

# PXU PID Controller

Red Lion Automation Series



## Temperature/Process Controllers

RED LION'S PXU PID CONTROLLERS ARE IDEAL FOR SIMPLE ON/OFF TO FULL PID CONTROL. THE PXUs OFFER UNIVERSAL INPUTS, VARIOUS SIZES, AS WELL AS ONE OF THE LARGEST DUAL LINE DISPLAYS IN THE INDUSTRY. ADDITIONAL FEATURES INCLUDE ON-DEMAND AUTO TUNING, TWO CONTROL OUTPUTS FOR REVERSE OR DIRECT APPLICATIONS AND EASY SET-UP WITH CRIMSON 2 SOFTWARE. OPTIONS INCLUDE RAMP/SOAK CAPABILITY, REMOTE SETPOINT INPUT, SECOND ANALOG OUTPUT AND A CURRENT TRANSDUCER INPUT. THE PXU IS AN IDEAL CHOICE FOR MACHINE BUILDERS AND PROCESS ENGINEERS ALIKE.

- ▲ Ramp/Soak Capability
- ▲ Remote Setpoint Input
- ▲ Second Analog Output
- ▲ Current Transducer (CT) Input
- ▲ Full PID Control
- ▲ Dual Relay Alarms
- ▲ UL Listed, 61010-1 Approved



# ▲ PXU PID Controller Ordering Guide

## ▲ Ordering Guide

### MAIN UNIT

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

In order to program the unit using Crimson (Available as a free download from <http://www.redlion.net>), the unit must be purchased with the RS 485 option.

# ▲ PXU PID Controller Ordering Guide Cont. and Specifications

## ACCESSORIES

PART NUMBERS	DESCRIPTION	MODEL NO.
RLY50000	External SSR Power Unit (for Logic/SSR models)	RLY
RLY60100	25 A Single Phase Din Rail Mount Solid State Relay	
RLY6A100	40 A Single Phase Din Rail Mount Solid State Relay	
RLY70100	Three Phase Din Rail Mount Solid State Relay	
PGUSB485	USB to 485 Converter with Cable	PGUSB

## ▲ Specifications

### DISPLAY PROPERTIES

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

Line 1 and 2: 4 digits each line

1/16 DIN Model Digit Size: Line 1 - 0.43" (11 mm); Line 2 - 0.27" (7.0 mm)

1/8 DIN Model Digit Size: Line 1 - 0.47" (12 mm); Line 2 - 0.47" (12 mm)

1/4 DIN Model Digit Size: Line 1 - 0.87" (22 mm); Line 2 - 0.55" (14 mm)

### POWER CONNECTION

Line Voltage Models:

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

Low Voltage Models:

AC Power: 24 VAC,  $\pm 10\%$ , 6 VA

DC Power: 24 VDC,  $\pm 10\%$ , 8 VA

### INPUT CAPABILITIES

Temperature/RTD Indication Accuracy:

$\pm (0.3\% \text{ of span, } +1 \text{ }^\circ\text{C})$  at 25  $^\circ\text{C}$  ambient after 20 minute warm up. Includes NIST conformity, cold junction effect, A/D conversion errors and linearization conformity.

Thermocouple Inputs:

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

Input Impedance: Approximately 4.7 M $\Omega$

Lead Resistance Effect: -0.3  $\mu\text{V}/\Omega$

Cold Junction Compensation: Less than  $\pm 1.5 \text{ }^\circ\text{C}$  typical (2.5  $^\circ\text{C}$  max) error over 0 to 50  $^\circ\text{C}$  temperature range.

RTD Inputs:

Type: 2 or 3 wire

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

Resolution: 1 $^\circ$  or 0.1 $^\circ$  for all types

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

Input Impedance: 10 W @ 50/60 Hz

Frequency: 50/60 Hz

Maximum Continuous Overload: 31 mA AC

CT Rating

Current Ratio: 40 A/30.7 mA AC

Turn Ratio: 1:1300

Remote Input:

Input: Program 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)

### OUTPUT CAPABILITIES

Output: Time proportioning or DC Analog

Control: PID, On/Off or user/manual

Cycle Time: Programmable

Auto-Tune: When selected, sets proportional band, integral time, derivative time, and integration default. Also sets relative gain (if applicable).

Input Fail Action: Programmable output power level

### ALARMS

2 relay alarm outputs.

