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## RAA2P4520 MC Evaluation Kit (RTKA2P4520S00MC0BE)

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This guide provides step-by-step instructions for setting up the hardware of the RAA2P4520 motor control evaluation kit.

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# 1. Evaluation Kit Hardware

The RAA2P4520 hardware and software ecosystem is designed to provide quick setup and easy evaluation of the device's capabilities. Contact the local Renesas representative to obtain the required components and development boards.

## 1.1 Hardware Kit Content

Table 1 lists components that are included in the kit.

Table 1. Evaluation Kit Contents

| Name                 | Ordering Number | Information  | Quantity |
|----------------------|-----------------|--|----------|
| RAA2P-COMBOARD       | RAA2P-COMBOARD  | Programming board  | 1        |
| 10-wire sensor cable | N/A             |  | 2        |
| USB-B cable          | N/A             |  | 1        |
| RAA2P4520A1615       | N/A             | 18-bit resolution, 44.5mm radius absolute Side Shaft Arc Motor Position Sensor | 1        |
| RAA2P4520R0303       | N/A             | 3 x 14-bit resolution, Redundant Motor Position Sensor                         | 1        |



Figure 1. RAA2P4520 Motor Control Evaluation Kit Content

## 2. Hardware Setup

The kit includes three sensor modules that could be interfaced with the RAA2PCOMBARD to communicate, configure, and perform position sensing.

### 2.1 RAA2P4520A1615 Module

RAA2P4520A1615 module is a rotary sensor with the following characteristics:

- Absolute 360° rotary sensing in 44.5mm outer radius (OR) ARC design and rotary target
- 14-bit resolution
- ±0.06° accuracy
- Nonius dual channel for high accuracy 16/15
- UART or SENT output

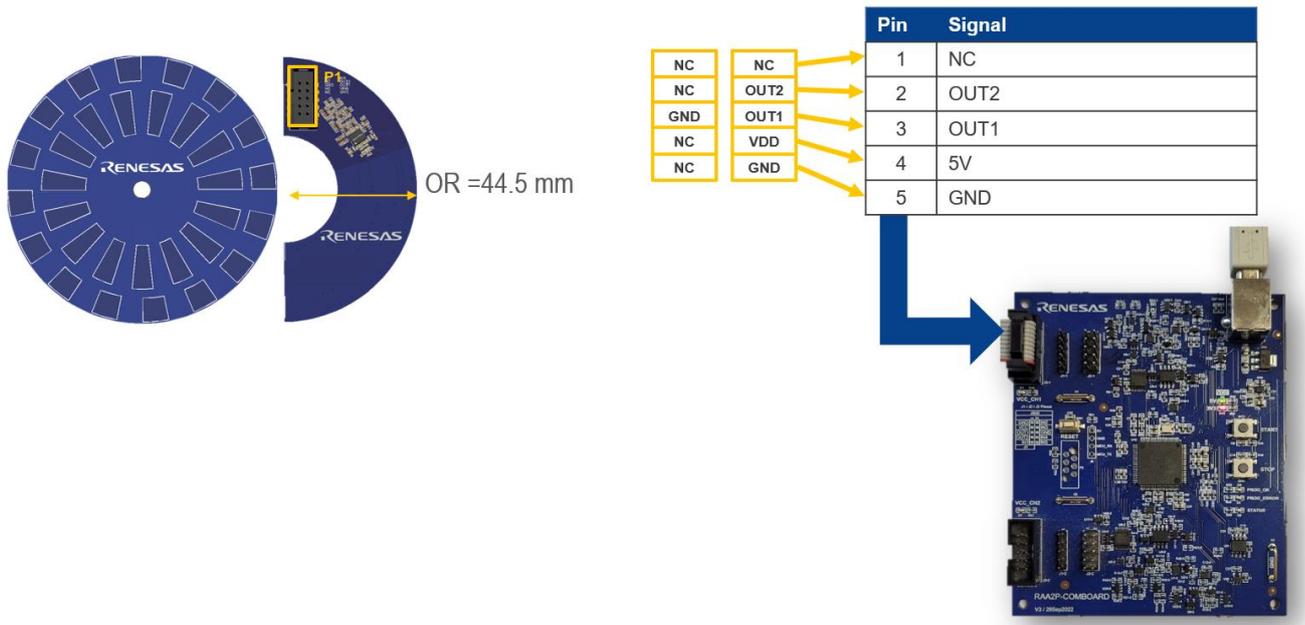


Figure 2. RAA2P4520A1615 Module Connection

This module can perform absolute position sensing over 360°, without having 360° receiver coils. The sensing coil receivers are in fact implemented as an arc, enabling a more compact and cost-effective sensing solution.

## 2.2 RAA2P4520R0303 Module

RAA2P4520R0303 module is a rotary sensor with the following characteristics:

- Rotary 3x120° with OD = 38mm and rotary target
- 3x14-bit resolution
- SENT or UART interface

With the backward-compatible design Renesas can accommodate the sensor design on the top level, leaving the bottom layer available for the components and connectors, achieving a compact form factor.

