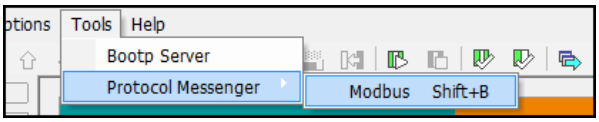
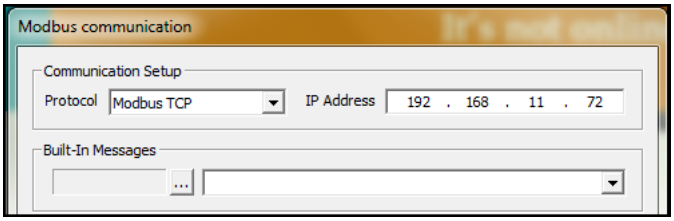
This document will explain how to configure the NA-9373 as a Modbus master in collaboration with the program example
“CODESYS 3.5. Program example, NA9373(PIO) controls BFI-E2/E3/H2/H3/P2 via Modbus RTU”

First you’ll have to establish a working connection between the NA-9373 and PC.
(Make sure you can “Ping” the PIO if you are using Ethernet TCP)

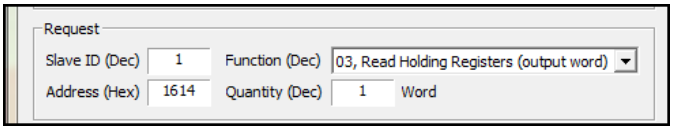
Secondly you’ll have to open Crevis software “I/O Guide Pro”.
From this software you’ll use the Protocol messenger tool to send a parameter to the Programmable I/O (PIO).



Configure the protocol messenger as you connect to the PIO.
In this example we connect to the NA-9373 via Ethernet TCP, our PIO has the IP: 192.168.11.72



Start by reading register 1614 to see what this parameter is set as. (Default 0000)
Function describes if you are reading values from register or writing values to register.



As the manual describes, if we want to enable the NA-9373 as a Modbus Master on the RS485 port, we’ll have to write value 8001(Hex) to register 1614.

7.7. ModBusRTU Master(NA-9372/93 only)

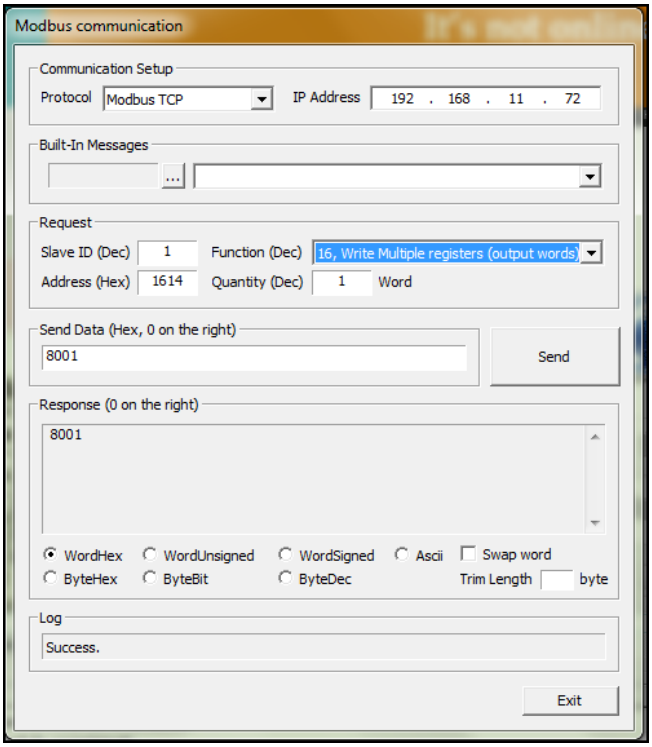
(1) **In oder to use the ModbusRTU master function, user should set the Modbus Register 1614.**

Address	Access	Type, Size	Description
0x1614(5652)*	Read/Write	1word	Serial connection Method - 0x0000 : CREVIS Modbus/RTU(Default) - 0x8000 : RS232 Enable for CoDeSys Function block - 0x8001 : RS485 Enable for CoDeSys Function block

User can set using by IO guide pro or Modbus communication tool.

