Valid for item numbers:

**HPS-C-ONE:**
- 69000.001 (1-zone)

**HPS-C-SLOT**
- 69000.002 (2-zone)
- 69000.004 (4-zone)
- 69000.006 (6-zone)

**HPS-C-ONE**
HPS-C-SLOT
Hotrunner Controllers

**Operating manual**
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**Safety Instructions**

Please read these operating instructions carefully prior to using the product.

The unit may be serviced only by qualified personnel. Be sure to withdraw the mains plug before opening the housing!

Never replace any fuses unless the unit has been disconnected from the power supply.

Prior to inserting the hot-runner mold cables, be sure to verify that all connectors have been properly connected (see Connections).

Check power cable and mold connecting cables for potential defects on a regular basis! Be sure to use a new cable whenever the cable sheath is found to be defective!

**Intended Use**

**HPS-C-ONE** and **HPS-C-SLOT** controllers are industrial temperature controllers for controlling the melting temperature of hot-runner moulds. The temperature is measured with thermocouples and then adjusted accordingly.

To prevent overheating damage in case of malfunction, an external temperature fuse must be integrated into the heating circuits.

EWIKON shall not be liable for damage caused by improper use of the device.

**General Instructions**

A separate control zone is required for every load to be connected. A control zone consists of a controller module, a temperature sensor input, and a load output including a load circuit fuse.

When connecting the hotrunner mold cables, be sure to assign the cables to the correct connectors.

Unused controller zones must be switched off. Unused controller slots must always be covered with a blanking plate!

For connecting the load circuits, a heat resistant flexible cable must be used. For the temperature sensors, a special compensating cable is required!

**Installation**

Place your **HPS-C-ONE** and **HPS-C-SLOT** controllers on a stable, flat working surface. The displays should be at eye level with the user.

Cooling fans prevent overheating of the output stage. Be sure that the air can circulate freely through the appropriate vents provided on the rear and underside of the unit.
Cleaning

The external surfaces of the device and the operating panel may be cleaned with a soft cloth saturated with alcohol. Please do not use acid cleaners or scouring agents.

Maintenance

The device must be regularly subjected to a safety check complying with BGV A3 requirements (protection against accidents).

It is recommended to clean the ventilation slots on the rear and underside of the unit at regular intervals. Depending on the operating period and working condition, the filters should be replaced in the cassette.

In addition, the ventilation slots should be checked for obstruction and cleaned if necessary. However, this task must be carried out by qualified service personnel and not by the user.

No other maintenance work is required for the device beyond the tasks specified above. Should malfunction occur, please contact EWIKON.

Disposal

Once the device has reached the end of its service life, please feel free to return it to the manufacturer for proper disposal.

This device satisfies the essential protection requirements specified in pertinent EU Directives (as of 2010)
Start-Up

After carefully checking the cables for potential defects, connect the hot-runner mold to the controller. If needed, you can also make a connection to the moulding machine using the alarm connector. The controller must be connected to a one (1+2 zone) or three-phase (4-zone and higher) power supply source using a corresponding connector (see Technical Data). Connect the power cable, then switch on the controller with the main switch.

Each controller module can be switched on and off separately with the I/O key. Please note that unused control zones must be switched off!

Select the desired setpoint on the controllers (see Displays & Indicators, Operation).

The controllers will now heat up the mold in a uniform manner, thereby drying up any moist heating elements. During this process, the temperature deviation alarm indicator will be flashing (soft start ramp).

As soon as the setpoint has been reached, the production process can be started on the basis of the factory settings.

Should malfunction occur during the start-up process, the cause of the trouble will be indicated by the corresponding control panel indicator (see Displays & Indicators, Operation).

