



HENSOLDT **Twinvis** – Passive Radar

Current conflicts highlight the importance of robust air surveillance and air defence capabilities. Twinvis adds a passive layer that helps to enhance these capabilities, while remaining unthreatened by traditional anti-radar effectors.

It offers a key operational advantage: The generation of a medium-range air picture without any own radar emissions and without the need for any emissions from the targets themselves. Instead, it uses multiple existing VHF and UHF transmissions from analogue and digital radio as well as television.

Twinvis passive radar provides real-time, omnidirectional 3D tracking of air targets. Its unique technical features allow tracking of highly agile targets and ensure invisibility to ESM systems.

Customer missions in NATO and non-NATO countries in Europe and beyond are supported by Twinvis with world-class performance, setting the benchmark for covert surveillance in the market.



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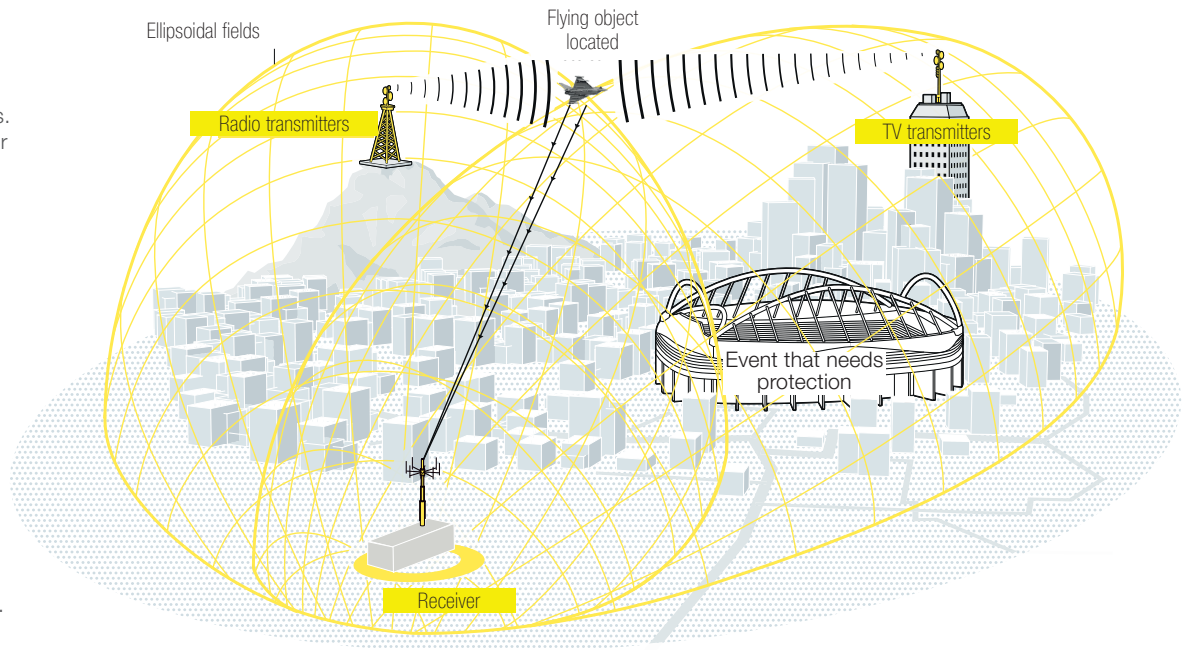
Twinvis placement

Twinvis exploits several ground-based transmission sources from various locations. It can also operate as a sensor cluster. The typical distance between Twinvis sensors and transmitters range from a few km to more than 100km, depending on the operational scenario.

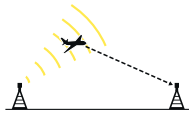
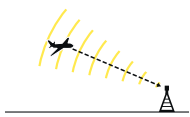
What frequencies does passive radar use?

Radio and television stations around the world can be exploited;

- FM – Analogue FM radio broadcasting
- DAB/DVB-T – Digital radio and television broadcasting.



Different types of radar detection



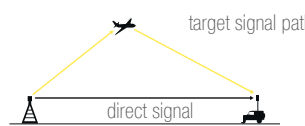
Active

The radar transmits signals and receives reflections off the target being used for target positioning.

Passive

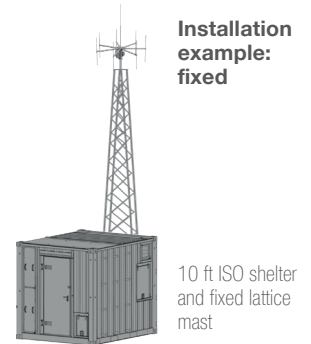
Emissions from several terrestrial broadcasting transmitters are reflected off the target being used at Twinvis for target positioning.

Detection using time difference



Multistatic principle

Time difference between direct and target signal path is used for target positioning.



Applications

- Air surveillance of non-cooperative targets without any RF emission
- Long-range border/coastal surveillance
- Enables Command to minimise use of active radars
- Silent target indication to GBAD systems
- Gap filler and additional radar coverage
- Camp & event protection, e.g. G8 summit, sports events
- Provides radar performance where active radars are not an option
- Wind farm radar interference mitigation

Key Characteristics

- 360° azimuth coverage, 3D tracking
- Instrumented range 250 km
- Instrumented altitude 12500 m
- Horizontal accuracy 90% < 500 m RMS
- Altitude accuracy 70% < 1000 m RMS
- Track update rate < 1 s
- Antenna-to-track delay < 1.5 s
- Sensor cluster capability for extended coverage and/or accuracy
- Exploits several illuminator bands in parallel
- ASTERIX data link to CRCs
- System power consumption avg. 2500 W
- Designed for fusion with other sensors (e.g. active radars, PET systems)

Operational Benefits

- Invisible for hostile ESM systems
- Tracks non-cooperative and highly agile targets
- Can operate where active radars are prohibited
- Low power requirements
- All-weather capability
- Multistatic detection supports LPI tracking
- No transmission license required
- Reduced LCC (no rotating parts, no transmitter, COTS computers)
- Remote, stand-alone operation