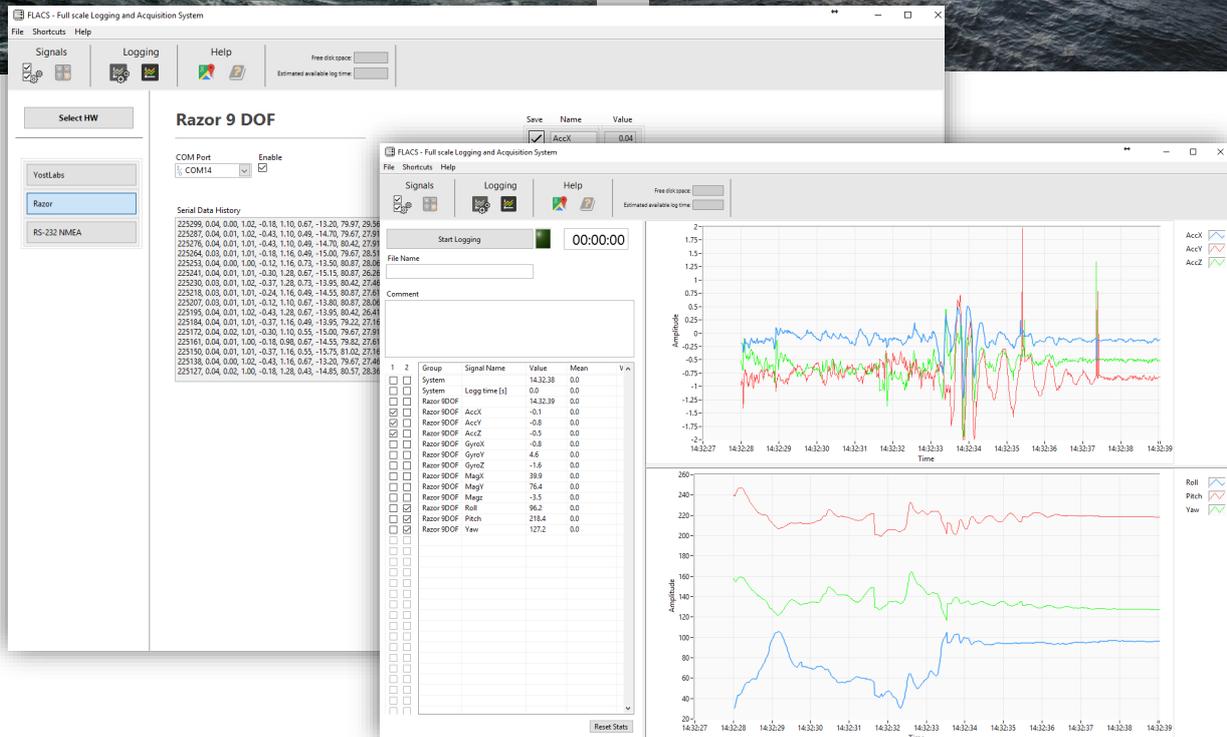
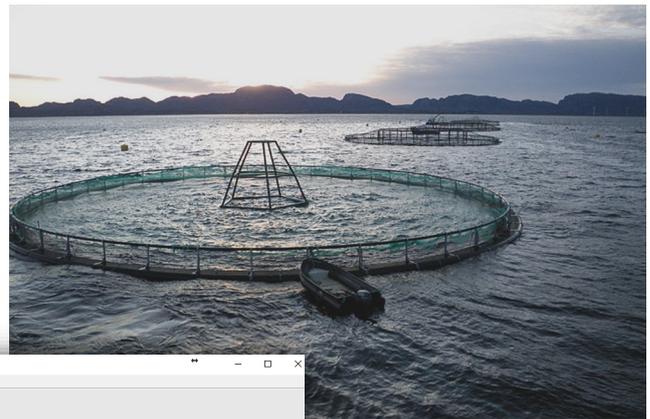


Full-scale Logging and Acquisition System (FLACS)

FLACS is a logging system developed for data acquisition of full-scale systems. A variety of sensors and generic protocols, such as NMEA, binary and Modbus, are implemented. Two graphs plot any signal data in real time. Automatic start-up, and start and stop conditions for logging is customizable allowing automatic long-term data acquisition.

