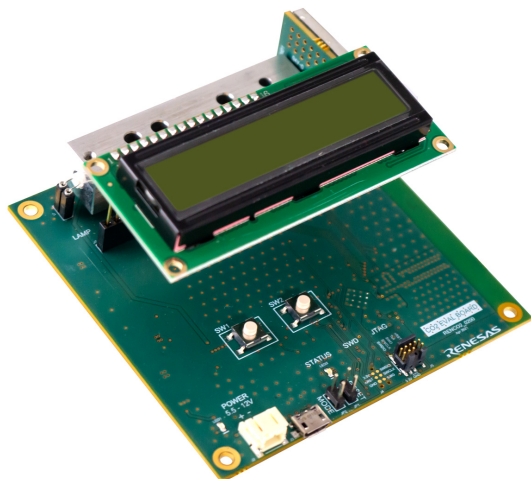


RTD120D-EVK

Thermopile CO₂ Detector Evaluation Kit

The Thermopile CO₂ Detector Evaluation Kit (EVK) provides an easy way to evaluate the RTD120D dual-channel thermopile in a CO₂ gas detector application.

It operates stand-alone or with a PC running CO₂ Detector Evaluation Software, making the CO₂ concentration and intermediate data available for plotting, logging, processing, exporting and analysis using software available. The software and user manual for the kit can be downloaded from: www.renesas.com/rtd120d-evk.



Kit Contents

- CO₂ Detector EVK Board
- Detachable LCD Module
- USB to Micro-USB Cable
- Shorting jumpers (2)
- Quickstart Guide (this document)

Introduction

The Thermopile CO₂ Detector Evaluation Kit is designed for evaluation of the Renesas' RTD120D dual thermopile in a CO₂ gas sensing application, such as to detect the ambient CO₂ concentration. It has a NDIR (Non-Dispersive Infrared) thermopile-based gas sensing circuit and the concentration of CO₂ gas is measured based on the intensity of the NDIR radiation.

It can be used as an application example to illustrate how the thermopile, in combination with other Renesas components, can be used to implement a

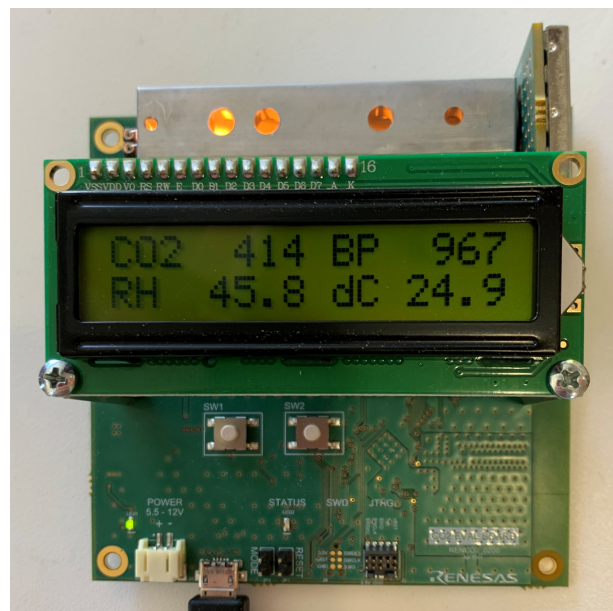
CO₂ detection and concentration measurement system.

Getting Started

Right out of the box, the EVK can begin measuring CO₂ levels right away:

1. Attach the LCD module to the main EVK board
2. Remove the two shorting jumpers from the MODE and RESET headers on the main board. Save these for use when flashing new versions of firmware to the kit.
3. Connect the provided USB cable to the board and to a power source, such as a phone charger or a PC USB port.

Two splash screens will be displayed in sequence, identifying the EVK, its software version and serial number. Then after a 30 seconds warm-up period ("CO₂ WARM"), the CO₂ concentration will be displayed on the LCD, and updated every 5 seconds. The LCD will also display Barometric Pressure (BP), Relative Humidity (RH) and ambient temperature in degrees C (dC).



