



# PORTAMONITOR™

BEARING  
INDICATOR

TECHNICAL  
SPECIFICATIONS



**COLTRACO**

Ultrasonics | since 1987

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# OUR MISSION: THE SAFESHIP & THE SAFESITE

We welcome you to enter into our mission to create accurate, reliable and easy to use instrumentation, which enhance our customers' safety management.

The issue is not just about compliance with the regulations; it is about the safe ship offshore and the safe site onshore.

This helps our customers to ensure lower risk, higher protection and business continuity.

Safety for safety's sake.



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# INTRODUCING THE **PORTAMONITOR™** BEARING INDICATOR ...

**TYPE:** Bearing Indicator

**FUNCTION:** It can aid in identification of mechanically deteriorated bearings and bearings with inadequate/contaminated lubricant.

**PART NUMBER:** TBC



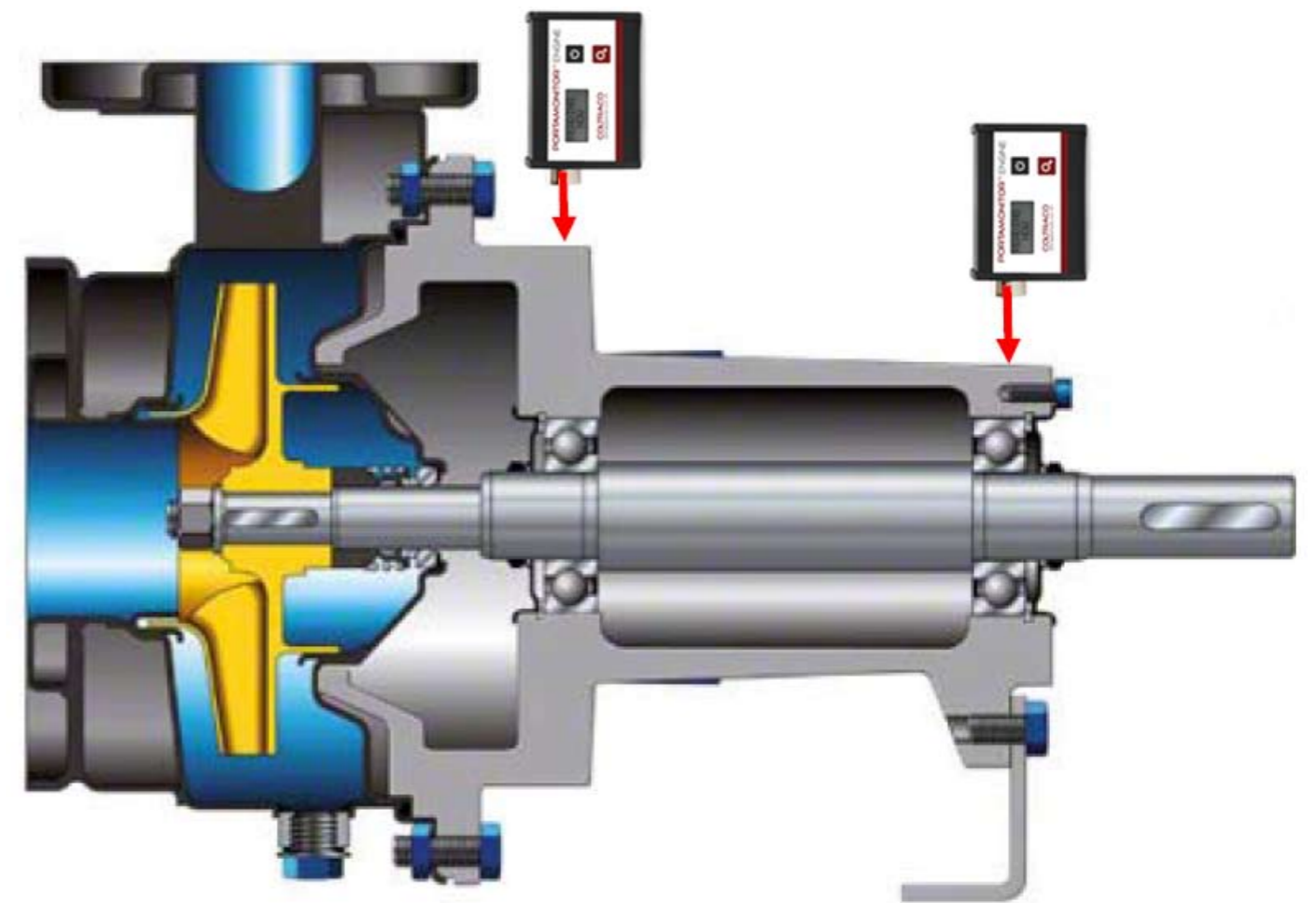
## FUNCTION

The Portamonitor™ aids in the identification of mechanically deteriorated bearings and bearings with inadequate/contaminated lubricant. It does this by detecting high frequency (ultrasonic) stress waves associated with friction and other faults with machinery in poor condition (impacts etc.).

