MiniUAC-3D-300K

Mini 3D imaging sonar

Model A

Model B

Overview

The MiniUAC-3D-300K 3D imaging sonar system enables high-speed continuous imaging of underwater targets within a range of 150 meters and available in Model A (50 °×50 °), Model B (55 °×55 °), providing multiple viewing angles for user observation. Capable of generating up to 20 frames per second in real-time, this system features sharp imaging quality, excellent real-time performance, and compatibility with high-speed carrier movements. It supports real-time detection and dynamic classification of moving targets, demonstrating broad application prospects in scientific exploration and salvage operations, maritime security for major engineering projects, detection of frogmen and other targets, harbor wall inspection, and 3D topographic mapping.

Key Features

- Compact and low-power design, with device size and power consumption leading comparable products in the same category.
- Wide-angle coverage with a maximum working distance of 150m; two field-of-view options: Model A (50°×50°), Model B (55°×55°).
- High detection accuracy, angular resolution of 1°, and range resolution of 3 cm;
- The image quality is outstanding, utilizing a proprietary three-dimensional sonar visualization processing method that converts beam data into clear 3D images in real-time for display on the monitoring software, while providing multi-angle imaging capabilities.
- The beam exhibits excellent amplitude-phase coherence. An amplitude-phase error correction method utilizing proprietary transducer array technology is employed to compensate for phase errors.
- Dynamic and static target detection and recognition employ image processing algorithms with independent intellectual property rights to accurately identify targets.
- Supports automatic monitoring and alarm systems for real-time surveillance and timely alerts, ensuring reliable security protection.
- Supports remote online FPGA code upgrades with automatic recovery upon failure.
- The product employs pressure-resistant electronic components and demonstrates excellent voltage and corrosion resistance through 4MPa pressurized live testing.

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Tehnical Specifications

Project		Description
Device Description		MiniUAC-3D-300K
Physical Parameters	Size	≤300*200*180 mm
	Weight	≤2.5 kg (underwater)
Performance Parameter	Operating frequency	300 kHz
	Distance resolution	≤3 cm
	Maximum effective range	150 m
	Range of observation	Model A (50 °×50 °), Model B (55 °×55 °)
	Update rate	2~20Hz
	Max. working water depth	≥300 m
	Power consumption	≤80 W
Transmitter Array Parameters	Size	56×56×35 mm
	Resonant frequency	300±10 kHz
	Impedance	30±5 Ω
Receiving Array Parameter	Array spacing	5±0.2 mm
	Number of primitives	576(24×24)
	Resonant frequency	300±10 kHz
	Bandwidth	30 kHz
	Elementary sensitivity	- 220±5 dB
Stability Parameter	Continuous working time	>48 h
	Environmental suitability	Normal operating range: - 10°C to 50°C
	Anti- vibration performance	All all axial 60- minute vibration tests were successfully conducted.
	Resistance to impact	Three 10G acceleration shock tests successfully completed
	MTBF	≥1000 h
	MTTR	≤3 h
Device Interfac	Power/Network	13- pin waterproof connector

