Wärtsilä NACOS Platinum Solid State X-Band Radar

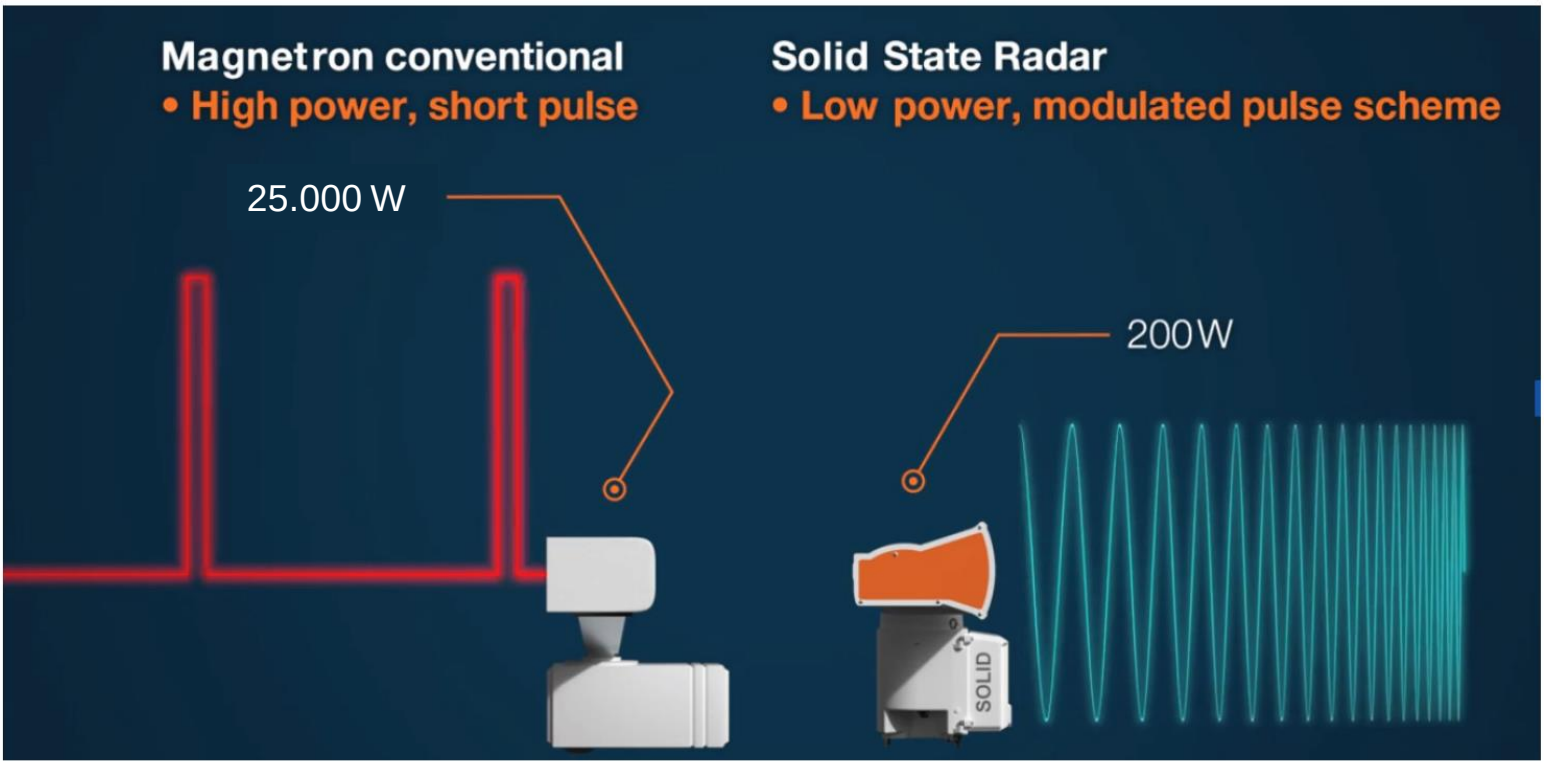
PRODUCT LEAFLET

The new NACOS Platinum Solid State X-Band Radar is a next generation marine radar system using a stabilized high power solid state transceiver. It utilizes advanced signal processing technology and comes with a 8 ft antenna.

Benefits

The major advantages for customers are the added safety provided through optimized target detection under all environmental conditions, reliability thanks to the compactly designed transceiver, gearbox and antenna, and reduced lifecycle costs as a result of drastically reduced maintenance (no magnetron).

