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# INDI MAXS

## 5 DIGIT LARGE PAX DISPLAY FOR ANALOG INPUTS

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## 1. GENERAL DESCRIPTION

- 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
- Alarms, analog output, and communication
- Custom units label with backlight
- Programmable user inputs
- Programmable function keys
- Universal AC/DC powered models
- PC software for meter configuration
- NEMA 4/IP65



The INDI MAXS 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 INDI MAXS 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 INDI MAXS 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 INDI MAXS a truly Intelligent Panel Meter.

## 2. 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.

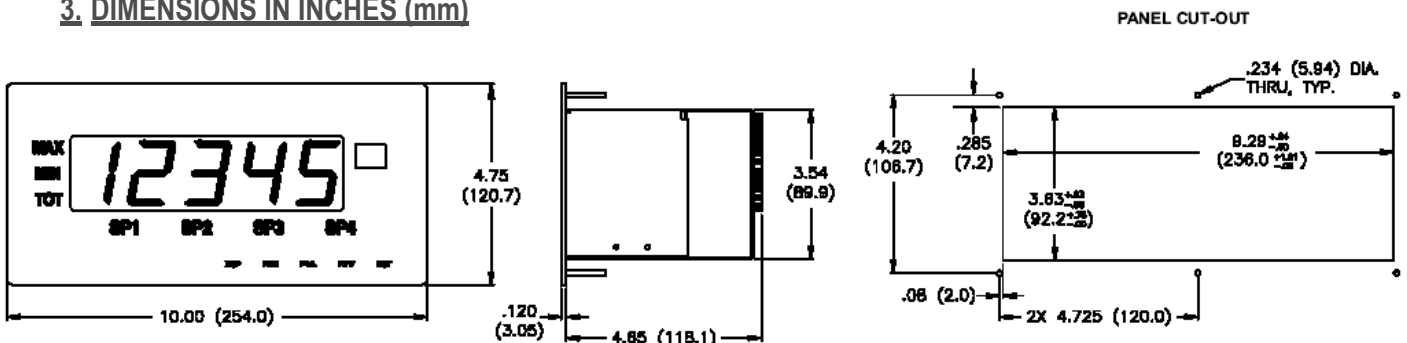


The protective conductor terminal is bonded to conductive parts of the equipment for safety purposes and must be connected to an external protective earthing system.



**CAUTION:** Read complete instructions prior to installation and operation of the unit.  
**CAUTION:** Risk of electric shock.

## 3. DIMENSIONS IN INCHES (mm)



## **4. SPECIFICATIONS**

Additional specifications, wiring, programming, and information for the individual MPAX models are contained in the corresponding standard PAX literature. This PAX literature is shipped with the ordered MPAX model.

### **4.1. Display**

1.5" (38 mm) Red LED  
5-Digit: (-19999 to 99999)

### **4.2. Power requirements**

AC Modules: 85 to 250 VAC, 50/60 Hz, 18 VA  
DC Modules: 11 to 36 VDC or 24 VAC  $\pm$ 10%, 50/60 Hz, 14 W

### **4.3. Input**

Accepts analog input modules, see "Selecting your display components."

### **4.4. Annunciators**

INDI MAXS0500: MAX, MIN, TOT, SP1, SP2, SP3, and SP4  
Optional units label with backlight

### **4.5. Keypad**

Five tactile membrane switches integrated into the front panel

### **4.6. Certifications and compliances**

UL Recognized Component, File #E179259, UL3101-1, CSA 22.2 No. 1010-1  
Recognized to US and Canadian requirements under the Component  
Recognition Program of Underwriters Laboratories, Inc.

UL Listed, File # E137808, UL508, CSA C22.2 No. 14-M95  
LISTED by Und. Lab. Inc. to U.S. and Canadian safety standards

Type 4 Enclosure rating (Face only), UL50

IECEE CB Scheme Test Certificate #US/7470A/UL

CB Scheme Test Report #03ME09282-08292003

Issued by Underwriters Laboratories, Inc.

IEC 1010-1, EN 61010-1: Safety requirements for electrical equipment for measurement, control, and laboratory use, Part 1.

IP65 Enclosure rating (Face only), IEC 529

### **4.7. Electromagnetic compatibility**

EMC specifications determined by the MPAX module.