Front View

Microprocessor controller module with 16 A power unit
• no cable insertion

Heating pulse indication
• lights up simultaneously with the power output

Setpoint display

Setpoint adjustment
Displays & Indicators, Operation

Actual value display
indicates the measured temperature and the heating pulse (dot = power output)
● Menu item indication in programming mode (see Programming)

Setpoint display (see Setpoint adjustment)
● Output power indication in amperes or % (see Power indication switch)
● Manual mode indication Hnd and % power (see Manual mode switch)
● Increase tUP (see Increase switch)
● Decrease tdn (see Decrease switch)
● Automode indication not (see Programming)

On/Off switch
Pressing this button switches the respective slide-in controller (control zone) on or off.
Be sure to switch off unused control zones!
● Cancel (escape) key, used in programming mode (see Programming)

Setpoint setting
Increase or decrease the setpoint value as required (50 up to max 500 °C); also see Setpoint limit
● Power output setting (in % of max. power) in manual mode
● Up/down keys in programming mode (see Programming)

Power indication switch
Pressing this button once indicates the average load current (in amperes) in the setpoint display.
Pressing it again shows you the output power in % of the maximum. At the same time, the corresponding symbol to the left of the display will light up green. Pressing the button once more returns to the setpoint value.

Manual mode switch
This button activates the manual function. In this mode, the information indicated in the setpoint display continuously alternates between the output power in % of the maximum and Hnd. The percentage output power can be changed with the ▼▲ buttons in %.

Increase switch
This button increases the setpoint value temporarily. The setpoint display alternates between the increased value and tUP (also see Programming).

Decrease switch
This button decreases the setpoint value for standby mode. The setpoint display alternates between the reduced value and tdn (also see Programming).

Programming key
Keeping this button pressed calls up the programming mode. The first menu item will appear in the actual value window (also see Programming).

Ground fault alarm indicator
lights up if the heating-element-to-ground resistance falls below 100 kΩ. In this event, the power supply will be interrupted two-pole.

Thermocouple alarm indicator
The actual value display shows "- - -" as a continuous signal for sensor breakage and a flashing signal for polarity reversal (this will take a few minutes following switch-on!).

Temperature deviation alarm indicator
flashes during the heating-up phase of the soft-start ramp. Lights up continuously if the temperature exceeds or falls below set limits. In case of overtemperature, the power supply is interrupted two-pole.

Overcurrent alarm indicator
lights up if the set maximum current is exceeded or the load circuit has been interrupted. In case of overcurrent, the power supply is interrupted two-pole (see Programming).

(● optional functions)
Pressing the **PRG** key for more than 2 seconds activates the programming function. Now the first menu item **Ot** is shown in the actual-value display window while the set parameter value is flashing in the setpoint display. Pressing the **PRG** key again stops the flashing and the parameter value can be changed with the ▼▲ keys. Once the correct value has been set, acknowledge by pressing the **PRG** key. The new value is now stored and starts flashing again in the setpoint window. To navigate through the menu and select an item, use the the ▼▲ buttons (see Programming).

Press the **ESC** key to exit the programming mode.

> **Changed settings will be retained (and available for future use) only when the slide-in controller is kept in operation for a few minutes after the changes have been made!**

