

RTU32

Guide to Setup Modbus RTU Master Driver In STRATON

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1 How to setup a Modbus Master Protocol (RTU32 to RTU8):

Before starting the actual process, we need to have a picture of the layout of the unit we want to connect to the RTU32. In this case it is a Brodersen RTU8 type UCR8IO/RTU10.D1.

The layout of the unit is predefined in the application B-CON. In this example we use the following predefined layout.

The RTU8 uses Modbus read and write "Holding Registers" (Data type 3 and 16).

Input layout:

I0	I1	I2	I3
StationNo./Logical address	Status (ST)	Digital Input (D_I)	Analogue Input (A_I)

Output layout:

I0
Digital Output (D_O)

Please note, that the Modbus input registers start from 40001 and end at 40100. While the Modbus output registers start from 40301 and end at 40400.

Create a new project. When in the STRATON main menu, click on the "Fieldbus configuration" icon. See below fig. 1

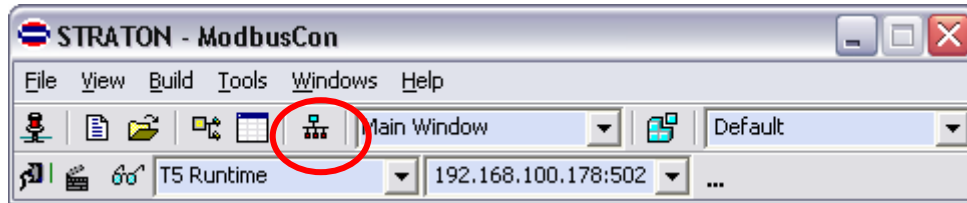


Fig.1

The "Fieldbus configuration" window will appear. Then click on the "I/O Drivers" fan. See below fig. 2

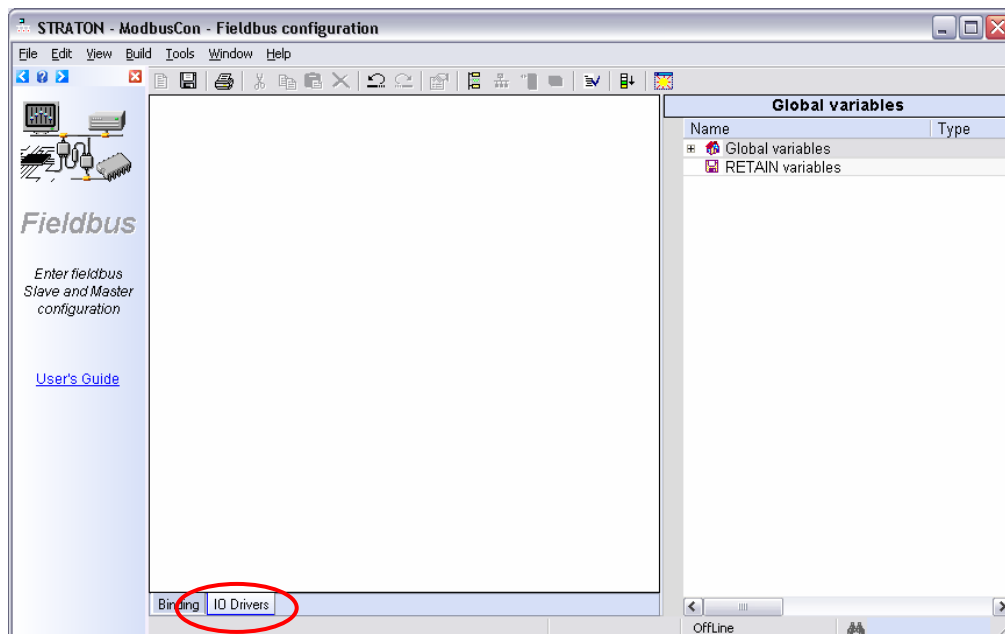


Fig. 2

Inside the "IO Drivers" window press the right mouse button and choose "Insert Configuration..."

