hotcontrol
Built-In Temperature Controllers

hotset

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Components and Systems

Heating elements, thermal sensors and process control –
hotset is your partner for the realization of intelligent product
and service solutions in the field of industrial heat technology.
Based on our international presence and our own
production sites, we operate as a component supplier and
development service provider for customers in all industries.

We supply you with components for your series production,
we implement complex system solutions for you or
we take over entire value chains: your requirements,
your goals and your wishes always form the centre of
our actions. You benefit from flexible production and
logistics structures, an interdisciplinary engineering
and over four decades of technology experience.

hotset – components. systems. projects.

hotcontrol
Built-In Temperature Controllers

Single channel temperature controllers for use in:
- Hot runner applications
- Machines for plastics processing
- Packaging machines
- Ovens
- Food processing
- Dryers, etc.

hotcontrol c148

- PID- and two-level controller
- Manual mode
- Auto tuning
- Digital filter
- Automatic sensor break detection
- Ramp function (e. g. for start-up mode)
- Fuzzy logic

Stock range

Stock ID	Type	Dimensions [mm]	Voltage [V AC]	Comment	Delivery
8814800	C 148	48 x 48 x 116	90… 250 V AC		
8814800H	C 148	48 x 48 x 116	90… 250 V AC		SSR D 2425
264004	D 2425		240 V, 16 A	SSR	
264012				Cover plate	

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hotcontrol c248 / c296

- PID-, two-level and three-level controller
- Manual mode
- Auto tuning
- Automatic sensor break detection
- Ramp function and automatic ramp function
- Second set point can be combined (absolute/relative)
- Four timers (e. g. for start-up mode)
- Digital outputs for control heating/cooling or alarm to be configured
- Monitoring of actual value, sensor, heat current and the actuator in the heat circuit
- Remote operation – handle several controllers concurrently
- Overall functions of controller such as automatic ramp through networking by CAN-bus
- Digital data interfaces RS485 and CAN-bus
- Engineering tool WinKonVis: configuration and parameter settings through RS485 and/or CAN-bus
- Operating hour counter
- Update of firmware by RS485 possible

c248

c296

Stock range

Stock ID	Type	Dimensions [mm]	Voltage [V AC]	Comment	Delivery
8804800	C 248	48 x 48 x 120	85… 264 V AC	incl. RS 485, MODBUS	
8804800H	C 248	48 x 48 x 120	85… 264 V AC	incl. RS 485, MODBUS	SSR D 2425
8804801	C 248	48 x 48 x 120	24 V AC DC	incl. RS 485, MODBUS	
8804801H	C 248	48 x 48 x 120	24 V AC DC	incl. RS 485, MODBUS	SSR D 2425
8804820	C 248	48 x 48 x 120	85… 264 V AC	incl. CAN-bus	
8809600H	C 296	48 x 96 x 120	85… 264 V AC	incl. RS 485, MODBUS	SSR D 2425
8809600	C 296	48 x 96 x 120	85… 264 V AC	incl. RS 485, MODBUS	
8809601	C 296	48 x 96 x 120	24 V AC DC	incl. RS 485, MODBUS	
8809601H	C 296	48 x 96 x 120	24 V AC DC	incl. RS 485, MODBUS	SSR D 2425
264004	D 2425		240 V, 16 A	SSR	
264012				Cover plate	

Technical Features	hotcontrol c148	hotcontrol c248	hotcontrol c296
Number of regions	1	1	1
Nominal voltage	90… 250 V AC, 47… 63 Hz	85… 240 V AC	
Input	12 VA, 5 W max.	150 mA	
Display	2 x four digit 7-Segment-LED		
Control	membrane keypad		
Status Display	3 x LED	5 x LED	8 x LED
Dimension (H x W x D) [mm]	48 x 48 x 116	48 x 48 x 94	96 x 48 x 94
Mounting	front mounting		
Casing	plastic		
Weight [kg]	0.15	0.2	0.25
Operating temperature	-10 … 50°C	0… 55°C	
Connections	integrated clamps		
Protection mode	Front: IP65, indoor use only	Front: IP54 Casing, Connectors: IP20	
Addressing	-	via configuration parameters	
Data Back up	-	EEPROM	

Data interfaces	hotcontrol c148	hotcontrol c248	hotcontrol c296
RS 485	-	Modbus, 1200… 19200 Baud	
CAN	-	Canopen (CiA 401 V 2.01) bis 1 Mbps	

