

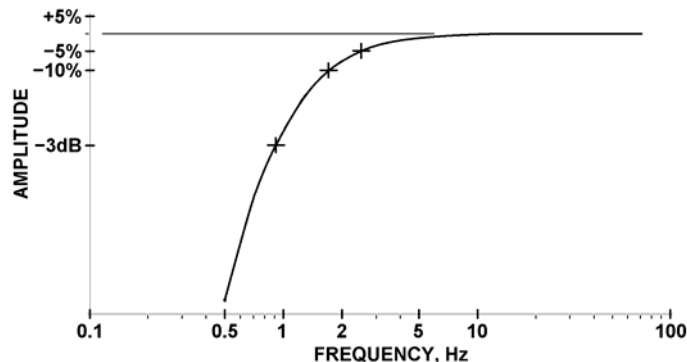
Wilcoxon's Intelligent Transmitter solves slow-speed machinery monitoring dilemma

The Wilcoxon iT120 series of vibration transmitters, with a useable frequency range as low as 60 RPM, is designed for cost-effective online vibration monitoring of slow-speed machinery.

Many modern industrial settings utilize slow-speed machinery, such as cooling towers and other large fan applications where it is not unusual to have fan speeds as low as 60 RPM to 120 RPM. Many plants with slow-speed machines want to achieve the cost savings of 4-20 mA online vibration monitoring by sending analog vibration data directly to their Distributed Control System (DCS) or Programmable Logic Controller (PLC). However, most industrial 4-20 mA loop sensors, and many vibration transmitters, have a low useable frequency limit of 2 Hz and cannot be used effectively for slow-speed machines running below 120 RPM.

Wilcoxon Research has solved this problem with the introduction of their Intelligent Transmitter (*iT*) Series, an extensive line of custom vibration transmitters. The Wilcoxon iT120 models utilize a low-frequency accelerometer for vibration sensing and output a 4-20 mA loop signal proportionate to velocity. The Wilcoxon iT120 vibration transmitter modules are perfectly designed to address simplified online monitoring of slow-speed machinery. Using 500 mV/g low-frequency accelerometers, such as Wilcoxon models 793L, 797L, or 799LF, the iT120 modules have a useable frequency range below 60 RPM and will output useful 4-20 mA data that can input directly to a DCS or PLC.


The low frequency response of a Wilcoxon iT120 series transmitter module is illustrated. This reading was taken using a 500 mV/g accelerometer for the vibration sensor. Most other vibration transmitter modules have a -3dB response at 2 Hz or higher. The Wilcoxon transmitter has a -3dB point at 0.9 Hz. The digital signal processing in the *iT* Transmitter results in an accurate and repeatable frequency response.



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The *iT* Series of customizable vibration transmitters offers many features not found on other transmitter modules. The 4-20 mA loop output signal can represent the true Root-Mean-Square (R.M.S.) value of the vibration signal or the equivalent peak vibration (obtained by multiplying by the ratio of peak to R.M.S., 1.414). Also available are true peak and true peak-to-peak detection, which assure users that transient vibration conditions are accurately captured. Wilcoxon's exclusive true peak and true peak-to-peak processes for retaining and releasing captured data result in an accurate peak or peak-to-peak signal transmitted to the DCS or PLC, even when the system is sampling at scan rates of just once per second.

The *iT* Series is an extensive line of 4-20 mA vibration monitoring units which make cost-effective online vibration monitoring easy by connecting to a DCS or PLC for vibration trending at a fraction of the cost of traditional online systems. Options for the customizable *iT* Transmitter include outputs of vibration in terms of acceleration, velocity or displacement and a selectable full scale that can be specified in standard or metric units. Maintenance professionals can order the Intelligent Transmitter with a custom frequency band to meet specific requirements based upon their intended use. The programmed frequency band, which is also field-adjustable, has a 2-pole high-pass filter and an 8-pole low-pass filter, operates at superior low-noise performance, and measures sensor BOV to monitor sensor performance. Combined, these features ensure the most accurate readings of machinery vibration.

The series includes the *iT* Alarm with three programmable relays to monitor set point limits on the *iT* Transmitter or any 4-20 mA sensor, including vibration, temperature, pressure, level, flow, force, and speed sensors. Alone or in conjunction with a DCS or PLC, the *iT* Alarm provides immediate notification if a machine's vibrations exceed acceptable levels.

The *iT* Communication Module greatly simplifies continuous data acquisition and analysis, without the requirement of a DCS or PLC. Vibration data is sent directly to an individual computer via an RS232 serial port. Using Wilcoxon's free VibeLink™ software, economical online monitoring is available from any desktop.



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