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PAX2A

1/8 DIN Analog Input Panel Meter

Installation Guide



See the Red Lion website at www.redlion.net or the enclosed USB thumbdrive for a complete user manual

SPECIFICATIONS

POWER:

AC Power: 40 to 250 VAC, 50/60 Hz, 20 VA

DC Power: 21.6 to 250 VDC, 8 W

Isolation: 2300 Vrms for 1 min. to all inputs and outputs.

INPUT CAPABILITIES:

Current Input Ranges:

± 250 µADC ± 2.5 mADC ± 25 mADC

± 250 mADC ± 2 ADC

Voltage Input Ranges:

± 250 mVDC ± 2.0 VDC ± 10 VDC

± 25 VDC ± 100 VDC ± 200 VDC

Thermocouple Inputs:

Types: T, E, J, K, R, S, B, N, C (W5/W26)

Max Continuous Overvoltage: 30 V

RTD Inputs:

Type: 3 or 4 wire, 2 wire can be compensated for lead wire resistance

Excitation current: 100 ohm range: 136.5 µA ±10%

10 ohm range: 2.05 mA ±10%

Max. continuous overload: 30 VDC

Input Type:

| | |
|-------------------------------|------------------------------|
| 100 ohm Pt alpha = .00385 | 100 ohm Pt alpha = .00392 |
| 120 ohm Nickel alpha = .00672 | 10 ohm Copper alpha = .00427 |

Resistance Inputs:

Max. continuous overload: 30 VDC

| INPUT RANGE | COMPLIANCE |
|-------------|------------|
| 100 ohm | 0.175 V |
| 999 ohm | 1.75 V |
| 9999 ohm | 17.5 V |

EXCITATION POWER: Jumper selectable

Transmitter Power: +18 VDC, ± 5% @ 50 mA max.

Reference Voltage: + 2 VDC, ± 2%

Compliance: 1KΩ load min (2 mA max)

Temperature Coefficient: 40 ppm/°C max.

Reference Current: 1.05 mADC, ± 2%

Compliance: 10 KΩ load max.

USER INPUTS: Two programmable user inputs

Max. Continuous Input: 30 VDC

Isolation To Sensor Input Common: Not isolated.

ENVIRONMENTAL CONDITIONS:

Operating Temperature Range: 0 to 50 °C

Storage Temperature Range: -40 to 60 °C

Vibration to IEC 68-2-6: Operational 5-150 Hz, 2 g

Shock to IEC 68-2-27: Operational 25 g (10 g relay)

Operating and Storage Humidity: 0 to 85% max. RH non-condensing

Altitude: Up to 2000 meters

CERTIFICATIONS AND COMPLIANCES:

CE Approved

EN 61326-1 Immunity to Industrial Locations

Emission CISPR 11 Class A

IEC/EN 61010-1

RoHS Compliant

UL Listed: File #E179259

Type 4X Indoor Enclosure rating (Face only)

IP65 Enclosure rating (Face only)

IP20 Enclosure rating (Rear of unit)

CONNECTIONS: High compression cage-clamp terminal block

Wire Strip Length: 0.3" (7.5 mm)

Wire Gauge Capacity: One 14 AWG (2.55 mm) solid,

two 18 AWG (1.02 mm) or four 20 AWG (0.61 mm)

CONSTRUCTION: This unit is rated NEMA 4X/IP65 for indoor use only.

IP20 Touch safe. Installation Category II, Pollution Degree 2. One piece

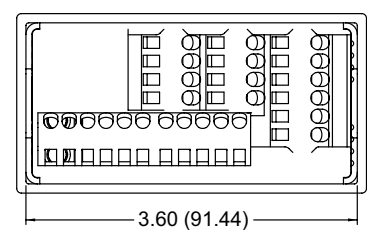
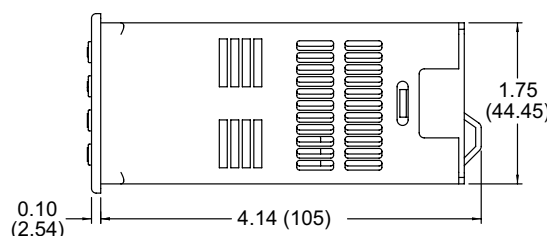
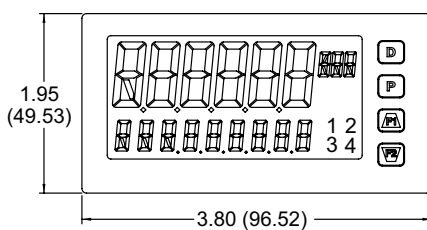
bezel/ case. Flame resistant. Synthetic rubber keypad. Panel gasket and

mounting clip included.

