

EM[®] 2042

Multibeam echo sounder



Introducing the EM 2042, the next generation of EM multibeam echo sounder that takes seabed mapping to new depths, by delivering unparalleled accuracy and resolution to your surveys. In the field of hydrography, offshore industry, dredging and marine science, the EM 2042 is the perfect tool for your underwater mapping needs. The ease of use and advanced features make it a must-have for professionals who demand the best data quality, reliability, and flexibility.

Specifications

Product	EM [®] 2042 Multibeam echo sounder
Country of origin	Norway
Manufacturer	Kongsberg Discovery

Featuring

- Next generation of multi-transmitter MBES
- Full 4D motion compensation
- High resolution multi-frequency bathymetry and seabed backscatter
- Engineered to surpass IHO Exclusive Order / LINZ Special Standard
- Seamless integration with SIS-and 3rd party software

Options

- Water column data logging
- Embedded miniMRU in the receiver
- Embedded SV sensor in the receiver
- EM® HighFrequency mode
- Enhanced EM® MultiFrequency Backscatter mode
- Extra detections

Components

The EM 2042 can be delivered with a 0.4 or 0.7 beam width (@400kHz) transmitter, with a single or dual 0.7 receiver optionally embedding a KONGSBERG miniMRU, and an AML sound velocity sensor. The transmitter and receiver are connected to the topside processing unit through a single subsea cable, making it easy to set up and operate. Only EM® has the unrivaled dual RX variation, requiring only one TX array, generating up to 4096 soundings. The unique EM 2042 transmitter combines three transmit sectors to enable dynamic focusing on both transmission and reception, as well as roll, pitch and real 3-sector yaw stabilization.

The EM 2042 transducers are 60% lighter than the previous generation and have reduced the total power consumption. A custom-made portable bracket for over-the-board installations can accommodate integration, in a fixed location with known offsets, for the most used INS sensors in hydrography, allowing a quick and easy setup.

Improved frequency range

EM 2042 features a wideband frequency range from 150 kHz to 700 kHz, offering different modes for various applications:

- 300 kHz: Ideal for most mapping tasks, balancing range and resolution
- 400 kHz: Optimized for inspection work
- 600 kHz and 700 kHz: Enhance small object detection and 3D mapping
- 200 kHz: Extends the range down to 600 meters
- A new 150 kHz band complements EM® MultiFrequency mode, improving seabed classification in a single pass

New feature – Ready for PredictivePitch™

This new and cutting-edge feature uses KONGSBERG Seapath algorithm to accurately steer the beams along track to their future pitch angle. This provides more accurate and reliable detections even on fast-moving platforms like small USVs exposed to challenging sea conditions.

New Feature – Ready for QuadSwath™

The EM 2042 is ready to deliver up to 4 swaths per ping cycle, ensuring the most demanding sounding density requirements, and improving the definition of seafloor features in high-speed surveys.

Technical specifications

Frequency range	150 - 700 kHz
Ping rate	Up to 50 Hz
Number of soundings	Single RX: Up to 2048 Dual RX: Up to 4096
Swath coverage	Up to 170° (single RX) / 220° (dual RX)
Depth range	0.5 m to max 600 m
Depth rating	50 m
Beam stabilization	Roll ($\pm 15^\circ$), pitch ($\pm 10^\circ$), yaw ($\pm 10^\circ$)
Pulse form	CW / FM (CHIRP modulation)
Bandwidth	> 120 kHz
Shortest pulse length	14 μ s
Depth accuracy	Up to 5.5 mm
Embedded KONGSBERG MRU (RMS)	Up to 0.01° Roll and Pitch. 0.04° Heading (Seapath 2.5m baseline)
Embedded SV	AML X2change™ SVT sensor
Power requirements	93 W
Software compatibility	Kongsberg SIS, QPS, CARIS, EIVA, Beamworx, PDS, SonarWiz

Mechanical

	Beamwidth						Physical dimensions		
	150 kHz	200 kHz	300 kHz	400 kHz	600 kHz	700 kHz	Dimensions (W x D x H)	Weight in air	Weight in water
TX 04	1°	0.7°	0.5°	0.4°	0.25°	0.225°	691.2 x 120 x 138.1 mm	20.0 kg	9.0 kg
TX 07	2°	1.5°	1°	0.7°	0.5°	0.45°	372 x 120 x 138.1 mm	10.9 kg	5.0 kg
RX 07	2°	1.5°	1°	0.7°	0.5°	0.45°	340 x 124 x 120 mm	6.1 kg	1.6 kg
Processing Unit (2U for 19" rack)							482.5 x 424 x 88.6 mm	10.5 kg	
Portable Processing Unit (IP67)							370 x 390 x 101 mm	10.5 kg	
OEM Processing Unit (USV)							329.4 x 220.2 x 71 mm	3.1 kg	