Ronds
Wireless Condition Monitoring

PCMSENG

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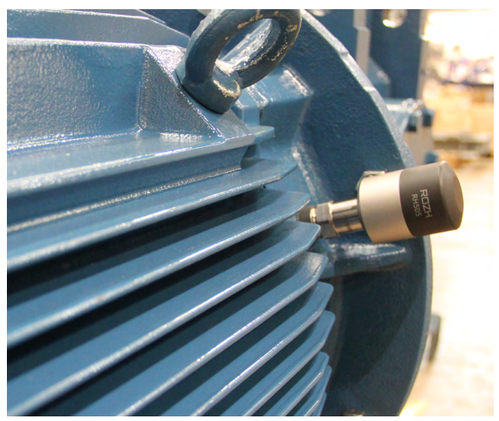
NO WIRES.
NO LIMITS.



COST-EFFECTIVE WIRELESS CONDITION MONITORING

Catastrophic machine breakdowns are costly, especially when they are unexpected and critical to your production line.

Staying one step ahead of your machines by monitoring and analysing their performance means that costly failures can be easily avoided.

Ronds' wireless machine monitoring system can detect potential problems long before they disrupt your business operations.

The battery-powered wireless sensors – capable of running continuously for over two years – monitor vibration and temperature levels on pumps, gearboxes, fans, etc.

The data is transmitted to a dedicated server via a gateway over an Ethernet, Wi-Fi or 3G/4G connection.

The online data analysis platform sits on the dedicated server and collects data from your key assets, providing a detailed insight into your machine's health to identify abnormal conditions.

The smart alarm system can detect faults early, meaning maintenance can be scheduled with little impact on production. These alarms can be accessed via a web interface from any PC, tablet or phone with internet access.

By preventing one failure on a critical asset, you could instantly see a return on investment (ROI) when compared to the cost of repairing or replacing a machine that has unexpectedly failed.

To get started with wireless, contact us on +44(0)1709 876712 or email info@pcmseng.co.uk

SYSTEM FEATURES

1 EASY INSTALLATION

'Out of The Box' sensors which are easy to install on critical assets using drill and tap.

2 ROBUST CAPABILITIES

ATEX Zone 0 classification makes it ideal for hazardous environments.

3 TWO IN ONE SENSOR

Measure vibration and temperature readings simultaneously.

4 INTELLIGENT ALARM SYSTEM

Receive alerts when alarm thresholds are triggered.

5 ACCURATE, RELIABLE DATA

Constant and accurate measurements of your machine's performance.

6 SCALABLE TECHNOLOGY

Start small and grow big by easily adding additional sensors to existing networks.

ABOUT RONDS

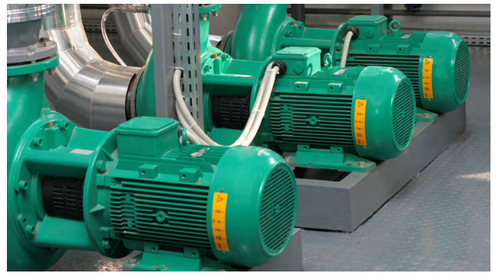
Established in 2007 in Hefei, China, Ronds specialises in producing sensors, portable vibration analysers and online monitoring systems for wind turbines, power plants, gearboxes, pumps, fans and many more applications.

PCMS Engineering Ltd are official UK distributors of Ronds wireless systems.

APPLICATIONS & INDUSTRIES

THERMAL POWER PLANT

Various pump groups. Various fans. Coal Mill. Belt conveyor. Crushing machine.



CHEMICAL INDUSTRY

Various pump groups. Various compressor groups. Various air fans.

AGGREGATE INDUSTRY

Various fans. Mills. Crusher. Conveyor belt. Pumps.

MINING INDUSTRY

Various fans. Water cooler. Crusher. Conveyor. Ball mill. Screener. Agitator. Dust extractor.

