DSP Compact WRM

Vibration Monitoring System and Process Variables

The DSP Compact Wireless Remote Monitor (WRM) system is an eight-channel unit used to analyze and control machinery condition caused by vibrations and other variables.

It is a 24/7 controlling device that can communicate via the commonly used 802.11b/g industrial wireless network.

Each of its eight channels can measure: acceleration, velocity, displacement and envelope.
It also has two AC channels and two channels dedicated to measure temperature or any input that conforms 4-20mA.

Data can be stored in the WRM memory or transmitted to the host machine analysis and follow-up software. This software includes an alarm system, which activates the digital alerts or relays, besides providing continuous warnings on the host PC screen.

It is ideal for:

Critical and semi-critical machinery in the plant.
Remote monitoring via Internet and remote failure analysis.
Temporary imbalance detection and machine condition in production processes.
Recurrent failure follow-up; suitable for troubleshooting problems.
Bearing failure, cavitation and lubricant film performance follow-up detection.
Machinery with poor maintenance due to difficult access.

Long-term registration periods without connection. Unite allows for previously stored data dumping on command, . Such as machinery on the field that maintenance personnel reach sporadically, like weekly or monthly.

Benefits:

Quick implementation and start-up, which reduces installation costs.
Additional system to predictive monitoring of machine condition. 24/7 reliable and maintenance–free monitoring system. Easy relocation and re-installation of the whole set.
Easy Wi-Fi connection allows savings in network installations.
Unit suitable for moving and difficult access machinery.
Expandable system for condition monitoring coverage.
Uses existing, already installed Wi-Fi infrastructure.
Hardware and software adaptable to machinery and/or equipment production control system. Operation completely suitable for machines in motion. For example: mining trucks, train locomotives, subway cars, etc..

Overview:Easy software management of different variables such as mechanical vibration, pressure, RPM, temperature remote monitoring.
Each monitoring module has 4-8 accelerometer channels, plus the auxiliary inputs for additional process variables and RPM registration.
The system software can control up to 200 different WRMs, which allow to process more than 1,200 measurements simultaneously.
The WRMs have relay outputs that can be used to activate instant alerts or activate kill switches if the thresholds configured in the software are exceeded.
The point programmed measurements can be scalar or spectral; the variables are configurable individually in each point.

The monitoring system is administered by the DSP Machinery Control software Configuration and Supervision, which will beresponsible for defining the online monitoring system architecture and data follow-up.
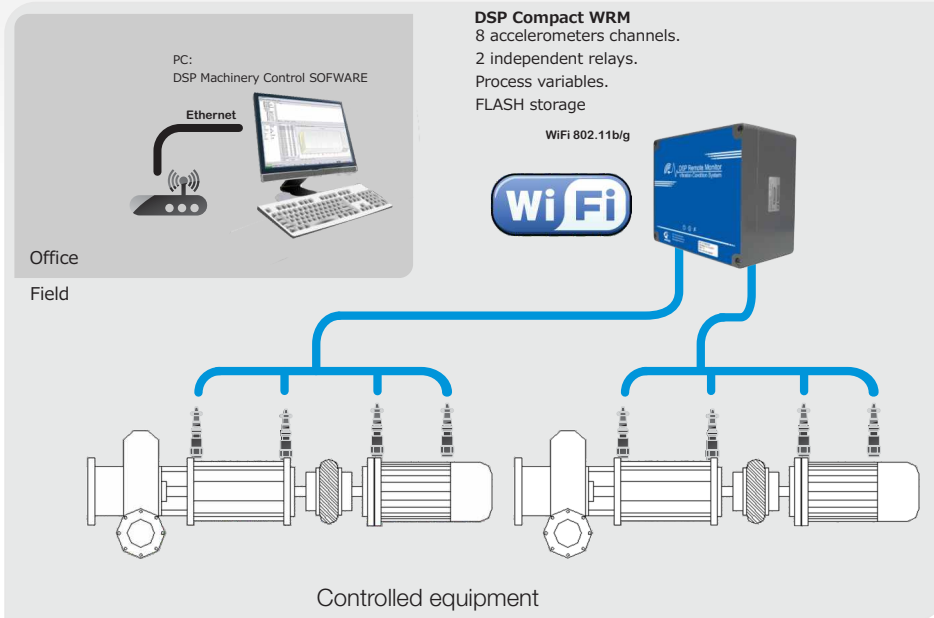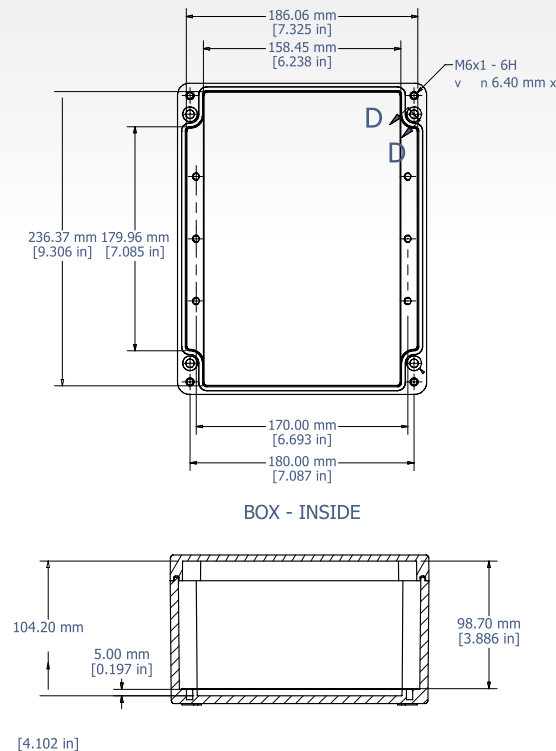
Hardware Characteristics

