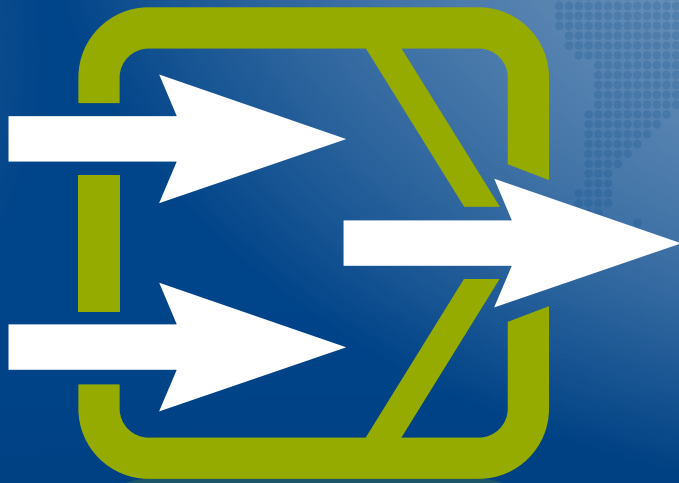




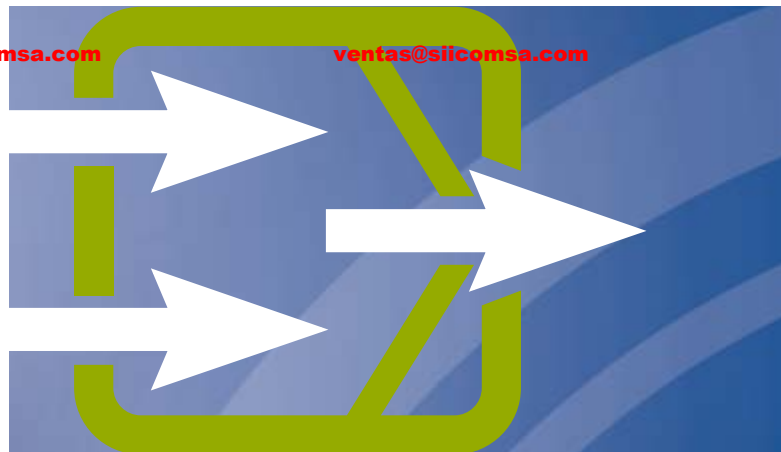
More than **sensors + automation**



Control

Innovative solutions for the highest requirements





Contact:

Phone: +49 661 6003-727
Email: control@jumo.net

Dear Reader,

Many processes, machines, and plants are extremely difficult to control without sophisticated automation technology. Temperatures, pressures, levels, and flows – to name but a few process variables – not only need to be monitored, but also precisely controlled. This is because accurate and reliable control technology is a key requirement for consistent product and process quality. Also, control technology is just as important for energy-efficient plant operation.

At the heart of every automated system is the controller itself. Its hardware and available software functions enable easy and universal adaptability to all kinds of processes. Here, JUMO is able to call on its over 50 years of experience in both development and production, which are united at our company headquarters in Fulda, Germany. Our dedicated sales organization, which has its finger on the pulse of markets the world over, provides us with customer feedback on a daily basis. This feedback flows into the further development of existing products and into new developments. As a result, we live up to our claim of providing the highest level of innovation.

This brochure provides an overview of JUMO's products and systems in control technology. Along with the electronic solu-

tions ranging from electronic thermostats and compact controllers to multichannel process and program controllers, JUMO also offers a wide range of electromechanical devices for controlling thermal processes. The reason here is that control of basic thermal processes is easy and requires little installation effort if electromechanical thermostats are used. They do not require any additional auxiliary energy and are completely impervious to electromagnetic interference. Deciding on the right controller for the job ultimately depends on the individual requirements of the process to be controlled. Our comprehensive product portfolio allows you to select the best possible solution for your process.

Last but not least, the strong motivation of our employees ensures the consistent high quality that is characteristic of our products. The high level of customer satisfaction all around the world is testament to the commitment we show in our work every day. We would be delighted to assist you in finding solutions for your task in control technology and to count you among our many satisfied customers.

P.S. Further information about our products also be found at www.jumo.net.



Contents

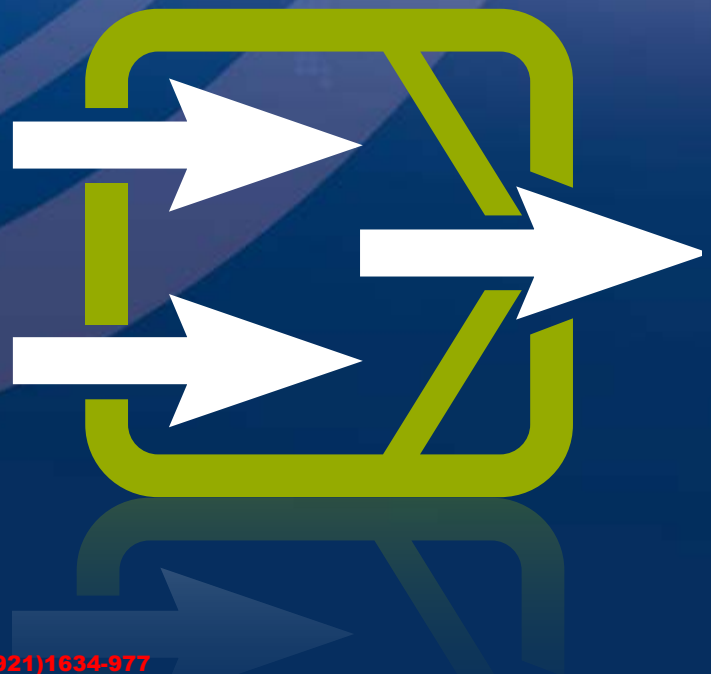


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Control

However different the production processes in various industries may be, they all have in common that process variables such as temperature, pressure, humidity, flow, and level often need to be controlled with the highest levels of accuracy. You will be sure to find the right controller for your application in the JUMO product range, which spans from inexpensive electromechanical and electronic thermostats to digital compact controllers and multichannel automation systems. JUMO has been an established name in measurement and control technology for a number of decades. Throughout this time the company has continuously adapted its product portfolio in line with the latest customer requirements while focusing strongly on the various issues of individual industries. Our devices, which are in use worldwide, are well known for their reliability. This is so despite – or quite possibly because of – the extreme conditions in which they operate.



The most important industries

Our wide range of different devices offers the ideal solution for classic mechanical and plant engineering as well as for the process industry and the OEM sector.

In addition to the standard devices, JUMO offers individual customer-specific versions for special applications.



Digital compact controllers

As with all JUMO automation components, our digital compact controllers have been carefully produced by our in-house development department. Our development process draws on the wide-ranging expertise that our engineers have acquired over many decades. This is reflected in the outstanding technical features of the devices which are closely tailored to match specific application areas. All compact controllers and process controllers are therefore equipped with the proven JUMO control algorithms. These enable the control of even higher-order control paths. Integrated math and logic functions expand the function range of the controllers and enable calculations, links, and evaluations to be performed which could previously only be implemented with the external auxiliary devices. High-end devices with a modular structure operate up to eight independent and freely configurable control channels. The latest controller generation with TFT color graphic touch-display enables users to create a customized process screen in which display and input fields can be integrated. A customized process screen created in this manner provides the user with a particularly clear overall impression of the respective plant. Above all, it allows the user to quickly check the plant status.