Address value	RS232C port	RS485 port
0x0000	Default (Modbus Slave)	Default (Modbus Slave)
0x8000	Codesys Setting(RTU M/Serial com)*	Default (Modbus Slave)
0x8001	Default (Modbus Slave)	Codesys Setting(RTU M/Serial com)*

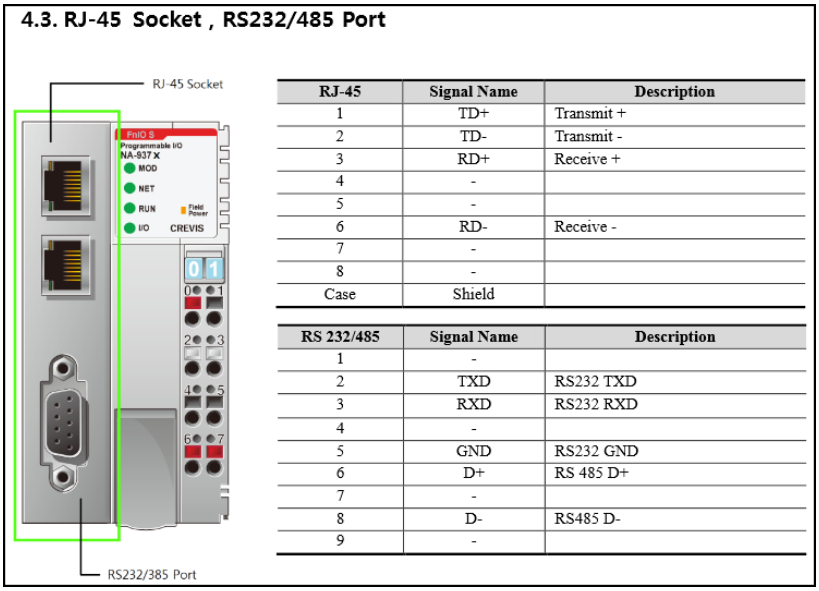
*RTU Master mode or Serial communication mode for example Barcode and so on.



Cycle the power in the PIO and verify the value change (read address 1614 again)

Now it’s time to verify the cables are connected correctly.

Study the pin-layout on both the NA-9373 and the Modbus slave units.



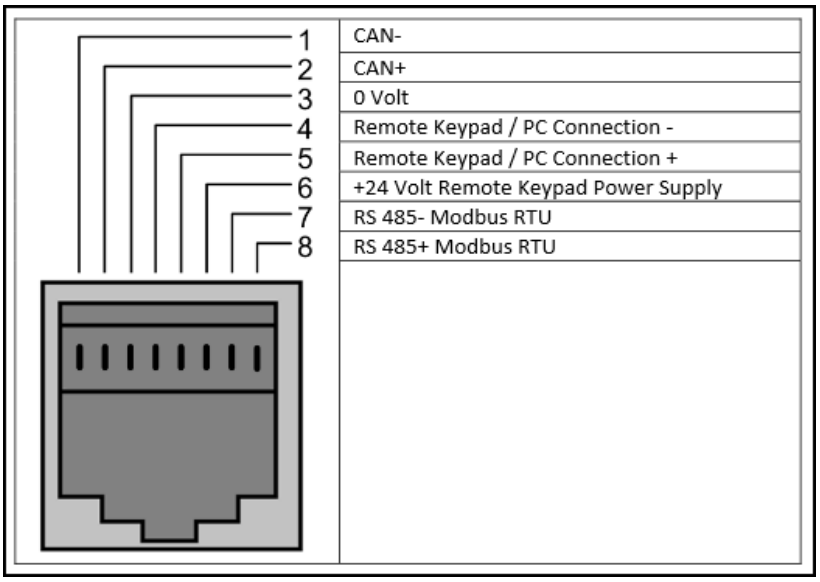
4.3. RJ-45 Socket , RS232/485 Port

RJ-45	Signal Name	Description
1	TD+	Transmit +
2	TD-	Transmit -
3	RD+	Receive +
4	-	
5	-	
6	RD-	Receive -
7	-	
8	-	
Case	Shield	

RS 232/485	Signal Name	Description
1	-	
2	TXD	RS232 TXD
3	RXD	RS232 RXD
4	-	
5	GND	RS232 GND
6	D+	RS 485 D+
7	-	
8	D-	RS485 D-
9	-	

Picture shows the pin-layout of the NA-9373 programmable I/O.

For example, let’s look at the BFI-P2 pin-layout.



If these two shall be connected, one must create a cable with one RJ45 end (BFI) and one 9pin D-sub contact end (NA-9373).

Since both the NA-9373 and the BFI-P2 can utilize RS-485, we’ll connect them using that interface. Let’s have a look at the chart below.

NA-9373	**BFI-P2**
Pin 5 - GND (common ground)	Pin 3 - 0 Volt(common ground)
6 - D + (Data +)	8 - RS485 + (Data +)
8 - D – (Data -)	7 - RS485 – (Data -)