

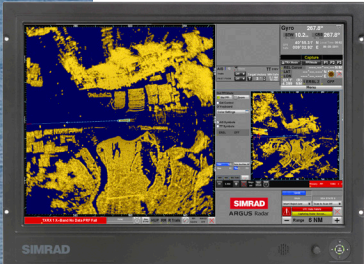
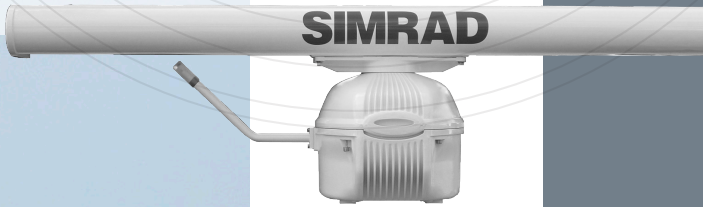
**SIMRAD**

**PRO  
SERIES**

**Simrad ARGUS Radar** 

**DETECT | PROTECT | LOCATE**

**ARGUS  
RADAR**





# Simrad ARGUS Radar

## STATE OF THE ART X-BAND RADAR

The Simrad ARGUS radar is a new series of improved X-band radars which provide mariners with even better detection capability. The new configuration is characterized by reduced weight, small dimensions and compact electronics thereby offering the proper solution for installation even on small High Speed Crafts.

### ► X-band

X-band antenna group including 6 or 9 foot antenna and pedestal with 12 or 25 kW transceiver up-mast.



### ► Main features:

- Designed for new Navigation Radar Standard IEC 62388
- Pedestal with built-in 12 kW or 25 kW transceiver supports 6' and 9' antennas
- Modular and solid state construction
- Electronic Modulator based on mosfet technology
- Long life 3rd generation magnetron (12 kW and 25 kW)
- Low Noise Amplifier providing a reduced overall Noise Figure
- Microcomputer controlled operations
- Serial link with telemetry and remote control for adjustments
- Built-in test facilities for power supply and modulator parameters
- PRF jittering removing any possible ambiguity due to multiple-time-around echoes
- Two different Sectors Blanking to be set at time of installation
- Performance Monitor
- Rotation: 20 or 40 rpm
- Easy installation

" In Greek mythology, Argus Panoptes, or Argos, guardian of the heifer-nymph Io and son of Arestor, was a primordial giant whose epithet "Panoptes", "all-seeing", led to his being described with multiple, often one hundred, eyes."

Source: Wikipedia

### RADAR APPROVALS

- EC Marine Equipment Directive (MED)
- United States Coast Guard (USGC)
- China Classification Society (CCS)
- Russian Maritime Register of Shipping (RS)
- Shipping Register of Ukraine
- FCC
- ISO 9001

## WHO IS THE ARGUS RADAR FOR?

### ► Short Sea



### ► Patrol / SAR / Military



### ► Super Yacht



### ► Work Boat / OSV



### ► Passenger / HSC



### ► Fishing vessel



# ARGUS Radar - Product overview

The Simrad ARGUS radars fully complies and exceeds IMO regulations. Thanks to the modular design, they can be either assembled to form a stand-alone display cabinet or be flush mounted into a mechanical bridge console.

The standard configuration always includes full ARPA, AIS and an electronic built-in Interswitch for dual radar installations.

## PRO ARGUS KEY FEATURES

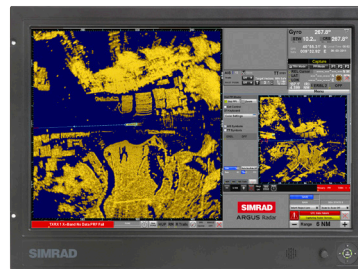
- ▶ State of the art professional X-band radar
- ▶ Available in 12 and 25 kW versions
- ▶ Approved for IMO vessels
- ▶ Separate processor, monitor and operation panel
- ▶ 40 target ARPA feature as standard
- ▶ Wide screen color monitor option
- ▶ Superior signal processing
- ▶ Significantly larger target presentation area
- ▶ Seamless use of up to four antennas
- ▶ Optional Advanced Oil Spill and Ice Detection Software



▶ **19" display**  
Part no. 000-10632-001



▶ **23" display**  
Part no. 000-10633-001



▶ **27" display**  
Part no. 000-10634-001



▶ **ARGUS Core Unit**



▶ **ARGUS keyboard**

## ARGUS RADAR DISPLAY

The ARGUS display is produced in three different configurations.



- ▶ **The deck configuration** provides an optional display deck stand which can also house the electronic cabinet. Two different options available :
  - Desk-Top Cabinet for 27" with Pedestal
  - Desk-Top Cabinet for 23" / Adapter Frame kit for 19" Monitor / Pedestal

- ▶ **The modular configuration** with monitor, keyboard and ARPA electronic cabinet supplied as three separate modules which can be flush mounted into the bridge console to the customers' preference.

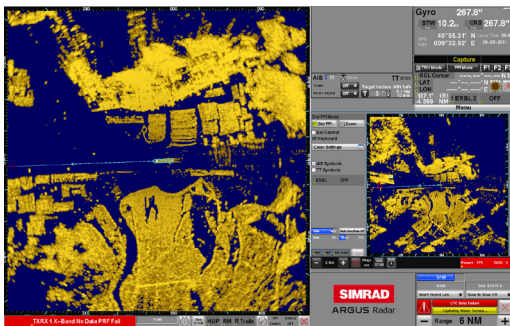
- ▶ **The table top configuration** where the monitor and key-board are housed into an ergonomic console while the ARPA electronics are contained in a separate bulkhead mounted cabinet.

# ARGUS Radar - Product overview

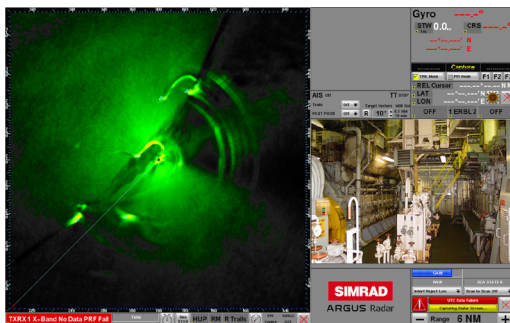
## SCREEN PRESENTATION

### ► Wide screen (27") radar presentation:

- **Square Radar PPI**
- **No info clutter in radar PPI** - Most professional radar users sail in North-up presentation (as in the ECDIS) enabling the navigator to see further on short range and pulse settings.
- **User selectable second** - Use for dual range, extra target zoom or of center presentation.
- **User selectable viewing area** - Select CCTV, full Conning or second radar scanner, all without compromising IMO performance requirements.



### ► Wide screen - Add up to 3 cameras per monitor

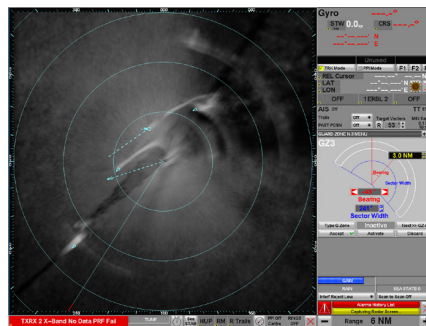


**“ This is the easiest radar we have ever installed. That gives us an advantage against the competition when we are quoting package deals.”**

Greek distributor Peter Spanos, MD - after having installed three systems

### ► 19" and 23" displays

- **Square Radar PPI** - Same as a chart on an ECDIS.
- **No info clutter in radar PPI** - Most professional radar users sail in North-up presentation (as in the ECDIS) enabling the navigator to see further on short range and pulse settings.
- **Main radar operator settings** - One line containing most used radar functions and information.
- **User selectable viewing area**