WEIGHT: 8 oz. (226.8 g)

DIMENSIONS In inches (mm)

Note: Recommended minimum clearance (behind the panel) for mounting clip installation is 2.1" (53.4) H x 5.5" (140) W.



SAFETY SUMMARY

All safety related regulations, local codes and instructions that appear in this literature or on equipment must be observed to ensure personal safety and to prevent damage to either the instrument or equipment connected to it. If equipment is used in a manner not specified by the manufacturer, the protection provided by the equipment may be impaired. Do not use this unit to directly command motors, valves, or other actuators not equipped with safeguards. To do so can be potentially harmful to persons or equipment in the event of a fault to the unit.



CAUTION: Risk of Danger.
Read complete instructions prior to installation and operation of the unit.

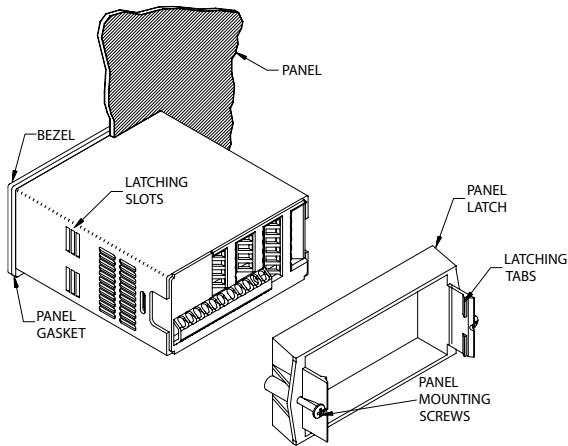


CAUTION:
Risk of electric shock.

METER INSTALLATION

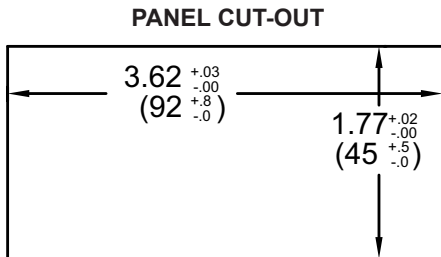
The PAX2A meets NEMA 4X/IP65 requirements when properly installed. The unit is intended to be mounted into an enclosed panel. Prepare the panel cutout to the dimensions shown. Remove the panel latch from the unit. Slide the panel gasket over the rear of the unit to the back of the bezel. The unit should be installed fully assembled. Insert the unit into the panel cutout.

While holding the unit in place, push the panel latch over the rear of the unit so that the tabs of the panel latch engage in the slots on the case. The panel latch should be engaged in the farthest forward slot possible. To achieve a proper seal, tighten the latch screws evenly until the unit is snug in the panel (Torque to approximately 7 in-lbs [79N-cm]). Do not over-tighten the screws.



Installation Environment

The unit should be installed in a location that does not exceed the operating temperature and provides good air circulation. Placing the unit near devices that generate excessive heat should be avoided.



SETTING THE JUMPERS

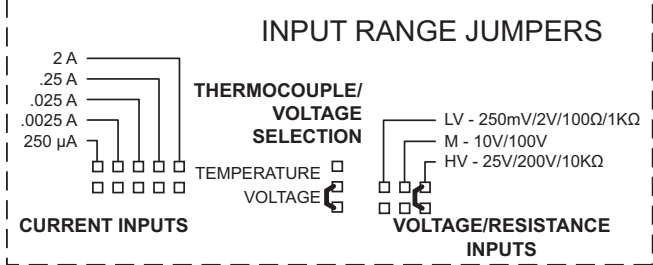
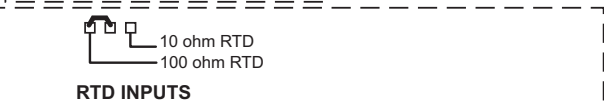
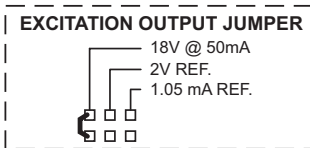
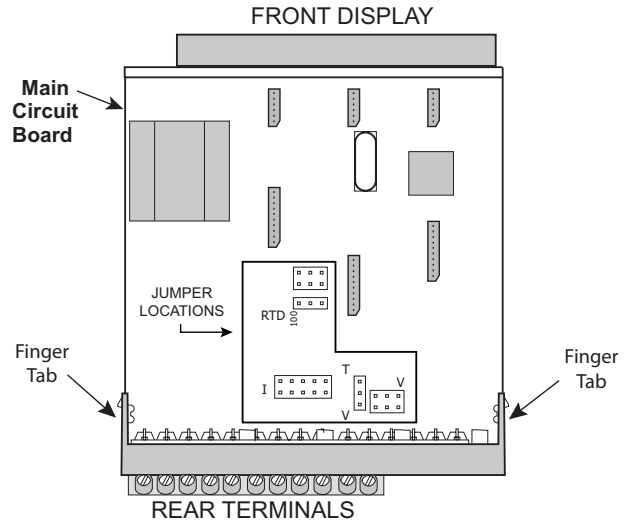
The PAX2A controller has four jumpers that must be checked and/or changed prior to applying power. The following Jumper Selection Figures show an enlargement of the jumper area.

