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ABB Ability™ Condition Monitoring for Drives

Always one step ahead

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Table of content

Introduction to ABB Ability™ Drives Service Portfolio

Remote Service for drives concept

Service benefits

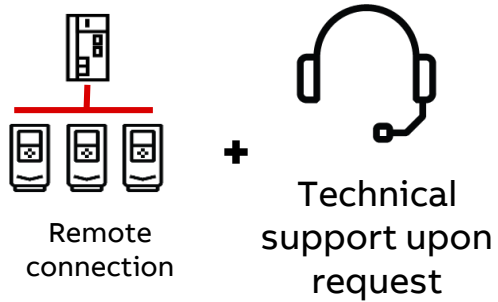
Service process

Success Case

ABB Ability™ Remote Services for Drives

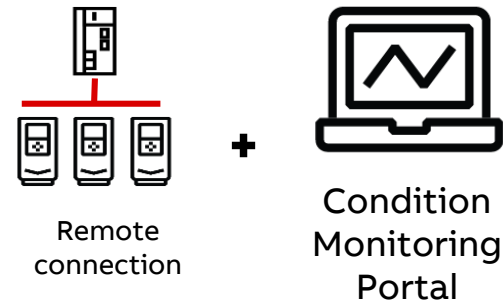
Three distinctively different remote services

Remote Assistance



Rapid solution in case of problems

Condition Monitoring



Alerts and information, for customer to react

Predictive Maintenance

2018

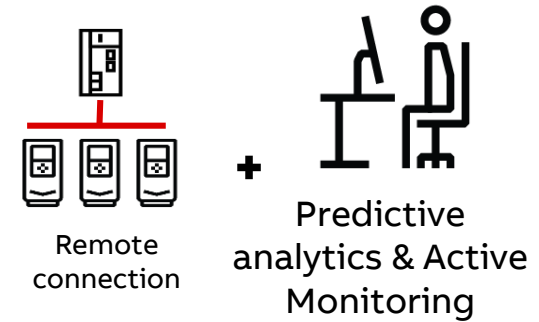


ABB reacting, before the failure happens!