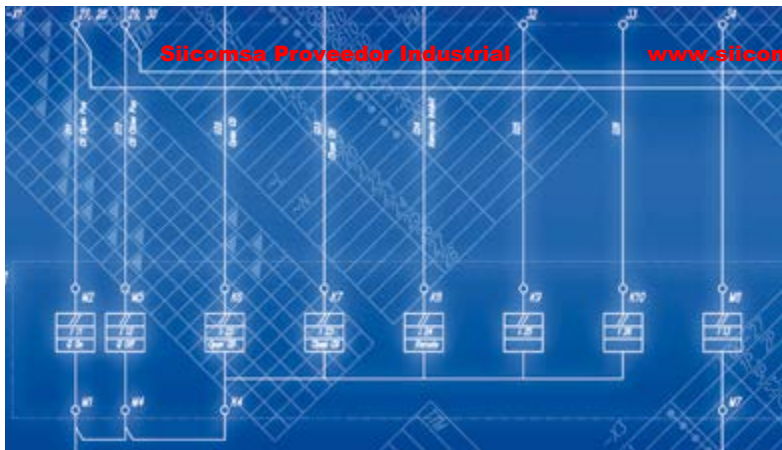


Electronic thermostats – JUMO eTRON series



Description	JUMO eTRON T, digital thermostat	JUMO exTHERM-DR, two-state controller	JUMO eTRON M, electronic microstat
Type	701050	701055	701060
Format	90 mm × 22.5 mm × 60 mm	87.5 mm × 45 mm × 104.8 mm	76 mm × 36 mm × 56 mm
Mounting	Mounting rail		Panel mounting
Connections	Screw terminals		
Protection type	IP20	IP20	IP65 (front side), IP20 (rear side)
Measuring inputs	1 analog input for: Pt100, Pt1000 or KTY2x-6 in two-wire circuit (configurable) or Fe-CuNi (J, L) and NiCr-Ni (K) thermocouples (configurable) or current 0(4) to 20 mA (config- urable) or voltage 0 to 10V	1 universal analog input for RTD temperature probe, thermocouple, or current 4 to 20 mA, 1 digital input for potential-free contact	1 analog input for: Pt100, Pt1000 or KTY2x-6 in two-wire circuit (configurable) or Fe-CuNi (J, L) and NiCr-Ni (K) thermocouples (configurable) or current 0(4) to 20 mA (config- urable) or voltage 0 to 10V
Display	Three-digit LCD display with special characters for °C, °F	Black and white LCD display with backlight	Three-digit backlit LCD display with 13 mm digit height and special characters for °C, °F, h, min, s; switching position indicators for defrosting or heating phase
Outputs	1 changeover contact 10 A/250V	1 analog output can be configured as actual value output, setpoint value output, or logic output 0/10 V, 1 relay output, limit value changeover contact, 1 relay output controller, changeover contact, with fuse cut-out	1 changeover contact 10 A/250V or 2 N/O contact 5 A/250V
Alarms	Messages in the display: upper/lower alarm limit temperature	Limit value output (relay) for alarm indication	Messages in the display or via the second relay output: upper/lower alarm limit temperature, service interval, timer message
Voltage supply	AC 230V +10/-15%, 48 to 63 Hz, AC 115V +10/-15%, 48 to 63 Hz, DC 12 to 24V +15/-15%, AC 24V +15/-15%, 48 to 63 Hz	AC/DC 20 to 30V, 48 to 63 Hz, AC 110 to 240V +10/-15%, 48 to 63 Hz	AC 230V +10/-15%, 48 to 63 Hz, AC 115V +10/-15%, 48 to 63 Hz, DC 12 to 24V +15/-15%, AC 24V +15/-15%, 48 to 63 Hz
Approvals	Metrological certificate, cULus	Ex	Metrological certificate, cULus
Special features	Setup program	-	Integrated defrosting function, operating hours counter, setup program

Technical data



Electronic thermostats – JUMO eTRON series



Technical data	Description	JUMO eTRON M100, electronic cooling controller	JUMO eTRON M100, two-channel microstat
	Type	701061	701066
	Format	76 mm × 36 mm × 71.7 mm	
	Mounting	Panel mounting	
	Connections	Screw terminals	
	Protection type	IP65 (front side), IP20 (rear side)	
	Measuring inputs	Two analog inputs for: Pt100, Pt1000, KTY1x-6, or KTY2X-6 in two-wire circuit (configurable)	
	Display	Three-digit backlit LCD display with 13 mm digit height and special characters for °C, °F, h, min, s; switching position indicator for cooling, defrost heating, fan, and alarm	Three-digit backlit LCD display with 13 mm digit height and special characters for °C, °F, h, min, s; switching position indicators for the relays
	Outputs	1 changeover contact 16 A/250V and 2 N/O contacts 8 A/250V, optional: 1 changeover contact 16A/250V for alarm output	
	Alarms	Alarm via relay or buzzer	
	Voltage supply	AC/DC 12 to 24 V +15/-15 %, 48 to 63 Hz	
	Approvals	cULus	
Special features	Defrosting function with "electrical" or "hot gas" capability, real-time clock, interface, operating hours counter, data logger, setup program including transmission and visualization of the measured values stored in the data logger, HACCP-compliant monitoring	Interface, operating hours counter, data logger, setup program including transmission and visualization of the measured values stored in the data logger	

Compact controllers – JUMO Quantrol series



Description	JUMO Quantrol, LC100	JUMO Quantrol, LC200	JUMO Quantrol, LC300
Type	702031	702032	702034
Format	48 mm × 48 mm × 95 mm	48 mm × 96 mm × 80 mm	96 mm × 96 mm × 80 mm
Mounting	Plastic housing for panel mounting		
Connections	Screw terminals		
Protection type	At the front IP65, at the rear IP20		
Controller type	Two-state controller, three-state controller, continuous controller		
Controller structure	P, I, PD, PI, PID		
Measuring inputs	1 configurable analog input for: RTD temperature probe, thermocouples, current 0(4) to 20 mA, voltage 0(2) to 10 V (alternative to digital input)		
Display	2 four-digit, seven-segment displays (red, green) for process values, parameters, and timers; 6 LEDs (5 × yellow for indicating switch positions and 1 × green for ramp function)		
Outputs	1 relay output as standard, can optionally be expanded up to 3 outputs (relay, logic or analog output)	1 relay output as standard, can optionally be expanded up to 5 outputs (relay, logic, or analog output)	
Alarms	2 limit value monitoring functions, with 8 alarm functions each		
Digital inputs	1 digital input for potential-free contacts (as an alternative to voltage input)		
Voltage supply	AC 110 to 240V +10/-15%, 48 to 63Hz AC/DC 20 to 30 V, 48 to 63 Hz		
Interfaces/protocols	RS485 (Modbus), setup (USB-powered)		
Approvals	cULus		
Special features	Temperature control for wine production	-	
	Easy-to-use PC setup program, USB-powered setup program, autotuning procedure for determining controller parameters, firing curve		

Technical data



Compact controllers – JUMO iTRON series



Description	JUMO iTRON 32 JUMO iTRON 16	JUMO iTRON 08, horizontal/vertical JUMO iTRON 04	JUMO iTRON DR 100
Type	702040, 702041	702042/43, 702044	702060
Format	48 mm x 24 mm x 100 mm 48 mm x 48 mm x 100 mm	96 mm x 48 mm x 68.5 mm 48 mm x 96 mm x 68.5 mm 96 mm x 96 mm x 68.5 mm	22.5 mm x 109 mm x 124.8 mm
Mounting	Plastic housing for panel mounting		Mounting rail
Connections	Screw terminals (removable terminal strips)		Screw terminals
Protection type	IP66 (front side), IP20 (rear side)		IP20
Controller type	Two-state controller, three-state controller		
Controller structure	P, PD, PI, PID		
Measuring inputs	1 configurable analog input for: RTD temperature probes, thermocouples, current 0(4) to 20 mA, voltage 0(2) to 10 V		
Display	1 four-digit, seven-segment display (green) for process values, parameters, and timers; 2 LEDs (yellow) for indicating switch positions		1 two-line alphanumeric LCD display for process values, parameters and timers, 2 LEDs (yellow) for indicating switch positions
Outputs	1 relay 3A/250V AC (N/O contact), 1 logic output 0/5V (optionally 0/12V) alternative to digital input	2 relays 3A/250V AC (N/O contact), 1 logic output 0/5V (optionally 0/12V)	1 relay 5A/250V AC (change-over contact) and 1 logic output 0/5V (optionally 0/12V); 2 relays 5A/250V AC (N/O contact) and 1 logic output 0/5V (optionally 0/12V)
Alarms	1 limit value monitoring function, with 8 alarm functions		
Digital inputs	1 digital input for potential-free contacts (for iTRON 16/32 as an alternative to logic output)		
Voltage supply	AC 110 to 240V +10/-15%, 48 to 63 Hz, AC/DC 20 to 53V, 48 to 63 Hz, DC 10 to 18V		AC 110 to 240V, +10/-15%, 48 to 63 Hz, AC/DC 20 to 53V, 48 to 63 Hz
Interfaces	Setup interface		
Approvals	Metrological certificate, cULus, CSA		
Special features	Easy-to-use PC setup program, autotuning procedure for determining the controller parameters		

Compact controllers – JUMO cTRON series



Description	JUMO cTRON 16	JUMO cTRON 08	JUMO cTRON 04
Type	702071	702072	702074
Format	48 mm x 48 mm x 90.5 mm	48 mm x 96 mm x 67 mm	96 mm x 96 mm x 70 mm
Mounting	Plastic housing for panel mounting		
Connections	Screw terminals (removable terminal strips)		
Protection type	At the front IP65, at the rear IP20		
Controller type	Two-state controller, three-state controller, modulating controller, continuous controller		
Controller structure	P, PI, PD, PID		
Measuring inputs	1 configurable analog input for: RTD temperature probes, thermocouples, current 0(4) to 20 mA, voltage 0(2) to 10 V		
Display	2 four-digit, seven-segment displays (red, green) for process values, parameters, and timers; 7 LEDs for indicating switch positions (4 x yellow) and manual mode, ramp function, timer mode (3 x green)		
Outputs	2 relays AC 3A/230V (N/O contact) as standard		
	1 logic output 0/14V as an alternative to the first digital input	1 logic output 0/14V	
	1 optional analog output (0/4 to 20 mA or 0/2 to 10V, configurable) or 1 relay 3A / 230V AC (N/O contact)		
Alarms	2 limit value monitoring functions, with 8 alarm functions each		
Digital inputs	Max. 2 digital inputs for potential-free contacts		
	Digital input 1, alternative to logic output	Digital input 1 and logic output are available independently from one another	
Voltage supply	AC 110 to 240V +10/-15%, 48 to 63Hz or AC/DC 20 to 30V, 48 to 63 Hz		
Interfaces/protocols	RS485 (Modbus), setup interface		
Approvals	cULus		
Special features	Easy-to-use PC setup program including startup software, autotuning procedure for determining the controller parameters, programmable operating level, programmable function key		