Two pushbuttons are used for viewing additional information and calibrating the board. **Sw1** cycles through displaying available modes and **Sw2** selects the currently displayed mode for further operations.

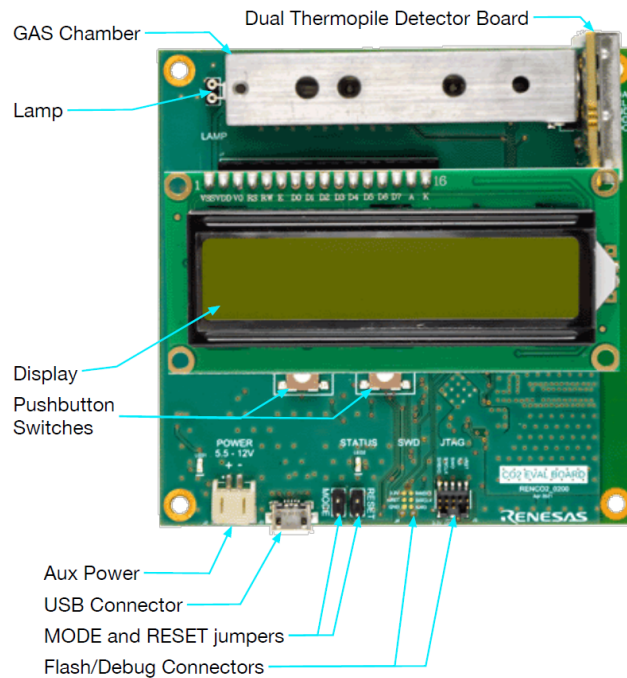
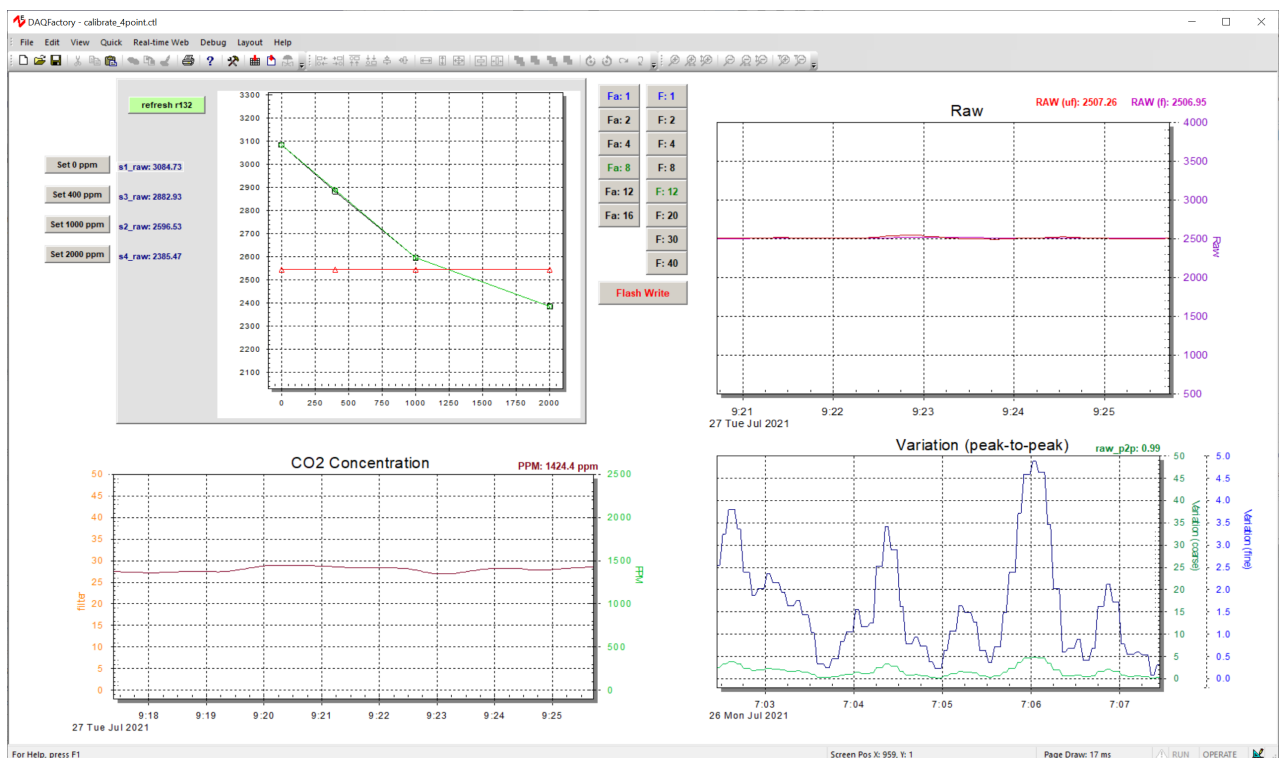


