

2104

1/4 DIN Temperature and Process Controller

- Dual PID and Fuzzy Logic Control
- Self-Tuning
- Control Loop Protection
- Five Outputs - Control, Alarm or Event
- Universal Sensor Input
- NEMA 4X Hosedown Front Panel
- 16 Segment Ramp/Soak Program
- Digital Communications

The Chromalox 2104 controller is a low cost, high performance single loop controller that can be used for temperature, flow, pressure and level control applications. With universal sensor inputs and front panel operator setup, one 2104 controller can be easily field configured for a wide variety of applications, and simply reconfigured as application needs change. An exceptional choice for OEMs and distributors with multiple control needs, manufacturing facilities, testing facilities and testing applications.



ISO9001
APPROVED • CERT. NO. A3164



Chromalox®
Instruments and Controls



Specifications

Control Modes On/Off, Proportional, PID, PID + Fuzzy Logic, Heat/Cool (Dual PID)

Control/Alarm Outputs

Total of five (5) Control/Alarm Outputs possible:

Outputs #1 - #4 Relay N.O. Form A Contact, 1A at 120/230 Vac (resistive)

SSR Drive 24 Vdc nominal at 40 mA

Triac 1 Amp continuous, 10 Amp in-rush, at 120 or 230 Vac

Current/Voltage 4 to 20 mA, field changeable to 1-5 Vdc

Output #5 Relay Form C Contact, 5 Amps at 120 Vac or 2.5A at 230 Vac

Alarms Field Selectable Absolute or Tracking Alarms
Alarm Inhibit and Control Loop Protection

Sensor Inputs Field Selectable

J, K, T, E, R, S, B Thermocouple

100 ohm Pt RTD (alpha = .00385)

4-20 mA, 0-5 Vdc and 1-5 Vdc Analog

Accuracy +/- 0.2% of programmed span, +/- 1 LSD

Control Adjustments

Setpoint &

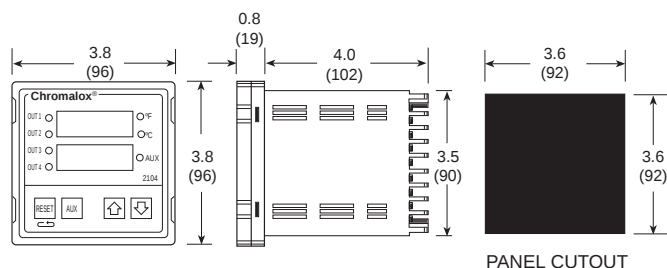
Setpoint limits Sensor Range

Deadband 1 to 100°F

PID Adjustments Proportional Band, Rate, Reset

Output Limit 0.0 to 100.0%

Ramp to Setpoint 1 to 9999°/hour on power-up



Heat/Cool Adjustments

Output Offsets 0 to 100% of Proportional Band

Cooling Medium Air, Water or Oil

Ramp/Soak Programming

Intervals/Loops 16 Intervals; 1 loop, 0-255 times or continuous

Event Outputs Up to 3

Isolated Digital Communications

RS-232 Single-drop

RS-422/485 Multi-drop

General

Instrument Power 100 to 240 Vac, or 12 to 24 Vdc; 50 to 60 Hz

Operating Environment 32 to 150°F (0 to 65°C), relative humidity <95% non-condensing

Front Panel NEMA 4X Construction

Case High Impact, Black ABS Plastic

Weight 1.1 lbs. (500 grams)

Ordering Information

Model	Temperature and Process Controller
2104	1/4 DIN Controller, Universal Sensor Input with 24 Vdc Transmitter Power Supply. One Digital Input, Analog Remote Set Point and 16 Segment Ramp/Soak Program.
	Code Output #1 - Single Output Control
	RO Relay/SSR Drive (jumper selectable)
	TO Triac-1 Amp at 120 or 230 Vac
	AO Analog-4-20mA or 1-5 Vdc, non-isolated
	Outputs #1 & #2 - Heat/Cool Control
	RR Relay/Relay
	TT Triac/Triac
	AA Analog/Analog
	SS SSR Drive/SSR Drive
	AR Analog/Relay
	AT Analog/Triac
	SR SSR Drive/Relay
	ST SSR Drive/Triac
	Code Outputs #3 & #4 (Alarm/Event Outputs)
	0 None
	1 Dual Relay-From A Contact, 1A at 120 or 230 Vac
	Code Isolated Digital Communications, Output#5 (Alarm/Event Output) and Analog Output Option
	0 None
	1 RS-422/485 Dig. Comm. and Output #5
	2 RS-232 Dig. Comm. and Output #5
	3 Analog Output
	4 RS-422/485 Dig. Comm., Output #5 and Analog Output
	5 RS-232 Dig. Comm., Output #5 and Analog Output
	Code Power Supply
	0 100 - 240 Vac
	1 12 - 24 Vac/Vdc
2104	RO
	1
	1
	0
	Typical Model Number