Technical data



Compact controllers and process controllers – JUMO dTRON series

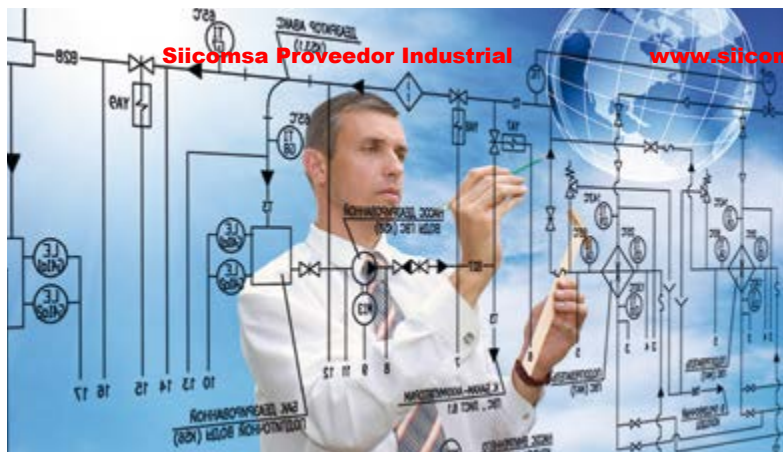


Description	JUMO dTRON 316	JUMO dTRON 308 horizontal/vertical	JUMO dTRON 304
Type	703041	703042/703043	703044
Format	48 mm × 48 mm × 90 mm	48 mm × 96 mm × 90 mm 96 mm × 48 mm × 90 mm	96 mm × 96 mm × 90 mm
Mounting	Plastic housing for panel mounting		
Connections	Screw terminals		
Protection type	At the front IP65, at the rear IP20		
Controller type	Two-state controller, three-state controller, modulating controller, continuous controller		
Controller structure	P, I, PD, PI, PID (2 sets of control parameters)		
Program controller	1 program with max. 8 sections, 4 control tracks		
Measuring inputs	Up to 2 configurable analog inputs for: RTD temperature probes, resistance transmitters, thermocouples, current 0(4) to 20 mA, voltage 0(2) to 10V, heater current 0 to 50 mA AC; customer-specific linearization possible		
Display	2 four-digit seven-segment displays (red, green) for process values, parameters, timers, icons for indicating switch positions, ramp mode, manual mode, and active setpoint values, 1 two-digit 16 segment display (green) for various unit appearances		
Outputs	2 relays 3A/230V (N/O contact), 2 logic outputs 0/12V (optionally 0/18V)	2 relays 3A/230V (changeover contact), 2 logic outputs 0/12V (optionally 0/18V), voltage supply for two-wire transmitter	
	Additional outputs can be retrofitted via 3 optional expansion slots (type 703041: 2 slots): relay (changeover contact 8A), double relay (2 x N/O contact 3A), analog output, solid state relay 1 A		
Alarms	4 limit value monitoring functions, with 8 alarm functions each		
Digital inputs	Max. 4 digital inputs for potential-free contacts	Max. 6 digital inputs for potential-free contacts	
Voltage supply	AC 110 to 240V +10/-15%, 48 to 63 Hz, AC/DC 20 to 30V, 48 to 63 Hz	AC 110 to 240V +10/-15%, 48 to 63 Hz, AC/DC 20 to 30V, 48 to 63 Hz	
Interfaces/protocols	RS485 (Modbus), PROFIBUS DP, setup interface		
Approvals	Metrological certificate, cULus, DIN EN 14597		
Special features	Modular structure with plug-in cards that can be selected individually and retrofitted, easy-to-use PC setup program including startup software, min. sampling rate 50 ms, autotuning procedure for determining the controller parameters, programmable operating level, math and logic functions; Also available in a special version for the plastics industry with a heat channel startup ramp, heater current monitoring, Modbus master function, boost function		

Two-channel process and program controller with paperless recorder – JUMO DICON touch



Technical data	Description	JUMO DICON touch
	Type	703571
	Format	96 mm × 96 mm × 131 mm
	Mounting	Metal/plastic housing for panel mounting
	Connections	Screw terminals
	Protection type	IP66 (front side), IP20 (rear side)
	Number of control channels	2 independent and freely configurable control channels
	Controller type	Two-state controller, three-state controller, modulating controller, continuous controller, continuous controller with integrated position controller
	Controller structure	P, I, PD, PI, PID (4 sets of control parameters per channel)
	Program controller	10 programs each with 50 sections, 8 control tracks
	Measuring inputs	Up to 4 configurable analog inputs for: RTD temperature probes, resistance transmitters, thermocouples, current 0(4) to 20 mA, voltage 0(2) to 10 V, customer-specific linearization possible
	Display	3.5 inch TFT color screen (320 × 420 pixels, 256 colors) with touchscreen operation, plain text display available in English, German, French, and other languages, process-specific texts and screens, individually configured, bar graph display
	Outputs	Max. 12 internal outputs: relays (changeover contact / N/O contact), logic output 0/12 V or 0/24 V, solid state relay output 1 A, analog output 0/4 to 20 mA or 0/2 to 10 V; switching output can be expanded with 2 external modular assemblies, voltage supply for two-wire transmitter via 24 V logic output
	Alarms	16 limit value monitoring functions, each with 8 selectable alarm functions with timer and confirmation functions
	Digital inputs	7 digital inputs for potential-free contacts
Voltage supply	AC/DC 20 to 30 V, 48 to 63 Hz or AC 110 to 240 V +10/-15%, 48 to 63 Hz	
Interfaces/protocols	1 × RS485 (Modbus), 1 × Ethernet or PROFIBUS DP or PROFINET or RS422/485 (Modbus), USB host, USB device	
Approvals	cULus, DIN EN 14 597, GL	
Special features	Modular structure with plug-in cards that can be retrofitted individually, intuitive operation via touchscreen, easy-to-use PC setup program including startup software, recording function with evaluation software, auto-tuning procedure for determining the controller parameters, programmable operating level, math and logic functions as well as additional binary signal processing, programmable function fields and individually configurable process screen for plant visualization with interactive display and input fields, teleservice and email notification, controller output level and control loop monitoring, integrated web server, Modbus master function, five-digit analog value display, individual assignment of rights to various users (levels and control commands), Ethernet interface, weekly time switch, visualization of process values via the JUMO Device App	



Siicomsa Proveedor Industrial

www.siicomsa.com

ventas@siicomsa.com

Multichannel process and program controller with paperless recorder – JUMO IMAGO 500



Technical data	Description	JUMO IMAGO 500
	Type	703590
	Format	144 mm × 130 mm × 170 mm, installation dimensions 92 mm × 92 mm
	Mounting	Panel mounting
	Connections	Screw terminals
	Protection type	At the front IP65, at the rear IP20
	Number of control channels	Up to 8 independent and freely configurable control channels
	Controller type	Two-state controller, three-state controller, modulating controller, continuous controller, continuous controller with integrated position controller
	Controller structure	P, I, PD, PI, PID [2 sets of control parameters per channel]
	Program controller	50 programs each with up to 100 sections, max. total of 1,000 sections, 16 control tracks
	Measuring inputs	Up to 8 configurable analog inputs for: RTD temperature probes, resistance transmitters, thermocouples, current 0(4) to 20 mA, voltage 0(2) to 10V, heater current, C-level control, customer-specific linearization possible
	Display	5 inch TFT color screen (320 × 420 pixels, 27 colors), plain text display available in English, German, French, and other languages, process-specific texts and screens individually configured, bar graph display
	Outputs	Max. 6 slots for the following plug-in cards: 2 relays (N/O contact), 1 relay (changeover contact), 2 logic outputs 0/5V, 1 logic output 0/22V, 1 solid state relay, 1 analog output, 1 voltage supply for two-wire transmitter via 22V logic output
	Additional contacts	Up to 2 external relay modules with 8 changeover contacts or 8 logic outputs 0/12V
	Alarms	16 limit value monitoring functions, each with 8 selectable alarm functions with timer and confirmation functions
	Digital inputs	6 digital inputs for potential-free contacts
Voltage supply	AC 110 to 240V +10/-15%, 48 to 63Hz, AC/DC 20 to 30V, 48 to 63 Hz	
Interfaces/protocols	1 x RS422/485 (Modbus), 1 x PROFIBUS DP or RS422/485 (Modbus), setup interface	
Approvals	cULus	
Special features	Modular structure with plug-in cards that can be retrofitted individually, easy-to-use PC setup program including startup software, recording function with evaluation software, min. sampling rate 50 ms, autotuning procedure for determining the controller parameters, programmable operating level, math and logic functions, programmable function keys, and individually configured process screen for plant visualization, teleservice, and email notification (via external modem)	

