METAPOWER QUAD

KONGSBERG

TORQUE & POWER MONITORING

KONGSBERG MetaPower® Quad

BENEFITS

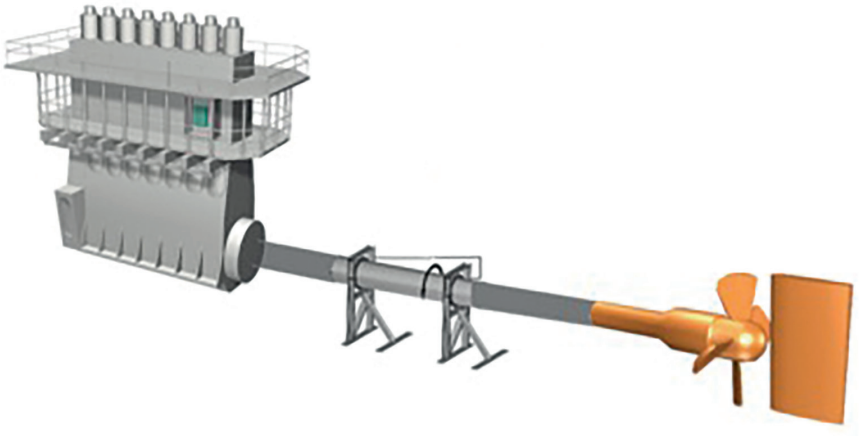
- No sensitive electronics mounted to shaft, withstands high RPM and vibrations
- 0,5% accuracy
- ISO 15016-2015 compliance verified by DNV
- No mechanical wear
- High resolution measurements
- Deeper insight on shaft torsion oscillations
- Detects shaft deflection (bending) and eccentricity
- Easy maintenance,clean only
- ShaPoLi feature
- Calibrated for life

OPTIONS

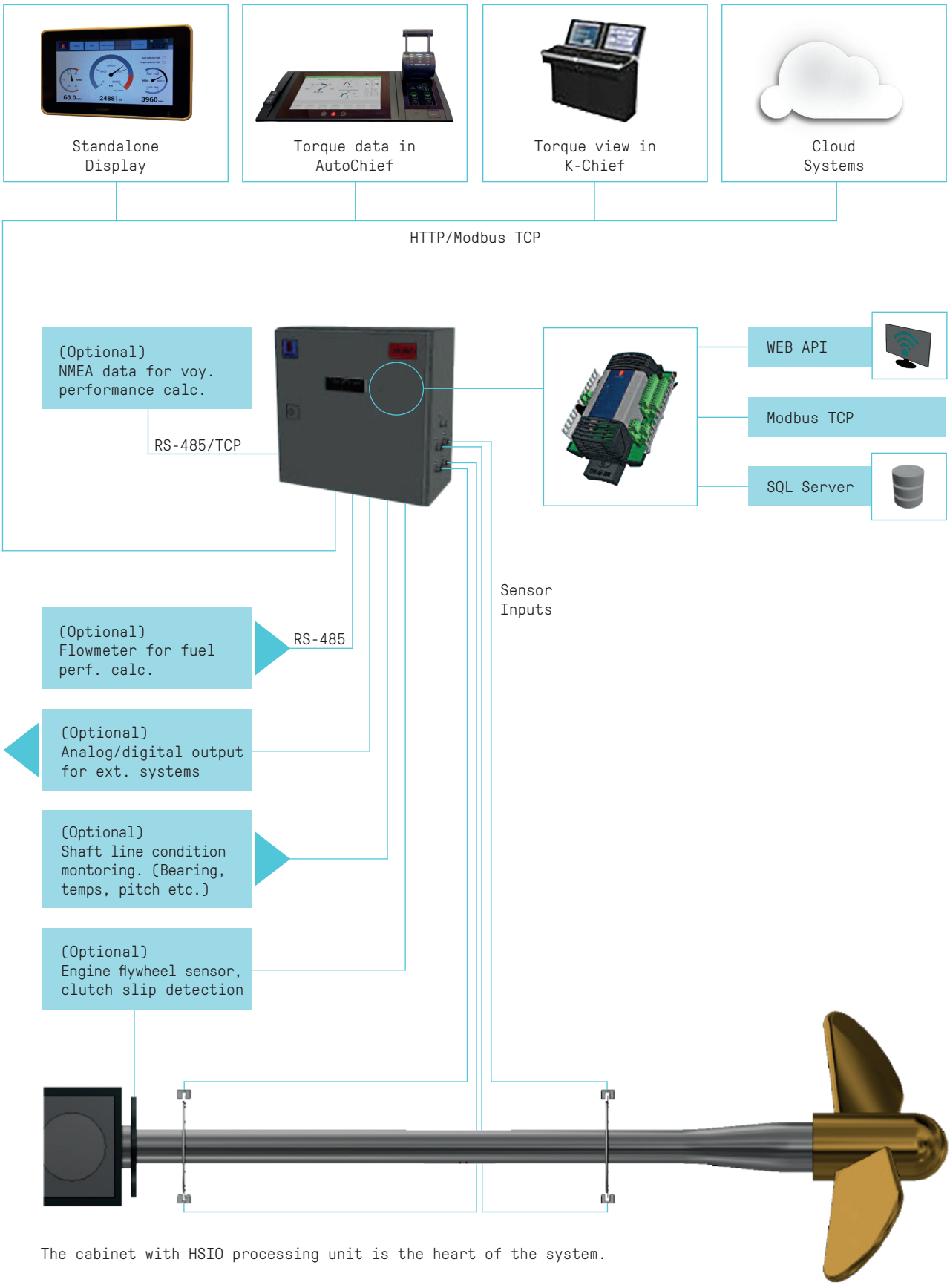
- Flexible coupling monitoring
- Clutch slip detection
- Fuel performance functionality
- Crank shaft monitoring
- Self-commissioning

