



The AK50 model is a modular equipment for the the temperature control of the different zones of plastic injection moulds

General description

Combining the standard cases, the number of zones can grow, thus, according to the application, the AK50 can be built in control equipments with any number of zones combining 2000W to 7000W power modules.

Each control zone consists of a removable MD49H module with a built-in AK49H controller which has been specifically designed by SENSO- for the temperature control of hot runner systems. Up to 32 zones can be combined.

Specifications

Power supply

220/380 VCA + T + N 50/60Hz with 1500mm cables

Thermocouple input

Standard: J : 0..600° C (Fe-CuNi , IEC584)

Cold junction compensation accuracy: better than 0,5° C after 30 minutes.

Measuring units: °C or F

Measurement Accuracy: better than +/- 0,25% FSV

Control output

Through multipole connector, 4000mm cable as standard

Room conditions

Working: 0..50°C

Storage: -10..60°C

Humidity: 0..95 % HR non condensing.

Dimensions

3..4 zones 137 x 157 x 329 mm

5..6 zones 137 x 279 x 329 mm

7..8 zones 137 x 401 x 329 mm

More than 8 zones: Depend on the configuration

CE conformity (in industrial and commercial environment)

Safety: EN61010

Immunity EMI: EN50082-1

EN61000-4-2, electrostatic discharges

EN61000-4-3, radiated fields

EN61000-4-4, burst

EN61000-4-5, surge

EN61000-4-6, injected currents

EN61000-4-8, magnetic field

EN61000-4-11, PQT

EMI emission: EN50081-1

EN55022-b, conducted

EN55022-b, radiated

Individual switch

Each zone can be stopped by means of an individual switch. This can be very useful -during the set up of the mould and the control system- for the detection of errors in the wiring.

Auto / Manual

Switching to manual mode can be very helpful when the thermocouple is broken. Also during the mould setup, switching to manual can help in checking the wiring.

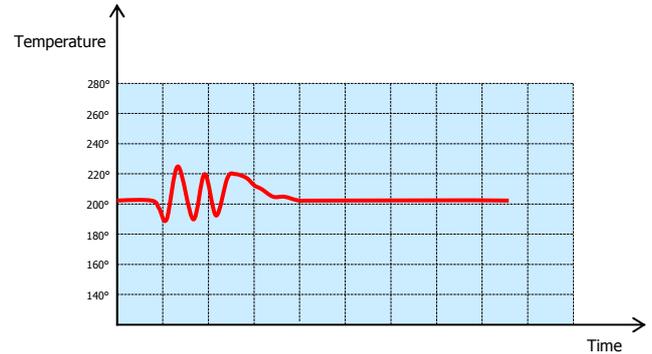
Secondary setpoint

The Secondary Setpoint (optional) can be activated by means of a switch located in the rear of the enclosure. This option allows the user to change globally all the controllers to a standby temperature.

Control

PID control

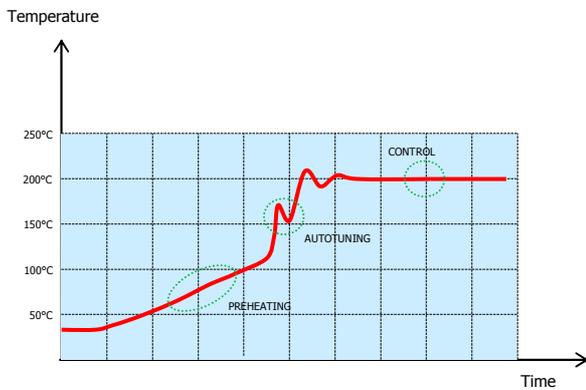
The temperature control is performed by the MD49H module through DC pulses which are only 10 ms in duration. This ensures that during the preheating phase only half periods are applied to the load. On the PID control mode, the controller output is the result of the three control actions added: Proportional, Integral and Derivative. The controller output will vary from 0 to 100% as a result of this combination.



Preheating

Preheating for injection moulding systems

The MD49H model has an advanced automatic pre-heating algorithm whose aim is the elimination of the humidity absorbed by the heating elements. The controller doses the output power in order to slowly increase the process temperature without harming the heating element.



Ordering code

Model	Number of zones	Power per zone	Options
AK50		1: 2000 2: 3500 3: 5000 4: 7000 9: other	0: none 1: alarma module MD4310 2: Secondary Setpoint 3: MD4310 + secondary setpoint
AK50	5	2	1

Auto tuning

Step Response autotuning

It is performed when the process is below the set point value and can only be activated when the process is under the 50% of this set point.

This tuning consist on increasing the process value with an output of 100% and when it reaches the 80% of the set point, the output falls down to 0%. Then the controller, will calculate the optimum Pb, Ti and Td parameters, the PID parameters by measuring the overshoot and the response time.



Example: AK50-521 AK50 with 5 zones,3500W and alarm module MD4310.

Where to find us ?

Few words about us

SENSO, Milpunts S.L. is a company based in Cabrera de Mar at 25 Km. North of the Barcelona area.

Our activity is electronic instrumentation and sensors for temperature measurement and control. Our 60% of turnover is on the plastic injection moulding industry. In this field we have the knowledge to design and manufacture hot runner systems, hot halves, of course hot runner temperature controllers but we also offer a full maintenance service for the electrical side of the mould: mould cleaning, rewiring, spare parts replacement etc...

You will find us at:

<http://www.senso.es>

Relay Feedback autotuning

This type of autotuning has the advantage that is performed on the set point thus can be activated at any time. However, to perform the autotuning, the controller will create some overshoots and this might not be acceptable by the process.

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