats ATH series	Surface-mounted thermostat ATH-SE series	JUMO heatTHERM S600 Surface-mounted double thermostat
Type	603021, 603035	603026, 603035	603031	603045
Features	Single thermostat	Double thermostat	Single thermostat	Double thermostat
Areas of application	Heating industry, air-conditioning industry, general mechanical engineering		Shipbuilding	Heating, ventilation, and air-conditioning industry; industrial applications
Versions	Temperature controller (TR), temperature monitor (TW), safety temperature monitor (STW), safety temperature limiter (STB)		Temperature monitor (TW), safety temperature monitor (STW), safety temperature limiter (STB)	Temperature monitor (TW) with safety temperature limiter (STB) (adjustable)
Switching element	Single-pole snap-action switch	Single-pole snap-action switch	Single-pole snap-action switch	Single-pole snap-action switch
Switching capacity	10 A, 230 V	10 A, 230 V	10 A, 230 V	AC 24 to 230 V, 0.1 to 10 A
Maximum control range and limit value	500 °C	500 °C	300 °C	300 °C
Protection type	IP54, IP65 (type 603035)	IP54, IP65 (type 603035)	IP54	IP54 (DIN EN 60529)
Approvals	DIN, (PED, EAC; type 603021, 603026)		Det Norske Veritas, GL, Bureau Veritas, DIN, PED, EAC	–

Surface-mounted thermostats




Product name	JUMO heatTHERM-AT/DR Surface-mounted thermostats	JUMO frostTHERM-AT/DR Frost protection thermostats	JUMO frostTHERM-ATE Electronic frost protection thermostat	JUMO exTHERM-AT Explosion-protected surface-mounted thermostat
Type	603070	604100	604170	605055
Features	Single and double thermostat; room thermostat; thermostat for DIN-rail mounting; exhaust gas temperature monitor	Probe line available in lengths of 3 m, 6 m, and 12 m	Single thermostat, voltage supply 24 V (SELV), probe line available in lengths of 2 m and 6 m	Single thermostat and double thermostat
Areas of application	Building automation, heating industry, air-conditioning industry, control cabinets (DR), general mechanical engineering	Air-conditioning and refrigeration system construction, cooling units, mechanical and plant engineering		Potentially explosive areas in zones 1 and 2 or 21 and 22; use in zone 0 with corresponding thermowell
Versions	Temperature controller (TR), temperature monitor (TW), safety temperature monitor (STW), safety temperature limiter (STB)	Safety temperature monitor (STW), safety temperature limiter (STB)	Temperature monitor (TW), temperature limiter (TB)	Temperature monitor (TW), temperature limiter (TB), safety temperature monitor (STW), safety temperature limiter (STB)
Switching element	Single-pole snap-action switch	Single-pole snap-action switch	Relay output, analog output	Flameproof enclosed panel-mounted thermostat
Switching capacity	16 A, 230 V	16 A, 230 V	Relay output 6 A, 230 V, analog output 0 to 10 V	16 A, 230 V optionally 25 A, 230 V
Maximum control range and limit value	350 °C	15 °C	10 °C	500 °C
Protection type	IP40, IP54 optional	IP40, IP65 optional	IP42	IP65, IP67 optional
Approvals	DIN, UL, PED, EAC	EAC	–	ATEX, RTN, EAC, DIN, IEC Ex



Accessories

Product name	Process connections for thermostats
Type	606710
Process connection temperature probes	Process connection temperature probes
Process connection screw connections	Double screw connection, union nut, fixed fitting, sealing gland
Process connection thermowells	For screwing in, for screwing in (open), with welding shoulder, for screwing in with intermediate piece, for screwing in for union nut, for screwing in with union nut
Accessories	Sheet flange, wall mount, holder
Material	Brass, stainless steel, copper, steel

