



Marine Analytical Instrument Solution

A Solution by:



CAKRA SINERGI KREATIF



Empowering Maritime Operations with
Integration of Instrument Data.



Welcome to Cakra Sinergi Kreatif!

PT Cakra Sinergi Kreatif (CSK) is a dedicated system integrator and general supplier specializing in the maritime industry. We leverage our expertise to provide comprehensive monitoring solutions through our IoT platform, **MANTRAZ (Marine Trend Analyzer)**.

MANTRAZ empowers clients by delivering real-time insights, data analysis, and enhanced visibility into vessel operations, ultimately streamlining activities and supporting informed decision-making. Alongside our technological solutions, we also supply a range of high-quality marine industry goods at competitive prices.

Vision & Mission

To be the most trusted and integrity-driven partner in the maritime industry, recognized for delivering unparalleled service and cutting-edge solutions in vessel monitoring and data analysis systems

1. To deliver high-quality maritime goods and services at competitive value.
2. To provide advanced remote monitoring capabilities through seamlessly integrated onboard systems.
3. To generate relevant, actionable data analysis empowering stakeholders in their decision-making processes.
4. To offer a comprehensive one-stop service experience for all client needs.

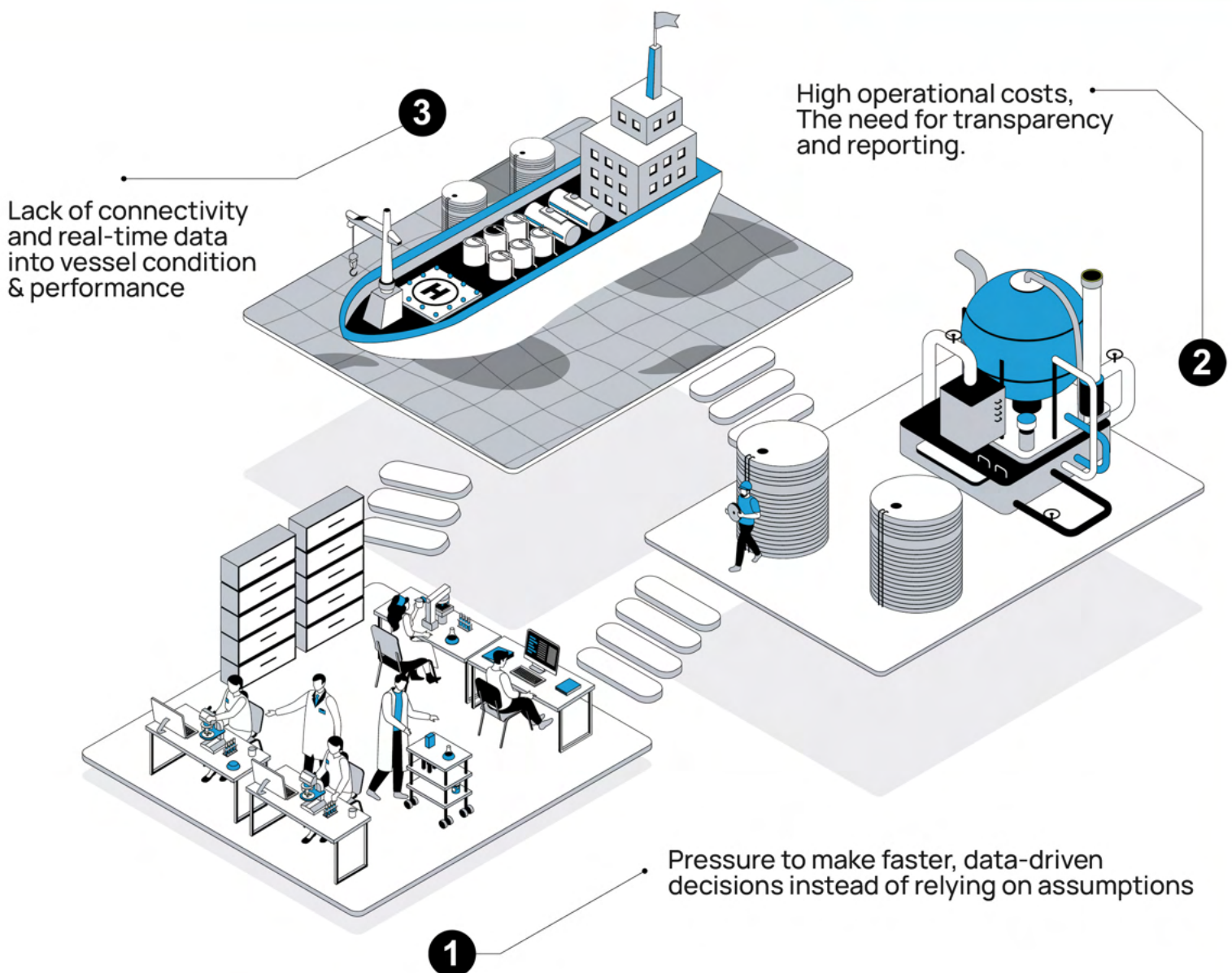


MANTRAZ

“ Empowering Maritime Operations
with IoT Data Intelligence ”

