2208e

MODEL

NEW "ENHANCED" MODEL

Temperature Controller or Valve Controller

- Employs INSTANT ACCURACY™ technology
- Heating and Cooling with two modular outputs
- Motorized valve positioning
- Heater current display
- Load diagnostics
- Up to three alarm relays
- Self-tuning with overshoot inhibition
- Optimized fan, water and oil cooling
- Two digital inputs for second setpoint or auto/manual select
- Simple Ramp Dwell setpoint programming
- Digital communications
- Plug-in from front
- IP 65 panel sealing
- Compliant with European EMC and low voltage safety directives

The 2208e is a 1/8 DIN controller that may be configured either as a precision PID temperature controller or a velocity mode motorized valve positioning controller. The two control modes are co-resident and may be selected through factory or field configuration. The 2208e features modular hardware, two control outputs, two digital inputs, self-tuning, a simple ramp-dwell setpoint programming feature and optional relay alarms and communications port. The control outputs may be configured for heat/alarm, heat/cool or for valve open/close

Precise Control

Advanced PID or valve positioning algorithms give stable straight-line control of the process. A power feedback feature automatically compensates the output to stabilize the temperature of electrically heated loads during supply voltage fluctuations. Proprietary cooling algorithms ensure optimum control of fan, oil and water-cooled systems. Velocity mode valve control algorithms allow precise valve control without depending on vulnerable valve position slidewire feedback.

Universal Input

A universal input circuit with an advanced A-D converter samples the input at 9Hz and continuously corrects it for drift, giving high stability and rapid response to process changes. A filtered input covers all thermocouple types, Pt100 3-wire RTD and linear inputs. The patented Instant Accuracy™ feature allows precise input measurement and control to be achieved from the moment of start up, independent of warm-up drift, and even during periods of ambient temperature upset.

Easy Operation

Bright, clear front-panel LED's display the process variable and a configurable lower display for setpoint or other important parameters. Tactile pushbuttons ensure positive operation. All instrument parameters are easy to access and may be presented to the operator or hidden from view under password protection.

CE

UL and cUL pending

SIEBE

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EUROTHERM CONTROLS

2208e Temperature Controller

Patented PDSIO® Load Diagnostics

PDSIO® (Pulse Density Signaling Input/Output) is a patented innovation in the 2208e. When used in combination with the Eurotherm TE10S Solid State Contactor, the same wires from the 2208e that transmit the logic output to the SSC can be used to read back load faults, SSC status and load RMS on-current. SSC failure (open or short circuit) or load failure (fuse blown, heater open circuit, missing line voltage) alarms can be detected, flash on the front panel and trip alarm relays. Amperage information can be read, displayed, and alarmed. PDSIO® information is also available on serial communications. PDSIO® is not available on the Valve Positioner.

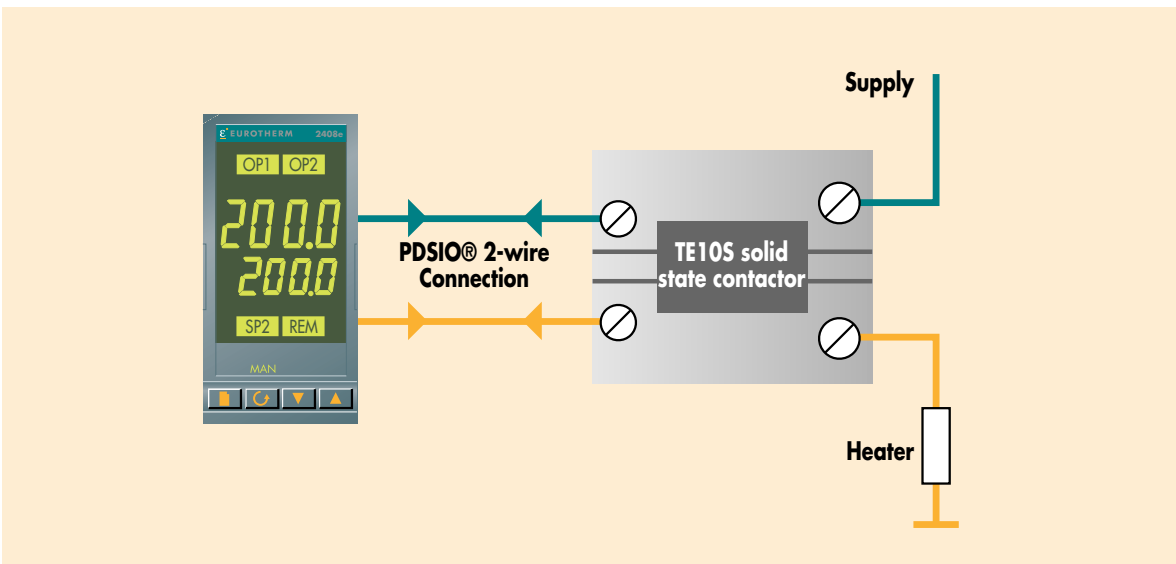
Alarms

Up to four process alarms may be combined to a single alarm output. Alarms may be full scale high or low, deviation, rate of change or PDSIO® load failure. Alarms may be latching or non-latching and will flash on the front panel. Blocking alarms, which only become enabled after first entering a safe state, are also available.

