Keeping engines and machinery spaces safe for 30 years
Protect your engine

- No false alarms
- In-built diagnostics
- Multi-channel monitoring
- Easy to install
- Detectors pre-calibrated
- Detection in 500 milliseconds
QMI Oil Mist Detection for engines and machinery spaces

For engine crankcases, gearboxes, pumps, compressors and thrust bearing housings, QMI’s proven monitoring solutions can check up to 12 detection points simultaneously and continuously to provide reliable, unambiguous detection of oil mist fire hazards.

Detectors are mounted at source, with an independent fan to draw the oil mist through the detector.

The QMI Engine Detector uses a proprietary light scatter technology to measure and monitor oil mist at source. This avoids the use of lengthy pipework to ensure fast, accurate readings.

QMI equipment is pre-calibrated and performs better than embedded bearing temperature sensors, which deliver slow response times due to the cooling effect of oil and material mass.

These types of systems have proven to be ineffective when monitoring the upper part of a crankcase. And early stage wear and tear is not detected resulting in an increased risk of an oil mist fire.

QMI Technology solves these problems to provide accurate, reliable detection.

OIL MIST CAN DESTROY AN ENGINE WITHIN SECONDS
Don’t miss Atmospheric Oil Mist

Quality Monitoring Instruments (QMI) has been at the vanguard of engine and machinery space fire protection since pioneering oil mist detection systems in the early 1980s.

The need to monitor the accumulation of oil mist in an engine’s crankcase and machinery spaces was first recognised when it was confirmed by P&I Clubs that up to 65% of all ship fires are the result of pressurised fuel and lubricating / hydraulic oil droplets collecting in the atmosphere.

This fine, highly flammable mist of between 1μm and 10μm is produced at surface temperatures of between 200°C and 600°C, while droplets greater than 50μm are typically produced from pinhole leaks in a pressure line.

In an open machinery space, oil mist or spray of any droplet size must be treated as a potential fire risk and appropriate detection systems in place to safeguard ships’ crew and equipment before it becomes a MAIB incident.

QMI provides class-approved systems to provide immediate warning to operators of the build up of oil mist in the engine crankcase, machinery and machinery spaces.

QMI TRIPLEX is the practical answer for oil mist monitoring in areas where only one, two or three detectors / sensors are required. QMI Triplex can be used with engine detectors or atmospheric sensors.

QMI MULTIPLEX can monitor up to 12 engine detectors or atmospheric sensors.

Typical sources of atmospheric oil mist includes:
- Leaking injectors
- Fractured flexible hoses
- Loose or incorrectly fitted pipe fittings
- Broken welds
- Poor maintenance of machinery and pipe work

Typical sources of ignition includes:
- Exhaust pipes
- Turbochargers
- Non-flameproof motors
- Electrical contacts
- Static electricity
- Faulty wiring

IT’S A FIRE STARTER!
Prevent compartment fires before they happen

- Proven technology
- Fast response times
- No need to calibrate
- No spurious alarms
- Easy to maintain
QMI Atmospheric Detection for machinery spaces

QMI Atmospheric Detection Systems are for all machine rooms with fuel, lubricating or hydraulic oil lines. The QMI Atmospheric Detection System sense oil mist in the atmosphere from leaking injectors or fuel and hydraulic oil lines to safeguard personnel operating machinery against the risk of fire and/or explosion. The system works independently with atmospheric sensors or engine detectors to provide complete integrated oil mist detection capability.

There are four factors in determining the optimum position for oil mist sensors:

1. Size of room or chamber: the fan in the sensor has a throughput of 0.65m³ per minute. In a large room, more sensors will allow a faster response. Also, dispersal of oil mist will be greater in a larger space and will require more careful positioning of sensors in the path of airflow.

2. Air circulation: if a space has only one vent then the sensor placed near this vent will be able to sample the air extracted from the room. However, if there is more than one vent or point of extraction a sensor is best placed in each path of air being drawn from towards each of these vents.

3. Proximity: the sensor should be placed downstream of the airflow around a potential source of oil mist. The closer the sensor is to the machinery, the faster the response time should be.

4. Sources: each piece of machinery or potential oil mist source should have a sensor installed immediately down-stream of the airflow to ensure the fastest response possible.