See below fig. 3

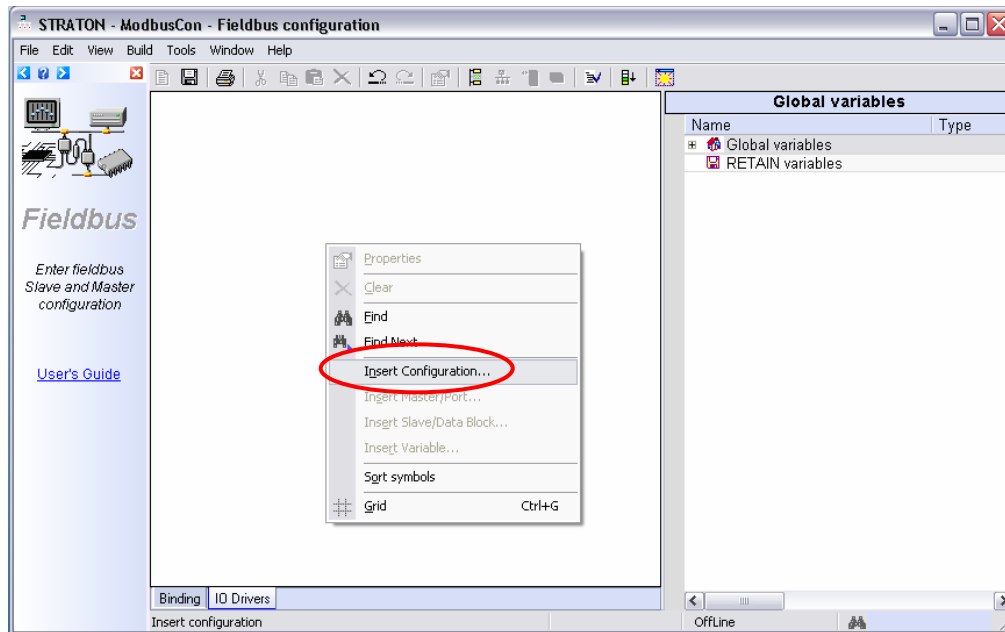


Fig. 3

Here you can choose what kind of Modbus configuration you wish to setup. Choose the "MODBUS Master protocol" and press "OK". See below fig. 4

