

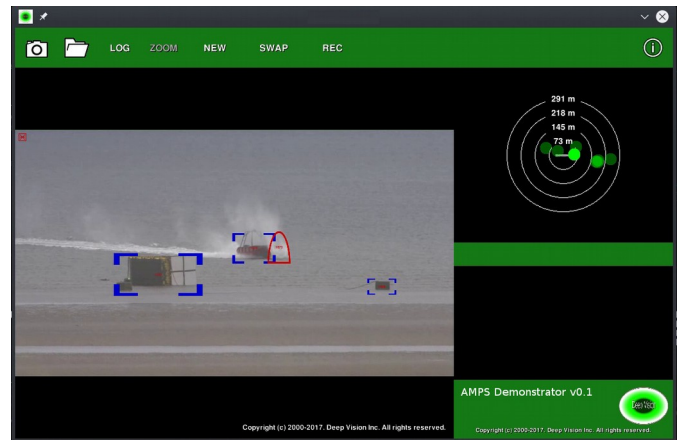
Autonomous Maritime Persistent Surveillance

What Is AMPS?

Deep Vision's Autonomous Maritime Persistent Surveillance (AMPS) module is an electro optical situational awareness system. The AMPS module provides short and long range detection, acquisition, tracking, and passive range indication for surface level maritime objects. The AMPS module is a passive, non-emitting, low-SWAP technology for autonomous, semi-autonomous, and operator assistive maritime applications in the defence domain. AMPS enables the following critical capabilities for autonomous, semi-autonomous, and manned maritime systems:

Key Features

- Multi-target detection, acquisition, and tracking
- Multi-target Passive Range Indication (PRI)
- Multi-target geolocation estimation for surface targets
- Passive 24 hour operation (visible and thermal bands)
- Automatic and/or Operator-based target designation for engagement
- Low-SWAP
- Integration points for interfacing with autopilots or as part of a multi-function system
- Robust performance in weather conditions such as rain, mist, fog, sea-spray, cloud conditions and sun effects such as glare.
- Robust performance in sea states spanning smooth to choppy.
- Support for USB and networked cameras.
- Instant acquisition of all surface level maritime objects without prior knowledge.

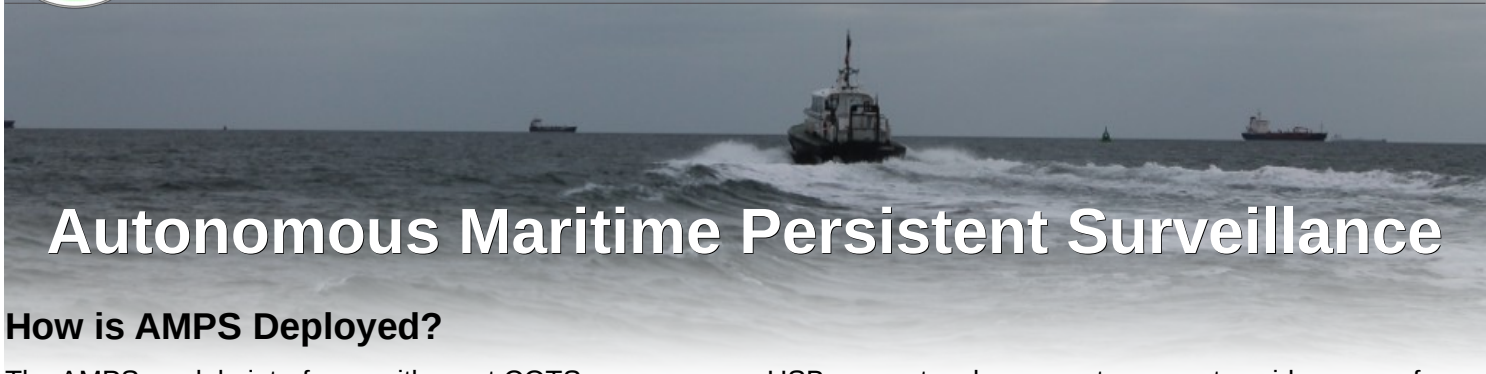


How Does AMPS Add Value to Maritime Systems?

Deep Vision's AMPS module delivers self-contained, GNSS-independent, non-emitting navigation by coupling precision inertial positioning with visual navigation to produce a low-cost, accurate system of navigation. AMPS delivers:

- Autonomous navigation between GNSS waypoints
- Over-the-horizon operation of USVs
- Real-time detection, tracking and passive range indication of all surface level objects for autonomous and semi-autonomous fire control systems.





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How is AMPS Deployed?

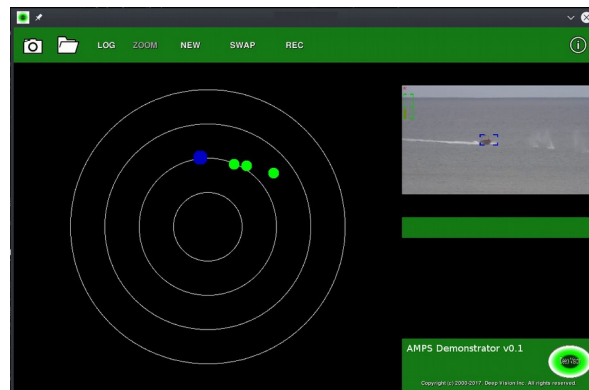
The AMPS module interfaces with most COTS cameras over USB or a network camera to support a wide range of integration options. Standard output includes the following core information packet for each detected surface level object:

- Centre-point and dimensions of each surface level object in image space
- Range and bearing to each surface level object (in meters and degrees)
- A unique identifier for each surface level object
- The time stamp of the observation

All output is communicated as XML over UDP. Support for proprietary or custom input/output interfaces is available.

How Does AMPS Work?

AMPS is a multi-purpose situational awareness module for use with EO sensors in the maritime domain. The AMPS module is the culmination of proprietary research and development from Deep Vision. At it's core, the AMPS technology automatically detects, tracks and passively ranges to all surface level maritime objects within the field-of-view. The AMPS module automatically adapts to the dynamic and challenging maritime environment to provide continuous, robust situational awareness information. AMPS is ideally suited for deployment in environments where prior information of the targets and objects is unknown. The technology fluidly adapts, enabling immediate surface object detection, passive ranging, and tracking.



Is AMPS Ready for Deployment?

Deep Vision is currently seeking exploitation opportunities for more extensive field testing and verification and market entry. This includes seeking interest and requirements from government and industry whom are currently involved in naval exercises. In partnership, the aim is to enter the market with a tried and tested maritime persistent surveillance solution – AMPS!