## TROUBLE FREE INSTALLATION/SERVICE WITH SNAP-ON CONNECTOR

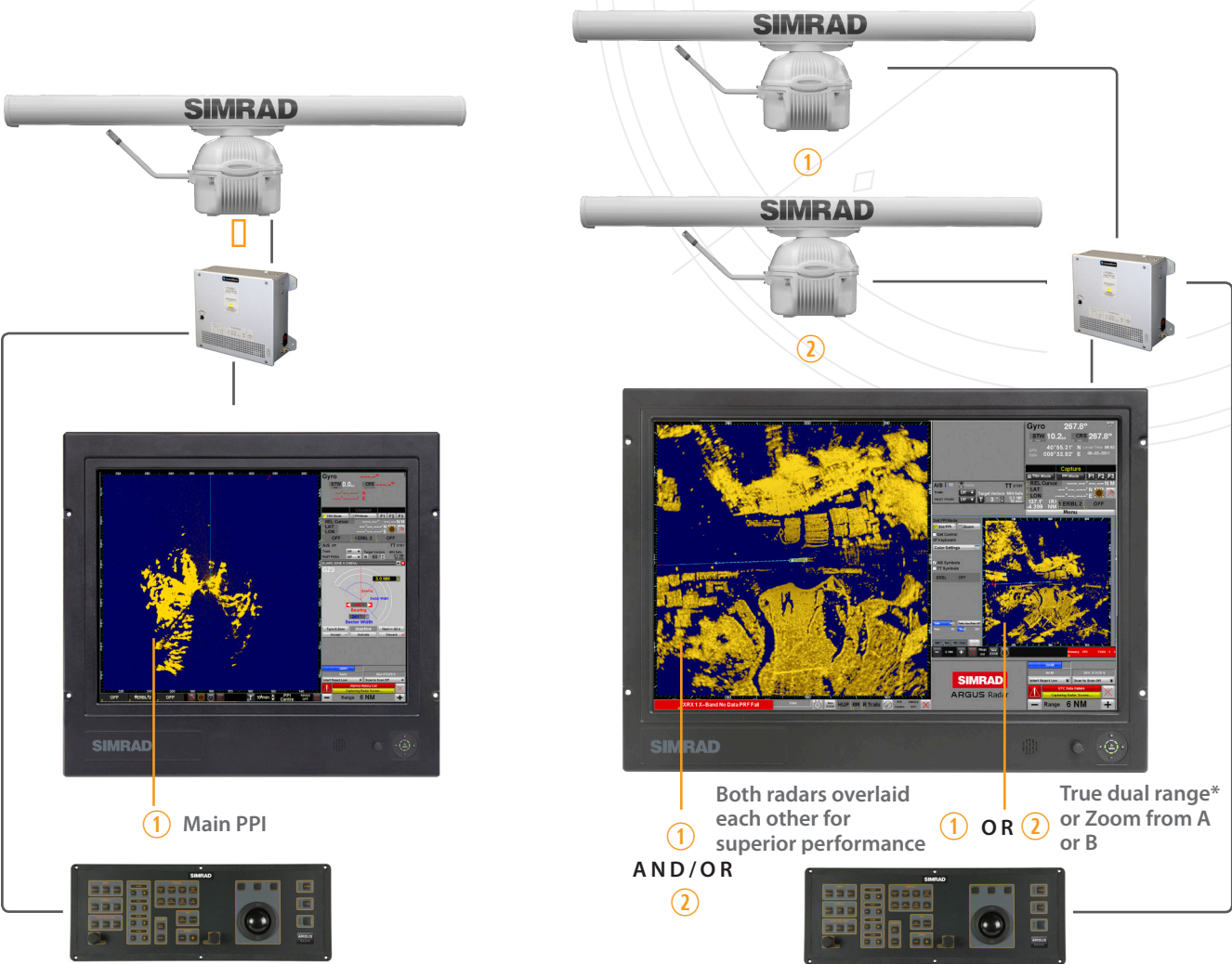
The interface with the radar console is through a single connector and it is not necessary to open the transceiver casing during installation. Every analogue adjustment is made remotely from the ARGUS console.



- Easy installation. The radar cable snaps on from the outside ensuring quick, easy and trouble free installation.
- Easy service. With the connector on the outside, there are no cables that need removal or are in the way of easy servicing. Choose between pre-terminated or open end cables in selected lengths.



# ARGUS Radar - Radar display configuration options



## ▶ ARGUS Radar Systems part numbers

Part Number	Description
000-10497-001	Argus 12U/6X P System - includes 12kW Upmast Scanner with 6' Antenna, Core unit, Expanded keyboard, Performance monitor, 40 target ARPA, 200 target AIS and Interswitch
000-10499-001	Argus 12U/9X P System - includes 12kW Upmast Scanner with 9' Antenna, Core unit, Expanded keyboard, Performance monitor, 40 target ARPA, 200 target AIS and Interswitch
000-10501-001	Argus 25U/6X P System - includes 25kW Upmast Scanner with 6' Antenna, Core unit, Expanded keyboard, Performance monitor, 40 target ARPA, 200 target AIS and Interswitch
000-10503-001	Argus 25U/9X P System - includes 25kW Upmast Scanner with 9' Antenna, Core unit, Expanded keyboard, Performance monitor, 40 target ARPA, 200 target AIS and Interswitch
000-10496-001	Argus 12U/6X P HSC System - includes 12kW Upmast Scanner with 6' Antenna, Core unit, Expanded keyboard, Performance monitor, 40 target ARPA, 200 target AIS and Interswitch

Part Number	Description
000-10498-001	Argus 12U/9X P HSC System - includes 12kW Upmast Scanner with 9' Antenna, Core unit, Expanded keyboard, Performance monitor, 40 target ARPA, 200 target AIS and Interswitch
000-10500-001	Argus 25U/6X P HSC System - includes 25kW Upmast Scanner with 6' Antenna, Core unit, Expanded keyboard, Performance monitor, 40 target ARPA, 200 target AIS and Interswitch
000-10502-001	Argus 25U/9X P HSC System - includes 25kW Upmast Scanner with 9' Antenna, Core unit, Expanded keyboard, Performance monitor, 40 target ARPA, 200 target AIS and Interswitch
Available on request	Argus 30U/12S P S-Band Radar Scanners available on request includes 30kW Upmast Scanner with 12' Antenna, Core unit, Expanded keyboard, Performance monitor, 40 target ARPA, 200 target AIS and Interswitch
Available on request	Advanced Oil Spill and Ice Detection Software (OSID). Available as standard upgrade without compromising the IMO type approval

## Building an Anti-Piracy System

The SIMRAD ARGUS system introduces some key features that tackle the problem of piracy of the merchant fleet and yachts. By utilizing Broadband Radar's\* close range performance and zero radiation, fleet owners can build an anti-piracy system into the navigation display. Pirates typically attack vessels underway and at night from behind to avoid being seen on the Navigational radar. They very often approach in small skiffs hard to detect in-between waves with 4-8 pirates on board. Sometimes with two - three boats together and using a Mother ship as base. So far evasive ship manoeuvres seem to be the best action hindering boarding and an attack can last several hours before giving up. Pirates are also attacking while ships are at anchorage.

Navigational Radars are typically mounted in front of smokestacks and are therefore focused forward looking. The sheer size of the scanner prevents mounting in strategic places.

The ARGUS has the ability to merge two high powered antennas to find small targets in-between ocean waves, display long and short range simultaneously and zoom in on and track suspicious targets.

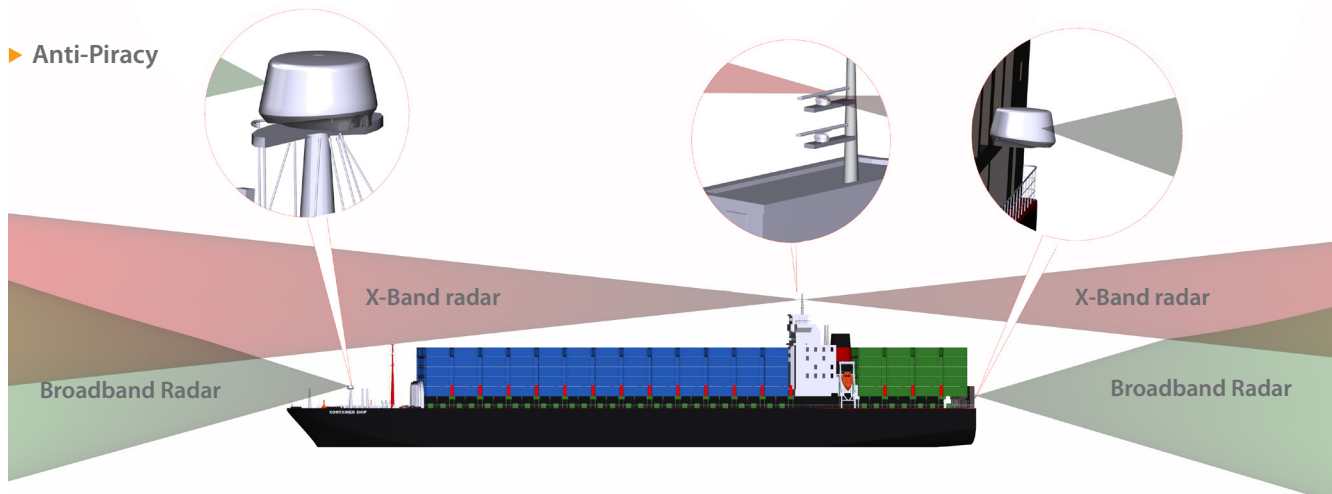
The ARGUS also has the ability to integrate Broadband Radar and display Pulse and Broadband simultaneously in one single display overview with uncompromised IMO performance.



