Bearing Defender

Bearing Health status in seconds

OneProd
ACOEM Group

The wireless **Bearing Defender** offers instant advice on the health of your bearings.

Easy to use and incredibly fast, a first level of bearing health assessment can be achieved by all level of personnel. It such provides an easy leverage of improvement of your reliability program, especially when your reliability experts are fully focused on the most critical assets.

Patented Wireless Measurement

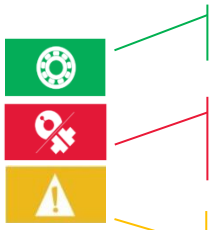
With its unique metrological performances, the Bearing Defender makes sure that your machine can keep spinning without risk.

A first level warning indicates automatically an abnormal behavior resulting from bearing defects, unbalance or misalignment, or other faults. Combining data from three directions, even faults occurring in a single axis can be detected with one measurement.

SMART VIBRATION SENSOR

Smart indicators computed from X, Y, and Z directions

3D Bearing Health Indicator	Green, Yellow, Red indicators
3D Misalignment or Unbalance Indicator	
3D Miscellaneous defect Indicator	



No bearing defect

Unbalance or misalignment defect to be corrected

Miscellaneous defect to be monitored

Tri-axial vibration readings

Vibration Velocity, Acceleration, Displacement	RMS values averaged on 5s
Bearing Defect Factor™ (DEF)	Bearing health grade - absolute value (0 to 12)
High frequency acceleration	RMS value filtered from 3kHz to 20kHz (averaged on 5s)
ISO Standard compliance	ISO10816-3
Acquisition mode	Live reading of overall values or recorded mode
Measurement duration	8s typical (affected by distance and communication quality)
Audio listening	listen to live measurement (e.g. while greasing)

Easy setup

ISO10816-3 classification	Guided and automatic selection of the machine class
Vibration setup	Automatic definition of the measurements based on the machine class

Reporting

Report format	Screenshot available from any screen
Communication	Screenshots can be sent through native functions of the smartphone or tablet (Email, MMS...)

