Contact us

ABB AS
Process Automation division
Ole Deviks vei 10
PO Box 6359 Etterstad
NO-0603 Oslo, Norway
Phone: +47 22 87 20 00
E-mail: ogp.products@no.abb.com

www.abb.com/oilandgas

Oil, Gas and Petrochemicals - Products and Technology

Condition monitoring
Wireless vibration monitoring system

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Condition Monitoring
Wireless vibration monitoring system

The WiMon wireless condition monitoring system paves the way for new and improved strategies for the maintenance of electric motors and other rotating equipment. Quick installation, comprehensive fault detection and remote follow-up are some advantages obtained.

WiMon 100

Due to the cost efficiency, small size and ease of mounting and installation of the WiMon 100 sensor, continous vibration monitoring can now be realized for all types of rotating machines. The autonomous WiMon 100 unit comprises a vibration sensor, a temperature sensor, a longlife battery and a WirelessHART™ radio. WiMon 100 units form a mesh communication network; providing a secure, reliable and redundant path from WiMon 100 sensor to a gateway and onwards to monitoring and analysis tools.

Gateway

The WirelessHART™ gateway enables the sensors to communicate and manages the network security and connectivity. The gateway device converts wireless device data to a format that is compatible with other systems. The WirelessHART™ gateway executes the Network Management, Security Management, Virtual Gateway and manages the interfaces in a WirelessHART™ network. The gateway is especially developed by Pepperl+Fuchs GmbH to integrate with ABB's wireless systems.

WiMon Data Manager

WiMon Data Manager has the following main functionalities:
– System browser
– WiMon system commissioning and maintenance support including facility for firmware upgrade

– Automated data acquisition
– Storage of waveforms and dynamic data (velocity, envelope and temperature)
– Operator interface for showing vibration waveforms, trends and temperatures
– Waveform export support for interfacing analysis packages like ABB Analyst

OPC server

The WiMon vibration monitoring system includes an OPC server that connects to the gateway. The OPC server exposes dynamic data (velocity, envelope and temperature) from the WiMon100 sensors for integration in 800xA or other non-ABB automation systems.

