

# Wireless M-Bus Stack for Automatic Meter Reading

## Smart Metering using Wireless M-Bus

Wireless meter reading requires communication for small amounts of data with little protocol overhead. The Wireless M-Bus protocol has proven its qualities in many field tests in different countries, and is becoming a quasi-standard for European smart metering.

### Firmware Options

Since 2007, Stackforce GmbH has been implementing a wireless M-Bus protocol stack supporting the following features.

- Wireless M-Bus modes as specified in EN13757-4:2013 (T1, T2, S1, S1-m, S2, C1, C2, F2, N1, N2)
- Application layer protocols
  - » EN13757-3
  - » Open Metering Specification
- Serial command set for ease of integration
- Libraries for data link layer and application layer
  - » RL78G13
  - » RX62N
- Protocol stack in source code
- Support for different sub-GHz radio transceivers
  - » 169 MHz and 868 MHz

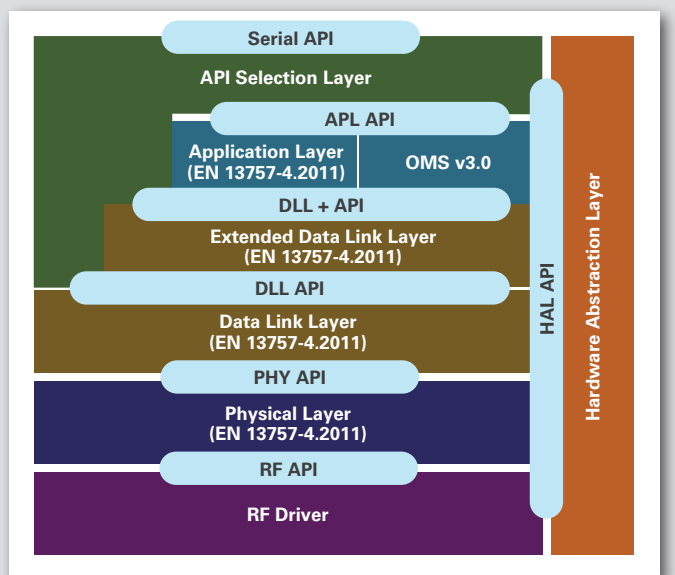
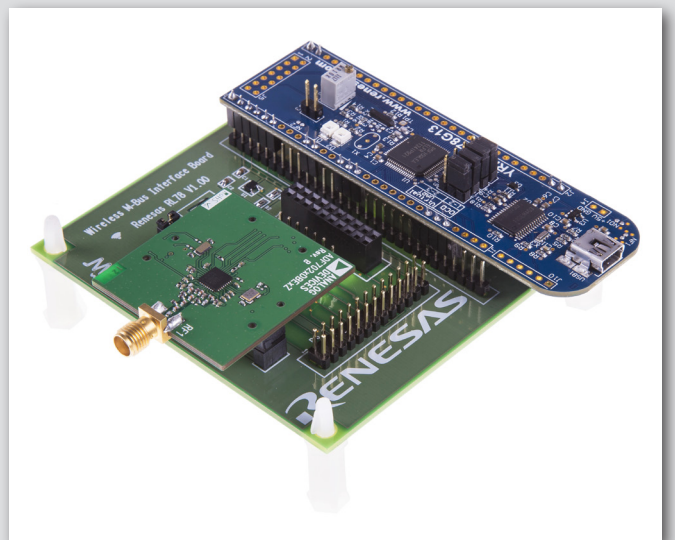
### Ongoing Development at Stackforce GmbH

- Wireless M-Bus modes according to EN13757-4:2013 (C1, C2, N1, N2)
- Active participation in Open Metering Specification (OMS AG1)
- Consulting, training and workshops
- Firmware customization

### Contact

For detailed information on the Wireless M-Bus please contact your Renesas representative or

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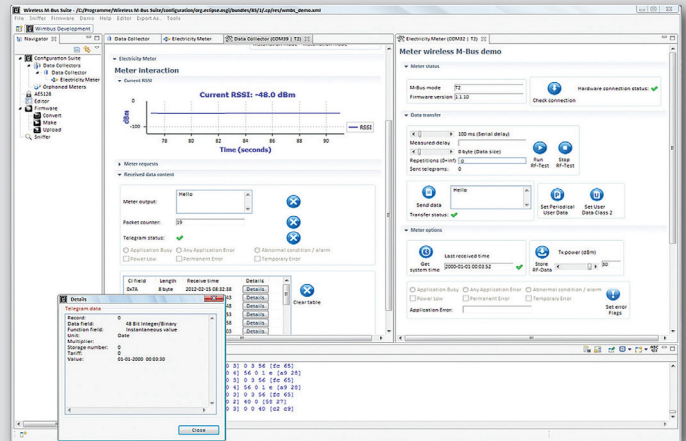


# Wireless M-Bus Tools for Automatic Meter Reading

## Configuration and Commissioning: Wireless M-Bus Suite

For evaluation and network deployment, a Java-based PC suite is provided with following features:

- Firmware download
- Radio performance tests
- M-Bus packet generation and evaluation plus record handling
- Network configuration
- AES128 Encryption support including key provisioning
- Utilization of AT-type serial command set, to ease the host communication
- The available commands are shown in a console window



## Monitoring and Field Control

To ease the implementation of the Wireless M-Bus to your metering application, Renesas has developed "Connect it! – Wireless M-Bus" development kits. These are based on the super low power RL78 family devices, more specifically the RL78/G13, adding transceivers from Analog Devices ADF7023 and ADF7021-N. The hardware of the solution kit comprises of two each of the RPB78G13, an adapter board and the mentioned transceiver boards.

This Renesas prototyping board (RPB) gives full access to all device pins and can easily be extended to add a custom application. Moreover, the RPB is already equipped with an USB port with integrated flash programmer for the RL78/G13 device.

A fully compliant Wireless M-Bus stack as specified in EN13757-4:2013 implementing OMS specifications has been made available by Stackforce GmbH. This software stack together with the serial API is running on the RL78/G13, and offers a fully functioning Wireless M-Bus modem as factory default product.

As the software is completely RL78 agnostic, any design done on the RL78/G13, a general purpose RL78 device, can be ported easily to any other RL78 device, to match the target application requirements.

The solution includes an intuitive PC graphical user interface (GUI), providing engineers during the design phase all required feedback from the Wireless M-Bus environment, also allowing to program the modems with their respective function and device address. The GUI also allows to send custom telegrams, with or without encryption, and shows the RSSI levels of the signals received.

Each "Connect it! – Wireless M-Bus" development kit contains the 2 sets of hardware, a CD-ROM including the Wireless M-Bus stack and serial libraries, the PC GUI, the board schematics, the bill of materials, Gerber files, user manual and a quick start guide.



## Order Codes

YCONNECT-IT-WM868 for the 868 MHz variant

YCONNECT-IT-WM169 for the 169 MHz variant

Before purchasing or using any Renesas Electronics products listed herein, please refer to the latest product manual and/or data sheet in advance.

