

Description

The Subsea ICM unit is designed to monitor mineral oil or water based glycol fluids and can be permanently mounted subsea on a closed hydraulic circuit or fluid transfer system to continually monitor the fluid for both particulate contamination, temperature and water contamination (mineral oil only).

Detailed cleanliness information is available via an RS485 or RS232 serial data interface via the host subsea system. Alternatively the ICM can present its results via 2 simple 4-20mA outputs; one represents the NAS cleanliness standard, the other % RH (Relative Humidity).

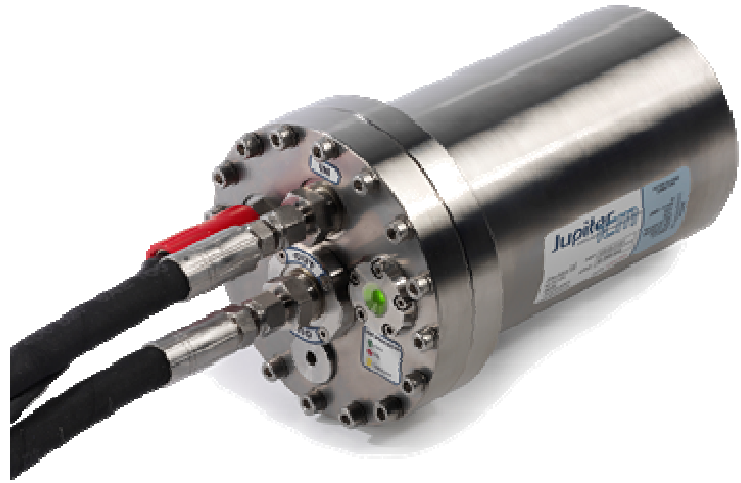
The RS485/RS232 interface also provides comprehensive control & setup together with detailed fluid status information on a continual and real time basis to the surface control system for ultimate performance.

The ICM can operate as a stand-alone unit requiring only 12V or 24V, and data logging/storing 4000 time and date stamped sample readings in its memory.

On deck the operators can see a basic GO / NO GO indicator which is clearly visible on the outside of the unit which can if necessary also be monitored by a remote camera.

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

The ICM is compatible with common hydraulic fluids either mineral oil or synthetic based and approved for many Water Glycol versions of fluid - contact Zetechtics for further information



The leaders in subsea control

Zetechtics are world leaders in subsea control systems for ROV Intervention tooling to the oil and gas energy markets, providing proven industry solutions many of which are continually working in high integrity applications.

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 host system data or analogue channels
- Can operate as a stand-alone unit with only 12V or 24V power from the host system
- 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 video camera
- Interface via 4-20mA/ inputs or RS485/RS232 serial data link to the supplied surface software for real time viewing
- Lightweight titanium unit weighing 4.2 kg in air and 2.3kg in seawater
- Rated for use to 4000m water depth

System Specification

Monitoring Performance

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

Mechanical / Environmental

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

Hydraulic Fluid Data

Fluid Types:	Hydraulic Mineral Oil HLP to DIN51524 Part 1 to 3 Compatible Synthetics such as Panolin, OEST BSH 46, Kluber GH6 Water Based Glycol Fluids – Contact Zetechtics for list of approved fluids. Typical Operational Viscosity Range: 12mm ² /s to 320 mm ² /s(max 1000cst)	
Flow Rate:	Ideal 20 - 400 ml/minute	
Fluid Pressure:	Max 400 Bar Absolute	0.5 Bar required between Inlet & Outlet Ports
Electrical Interface:	8 way Male Subconn Micro (Double Seal)	
Data:	RS485 Serial Interface to included software or Modbus I/O or RS232 Serial Interface	
Analogue Outputs:	2 x 4 - 20 mA outputs individually represent overall NAS Class & % RH	
Digital Input:	1 x Digital / Switch Input to optionally remotely trigger the ICM unit	
Power Requirement:	12V to 34V DC, 190mA @ 24V	