

# ADVANTECH Protocol MODBUS-RTUMAP Router App User Guide



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## Protocol MODBUS-RTUMAP



Advantech Czech s.r.o., Sokolska 71, 562 04 Usti nad Orlici, Czech Republic  
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## Used symbols



Danger - Information regarding user safety or potential damage to the router.



Attention - Problems that can arise in specific situations.



Information - Useful tips or information of special interest.



Example - Example of function, command or script.

## 1. Changelog

### 1.1 Protocol MODBUS-RTUMAP Changelog

### **v1.0.0 (2012-01-13)**

- First release

### **v1.0.1 (2012-01-20)**

- Allowed reading of register zero

### **v1.0.2 (2013-12-11)**

- Added support of FW 4.0.0+

### **v1.0.3 (2015-08-21)**

- Fixed bug in sorting of data in internal buffer

### **v1.0.4 (2018-09-27)**

- Added expected ranges of values to JavaScript error messages

### **v1.0.5 (2019-02-13)**

- Fixed reading of coils

## **2. Description of router app**



Router App Protocol MODBUS-RTUMAP is not contained in the standard router firmware. Uploading of this router app is described in the Configuration manual (see [1, 2]).



The router app is not v4 platform compatible.

Using this module, it is possible to periodically read data from the buffer which stores values obtained from connected measuring devices (meters). To each measuring device can be assigned a certain number of registers (or coils). These ranges follow each other, so RTUMAP module reads data from a total number of assigned registers (or coils) starting from the specified start address. Well-arranged model diagram can be found in the following figure:

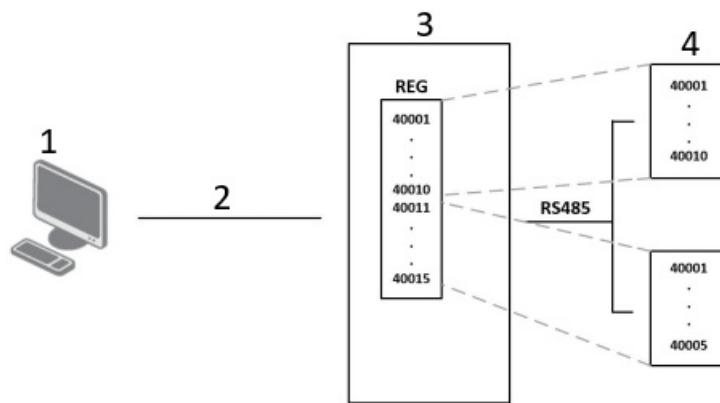


Figure 1: Model diagram

1. Computer
2. MODBUS TCP
3. BUFFER
4. METERS

For configuration RTUMAP router app is available web interface, which is invoked by pressing the module name on the Router apps page of the router web interface. The left part of the web interface (ie. menu) contains only the Return item, which switches this web interface to the interface of the router.

### 3. Configuration of router app

The actual configuration of this router app is performed via the form on the right side. The first item in this form - Enable RTUMAP on expansion port - is used to activate these router app. Meaning of other items is described in the table below:

Item	Importance
Expansion port	Corresponding expansion port (PORT1 or PORT2)
Baud rate	Modulation rate (number of distinct symbol changes – signaling events – made to the transmission medium per second)
Data Bits	Number of data bits (7 or 8)
Parity	Parity (none, even or odd)
Stop Bits	Number of stop bits (1 or 2)
Split Timeout	The delay between readings (in milliseconds)
Read Period	Period of reading data from the buffer (in seconds)
TCP Port	TCP port number
Start Address	Start address of register

Table 1: Description of items in configuration form

At the bottom of the configuration form is also available a list of connected meters with information about their settings.

All changes will take effect after pressing the Apply button.