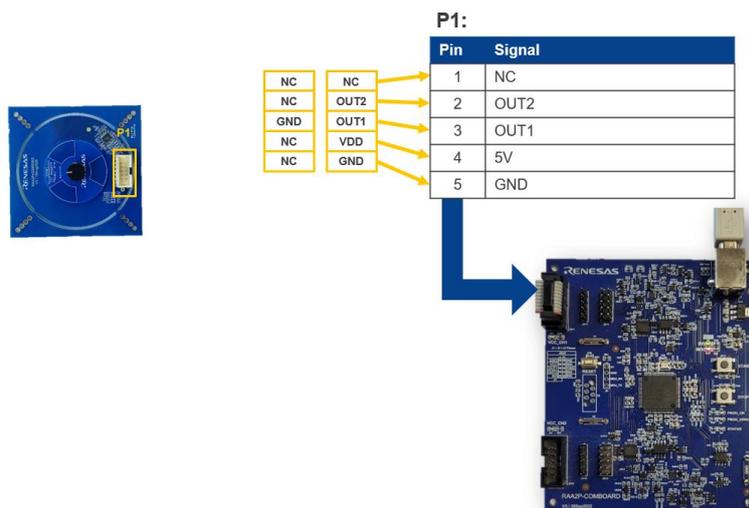


Figure 3. RAA2P4520R3201 Module Connection

## 2.3 RAA2P-COMBOARD Connections

The three sensor modules could be interfaced to the RAA2P-COMBOARD by the following steps:

1. Connect the sensor module P1 connector to the J3 header of the RAA2P-COMBOARD using the provided cable according to Figure 4
2. Connect the RAA2P-COMBOARD to the user PC using the provided USB-B cable.

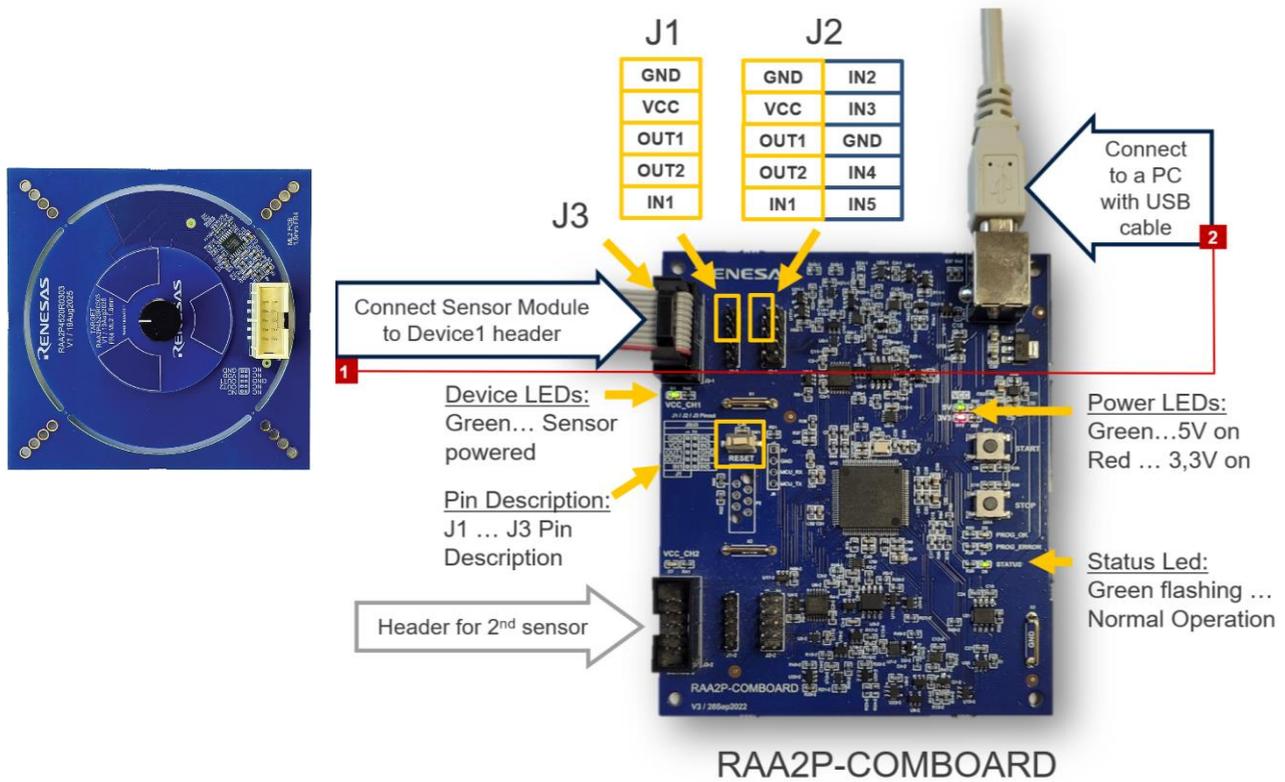


Figure 4. Evaluation Kit Connection Setup

## 3. Software Setup

Once the hardware setup is done, refer to the RAA2Pxxx Evaluation Kit Software (GUI) Quick Start Guide to setup the software.

## 4. Revision History

| Revision | Date         | Description      |
|----------|--------------|------------------|
| 1.00     | Dec 15, 2025 | Initial release. |

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