MiniUAC-1006/1007

2D mechanically scanned

Omnidirectional Panoramic Sonar

Overview

MiniUAC-1006 and **MiniUAC-1007** are **2D mechanically scanned imaging sonars** based on a **single-beam or dual-beam architecture**. They are characterized by **low cost, compact size, light weight, and low power consumption**. Thanks to a **sealed, oil-filled design with no external rotating parts**, the system effectively eliminates risks of **sediment intrusion, bearing blockage, and entanglement by seaweed or fishing lines**, ensuring high reliability in complex underwater environments.

The **MiniUAC-1006** features a **wide vertical beamwidth**, making it suitable for **scene imaging and target detection**. It provides **360° omnidirectional acoustic vision** around the platform in both **clear and turbid waters**, enabling **target detection and identification, collision avoidance, and obstacle detection**.
In contrast, the **MiniUAC-1007** adopts a **narrow vertical beamwidth** and is **specifically designed for pipeline cross-section inspection**. Its software includes advanced functions for **profile calculation** and **3D pipeline reconstruction**.

The **base version of MiniUAC-1006** is a **single-beam scanning sonar**, achieving full-azimuth coverage through mechanical rotation of one beam. An optional **–DS (Dual-Scan) configuration** is available, providing **two beams with a 180° phase offset**, which **doubles the scanning efficiency** for **360° omnidirectional coverage** compared to the standard version. All **MiniUAC-1007 models** are supplied with a **dual-beam configuration as standard**.

The **MiniUAC-1006** is available in **700 kHz, 1.2 MHz, and 1.8 MHz** frequency options, selectable at the time of order. The **MiniUAC-1007** operates at **1.2 MHz**. Standard models support **maximum operating depths of 300 m and 1,500 m**. For **greater depth requirements**, please contact us for customized solutions.

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Technical Specifications

Specification	UAC1006 -A0070	UAC1006 -A1200★	UAC1006 -A1800	UAC1007 -A1200★	UAC1007 -A1800
Frequency	700 kHz	1.2 MHz	1.8 MHz	**pipeline-dedicated model** 1.2 MHz	1.8 MHz
Horizontal Central Beamwidth(1)	1.5°	0.82°	0.6°	0.82°	0.6°
Horizontal FOV	360°	360°	360°	360°	360°
Vertical FOV (2)	30°	20°	12°	3°	2°
Maximum Detection Range (3)	70 m	50 m	10 m	5 m	5 m
Range Resolution	2 mm				
Operating Range	SV1006: 1–100 m; SV1007: 1–10 m				
Scanning Speed	0.1°/s to 360°/s				
Scanning Rate	Up to 200 lines/s				
Scanning Modes	Panoramic scan or sector scan				
Transmit Signal	CW or CHIRP (automatic or manual selection)				
Maximum Operating Depth	300 m or 1.5 km (to be specified at order)				
Power Consumption	12–36 V DC; Average ≈ 3 W, peak < 20 W				
Communication Interface	100 Mbps Ethernet				
Dimensions(excluding cable)	SV1006: 88 (±1) × 48 (±1) mm ; SV1007: 97 (±1) × 74.5 (±1) mm				
Weight (Air / Water, excluding cable)	SV1006 (300 m rated): approx. 420 g / 140 g SV1006 (1.5 km rated): approx. 900 g / 620 g SV1007: approx. 770 g / 220 g				
Housing Materials	Engineering plastics, composite materials, 316 stainless steel				

Notes:

(1) Refers to the horizontal −3 dB energy distribution angle of a point target imaged at the central position of the sonar's horizontal and vertical axes. A tolerance of +10% / −30% is permitted.

(2) This refers to the sonar field of view (FOV). Large targets within this angular range can be detected by the sonar; however, resolution, image clarity, and detection range at the edges may be lower than those at the center.

(3) The stated detection range applies to high-reflectivity targets (such as embankments and bridge piers) in seawater under favorable hydrographic conditions. Under similar conditions, the maximum detection range in freshwater is typically 1–2 times that in seawater.

★ Preferred frequency, typically available from stock.

