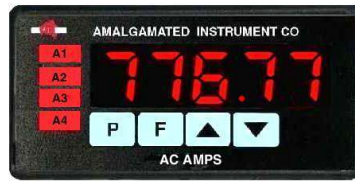# Intelligent PM4 Monitors
Model PM4-AI
True RMS measurement from AC Current input
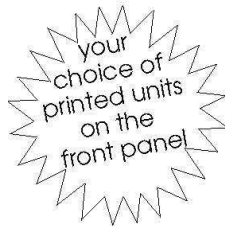

4 digit LED 20mm digit height

5 digit LED 14.2mm digit height

4 digit LCD 12.7mm digit height

your choice of printed units on the front panel

Circular graph and 5 digit display

20 segment bargraph and 5 digit display

Description

The PM4 series of process monitors is designed to meet a wide variation of user requirements.

The PM4-AI accepts AC current of 0-5Amps (lower ranges available to order). For currents above 5A an external current transformer (CT) will be required. The display value will be in true RMS.

A display setting allows access to the frequency of the incoming signal via the UP and DOWN button if required.

A special "DC" link setting allows DC components in the AC waveform to be taken into account or ignored when calculating the displayed value. The DC link also allows DC current measurement.

The instrument features flexible pushbutton calibration and programming. A programmable digital filter improves stability by smoothing out short term interference.

Each instrument is supplied with a single programmable control/alarm relay as standard.

The display can be toggled to show current or frequency via the front ▲ or ▼ buttons or via a remote switch input.

Optional outputs include additional relays, isolated DC voltage and isolated retransmission - analog (4-20mA, 0-1V or 0-10V) or serial RS232/RS485 with choice of ASCII or Modbus RTU protocols.

Electrical isolation between power supply, input signal and retransmission eliminates grounding and common mode voltage problems.

Features

- True RMS measurement
- 0-5 Amps AC range (lower ranges available on request)
- Display can be toggled to show current or frequency via front ▲ or ▼ buttons or remote input switch. Frequency display is scalable
- Pushbutton calibration and setup
- 240V, 110V, 32V, 24VAC, 12 to 48VDC or 50 to 110VDC operation (factory configured)
- 18VDC regulated transmitter supply
- Isolation between input/output/power supply
- Alarm/control relay output (5A) configurable as alarm or PI control
- 2 year guarantee
- Remote input for special functions including
  - peak/display hold
  - zero
  - display brightness control
- Wide range of options available:
  - Single or dual analog retransmission
  - Additional setpoint relays
  - RS232 or RS485 serial communications
  - Isolated transmitter supply 24VDC (±12VDC)

PM4AI-3.8-0

Specifications

Technical Specifications

Input (True RMS):	0-5 Amps AC
Impedance:	$<50\text{m}\Omega$ (typical)
Accuracy:	Current display 0.3% (5 to 100% of full scale when calibrated at the same frequency as measured, 30Hz to 10kHz range)
	Frequency 0.01% (5 to 100% of full scale current, frequency display range 10 to 500Hz)
Isolation:	2kV peak for 30 seconds, 250VAC RMS @ 50Hz continuous
Sample rate:	7.5 per sec
ADC conversion:	Dual slope ADC
Microprocessor:	MC68HC11 CMOS
Ambient temp:	LED models -10°C to 60°C, LCD models -10°C to 50°C
Humidity:	5% to 95% non condensing
Display types:	**LED models:** 4 digit 20mm, 5 digit 14.2mm,status LEDs and 4 way keypad. 20 segment LED bar graph, 5 digit display and 4 way keypad 16 segment circular "bargraph", 5 digit display and 4 way keypad **LCD models:** 4 digit digit 12.7mm
Power supply:	240, 110, 32, 24VAC 50/60Hz, 12 to 48VDC or 50 to 110VDC (factory configured)
Power usage:	AC supply 4 VA max, DC supply, consult supplier
Output (standard):	1 x relay, form A, rated 5A resistive
Relay action:	Programmable N.O. or N.C.

