MiniUAC-1203

Multibeam Forward-looking Sonar

Overview

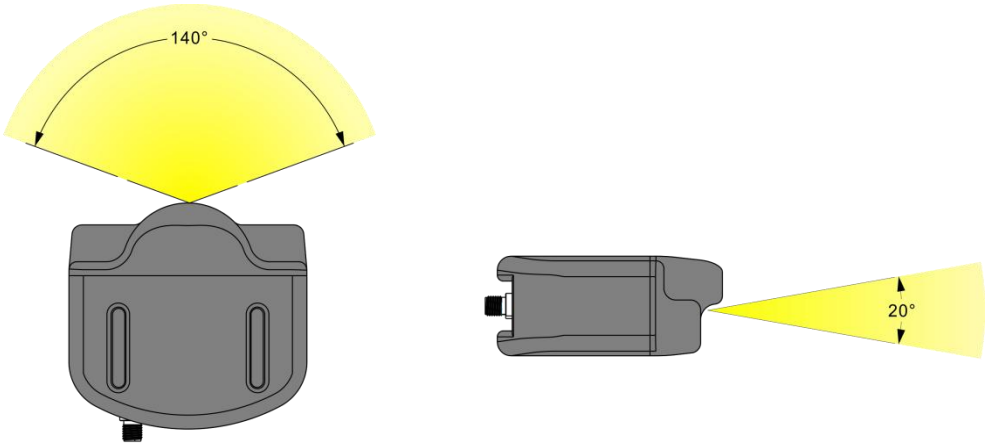
The MiniUAC-1203 series miniature forward-looking sonar is a two-dimensional forward-looking multibeam imaging sonar. It provides forward acoustic vision for platforms operating in both clear and turbid waters, enabling target detection and identification, collision avoidance, and obstacle detection.

Compared with similar products available both domestically and internationally, this sonar offers superior performance, a wider range of operating frequencies and functions, smaller size, lower power consumption, and a competitive price. In addition, most configurations are available from stock for long-term supply. For configurations not currently in stock, the typical delivery time is within one month.

The MiniUAC-1203EL, currently on sale, represents the latest generation of the MiniUAC-1203 series. Compared with the previous generation, it features a higher frame rate, upgraded connectors with improved pressure resistance, and reduced size and weight. The MiniUAC-1203EL also supports an optional passive direction-finding function, allowing the sonar to rapidly scan sound sources within a specified frequency band and estimate their bearing.

The currently available operating frequencies include single-frequency configurations at 375 kHz, 700 kHz (collision avoidance), and 900 kHz, as well as dual-frequency configurations of 400 kHz / 700 kHz, 750 kHz / 1.2 MHz, 1.2 MHz / 1.8 MHz, and 1.2 MHz / 2.1 MHz.

Horizontal/Vertical Beamwidth Diagram



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Technical Specifications

Specification	EL0375	EL0407	EL700C	EL0712	EL1218	EL1221	EL0900
Operating Frequency	375 kHz	400kHz/ 700kHz	700 kHz collision avoidance	750 kHz / 1.2 MHz	1.2 MHz / 1.8 MHz	1.2 MHz / 2.1 MHz	900 kHz
Center Beamwidth	1.7°	1.6° / 1.0°	1.0°	0.95°/0.6°	0.6° / 0.4°	0.6°/0.35°	0.8°
Horizontal Field of View (FOV)	140°	140°	140°	140°	140°/ 70°	140° / 60°	140°/20°
Vertical Aperture	20°	30° / 20°	9°	20°	20° / 14°	20° / 12°	20°
Maximum Detection Range	200 m	170m/ 120m	125 m	120m/ 60m	55m/ 25m	40m/ 10m	80 m
Range Resolution	2.5 mm						
Refresh Rate	Up to 40 Hz (dependent on range setting and operating mode)						
Number of Beams	768						
Transmit Signal	CW or CHIRP, automatic or manual selection						
Max. Operating Depth	300 m, 500 m, or 1.5 km						
Max. Operating Speed	6 kn. Operation above this speed will not affect functionality but may reduce detection range						
Collision Avoidance Mode (-OAS option)	The sonar outputs the bearing and range of the 10 strongest targets ahead						
Passive Mode (-PASSIVE option)	Single-frequency direction finding within the 10 kHz – 200 kHz band						
Power Consumption	18 – 50 VDC; Average approx. 12 W, Peak < 50 W						
Communication Interfaces	1 × 100 Mbps Ethernet; 1 × Synchronization interface (optional)						
Dimensions (WHD)	300 m & 500 m versions: 120(±1)× 50 (±1) × 113.5 (±3) mm; 1.5 km version: 126 (±1) × 56 (±1) × 119.5 (±5)mm; Excluding connector and cable						
Weight (air / water)	300 m & 500 m versions: ~ 840 g / 350 g; 1.5 km version: ~1.3 kg / 700 g						
Housing Material	Aluminum alloy (300 m & 500 m versions), Titanium alloy (1.5 km version)						

Notes:

1. Refers to the horizontal −3 dB energy distribution angle of a point target imaged at the center of the sonar's horizontal and vertical axes. A tolerance of +10% / −30% is allowed.
2. This refers to the sonar field of view (FOV). Large targets within this angular range can be detected by the sonar; however, image resolution, clarity, and detection range near the edges of the FOV may be lower than those at the center.
3. The specified 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 approximately 1–2 times that in seawater.

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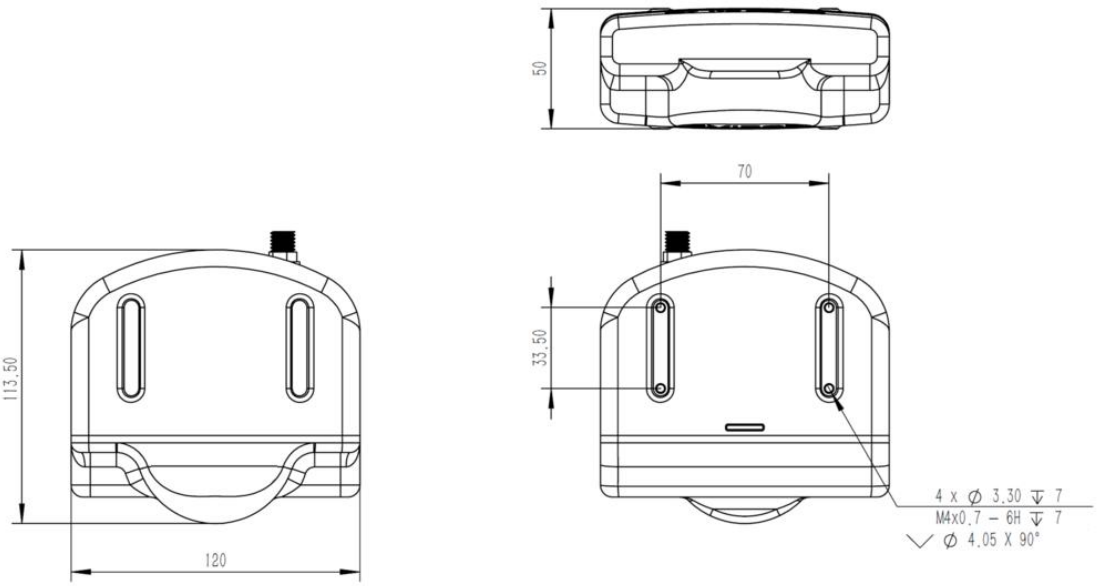
Structural Dimensions



Sonar Imaging Examples