

PID Controllers

From single to multi-point control, Red Lion has the right proportional-integral-derivative (PID) controller for any application. Our wide range of easy-to-deploy PID controllers offer industry-leading features and reliable performance designed for the most demanding applications.

- > Panel or DIN-rail mountable models
- > Optional modular expansion cards
- > Programmable via Crimson software



Modular Controller Multi-Zone PID Controllers



- > Support for up to 16 hot-swappable modules
- > Built-in data logging with time stamping, accessible via CSV format
- > Three serial and one Ethernet port standard



MODEL NUMBER	PROTOCOL CONVERSION	DATA LOGGING	WEB SERVER	VIRTUAL HMI	OPERATING TEMP
CSMSTRV2	Yes	-	-	-	0° to 50°C
CSMSTRLE	Yes	-	-	-	0° to 50°C
CSMSTRSX	Yes	Yes	Yes	QVGA (320 x 240)	0° to 50°C
CSMSTRGT	Yes	Yes	Yes	VGA (640 x 480)	0° to 50°C
CSMSTRZR	Yes	Yes	Yes	WXGA (1280 x 720)	0° to 45°C

PAX2C 1/8 DIN Advanced Universal PID Controllers



- > Universal process, thermocouple/RTD, voltage and process inputs
- > Programmable dual-line display with units and bar graph
- > Field-installable option cards: HCM, Second analog input/PID controller, 4-20 mA or 0-10 V analog output, relay or solid state outputs
- > Optional communication cards include RS-232, RS-485, DeviceNet and PROFIBUS-DP



MODEL NUMBER	FUNCTION	SIZE	DISPLAY	DISPLAY COLOR	ANALOG OUTPUT	ALARMS	COMMUNICATION	POWER
PX2C8H00	Universal	1/8 DIN Horizontal	LCD	Tri-color Backlit	Yes	Up to 16	Yes	AC/DC
PX2C8V00	Universal	1/8 DIN Vertical	LCD	Tri-color Backlit	Yes	Up to 16	Yes	AC/DC

PID Feature Comparison

FEATURES	PAX2C	T48/P48	PXU	MODULAR CONTROLLER	DLC
DIN Size(s)	1/8	1/16	1/16, 1/8, 1/4		
Mounting	Panel	Panel	Panel	DIN-Rail	DIN-Rail
Display	Dual-Line	Dual-Line	Dual-Line	Virtual	
Bar Graph on Display	•				
PID Control Zones	3*	1	1	32*	2
Universal Inputs	•		•		
Alarms	•	•	•	•	•
Protocol Conversion				•	
Built-in Communication	•	Optional	Optional	•	•
Expansion Card Slots	3			16	
Power Input	AC/DC	AC or DC	AC or DC	DC	DC

* Requires expansion modules

T48/P48 1/16 Process and Temperature Controllers



- > 4-20 mA or 0-10 V analog output, relay or solid state outputs
- > Optional RS-485 serial communications
- > Four-digit dual-line display in red/green



P48 Process Input Controllers

MODEL NUMBER	FUNCTION	SECOND ANALOG OUTPUT	MAIN CONTROL OUTPUT	COMMS	POWER
P4800001	Process Input	-	Analog Output	-	AC
P4800011	Process Input	-	Analog Output	-	DC
P4810000	Process Input	-	Relay Output	-	AC
P4810010	Process Input	-	Relay Output	-	DC
P4810101	Process Input	-	Dual Relay Output	-	AC
P4810105	Process Input	-	Dual Relay Output	-	AC
P4810107	Process Input	-	Dual Relay Output	RS-485	AC
P481010A	Process Input	Yes	Dual Relay Output	-	AC
P4810111	Process Input	-	Dual Relay Output	-	DC
P4810115	Process Input	-	Dual Relay Output	-	DC
P4810117	Process Input	-	Dual Relay Output	RS-485	DC
P481011A	Process Input	Yes	Dual Relay Output	-	DC
P4811100	Process Input	-	Dual Relay Output	-	AC
P4811102	Process Input	-	Dual Relay Output	RS-485	AC
P4811110	Process Input	-	Dual Relay Output	-	DC
P4811112	Process Input	-	Dual Relay Output	RS-485	DC

