

# iSSMC

## Ship Stabilization and Motion Control System

The iSSMC is a highly integrated Inertial Ship Stabilization and Motion Control System which uses an integrated inertial measuring unit to control the fins and rudders of the ship to improve the comfort of the passengers.

- Ship motion stabilisation system
- controls 2 fins or up to 4 fins and 2 rudders / waterjets
- applicable to all usual fin systems
- provides also control data for an stabilized platform (antenna, satellite phone...) as an option

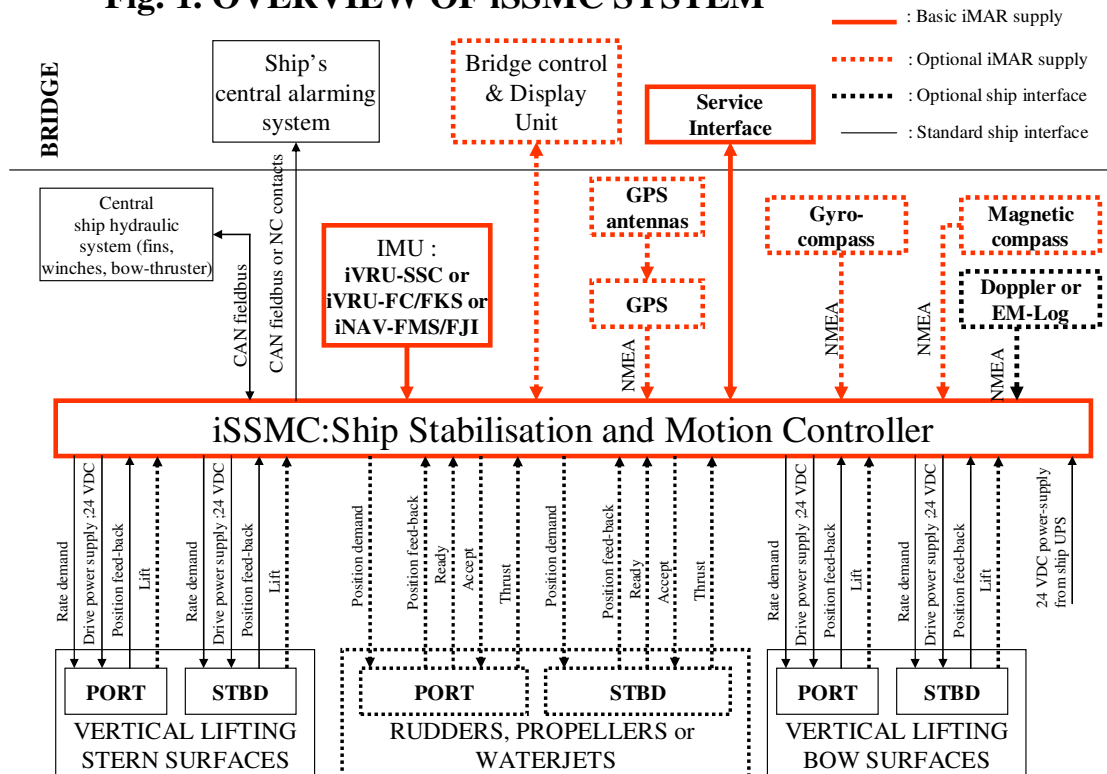
The core of the system is an inertial measuring unit which continuously determines roll, pitch and change of heading of the ship with appropriate data rate. These data are fused together with the data of an integrated GPS receiver to control the fins and rudders.

The iSSMC provides all interfaces to control the ships actuators (hydraulic or electric torque generators), to read back the actual fin and rudder position, to provide the system status on the CDU (control and Display Unit) located on the bridge and to feed information via CAN to the ship's PLC and data distribution system. As an option a WAN based data transmission channel can be made available to provide also remote diagnostics and service capability worldwide.