It can be used to monitor bearings in motors, pumps, fans, gearboxes and other rotating machinery applications.

It has two outputs – a decibel (dB) reading and a Distress® level which are both measured and displayed simultaneously by the Portamonitor™.

**Here is an example of the Portamonitor™ being used to monitor the bearings in a pump (see image below).**





# ADVANTAGES

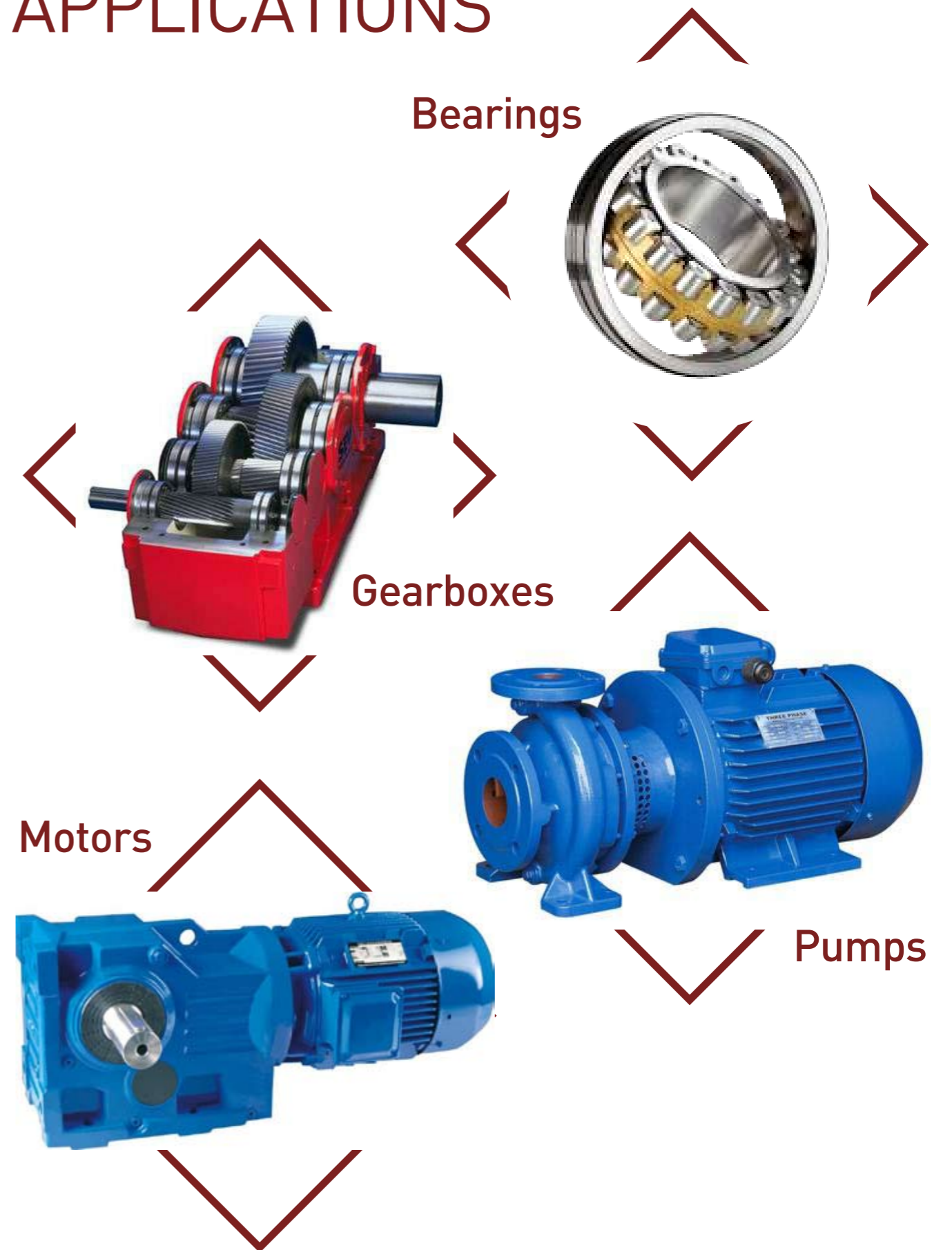
- **ACCURATE:** Extremely sensitive to detecting faults
- **EASY TO USE:** Measurements can be taken when the vessel is offshore or in port
- **EFFECTIVE:** All the bearings on a vessel can be tested efficiently and reliably
- **QUICK:** Allows for problem bearings to be checked quickly and reliably if damage is suspected
- **REPEATABLE RESULTS:** Comparison to logs of past measurements can help identify even small changes in the functioning of the bearing
- **NON-DESTRUCTIVE & NON-INTRUSIVE:** Measurements will not affect the function of the bearing
- **PORTABLE:** Battery powered and lightweight for convenience  
Operates at 0-65°C and can be used in the large majority of marine environments

