



JANUARY 2017

RADius

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RADAR BASED RELATIVE POSITIONING SENSOR

RADius is a high performance radar-based relative positioning reference sensor. The sensor is developed for use in offshore applications in need of high accuracy range and bearing measurements. The RADius solution is based on years of experience and knowledge in offshore applications, and developed to secure safe and efficient operation in an dynamic environment.

Designed for Dynamic Positioning

RADius is developed for applications in need of a robust and reliable relative positioning system. Many applications can benefit from RADius in operations, as there are different types of retroreflective transponders, and different types of innstallation of the sensor heads, (Interrogators).

RADius at a glance

- Multiple sensor heads
- Autodetection of transponders
- Measuring and output of range and bearing
- Wide opening angles secure close-by operations
- No moving parts
- Multi user feasibility
- Multiple transponder capability
- Operates in all weather conditions, also extreme cold
- Complementary to existing GNSS reference systems
- Designed to meet all IMO DP Class requirements
- Both battery and fixed power operated transponders
- Operates in license free radio band
- ATEX and IECEx certified transponders
- Easy to deploy and adapt

OPERATIONAL BENEFITS

Complementary solution

Due to for example shadowing from installations offshore, GNSS solutions can experience challenges in positioning accuracy when a vessel perform close-by operations. RADIUS is designed to give high accuracy and to be complementary to these systems.

Easy to deploy and operate

Several interrogators can be deployed on suitable places on the vessel, dependent on what type of vessel construction and what kind of operations that are to be performed. Due to the light weight of both the transponders and interrogator, deployment of the system is easy. The robustness of the system allow the interrogators to be mounted independable of each other, this is to avoid dead angles and to obtain up to 360° coverage.

Multi-target tracking

RADIUS can track up to five transponders simultaneously, increasing robustness, reliability and integrity.

Fully operational with one transponder

Up to five transponders can be tracked by each interrogator simultaneously, however RADIUS operates also with only one transponder available.

Multi user capacity

The system allows for multi user operability, which means that several vessels can utilise the same transponders simultaneously.

Solid state - no moving parts

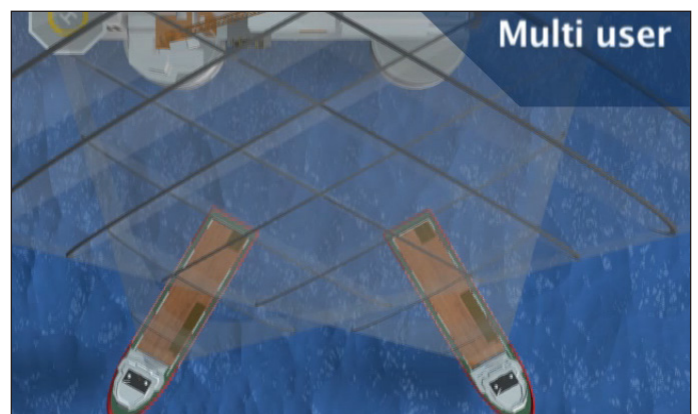
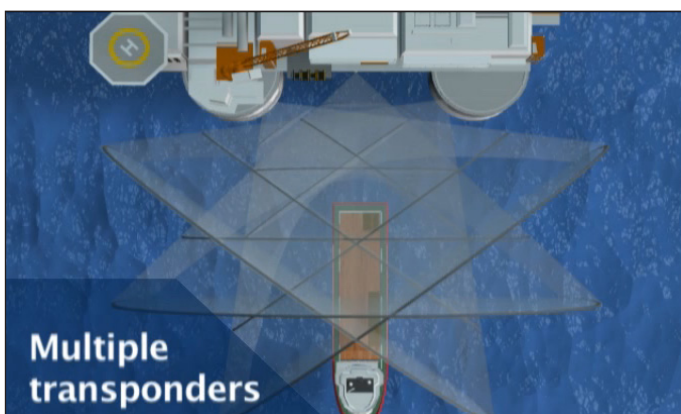
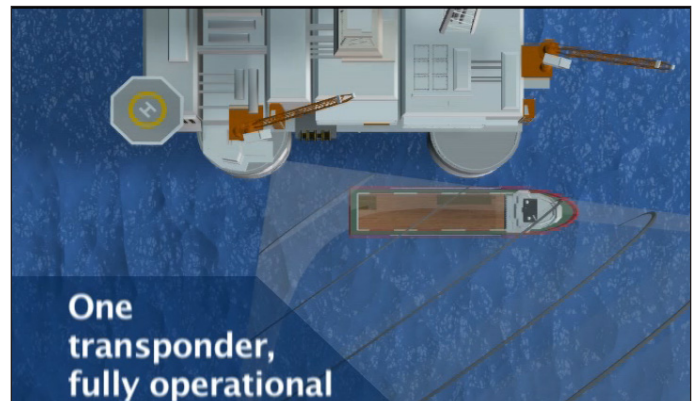
The RADIUS system is a “solid state” system. There are no motors, stabilized platforms or other moving parts within the system. Hence, the maintenance cost of the system is low.

