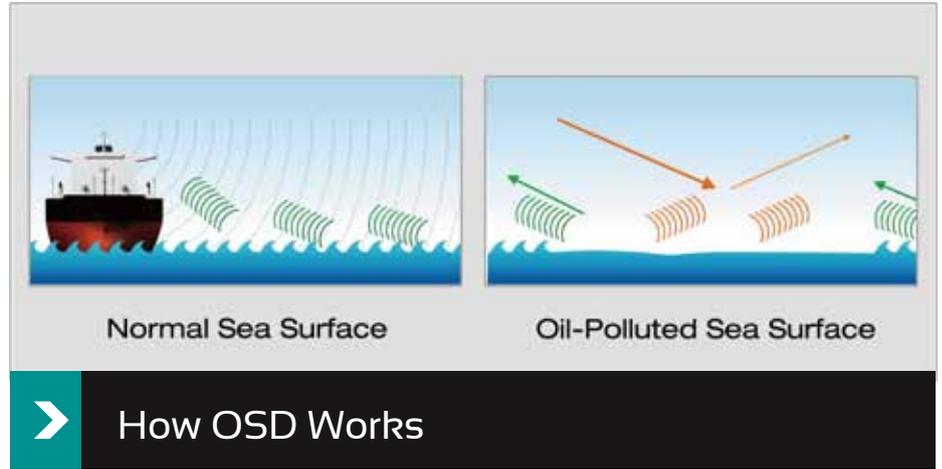


Oil Spill Detection System

Increasing Demand for Environmental Protections is Promoting the Importance of Oil Spill Detection Systems

Introduction

The devastating April 2010 British Petroleum oil spill in the Gulf of Mexico was one of the worst environmental disasters in that region's history. It was not the first and will not be the last. Oil pollution in the open ocean can be caused by many sources, though the most common are cargo leakage or discharges, crude leakage from wells, and fuel leakage from ships. Petrochemical pollution of this sort devastates the marine and coastal ecosystems it affects. Governments are therefore taking decisive actions to address such accidents in as quick and effective a manner as possible.



What is an oil spill detection system?

An oil spill detection system (OSD) is used to monitor and give early warning of the spread of oil across the open ocean. OSD systems may be installed on ships, drilling or well rigs, or onshore surveillance stations. OSD systems work by collecting digitized images of the sea surface and then utilizing directional wave spectra to estimate sea surface currents. Marine X-band radars, satellite monitors, or video cameras may all be used to collect these images, but because of its economy and efficiency, X-band radar technology is the most commonly used. Areas covered by oil reflect less of the image spectrum due to the dampening of the sea surface capillary waves, leaving areas

contaminated by oil rendered as dark areas in the returned surface images.

Customer's impression following their in-house evaluation

“After some simple preliminary software testing followed by a more rigorous system test, we are left with the impression that Moxa's MC-5150-AC/DC will satisfy all CCRs and PCR's.”

Marine Technical Case Study



Oil Spill Detection System Architecture

Oil Spill Detection system architecture and requirements

The basic OSD configuration contains:

- Radar sensors (antennas, transceivers)
- OSD processor units
- Controls (local or remote)

X-band radar is used to produce sea clutter images that allow the OSD to detect distant oil spills, even in the dark. This enables skimming operations to function around the clock.

The OSD processor is the heart of the oil spill detection system, the place where raw information from the radar is collated with information received from navigation devices such as GPS, the gyrocompass, the speed log, and AIS. This information must be received over NMEA 0183 interfaces, and then processed in real time for immediate display. Due to the massive amount of highly varied real-time data that will be received, the OSD processing units will require high performance CPUs

capable of handling a heavy data load, and which will serve reliably in a wide variety of extreme temperatures, humidity, and other environmental conditions.

Once the OSD processor has collated and prepared the data for visual representation, it must then display the information in a user-friendly, graphical format showing the oil spill area, spill thickness, velocity of the spread, and other crucial information to aid in the cleanup operation.

Why Moxa?

1. Integrated IEC 61162-2 type-approved NEMA 0183 terminal interface
2. Type-approved marine computer meeting rigorous international standards
3. High performance, fanless, heat-tolerant enclosure
4. Reliable components with an industry-leading MTBF
5. Fast turnaround on service response and component repair

Product Highlights

MC-7130-MP

ECDIS computer with 3rd Gen. Intel® Core™ i3-3120ME 2.4GHz processor



MC-5150 series

ECDIS computer with 1st Gen. Intel® Core™ i5-520E 2.4GHz processor



MD-124 / MD-119

24/19-inch wide screen marine display with advanced viewing optimizations



MPC-122-K

ECDIS panel computer with Intel® Core™2 Duo SP9300 2.26GHz processor and 22 inch color-calibrated widescreen panel

