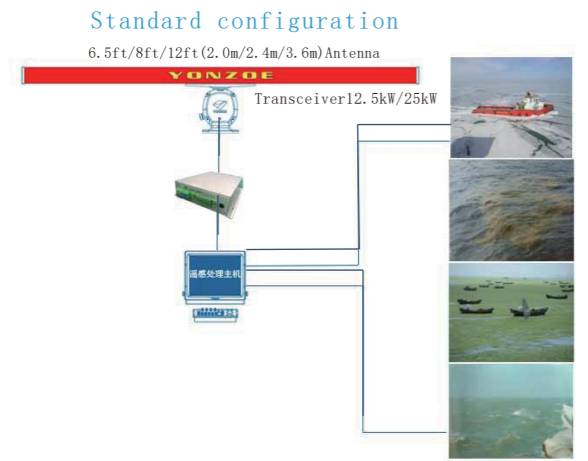


MDR28(N) Marine Remote Sensing Radar

Wave measurement, ice measurement, oil spills, marsh tide (green tide, red tide) remote sensing measurements

The MDR28(N) series marine remote sensing radar is a cost-effective remote sensing radar suitable for marine habitat measurement based on the YAR28N, suitable for a variety of applications such as small target detection, oil spill radar, ice floe radar, wave measurement radar, water floating plant detection and photoelectric linkage early warning system.

For marine remote sensing radar, resolution is an important factor and the MDR28 series with 12ft long antenna and narrow minimum 45ns beam is able to provide excellent angular and azimuth resolution, making it ideal for ice floes, oil spills, waves and shoals detection algorithms. Configured with the company's USB 3.0 collector, the MDR28 can provide digital echo output for direct storage of raw echoes, or bmp format and \*.jpg format images; ideal for the implementation of marine remote sensing algorithms.



- Product features**
- Narrowest 45ns narrow pulse, high Range resolution.
  - Longest 12ft antenna with high azimuth resolution.
  - Vertical polarization antenna available, horizontal polarization antenna also available.
  - 12.5kW or 25kW high power output for long range operation.
  - 100MHz/14bits USB interface digital echo. 6.
  - Data storage call library and format file provided by the acquisition card.
  - 300 targets to track, expandable to 2000+.
  - AIS and radar target fusion module can be provided, fusion output, guide photoelectric equipment shooting for evidence.
  - N-type network model can achieve remote control, suitable for unattended scenario deployment.

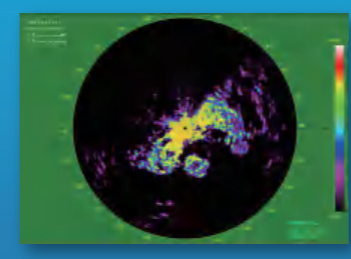
SPECIFICATIONS

• Antenna & Scenner Unit

Name	Parameters	Note	
Output frequency	X band, 9410±30MHz		
Output power (peak)	12.5kW/25kW	High power, long range	
Antenna	type	Slotted waveguide array	
	polarization	Horizontal or vertical polarization	More suitable for measuring
	length	12ft (3.6m)	Suitable for marine remote sensing
	beam width(H)	0.65° (±0.02or5%)High azimuth resolution	High azimuth resolution
	beam width(V)	23° ±5%	
	Sidelobe within ±10°	-29dB	
	Sidelobe outside ±10°	-33dB	
Rotation	24RPM	High Range resolution	
pulse length	45ns-1.2us, Narrow pulses		

USB capture card parameters		
Data Interface	High speed USB 2.0 or 3.0 interface for real time capture and storage of images and data	Windows System, 32 / 64bits
Analogue channel filters	Low-pass 20dB cut-off frequency 10MHz/20MHz/40MHz selectable	Out-of-band noise suppression where possible
ADC sampling frequency	Sampling rate 25MHz/50MHz/100MHz selectable	Meeting the demands of wave echo detail
Number of ADC sampling bits	8bits/12bits/14bitsHigh precision AD sampling bits	Dynamic range for small signal echoes
Sampling depth	1K/2K/4K sample points	Multiple range acquisition available
Bow, bearing, trigger pulse trigger	Positive and negative programmable	
Raw data collection	Supports continuous or watchful storage function	8192 scan lines per frame
Image storage	Support for jpg and bmp formats	
Development of interfaces	DLL development libraries are available for users to develop their own	API interface description, data and image storage, display data output
Sampling application originals	Echo image and waveform display, sample polarity/speed/bit/deptsettings, analogue gain/bias channel configuration, imagedistance/angle adjustment settings, memory parameter settings	Executable programs available

Ice Measurement

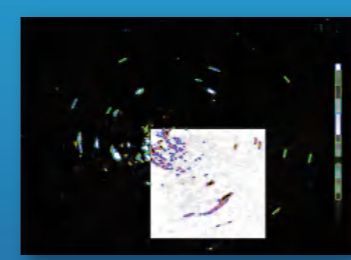


Radar sea ice imagery technical specifications

- Sampling frequency: 50-100MHz.
- Amplitude resolution: 8-12 bit.
- Radar map resolution: 3m.
- Monitoring range: 3-8 nautical miles.
- Sampling speed: 24 frames/min.

Ice Type	Thickness/cm
Virgin ice (N) Ice skin (R)	<5
Lotus Leaf Ice (P) Nile Ice (Ni)	<10
Grey ice (G)	10-14
Grey-white ice (GW)	15-30
White ice (W)	>30

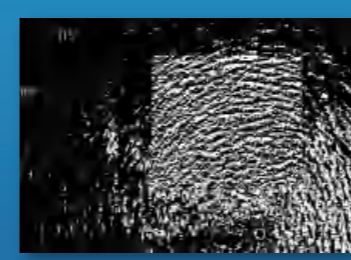
Oil spill



Radar oil spill imagery technical specifications

- Sampling frequency: 100MHz
- Amplitude resolution: 12bit
- Radar map resolution: 3m
- Sampling speed: 24 frames per minute
- Monitoring range: 6 nautical miles
- Oil spill resolution: ≥60L

Sea Waves

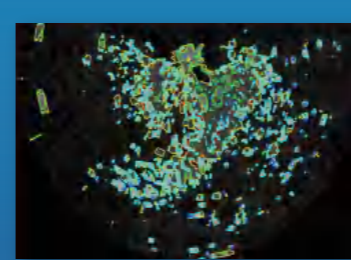


Radar wave imagery technical specifications

- Sampling frequency: 80-100MHz
- Amplitude resolution: 8-12bit
- Radar map resolution: 3m
- Sampling speed: 24 frames per minute
- Monitoring range: 3 nautical miles

Parameters	Margin of error	Thickness/cm
Effective wave height	±10%	0.5-20 m/0.1m
Wave direction	±5°	0-360° /1°
Period	±5%	3.5-40 S/0.1 S
Wavelength	±10%	15-600m/1m

Shoreline Moss



Technical guidance on radar marbling imagery

- Sampling frequency: 50-80MHz
- Amplitude resolution: 8bit
- Radar map resolution: 3m
- Sampling speed: 24 frames per minute
- Monitoring range: 3-6 nautical miles