Product name	Setpoint adjusters for thermostats EM series
Type	606715
Rotary knobs	For mounting on adjustment axes of Ø 6 mm, flattened to 4.6 mm
Scope	Setpoint scale, limit stop for rotary knobs, fastening screws
Max. application temperature	120 °C
Material	Thermoplastic
Standard setpoint adjuster for panel-mounted thermostat EMf-1	Type W1, type W8, type W8 (JUMO heatTHERM)

Accessories

Product name	JUMO dicoTEMP 100 Smart tube for temperature measurement
Type	608740
Temperature	-40 to +260 °C
Process connection	Thread G ½, G 1
Sensor	Pt100 or Pt1000 in four-wire circuit
Connection	M12
Protection type	IP66, IP67, IP69
Material	Stainless steel
Probe diameter	6, 8, or 10 mm
Insertion length	65 to 300 mm
Ambient temperatures	-40 to +85 °C
Transmitters	4 to 20 mA or IO-Link (optional cable transmitter)
Special features	Easy startup; diverse temperature measurement based on 2 different measuring principles; only 1 measuring point required for diverse temperature measurement thanks to smart tube; compact system; various output signals – resistance signal, analog signal, and digital signal; Plug and Play functionality
Application areas	Transformer and compressor construction, service area (retrofit), hydraulic units, mechanical and plant engineering in general, particularly water treatment plants

