

MODEL LPAX - 5 DIGIT LARGE PAX DISPLAY FOR ANALOG INPUTS



- LARGE LED DISPLAY READABLE TO 70 FEET
- VARIOUS ANALOG INPUT MODULES:
 DC VOLTAGE AND CURRENT
 PROCESS SIGNALS
 TRUE RMS VOLTAGE AND CURRENT
 THERMOCOUPLE OR RTD
 STRAIN GAGE/BRIDGE
- VARIOUS OUTPUT OPTION MODULES
- CUSTOM UNITS LABEL WITH BACKLIGHT
- PROGRAMMABLE USER INPUTS
- PROGRAMMABLE FUNCTION KEYS
- UNIVERSAL AC/DC POWERED
- CRIMSON 2 PROGRAMMING SOFTWARE
- NEMA 4X/IP65

GENERAL DESCRIPTION

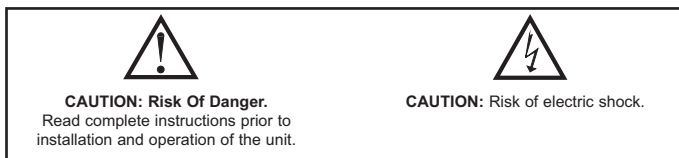
The LPAX Display is a versatile display that can increase productivity by offering the plant floor or production area a large visual display of their current status. Whether your measurement is temperature, weight, or flow, the LPAX can satisfy your requirement. With the use of a units label and backlighting, the display can be tailored to show the actual engineering unit, which further enhances the display. This LPAX display accepts various analog inputs through the use of input modules (MPAX) which allow the unit to adapt to most any application. The MPAX Modules offer the same features as our highly successful PAX Series Panel Meters. Additional plug-in option cards can add alarms, analog output, and communication/bus capabilities, making the LPAX a truly Intelligent Panel Meter.

SAFETY SUMMARY

All safety regulations, local codes and instructions that appear in this and corresponding 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.



The protective conductor terminal is bonded to conductive parts of the equipment for safety purposes and must be connected to an external protective earthing system.



SPECIFICATIONS

Additional specifications, wiring, programming, and information for the individual MPAX models are contained in the corresponding standard PAX literature.

1. **DISPLAY:** 1.5" (38 mm) Red LED
5-Digit: (-19999 to 99999)
2. **POWER REQUIREMENTS:**
 AC Modules: 85 to 250 VAC, 50/60 Hz, 18 VA
 DC Modules: 11 to 36 VDC or 24 VAC ±10%, 50/60 Hz, 14 W
3. **INPUT:** Accepts analog input modules, see "Selecting Your Display Components."
4. **ANNUNCIATORS:**
 LPAX0500: MAX, MIN, TOT, SP1, SP2, SP3, and SP4
 Optional units label with backlight
5. **KEYPAD:** Five tactile membrane switches integrated into the front panel
6. **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 / IP66 Enclosure rating (Face only)
 IP20 Enclosure rating (Rear of unit)

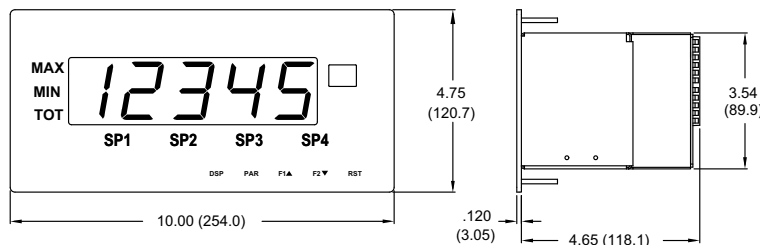
ELECTROMAGNETIC COMPATIBILITY

EMC specifications determined by the MPAX module.