Continued

T48 Temperature Input Controllers with Relay Output

MODEL NUMBER	FUNCTION	SECOND INPUT OPTION	SECOND ANALOG OUTPUT	MAIN CONTROL OUTPUT	COMMS	POWER
T4810000	Temperature	-	-	Relay Output	-	AC
T4810002	Temperature	-	-	Relay Output	RS-485	AC
T4810010	Temperature	-	-	Relay Output	-	DC
T4810101	Temperature	-	-	Dual Relay Output	-	AC
T4810105	Temperature	Remote Setpoint Input	-	Dual Relay Output	-	AC
T4810106	Temperature	Heater Current Monitor	-	Dual Relay Output	-	AC
T4810107	Temperature	-	-	Dual Relay Output	RS-485	AC
T4810108	Temperature	Remote Setpoint Input	-	Dual Relay Output	RS-485	AC
T4810109	Temperature	Heater Current Monitor	-	Dual Relay Output	RS-485	AC
T481010A	Temperature	-	Yes	Dual Relay Output	-	AC
T4810111	Temperature	-	-	Dual Relay Output	-	DC
T4810115	Temperature	Remote Setpoint Input	-	Dual Relay Output	-	DC
T4810116	Temperature	Heater Current Monitor	-	Dual Relay Output	-	DC
T4810117	Temperature	-	-	Dual Relay Output	RS-485	DC
T4810118	Temperature	Remote Setpoint Input	-	Dual Relay Output	RS-485	DC
T4810119	Temperature	Heater Current Monitor	-	Dual Relay Output	RS-485	DC
T481011A	Temperature	-	Yes	Dual Relay Output	-	DC
T4811000	Temperature	-	-	Dual Relay Output	-	AC
T4811100	Temperature	-	-	3 Relay Output	-	AC
T4811102	Temperature	-	-	3 Relay Output	RS-485	AC
T4811103	Temperature	Remote Setpoint Input	-	3 Relay Output	-	AC
T4811104	Temperature	Heater Current Monitor	-	3 Relay Output	-	AC
T4811110	Temperature	-	-	3 Relay Output	-	DC
T4811112	Temperature	-	-	3 Relay Output	RS-485	DC
T4811113	Temperature	Remote Setpoint Input	-	3 Relay Output	-	DC
T4811114	Temperature	Heater Current Monitor	-	3 Relay Output	-	DC

T48 Temperature Input Controllers with Logic Output

MODEL NUMBER	FUNCTION	SECOND INPUT OPTION	MAIN CONTROL OUTPUT	COMMS	POWER
T4820000	Temperature	-	Logic	-	AC
T4820010	Temperature	-	Logic	-	DC
T4820201	Temperature	-	Dual Logic Output	-	DC
T4820205	Temperature	Remote Setpoint Input	Dual Logic Output	-	AC
T4820206	Temperature	Heater Current Monitor	Dual Logic Output	-	AC
T4820208	Temperature	Remote Setpoint Input	Dual Logic Output	RS-485	AC
T4820209	Temperature	Heater Current Monitor	Dual Logic Output	RS-485	AC
T4820211	Temperature	-	Dual Logic Output	-	DC
T4820215	Temperature	Remote Setpoint Input	Dual Logic Output	-	DC
T4820216	Temperature	Heater Current Monitor	Dual Logic Output	-	DC
T4820218	Temperature	Remote Setpoint Input	Dual Logic Output	RS-485	DC
T4820219	Temperature	Heater Current Monitor	Dual Logic Output	RS-485	DC
T4821000	Temperature	-	Logic/Relay	-	AC
T4821100	Temperature	-	Logic/Dual Relay	-	AC
T4821102	Temperature	-	Logic/Dual Relay	RS-485	AC
T4821103	Temperature	Remote Setpoint Input	Logic/Dual Relay	-	AC
T4821104	Temperature	Heater Current Monitor	Logic/Dual Relay	-	AC
T4821110	Temperature	-	Logic/Dual Relay	-	DC
T4821112	Temperature	-	Logic/Dual Relay	RS-485	DC
T4821113	Temperature	Remote Setpoint Input	Logic/Dual Relay	-	DC
T4821114	Temperature	Heater Current Monitor	Logic/Dual Relay	-	DC
T4832200	Temperature	-	Triac/Dual Logic	-	AC

PXU Basic Universal PID Controllers



- > Universal inputs (temperature or process)
- > 4-20 relay or solid state outputs
- > Available in 1/4, 1/8 and 1/16 DIN models
- > Optional RS-485 communication



