

CASE STUDY

Producers Utilize OleumTech® Vibration Transmitters To Monitor Compressor Vibration and Provide Alarm Status Upon Shutdown

BACKGROUND

Motorized equipment such as compressors and pumps are widely used in the Oil and Gas industry. These pieces of equipment are vital to production and, as a result, need to be maintained and monitored. If a compressor goes down, production is halted, which means lost revenue. If the shutdown goes unnoticed, the lost revenue adds up very quickly. Ideally, the production company would want to monitor not only that the compressor or pump is running, but that it is running smoothly.

These compressors and pumps do have a certain amount of inherent vibration during normal operation. When the equipment is not running, the amount of vibration is almost zero. In addition, if there is an issue with the machine, the vibration will increase dramatically. The goal is to monitor the equipment vibration and indicate not only that the equipment is running, but also that the vibration level does not exceed the threshold of normal operating conditions. Thankfully, OleumTech has a wireless solution that can do just that.



Pictured: SM-JP4 V Wireless Vibration Transmitter installed on a compressor

SOLUTION

The OleumTech Wireless Vibration Transmitter, [SM-JP4-V](#), is one of the newest members of the OTC line of wireless monitoring instruments. This solution utilizes a self-mounting tri-axial accelerometer that connects to the completely self-contained, battery-powered, intrinsically safe wireless transmitter. This transmitter is compatible with any new or existing OleumTech OTC Wireless Sensor Network to report the process conditions over-the-air, which includes tags like amplitude, in operation (exception reporting), sensor health, battery life, and RF quality to name a few.

AT THE COMPRESSOR

Deploy an OleumTech Vibration Transmitter (SM-JP4-V). The sensor is equipped with a robust magnetic mount to allow it to be easily attached to any metal surface. The sensor is connected via a 20 ft long cable fitted with a quick-connect connector. The transmitter can be installed near the process that is not subject to high vibration to minimize or eliminate damages to the transmitter and its battery. During configuration, the axis representing the desired direction of the vibration can be selected. Once the installation is complete, calibrate the input while the equipment is in operation.

The OleumTech OTC Network utilizes a proprietary RF protocol for communication between wireless transmitters and gateways that provides both a high level of security and efficiency. The systems are uniquely engineered to serve specific application requirements and budgets. Also, each gateway in the OTC wireless sensor network can support a high number of transmitters as well as being compatible over the air with other gateways, enabling a peer-to-peer network topology offering a high degree of scalability.

AT THE RTU

Deploy an OleumTech Wireless Gateway, which will provide data to the RTU as well as SCADA via Modbus registers. The system will provide a value of 0 for equipment that is not in operation and a 1 for equipment that is in operation. In addition, the system will provide the magnitude of the vibration in G-Force Units.

CONCLUSION

The customer already had an existing OleumTech OTC Network deployed on the same site as the compressor to collect data on other process variables. Therefore, for the incremental cost of the new transmitter, compressor vibration data was quickly added to the network and alarms configured.

As it turned out, just 45 minutes after the installation was completed, the compressor went down. The system worked exactly as expected and the operator was notified immediately. The compressor was brought back online with minimal downtime, resulting in an immediate return on investment.



Pictured: 1) Wireless Transmitter and 2) Vibration Sensor

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For more information or for help solving automation challenges, please contact an OleumTech representative today!
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