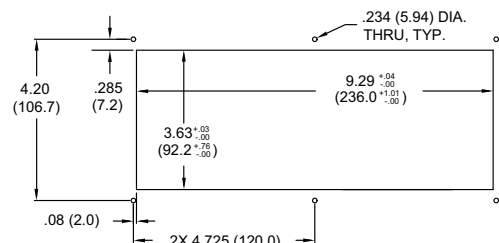
7. ENVIRONMENTAL CONDITIONS:

Operating Temperature Range: Determined by the MPAX module
 Storage Temperature Range: -40 to 60°C
 Operating and Storage Humidity: 0 to 85% max. RH (non-condensing)
 Altitude: Up to 2000 meters

DIMENSIONS In inches (mm)



PANEL CUT-OUT



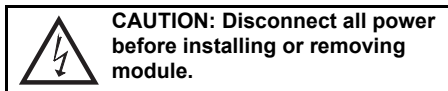
8. MOUNTING REQUIREMENTS:

Max. panel thickness is 0.375" (9.5 mm)
 Min. panel thickness for NEMA 4/IP65 sealing is 0.060" (1.52 mm)

9. MODULE INSTALLATION:

24-pin shrouded connector on LPAX engages connector on MPAX module upon installation. Shroud ensures proper alignment by providing a lead-in for the module connector.

10. CONNECTIONS: All wiring connections are made to the MPAX module via high compression cage-clamp terminal blocks. Wiring instructions are provided with the MPAX module.



11. CONSTRUCTION: Steel front panel, enclosure, and rear cover with textured black polyurethane paint for scratch and corrosion resistance protection. Sealed front panel meets NEMA 4/IP65 specifications for indoor use when properly installed. Installation Category II, Pollution Degree 2. Panel gasket and keps nuts included.

12. WEIGHT: 2.7 lbs (1.2 kg) (less module)

About the MPAX Input Modules

The MPAX Module serves as the input to the LPAX Display. There are several different modules to cover a variety of inputs. The MPAX module provides input scaling which allows the LPAX to display most any engineering unit. Once the MPAX is inserted into the LPAX, the unit has the same functions and capabilities of our PAX Series Intelligent Panel Meters.

Note: The MPAX provides the operating power for the LPAX, therefore you must select either the AC or DC MPAX corresponding with your application and available power.

Selecting Your Display Components

To build a complete display unit, you will need an LPAX and an MPAX Input Module. The LPAX is only a display and will not operate without an MPAX module. Please use the following chart to identify the appropriate MPAX module (including supply power) and LPAX Display that will satisfy your application.

SIGNAL TYPE	INPUT RANGES	MPAX MODULES*		LPAX DISPLAYS
		85-250 VAC	11 TO 36 VDC/ 24 VAC	
Universal DC Inputs	DC Voltage 200 mV, 2 V, 20 V, 300 V DC Current 200 µA, 2 mA, 20 mA, 200 mA, 2 Amp Resistance 100 ohm, 1000 ohm, 10 K ohm	MPAXD000	MPAXD010	LPAX0500
Process Inputs	0-20 mA or 0-10 VDC	MPAXP000	MPAXP010	LPAX0500
Temperature Inputs	Thermocouples-T, E, J, K, R, S, B, N, C, or Custom Scaling RTD's-100 ohm Pt (platinum) 385/392, 120 ohm Nickel 672, or 10 ohm Copper 427	MPAXT000	MPAXT010	LPAX0500
Strain Gage/Loadcell	24 mV or 240 mV	MPAXS000	MPAXS010	LPAX0500
True RMS AC Voltage/Current	AC Voltage 200 mV, 2 V, 20 V, 300 V AC Current 200 uA, 2 mA, 20 mA, 200 mA, 5 Amp	MPAXH000	N/A	LPAX0500

*For detailed Module specifications, see corresponding PAX literature. (i.e. For MPAXD specifications, see the PAXD literature)

OPTION CARDS AND ACCESSORIES



WARNING: Disconnect all power to the unit before installing option cards.

Adding Option Cards

The PAX and MPAX series meters can be fitted with up to three option cards. The details for each option card can be reviewed in the specification section of the PAX bulletin. Only one card from each function type can be installed at one time. The function types include Setpoint Alarms (PAXCDS), Communications (PAXCDC or PAXUSB), and Analog Output (PAXCDL). The option cards can be installed initially or at a later date.