General description

MetaPower® Quad is based on a patented design capable of more than just shaft power. Two slotted wheels are installed on the shaft with some distance between. Laser sensors individually read the wheels relative position. Industry leading high-res processing of torque and power data computed for every 1° of shaft revolution. Essential data are provided via TCP/IP for fast & lag-free communication. Also provides pre-processed datasets for in-depth torsion analysis.



System topology description, featuring the versatile HSIO processing unit, distribution of data to displays and other consumers/loggers of the shaft power

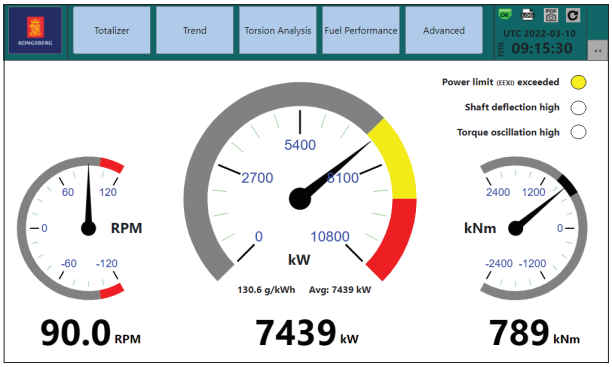


The cabinet with HSIO processing unit is the heart of the system.

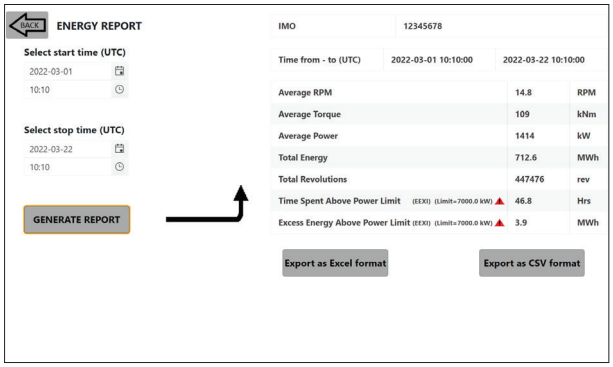
Enables safe and efficient operation

Measures torque and power transferred from the main engines to the propellers. Many included features like:

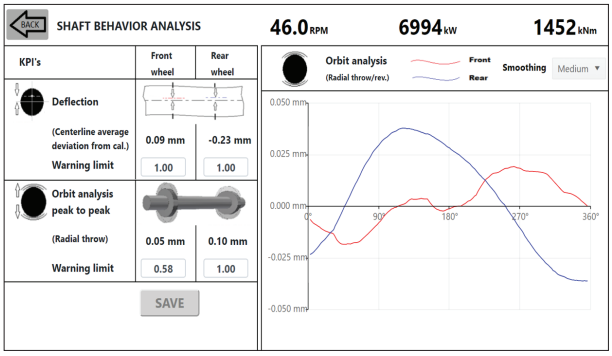
- Torsion analysis, with instant torsional vibration indication on newton meter gauge
- Shaft behavior analysis
- Shaft Power Limitation (ShaPoLi) indication and logging, outputs data to engine power limiting systems (EPL) on Modbus, or by use of digital output signal (HSIO has 2x50mA digital outputs)
- Trending tools
- For more information, see our web site at: https://www.kongsberg.com/maritime/metapowerquad