### **4.8. 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

### **4.9. Mounting requirements**

Max. panel thickness is 0.375" (9.5 mm)

Min. panel thickness for NEMA 4/IP65 sealing is 0.060" (1.57 mm)

### **4.10. Module installation**

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

#### 4.11. 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.



**CAUTION: DISCONNECT ALL POWER BEFORE INSTALLING OR REMOVING MODULE**

#### 4.12. 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.

#### 4.13. Weight

2.7 lbs (1.2 kg) (less module)

### 5. ABOUT THE MPAX INPUT MODULES

The MPAX Module serves as the input to the INDI MAXS Display. There are several different modules to cover a variety of inputs. The MPAX module provides input scaling which allows the INDI MAXS to display most any engineering unit. Once the MPAX is inserted into the INDI MAXS, the unit has the same functions and capabilities of our PAX Series Intelligent Panel Meters. A full set of PAX programming instructions will be included with the MPAX Module.

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

### 6. SELECTING YOUR DISPLAY COMPONENTS

To build a complete display unit, you will need an INDI MAXS and an MPAX Input Module. The INDI MAXS 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 INDI MAXS Display that will satisfy your application.

SIGNAL TYPE	INPUT RANGES	MPAX MODULES *		INDI MAXS 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 $\mu$ A, 2 mA, 20 mA, 200 mA, 2 Amp Resistance 100 ohm, 1000 ohm, 10 K ohm	MPAXD000	MPAXD010	INDI MAXS0500
Process Inputs	0-20 mA or 0-10 VDC	MPAXP000	MPAXP010	INDI MAXS0500
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	INDI MAXS0500
Strain Gage/ Load Cell	24 mV or 240 mV	MPAXS000	MPAXS010	INDI MAXS0500
True RMS AC Voltage/Current	AC Voltage 200 mV, 2 V, 20 V, 300 V AC Current 200 $\mu$ A, 2 mA, 20 mA, 200 mA, 5 Amp	MPAXH000	N/A	INDI MAXS0500

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

## **7. OPTIONAL PLUG-IN CARDS AND ACCESSORIES**



**WARNING:** Disconnect all power to the unit before installing Plug-in cards.

### 7.1. Adding Option Cards

The MPAX series meters can be fitted with up to three optional plug-in cards. However, only one card from each function type can be installed at a time. The function types include Setpoint Alarms (PAXCDS), Communications (PAXCDC), and Analog Output (PAXCDL). The cards can be installed initially or at a later date. Each optional plug-in card is shipped with installation and programming instructions.

### 7.2. 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 RLCPro, a Windows® based program, the RS232 or RS485 Cards must be used.

PAXCDC1\* - RS485 Serial

PAXCDC4\* - Modbus

PAXCDC2\* - RS232 Serial

PAXCDC50 - Profibus-DP

PAXCDC30 - DeviceNet

\*Units available in various connector configurations.

### 7.3. Setpoint cards (PAXCDS)

The MPAX series has four setpoint alarm output plug-in cards. Only one of these cards can be installed at a time. (Logic state of the outputs can be reversed in the programming.) These plug-in cards include:

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

### 7.4. Linear DC output (PAXCDL)

Either a 0(4)-20 mA or 0-10 V retransmitted linear DC output is available from the analog output plug-in card. The programmable output low and high scaling can be based on the input, max, min, or total display value. Reverse slope output is possible by reversing the scaling point positions.

PAXCDL10 - Retransmitted Analog Output Card

### 7.5. Units label (LX)

The INDI MAXS 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 INDI MAXS Accessories Bulletin for a list of available units labels.

### 7.6. Programming software (SFPAX)

The SFPAX is a Windows® based program that allows configuration of the PAX meter from a PC. Using the SFPAX makes it easier to program the PAX meter and allows saving the PAX program in a PC file for future use. On-line help is available within the software. A PAX serial plug-in card is required to program the meter using the software.

## **8. 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 INDI MAXS case.



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

Prior to installing the INDI MAXS 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.

### **8.1. Installing the Option Cards**

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

### **8.2. Installing the MPAX**

To install the MPAX Module, align the module with the opening in the INDI MAXS case, as illustrated. The module must be oriented as shown, with terminal #1 toward the top of the INDI MAXS case. Carefully slide the module into the INDI MAXS case. The INDI MAXS and MPAX connectors will begin to engage about ¼" 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 INDI MAXS case. The display is ready for installation.