To access the jumpers, remove the meter base from the case by firmly squeezing and pulling back on the side rear finger tabs. This should lower the latch below the case slot (which is located just in front of the finger tabs). It is recommended to release the latch on one side, then start the other side latch.



Warning: Exposed line voltage exists on the circuit boards. Remove all power to the meter and load circuits before accessing inside of the meter.

INPUT RANGE JUMPERS

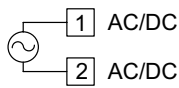


↓ **REAR TERMINALS** ↓

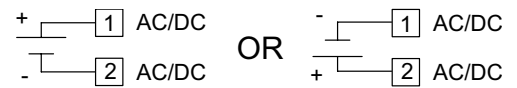
POWER WIRING

The power supplied to the meter shall employ a 15 Amp UL approved circuit breaker for AC input and a 1 Amp, 250 V UL approved fuse for DC input. It shall be easily accessible and marked as a disconnecting device to the installed unit. This device is not directly intended for connection to the mains without a reliable means to reduce transient over-voltages to 1500 V.

AC Power



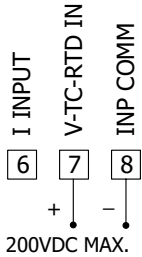
DC Power



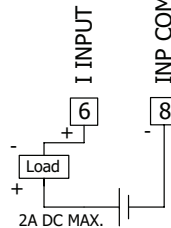
VOLTAGE/RESISTANCE/CURRENT INPUT SIGNAL WIRING

IMPORTANT: Before connecting signal wires, the Input Range Jumpers and Excitation Jumper should be verified for proper position.

Voltage Signal

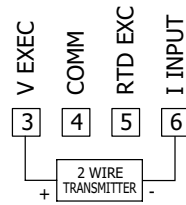


Process/Current Signal (external powered)



Process/Current Signal (2 wire requiring 18V excitation)

Excitation Jumper: 18 V

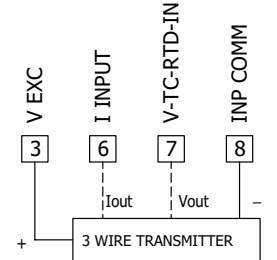


Current Signal (3 wire requiring 18 V excitation)

Terminal 3: +Volt supply
Terminal 6: +ADC (signal)
Terminal 8: -ADC (common)
Excitation Jumper: 18 V

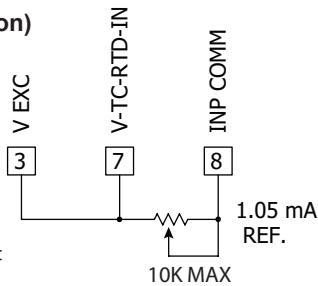
Voltage Signal (3 wire requiring 18 V excitation)

Terminal 3: +Volt supply
Terminal 7: +VDC (signal)
Terminal 8: -VDC (common)
Excitation Jumper: 18 V



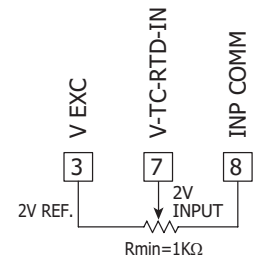
Resistance Signal (2 wire requiring excitation)

Terminal 3: Jumper to terminal 7
Terminal 7: Resistance
Terminal 8: Resistance
Excitation Jumper: 1.05 mA REF.
T/V Jumper: V position
Voltage/Resistance Input Jumper: Set per input signal



Potentiometer Signal as Voltage Input (3 wire requiring excitation)

Terminal 3: High end of pot.
Terminal 7: Wiper
Terminal 8: Low end of pot.
Excitation Jumper: 2 V REF.
T/V Jumper: V
Voltage/Resistance Input Jumper: 2 Volt
Module 1 Input Range: 2 Volt
Note: The Apply signal scaling style should be used because the signal will be in volts.



