

in **VTS** *offshore*



SECURE **in** SIGHT

Striving for the next level of efficiency and safety

Offshore wind farm surveillance and safety solutions of in-innovative navigation GmbH are designed for easy and active protection, minimizing risks of collision and collateral damage.

Effective personnel tracking functions are included to monitor and protect people on work boats and installations within the wind farm area. Using AIS S.A.R.T. transponder, a man overboard can be detected immediately by his GPS position and AIS signal received without delay. Highly sophisticated web based or dedicated display units provide the marine coordinator with an excellent overview of all activities within and around the wind farm. Unequivocal warning signaling can be configured to fit the individual customer's requirements, allowing a timely response to any potential threat. The system integrates a variety of traffic data sources such as ADS-B or AIS data provider. The generic interface supports access to personnel database(s) and any HSEQ information. All systems are embedded in the local IT security concept.



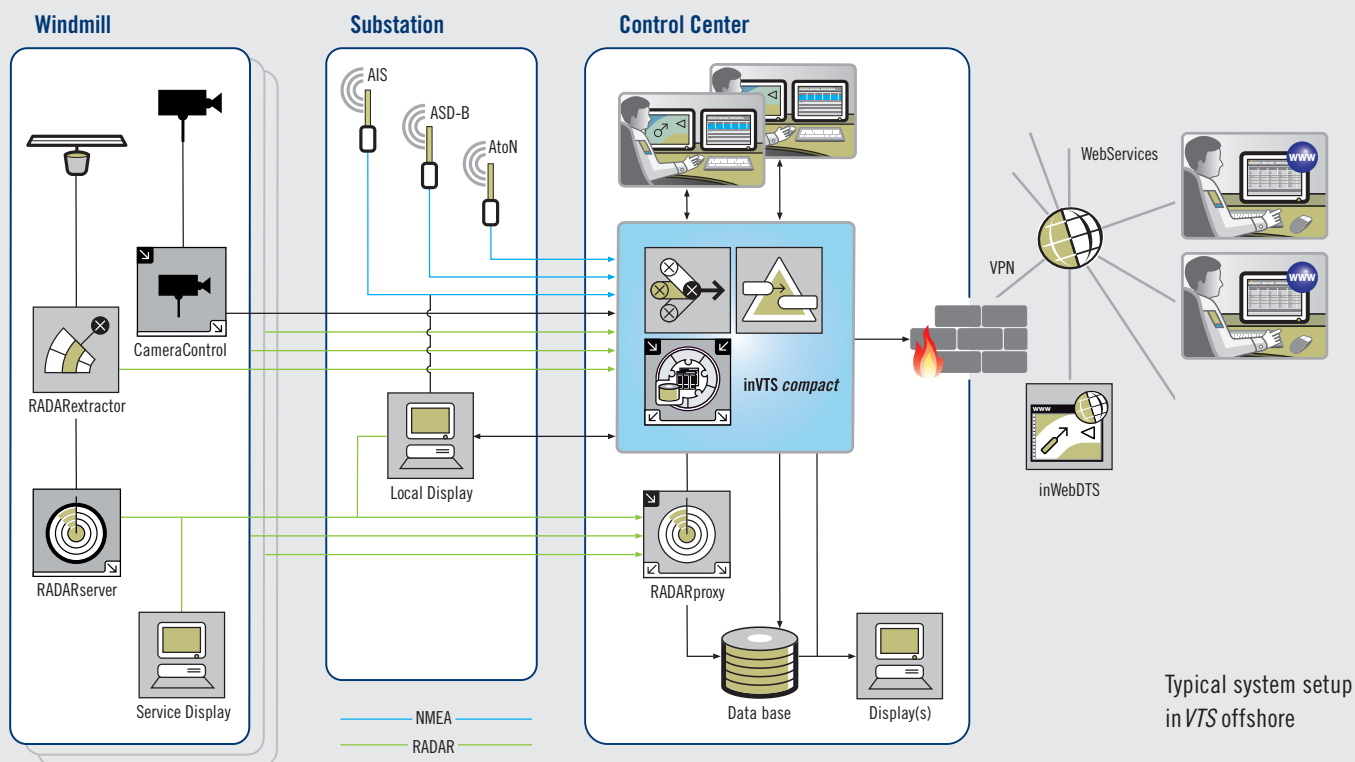
Trust in years of experience in the VTS market