### Programming Menu

<table>
<thead>
<tr>
<th>Men item</th>
<th>Name</th>
<th>Function</th>
<th>Range</th>
<th>Standard (factory setting)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Cod</strong></td>
<td>Access code</td>
<td>Lock function</td>
<td>0-250</td>
<td>0 (deactivated)</td>
</tr>
<tr>
<td><strong>Ot</strong></td>
<td>Overtemperature</td>
<td>Overtemperature limit value</td>
<td>0-50 °C</td>
<td>10 °C</td>
</tr>
<tr>
<td><strong>Ut</strong></td>
<td>Undertemperature</td>
<td>Undertemperature limit value</td>
<td>0-50 °C</td>
<td>10 °C</td>
</tr>
<tr>
<td><strong>CUr</strong></td>
<td>Overcurrent</td>
<td>Load output limit value</td>
<td>1-16 A</td>
<td>16 A</td>
</tr>
<tr>
<td><strong>tdn</strong></td>
<td>Decrease</td>
<td>Temperature below setpoint</td>
<td>10-200 °C</td>
<td>50 °C</td>
</tr>
<tr>
<td><strong>rE</strong></td>
<td>Ramp end</td>
<td>Final temperature ramp 1</td>
<td>80-100 °C</td>
<td>120 °C</td>
</tr>
<tr>
<td><strong>r1</strong></td>
<td>Rise, ramp 1</td>
<td>Heating speed, ramp 1</td>
<td>2-10 sec. for 1 °C</td>
<td>4 sec.</td>
</tr>
<tr>
<td><strong>r2</strong></td>
<td>Rise, ramp 2</td>
<td>Heating speed, ramp 2</td>
<td>2-10 sec. for 1 °C</td>
<td>2 sec.</td>
</tr>
<tr>
<td><strong>rt</strong></td>
<td>Ramp pause</td>
<td>Pause between ramps 1 + 2</td>
<td>1-10 minutes</td>
<td>1 minute</td>
</tr>
<tr>
<td><strong>AOt</strong></td>
<td>Overtemperature</td>
<td>Alarm: I = active / 0 = inactive</td>
<td>0 or I</td>
<td>I</td>
</tr>
<tr>
<td><strong>AUT</strong></td>
<td>Undertemperature</td>
<td>Alarm: I = active / 0 = inactive</td>
<td>0 or I</td>
<td>I</td>
</tr>
<tr>
<td><strong>not</strong></td>
<td>Automode 1)</td>
<td>I = active / 0 = inactive</td>
<td>0 or I</td>
<td>0</td>
</tr>
<tr>
<td><strong>Adr</strong></td>
<td>Zone address</td>
<td>Slot no. following connection</td>
<td>0-99</td>
<td>99 2)</td>
</tr>
<tr>
<td><strong>Hnd</strong></td>
<td>Manual mode</td>
<td>I = active / 0 = inactive</td>
<td>0 or I</td>
<td>0</td>
</tr>
<tr>
<td><strong>ToP</strong></td>
<td>Setpoint limitation</td>
<td>Setting maximum setpoint</td>
<td>50-500 °C</td>
<td>450 °C</td>
</tr>
<tr>
<td><strong>tUP</strong></td>
<td>Increase</td>
<td>Temperature above setpoint</td>
<td>5-60 °C</td>
<td>20 °C</td>
</tr>
<tr>
<td><strong>F C</strong></td>
<td>Temperature unit</td>
<td>°F or °C</td>
<td>F or C</td>
<td>°C</td>
</tr>
<tr>
<td><strong>UPt</strong></td>
<td>Increase time</td>
<td>Duration of increase</td>
<td>0-180 sec.</td>
<td>20 sec.</td>
</tr>
<tr>
<td><strong>JH</strong></td>
<td>Thermocouple</td>
<td>Type of thermocouple</td>
<td>J / H = K</td>
<td>J</td>
</tr>
<tr>
<td><strong>tCt</strong></td>
<td>Thermocouple test time</td>
<td>Measurement period of temperature increase at TC</td>
<td>0 - 10 minutes</td>
<td>2 minutes</td>
</tr>
<tr>
<td><strong>PrE</strong></td>
<td>Preset</td>
<td>Set to factory preset values</td>
<td>-</td>
<td>-</td>
</tr>
</tbody>
</table>

**Chan only central unit!**

<table>
<thead>
<tr>
<th>Men item</th>
<th>Name</th>
<th>Function</th>
<th>Range</th>
<th>Standard (factory setting)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Chan</strong></td>
<td>Number of zones</td>
<td>Number of channels to be controlled</td>
<td>1-99</td>
<td>depending on model</td>
</tr>
</tbody>
</table>

1) Automode function is available only after failure-free operation for approx. 15 min!
2) Preset for controllers delivered with central control unit
Programming Diagram

START (normal operation) → 27.0 (actual value display)

Menu items ↓ ▲ → Menu selection

PRG →;

Menu items ↓ ▲ → Settings

PRG →;

I/O ESC →;

I/O ESC →;

I/O ESC →;

PRG →;

Settings ↓ ▲ → Change values

Changed value has been stored
Cancel without storage

Soft Start Ramp, Temperature Limit Values

Ot
Ut

r1 (seconds for 1 °C)
r2 (seconds for 1 °C)
r3

Setpoint
Central Operating Unit 60040.064 (optional)

The central unit enables you to control as many HPS-C-SLOT controller modules as you like through centralized operation. As individual hotrunner mold settings can be stored in the mold memory of the unit and called up as required, this greatly facilitates the setting procedure, especially when you work with a large number of control zones.

Basically, the central operating unit can be inserted into any slot of the controller housing. However, we recommend using the last slot for this purpose, as this ensures clear and straightforward slot-to-pin assignments (also see General Instructions).