Measuring input temp.	hotcontrol c148	hotcontrol c248	hotcontrol c296
Number	1	1	3
Resolution	18 bit	14 bit	
Sample rate	5 Hz		
Type	Thermocouple type J, K, L or Pt100 in 2- oder 3-conduction connection		
Range	Typ J/L: -120 … 1000 °C Typ K: -200 … 1370 °C Pt 100: -210 … 700 °C	Typ J/L: 0 … 850 °C Typ K: -50 … 1200 °C Pt 100: -50 … 700 °C	
Reference junction	internal		
Input resistance	2.2 MΩ (Pt 100: 1.3 KΩ)	> 47 kΩ	
Measuring accuracy	± 2K (Pt 100: ± 0.4 K)	< 1 K	
Monitoring	sensor break, sensor short circuit (Pt100 only)	sensor break, reversed polarity sensor short circuit (Pt100 only)	

Heat current meas. inputs	hotcontrol c148	hotcontrol c248	hotcontrol c296
Number	–	1, single phase, via converter	
Signal	–	42 mV/A	
Resolution		14 bit	

Digital input	hotcontrol c148	hotcontrol c248	hotcontrol c296
Number	–	1	2
Specification	–	externall potential-free contact 0 … 30 V DC, < 10 mA at 24 V DC	
Function	configurable		

Digital output	hotcontrol c148	hotcontrol c248	hotcontrol c296
Number	1	2	4
Type	pulsed voltage to drive SSR	1 electr. switch contact, 1 relay output	
Specification	14 V DC, max. 40 mA	12 V, 100 mA; 250 V, 2 A	
Function	relay output	relay output, alarm output	

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Desktop Temperature Controller

hotcontrol c448

- Desktop control device for 1 or 2 control areas
- Micro processor operating controller c248 inside
- Start-up and boost mode
- Alarm output or machine release by potential free contact
- Stand-by mode

Options

- Heat current monitoring
  Measuring point 0 to 60 A
  Resolution 1/10 A, tolerance 1% of full scale value
- Interfaces CAN-bus and RS485

Stock range

Stock ID	Type	Number of control units	max. Current	Operating voltage	Delivery
8844810	C 448/1 FeCuNi	1	1 x 16 A	90… 264 V AC, 50-60 Hz	
8844810G	C 448/1 FeCuNi	1	1 x 16 A	90… 264 V AC, 50-60 Hz	incl. connector kit
8844812	C 448/1 FeCuNi	1	1 x 16 A	90… 264 V AC, 50-60 Hz	
8844812G	C 448/1 FeCuNi	1	1 x 16 A	90… 264 V AC, 50-60 Hz	incl. connector kit
8844820	C 448/2 FeCuNi	2	2 x 16 A	90… 264 V AC, 50-60 Hz	
8844820G	C 448/2 FeCuNi	2	2 x 16 A	90… 264 V AC, 50-60 Hz	incl. connector kit
9600000	connector kit				

Technical Features	hotcontrol c448/1	hotcontrol c448/2
Number of control units inside	1	2
Nominal voltage	90 … 264 V AC ± 10%, 50 ... 60 Hz, 1P / N / PE	
Standard power connection	3 m power connection cable	
Display	2 x four digits 7-Segment LED	4 x four digits 7-Segment LED
Control	membrane	
Status Display	5 x LED	2 Displays, each 5 x LED
Dimension (H x W x D) [mm]	105 x 110 x 230	
Casing	aluminium, silver anodized	
Weight [kg]	app. 2 kg	
Operating temperature	0 … 55 °C	
Addressing	via configuration parameters	
Data Back up	EEPROM	

Optional Data interfaces	hotcontrol c448/1	hotcontrol c448/2
RS 485	Modbus, 1200… 19200 Baud	
CAN	Canopen (CiA 401 V 2.01) up to 1 Mbps	

Measuring input temperature	hotcontrol c448/1	hotcontrol c448/2
Number	1	2
Resultion	14 bit	
Sample rate	5 Hz	
Type	Thermocouple type J	
Range	0 … 500 °C, switchable to °F	
Reference junction	internal	
Input resistance	> 47 kΩ	
Measuring accuracy	< 1 K	
Monitoring	sensor break, reversed polarity sensor short circuit (Pt100 only)	

Heat current measuring inputs	hotcontrol c448/1	hotcontrol c448/2
Number	1, single phase via converter	2, single phase via converter
Signal	42 mV/A	
Resolution	14 bit	

Digital input	hotcontrol c448/1	hotcontrol c448/2
Number	1	2
Specification	external potential-free contact, 0 … 30 V DC, < 10 mA at 24 V DC	
Function	configurable	

Digital output	hotcontrol c448/1	hotcontrol c448/2
Number	2	4
Type	1 x relay	2 x relay
Specification	250 V AC, 2 A, resistive load	
Function	Collective alarm message for: temp. threshold, sensor failure, reversed polarity,	
Optional Function	Heat current tolerance alarm, short circuit of power output	

Power Outputs	hotcontrol c448/1	hotcontrol c448/2
Output power	90 … 264 V AC / max. 3.6 kW, switch with SSR 25 A	
Protection	ultra rapid fuse FF 16 A, 6.3 x 32 mm	
Tool connection	10-pole Wieland conncetor	2 x 10-pole Wieland conncetor