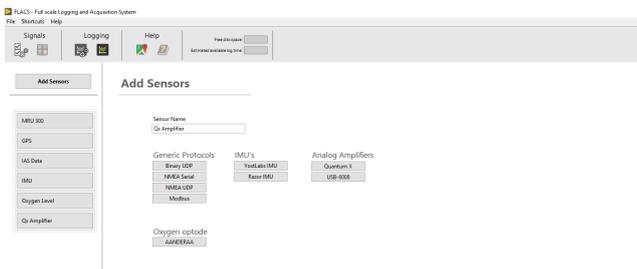


ABOUT

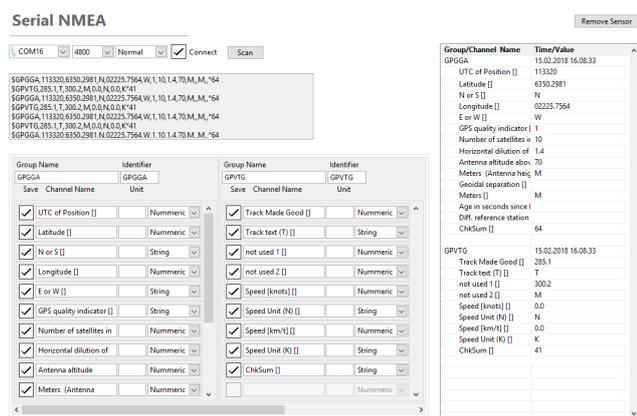
FLACS is developed to be a highly flexible full-scale logging and data acquisition system that can be operated either in manual or automatic mode. It is developed to make it easy to include new sensors and features. FLACS is based on the Lab-VIEW platform running on Windows OS.

SENSORS AND GENERIC PROTOCOLS

The current list of sensors include inertial measurement units (measure motions), HBM's QuantumX (multi purpose analogue amplifier), and oxygen measurements. When needed new sensors are added to FLACS.



Generic protocols that are fully configurable on site are also implemented in FLACS. The protocols included are UDP Binary, UDP NMEA, Serial NMEA and Modbus. A variety of standard NMEA telegrams are described in FLACS and are automatically populated as they appear. Also for the binary data, FLACS has a list of predefined telegrams the operator can select from. There is no limit to how many instances of each sensor or generic protocols the user is allowed to add.

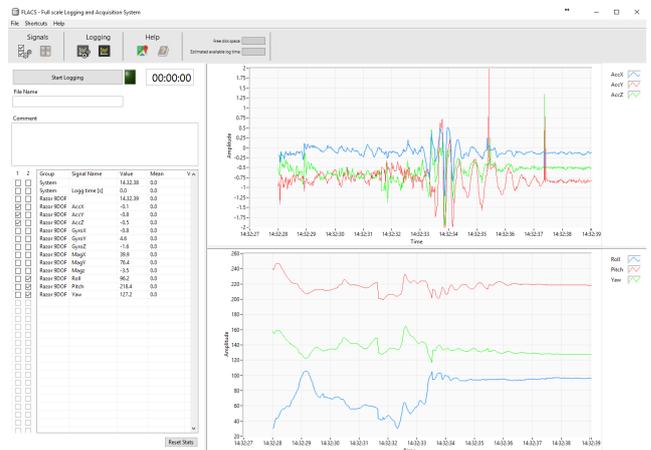


ONLINE CALCULATION

FLACS has a calculator implemented that lets the user create a new calculated signal with common mathematical operators. The operators can be applied to every signal in the system, making it possible for instance to calculate power from torque and revolutions.

LOGGING

FLACS can be configured to run in either manual or automatic mode. In manual mode the operator starts and stops the logging. In automatic mode a list of conditions can be set to start and stop logging automatically. The conditions can be set by comparing signals with each other or with constant values. Time is also an option. In case of a power loss FLACS can be set up to automatic resume logging when the computer is booted.



FILE FORMAT

FLACS logs sensor data and the time stamp in National Instruments binary format TDMS. When logging is stopped the file is defragmented to a small size binary file. A TDMS add-in to MS Excel makes it possible to open the file in Excel. The add-in is freeware and available on www.ni.com. The TDMS file can also be converted to text files or Matlab files (.mat), where each signal group has its own timestamp.



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