

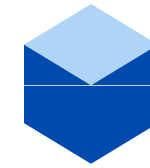


# FLOWMETRICS<sup>+</sup>

ARAMCO Compliant  
Electronic Fuel Monitoring Solutions

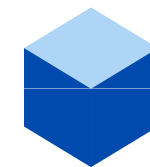


Effective monitoring & review increases awareness and knowledge of fuel consumption, allowing you to make informed decisions to enhance performance and optimize overall operational cost, KDU aims to achieve these objectives for our consumers through Flowmetrics.



## Fuel usage – Projected v. Actual

- How much fuel is likely to be used. v. How much fuel is used.



## Key areas of fuel consumption & its analytics

- How the fuel was used - Traveling v. Idling
- By a specific engine (For eg. - port v. starboard)
- Assisting you in the fight against fuel theft



## Factors affecting fuel usage & its analytics

- What things impact fuel usage - Performing one job versus another



# FLOWMETRICS<sup>+</sup>

## SYSTEM COMPONENTS & FEATURES



# PERFORMANCE TRACKING & MANAGEMENT VIA PIM OBU

Detailed & accurate fuel consumption & other data via  
Performance Indication Onboard unit

Monitors your ship's performance, providing decision support to  
optimize fuel consumption which can lead to reduced emissions.

Located on-board the vessel, it equips you with:

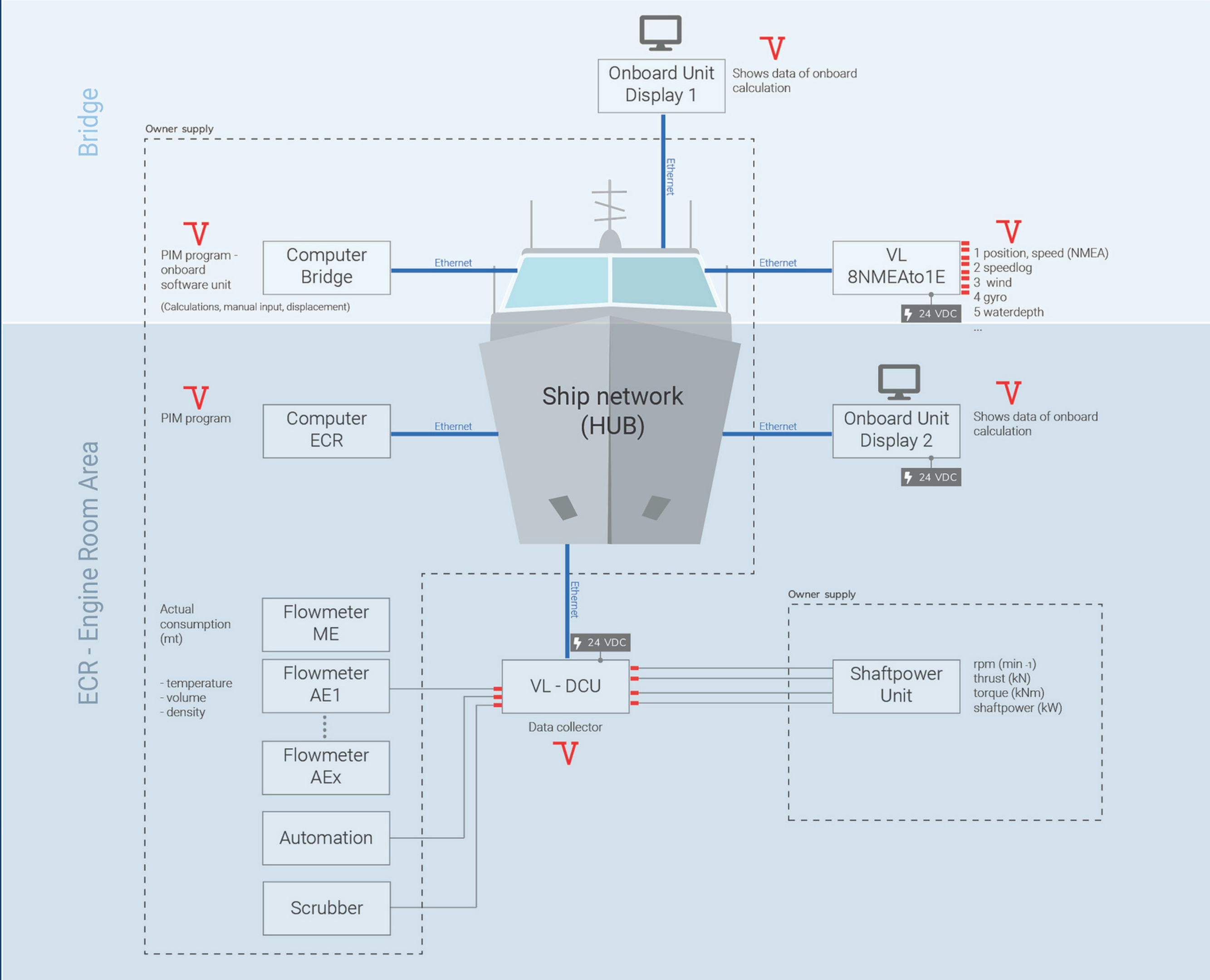
- performance monitoring,
- Electronic measurement logging,
- Simulation-based decision support and
- Extensive energy & performance analysis.