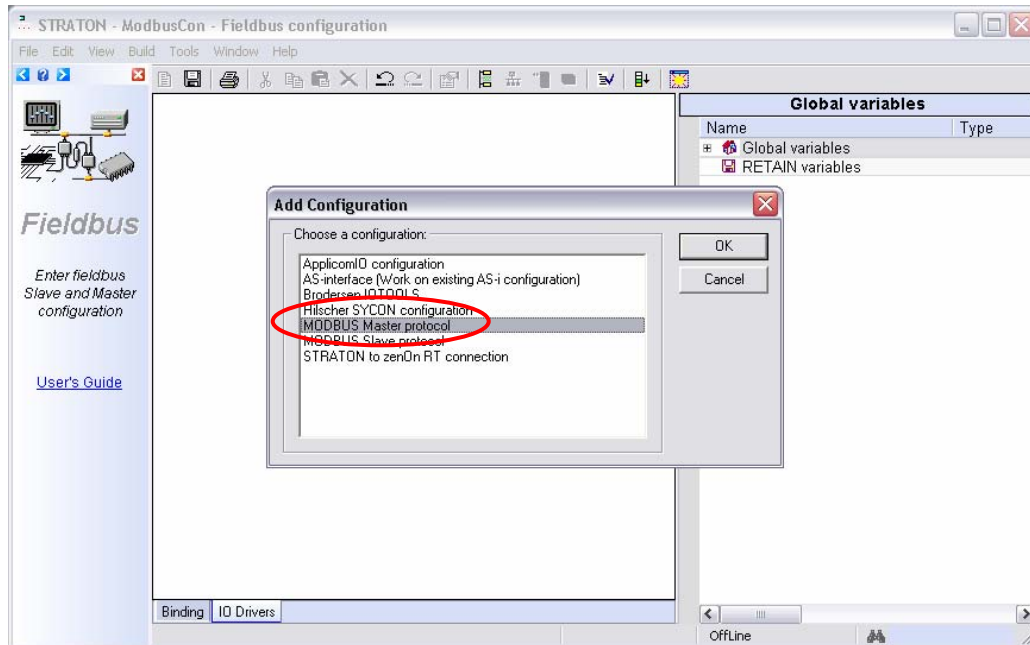


Fig. 4

Now we have created a Modbus Master Protocol. By pressing the right mouse button on the "Modbus Master Protocol" line, you will be able to "Insert a Master/Port...". See below fig. 5

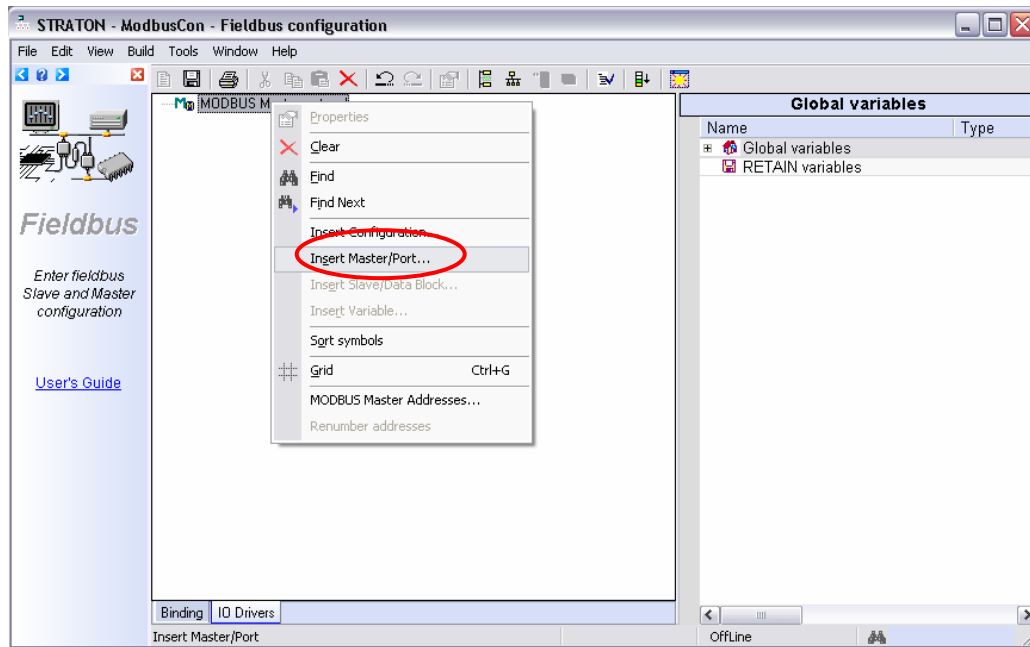


Fig. 5

The "Modbus Master Port" window will appear. For a serial connection to the unit, click on "Serial MODBUS-RTU". Now you have to declare witch COM-port you are using, what the baudrate is, parity, and number of stopbits. See below fig. 6

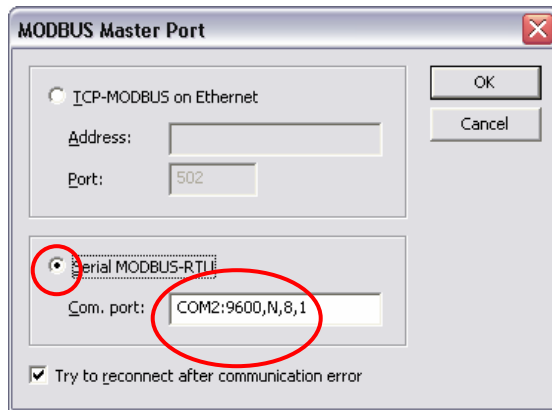


Fig. 6

In fig. 6 the COM port used is 2, the baudrate is 9600, there is no parity (N), the number of databits is 8 and the number of stop bits is 1.