Fig.1 Conventional Magnetron vs Solid State Radar



Solid State X-Band Radar Performance

SPECIFICATIONS	
FREQUENCY BAND	X-BAND
FREQUENCY	9.3 – 9.5 GHz (8 SELECTABLE CHANNELS)
PEAK POWER	>200W
MAGNETRON LIFE	NO MAGNETRON
SIGNAL PROCESSING	PULSE COMPRESSION RATIO 150:1
MAX. PULSE LENGTH	55 US
MIN. PULSE LENGTH	0.1 US
ANTENNA LENGTH	8 FT

Performance Advantage

Enhanced detection performance : see smaller targets in clutter and at greater ranges increases the warship's capability

3 m² target, sea state 3, 8 ft Antenna

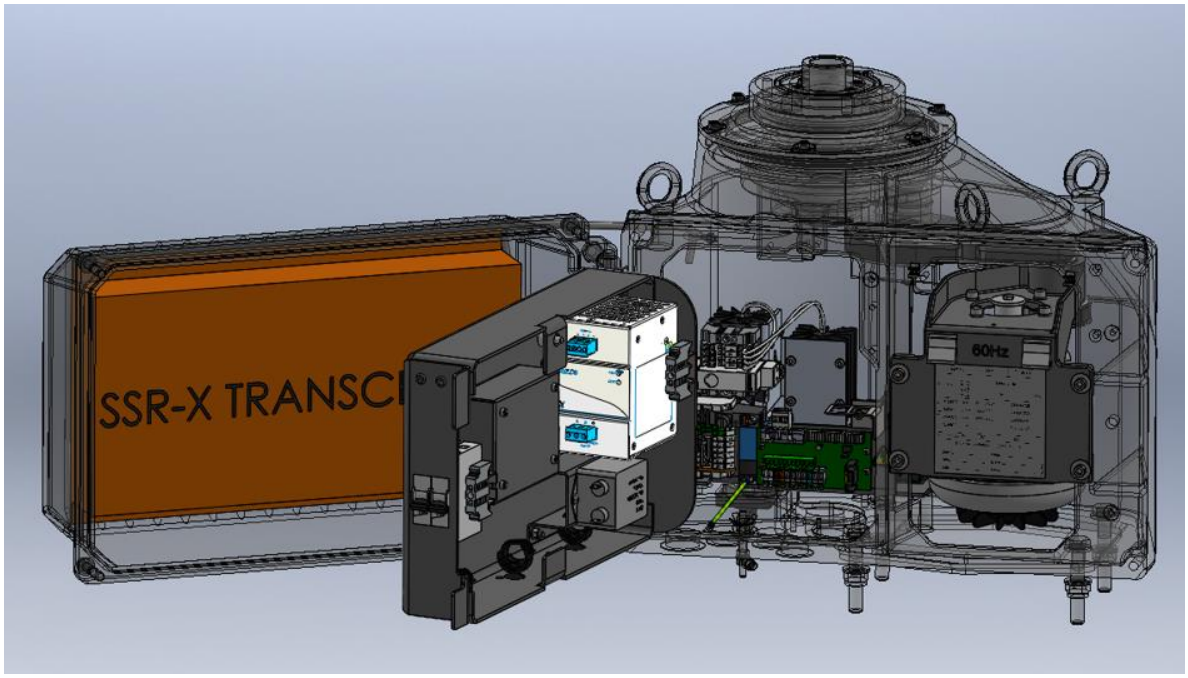
RAIN (MM/HOUR)	MAGNETRON X-BAND RADAR (RANGE NM)	SOLID STATE X-BAND RADAR (RANGE NM)
NO RAIN	5,5	6,9
1	4,1	6,0
2	3,9	5,3
3	3,3	4,8
4	1,4	4,3
5	1,4	3,9

Transceiver
The Solid State pulse compression transceiver is incorporated within a compact housing in the Gearbox. The major advantages of the new Transceiver are:

- Low peak power, high energy radiation
- Fully coherent design
- Doppler processing for quick hazard recognition
- Adaptive pulse train, allowing optimized energy transmission
- Fully digital signal generation and processing
- Multiple user selectable frequencies
- Range resolution up to 10 times finer compared to magnetron Radar
- Improved target tracking by independent signal processing and pulse generation for PPI and ARPA
- Low maintenance

Optimized target presentation
The advanced signal processing and intelligent filter algorithms make first class target presentation possible. Utilizing the built-in doppler processing, advanced clutter suppression can be achieved. Further advantages of this new technology include better long range target detection, and the elimination of the need for preheating and tuning.

