

# Case Study – Wireless - Kappa X Fan Bearing Lubrication Issue

Power Plant - Food Sector



## Background



- Critical Gas Fan part of a power plant for a food production factory
- Machine has history of poor reliability. Bearing issues related to lubrication and light loading. Split Bearings fitted.
- Kappa X wireless sensors installed on the fan to monitor condition- 1 min short term trends, with power bands, spec, waveform
- HMI Software setup in control room for site Ops to monitor. Alarms setup based on current fan levels. System will email / text - key personnel when broken.

# Fan Dashboard - HMI



**Analytix**

GLOBAL DATA  
CHI DATA  
ANALYSIS  
ALARMS  
REPORTS  
SETTINGS

Sensotek  
USER GUIDE  
PRIVACY  
MINIMIZE

RECYCLE GAS FAN OVERVIEW

Recycle Gas Fan **Critical**  
Blower / Fan - General direct drive fan (with coupling)

MEASURING POINTS  
4 measuring points installed

- 1\_MOTOR NDE  
Seen Dec 10th, 10:17 (a day ago)
- 2\_MOTOR DE  
Online (seen a minute ago)
- 3\_FAN DE  
Online (seen a minute ago)
- 4\_FAN NDE  
Online (seen a minute ago)

MACHINE STATUS  
OVERALL TEMP SPECTRUM THERMAL

DRIVE FAN

3 critical alarms active

RECENT ALARM EVENTS

- Today, 04:51:32  
Recycle Gas Fan - 3\_Fan DE  
Horizontal vibration power (low res) exceeded band thresholds
- Today, 04:51:26  
Recycle Gas Fan - 4\_Fan NDE  
Vertical vibration power (low res) exceeded band thresholds
- Today, 04:51:26  
Recycle Gas Fan - 4\_Fan NDE  
Axial vibration power (low res) exceeded band thresholds
- Tue Dec 7th, 08:39:32  
Recycle Gas Fan - 4\_Fan NDE  
Horizontal vibration power (low res) exceeded band thresholds
- Tue Dec 7th, 08:39:32  
Recycle Gas Fan - 4\_Fan NDE  
Vertical vibration power (low res) exceeded band thresholds
- Tue Dec 7th, 08:39:32  
Recycle Gas Fan - 4\_Fan NDE  
Axial vibration power (low res) exceeded band thresholds

ALARM SCORE  
1W 1M  
Live score 30

IMAGES

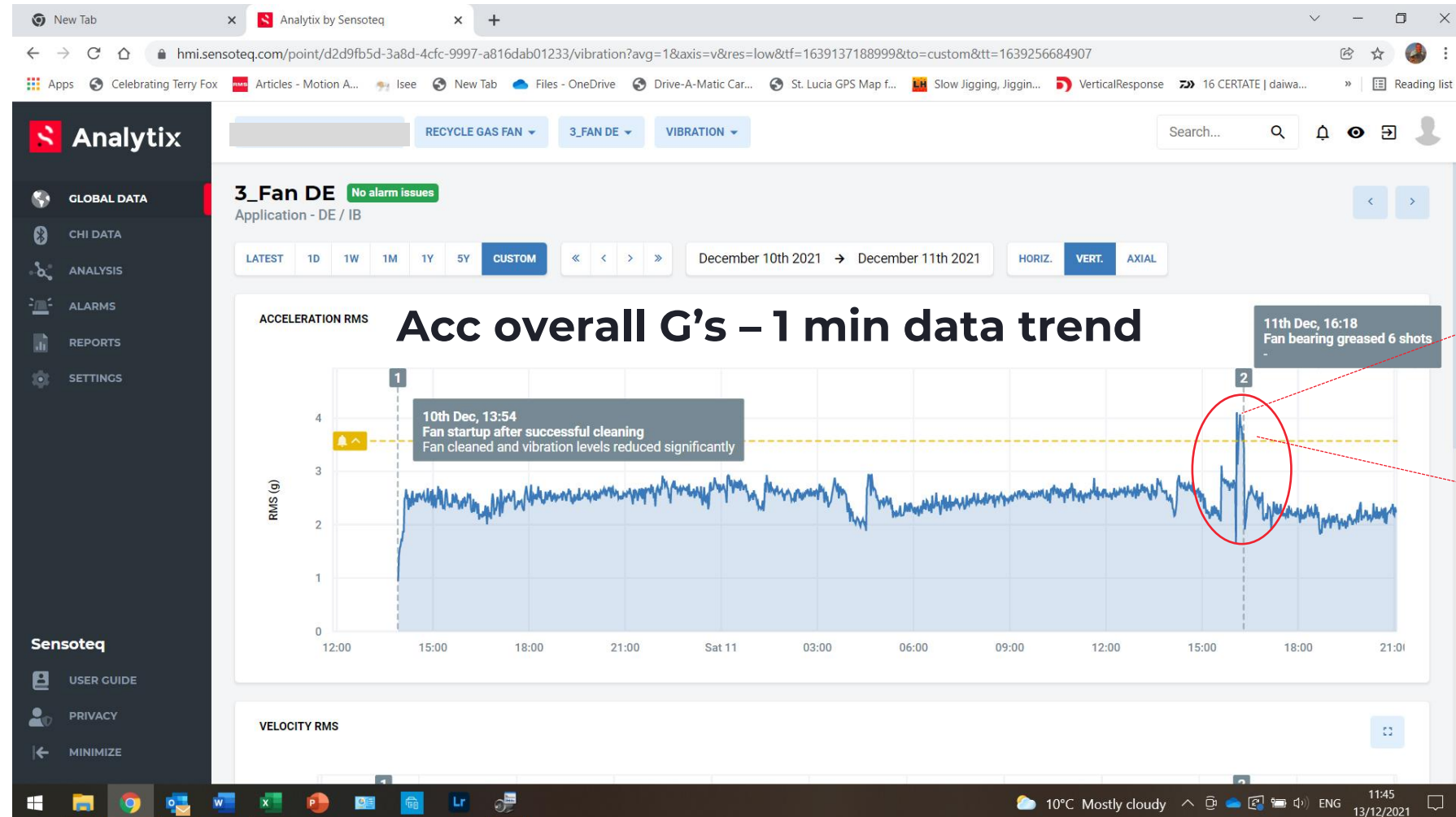
## Analysis

- Multiple alarms broken on the fan bearings.
- Increase in G levels indicating bearing related issue.
- Decision was made to grease the fan DE bearing and assess the reaction.



