

# PXU PID Controller

Red Lion Automation Series



## ▶▶▶ Temperature/Process Controllers

Red Lion's versatile PXU Series controllers are ideal for a variety of industrial applications - from simple on/off to full PID control and more.

Our PXU PID controllers offer many unique features including universal inputs 1/16, 1/8 and 1/4 DIN models, as well as one of the largest dual line displays in the industry. Other features include on-demand auto tuning, two control outputs for reverse or direct application and easy setup with Crimson 2.1 software. Options include ramp/soak capability, enabling users to change and hold temperature and process variables for specific time periods, easily integrating into time-stepped processes. Other options include a second analog input, second analog output as well as a current transducer (CT) input.

As one of the most complete PID controller lines in the industry, the PXU Series is an ideal choice for machine builders and process engineers alike.



### APPLICATIONS

- > Food & Beverage
- > Factory Automation
- > Manufacturing
- > Plastics
- > Automotive

### PRODUCT HIGHLIGHTS

- > Ramp/Soak Capability
- > 2<sup>nd</sup> Analog Input
- > 2<sup>nd</sup> Analog Output
- > Current Transducer (CT) Input
- > Full PID Control
- > Dual Relay Alarms
- > UL Listed, 61010-1 Approved

### FEATURES & BENEFITS

- > Universal Inputs
  - Thermocouple
  - RTD
  - 0-10 VDC
  - 4 – 20 mA (0 – 50 mA)
- > Full PID Control
  - On demand auto-tuning
  - Independently configured outputs
- > Easy Programming
  - Front panel push-button or Crimson software
- > Digital Pot Functionality
- > AC or DC Powered Models
  - 100 to 240 VAC
  - 24 VDC
- > Reduced Case Depth
- > IP 65 Ingress Protection

industrial  
automation



# ▶▶▶ PXU PID Controller Specifications

## DISPLAY PROPERTIES

LCD negative image transmissive with backlighting. Top (process) display with orange backlighting, bottom (parameter) display with green backlighting.

4 digits each line

1/4 DIN Model Digit Size: Line 1 - 0.87" (22 mm);

Line 2 - 0.55" (14 mm)

1/8 DIN Model Digit Size: Line 1 - 0.47" (12 mm);

Line 2 - 0.47" (12 mm)

1/16 DIN Model Digit Size: Line 1 - 0.43" (11 mm);

Line 2 - 0.27" (7.0 mm)

## POWER CONNECTION

AC Power: 100 to 240 VAC -20/+8 %, 50/60 Hz, 5 VA

DC Power: 24 VDC,  $\pm 10\%$ , 5 W

## INPUT CAPABILITIES

Temperature/RTD Indication Accuracy:

$\pm (0.3\% \text{ of span, } +1^\circ\text{C}) \text{ at } 25^\circ\text{C}$

Thermocouple Inputs:

Types: T, E, J, K, R, S, B, N, L, U, and TXK

Resolution:  $1^\circ$  for types R, S, B and  $1^\circ$  or  $0.1^\circ$  for all other types

RTD Inputs:

Type: 2 or 3 wire

Excitation: 180  $\mu\text{A}$

Process Inputs:

0-5 or 0-10 VDC

0-20 or 4-20 mA

0-50 mV

CT Input (Optional): CT is included with this option

Type: Single phase, full wave monitoring of load currents

Input: 0 to 25 mA AC

Display Scale Range: 1.0 to 999.9 amperes

CT Rating: Current Ratio: 40 A/30.7 mA AC Turn Ratio: 1:1300

Remote Input

Selectable: 0-5 V, 1-5 V, 0-10 V, 0-20 mA, 4-20 mA

A/D Conversion Rate: 10 samples per second

## COMMUNICATION

RS-485 serial communication (optional)

## OUTPUTS

Time proportioning or DC analog (mA and mV)

Alarms: 2 relay alarm outputs.