ABB Ability™ Remote Services for Drives

How these three distinctively different remote services complement one another

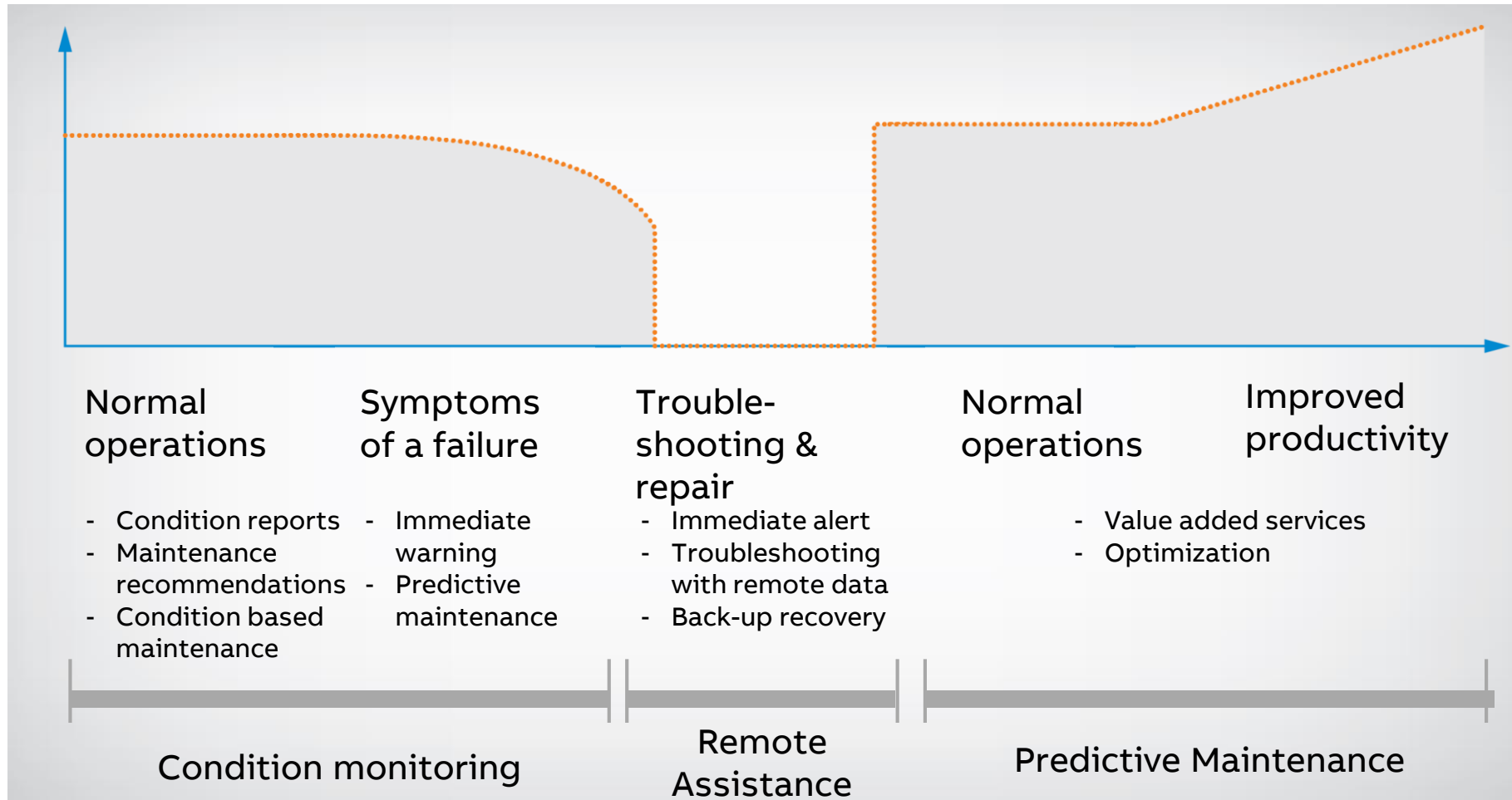


ABB Ability™ Condition Monitoring service

Always one step ahead

Reveal your drive's true potential

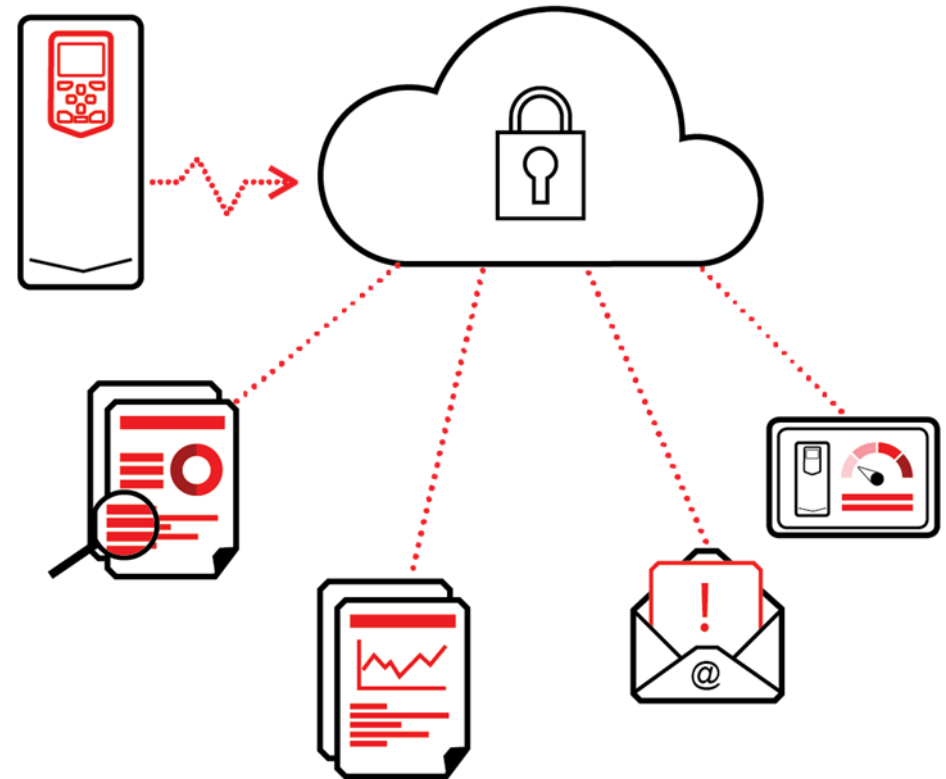
Remote Condition Monitoring is a service that delivers you accurate, real-time information about drive events to ensure your equipment is available, reliable and maintainable.