## STAY AHEAD:

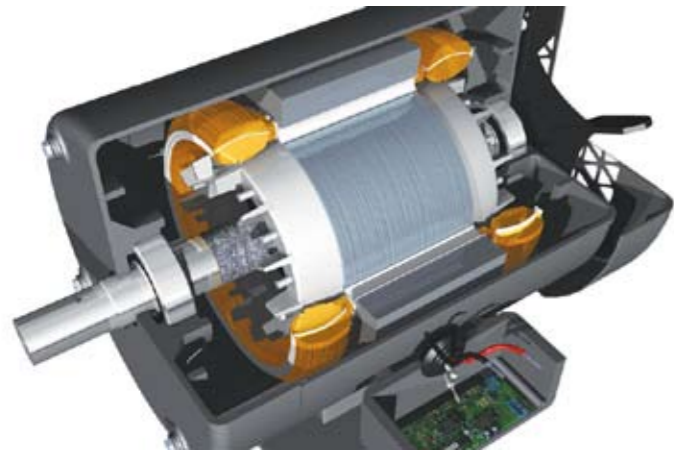
- Provides insight into planning of future repairs
- Identify sites with contaminated/lacking lubrication which can be easily fixed before any further damage occurs
- Identify varying levels of damage – problems can be fixed before excessive damage occurs



# APPLICATIONS



# OPERATION



- The instrument listens for frictions and impacts caused by poor lubrication or bearing damage
- Sound is generated by bearings and this propagates through the machine
- By using a sensor that sends a signal, the user can detect this noise and by using signal processing, the user can determine the condition of the bearing

The decibel reading is the intensity of the signal being received – this is essentially how ‘loud’ the high frequency sound produced by the bearing is (it is not affected by sound which is audible to the human ear). The reading will increase with deteriorating function of the bearing. A guide is included on the correct interpretation of the decibel reading (see table to the right). The decibel reading of a site is a very repeatable measurement – if the state of the bearing has not changed, nor will its decibel reading. It is recommended that logs are kept of the decibel reading for each site. This allows easy identification of deteriorating bearings as the decibel reading begins to increase.