Type: Form A or Form C, model and alarm dependent

Contact Rating: 3 A @ 250 VAC

## CERTIFICATIONS & COMPLIANCES

CE Approved

EN 61326-1 immunity to industrial locations

Emission CISPR 11 Class A

EN 61010-1

RoHS compliant

UL Listed: File #E179259

IP65 enclosure rating (face only)

## ENVIRONMENTAL

Operating Temperature Range: 0 to  $50^\circ\text{C}$

Storage Temperature Range: -20 to  $65^\circ\text{C}$

Operating and Storage Humidity: 80% max relative humidity (non-condensing) from  $0^\circ\text{C}$  to  $50^\circ\text{C}$

Vibration Resistance: Operational 10 to 55 Hz, 1 g

Shock Resistance: Operational 30 g

Altitude: Up to 2000 meters

## MECHANICAL

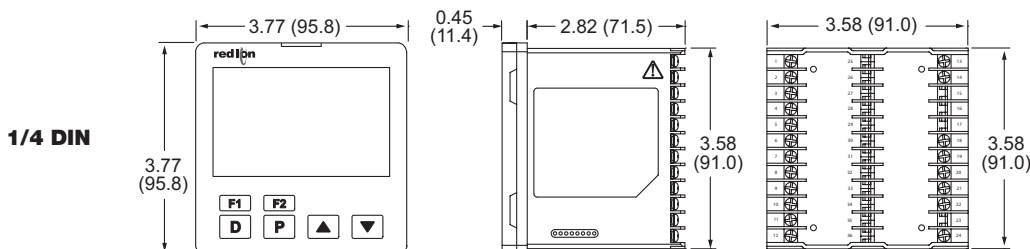
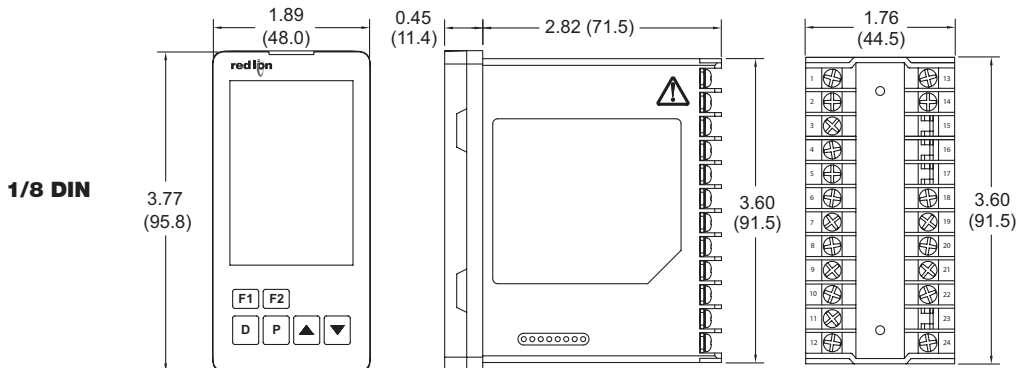
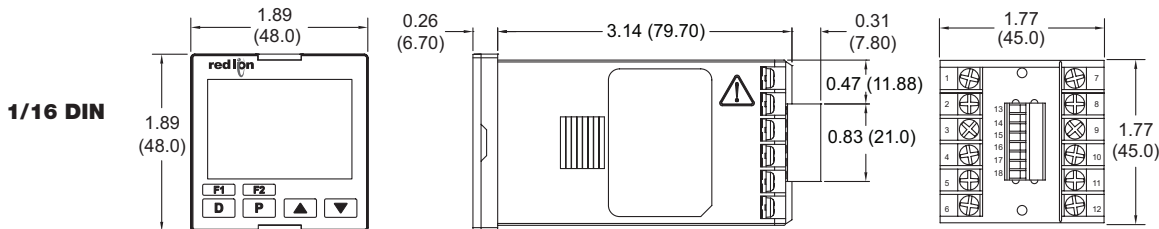
Construction: Black plastic alloy case and panel latch. Black plastic textured bezel with transparent display window. Controller meets IP65 requirements for indoor use when properly installed. Installation Category II, Pollution Degree 2.

Weight: 1/4 DIN: 11.0 oz (312 g)

1/8 DIN: 7.8 oz (221 g)

1/16 DIN: 5.3 oz (150 g)