MODEL NUMBER	DIN SIZE	MAIN CONTROL	SECONDARY CONTROL	RS-485 COMMS	USER INPUTS	POWER
PXU309B0	1/16 DIN	4 to 20 mA	-	-	-	DC
PXU31A20	1/16 DIN	4 to 20 mA	Relay	Yes	Yes	AC
PXU31AB0	1/16 DIN	4 to 20 mA	Relay	Yes	Yes	DC
PXU11A20	1/16 DIN	Dual Relay Output	Relay	Yes	Yes	AC
PXU11AB0	1/16 DIN	Dual Relay Output	Relay	Yes	Yes	DC
PXU21A20	1/16 DIN	Logic/Relay	Relay	Yes	Yes	AC
PXU21AB0	1/16 DIN	Logic/Relay	Relay	Yes	Yes	DC
PXU10020	1/16 DIN	Relay Output	-	-	-	AC
PXU100B0	1/16 DIN	Relay Output	-	-	-	DC
PXU20020	1/16 DIN	Solid State Output	-	-	-	AC
PXU209B0	1/16 DIN	Solid State Output	-	-	-	DC
PXU11A30	1/8 DIN	Dual Relay Output	Relay	Yes	Yes	AC
PXU11AC0	1/8 DIN	Dual Relay Output	Relay	Yes	Yes	DC
PXU21A30	1/8 DIN	Logic/Relay	Relay	Yes	Yes	AC
PXU21AC0	1/8 DIN	Logic/Relay	Relay	Yes	Yes	DC
PXU10030	1/8 DIN	Relay Output	-	-	-	AC
PXU100C0	1/8 DIN	Relay Output	-	-	-	DC
PXU20030	1/8 DIN	Solid State Output	-	-	-	AC
PXU11A50	1/4 DIN	Dual Relay Output	Relay	Yes	Yes	AC
PXU11AE0	1/4 DIN	Dual Relay Output	Relay	Yes	Yes	DC

DLC Dual Loop DIN-Rail PID Controllers



- > Dual independent inputs
- > Support for two alarms per channel
- > Built-in MOSFETs capable of switching up to 1 Amp DC



MODEL NUMBER	FUNCTION	UNIVERSAL INPUT(S)	DUAL ANALOG OUTPUTS
DLC00001	Dual Loop Controller	Yes	-
DLC01001	Dual Loop Controller	Yes	Yes
DLC11001	Dual Setpoint Controller	Yes	Yes

Protocol Conversion & Data Acquisition

With support for more than 300 industrial protocols, Red Lion helps devices from different manufacturers communicate. Our Crimson software uses drag-and-drop mapping functionality to seamlessly integrate data collection across disparate devices and protocols.

- > Support for more than 300+ industrial protocols
- > Easily configured using Crimson software
- > Offers a variety of physical communication ports



Data Station Plus Protocol Converters



- > Support for 300+ protocols, up to 12 simultaneous conversions
- > Three serial and one Ethernet port standard
- > Send email and SMS upon alarm status
- > Virtual HMI with web server for remote viewing and control
- > Built-in data logging with time stamping, available via CSV format



MODEL NUMBER	PROTOCOL CONVERSION	DATA LOGGING	WEB SERVER	VIRTUAL HMI	OPERATING TEMP
DSPLE000	Yes	-	-	-	0° to 50°C
DSPLE001	Yes	-	-	-	-20° to 70°C
DSPSX000	Yes	Yes	Yes	QVGA	0° to 50°C
DSPSX001	Yes	Yes	Yes	QVGA	-20° to 70°C
DSPGT000	Yes	Yes	Yes	VGA	0° to 50°C
DSPGT001	Yes	Yes	Yes	VGA	-20° to 70°C
DSPZR000	Yes	Yes	Yes	WXGA	0° to 45°C

RTUs & I/O Modules

Red Lion's Sixnet series of RTUs & I/O Modules provide reliable, simple and secure remote monitoring for sites located in harsh environments. Offering the lowest cost per I/O point and rugged environmental ratings, these solutions provide robust sensor or field data collection and communication.

- > Built-in Ethernet connectivity
- > UL Class I, Division 2 Listed; ABS, CE and CSA certified
- > Easily scalable to fit any application



Industrial RTUs



- > Built-in data logging
- > Programmed via IsaGRAF according to IEC61131
- > Non-proprietary Linux® OS supports custom programming
- > Communicates with Modbus, Modbus TCP/UDP, DNP3, SNMP, IEC60870-5 and Sixnet UDR protocols
- > Wide -40° to 70°C operating temperature range
- > All models UL Class 1, Division 2 Listed for hazardous locations