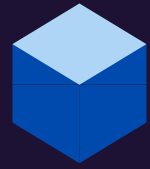
**CONTINUOUS MONITORING MADE EASY!**

**Performance Indicator Monitor (PIM) aids in collecting & storing nautical, technical and other ship relevant data. The collected data will be transferred to the relevant parties within your system for further analysis.**

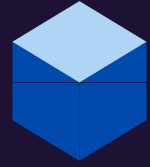
**This Information is not stored in cloud storage but located exclusively on the server of the ship and at their office.**

**THE DATA WILL BE COMPLETELY UNDER YOUR CONTROL AND PROTECTION.**



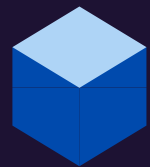


## Available for Offshore and/or Onboard Crew



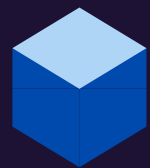
## Simplified, Customizable & Browser Based

Installation is no longer necessary & software updates are automatically carried out on the server with latest features.



## Noon & Other Reports

Additional to the normal noon reporting, some additional reports are made available to provide a more in-depth & accurate performance analysis experience.



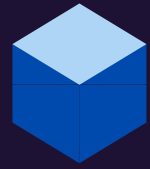
## Data Display, Exports and Graphical Analysis

PIM also provides evaluation of the vessel's performance by analysis, benchmarking, and visualization of performance trends

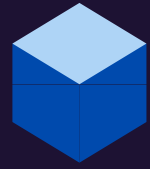
# FEATURES

The Performance Indication Onboard Unit PIM OBU logs and displays nautical data, fuel consumption data and engine data from various sensors in real time, giving detailed information about the actual performance of the ships. In addition, the PIM OBU compares the fuel consumption with the data of the charter party.

