

Data Sheet

Control Software Development

Description

Callisto has significant experience in the development of software for instrument control applications both for the laboratory environment and for operational environments.

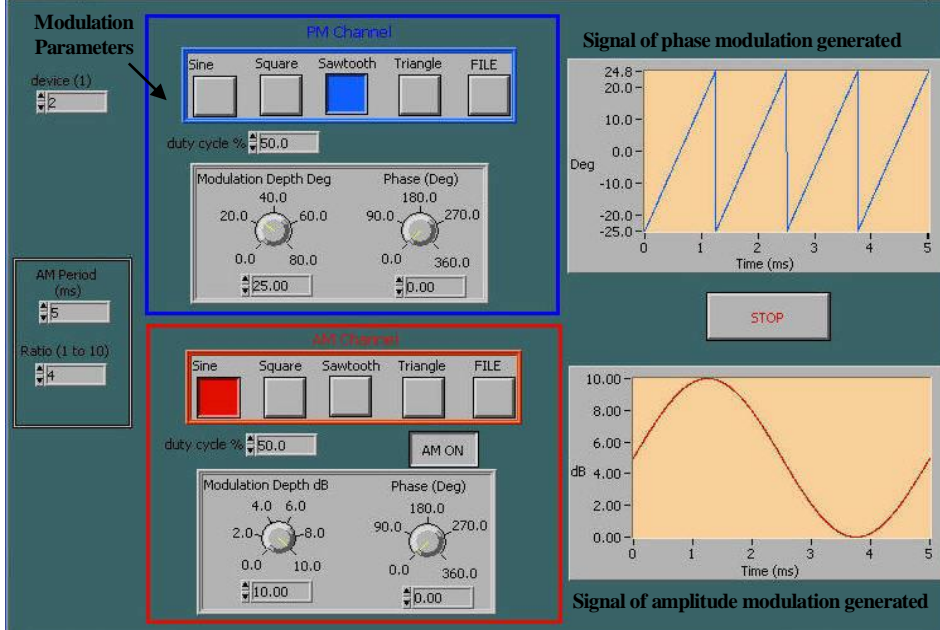
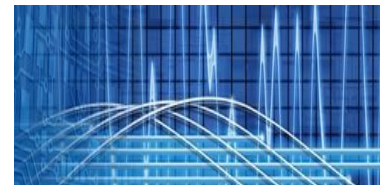
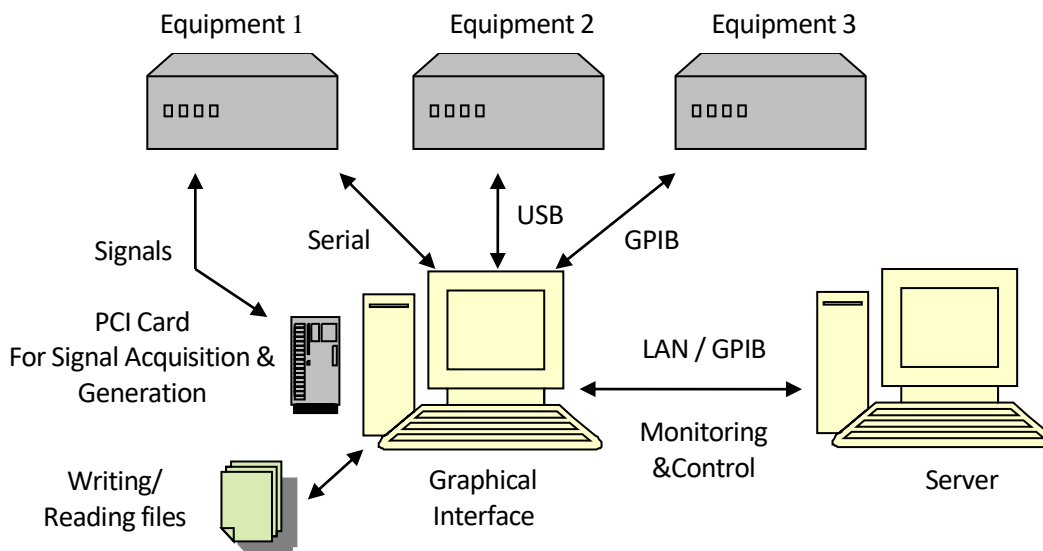
Typical applications include test & measurement automation, data logging and surveillance systems.

Many of Callisto's software applications have been developed using the National Instruments LabView™ graphical programming environment.