COMMUNICATION CARDS (PAXCDC)

A variety of communication protocols are available for the PAX and MPAX series. Only one of these cards can be installed at a time. When programming the unit via Crimson, a Windows® based program, a USB, RS232 or RS485 Card must be used.

- PAXCDC10 - RS485 Serial (Terminal)
- PAXCDC1C - RS485 Serial (Connector)
- PAXCDC20 - RS232 Serial (Terminal)
- PAXCDC2C - RS232 Serial (Connector)
- PAXCDC30 - DeviceNet

- PAXCDC40 - Modbus (Terminal)
- PAXCDC4C - Modbus (Connector)
- PAXCDC50 - Profibus-DP
- PAXUSB00 - USB Programming

SETPOINT CARDS (PAXCDS)

The PAX and MPAX series has 5 available setpoint alarm output option cards. Only one of these cards can be installed at a time. (Logic state of the outputs can be reversed in the programming.)

- PAXCDS10 - Dual Relay, FORM-C, Normally open & closed
- PAXCDS20 - Quad Relay, FORM-A, Normally open only
- PAXCDS30 - Isolated quad sinking NPN open collector
- PAXCDS40 - Isolated quad sourcing PNP open collector
- PAXCDS50 - Dual Triac/Dual SSR drive

LINEAR DC OUTPUT (PAXCDL)

Either a 0(4)-20 mA or 0-10 V retransmitted linear DC output is available from the analog output option card. The programmable output low and high scaling can be based on various display values. Reverse slope output is possible by reversing the scaling point positions.

- PAXCDL10 - Retransmitted Analog Output Card

UNITS LABEL (LX)

The LPAX Display has an area on the front panel designed for a custom units label. The units label is applied directly to the panel in the embossed area. The units backlight is then turned on via programming.

Available on 5-digit version only. Refer to the LPAX Accessories Bulletin for a list of available units labels.

PROGRAMMING SOFTWARE

Crimson 2 is a Windows® based program that allows configuration of the LPAX meter from a PC. Crimson offers standard drop-down menu commands, that make it easy to program the LPAX meter. The LPAX program can then be saved in a PC file for future use. A PAX serial option card is required to program the meter using the software.

1.0 ASSEMBLING THE DISPLAY



CAUTION: The MPAX main circuit board and the option cards contain static sensitive components. Before handling the module or the cards, discharge static charges from your body by touching a grounded bare metal object. Handle the module by the rear plastic cover only, and the option cards by the board edges. Dirt, oil or other contaminants that contact the circuit boards or components can adversely affect circuit operation.



WARNING: Exposed line voltage exists on the MPAX main circuit board and the option cards. **DO NOT** apply power to the module OR load circuits until the module is properly installed in the LPAX case.



NOTE: All module and option card labels must be installed as shown for safety purposes.

Prior to installing the LPAX Display, it is recommended that the MPAX and any option cards be assembled first. This will allow you the opportunity to insure all the boards are fitted properly into their connectors.

Installing the Option Cards

If your application requires option cards, they should be installed into the MPAX before it is installed into the LPAX Display. Refer to the literature enclosed with the option cards for installation instruction.

Installing the MPAX

To install the MPAX Module, align the module with the opening in the LPAX case, as illustrated. The module must be oriented as shown, with terminal #1 toward the top of the LPAX case. Carefully slide the module into the LPAX case. The LPAX and MPAX connectors will begin to engage about 1/4" from the bottom. At this point, apply a small amount of pressure to the rear of the MPAX module to fully engage the connection. Be sure the module fully snaps into the slots at the rear of the LPAX case. The display is ready for installation.