Weather robustnes

The RADIUS system is operating in a 5.5 - 5.6 GHz frequency band, and is not affected by any weather conditions. RADIUS is also available for extreme cold conditions down to -40 °C (-40 °F)

Wide opening angles

RADIUS has a vertical and horizontal opening angle of 90°. This secure stable operations in close by operations where the difference in mounted transponder and interrogator can be considerable. Due to this it is not nessecary to tilt the interrogator in any direction to obtain signal.



OPERATING PRINCIPLE

Power on and operate

RADius consists of one or several interrogators typically located on a moving vessel and one or several transponders that are deployed on the target vessel it will approach. The RADius system measures the distance and bearing between the interrogators on the moving vessel and the transponders.

All deployed transponders at the target vessel have unique identities, thus multiple transponders can be utilised for integrity and high availability. Range and bearing from up to 4 reflectors may be selected for distribution to the DP system.

Autodetecting transponders

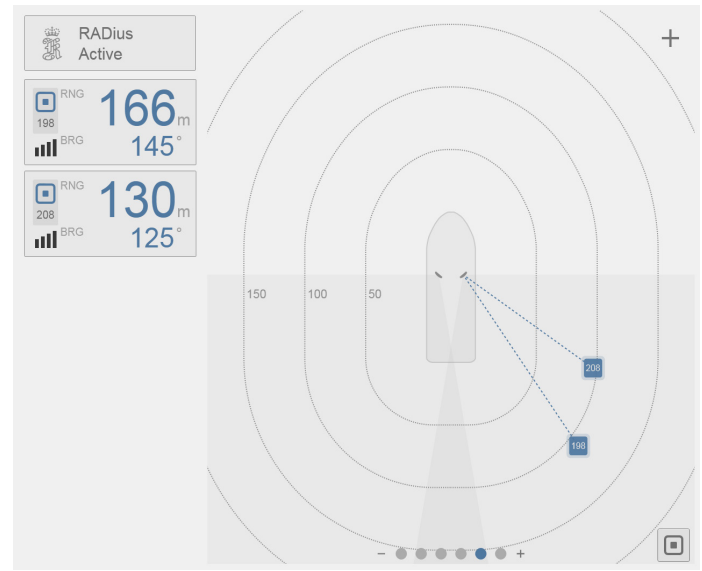
Search and identification of transponders is easily done with the autosearch utility. Transponders are automatically detected and shown in the operator view.

Transponder types

Transponders are deployed on vessels or installations that a vessel with an interrogator approaches. Transponders are either battery operated (more than 1 year operation) or connected to a power source from the installation or vessel. Opening angle from transponders are 90° vertically and horizontally. ATEX certified transponders (intrinsically safe) are also available.

User friendly interface

Many years of interaction with operators has resulted in a deep knowledge about operations and needs. The design of interaction always strives to make operational use of solutions as easy as possible - without compromising information flow and safety.



SYSTEM COMPONENTS

RADius Interrogator

Several interrogators can be easily deployed on suitable places on the outside of the vessel. Each contains antenna elements - with an horizontal and vertical opening angle of 90°, a receiver, a transmitter and a signal processing front end.

RADius Workstation

The RADius workstation is a module rack containing a processing unit with RADius software, a graphical user interface and serial interface lines to for example the DP or other possible users.

RADius Transponders

Transponders are deployed on vessels or installations that a vessel with an interrogator approaches. Transponders are either battery operated (over 1 year operation) or connected to a power source from the installation or vessel. Opening angle from transponders are 90° vertically and horizontally. ATEX certified transponders (intrinsically safe) are also available.

