

1.8.18. ECHO™ WIRELESS VIBRATION SENSORS

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Running instrumentation cables is very expensive, portable data collection is manpower intensive, and safety has become a critical concern in plants. The simple solution to all of these issues is wireless vibration sensors. Companies are ready to accept stand alone wireless vibration sensors for monitoring machinery since they are easy to install, require no manpower for routine data collection, can be placed in hazardous areas, and provide early warning for a broad range of machine faults.

The development of a practical wireless industrial vibration sensor poses a unique set of problems, including the necessity for long transmissions distances, low power consumption, and compatibility with existing monitoring systems, all of which are difficult problems to overcome. Extended Range RF (ERRF) Technology uses an ultra-narrow bandwidth radio frequency that results in -155 dBm sensitivity. This allows very long distance, point to point transmissions of overall vibration data in large industrial plants while using minimal amounts of power. Transmission distances in plants to date have been achieved up to $\frac{1}{2}$ mile in buildings and up to 14 miles outdoors. By tailoring the measurements properly, most common faults can be detected using overall measurements.