



PANEL METERS AND HMIs



PM1000 Digital Panel Meter

- 4 – 20 mA Loop Powered Input
- Bright 4 Digit LED Display
- High Accuracy, Low Cost
- IP65 Front Panel
- Compact Size just 48 x 24 mm



PM2000 Digital Panel Meter

- Current, Voltage, RTD & T/C Input Options
- 4 Digit Display
- High Accuracy
- Optional Dual Alarm Relays
- Optional 4-20mA Retransmission
- 24Vdc or 110 or 240Vac Models



PM3000 Touch Screen HMI with control functions

- 70 mm x 50 mm Touch screen Graphic display
- 4 Programmable Function Keys
- Built-in Analogue and Digital I/O
- 2 RS232/485 Comms Ports
- Optional Ethernet interface and extra I/O



Range of XP HMI's from LS Industrial

- Sizes from 5.7" to 12.1" Mono and Colour
- Touchscreens with Ethernet or RS232/485 ports
- USB ports on some models
- CF Memory card for data logging
- Drivers for Modbus and most PLC ranges



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July 2008



PANEL METER CONTENTS

Data Sheets

PM1000

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4 -20 mA Loop Powered
Panel Meter
4 Digit Display
Compact Size



PM2000 Series

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-HL mA and Voltage inputs
-RTD RTD inputs
-TC Thermocouple inputs
Optional Alarm Relays
AC or DC Supply



PM3000 Touch Screen HMI

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75mm x 50mm Graphic Display
4 Programmable Function Keys
Serial Ports CAN bus and optional
Ethernet connections



XP Series of HMI's

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A wide range of mono and
Colour touch screens with
Ethernet and RS232/485
Communications





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PM 1000

4 – 20 mA LOOP POWERED PANEL METER

- Bright 4 digit LED Display
- Loop powered drops <5 V
- Fully Push Button Programmable
- IP65 Front Panel seal
- High Accuracy, Low Cost
- Compact size just 48 x 24 mm
- 3 Year Warranty



Description

The PM 1000 Loop powered Panel Meter can be connected in series in any 4-20mA loop to provide a bright 4 Digit LED display in programmable engineering units.

Housed in a 48 x 24mm DIN standard panel mount enclosure the unit provides 10mm high LED digits of the value of the 4-20mA loop connected. The full scale and zero readings are easily programmed using the programming push buttons located on the rear of the unit.

The PM 1000 is the ideal way of easily providing a display of any 4-20mA loop.

Specifications	PM 1000
Input Current Range	4 – 20 mA
Resolution	0.01 mA
Input Volt Drop	< 5 V
Accuracy	+/- 0.1% of reading + 3 Digits
Temperature coefficient	100 ppm/degC
Display Update Rate	2 Hz
Input Resolution	16 bits
Display range	-1999 to +1999
Display Type	4 red digits 10mm high
Operating Ambient	-10 to +60 deg C
Relative Humidity	0 to 95 %at 40 degC
Dimensions	48 x 24 x 40 mm
Weight	50 g
Case Material	Polycarbonate s UL94 V-0
Panel IP Rating	IP 65



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PM2000

DIGITAL PANEL METER

- Current, Voltage, RTD & T/C Input
- 4 Digit Display
- High Accuracy
- Optional Dual Alarm Relays
- Optional 4-20mA Retransmission
- 24Vdc or 110Vac or 240Vac Models



Description

The PM2000 digital panel meter is a family of meters designed to display voltage and current signals, or 3 and 4 wire RTD, or 7 different types of thermocouples in engineering units. It is a microprocessor based instrument and is consequently easy to use. Each PM2000 has a display brightness control and min and max hold already included in the internal software.

There are also several options that can be included in a PM2000: Dual Alarms, Analogue output (4-20mA), Transducer power supply, transmitter power supply, Internal Calibrator, Root Extractor, Tare Function (for weighing applications).

