

ICM

In-line Contamination Monitor



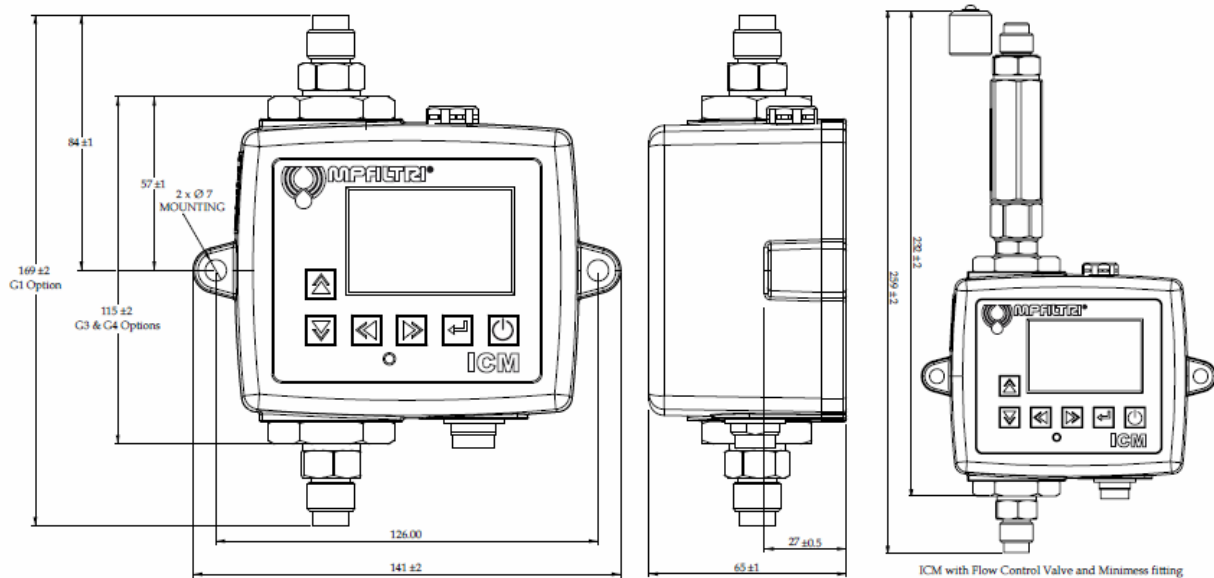
The ICM automatically measures and displays particulate contamination, moisture and temperature levels in various hydraulic fluids. It is designed specifically to be mounted directly to systems, where ongoing measurement or analysis is required, and where space and costs are limited.

- 8 channel contamination measurement & display
- Measures and displays the following international standard formats; ISO 4406:1999, NAS 1638, AS 4059E and ISO 11218
- Moisture and temperature sensing
- Data logging and 4000 test result memory
- Manual, automatic and remote control flexibility
- Multicolour LED and remote alarm signals
- Robust die cast aluminium construction
- LPA View software (included)

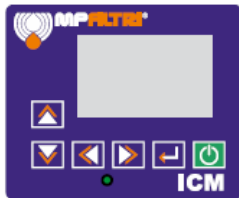


Installation

The ICM must be in a vertical orientation, with the oil flowing upwards through it.



K Keypad Option



K version



Non K version

M N S Fluid Compatibility

The ICM can operate across a number of fluid types. The fluid compatibility option meets the needs of most major hydraulic markets.

M = Synthetic, petroleum & mineral based fluids.

N* = Offshore and selected water based fluids.

S* = Phosphate Ester & Aggressive fluid applications**.

*Please note, the N & S versions are supplied with an anodised aluminium outer casing and are not available with water sensing option. The M version can be supplied with either a polyester vinyl paint or anodised finish. See specification table for more details. ** Consult MP Filtri.

R Relays



The ICM "R" option displays & operates over 8 channels comprehensively covering all of the applied standard formats. It allows fully customisable alarm settings and indicates these via a multicolour LED and/or remote devices.