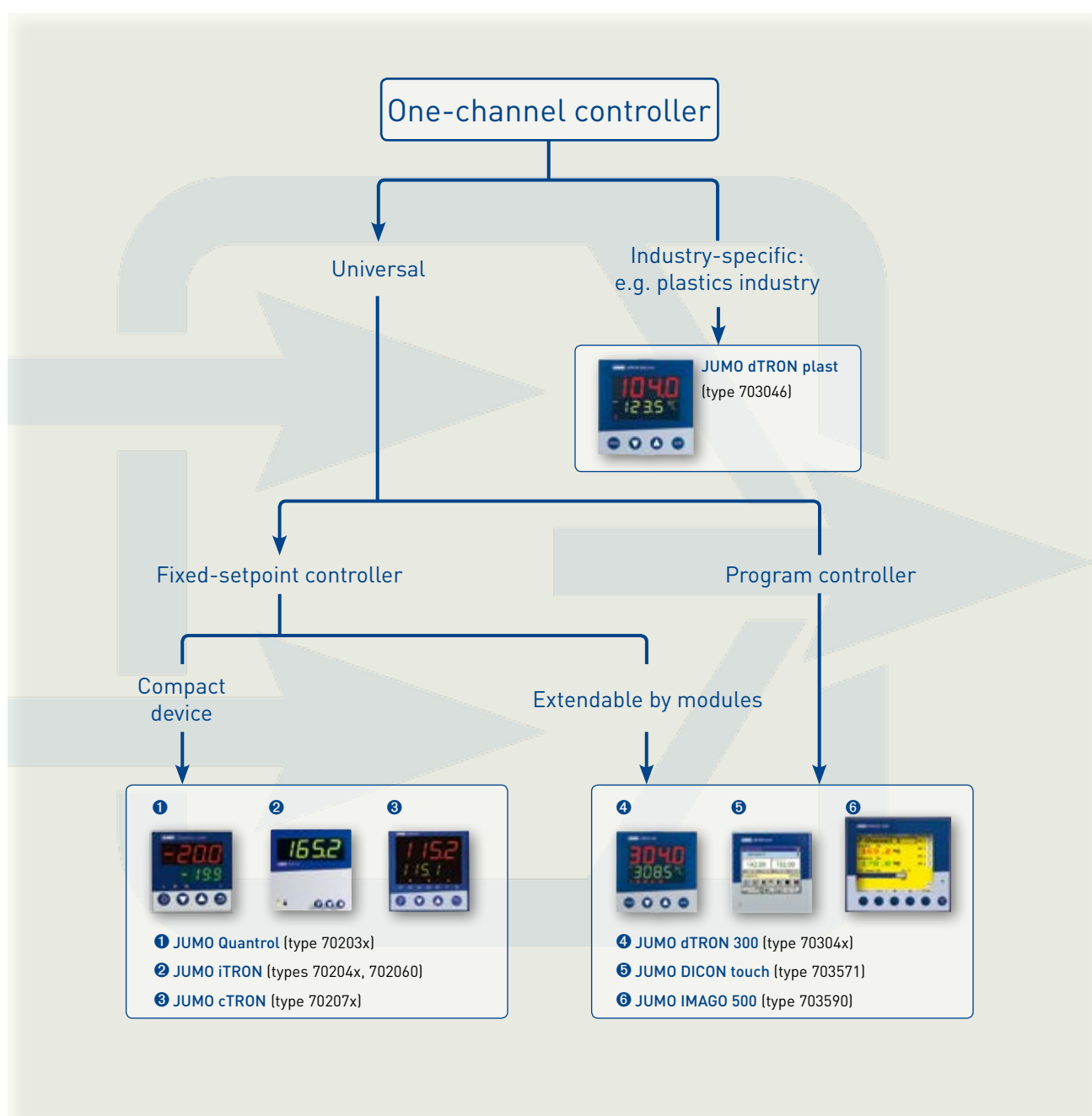
Process control for the meat processing industry – JUMO IMAGO F3000



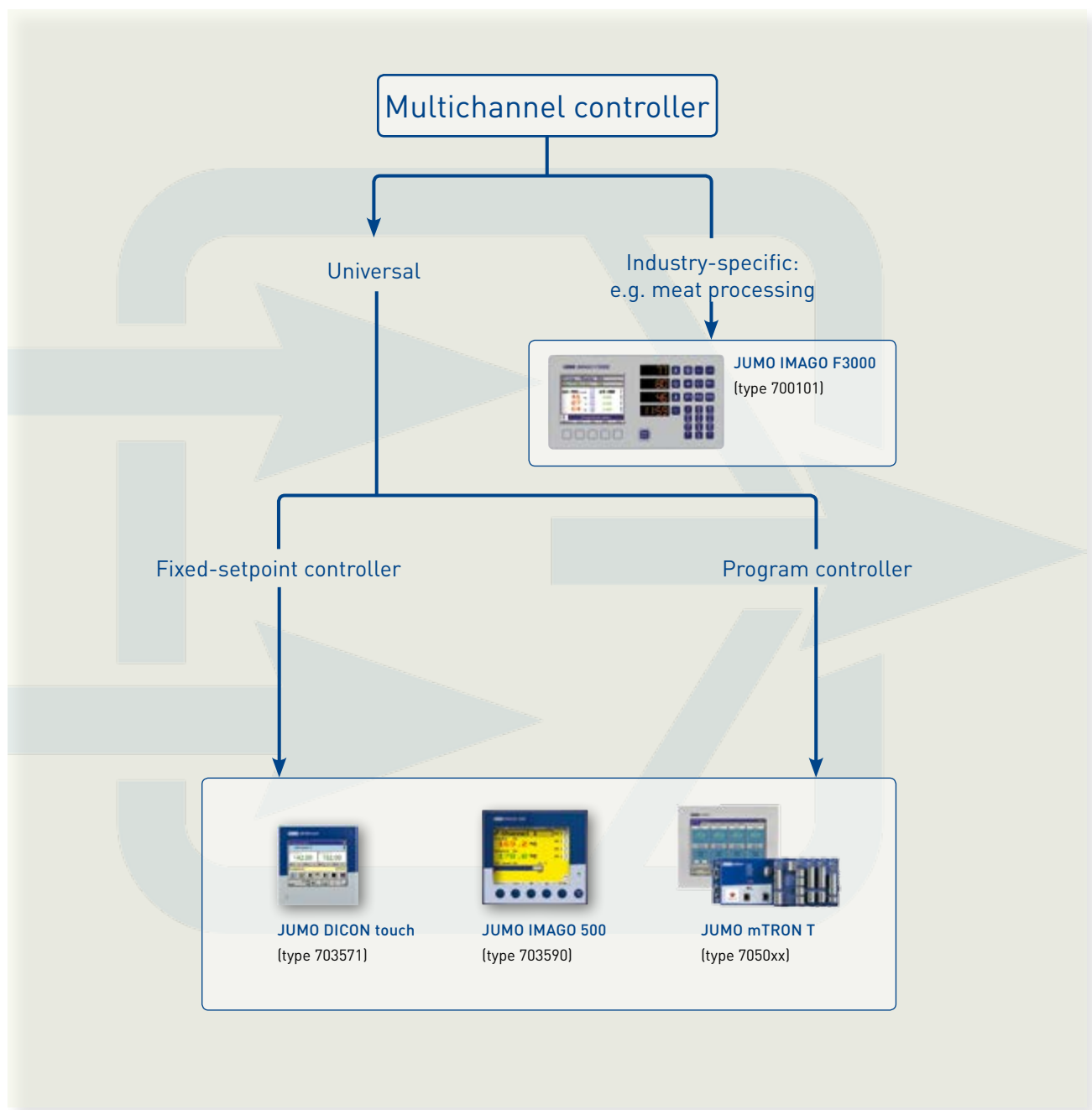
Description	JUMO IMAGO F3000
Type	700101
Format	307 mm × 165 mm (vertical or horizontal), mounting depth 107.6 mm
Mounting	Plastic housing for panel mounting
Connections	On rear side via screw terminals
Protection type	IP67 (front side), IP20 (rear side)
Number of control channels	4 independent and freely configurable control channels
Controller type	Two-state controller, three-state controller, modulating controller, continuous controller, continuous controller with integrated position controller
Controller structure	P, I, PD, PI, PID (8 sets of control parameters, freely assignable to the control channels)
Program controller	Program function (99 programs each with up to 99 sections), along with 99 programmable process steps
Measuring inputs	Up to 8 configurable analog inputs for: RTD temperature probes, thermocouples, current 0(4) to 20 mA, voltage 0(2) to 10 V
Display	5 inch TFT color screen (320 × 420 pixels, 27 colors), plain text display available in English, German, French, and other languages, process-specific texts and screens individually configured, bar graph display, additional four-digit, seven-segment displays (red) for displaying important process values
Outputs	Max. 35 relays, max. 4 analog outputs
Alarms	8 limit value monitoring functions, each with 8 selectable alarm functions with timer and confirmation functions
Voltage supply	AC 110 to 240V +10/-15%, 48 to 63Hz, AC/DC 20 to 30V, 48 to 63Hz
Interfaces/protocols	1 x RS 422/485 (Modbus), PROFIBUS DP, setup interface
Approvals	cULus
Special features	Industry-specific features: core switching, smoke generator, fan control, input 0 to 1V for humidity probe, F-value calculation Modular structure with plug-in cards that can be retrofitted individually, easy-to-use PC setup program, recording function with evaluation software, autotuning procedure for determining the controller parameters, programmable operating level, math and logic functions, programmable function keys, and individually configured process screen for plant visualization