All functions provided by a single controller module are also available and controllable through the central operating unit.

Front View

Settings

When you want to work with a central control unit, you must program an address for each controller module and enter the number of control zones to be controlled through the central operating unit (also see Programming menu).
Central Control Indicators, Displays and Functions

**Information display**
- Indicates the active mold memory
  - Mold memory function indication; LoAd = load data set; SAve = save / store data set
  - Menu and parameter indication in programming mode

**Setpoint setting, relative**
The setpoint value can be incrementally changed using the ▼▲ keys (all zones).

**Setpoint setting, absolute**
Copies the setpoint value stored last from the controller with the highest zone number into all zones. Uniform incremental changes for all zones with the ▼▲ keys.

**Power indication in amperes**
The average output power is indicated in amperes (all zones).

**Power indication in percent**
The average output power is indicated in percent of maximum load (all zones).

**Increase mode**
Temporary temperature increase (all zones)

**Decrease mode**
Setpoint reduction (for standby mode) (all zones)

**Manual mode**
Manual Control for all zones in which this function is active (all zones).

**Cancel / escape key**
Cancel data entry; exit programming mode.

**Setpoint selection key (relative or absolute)**
Operating this button sets the activated setpoint (relative or absolute) flashing. You can now change the setpoint value with the ▼▲ keys; pressing the button again acknowledges the setting and terminates the selection process.
- Keeping the button pressed activates the central programming mode. In this case a menu item will appear in the information display. To navigate through the menu and change parameters, use the ▼▲ keys (also see Programming).

**Store mold settings**
To store the settings for a hotrunner mold, shortly press this key and select a memory location with the ▼▲ keys, then press the button again to store the values away in the mold memory.

**Load mold settings**
To recall the settings for a hotrunner mold, shortly press this key, select the appropriate memory location with the ▼▲ keys, then press the button again.

**Select type of indication or function**
Shortly press this key and select the appropriate function using the ▼▲ keys; the green LED of the selected item will now start flashing. Pressing the button once again activates or deactivates the selected item.

**ON / OFF**
The central operating unit can be switched on and off with this key.

(● Optional functions)
Connections (according to DIN 16765-A)

for 69000.001 and 69000.002

### 10-pole Load / Thermo

![10-pole Load / Thermo diagram]

<table>
<thead>
<tr>
<th>Zone</th>
<th>Load PIN</th>
<th>Thermo PIN</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1/6</td>
<td>5(+)/10(-)</td>
</tr>
<tr>
<td>2</td>
<td>3/8</td>
<td>4(+)/9(-)</td>
</tr>
</tbody>
</table>

Earth conductor wired to housing!

for 69000.004 and 69000.006

### 16-pole Load

![16-pole Load diagram]

<table>
<thead>
<tr>
<th>Zone</th>
<th>PIN</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1/9</td>
</tr>
<tr>
<td>2</td>
<td>2/10</td>
</tr>
<tr>
<td>3</td>
<td>3/11</td>
</tr>
<tr>
<td>4</td>
<td>4/12</td>
</tr>
<tr>
<td>5</td>
<td>5/13</td>
</tr>
<tr>
<td>6</td>
<td>6/14</td>
</tr>
</tbody>
</table>

Earth conductor wired to housing!

### 16-pole Thermo

![16-pole Thermo diagram]

<table>
<thead>
<tr>
<th>Zone</th>
<th>PIN</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>1+/9-</td>
</tr>
<tr>
<td>2</td>
<td>2+/10-</td>
</tr>
<tr>
<td>3</td>
<td>3+/11-</td>
</tr>
<tr>
<td>4</td>
<td>4+/12-</td>
</tr>
<tr>
<td>5</td>
<td>5+/13-</td>
</tr>
<tr>
<td>6</td>
<td>6+/14-</td>
</tr>
</tbody>
</table>

Earth conductor wired to housing!