### ► Tighten the Blind Zones

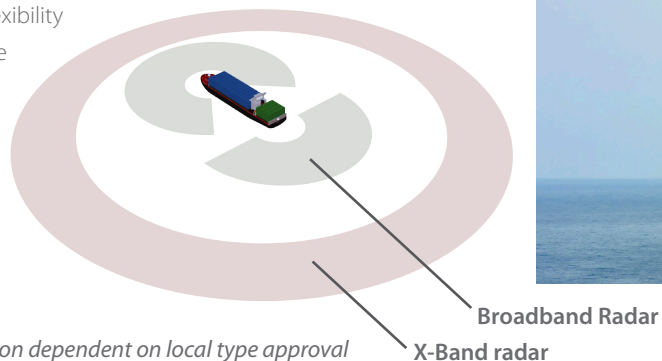
The Broadband Radar\* component provides complete close range coverage within the pulse radar's blind spot. Targets can be monitored and detected within a 5m range ensuring that all potential threats are monitored.

### ► Anti-Piracy



## Docking Radar

With the optional Broadband Radar's\* close range performance, the navigator or pilot can monitor the vessel relative to the dock or other structure right up to the point of contact. Total flexibility of installation is available due to zero radiation hazard enabling scanner location that is not possible with pulse radars' inherent radiation.



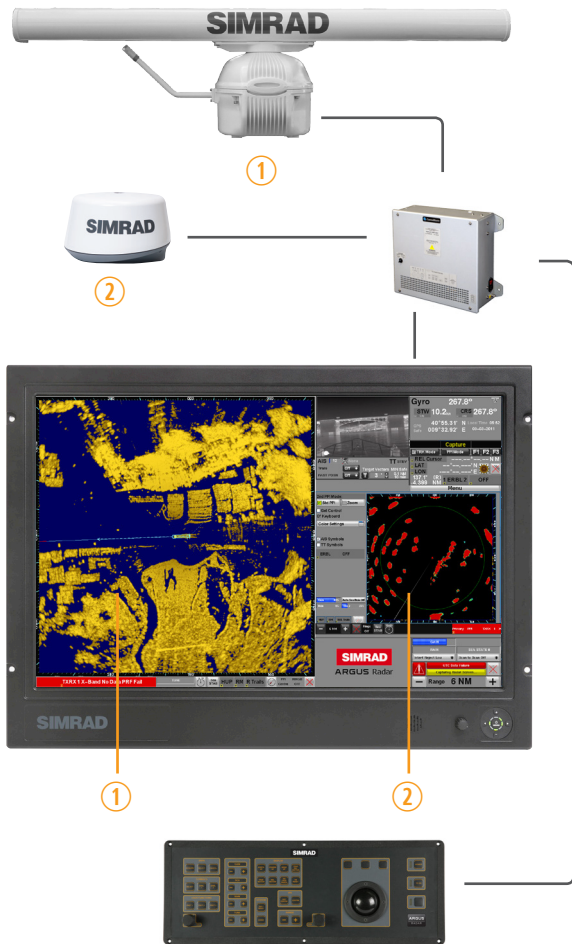
\* Broadband Radar integration dependent on local type approval



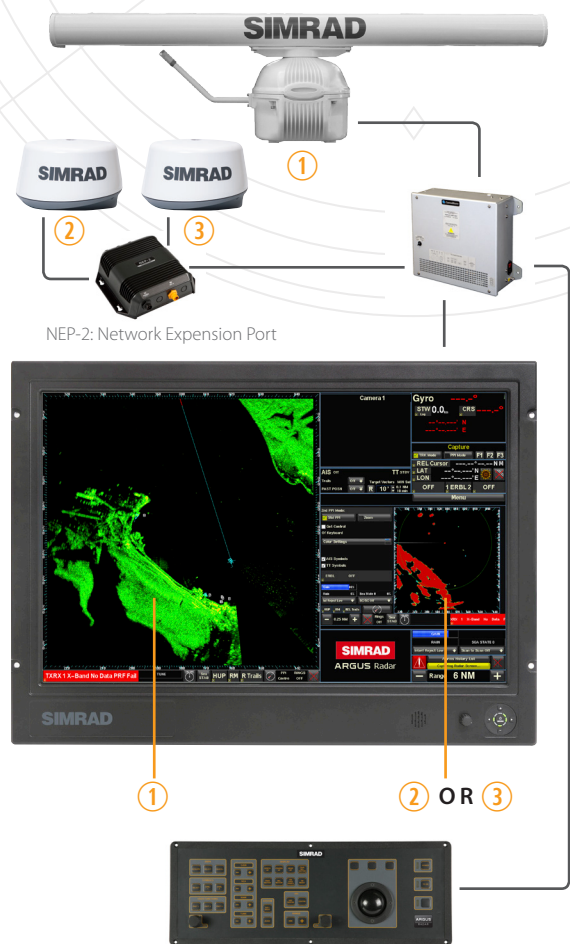
# ARGUS Radar - Radar display configuration options

Add Broadband Radar to the ARGUS system with either a single or dual scanner implementation and monitor close range targets alongside the long range view (widescreen monitor required).

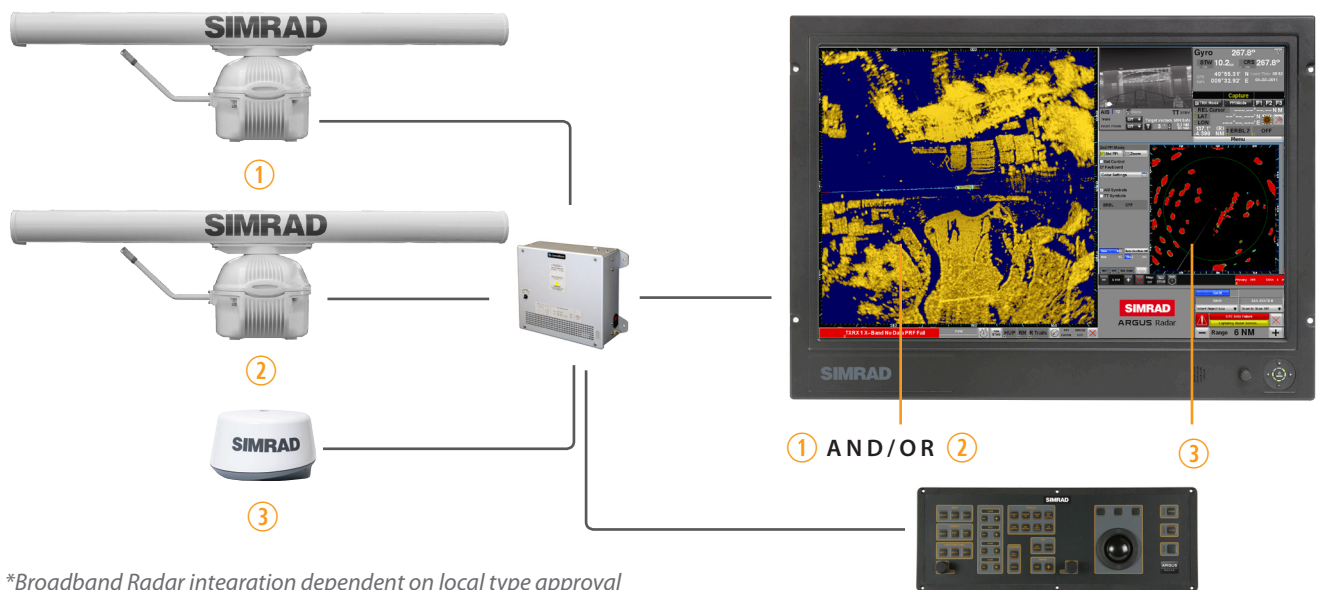
## ▼ Broadband Radar Integration (Dual)



## ▼ Broadband Radar Integration (Dual)



## ▼ Anti Piracy and/or Anti collision and/or Docking Radar integration



\*Broadband Radar integration dependent on local type approval

# Advanced Oil Spill and Ice Detection Software (OSID)

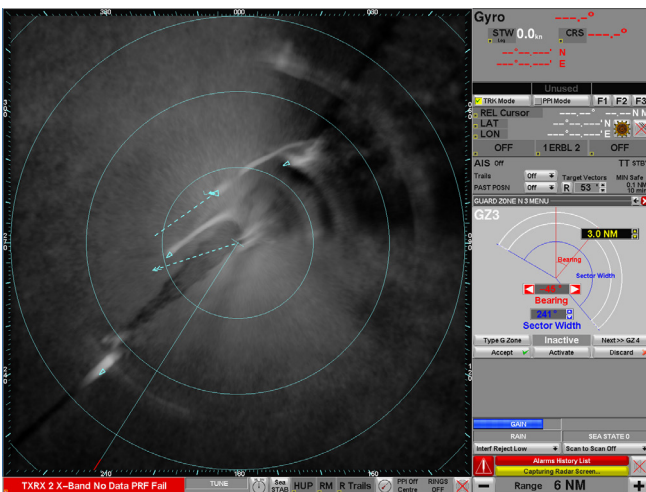
With the optional Advanced OSID Software module installed, the Simrad ARGUS system provides the navigator with both the unique Oil Spill Detection software and the special Ice Navigator features. The navigator can use the radar display as a normal ARPA radar and then easily switch over to the oil spill function as required, enhancing the functionality and providing a comprehensive oil-spill response tool.

