



STS/Calibration Facility

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CTD and Meteorological Sensor Calibrations

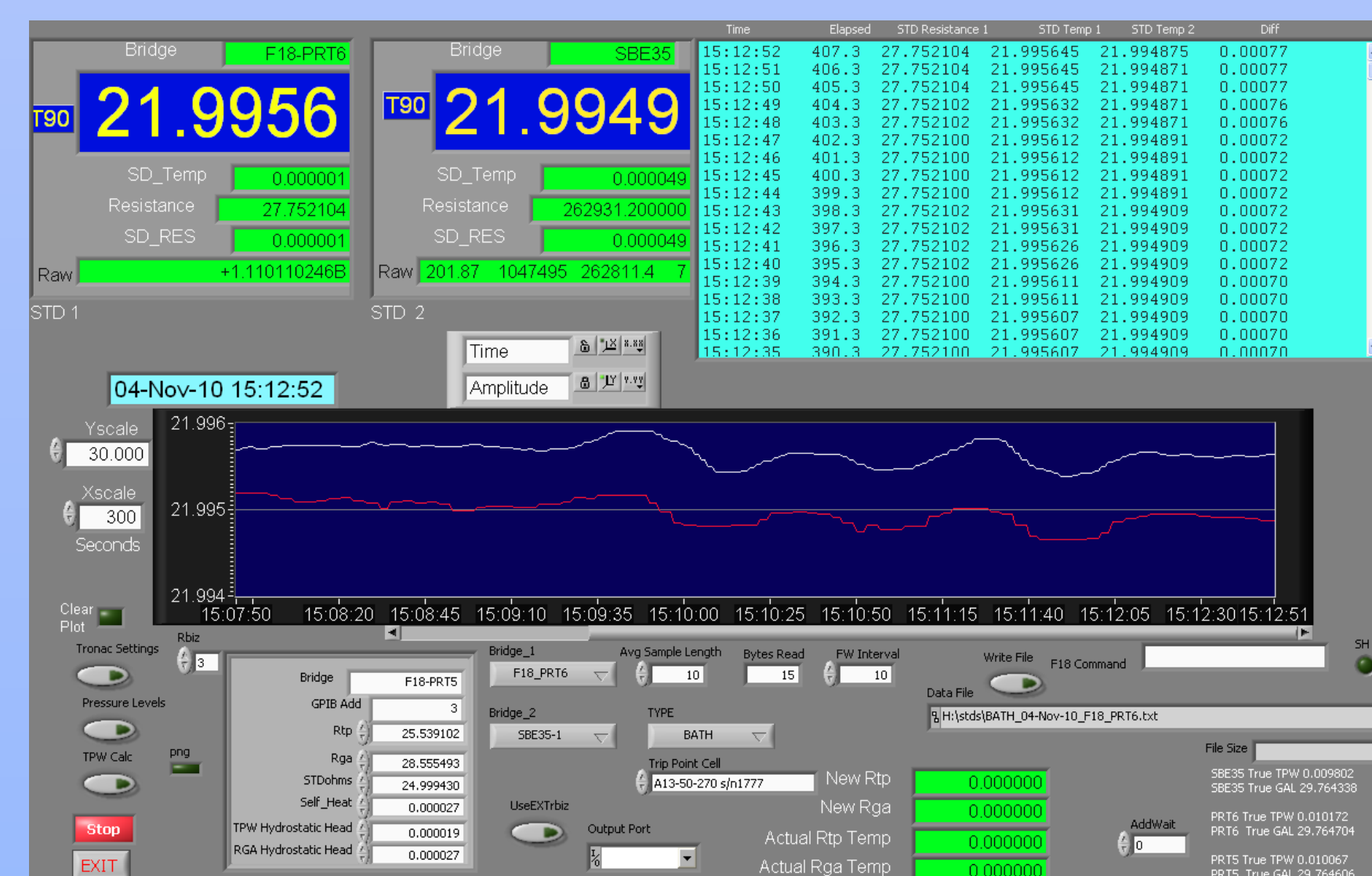
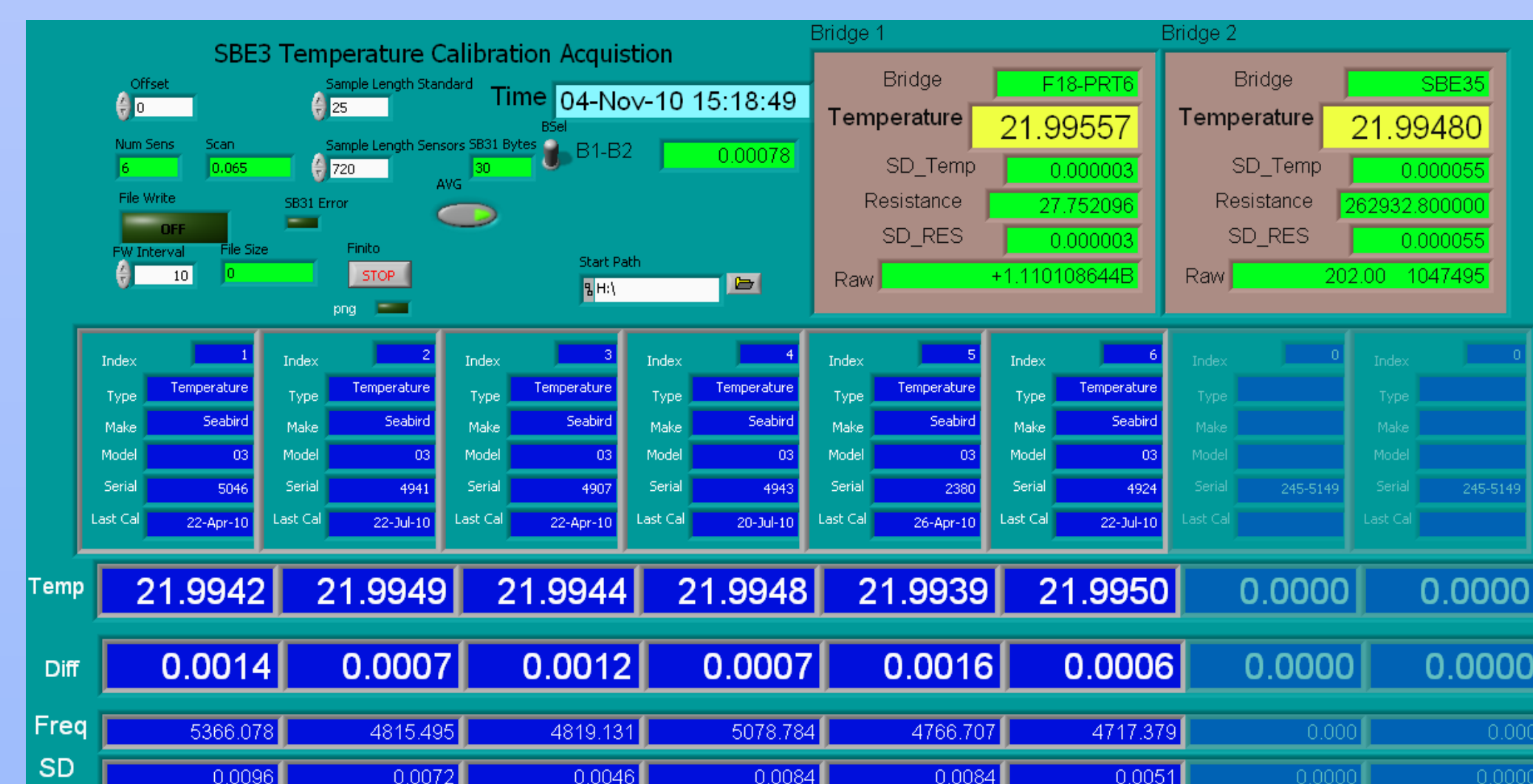
The STS Calibration Facility provides precision temperature and pressure calibration services on oceanographic sensors such as, CTDs (conductivity temperature depth instruments) and other high precision temperature and pressure sensors.