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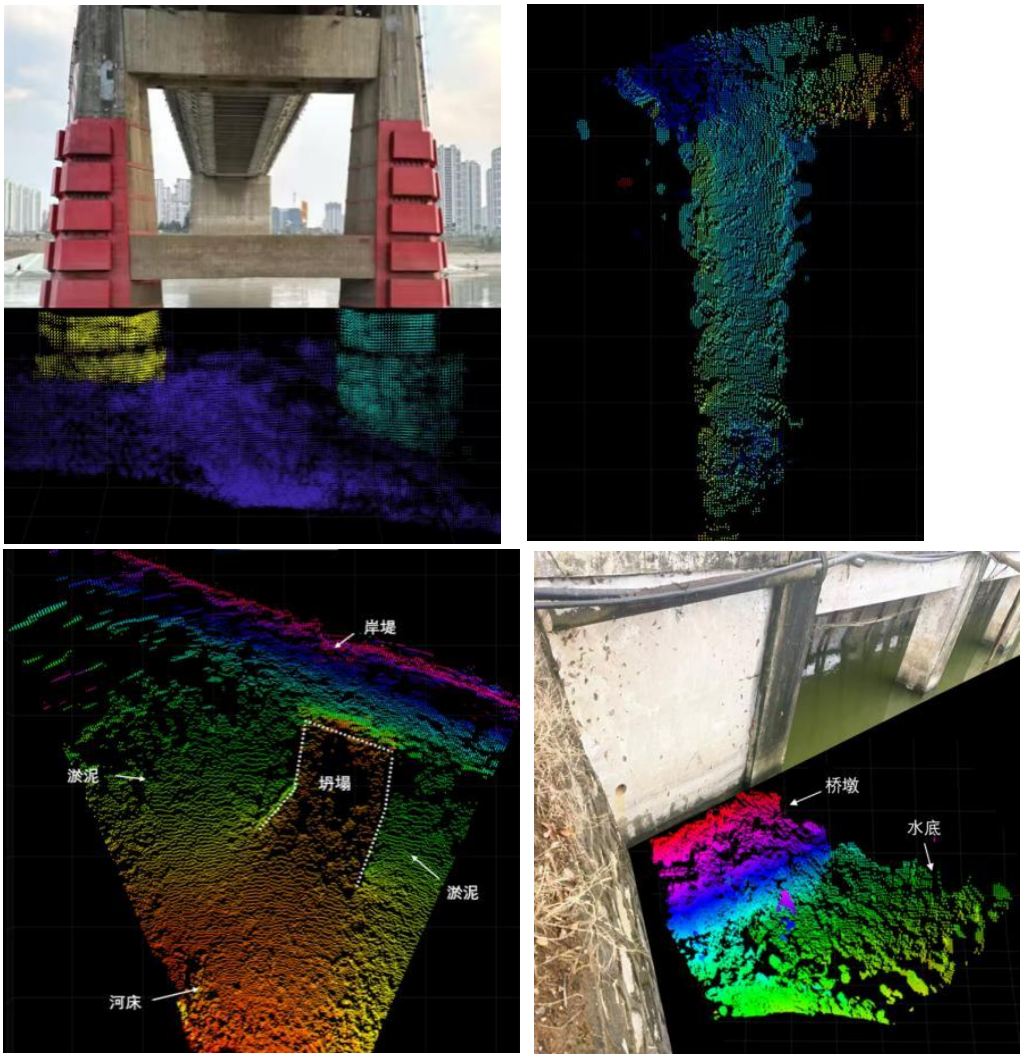
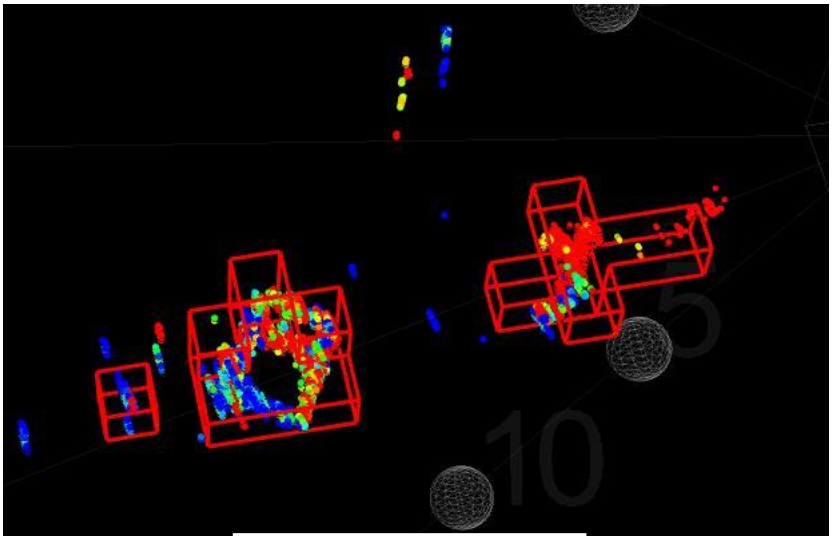
Application Case



Underwater facility



Target recognition function