

Many VTS and CSS installation across Europe, such as 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.

GlobalTechOne is one of the first commercial offshore wind farms located in the North Sea and in-innovative navigation GmbH has won the public tender to deliver the surveillance system, and delivered an inVTS solution, where two 12 feet radar scanners serve as sensors as well as AIS (two redundantly configured AtoNs). Air traffic is indicated based on ADS-B to support helicopter landing. Furthermore, TETRA based people tracking will be implemented.

Riffgat is a wind farm area installed close to the East Frisian island Borkum. The wind farm will be surveilled with two TERMA solid-state radar scanners and AIS sensors. Data from sensor processing will be available on the offshore transformer platform as well at the operation center onshore at Norden.

Meerwind® will be located north of the island Helgoland (North Sea) and covers an area of ca. 42 km² with 80 windmills. Radar, two AIS sources, ADS-B technology and a generic interface to integrate people tracking will be realized to fulfill the surveillance task with products of in-innovative navigation GmbH.



new generation

Self-contained Vessel Traffic Surveillance System for small systems

We are member!



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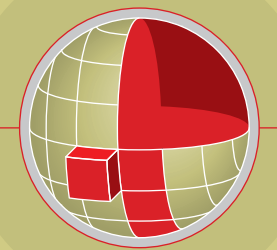
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inVTS offshore

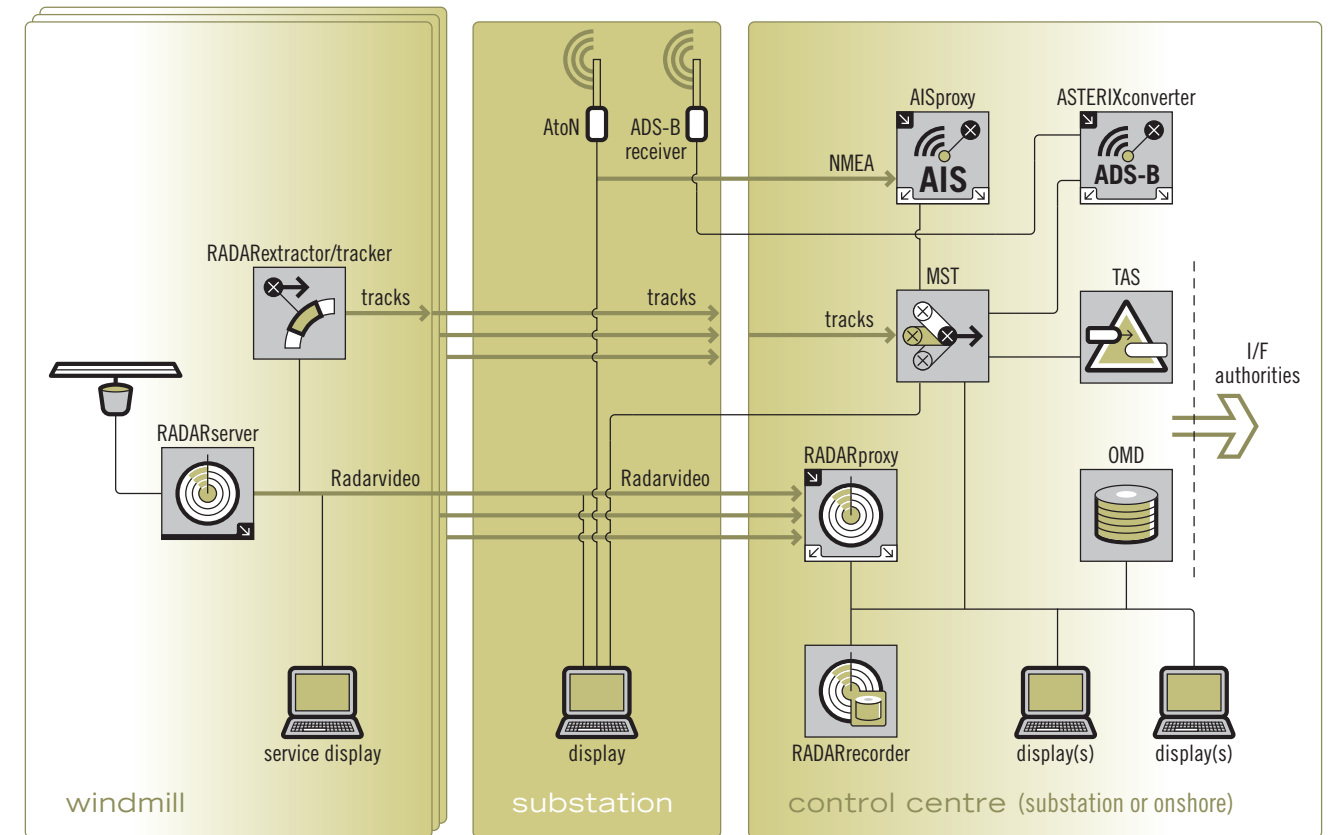
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By courtesy of Siemens AG

