



### Subsea ICM

The ICM unit is designed to be permanently mounted on an ROV or other subsea hydraulic system to continually monitor the hydraulic system fluid for both particulate and water contamination.

The ICM presents its results via 2 simple 4-20mA outputs; one represents the NAS cleanliness standard, the other % RH (Relative Humidity).

Detailed cleanliness information is also available via an RS485 serial data interface.

The RS485 interface also provides comprehensive control & setup together with detailed fluid status information on a continual basis to the ROV control system for ultimate performance.

The ICM can operate as a stand-alone unit requiring only 24V, storing tests to its 4000 sample memory. To aid Deck & ROV operators a basic GO / NO GO indicator is clearly visible on the outside of the unit which can be monitored by an ROV camera.

The ICM can be set to continually or periodically conduct tests with pre-set pass parameters or conduct individual tests when commanded by an RS485 link or digital pulse from the ROV.

The ICM is compatible with common ROV hydraulic fluids either mineral oil or synthetic based.

Water Glycol version available – contact your local MP Filtri branch for further information.

### Features & Benefits

- ◆ Prevents unseen minor faults from developing into major contamination problems
- ◆ Provides precision fluid cleanliness results and pass / fail data for electronic maintenance records
- ◆ Several modes of operation depending on availability of spare ROV data or analogue channels
- ◆ Can operate as a stand-alone unit with only 24V power from the ROV
- ◆ Inbuilt memory stores cleanliness test results for periodic download
- ◆ Adjustable sample periods & test durations and triggered tests for pre & post dive checks
- ◆ Visual indication of the pass / fail or low flow for viewing on deck or subsea via an ROV camera
- ◆ 24V Power, interface via 4-20mA inputs or RS485 serial data link to the supplied surface software
- ◆ Lightweight titanium unit weighing 4.2 kg in air and 2.3kg in seawater
- ◆ Rated for use to 4000m water depth



**...because contamination costs!**

### CMP

other Contamination Monitoring Products in our range



**Filtration, accessories and B.H. coupling products**



### Technical data

<b>Technology:</b>	Precision LED Based Light Extinction Optical Contamination Monitor
<b>Particle Sizing:</b>	>4, 6, 14, 21, 25, 38, 50, 70 µm(c) to ISO 4406:1999 Standard
<b>Analysis Range:</b>	ISO 4406:1999 Code 0 to 25., NAS1638 Class 00 to 12 AS4059 Rev. E. Table 2 Sizes A-F : 000 to 12
<b>Reporting Formats:</b>	ISO 4406:1999, ISO 11218, NAS1638 AS4059E Table 1 or 2
<b>Accuracy:</b>	±½ ISO code for 4, 6, 14µm(c), ±1 code for 21, 25, 38, 50, 70 µm(c)
<b>Test Time:</b>	Adjustable 10 - 3600 seconds (default setting 120 seconds)
<b>Moisture &amp; Temperature:</b>	% saturation (RH) and fluid temperature ( °C)
<b>Data Storage:</b>	Approximately 4000 time stamped tests in ICM internal memory
<b>Operational Modes:</b>	<ol style="list-style-type: none"> <li>1) Power only from ROV and unit pre-set for automatic monitoring. Results recalled at the surface by laptop accessing the data storage.</li> <li>2) Power from ROV, digital signal from ROV to trigger measurement. LED on ICM will indicate Pass (green), Fail (red) or Low flow (amber).</li> <li>3) Power from ROV and automatic or manual trigger (as per 1 or 2 above) but with 2 x 4 - 20mA outputs monitored by ROV inputs &amp; displayed on GUI</li> <li>4) Serial data control via ROV mux channel to surface for control &amp; continuous viewing of test data via the supplied software.</li> </ol>

### Mechanical / Environmental

<b>Size:</b>	120mm Diameter x 200mm Long
<b>Weight:</b>	4.2kg (air) 2.3kg (sea water)
<b>Temperature:</b>	Ambient - 4 to + 60 °C Fluid Temp - 4 to + 60 °C
<b>Depth:</b>	4000msw
<b>Material (housing):</b>	Titanium Ti-6Al-4V with 316 Stainless Steel hydraulic ports
<b>Hydraulic Connections:</b>	Inlet / Outlet Ports Interface: ¼" BSPP(F)

### Hydraulic Fluid Data

<b>Fluid Types:</b>	Hydraulic Mineral Oil HLP to DIN51524 Part 1 to 3 Compatible Synthetics such as Panolin, OEST BSH 46, Kluber GH6 Typical Operational Viscosity Range: 12mm <sup>2</sup> /s to 320 mm <sup>2</sup> /s
<b>Flow Rate:</b>	20 - 400 ml/minute
<b>Fluid Pressure:</b>	Max 400 Bar Absolute 0.5 Bar required between Inlet & Outlet Ports

### Electrical Interface

<b>Data:</b>	RS485 Serial Interface to included software or Modbus I/O
<b>Analogue Outputs:</b>	2 x 4 - 20 mA outputs individually represent overall NAS Class & % RH
<b>Digital Input:</b>	1 x Digital / Switch Input to optionally remotely trigger the ICM unit
<b>Power Requirement:</b>	9V to 36V DC, 40mA @ 24V
<b>Power &amp; Data Connector:</b>	8 way Male Subconn Micro

For further product information, please visit [www.mpfiltri.co.uk](http://www.mpfiltri.co.uk) or your local MP Filtri branch.

## CMP

other Contamination Monitoring Products in our range



ICM



CML2



LPA2



Atex ICM



ACMU

**Filtration, accessories and B.H. coupling products**



Offline units

and more..