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MSI-90U Mk2  
Combat Management System



# WORLD CLASS

- through people, technology and dedication

Kongsberg Gruppen ASA (KONGSBERG) is an international technology corporation that delivers advanced and reliable solutions that improve safety, security and performance in complex operations and during extreme conditions.

KONGSBERG is a customer focused organization with a worldwide performance culture. KONGSBERG works with demanding customers in the global defence, maritime, oil and gas and aerospace industries.



## MSI-90U Mk 2 - The 21<sup>st</sup> Century

Submarines of the 21<sup>st</sup> Century face an ever-increasing range of missions. By definition, they have to operate in the challenging conditions of the littorals, as well as in the blue ocean.

As in the first 100 years of submarine operations, the need to be able to find, track and defeat enemy surface ships and submarines remains paramount.

The key words for the 21<sup>st</sup> Century comprise:

- International Operations/Task Forces
- Interoperability
- ISTAR (Intelligence Surveillance, Target Acquisition, Reconnaissance)
- Network Enabled Capabilities in addition to the traditional Maritime Operations (ASuW and ASW).

KONGSBERG's MSI-90U Mk 2 Submarine Combat Management System is designed specifically for this.

MSI-90U Mk 2 is a further development of the successful MSI-90U systems delivered to the Norwegian, German and Italian navies.



ONE THIRD OF  
THE WORLD  
IS COVERED BY LAND  
- THE REST IS COVERED  
BY KONGSBERG

The MSI-90U Mk 2 Submarine Combat Management System is designed for 21<sup>st</sup> Century operational and lean manning requirements. The system typically comprises three to five Multi-Function Consoles. This number can easily be adjusted upwards or downwards to meet the customer's operational concept or to fit the available space.

The basic design philosophy, augmented with operational experience from the MSI-90U system, has resulted in a solution with the following system architecture features:

- Data processing is distributed on a number of powerful, general-purpose Commercial-Off-The-Shelf (COTS) computers
- Data communication between the MSI-90U Mk 2, sensors and effectors is handled by a local area network (Gigabit Ethernet)
- Built-in redundancy and graceful degradation provide a high system availability
- Torpedo Board Interface tailored to selected torpedo type(s)
- Operating Sub Modes

EXTREME  
PERFORMANCE  
FOR EXTREME  
CONDITIONS





The main application functions include:

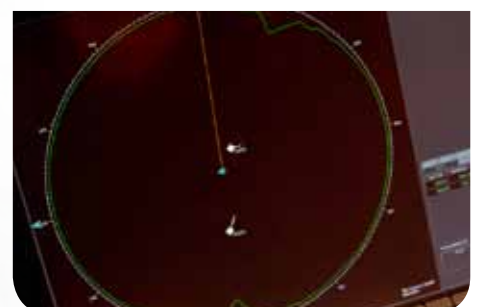
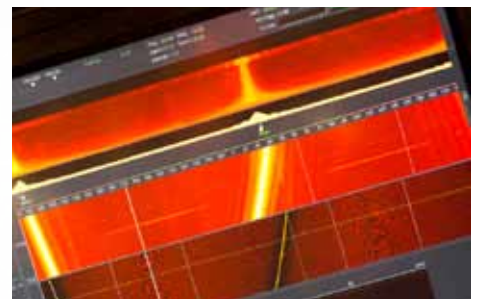
- Sensor Integration
- Target Motion Analysis
- Target Classification/Identification
- Threat Evaluation
- Tactical Functions
- Engagement Analysis
- Weapon Preparation and Control

The system also comprises functions like data recording, data replay, built in simulation etc.

The MSI-90U Mk 2 can be integrated to any sensor and weapon type to be selected by the End Customer.

The following torpedo types are already integrated:

- SST4 / SUT Mod. 0
- DM2A3 / DM2A4
- A184 Mod. 3
- NSP / Black Shark



## 40 YEARS EXPERIENCE

KONGSBERG has a 40-years legacy in the field of submarine combat management system development and production. This goes back as far as the MSI-70U system, which was developed in the early-1970s and installed and operated on board 15 Norwegian Kobben class submarines for nearly three decades.

Next in line was the MSI-90U system. This was the result of a feasibility study and definition phase for a joint Norwegian/German command and weapons control system. The MSI-90U is now operational in all six Norwegian Ula-class submarines and in the new U212A submarines in Germany and Italy.

The MSI-90U Mk 2 is the latest system on offer, which can be tailored to the needs of every navy with requirements for 21<sup>st</sup> Century submarines. The MSI-90U Mk 2 system has already been contracted to the Italian Navy for the U212A 2<sup>nd</sup> Batch submarines, to the Royal Norwegian Navy for the Ula Class upgrade project and to the Indonesian Navy for the U209 KRI Nanggala upgrade project and the three new DSME 1400 submarines.



HIGH PERFORMANCE  
RELIABLE SYSTEMS



# WORLDWIDE OPERATIONS

KONGSBERG is an international corporation with strong Norwegian roots. Collaboration with our customers, partners and suppliers, and a commitment to understand the context where our technology is applied, are important driving forces behind the corporation's international development and growth.



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