

korenix

JetBox 8100

Modbus Gateway

User Manual

www.korenix.com

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Table of Contents

Copyright Notice	2
Acknowledgments.....	2
Table of Contents	3
Chapter 1 Overview	4
1-1 Applied Korenix Model.....	4
Chapter 2 Functional Description	4
2-1 Parameters	5
Chapter 3 Appendix	7
3-1 Pictures & Notices Index	7
3-2 Customer Service	8

Chapter 1 Overview

The Modbus Gateway is optional value-added software provided by Korenix. The major function of the Modbus Gateway enables serial Modbus RTU (or Modbus ASCII) devices to communicate with Modbus TCP devices.

Modbus is an open serial communications protocol based on master/slave architecture and used to connect a supervisory computer with a remote terminal unit (RTU) in supervisory control and data acquisition (SCADA) system. However, Modbus has been extended to operate over Ethernet using the IP protocol suite. Therefore, the Modbus Gateway converts between the Modbus TCP/IP protocol and Modbus ASCII/RTU protocols transparently and let users integrate their control systems easier.

1-1 Applied Korenix Model

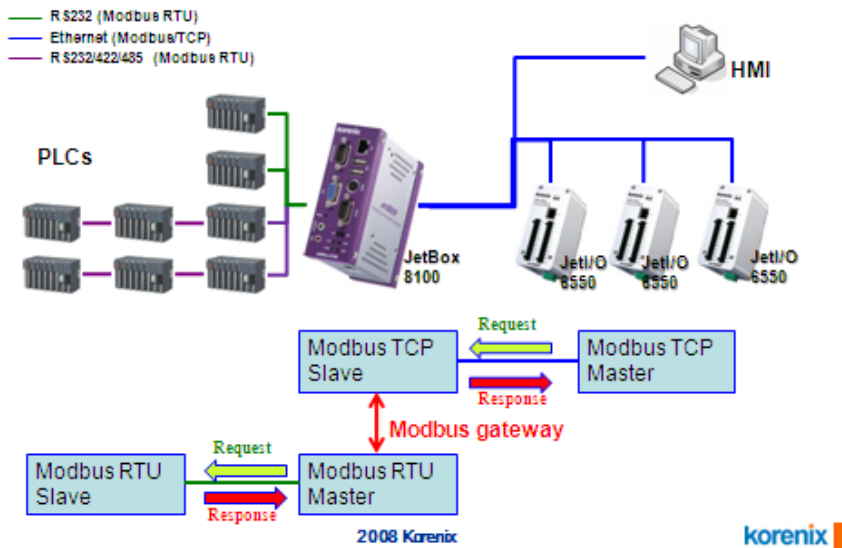
The Modbus Gateway is applied in the following models:

1. JetBox 8100 Linux version

Chapter 2 Functional Description

Following is the architecture for the Modbus Gateway of the JetBox.

Modbus Gateway



Picture 1: Function architecture of the Modbus gateway in the JetBox 8100

The Modbus gateway supports the most common usage, the data transfer between the data request from Modbus TCP master and the response from Modbus RTU slave.

⚠ Notice 1: Up to **32 connections** are allowed to be established from Modbus TCP masters to Modbus RTU/ASCII slaves.

2-1 Parameters

Following is the introduction of the Modbus Gateway and its parameters.

Program Name:

modbusgw

Synopsis:

```
modbusgw [-port <port>] [-protocol {rtu | ascii}] [-baud <baud>]
          [-parity {none | even | odd}] [-bits {7 | 8}] [-stop {1 | 2}] [-timeout <t>]
          [-srate <t>] [-tcp <port>] [-tcpaging <t>]
```

or


```
Modbusgw [-f <file_name>]
```

Parameters:

-port : the name of the serial port {ttyS1, ttyS2, ttyS3 or ttyS4}, default ttyS1
-protocol : the protocol of the responding device {rtu or ascii}, default rtu
-baud : baud rate { 50, 75, 110, 134, 150, 300, 600, 1200, 1800, 2400, 4800, 9600, 19200, 38400, 57600, 115200, 230400, 460800 }, default 9600.
-parity : an extra bit with each data character for detecting some errors in transmission {odd | even | none}, default none
-bits : data length {RTU 8 bits, ASCII 7 bits}, default 8
-stop : stop bit, default 1
-timeout : response timeout {0~600 seconds}, default 5 seconds
-srate : scan rate {0~10000ms}, default 200ms
-tcp : TCP port {1~65535}, default 502
-tcpaging : auto-disconnection of idle or abnormal Modbus TCP links {1~7200 seconds}, default 420 seconds

-f : the Modbus gateway configuration file, default file name **modbusgw.cfg**
You need to specify the directory of the modbusgw.cfg when you use it as the default Modbus gateway configuration.

For example: **modbusgw -f /mnt/usb1/modbusgw.cfg**

 **Notice 2:** If you use **modbusgw -f**, the system will load the modbusgw.cfg file from the same directory with Modbus gateway program.

In the JetBox, the default Modbus gateway setting is as follows:


```
[modbusgw]
port=ttyS1
protocol=rtu
baud=9600
parity=none
bits=8
stop=1
timeout=5
srate=200
tcp=502
tcpaging=420
```


Example:


modbusgw -port ttyS1 -protocol rtu -baud 115200 -parity even -bits 8 -stop 1 -timeout 5 -srate 200 -tcp 502 -tcpaging 100


or

modbusgw -f ./modbusgw.cfg

 **Notice 3:** There is also response time out setting in HMI. Please notice the response time out value of HMI should be equal with or bigger than the value of Modbus gateway to avoid transmission error.

 **Notice 4:** The scan rate is the time interval to hold the request from Modbus TCP to Modbus RTU/ ASCII. If there are multiple connections between Modbus TCP devices and Modbus RTU/ASCII devices and too many requests from Modbus TCP devices, the Modbus RTU/ASCII devices might not be able to response on time, users need to adjust the scan rate to avoid the Modbus gateway timeout.

 **Notice 5:** All parameters use lower case English letters.

 **Notice 6:** The slave ID is the identification number of each Modbus RTU/ASCII device. The slave ID can't be duplicated.

Chapter 3 Appendix

3-1 Pictures & Notices Index

Pictures

Picture 1: Function architecture of the Modbus gateway in the JetBox 8100	5
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Notices

Notice 1: Up to 32 connections are allowed to be established from Modbus TCP masters to Modbus RTU/ASCII slaves.	5
Notice 2: If you use modbusgw -f , the system will load the modbusgw.cfg file from the same directory with Modbus gateway program.....	6
Notice 3: There is also response time out setting in HMI. Please notice the response time out value of HMI should be equal with or bigger than	

the value of Modbus gateway to avoid transmission error.7

Notice 4: The scan rate is the time interval to hold the request from Modbus TCP to Modbus RTU/ ASCII. If there are multiple connections between Modbus TCP devices and Modbus RTU/ASCII devices and too many requests from Modbus TCP devices, the Modbus RTU/ASCII devices might not be able to response on time, users need to adjust the scan rate to avoid the Modbus gateway timeout.....7

Notice 5: All parameters use lower case English letters.....7

Notice 6: The slave ID is the identification number of each Modbus RTU/ASCII device. The slave ID can't be duplicated.....7

3-2 Customer Service



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