NORINET – Fleet performance management

System concept

NORINET is based on the latest maritime 4.0 infrastructure. The NORINET interface unit is installed on the vessel with access to the internet and connected to the vessel's LAN network. It works as data collector, processor and gateway. The secure data transfer from the interface unit to the cloud is done via MQTT messaging protocol and ensures minimum network traffic and maximum scalability.

Data from the alarm, monitoring and control system (AMCS) and navigation data is transferred via GPRS to an onshore server into the NORINET cloud. These data can be accessed via internet with multiple clients (PC, tablet or smart phone with a standard web browser).

Application-based cloud service

NORINET cloud service is based on Applications (Apps). This allows the user to select and use specific features and functions. The NORINET applications can be customised, if necessary, to meet your requirements.
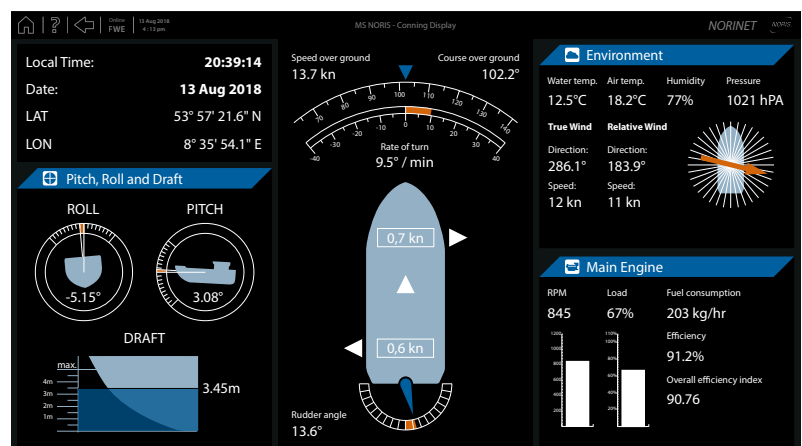
Vessel live data

A **Dashboard** provides live data from your vessel: vessel information, vessel course and GEO indication, speed over ground, weather data, etc. Further Apps allow a detailed view on your vessel from a **Conning Display** and **Remote Monitoring** (vessel's AMCS information) up to the **Vessel Performance** (fuel consumption, power performance, energy flow, propeller and hull performance, etc.).

Vessel reports and predictive maintenance

Apart from the live view the NORINET cloud data can be used to generate customer-specific reports (e. g. Efficiency report, SFOC/FOC, power report, hull cleaning, engine condition, etc.). Thus, it is possible to observe your vessel's performance and to schedule service and maintenance.

Your benefits at a glance

- Fast, reliable and secure data transfer via MQTT protocol
- Data caching when internet connection is interrupted
- Optimisation of vessel and fleet performance as well as maintenance processes
- App-based functionality to ease customisation and to reduce costs
- Secure real-time remote monitoring
- Performance reports and analysis based on historical data
- Easy system updates
- User management and multiple user access

