

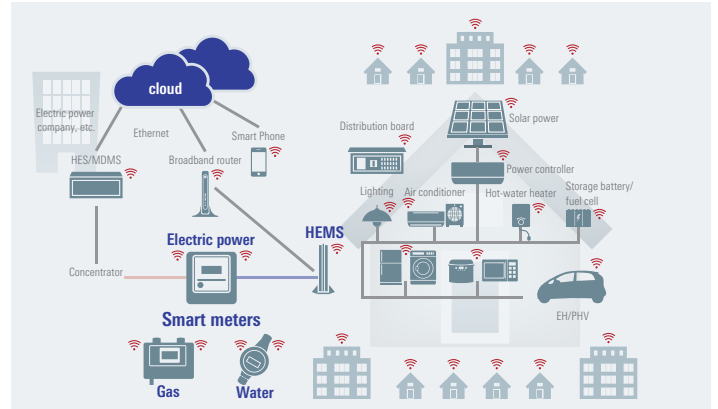
Sub-GHz Wireless Communication Solutions

with High Performance and Design Simplicity among the Best in the Industry

Sub-GHz Wireless Communication for an Efficient and Smart Society

Wireless communication using the 920 MHz band covers longer distances, provides excellent circumvention of obstructions, and is relatively unaffected by interference. This communication technology is ideal for connecting devices indoors and outdoors and helping to realize an energy-efficient, smarter society.

Renesas offers a high-performance IEEE 802.15.4g-compliant system on chip, convenient starter kits, and software stacks certified by the Wi-SUN Alliance to help you easily start developing your application.

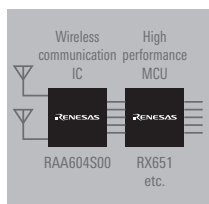


Wireless Communication IC and MCU with Wireless Capabilities

Wireless Communication IC (RAA604S00)

32-HVQFN, 5 x 5 mm, 0.5 mm pitch

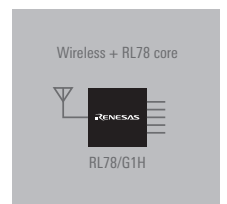
This transceiver chip features on-chip RF peripheral functions and hardware support functions for IEEE 802.15.4g/e, along with low-power performance among the best in the industry. It is intended to be used in combination with a high-performance MCU.



MCU with Wireless Capabilities (RL78/G1H)

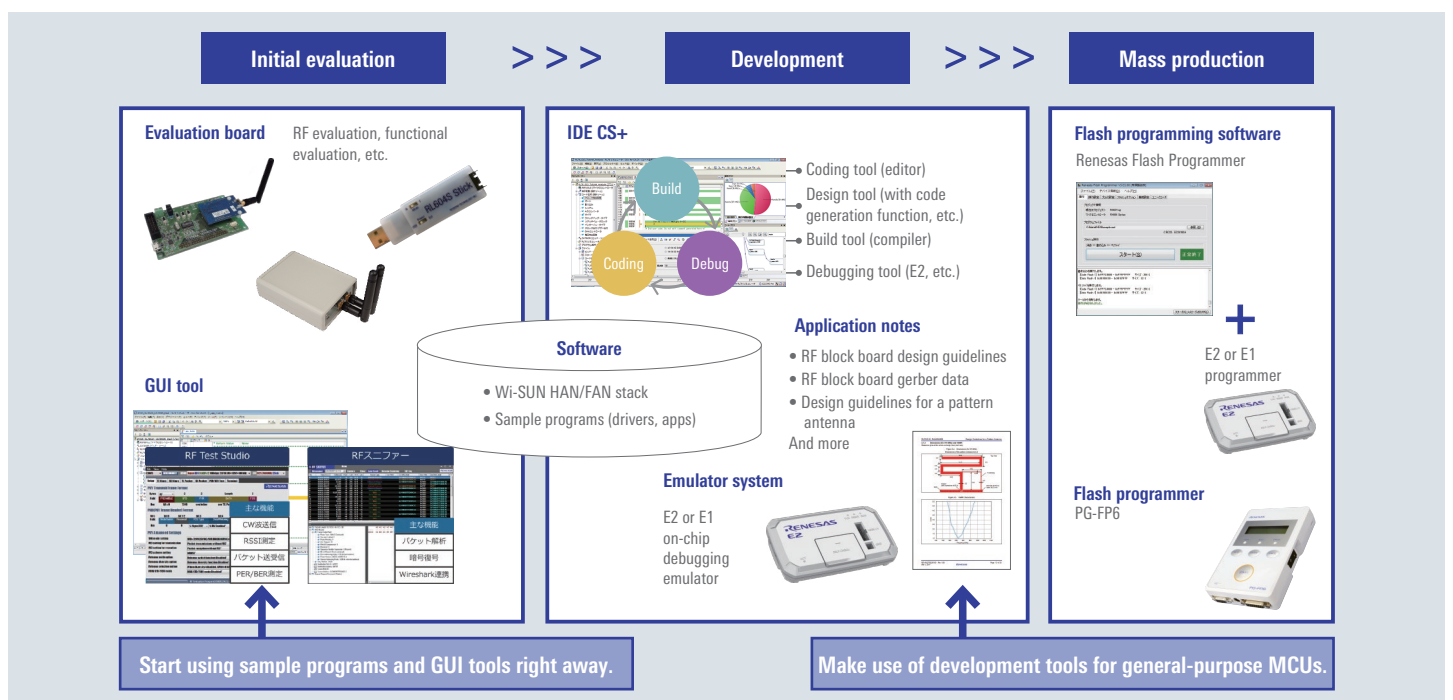
64-HVQFN, 9 x 9 mm, 0.5 mm pitch

This single-chip solution combines the popular ultralow-power RL78 CPU core with wireless communication functions. It contributes to extended battery life and reduced system cost. A long-term product supply program is supported as well.