## Analysis

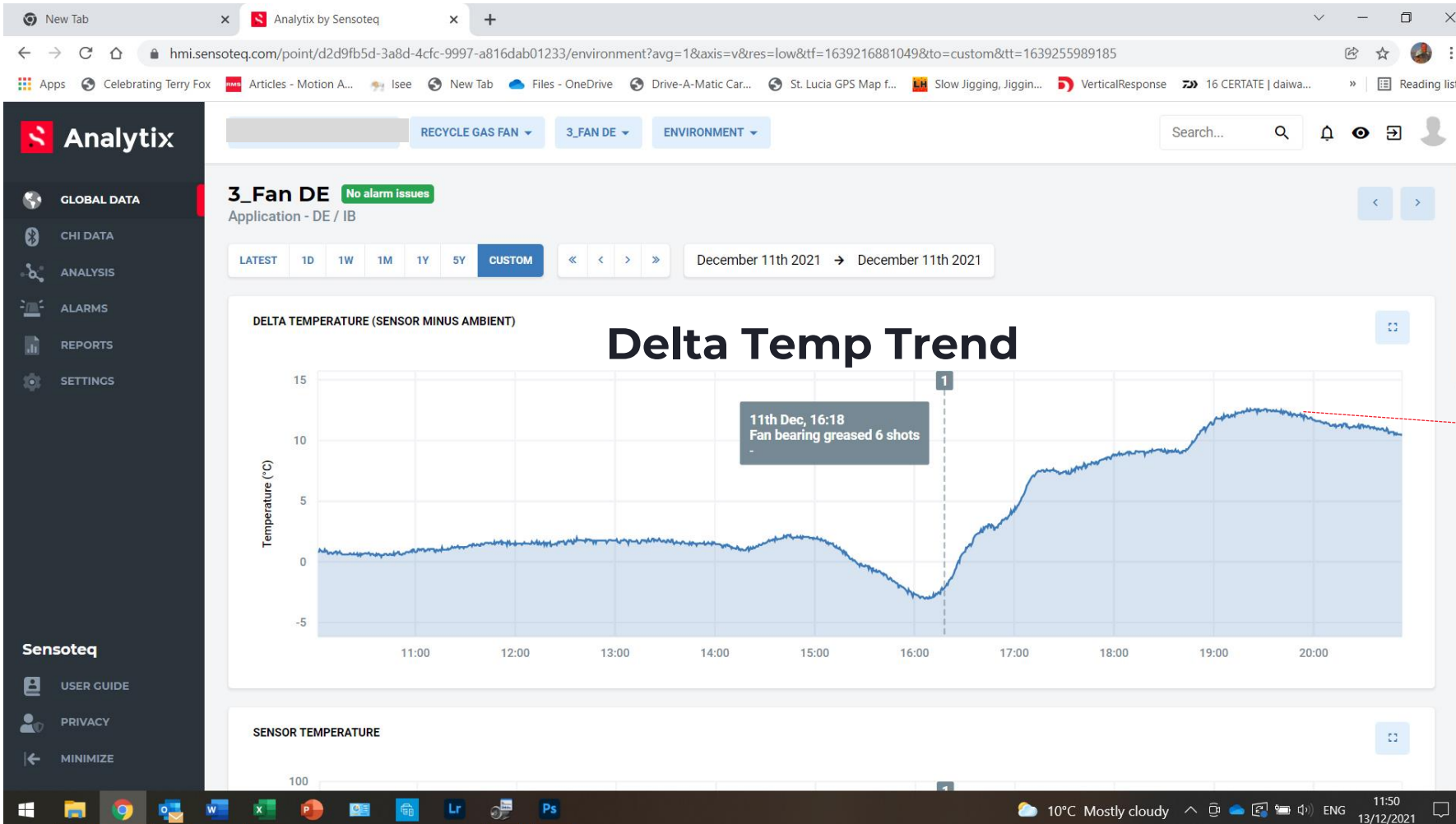
- Sharp Increase in Overall G levels from 2.2G's to 4.1G's
- Fast reaction from operations - 6 Shots of grease added
- Overall Acceleration Distress levels reduced to normal quickly and stayed low.





## Analysis

- Expected temp increase after greasing
- Temp levels started to reduce after a number of hours.
- New fan bearing design (Mono Block) planned to replace split bearing design to improve reliability of this fan.
- Possible fan bearing failure avoided – **Estimated cost saving £56K**





## FURTHER INFORMATION

Customer Support

RMS Ltd. No.42 Goldcrest Close. Longridge Park.

Colchester. Essex CO4 3FN.

Company Reg No. 03808313. VAT No. GB 741737428.

Tel/Fax: +44 (0)1206 791917

Email: [info@rms-reliability.com](mailto:info@rms-reliability.com)

**[rms-reliability.com](http://rms-reliability.com)**