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# PAX<sup>®</sup> 2C PID Controller

Red Lion Automation Series



## ▶▶▶ Advanced Industrial PID Controller

Red Lion's PAX<sup>®</sup>2C Controllers work with field installable cards to enable users to change or replace capabilities to meet temperature and process application requirements.

From the dual line, tri-color display to universal power and input capabilities, Red Lion's PAX2C PID controllers are packed full of features that set it apart from other PID controllers. Choose from a range of field-installable output cards for inputs, outputs and communications option to deliver an ideal solution for applications requiring multiple parameters to be visualized or controlled at the same time. Ramp Soak capabilities allow users the ability to change and hold machine temperature – either up or down – for a specific time period to easily integrate time-stepped processes. In addition, the PAX2C offers color changing display with multiple zones, built-in USB programming port and configuration software.



### INDUSTRY APPLICATIONS

- > Factory Automation
- > Food & Beverage
- > Heat Treatment
- > Packaging
- > Plastics & Molding
- > Water/Wastewater

### PRODUCT HIGHLIGHTS

- > Field Installable Function & Option Cards
- > Multiple PID Control Capabilities
- > Universal Sensor and Power Inputs
- > Built-In USB Programming Port
- > Configuration Software Included
- > Multi-Color Changing Display
- > Up To 16 Alarms with Boolean Logic Functionality

### FEATURES & BENEFITS

- > Powerful Crimson 2.0 Software
  - Reduces configuration time and effort
  - Easy to store for multiple unit configuration
- > Field Installable Cards
  - Easy to add or replace functions or option cards
  - Wide range of function and options
  - Reduces on-hand inventory of PID controllers
- > Multi-Color Displays
  - Easy to read numerical and bar-graph displays
  - Color change promotes easy-to-see process changes
  - Dual line display
- > Ramp Soak Capability
  - 16 profiles with up to 20 step changes
  - Supports wide variety of application requirements
- > Universal Inputs
  - Sensor inputs accepts DC Current/Voltage, Process Signals, Thermocouples, RTDs and Resistance
  - Power input accepts AC or DC power without polarity
- > Built-In Programming Port
  - Eliminates external converters
  - Reduces wiring time
  - Ideal for multiple unit configuration
- > Setpoint Capability
  - Relay, solid state and triac cards
  - Up to 16 alarms with Boolean Logic functionality



# ▶▶▶ PAX2C PID Controller Specifications

## DISPLAY PROPERTIES

Negative image LCD with tri-color backlight.  
The display is divided into seven independently programmable color zones: Line 1, Line 2, Universal Annunciators (1-4) & Mnemonics  
Vertical Model: Line 1 - 0.51" (13.0 mm), Line 2 - 0.44" (11.2 mm)  
Horizontal Model: Line 1 - 0.62" (15.7 mm), Line 2 - 0.47" (12.0 mm)  
Display Range: -1999 to 9999

## POWER

AC Power: 40 to 250 VAC, 50/60 Hz, 20 VA  
DC Power: 21.6 to 250 VDC, 8 W

## KEYPAD

2 programmable function keys, 4 keys total

## A/D CONVERTER

24 bit resolution

## UPDATE RATES

A/D conversion rate: programmable 5 to 40 readings/sec.

## INPUT CAPABILITIES

Current Input:  $\pm 250 \mu\text{ADC}$ ,  $\pm 2.5 \text{ mADC}$ ,  $\pm 25 \text{ mADC}$ ,  $\pm 250 \text{ mADC}$ , and  $\pm 2 \text{ ADC}$   
Voltage Input:  $\pm 250 \text{ mVDC}$ ,  $\pm 2.0 \text{ VDC}$ ,  $\pm 10 \text{ VDC}$ ,  $\pm 25 \text{ VDC}$ ,  $\pm 100 \text{ VDC}$ , and  $\pm 200 \text{ VDC}$   
Thermocouple Input: T, E, J, K, R, S, B, N, and C  
RTD Input: 100 $\Omega$  Pt (Alpha 0.00385 and 0.00392) 120 $\Omega$  Nickel (Alpha 0.00672) and 10 $\Omega$  Copper (Alpha 0.00427)  
Resistance Input: 100 $\Omega$ , 1,000 $\Omega$ , and 10 K  $\Omega$

## EXCITATION POWER

Jumper selectable  
Transmitter Power: +18 VDC @ 50 mA  
Reference Voltage: +2 VDC,  $\pm 2\%$   
Reference Current: 1.05 mADC,  $\pm 2\%$

## CUSTOM LINEARIZATION

Data Point Pairs: Selectable from 2 to 16  
Display Range: -1999 to 9999  
Decimal Point: 0 to 0.000