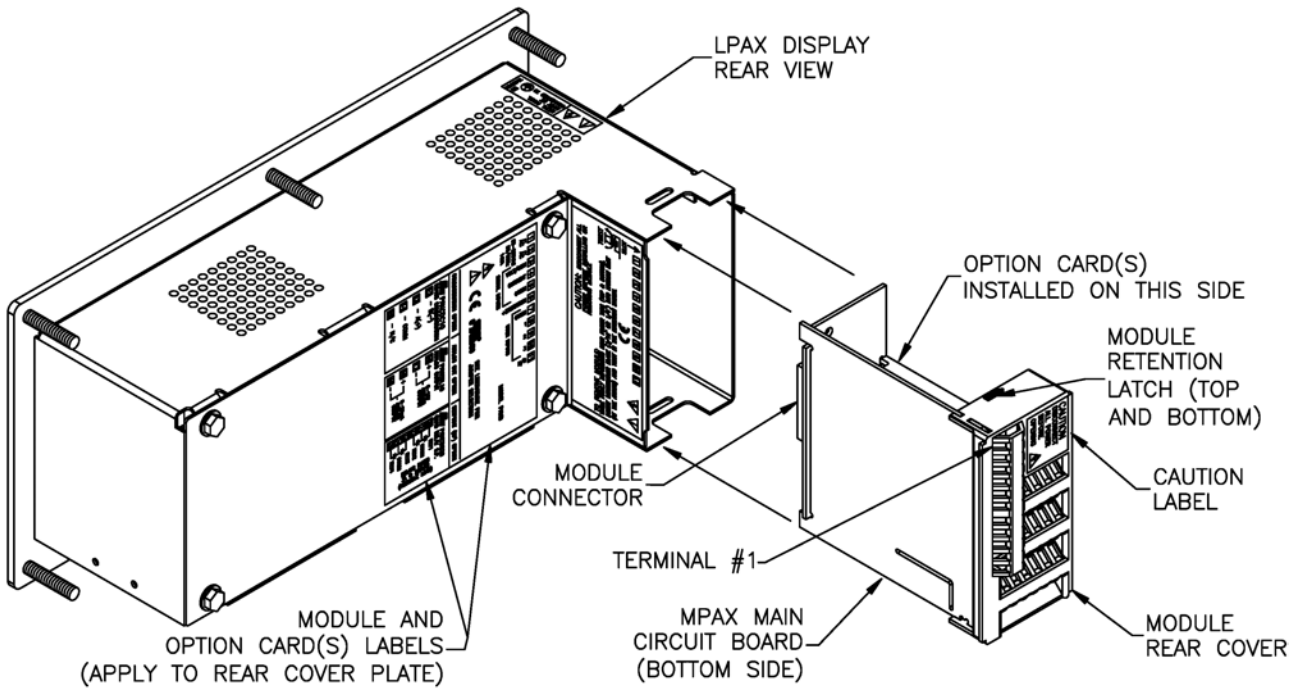
### **8.3. Installing the Labels**

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

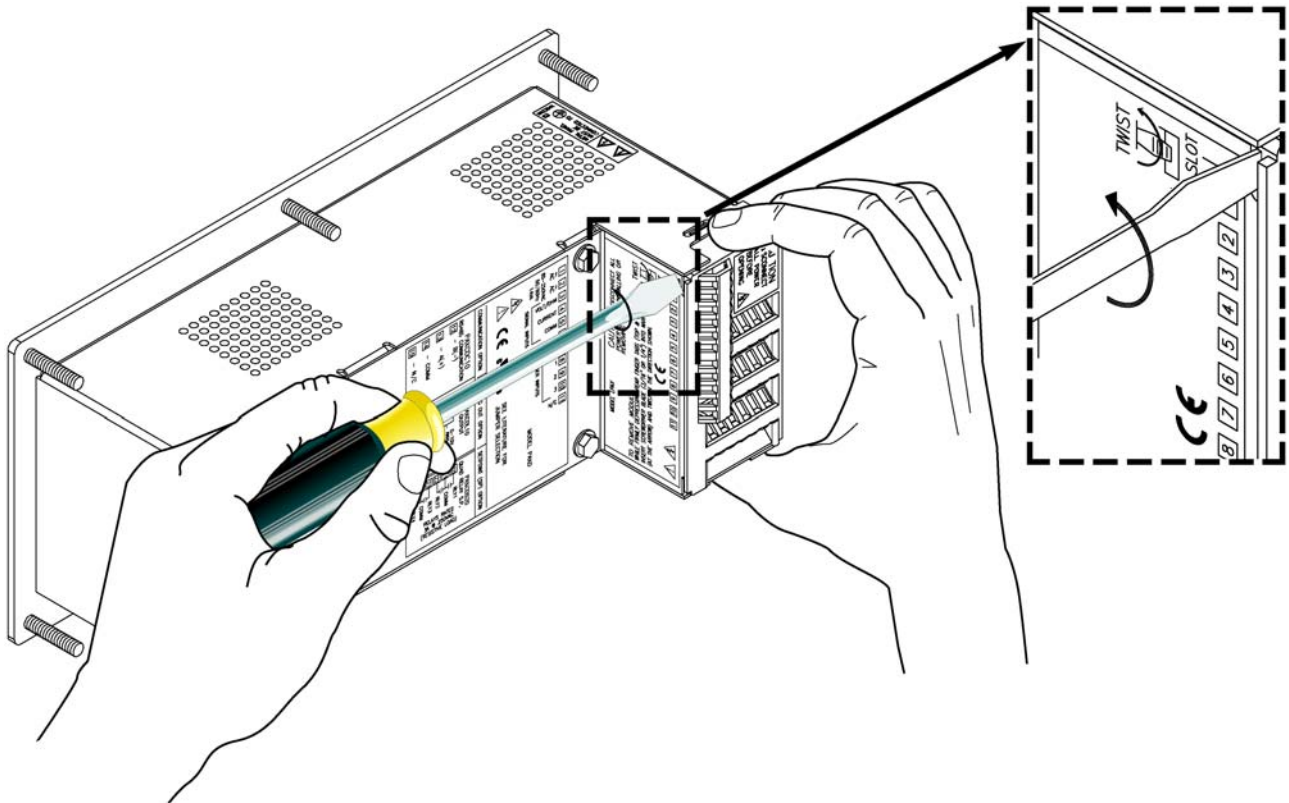
### **8.4. Removing The MPAX Module**

To remove the MPAX Module from the INDI MAXS 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 INDI MAXS 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 INDI MAXS case, keeping it properly aligned with the case opening.

8.5. Figure 1, Installing an MPAX Module and Option Cards



8.6. Figure 2, Removing an MPAX Module



## **9. INSTALLING THE DISPLAY**

### **9.1. INDI MAXS display installation**

The INDI MAXS 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 