



**REGULATEURS EUROPA**

Member of the  
Heinzmann Group

# Trino

## Vibration Monitoring System



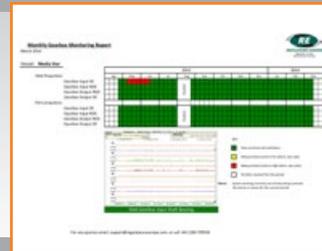
*TrinoDETECT*



*TrinoSENSOR*



*TrinoALERT*



*TrinoREMOTE*

### *For rotating machinery*

- ✓ Gearboxes
- ✓ Alternators
- ✓ Turbochargers
- ✓ Pumps
- ✓ Fans

***Control & Monitoring***

## Trino

### Vibration monitoring system

Designed to continuously monitor the vibration signatures of rotating machinery, the vibration monitoring system Trino targets applications where vibration analysis experts are not generally on hand to determine the condition of the machinery from early indications of wear.

Trino presents two-stage alarm information in a simple and clear format to local operators. The system features a simple and informative local alarm screen (TrinoALERT) for the local engineers or operators, providing an initial diagnosis of a developing problem. This enables appropriate preventative action to be taken to avoid the often and very substantial consequential costs of an unexpected in-service machinery failure.

REGULATEURS EUROPA (RE) also offers a remote analysis and support service (TrinoREMOTE) to customers who do not have the expertise to interpret the data trend analysis issued by the system.

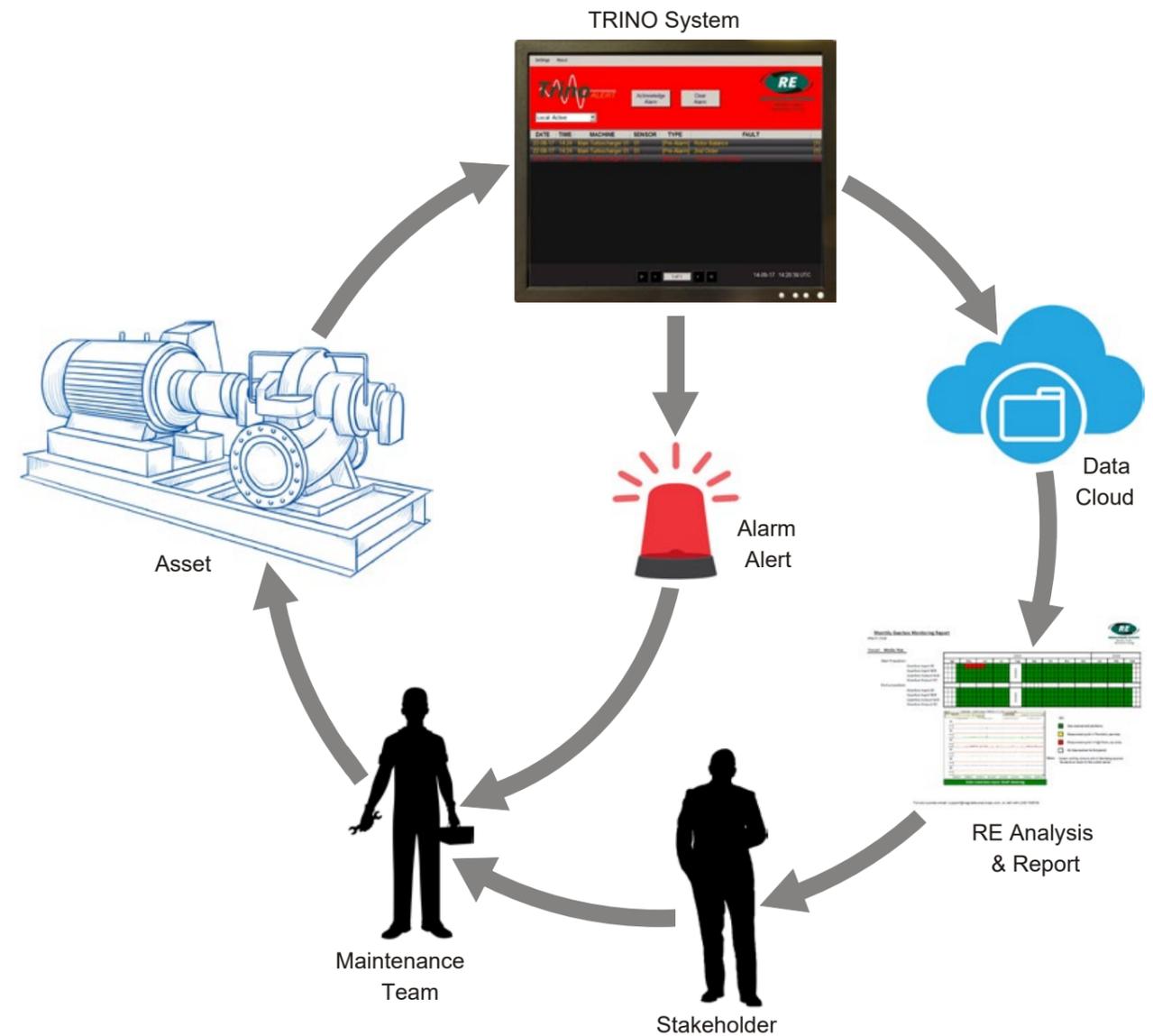
## Trino BENEFITS

- ✓ **Continuous and permanent condition monitoring**
- ✓ **Simple on-board system initiating two-stage alarms for multiple failure conditions**
- ✓ **Automatically adapts to varying machinery speed**
- ✓ **Automatic transmission of alarm and performance data via cloud transfer**
- ✓ **Low maintenance**
- ✓ **Optional analysis & reporting service**
- ✓ **Assists with critical asset management and CBM program integration**
- ✓ **Industry 4.0 ready**
- ✓ **Maximises availability of assets**
- ✓ **Optimises maintenance intervals**
- ✓ **Helps to reduce overall costs**

## OVERVIEW

Trino can be readily integrated into condition monitoring on a path to Industry 4.0.

