DATA BUOY

PRODUCT: Model 270

APPLICATION DETAILS:

The customer manages the development, operations, and maintenance of the national buoy network data. The customer provides high quality, meteorological/environmental real-time data from automated observation systems in the open ocean and coastal zone surrounding the US. The customer's buoys measure and transmit barometric pressure, wind direction, speed, gust, air and sea temperature, and wave energy spectra, from which significant wave height, dominant wave period, and average wave period are calculated.

CUSTOMER PROBLEM:

Extreme conditions cause sensor failure and inaccurate data

As a result of the customer's data buoys operating in such extreme conditions, it's difficult to find a barometric sensor that could cover all extended temperature ranges. The customer's intensive applications required all buoy components to be extremely robust. Sensor failure and false data lead to inaccurate reporting by the NWS. Data buoys require high accuracy and the ability to be run off of internal batteries that can be recharged by solar panels.

SETRA STRENGTHS

- 0.05% full scale accuracy
- High cycle life
- Fast response
- Low power consumption
- Excellent long-term stability

SETRA SOLUTION:

Setra provided the customer with a Model 270 that incorporated an embedded silicon chip allowing for measurement in extended temperature ranges. The silicon chip can adjust its resistance with the changes in atmospheric pressure so that the electrical resistance of the chip alters signals to the data logger on the data buoy indicating that there is a variation in the atmospheric pressure.

WHY SETRA WON:

Provided a sensor that ensured accurate data in each deployment

Setra was able to provide the customer with the Model 270, which had an extended temperature range for linearity and accuracy that would meet the requirements for every possible deployment the customer has (20 to +50 °C). Setra also customized its sensor to adapt to the customer's power supply requirements of both the old and latest barometric models. The Model 270 also allowed for low current draw, high accuracy, and a small footprint.

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