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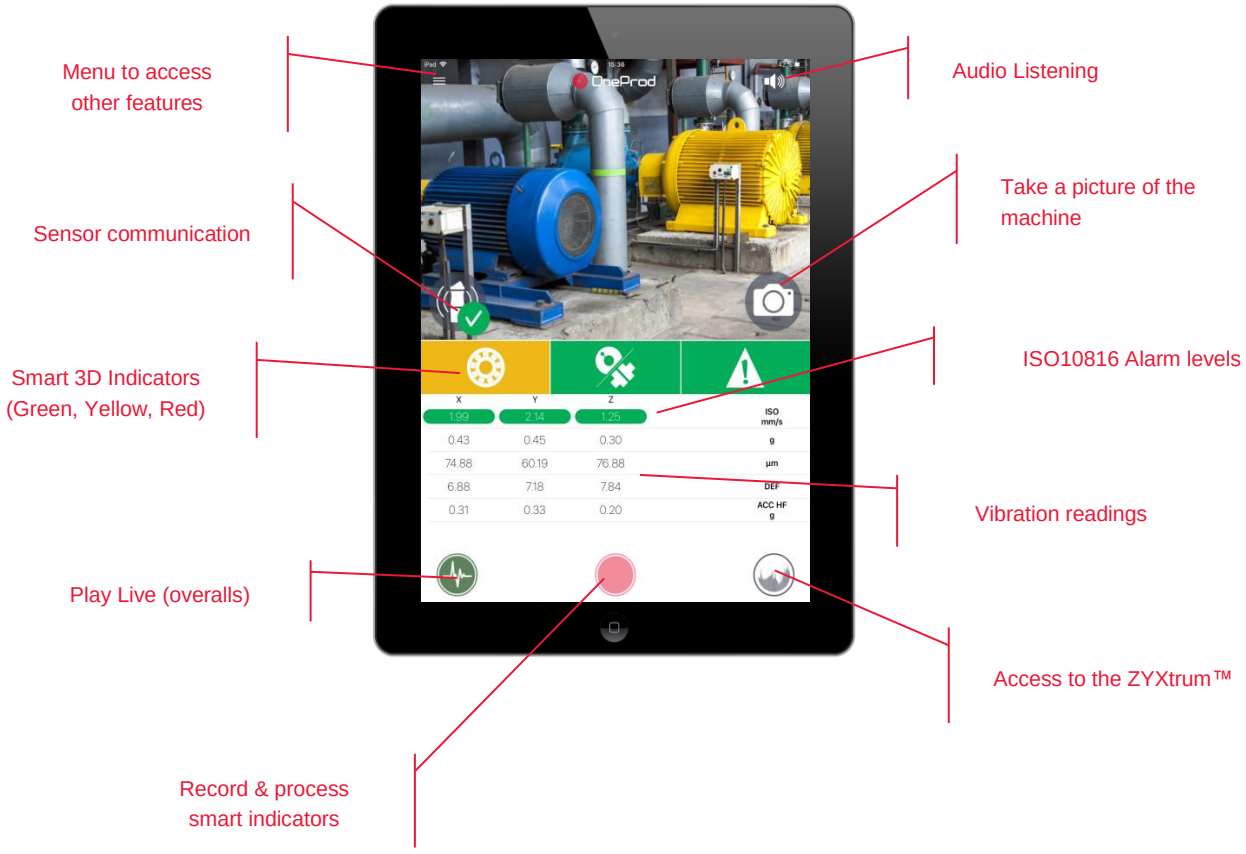
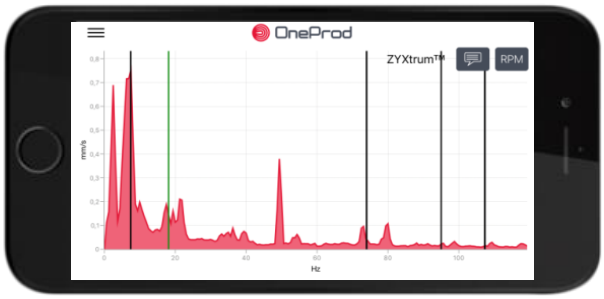
MAIN SCREEN ERGONOMICS



ONEPROD ZYXTRUM™: THE TRI-AXIAL FFT DISPLAY

In addition to the vibration reading and smart indicators, the ONEPROD ZYXtrum™ combines the vibration from three directions into a single FFT display. This display accentuates the fault frequencies that can be observed in the signals.

It can then be easy to confirm the presence of a bearing fault with the automatic positioning of frequency markers, but also ease the communication with your experts when they are required.



Example of bearing defect: one of the bearing fault frequency matches with a peak on the ZYXtrum™

ZYXtrum™	FTTs measured in X, Y and Z are combined into single display
Resolution	3200 lines
Frequency range	2 Hz to 2000 Hz
Scale	Linear or Logarithmic
Zoom	Touchscreen zoom capabilities
Cursor	Single cursor with frequency, amplitude, and direction of the max value (X,Y or Z)
Bearing fault frequencies display	Markers on the ZYXtrum™
Rotation speed adjustment	Real rotation speed automatically setup from the ZYXtrum™

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BEARING FREQUENCY CALCULATOR

Bearing references	30.000+ bearing references
Search tool	Based on the OEM and/or bearing reference
Fault frequencies calculation	Automatic calculation of bearing fault frequencies: BPFO, BPFI, FTF, BSF
Rotation speed input	Manual input or set up from the ZYXtrum™
Fault frequency display	Values, markers on the ZYXtrum™