Its flexibility and modular approach ensures it can support many types of rotating machinery in both marine and industrial environments.



# SYSTEM COMPONENTS

## TrinoALERT

TrinoALERT is typically mounted in a machinery control room and provides a centralised presentation of pre and main alarms from one or more TrinoDETECT units. Each alarm entry clearly indicates the machine and sensor reference, date/time log and a short diagnosis as to the most likely cause of the fault.

TrinoALERT uses a traffic light display code to indicate the condition of the system.

If no alarms are initiated, TrinoALERT will show its default colouring of the alert bar at the top of the screen.

If a pre-alarm is initiated it will be listed in the table and the alert bar at the top of the screen will indicate flashing amber. Following acknowledgment, this changes to solid amber.

If a main alarm is initiated it will be listed in the table and the alert bar at the top of the screen will indicate flashing red. Following acknowledgment, this changes to solid red.

TrinoALERT also presents alarm information from multiple TrinoDETECT units on the same screen, centralising the display of alarm and diagnostic information.

TrinoALERT also manages transfer of vibration data to remote offices (via the cloud) if broadband connection is available. This data can then be analysed by REGULATEURS EUROPA's TrinoREMOTE service (for example).

TrinoALERT supports multiple displays for larger sites.



No alarms



Pre-alarm active



Main alarm active

## TrinoDETECT

The TrinoDETECT unit continuously collects and monitors vibration frequency data received from a number of machinery sensors (typically accelerometers). Using spectrum analysis and moving band pass filter techniques, the condition signature contained within the sensor data is assessed to diagnose common machinery faults.

Alarm frequencies and amplitude levels automatically track and adapt themselves to the operating speed of the machinery, helping to ensure that Trino reliably senses any deviation from normal. Tracking is particularly useful for the successful monitoring of variable speed assets.

### Monitoring options

- Vibration
- Speed
- Temperature
- Pressure



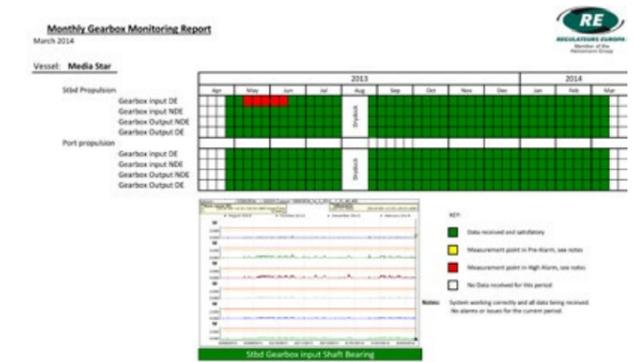
TrinoDETECT Unit

## TrinoREMOTE

Regular and automatic transmission of detailed alarm and performance data to remote offices via internet connection and the cloud is available for vibration analysts to assess the condition of the rotating machinery and to advise on the appropriate course of action.

TrinoREMOTE is a vibration analysis service offered by REGULATEURS EUROPA. Following receipt of alarm and performance data from the application, vibration engineers at REGULATEURS EUROPA ensures that any alarms are alerted to the customers' senior engineers (e.g. superintendents) to ensure they are also made aware of the failure alerts and diagnosis information even though they may be located away from site.

In addition the TrinoREMOTE service provides both monthly and yearly asset health reports including condition trends based on the data received.



Extract from typical monthly health report

### TrinoALERT

- ▶ Clear indication of alarm status
- ▶ Is an expert on site for initial fault diagnostics
- ▶ Marine and industrial versions available

### TrinoDETECT

- ▶ Compact construction
- ▶ Suited to both engine room and machinery control room environments
- ▶ Plug & socket connection

### TrinoREMOTE

- ▶ Vibration analysis service
- ▶ Alarm and diagnosis support
- ▶ Monthly and yearly health reports
- ▶ ISO10816 certified vibration engineers

# HEINZMANN Group

Quality & Precision  
since 1897

The Group started in 1897 with Heinzmann GmbH & Co. KG, and now includes HEINZMANN UK, HEINZMANN China, HEINZMANN Korea, HEINZMANN India, HEINZMANN Australia, HEINZMANN AUTOMATION, REGULATEURS EUROPA, and CPK Automotive as member companies.

The HEINZMANN Group operates numerous global subsidiaries, including eight production sites and an international distributor network.

Our product portfolio comprises engine management system solutions, as well as exhaust gas aftertreatment solutions, for industrial combustion engines and turbines. It also encompasses automation systems, primarily for the shipping industry



● Head office ● Subsidiaries ● Subsidiaries with production facilities ● Distributors and dealers

## REGULATEURS EUROPA – Specialist for Governing, Control & Monitoring

With two production and development sites, REGULATEURS EUROPA has been part of the HEINZMANN Group since 2005. The Netherlands facility Regulateurs Europa B.V. producing a comprehensive range of governors and actuators, and the UK facility Regulateurs Europa Ltd. producing governors and actuators; marine, industrial and traction controls and vibration monitoring systems.

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