## SETPOINT PROFILE

Profiles: 16  
Segments per Profile: 20 ramp or hold segments (linkable up to 320 segments)  
Segment Time: 0 to 999.9 or 9999 minutes; can be extended by linking  
Ramp Rate: 0 to 9999 process units per minute (optional selection replaces Segment Time)  
Error Band Conformity: Delays profile execution; Off or 1 to 9999 process unit's of deviation  
Power-On Modes: Stop, start, or profile resume  
Profile End Modes: End (control to last executed profile setpoint), Stop (terminate profile and disable PID control), OFF (terminate profile and control to setpoint selected by SPSL), SP1-SP6 (terminate profile and control to chosen setpoint)  
Profile Auto Cycle: 0 to 250, 0 = continuous  
Event Outputs: 4 Event Flags, profile segment activated (can be mapped to Outputs)  
Setpoint Profile Selection/Control: Front panel buttons, user input, or MODBUS communications

## CONTROL SETS

Setpoints: 7; SP1-SP6 and SPu  
Control Sets: 6, CS1-CS6; (linked combination of setpoint, SPx value and PID Set PSx)  
PID gain sets: 6, PS1-PS6; includes PID constants, Output Power Offset, Output power filter, and Heat/Cool gains  
Control Set Selection: Front panel buttons or user input, or MODBUS communications

## MEMORY

Nonvolatile FRAM memory retains all programmable parameters and display values

## INPUTS

Two programmable user inputs

## CERTIFICATION & COMPLIANCE

Refer to EMC Installation Guidelines section of the bulletin for additional information  
UL Listed: File #E179259

## CONNECTIONS

High compression cage-clamp terminal block

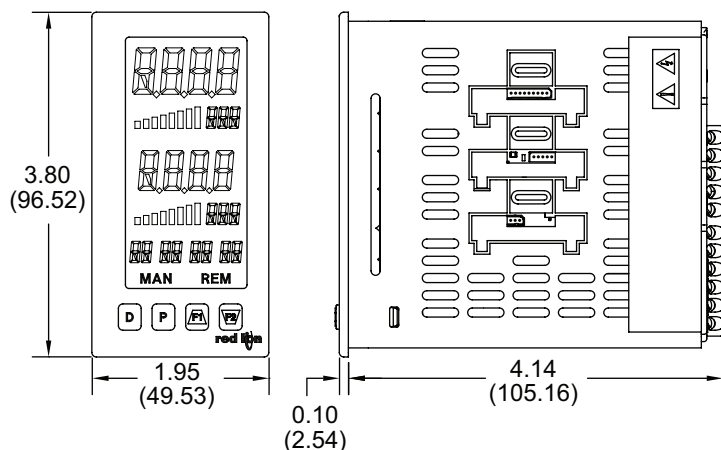
## ENVIRONMENTAL

Operating Temperature Range: 0 to 50 °C  
Storage Temperature Range: -40 to 60 °C  
Operating and Storage Humidity: 0 to 85% max.  
relative humidity non-condensing  
Altitude: Up to 2000 meters

## MECHANICAL

Construction: This unit is rated for NEMA 4X/IP65 indoor use; IP20 Touch safe; Installation Category II, Pollution Degree 2; One piece bezel/case; Flame resistant; Synthetic rubber keypad; Panel gasket and mounting clip included  
Weight: 8 oz. (226.8 g)

## DIMENSIONS *In inches (mm)*



Note: To determine dimensions for horizontal units, swap height and width.

# ▶▶▶ PAX2C PID Controller Specifications

## ORDERING INFORMATION

PART NUMBER	MODEL	DESCRIPTION
PX2CHZ00	PAX2C	Universal Input Temperature/Process Profile Controller, with Flexbus™ Capability, Horizontal
PX2CVR00		Universal Input Temperature/Process Profile Controller, with Flexbus™ Capability, Vertical
PAXCDS10	PAXCDS	Dual Form C Relay Digital Output Card
PAXCDS20		Quad Form A Relay Digital Output Card
PAXCDS30		Quad Sinking Open Collector Digital Output Card
PAXCDS40		Quad Sourcing Open Collector Digital Output Card
PAXCDS50		Dual Triac/Dual SSR Drive Digital Output Card
PAXCDS60		Quad Form C Relay Digital Output Card
PAXCDC10		PAXCDC
PAXCDC1C	Extended RS485 Serial Communications Card with Dual RJ11 Connector	
PAXCDC20	RS232 Serial Communications Card with Terminal Block	
PAXCDC2C	Extended RS232 Serial Communications Card with 9 Pin D Connector	
PAXCDC30	DeviceNet Communications Card	
PAXCDC50	Profibus-DP Communications Card	
PAXCDL10	PAXCDL	Analog Output Card
PX2FCA00	PX2FCA	Process Input/Remote Setpoint/PID Card with Digital Outputs
PX2FCA10		Heater Current Monitor Input Card, with Digital Outputs

Specifications are subject to change. Visit [www.redlion.net](http://www.redlion.net) for more information.



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