FEATURES:

- Web access to life data and reports via myabb.com
- Annually delivered operation and condition summary with recommendations from ABB expert
- Condition data based predictive alerts

BENEFITS:

- Easy tracking of equipment's operational and conditional history
- Identification of improvement actions & potential
- Improved availability with less unplanned production breaks



Providing the right blend of technology, expertise and information

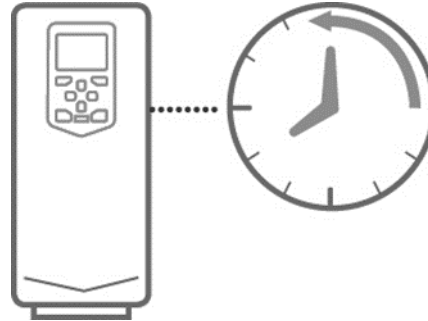
According to your needs

Make best decisions



We believe combining your process knowhow with analysis and recommendations by ABB professionals will lead to best decisions.

Reduce the risks



Condition Monitoring service helps anticipate possible faults, operational issues and maintenance needs reducing the risk of unexpected downtime.

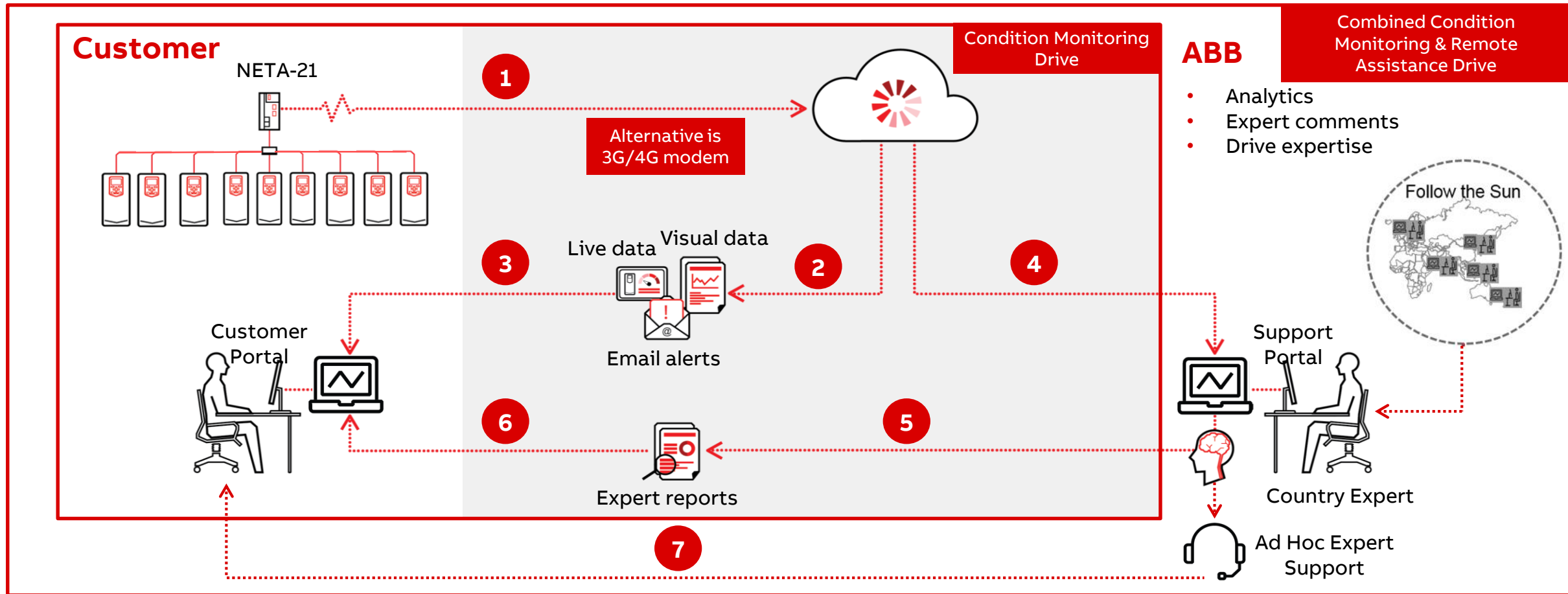
Monitor topics important to you



We can tailor our services to your needs and you can monitor the issues that interest you. Our experts are also always on hand to consult with you.