Since 1999, we develop customized traffic monitoring systems, including on-site implementation and integration. Combining AIS, radar, GPS and new emerging technologies with state-of-the-art computer science and information processing is our strength.

With the expertise and a wealth of experience by our educated personnel, you can trust on our solutions rolled out in time and budget. The certification of ISO 9001:2008 guarantees consistent quality provided by in-innovative navigation GmbH.

Key benefits and features

- Clear picture of current traffic and workforce embarkation to the marine coordinator
- Increase in operational safety to wind farms by man overboard alerts
- Support of perimeter surveillance (Seeraumüberwachung) up to national level (VTS or CSS) by providing aggregated sensor data to authorities
- Management and surveillance of anchor plans, support of workflow management during installation, and chart display of construction progress
- Support of different sensors (radar, AIS, AtoN, ASD-B, GPS, sonar, VHF, CCTV, TETRA, RFID, Met/Hydro)
- Simultaneous display of up to 8 radar videos at the MC workstation
- In connection with radar, increase of operational safety by detection of small, non-cooperative targets
- Integration of ADS-B for helicopter tracking as well as CCTV, e.g. for embarkation/disembarkation, into an ECDIS display
- Full monitoring and remote control of all hard- and software components, including redundant standby configuration
- Full support of digital data transmission (inclusive radar video data)
- State-of-the art tracking functions and blanking configuration, ASTERIX/IVEF support
- Web service to make the traffic image available to third parties
- Interface to support wind farm cluster configuration

