



QMI
MULTIPLEX

Oil mist detection systems

- Improved engine room safety
- Improved plant and asset management
- Improved investment protection

Oil Mist -an explosive issue

At one time, many of our customers only took a close look at oil mist monitoring after they had experienced an engine explosion. But today it is far more widely appreciated how rapidly oil mist can build to dangerous levels and how speed is all-important in dealing with the threat.

Oil mist usually occurs as a result of engine wear. When worn and inefficiently lubricated metal surfaces make contact, the abrasive force generates heat. Oil hitting such hotspots within an engine is literally boiled, giving rise to oil mist. The larger the area of engine damage, the greater the level of oil mist. Pressurised fuel passing directly into the crankspaces through worn piston rings or failing pistons also causes oil mist.

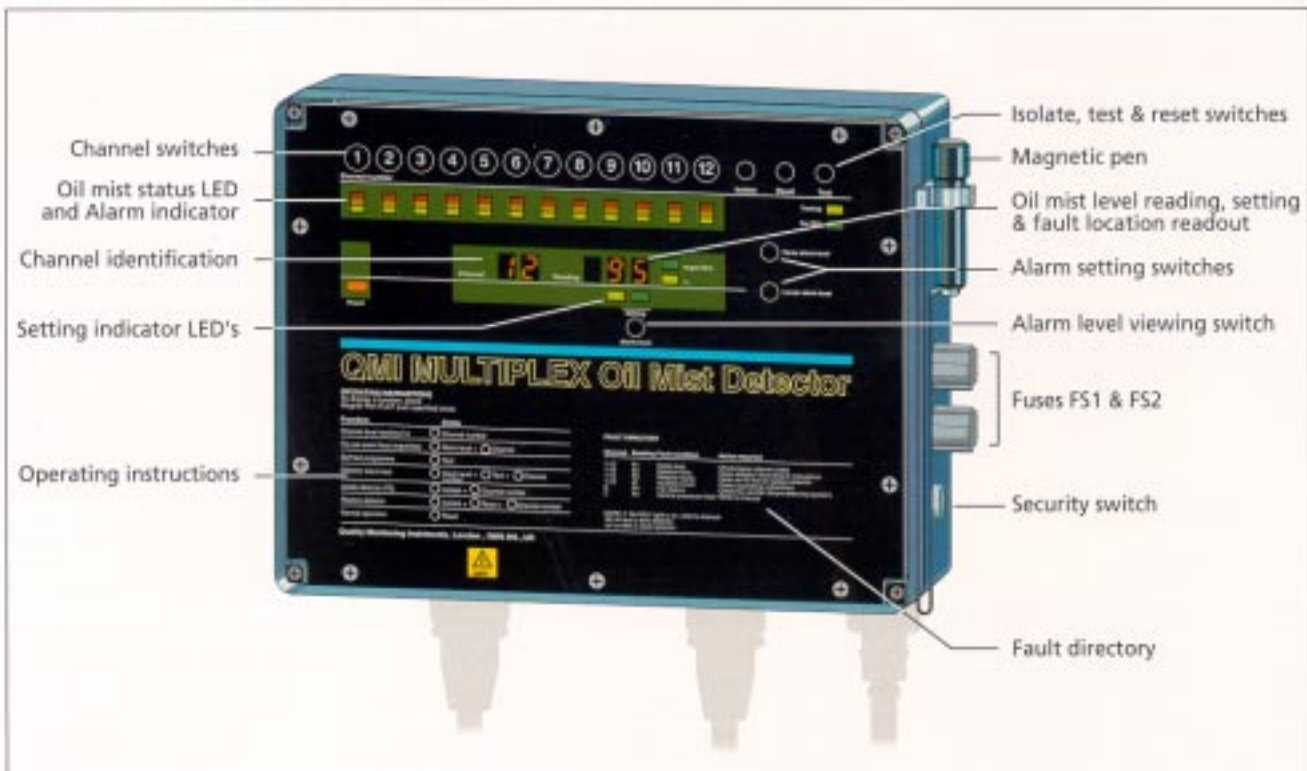
Should the level of oil mist within an enclosed space, such as a crankcase, rise to approximately 50mg/litre and the temperature reach above 200°C, there is a serious risk of an explosion and fire. At the very least, a major engine failure will occur. Both plant and shipboard diesel engines are at risk.

Such events have far reaching repercussions in today's complex commercial world - delays, loss of revenue, consequential loss, possible injuries and fatalities, soaring insurance premiums...the list is endless.

