

**OEM**  
0116 - 0216 - 0316

**SERIES**



  
invensys®  
**EUROTHERM®**

## Temperature Controllers Specification Sheet

### Features

- Easy operation and setup
- large, clear display
- PID control + autotune
- Up to 2 alarms
- Thermocouple or RTD input
- Up to 3 outputs
- Process timer
- Soft start-power limiter
- Output rate limit
- Compact: 100mm case
- 24V, 100-240V versions
- Wipe down keypad
- IP65/NEMA 4X front panel

### Ideal for

- Chillers
- Packaging/heat sealing
- Laboratory ovens
- Incubators, hot plates
- Laminating presses
- Dryers

The Eurotherm OEM Series satisfy the instrumentation needs of machine manufacturers who require an accurate temperature control solution in a cost effective package.

Key features of the three models in the series are:

#### 0116

The base functionality instrument. Providing the most cost effective option for applications that require heating or cooling control with optional process protection alarm.

This model offers two output channels. The display format is three digit indication of process variable, with additional setpoint error indication via an integral 3 bar graph. Alarm and status messages can also be displayed.

#### 0216, 0316

These models offer higher functionality including an integral process timer, combined Heat/Cool PID control strategies with soft start and output power limit features.

They provide up to three output channels or can be specified with two outputs and a logic input channel. The display format is either single four digit indication of process variable (0216) or dual three digit indication of process variable and setpoint (0316). Alarm and status messages can also be displayed.

Both models are fitted with a communications port which allows the set-up and configuration parameters to be manipulated by Eurotherm iTools software. Configuration 'clone files' can be created on a PC and downloaded to the instruments, dramatically simplifying the commissioning process.

In summary, the functionality and features offered ensure that the OEM series will provide you with a flexible and cost effective solution to your temperature control applications.

## Functions and features

### Easy setup and operation

The OEM controller series all benefit from a clear easy to operate user interface. Instrument configuration follows an easy to follow, step by step parameter setup procedure.

Using a dedicated pushbutton the SMART autotune facility automatically optimises the control PID settings to match your process.

### SMART Auto-tuning

The operation of the SMART auto tuning function may be set to either continuous optimisation or one shot tuning.

### Multi mode process timer

A 4 mode process dwell timer is included in the standard 0216 and 0316 models. The function of the timer may be user selected to the following:

- 1 - Energy saving mode, on delay timer
- 2 - Dwell timer with end of cycle relay contact
- 3 - Dwell timer with timer run relay contact
- 4 - Dwell timer no status output

Each of these timer modes may be selected to switch between SP1 and SP2 or output off and SP1.

### Sensor break protection

Open circuit thermocouple and RTD connections are a common fault found on thermal control systems. All models in the OEM controller series are able to detect poor thermocouple/RTD connections and breaks.

### Full process protection alarms

Process (high or low limit), Band and Deviation alarm outputs are available with the additional flexibility of latching and blocking functions. One alarm is available in the 0116 and two in the 0216 and 0316 models.

## Reliable control algorithm

The OEM controller series are all based on the same proven control algorithm. PID or On-Off control modes are selectable as well as reverse or direct acting outputs. Sophisticated features such as non-linear cooling compensation and adjustable relative cooling gain are also available in the 0216 and 0316 models.

## 3 Outputs

The primary control output in all models may be ordered as either relay or logic. A relay is available for the additional two output options (0116 provides one) and may be configured for either control, alarm or timer status, dependent upon the instrument model.

## Logic input-setpoint/timer function

The logic input provides convenient control of the built in timer functions in the 0216 and 0316 models. Alternatively the timer function can be disabled and the logic input used to select between two user defined setpoints.

## Soft-start

The soft-start feature of the OEM series controllers provides both time and temperature based output power limit protection. Limiting the heater power during startup this reduces potential thermal stress on the heating elements.

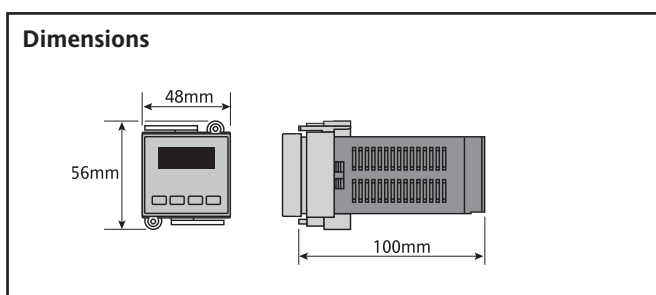
## iTools configuration software support

Eurotherm iTools PC configuration software provides a secure and convenient method of setting up and storing instrument parameter configurations for the 0216 and 0316 models. Connection is via the CPI configuration adaptor, which also operates with all Eurotherm 3000 Series controllers and alarm units.