Reveal your drive's true potential

ABB Ability™ Condition Monitoring & ABB Ability™ Remote Assistance for Drives



Site Connector Connectivity

Connectivity box ready-made from factory



The connectivity box will be available in from Factory and up to 4 NETA-21 will have included

No optical distributors neither switches will be included, will support direct connection to 4 drives or to 4 external optical distributors

Simple dashboard to understand your drive fleet conditions

Overview of your drive fleet

Condition monitoring for drives

Your drive fleet

4 drives monitored

Overall condition



Details by index

View entire fleet: 4 drives

OK: 3 drives
All known condition indexes are at OK level

Tolerable: 1 drives
No known condition index at poor level, but at least one at tolerable level

Poor: 0 drives
At least one condition index at poor level

Unknown: 0 drives
Condition monitoring not supported for this drive type or currently unavailable

Condition of your drive fleet

Your drive fleet

4 drives monitored

Overall condition

Details by index

! Availability



● OK
● Fault
● Warning
● Unknown

🌡 Environment



● OK
● Too high, rapidly aging your dr
● Tolerable but somewhat warm
● Unknown

🕒 Reliability



● Faulted <0.1% of the time
● Faulted >1% of the time
● Faulted >0.1% of the time
● Unknown

📈 Stress



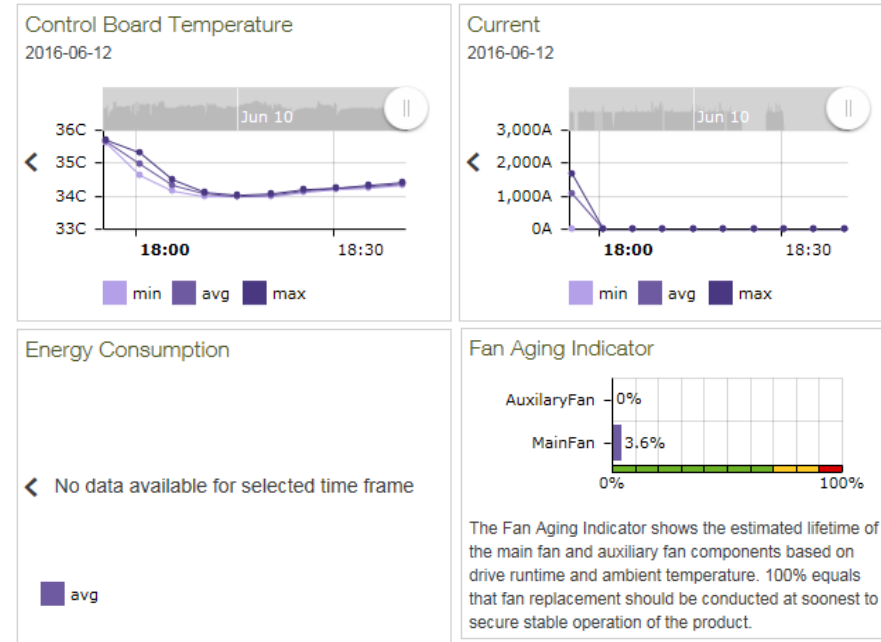
● OK
● Too heavy, rapidly aging your c
● Tolerable but somewhat heavy
● Unknown

Drive specific data easy to read and drill down

Basic drive specific parameters



Advanced algorithms and indicators



Existing service product as basis for predictive maintenance

Real-time monitoring of your fans condition

ACS880 {1} {1} 

<p>Condition: ■ OK</p> <p> No fault or warning currently active</p> <p>Condition levels, last 30 days</p> <ul style="list-style-type: none"> Environment OK: temperature is normal Reliability OK: faulted < 0.1% of the time Stress OK <p>Hide details</p>	<p>ACS880-01 - Wall-mounted single drive Small industrial inverters / drives</p> <p>Product code: ACS880-01 - Wall-mounted single drive</p> <p>Serial number: Z142370008</p> <p>Description: ACS880-01-0003-2</p> <p>Customer tag: This is ACS880 demo from IDC LAB</p> <p>Installation ID: 9AAK388158J3013</p>	<p>Service & warranty</p> <p>Installed:</p> <p>Last service:</p> <p>Next recommended service:</p> <p>Warranty expiration:</p> <p>Service agreement: Not included</p> <p>Lifecycle status: LC_ACT</p>
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AuxiliaryFan

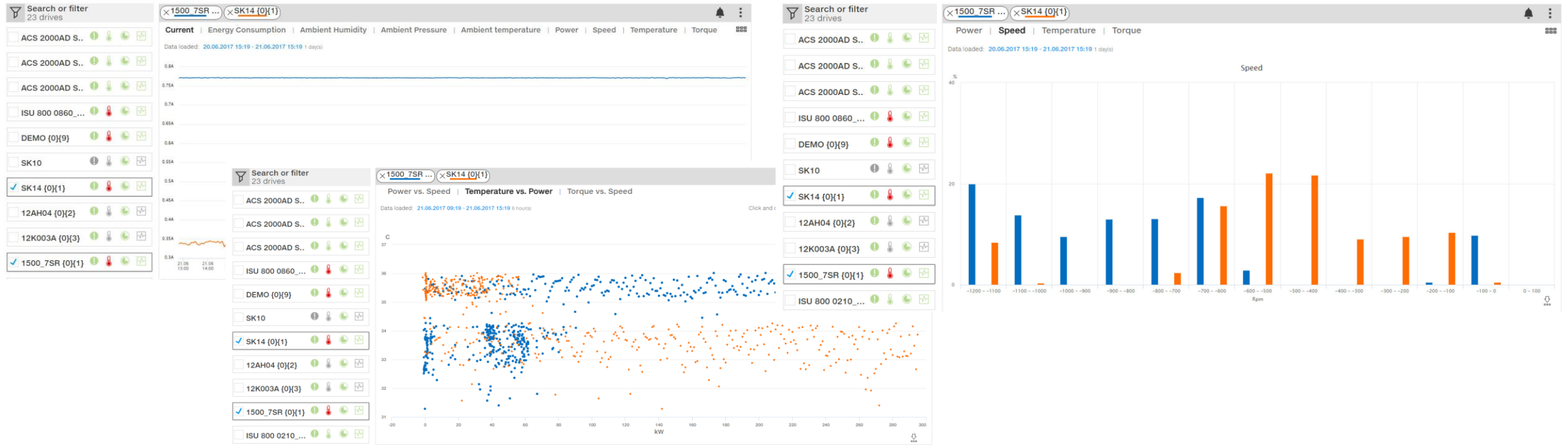


MainFan



Fan aging counter made available to predict its lifespan

Fleet comparison up to n drives



Empirical data allows you to understand the performance of your equipment

Email notifications

Speeding up the reaction time

From: ABB Remote Support [mailto:azure_ffe6693892495a84502b17d445a11d2b@azure.com]
Sent: 8. joulukuuta 2015 15:53
Subject: Drive Fault - Nokian Renkaat-Rengastehdas-SK16

FAULT	+DC UNDERVOLT (3220)
TimeStamp	11/10/2015 4:40:05 AM (UTC)
Drive	Nokian Renkaat-Rengastehdas-SK16

FAULT +RUN DISABLED (FF54)