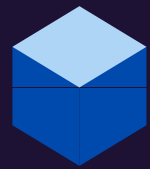




## Fleet Management and Trends - Data Transfer, KPIs & Analysis

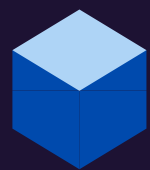


## Data Quality, Plausibility Checks and Usability



## HSSEQ Reports

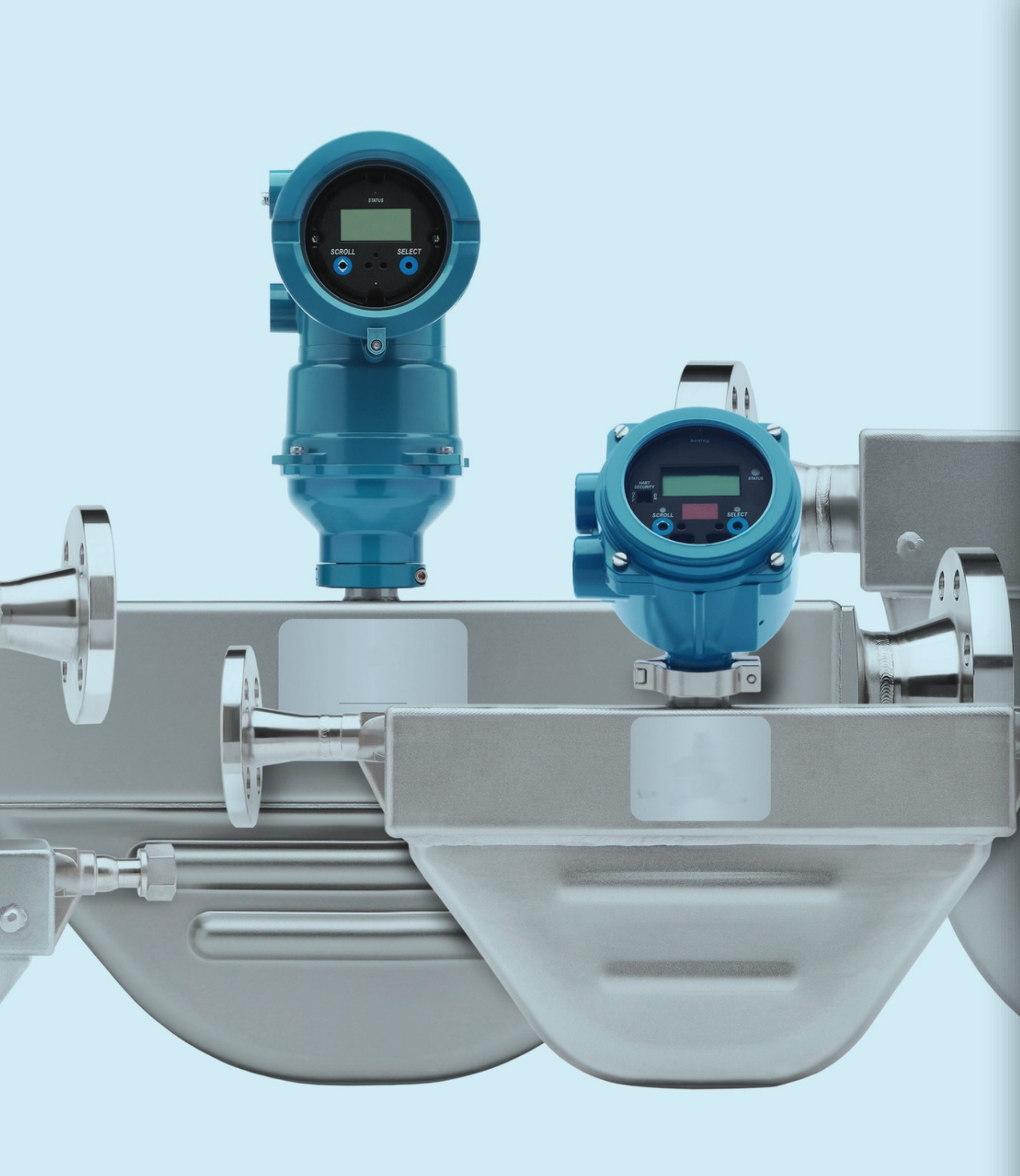
Performance monitoring is more than just having a look on the nautical and technical Performance & to complete the 360° analysis, we provide Health, Safety, Security and Environmental Reports.



## Charterparty Editor

In time of short charter periods, the charter party are adjusted often. With a user-friendly tool like PIM, you can specify the current charter party and display it on board.





# CORIOLIS FLOW METERS

Providing scalability, compatibility and performance that your application demands.

These flow meters deliver the best measurement technology and offer unparalleled support – ensuring total measurement, confidence, valuable process insight and greater operational efficiency.

Located between service tank and the day tank, it equips you with:

- Widest range of installation and process condition flexibility,
- provides robust measurements even under demanding process conditions,
- significant expenditure reduction by reducing labor and outsourced calibration service costs
- State of the art, ISO-IEC 17025 compliant calibration stands achieving  $\pm 0.014\%$  uncertainty drive best in class measurement
- accuracy

**ACHIEVE ABSOLUTE MEASUREMENT CONFIDENCE!**

# ARAMCO APPROVED FLOWMETERS

Aramco Overseas Company B.V.  
Scheveningseweg 62 - 66  
2517 KX The Hague  
The Netherlands

Tel: +31 (0) 88 262 2000  
Fax: +31 (0) 88 262 3000  
www.aramcooverseas.com



EMERSON PROCESS MANAGEMENT FLOW BV  
ATTN: MR. B. VAN GINKEL  
NEONSTRAAT 1  
6718 WX EDE  
THE NETHERLANDS

The Hague, April 25, 2017  
AOC Ref: JPL/107000126877

**SUBJECT: PLANT EVALUATION**

**Vendor ID: 10002949 - Plant ID: 30004404**

Dear Mr. Van Ginkel,

As a result of the assessment conducted on February 22, 2017 we are pleased to inform you that your company is **Approved** to supply the 9COM material(s) listed in the attachment.

This approval is granted for your manufacturing plant EMERSON PROCESS MANAGEMENT FLOW BV in EDE, THE NETHERLANDS.