CAUTION: Sensor input common is NOT isolated from user input common. In order to preserve the safety of the controller application, the sensor input common must be suitably isolated from hazardous live earth referenced voltages; or input common must be at protective earth ground potential. If not, hazardous live voltage may be present at the User Inputs and User Input Common terminals. Appropriate considerations must then be given to the potential of the user input common with respect to earth common; and the common of the isolated plug-in cards with respect to input common.

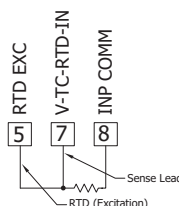
TEMPERATURE INPUT SIGNAL WIRING

IMPORTANT: Before connecting signal wires, verify the T/V Jumper is in the T position.

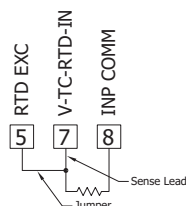
Thermocouple



3-Wire RTD



2-Wire RTD



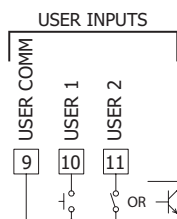
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USER INPUT WIRING

If not using User Inputs, then skip this section. User Input terminal does not need to be wired in order to remain in the inactive state.

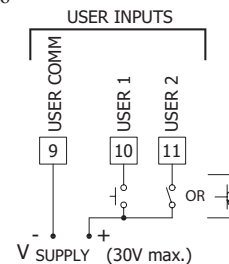
Sinking Logic (USER L₀)

When the $USER L_0$ parameter is programmed to L_0 , the user inputs of the controller are internally pulled up to +3.3 V with 20 K Ω resistance. The input is active when it is pulled low (<1.1 V).



Sourcing Logic (USER H₁)

When the $USER H_1$ parameter is programmed to H_1 , the user inputs of the controller are internally pulled down to 0 V with 20 K Ω resistance. The input is active when a voltage greater than 2.2 VDC is applied.



SETPOINT (ALARMS) WIRING SERIAL COMMUNICATION WIRING ANALOG OUTPUT WIRING

See appropriate plug-in card bulletin for wiring details.

ORDERING INFORMATION

| DESCRIPTION | PART NUMBER |
|--|-------------|
| Universal DC Analog Input Panel Meter | PAX2A000 |
| Dual Setpoint Relay Output Card | PAXCDS10 |
| Quad Setpoint Relay Output Card | PAXCDS20 |
| Quad Setpoint Sinking Open Collector Output Card | PAXCDS30 |
| Quad Setpoint Sourcing Open Collector Output Card | PAXCDS40 |
| RS485 Serial Communications Card with Terminal Block | PAXCDC10 |
| Extended RS485 Serial Communications Card with Dual RJ11 Connector | PAXCDC1C |
| RS232 Serial Communications Card with Terminal Block | PAXCDC20 |
| Extended RS232 Serial Communications Card with 9 Pin D Connector | PAXCDC2C |
| DeviceNet Communications Card | PAXCDC30 |
| Profibus-DP Communications Card | PAXCDC50 |
| Analog Output Card | PAXCDL10 |

LIMITED WARRANTY

The Company warrants the products it manufactures against defects in materials and workmanship for a period limited to two years from the date of shipment, provided the products have been stored, handled, installed, and used under proper conditions. The Company's liability under this limited warranty shall extend only to the repair or replacement of a defective product, at The Company's option. The Company disclaims all liability for any affirmation, promise or representation with respect to the products.

The customer agrees to hold Red Lion Controls harmless from, defend, and indemnify RLC against damages, claims, and expenses arising out of subsequent sales of RLC products or products containing components manufactured by RLC and based upon personal injuries, deaths, property damage, lost profits, and other matters which Buyer, its employees, or sub-contractors are or may be to any extent liable, including without limitation penalties imposed by the Consumer Product Safety Act (P.L. 92-573) and liability imposed upon any person pursuant to the Magnuson-Moss Warranty Act (P.L. 93-637), as now in effect or as amended hereafter.

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