

Temperature Controller

- PID or On/Off control
- Heating and cooling
- Customized operator interface
- SSRx Load Doctor™ diagnostics
- Multiple alarms on a single output
- Self-tuning with overshoot inhibition
- Setpoint rate limit
- Scalable linear input
- Site configurable
- 85 to 264Vac supply
- Plug-in from front
- IP 65, NEMA 4X panel sealing
- Compliant with European EMC and low voltage safety directives

The 2116 is a PID or On/Off temperature controller, with self-tuning, in a compact 1/16 DIN size [1.89x1.89x4.06in (48x48x103mm)]. It has a single input, configurable on-site for either thermocouple, resistance thermometer and linear millivolts or milliamps. It has two outputs: a logic output for operating a solid state contactor and a relay output, either of which is configurable for heating, cooling or alarms.

Precise control

An advanced PID control algorithm gives stable 'Straightline' control of the process. A one-shot tuner is provided to set up the PID values and calculate the overshoot inhibition parameters.

SSRx Load Doctor™ diagnostics

Employing patented PDSIO® technology, the Load DoctorTM Diagnostics are a major innovation in the 2116. When used in combination with a Eurotherm TE10S solid state contactor (SSC), it allows the logic output of a 2116 to transmit the power demand signal and simultaneously read back a load fault alarm on the same pair of wires. This alarm will flash as a message on the controller front panel and can trip the alarm relay. It indicates that there is a fault in the heating circuit caused by: contactor failed "ON", contactor failed "OFF", fuse "OPEN", heater "OPEN" or wiring "OPEN."

Universal input

An advanced analog to digital converter samples the input at 5Hz and continuously corrects it for drift. This gives high stability and rapid response to process changes. The input covers all thermocouple types, Pt100 RTD and linear millivolts or milliamps. Input filtering from 1.0 to 999.9 seconds is included.

Customized operation

Custom LEDs provide a bright, clear display of the measured temperature. The setpoint is displayed and adjusted by pressing the raise or lower buttons. Tactile buttons ensure positive operation. Access to other parameters is simple and easy to understand and can be customized to present only those parameters that need to be viewed or adjusted. All other parameters are locked away under password protection.

Alarms

Up to three process alarms can be combined onto a single output. They can be full scale high or low and deviation from setpoint alarm. They can also be configured as 'blocking' alarms which means they will become active only after entering a safe state.



2116 Temperature Controller

EUROTHERM CONTROLS

2116 TECHNICAL SPECIFICATION

Input		Electromagnetic	Meets gen	eric emission stan	dard ENI50081	1/021	
Range	-12 to +80mV	compatibility	for residential commercial and light industrial				
Calibration accuracy	0.25% of reading +1 LSD or +1°C/F	companionity	Meets gen	eral immunity rea	uirements of FN5	0082-2	9(95)
Sample rate	5H-		for industri	ial environments		00022	.(/0]
	<0.1% of reading	Safety standards	EN 61010, installation category 2, (voltage transients must				
Perclution			not exceed 2.5kVl				
Input filter		Atmospheres Electrically conductive pollution must be excluded from the					
			cabinet in which this controller is mounted. This product is not				
			suitable fo	r use above 6.56	2ft (2000m) or i	1 corros	ive or
			explosive (atmospheres witho	out further protect	ion	
Cold junction	lypically >15 to 1 rejection of ambient temp, change				·		
compensation	External references: 32, 113 and 122°F (0, 45 and 50°C)	Dicolay Panaoc	A.4:m	°C Max	Min	°E	Mary
RID	2-wire, Pt100 DIN43/60		210	1200	250	Г	1VIQX
Linear millivolts	-12 to +80mV, (Contigurable between limits)		-210	1200	-330		2192
Linear milliamps	O to 20mA (using an external 2.5 Ω sense resistor)	T thermosourle	-200	1372	-323		750
			-200	400	-323		1450
Outputs		L inermocoupie	-200	1300	-325		2270
Logic: Rating	9Vdc, 18mA (non-isolated)	Platinal II	-200	1360	-323		2500
Application	Heating, cooling or alarms	P thormocourdo	50	1769	52		2200
	SSRx Load Doctor® (PDSIO® mode 1): Logic heating with load	S thermocouple	-50	1768	-00-		3200
	failure alarm	B thermocouple	-50	1820	-00		3210
Relay: Rating	Min: 12V, 100mA dc Max: 2A, 264Vac resistive	C thermosouple	0	2310	32		1200
Application	Heating, cooling or alarm		-200	850	-325		1560
		linear mV or mA	-200	-999 to ±9990	with up to 2 d	ecimal	nlaces
Control Functions		Custom sensor EXERC	FN™ or P			onsult f	actory
Control Modes	PID or PI with overshoot inhibition, PD, P only or On/Off	Note: Temperature can be displayed to 0.1°C/F. Scales conform to the ITS90 standard. A custom thermocouple can be supplied in place of the type C input					
	Heating, cooling or heating plus cooling outputs						
Setpoint rate limit	0.01 to 99.99 degrees or display units per minute		onnocooph	o dan bo ooppnoo		.760 0	mpon
Self-tuning	One-shot calculation of PID and overshoot inhibition parameters	Ordering Code					
Automatic droop	Automatic calculation of manual reset value when	eracing eoac					
. .	compensation using PD control	Pagio Braduat	Eurotion	Supply	Manual		Dofault
Alarm: Types	Full scale high or low, deviation high, low or band	Basic Product	Function	Suppry	Waltual		Delault
Modes	Latching or non-latching. Normal or blocking action	2116 ((Controller	VH 85-264VAC	XX No Manua	A0	American
	Up to three alarms can be combined onto a single output			VI 20-29VAC /DC	ENC English	FO	Furonean
				VL 20-27VAC/DC	EINO LIIGIISII		Loropouri
General					FRA French		
Display	4 x 7 seament high intensity LED				CDP Gorman	1	
Weight	5.29oz (150a)]	
vlaguZ	VH= 85 to 264Vac -15%, +10%, 48 to 62Hz, 2.5watts max.				ITA Italian		
/	VL= 20 to 29Vac or Vdc						
Temperature and RH	Operating: 32 to 131°F (0 to 55°C), RH: 5 to 90% non-						
	condensing. Storage: 14 to 158°F (-10 to 70°C)	The 2116 input type	e and outp	out control funct	tions are fully	config	urable on-
Panel sealing	IP65, NEMA 4X	site. If preconfiguration is required, ask for details on the full ordering code.					
Rear Terminal C	onnections and Outline Dimensions						



Series 2000[™], SSRx Load Doctor[™] and INSTANT ACCURACY[™] (US Patent 5,484,206) are trademarks of Eurotherm. PDSIO® (US Patent 5,793,754) is a registered trademark of Eurotherm.

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