



PM-1 Particle Monitor

Install on hydraulic & lube oil systems to monitor ISO Fluid Cleanliness Code

Eliminate bottle & dirty sampling port error with on-line particle monitoring

Ideal for dedicated in-line installations

Optional case & hose kit for field use

Large illuminated ISO Code display

Be Proactive Monitor Contamination

PM-1 allows you to recognize contamination level changes in hydraulic and lube oil systems. Monitoring on-line provides quick results and eliminates delay, error or potential doubt associated with bottle samples & oil analysis lab results.

Increasing ISO codes can indicate accelerated component or bearing wear, or symptomatic of some other issue such as insufficient filtration or breathers & worn seals.

Communication & Data Acquisition

PM-1 exports data to serial interface or optionally to a CAN-Bus (CANopen). In parallel, the configurable 4-20 mA interface can be connected. PM-1 operation based on time interval or start/stop with manual or digital input. PM-1 also has integrated data memory.

PM-1 Principle of Operation

PM-1 uses a laser to measure particle sizes and quantity by light extinction. A measuring cell is used to calculate corresponding voltage drop from the particles passing through the PM-1.

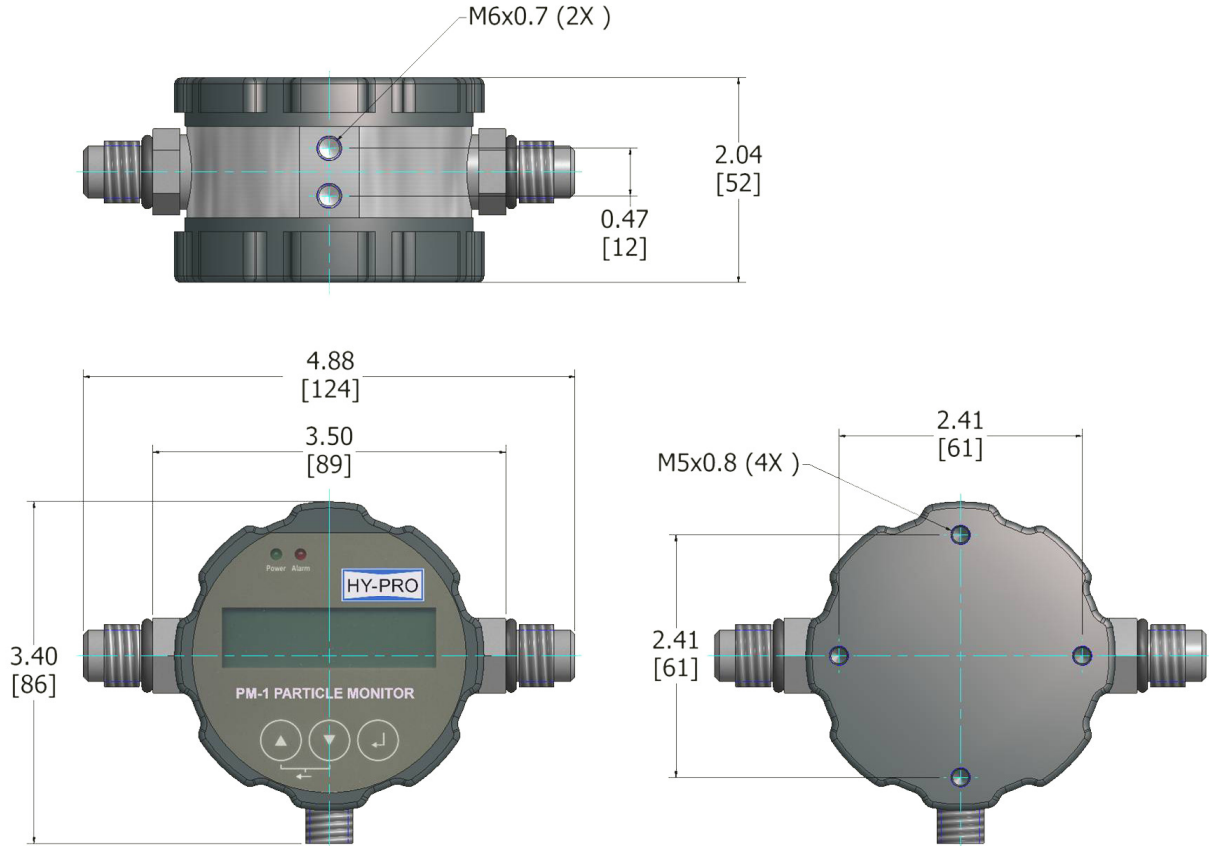
Pressure Range

PM-1 is designed for operating pressure up to 6,090 PSI / 420 BAR. For lower pressure lube oil systems alternative inlet & outlet fittings are available if the Minimess® standard connections are too restrictive.

Specifications

Display	ISO Cleanliness Code (per ISO4406:1999) particle counts 4, 6, 14, 21 $\mu\text{m}[\text{c}]$, SAE AS4059
Voltage	9 - 33 V
Operating Pressure	Up to 6,090 PSI / 420 BAR Dynamic
Protection Class	IP67
Flow rate	50 - 500 ml/min (require for operation)
Electric Connection	M12 x 1 (8 Pole)
Data memory	On-board 4MB storage capacity
Fluid Compatibility	Mineral oils and specified synthetics (phosphate ester by special option only)
Temperature Range	Oil: 14°F / - 10°C to +176°F / 80°C Air: 14°F / - 10°C to +140°F / 60°C (Storage: -4°F / - 20°C to +176°F / 80°C)
Interface	RS-232, Analog output 4-20 mA configurable, Digitaler digital alarm output, Digital input to start and stop readings

PM-1 DIMENSIONS & INSTALLATION DRAWING



ORDERING INFORMATION

Part Number	Description
PM-1	PM-1 particle monitor
*PM-1-PWRSUP-60	PM-1 electrical power supply for portable use (120vAC 1P 60Hz to 24 vDC)
*PM-1-PWRSUP-50	PM-1 electrical power supply for portable use (120vAC 1P 50Hz to 24 vDC)
PM-1-PWRCAB	PM-1 9-33 V power cable with M-12 x 1 (8 pole) connection 15 Feet / 5 Meter (power cable plus 1 x 8 pole connection for PM-1)
PM-1-HKIT-60	Portability kit for PM-1 (includes pelican case, sampling hoses for high pressure Minimesh & low pressure lube application adapters, outlet line flow control attachment, PM-1-PWRSUP-60 power supply (60Hz power) and PM-1-DAT data/power adapter.
PM-1-HKIT-50	Portability kit for PM-1 (includes pelican case, sampling hoses for high pressure Minimesh & low pressure lube application adapters, outlet line flow control attachment, PM-1-PWRSUP-50 power supply (50Hz power) and PM-1-DAT data/power adapter.
PM-1-BR	PM-1 back mounting bracket with rubber vibration suppression
PM-1-USB	USB adapter - RS232 serial
*PM-1-DAT	Data cable with open ends (5m length)
PM-1-FITLOW	Low pressure lube system fittings to replace standard Minimesh [®] inlet & outlet connections. Suitable for low pressure systems (< 29 PSI / 2 BAR) where achieving minimum flow index 50000 reading (50ml/min) is not possible.

*For PM-1 portable counting you must purchase the PM-1-DAT **AND** either the PM-1-PWRSUP-60 (for 60Hz) or the PM-1-PWRSUP-50 (50 Hz) to power the unit. The unit cannot be powered just with the PM-1-PWRSUP-50 or -60. The PM-1-DAT allows for connection to RS232 data port for data acquisition and download.



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