Triplex and Multiplex monitors incorporate a 'traffic light' system on each channel to ensure that operators know on first glance if there are hazardous concentrations of oil mist in the engine crankcase.

- **Green**: Your engine is operating within safe limits of your oil mist alarm setting.
- **Amber**: Oil mist is reaching unsafe levels. Reduce engine load and investigate as soon as possible.
- **Red**: Main alarm sounds and if configured engine will shut down.

**WHEN THERE IS AN ALARM THERE IS A PROBLEM**
How QMI Oil Mist Detection System works

- A back plate fitted to the engine incorporates inlet and outlet ports to allow oil mist to travel to an internal chamber which then guides the oil mist past light scatter sensors, transmitting signals to an internal monitor through a single cable.
- Detectors sample continuously every 500 milliseconds.
- The Multiplex Oil Mist Detection System has been designed to monitor up to 12 engine detectors or atmospheric sensors.

Multiplex Technical Specifications

<table>
<thead>
<tr>
<th>Specification</th>
<th>Details</th>
</tr>
</thead>
<tbody>
<tr>
<td>Power Supply</td>
<td>Nominal 110V or 230V 50/60Hz</td>
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<tr>
<td>Power Consumption</td>
<td>100W</td>
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<tr>
<td>Sampling Channels</td>
<td>12</td>
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<tr>
<td>Response Time</td>
<td>500 milliseconds</td>
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<tr>
<td>Measuring System</td>
<td>Multiplex analogue</td>
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<tr>
<td>System Outputs</td>
<td>Main Alarm, Early Warning Alarm, Engine Slow Down,</td>
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<tr>
<td></td>
<td>Fault Alarm</td>
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<tr>
<td>Unit Weight</td>
<td>10kg</td>
</tr>
<tr>
<td>Monitor Dimensions</td>
<td>403 x 312 x 130 mm</td>
</tr>
</tbody>
</table>

QMI Light Scatter Technology

Schematic diagram showing principle of nephelometry

- Conventional oil mist detectors are susceptible to spurious alarms and respond slowly to oil mist changes.
- QMI were the originators of the use of Light scatter (Nephelometry) technology for the use of detecting oil mist instead of light obscuration to provide 100% alarm reliability.
- All components are manufactured in Europe according to ISO standards.
- QMI has adapted its technology for use with smaller engines that are not required by Class to have oil mist detection systems.

QMI’s award-winning detection system provides a 500 milliseconds response time when detectors are correctly mounted and can monitor up to 12 engine detectors or atmospheric sensors.
- QMI technology can detect the release of oil mist and help prevent fires before they begin.
Quality Monitoring Instruments’ class-approved Oil mist Detection Systems are protecting over 300 marine assets for some of the world’s leading shipowners and operators. Our reference list includes:

ABC Maritime  Core Marine  Orient
ACL  D’Amico Tankers  OSG
Aegean Oil  De Beers  P&O Cruises
Admiralty Shipyards  Dubai Shipping  P&O Ferries
A P Moller  Dunya Shipping  Parakou Shipping
Alcoa  Enfield FPSO  Perkins Diesels
Anglo Eastern  Eurasia  Polar Tankers
Andromeda Shipping  Everard  Primorsk
Aramco  ExxonMobil  Princess Cruises
BAE Systems  Fire Protection Association  Pronav
Barclay  Fred Olsen Lines  Rolls Royce
Bergesen  GM Management  RCCL
BG Group  IMT  Royal Navy
Bibby  James Fisher  Seabulk Tankers
BP Shipping  K Ships  Shell
British Columbia Ferries  K Y Heavy  Sinochem
Brostrom Tankers  KGS Denizcilik  SK Shipping
Byzantine Marine  LGR di Navigazione  Stena
Canadian Coast Guard  Liquimar Tankers  Stolt Nielsen
Carnival Cruises  Maersk Shipping  Teekay
Coastal Ship Management  Manx Power  Total
Ceres LNG  Mediterranea di Navigazione  V Ships
Chevron Oil  Norship  Wallenius Lines
Color Line  Novoship  Yardimici
COSCO  RWE

The Leaders in Atmospheric & Engine Oil Mist Detection Systems

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