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

Contact Rating: 3 A @ 250 VAC/30 VDC

Life Expectancy: 100,000 cycles at max. load rating

(Decreasing load and/or increasing cycle time, increases life expectancy)

### 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

### 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:

1/16 DIN: 5.3 oz (150 g)

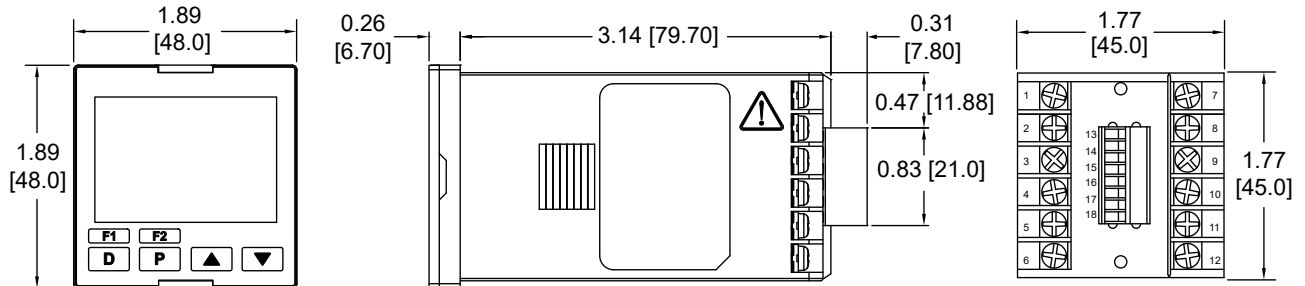
1/8 DIN: 7.8 oz (221 g)

1/4 DIN: 11.0 oz (312 g)

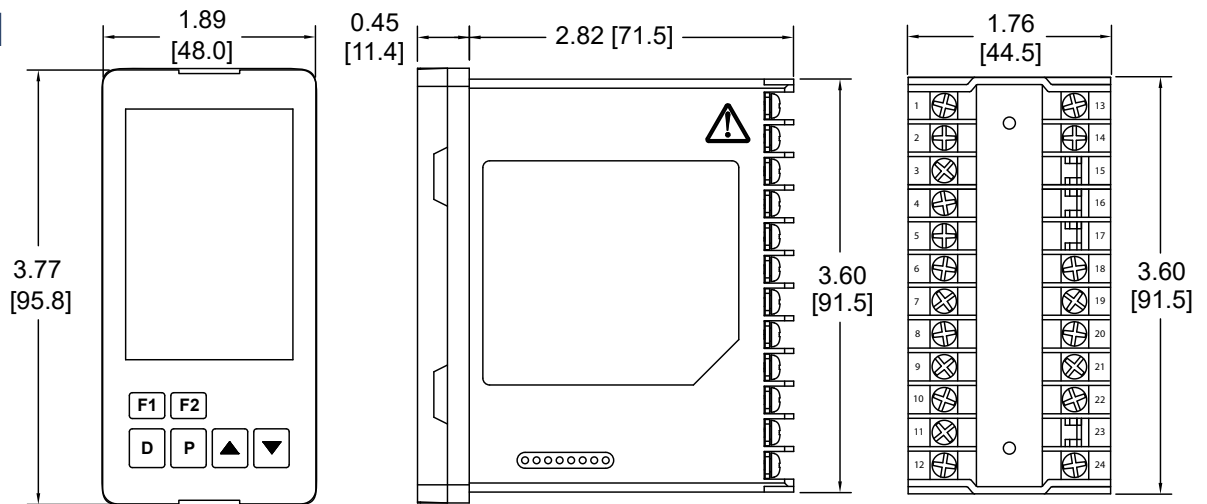
# ▲ PXU PID Controller Dimensions

## ▲ Dimensions In inches [mm] -

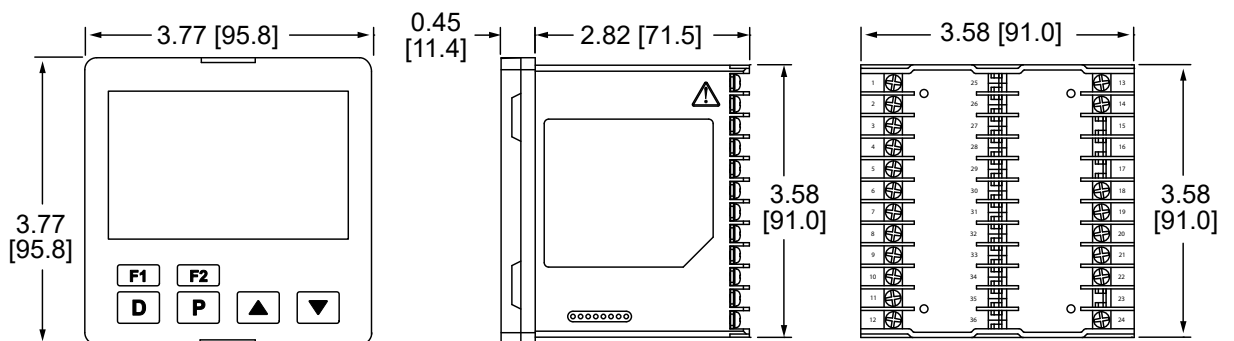
### ▲ 1/16 DIN



### ▲ 1/8 DIN



### ▲ 1/4 DIN



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