Selection tool

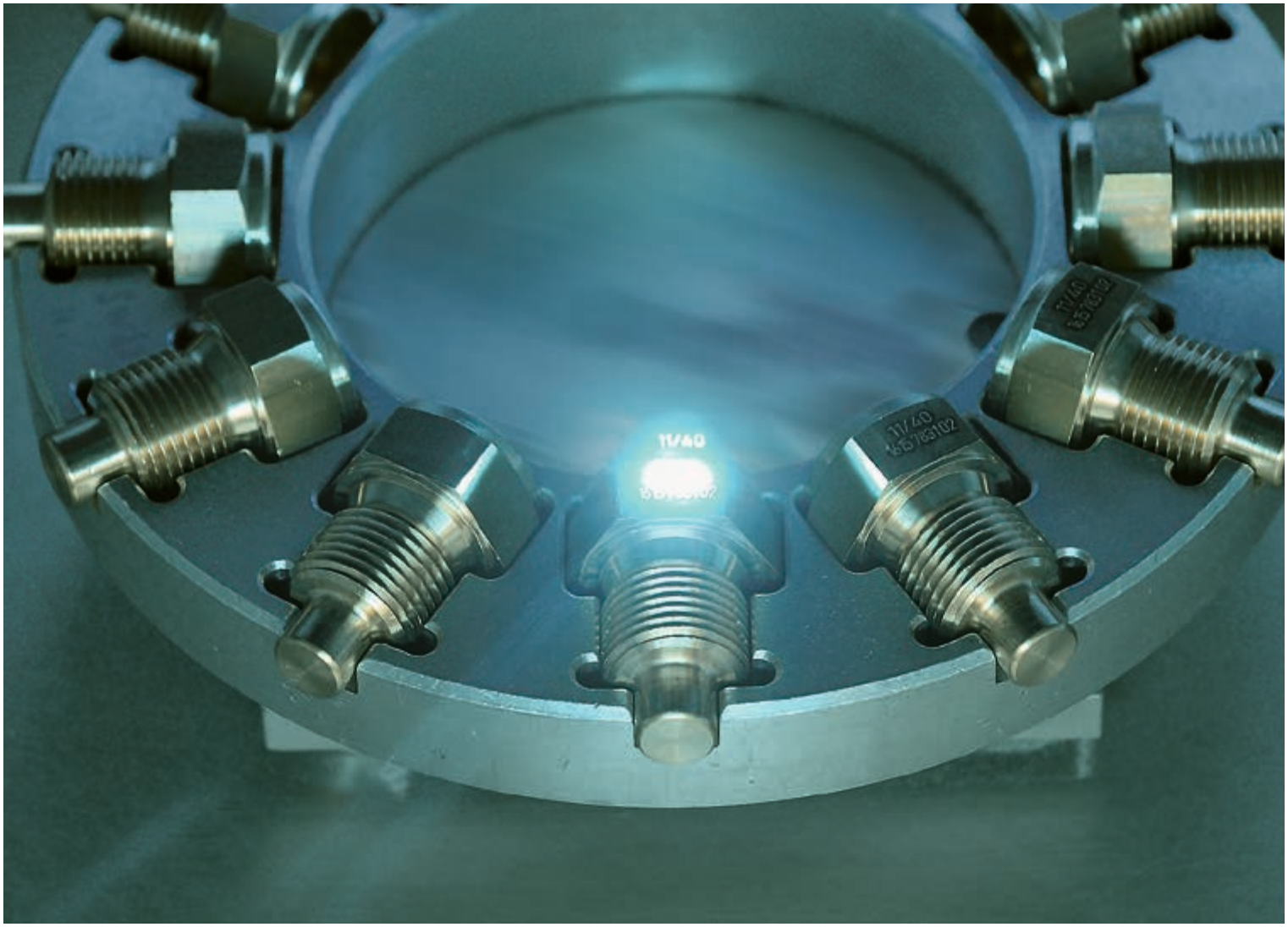
Your path to the product

The "thermostat" checklist is a tool you can use to compile all the relevant requirements of your application in a clear and concise manner. This way, you benefit from efficient and fast sales quotation processing.

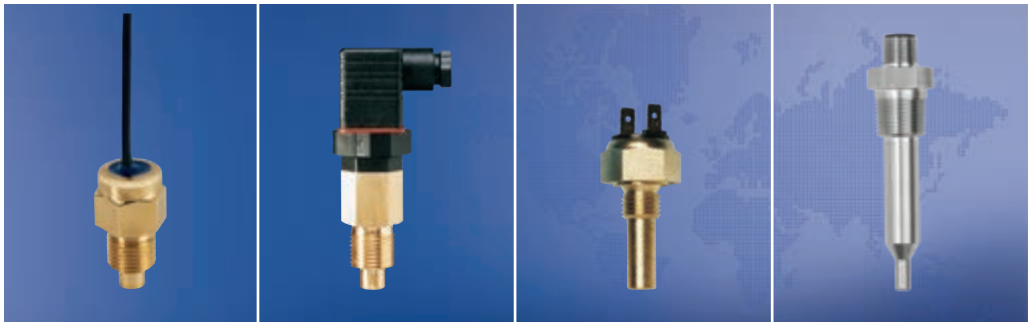
You can find the downloadable checklist on our website at **http://thermostats-checklist.jumo.info** or simply scan the QR code.

