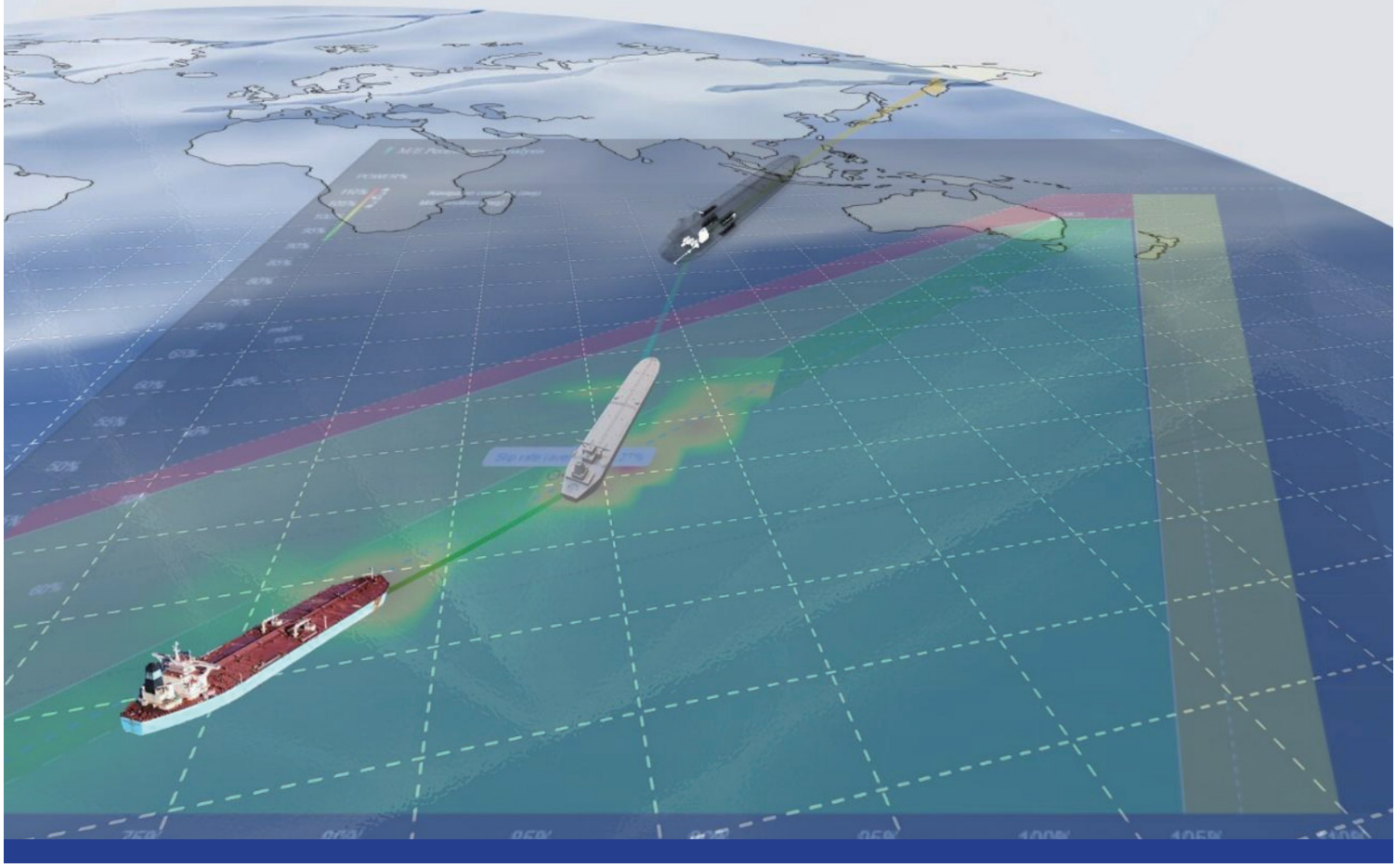
HIGHLANDER

i-COMMANDER V2

HLD-SES600



INTELLIGENT ENERGY EFFICIENCY SYSTEM

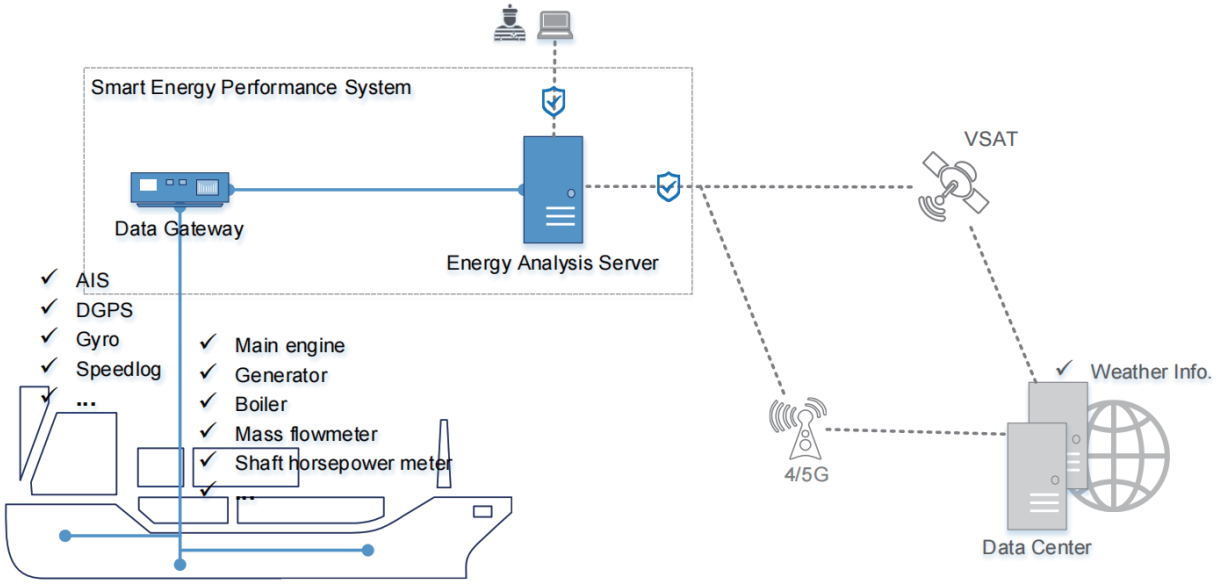
INTELLIGENT ENERGY EFFICIENCY

A.ARCHITECTURE

The intelligent energy efficiency system provides monitoring of ship fuel stocks and consumption, analysis of energy efficiency emissions, and optimization of ship speed trim.

Through real-time collection of fuel stock and consumption, as well as the operation information of generators, batteries and other power equipment, the system analyzes the energy consumption and emissions of ships, and gives suggestions for optimization. It can optimize the speed and trim according to the set route, and dynamically adjust the speed suggestion according to the actual sailing condition of the ship.

