

R-IN32M3 Series

R18AN0030EJ0170

Rev.1.70

Modbus Stack V1.0.4 Release Note

Jul 31, 2019

Summary

This document describes the package contents and operating environment of this product. Please make sure to read before use.

For details on how to use each sample software, middleware, etc., please refer to the relevant documents below.

Related document

R18UZ0062EJ****	R-IN32M3 Series User's Manual: TCP/IP Stack
R18UZ0011EJ****	R-IN32M3 Series Programming Manual: OS edition
R18UZ0009EJ****	R-IN32M3 Series Programming Manual: Driver edition
R18UZ0030EJ****	R-IN32M3 Series User's Manual: Modbus Stack

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1. Introduction

The R-IN32M3 Modbus stack is a software package that lists various sample applications, libraries, middleware, and peripheral function drivers that can be used when developing application applications using R-IN32M3.

2. Package contents

The sample applications, libraries, middleware, and peripheral function drivers included in this package are shown below

- Sample application name

No.	Sample application name
1	MODBUS Serial sample
2	MODBUS TCP/IP sample

- Library

No.	Library name
1	HW-RTOS library
2	TCP/IP stack library
3	TCP/IP(BSD Socket IF) stack library
4	SNMP stack library

- Middleware

No.	Middleware
1	MODBUS control
2	TCP/IP stack control

- Peripheral function driver

No.	Drive name
1	CAN
2	CSI
3	DMAC
4	IIC
5	Serial Flash MEMC
6	Timer (32bit timer TAUJ2)
7	UART
8	WDT
9	Ether Switch
10	TCP/IP
11	Modbus

3. Folder structure

Folder structure of this package is shown below.

```
TOP
|
+-- demo_application      << Modbus Demo Application >>
|
+-- r-in32m3_modbus_samplesoft << Sample Soft Package >>
    |-- CMSIS << Cortex Microcontroller Software Interface Standard >>
        |-- include
        |
    |-- Device << Device dependent files >>
        |-- Renesas
            |-- RIN32M3 << R-IN32M3 dependent files >>
                |-- Include << Include directory >>
                |-- Library << Library directory >>
                |-- Source << Source directory >>
                    |
                |-- Driver      << Driver directory >>
                |-- Middleware << Middleware directory >>
                |-- Project     << Project directory >>
                    | |
                | |-- Modbus_Serial
                | |-- Modbus_TCP
                |
                |-- Templates << Startup file and others >>
                    |-- IAR      << IAR compiler dependent files >>
```

4. Operating environment

The operating environment of this package is shown below.

- Target device
 - R-IN32M3-EC
 - R-IN32M3-CL

- Target board
 - TS-R-IN32M3-EC (Tessera Technology Inc.)
 - TS-R-IN32M3-CEC (Tessera Technology Inc.)
 - TS-R-IN32M3-CL (Tessera Technology Inc.)

- Development environment
 - Compiler
 - IAR : Embedded Workbench for Arm
 - Debugger
 - IAR : Embedded Workbench for Arm
 - ICE
 - IAR : I-jet / JTAGjet-Trace / J-Link / J-Trace

5. Change history

Version	Changes
V1.0.4 (2019/7/31)	- Update Driver.(1.0.4)
V1.0.3 (2017/2/28)	- Update Driver.(1.0.3)
V1.0.2 (2016/10/28)	- Update HWOS.(2.0.3) - Update uNet3.(2.1.6) - Update uNet3(BSD).(1.0.6)

6. Website and Support

Renesas Electronics Website

<http://www.renesas.com/>

Inquiries

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Revision history

Revision	Date	Page	Changes
1.70	Jul 10, 2019	-	Update to Modbus stack V1.0.4
1.00	Feb 28, 2017	-	First release

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. 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 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. Unused pins should be handled as described under Handling of Unused Pins in the manual.

2. Processing at Power-on

The state of the product is undefined at the moment 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 moment 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 moment 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 moment when power is supplied until the power reaches the level at which resetting has been specified.

3. Prohibition of Access to Reserved Addresses

Access to reserved addresses is prohibited.

- The reserved addresses are provided for the possible future expansion of functions. Do not access these addresses; the correct operation of LSI is not guaranteed if they are accessed.

4. Clock Signals

After applying a reset, only release the reset line after the operating clock signal has become stable. When switching the clock signal during program execution, wait until the target clock signal has 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. Moreover, 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.

5. Differences between Products

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

- The characteristics of Microprocessing unit or Microcontroller unit products in the same group but having a different part number may differ in terms of the 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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