

# PMD 400 SERIES MASTER MESSAGE DISPLAYS

## FEATURES:

- 4 lines x 20 characters per line display
- Large 0.358" (9.1 mm) Character size, visible from 18 ft. (5.5 m)

## ADVANCED FEATURES:

- Stores approximately 175 80-character messages per 16K of EEPROM memory
- Internal data logger has battery-backed RAM for internal storage of over 3,000 messages
- Scroll, chain, blink, print, log, & center messages
- 115/230 VAC (standard), 24 VDC (optional)
- UL Listed
- CSA Certified
- FM Division I, Class 2, Groups A, B, C, D
- Front Panel: NEMA 12



The PMD 400 Series Programmable Message Display is designed to give you fast, accurate information when you need it most. The units give you maximum flexibility with minimum complexity. Because the PMD 400 Series is so flexible, it is used in a wide-variety of applications. And, since machinery, processes, and electronic equipment vary from application to application, there are numerous ways to enter information into and extract information from your PMD 400 Series unit.

The PMD 400 Series products provide information from your controlled process or automated operation. Simple ON/OFF signals from your PLC enable a PMD 400 to translate current conditions into plain language by selecting a preprogrammed message. Message information may be displayed on the PMD 400's alphanumeric display, sent to an on-line printer, stored in the PMD 400's data log, and/or sent to and displayed on slave message displays; such as: PMD 180S, PMD 200S, PMD 300S, slave marquee displays, such as the PMD 1100, PMD 1200, PMD 1205, or numeric marquees PMD 1404 and PMD 1406.

These products feature chaining, blinking, scrolling, printing, and centering messages. Hardware features include data logging, 115 chained-message queuing with prioritization capability, and the ability to program messages in U.S., English, Swedish, French, Danish, German, Cyrillic, and Japanese Kana international character sets.

Any ASCII terminal, PLC with an ASCII module, or personal computer with an RS-232C port can be used to program a PMD message display. Custom program development software (DOS-only, Part Number 10F50) provides the menus, prompts, and help screens that make message entry and editing easy... You can program your displays, online, off line, or while residing in a network. And, the message simulation feature lets you see your message, as it will appear on your PMD 400 Series display.

The PMD 400 Series comprises several versions, PMD 400, 450, 460, and PMD 480. If you are using a PMD 400 Series product with a PLC interface (PMD 450, 460, or 480), you need to be aware of the unit's scan time. The PMD 400 unit has a maximum scan time of 185 msec. The typical

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## MESSAGES CAN:

Display on masters	Scroll left or up
Display on virtually unlimited number of slaves	Blink words or characters
Display time, date, and variable data	Log with time/date stamp
Display punctuation as well as letters	Print
Be triggered by time of day	Chain messages (up to 115)

scan time is less than 185 msec between each triggered message to guarantee that the PMD 400 product will see the information. All four data sets can be changed within a single scan, but a data set cannot be changed twice within a scan of the PMD 400 display.

## THE PMD 400 SERIES VERSIONS ARE:

**PMD 400** PMD 400 Programmable Master Message Display is a compact, versatile 4-line display with 20 vacuum fluorescent 0.358" (9.1 mm) high characters per line. The front panel also features 16 configurable function keys and LEDs and a numeric keypad for complete operator interface. The back panel contains the connectors for interfacing to the unit.

## FEATURES INCLUDE:

**Messages-** The PMD 400 monitors two 16-bit registers to control messages. The first register is the Message/Data register and is used to select a message number. The second is the Control register and is used to determine when the message is triggered and to control the use of the other registers monitored by the PMD 400.

### **Data Sets-**

### **Using PLC Outputs to Control:**

PMD 400 can be configured to monitor up to four 16-bit registers to be used for variable data information in the PMD 400. Each word of PLC data is mapped directly into one data set. Each time the PLC data changes, the new PLC data will be put into the corresponding data set in the PMD 400. Note: Data sets are not mapped onto the display when the queue feature is enabled.

### **Controlling PLC Register:**

The PMD 400 can be configured to map up to four data set words directly into four registers in the PLC. Each time a data set changes in the PMD 400, it will be written to the corresponding register in the PLC.

**PMD Status-** The PMD uses one 16-bit register in the PLC to indicate the status of the PMD. Each time the register changes, it is rewritten to the PLC.

### **Circular Message Queue-**

A Circular Message Queue is available on all PMD 400 units equipped with a PLC interface. The Circular Queue is a feature that can be enabled or disabled. With the feature enabled a PMD 400 Series unit will cycle through the messages in the queue according to the display time associated with each message in the Display Mode. Each message is displayed according to its associated display time. Any function that affects the queue (add, delete, clear) will be ignored when the queue is disabled.

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## USING THE OPTIONAL PMD 400E EXPANDER MODULE BRINGS ADDITIONAL FEATURES (ALL MODELS EXCEPT PMD 480):

**LEDs-** When used with the optional PMD 400E Expander Module, the PMD 400 can be configured to monitor up to two 16-bit registers to be used for LED status in the PMD 400 Series. Each word of PLC data is mapped directly into one set of 16 LEDs. Each time the PLC data changes, the new PLC data will be put into the corresponding LED status in the PMD 400.