NORINET system structure

Any PC with web browser

*.csv Export

Vessel network

Any PC with web browser

*.csv Export

Vessel network

Ethernet

SKY DSL / GSM / GPRS

Server & Cloud

Internet

NORIS Support

Vessel | **Onshore**

Internet

Interface Unit

NORICAN

MODBUS

NMEA

NORIS AMCS

3rd Party

Gateway for GPS

Any other systems

Notifications for Reports and Smart Alarms

Access with any PC or mobile device with web browser

*.csv Export

API access for data export or interfacing external software tools
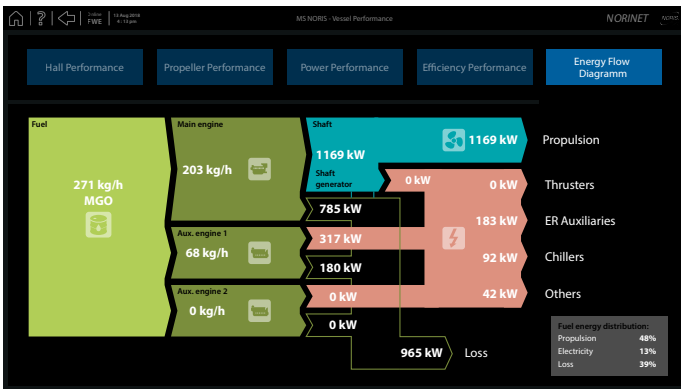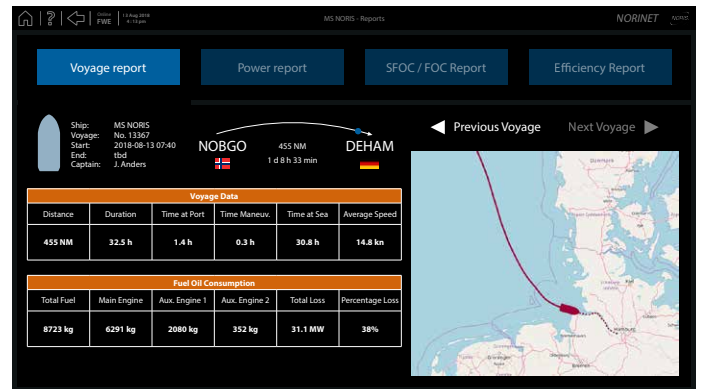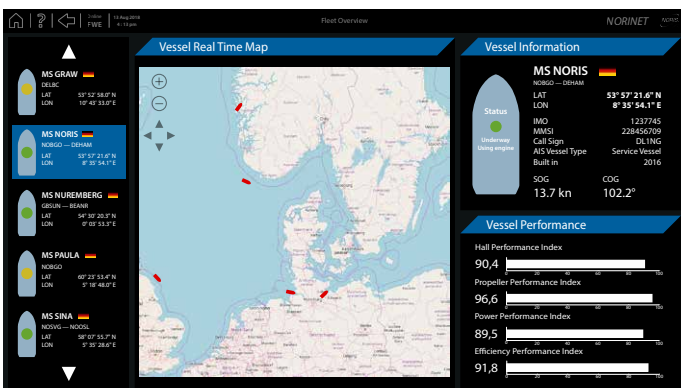
NORINET example screenshots

Energy Performance

| Hall Performance | Propeller Performance | Power Performance | Efficiency Performance | Energy Flow Diagramm |

Fuel — 271 kg/h MGO

Main engine — 203 kg/h

Shaft — 1169 kW

1169 kW Propulsion

Shaft generator — 0 kW — 0 kW Thrusters

785 kW — 183 kW ER Auxiliaries

Aux. engine 1 — 68 kg/h — 317 kW — 92 kW Chillers

180 kW

Aux. engine 2 — 0 kg/h — 0 kW — 42 kW Others

0 kW

965 kW Loss

Fuel energy distribution:
Propulsion 48%
Electricity 13%
Loss 39%

Voyage Report

| Voyage report | Power report | SFOC / FOC Report | Efficiency Report |

Ship: MS NORIS
Voyage: No. 13367
Start: 2018-08-13 07:40
End: tbd
Captain: J. Anders

NOBGO — 455 NM — DEHAM — 1 d 8 h 33 min

Previous Voyage — Next Voyage

Voyage Data

Distance	Duration	Time at Port	Time Maneuv.	Time at Sea	Average Speed
455 NM	32.5 h	1.4 h	0.3 h	30.8 h	14.8 kn

Fuel Oil Consumption

Total Fuel	Main Engine	Aux. Engine 1	Aux. Engine 2	Total Loss	Percentage Loss
8723 kg	6291 kg	2080 kg	352 kg	31.1 MW	38%

Fleet Overview

MS GRAW — DELBC — LAT 53° 52' 58.0" N — LON 10° 45' 33.0" E

MS NORIS — NOBGO — DEHAM — LAT 53° 57' 21.6" N — LON 8° 35' 54.1" E

MS NUREMBERG — GBSUN — BEANR — LAT 54° 30' 20.3" N — LON 0° 03' 53.3" E

MS PAULA — NOBGO — LAT 60° 23' 53.4" N — LON 5° 18' 48.0" E

MS SINA — NOSVG — NODSL — LAT 58° 07' 55.7" N — LON 5° 35' 28.6" E

Vessel Real Time Map

Vessel Information

MS NORIS — NOBGO — DEHAM
LAT 53° 57' 21.6" N
LON 8° 35' 54.1" E

Status: Underway Using engine

IMO 1237745
MMSI 228456709
Call Sign DL1NG
AIS Vessel Type Service Vessel
Built in 2016

SOG 13.7 kn
COG 102.2°

Vessel Performance

Hall Performance Index 90,4
Propeller Performance Index 96,6
Power Performance Index 89,5
Efficiency Performance Index 91,8

User Management

| User Overview | Access Management | Groups | Password Settings |

FREY Luca — Owner
KRISTIANSEN Martin — Chief Engineer
MEIER Bernd — 2nd Engineer
OSTER Simone — Fleet Manager

User	Remote Monitoring		Conning Display		Reports		Vessel Performance		Fleet Overview	
	View	Edit	View	Edit	View	Edit	View	Edit	View	Edit
ANDERS Jan	●	●	●	●	●	●	●	●	●	●
BOLT Hans-Jürgen	●	○	●	○	●	○	●	○	●	○
FREY Luca	●	●	●	●	●	●	●	●	●	●
KRISTIANSEN Martin	●	●	●	●	●	●	●	●	●	●
MEIER Bernd	●	○	●	○	●	○	●	○	●	○

Page 1

NORIS AUTOMATION