Navigating the Complexities of Maritime Operations

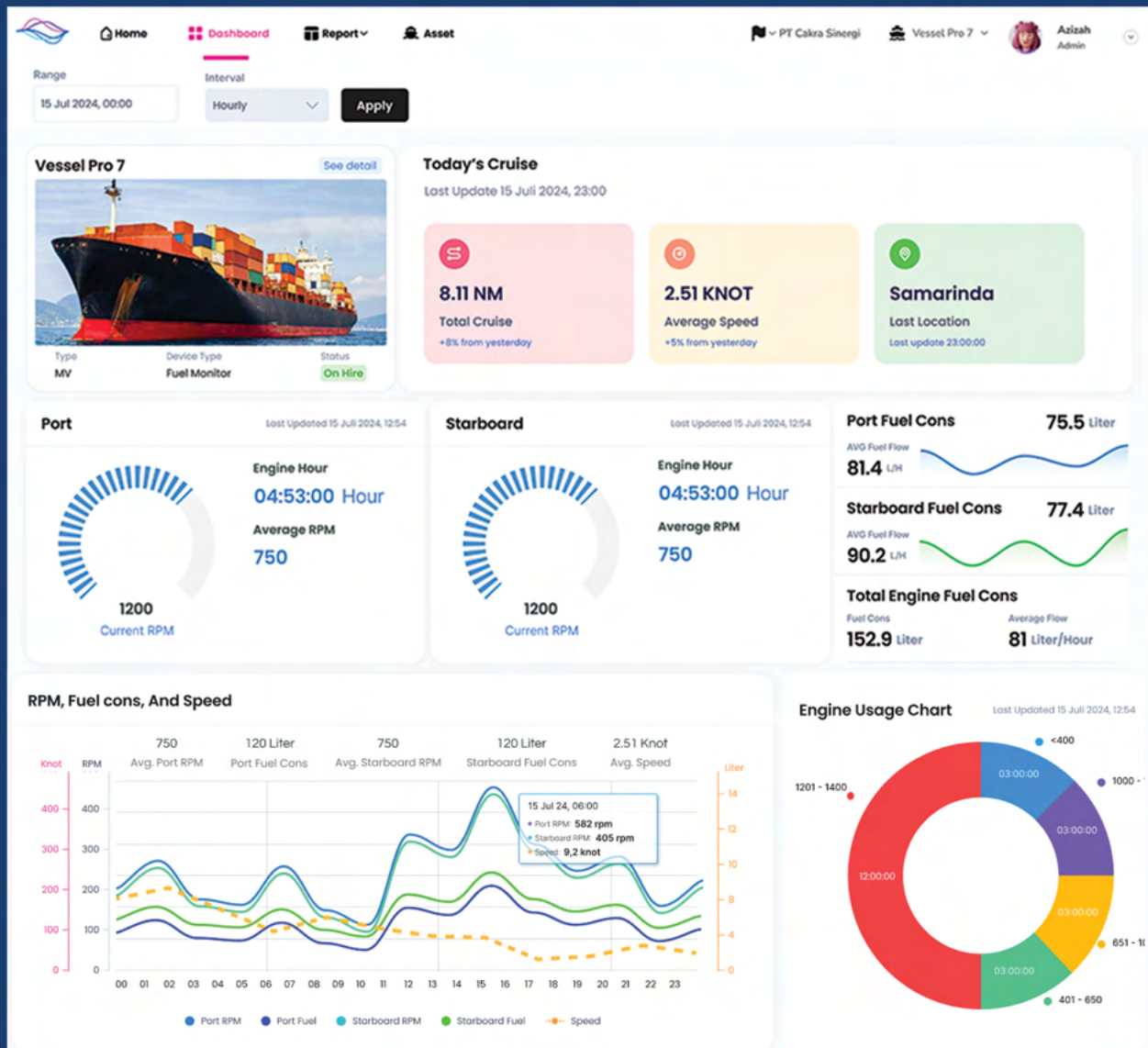
Operating vessels in today's demanding maritime sector presents a unique set of challenges. While the goal is always efficiency and reliability, traditional operational methods often struggle to provide the necessary insights. This frequently leads to significant hurdles:



Question: How can you optimize every nautical mile, every hour of engine operation, and every fuel you used for the impact of your operations?

MANTRAZ: Real-Time Visibility Over Your Valuable Assets

MANTRAZ is an integrated Maritime Internet of Things (IoT) platform specifically designed to address the operational challenges of modern vessels. We transform raw data from ship sensors into actionable business intelligence. Through the MANTRAZ system, users can monitor and get further analysis of the data read on the installed sensors.