MODEL NUMBER	ETHERNET PORTS	RS-232 PORTS	RS-485 PORTS	DI	DO	AI	AO	NVRAM	FLASH	DRAM
ST-IPM-6350	5	2	1	-	-	-	-	2M	128M	64M
VT-MIPM-245-D	1	2	2	12	4	8	2	512K	64M	32M
VT-MIPM-135-D	1	2	1	12	8	6	-	512K	64M	32M
VT-IPM2M-213-D	1	1	1	12	4	8	2	512K	32M	32M
VT-IPM2M-113-D	1	1	1	12	4	8	-	512K	32M	32M
VT-UIPM-431-H	1	2	1	8	4	2	-	512K	16M	16M



- > Features wide variety of I/O types
- > Powerful communications featuring configurable two port switch
- > Support for Modbus/TCP, Sixnet UDR and other industrial protocols
- > -40° to 75°C operating temperature range
- > All models UL Class 1, Division 2 Listed for hazardous locations

MODEL NUMBER	FUNCTION	HIGH-SPEED COUNTER	DI	DO	AI	AO	PoE CAPABLE
E2-MIX20884-D	32 Mixed Inputs/Outputs	4 (Isolated)	20	8	8	4	-
E2-MIX24880-D	32 Mixed Inputs/Outputs	2 (One Isolated)	24	8	8	-	-
E2-MIX24882-D	34 Mixed Inputs/Outputs	4	24	8	8	2	-
E2-32DI24-D	32 24V Digital Inputs	1 (Isolated)	32	-	-	-	-
E2-16DI24-D	16 24V Digital Inputs	1 (Isolated)	16	-	-	-	-
E2-16DIAC-D	16 120VAC Digital Inputs	-	16	-	-	-	-
E2-32DO24-D	32 24V Digital Outputs	-	-	32	-	-	-
E2-16DO24-D	16 24V Digital Outputs	-	-	16	-	-	-
E2-16DORLY-D	16 Digital Output Relays	-	-	16	-	-	-
E2-16ISO20M-D	16 Isolated Analog Inputs (4-20mA)	-	-	-	16	-	-
E2-32AI20M-D	32 20mA Analog Inputs	-	-	-	32	-	-
E2-32AI10V-D	32 10VDC Analog Inputs	-	-	-	32	-	-
E2-16AI20M-D	16 Analog Inputs (4-20mA)	-	-	-	16	-	-
E2-16AI-8AO-D	16 24V Digital Inputs/Analog Outputs	-	-	-	16	8	-
E2-8AO20M-D	8 Analog Outputs	-	-	-	-	8	-
E2-16ISOTC-D	16 Isolated Thermocouple Inputs	-	-	-	16TC	-	-
E2-10RTD-D	10 RTD Inputs	-	-	-	10 RTD	-	-
EB-MIX24880-D	32 Mixed Inputs/Outputs, PoE	2 (One Isolated)	24	8	8	-	Yes
EB-MIX24882-D	34 Mixed Inputs/Outputs, PoE	4	24	8	8	2	Yes
EB-32DI24-D	32 Digital Inputs, PoE	1 (Isolated)	32	-	-	-	Yes
EB-16DI24-D	16 Isolated Digital Inputs, PoE	1 (Isolated)	16	-	-	-	Yes
EB-32DO24-D	32 Digital Output, PoE	-	-	32	-	-	Yes
EB-16DO24-D	16 Isolated Digital Outputs, PoE	-	-	16	-	-	Yes
EB-16ISO20M-D	16 Isolated Analog Inputs (4-20mA), PoE	-	-	-	16	-	Yes
EB-32AI20M-D	32 Analog Inputs (4-20mA), PoE	-	-	-	32	-	Yes
EB-32AI10V-D	32 Analog Inputs (0-10V), PoE	-	-	-	32	-	Yes
EB-16AI20M-D	16 Analog Inputs (4-20mA), PoE	-	-	-	16	-	Yes
EB-16AI-8AO-D	16 Mixed Analog Inputs/Outputs, PoE	-	-	-	16	8	Yes
EB-8AO20M-D	8 4-20mA Analog Outputs, PoE	-	-	-	-	8	Yes
EB-16ISOTC-D	16 Isolated Thermocouple Inputs, PoE	-	-	-	16TC	-	Yes
EB-10RTD-D	10 RTD Inputs, PoE	-	-	-	10 RTD	-	Yes

Signal Conditioners

Red Lion provides a broad selection of signal conditioners for frequency, temperature and process applications. Our signal conditioners range from dedicated to universal models capable of accepting over 100 inputs, which enable these units to be used almost anywhere.