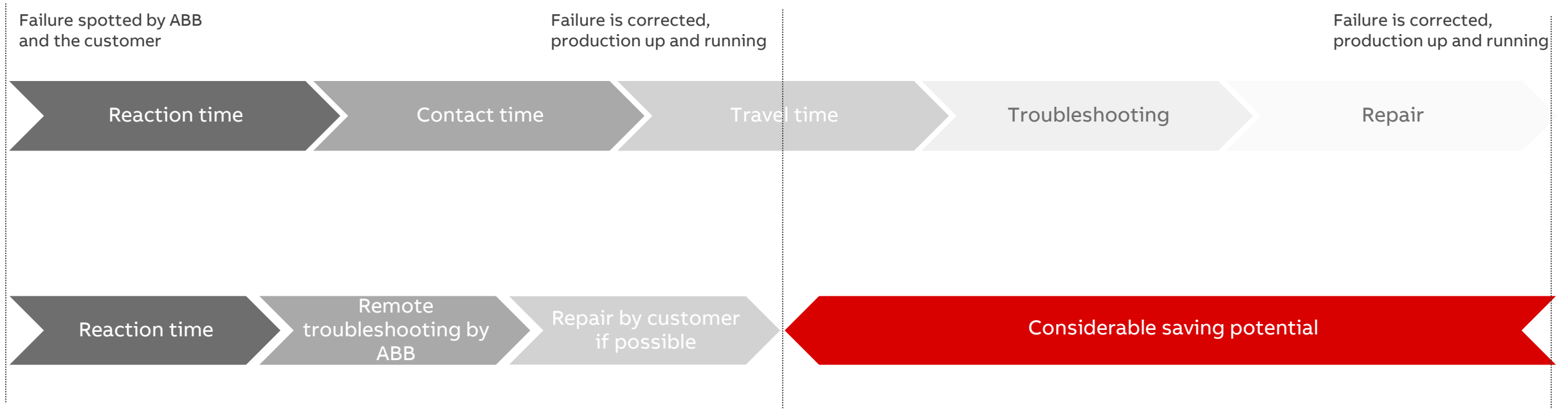
TimeStamp	From: ABB Remote Support [mailto:azure_ffe6693892495a84502b17d445a11d2b@azure.com] Sent: 9. joulukuuta 2015 3:07 Subject: IGBT temperature is increased in drive Nokian Renkaat-Rengastehdas-SK16
Drive	

IGBT temperature has been increased beyond threshold level

Remote Assistance service value for you

Shorter downtime and increased revenue

Faster Recovery from Production Breaks



Expert report

Special guidance for maintenance plans

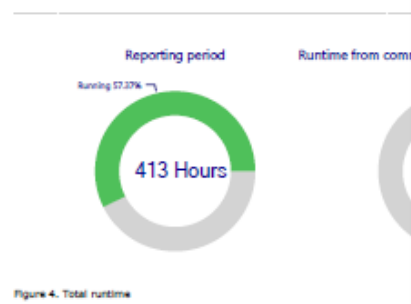
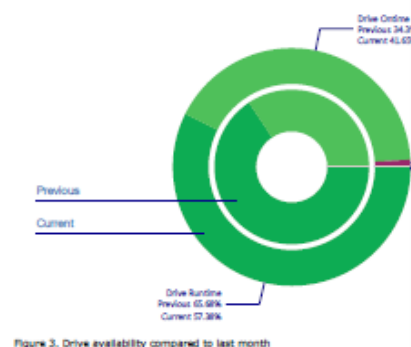


Latest expert analyses

- 2017-08-17 4159 - DRIVES SERVICE (ACS800-01 - Wall-mounted 6-puls...
by ABB Expert
- 2017-08-16 4159 - DRIVES SERVICE (ACS800-01 - Wall-mounted 6-puls...
by ABB Expert
- 2017-08-16 4159 - DRIVES SERVICE (ACS800-01 - Wall-mounted 6-puls...
by ABB Expert
- 2017-08-16 4159 - DRIVES SERVICE (ACS800-01 - Wall-mounted 6-puls...
by ABB Expert
- 2017-06-23 4159 - DRIVES SERVICE (ACS800-01 - Wall-mounted 6-puls...
by ABB Expert



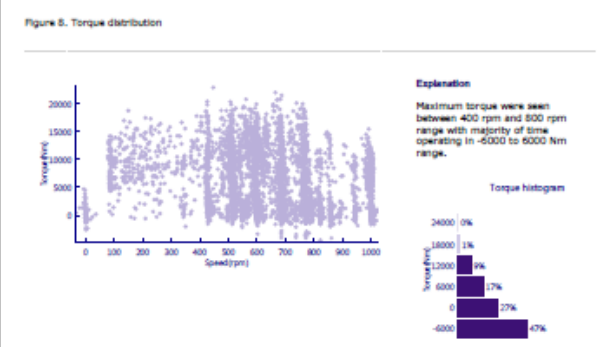
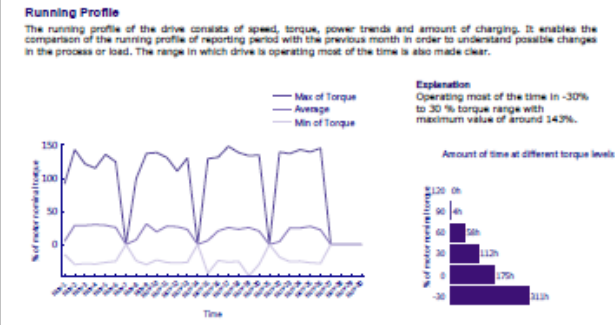
Drive SK16 (Nov 01 - Nov 30, 2015) How much downtime was caused?



