

## **HMS Sequence**

## Exercise: Connecting a Modbus RTU Slave

## **SOLUTION SHEET**

SCM-1202-133 1.0 en-US ENGLISH



## 1 Instructions

This exercise explains how to connect a Modbus RTU slave to an Anybus Edge Gateway. In the example we use the Netbiter IOX-DAIO.

1. Go to settings, by clicking the cogwheel icon in the toolbar.



2. Select the **Settings** tab.

Set	ttings		Anybus®
Image: Settings     Export       Event Log     Event Log			🗣 - 🤱 admin -
ſ	Timestamp	✓ Message	
0	6/1/2018, 2:00:10 AM	Run Time System: DHCP configuration completed at Ethernet (0).	
0	6/1/2018, 2:00:08 AM	Run Time System: Restarting DHCP configuration at Ethernet (0).	
1	6/1/2018, 2:00:08 AM	Run Time System: Link detected at Ethernet (0).	
6	6/1/2018, 2:00:08 AM	Run Time System: Running	

- 3. Find **I/O** in the tree, and expand it.
- 4. Go to Modbus Client/Master to add a slave.

Settings			Anybus
🏷 🗱 🛞 🥬 🔝   😮			🕂 🖌 😫 admin
Event Log Settings Export			
General  Network  HMS-HUB	Modbus Client/Master		
★ PLC	Name Communi	cation parameters	Index
<ul> <li>I/O</li> <li>Modbus Client/Master</li> <li>Modbus Server/Slave</li> </ul>	Add Device Add Value Edit	: Delete Clone	
<ul> <li>PROFINET IO Device</li> <li>CODESYS Network Variables</li> </ul>	Settings		
SNMP Manager	Interval:	100	(503600000 ms)
Services	Timeout:	500	(1030000 ms)
	RTU		
	COM 0		
	Enable RTU:		
	Mode:	RS485 •	
	Baud rate:	9600 •	
	Parity:	None (1 stop bit)	
	Minimum silent time between frames:	0	(0500 ms)
	OK Reload		

5. Configure Interval, under Settings. This interval depends on how often a response from the slave device is needed.

In this case, use 100 ms.

6. Configure the Modbus settings according to your Modbus slave device.

In this case, according to the following:

- Check the Enable RTU checkbox.
- Mode: RS485
- Baud rate: 9600
- Parity: None (1 stop bit)

- Set the timeout. Timeout is the maximum time to wait for a response from the slave device. In this case, use 500 ms.
- 8. Press **OK**. If you are prompted for a reboot, do not reboot the gateway yet.
- 9. Click Add the device, and add the device according to the image below:

Edit device		8
Name:	IOX-DAIO	1 to 64 printable ASCII characters
Туре:	RTU	▼
Interface:	COM0	<b>T</b>
Address:	1	(1247)
OK Cancel		

- 10. For this example, we will need a set of values. Add values by clicking Add value. Add a value called Led1 according to the following:
  - Name: Led1
  - Function: Force Multiple Coils (0x0F)
  - Start address: 16
  - Quantity: 1
  - Data type: Boolean

Edit value		8
Name:	Led1	1 to 64 printable ASCII characters
Function:	Force Multiple Coils (0x0F)	T
Start address:	16	(065535)
Quantity:	1	11976
Data type:	Boolean	<b>T</b>
Swap words:		
OK Cancel	∑,	

11. Add the following four values in the same way:

LED 2: Force multiple coils, start address 17, quantity 1, datatype BOOLEAN.

Switch 1: Read input status, start address 0, quantity 1, datatype BOOLEAN.

Switch 2: Read input status, start address 1, quantity 1, datatype BOOLEAN.

Temperature: Read holding register, start address 3, quantity 1, 16-bit Signed Integer.

12. This is how the configuration should look now.

Settings 🗞 🗱 🕐 👂 🖸 🖸 😮		A	HUDU HINS NETW R
Event Log Settings Export  General  Network HMS-HUB	Modbus Client/Maste	r	
PLC	Name	Communication parameters	Index
Variables	IOX-DAIO	RTU, COM 0, addr: 1	0
Time Switches	Inputs		
Messages	- Switch1	Read Input Status (0x02), start address: 0, quantity: 1, data type: Boolean	0
Modbus Client/Master	Switch2	Read Input Status (0x02), start address: 1, quantity: 1, data type: Boolean	1
Modbus Server/Slave	Temperature	Read Holding Registers (0x03), start address: 3, quantity: 1, data type: 16-bit signed integer	2
PROFINET IO Device	Outputs		
OPC UA Server	Led1	Force Multiple Coils (0x0F), start address: 16, quantity: 1, data type: Boolean	0
CODESYS Network Variables SNMP Manager	Led2	Force Multiple Coils (0x0F), start address: 17, quantity: 1, data type: Boolean	1
Services	Add Device Add Value	Edit Delete Clone	

- 13. Press **OK** in the lower left section.
- 14. Press Reboot.

Settings A		
🗞 🛱 🔗 👂 💽 🕜 🐥 🔒 adm		
General     Network     HMS-HUB	Modbus Client/Master	
▶ PLC     I/O	The configuration has been successfully stored. Please reboot to apply.	