Easy to retrofit
The new **Solid State X-Band** is fully compatible with all NACOS Platinum Navigation Systems, since it features the same IP-based radar system. Retrofitting is, therefore, simplified with a minimum of installation requirements.

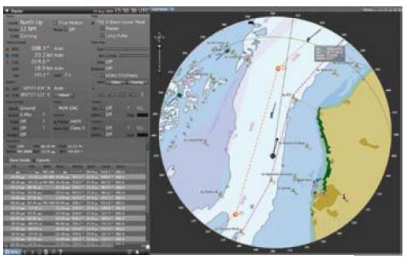


SSR Band X Transceiver

DISPLAY MULTIPILOT
NACOS Platinium Series

Huge Range of Functionalities

MULTIPILOT Platinum includes the following functionalities : Radar, Chartradar, ECDIS with radar overlay, and Coning.
The navigation via the menu bar or from the Super Home screen allows an easy access to the different above mentioned applications.
It is the universal solution providing all information for the reliable, safe and easy operation of a vessel.



Chartradar mode

Super home

ECDIS mode with radar overlay

Additional naval software functions

Sector Transmission
The operator can define up to 3 sectors in which transmission is to take place while radar silence is to be maintained in all other bearings. The Sector Transmission is in addition to the fixed blanking sectors which are a standard feature of the MULTIPILOT Platinum which will have priority to the case by case generated transmission sectors.

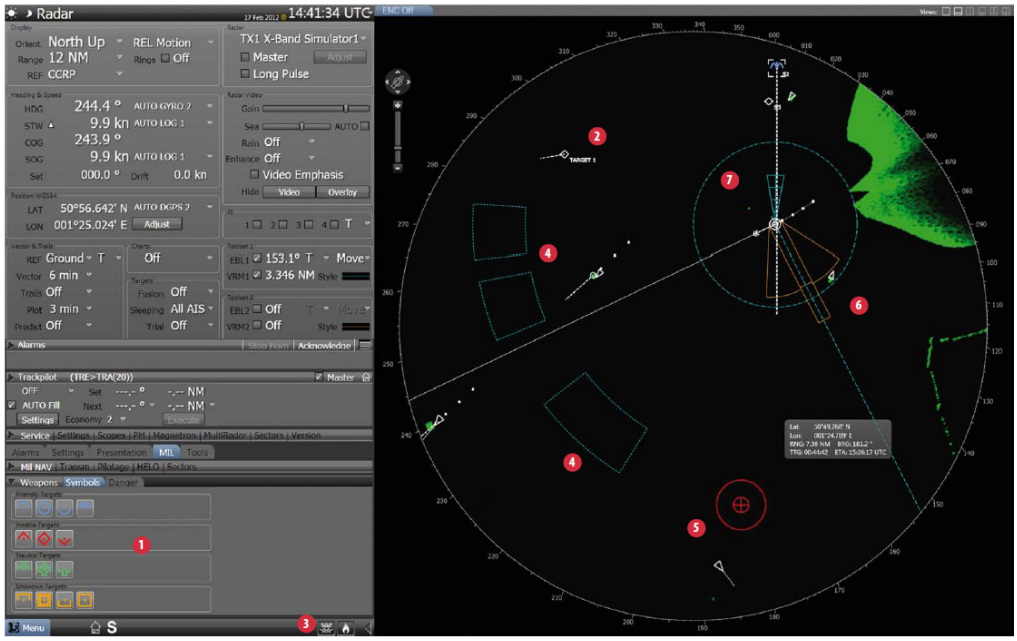
Target Assigment with STANAG 4420 Symbols 1
14 symbols according to STANAG 4420 can be assigned to ARPA/AIS targets for unique identification of unknown, neutral, friendly or hostile contacts and to define sub-surface, surface and air targets.

Also additional user symbols for mines are available with assignment of identification, type and status.

Synthetic Targets 2
This feature allows pursuit of targets and to create targets for training purposes. The targets can be defined by bearing/range, by position and manually on the PPI, together with course and speed values.

Man over Board 3
An always visible button on the menu bar allows to mark immediately a fix position on the radar PPI and on ECDIS in case of man over board. The MoB position can also be corrected by position and time data with values for current and wind.