ABB Analyst

The ABB Analyst program is a powerful graphical user interface for condition monitoring analysis, which plots machinery and process data from the data server. The program is designed to analyze data from ABB electronic vibration monitoring modules. It displays historical vibration data in ways that cannot be accommodated on DCS operator consoles. The visual nature of the ABB Analyst program will assist the operator in quickly recognizing patterns and trends in the data. The application is based on the spread sheet concept and is therefore flexible, easy to learn and easy to use. Any number of worksheets can be created in a workbook.
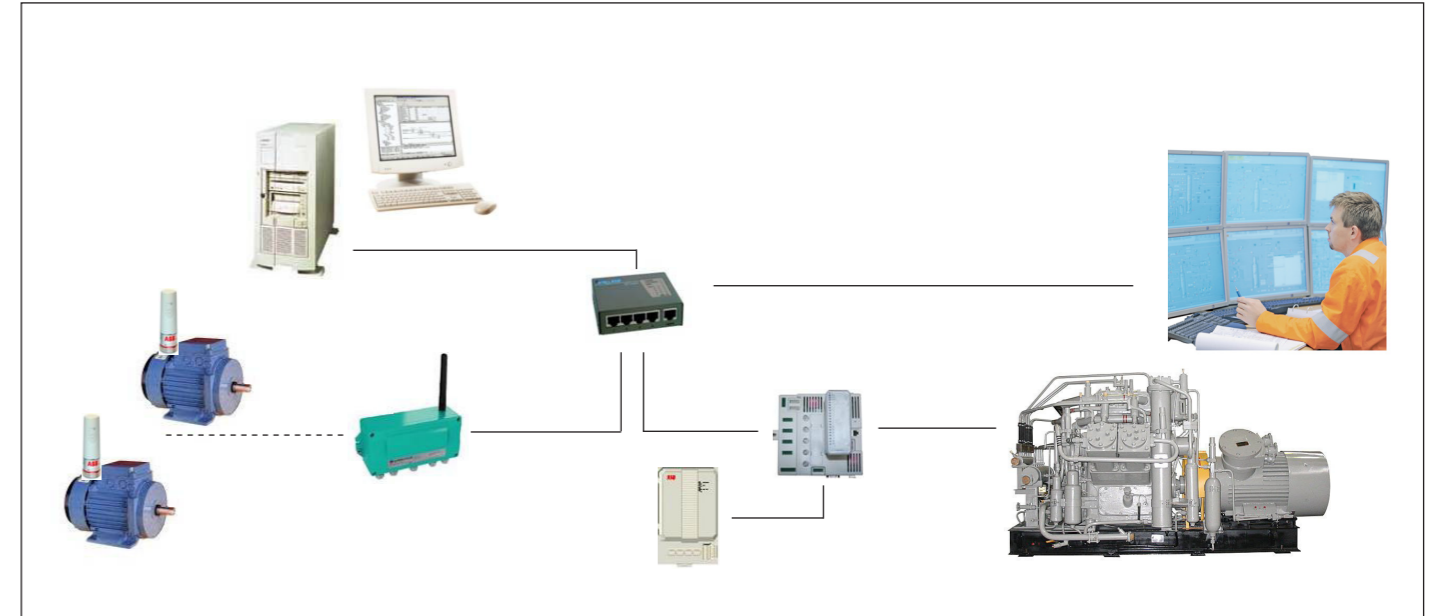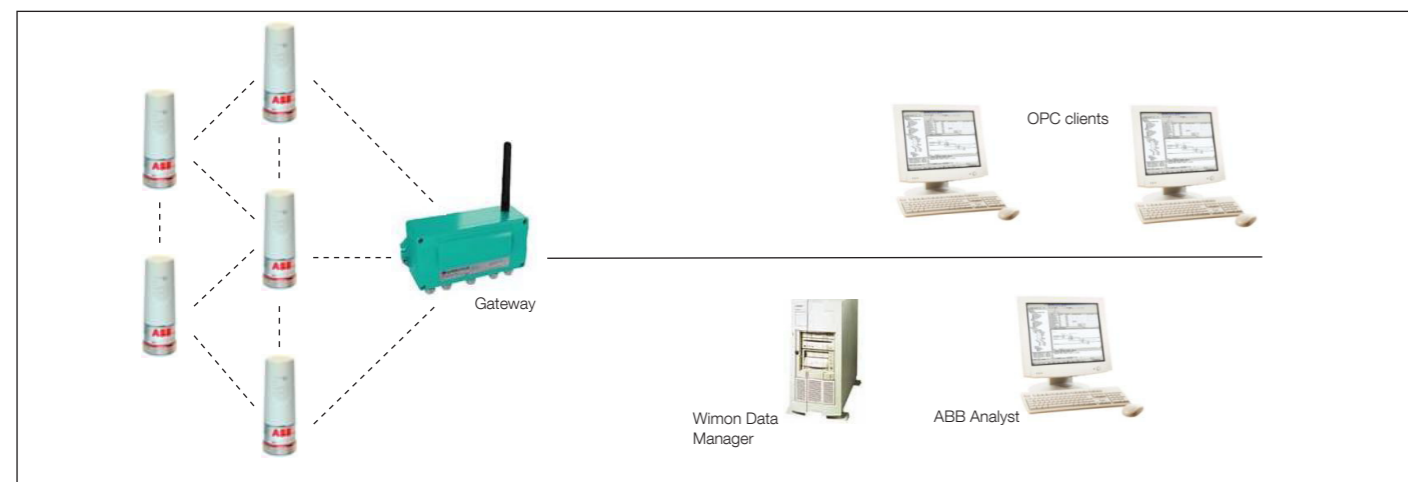
Condition monitoring of rotating equipment - The stand alone wireless vibration system can be integrated into a complete condition monitoring system. The system is designed to accommodate other ABB products and services

Wireless vibration monitoring system

Specifications WiMon 100	
Case material	Stainless steel / Thermoplastic
Mounting	1/4 28 UNF tapped hole
Velocity, range	10Hz – 1kHz
Envelope, range filter	500Hz to 10KHz
Measuring schedule	Remotely configurable
Hazardous area certification ATEX	Zone 0, Ex ia IIC T4 -400C/+850C
IP class	IP66 (dust-tight and resistant to powerful water jetting)
Network standard	WirelessHART (HART 7.2)
Radio standard	IEEE 802.15.4
Frequency	2.4 GHz, licence free ISM band
Dimensions	100 x 36 mm
Battery lifetime	>5 years with waveform upload interval > 1/day and vibration rms and temperature values upload interval > 1/hour
Range (nominal)	> 50m @ line-of-sight
Weight	0.2 g

Specifications Gateway	
Environmental spec	IEC 60079-0
Mounting	Panel mounting, 2 x M6 screws
Wireless interface	WirelessHART
Power Requirements	20 ... 30 V DC
Power consumption	< 5 W
Hazardous area certification ATEX	II 3G Ex nA II T4 (Zone 2)
IP class	IP65
Recommended number of associated sensors	100
Communication Protocol	HART over RS-485, HART over UDP MODBUS RTU/TCP
Dimensions	258 x 114 x 84 mm (without cable glands and antenna)