MANTRAZ: Key Value for Your Business



DIGITALIZATION



ANALYZE TRENDS



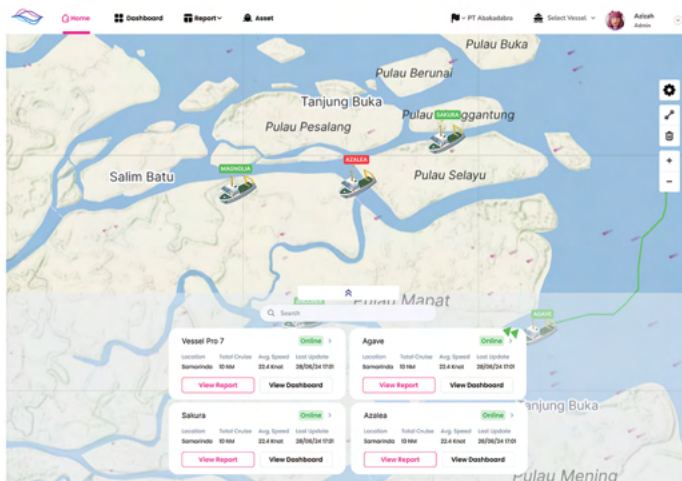
LOW PRICES



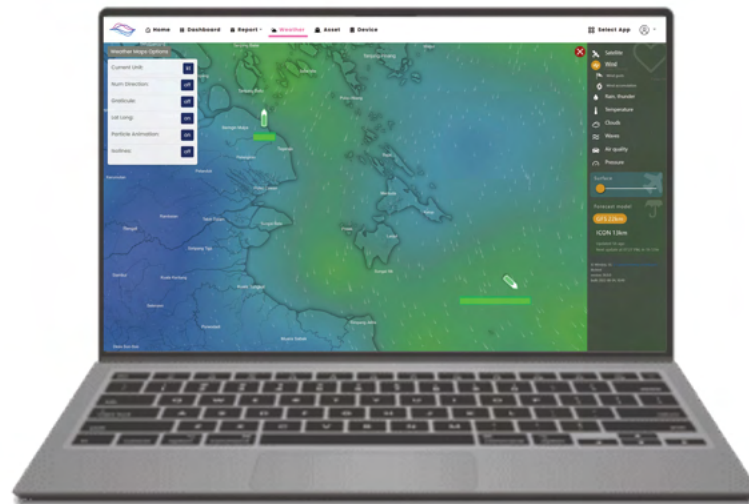
EASY MONITORING



SERVICE EXCELENT



"MANTRAZ gives you full control and real-time visibility over your valuable assets, wherever they are."



Built-in Weather Forecast Map on Go!

users can easily get various kinds of weather forecasting features and various other map features. MANTRAZ utilize every every tool for your needs while maximaze the capabilities of your operation can do!

What MANTRAZ Can Do?

01. Various Alert Monitor on Asset

Alerts can make it easier for users to monitor efficiently. Such an Alerts on main engine & AE conditions, Alerts at certain speeds, and any customize for your needs



02. Capturing data quickly and precise

MANTRAZ combines the accuracy of installed sensors with powerful system elements to produce relevant data in accord

Select Range

01/14/2025 00:00 - 01/14/2025 23:59

Interval

Minute

Range Type

Today

Asset

Apply

Download 115X

Speed Unit

KNOT

Distance Unit

NM

Sort Data By

Oldest

Filter Column

Date Time	Coordinate	Heading	Speed (KNOT)	Cruise (NM)	RPM	Run. Hours	PORT		
							Volume Total In (Liter)	In Flow (L/H)	In Temp
2025-01-14 00:00:00	1° 10' 24" S, 105° 51' 55" E	115.55°	5.04	0.99	841.88	00:01:00	1851.84	39.18	34
2025-01-14 00:01:00	1° 10' 27" S, 105° 51' 59" E	115.86°	4.99	0.98	840.94	00:01:00	1852.38	36.43	34
2025-01-14 00:02:00	1° 10' 29" S, 105° 52' 4" E	116.22°	4.92	0.98	837.86	00:01:00	1853.00	34.46	34
2025-01-14 00:03:00	1° 10' 31" S, 105° 52' 8" E	117.38°	5.04	0.98	840.80	00:01:00	1853.62	35.57	34
2025-01-14 00:04:00	1° 10' 33" S, 105° 52' 12" E	119.34°	5.12	0.98	840.94	00:01:00	1854.24	34.16	34
2025-01-14 00:05:00	1° 10' 36" S, 105° 52' 17" E	120.53°	5.17	0.99	840.80	00:01:00	1854.86	32.65	34
2025-01-14 00:06:00	1° 10' 38" S, 105° 52' 21" E	121.53°	5.25	0.98	839.06	00:01:00	1855.47	31.57	34
2025-01-14 00:07:00	1° 10' 41" S, 105° 52' 25" E	120.96°	5.25	0.99	841.87	00:01:00	1856.01	36.00	34
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2025-01-14 00:10:00	1° 10' 49" S, 105° 52' 39" E	120.57°	5.11	0.99	841.88	00:01:00	1857.86	38.53	34
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2025-01-14 00:12:00	1° 10' 55" S, 105° 52' 47" E	118.71°	5.06	0.98	842.14	00:01:00	1859.02	39.34	34
2025-01-14 00:13:00	1° 10' 57" S, 105° 52' 52" E	118.78°	5.08	0.99	838.13	00:01:00	1859.63	34.99	34
2025-01-14 00:14:00	1° 10' 60" S, 105° 52' 56" E	119.23°	5.11	0.98	841.88	00:01:00	1860.26	37.12	34

03. Reporting Asset With Ease

No hustle using MANTRAZ you can get a quick report for your asset, it can turn into PDF files and Excel Files.