## DIMENSIONS *In inches (mm)*



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## ORDERING GUIDE

DIN SIZE	MAIN CONTROL OUTPUT 1	SECONDARY CONTROL OUTPUT 2	USER INPUT(S)	REMOTE SETPOINT INPUT	CT INPUT	ANALOG OUTPUT (RETRANS)	RS 485	PART NUMBERS	
								100 to 240 VAC	24 VDC
1/16 DIN	Relay							PXU10020	PXU100B0
	Relay	Relay	2				Yes	PXU11A20	PXU11AB0
	Relay	Relay	1		Yes		Yes	PXU11B20	PXU11BB0
	Relay	Relay	1			Yes	Yes	PXU11C20	PXU11CB0
	Relay	Relay	1	Yes			Yes	PXU11D20	PXU11DB0
	Logic/SSR							PXU20020	PXU200B0
	Logic/SSR	Relay	2				Yes	PXU21A20	PXU21AB0
	Logic/SSR	Relay	1		Yes		Yes	PXU21B20	PXU21BB0
	Logic/SSR	Relay	1			Yes	Yes	PXU21C20	PXU21CB0
	Logic/SSR	Relay	1	Yes			Yes	PXU21D20	PXU21DB0
	4-20 mA							PXU30020	PXU300B0
	4-20 mA	Relay	2				Yes	PXU31A20	PXU31AB0
	4-20 mA	Relay	1		Yes		Yes	PXU31B20	PXU31BB0
	4-20 mA	Relay	1			Yes	Yes	PXU31C20	PXU31CB0
	4-20 mA	Relay	1	Yes			Yes	PXU31D20	PXU31DB0
	0-10 VDC							PXU40020	PXU400B0
0-10 VDC	Relay	2				Yes	PXU41A20	PXU41AB0	
0-10 VDC	Relay	1		Yes		Yes	PXU41B20	PXU41BB0	
0-10 VDC	Relay	1			Yes	Yes	PXU41C20	PXU41CB0	
0-10 VDC	Relay	1	Yes			Yes	PXU41D20	PXU41DB0	
1/4 DIN	Relay	Relay	2				Yes	PXU11A50	PXU11AE0
	Logic/SSR	Relay	1		Yes		Yes		PXU21BE0
	Logic/SSR	Relay	1			Yes	Yes		PXU21CE0
	Logic/SSR	Relay	1	Yes			Yes		PXU21DE0
	4-20 mA	Relay	2				Yes	PXU31A50	PXU31AE0
	4-20 mA	Relay	1		Yes		Yes		PXU31BE0
	4-20 mA	Relay	1			Yes	Yes		PXU31CE0
	4-20 mA	Relay	1	Yes			Yes		PXU31DE0
	0-10 VDC	Relay	2				Yes	PXU41A50	PXU41AE0
	0-10 VDC	Relay	1		Yes		Yes		PXU41BE0
	0-10 VDC	Relay	1			Yes	Yes		PXU41CE0
	0-10 VDC	Relay	1	Yes			Yes		PXU41DE0
1/8 DIN	Relay							PXU10030	PXU100C0
	Relay	Relay	2				Yes	PXU11A30	PXU11AC0
	Relay	Relay	1		Yes		Yes	PXU11B30	PXU11BC0
	Relay	Relay	1			Yes	Yes	PXU11C30	PXU11CC0
	Relay	Relay	1	Yes			Yes	PXU11D30	PXU11DC0
	Logic/SSR							PXU20030	PXU200C0
	Logic/SSR	Relay	2				Yes	PXU21A30	PXU21AC0
	Logic/SSR	Relay	1		Yes		Yes	PXU21B30	PXU21BC0
	Logic/SSR	Relay	1			Yes	Yes	PXU21C30	PXU21CC0
	Logic/SSR	Relay	1	Yes			Yes	PXU21D30	PXU21DC0
	4-20 mA							PXU30030	
	4-20 mA	Relay	2				Yes	PXU31A30	PXU31AC0
	4-20 mA	Relay	1		Yes		Yes	PXU31B30	PXU31BC0
	4-20 mA	Relay	1			Yes	Yes	PXU31C30	PXU31CC0
	4-20 mA	Relay	1	Yes			Yes	PXU31D30	PXU31DC0
	0-10 VDC							PXU40030	PXU400C0
0-10 VDC	Relay	1		Yes		Yes	PXU41B30	PXU41BC0	
0-10 VDC	Relay	1			Yes	Yes	PXU41C30	PXU41CC0	
0-10 VDC	Relay	1	Yes			Yes	PXU41D30	PXU41DC0	

Only stocked part numbers are listed. Contact factory for availability of non-stock models. In order to program the unit using Crimson, the unit must be purchased with the RS 485 option.