**Function Keys-** When used with the optional PMD 400E Expander Module, the PMD 400 Series can be used to map up to two sets of 16 function keys to up to two 16-bit registers in the PLC. Each time a function key is pressed, it sets the corresponding bit in the PLC. When the key is released, the bit is cleared.

## PMD 400 SERIES DISPLAYS WITH PLC-SPECIFIC INTERFACES:

**PMD 450** The PMD 450 is essentially a PMD 400, which directly interfaces to an Allen-Bradley PLC2, PLC3, or PLC5 through Remote I/O, Block Transfer, or Data Highway/Plus. Each of these modes operates independently from the other and the 450 can be configured to communicate using any one of them. It has all of the PMD 400 features, but the PMD 450 receives communications through twinaxial cable ("blue hose").

The PMD 400 Parallel Port and the associated Message Control terminals and the Power IN/Power OUT terminals have been removed and replaced by the PLC interface connector located on the bottom of the PMD 450.

**PMD 460** PMD 460 is very similar to the PMD 400. It contains an interface to Siemens/Texas Instruments Series 545 (and the 560, and 565 CPUs used in conjunction with the Siemens/TI RCC module) which have the RS-485 remote I/O module. The PMD 460 will appear as a RBC (Remote Base Controller) to the Siemens/TI PLC. The PMD 460 can also listen to an existing RBC and use the information from it.

The PMD 400 Parallel Port and the associated Message Control Terminals and the Power IN/Power OUT Terminals have been removed and replaced by the 9-position D-style PLC interface connector located on the bottom of the PMD 460.

**PMD 480** The PMD 480 has all of the PMD 400 capabilities, but contains support for a Genius Network Adapter (GENA) board which allows the PMD 480 to be configured as a node on the Genius I/O system. The PMD 480 can be configured as an I/O block on a Genius I/O system and will receive data from a bus interface module. A bus interface module is typically a PLC with a Genius bus controller module or a Genius Personal Computer Interface Module (PCIM) card installed in a personal computer. The PMD 480 will exist on the Genius I/O network as an I/O block broadcasting its inputs to the bus and reading the outputs sent to it by the bus controller.

The PMD 400 parallel port, message control terminals, and the VDC Power IN/Power OUT terminals have been removed and replaced by a right-angle, 8-position, removable terminal block located on the bottom of the PMD 480.

The PMD 480 must be configured to fit into the Genius network. The unit must have a unique serial bus address and it must be configured to use the same baud rate that is used by the bus controller module and the rest of the devices on the network.

# PMD 400 SERIES SPECIFICATIONS

## MECHANICAL

**Weight:** 7.6 lb. (3.4 kg)

**Housing:**

Rugged Black Aluminum Case

**Front Plate:**

NEMA 12  
NEMA 4X - Stainless Steel

**Dimensions:**

See drawing-inches (mm)

## DISPLAY

**Display Technology:**

Vacuum Fluorescent

**Lines:** 4

**Characters per line:** 20

**Character Height:**

0.358" (9.1 mm)

**Viewing Distance:**

18 ft. (5.5 m)

## ELECTRICAL

**Slave Port:** RS-422A

**Computer Port:** RS-422A

**Printer Port:** Parallel

**Terminal Block:**

**Serial Ports, Relay, and**

**Control:** Wire-Clamp screws for 18-22 AWG

**Power Input:** Wire-Clamp screws for 12-18 AWG

**PLC Connector:**

**PMD 450 (A-B)** Plug-in, 7-position terminal block

**PMD 460 (Siemens/TT)** 9-position female D-style connector

**PMD 480 (GE Genius I/O)** Plug-in, 8-position terminal block

**PMD 480 (Hand-held monitor)** 9-position male D-style connector

**Power Source:**

**AC Model (jumper select):**

115 VAC (102-132) 47-63 Hz, 22 VA  
230 VAC (194-250) 47-63 Hz, 22 VA

**DC Model:**

24 VDC (21.6-26.4), 18 W

**Electrical Interference:**

NEMA ICS 2-230 Showering Arc Test

**Electrical Tolerance:**

ANSI C37.90a-1974 (SWC)  
Surge Withstand Capability Test

## MEMORY

**Battery Life-OFF continuously:**

Typically 5 years  
(minimum 1 1/2 years)

**Memory Message Type:**

EEPROM (16K, 32K, 64K, 128K)

**EEPROM Life:**

Minimum 10,000 changes to a given location

**Memory Usage:**

Approximately 175 80-character messages per 16K Bytes of EEPROM

## ENVIRONMENTAL

**Temperature (Ambient):**

**Operational:**

32 to 140 °F (0 to 60 °C)

**Storage:**

-40 to +203 °F (-40 to +95 °C)

**Humidity:**

10 to 95% RH, Noncondensing

**Enclosure Rating:**

NEMA 12

