

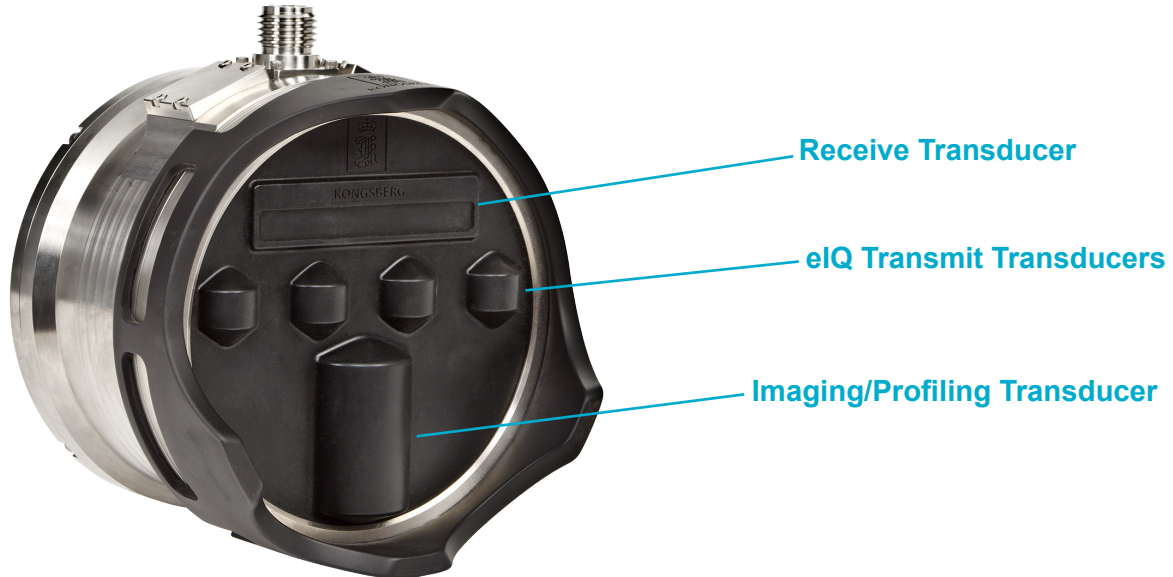
# M3 SONAR® - 4000M

## ETHERNET WITH VDSL TELEMTRY



KONGSBERG

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## THE MULTIMODE MULTIBEAM FOR MULTIPLE APPLICATIONS

- **Imaging and profiling capabilities**
- **GeoTIFF output for image mosaics**
- **Multiple true-zoom windows**
- **CHIRP and Doppler modes of operations**
- **User-friendly interface**
- **Significant time savings**
- **Integrated tilt and pan/tilt control**

The Kongsberg Mesotech M3 Sonar® is a multibeam system with both imaging and profiling capabilities. The M3 Sonar® provides high-resolution and easy to interpret images by combining the rapid refresh rate of a conventional multibeam sonar with image quality comparable to a single-beam sonar.

Detection of small objects out to 150 meters combined with a 120° to 140° field of view allows the operator to see the complete underwater picture in real-time.

## APPLICATIONS

- Marine Engineering
- Shallow Water Bathymetric Surveying
- Site Inspection
- Environmental Monitoring
- Site Clearance
- Defense and Security

## VDSL TELEMTRY

- Alternative to Ethernet which is limited to <100m
- Longer cable connection to sonar head (up to 1000m)

## INSTALLATION OPTIONS

- Pole mount on a surface vessel
- Suitable for a wide range of vehicles from large work-class ROVs to small observation class ROVs
- Tripod mounted

## M3 SOFTWARE

The M3 Software was developed specifically for the M3 Sonar® to manage communications with the head and operate all beam-forming and imaging processing.

### Four Pre-Defined Operating Modes:

1. **Imaging:** long range navigation with high speed update rate
2. **Enhanced Image Quality (eIQ):** greatest image quality (0.95° angular resolution) from a short range with a slower update
3. **ROV Navigation:** selects eIQ or imaging based on range
4. **Profiling:** narrow 3° beam used to generate a 3D point cloud

# TECHNICAL SPECIFICATION

## Sonar Specifications

Range: 0.2m to 150m  
 Range Resolution: 1cm  
 Frequency: 500 kHz  
 Pulse Types: CW, CHIRP  
 Modes: Variable Vertical Beamwidth, eIQ

## Imaging Mode

Horizontal Field of View: 120°  
 Vertical Beamwidth: 3°, 7°, 15°, 30°  
 Angular Resolution: 1.6°  
 Update Rate: up to 40 Hz