The Distress® signal shows how much the decibel reading is varying in level throughout one measurement. This represents how much the bearing is knocking/clanking/grinding. This is a useful indicator of whether the bearing is damaged, poorly lubricated or malfunctioning, and therefore in need of maintenance. This is useful as it is automatically calculated and displayed by the Portamonitor™ so requires minimum input from the user and gives a reliable and instant indication of the state of the bearing.



Wear Stages	Distress®		dB Level
	Numeric	Quality	
Good condition	<10	“OK”	Lowest for machine
(Not always seen) First signs of a possible problem. Occasional impacts from surface damage	Repeated measurements only >10 occasionally	Either “Suspect” or “OK”	Typically lowest for machine
The problem becomes established. Copious impacts from surface damage	Consistently >10	Either “Suspect” or “Poor”	Slightly increased from normal
Continuing to degrade. Sufficient damage to cause increased frictional activity	Usually >10 (may be less in later stage)	Any: “OK” “Suspect” or “Poor”	Successive dB readings increase
The approach to final failure. Severe frictional activity	Usually drops to <10	Either “Suspect” or “OK”	Increased to >20dB higher than normal



# HOW PORTAMONITOR WORKS

## Sensing Element:

Resonant piezoelectric at 100kHz

## LCD Display:

Signal Measurement Distress® (dst): fault indicating parameter  
dB Level (dB): logarithmically scaled mean signal level



**ON/OFF:** Simple power button. Battery life typically over 1000 measurements

**Measuring Button:** Simply press and swift readings will take place

1. To turn on: press and hold the 'ON' button
2. To take a reading: press and hold the Measuring button
3. A 10 second countdown will begin to magnetically attach the unit to the machine
4. Ideally, place the unit as close to the bearing as possible but at a place that has the fewest joints within the sound path
5. When taking a measurement, apply a small amount of grease to the measurement site to ensure a good audio coupling

6. Carefully place the sensor on the measuring point at 45 degrees, and using a rolling action flatten the sensor onto the test pad or location
7. Twist the sensor slightly to make sure a good coupling is achieved
8. Allow the readings on the display to stabilise, and then take measurements of distress and decibels

# TECHNICAL SPECIFICATIONS

## Sensor

Sensing Element	Resonant peizoelectric at 100kHz
Calibration	Factory set

## Signal Measurement

		Range	Resolution
Distress® (dst)	Fault indicating parameter	0 to 40	1 unit
dB Level (dB)	Logarithmically scaled mean signal level	10 to 80 dB	1 dB

## Features

Display	LCD, 2 lines by 8 characters
Distress® Display	Numeric or Text ("OK" if <10, "Suspect" if between 10 & 15, "Poor" if >15)
Reading in progress	Flashing LED indicator (in addition to LCD display message)
Non-Volatile Memory	Shows last taken reading when unit is switched on
Auto Shut-Off	Instrument auto switches off 30 seconds after last buton press
Internal Batteries	NiMH rechargeable battery via micro USB port - Typically over 1000 measurements between charges
Operating Temperature	0°C to 65° C
Overall Dimensions	3.86 in (98mm) x 2.44 in (62mm) x 1.34 in (34 mm)
Weight	7.94 ounce (225g)
Test Time	Typically over 1,000 measurements (approx. 12 hours continuous)

# KIT CONTENTS: THE READY-TO-GO PACKAGE



# AFTER SALES

## Quality

All of our products are carefully hand built and undergo rigorous quality testing to ensure they meet the high standards expected by our customers, and provide them with long term reliability.

## Coltraco Customer Care

- 1 year warranty
- Guaranteed against defects in materials & workmanship
- Technical Support for the life time of the equipment via telephone/email
- See terms and conditions for details

## Portacare® Plan

In addition to our standard after sales customer care, you can upgrade to our Portacare® plan. This is our 3 - 5 year total care maintenance package which will:

- Cap the cost of ownership during the term you choose
- Guarantee maximum operational ability so your equipment is ready to go whenever you need to test
- Back-up units provided in the event of fault
- We promise to support you above and beyond the warranty
- Providing you peace of mind so you can have confidence that your Portamonitor is well maintained



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