This plant approval is restricted to this manufacturing address; materials manufactured at any other non-approved plant, will be irrevocably rejected.

It is the responsibility of the manufacturer to notify Aramco Supplier Registration Group in a timely manner in case of change of name and/or address, any change of manufacturing location (sub sourcing fabrication of major components) or discontinuance of fabrication of approved material(s).

This approval should not be regarded as a commitment from Aramco Overseas Company (AOC) to purchase from you. However, your company will have the opportunity along with other approved suppliers to respond to requests for quotation in accordance with AOC's established policies and procedures.

We would like to take this opportunity to thank you for your interest in doing business with AOC and Saudi Aramco. Please quote the above referenced Vendor ID and Plant ID in all future correspondence.

For any questions regarding this notification please contact [inspectionqa@aramcooverseas.com](mailto:inspectionqa@aramcooverseas.com).

Yours faithfully,

  
Frans de Zwart  
Supervisor Supplier Registration Group

**Attachment:**

**Inspection lot:** 107000126877

**Approved 9COM(s):**

9COM	Description
6000002915	FLOWMETER MASS; CORIOLIS TYPE TYPE

**Smart Meter Verification provides a quick, complete assessment of Micro Motion Coriolis meter, determining whether the meter has been affected by erosion, corrosion, or other influences affecting meter calibration.**

**No secondary references are required to perform this operation, and the meter can continue normal process measurement while the test is in progress.**



TRUE VALUE

To whom it may concern

Date 29 July 2016  
Reference -  
Our reference NMI-20160729-MS-01  
Subject SMV diagnostic tool

Dear Sir or Madame,

On request of Emerson Process Management Flow, Ede, The Netherlands, NMI Certin B.V. has investigated the functioning of the diagnostic tool, Smart Meter Verification, an exclusive feature of Micro Motion Coriolis meters. The purpose of the investigation was to give an assessment if Smart Meter Verification reliably determined that the flow meter was meeting its mass flow performance specifications.

In that framework, NMI Certin B.V. conducted exhaustive testing and determined that when Smart Meter Verification returned a passing value (i.e. within its acceptance band), the meter was meeting its mass flow specifications.\*

From this investigation NMI concludes that Smart Meter Verification can be used as a reliable tool to confirm that the flowmeter is still measuring accurately. If the media is known to be corrosive or erosive it is advised to run SMV on a regular basis to see shifts and trends early on. Smart Meter Verification can therefore be considered as a diagnostic tool which can be used to evaluate (shorten or extend) proving intervals or re-calibration frequency.

\* Reference NMI Test Report NMI-13200495-01.

I trust to have informed you satisfactorily on this matter.

With kind regards,  
NMI Certin B.V.

  
M. Ph.D. Schmidt  
Approvals Expert



# CCTV CAMERAS

Intelligent, Efficient, and Convenient  
Video Surveillance.

We provide IP cameras with  
outstanding image quality in  
challenging lighting environments.  
Camera styles vary from indoor and  
outdoor domes, bullets, turrets, covert,  
fisheye models, and various PTZ  
options.



## Key Features:

- high resolution up to 12 MP 180
- panoramic viewing,
- IP Cameras with smart analytics, and
- H.264+ compression.

**WITH SO MANY RELIABEL FEATURES, THESE CAMERAS FROM HIKVISION EASILY MEETS THE HIGH PERFORMANCE AND STORAGE REQUIREMENTS OF ANY CUSTOMER FOR THE SURVEILLANCE AGAINST FUEL THEFT!**

# IOT & REMOTE SUPPORT

KVH Watch is the all-inclusive, no commitment IoT Connectivity which enables you to monitor your equipment and assets at sea, and take action remotely to optimize performance or conduct tech support sessions.

## The KVH Watch Solution Includes:



Global HTS Broadband  
as Fast as 10 Mbps



A Proven, Rugged  
Hardware Solution



Zero Maintenance  
Costs



Isolated IoT LAN



Dedicated Intervention  
Wi-Fi Points



Secure Watch Manager  
and Scheduling

# Hardware Features

Dedicated high-throughput terminal on its own LAN, fully isolated from the vessel's existing IT and OT networks