In addition, the facility also calibrates shipboard meteorological sensors such as air temperature, humidity and barometric pressure.

Software:

The calibration software was developed at STS and is written entirely in labview. It incorporates the collective knowledge base, algorithms and procedures that the calibration facility has acquired and/or developed over many years. It consists of four main sections:

Setup Calibration runs
Acquire data
Process data and Calculate coefficients
Generate Calibration reports.



Air Temperature:

Air Temperature sensors are calibrated similar to water temperature sensors.

Humidity:

Relative Humidity range 10 to 90% RH at 77°F (25°C)

Equipment and Standards:

The Humilab Relative Humidity Generator is designed to perform U.S. National Institute of Standards and Technology (N.I.S.T.) traceable calibration of RH instruments and/or several smaller transmitters. General Electric Measurement and Control Solutions Humilab

Barometric Pressure:

The barometric pressure sensors are inserted into the STS-built calibration chamber. The chamber is placed in a stable temperature bath and then pressurized by a pressure source to the desired pressure.

Equipment and Standards:

Paroscientific 765-16 Portable Pressure Standard
Esterline Weston) Ruska 7885 Pressure Standard

CTD Temperature Calibration:

The temperature calibration portion of the laboratory is outfitted with state-of-the-art equipment for fixed point and comparison temperature calibrations in the -5 to +35 °C range.

Data acquisition from a F18 bridge and temperature sensors at several temperature points.

Second standards thermometer as a redundant standard
In house Software processes the data, computes coefficients
Output - calibration report and XML file

Equipment and standards:

Automatic Systems Laboratories Model F18 Primary Thermometry Bridge
SPRT Rosemount 162-CE Standard Platinum Resistance Thermometers
Standard Resistors:Isotech model 456, Tinsley model 5685A
Jarrett-Isotech Water Triple point cells
Isotech Gallium Cell
Seabird SBE35 Standards thermometer
Water Baths: (42L, -10-110 C) (613L -5-35 C)
Tronac temperature controller PTC-41



CTD Pressure Calibration:

Primary pressure standards offer the highest level of pressure measurement precision and accuracy for most pressure calibration laboratories. Environmental sensors installed in the calibration lab monitor air temperature, relative humidity, barometric pressure and piston temperature data. During a pressure calibration the acquisition computer records and utilizes this environmental data to compute necessary corrections. The piston and weights are sent out to an accredited standards calibration lab for calibration every 4 years.

Equipment and Standards:

(GE Sensing) Ruska Model 2400 Hydraulic Dead Weight gauge
Paroscientific 760-10K Portable pressure standard