METALLURGY INDUSTRY

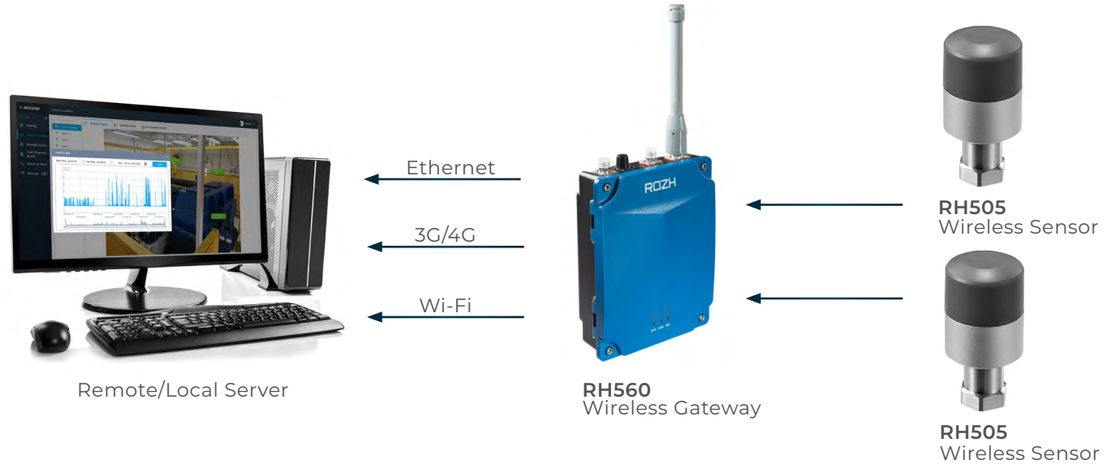
Mill. Crusher. Mixing machine. Belt conveyor. Winch. Elevator. Various air fans. Pumps. Compressors. Steam turbine. Crimper. Decoiler. Silking machine. Temper Mill.

TRANSPORT INDUSTRY

Gearbox. Bearings. Motors. Axleboxes. Wheels.

NETWORK ARCHITECTURE

The RH560 Ronds Wireless System is designed for use in extremely hazardous environments to measure machine vibration and temperature synchronously to monitor the condition of your critical machinery. The data can be transmitted to a dedicated server over an Ethernet, Wi-Fi or 3G/4G connection.



OUR SERVICE

PCMS Engineering can provide a range of services to meet your specific wireless requirements.
For more information or to request a no-obligation quote contact us on +44(0)01709 876712

1 INSTALLATION

Our reliability experts can support your organisation with installation.

2 TRAINING

We can provide training to your staff on installation, maintenance and data analysis.

3 SERVER HOSTING

We can host your data on a secure, reliable and fast remote server.

4 DATA ANALYSIS

Our reliability engineers have over 30 years experience in analysing data.

RH505

Wireless Vibration and Temperature Sensor

The RH505 is an acceleration and temperature sensor that is installed on assets to measure machine vibration and temperature readings simultaneously.

Product Features

- **Built-in Antenna**
  The wireless antenna is inside the sensor, which greatly improves reliability.
- **ATEX Zone 0 Classification**
  Ideal for use in hazardous environments requiring explosion proof approval.
- **Long Battery-life**
  The battery-powered sensor is capable of running continuously for over 2 years.
- **Easy Installation**
  Install the sensor on critical machines using drill and tap.
- **Zigbee Protocol**
  Zigbee communication standard keeps your data secure and reliable.
- **Long Distance Data Transmission**
  Capable of transmitting data over a clear line of sight over a distance of 300 metres.

VIBRATION MEASUREMENT PARAMETER	
Vibration Range	±50 g
Linearity	1%
Frequency Range (+3dB)	2Khz - 15kHz

TEMPERATURE MEASUREMENT PARAMETER	
Temperature Range	-40°C - 125°C
Temperature Accuracy	+1°C (-40°C - 125°C)

ELECTRICAL AND STRUCTURE PARAMETER	
Power Supply	Lithium - thionyl chloride battery, 3.6V, 3.3Ah
Communication Method	2.4GHz IEEE 802.15.4
Dimensions	46 mm × 94 mm (Diameter * Height)
Weight	188g

ENVORNMENT PARAMETER	
Working Temperature	-40°C - +70°C
IP grade	IP67

RH560

Wireless Data Gateway

The RH560 Wireless Gateway can receive data from up to 60 wireless accelerometers and is capable of storing up to 1 GB of data.