Digital Communications

EIA-485 2-wire, EIA-422 4-wire or EIA-232 serial communications is optionally available with industry standard Modbus® or proprietary EI-Bisynch protocol.

Load diagnostic using Pulse Density Signaling Input/Output (PDSIO®)



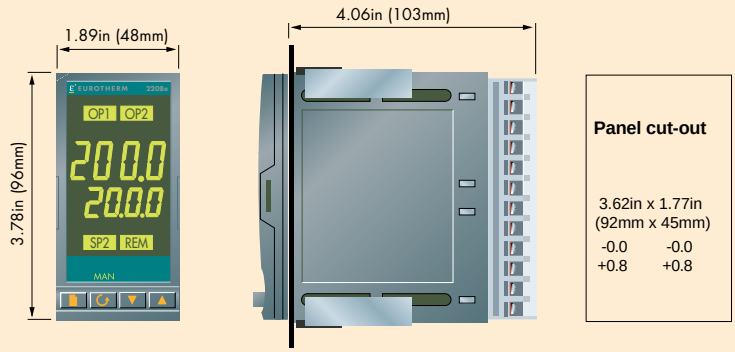
Sensor inputs and display ranges (Temperature scales conform to the ITS90 standard)

	Celsius		Fahrenheit	
Standard Sensor Inputs	Min	Max	Min	Max
J thermocouple	-210	1200	-350	2192
K thermocouple	-200	1372	-325	2500
T thermocouple	-200	400	-325	750
L thermocouple	-200	900	-325	1650
N thermocouple	-250	1300	-420	2370
C thermocouple - W5%Re/W26%Re (Hoskins)	0	2319	32	4200
R thermocouple	-50	1768	-60	3200
S thermocouple	-50	1768	-60	3200
B thermocouple	0	1820	32	3310
Platinell II thermocouple	0	1369	32	2500
RTD/PT100DIN 43760	-200	850	-325	1560
Custom Sensor Inputs (Replaces type C thermocouple)				
E thermocouple	-270	1000	-450	1830
Ni/Ni18%Mo thermocouple	0	1100	32	2012
Pt10%Rh/P140%Rh thermocouple	200	1800	392	3272
Pt20%Rh/Pt40%Rh thermocouple	0	2000	32	3632
W/W26%Re (Englehard) thermocouple	0	2000	32	3632
W/W26%Re (Hoskins) thermocouple	0	2010	32	3650
W5%Re/W26%Re (Englehard) thermocouple	10	2300	50	4172
W5%Re/W26%Re (Bucose) thermocouple	0	2000	32	3632
D thermocouple - W3%Re/W25%Re	0	2400	32	4352
Linear Inputs	-999	9999		