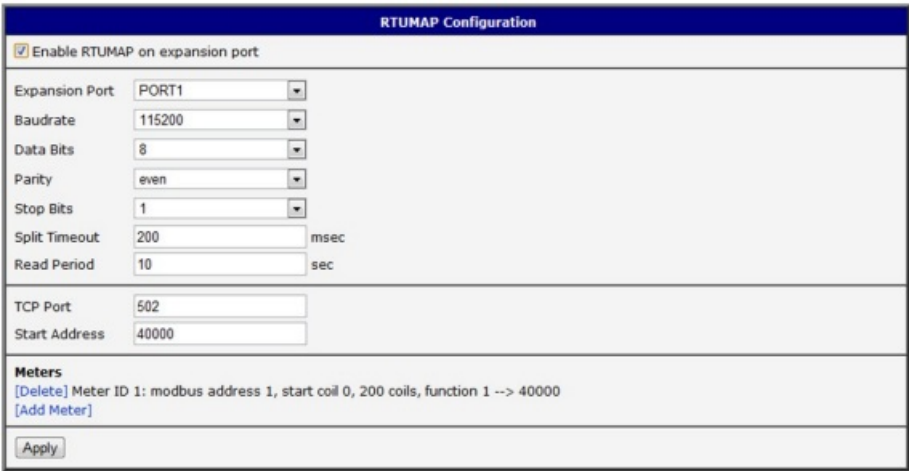
The image shows a web-based configuration form titled "RTUMAP Configuration". At the top, there is a checkbox labeled "Enable RTUMAP on expansion port" which is checked. Below this, there are several input fields: "Expansion Port" (a dropdown menu showing "PORT1"), "Baudrate" (a dropdown menu showing "115200"), "Data Bits" (a dropdown menu showing "8"), "Parity" (a dropdown menu showing "even"), "Stop Bits" (a dropdown menu showing "1"), "Split Timeout" (a text input showing "200" followed by a "msec" unit), and "Read Period" (a text input showing "10" followed by a "sec" unit). Below these fields are two more input fields: "TCP Port" (showing "502") and "Start Address" (showing "40000"). At the bottom of the form, there is a section titled "Meters" which contains a single entry: "[Delete] Meter ID 1: modbus address 1, start coil 0, 200 coils, function 1 --> 40000". Below this entry are two links: "[Add Meter]" and "[Delete]". At the very bottom of the form is an "Apply" button.

Figure 2: Configuration form

3.1 Adding and removing a measuring device

Individual meters (measuring devices) can be removed from the list by clicking [Delete] item which is situated in front of the meter description. To add meter click on the [Add Meter] item. Before adding a meter, it is neccessary to enter Meter Address, Start Address, number of registers or coils (Number Of Values (Register or Coils)) and select Read Function (see the figure below). This way it is possible to add up to 10 devices.

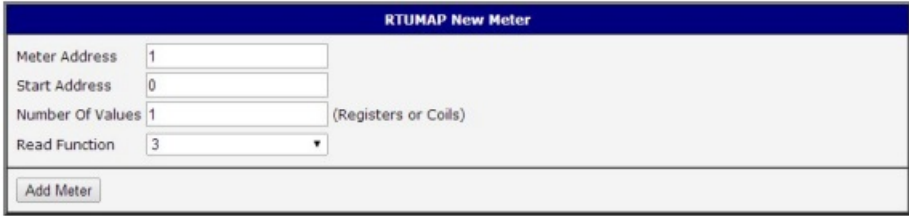
The image shows a web-based form titled "RTUMAP New Meter". It contains four input fields: "Meter Address" (showing "1"), "Start Address" (showing "0"), "Number Of Values" (showing "1" followed by the text "(Registers or Coils)"), and "Read Function" (a dropdown menu showing "3"). At the bottom of the form is an "Add Meter" button.

Figure 3: Adding a measuring device

3.2 Read and write functions

The following figure describes functions that are used for reading and writing between PC, RTUMAP router app and meter. Functions 0x01 (read) and 0x0F (write) are intended only for coils. To be able to write some values to coils on MODBUS RTU device (by function 0x0F), set the read function in a meter declaration to function number 1.

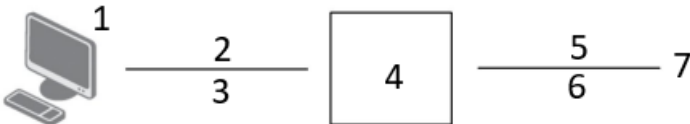


Figure 4: Read and write functions supported by the RTUMAP router app

- 1. Computer
- 2. read functions 0x03, 0x04
- 3. write functions 0x06, 0x10
- 4. RTUMAP

5. read functions 0x03x 0x04
6. write functions 0x0F (only for coils)
7. **MODBUS meter**

## 4. Related Documents

You can obtain product-related documents on Engineering Portal at [icr.advantech.cz](http://icr.advantech.cz) address.

To get your router's Quick Start Guide, User Manual, Configuration Manual, or Firmware go to the [Router Models](#) page, find the required model, and switch to the Manuals or Firmware tab, respectively.

The Router Apps installation packages and manuals are available on the [Router Apps](#) page.


For the Development Documents, go to the [DevZone](#) page.

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Protocol MODBUS-RTUMAP Manual

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## Documents / Resources

	<a href="#">ADVANTECH Protocol MODBUS-RTUMAP Router App [pdf] User Guide</a> Protocol MODBUS-RTUMAP Router App, Protocol MODBUS-RTUMAP, Router App, App
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## References

- [A Advantech 4G, 5G Cellular Routers & Gateways for IoT applications - Engineering Portal](#)
- [A Advantech 4G, 5G Cellular Routers & Gateways for IoT applications - Engineering Portal](#)
- [A DevZone - Cellular Routers Engineering Portal](#)
- [A Router Apps - Cellular Routers Engineering Portal](#)
- [A Router Models - Cellular Routers Engineering Portal](#)
- [User Manual](#)