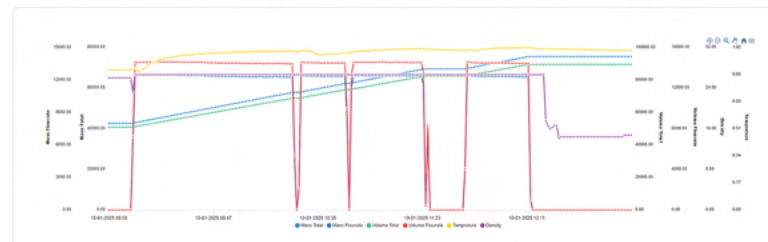
PT MANTRAZ SUKSES SEJAHTERA
Vessel: Amaliris 12

Bunker Report

31 Aug 2024 00:00:00 to 31 Aug 2024 23:59:00 (+07:00)

Bunker Summary

Data Summary	Value	Unit	Data Summary	Value	Unit
Bunker Duration	02:45:00	Hour	Bunker Flow rate	14.03	KL/Hour
Total Bunker In Volume	36.56	KL	Average Density	0.79	g/cm3
Total Bunker In Mass	32.84	KG	Average Temperature	31	C



Generate At: 31 Aug 2024 23:59:30 (+07:00)

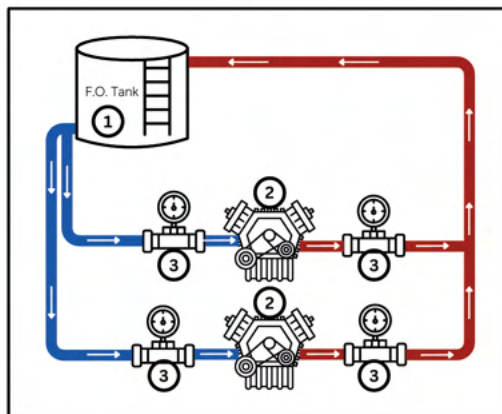
04. Keep track of your assets at a glance

Monitoring various assets in 1 device anywhere and anytime becomes easier. MANTRAZ makes your operation and business easier

MANTRAZ Solutions:

1. Fuel Monitoring System (FMS)

Overview Schema:



KETERANGAN

- ① Fuel Oil Tank ② Main Engine ③ Flow Meter

How FMS Benefit Me?

01. Real-time monitoring of **main engine's RPM** using dedicated readout sensors to ensure optimal engine performance.
02. Measurement of **fuel flow on main engine by installing flowmeters**, enabling precise fuel usage tracking
03. Real-time tracking of vessel GPS & Auxiliary Engine Status
04. Analysis of all captured data within Data Visualization



RPM MONITORING



FUEL MONITORING



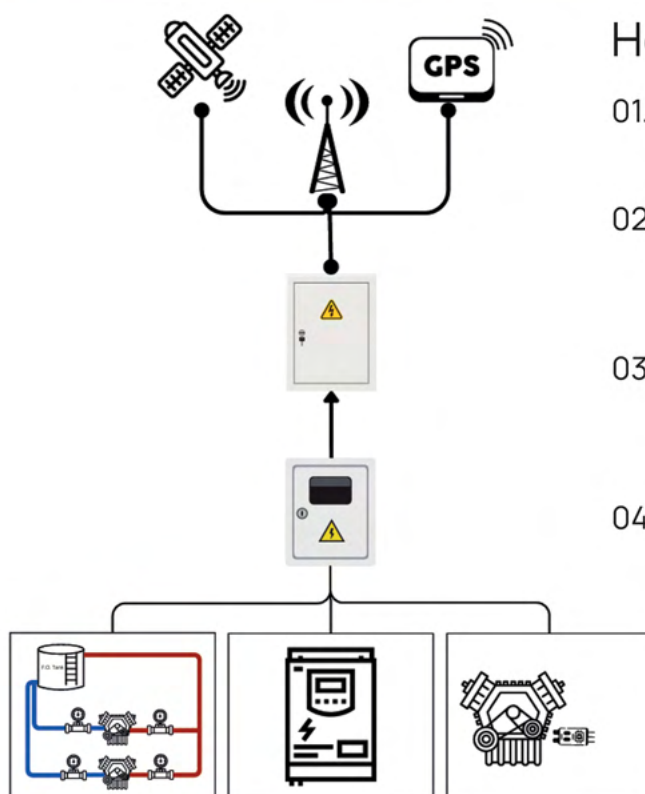
DATA CHARTS



GPS TRACKER



DAILY REPORTING



How it Works?

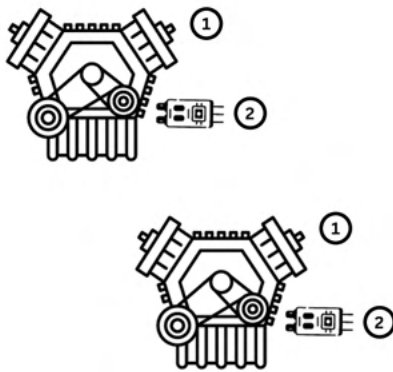
01. **Sensor:** Measures all parameters that needed for FMS (RPM, Flowmeter, GPS.)
02. **Electrical/Control Panel:** Collects data from sensors and manages device communication.
03. **Data Transmission & Connectivity:** Collected data is transmitted via comm networks to the MANTRAZ Server.
04. **MANTRAZ App:** Receives the data for real-time monitoring and Summary analysis of FMS data.