## eIQ Imaging Mode

Horizontal Field of View: 140°  
 Vertical Beamwidth: 30°  
 Angular Resolution: 0.95°  
 Update Rate: up to 10 Hz

## Profiling Mode

Horizontal Field of View: 120°  
 Vertical Beamwidth: 3°  
 Number of Beams: 256  
 Update Rate: up to 40 Hz

## Environmental Specifications

### Temperature

Operation: -2°C to +38°C  
 Storage: -40°C to +55°C

## Shock and Vibration

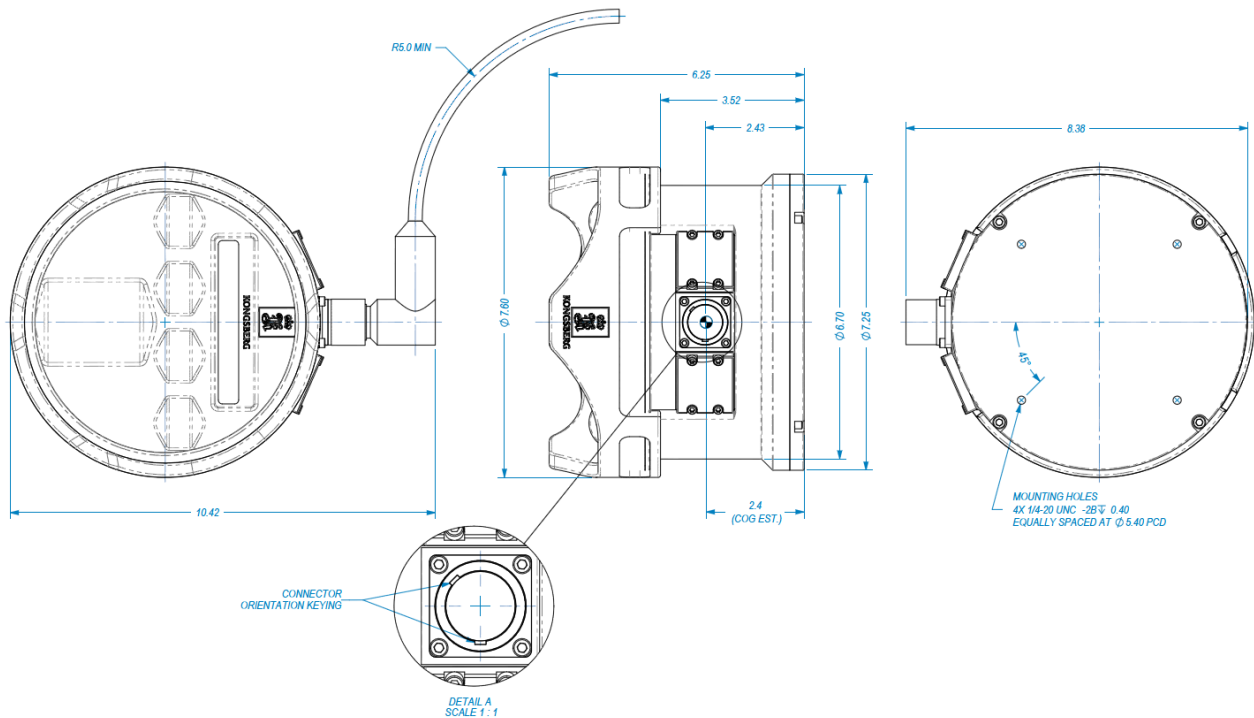
Shock Qualified: +/-50gs, 3 Axes, 6 shocks per axis  
 Vibration Qualified: 4g, 30Hz 3 Axes, 2 hours per axis.  
 No resonance below 800Hz

## Interface Specifications

Operating System: Windows 7 Professional SP1 or Windows XP Professional SP3  
 Communication: Ethernet, VDSL  
 Data Rates: Ethernet: 10/100 Mbps  
 VDSL: up to 100 Mbps  
 Input Voltage: 12 to 36 VDC  
 Input Power: 22W (avg.), peak power < 60W, mode dependant

## Mechanical Specifications

Dimensions: (see diagram below)  
 Weight in Air: 8.5kg  
 Weight in Water: 5.3kg  
 Depth Rating: 4000m  
 Connector Type: SEA CON®  
 Connector Model: MINK-10-FCRL  
 (Ethernet/VDSL/Power)  
 Materials: Titanium, Stainless Steel 316,  
 Elastomeric Polyurethane



DIMENSION ARE IN INCHES

Specifications subject to change without any further notice.

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