

EU189-HEATPUMPPOCZ

e-AI-Ready GUI Controller for Appliance and Industrial System

This document is a quick start guide for the EU189-HEATPUMPPOCZ smart heat pump and includes instructions for the connections and initial settings.

Important: To ensure the EU189-HEATPUMPPOCZ kit is set up correctly, complete the steps in the order listed in “Quick Start Procedure”.

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1. Kit Information

1.1 Kit Contents

The following components are included in the EU189-HEATPUMPPOCZ kit:

- EU189-HEATPUMPPOCZ main board
- RYZ024A LTE module
- DA16600MOD Wi-Fi / BT module

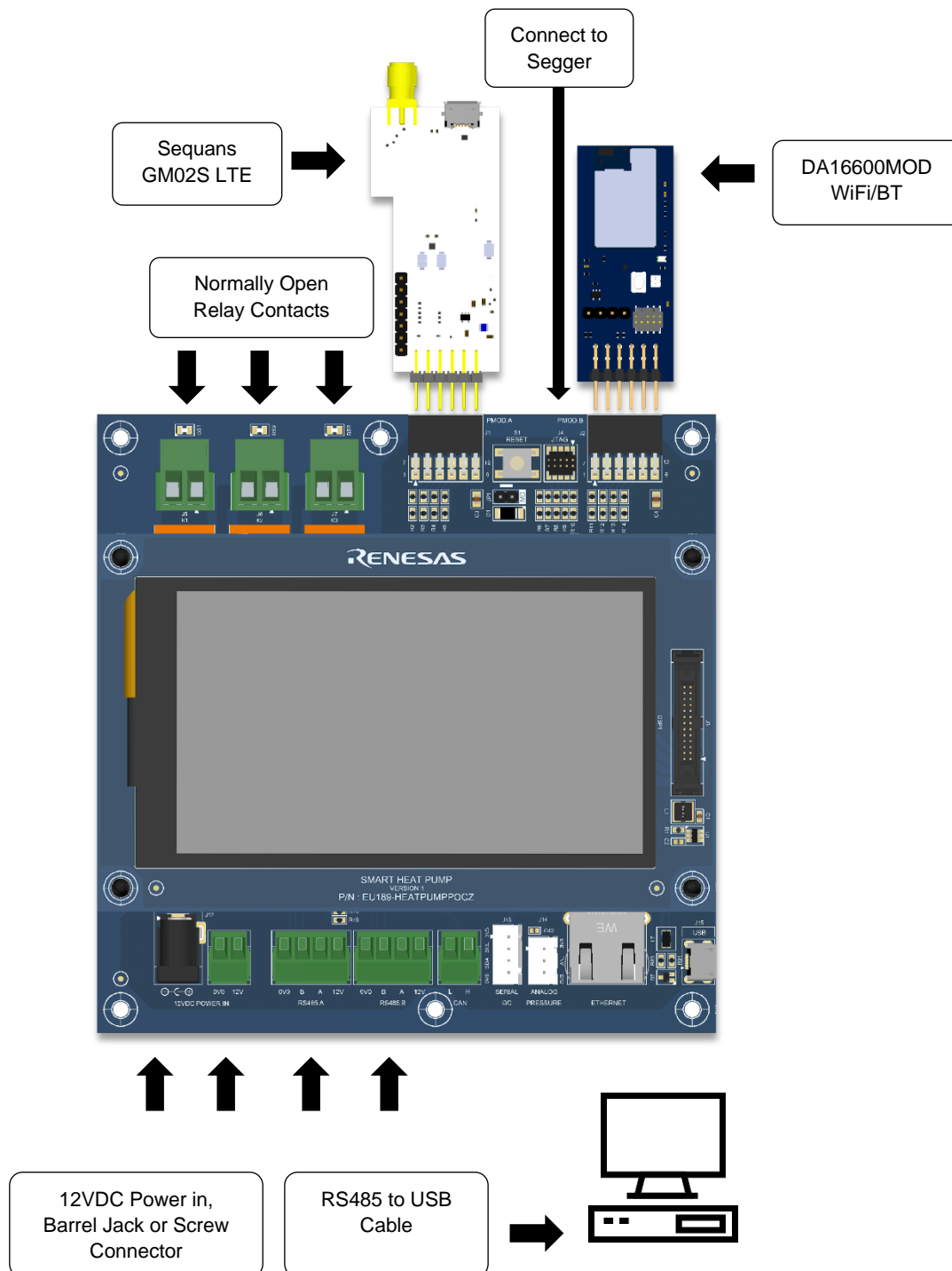


Figure 1. EU189-HEATPUMPPOCZ Evaluation Kit

2. Quick Start Procedure

Complete the following connection instructions in the order listed.

1. Insert DA16600MODWiFi/BT module in PMOD.A connector.
2. Insert RYZ024A LTE module in PMOD.B connector.
3. Connect RS485 to USB cable to PC.
4. Insert 12VDC power connector in barrel jack or screw connector.



3. Revision History

Revision	Date	Description
1.00	Jun 9, 2025	Initial release.

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This device is intended for evaluation, testing, and development purposes only. It is **not** a final product and should not be used in commercial applications or as part of a finished system.