Drive SK16 (Nov 01 - Nov 30, 2015) What's my drive's condition?



Drive SK16 (Nov 01 - Nov 30, 2015) How has the drive been operated?



Individual reports

Information always available



ABB Inverter Monitoring Interface

Mounted single phase inverters / Service & maintenance

Installed: 10-01 - Wall-mounted

Last service: [Date]

Generate report

Events List

Export Parameters

MainFan

Good

Drive SK16 (Nov 01 - Nov 30, 2015)

How much downtime was caused?

Drive On/Off: Previous 34.3, Current 43.07

Previous

Current

Drive Runtime: Previous 65.98%, Current 67.38%

Figure 3. Drive availability compared to last month

Drive SK16 (Nov 01 - Nov 30, 2015)

What's my drive's condition?

Drive's condition is explained with following indexes: Stress index, Reliability index, Environment index

Stress index is on a Green level
The drive stresses are not high.

Reliability index is on a Green level
The drive has been in a fault-free operation.

Environment index is on a Green level
The ambient temperature is within the allowed range.

Figure 7. Stress, reliability and environment index

Reporting period

Runtime from commissioning

Running 67.37%

413 Hours

Figure 4. Total runtime

Drive SK16 (Oct 29 - Oct 29, 2015)

How has product been operated?

Running Profile

The running profile of the drive consists of speed, torque, power trends and amount of charging. It enables the comparison of the running profile of reporting period with the previous month in order to understand possible process or load changes. The range in which drive is operating most of the time is also made clear.