Selection guide – one-channel controller



Selection guide – multichannel controller





General overview



Description	JUMO Quantrol	JUMO iTRON	JUMO cTRON
Type	70203x	70204x, 702060	70207x
Formats	48 mm x 48 mm x 95 mm 48 mm x 96 mm x 80 mm 96 mm x 96 mm x 80 mm	48 mm x 24 mm x 100 mm 48 mm x 48 mm x 100 mm 96 mm x 48 mm x 68.5 mm 48 mm x 96 mm x 68.5 mm 96 mm x 96 mm x 68.5 mm	48 mm x 48 mm x 90.5 mm 48 mm x 96 mm x 67 mm 96 mm x 96 mm x 70 mm
Controller type	Two-state controller, three-state controller, continuous controller	Two-state controller, three-state controller	Two-state controller, three-state controller, modulating controller, continuous controller
Number of control channels	1	1	1
Program controller	-	-	-
Ramp function	✓	✓	✓
Autotuning procedure for determining the controller parameters	Oscillation method	Oscillation method	Oscillation method
Number of control parameter sets	1	1	1
C-level control	-	-	-
Cascade control	-	-	-
Controller output level and control loop monitoring	-	-	-
Operation	Foil with 4 keys	3 keys	Foil with 4 keys
Display	LED	LED (type 702060: LCD)	LED
Customizable process screen for plant visualization	-	-	-
Modular structure with plug-in cards that can be retrofitted individually	-	-	-
Analog inputs	1	1	1
Customer-specific linearization	-	-	-
Heater current input	-	-	-
Digital inputs	1	1	2
Switching outputs	Max. 5	Max. 3	Max. 4
Analog outputs	1	-	1
Voltage supply for transmitter	-	-	-
Interfaces/protocols	RS485 (Modbus), setup (USB-powered)	Setup	RS485 (Modbus), setup
Integrated web server	-	-	-
Timers	1	1	1
Weekly time switch	-	-	-
Operating hours counter	-	-	✓
Math and logic functions (incl. ratio, differential, and humidity control)	-	-	-
Recording function with evaluation software	-	-	-
Easy-to-use PC setup program	✓	✓	✓
Startup software	-	-	✓
Protection type	IP65 (front)	IP66 (front side) (type 702060: IP20)	IP65 (front)
Approvals	cULus	Metrological certificate, cULus, CSA	cULus



	JUMO dTRON	JUMO DICON touch	JUMO IMAGO 500	JUMO IMAGO F3000
	70304x	703571	703590	700101
	48 mm × 48 mm × 90 mm 48 mm × 96 mm × 90 mm 96 mm × 48 mm × 90 mm 96 mm × 96 mm × 90 mm	96 mm × 96 mm × 131 mm	144 mm × 130 mm × 170 mm, installation dimensions 92 mm × 92 mm	307 mm × 165 mm (vertical or horizontal), mounting depth 107.6 mm
Two-state controller, three-state controller, modulating controller, continuous controller	Two-state controller, three-state controller, modulating controller, continuous controller	Two-state controller, three-state controller, modulating controller, continuous controller, continuous controller with integrated position controller	Two-state controller, three-state controller, modulating controller, continuous controller, continuous controller with integrated position controller	Two-state controller, three-state controller, modulating controller, continuous controller, continuous controller with integrated position controller
	1	2	Max. 8	4
	1 program with max. 8 sections, 4 control tracks	10 programs each with 50 sections, 8 control tracks	50 programs each with max. 100 sections, max. total of 1,000 sections, 16 control tracks	Program function (99 programs each with max. 99 sections), along with 99 programmable process steps
	✓	✓	✓	✓
Oscillation method, step response method	Oscillation method, step response method	Oscillation method, step response method	Oscillation method, step response method	Oscillation method
	2	4 per channel	2 per channel	8, freely assignable
	-	-	✓	-
	-	✓	✓	-
	-	✓	-	-
Foil with 4 keys	Foil with 4 keys	Touchscreen	Foil with 6 keys	Foil with large keypad
LCD	LCD	TFT 320 × 420 pixels, 256 colors	TFT 320 × 420 pixels, 27 colors	TFT-LED 320 × 420 pixels, 27 colors
	-	✓ (With interactive display and input fields)	✓	✓
	✓	✓	✓	✓
	Max. 2	Max. 4	Max. 8	Max. 8
10 pairs of values	10 pairs of values	40 pairs of values or polynomial	20 pairs of values or polynomial	-
	✓	-	✓	-
	Max. 4	7	6	Max. 21
	Max. 9	Max. 12 + 16 external	Max. 12 + 16 external	Max. 35
	Max. 2	Max. 5	Max. 6	Max. 4
	✓ (apart from type 703041)	✓	✓	-
RS485 (Modbus), PROFIBUS DP, setup	RS485 (Modbus), PROFIBUS DP, setup	1 × RS485 (Modbus), 1 × Ethernet or PROFIBUS DP or PROFINET or RS422/485 (Modbus), USB host, USB device	1 × RS422/485 (Modbus), 1 × PROFIBUS DP or RS422/485 (Modbus), setup interface	1 × RS422/485 (Modbus), PROFIBUS DP, setup interface
	-	✓	-	-
	2	2	4	-
	-	✓	-	-
	-	✓	-	-
2 freely editable formulae	2 freely editable formulae	8 freely editable formulae and additional binary signal processing	16 freely editable formulae	4 freely editable math formulae and 16 freely editable logic formulae
	-	✓	✓	✓
	✓	✓	✓	✓
	✓	✓	✓	-
IP65 (front)	IP65 (front)	IP66 (front side)	IP65 (front)	IP67 (front side)
Metrological certificate, cULus, DIN EN 14597	Metrological certificate, cULus, DIN EN 14597	cULus, DIN EN 14597, GL	cULus	cULus

JUMO mTRON T automation system

JUMO mTRON T combines a universal measured value recording system with a precise control system offering intuitive operation. It can also be expanded into a complete automation solution. The scalability of the JUMO mTRON T allows it to be individually adapted to a particular task. Tamper-proof data recording is just one of its outstanding features. The control and data recording therefore meet the requirements of the AMS 2750 and CQI-9 specifications.



JUMO automation system

The modular JUMO mTRON T uses an Ethernet-based system bus and an integrated PLC – even for decentralized automation tasks. The automation system can be used universally and combines JUMO's extensive process expertise with a simple, application-oriented, and user-friendly configuration concept.



Multifunction panel 840, type 705060

The panel with a 8.4" TFT touchscreen (640 x 480 pixels, 256 colors) displays data and process statuses. Among other features, the panel's predefined screen masks for service, controller, program generator, and recording functions make the overall system easy to use.

Features:

- Comprehensive user management: up to 16 user groups with individual rights allocation / up to 50 different users
- Individually-generated process screens in which measured value displays and input fields can be integrated
- Integrated paperless recorder for tamper-proof data recording for up to 54 analog and digital process values including batch recording
- Integrated web server
- Alarm and event lists
- Comprehensive interface connections: Ethernet/LAN, RS232, RS422/485, Modbus RTU and Modbus TCP (master/slave), USB host, USB device
- Robust metal case (die-cast aluminum), stainless steel option, protection type (front): IP67

Central processing unit, type 705001

The central processing unit contains the process screen for your application with up to 30 input/output modules (including controller modules and power controllers but not including any router modules) and at the same time manages the configuration and parameter data of your system. A setup program is used for quick and convenient hardware/software configuration as well as project planning of the measured value recording tasks and control tasks.

Features:

- CODESYS V3 PLC
- 9 program generators including process step function
- 64 limit value monitoring functions
- Math and logic modules
- Comprehensive interface connections: Ethernet/LAN, RS232, RS422/485, Modbus RTU and Modbus TCP (master/slave), PROFIBUS DP (slave), USB device
- Integrated web server
- Email functions (e.g. alarm for limit value violation)
- JUMO digiLine sensors for liquid analysis can be connected via PLC application

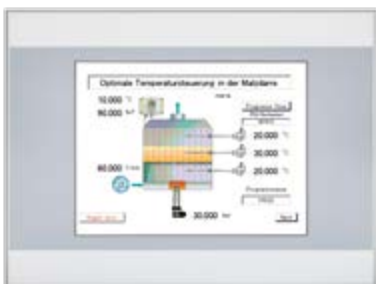
Additional operating panels Input/output modules

Type 705065

The standard multifunction panel 840 acts as a human-machine interface for the JUMO mTRON T. When required, the automation system can be made even more flexible with additional operating panels.

Features:

- Display sizes of 3.5" to 15"
- Direct access to PLC variables
- Up to four operating panels can be connected to each JUMO mTRON T central processing unit



Various modular components are available as input/output modules. These can include an analog input module with universal inputs for thermocouples, RTD temperature probes, and voltage or current standard signals. As a result the same hardware can be used to precisely record and digitize a highly diverse range of process variables.

JUMO mTRON T enables simultaneous operation of up to 120 control loops so that it can also be used for sophisticated processes. Through expansion slots the inputs and outputs of each controller module can be individually expanded and adapted. The control loops here operate fully independently which means that they do not require resources from the central processing unit. Power controllers can also be connected via the system bus. In addition, JUMO digiLine sensors for liquid analysis can be connected directly to the central processing unit.