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Multi Channel Temperature Controllers

hotcontrol cDT+ series

- Compact design with 6 to 24 zones
- Integrated 7" touchscreen
- 3 languages for selection
- Process monitoring
- Grouping of zones and storage
- User administration with password protection

Features and functions

- Storage option for 10 set point settings
- Mold check (automated checking of the condition of heaters and sensors in the heating channel, wiring check)
- Mold snapshot (sampling protocol)
- Heat 'n' Dry (controlled, gentle heating for complete baking of the heater with control of the residual current)
- Leakage detection
- Data import/export via USB stick
- Data storage on USB stick
- Zone on/off, control mode/manual mode, standby, boost, time-controlled boost, start-up mode, leading zones mode and more
- PID control algorithm
- Autotuning
- Heating outputs with impulse group mode or phase angle (dependent on the operating condition)
- Smart Power Limitation (intelligent energy limitation of the heating output emitted to the heating channel on the mains input available at the controller)
- Safety shutdown of the heating outputs
- Uniform, guided heating with automatic ramp
- Monitoring
  ‣ Temperature alarm limits above and below the nominal values (selectable)
  ‣ Excess/insufficient temperature (selectable)
  ‣ Heating power outside the tolerance range (selectable)
  ‣ Interrupted heating circuit
  ‣ Fuse failure
  ‣ Sensor breakage and reverse polarity, short-circuit in the sensor circuit
  ‣ Residual current/leakage current measurement
  ‣ Heating output permanently switched on

Technical Features	hotcontrol cDT+ 06	hotcontrol cDT+ 12	hotcontrol cDT+ 18	hotcontrol cDT+ 24
Number of regions	6	12	18	24
Nominal voltage	400 V AC, 3P/N/PE, 50 … 60 Hz			
Power supply, 3 m	CEE 16 A	CEE 32 A	CEE 63 A	CEE 63 A
Max. power output	11 kW	22 kW	43 kW	43 kW
Display/operation	Via a front-installed controller & user interface with 7" TFT display and capacitive touch (CUI07)			
Dimensions (H x W x D) [mm]	400 x 260 x 390	400 x 260 x 390	400 x 260 x 390	400 x 260 x 390
Weight [kg], approx.	21	22	23	24
Permissible temperature	Operation: 0 … 45 °C, transport, storage: -20 … 70 °C			
Permissible humidity	Relative humidity < 75% as an annual average, no condensation			
Sound pressure level	< 50 dB			
Protection type	IP21			
Electrical safety	Protection class I, overvoltage category II			
CE labelling	The device complies with the guidelines for electromagnetic compatibility (complies with EN 61326-1) and the low-voltage directive (complies with EN 61010-1) which underlie the CE-labelling.			

Sensor inputs	hotcontrol cDT+ 06	hotcontrol cDT+ 12	hotcontrol cDT+ 18	hotcontrol cDT+ 24
Number	6	12	18	24
Type	Typ J, Fe-CuNi (-35 … 500 °C) , Typ L Fe-CuNi (-35 … 500 °C), Typ K, NiCr-Ni (0 … 900 °C), Pt 100 optional			
Measurement accuracy	< 1 K			
Resolution	0.1 °C / 0.1 °F (°C / °F switchable)			

Power outputs	hotcontrol cDT+ 06	hotcontrol cDT+ 12	hotcontrol cDT+ 18	hotcontrol cDT+ 24
Number	6	12	18	24
Output information	230 V AC, 15 A per area; power loss per area with 15 A max. 20 W; With ambient temperature <= 45 °C max. output power 20 kW per HTC-Card.			
Output signal	Phase angle or pulse group output / zero-crossing switching			
Protection	Protection on card; 2-pole; 6.3 x 32 mm; Only use fuse type SIB FF 16 A Art. 7012540.16			
Simultaneity factor	Simultaneity factor = 100 % duty cycle permanent with ambient temperature ≤ 25 °C; For ambient temperatures > 25 °C, the simultaneity factor may reduce by up to 70 % dependent on the average degree of operation and its duration.			

Connections	hotcontrol cDT+ 06	hotcontrol cDT+ 12	hotcontrol cDT+ 18	hotcontrol cDT+ 24
Heating/sensors	24-pole Wieland			
Outputs	Machine approval/alarm message (4-pole HTS on the rear wall) Number: 1 potential-free relay contact 250 V AC/ 1 A			
Inputs	Digital input (9-pole D-SUB socket on the rear wall) Number: 2 0 … 30 VDC, low level 0 … 1 V DC, high level 4 … 30 V DC, I_{max} =12 mA at 30 V DC			
Interfaces	RS 485 (9-pole S-SUB socket on the rear wall) number: 1 CAN (9-pole S-SUB socket on the rear wall) number: 1 Ethernet (RJ 45 socket on the rear wall) number: 1			

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