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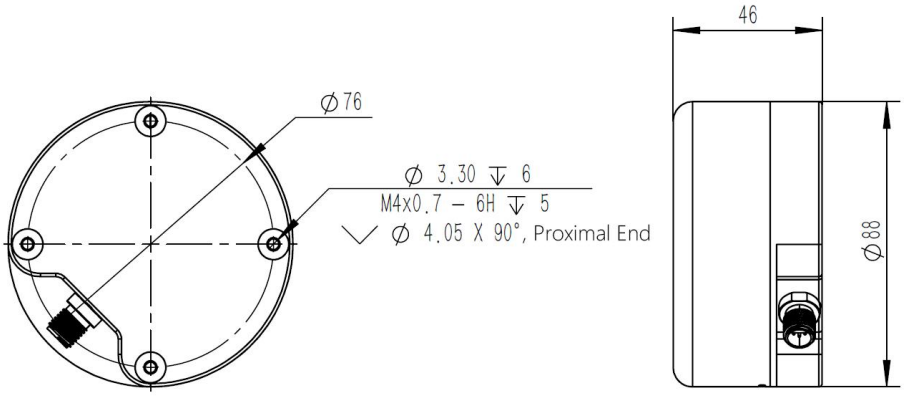
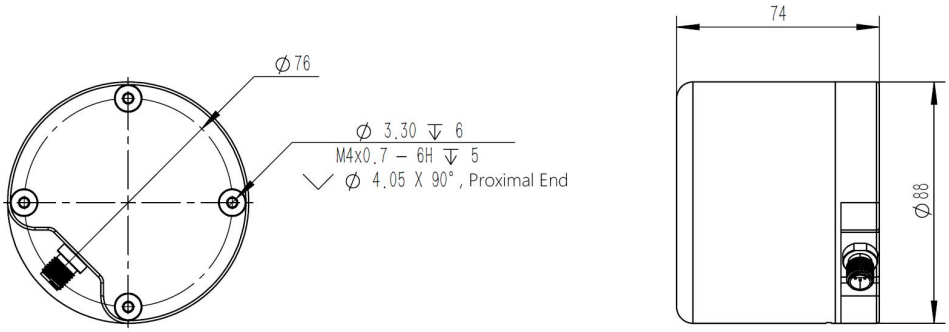
Structural Dimensions

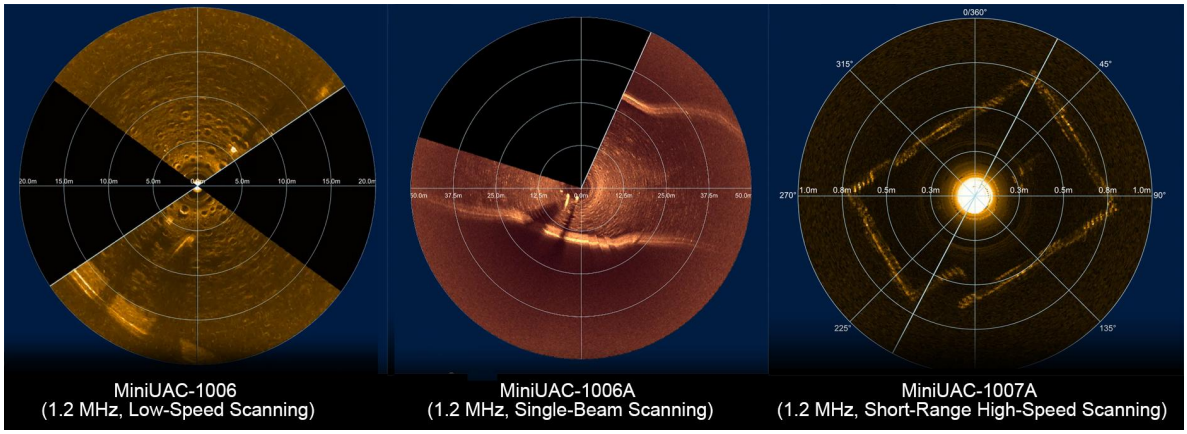


Basic Model



Pipeline-Specific Model

Imaging Example



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