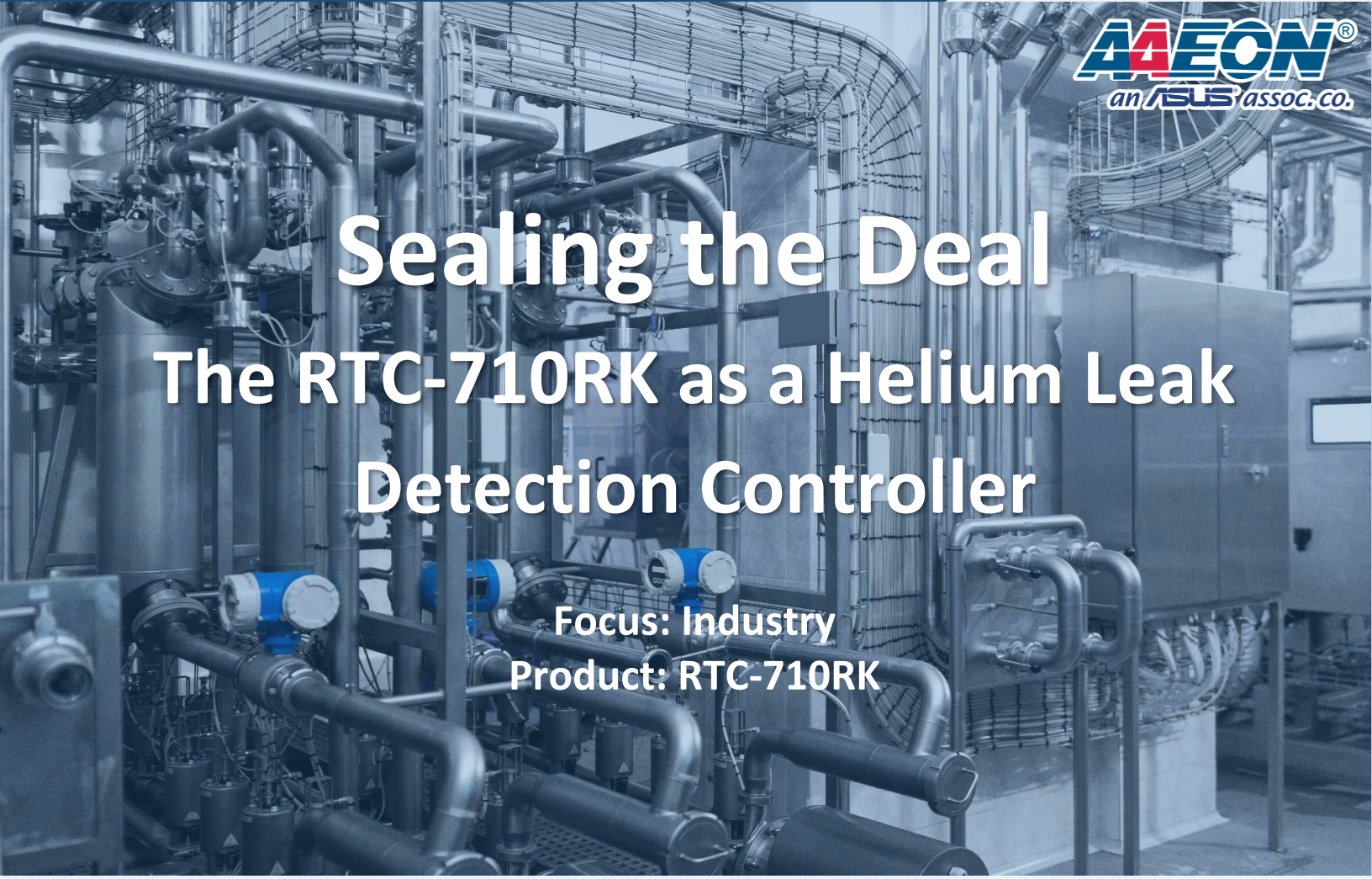

Sealing the Deal

The RTC-710RK as a Helium Leak Detection Controller

Focus: Industry
Product: RTC-710RK

Introduction

A global pioneer in vacuum technology planned to upgrade its industry-leading leak detector, which is renowned for being one of the fastest and most effective tools for component leak testing across industries such as automotive, semiconductor, and HVAC.

Helium is commonly used as a tracer gas for such testing due to its inert nature and lack of reactivity with other elements.

The product in question is a flexible, portable standalone system that allows for both integral testing, used to determine component leak-tightness, and sniffer testing, which pinpoints leak locations.

Alongside the testing unit, the company required a remote controller that could provide a user-friendly interface, operate under various conditions, and interact with the data from the testing unit. After careful consideration, they identified AAEON's RTC-710RK 7" Rugged Tablet as the perfect solution.

