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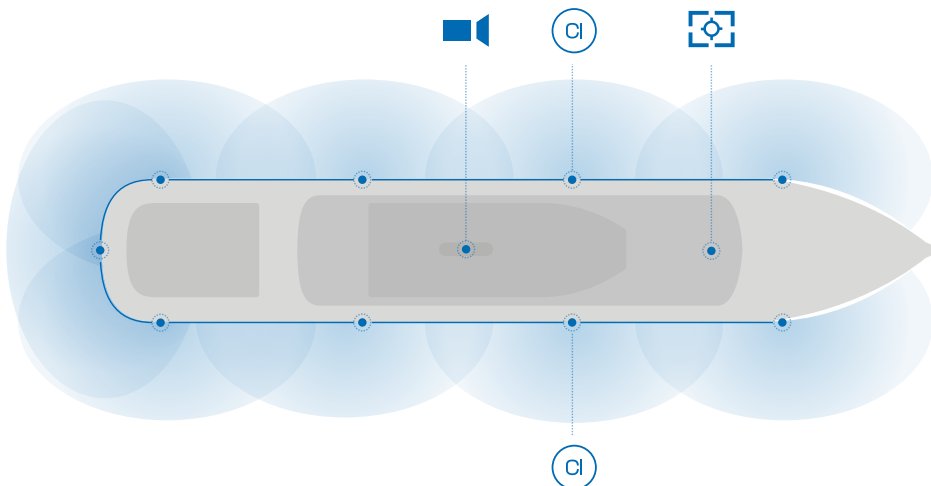
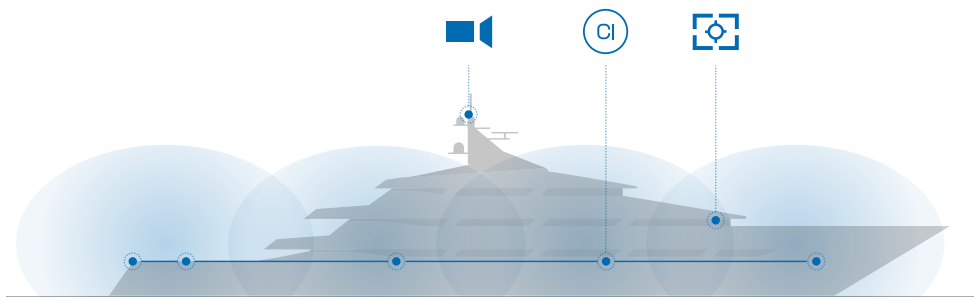
AUTOMATED CLIMBER DETECTION

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CLiMBERguard automatically detects, tracks and classifies intruders scaling the side of a vessel or structure, immediately alerting operators to the climber and its location.

CLiMBERguard has been developed from the MARSS man-overboard detection technology to provide higher probability of detection and low false alarm rates for vessel security.

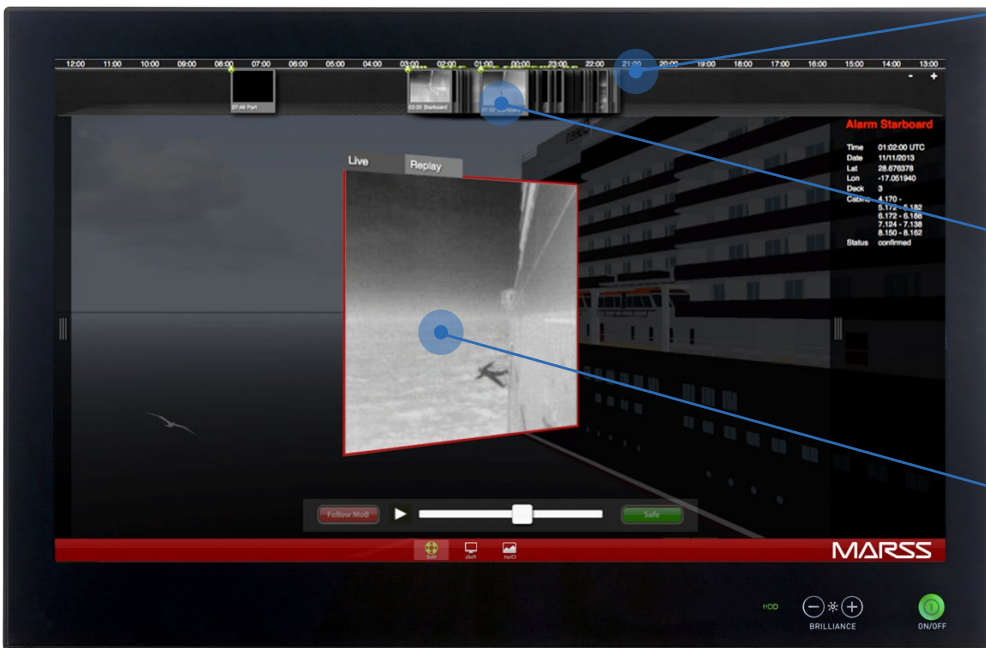
CLiMBERguard units positioned around the vessel perimeter to provide coverage of the entire hull.