The system can be seamlessly integrated with the Highlander intelligent integration platform, and after integration, the network and server computing resources of the platform can be shared to meet the requirements of digital security.



B.FUNCTOINS

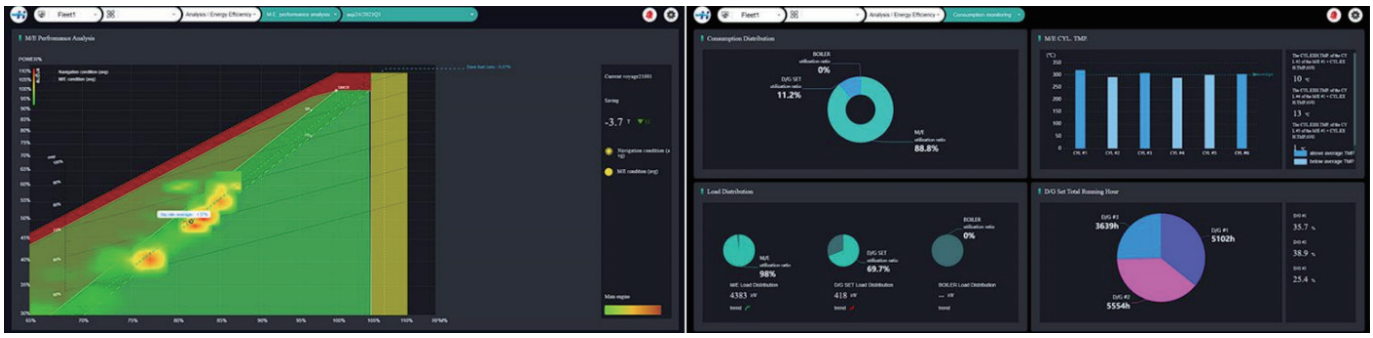
- The system is compatible with multiple sensor data acquisition protocols:

I/O、A/D
CAN
MODBUS RTU / TCP
IEC61162-1 NMEA0183
OPC-UA
other network protocols

- Support second-level data acquisition of equipment working condition information.
- Support data cleaning, data standardization, and periodic evaluation of data quality (including data continuity, integrity, rationality, etc.).
- The system supports single sign-on (SSO), which makes the system more secure.
- The system supports operations in both Chinese and English to meet the user's usage habits.

