

Natural Gas Pipeline Monitoring

Industry: Natural Gas Pipeline
Product: Data Acquisition
FX1000

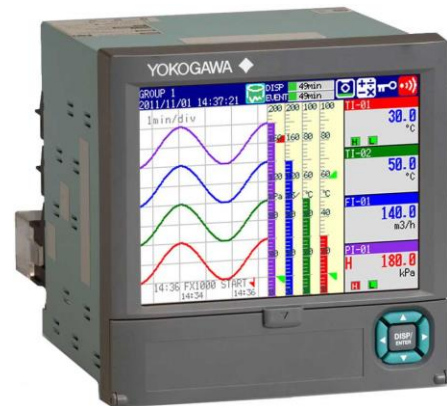
Introduction

There are thousands of miles of underground pipelines found in the world today. All pipelines require strategically located pumping stations, most often determined by factors such as pipeline size, topography, land use and local road access. The main purpose of the station is to pressurize the flow of gas along the line, but they can also function as remote monitoring stations. Pipeline inlet and outlet pressure as well as temperature are monitored at each station to confirm the gas is flowing. These stations are typically unmanned and are required by DOT 49 CFR 195.452 "pipeline integrity management in high consequence areas" to be monitored and assessed on a periodic basis

Application

A major gas pipeline company in Wisconsin currently has several hundred pumping stations located across the state. Many of these stations are in remote areas with limited access, especially during the winter months. Remote monitoring is required as well as logging of the data at each substation.

A major requirement for this application was the ability to periodically check the "status" of each substation. Customers must know if pumps are still functioning properly as well as what the current inlet and outlet pressure and temperature readings are in each station. This ensures that the operation is not exceeding the MAOP (Maximum Allowable Operating Pressure).



Solution

FX1000 was chosen over several other "blind" data acquisition devices. The customer soon realized a video based device provided much easier access to historical data when a technician is dispatched to the field for remote station visits.

At that time, operators can quickly review historical data on the local display to look for potential problems and to retrieve long term data files stored in the non-volatile RAM of the recorder. These files are retrieved via menu driven prompts using a USB port located on the front of the recorder.

In this application, the substations are periodically called up via telephone modem and pinged to confirm everything is working properly. Data from multiple substations can also be retrieved via network using a web browser and real time display of input variables seen on local PCs.

The FX1000s were typically mounted in Hoffman type enclosures and bolted to the wall of the substation. A small heater was also installed in the enclosure as a safety precaution. The FX1000 spec sheet identifies a standard operating range as 0-50 °C, but much harsher conditions can occur daily along this pipeline.

Due to these extreme cold conditions, the recorder was re-tested by Yokogawa Corporate. The FX1000 performed well in -10 to 60 °C range. The unit was also powered from a -10 °C cold start and operated correctly every time.

A first order for 50 recorders was received from the customer, and a follow-up order for another 50 units approximately was received six months after the original. There are 500 more substations to be upgraded with this technology.

FX1000 is typically used in OEM type applications where low cost is a priority. There are also large opportunities for this instrument in heat treat and regenerative thermal oxidizer type applications.

FX1000 is available in both AC and DC main power and carries both UL and CSA labels.