

Outdoor Monitoring of Gas Limit Values

WirelessHART Connectivity Allows Measuring Stations to Detect Leakages

At a Glance

- Integration of wind and gas sensors into the early warning system
- Fail-safe data transmission via WirelessHART
- Rugged adapters with antistatic dome for demanding outdoor use
- Reliable leakage indication and alarm signaling



The Application

A global operating company in the chemical and fossil fuels industry designed a comprehensive early warning system to detect gas leakages. Twelve measuring stations are installed at 300-meter intervals; each is equipped with an analog wind-direction and wind-speed sensor and four different gas sensors. Two of the gas detectors use a 4 ... 20 mA signal for transmission, and the other two use the HART protocol. The early warning measuring stations are positioned on the site in such a way that escaping gases can be reliably detected before they disperse or dissipate.

The Goal

All stations should be networked within the early warning system, without any special cabling for power supply or data communication. The solution for wireless, digital data transmission had to offer maximum transmission reliability, even at ambient temperatures down to $-33\text{ }^{\circ}\text{C}$.

The Solution

To integrate the sensors into the early warning system, five BULLET WirelessHART adapters are used for each measuring station: One each for the analog signals of the wind-direction and wind-speed sensors and the two 4 ... 20 mA sensors, as well as an adapter that uses the multidrop feature to transmit the signals of the two HART transmitters. They were engineered to provide a maximum level of ruggedness. The aluminum housing is extremely durable and easy to clean. It protects all internal electronic components from possible damage. A solar panel and a battery supply the stations with power.

The Benefits

Stand-alone wireless stations allow the setup of a completely autonomous network. The high transmission security of the adapters guarantees a reliable, fail-safe connection of all measuring points within the early warning system: Escaping gases are immediately detected and reported. The multidrop operation of up to eight HART-compatible field devices on one BULLET WirelessHART adapter can help reduce network costs.

Technical Features

- Ex i circuits for Ex i field devices
- Cast aluminum housing
- Loop powered
- Direct mounting on HART or 4 mA ... 20 mA field device
- Encapsulated antenna
- Up to 8 field devices in multidrop