Product Features

- **Large Capacity**
  Capable of storing up to 1 GB of data from up to 60 wireless accelerometers.
- **ATEX Zone 0 Classification**
  Anti-explosion proof (ExdIICT4) design, suitable for hazardous environments.
- **Additional Communication Types**
  The Gateway can communicate with a server using an ethernet, Wi-Fi or 3G/4G
- **Status Lights**
  Indicator lights display ‘working’, ‘communication’ and ‘abnormal’ status.
- **Recognised Wi-Fi Standards**
  Compliant with 2.4-GHz IEEE 802.15.4 to ensure reliable Wi-Fi compatibility.
- **Scalable Technology**
  It is quick and easy to add additional wireless sensors to your network over time.

PARAMETERS	
Power Supply	Lithium battery, 3.6V, 3.3Ah
Communication with sensor	2.4GHz IEEE 802.15.4

ELECTRICAL AND STRUCTURE PARAMETER	
Power Supply	220V AC or Lithium battery 3.6V 38Ah
Mounting	Hanging or fixed using holder
Dimensions	35 mm × 104 mm (Diameter * Height)
Weight	3kg

ENVORNMENT PARAMETER	
Working Temperature	-40°C - +70°C
IP grade	IP66

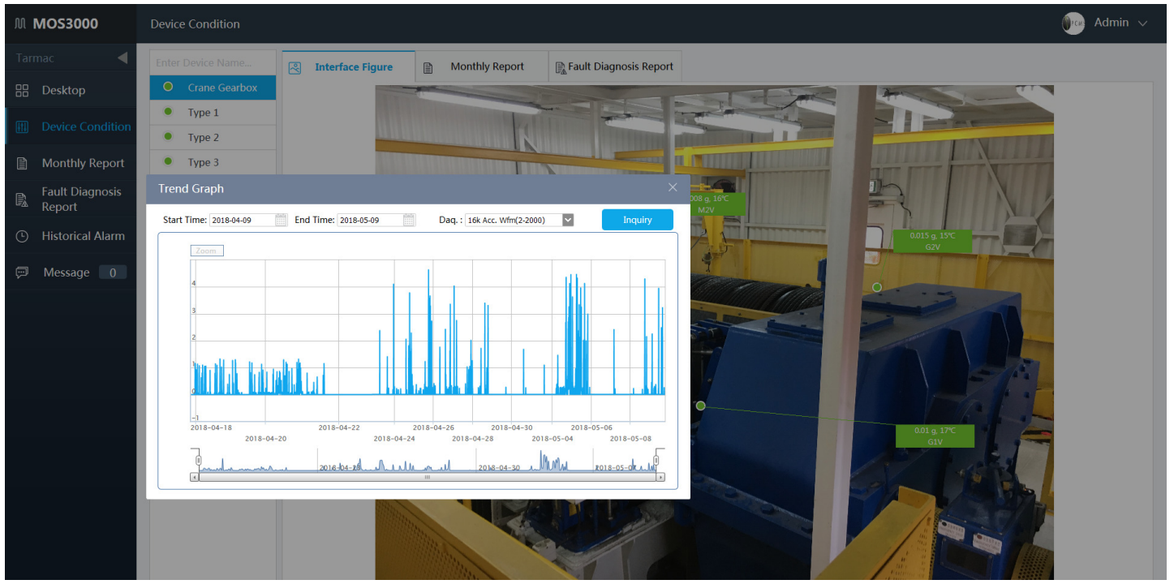
MOS3000

Online Data Analysis Software

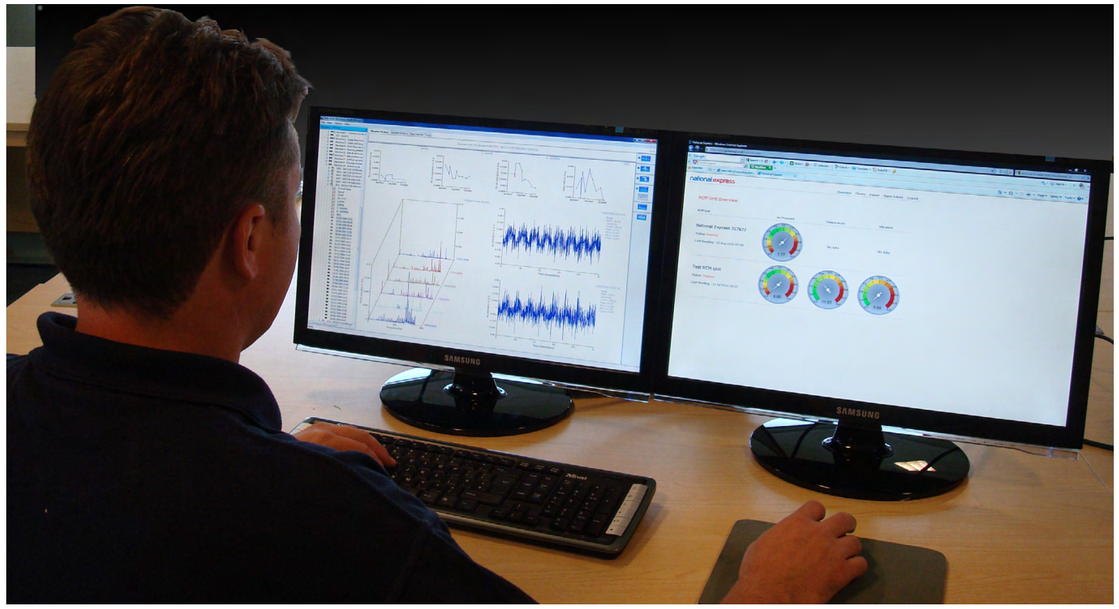
The online data analysis platform collects data from your key assets, providing a detailed insight on machine health to identify abnormal conditions .and prevent failures.

Product Features

- **Easy Configuration**
  Users can configure measuring points, data collection time intervals and alarm thresholds.
- **Multiple Data Analysis Tools**
  Analyse trends, time waveform, spectrum and much more.
- **Web-based Overview**
  Access the latest data from any device connected to the internet.
- **Immediate Data Display**
  View the latest overview of your vibration analysis data in up to 20 graphs.
- **Alarm Threshold Warning**
  If alarm threshold is exceeded, a warning message will be sent via SMS, email or alarm message push on APP.



REMOTE DIAGNOSTIC SERVICES



