# Mastering temperature control

## Compact module heating zones IM030 / IM230

### Cost-optimized temperature control systems

The IM 030 and IM 230 I/O modules are compact modules for actuating heating zones, especially optimised for controlling hot runner systems. The control module can be coupled to a control via a fieldbus and adapted to the machines requirements in a flexible manner through the apposition of I/O modules. Integrated heating current measurement and the optimized control through phase synchronization offers a very attractive overall solution for the injection molding world's complex processes.

From hot runners with a low number of cavities to multiple-cavity systems, the temperature control modules with a large quantity of control circuits offer a broad range of application possibilities. For each compact module it is possible to operate up to 24 heating zones by means of temperature inputs and digital outputs. Controlling of he temperature zones is handled within the control, whereby two design versions are available:

- **IM030**

This module is conceived for use in economical applications and is connected via CAN bus to a KePlast i1000 control. Even highly price-sensitive hydraulic machines can be enhanced with the hot runner control systems integrated in the control.

- **IM230**

This module is equipped with the EtherCAT high-performance, realtime fieldbus, and features enormous flexibility. Whether an application with multiple compact modules or an apposition of individual I/O modules from the KePlast product line – an optimum configuration can be provided for even the most complex applications.

### Energy consumption at a glance

The modules are equipped with up to 3 groups, each one consisting of up 8 measurement and control units, for actuating external solid-state relays. The total current of each group can be measured via a current transformer, whereby a sophisticated algorithm can also detect line breaks in the individual heating zones.

Due to the additional analog voltage measurement capability, on the one hand the energy consumption can be precisely determined, on the other hand also the operation of the heating elements – optimized through the integrated zero crossover detection and the phase cut control.

KEBA®

Automation by innovation.

# IM030 / IM230 – Mastering temperature control

The measured energy consumption can also be automatically transmitted via the KePlast control to a connected KePlast EasyNet management system, clearing the way for convenient and simple evaluation or optimization of entire machinery halls.

## The perfect control of hot runners

In addition to the optimized temperature compact modules, of course KePlast controls also provide the software for controlling the hot runners.

Thanks to the comprehensive KePlast application software and scalable control hardware, the usual parameters for hot runner control units (e.g. zone type, heating-up periods, soft-start functionality) can just as conveniently be adjusted at the operation panel as the time-controlled activation of the hot runners.

This eliminates the need for an external control device; the process specialist works in his usual environment directly on the machine. The complex controlling operations are handled typically by the KePlast control.

**KePlast hot runner setup mask**

**KePlast hot runner overview**

| | IM 031/A | IM 032/A | IM 231/A | IM 232/A |
|---|---|---|---|---|
| **Performance data** | | | | |
| Power supply | 24V DC | | | |
| Certification | CE, UL | | | |
| **Functions** | | | | |
| Temperature inputs | 16x (2 groups a 8 TI) | 24x (3 groups a 8 TI) | 16x (2 groups a 8 TI) | 24x (3 groups a 8 TI) |
| Temperature sensors | Type J, K, L, N | | | |
| Temperature compensation | 1x | | | |
| Heater break detection | Yes | | | |
| Digital outputs (0,5A) | 16x (2 groups a 8 DO) | 24x (3 groups a 8 DO) | 16x (2 groups a 8 DO) | 24x (3 groups a 8 DO) |
| Analog current measurement (AI) | 2x | 3x | 2x | 3x |
| Analog voltage measurement (AI) | 2x | 3x | 2x | 3x |
| Fieldbus | 1x CAN | | 2x EtherCAT (In/Out) | |
| For stacking of modules | No | | Yes, K2-200 IO-Modules | |
| **Dimensions and mounting** | | | | |
| Width x height x depth | 295 x 135 x 46 [mm] | | 270 x 120 x 120 [mm] | |
| Mounting | via 4 mounting screws | | DIN rail | |

KEBA®

Automation by innovation.

KEBA AG, Gewerbepark Urfahr, 4041 Linz/Austria, Phone: +43 732 7090-0, Fax: +43 732 730910, E-Mail: keba@keba.com, www.keba.com