

2408 and 2404 Temperature/Process Controllers



Ideal for

- single and multi-zone ovens, furnaces and kilns
- environmental chambers
- simple ratio and cascade control

Available in 1/8 and 1/4 DIN panel sizes, the 2408 and 2404 are high stability controllers with an extensive range of options. Either PID, On/Off or motorized valve control can be configured, satisfying both electrical and gas heating applications. Advanced adaptive tuning algorithms optimize control performance.

The controllers accept a range of plug-in modules for heating, cooling, analog retransmission, second process value input and remote setpoint.

High speed Modbus, PROFIBUS, DeviceNet and ASCII communications provide easy connection to PLCs, supervisory control and data logging systems.

Twenty setpoint programs can be stored, with 16 ramp-dwell segments and 8 event outputs.

Eliminate ammeters by using Eurotherm's advanced load current monitoring facility. Heater current may be displayed and also open or short circuit faults detected. See page 3-50 for more information.

Multi-zone programming can be implemented using 'PDS' retransmission to deliver a master setpoint to up to three slave controllers, with holdback from any slave if the temperature deviates from the setpoint by more than a set value.

Specifications

Dimensions:

2408: 48W x 96H x 150D mm

2404: 96W x 96H x 150D mm

Control modes:

PID, On/Off or motorized valve

Supply voltages:

85-264Vac, 15 watts maximum

20-29Vac/dc, 15 watts maximum

Operating ambient:

0-55°C, 0-90% RH non-condensing

Inputs:

See Sensor Inputs in the Configuration coding

Output ratings:

Relay: 2A, 264Vac resistive

Logic: 18Vdc, 20mA

Triac: 1A 264Vac resistive

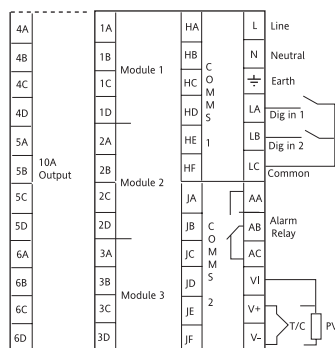
DC: 0-20mA or 0-10Vdc configurable

Panel sealing:

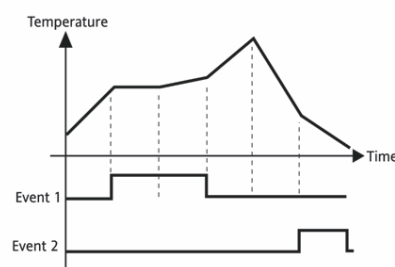
IP65, plug-in from front panel

Rear terminal connections

Model 2408 and 2404



Programmer Functionality



Ordering codes



Hardware coding	Model Number	Function	Supply Voltage	Module 1	Module 2	Module 3	Alarm Relay	10 Amp Output	Comms 1	Comms 2	Manual
								Omit for 2408			