If you want to debug on the communication, you are able to set additional parameters on the COM port. See user guide on Dial-up for more details.

Right-click on the "Modbus Master Port" and select the "Insert Slave/Data Block...". See below fig. 7

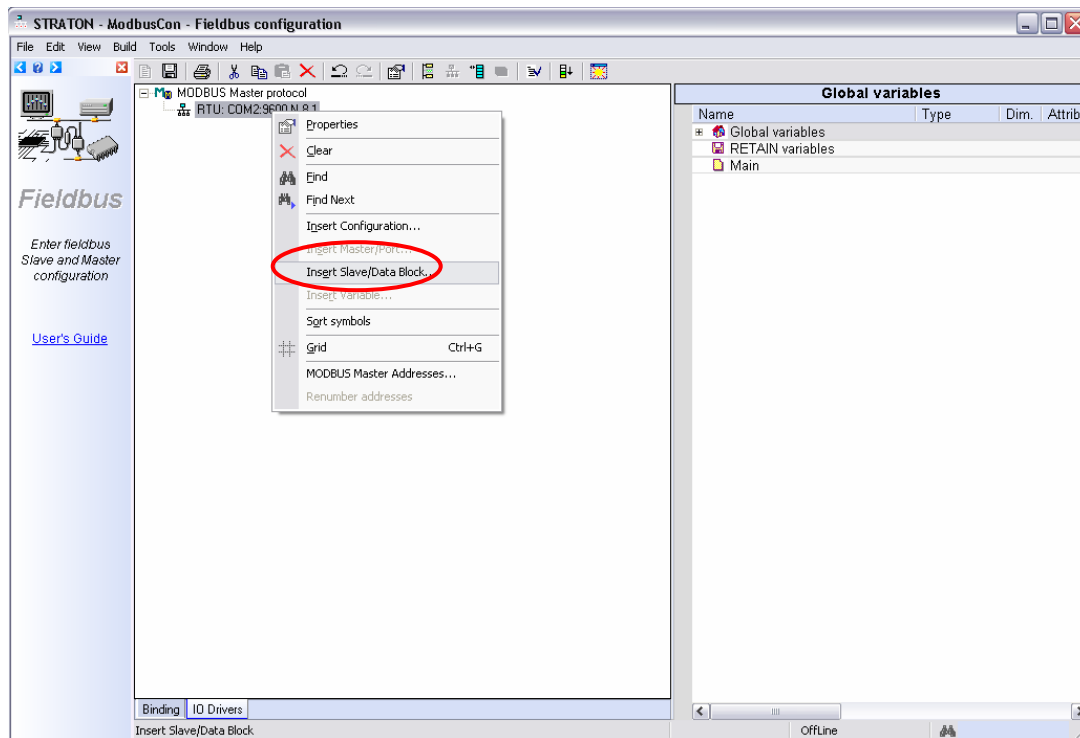
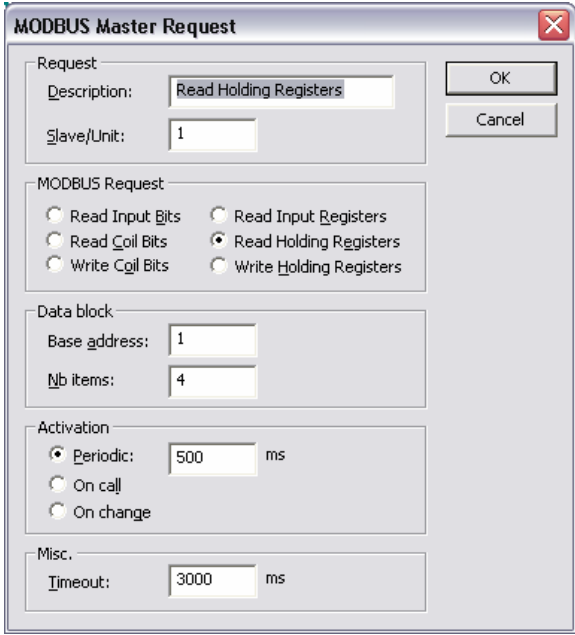