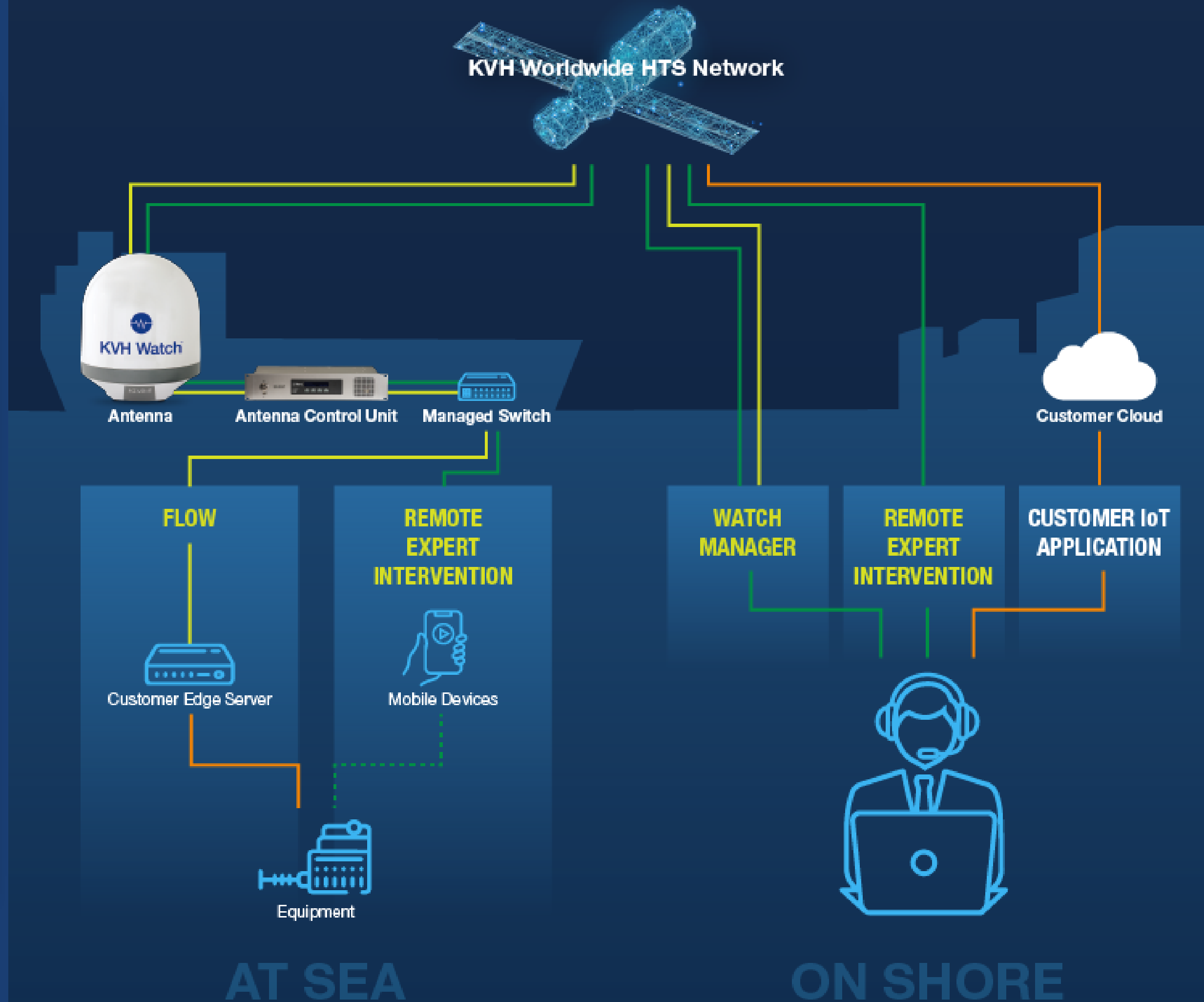


2U-high belowdecks Antenna Control Unit with 1 TB of storage; manages Flow return link traffic and high-speed Intervention session traffic

8, 16, 24, or 48-port 1U-high managed switch for isolated access to each onboard system



**Advanced,  
Commercial-grade  
Technology Bridges the  
Gap from Shore to  
Ship**



## **FLOWMETRICS SOFTWARE**

Detailed & accurate fuel consumption data at  
your fingertips

## **EMERSON FLOWMETERS**

ARAMCO approved measurement  
technology

# **FLOWMETRICS<sup>+</sup>**

## **IP CAMERAS**

ATEX approved cctv cameras for efficient  
video surveillance.

## **KVH WATCH**

No commitment IoT Connectivity to monitor  
your assets at sea.

# Contact Us!

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[www.kduworld.com](http://www.kduworld.com)