The ARGUS radar is the perfect tool for ships in Arctic waters. The Advanced OSID software provides special STC shape for optimal suppression of iced sea clutter and easy interpretation of small

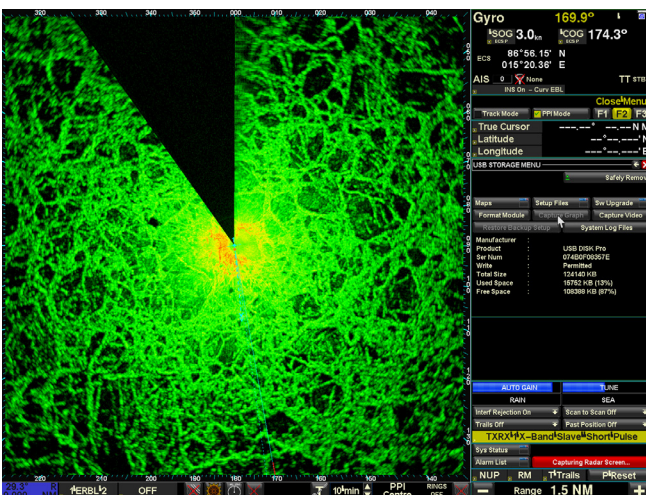
objects and echoes over ice. The result is that new ice pathways or rough areas in the ice banks are clearly visible making water easily be detected.

A Master/Slave inter-switch board is provided as an integral part of the ARGUS radar system. This means that the oil-spill and ice detection displays can easily be interfaced to all on-board radar sensors. The Advanced OSID Software also enables an increase of the antenna rotation speed up to 44 revolutions per minute and the advanced video processing allows for operation under all kinds of visibility conditions.

## Oil Spill Detection



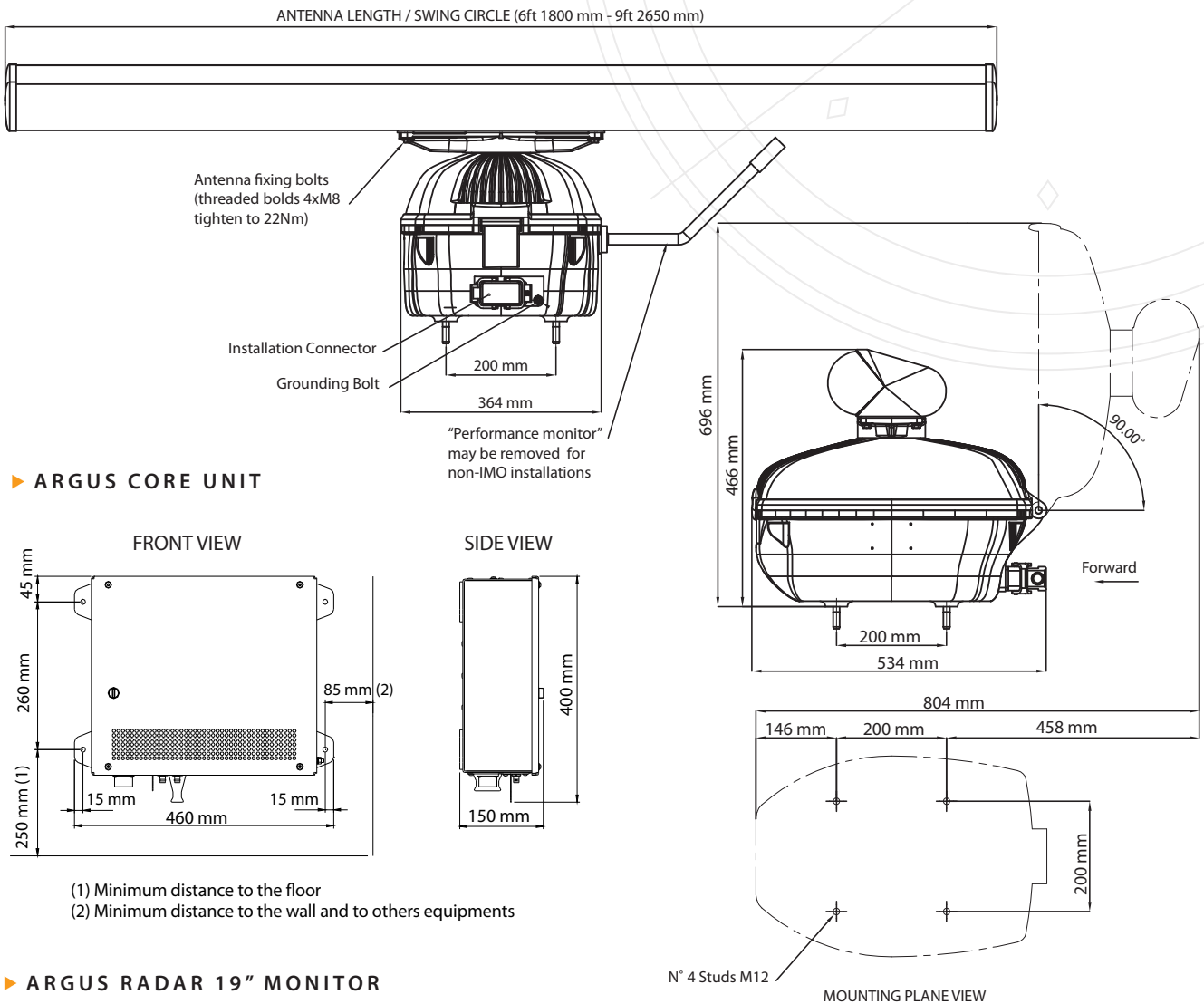
## Ice Detection and Navigation



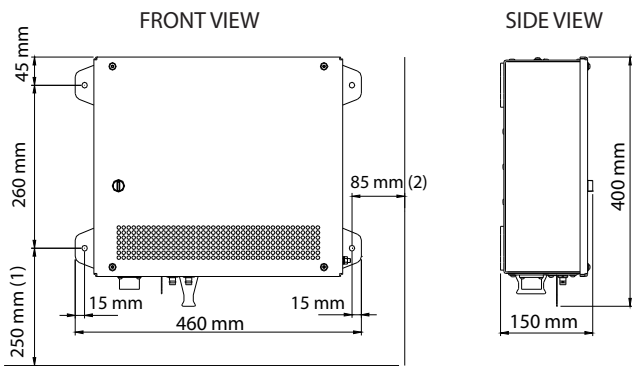


# Technical Specifications

## ▶ ARGUS RADAR ANTENNA

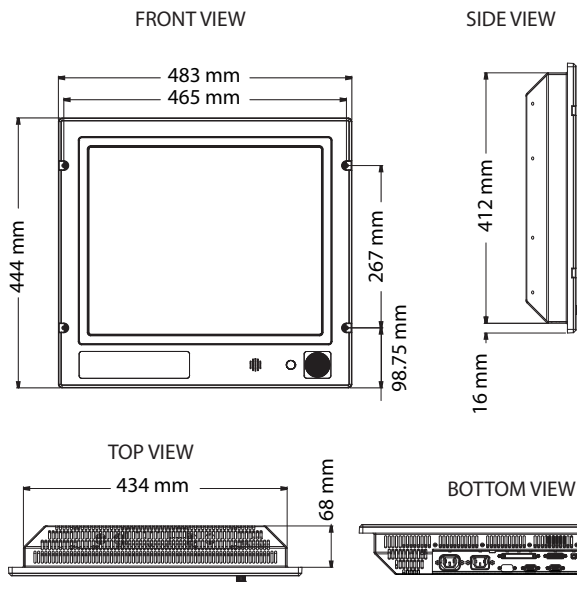


## ▶ ARGUS CORE UNIT

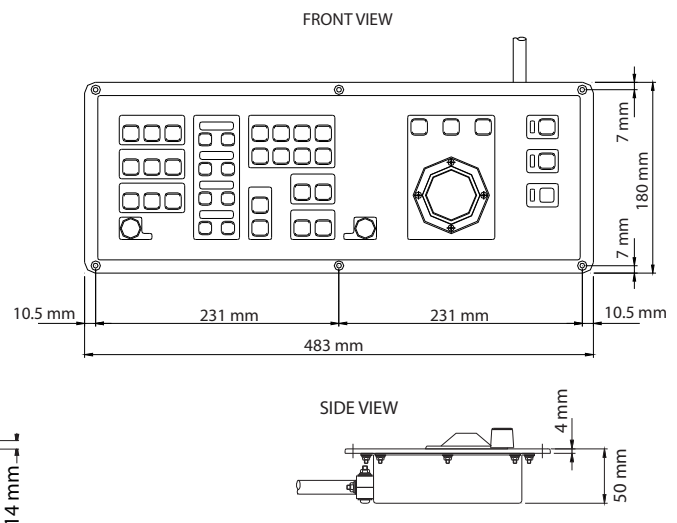


- (1) Minimum distance to the floor
- (2) Minimum distance to the wall and to others equipments