Alarm Types

- Contamination codes and/or individual particle sizes
- Water content ● Temperature

* Note: When purchasing an "R" model, the alarms are factory set to off, and must be activated via LPA View

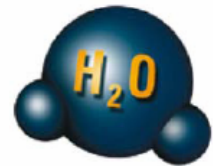
LED indicator colours

- - Test OK
- - Lower cleanliness level exceeded. Upper limit ok
- - Upper cleanliness level exceeded
- - Upper water content limite exceeded
- - Red/Blue alternating indicates cleanliness and water limit have been exceeded
- - Upper temperature limit exceeded

W Water and Temperature Sensing

The ICM "W" option indicates water content as a percentage of saturation and oil temperature in degrees centigrade. 100% RH corresponds to the point at which free water can exist in the fluid. i.e. the fluid is no longer able to hold the water in a dissolved solution. The sensor provides early indication of costly failure due to free water, including but not exclusive to;

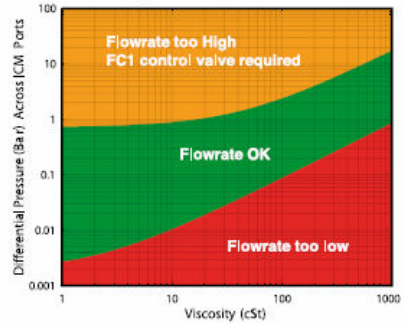
- Corrosion
- Metal surface fatigue e.g. bearing failure
- Reduced lubrication & load carrying characteristics



Specification

Technology	LED Based Light Extinction Automatic Optical Particle Counter	Test Time	Adjustable 10 - 3600 seconds. Factory set to 120 seconds	Outer Casing Finishes	Anodised Aluminium (dark grey) Polyester Vinyl Paint (light grey)
Particle Sizing	>4,6,14,21,25,38,50,70 µm(c) to ISO 4406 1999 Standard	Moisture Sensing	% RH (Relative Humidity) ±3%	Wetted parts	M - C46400 Cu alloy, 316 stainless steel, viton, FR4, sapphire. N - 316 stainless steel, viton, sapphire. S - 316 stainless steel, perfluoro elastomer, sapphire.
Analysis Range \ Formats	ISO 4406: 1999 Code 0 to 25 NAS 1638 Class 00 to 12 AS4059 Rev.E. Table 1&2 Sizes A-F: 000 to 12 ISO 11218 00-12 (Lower Limits are Test Time dependent)	Temperature Measurement	±3°C		
Accuracy	± ½ code for 4, 6 14µm(c). ± 1 code for larger sizes.	Flow rate measurement	Indication only		
Calibration	Each unit individually calibrated with ISO Medium Test Dust (MTD) based on ISO 11171 (1999), on equipment certified by IFTS.	Data Storage	4000 tests.		
Operating Flow Rate	20 - 400 ml/minute	Comms Port	RS485, RS232, MODBUS		
Viscosity Range	≤ 1000 cSt	Ambient Temperature min/ max	-25°C to 80°C non K version -25°C to 55°C K version		
Fluid Temperature	-25 to +80 °C	IP Rating	IP 65/67 versatile		
Pressure Max	400 barg. * For high frequency pressure pulse applications contact MP Filtri Ltd	Weight	1.15kg		
		Electrical Supply	Voltage 9-36V DC		
		Supply Current	12V 24V 36V		
		Basic Unit	70mA 40mA 30mA		
		With -K (Keypad)	150mA 80mA 60mA		
		Power Consumption	<2.2W		

Differential Pressure vs Fluid Viscosity, for various flow rates.



Optional Related Products

ICM "USBi" Connector

The USBi transmits power and allows the ICM to communicate with a PC or laptop. Where customers wish to wire to external devices the USBi has an extra terminal block inside for this purpose. An external DC adaptor can be used to power the complete system, or if a computer is always connected during use, the ICM can be powered directly from the USB cable.

