RAA2P4500 Evaluation Kit (RTKA2P4500S00000BE)

This guide provides step-by-step instructions for setting up the hardware of the RAA2P4500 evaluation kit.

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1. Evaluation Kit Hardware

The RAA2P4500 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
5-wire sensor cable	N/A		1
RAA2P4500R0100	N/A	360° Rotary OD=32mm Sensor Module	1
RAA2P4500L100	N/A	Linear 100 mm Linear Sensor Module	1
RAA2P4500R0300X2	N/A	360° Multi-pole Redundant Sensor Module	1
RAA2P4500A80X2	N/A	10.5mm Redundant Side-Shaft 80° Arc Sensor Module	1

Figure 1. RAA2P4500 Standard Kit Content

2. Hardware Setup

The kit includes four different sensor modules, for rotary, arc and linear sensing that could be interfaced with the RAA2PCOMBARD to communicate, configure and perform position sensing.

2.1 RAA2P4500R0100 Module

The RAA2P4500R0100 module is a rotary sensor with the following characteristics:

- Absolute 360° Rotary Sensing in just 32mm Outer diameter
- 14-bit Resolution
- ±0.11° Accuracy
- Analog, SENT, PWM, and I2C interfaces are available

Modify the connection of the P2 header on the sensor module depending on the needed interface and functionality as the following:

- Connect Pin1 with Pin2 for I2C use
- Connect Pin2 with Pin3 for Analog In usage with an external sensor

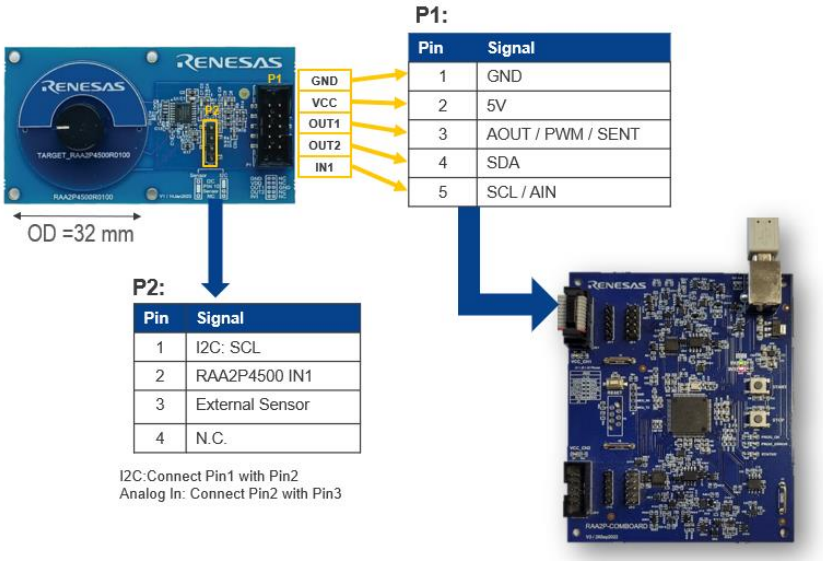


Figure 2. RAA2P4500R0100 Module Settings and Connections

2.2 RAA2P4500R0300X2 Redundant Module

The RAA2P4500R0300X2 module is a rotary sensor with the following characteristics:

- 360° Multi-pole Redundant Sensor Module with two independent outputs
- Analog, SENT, PWM or I2C interface
- 14-bit Resolution
- ±0.2° Accuracy

Modify the connection of the P2 header on the sensor module depending on the needed interface and functionality as the following:

- Connect Pin1 with Pin2 for I2C use
- Connect Pin2 with Pin3 for Analog In usage with an external sensor