Model Number	Function	Module 1	Module 2	Module 3	10amp Output
Panel size 2408 48x96mm 2404 96x96mm Profibus units 2408f 48x96mm 2404f 96x96mm	PID control CC Controller only CG 1x 8 seg Prog CP 1x16 seg Prog P4 4x16 seg Prog CM 20x16 seg Prog (note 1) On/Off Control NF Controller only NG 1x8 seg Prog NP 1x16 seg Prog N4 4x16 seg Prog NM 20x16 seg Prog (note 1) Motorized valve control VC Valve positioner VG 1x8 seg Prog VP 1x16 seg Prog V4 4x16 seg Prog VM 20x16 seg Prog (note 1)	XX Not fitted Relay: 2-pin R2 Fitted unconfigured RH Heating output RU Valve raise output Relay: change over R4 Fitted unconfigured YH Heating output Or alarm 1 from table A Logic: (Non-isolated) LZ Fitted unconfigured LH Heating output M1 PDS Heater break detect (note 2) M2 PDS Current monitoring (note 3) Triac T2 Fitted unconfigured TH Heating output TU Valve raise output DC control (Isolated) D4 Fitted unconfigured H6 0-20mA heating H7 4-20mA heating H8 0-5V heating H9 1-5V heating HZ 0-10V heating Digital I/O (unconfig'd) TK Triple contact input TL Triple logic input TP Triple logic output Dual relay RR Fitted unconfigured RD Heat + cool RM VP raise & lower OPs Dual triac TT Fitted unconfigured TD Heat + cool TM VP raise & lower OPs Logic+relay LR Fitted unconfigured LD Heat + cool PD Mode 2 + cool Logic+triac LT Fitted unconfigured GD Heat & cool QD Mode 2 + cool Transducer PS G3 5Vdc transducer PSU G5 10Vdc transducer PSU	XX Not fitted Relay: 2-pin R2 Fitted unconfigured RC Cooling output RW Valve lower output Relay: change over R4 Fitted unconfigured YC Cooling output PO Program event 1 (not with 8-seg programmer) PE Program END output Or alarm 2 from table A Dual relay RR Fitted unconfigured PP Program events 1 & 2 Logic LZ Fitted unconfigured LC Cooling output Triac T2 Fitted unconfigured TC Cooling output TW Valve lower output DC control (Isolated) D4 Fitted unconfigured C6 0-20mA cooling C7 4-20mA cooling C8 0-5V cooling C9 1-5V cooling CZ 0-10V cooling Digital I/O (unconfig'd) TK Triple contact input TL Triple logic input TP Triple logic output Power supply MS 24Vdc transmitter DC retrans. (Isolated) Select from Table B Potentiometer input VU Fitted unconfigured VS Valve position feedback VR Setpoint input Transducer PS G3 5Vdc transducer PSU G5 10Vdc transducer PSU	XX Not fitted Relay: 2-pin R2 Fitted unconfigured Relay: change over R4 Fitted unconfigured PO Program event 4 (not with 8-seg programmer) PE Program END output Or alarm 3 from table A Logic LZ Fitted unconfigured Triac T2 Fitted unconfigured Dual relay RR Fitted unconfigured PP Program event 4 & 5 Digital I/O (unconfig'd) TK Triple contact input TL Triple logic input TP Triple logic output Power supply MS 24Vdc transmitter DC remote input D5 Fitted unconfigured W2 4-20mA setpoint W5 0-10V setpoint WP Second PV input DC retrans. (Isolated) Select from Table B Potentiometer input VU Fitted unconfigured VS Valve position feedback VR Setpoint input Transducer PS G3 5Vdc transducer PSU G5 10Vdc transducer PSU	XX Not fitted R6 Fitted unconfigured RH Heating
	Supply Voltage VH 85-264Vac VL 20-29Vac/dc	Table A: alarm codes FH High alarm FL Low alarm DB Dev. band alarm DL Dev. low alarm DH Dev. high alarm	Table B: DC retransmission D6 Fitted unconfigured First character V- PV retrans S- Setpoint retrans O- Output retrans Z- Error retrans Second character -1 0-20mA -2 4-20mA -3 0-5V -4 1-5V -5 0-10V	Comms 1 XX Not fitted 2 wire, RS485 Y2 Fitted unconfigured YM Modbus protocol YE El-Bisynch protocol (note 1) RS232 A2 Fitted unconfigured AM Modbus protocol AE El-Bisynch protocol (note 1) 4 wire RS422 F2 Fitted unconfigured FM Modbus protocol FE El-Bisynch protocol (note 1) PDS Output M7 Fitted unconfigured PT PV retrans W5 0-10V setpoint WP Setpoint retrans OT Output retrans Profibus Module PB High speed RS485 DeviceNet® DN DeviceNet	
				Alarm relay XX Not fitted Alarm 4 relay RF Fitted unconfigured Table A alarm options plus: RA Rate of change alarm PDS Alarms LF Heater break detect HF Current monitoring heater break SF Current monitoring SSR failure PO Program event 7 (not with 8-seg prog) PE Program END output	Comms 2 XX Not fitted PDS Input M6 Fitted unconfigured RS Setpoint input PDS Output M7 Fitted unconfigured PT PV retrans TS Setpoint retrans OT Output retrans
					Manual XXX No manual ENG English FRA French GER German NED Dutch SPA Spanish SWE Swedish ITA Italian

Configuration coding (optional)	Sensor Input	Setpoint Min	Setpoint Max	Display Units	Digital Input 1	Digital Input 2	Control	Power	Options Cooling	Buttons	Program
		note 4	note 4								

Sensor Input Setpoint Min/Max	Display Units	Digital Input 1 & 2	Options
Refer to 2416 coding	C Celsius F Fahrenheit K Kelvin X Linear input	XX Disabled AM Manual select SR Remote SP select S2 Second setpoint EH Integral hold AC Alarm acknowledge RP SP rate limit enabled RN Run program HO Hold program RE Reset program RH Run/hold prog KL Keylock NT Run/Reset TN Reset/Run HB Program holdback	Control action XX Reverse acting (standard) DP Direct acting Power feedback XX Enabled on logic, relay & triac heating PD Feedback disabled Cooling options XX Linear cooling CF Fan cooling CW Water cooling CL Oil cooling CO On/Off cooling Front panel buttons XX Enabled MD Auto/manual disabled MR Auto/man & run/hold disabled RD Run/hold disabled Programmer time units XX Dwell & ramp in mins HD Dwell time in hours HR Ramp rate in units/hrs

Example ordering code

2408 - CC - VH - LH - RC - FL - FH - YM - TS - K - 0 - 1000 - C - AM - S2 - XX - XX - XX - MD - XX

2408, PID Controller, 85 to 264Vac, Logic heating, Relay cooling, Low alarm relay, High alarm relay, RS485, Modbus comms, PDSIO setpoint retrans, Type K thermocouple, 0 to 1000°C, Auto/manual select, 2nd setpoint select, Manual button disabled.

P2	Second PID	B3	3rd BCD digit
ST	One shot tune enable	B4	4th BCD digit
B5	5th BCD digit	B6	Most significant digit
AT	Adaptive tune enable	SY	Standby-all O/Ps OFF
FA	Select full access level	SC	Prog synchronization
RB	Simulates UP button	SG	Skip segment (without changing SP)
LB	Simulates DOWN button	PV	Select PV2
SB	Simulates SCROLL button	AG	Advance to end of segment (& step to target SP)
PB	Simulates PAGE button	M5	CTX (mode 5)
B1	Least sig. BCD digit		
B2	2nd BCD digit		