Main Functions

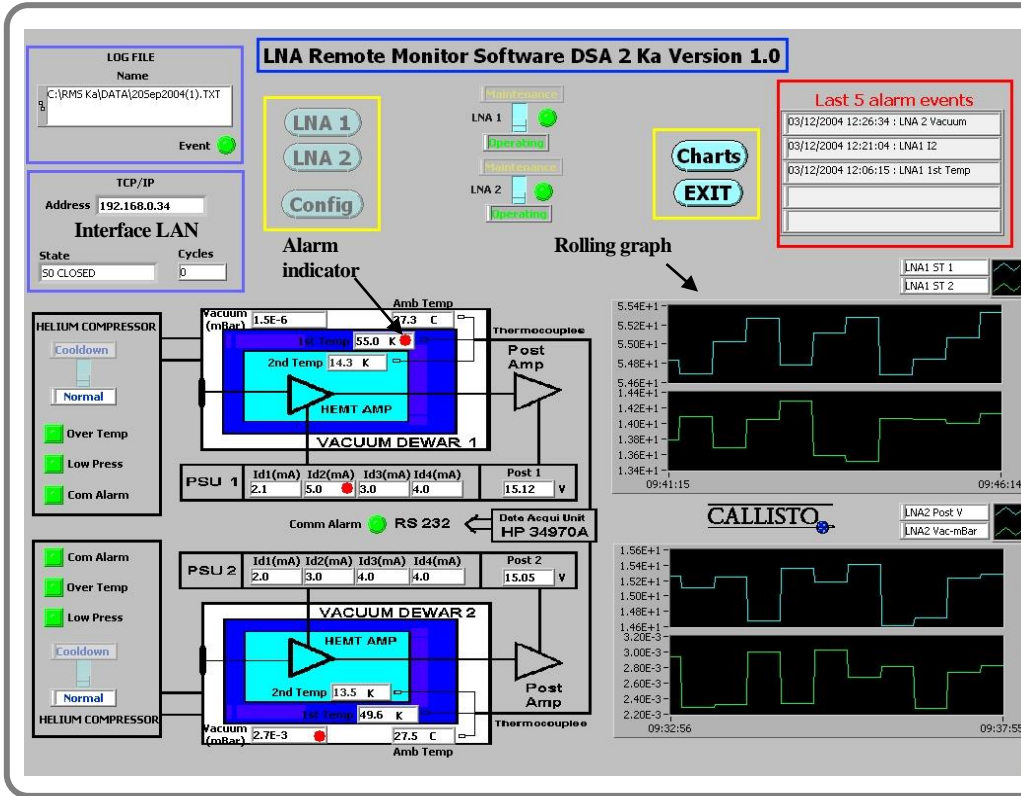
- Pressure, Temperature, Voltage measurement
- Generation of alarms
- Recording of data in files
- Readings of files
- Communication with equipment (LAN, USB, RS232, GPIB...)
- Recording of signal per sampling (via PCI cards)
- Treatment of the recorded signals (measurement of BER).
- Generation of modulated signals (via PCI cards)
- Formatting of data for a remote access by another PC
- Automation of measurements and tests
- Temperature regulation

Typical Interfaces



Simulators

A project was undertaken to design and develop simulators to emulate RF signal fading on satellite communications links. RF voltage variable attenuators and voltage variable phase shifters were used, driven by a programmable waveform generator. The software developed essentially controlled the parameters of the waveform generator; frequency, amplitude, phase and waveform type. In addition, complex waveform generation from file sources could be used.

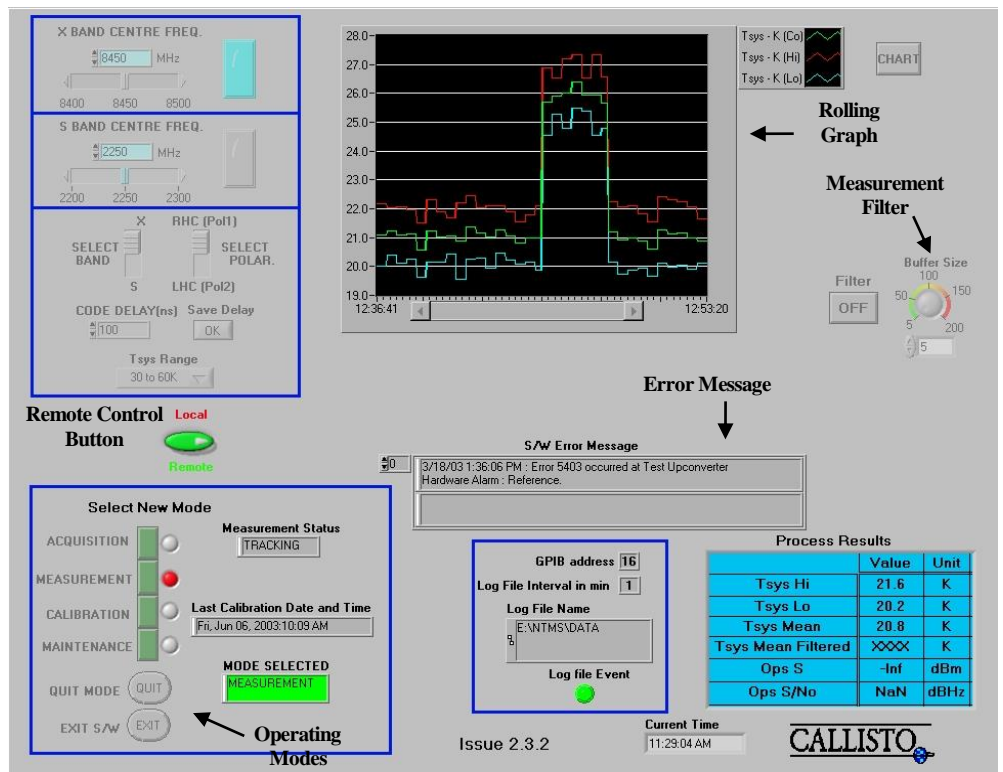


Equipment monitor and Control

Callisto has been developing complex cryogenic low noise RF amplifiers systems for satellite ground stations for a number of years. In 1998 we developed a PC based software application for continuous operational monitoring of the low noise amplifiers systems, which included thermometry, compressor status and power supply monitoring. Later improvements included the addition of a remote monitor port for linking into a centralised ground station monitor and control network. (Via TCP/IP)

Automatic Test and Measurement

A ground station noise measurement system was developed by Callisto. The measurement system comprised a set of commercial test instruments as well as a specially designed test modem. A software application was designed and developed to control the instrument suite, to collect and process measurement results and to provide an operator MMI for system control and result presentation. The software was able to perform automatic calibration of the measurements system and save calibration data to file for subsequent measurement sessions.



In another example Callisto has developed software to evaluate the **performance of a communications link** by measurement of bit error rate. The software interfaces to a modem by sending a test message for uplink transmission and receiving the downlink data from the demodulator. The software then compares the received data against transmitted data and provides statistics of bit and frame error performance.