INDI MAXS can be surface-wall mounted, suspended, or bottom mounted. Separate installation instructions are provided with the mounting accessories.

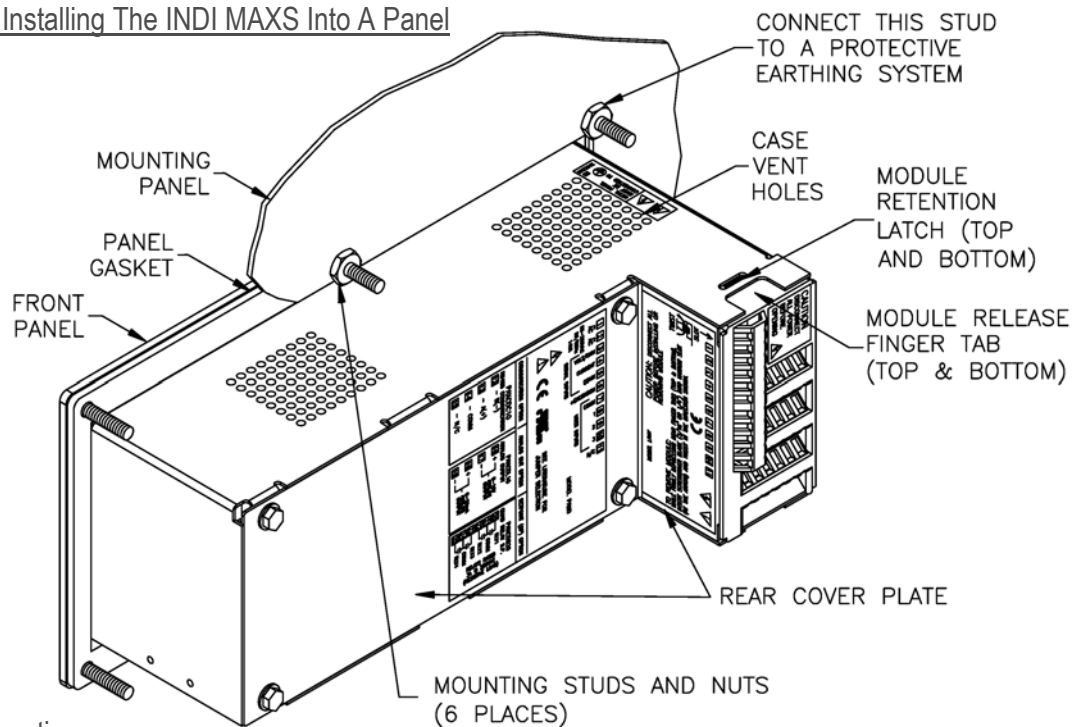
### **9.2. Environment and Cleaning**

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.

## **10. WIRING AND PROGRAMMING THE DISPLAY**

Once assembled, the INDI MAXS 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. Simply follow the instructions to wire and program the display for your application.

### **10.1. Figure 3, Installing The INDI MAXS Into A Panel**



### **10.2. Troubleshooting**

For technical assistance, contact technical support.