Precautions

This Evaluation Kit is only intended for use in a clean laboratory environment under ambient temperature and humidity conditions. A safe separation distance should be used between this and any sensitive equipment. Its use outside the laboratory, classroom, study area, or similar such area invalidates conformity with the protection requirements of the Electromagnetic Compatibility Directive and could lead to prosecution.

The product generates, uses, and can radiate radio frequency energy and can cause harmful interference to radio communications. There is no guarantee that interference does not occur in a particular installation. If this equipment causes harmful interference to radio or television reception, which can be determined by turning the equipment off or on, try to correct the interference by one or more of the following measures:

- Ensure attached cables do not lie across the equipment.
- Reorient the receiving antenna.
- Increase the distance between the equipment and the receiver.
- Connect the equipment into an outlet on a circuit different from that which the receiver is connected.
- Power down the equipment when not in use.
- Consult the dealer or an experienced radio/TV technician for help.

Note: Renesas recommends using shielded interface cables wherever possible.

The product is potentially susceptible to certain EMC phenomena. To mitigate against them Renesas recommends that the following measures:

- Mobile phones should not be used within 10m of the product when in use.
- Take ESD precautions when handling the equipment.

The Evaluation Kit does not represent an ideal reference design for an end product and does not fulfill the regulatory standards for an end product.

The device should only be handled by skilled technicians.

The device is not suitable for children.

Appliance does not contain flammable materials or operating temperatures that are too high to act as an ignition source.

It is required that all wiring to be connected to the device must be of safe voltages for the user.

Wire that is used to connect to the screw terminals should comply with IEC 60332.

Only a power supply which complies with CE for EU and UL for US regulations and is protected against short circuits should be used.

Power supply should be 12VDC max 1A.

ESD Safety Warning Symbol



General Precautions in the Handling of Microprocessing Unit and Microcontroller Unit Products

The following usage notes are applicable to all Microprocessing unit and Microcontroller unit products from Renesas. For detailed usage notes on the products covered by this document, refer to the relevant sections of the document as well as any technical updates that have been issued for the products.

1. Precaution against Electrostatic Discharge (ESD)

A strong electrical field, when exposed to a CMOS device, can cause destruction of the gate oxide and ultimately degrade the device operation. Steps must be taken to stop the generation of static electricity as much as possible, and quickly dissipate it when it occurs. Environmental control must be adequate. When it is dry, a humidifier should be used. This is recommended to avoid using insulators that can easily build up static electricity.

Semiconductor devices must be stored and transported in an anti-static container, static shielding bag or conductive material. All test and measurement tools including work benches and floors must be grounded. The operator must also be grounded using a wrist strap. Semiconductor devices must not be touched with bare hands. Similar precautions must be taken for printed circuit boards with mounted semiconductor devices.

2. Processing at power-on

The state of the product is undefined at the time when power is supplied. The states of internal circuits in the LSI are indeterminate and the states of register settings and pins are undefined at the time when power is supplied. In a finished product where the reset signal is applied to the external reset pin, the states of pins are not guaranteed from the time when power is supplied until the reset process is completed. In a similar way, the states of pins in a product that is reset by an on-chip power-on reset function are not guaranteed from the time when power is supplied until the power reaches the level at which resetting is specified.

3. Input of signal during power-off state

Do not input signals or an I/O pull-up power supply while the device is powered off. The current injection that results from input of such a signal or I/O pull-up power supply may cause malfunction and the abnormal current that passes in the device at this time may cause degradation of internal elements. Follow the guideline for input signal during power-off state as described in your product documentation.

4. Handling of unused pins

Handle unused pins in accordance with the directions given under handling of unused pins in the manual. The input pins of CMOS products are generally in the high-impedance state. In operation with an unused pin in the open-circuit state, extra electromagnetic noise is induced in the vicinity of the LSI, an associated shoot-through current flows internally, and malfunctions occur due to the false recognition of the pin state as an input signal become possible.

5. Clock signals

After applying a reset, only release the reset line after the operating clock signal becomes stable. When switching the clock signal during program execution, wait until the target clock signal is stabilized. When the clock signal is generated with an external resonator or from an external oscillator during a reset, ensure that the reset line is only released after full stabilization of the clock signal. Additionally, when switching to a clock signal produced with an external resonator or by an external oscillator while program execution is in progress, wait until the target clock signal is stable.

6. Voltage application waveform at input pin

Waveform distortion due to input noise or a reflected wave may cause malfunction. If the input of the CMOS device stays in the area between V_{IL} (Max.) and V_{IH} (Min.) due to noise, for example, the device may malfunction. Take care to prevent chattering noise from entering the device when the input level is fixed, and also in the transition period when the input level passes through the area between V_{IL} (Max.) and V_{IH} (Min.).

7. Prohibition of access to reserved addresses

Access to reserved addresses is prohibited. The reserved addresses are provided for possible future expansion of functions. Do not access these addresses as the correct operation of the LSI is not guaranteed.

8. Differences between products

Before changing from one product to another, for example to a product with a different part number, confirm that the change will not lead to problems.

The characteristics of a microprocessing unit or microcontroller unit products in the same group but having a different part number might differ in terms of internal memory capacity, layout pattern, and other factors, which can affect the ranges of electrical characteristics, such as characteristic values, operating margins, immunity to noise, and amount of radiated noise. When changing to a product with a different part number, implement a system-evaluation test for the given product.

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