MANTRAZ Solutions:

2. Engine Monitoring System (EMS)

Overview Schema:



KETERANGAN

- ① Main Engine ② RPM Electrical Sensor

How EMS Benefit Me?

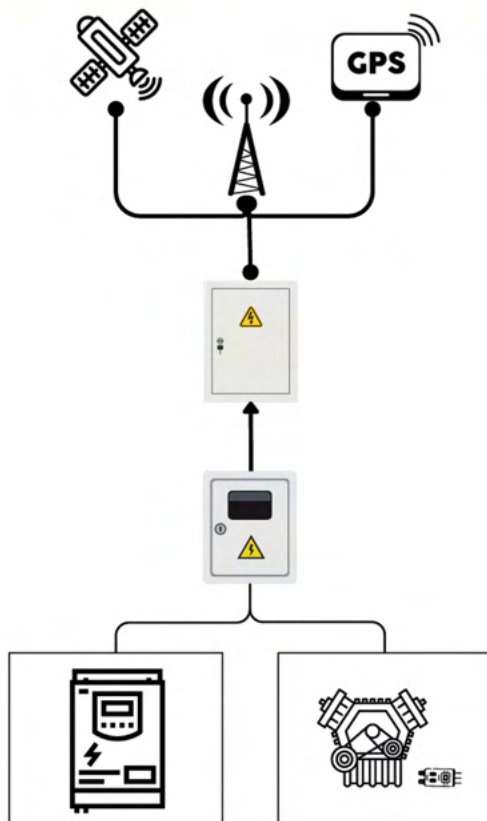
01. Real-time monitoring of **main engine's RPM** using dedicated readout sensors to ensure optimal engine performance.
02. Measurement of **main engine's RPM Duration per RPM Classification**.
03. Real-time tracking of vessel GPS & Auxiliary Engine Status
04. Analysis of all captured data within Data Visualization


RPM MONITORING


DATA CHARTS


GPS TRACKER


DAILY REPORTING



How it Works?

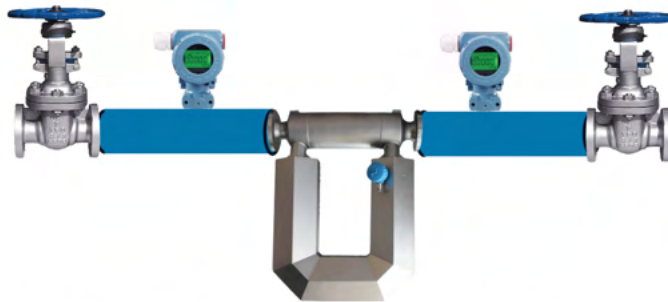
01. **Sensor:** Measures all parameters that needed for EMS (RPM, GPS, etc.)
02. **Electrical/Control Panel:** Collects data from sensors and manages device communication.
03. **Data Transmission & Connectivity:** Collected data is transmitted via comm networks to the MANTRAZ Server.
04. **MANTRAZ App:** Receives the data for real-time monitoring and Summary analysis of EMS data.



MANTRAZ Solutions:

3. Bunker Monitoring System (BMS)

Overview Schema:



How BMS Benefit Me?

- 01. Provides oversight of the bunker fuel filling process, reducing the risk of undetected fuel loss.
- 02. Enables real-time visibility into the bunker process, allowing for quick and informed decision-making during fuel operations.
- 03. Automatically recorded data ensures the bunker process is transparent.
- 04. Automation minimizes reliance on manual record-keeping, which is prone to mistakes.