**Load Fuses 18061**

The load fuses are located at the rear of the housing. Before changing withdraw the mains plug. Please replace only with similar fuses.
Connections

Alarm connector 12-pole (mating connector and/or alarm circuit 60070.051)

Output

![Diagram of alarm connector]

<table>
<thead>
<tr>
<th>PIN</th>
<th>Wire</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>2</td>
<td>Closed in case of alarm</td>
</tr>
<tr>
<td>3</td>
<td>3</td>
<td></td>
</tr>
</tbody>
</table>

Input (external standby)

![Diagram of input, standby active when closed]

<table>
<thead>
<tr>
<th>PIN</th>
<th>Wire</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>4</td>
<td>Standby active when closed</td>
</tr>
<tr>
<td>5</td>
<td>5</td>
<td></td>
</tr>
</tbody>
</table>

Technical Data

Working conditions: To be operated only in closed rooms. Altitude max. 2000 m. Relative humidity up to 80 % at 30 °C (86 °F). Avoid moisture condensation! Pollution severity level 2 Operation: 10-40 °C (50-104 °F), storage 0-50 °C (32-122 °F)

Housing: Half-shell metal housing; protection IP20, class of protection I

<table>
<thead>
<tr>
<th>Dimensions [mm] (BxHxT)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2-slot: approx. 175 x 200 x 390</td>
</tr>
<tr>
<td>4-slot: approx. 350 x 200 x 390</td>
</tr>
<tr>
<td>6-slot: approx. 350 x 200 x 390</td>
</tr>
</tbody>
</table>

Connection: Common load and thermocouple 10-pole (1 and 2 control zones; for pinning see Connections) Load and Thermocouple separate, 16-pole (4 and 6 control zones; for pinning see Connections)

Power supply: 4-conductor three-phase system 230 / 400 VAC +/- 10 %, 50 / 60 Hz, Overvoltage class II, CEE connector (other supplies on request)

Connected load: 2-slot: max 16 A per phase 6-slot or more: max 32 A per phase

Slide-in controller: European standard size p.c.b. 160x100 mm, with 16 A power output

Thermocouple: Fe-CuNi, type J or K (IEC 584)

Power output: Contactless semiconductor output stage, max. 16 A, zero switching

Control range: 50-500 °C

Control accuracy: Better 1 °C (if hotrunner permits)
<table>
<thead>
<tr>
<th>Item no.</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>18061</td>
<td>Fuse F 16 A 6.3 x 32 mm</td>
</tr>
<tr>
<td>13686</td>
<td>Fuse F 10 A 6.3 x 32 mm</td>
</tr>
<tr>
<td>12067</td>
<td>Fuse T 100 mA 5 x 20 mm</td>
</tr>
<tr>
<td>60040.063</td>
<td>Operating unit</td>
</tr>
<tr>
<td>60040.064</td>
<td>Central unit</td>
</tr>
<tr>
<td>60040.076</td>
<td>Fan</td>
</tr>
<tr>
<td>60040.082</td>
<td>Blind plate</td>
</tr>
</tbody>
</table>
We hereby confirm that the products described below conform to the essential protection requirements of the following European Directives

**2006/95/EC "Low Voltage Directive"**

and

**2004/108/EC "EMC Directive"**

with respect to their design type. This requires that the products are used for their intended purpose and that the assembly and operating instructions are observed.

Alterations made to the product will void the declaration of conformity.

**Producer:** EWIKON Heißkanalsysteme GmbH
Siegener Straße 35
35066 Frankenberg / Germany
phone: +49 (0) 6451 / 501-0

**Produkt:** HPS-C-ONE / HPS-C-SLOT hotrunner controllers for the operation of 230 V hotrunner systems

**Typenbezeichnung:**

HPS-C-ONE
69000.001 ; 1-zone controller

HPS-C-SLOT
69000.002 ; 2-zone controller
69000.004 ; 4-zone controller
69000.006 ; 6-zone controller

**Applied standards:**

DIN EN 61010-1: 2011-07 “Safety requirements for electrical equipment for measurement, control, and laboratory use - part 1”

DIN EN 61000-6-2: 2006-03 "Immunity for industrial environments"

DIN EN 61000-6-4: 2007-09 "Emission for industrial environments"

**Note:** It is necessary to use genuine connecting cables outside the device to meet the requirements according to DIN EN 61000-6-2 and DIN EN 61000-6-4.

Frankenberg, 02 April 2012

Dr. Peter Braun
Managing Director