PK 303
Part No. 0037-75273
MAY 96

2104

1/4 DIN Temperature and Process Controller

- Dual PID and Fuzzy Logic Control
- Self-Tuning
- Control Loop Protection
- Five Outputs - Control, Alarm or Event
- Universal Sensor Input
- NEMA 4X Hosedown Front Panel
- 16 Segment Ramp/Soak Program
- Digital Communications

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Specifications

Control Modes On/Off, Proportional, PID, PID + Fuzzy Logic, Heat/Cool (Dual PID)

Control/Alarm Outputs

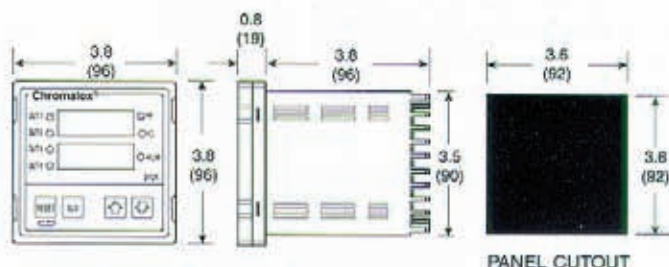
Outputs #1 - #4 Total of five (5) Control/Alarm Outputs possible:
 Relay N.O. Form A Contact, 1A at 120/230 Vac (resistive)
 SSR Drive 24 Vdc nominal at 40 mA
 Triac 1 Amp continuous, 10 Amp in-rush, at 120 or 230 Vac
 Current/Voltage 4 to 20 mA, field changeable to 1-5 Vdc
Output #5 Relay Form C Contact, 5 Amps at 120 Vac or 2.5A at 230 Vac

Alarms Field Selectable Absolute or Tracking Alarms
 Alarm Inhibit and Control Loop Protection

Sensor Inputs Field Selectable
 J, K, T, E, R, S, B Thermocouple
 100 ohm Pt RTD (alpha = .00385)
 4-20 mA, 0-5 Vdc and 1-5 Vdc Analog
Accuracy +/- 0.2% of programmed span, +/- 1 LSD

Control Adjustments

Setpoint & Setpoint limits Sensor Range
 Deadband 1 to 100°F
 PID Adjustments Proportional Band, Rate, Reset
 Output Limit 0.0 to 100.0%
 Ramp to Setpoint 1 to 9999°/hour on power-up



Heat/Cool Adjustments

Output Offsets 0 to 100% of Proportional Band
 Cooling Medium Air, Water or Oil

Ramp/Soak Programming

Intervals/Loops 16 Intervals; 1 loop, 0-255 times or continuous
 Event Outputs Up to 3

Isolated Digital Communications

RS-232 Single-drop
 RS-422/485 Multi-drop

General

Instrument Power 100 to 240 Vac, or 12 to 24 Vdc;
 50 to 60 Hz
 Operating Environment 32 to 150°F (0 to 65°C), relative humidity <95% non-condensing
 Front Panel NEMA 4X Construction
 Case High Impact, Black ABS Plastic
 Weight 1.1 lbs. (500 grams)

Ordering Information

Model **Temperature and Process Controller**
 2104 1/4 DIN Controller, Universal Sensor Input with 24 Vdc Transmitter Power Supply. One Digital Input, Analog Remote Set Point and 16 Segment Ramp/Soak Program.

Code Output #1 - Single Output Control

RO Relay/SSR Drive (jumper selectable)
 TO Triac-1 Amp at 120 or 230 Vac
 AO Analog-4-20mA or 1-5 Vdc, non-isolated

Outputs #1 & #2 - Heat/Cool Control

RR Relay/Relay AR Analog/Relay
 TT Triac/Triac AT Analog/Triac
 AA Analog/Analog SR SSR Drive/Relay
 SS SSR Drive/SSR Drive ST SSR Drive/Triac

Code Outputs #3 & #4 (Alarm/Event Outputs)

0 None
 1 Dual Relay-From A Contact, 1A at 120 or 230 Vac

Code Isolated Digital Communications, Output#5 (Alarm/Event Output) and Analog Output Option

0 None
 1 RS-422/485 Dig. Comm. and Output #5
 2 RS-232 Dig. Comm. and Output #5
 3 Analog Output
 4 RS-422/485 Dig. Comm., Output #5 and Analog Output
 5 RS-232 Dig. Comm., Output #5 and Analog Output

Code Power Supply

0 100 - 240 Vac
 1 12 - 24 Vac/Vdc

2104 RO 1 1 0 **Typical Model Number**

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 Part No. 0037-75273
 DEC 95