Figure 1. EVK Components

The EVK can be also be used with a Graphical User Interface that runs on a connected PC.



The EVK comes pre-calibrated, but it can be re-calibrated by the user if desired. CO₂ calibration can be performed in either of two ways:

- In a stand-alone fashion, using the LCD and pushbutton user interface on the EVK itself, or
- With a graphical user interface (GUI), using a connected PC for a more interactive and visual experience.

See the *RTD120D-EVK Thermopile CO₂ Detector Evaluation Kit User Manual* for further details.

Revision History

Revision	Date	Description
1.0	Jul 28, 2021	Initial release.

IMPORTANT NOTICE AND DISCLAIMER

RENESAS ELECTRONICS CORPORATION AND ITS SUBSIDIARIES ("RENESAS") PROVIDES TECHNICAL SPECIFICATIONS AND RELIABILITY DATA (INCLUDING DATASHEETS), DESIGN RESOURCES (INCLUDING REFERENCE DESIGNS), APPLICATION OR OTHER DESIGN ADVICE, WEB TOOLS, SAFETY INFORMATION, AND OTHER RESOURCES "AS IS" AND WITH ALL FAULTS, AND DISCLAIMS ALL WARRANTIES, EXPRESS OR IMPLIED, INCLUDING, WITHOUT LIMITATION, ANY IMPLIED WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, OR NON-INFRINGEMENT OF THIRD-PARTY INTELLECTUAL PROPERTY RIGHTS.

These resources are intended for developers who are designing with Renesas products. You are solely responsible for (1) selecting the appropriate products for your application, (2) designing, validating, and testing your application, and (3) ensuring your application meets applicable standards, and any other safety, security, or other requirements. These resources are subject to change without notice. Renesas grants you permission to use these resources only to develop an application that uses Renesas products. Other reproduction or use of these resources is strictly prohibited. No license is granted to any other Renesas intellectual property or to any third-party intellectual property. Renesas disclaims responsibility for, and you will fully indemnify Renesas and its representatives against, any claims, damages, costs, losses, or liabilities arising from your use of these resources. Renesas' products are provided only subject to Renesas' Terms and Conditions of Sale or other applicable terms agreed to in writing. No use of any Renesas resources expands or otherwise alters any applicable warranties or warranty disclaimers for these products.

(Disclaimer Rev.1.01 Jan 2024)

Corporate Headquarters

TOYOSU FORESIA, 3-2-24 Toyosu,
Koto-ku, Tokyo 135-0061, Japan
www.renesas.com

Contact Information

For further information on a product, technology, the most up-to-date version of a document, or your nearest sales office, please visit www.renesas.com/contact-us/.

Trademarks

Renesas and the Renesas logo are trademarks of Renesas Electronics Corporation. All trademarks and registered trademarks are the property of their respective owners.

Mouser Electronics

Authorized Distributor

Click to View Pricing, Inventory, Delivery & Lifecycle Information:

[Renesas Electronics:](#)

[RTKH5Z1222SD2000BE](#)