Key Project Requirements

Connectivity

The remote controller needed to support wireless connectivity to receive testing data from the unit. This was crucial for the customer, as their portable unit enabled technicians to perform testing in challenging, hard to navigate locations.

User-Friendliness

The remote controller required a clear, user-friendly touchscreen, which was particularly important as technicians often wear gloves due to the industrial settings in which the equipment being tested is commonly located..

Ruggedness

The controller had to withstand various challenging conditions, including industrial settings like factories and outdoor locations with difficult weather conditions, such as shipping vessels. This durability was essential for regulatory compliance and ensuring the safe operation of infrastructure.

Why the RTC-710RK?

Onboard Wi-Fi 802.11 b/g/n for Wireless Data Transmission

The RTC-710RK offers various options for wireless connectivity, including the possibility of installing an LTE module via its optional M.2 expansion slot. However, utilizing the tablet's onboard Wi-Fi 802.11 b/g/n proved to be the most suitable choice, providing a stable Wi-Fi connection with an operational range of 40m2 to the main leak detection unit.

Portable, Convenient, & Conducive Deployment

The RTC-710RK features a 7" projected capacitive multi-touch screen, enabling a simple and suitable interface for technicians even while wearing gloves. Its high readability, with a WXGA 700 nit LCD display and 1280 x 800 resolution, ensures clear visibility even when deployed in outdoor settings.

AAEON customized the tablet's mounting options, providing a flex mount and stand for easy deployment on the testing unit itself. Adding further value, the tablet's audio function is capable of producing a high-decibel alarm when a leak is detected, enhancing operational efficiency.

Military-Grade Toughness

Designed for in-field use, the RTC-710RK's environmental specifications make it highly durable in harsh conditions, such as factories and offshore energy facilities. With its IP65 environmental sealing, the tablet is protected against water damage, and its MIL-STD-810G specification ensures vibration and drop tolerance equivalent to military standards. It can sustain drops of up to four feet, operate within temperature ranges of -20˚C ~ 60˚C (-4˚F ~ 140˚F), and withstand high-humidity working environments. These resilient features played a significant role in the customer's decision to choose the RTC-710RK.

Application Architecture

The customer's solution comprised a leak detection unit and a remote controller. The unit consisted of a vacuum pump, chamber, and sniffing inlet port, while the RTC-710RK was deployed as the remote controller with a customized flex mount for easy storage and access during use.

Integral testing involved placing the sample in a helium-pressurized container and monitoring any change in helium levels from a preestablished baseline reading. A change in helium levels would indicate that the sample being tested was not leak-tight.

The gathered data from the container was wirelessly transmitted to the RTC-710RK, which provided an easily readable interface displaying the helium levels within the container. In the event of a leak being detected, the RTC-710RK was programmed to issue a high-decibel alarm through its speaker function, alerting technicians of the leak.

For local testing, the unit utilized a sniffing inlet port to target different areas of the component being tested. An initial dose of helium was applied to the object's surface and allowed to dissipate. The continued presence of helium detected by the sniffing inlet port would indicate that the object was not airtight. Similar to integral testing, the presence of helium above the allowable concentration would trigger an alarm through the RTC-710RK's speaker function.

The tablet's interface also provided easily understandable readings for technicians to note the helium levels for each part of the object being tested, offering an accurate and targeted method of locating leaks.

Impact

The benefits of the RTC-710RK are most prominent in industries reliant on highly regulated equipment for critical operations, including automotive manufacturing centers and offshore fishing vessels. Its rugged features ensure reliable operation in harsh industrial or outdoor conditions, with particular importance placed on protection from adverse weather in outdoor environments.

With onboard Wi-Fi and a user-friendly interface, the RTC-710RK provides a portable controller that streamlines the analysis of testing data, requiring less effort compared to alternative solutions. The tablet's sensitive touchscreen enables its use alongside personal protective equipment such as gloves, which are commonly required when working with factory and power station equipment

Due to its excellent performance and suitability, the company committed to a four-year project to fully replace the tablets used in their existing product line with the RTC-710RK. Given the company's worldwide presence and its positioning within the vacuum technology sphere, it is clear that the RTC-710RK will have a significant impact on enhancing the safety of heavy industrial equipment testing worldwide.

About AAEON

Established in 1992, AAEON is one of the leading designers and manufacturers of industrial IoT and AI Edge solutions. With continual innovation as a core value, AAEON provides reliable, high-quality computing platforms including industrial motherboards and systems, rugged tablets, embedded AI Edge systems, uCPE network appliances, and LoRaWAN/WWAN solutions. AAEON also provides industry-leading experience and knowledge to provide OEM/ODM services worldwide. AAEON works closely with premier chip designers to deliver stable, reliable platforms. For an introduction to AAEON's expansive line of products and services, visit www.aaeon.com.

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