Vibration Monitoring Device with Protection Function
VIBROPROTECT

VIBROPROTECT - is a multifunction and multichannel device for continuous stationary monitoring, indication and registration of rotary machine parameters in real time. The device has the function of protection of rotary machines which can be configured programmatically. It can measure both absolute and relative vibrations, as well as shaft rotation speed, the distance (linear displacement), angular positions, temperature, pressure, etc. In addition, it generates discrete signals for warning systems and emergency protection.

VIBROPROTECT can work both independently and as a part of distributed system for monitoring and diagnostics, enabling data acquisition to diagnose equipment and its components malfunctions.

VIBROPROTECT can be integrated into NI InsightCM™ Enterprise by means of SDK.

Due to FPGA installed on the controller chassis it is very easy effectively and simultaneously process high-speed data from sensors. In addition, it also facilitates decision-making in real time.

Primary data processing on FPGA reduces congestion in communication lines. The configuration feature of compactRIO controller allows remotely update device software when changing standards, adding new algorithms, etc. The device configuration and visualization of work is carried out through web interface, which can be opened in web browser on computer, laptop, tablet and smartphone. The local monitor can be connected to the device in case of necessity.

Features

- Possibility to integrate in Industrial Internet of Things (IIoT)
- Modularity
- Configurability of measuring modules (various vibration and other measurement modules are available)
- Programmatically defined functioning (changes in device operation based on customer's requirements)
- Supports standard analog and digital interfaces
- Data acquisition, calculation and alarming in real time
- Supports Modbus protocol
- Supports the following interfaces: 2 RS-232, RS-485 2 and Gigabit Ethernet
- USB HI-Speed port availability
- Ability to provide «hot standby» scheme
- Integration in NI InsightCM™ Enterprise and other monitoring and diagnostics systems
- High computing power of controller along with FPGA provide the ability to comprehensive analysis of asset condition
- Power backup
- Supports TEDS smart sensors technologies
- Programmable AC/DC coupling
- Powering IEPE sensors
- Anti-aliasing hardware filters
- Ability to use software filters

Application Areas

- Power engineering
- Oil and gas transportation
- Chemical and petrochemical industry
- Pulp and paper industry
- Metallurgy
- Mining
- Transport
- Automotive industry
- Packing industry

Application Objects

- Pumps
- Fans
- Crushers
- Centrifuges
- Generators
- Electric motors
- Compressors
- Steam turbines
- Gas turbine units
- Gearboxes
- Any other rotary and piston equipment

Main Technical Specifications	
Functionality	• Monitoring • Diagnostics • Protection
Controlled variables	Vibration, rotation frequency, temperature, pressure, current, etc.
Connected sensors	Accelerometers, velocimeters, MEMs vibration transducers, tachometers, sensors with RS-485 interface, temperature sensors
Measurements types	Any single-channel and multi-channel measurement types (general level, amplitude/phase, spectral envelope, waveform, excess, peak factor, cepstrum, orbit, etc.), harmonic analysis
Vibration measurements parameters • Sampling frequency • Dynamic range • Capacity • Spectral resolution	• 0,1 – 102400 Hz • Up to 102 dB • 24 bit • Up to 2400000 lines

Operation Data	
Supply voltage	9-30 V
Power consumption	25 W (no more)
Operating temperature range	From -40 °C to +70 °C
Operating vibration	5 g
Dielectric withstand	1 kV (at least)
Overall size (without modules)	62.4x88.1x302.8 mm
Mass (without modules)	1,164 kg