# RENESAS

Design Guide

## RRH62000

This document provides guidelines for integrating the RRH62000 into a customer's design, such as HVACs, personal monitors, smoke detectors, or air purifiers, etc. These guidelines will help users obtain the best performance of the RRH62000.



## Contents

# 1. The RRH62000

Figure 1 shows the RRH62000 module. Ensure to point the front side of the device with the inlet and outlet towards the ambient air. The backside contains the 6-pin connector (ACES 51468-0064N-001)[1] which is compatible with the JST GHR series.
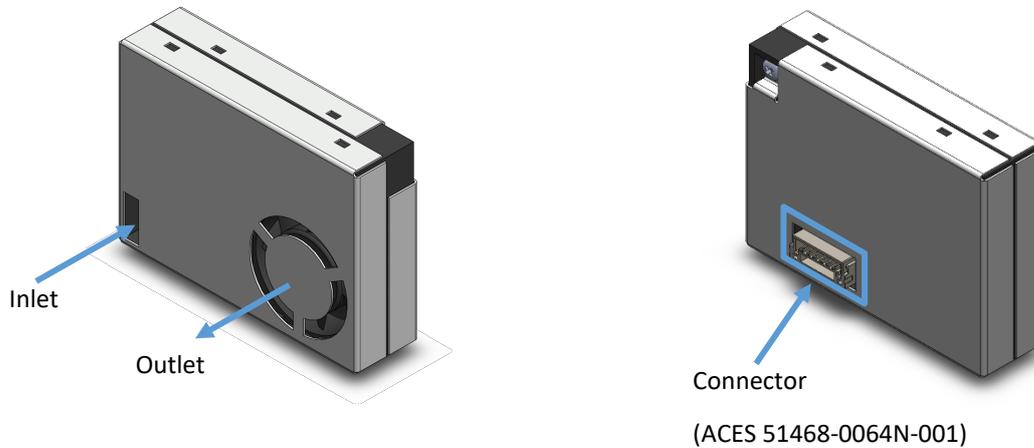


**Figure 1. 3D View of the RRH620000**

# 2. Package Outline Drawing

Figure 2 shows the Package Outline Drawing (POD) for the RRH62000. The most relevant dimensions for a successful case or mount design are shown in the figure. For cut-outs, it is best to use the center points and design the cut-out symmetrical around them. All dimensions are in millimetres (mm).
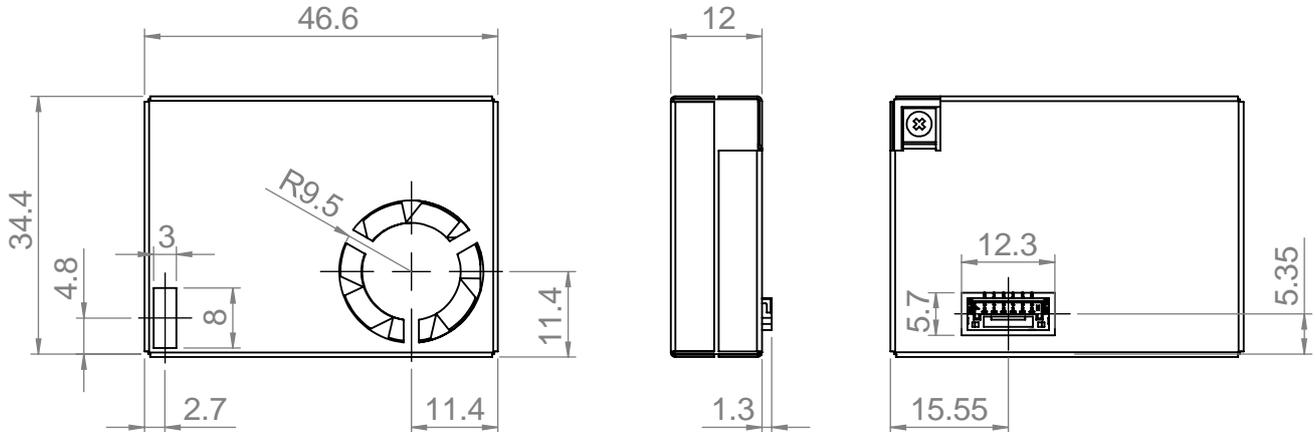


**Figure 2. Package Outline Drawing (All dimensions in mm)**

# 3. Adhesives

The RRH62000 consists of a gas sensor that is sensitive to total volatile organic compounds (TVOC). The use of an outgassing adhesive will affect the readings, and also may block the surface of the sensitive element. Renesas has tested various adhesives, and therefore, can recommend low outgassing glues. For more information, please contact your local Renesas Support or submit an online support ticket.