Timely information is crucial

Real world pressures mean downtime must be avoided at all costs. They also mean that in most cases, there are fewer people supervising the performance of engines and plant. The increase in UMS and crew downsizing means greater reliance on automatic systems to deliver a prompt warning of potential oil mist problems. Increasingly such systems make it possible to discover when and where engine wear is taking place. By accurate measurement of oil mist levels well below the critical levels and logging readings on a regular basis, engineers can see which readings are increasing and take timely remedial action. Confidence in the readings enables the crew to plan ahead for scheduled maintenance procedures. Essential in such a system is its ability to self-monitor problems such as a dirty lens or wiring fault and so avoid unnecessary alarms and shutdowns. QMI's commitment to development provides leading edge systems to deliver these important benefits.

QMI monitors meet the stringent conditions imposed by marine standards agencies, including Lloyds Register, Bureau Veritas, Det Norsk Veritas, Rina and the American Bureau of Shipping.

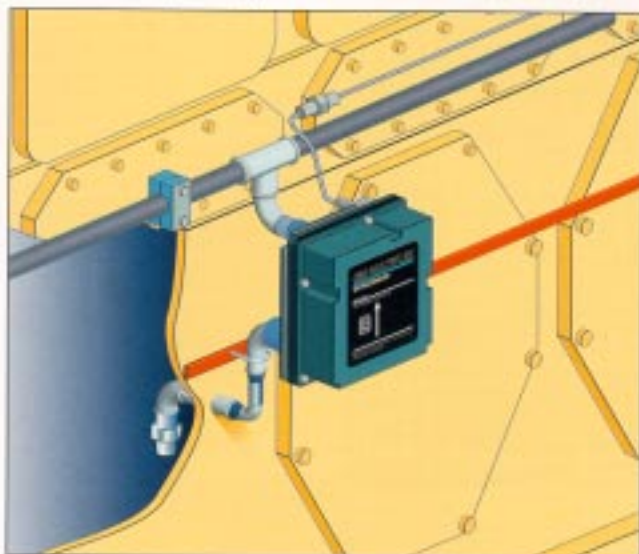


Two levels of protection from the hazards of oil mist

QMI ENGINE DETECTOR

For crankcases, gear and chain cases, pumps, compressors, gear boxes, and thrust bearing housings.

QMI's well proven crankcase monitoring solution for marine and land-based diesels checks up to 12 detection points simultaneously and continuously and is really fast - capable of raising the alarm within half a second! This performance is achieved through sensors mounted at source, on the crankcase, with an independent fan or ram jet designed to circulate crankcase oil mist.



- Monitor mounted in the control room or bridge well away from any danger zone.
- Microprocessor powered monitor shows oil mist density status for each sensor, with green/amber/red indicators, supported by digital readout for highest actual level of oil mist.
- Two stage alarm: early warning and main alarm, together with slow down/shut down facility. For sensors, the system does not rely on obscuration measurement, or compressed air which, when dirty, can cause numerous false alarms.
- Self Diagnostic Instrument fault finding system differentiates between engine failure and system error thus eliminating false alarms.

The QMI system, using light scatter as the sensing method, allows monitoring at source. This avoids long pipework and ensures fast and accurate readings are obtained. The system works from a true zero and requires no calibration.

Alternatives to oil mist monitoring such as imbedded bearing temperature sensors are slow response devices due to the cooling effect of both oil and material mass and cannot be used to monitor the upper part of the crankcase. Early stages of wear / damage are not detected resulting in more serious situations occurring before remedial action can be taken.

QMI ATMOSPHERIC DETECTOR

For all machine rooms with fuel, lubricating or hydraulic oil lines; engine rooms, purifier rooms, bow thrusters, and steering gear.

New QMI equipment to detect oil mist in the atmosphere extends the protection provided by the QMI Multiplex system, or can be used as a stand-alone solution in sensitive operating environments



Oil mist escaping from injectors and leaking fuel or hydraulic pipes can gather in engine and machine room spaces. At the least, it creates a mess which has to be cleared up; at the worst it presents a fire risk. Actual ignition can be caused by many factors, including exhaust pipes, turbochargers non flameproof motors and static electricity.

The Atmospheric Oil Mist Detector can work independently or with the Engine Detectors within an integrated system. Dispersed around a vessel, within the air flow of rooms, atmospheric detectors can provide a warning before smoke detectors are activated at the start of a fire.

- System reports to the QMI Multiplex monitor.
- System may augment existing QMI crankcase monitoring equipment or be used as a stand-alone solution with up to 12 detectors.
- Detector with integral fan is housed in an aluminium case on a universal mounting bracket.

QMI Multiplex Engine and Atmospheric Oil Mist Detectors - a winning combination.



Seatrade AWARDS

1997

Safety at Sea



QMI Multiplex Oil Mist Detection Systems lead the way with...

Machinery and Atmospheric detectors

No False Alarms • Easy to install • Solid State

Continuous Monitoring • 500m/second response time

Secure and tamperproof • High technology solutions

One or more engines - each with shutdown facility

Data logger; computer interface

Spares ex stock - low cost

...Meeting the needs of these and many other customers

A.C.L • Shell • Maersk • P & O • Uglund



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