Dynamic Blanking Sector
The dynamic blanking zone is the sector within each revolution of the sensor rotor where the laser is switched off. This is used by the DP operator to mask out unwanted reflections when needed.



Sector Zones 4
Sector Zones define the positions of vessels which are sailing in a fixed formation and to monitor own ship's position but also to monitor the station keeping of the vessels in the formation.

The shape of a Sector Zone is a segment of a circle similar to a radar guard zone. The sectors can be linked to own ship but also to any other target.

Torpedo Zones 5
The Torpedo Zone indicates the launch of a torpedo. An expanding circle with the theoretical (assumed) speed of the torpedo is displayed after activation with the hostile vessel in its center.

The Torpedo Zone disappears automatically when the maximum run time of the launched torpedo is passed The Weapon Arc is used for gunnery practice with live ammunition. It defines a danger zone where the impact of projectiles is wanted respective probable ricochets are possible.

Weapon Arcs 6
The Weapon Arc is used for gunnery practice with live ammunition. It defines a danger zone where the impact of projectiles is wanted respective probable ricochets are possible.

Helicopter Landing Path 7
The Helicopter Landing Path provides the ability to set up an approach sector on the screen. It allows the radar operator to monitor the helicopter's approach and to offer guidance.

The Helicopter Landing Path is notable from relative 90 to 270 degrees. The triangle is fixed to a length of 2 nm with a beam width of 10 degrees. It is divided in 4 ranges of 0,5 nm each.

Relative Velocity Calculation
Relative Velocity Calculation enables the radar operator to plan and implement an interception of a tracked target. The intercept course and time based on a default speed is displayed for any cursor position on the PPI as long as this feature is activated.

Meeting Point
Meeting Point extends the functionality Relative Velocity Calculation by providing the opportunity to calculate with an offset position to the target. This is particularly useful in maritime interdiction operations.

Blind Piloting
This feature provides the ability for passage preparation and Blind Piloting in narrow fairways. It provides additional index lines similar to the already in the radar implemented parallel index lines. Up to 16 index lines are available with user defined length.

RIB Tracking
This feature will display the RIB/RHIB as a radar target based on the data which are received from the RIB transponder base station (which is not in scope of supply of MULTIPILOT-N.

DISPLAY MULTIPILOT

NACOS Platinium Series

Functional Package - Multipilot Platinum-N

- Combined IP Radar/ECDIS
- High resolution wide screen displays
- Multiple view mode
- Built –in radar interswitch
- Overlay and tracking ARPA and AIS targets (actually 100/500)
- Automatic clutter suppresion
- Enhanced small target detection
- Chart data bases
  - ENC S 57/S63
  - C-Map CM93-3;
  - Admirality AVCS/ARCS
- Chart maintenance based on real time update and dynamic licensing
- Extented Man over Board functions
- Separate ECDIS layer for user (Mariner Notes)
- Type approved as Minimum Keyboard Display for the Wärtsilä SAM Electronics R5 Supreme AIS
- Integrated VDR display and operation of the Wärtsilä SAM Electronics VDR 4360
- Easy to operate by trackball or functional radar keyboard
- On screen NAVTEX updates
- Integrated conning page

Software Options

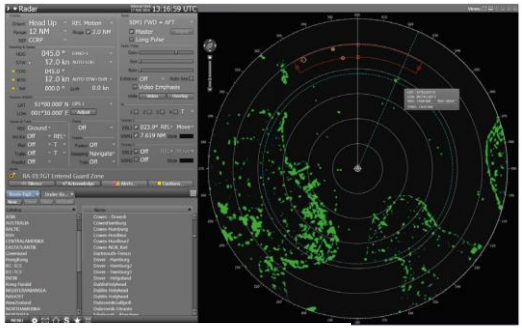
- Up to 12 additional naval software functions

Hardware Options

- High speed turning antenna for helicopter tracking
- Interface for external remote control of SAM Electronics navigation radar
- Blanking trigger output for ECM/ECCM
- Transponder connection (e.g. RIB, RBB)
- IP based radar video output
- Type approved radar picture merging with inpuls from up to 4 radar antennas

Other Option

- **Interface with searching lights (target tracking and remote control)**



Radar display mode

www.themys-sa.com **info@themys-sa.com**

www.wartsila.com **anc.sam.de@wartsila.com**

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