Our remote diagnostic services deliver the benefits of Condition Based Maintenance (CBM) to your facility or fleet regardless of size or location. It means you can make faster, more informed decisions about the health of your critical machinery.

1 MONTHLY INSPECTION REPORTS

Our experienced CBM analysts will monitor the condition of your asset(s) and provide monthly inspection reports.

2 MACHINE FAULT DIAGNOSIS

If an alarm is triggered, we will provide a fault diagnosis report outlining the fault origin, fault type, follow-up degradation path etc.

3 ON-SITE FAULT DIAGNOSIS

Our CBM experts can visit your site to inspect and diagnose faults. We can also provide alignment and balancing services.

4 CUSTOMISED DIAGNOSIS

Whatever your requirements, we can work with you to provide a first-class remote diagnostic service.

PROVEN SOLUTION

Gear Faults Detected in Wind Turbine Gearbox.

A wind farm prevented a catastrophic failure on a gearbox by detecting damaged teeth on the sun gear early, meaning maintenance could be planned.

Since the installation of the Ronds wireless monitoring system, elevated levels of Intermediate Shaft Gear Mash Frequency (GMF) have been present in the wind turbine gearbox.

The enveloped spectrum with immediate shaft speed and harmonics was clearly evident when analysing the data in MOS3000.

Small periodic impacts were analysed in the waveform, which was most likely caused by teeth wear of the intermediate shaft pinion.

All velocity spectra acquired on the gearbox showed the same distinct vibration pattern.

- All vibration activity was below 300HZ
- Intermediate shaft GMF and harmonics were clearly evident

Since the vibration pattern was typical of gear wear, an endoscopic inspection was recommended which revealed broken teeth.

DISCOVER THE UNKOWN

Wireless technology can provide a detailed insight into your plant operations and dramatically lower costs and improve productivity. Find out more by contacting PCMS Engineering on +44(0)1709 876712 or email info@pcmseng.co.uk

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