MONITORING BUNKER



DATA CHARTS

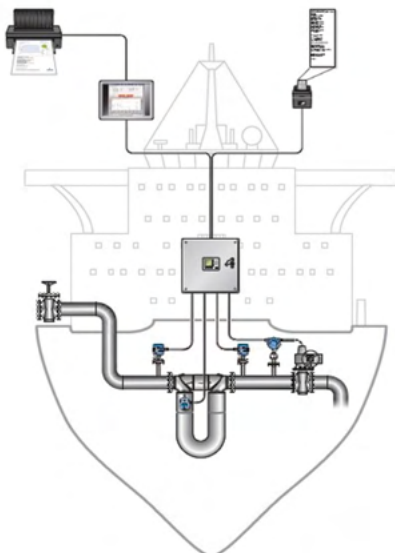


BUNKER TRANSACTION

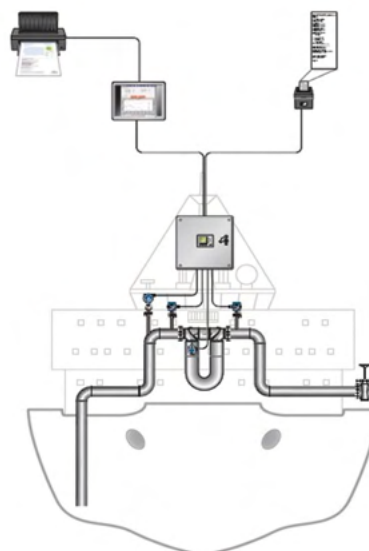


DAILY REPORTING

VESSEL INSTALLATION



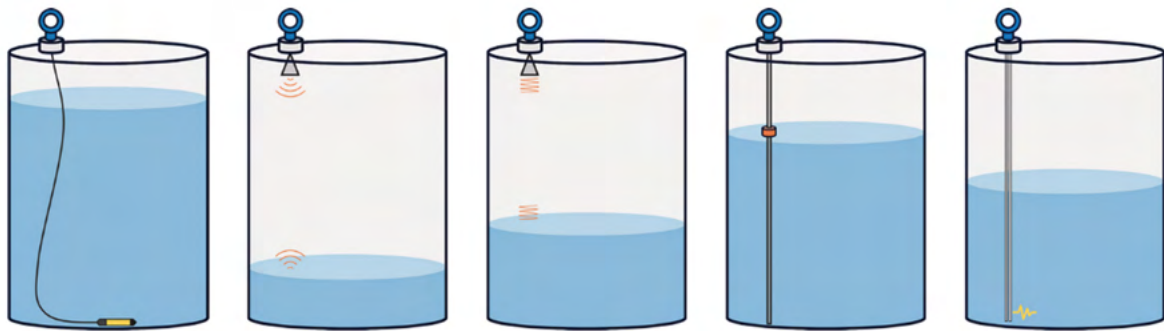
BARGE INSTALLATION



MANTRAZ Solutions:

4. Tank-Level Monitoring System (TMS)

Overview Schema:



How TMS Benefit Me?

01. Provides measurements of liquid levels in tanks, ensuring you have data to base your decisions on.
02. Supports various sensor types Tank-Level Sensor tailored to different tank and liquid types.
03. First step in implementing IoT for your asset management
04. Tank-Level data helps optimize operations, maintenance, and supply chain management.

How It Works?

01. Sensors continuously capture liquid level data and send it to a central monitoring system.
02. Data is updated in real-time, allowing immediate visibility of tank status.
03. System analyzes data to detect anomalies and can trigger alerts for critical conditions.
04. Analysis of all captured data within Data Visualization



MANTRAZ Solutions:

5. Marine Weather Monitoring

Onboard weather observation for safer and more efficient maritime operations

Changes in wind, atmospheric pressure, rainfall, and environmental conditions can directly affect navigational safety, fuel consumption, vessel speed, and engine performance. MANTRAZ Marine Weather Monitoring integrates Automatic Weather Observing System (AWOS) technology directly into the MANTRAZ maritime IoT platform.



From Weather Measurements to Operational Intelligence

Unlike a land-based weather station, an onboard sensor moves and changes direction with the vessel. MANTRAZ combines weather observations with GPS position, vessel speed, course, and heading to distinguish between apparent wind—the wind experienced onboard—and estimated true wind conditions.

MARINE WEATHER MONITORING

01



Wind speed and direction

02



Apparent wind and true wind

03



Maximum wind gust

04



Air temperature and relative humidity

05



Barometric pressure and pressure trends

06



Rainfall intensity and accumulated rainfall

07



Sensor status and last data timestamp

08



Historical weather trends for selected periods

MANTRAZ Solutions:

6. High-Level Alarm (HLA)

Mitigating Risks, Ensuring Operational Safety

Our High-Level Alarm (HLA) system is designed as your line of defense against overflows in cargo tanks, fuel bunkers, and other critical fluid reservoirs. We bridge the gap between robust industrial hardware and the intelligent IoT ecosystem to deliver accurate, early warnings.



Cakra Sinergi Kreatif HLA Advantage:

With Customize Connection, Flange, and Drat, CSK operates as a comprehensive system integrator. We understand that every vessel and facility presents a unique set of operational challenges.



Tailored Sensor Integration

While a precision Float Level Switch is often a highly reliable standard, our architecture remains completely adaptable.



Custom Smart Logic

The controller's logic is fully programmable to align seamlessly with your Standard Operating