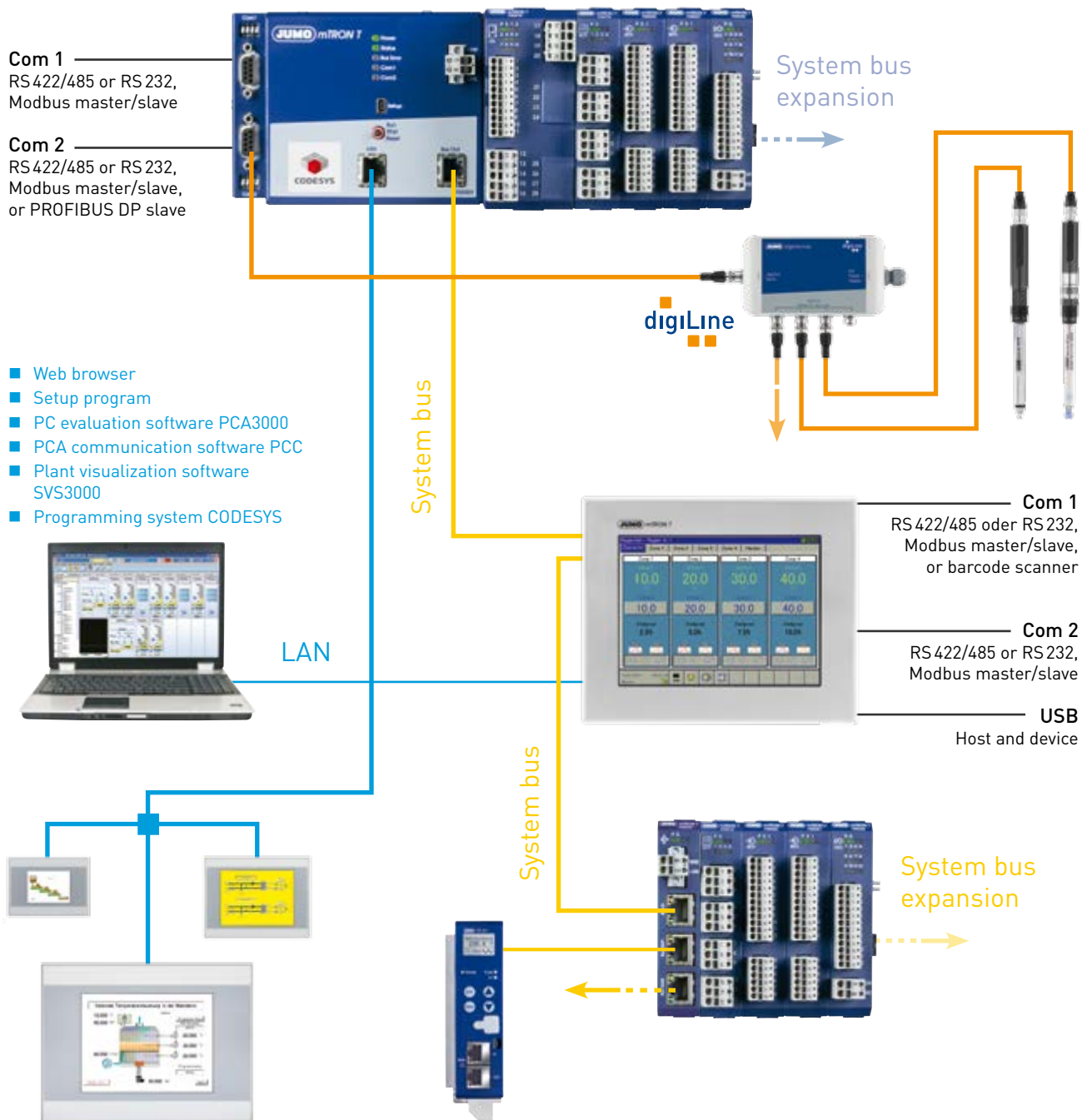


Modules	Multichannel controller module	Relay module four-channel	Analog input module four-channel	Analog input module eight-channel
Data sheet	705010	705015	705020	705021
Features	<ul style="list-style-type: none"> - Up to four independently configurable PID control loops with a fast cycle time and proven control algorithms - Independent operation - Math and logic functions - Counter input up to 10 kHz 	<ul style="list-style-type: none"> - 4 relay outputs controlled via the system bus by digital signals - Changeover contact in each case (230 V / 3 A) - Switching statuses are displayed with LEDs 	<ul style="list-style-type: none"> - Four high-quality, configurable analog inputs for RTD temperature probes, resistance transmitters, thermocouples, current 0(4) to 20 mA, voltage 0(2) to 10 V - All inputs are galvanically isolated from each other - Customer-specific linearization possible - Limit value monitoring - Additional digital input 	<ul style="list-style-type: none"> - 8 high-quality analog inputs for RTD temperature probes Pt100, Pt500, Pt1000 in two-wire circuit - Limit value monitoring - Additional digital input



Modules	Analog output module	Digital input/output module	Router module	Power controller JUMO TYA 200 series
Data sheet	705025	705030	705040	709061, 709062, 709063
Features	<ul style="list-style-type: none"> - 4 configurable analog outputs 0(4) to 20 mA or 0(2) to 10 V - Adjustable output behavior in case of malfunction 	<ul style="list-style-type: none"> - 12 digital inputs or outputs - Each channel can be configured as an input DC 0/24 V or output DC 24 V - Capacity per output: 500 mA - Switching statuses are displayed with LEDs 	<p>Input/output modules can be divided between several supporting rails or control cabinets using a router module</p> <p>Decentralized automation solutions are therefore simple to implement</p>	<ul style="list-style-type: none"> - For one-phase and three-phase operation - Continuous load current up to max. 250 A, load voltage up to max. 500 V - Different circuit variants, load types and operating modes can be implemented

System structure

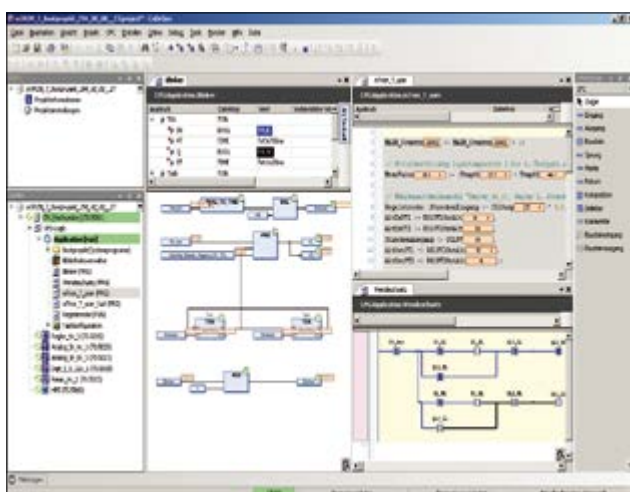


Configuration

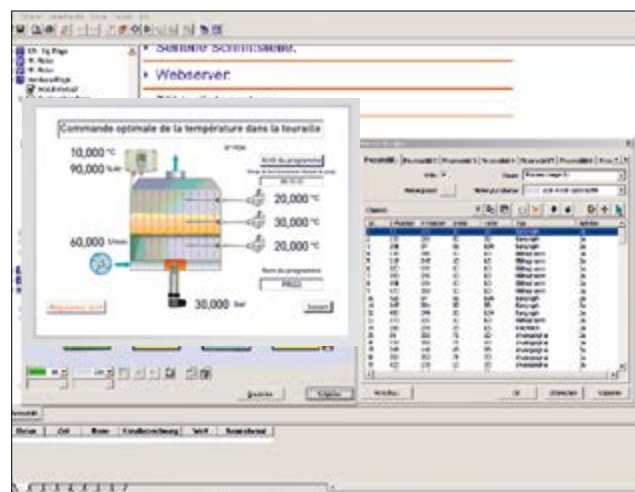
The option of individually presenting the plants, including their processes and individual sections, is very important to an automation system. For this purpose up to 18 process screens can be individually generated in the multifunction panel. In turn up to 150 objects can be presented per process screen on up to 16 different levels.

Other than the necessary system functionality, project planning software that is as simple and intuitive to operate as possible was at the heart of JUMO's product development. For this reason, hardware/software configuration and project planning of the measured value recording tasks as well as control tasks using the setup program are carried out for the JUMO mTRON T with the same look and feel as other JUMO devices. To ensure an automation solution according to IEC 61131-3, access to the CODESYS V3 programming system has been integrated in the JUMO setup program.

This means that the hardware assignment and the description of the physical inputs/outputs are adopted automatically. Project variables can then be defined and linked to a particular input or output address of the hardware assignment that appears in the device tree. All editors for programming the control application defined in the IEC 61131-3 standard are available in CODESYS. After programming the automation solution with CODESYS, the project data is transferred from the setup program again. As a result the complete application can be recorded in a project file, which greatly simplifies project management and version maintenance.