Consumption monitoring

Monitor the energy consumption of the main engine, generator, boiler and other important energy consumption equipment; can monitor the battery pack, main distribution board and other power systems, as well as the energy consumption distribution of the ship's main equipment; analyze the energy consumption efficiency of each equipment.



Energy efficiency report

- The system can perform energy efficiency analysis and provide emission reports. It can automatically calculate ship Energy Efficiency Operational Index (EEOI), fuel consumption per unit distance, fuel consumption per unit transportation work, CO_2 emission per unit distance, CO_2 emission per unit transportation work and other indicators.
- The system can record the emissions of each voyage and generate energy efficiency reports such as MRV/DCS.
- The system can calculate the ship Energy Efficiency Index (EEXI) and Carbon Intensity Index (CII), and can conduct emission rating combined with SEEMP Part III, and give suggestions for extending the rating.

IMO DCS Annual emissions report

IMO No. [1]	414331000		
Ship Type [2]	PCTC	Ship Name	
Gross Tonnage [3]	35477	Flag	China
NT [4]	10643	Class Society	CCS
DWT [5]	11670		
		* Company Details	
EEXI (if applicable) [6]	4.2457 (gCO$_2$/t.nm)	Name	
Ice class (if applicable) [7]		Address	
Power output (rated power) (kW) [8]			
Auxiliary Engine(s)			
Main Propulsion	7550	e-mail	
Attained CII	4.687	Required CII	4.81
Year of CII improvement	2026		
Rating	D		
Recommended			
Power(Full Load)	6417		
Power(Empty Load)	5662		
Speed Loss(kn)	2.3 – 3.1	Next Improvement Year	2029

IMO No. 414331000

Method used to measure fuel oil consumption [9]	Fuel Consumption (t)										Hours Underway	Distance Travelled	End date *	Start date
	Other (……)	(C_f : ……)	Ethanol (C_f: 1.913)	Methanol (C_f: 1.375)	LNG (C_f: 2.750)	LPG (Butane) (C_f: 3.030)	LPG (Propane)	HFO (C_f: 3.114)	LFO (C_f: 3.151)	Diesel/Gas Oil (C_f: 3.206)	(hh:mm)	(nm)	(dd/mm/yyyy)	(dd/mm/yyyy)
Flowmeter		0.00	0.00	0.00	0.00	0.00	0.00	264860.41	0.00	0.00	406:00	4478.58	27/11/2020	28/09/2020
Flowmeter		0.00	0.00	0.00	0.00	0.00	0.00	241705.55	0.00	0.00	434:00	3909.39	28/09/2020	29/08/2020
Total	0.00	0.00	0.00	0.00	0.00	0.00	0.00	508594.96	0.00	0.00	840:00	8387.98	Annual Total	

Energy efficiency analysis

- Be able to use frequency statistics and optimization of generators, balance the use of each generator.
- Be able to monitor and optimize the use of boilers and other equipment according to the sailing condition.
- Can provide advice on speed and trim optimization based on ship energy efficiency model, sailing plan, loading, weather and sea conditions, etc.
- The speed suggestion can be dynamically adjusted according to the actual sailing condition of the ship.

C.CONFIGURATION

Device	Description
Hardware	
Data acquisition unit	Supports data collection on interfaces such as I/O, A/D, CAN, MODBUS RTU/TCP, NMEA0183, and OPC-UA
Core switch	Full gigabit, 24 ports
Data serverr	10 cores CPU 32G MEM 480G*3 SSD
Mass flowmeter(optional)	It includes fuel consumption data detection of main engine, generator, boiler and other equipment
Shaft power meter(optional)	Detection of propulsion shafting power
Software	
HLD-SES600	Data acquisition, energy efficiency monitoring, speed trim optimization

24 Hours 服务热线

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