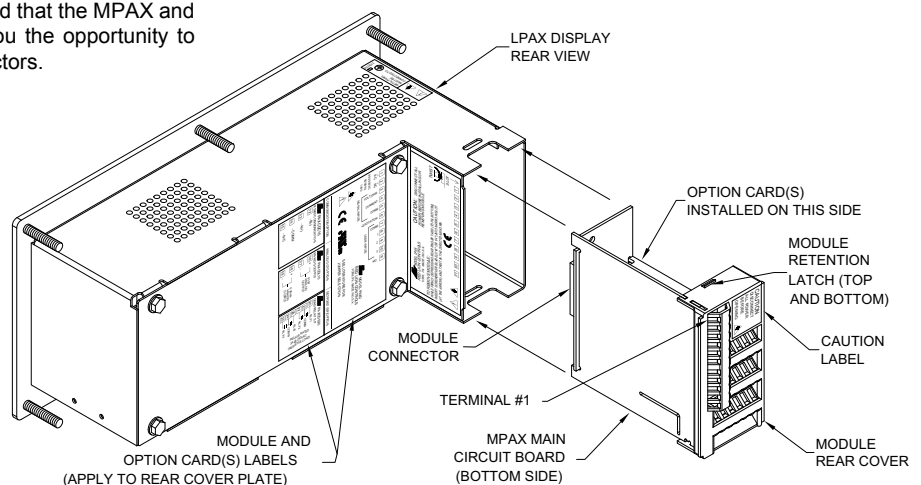


Figure 1, Installing an MPAX Module and Option Cards

Installing the Labels

Each option card and the MPAX are shipped with a connection label. These labels must be applied to the rear of the LPAX in the positions shown in the drawing.

Removing The MPAX Module

To remove the MPAX Module from the LPAX Display, first remove all power and load circuits. Then insert a flat screwdriver blade (3/16" or 1/4") into the narrow slot between the LPAX rear cover plate and the module's plastic cover as illustrated in Figure 2. Twist the screwdriver in the direction shown to disengage the internal connectors while firmly squeezing and pulling back on the rear finger tabs (top and bottom). Carefully slide the module out of the LPAX case, keeping it properly aligned with the case opening.

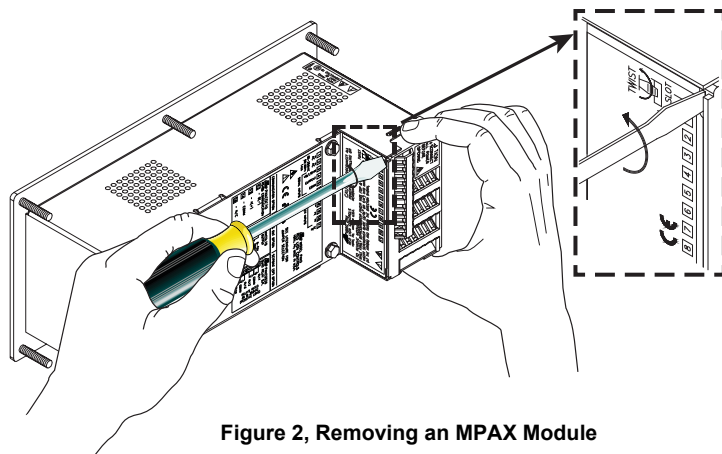


Figure 2, Removing an MPAX Module

2.0 INSTALLING THE DISPLAY

LPAX DISPLAY INSTALLATION

The LPAX display is intended to be mounted into a panel or enclosure. The display is provided with a gasket to provide a water-tight seal. The recommended minimum panel thickness for NEMA 4/IP65 sealing is 0.060" (1.57 mm).

For panel mounting, prepare the panel cut-out to the dimensions shown. The supplied template may be used to mark the cut-out and hole locations on the panel. After the panel cut-out has been deburred, slide the panel gasket over the rear of the display and onto the mounting studs. Insert the display into the panel cut-out as illustrated in Figure 3. Install six # 10-32 keps nuts (supplied) and tighten evenly for uniform gasket compression. Do not over-tighten the nuts.

By using additional mounting accessories, the LPAX can be surface-wall mounted, suspended, or bottom mounted. Separate installation instructions are provided with the mounting accessories.