Typical system setup



innovative solutions for offshore wind farms

in-innovative navigation GmbH is the leading German VTS provider for offshore installations such as wind farms and oilrigs

Since an increasing number of offshore wind farms are emerging, the demand for offshore surveillance systems also rises. The offshore wind farm surveillance and safety solutions of **in-innovative navigation GmbH** are designed for active protection and to minimize risks of collision and collateral damage. Furthermore, effective functions are included to monitor and protect people on work boats and installations within the wind farm area to support maintenance tasks. The highly sophisticated display system provides operators 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 threats. Other traffic data interfaces (ADS-B, vesseltracker, fleetmon, etc) can easily be integrated. A generic interface supports access to personnel database(s).

Areas of application

- Perimeter surveillance (Seeraumüberwachung) in support of national authorities (e.g. VTS) or to provide operational security to wind farms
- Inner wind farm area surveillance in order to detect and monitor

workforce at wind farm and to increase operational security by detection of small targets. Furthermore helicopter landing is supported.

- Interface to support wind farm cluster configuration

System features

The generic and modular system architecture allows physical separation of sensor location, sensor processing and display fitting any windfarm setup for maintenance and surveillance from remote. Full monitoring and remote control capability for all hard- and software components are implemented.

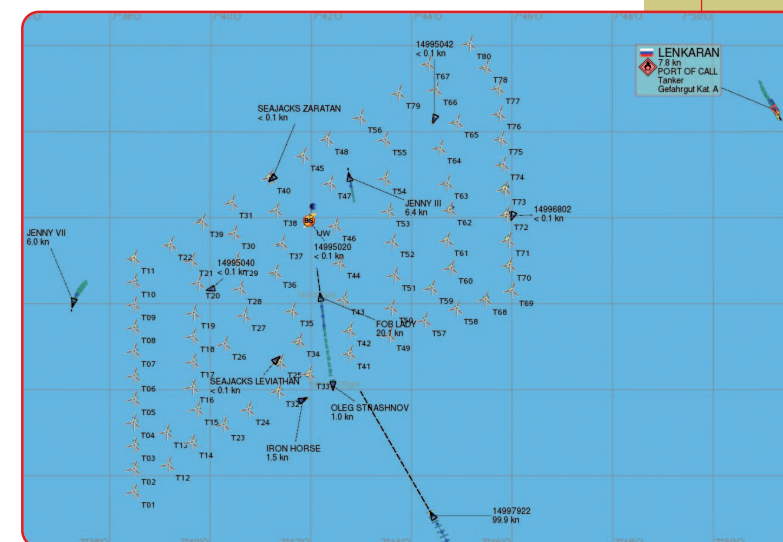
- Possibility to attach a variable number of sensors (Radar, AIS, Sonar, VHF),
- Simultaneously displaying up to 8 radars of various types
- As fallback solution, the system can be installed with redundant hot standby or cold standby setup
- Full support of digital data transmission (inclusive radar video data)
- Support of standard data format for data exchange
- State-of-the art tracking functions
- Visual integration into an ECDIS display
- Configuration of blanking areas to optimize data load
- Integration of ADS-B for helicopter tracking
- recording functions to archive radar and traffic data of at least 30 days
- CCTV overlay

Central processing

The radar processing provides sophisticated automatic target extraction including fast moving targets at perimeter. The true MultiSensorTracking based on powerful Kalman-algorithm integrates all radars, AIS and other sensors, and allows incorporation and control of AtoN devices. Adaptable filters enable the system to analyse the traffic situation and to take into account any number of any number of topologies (areas, zones, lines, CPA, etc.) defined around the wind farm in order to generate alarms caused by violating the rules of these topologies, like surveillance of export cables. All alerts are highly configurable. Bi-directional data interfaces (radar video, track data, etc.) to the land-side VTS software infrastructure of the authorities could be provided if a respective agreement is in place.

Operational traffic scenario

Seamless integration of tracks from different sources (radar, AIS, CCTV, Sonar) into one consistent traffic image, as well as the configuration of warning zones provide a powerful and clear overview of the traffic situation. Due to adaptable customized filters, coloring and effective automatic labeling can be fitted to the requirements of the specific surveillance task to avoid information overload for the operator. Detailed information about ships are available in list windows, that can be searched or sorted as desired. Traffic events generated by the component TAS (TrafficAnalysisSystem) are reported in a tailor made way, either by sound, visual signals, by triggering a relay or by applying a command.



Simulated Traffic Display inDTS at offshore wind farm Meerwind®

People tracking

In order to protect workforce at wind farms, the system provides the extension of radar and AIS based surveillance by radio people tracking. The data are integrated seamlessly in the ENC display; and analysis of movement as well as plausibility checks is conducted. Multiple detection technology is supported (RFID, TETRA, WLAN, AIS ...).