Bimetal temperature switches

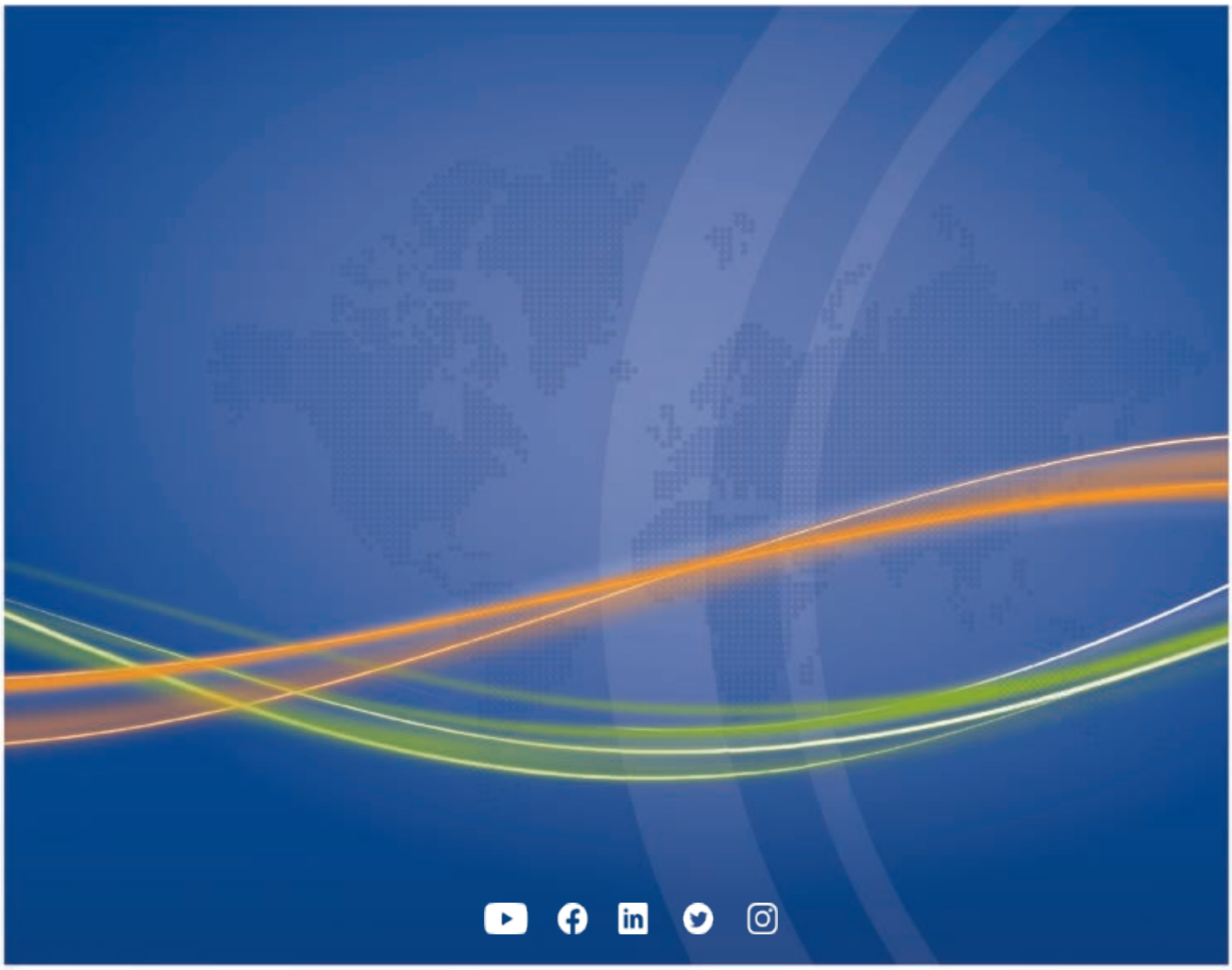
Bimetal temperature switches can be used universally in temperature monitoring applications. The bimetal temperature switch has a fixed switching point and is often used in cooling and heating circuits. Its sturdy and resistant structure is responsible for its frequent use in compressors and motors. The stability of the switching point is always ensured, even when vibrations occur. A combination consisting of a bimetal temperature switch and a Pt1000 sensor is also possible.



Bimetal temperature switches



Product name	Bimetal temperature switch with connecting cable potted	Bimetal temperature switch with plug connector for cable connection according to EN 17 5301-803	Bimetal temperature switch with tab connector A 6.3-08	Bimetal temperature switch with optional Pt1000 sensor
Type	608301	608301	608301	608301
Electrical connection	11	61	01	30
Features	Fittings made from brass, aluminum, or stainless steel Various threads and design types possible Different electrical connections possible Optional with Pt1000 sensor, with electrical connection 30 M12 connector for easy connection option Protection type IP67 or IP68 possible			
Areas of application	Compressor engineering Motor control General industrial applications			
Switching element	Snap-action switch Slow-action switch Compact temperature switch with optional Pt1000 sensor			
Switching capacity	10 to 100 mA, 6 to 30 V (PLC application), 10 A, 230 V (resistive load)			
Protection type	IP52, IP65, and IP67			



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