Output Options

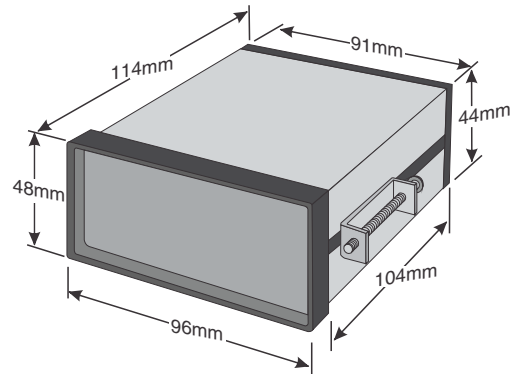|	
Extra relays:	1, 3 or 6 extra relays available
Retransmission:	Analog 4 to 20mA, 0 to 1V or 0 to 10V link selectable (single or dual channel versions) Serial RS232 or RS485, choice of ASCII or Modbus RTU protocols Digital Binary or BCD
DC voltage out:	Isolated 24V ($\pm$12V), 20mA

Physical Characteristics

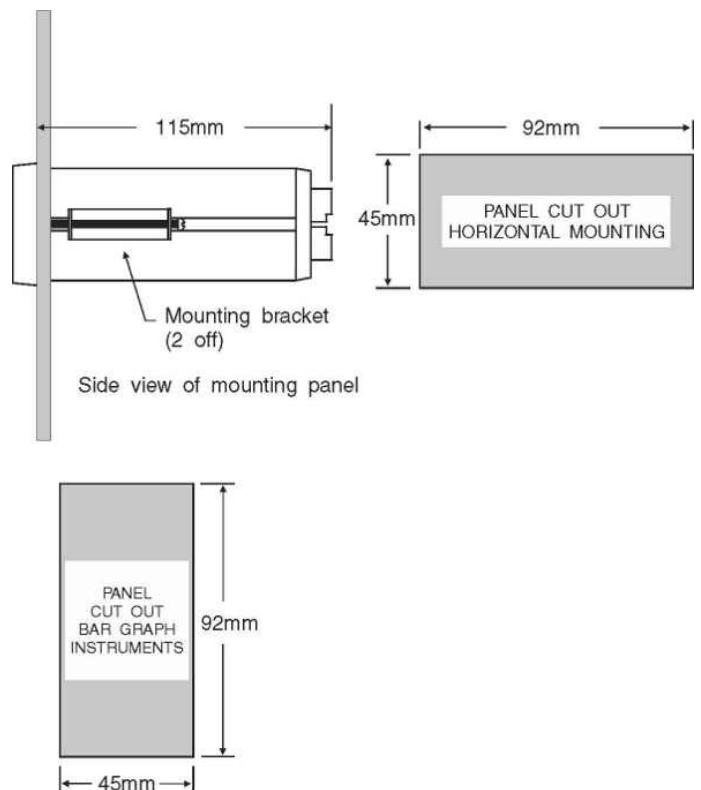|	
Bezel size:	DIN 48mm x 96mm x 10mm
Case size:	44mm x 91mm x 115mm behind face of panel
Panel cut out:	45mm x 92mm (+1mm & -0mm)
Connections:	Plug in screw terminals (max 2.5mm^2 wire)
Weight:	400g basic model, 450g with option card

PM4-AI Accessories

Description	Model No.
IP67 access cover	COVER-PM-IP67
Wall mount enclosure	ENC-PM1-02
IP65 wall mount encl. with IP67 cover	ENC-PM1-02-IPCOV
Surface mount kit	PM4-OPT-SMKIT
Portable/bench enclosure AC	ENC-PM-AC
Portable/bench enclosure DC	ENC-PM-DC

PM4-AI case dimensions

PM4-AI panel mounting details

Wiring diagrams and full operations manual are available from www.aicpl.com.au/pdf/pm4aiman.pdf.

PM4AI-3.8-0

PM4-AI order codes

The last section is for optional outputs, if required. (Note: only one of the optional outputs below can be fitted).

