

MSA Gas Detection: Compressor Stations



Application

Gas transmission pipelines carry compressed natural gas from onshore and offshore gas production facilities to customers who may be as far as 2,000 miles away.

Very large compressors located inside buildings along gas transmission pipelines move natural gas from production facilities to distribution and then to customers. Multiple pipelines mounted side by side with 30" to 48" diameter piping run in and out of these compressor stations to supply the gas. The compressor stations receive the gas at pressures ranging from 200 to 500 psig, compress it back up to 1,000 to 1,440 psig, and then send it further up the pipeline system to yet another compressor station. Facilities using the newest technology consist of a single large gas turbine compressor. Older facilities use many piston-driven compressors within one building. There are over 600 compressor stations in use in North America today.



Solution

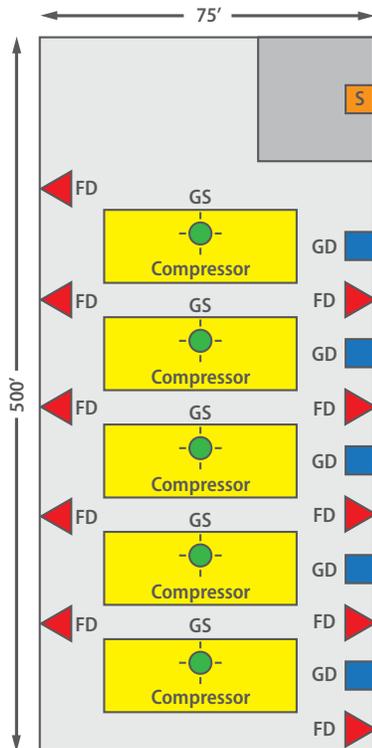
A single large gas turbine compressor inside a building normally requires the mounting of four MSA FlameGard® 5 MSIR Flame Detectors in the four corners of the building, slightly higher than the compressor, so that all sides of the unit can be seen.

Effective and efficient gas detection consists of 2 to 4 points of infrared or catalytic sensors remote-mounted above the compressor to detect rising gas levels in the event of a leak. MSA's Ultima® X Gas Monitor transmitter is normally located on the side wall of the building, allowing maintenance personnel to read the display and perform remote testing and calibration.

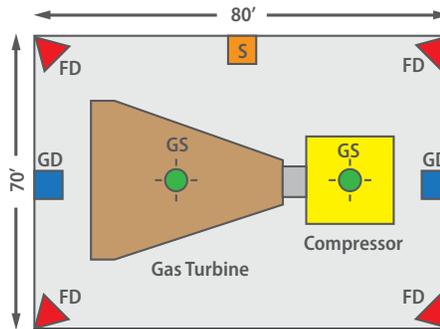
The older design of four to 12 engine-driven compressors requires two flame detectors and one gas detector per compressor. The two FlameGard 5 MSIR Flame Detectors should be located on opposite ends and sides, slightly above each compressor. Infrared or catalytic sensors should be remote-mounted above the compressor to detect localized gas leaks. As with single-turbine compressors, the Ultima X Gas Monitor transmitter is usually located on the side wall of the building for convenient maintenance and calibration. A ten-compressor building would typically require 20 flame detectors, 10 to 15 gas detectors, and one Suprema® Touch Control System.

*Because every life has a **purpose...***

Natural Gas Pipeline Compressor Station



Older Compressor Station



Newer Compressor Station

- FD** = Flamegard® Flame Detector
- GS** = Ultima® XIR Remote Gas Sensor
- GD** = Ultima XIR Gas Display
- S** = Suprema® Touch Controller

Product Descriptions

MSA's FlameGard 5 MSIR Flame Detector with neural network technology sets a new industry standard for performance, reliability and value. This is the industry's first MSIR/NNT flame detector designed to operate at a longer range with a wider field of view and at a higher level of accuracy for superior false alarm immunity. Combining a precision multi-spectral IR sensing array with highly intelligent neural network processors, the FlameGard 5 MSIR Detector reliably discriminates between actual flames and nuisance false alarm sources (such as arc welding or hot objects). The unit detects virtually any hydrocarbon fire including natural gas (LNG) and liquefied petroleum gas (LPG).

The Suprema® Touch Control System offers the new standard in flame- and gas-detection technology through modular redundancy for the monitoring of 4-20mA output sensors, smoke detectors, heat sensors, and manual alarm call points. Offering signal processing for up to 256 inputs and 512 outputs per controller, this intelligent safety system is field-configurable and provides a distributed bus technology architecture to ensure failsafe internal data transfer. Units carry ATEX safety approvals and TUV approval for up to SIL3 systems, and CUL.

MSA Recommended Equipment



*Ultima XIR
Combustible Gas Sensor*



*Ultima OPIR-5
Open Path Gas Detector*



*FlameGard 5 MSIR
Flame Detector*



Suprema Touch Controller

For more information on these MSA products for terminal bay applications, go to www.MSAafety.com for bulletin# 07-2078, MSA Flame and Gas Detection for the Oil, Gas, and Petrochemical Industries.

Note: This bulletin contains only a general description of the products shown. While uses and performance capabilities are described, under no circumstances shall the products be used by untrained or unqualified individuals and not until the product instructions including any warnings or cautions provided have been thoroughly read and understood. Only they contain the complete and detailed information concerning proper use and care of these products.



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