Environment And Cleaning

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

The bezel should be cleaned only with a soft cloth and neutral soap product. Do NOT use solvents. Continuous exposure to direct sunlight may accelerate the aging process of the bezel.

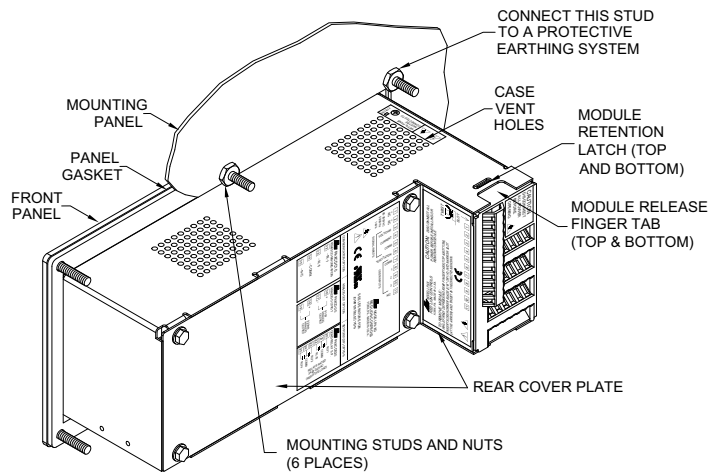


Figure 3, Installing The LPAX Into A Panel

3.0 WIRING AND PROGRAMMING THE DISPLAY

Once assembled, the LPAX and MPAX have all the same functions and capabilities of our PAX Series Intelligent Panel Meters. Therefore, you will find the appropriate PAX information packed with the MPAX Module. Follow the instructions found in the appropriate PAX documentation to wire and program the display for your application.

TROUBLESHOOTING

If for any reason you have trouble operating, connecting, or simply have questions concerning your new unit, contact Red Lion's technical support.

Email: support@redlion.net

Website: www.redlion.net

Inside US: +1 (877) 432-9908

Outside US: +1 (717) 767-6511

ORDERING INFORMATION

TYPE	MODEL NO.	DESCRIPTION	PART NUMBER
Display	LPAX	5-Digit Extra Large Display for Analog MPAX Modules	LPAX0500
Analog Input Module	MPAX	Universal DC Input Module, AC Powered	MPAXD000
		Universal DC Input Module, DC/24 VAC Powered	MPAXD010
		Process Input Module, AC Powered	MPAXP000
		Process Input Module, DC/24 VAC Powered	MPAXP010
		Thermocouple and RTD Module, AC Powered	MPAXT000
		Thermocouple and RTD Module, DC/24 VAC Powered	MPAXT010
		AC True RMS Voltage and Current Module, AC Powered	MPAXH000
		Strain Gage/Bridge Input Module, AC Powered	MPAXS000
		Strain Gage Input Module, DC/24 VAC Powered	MPAXS010
		Option Cards	PAXCDS
Quad Setpoint Relay Output Card	PAXCDS20		
Quad Setpoint Sinking Open Collector Output Card	PAXCDS30		
Quad Setpoint Sourcing Open Collector Output Card	PAXCDS40		
Dual Triac/Dual SSR Drive Output Card	PAXCDS50		
PAXCDC 1	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
	Modbus Communications Card		PAXCDC40
	Extended Modbus Communications Card with Dual RJ11 Connector		PAXCDC4C
	Profibus-DP Communications Card		PAXCDC50
PAXCDL 1	Analog Output Card		PAXCDL10
PAXUSB	PAX USB Programming Card		PAXUSB00
Accessories	CBLUSB	USB Programming Cable Type A-Mini B	CBLUSB01
	LX	Custom Units Label	Listed Separately
	ENC9	NEMA 4 Enclosure for LPAX	ENC90000
	SHR	Shroud for LPAX	SHRLPAX0
	MB	Mounting Bracket for LPAX	MBLPAX00

¹ Refer to "Selecting Your Display Components and Option Cards."

◆ Crimson® software is available for free download from <http://www.redlion.net/>