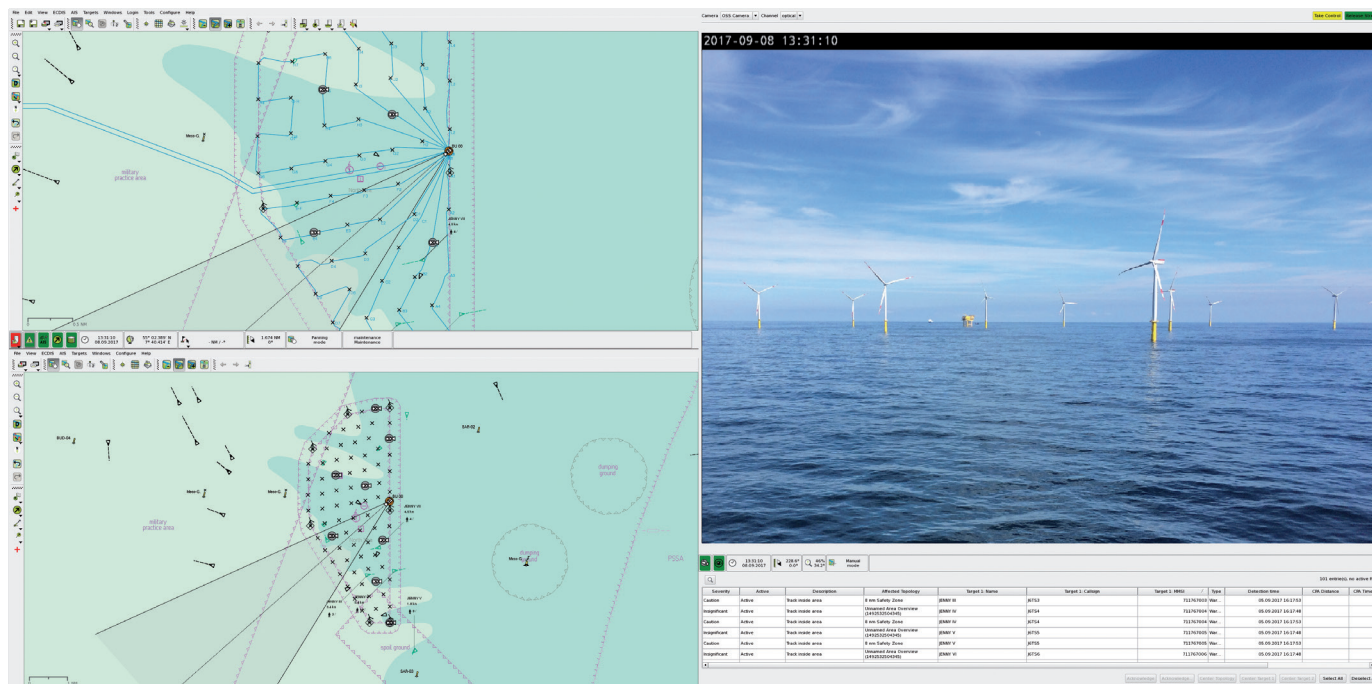


Support of marine coordinator in daily operation tasks

The display units in *DTS* and in *WebDTS* provide the seamless integration and display of tracks from different sensor sources into one consistent traffic image and reveal a clear and accurate picture of the situation on site to the marine coordinator. Easily accessible measurement tools for CPA/TCPA calculations help to judge the danger and dynamic of current situations.

Based on configurable rules, the TrafficAnalysisSystem (TAS) monitors and analyses the traffic and generates automatically traffic events to display applications. Anchor watches, warning zones, customizable

filters and coloring avoid information overload. Alarms or traffic events generated are reported in a tailor made way, either by sound, visual signals, by triggering a relay or by applying a command. Detailed information about every track is available in list widows, which can be searched or sorted as needed. For a closer look to the incident, CCTV can be seamlessly integrated into the surveillance system. Different web map service can be used (e.g. GDAL, WMS, TMS) to present the traffic picture in a browser based display application..



Offshore traffic display in *DTS* with CCTV integration



References:

• GlobalTechOne

located in the North Sea is one of the first commercial offshore wind farms, and in-innovative navigation GmbH delivered a solution including two radar scanners as well as AIS (two redundantly configured AtoNs). Integrated ADS-B to supports helicopter landing and TETRA based people tracking is implemented.

• Riffgat

is a wind farm area installed close to the East Frisian island Borkum. Data from radar and AIS sensor processing are available on the offshore transformer platform as well at the operation center onshore.

• Meerwind®

is located north of the island Helgoland. Radar, AIS sources, ADS-B technology and a generic interface to integrate people tracking is realized there to fulfill the demanding surveillance task.

• Sub-sea cable protection

in-innovative navigation GmbH delivered all hard- and software required for AIS based traffic surveillance covering the area of a sub-sea power cable in the Baltic Sea near the Island of Rügen.

• Nordergründe

located east of the Frisian Island Wangerooge measures approximately 6 km². in-innovative navigation GmbH provides the site surveillance system including CCTV and AIS data. inDTS solutions at two land-based control stations display all information.

• Butendiek

in the North Sea has a radar and AIS based perimeter surveillance with two operation centers, including an external AtoN, CCTV cameras and an RFID people tracking system.

• Borkum West II

is a wind farm covering an area of 56 km². The site surveillance system based on AIS and ADS-B transponder had been delivered and is maintained by in-innovative navigation GmbH.

• Not only windfarms but also installations on locks, harbors, VTS and CSS across Europe, such as Port of Hamburg, VTSS Portugal, CSS Estonia, CSS Bulgaria and also the newly built VTS at the German North and Baltic Sea, are based on components of in-innovative navigation GmbH.



Further information about recent developments on:
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