PM4-AI- ▭ - ▭ - ▭

Power supply
240	240VAC
110	110VAC
32	32VAC
24	24VAC
DC	12-48VDC isolated
DCH	50-110VDC isolated

Display type
4E	4 Digit 20mm red led
5E	5 digit 14mm red led with front pushbuttons & annunciators
6E	6 digit 14mm red led with front pushbuttons
5BP	Bargraph with 7.6mm red led and front pushbuttons
5GP	Circular bargraph with 7.6mm red led and front pushbuttons
4C	4 digit 12.7mm lcd
4CG	4 digit 12.7mm lcd with backlight
6C	6 digit 12.7mm lcd

Optional outputs
R	2nd setpoint relay
R12	2nd setpoint relay and 24V (+/- 12V) isolated transmitter supply
RRR	2nd, 3rd and 4th setpoint relays
R6	2nd to 7th setpoint relays (i.e. 6 extra relays)
12	24V (+/- 12V) isolated transmitter supply
A	Analog retransmission (isolated)
AR	Analog retransmission (isolated) and 2nd setpoint relay
ARRR	Analog retransmission (isolated) and 2nd, 3rd and 4th setpoint relays
AR12	Analog retransmission (isolated), 2nd relay and 24V (+/- 12V) isolated transmitter supply
A12	Analog retransmission (isolated) and 24V (+/- 12V) isolated transmitter supply
AR6	Analog retransmission (isolated) and 2nd to 7th setpoint relays
AA	Dual analog retransmission (isolated)
AAR	Dual analog retransmission (isolated) and 2nd setpoint relay
A2	Analog retransmission, 4-20mA only (isolated) and RS232 communications (isolated)
A2R	Analog retransmission, 4-20mA only (isolated), RS232 communications (isolated) and second relay
A4	Analog retransmission, 4-20mA only (isolated) and RS485 communications (isolated)
A4R	Analog retransmission, 4-20mA only (isolated), RS485 communications (isolated) and second relay
2	RS232 communications (isolated)
2R	RS232 communications (isolated) and 2nd setpoint relay
2R12	RS232 communications (isolated), 2nd setpoint relay and 24V (+/- 12V) isolated transmitter supply
4	RS485 communications (isolated)
4R	RS485 communications (isolated) and 2nd setpoint relay
4R12	RS485 communications (isolated), 2nd setpoint relay and 24V (+/- 12V) isolated transmitter supply
DN	Digital NPN 16 bit Binary/BCD retransmission
DNR	Digital NPN 16 bit Binary/BCD retransmission and 2nd relay
DN12	Digital NPN 16 bit Binary/BCD retransmission and 24V (+/- 12V) isolated transmitter supply
DNR12	Digital NPN 16 bit Binary/BCD retransmission, 2nd relay and 24V (+/- 12V) isolated transmitter supply
DP	Digital PNP 16 bit Binary/BCD retransmission
DPR	Digital PNP 16 bit Binary/BCD retransmission and 2nd relay
DP12	Digital PNP 16 bit Binary/BCD retransmission and 24V (+/- 12V) isolated transmitter supply
DPR12	Digital PNP 16 bit Binary/BCD retransmission, 2nd relay and 24V (+/- 12V) isolated transmitter supply
ABP	Analog retransmission bipolar output (-10V to +10VDC only)

Applications/input types available with panel mount display models

- Analog input, process transmitters etc. ±20mA, 4-20mA or ±2.5VDC or ±25VDC
- Pulse input, rate, total, count, grand total (encoders, switches, proximity sensors etc.)
- Rate, total from quadrature pulse input
- Liquid conductivity/resistivity/ppm
- pH/Redox (ORP)
- Loop powered displays
- AC current or AC voltage input
- Temperature - RTD, thermocouple, 4-20mA
- Weighing - 4 or 6 wire mV/V output loadcells
- Pressure measurement - 4 or 6 wire mV/V pressure sensors or 4-20mA analog transducers
- Liquid level measurement - 4 or 6 wire mV/V pressure sensors or 4-20mA analog transducers
- Serial input - RS232, RS485, Serial current loop for slave displays etc.
- Synchronous Serial Interface (SSI) for high accuracy position etc. measurement
- Binary, BCD or Gray Code input
- Real time clock with alarms
- Timer, elapsed time, stopwatch, run time etc.
- Auto/Manual station