The PM2000 has been designed for reliability in harsh environments. The front of the panel meter is rated with an ingress protection of IP65. The programming buttons on the front of the PM2000s are sealed membrane type allowing the unit to be kept clean by hosing or wiping down.

Inputs

Voltage Ranges:
0-100mV, 0-200mV, 0-500mV
0-1V, 0-2V, 0-5V, 1-5V, 0-10V

Current Ranges:
0-20mA, 4-20mA, 0-50mA, 10-50mA, 0-0.5A, 0-1A,
0-2A

RTD Inputs:
3 or 4 Wire -200.0 to +850 °C

Thermocouple Inputs:
Types E,J,K,N,R,T or Pallaplat

Optional Outputs

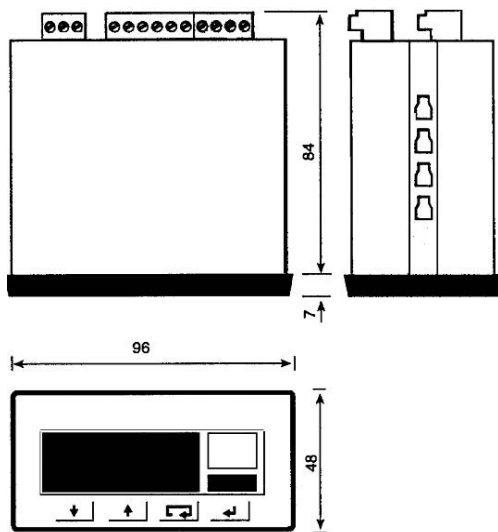
Analogue Output 4-20mA into 500Ω max

Dual Alarm Contacts:
SPCO Relay, 250V @ 5A ac and 30V @ 5A dc



Performance Characteristics

Parameter	Min	Typ	Max	Comments
Supply Voltage	10	24Vdc	35	99-132Vac or 198-264Vac 50/60Hz
Supply Power			4W	
Voltage Input Impedance		>1MΩ		
Current Input Impedance		<10Ω		
Accuracy		0.05%		0.1% for RTD or Thermocouple
Accuracy		± ½ digit		
Operating Ambient	0°C		55°C	
Relative Humidity	0%		90%	
Notes	Absolute maximum ratings indicate sustained limits beyond which damage to the device may occur.			



Installation Data

Mounting	Panel Mounting
Orientation	Any
Connections	Screw Clamp with pressure plate
Conductor size	0.5-4.0mm
Insulation Stripping	12mm
Weight	Approx 450g

Connection Details

Please refer to the operating manual for your PM2000 or contact us for more information.

Ordering Information

Please supply:

Part Number:	PM2000
Input Type:	Volt, mA, RTD, T/C
Input Range:	e.g. 0-10, 0-500°C
Power Supply:	DC, 110Vac, 230Vac

Output Option:	Yes / No
Alarm Output Option:	Yes / No
Transmitter Supply:	Yes / No



PM 3000

TOUCH SCREEN HMI WITH CONTROL FUNCTIONS

- 160 x 128 pixel 70mm x 50mm Graphic Touch screen display
- 4 Programmable Function Keys
- Built-in analogue & digital I/O
- 2 serial ports plus CAN port
- Micro SD Memory Card
- Add-on modules include Ethernet comms, GSM modem and extra I/O
- Very High Spec, Low Cost



Description

The PM3000 is a compact HMI with graphic touch screen and built-in control capability.

Suitable for both indoor and outdoor applications the unit is easily programmed using an IEC 61131-3 compatible PC software package and can be used in a wide range of small to medium control applications.

The unit has 4 fully programmable function keys which can be used to change the parameters displayed or as start/stop or control buttons. Other features included in the standard module are 4 different combinations of I/O, 2 serial ports, a CAN bus port and an up to 2GB microSD memory card which can be used for data logging, recipes or web pages.

