

Heat treatment application: SMARTDAC+ AI-Based Equipment/Quality Easy Predictive Detection

Having any of these problems?

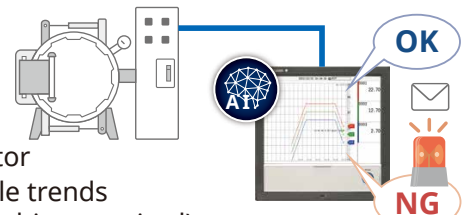
- Want to prevent unexpected product quality degradation
- Unexpected production line shutdown due to equipment malfunction impacts the production plan
- Preventive maintenance is expensive
- Fewer skilled personnel, insufficient skill transfer
- Past recorded data is stored, but not effectively utilized



Solutions with Easy Predictive Detection

SMARTDAC+ AI notifies you of the deterioration of equipment and product quality degradation!

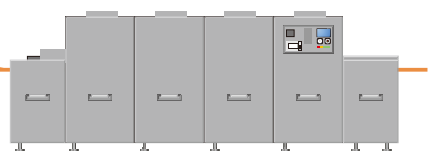
- Always monitor the status with Health Score
- AI notifies you of prediction of abnormalities on site
- Optimizing costs by performing predictive maintenance rather than preventive maintenance
- AI makes a steady judgment like experienced operator
- Easy to create predictive detection models and profile trends from past recorded data (no AI knowledge and consulting required)



"NG" means Not Good.

Heat treatment: Continuous furnace application

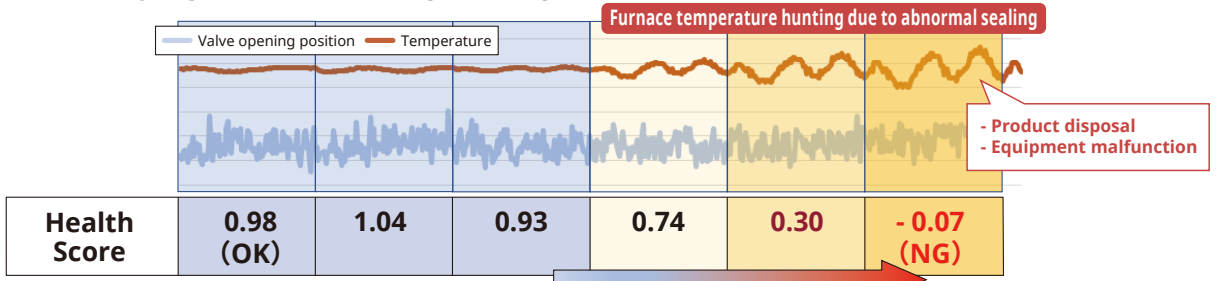
Measured data: Temperature, valve opening position, and others



<<< Example: Applying the Health Monitor function >>>

Requirement: Want to reduce product quality defects, furnace downtime, and other problems by capturing prediction of temperature abnormalities caused by burner failure, poor furnace seal, and other factors before alarms occurs

AI makes a judgement for each specified predictive detection section



Health score decreases as hunting increases

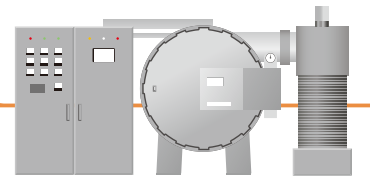
The health score enables you **predictive detection of abnormalities!**

 Email is sent when health score falls below the specified threshold

- Product disposal
- Equipment malfunction

- ✓ **Before a quality defect occurs,** detect abnormal prediction by the changes in the health score
- ✓ Enables maintenance and repair **before equipment malfunctions**
- ✓ Can be used **as a timing index** for pipe cleaning, etc

SMARTDAC+ AI-Based Equipment/Quality Easy Predictive Detection

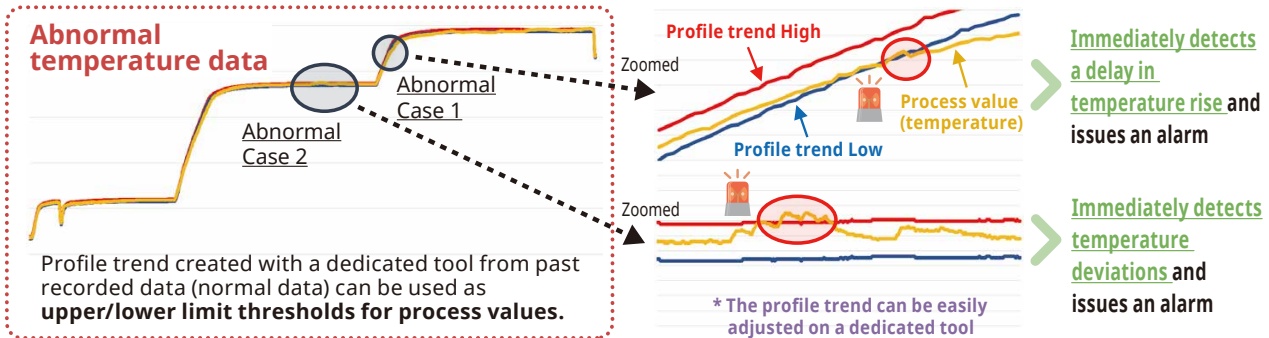


Heat treatment: Batch furnace application

Measured data: Temperature and others

<<< Application example: Profile function >>>

Requirement: Want to detect temperature abnormalities caused by heater failure, poor furnace seal, and other factors before problems occur, and then respond quickly



✓ Immediately detects when temperature deviates from an allowable range in real time

System overview and configuration

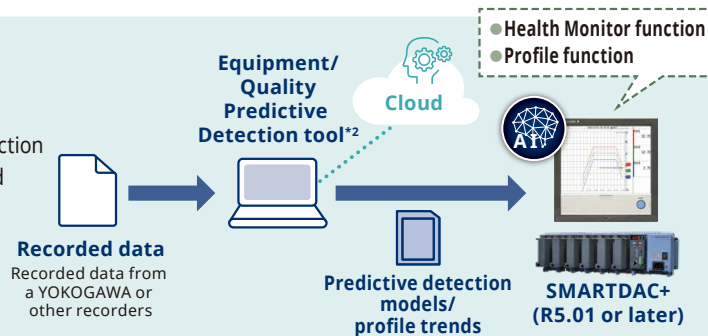
SMARTDAC+ Equipment/Quality Easy Predictive Detection is an industry-first feature*1 that uses AI in a recorder or data logger to utilize past recorded data for predictive detection of abnormalities. This function can be **easily used** without knowledge of AI, and it is possible to **directly check the deterioration status of equipment and product quality** that could only be judged by experts.



*1 Based on in-house research of April 2022

Easy to use in 2 steps!

- Using the Equipment/Quality Predictive Detection tool*2, create predictive detection models and profile trends from past recorded data
- Load your predictive detection models and profile trends onto SMARTDAC+



*2 Tools are available in a cloud version and offline version. The cloud version is available for Japan, US, Canada, EU, and UK only.

YOKOGAWA ELECTRIC CORPORATION

Edge Solution Division

YOKOGAWA CORPORATION OF AMERICA

YOKOGAWA EUROPE B.V.

YOKOGAWA ENGINEERING ASIA PTE. LTD.

<http://www.yokogawa.com/>

<http://www.yokogawa.com/us/>

<http://www.yokogawa.com/eu/>

<http://www.yokogawa.com/sg/>

Subject to change without notice

All Rights Reserved. Copyright © 2022, Yokogawa Electric Corporation

Printed in Japan, 203(AZ) [Ed:01/d]