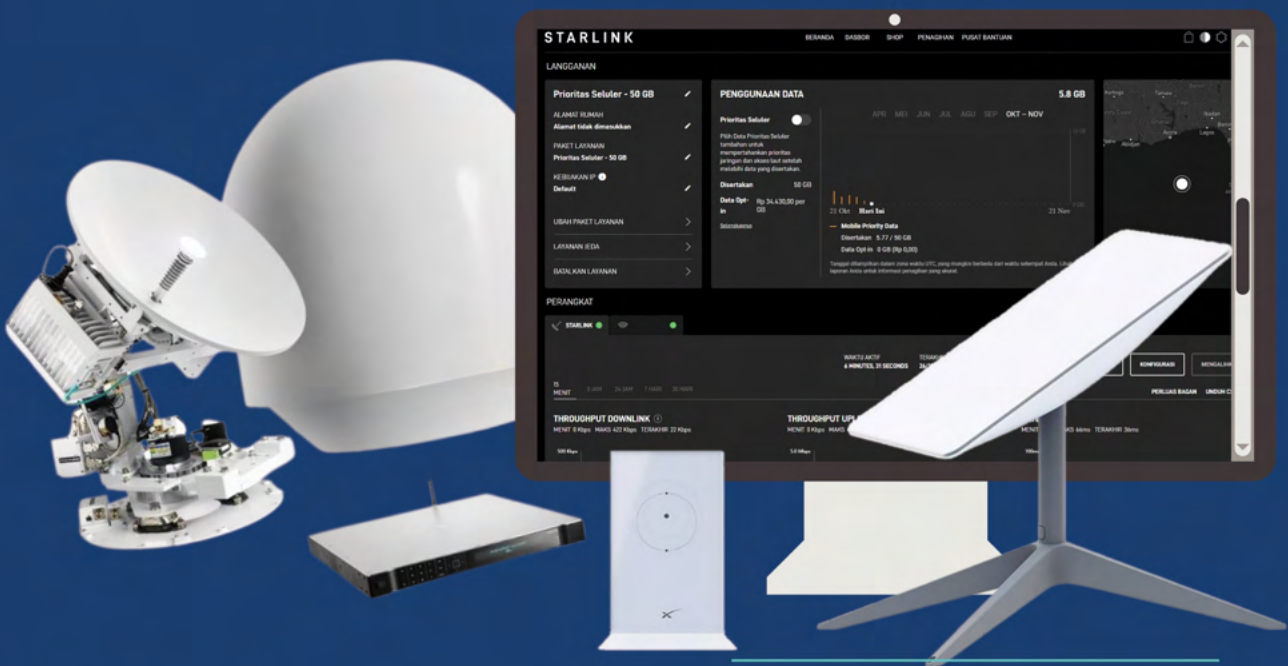
Local Processing

When the fluid reaches a critical threshold, a signal is dispatched to the Control Panel.

MANTRAZ Products:

1. Smart Vessel Connectivity

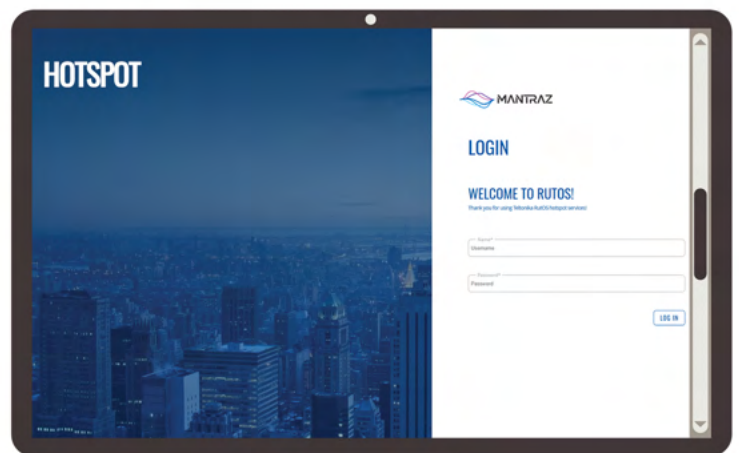
Satellite Network Integration



High-speed internet access with wide coverage from integrated satellite solutions such as Starlink, VSAT & WiFi management for your ship operations.

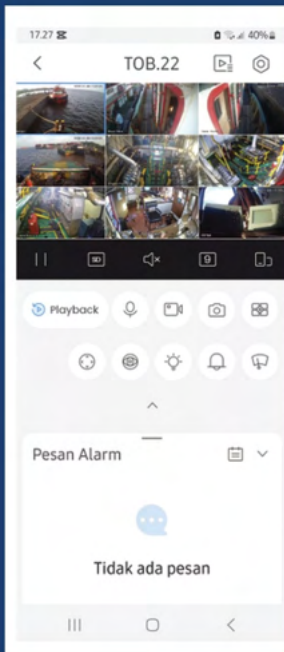
WiFi Management

We also provide Wifi management based on the starlink network which can be enjoyed by all users who are on the ship anytime anywhere.



MANTRAZ Products:

CCTV Integration



Our integrated CCTV systems enable efficient monitoring of all critical areas onboard — including engine rooms, decks, and crew zones — through centralized control units or remote access via secure networks. The system features automated recording, motion detection, and seamless integration with other onboard security components



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MANTRAZ Products:

2. Instrumental - Mass Coriolis Flow Meter

Mass Coriolis Flow Meter is a sensor that **measures the mass of a fluid traveling through a tube**, in accordance with Coriolis Principle.

Coriolis mass flow meter can directly measure fluid mass flow, and has great influence on processing and measuring methods in energy & chemical industries.