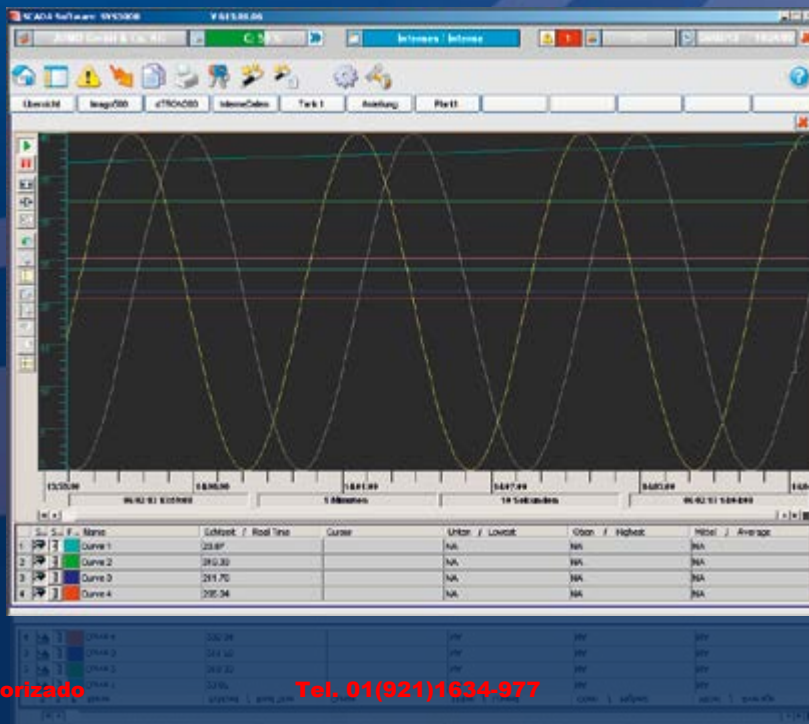
PLC programming system CODESYS V3



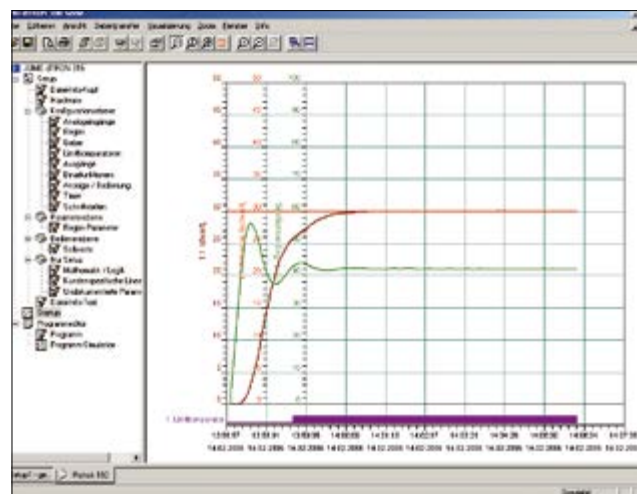
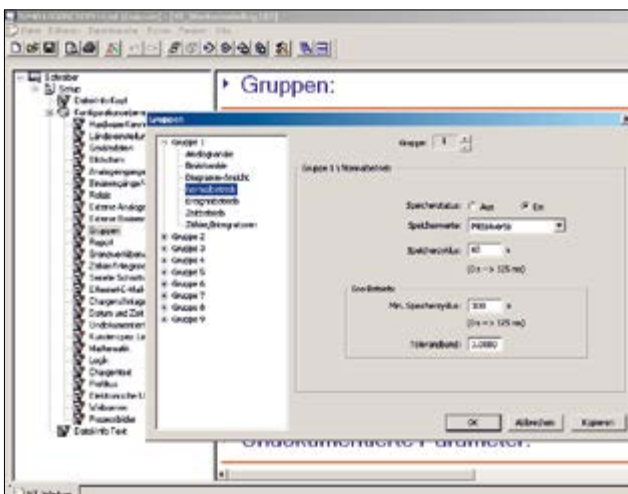
Setup program with process screen editor including process screen preview

Software

JUMO offers intuitive PC-based setup software for all digital compact controllers which supports the user during device configuration and parameterization. This software also simplifies the control optimization of plants or processes so that an efficient control response for energy efficiency can be achieved. The startup tool contained in the setup software is particularly helpful during startup. The professional PC evaluation software PCA3000 can be used for administration, archiving, visualization, and evaluation of the historical process data recorded by a paperless recorder integrated into a digital controller or JUMO mTRON T automation system. The plant visualization software SVS3000, which is also PC-based, enables online visualization and reporting of important process values. This function can also be performed in a batch-related manner if required. Pre-programmed graphic elements make the creation of a customized process screen easier. In addition, the JUMO mTRON T automation system is equipped with the PLC programming system CODESYS V3, which is easy to program via the development environment embedded in the setup program.



PC software components



Setup program

You can use the setup program to conveniently carry out project design and configuration for the respective digital compact controller on your PC. Integrated auxiliary functions assist you in adjusting the controller to your process or your application.

- User-friendly configuration and parameterization
- Diagnosis function (display of the process data) *
- Input of math and/or logic formulae *
- Program editor *
- Process screen editor *
- Simple printout of the configuration for documentation purposes**

Startup software**

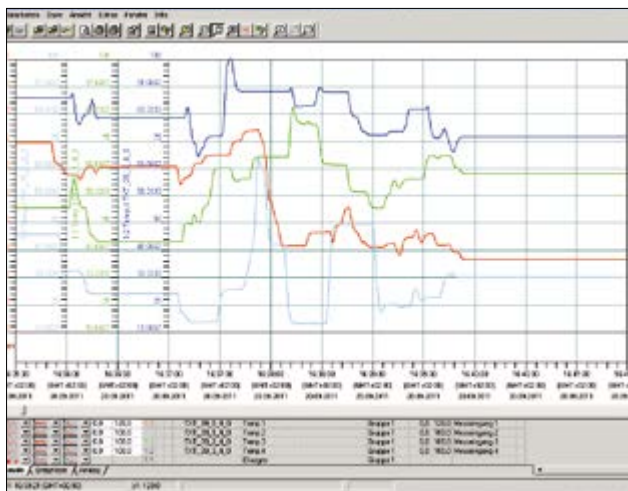
This software tool included in the setup program enables real-time visualization and storage of analog and binary signals during a startup or optimization phase (e.g. after a tool change). A visual display of the key process data in real-time is particularly useful when carrying out demanding processes.

- Visualization, monitoring, and recording of relevant analog and binary signals
- Triggering of a setpoint value change for determining control-related characteristic values based on the plant behavior
- Straightforward comparison of control results for various controller parameters
- Random monitoring of control quality
- No additional devices required to assist with startup

* Included with the JUMO mTRON T automation system and certain JUMO compact controllers

** Included with certain JUMO compact controllers; in preparation for the JUMO mTRON T automation system

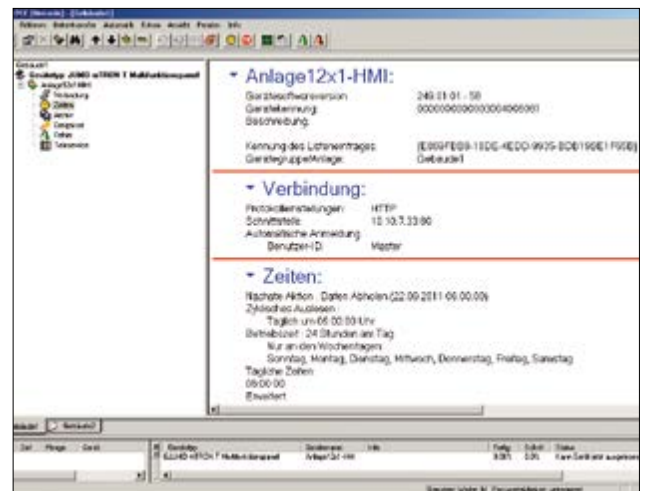
PC software components



PCA3000 evaluation software

The PC-based, professional evaluation software PCA3000 can be used to manage, archive, visualize, and evaluate historical process data (measurement data, batch data, notifications, etc.). The data can be imported via a USB flash drive or made available for central data processing using the PCC communication software.

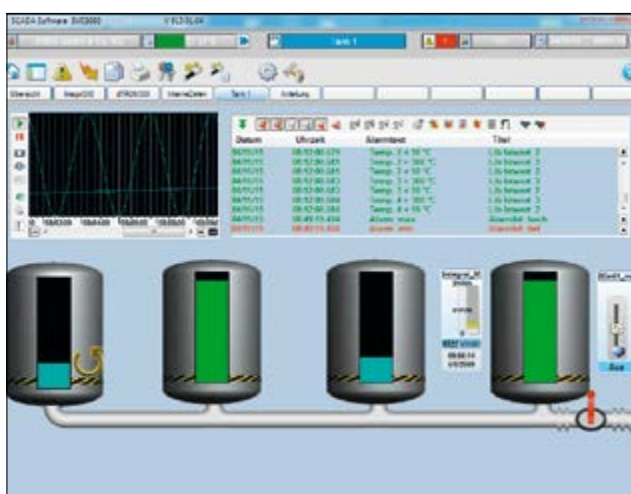
- Easy, straightforward backup and archiving of all process data in a data file
- Archived data can be read and visualized directly from the CD-ROM/DVD
- Graphic measured value processing: evaluation of measured data using a min./max. search and zoom function (magnifying glass icon)
- Data export with PCA3000 form issued in a range of formats (CSV, HTML, PDF)



PCA communication software PCC

PCC communication software is ideally geared towards PCA3000 and allows for easy data extraction via Ethernet, a serial interface (USB, RS485), or modem.