- > Support for over 100 input/output combinations
- > Plug-and-play deployment
- > Offers frequency, process and temperature conversion



IFMA Frequency to Analog Converters

- > Accepts frequency input and outputs analog voltage/current
- > Rotary switch configuration
- > Support for three-way isolation



MODEL NUMBER	FUNCTION
IFMA0035	Frequency to Analog Converter DC Powered
IFMA0065	Frequency to Analog Converter AC Powered

IFMR Speed Switches

- > Accepts frequency input and outputs over/under/zero speed detection
- > Built-in single relay output
- > Support for alarm latching and resetting



MODEL NUMBER	FUNCTION
IFMR0036	Speed Switch DC Powered
IFMR0066	Speed Switch AC Powered

IRMA RTD to Analog Converters

- > Accepts two, three or four wire RTD input, outputs 4 to 20 mA
- > Loop powered models
- > Sensor breakdown detection



MODEL NUMBER	FUNCTION
IRMA2003	Intelligent RTD Module with Analog Output Loop Powered
IRMA3035	Intelligent RTD Module with Analog Output DC Powered

ITMA Thermocouple to Analog Converters

- > Accepts thermocouple or millivolt input, outputs 4 to 20 mA
- > Ten-position DIP switch for configuration
- > Thermocouple breakdown detection



MODEL NUMBER	FUNCTION
ITMA2003	Intelligent Thermocouple with Analog Output Loop Powered
ITMA3035	Intelligent Thermocouple with Analog Output DC Powered

IAMS Universal Signal Conditioner

- > Universal power and input
- > Three-way signal isolation
- > Easy programming with removable configuration display module



MODEL NUMBER	FUNCTION
IAMS0001	IAMS with Analog Output
IAMS0010	IAMS with Dual Setpoint
IAMS0011*	IAMS with Analog and Dual Setpoint
PGMMOD00**	Programming Display Module

* Not CE approved

** Not CE approved or UL Listed

IAMA Universal Signal Conditioner

- > Features over 100 analog I/O combinations
- > Provides linear or square root extraction
- > Three-way signal isolation

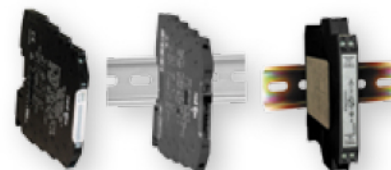


MODEL NUMBER	FUNCTION
IAMA3535	Linear Universal Signal Conditioning Module
IAMA6262	Square Root Universal Signal Conditioning Module

IAMA0006, AIMI & AFCM Slimline Signal Converters



- > Small form-factor signal conditioner
- > Converts process input signals
- > Ultra-slim design
- > Loop powered models



MODEL NUMBER	FUNCTION
IAMA0006	Universal with 35 Input/Output Conversions
AIMI0202*	4 to 20 mA Loop Powered Isolator
AFCM0000	Voltage/Current to Frequency Conversion DC Powered

* Not UL Recognized

Watchdog Relay Hardware Monitor



- > Rugged hardware-based solution
- > Heartbeat monitoring for PLCs, RTUs and controllers
- > Automatically powers down systems when malfunction detected
- > UL Class 1, Division 2 Listed for hazardous locations



MODEL NUMBER	FUNCTION
6HBWDOG1	Heartbeat Watchdog with Form C Relay

Certifications & Approvals



UL Listed - UL has tested representative samples of the product and determined that it meets UL requirements. These requirements are based primarily on ULs published and nationally recognized Standards for Safety. (Underwriters Laboratories, www.ul.com, 2015)



IECEx - The objective of the IECEx system is to facilitate international trade in equipment and services for use in explosive atmospheres, while maintaining the required level of safety. (IEC IECEx, www.iecex.com, 2015)



UL Recognized Component - The evaluation of components or materials intended for use in a complete product or system. (Underwriters Laboratories, www.ul.com, 2015)



CE - The CE marking indicates a product's compliance with EU legislation and so enables the free movement of products within the European market. (European Commission, www.ec.europa.eu, 2014)



ABS - The Product Design Assessment is valid for products intended for use on ABS classed vessels, MODUs or facilities which are in existence or under contract for construction on the date of the ABS Rules used to evaluate the product. (ABS, www.eagle.org, 2015)



ATEX - The equipment and protective systems intended for use in potentially explosive atmospheres (ATEX) Directive 94/9/EC provides the technical requirements to be applied and the relevant conformity assessment procedures before placing this equipment on the European market. (European Commission, www.ec.europa.eu, 2014)



FM - FM Approvals is an international leader in third-party certification and approval of commercial and industrial products. (FM Global, www.fmglobal.com, 2015)