Fig. 7

The "MODBUS Master Request" window will appear. See below fig. 8



The screenshot shows a Windows-style dialog box titled "MODBUS Master Request". It contains several sections: "Request" with a "Description" field set to "Read Holding Registers" and a "Slave/Unit" field set to "1"; "MODBUS Request" with radio buttons for "Read Input Bits", "Read Input Registers", "Read Coil Bits", "Read Holding Registers" (selected), "Write Coil Bits", and "Write Holding Registers"; "Data block" with "Base address" set to "1" and "Nb items" set to "4"; "Activation" with radio buttons for "Periodic" (selected), "On call", and "On change", and a "500 ms" value; and "Misc." with a "Timeout" set to "3000 ms". "OK" and "Cancel" buttons are in the top right.

Fig. 8

In this case we are reading the holding registers, where the base address is 1, no. of items read is 4, activation is periodic with a 500 ms cycle, and the timeout value is 3000 ms.

We can now define how many variables we need to operate with. In this case we need 5 variables (Type: Word), to cover the holding registers.

We will now create 5 global variables. Right-click on the "Global variables" at the right upper corner of the window and select "Add variable". See fig. 9

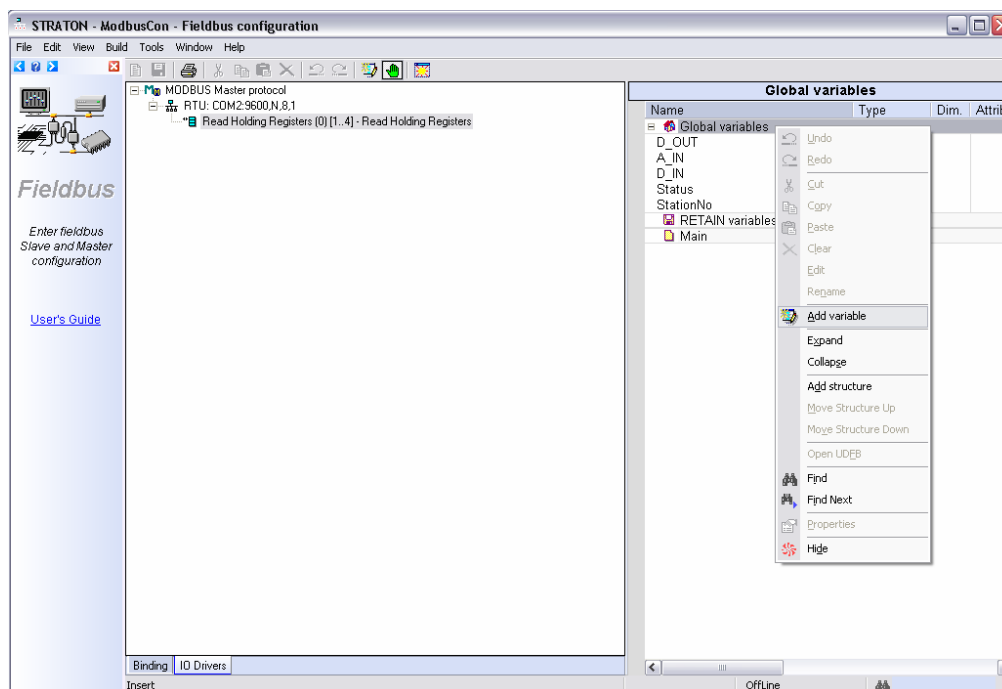


Fig. 9

We have now created a global variable called "NewVar". Double-click on the "NewVar" line, to rename the variable. Double-click on the "Type" field to change the type of the variable to "WORD". See below fig. 10