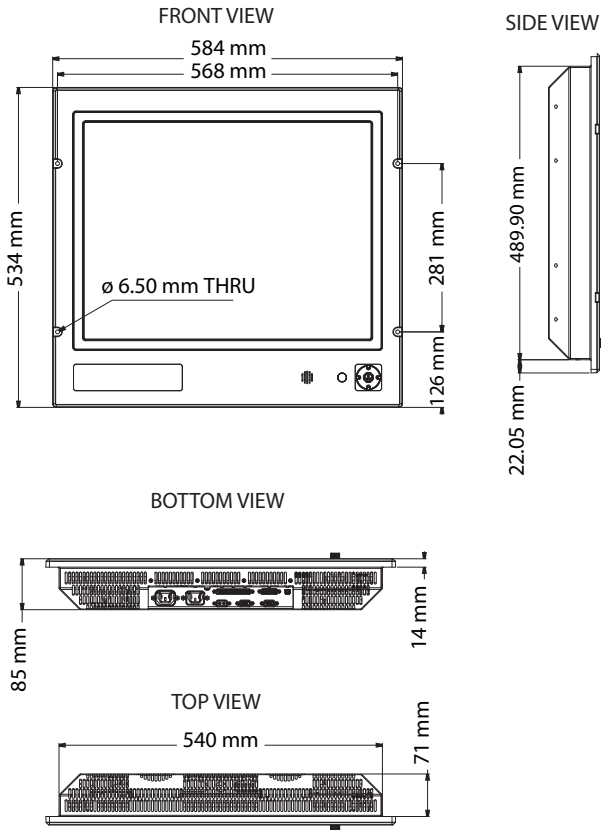
## ▶ ARGUS RADAR 19" MONITOR



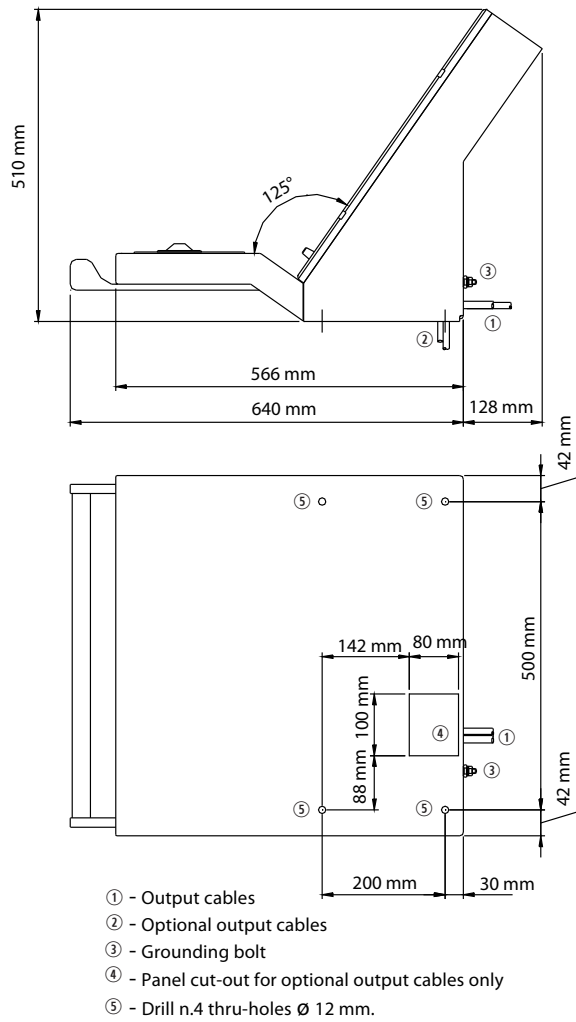
## ▶ ARGUS RADAR KEYBOARD



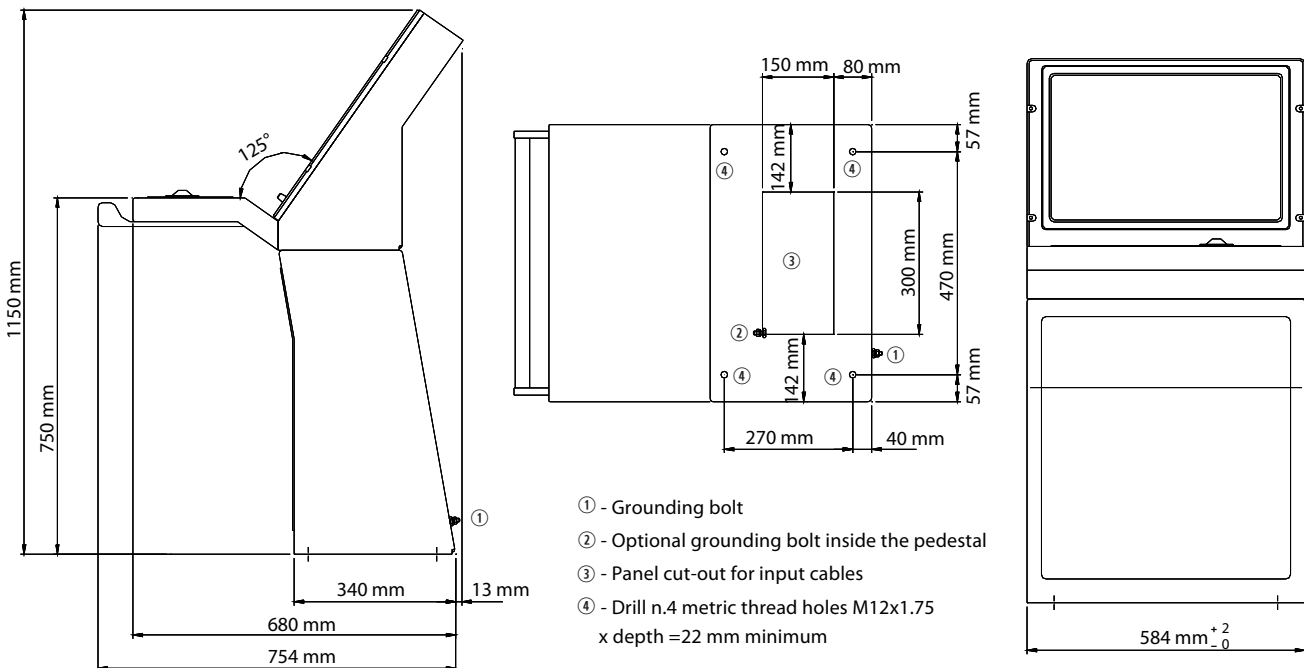
▶ ARGUS RADAR 23" MONITOR



▶ ARGUS RADAR 23" DESK MOUNTING

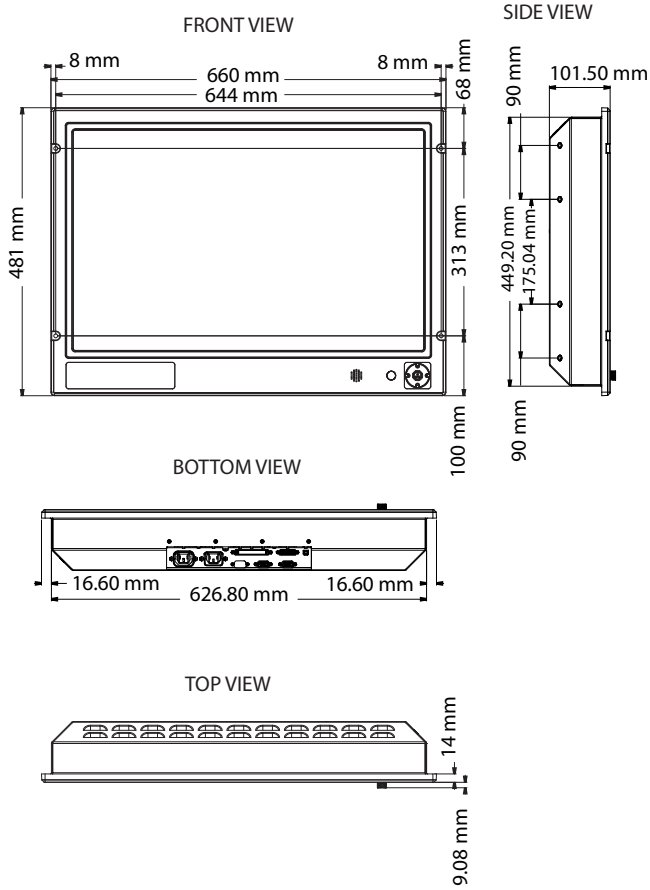


▶ ARGUS RADAR 23" DECK MOUNTING

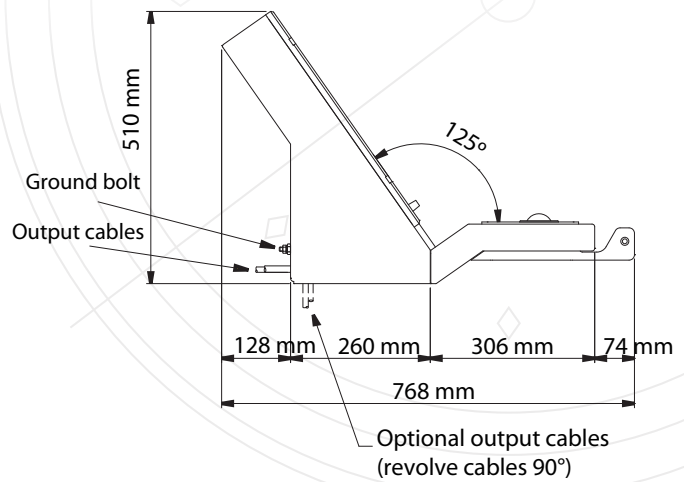




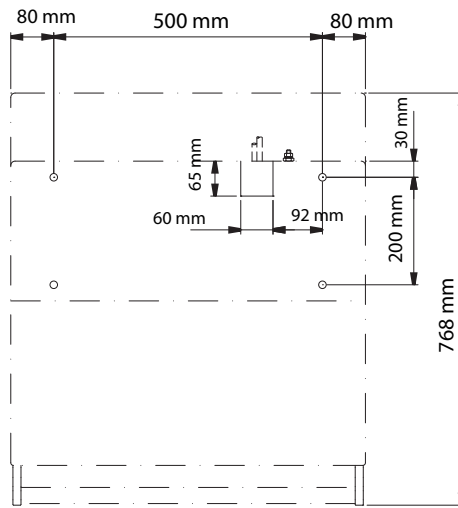
▶ ARGUS RADAR 27" MONITOR



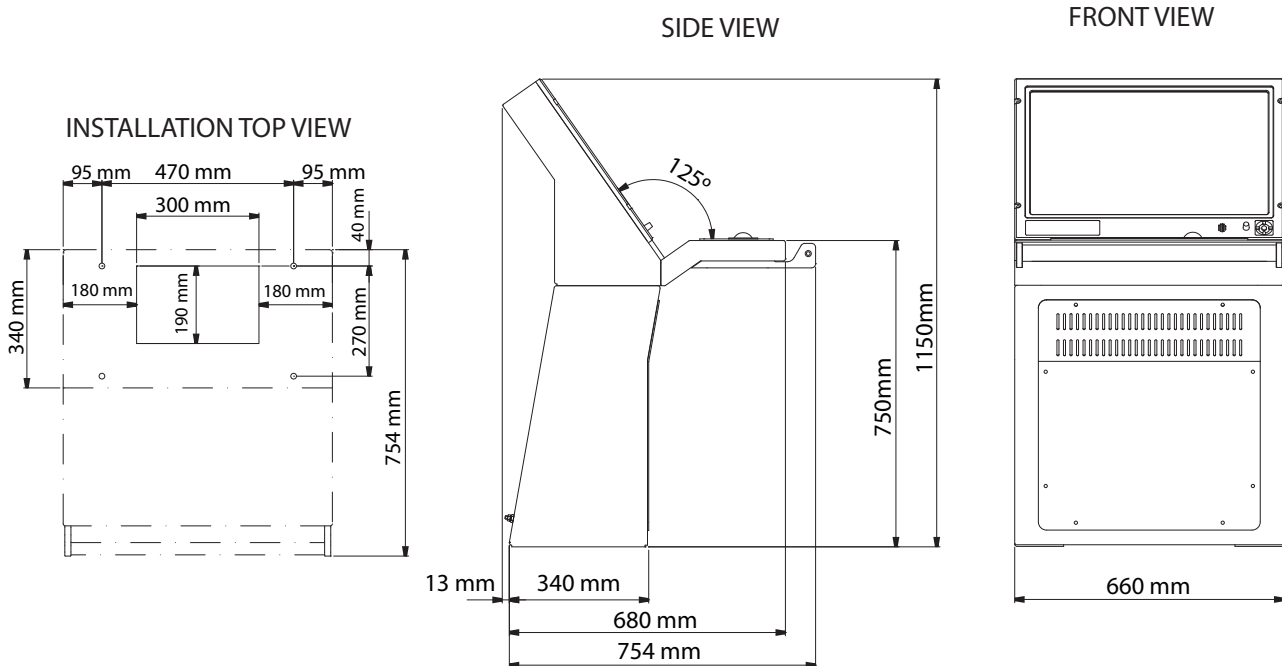
▶ ARGUS RADAR 27" DESK MOUNTING



INSTALLATION TOP VIEW



▶ ARGUS RADAR 27" DECK MOUNTING

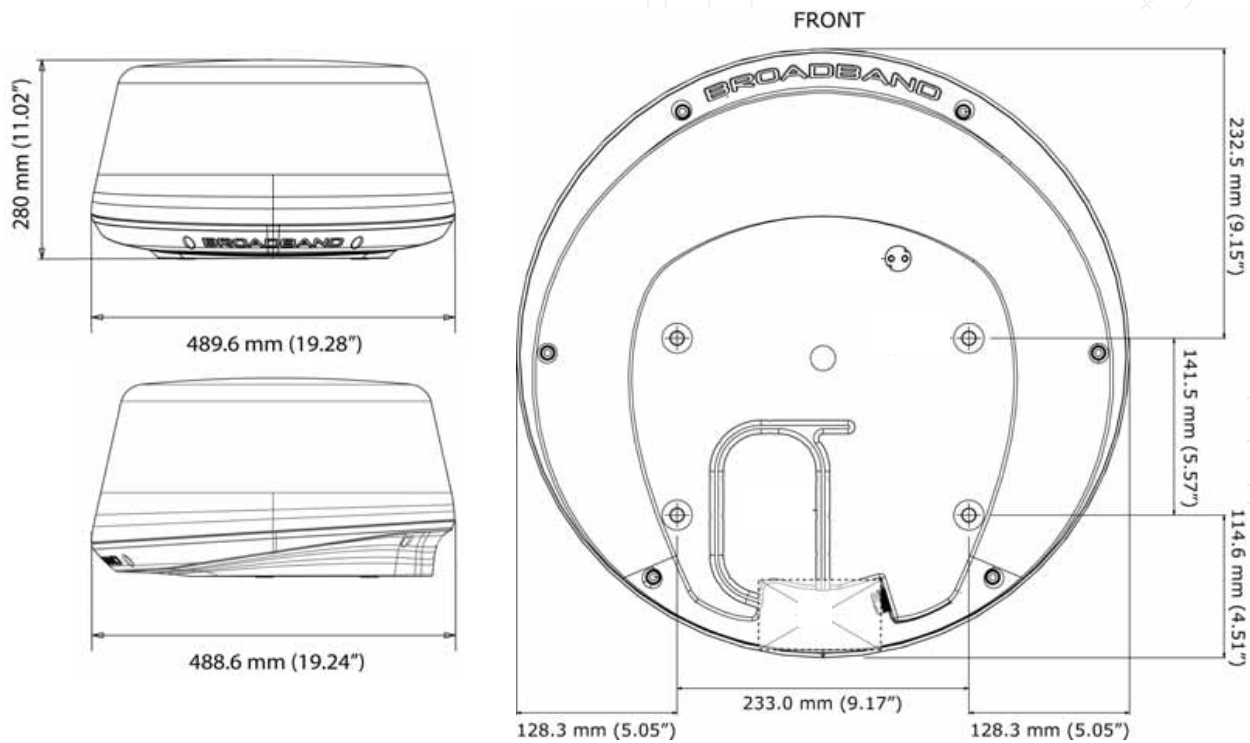


## ▶ ARGUS SPECIFICATIONS

<b>DISPLAYS</b>	
Monitor - size and resolution	19" LCD - 1280x1024 23" LCD - 1600x1200 27" LCD Wide screen - 1920 x 1200
Radar picture	>250 mm (12" PPI) / >320 mm (16" PPI)
Presentation Modes	Day/Night modes
Relative motion (RM)	Head, Course and North Up
True Motion (TM)	Course and North Up
Off-centering	Up to 50% of range scales in use
Range Scales	0.25; 0.5; 0.75; 1.5; 3; 6; 12; 24; 48; 96 nm
Range Resolution	3 m on 0.75 nm range scale
Azimuth resolution	0.1°
Trackball	Polar and Geographical coordinates. Continuously displayed
Diagnostic	On-line diagnostic programs
<b>ARPA FACILITIES</b>	
Acquisition	Manual or automatic up to 40 targets
Tracking	Automatic up to 40 targets
Auto acquisition / Guard Zones	One auto acquisition zone stabilized on Ownship heading and size/shape configurable. Four sectors with fixed width of 0.5 nm configurable as auto acquisition or guard zone
<b>AIS FACILITIES</b>	
Presentation	Up to 200 targets chosen as the nearest to own ship AIS overflow mechanism of priority
Safe checking	All 200 targets in sleep or activated stated
Auto acquisition / Guard Zones	Same zones as described for ARPA facilities. The System provides up to four Guard Zones
<b>TRIAL MANOEUVERS</b>	
Trial course	For ARPA and AIS target. Manually adjustable from 0° to 360° or automatically computed within 135° with reference to present course.
Trial speed	Adjustable from 0 to 50 knots
Trial ROT	Adjustable from 1° to 60°/min
Trial time	Adjustable with 1 min increments
<b>MAPPING</b>	
Operator compiled maps up to 120 segments plus symbols and text strings with selectable colors and line styles.	