An Ethernet option is also available as an add-on as is a GSM/GPRS or PTSN modem,

Inputs

DC/AC Current & Voltage

0-20mA, 4-20mA, into 100Ω
0-10V into 500 kΩ

Nominal Resolution	10 bits
Max over current	35 mA
Maximum Error	0.25% *
Filtering	160 Hz noise filter 1-128 scan running average filter

* Note: At 25 deg C digital filter set to 3

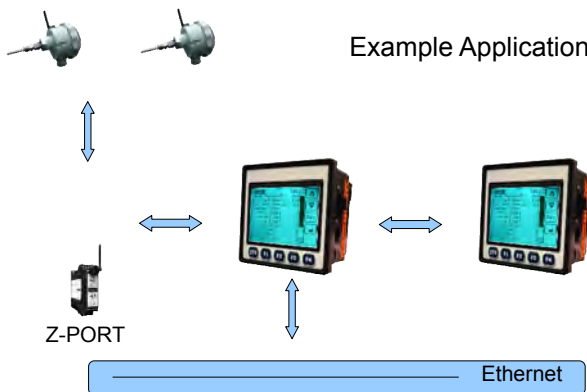
Digital DC Inputs

Inputs per module	12 including 4 HSC inputs
Input voltage range	12 or 24Vdc
Input impedance	10kΩ
Max upper threshold	8 Vdc
Min lower threshold	3 Vdc
Max Switching rate	10kHz totaliser/ pulse 5 kHz frequency

Digital Relay Outputs

Outputs per module	6 relay
Relay Rating	3A at 250 Vac resistive
Maximum total output I	5A continuous
Contact Isolation	1 kV
Life Expectancy no load	5 million switches
Max Switching rate	300 cpm at no load 20 cpm at full load

Example Application

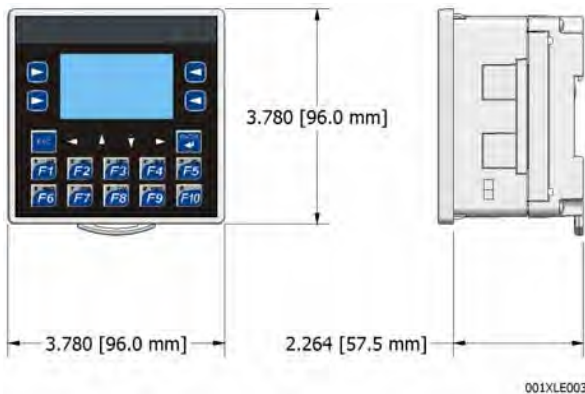


A ZigBee wireless network connects to a PM3000 via RS232. The PM3000s then display the data and make it available to an Ethernet network





Parameter	Min	Typ	Max	Comments
Supply Voltage	10	24V	30Vdc	
Supply Current (mA)			130 mA	For 24 V dc supply (30A for 1mS on start up)
Operating Ambient	-10		+60	Deg C
Relative Humidity	5%		95%	Non condensing
Clock Accuracy			+/- 1 minute	Per month at 20 degC
Serial Comms				RS232/485*
* Ethernet is an add-on option				



Installation Data	
Mounting	92mm x 92mm cut-out or TS35 DIN rail
Orientation	Any
Connections	Screw Clamp with pressure plate
Torque	0.5 to 0.78 Nm
Conductor size	0.5-4.0mm
Enclosure size	96 x 96 x 58 mm
Weight	Approx 340 g

Ordering Information

Model Number	I/O Expansion	Dig In	Dig Out	Analogue in	Analogue out	Temp Input	High Speed Counter	PWM Output	CANbus
PM3000-1	CsCAN/Modbus	12	6	4	No	None	4	No	1 port
PM3000-2	CsCAN/Modbus	12	12	2	No	None	4	2	1 port
PM3000-3	CsCAN/Modbus	24	16	2	No	None	4	2	1 port
PM3000-4	CsCAN/Modbus	12	12	2	2	t/c RTD	4	2	1 port