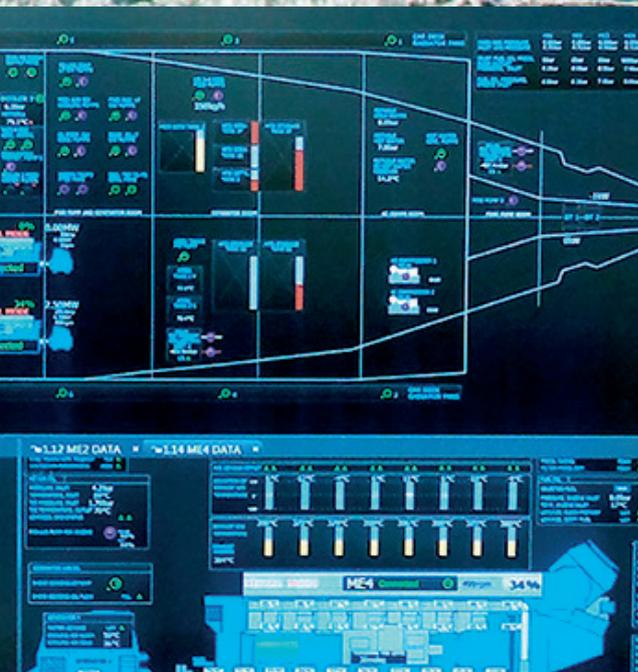




SECURING GAS DISTRIBUTION WITH REAL TIME DATA



Viking Grace – the world's first LNG powered passenger vessel uses radio modems for data transferring.

Radio modems are very useful in situations that require ultimate functionality in demanding circumstances. Strict time schedules in the passenger vessel transportation give zero tolerance for errors. Data transfer based on a private network ensures the functionality and provides stability that are required in the daily procedures of the shipping trade.

Viking Grace is the world's largest passenger ship that uses the Liquefied Natural Gas (LNG) as a fuel. The LNG storage system LNGPac™ was delivered by Wärtsilä, who also ensured that the vital parameters were available for the bunkering protocol. Their system included the bunkering station, LNG tank and tank room compartment, process skid, glycol-water heating unit and the control and monitoring system.

Dynatron delivered and installed the telemetry system that monitors the bunkering station. The system uses SATEL radio modems to transfer the data between the two ships. The data communication between Grace and Seagas works independently delivering real-time information about the refuelling process.

THE ENVIRONMENTALLY FRIENDLY PASSENGER FERRY

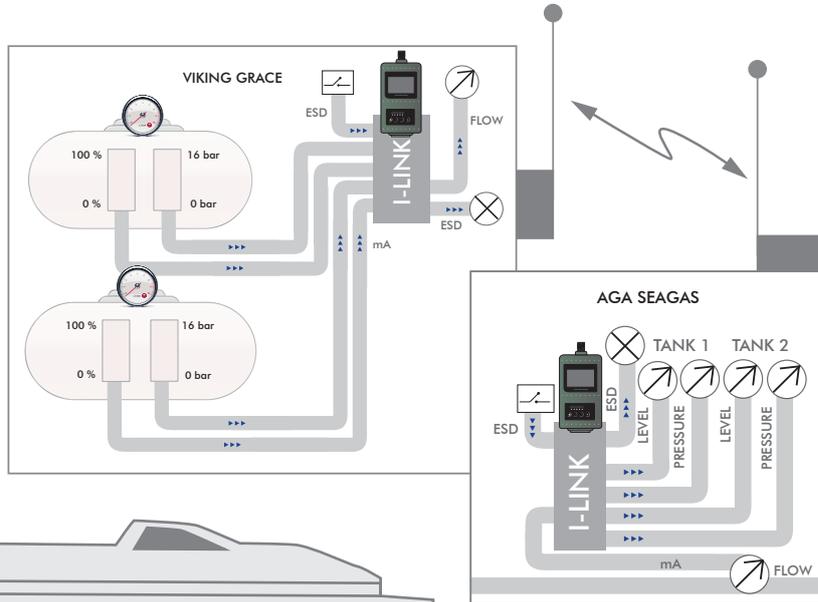
The goal in Viking Grace's design was to find the best environmental solutions for its operation. It is the world's first LNG powered passenger vessel decreasing Nitrogen Oxides (NOx) content in the exhaust gases by 85% and greenhouse gases by 15%; it has a Sulphur level of practically zero.

Usage of LNG makes Grace one of the world's greenest vessels. Natural gas is combusted more efficiently and is milder than other fossil fuels, in addition to being odor and toxin-free. LNG easily meets all the future strict requirements of the EU's low sulphur, nitrogen and particulate matter (PM) as well as for greenhouse gases (GHGs) directive.

"Seagas", the world's first LNG bunkering vessel, takes care of refueling of Grace. The tanks of Seagas have a capacity of up to 70 tons that can be transferred in just 60 minutes. Sixty minutes is also the turnaround time of Viking Grace while it is in port, as the vessel makes the 11-hour crossing between Finland's west coast city of Turku and the Swedish capital Stockholm.



"Seagas", the world's first LNG bunkering vessel, takes care of refuelling of Grace. AGA Gas AB is the supplier of the liquefied natural gas for the vessel.



DATA TRANSFER IN A PRIVATE NETWORK

Radio modem based data transfer is extremely reliable and cost effective. Radio modems operate in their own licensed frequencies and the network works independently from any operator networks. The redundancy of the system provides maximum security to the data transfer.

Bunkering telemetry system uses SATELLINE radio modems and SATELLINK I/O units for data communication between Grace and the LNG bunkering vessel Seagas. SATEL radio modems transmit information about the gas flow, pressure and level measurements and provide the shut down information in case of an emergency.