Vibration monitoring solutions

Nuclear power plant

Nuclear power plants utilitizing vibration monitoring ensure continuous power generation and increased safety for personnel and equipment, while also helping to prevent radiation leaks into the environment. Nuclear reactor outage costs are estimated at $1 million per day and unexpected downtime can be financially and environmentally devastating. The +90% operation levels of nuclear plants requires systems that limit the possibility of catastrophic failure while monitoring machinery health.

With an environment unlike any other, nuclear power plants have specific material requirements to prevent product deterioration and failures. Wilcoxon Sensing Technologies® offers a variety of high quality, durable solutions to fulfill the demands of nuclear plants for permanent or walkaround data collection.

Wilcoxon vibration sensors and cable assemblies are available in various radiation-hardened configurations.

For balance of plant applications in safe zones, Wilcoxon has a large variety of sensors with top or side exit connectors, sensors with compact sizes for machinery with limited monitoring space, high temperature sensors, a variety of junction and switch boxes and water resistant cable assemblies rated up to IP68.

Monitored Machinery

- Gas cooled reactor
- Injection pumps
- Cooling water pumps
- Filter fans
- Feed pumps
- Steam generator

- Control rod motor generator set
- Pressurized water reactor
- Condensate pumps
- Boiling water reactor
- Charging pumps

Plant environment

- Temperature - High
- Radioactivity - High
- Chemical levels - High

Temperature HIGH   Radioactivity HIGH   Chemical levels HIGH

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Nuclear vibration monitoring solutions

Radiation resistant solutions
Recommended products: 793R, 797R, 793VR

Wilcoxon® radiation resistant sensors are designed for machinery operating in nuclear environments and can be exposed to 1x107 RADs without degrading original sensor performance. The premium, top exit piezoelectric 793R acceleration output and 793VR velocity output sensors are designed with rugged electronics and casings. The side exit version 797R, provides a low profile for monitoring in compact areas.

Cable connector assemblies
Recommended product: 6QN connector, J9T2 cable

Wilcoxon® molded polychloroprene boot connectors provide the best sealing and protection in harsh radioactive environments. The rugged radiation resistant connector uses multiple ribbed seals that grip the sensor creating an airtight, waterproof seal. The connector can operate in continuous immersion and is successfully tested up to 100 psi (230 ft/70 m). With the inclusion of a Tefzel® insert, the connector can operate in temperatures from -45 to +104° C, and is highly resistant to most nuclear exposure. Wilcoxon twisted, braided shielded pair J9T2 cable offers superior durability with a thick Tefzel® jacketed covering rated from -80 to +150° C. When paired with the connector, the IP68 rated assembly offers the most rugged and lasting protection in nuclear radiation environments.

Enclosures
Recommended products: VL series, CB2 / CB4 boxes

To adhere with safety and environmental guidelines, accelerometers can be permanently installed and wired to collection points in safe zones. Remote monitoring of potentially contaminated machinery can then be performed successfully. Wilcoxon® junction and switch boxes are designed for easy installation, safety, and fast data collection. A variety of enclosures are available including cable reduction boxes which minimize the number of cables that must be run long distances. BNC connection boxes (2-4 channels) and expandable switch boxes (12, 24, 36 or 48 channels per box) are also available. VibraLINK (6 or 12 channel) junction boxes come with terminal switch inputs, BNC outputs and a rugged stainless steel exterior.

Contact us for more information on vibration monitoring products for your nuclear power plant
Our products are backed by decades of industry expereince, reliable customer service, and lifetime warranty on our most popular items

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