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[1] The release batch may be supplied with a different connector (JCTC 50801W00-6P-S-HF) which is compatible with the JST SUH series. Each module will be supplied with an adapter cable for the new connector.

# 4.  Housing Materials

Similar to the adhesives, the housing materials should not outgas. Renesas recommends durable materials without plasticizers, softeners, or large porosity materials. The material must be fully cured, and acrylic type materials should be used instead of silicone type materials. Avoid using additives in the raw materials, such as flame retardants, which may outgas when exposed to high temperatures.

Avoid the use of high porosity materials (e.g., open-pore foams), mould release agents, oils and greases, and silicone-containing potting compounds inside the housing near the gas sensor.

# 5.  Orientation of the Module

Figure 3 shows the recommended installation orientations. This ensures that the heavier particles are properly expelled from the air duct. Orienting the inlet and outlet downwards forces the RRH62000 to suck in particles against gravity, resulting in under-reporting of the heavier particles. Also, when using the sensor in an air duct, make sure that the passing air does not carry the expelled particles back to the inlet.
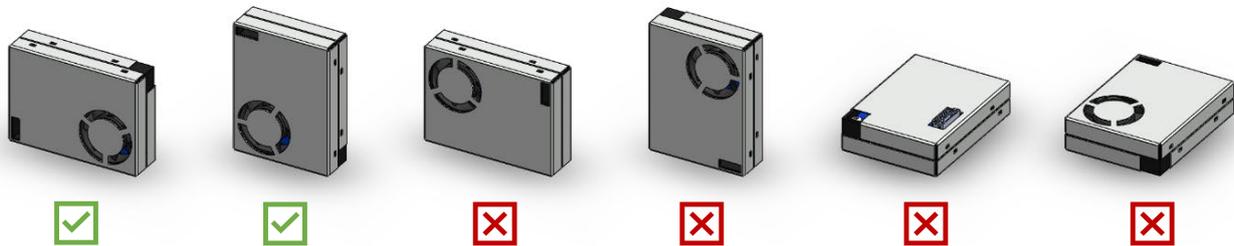


**Figure 3. Recommended Orientation for Design-In**

# 6.  Mounting Examples

Figure 4 shows the recommendation for mounting the RRH62000 in an airduct. To mount the sensor at the top/bottom, please consider an adapter that maintains the recommended sensor orientation and redirects the airflow towards the sensor.

The mounts displayed in the figure are available for download as a 3D STEP file on the Renesas website. Please remember that these are examples and have not been fully tested.
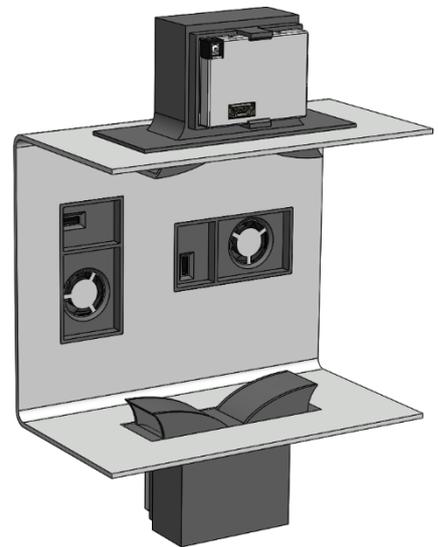


**Figure 4. Design-In Examples for Air Duct**

# 7. Revision History

| Revision | Date | Description |
|:---:|:---:|:---|
| 1.00 | May 31, 2024 | Initial release. |

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