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## **“Be prepared for the unexpected”: Rheinmetall’s Herold and Herold Navy surveillance and alert systems**

Successful surveillance and reconnaissance operations require comprehensive detection capabilities and reliable identification of ground, surface and airborne threats on land and at sea as well as at various altitudes – both day and night and under adverse weather conditions.

Radar-based solutions feature a number of drawbacks: they are active, susceptible to jamming, and cannot assure complete coverage. Pan/tilt platform sensors have to be geared directly towards the target area. Only targets inside the sensor’s search pattern (e.g. field-of-view, sector scan) can be detected and tracked but without continuing the radar surveillance operation.

Two unique state-of-the-art system solutions, Herold and Herold Navy, avoid such disadvantages. Rheinmetall will be presenting both systems at DSEI 2013 in London.

Herold and Herold Navy are electro-optical surveillance and reconnaissance systems which assure continuous  $n \times 360^\circ$  surveillance, detection, alerting and simultaneous tracking of more than 256 moving ground/surface and airborne objects, at specific azimuths and altitudes. Herold Navy is fine-tuned for use in naval vessels.

The combined key capabilities of the Herold (land) and Herold Navy (sea) system solutions enable the operator to constantly generate and maintain full situational awareness thanks a unique high update rate.

Herold and Herold Navy encompass two sensor systems:

- Covering the complete angular range in azimuth, the “Fast InfraRed Search and Track” (FIRST) surveillance sensor offers outstanding performance regarding simultaneous detection and display of multiple ground/surface and airborne targets within a complete real-time panoramic video image with an adjustable elevation beam from  $-21^\circ$  up to  $+33^\circ$ . Herold Navy uses a stabilized version of FIRST.
- A wide choice of E/O sensor systems for target verification, all of which feature a thermal imager, a switchable eye-safe laser rangefinder and daylight camera, provide a long-range target detection and identification capability due to their high performance stabilization. All these stabilized platforms can be installed on almost any moving platform on land or at sea.

FIRST and the dedicated target verifier come with a sophisticated video image processing capability for automatic target detection and automatic tracking with continuous calculation of 3-D target characteristics (latitude and longitude coordinates, speed, course), which are displayed on a dedicated map for improved situational awareness.

An additional multi-mode multi-target tracker assures robust tracking capabilities and offers various search parameter settings for automatic target reconnaissance (ATR) to reduce the false alarm rate as well the workload of the operator during extending missions.

Herold and Herold Navy feature the following key capabilities:

- Automatic detection, alert, verification and tracking of ground, sea and airborne targets;
- high sensor sensitivity and long-range capability due to cooled IR sensors;
- multi-mode multi-target tracking of more than 256 targets (FIRST);
- 3D-target data (coordinates, speed, course, altitude);
- multiple dedicated deployment strategies (virtual fence, scanning, etc.);
- map display for improved situation awareness;
- data recording;
- target assignment and fire control;
- network-enabled capabilities; and
- remote control.

Herold and Herold Navy provide dynamic, high-precision, reliable surveillance and observation capabilities in a wide array of operational scenarios:

- airspace observation
- ground/surface and coastal surveillance
- border control
- observation of harbour, airfield/airport installations
- forward operating base protection
- air, ground and surface defence applications for various gun and missile systems

Visitors to DSEI 2013 can have a close look at these versatile surveillance and alert systems at the Rheinmetall stand.

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