Figure 8. Torque distribution

Explanation: Amount of time at different torque levels

60	1h
30	1h
0	2h
-30	2h

Figure 9. Torque vs. speed

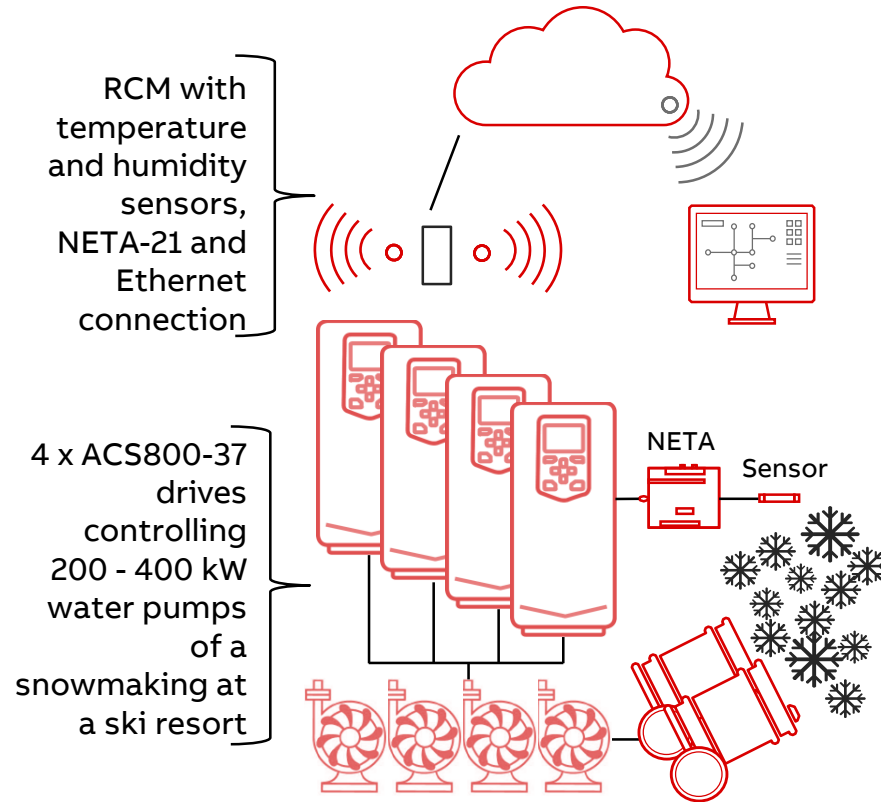
Explanation: Torque histogram

12000	16%
6000	33%
0	42%
-6000	9%

Power and productivity for a better world™ **ABB**

Snow Guns at a Ski Resort, Switzerland

Condition Monitoring for drives availability



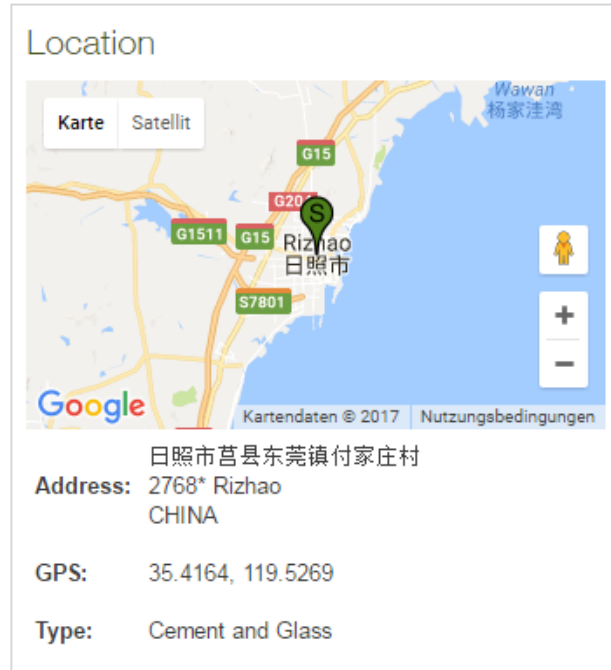
Customer benefits

- Customised monitoring for temperature and humidity to ensure drives start and operate normally after long stand-by periods (~9 months)
- Ensuring that snow guns are operational, maximising duration of skiing season

Ensures snowmaking systems operate under all conditions

Cement Customer with ACS2000

Remote Assistance and Condition Monitoring for quicker response



Recommended Services +	Service History +	Related Documents +	Service Agreements +	Available Trainings +	Remote Condition Monitoring -
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RCM report Email Subscription

Subscribe for email notifications about drive events
 Select one or many criteria about which events you want to receive email

Selection	Event Description
<input type="checkbox"/>	Drive encountered a fault
<input type="checkbox"/>	Drive encountered a warning
<input type="checkbox"/>	Drive performance is limited due to reaching internal limit or other reason
<input type="checkbox"/>	Drive parameters have been changed
<input checked="" type="checkbox"/>	Receive notification if control board temperature exceeds <input type="text" value="50"/> Celcius level
<input type="checkbox"/>	Receive notification if IGBT temperature exceeds <input type="text" value="0"/> Celcius level
<input type="checkbox"/>	Receive notification if cooling air temperature exceeds <input type="text" value="0"/> Celcius level

Save

Customer benefits

- Remote Assistance is available
- Customer can see conditions on a portal and understand happening of future problems

Remote Assistance to provide remote troubleshooting support

Beijing water, pump station

Remote Condition Monitoring as a basis for Predictive Maintenance



Beijing water, fresh water pump stations –
Supplies over 50% of the water used in Beijing



Delivery of 8 x ACS6000 MV drives
for controlling the water pumps

Customer benefits

- Prediction of potential future problems
- ABB recommendations for corrective action and preventive maintenance
- Reduced risk of unplanned water supply interruptions

ABB Ability™ Condition Monitoring – delivers accurate, real-time information on drive events

Steel Plant with critical drives

Remote Condition Monitoring as a basis for Predictive Maintenance

Customer

- Steel mill in distant location
- Remote Condition Monitoring since September 2015 for Pump TSCR (Thin Slab Casting Rolling)

Success case

1. Temperature difference between parallel power modules was detected
2. Customer was alerted
3. Check done on-site by customer and ABB engineer found dust accumulation near the heat sink, and cooling fan not running at needed speed
4. Situation was corrected and temperature returned normalx

Benefits

- Failure prevented
- Failure would have caused 3 - 5 hours of unexpected downtime, cost between 50 – 100 kUSD per hour.
- Customer **saving up to 0.5 MUSD** just on this single case



Predictive maintenance leading to major savings.

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So let's talk



ABB