

Seibu Giken Relies on Vaisala Dew Point Transmitters

A renowned manufacturer of dry air conditioning equipment, Seibu Giken has been using the Vaisala DRYCAP® Dewpoint Transmitter DMT242 for more than 10 years to measure air quality of desiccant dehumidifiers. The transmitter has been consistently incorporated in Seibu Giken dehumidifiers and air conditioning equipment because of its high accuracy and extremely fast response time.



Seibu Giken Desiccant Dehumidifier display (the dew point temperature is shown at the bottom left of the image).

Seibu Giken Develops Pioneering Technology

Seibu Giken Co., Ltd. is known in the industry as a pioneering company that develops products based on functional honeycomb technology.

Seibu Giken has also developed the world's first adsorbing-type desiccant rotor using active silica, which made possible the successful introduction of a range of products capable of supplying dry air with an ultra-low

dew point. Using ultra-dry air has a number of significant advantages for end users, such as low operating costs, a clean working environment, and environmental protection.

Challenges

- Many manufacturing processes required ultra-low dew point control of desiccant dehumidifiers to ensure performance and quality.
- Mirror-type dew point meters were expensive and required regular maintenance. Getting stable dew point measurements after maintenance required hours, so mirror-type meters could not be installed in dehumidifiers supplied to end users.
- Support from dew point meter manufacturers was not timely.

Solution

- The Vaisala DRYCAP® Dewpoint Transmitter DMT242 is proven to provide extremely accurate readings, very close to those of a mirror-type meter, and has a fast response time and excellent stability.
- While calibrating or servicing a product, Vaisala provided a substitute unit, eliminating the need for process downtime.

Benefits

- Seibu Giken is able to show visual data of dry-room dew point conditions when offering end users solutions for efficient moisture control.
- The Vaisala DRYCAP® Dewpoint Transmitter DMT242 offers fast response without requiring maintenance, which eliminates several hours of downtime.
- Online dew point monitoring helps to minimize energy consumption during operation, thereby helping end users meet their own environmental requirements.



“The Vaisala product demonstrated excellent stability. The DMT242 had the fastest response time, and closely tracked the mirror-type dew point meter values over a wide range.”

Mr Taguri,
Team Lead and Manager of
Dehumidifier Design at the Seibu
Giken Technology Division
Seibu Giken Co., Ltd.



Vaisala DRYCAP® DMT242 Dewpoint Transmitter

Dew Point Control to Assure Quality

Manufacturing processes for products such as lithium-ion batteries and flat-panel displays require extremely precise management of moisture levels in order to ensure consistent quality. Dew point is therefore one of the most crucial parameters to be monitored. Seibu Giken usually takes a consultative approach before finalizing their designs and specifications, which involves carefully listening to the customer to find out what the requirements are and then developing a proposal. Providing a stable supply of dry air is one of the main goals for desiccant dehumidifiers. It is a basic requirement to check the quality of the dry air at the air discharge point. For the end user, on the other hand, it is important to monitor air quality in the dry room or throughout the space where the dehumidifier is being used.

DMT242 Stands Out as Fast and Accurate

Originally, Seibu Giken used a mirror-type dew point meter during its in-house development phase in order to meet the requirement for precise measurement of dew point values. Due to several drawbacks, different types of dew point sensors from three different companies were evaluated in comparative testing, where they were referenced against mirror-type meters. The fast response time of the Vaisala DRYCAP® Dewpoint Transmitter DMT242 clearly stood out among the candidates.

“We also established that the difference to the mirror type reading was very small,” says Mr Taguri. “The dew point measurement range was set from -10°C to -60°C. During the testing process,

measurement data of the three brands were collected for the relatively high range of 0°C to -10°C, as well as the medium -30°C range and the -60°C range. In these tests, the DMT242 from Vaisala proved to have an extremely fast response time while providing accurate readings very close to those of the mirror type meter. It also had the best stability among the tested meters.” He also expresses appreciation for Vaisala’s service: *“The company’s service policy of providing a substitute unit is very useful for preventing downtime. In the past, before a regulatory-related audit at an end-user location, dew point calibration and repair were sometimes required. Vaisala completed the service within one week.”*

Towards Future Applications

Desiccant dehumidifiers from Seibu Giken are used in the R&D laboratories of manufacturers of products such as lithium batteries, secondary batteries, storage batteries, flat-panel displays, and organic EL panels, among others. These all require low dew point conditions, but some end users are now moving towards monitoring even lower dew point ranges.

Besides the increasing focus on saving energy with constant dew point monitoring while maintaining the proper manufacturing environment, environmental policy is very important in many companies. Seibu Giken supports end users’ efforts through technical innovations, and similarly Vaisala is pursuing further technical advances that will support its customers and their end users in this regard.

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