OFD-1
OIL ON WATER ALARM

A microprocessor-controlled instrument for the detection of oil-on-water. This unit uses a pulsed laser beam to measure the reflected light from the water surface, when an oil film is present the level of reflected light is increased which is detected by a solid-state light detector. This increased level is shown on a 4 – 20 mA output and a relay contact change over.

Typical applications include:-

- Surface water discharges going to river.
- Detection of oil leakage from oil interceptor tanks.
- Effluent discharges to sewer.
- River water abstraction and return for cooling/process.
- River abstraction for drinking water.

Features:

- On-line continuous measurement of sample
- Non-Contact with sample
- Large 16x2 dot matrix Liquid Crystal Display
- Integrated key pad and easy menu navigation
- User friendly layout for ease of maintenance
- Long life components reducing cost of ownership

Outputs:

- Isolated 4-20 mA (max 500 ohms load)
- Alarm relay set point (non-latching)
- Utility alarm relay for loss power/light source
- All relay contacts rated at 0.5 Amp 125-volt ac

Measuring Principle

The sensor unit is installed above the water surface up to a maximum of 1500 mm, this distance will vary depending upon the amount of disturbance of the water surface. The pulsed laser light is aimed directly onto the water surface; a small amount of light is reflected back from the water surface to a mirror which focuses as much of the reflected light as possible to the solid-state detector. When an oil film is present the amount of reflected light is greatly increased, this increase in signal is shown on the LCD display on the control unit and is also mirrored out on the analogue output. In addition, there is a high alarm set point which can be set as a percentage and when this is breached the high alarm relay is activated. The sensitivity of this alarm can be changed by setting the period of which the high level is activated before the alarm relay is operated. This allows for small traces of oil to pass under the unit without causing the high alarm to be triggered. It is also possible to adjust the amount of damping on the measured signal to help compensate for ripples on the water surface; the unit is virtually immune from giving false alarms due to floating debris such as leaves or twigs.

There is a common system fault alarm which will be triggered under the following conditions: -

■ Failure of laser light. ■ Failure of communication to measuring head. ■ Loss of power.

■ Floating debris stuck under measuring point.

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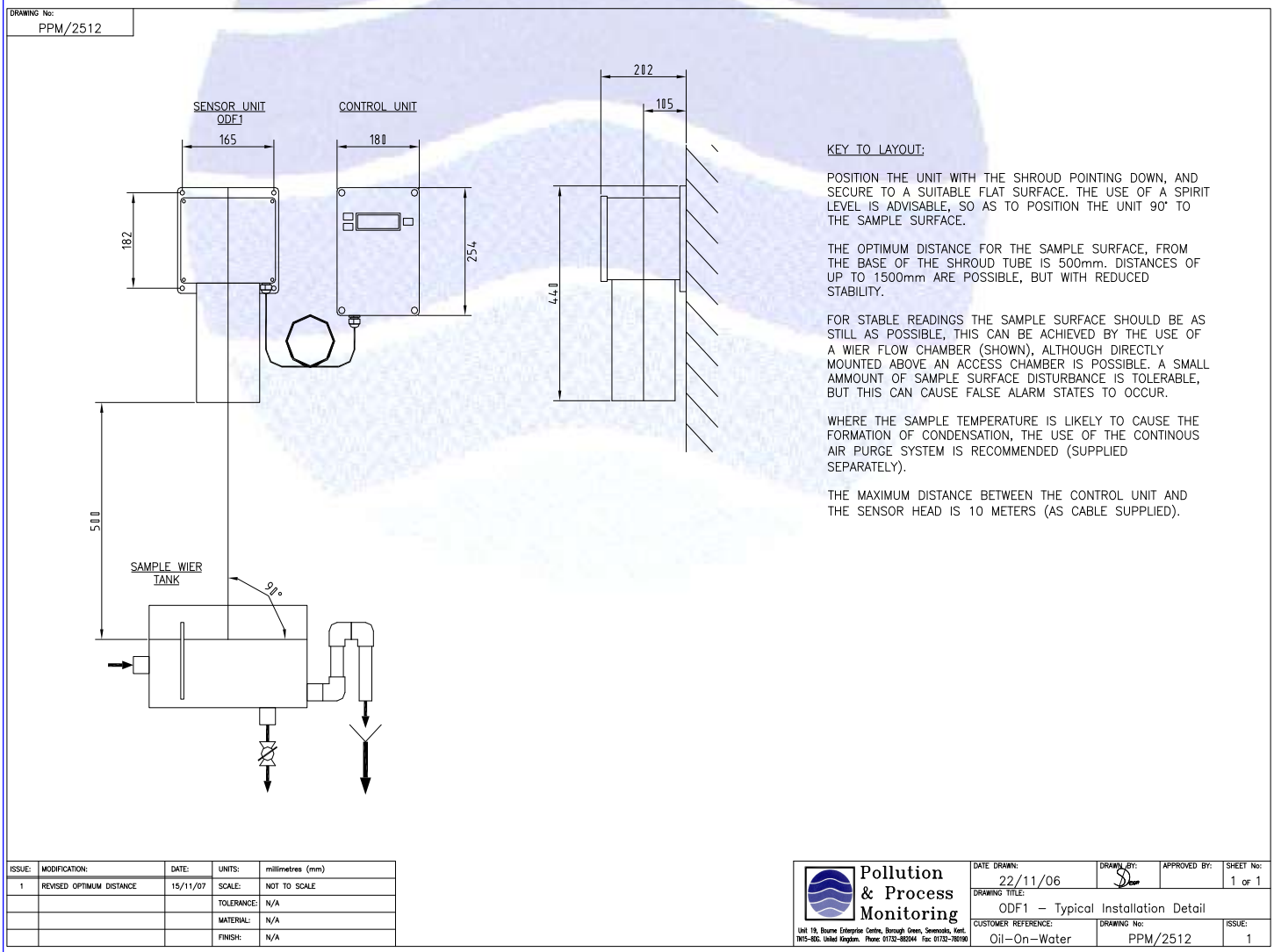
Specification

- **Detection of oil film from 1 micron thickness**
- **Response time within seconds**
- **Alarm relay contact change-over rated at 0.5Amp 125 volt ac**
- **Ambient temperature from -5 to 40 deg C**
- **Separate box for controller with terminals for user interface and housing a 24 volt DC PSU, requires mains power from 100 to 250 VAC**
- **Power consumption 8VA**
- **Sensor dimensions; Height 440mm Width 180mm Depth 202mm Weight 5.8Kg**
- **Controller dimensions; Height 254mm Width 180mm Depth 90mm Weight 1.3Kg**
- **GRP case protected to IP64**

Typical Layout



PM is committed to continuous product development; the right therefore is reserved to change the specification without notice.