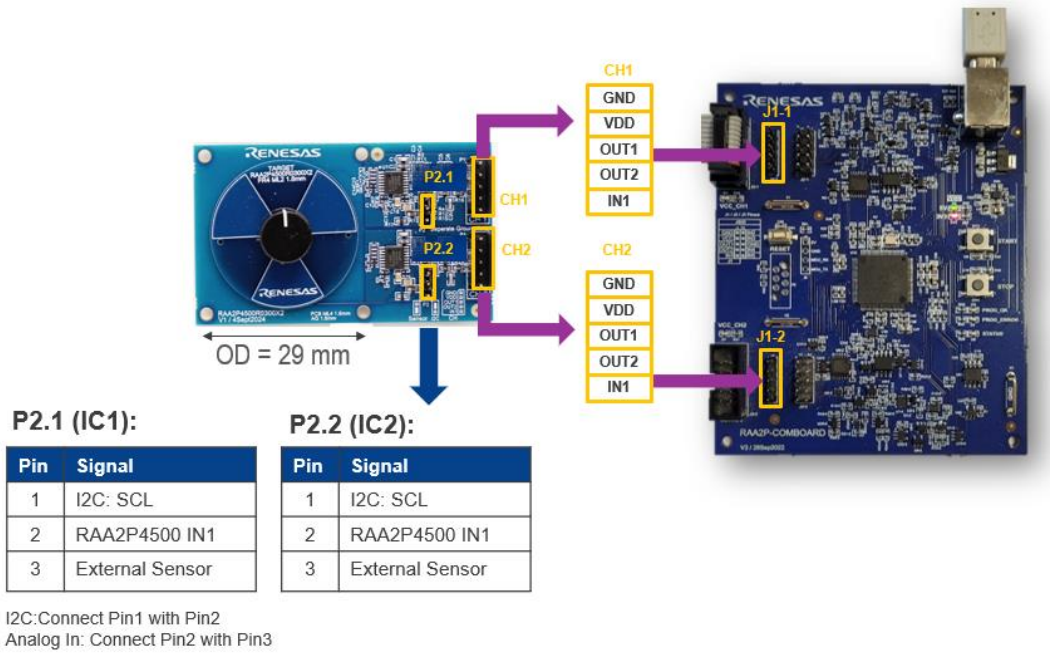


Figure 3. RAA2P4500R0300X2 Module Settings and Connections

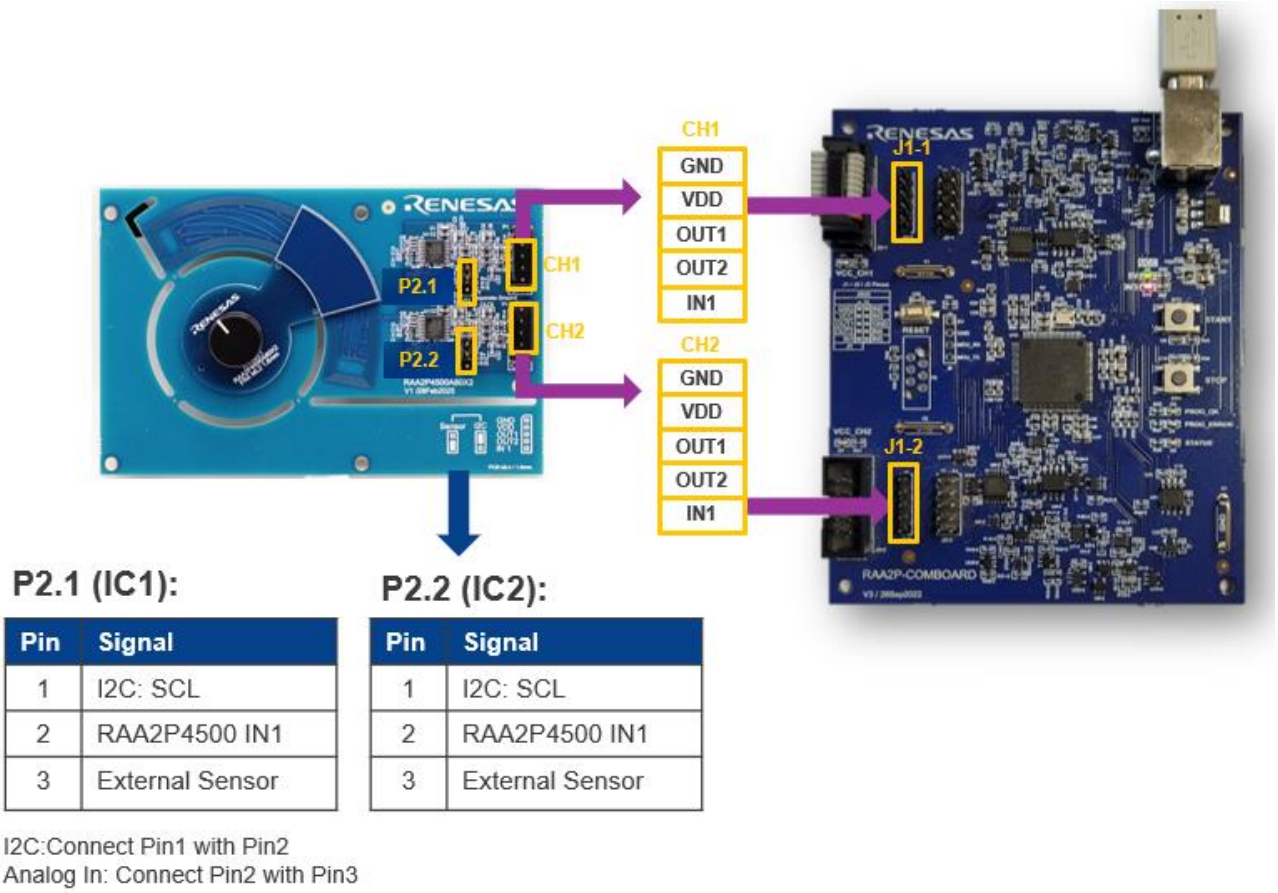
2.3 RAA2P4500A80X2 Redundant Module

RAA2P4500A80X2 Module is a redundant arc sensor with the following characteristics:

- Redundant Side-Shaft 80° Arc Sensor Module
- Analog, SENT, PWM or I2C interface
- 14-bit Resolution
- ±0.068° Accuracy

Modify the connection of the P2 header on the sensor module depending on the needed interface and functionality as the following:

- Connect Pin1 with Pin2 for I2C use
- Connect Pin2 with Pin3 for Analog In usage with an external sensor



P2.1 (IC1):

Pin	Signal
1	I2C: SCL
2	RAA2P4500 IN1
3	External Sensor

P2.2 (IC2):

Pin	Signal
1	I2C: SCL
2	RAA2P4500 IN1
3	External Sensor

I2C:Connect Pin1 with Pin2
Analog In: Connect Pin2 with Pin3

Figure 4. RAA2P4500A80X2 Module Settings and Connections

2.4 RAA2P4500L100 Module

RAA2P4500L100 Module is a linear sensor with the following characteristics:

- Absolute linear sensing of 10cm motion range
- 14-bit resolution
- ±0.082mm accuracy
- Analog, SENT, PWM and I2C interfaces are available

Modify the connection of the P2 header on the sensor module depending on the needed interface and functionality as the following:

- Connect Pin1 with Pin2 for I2C use
- Connect Pin2 with Pin3 for Analog In usage with an external sensor

