



Martherm

Marine Thermographic Services

Thermographic Imaging Surveys & Battery Analyses: -

In General...

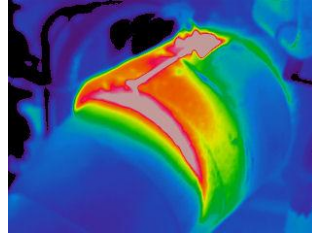


Infra-red thermography is a widely accepted PPM technology that can be applied to electrical and mechanical systems found in the Marine Industry. In addition to saving money and increasing uptime, thermography can play a crucial function in maintaining the safety and reliability of marine facilities where system failure could lead to catastrophic loss of vessel or its crew.

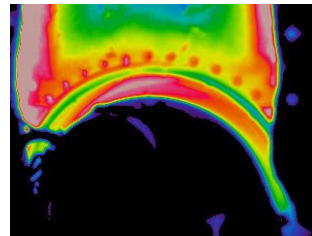


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Hot Surfaces...



Damaged exhaust lagging



Boiler burner unit

Oil leakage hitting hot spots on engines is the major cause of engine-room fires onboard ship. According to casualty statistics more than 60% of all engine room fires have been initiated by a hot spot. Most lubrication, hydraulic and fuel oils have an autoignition point above 250° C. If a liquid hits a surface hotter than its autoignition temperature the liquid may ignite spontaneously. Any such hot spot is an immediate hazard in case of oil leakage.

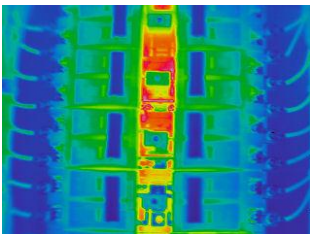
Switchgear...



Overheating motor contactor

Inspect a switchboard with the naked eye and everything may look normal, look at it with the thermal camera and you will see a different picture.

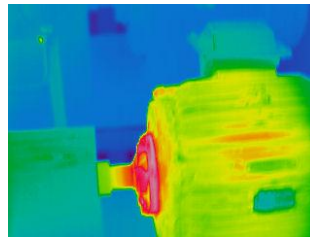
Easily identify overloaded circuits, loose connections, unbalanced phases...etc.



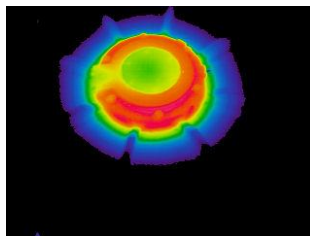
Overloaded MCCBs

Overheating of electrical components is not only dangerous, but significantly reduces the useful life leading to premature failure.

Machinery...



Suspect motor DE bearing



Overheating motor bearing

Thermographic imaging of running machinery can play an important part in condition monitoring and assessment. Mis-aligned shafts, dry bearings, loose couplings...etc all exert adverse loads in the machinery in question, which in turn generates localised heat - which can be detected and quantified.

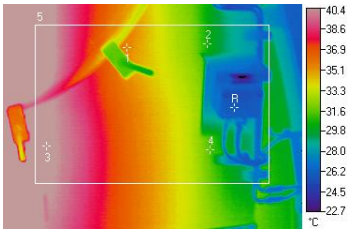
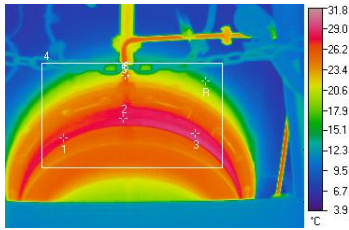
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Propulsion...



For record keeping Martherm routinely scans all propulsion machinery i.e. M/E crankcase, Xhead bearings, scavenge spaces, thrust bearing, tail shaft bearing and stern seal. This gives the engineers a reference point when carrying out their own intermediate checks (usually with a spot radiometry remote thermometer).

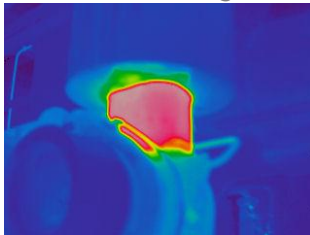
Battery Analyses...



Ship's batteries are often left for long periods on float charge, with little maintenance. Battery condition is not always obvious from SG and voltage readings. Internal resistance (R_i) increases with age and is inversely proportional to battery capacity, therefore being able to read R_i gives a good indication of battery condition.

Typical faults found using thermographic imaging

Infrared Image

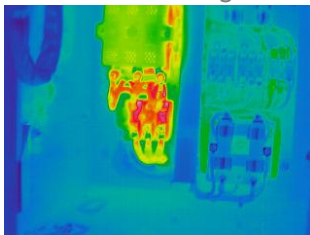


Visible Light Image



Exposed generator exhaust uptake

Infrared Image

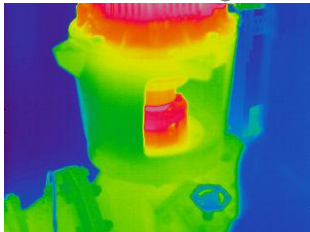


Visible Light Image



Overloaded motor contactor

Infrared Image



Visible Light Image



Overheating p/p bearing