Map stabilization	Relative, true (Dead Reckoning) or geographic
Map storage	By name, on a built-in non-volatile memory. Transferable via USB Memory stick
Map adjustment	Position and Orientation
Parallel index	Four independent parallel index lines
Data readout	Own ship data ARPA target data AIS target data
System setting	Safe minimum CPA and TCPA, vector / past position / trial / trials time
<b>OTHERS</b>	
Alarms	Acoustic and visual warning for: Dangerous Target, Target in Guard Zone, Lost Target, System Failure and external interface sensors (EPFS and AIS).
Other features	Anchor watch, echo reference speed (not for AIS enabled systems), EPFS speed.
Inputs	Serial interface NMEA0183 (IEC 61162-1/2) Gyro, Speed log, EPFS, AIS, Wind sensor, Ext. Alarm Interface
Outputs	Serial interface NMEA 0183 (IEC 61162-1/2) RATTM-RAOSD-RARSD-RAALR sentence AIACK for AIS alarm acknowledge, RATTD, RATLB, Dead Man Alarm, Power Fail, Danger Target, Video output for VDR
Other interface	Dual Ethernet 10/100Mbit/s USB 2.0 port
<b>ENVIRONMENTAL CONDITIONS</b>	
Operating temperature	Display Unit: -15° to 55°C (IEC 60945 protected equipment) Antenna group: In-door -15° to 55°C Out-door, std -25°C to 55°C Out-door option: Down to -40°C (Pedestal with heater)
Storage Temperatures	25°C to 70°C (IEC 60945)
Relative humidity	Up to 93% at 40°C (IEC 60945)
IP class	IP41 (display)
Vibrations	As per IEC 60945
Power supply	Display Unit: 220/115 VAC 50/60 Hz (30 W) SRT X-Band Radar: 220/115 VAC 50/60 Hz (300 VA) Fed by Core unit
Power consumption	500 W max (depending on monitor and wind load)

Type testing in accordance with	IMO Resolution A.813 (19) A.694 (17), MSC192 (79), MSC 36 (63), IMO Circ. S/N 217 and specified standards: IEC 60945 (General Requirements) IEC 62388 (Performance Requirements) IEC 61162-1/2 (NMEA Interface)	
<b>X-BAND RADAR UP-MAST</b>		
Peak Power (kW)	12 or 25	
Pulse length (nsec)	60 – 250 - 800	
PRF (Hz)	3000-1500-750	
Antenna model	<b>6X</b>	<b>9X</b>
Gain (dB)	29	31
Horizontal beam width at -3 dB (°)	1,3	0,9
Vertical beam width at -3 dB (°)	22	22
Weight of Antenna incl. Pedestal with Transceiver (kg)	40	40
Nominal Rotation speed (RPM)	20 or 42 for HSC	20
<b>GRAPHIC FUNCTIONS</b>		