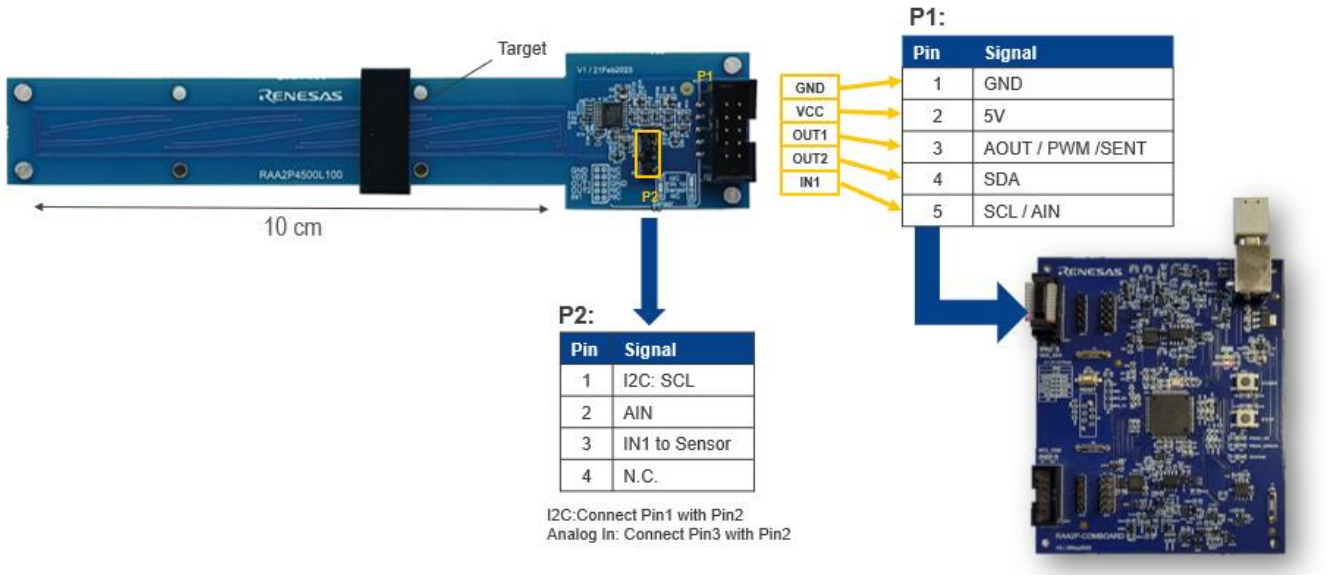


Figure 5. RAA2P4500L100 Module Settings and Connections

2.5 RAA2P-COMBOARD Connections

The 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 6
2. Connect the RAA2P-COMBOARD to your PC using the provided USB-B cable.

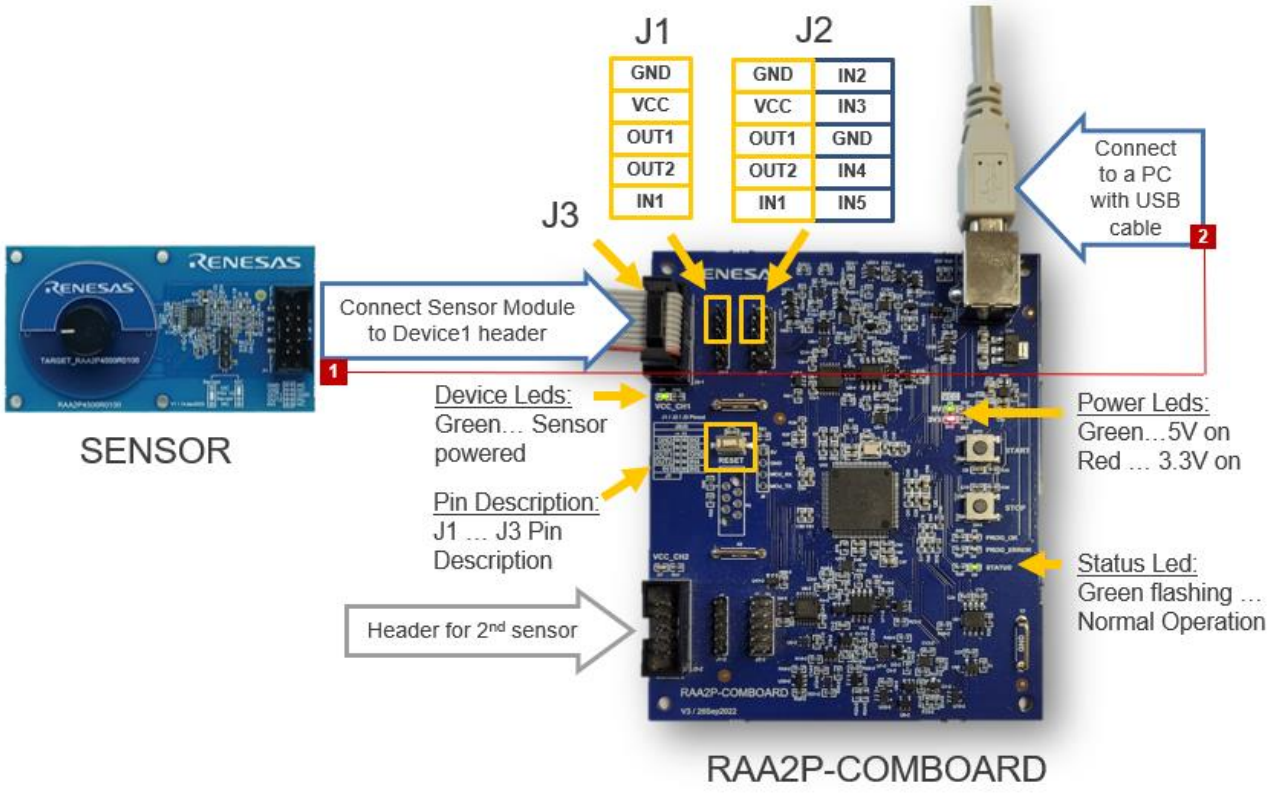


Figure 6. Evaluation Kit Connection Setup

3. Software Setup

Once the hardware setup is done, please refer to the RAA2Pxxxx Evaluation Kit Software GUI Quick Start Guide to setup the software.

4. Revision History

Revision	Date	Description
1.00	Dec 18, 2025	Initial release.