Compared with traditional volumetric flow measurement, it has following advantages:

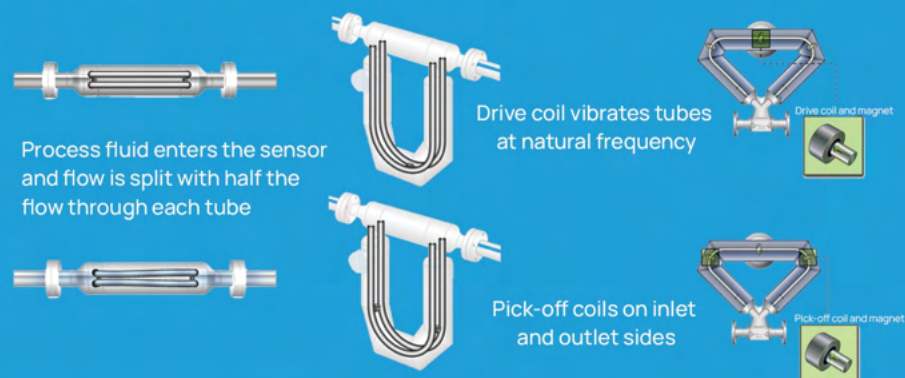
01. **High accuracy:** Generally from 0.1 % - 0.5%
02. **Wide application:** Besides common fluid, mass flow meter can measure fluids such a non-Newtonian fluid, all kinds of slurry, suspensions, etc.
03. **Convenient installation:** No specific requirement of choosing upstream or downstream pipe.
04. **High reliability!**



Theory of Operations - Density Measurement



Theory of Operations - Mass Flow Measurement



Density measurement is based on the natural frequency:

1. As the mass increases, the natural frequency of the system decreases
2. As the mass decreases, the natural frequency of the system increases

Engineering Services

Our team of experienced engineers delivers expert solutions ranging from routine maintenance to advanced technical support, ensuring your assets perform optimally and reliably. We prioritize customer satisfaction by offering flexible service options, including on-site assistance, remote troubleshooting, and professional training.

General Maintenance

We offer thorough general maintenance services designed to keep your vessels running smoothly and efficiently. Our proactive approach helps prevent downtime and extends the lifespan of your equipment, supporting your business continuity.

Troubleshoot Services

Our skilled service engineers are equipped to diagnose and resolve technical issues both on-site and remotely. Whether through direct intervention or online support, we ensure timely and effective troubleshooting to minimize operational disruptions.

Technical Support

We provide expert guidance to help you select the most suitable products and configure them according to your specific operational requirements. Our technical support team works closely with you to tailor solutions that meet your unique challenges.

Installation Supervision

Our dedicated team can visit your location to oversee installation processes, providing hands-on supervision and guidance to your technicians. This ensures that installations are executed correctly and efficiently, adhering to best practices and safety standards.

Online Training

To empower your team, our support engineers offer comprehensive online training sessions. These sessions are designed to enhance your staff's technical skills and knowledge, enabling them to operate and maintain MANTRAZ systems effectively.



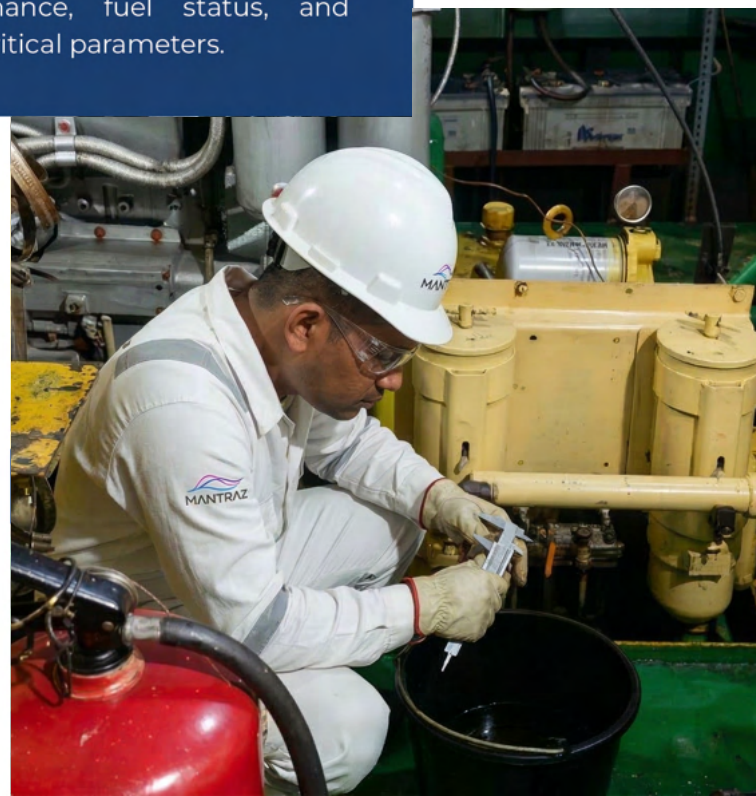
Portfolio and Projects

We Provide best support for you

MANTRAZ has successfully delivered key projects that enhance digitalization and operational efficiency on vessels. One of our core projects involves the installation of the Fuel Monitoring System (FMS) & Bunker Monitoring (BMS)



In addition, MANTRAZ provides IoT solutions that integrate sensor data. This integration offers crew members an intuitive and interactive platform to monitor engine performance, fuel status, and other critical parameters.



Our Client



Delivering engineering excellence and operational precision is at the core of what we do. We are proud to support the critical operations of our distinguished clients

25+

IoT System Deliver

15+

Project completed

Contact Us!



CAKRA SINERGI KREATIF



**For further information, please scan the barcode
above to connected with us.**

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