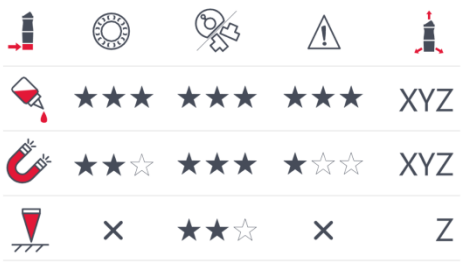
PACKAGING & DELIVERABLES

Each Bearing Defender is delivered in the following package:

- 1 Tri-axial wireless sensor
- 1 USB power supply module with international plugs and USB cable
- 1 High power bipolar magnet (suited for curved shafts) with orientation key for tri-axial positioning
- 1 Carry-on bag
- 1 Contact point to make single axis measurements on small surfaces
- 1 Printed safety instructions manual
- 1 Printed calibration certificate

Optional accessories (not included):

- *Rugged Android smartphone or tablet*
- *Cementing studs with glue for best measurement performances*



Content of the Bearing Defender package

Compatibility
iOS 9.3 or sup
Android 4.4.2 or sup
Smarphone & Tablets
Universal app (icon-based)

GET IT ON Google Play

Download on the App Store

oneprod.com

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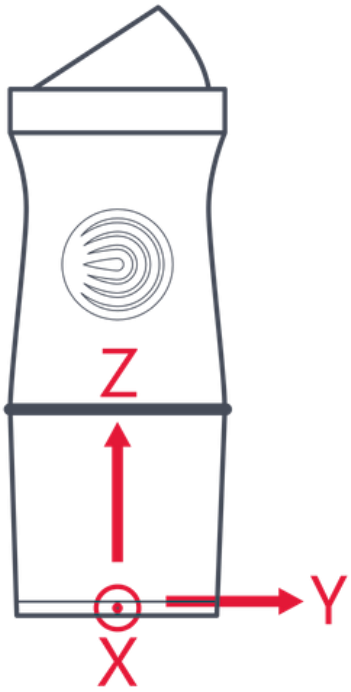
WIRELESS SENSOR SPECIFICATIONS

Hardware type

Reference	CAC1008000

Metrology

Three axial measurements	Synchronous acquisition in X, Y and Z directions
Sampling frequency	51.2 kHz on all axes (Fmax 20kHz)
Sensing element	Piezoelectric / Annular shear mode
Sensing element internal sensitivity, 24°C	100mV/g (numerically converted)
Sensitivity adjustment	Factory-calibrated and adjusted
Full scale	80 g
Signal-to-Noise ratio	> 80dB
Amplitude non-linearity	1% max
Frequency response after triaxial mechanical assembly:	
• ± 3 dB (Z)	0.4 Hz – 15 kHz
• ± 3 dB (XY)	0.4 Hz – 6 kHz
Full bandwidth	20 kHz on all axes
Accuracy	+/- 5% @ 120 Hz, 1g
Transverse response sensitivity (120Hz, 1g)	< 5% (< -26dB)
Electrical noise, nominal:	
• Broadband 0 Hz–5 kHz	< 5 mg
• > 1 Hz	< 20µg/√Hz
• Peak velocity (after 1 integration on the time signal)	< 0.13 mm/s



Physical

Dimensions	Ø42 x H116 mm
Weight	373g
Mounting	M6 threaded hole
Housing material	Stainless steel

Environmental

Operating temperature range	-20°C to 60°C
Resistance to shocks	5,000 g peak
Resistance to continuous vibration	500 g peak
Protection	IP65

Battery

Type	Li-Ion
Operating lifetime	8 hours
Rechargeable	By USB (power supply adapter in standard delivery)
Charging time	~8 hours with the standard 500 mA charge current.
Automatic stand-by	After 10 min if no connection has been established

Communication

Wireless protocol	Wi-Fi Point to point
Typical wireless range	Up to 25 meters line of sight depending on the environment.
Wi-Fi communication channel	User setting: 1, 6, 11
Sync protocol	Proprietary
Standard mobile systems compatibility	iOS (9.3 or sup.), Android (4.4.2 or sup.)

Patented technology

Patent Number	US 9,921,136