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								100 to 240 VAC	24 VDC
1/16 DIN	Relay							PXU10020	PXU100B0
	Relay	Relay	2				Yes	PXU11A20	PXU11AB0
	Relay	Relay	1		Yes		Yes	PXU11B20	PXU11BB0
	Relay	Relay	1			Yes	Yes	PXU11C20	PXU11CB0
	Relay	Relay	1	Yes			Yes	PXU11D20	PXU11DB0
	Logic/SSR							PXU20020	PXU200B0
	Logic/SSR	Relay	2				Yes	PXU21A20	PXU21AB0
	Logic/SSR	Relay	1		Yes		Yes	PXU21B20	PXU21BB0
	Logic/SSR	Relay	1			Yes	Yes	PXU21C20	PXU21CB0
	Logic/SSR	Relay	1	Yes			Yes	PXU21D20	PXU21DB0
	4-20 mA							PXU30020	PXU300B0
	4-20 mA	Relay	2				Yes	PXU31A20	PXU31AB0
	4-20 mA	Relay	1		Yes		Yes	PXU31B20	PXU31BB0
	4-20 mA	Relay	1			Yes	Yes	PXU31C20	PXU31CB0
	4-20 mA	Relay	1	Yes			Yes	PXU31D20	PXU31DB0
	0-10 VDC							PXU40020	PXU400B0
0-10 VDC	Relay	2				Yes	PXU41A20	PXU41AB0	
0-10 VDC	Relay	1		Yes		Yes	PXU41B20	PXU41BB0	
0-10 VDC	Relay	1			Yes	Yes	PXU41C20	PXU41CB0	
0-10 VDC	Relay	1	Yes			Yes	PXU41D20	PXU41DB0	
1/4 DIN	Relay	Relay	2				Yes	PXU11A50	PXU11AE0
	Logic/SSR	Relay	1		Yes		Yes		PXU21BE0
	Logic/SSR	Relay	1			Yes	Yes		PXU21CE0
	Logic/SSR	Relay	1	Yes			Yes		PXU21DE0
	4-20 mA	Relay	2				Yes	PXU31A50	PXU31AE0
	4-20 mA	Relay	1		Yes		Yes		PXU31BE0
	4-20 mA	Relay	1			Yes	Yes		PXU31CE0
	4-20 mA	Relay	1	Yes			Yes		PXU31DE0
	0-10 VDC	Relay	2				Yes	PXU41A50	PXU41AE0
	0-10 VDC	Relay	1		Yes		Yes		PXU41BE0
	0-10 VDC	Relay	1			Yes	Yes		PXU41CE0
	0-10 VDC	Relay	1	Yes			Yes		PXU41DE0
1/8 DIN	Relay							PXU10030	PXU100C0
	Relay	Relay	2				Yes	PXU11A30	PXU11AC0
	Relay	Relay	1		Yes		Yes	PXU11B30	PXU11BC0
	Relay	Relay	1			Yes	Yes	PXU11C30	PXU11CC0
	Relay	Relay	1	Yes			Yes	PXU11D30	PXU11DC0
	Logic/SSR							PXU20030	PXU200C0
	Logic/SSR	Relay	2				Yes	PXU21A30	PXU21AC0
	Logic/SSR	Relay	1		Yes		Yes	PXU21B30	PXU21BC0
	Logic/SSR	Relay	1			Yes	Yes	PXU21C30	PXU21CC0
	Logic/SSR	Relay	1	Yes			Yes	PXU21D30	PXU21DC0
	4-20 mA							PXU30030	
	4-20 mA	Relay	2				Yes	PXU31A30	PXU31AC0
	4-20 mA	Relay	1		Yes		Yes	PXU31B30	PXU31BC0
	4-20 mA	Relay	1			Yes	Yes	PXU31C30	PXU31CC0
	4-20 mA	Relay	1	Yes			Yes	PXU31D30	PXU31DC0
	0-10 VDC							PXU40030	PXU400C0
0-10 VDC	Relay	1		Yes		Yes	PXU41B30	PXU41BC0	
0-10 VDC	Relay	1			Yes	Yes	PXU41C30	PXU41CC0	
0-10 VDC	Relay	1	Yes			Yes	PXU41D30	PXU41DC0	

Only stocked part numbers are listed. Contact factory for availability of non-stock models. In order to program the unit using Crimson, the unit must be purchased with the RS 485 option.



As global experts in communication, monitoring and control for industrial automation and networking, Red Lion has been delivering innovative solutions for over forty years. Our automation, Ethernet and cellular M2M technology enables companies worldwide to gain real-time data visibility that drives productivity. Product brands include Red Lion, N-Tron and Sixnet. With headquarters in York, Pennsylvania, the company has offices across the Americas, Asia-Pacific and Europe. Red Lion is part of Spectris plc, the productivity-enhancing instrumentation and controls company.