True or relative time adjustable vectors Target identification number, track-ball marker and true marks AIS identification number, ship names or call signs Time adjustable past position plots Four independent parallel index lines Waypoints and Route from Electronic Position Fixing Systems Own ship shape and activated AIS target shape on lower range scales		
<b>SPECIAL FEATURES</b>		
Fully complies and exceeds IMO recommendations Best radar signal processing in the market Wide screen presentation with Dual radar presentation True zoom in second window Real time Dual Range Picture In Picture control (CCTV) Square PPI for clutter free presentation and same look as side by side ECDIS Integrated solid state FMCW Broadband radar control <ul style="list-style-type: none"> <li>• Anti-piracy aft blind sector target detection</li> <li>• PORT or STBD docking radar</li> <li>• Short range own ship awareness</li> <li>• Anti-collision</li> </ul> Up to four IMO + two Broadband radar transceivers per core unit can be controlled from a single display <ul style="list-style-type: none"> <li>• Single Transceiver/Single Display</li> <li>• Single Transceiver/Multi Displays</li> <li>• Multiple Transceivers/Single Display</li> <li>• Multiple Transceivers/Multiple Displays</li> </ul> Built-in electronic dual Inter-switch Intelligent merging of AIS & ARPA targets Anchor-watch with echo references Auto Diagnostics User selectable Menu and Radar video color pallets User defined "Cursor Rest Position" with timeout feature Three Function keys for storing personal settings Automatic help labels on each radar button Sweep to Sweep Correlation for enhanced Interference Rejection Scan to Scan Correlation separating real echoes from sea clutter Advanced Target Enhancement for smaller echoes 6 kinds of pre-sets for superb video processing: Harbor, Short Range/ Small Echoes, Medium Range, Long range, Bad Weather and Iced Sea /Iceberg detection User defined Master/Slave operation Build in Performance Monitor to test the status of the transceiver, waveguide and antenna chain "Power Booster" function for the medium ranges Optional Oil spill detection software pack All X band scanners (Pulse and FMCW) has an external snap on connector for quick and easy installation/service		