Easy Implementation of Applications Using Wi-SUN Profiles

Renesas offers solutions based on our development tools for general-purpose MCUs.



Detailed information

www.renesas.com/solutions/proposal/subghz



RENESAS

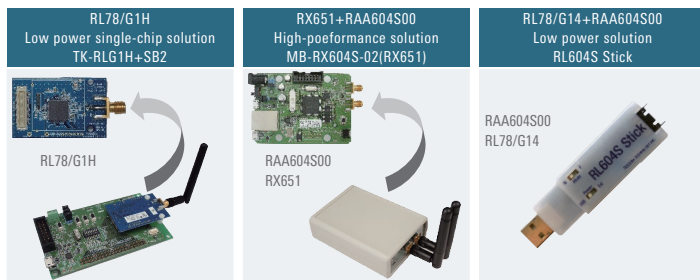
BIG IDEAS FOR EVERY SPACE

Evaluation Systems Ideal for Trying Out Renesas Sub-GHz Wireless Communication Solutions

Evaluation Systems

Evaluation Boards

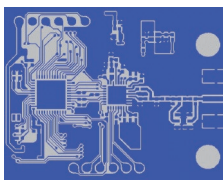
These evaluation boards*1 are certified as technically compliant in Japan, CE certified for use in EU countries, and have received Certified Test Bed Unit (CTBU) approval from the Wi-SUN Alliance. Three kits are available to meet your development needs.



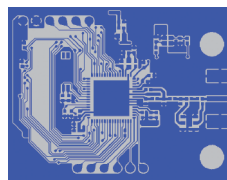
*1: Evaluation boards developed, manufactured, and sold by Tesser Technology Inc. Contact Tesser Technology for details of these products.

Reference Designs

Renesas provides reference designs to support customers developing sub-GHz RF boards. RF boards based on these reference designs can be used for evaluation and prototyping of systems employing the RAA604S00 or RL78/G1H.



RAA604S00+RL78/G14
(SubG02_TS-D)



RL78/G1H
(SubG01_TS-D)

Design data is available for download on the Renesas website.

Software

Sub-GHz RF Driver

The sub-GHz RF driver controls the RF transceiver of the RL78/G1H and provides functionality including transmission and reception in IEEE 802.15.4g/e frame format, carrier sensing to avoid transmission collisions, and transmission control compliant with ARIB STD-T108, the de facto standard for 920 MHz wireless devices.

Stacks Supporting Wi-SUN Profiles

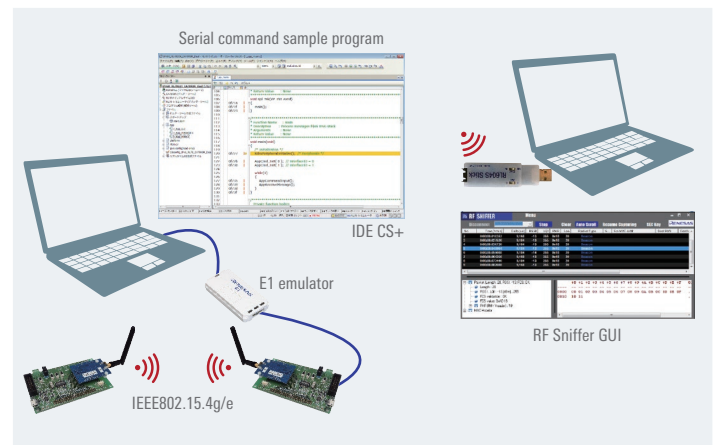
Renesas provides software stacks that support the use of internationally standardized Wi-SUN profiles (route B, FAN, HAN, and enhanced HAN) for a wide variety of indoor and outdoor low-power-wide-area (LPWA) applications in fields such as smart meters, HEMS, building management, and agriculture. Stacks are available to control the RL78/G1H MCU or the RAA604S00 wireless communication IC in combination with a high-performance Renesas MCU such as the RX651.

Refer to "<http://www.renesas.com>" for information on the latest and detailed sales offices.

Development Support Tool

GUI Tool

The serial command sample program makes it easy to perform communication testing. Wireless signals tend to vary in strength due to factors such as the environment and the presence of obstacles, and analyzing communication performance can be difficult. Renesas supplies the RF Sniffer GUI tool that lets you visualize and analyze wireless communication data.



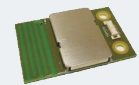
RL78/G1H development environment

Introducing Our Partners

RF board design technology is essential when developing control boards for use in communication equipment. Sub-GHz wireless modules from Renesas partners combine a sub-GHz transceiver (the RL78/G1H or RAA604S00), an antenna, and peripheral circuits on a single board that can be incorporated into your mass-produced products. These modules enable even customers without a strong grounding in RF board design technology to develop and mass produce products with sub-GHz support.

Murata Manufacturing Co., Ltd.

muRata
INNOVATOR IN ELECTRONICS



This is among the smallest modules available with support for the Wi-SUN profiles for Echonet route B and HAN. Its design is certified compliant with the relevant radio laws. It can be combined with a variety of embedded devices by using a board to board connector.

DDL Co., Ltd.

D.D.L
Digital Design Lab



This module uses the newly allocated 920 MHz ISM band. Customers may use it to build wireless network equipment without the need for a special license.

Tesser Technology Inc.

TESSERA
TSSR TECHNOLOGY INC.



Established development track record
• Development of sub-GHz wireless communication starter kits