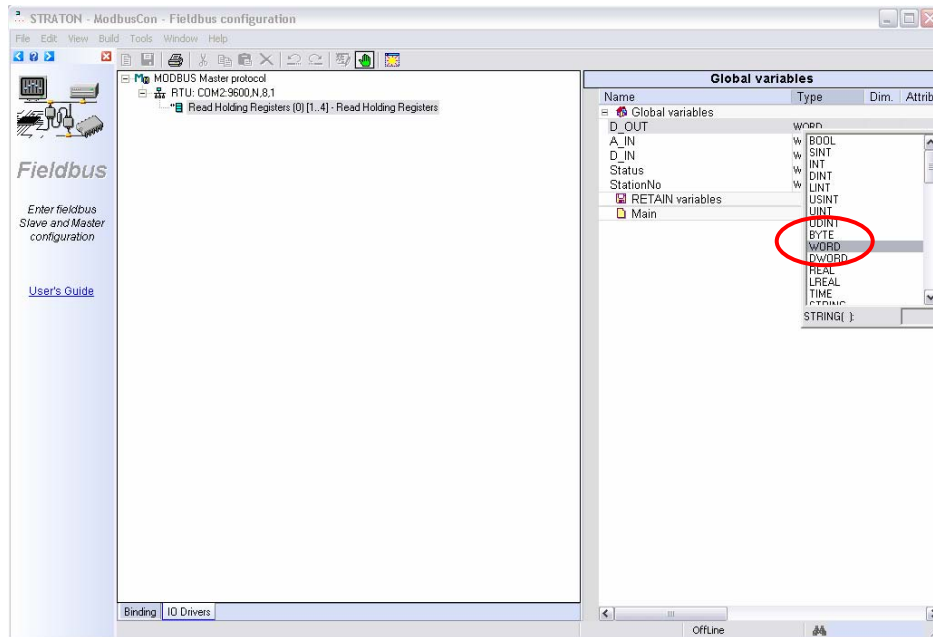


Fig. 10

Now we can attach the variables to the registers we want to read from. That can easily be done by dragging the variables and dropping them on to the "Read Holding Registers".

When doing so, you will have the following window opened. See below fig. 11

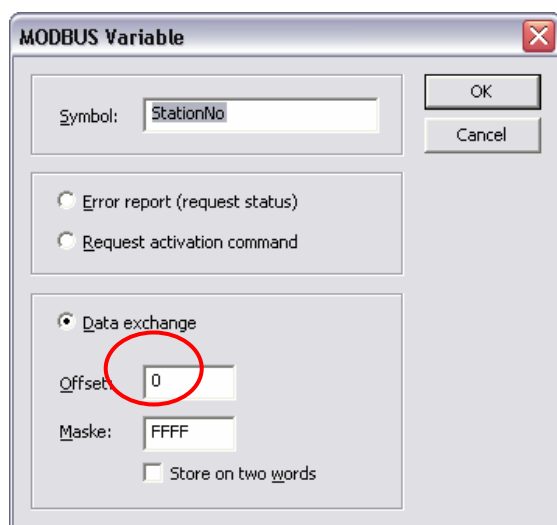


Fig. 11

In the "MODBUS Variable" window you can assign the "Offset" value. The first input received from the unit is the "StationNo". The "Offset" of the station no. is "0". This procedure is repeated until all variables are assigned the correct registers.