MAN-OVERBOARD
CLiMBERguard software can also be configured to detect persons falling over the side of a vessel or structure

SMART SYSTEM: HIGH PROBABILITY OF DETECTION, REDUCED FALSE NOTIFICATIONS

CLIMBERguard uses a multi-sensor approach and multi-stage decision hierarchy to reliably detect, classify and track an intruder scaling the side of a vessel.



EVENT TIMELINES

Geo-located & time stamped alarms and diagnostic events, playback up to 120 days

CCTV FEEDS

Videos from all cameras are constantly displayed for uninterrupted situational awareness around the vessel

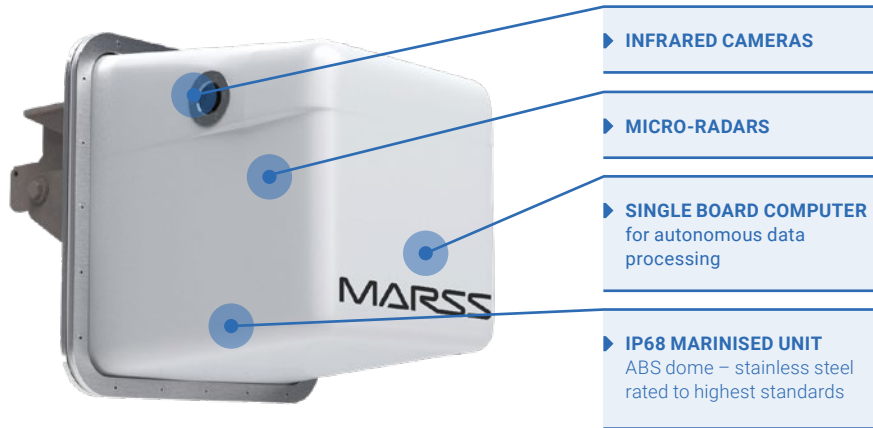
LIVE VIDEO FEEDS

Video footage of the event is presented to the operator within seconds for immediate review and alarm confirmation or dismissal

MULTI STAGE DECISION HIERARCHY



- 1 Multiple radars simultaneously monitor ship side ensuring climbers are detected and tracked
- 2 Radar tracks are confirmed by co-located independent radar sensors
- 3 Behaviour of confirmed track is analysed (based on speed, movement, shape)
- 4 Climber radar track is verified with infrared signature (heat, object shape, dimension, range)
- 5 Visual confirmation by crew based on video replay to confirm alarm



TECHNICAL SPECIFICATION

System Performance

Probability of detection	95%
False alarm rate	<0.3 per day
Detection range along hull	80m on each side of sensor station
Detection distance from hull	0-10m
MOB warning initiators	Autonomous
Wearable devices	Not required

User Interface

OS	Linux
Operator stations	Multi-touch tablet up to 78" screens
Recording storage	7/30/90/120 day storage available
Hot swap redundancy	Yes (each pod can be stand alone)
Hardware	No central server. Only a NVR server required.
Video replay for confirmation	Yes
Audible alarm	Yes
Data storage	120 days

CLiMBERguard Sensor Payload

Radars	High resolution, solid state
Thermal cameras	640x512 pixel, uncooled

CLiMBERguard Sensor Environment and Certifications

Ingress Protection	IP68
Operation Temperature	-20°C to +70°C
EMC/EMI	IEC 60945:2002(E)
Shock and Vibration	IEC 60068-2-6:2007
Other certifications	CE marking, RoHS

Physical Characteristics

Mechanical structure	Marine grade stainless steel
Radome	ABS
Weight	12kg
Dimension	350mm x 330mm x 330mm

CLiMBERguard Sensor Power Specifications

Mob Sensor multi power supply	12/24VDC or 110-230VAC
Power consumption	109W (peak)

*Actual performance may vary depending on hardware specified, vessel characteristics, installation and other external conditions. Specifications, technical data and product availability are subject to change without notice.

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