How to order
Order 1 x ICM-USBi



ICM-RDU

The ICM RDU (Remote Display Unit) is advantageous when the ICM is out of reach or in a location unsuitable for viewing. The ICM can also be controlled via the RDU.

*Note; Installation dimensions are the same as the ICM.

How to order
Order 1 x ICM-RDU



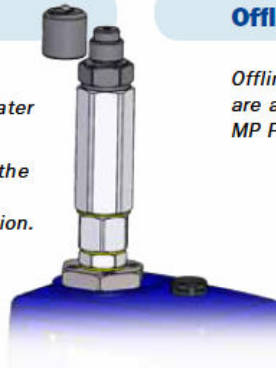
ICM-FC1

A pressure compensated flow control valve specifically designed to fit the ICM. This may be needed if the application produces an oil flow greater than 400ml/min through the ICM.

ICM-FC1 - is supplied with adaptors which enable the valve to be fitted to the ICM. The valve outlet port has a minimess fitting installed as a standard option.

Max Pressure - 400barg
Usable Flow Range - 4barg to 400barg ΔP

How to order **Order 1 x ICM-FC1**
For alternative connection types contact MP Filtri



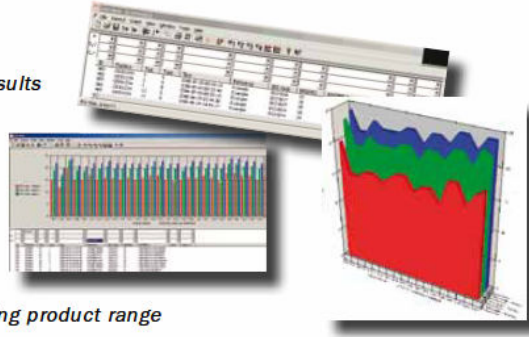
Offline Filtration Units

Offline filtration units with integrated ICM are available – please consult MP Filtri for further information

LPA View Software

When connected to LPA View, the ICM can transfer results in realtime, or alternatively historical results can be downloaded from the ICM's inbuilt memory.

- Runs on Windows 2000, XP, Vista and Windows 7.
- Full adjustment & control of product settings, test times and alarms
- Easy test report generation
- Trend analysis
- Graphical display options
- Universal format across our contamination monitoring product range



How to Order

Example: ICM - W - M - K - R - G1

ICM W M K R G1

ICM Can be used as a standalone product or can be controlled by an external PC, PLC or the ICM-RDU Remote Display Unit. 3m control cable supplied as standard.

W Water and Temperature Sensing
* For high frequency pressure pulse applications contact MP Filtri.
Enter W if required, or 0 if not.

M Mineral Oil Fluid Compatibility.
N Offshore and selected water based fluids*.
S Phosphate Ester and aggressive fluids*.
* Consult MP Filtri. Note: N and S models are supplied with anodised outer case and are not available with water sensing option.

K Keypad – Adds 6 key keypad and 128 x 64 pixel back-lit graphical display.
Enter K if required, or 0 if not.

R Relays. **Enter R if required, or 0 if not.**

Port Options

G1 ICM complete with minimess connections M16 x 2.

G3 1/4" BSP Ports.

G4 7/16" UNF.

Warranty and Recalibration

Warranty The ICM is guaranteed for 12 months from date of receipt.

Re-calibration The ICM is recommended to be recalibrated every 12 months.

Return to MP Filtri for recalibration.

As a policy of continual improvement, MP Filtri reserve the right to alter the specification without prior notice.

Caution

Hydraulic systems contain dangerous fluids at high pressures and temperatures. Installation, servicing and adjustment are only to be performed by qualified personnel. Do not tamper with this device. Do not use this product outside the parameters specified in this document & other related literature.



AUTHORIZED REPRESENTATIVE



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