## ► BROADBAND RADAR



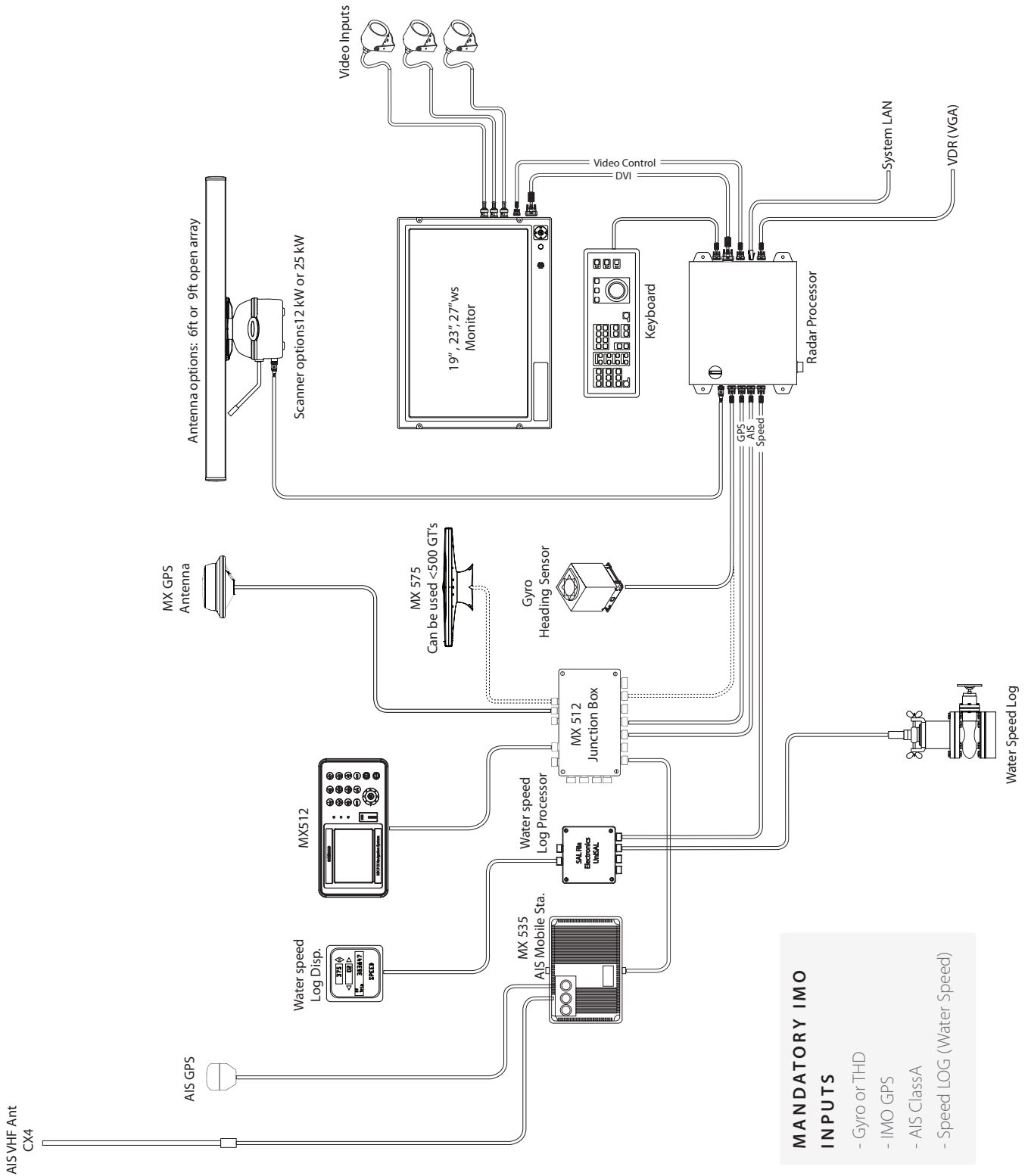
## ► BROADBAND RADAR SPECIFICATIONS

GENERAL			
Compliance	FCC/IC/R&TTE FCC ID: RAY3G4G IC ID: 4697A-3G4G Human Exposure General Public Safety Limit – touch dome anywhere.	Transmitter peak power output (at antenna port)	165mW (nominal)
Environmental	IEC60945 4th edition 2002-2008 Operating Temperature: -25° to +55°C Relative humidity: +35°C, 95% RH Waterproof: IPx6	Main Bang Dead Zone & Tuning	None – not a pulse radar
Relative wind velocity	51 m/sec (Max:100 Knots)	Sea and Rain Clutter	5X less than a pulse radar
Power consumption	Operating: 18W (Typ.) @ 13.8VDC Standby: 2W (Typ.) @ 13.8VDC ~ 150ma	Sweep Repetition Frequency	200Hz
DC input (at end of radar cable)	9V to 31.2Vdc (12/24 Volt systems). Reverse polarity protection	Sweep Time	1ms
Transmitter Source (pre-heating time)	No magnetron – Instant On™	Sweep Bandwidth	75MHz max
Outside dimensions	Height 280mm x Diameter 488mm	Horizontal Beam width (Tx and Rx antenna)	5.2°+/-10% (-3dB width)
Weight (no cable)	7.4 kg	Vertical Beam width (Tx and Rx antenna)	25°+/-20% (-3dB width)
<b>RADAR AND ANTENNA PARAMETERS</b>		Side lobe level (Tx and Rx antenna)	Below -18dB (within ±10); Below -24dB (outside ±10);
Radar Ranges	200' to 24nm with 17 range settings (nm/sm/km)	Noise figure	Less than 6dB
Rotation	24/36 rpm +/- 10%; Mode Dependant	<b>COMS/CABLING/MOUNTING</b>	
Transmitter frequency	X-band - 9.3 to 9.4Ghz	Com Protocol	High Speed Ethernet and Serial
Transmitter source (warm-up time)	No Magnetron – all solid state. Instant On™	Heading	NMEA2000/Simnet (with RI-10 interface box)
Plane of polarization	Horizontal Polarization	Inter Connecting cable length	10m standard with RJ45 thin custom connector – Display model dependent
		Maximum Inter Connecting cable length	30m
		Bolts (4)	M8x30 - 304 stainless steel
		Footprint	W233mm (port/starboard) x L141.5mm (matches Garmin GMR18HD/Raymarine RD218 footprint)



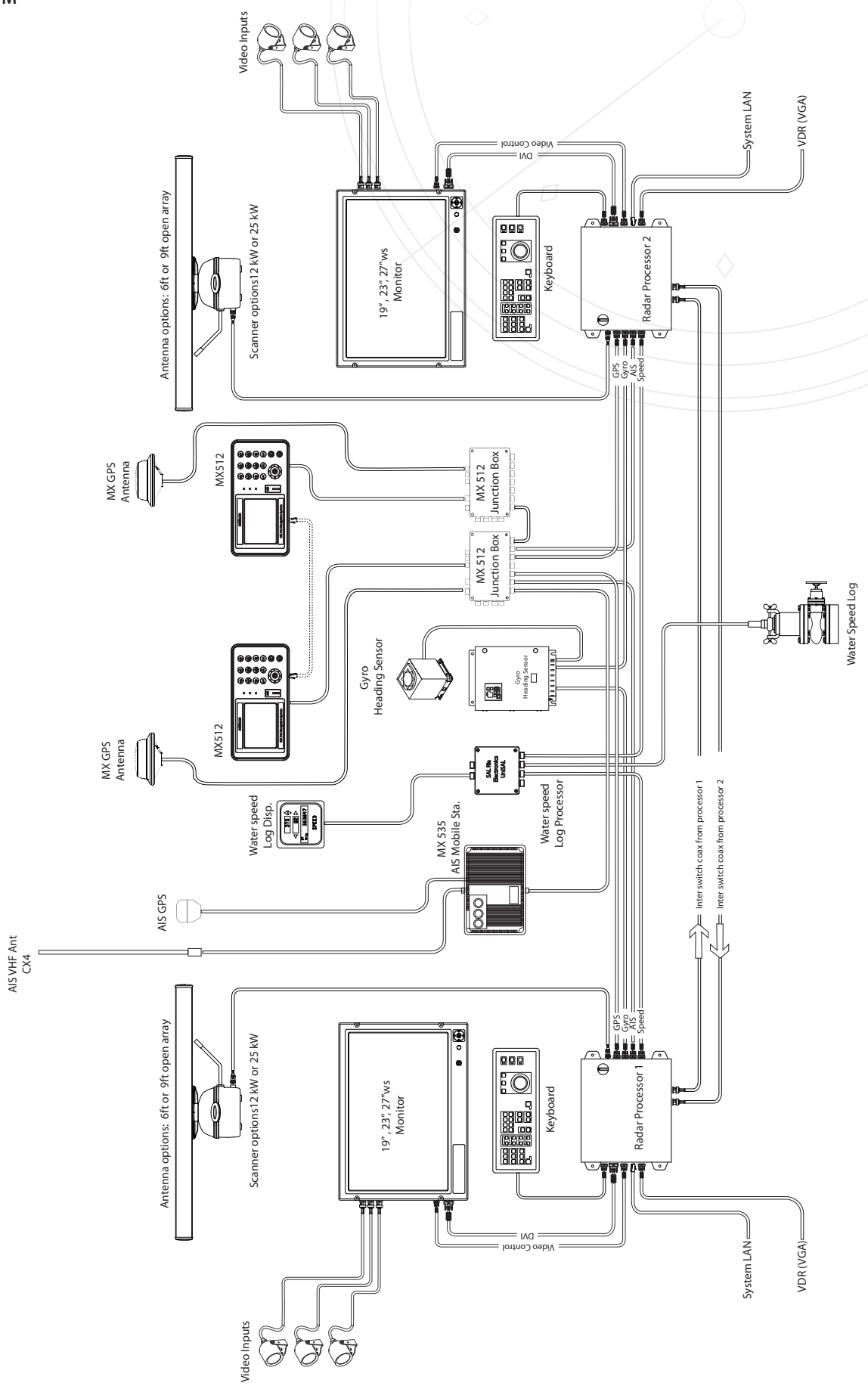
# Technical drawings

## ▶ BASIC SYSTEM



**MANDATORY IMO INPUTS**

- Gyro or THD
- IMO GPS
- AIS ClassA
- Speed LOG (Water Speed)



## OUR HERITAGE: ESTABLISHED IN 1947.

With more than 60 years of maritime expertise invested in delivering solutions to the professional market, we have unique knowledge to support professional customers with cost effective navigation solutions.

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