## SPECIFICATION


Input:	TC type J, K, N, L, T, Pt100
RTD measurement:	3 wire
RTD measurement current:	135 $\mu$ A
TC CJC error/range:	0.1°C/°C - 0-50°C
TC/RTD sensor break detection:	Yes (dc)
Measurement accuracy:	0.3% full scale reading $\pm$ 1 digit (25°C amb)
Control algorithm:	PID/On-off (Heat/cool)
Output control:	Time proportioning
Auto tune:	SMART one-shot and continuous adaptive

Alarm types:	Process high/low, deviation, band
Alarm functions:	Direct/reverse acting, latching, blocking
Hysteresis:	Adjustable
Power consumption:	6VA
Mains voltage supply range:	100-240V ac
24V supply range:	21-28V ac-dc
Relay contact rating (OP1):	3A 250V ac (rms) resistive
(OP2):	2A 250V ac (rms) resistive
Logic drive capacity-level:	14V dc - 20mA (Off<0.5V)



## Display and keyboard functions

**0116**



Output 2

Output 1


Process value (PV)

SP 2 Selected

SMART-tune selected

SMART      DECREASE      INCREASE      FUNCTION

**0216**



SP 2 Selected

Output 1

Output 2

Process value (PV) display


Degrees C units indication

Degrees F units indication

SMART - tune selected

SMART      DECREASE      INCREASE      FUNCTION

**0316**



SP 2 Selected

Output 1

Output 2

Process value (PV) display

Set value (SP)/Time

Degrees C units indication

Degrees F units indication

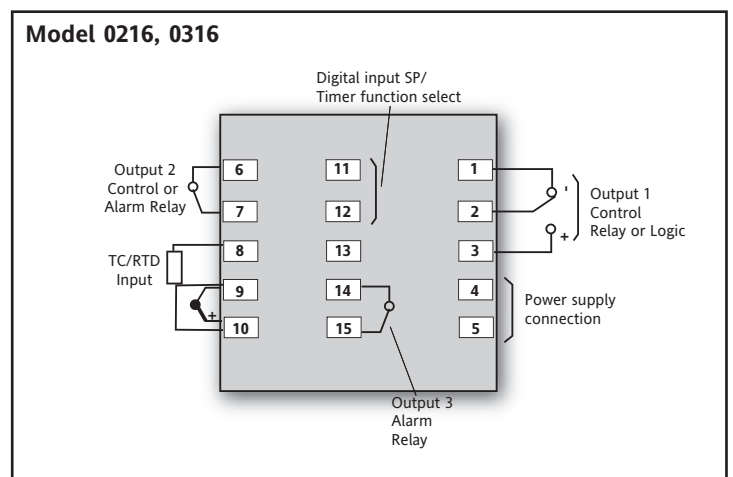
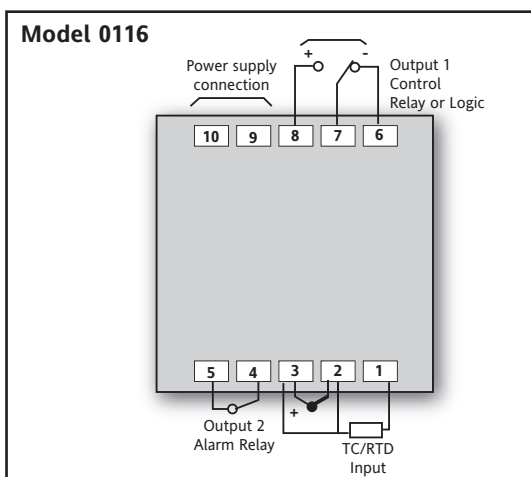
SMART - tune selected

SMART      DECREASE      INCREASE      FUNCTION

## Model features

	0116	0216	0316
Display	3 digit-3pt bar	4 digit	2 x 3 digit
Control alarm outputs	2	3	3
SMART auto-tuning	Yes	Yes	Yes
Heat/cool control		Yes	Yes
Measurement offset adjust	Yes	Yes	Yes
Soft-start output power limit		Yes	Yes
Relative cool gain adjustment		Yes	Yes
Non-linear cooling compensation		Yes	Yes
Process timer function		Yes	Yes
Output power rate limit		Yes	Yes
Logic input		1	1
iTools configuration port		Yes	Yes

## Rear terminal connections



## Order code

### 0116 1/6<sup>th</sup> DIN Controllers with bargraph

0116	1	2	3	4	5	6	OER
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<b>Basic Product</b>	<b>2 Control Action</b>	<b>4 Alarm Output</b>
0116 Single display with bargraph	9 SMART or PID	0 Not provided 1 Relay
<b>1 Input</b>	<b>3 Heating Output</b>	<b>5 Power Supply</b>
4 TC - RTD	1 Relay 6 SSR	30 100-240V ac 50 24V ac/dc

### 0216 and 0316 1/6<sup>th</sup> DIN Controllers

	1	2	3	4	5	6	7	8	9
							ER	0	0

<b>Basic Product</b>	<b>2 Control Action</b>	<b>4 Alarm Output</b>	<b>6 Options</b>
0216 Single display 0316 Dual display	9 SMART or PID	0 Not provided 1 Relay	00 No options 10 Relay alarm 20 Logic input and timer
<b>1 Input</b>	<b>3 Heating Output</b>	<b>5 Power Supply</b>	
4 TC - RTD	1 Relay 6 SSR	30 100-240V ac 50 24V ac/dc	

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