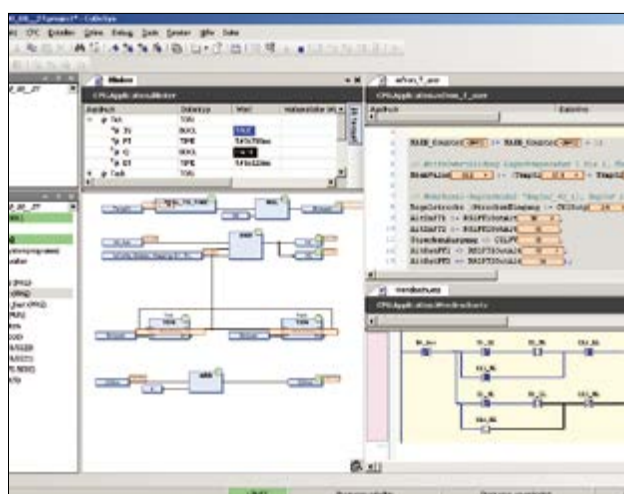
- Time-controlled, automatic data extraction via interface or modem
- Easy, straightforward archiving of all process data in a data file on a hard disk drive or a network server
- Diagnosis function (display of current process data, e.g. via modem or Ethernet)
- Can be launched as a Windows® system service
- Email notification in the event of communication failure



Plant visualization software SVS3000

The visualization software SVS3000 enables you to visualize process data in real-time or as a historical trend on your PC. Diverse reporting functions with batch-related protocol creation facilitate the evaluation of archived production data. Thanks to preprogrammed graphic objects, it is easy to visualize plant-specific components and processes in the form of group screens and process screens. You have the option of processing 75, 250, 1,000, or 5,000 process variables.

- Comprehensive library with graphic elements for individual process screens
- Pre-programmed graphic objects for depicting all JUMO controllers
- Quick and simple creation of customized group screens and trend screens
- Plant operation via group screens and/or process screens
- Extensive documentation function with continuous and batch related evaluation
- Search function for date/time, plant/freely-definable batch criteria
- Automatic printout and data export



PLC programming system CODESYS V3

The CODESYS development environment, which is included with the JUMO mTRON T, is a comprehensive software tool for industrial automation. This widely used PLC programming system according to IEC 61131-3 enables the implementation of almost all automation tasks.

All editors defined in the standard are available for programming your control applications:

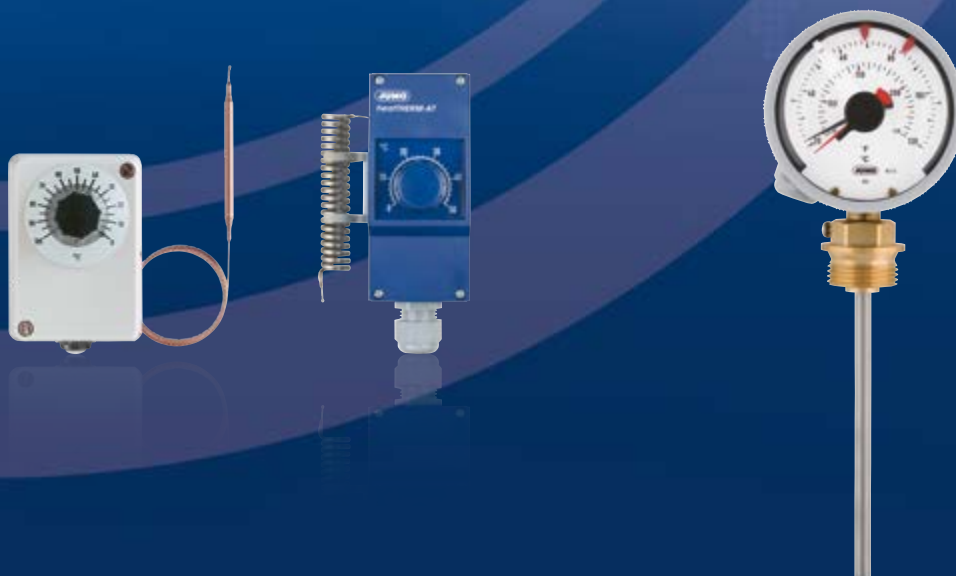
- Editor for structured text (ST)
- Sequential function chart editor (SFC)
- Continuous function chart editor (CFC)
- Function block diagram editor (FBD)
- Ladder diagram (LD)
- Instruction list editor (IL)



Electromechanical thermostats and contact dial thermometers

Electromechanical thermostats and contact dial thermometers have also been an integral part of the JUMO product range for decades. Throughout this period these devices have proven themselves to be extremely reliable in controlling and regulating basic thermal processes. In many sectors of industry they are used because they do not require any additional auxiliary energy and because they are completely impervious to electromagnetic interference.

Thanks to the broad product portfolio – for panel-mounted thermostats, surface-mounted thermostats, and contact dial thermometers – we are able to provide the ideal device for nearly all applications. In the event that standard versions do not optimally meet the requirements, customer-specific adaptations can be made. Furthermore, the comprehensive range of thermostats we stock enables us to quickly serve customers with urgent requirements.



Panel-mounted thermostats



Technical data	Description	Panel-mounted thermostat, EM series	Panel-mounted thermostat JUMO heatTHERM
	Type	602021/602025	602030/602031
	Features	Batch size according to customer specification, temperature ranges up to 650 °C possible	Economic large-scale production, standard temperature compensation
	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)	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
	Switching capacity	16 A, 230 V	16 A, 230 V
	Maximum control range/ limit value	500 °C (type 602021) 650 °C (type 602025)	350 °C
	Approvals	DIN, UL, PED, DVGW (up to 500 °C)	DIN, UL, PED



Surface-mounted thermostats

			
Description	Surface-mounted thermostat, ATH series	Surface-mounted thermostat, ATH series	Surface-mounted thermostat, ATH-SE series
Type	603021/603035	603026/603035	603031
Features	Single thermostat	Double thermostat	Single thermostat
Areas of application	Heating industry, air-conditioning industry, general mechanical engineering		Shipbuilding
Versions	Temperature controller (TR), temperature monitor (TW), safety temperature monitor (STW), safety temperature limiter (STB)		
Switching element	Single-pole snap-action switch		
Switching capacity	10 A, 230 V	10 A, 230 V	10 A, 230 V
Maximum control range/limit value	500 °C	500 °C	300 °C
Protection type	IP54 IP65 (603035)	IP54 IP65 (603035)	IP54
Approvals	DIN, DGRL (603021/603026)		Det Norske Veritas, GL, Bureau Veritas, DIN, PED

Surface-mounted thermostats



Technical data	Description	Surface-mounted thermostat JUMO heatTHERM-AT/-DR	Frost protection thermostat JUMO frostTHERM-AT/-DR	Explosion-protected surface-mounted thermostat JUMO exTHERM-AT
	Type	603070	604100	605055
	Features	Single and double thermostat, room thermostat, thermostat for mounting rail installation, exhaust gas temperature monitor	Probe line available in 3 m, 6 m, and 12 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 cooling system engineering, refrigeration 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) safety temperature monitor (STW), safety temperature limiter (STB)
	Switching element	Single-pole snap-action switch	Single-pole snap-action switch	Flameproof enclosed panel-mounted thermostat
	Switching capacity	16 A, 230 V	16 A, 230 V	16 A, 230 V, optionally 25 A, 230 V
	Maximum control range/ limit value	350 °C	15 °C	500 °C
	Protection type	IP40, IP54 (optional)	IP40, IP65 (optional)	IP65
	Approvals	DIN, UL, PED	-	ATEX, RTN, GOST, DIN, IEC Ex



Contact dial thermometers



	Description	JUMO Microstat-M	JUMO contact dial thermometers	JUMO contact dial thermometer in bayonet case
	Type	608501	608520/608523/608540	608425
Technical data	Features	Temperature controller with a microswitch in plastic flush-mounted housing, with optional steel sheet	Temperature controller with up to 2 microswitches IP67 possible (type 608523)	Temperature controller in panel-mounted case or surface-mounted case, standard ambient temperature compensation
	Areas of application	Compressor engineering, oven engineering	Oil temperature monitoring in industrial transformers; industrial processes	Plant engineering, oven engineering
	Accuracy class according to DIN EN 13 190	-	Class 1.5	Class 1
	Case size	60 mm, 80 mm, 100 mm	60 mm, 80 mm, 100 mm made from CrNi (608540 made from polyamide, 80 mm only)	100 mm and 160 mm
	Capillary/ rigid thermowell	With capillary	Rigid thermowell or capillary (up to 10 m)	
	Probe outlet	-	Vertical or horizontal	

Application examples



JUMO heatTHERM-AT
Type 603070



Panel-mounted thermostat
EM series
Type 602021



JUMO Microstat-M
Type 608501

Heating sleeves for barrels and containers

Many industries use liquid or paste material that must be maintained at a specific storage temperature or are particularly easy to process within certain temperature ranges. In such cases, heating sleeves maintain the temperature of the media in accordance with their specifications. JUMO heatTHERM-AT 603070 thermostats are used for controlling the temperature. They can be used in all kinds of temperature ranges as they are easy to adjust from the outside.

Temperature monitoring in an oven

The internal temperature of an industrial oven can be monitored using an EM 602021-series temperature controller. Temperature is adjusted from outside using a rotary knob and can easily be adapted in line with current baking conditions. A JUMO Microstat-M type 608501 can also be used for control purposes. The added benefit of this device is that the current temperature is visible at all times. The temperature value can also be easily configured through a rotary knob.



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