The "Status" variable indicates any errors reported. The procedure of assigning the "Error report" function to the variable "Status" differs slightly from the previous procedure. See below fig. 12

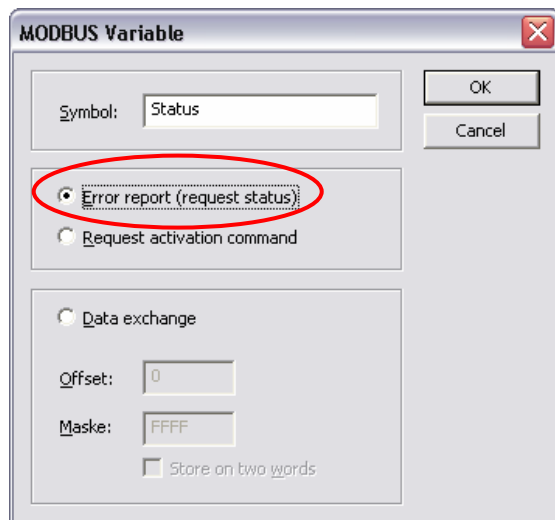


Fig. 12

There is no need to define the "Offset" value.

We have now created a Modbus connection from the RTU32 to a RTU8. See below fig. 13

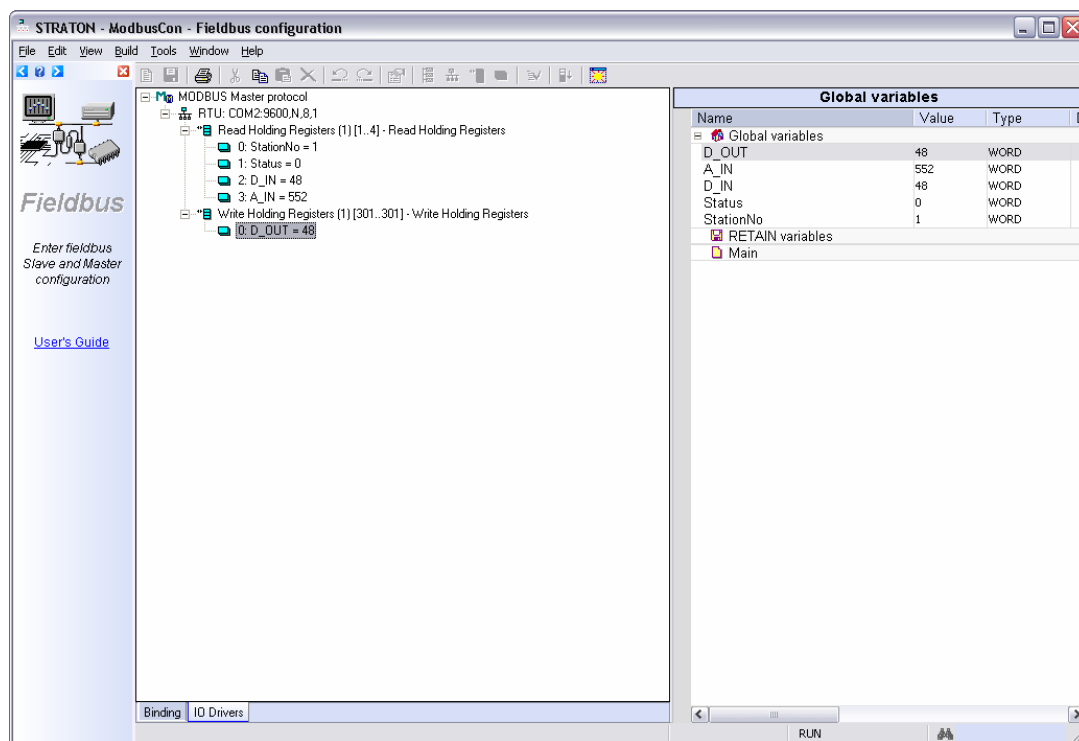


Fig. 13

The system is running.