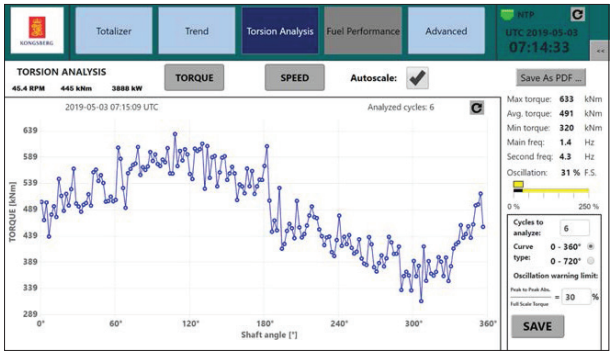
The main mimic with easy to read main gauges, trending facilities, totalizer etc.



Energy consumption report with ShaPoLi (EEXI) data, ready to be exported.



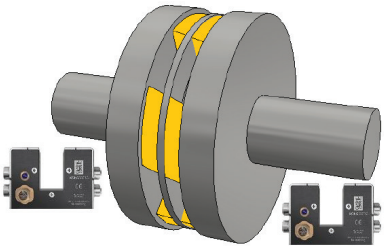
Shaft bending analysis.

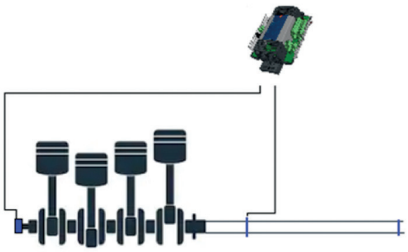


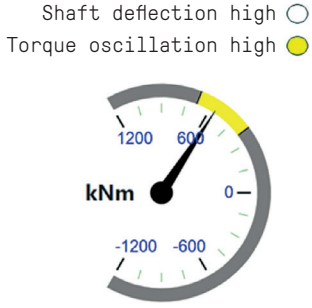
In depth analysis on shaft torsion is included with MetaPower Quad.

Shaft deflection (bending) and eccentricity detection

Using advanced algorithms, the quadrature arrayed sensors can detect deflection in the shaft, caused by bending forces and poor shaft alignment. The user will be alerted if the shaft is excessively bending, or exercise eccentric movements throughout the revolution. The warning limits are adjustable to accommodate most installations.







OPTIONS

Flexible coupling monitoring

Class compliant monitoring of flexible couplings, with real time measurement of twist, and twist amplitude. See datasheet KM doc 493350 for more info.

Clutch slip detection

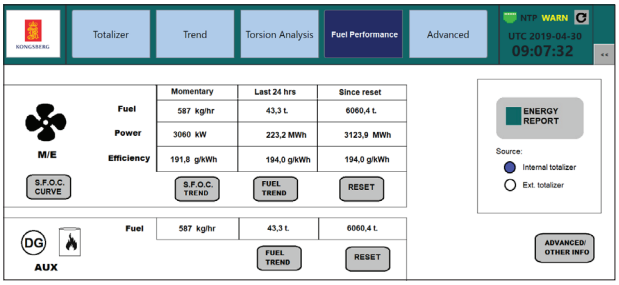
By interfacing engine flywheel sensor (ME RPM sensor) to the shaft cabinet, the system will compare revolution speed between shaft and engine. Provided with the gear ratio, the system will alert immediately if the clutch is slipping.

Crank shaft monitoring

By interfacing encoder in front of engine to shaft cabinet, crank shaft monitoring is possible. Comparing encoder signal to front shaft code wheel signal can provide insight on torsion and oscillations, isolated to the Main Engine crankshaft.

Fuel and voyage performance

By interfacing mass flowmeters and NMEA data, fuel performance option can be activated. Provides a very cost-effective, intuitive, standardized fuel calculation and logging system for single-acting main engines. Fuel and voyage data can be stored in the system up to 10 years. Use the report function or access the SQL data channel. The internal logging storage capacity is ~25 Gb, enough for most users.



Suits most vessels and applications

- 2 - 10 000 RPM
- 100 - 1000 mm shaft diameter
- Rough and durable design, no gluing, no on-shaft sensitive electronics that can abruptly fail
- No drifting, mechanically stable installation
- Insensitive to electrical fields and centrifugal forces
- No RF interference
- All parts are re-useable and serviceable by crew with user friendly calibration procedure if parts are re-assembled
- Extensive trending and logging capability
- Digital interface structure (Analogue output possible)
- Standalone or integrated
- A modern GUI that can be available in web-browser anywhere onboard
- Extensive add-on optional features
- Flexible delivery options: Turn-key from Kongsberg Maritime or self-commissioning by customer.

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