8 accelerometer channels.
2 AC channels.
2 DC channels.
8 digital inputs.
1 RPM sensor input.
Supports WEP, WPA or WPA2/PSK security.
Spectrum, waveform and overall measurement.
Up to 32 kHz bandwidth.
IEEE 802.11b/g (Wi-Fi)
RJ45 network connector
Up to 25,600 resolution lines
Uses sensors that comply with industrial standards.
Simultaneous vibration measurements. 4 envelope filters.
Robust, compact and easy to mount cabinet.

DSP Compact WRM

System Components

Windows OS PC (not included).
Hardware DSP Remote monitor.
ICP vibration sensors.

PC:
DSP Machinery Control SOFWARE

Ethernet

Office

Field

DSP Compact WRM
8 accelerometers channels.
2 independent relays.
Process variables.
FLASH storage

WiFi 802.11b/g

WiFi

Controlled equipment

Unit size

186.06 mm [7.325 in]
158.45 mm [6.238 in]
M6x1 - 6H v n 6.40 mm x
236.37 mm [9.306 in]   179.96 mm [7.085 in]
170.00 mm [6.693 in]
180.00 mm [7.087 in]

BOX - INSIDE

104.20 mm
5.00 mm [0.197 in]
98.70 mm [3.886 in]

[4.102 in]

Specifications

Data acquisition and processing:
Analog-to-digital converter (ADC)
16 bits of simultaneous measurement in channels 1-6

Sampling rate:

Effective rate: 64 Hz to 102.4 kHz
Frequency response: 0.5 Hz to 32 kHz
Data block length
256, 512, 1.024, 2.048, 4.096, 8.192, 16.384, 32.768.
Spectral lines: 400 up to 25 600
Windows: Hanning or Flat Top

Inputs:

8 CA channels
Input: 10 V peak-to-peak, ICP power
± 5 V range
4 DC channels
Range: from ± 5 DCV, 0-10 fixed V range or 4 at 20 mA input with a ballast resistor function (configurable)
1Trigger, RPM Tachometer
Required signal: TTL or - 5-24 V pulse, from 6 to 600 000 pulses per minute (0.1 to 10 000 Hz)

Output:

Rs485, Rs232.
Relay system:
2 independent NA-NC relays.
Software-configured to activate by means of an alarm system and channel, sensor and cable condition verification.

Power: 12 DCV maximum, 10 mA maximum.

Measurements

CA channels:
acceleration, velocity, displacement and envelope. Orbital graphic channels
DC channels: DC generic, ± 5 V 4 to 20 mA and temperature.

Data acquisition media

Programmable wake-up with internal clock programmable measurements by:
second, minute, hour, day, month. PLC activation.
Continuous mode and simultaneous channels.

Mechanics and environment

Protection: IP 67, NEMA 4X
Material: fiberglass reinforced polycarbonate
Approximate weight (w/battery): 1.8 kg
Operating temperature: -10 to +60 °C
Input cable gland: 8 metallic reinforced parts.
95% non-condensing humidity.

Certifications Wireless

FCC: Part 15, Class B - ETSI: EN 300 328 v1.6.1 (2004-11) ·
(2004-11) ·
EN 301 489-17 V1.2.1 (2002-11) ·

Dangerous area

Class I, Division 2, Groups A, B, C, D with external power.
European Community
CE and RoHS.

Communication

Network: Ethernet 802.11b/g Wi-Fi
Routing: static IP or DHCP
Encryption: WEP, WPA, WPA2/PSK
RJ45 LAN connector
USB