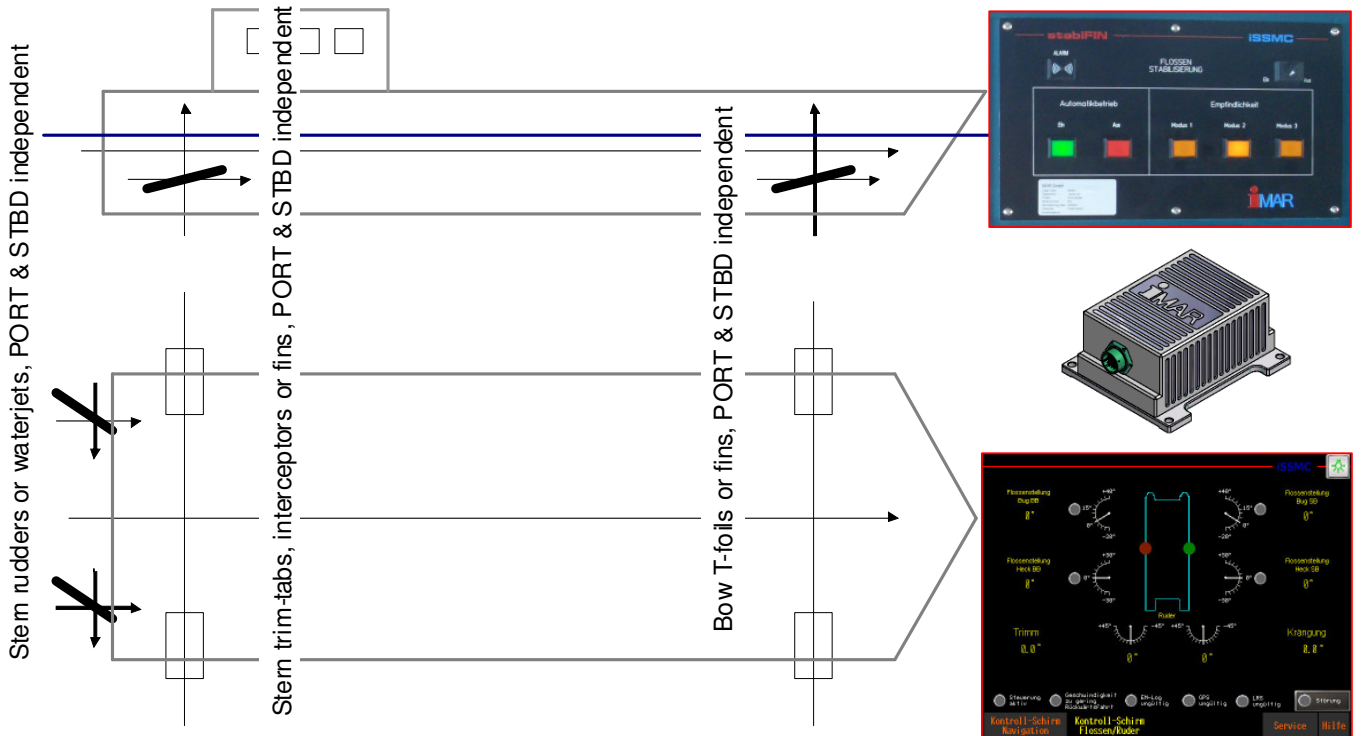
Standard iSSMC can be upgraded to control up to four fins (stern, bow / starboard, port) and two rudders. Customer specific system configurations can be provided on request.



**Fig. 1. OVERVIEW OF iSSMC SYSTEM**



## SHIP MOTION & AUTO-PILOT CONTROL



### Technical Data of iSSMC (to be adapted to specific requirements):

Motion Dynamics:	$\pm 180$ %/s (*), $\pm 4.5$ g, $\pm 60$ ° in Roll/Pitch (IMU) up to 70 knts (depends on vessel design)
Features:	Motion Stabilization, Fuel Consumption Minimization, Ride Control
IMU technology:	MEMS based or fiber optical gyro based motion determination
Interfaces:	- up to 8 channels to control the actuators (fins, rudders, jets) (+/- 10 V or CAN interface); fin speed up to 80 %/s - up to 6 channels to read back the actual fin / rudder position (+/- 10 V poti sensor or incremental encoder or CAN) - CAN or RS422 interface to the bridge located CDU (Control and Display Unit) - CAN or RS232/422 interface to the ship based PLC/SPS (option only) - RS232 as diagnostics interface
Standard configuration:	Control of 2 fins (one located on starboard, one located on port) for standard roll stabilisation
Advanced configuration:	Up to 4 fins and 2 rudders for additional pitch control and automatic steering support
Temperature:	-40...+60 °C (operating, case temperature), -40...+85 °C storage;
Shock, Vibration:	50 g, 11 ms; 10...2000 Hz 6 g rms
Power, Start-up-Time:	10...34 V DC ; approx. 10 W; < 30 sec (including system check)
Size, Weight:	approx.. 120x120x200 mm, approx. 2 kg
(*) = other on request (up to 300 %/s for fast vessels)	

See also the brochure of our Naval Division for detailed information.

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