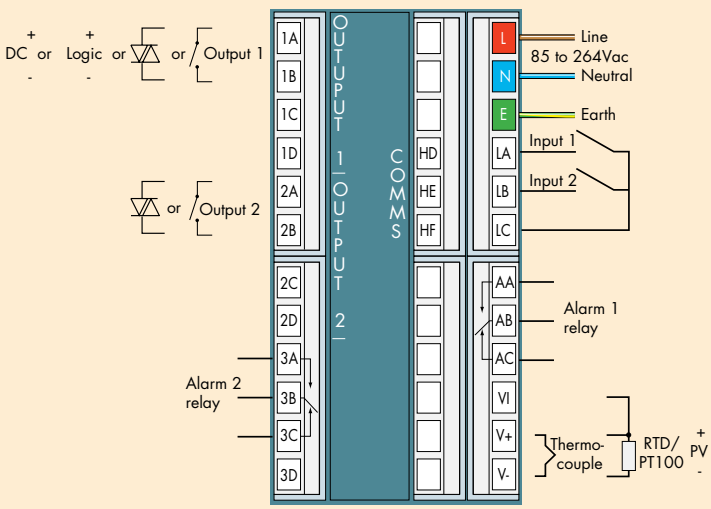
2208e TECHNICAL SPECIFICATION

Inputs		
General	Range	± 100mV and 0 to 10Vdc (auto ranging)
	Sample rate	9Hz (110mS)
	Calibration accuracy	0.25% of reading, ±1 LSD or ±1°C/F
	Resolution	<1µV for ± 100mV range, <0.2mV for 10Vdc range
	Linearizaton accuracy	<0.1% of reading
	Input filter	1.0 to 999.9secs
	Zero offset	User adjustable over the fully display range
Thermocouple	Types	Refer to Sensor inputs and display ranges table
	Cold junction compensation	Automatic compensation typically >30 to 1 rejection of ambient temperature change External references 32, 113 and 122°F (0, 45 and 50°C). Incorporates INSTANT ACCURACY™ cold junction sensing technology.
RTD/PT100	Type	3-wire, Pt100 DIN43760
	Bulb current	0.2mA
	Lead compensation	No error for 22 ohms in all 3 leads
Process	Linear	±100mV, 0 to 20mA or 0 to 10Vdc (configurable between limits)
Digital	Type	Contact closure
	Application	Manual select, 2nd setpoint, keylock and setpoint rate limit enable Mode 5 Smart Digital Input™ (SDI), only on Digital LA input
Outputs		
Relay	Rating: 2-pin relay	Min: 12V, 100mA dc Max: 2A, 264Vac resistive
	Rating: change-over, alarm relays	Min: 6V, 1mA dc Max: 2A, 264Vac resistive
	Application	Heating, cooling or alarms
Logic	Rating	18Vdc at 24mA (non-isolated)
	Application	Heating, cooling or alarms
		The logic output is field configurable as a standard logic output, PDSIO® Mode 1 or PDSIO® Mode 2. PDSIO® Mode 1: Logic heating with load failure alarm (also called SSRx Load Doctor™) PDSIO® Mode 2: Logic heating with load/SSC failure alarm and load current display (also called SSRx Enhanced Load Doctor™)
Triac	Rating	1A, 30 to 264Vac resistive
	Application	Heating or cooling
Analog	Range	Isolated 0 to 20mA (into 600Ω max) or 0 to 10Vdc (configurable between limits)
	Application	Heating or cooling
Communications		
Digital	Transmission standard	EIA-485 2-wire, EIA-422 4 wire or EIA-232 at 1200, 2400, 4800, 9600, 19,200 baud
	Protocols	Modbus® or EI-Bisynch
PDSIO®	Setpoint input	Setpoint input from master PDSIO® controller, also called Smart Setpoint Transmission™ (SST)
Control functions		
Control	Modes	PID or PI with overshoot inhibition, PD, P only or On/Off
	Application	Heating and cooling
	Auto/manual	Bumpless transfer
	Setpoint rate limit	0.01 to 99.99 degrees or display units per minute
	Cooling algorithms	Linear; Water (non-linear); Fan (minimum on time), Oil, proportional only
Tuning	One-shot tune	Automatic calculation of PID and overshoot inhibition parameters
	Automatic droop compensation	Automatic calculation of manual reset value when using PD control
Alarms	Types	Full scale high or low. Deviation high, low, band or any new alarm.
	Modes	Latching or non-latching. Normal or blocking action Up to four process alarms can be combined onto a single output
General		
	Display	Dual, 4 digit x 7 segment high intensity LED
	Dimensions and weight	1.89W x 3.78H x 4.06D in (48W x 96H x 103Dmm) 14.1oz (400g)
	Supply	85 to 264Vac -15%, +10%. 48 to 62Hz. 10watts max
	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)
	Panel sealing	IP 65
	Electromagnetic compatibility	Meets generic emissions standard EN50081-2 for industrial environments Meets general immunity requirements of EN50082-2(95) for industrial environments
	Safety standards	EN61010, installation category 2 (voltage transients must not exceed 2.5kV)
	Atmospheres	Electrically conductive pollution must be excluded from the cabinet in which this controller is mounted. This product is not suitable for use above 6,562ft (2000m) or in corrosive or explosive atmospheres without further protection.

2208e Outline Dimensions



2208e Rear Terminal Connections



Ordering Code

Basic Product	Function	Output 1	Output 2	Alarm 1	Alarm 2	Comms*	Manual	Default
2208e	CC Controller	XX Not used	XX Not used	XX Not used	XX Not used	2XX Not used	XXX No Manual	AO American
		L1 Logic: non-isolated	R1 Relay: 2-pin	RF Relay:change over	RF Relay:change over	**2-wire EIA 485**	ENG English	EO European
		R1 Relay: 2-pin	T1 Triac			2YM Modbus®	FRA French	
		T1 Triac	L1 Logic: non-isolated			**4-wire EIA 422**	GDR German	
		D3 DC: isolated				2AM Modbus®	ITA Italian	
						EIA 232		
						2FM Modbus®		
						PDSIO® Input		
						2M4 fitted		

The above ordering code specifies only the hardware build. The input type and output control functions must then be configured on-site to suit a particular application. If preconfiguration is required, ask for details on the full ordering code.

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