K-GAUGE

Sensor Reliability application

The need for accurate and reliable data is more important than ever. Sensors are your eyes overlooking the processes running your ship. By continuously sensing the levels, pressures and temperatures, and the combinations of these, you get the overview necessary for reliable asset management and safe operations.

As maritime instrumentation is particularly exposed to severe conditions like constant vibrations, heavy seas, extreme temperatures and potential explosive atmospheres, the condition of the sensor will be influenced. Monitoring this will optimize the maintenance required and increase lifetime of sensor.

The K-Gauge Sensor Reliability application utilize KONGSBERG extensive expertise in sensor technology, combined with current and historical data, to provide you the highest confidence in the measured data on-board your vessel. The application is available through Vessel Insight on Kognifai, designed and developed for maritime use by KONGSBERG.

How it works

Sensor information is continuously logged and stored in a database. Dynamic data like maximum exposed pressures and temperatures, sensor aging and drift, radar reflection curves and signal condition states are collected. The application extract the data, analyse health condition and monitor the status of each sensor. Static data like serialnumber, SW version and type designation is also stored for easy identification and service history.

Knowing the health and condition of sensors disclose new levels in safe and efficient tank operations:

- **Condition based maintenance.** Contamination influence the stability of measurements. By monitoring contamination, simple cleaning can be planned and performed when required.
- **Increased lifetime.** Logging of maximum exposed values and pressure shocks supports the understanding of the process dependencies and offers insight and more parameters for operational procedures.
- **Confidence and trust.** Knowing the status and condition gives confidence and reduce need for manual checking and uncertainty in automatic operations.

TRUST YOUR SENSOR DATA

- KONGSBERG is a leading supplier for the maritime industry, with over 30 years of experience in sensor manufacturing and design.
- Trusting the sensor data and the combination of them is the key for the journey toward automatic operations and autonomy.
- Continuous monitoring of sensor condition supports increased performance and lifetime of sensors.
- Remote services and tools for in-depth analysis builds knowledge and decision support for operators.

KONGSBERG GL-300 radar tank gauge with integrated inert gas pressure sensor

KONGSBERG GT403 pressure transmitter for level measurement, submerged in ballast- and service tanks

K-Gauge Intelligent applications

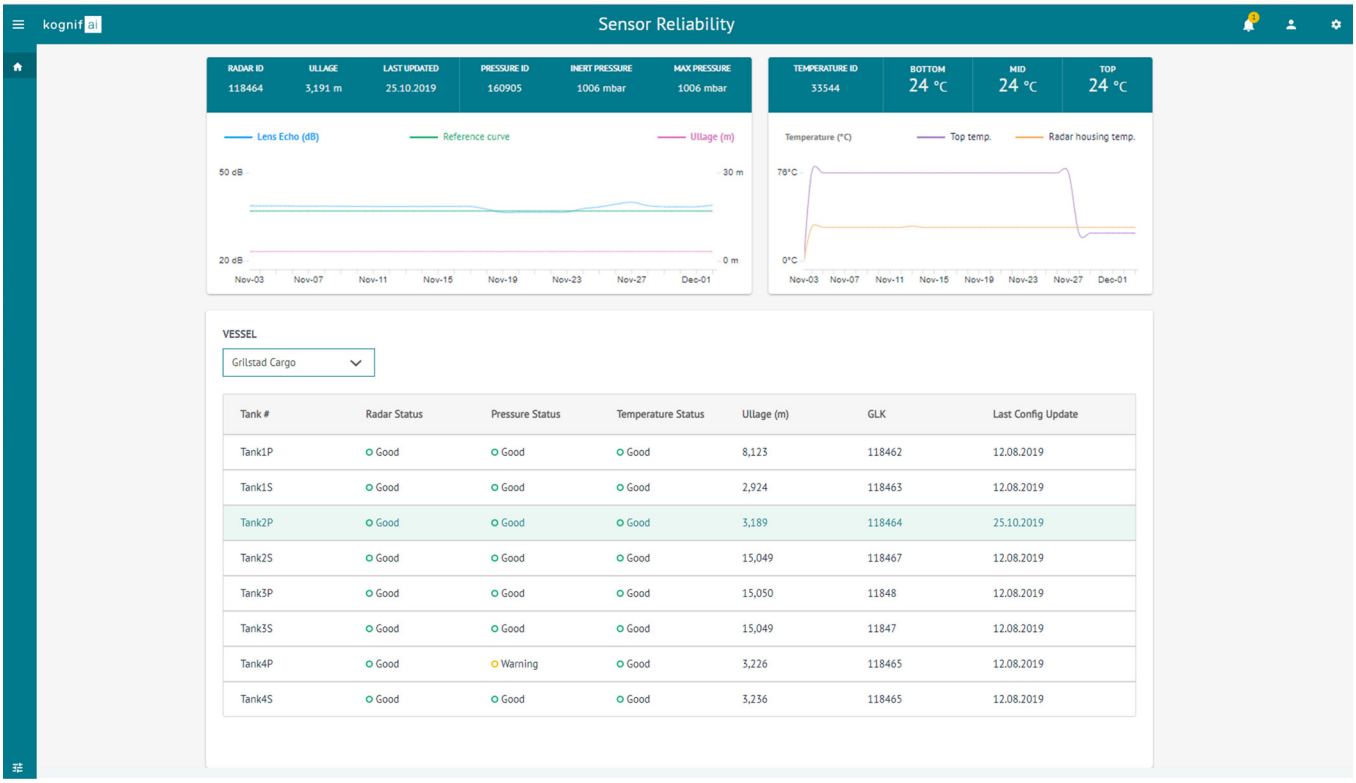
When combining K-Gauge Tank Monitoring System and K-Load Loading Computer the KONGSBERG Tank application becomes available for further operational support. Some examples:

- **Cargo tank monitoring**
  The Cargo tank application can give inventory overview, transfer reports and history, loading/discharge data and cargo information. This can evolve further to cargo planning, automatic cargo operations (by K-Chief) and history of vessel stress and stability conditions.
- **Fuel, Ballast & Service tank monitoring**
  The tank monitoring application can provide information on fuel inventory and history, ballast exchange history and draft, trim / list views. This can further evolve into ballast planning and automatic ballast exchange (by K-Chief).

REQUIREMENTS

The application is compatible with the following system setups:

Sensors	GL-300 radar tank gauge incl. inert pressure and tank temperatures GT400-series pressure transmitters GL-7B high level alarm switch.
SW	KONGSBERG K-Gauge tank monitoring system, K-Chief automation system and Vessel Insight with Kognifai account.
HW	Edge GW gathering and transferring data to Cloud.



K-Gauge Sensor Insight application view example. Upper left corner: Radar wave signal condition. Upper right corner: Tank sensor temperatures vs. ambient temperature. Lower half: Tank overview and respective sensor condition status.

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