DAUDIN iO-GRIDm and SIEMENS PLC Modbus RTU Connection User Manual

Contents

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Product Information

The product is a remote I/O module system with Siemens PLC Modbus RTU connection. It includes various components such as a master Modbus RTU controller, digital input and output modules, power supplies, and interface modules. The main controller is responsible for managing and configuring I/O parameters. The power module and interface module are standard components that can be chosen based on user preference.

Remote I/O Module System Configuration List

Part No.	Specification	Description
GFMS-RM01S	Master Modbus RTU, 1 Port	Main Controller
GFDI-RM01N	Digital Input 16 Channel	Digital Input
GFDO-RM01N	Digital Output 16 Channel / 0.5A	Digital Output
GFPS-0202	Power 24V / 48W	Power Supply
GFPS-0303	Power 5V / 20W	Power Supply
DM09-AP02CL	D-SUB adapter connected to the terminal block	Interface Module
0170-0101	8 pin RJ45 female connector/RS-485 Interface	Interface Module

Product Usage Instructions

Siemens S7-200 Smart Connection Setup
To connect the Siemens S7-200 Smart to the remote I/O module system, follow these steps:

Siemens S7-200 Smart Hardware Connections

1. The connector is located at Port 0 of the CPU module and uses RS485 connections.
2. Connect the RS485 (Signal B) pin (Pin No.3) of the S7-200 Smart to the RS485 (Signal B) pin (Pin No.2) of the interface module.
3. Connect the RS485 (Signal A) pin (Pin No.8) of the S7-200 Smart to the RS485 (Signal A) pin (Pin No.1) of the interface module.
4. Connect the RTS (TTL) pin (Pin No.4) of the S7-200 Smart to the Selects 10 bit communication protocol pin (Pin No.9) of the interface module.
5. Connect the Logic common port pins (Pin No.2 and Pin No.5) of the S7-200 Smart to the Connect or shell and Case grounding respectively.
6. Connect the D-Sub cable from the interface module (DM09-AP02CL) to the serial port 0 on the S7-200 Smart.
7. Connect the interface module (0170-0101) to the terminal block using a twisted pair cable.
8. Connect an Ethernet cable to the interface module to establish communication with the S7-200 Smart.

Siemens S7-200 Smart Connection Setup

1. Launch Step7-MicroWINSMART program.
2. Click on Commands > Bases > Modbus RTU Master menu.
3. Click to add a new MBUS_CTRL.
4. Configure the communication protocol settings including enable bits, Modbus mode, baud settings, and parity check.

5. Select the appropriate port (Port 0 for CPU's RS485 port or Port 1 for communication module port).

Remote I/O Module System Configuration List

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GFPS-0202	Power 24V / 48W	Power Supply
GFPS-0303	Power 5V / 20W	Power Supply
DM09-AP02CL	D-SUB adapter connected to the terminal block	Interface Module
0170-0101	8 pin RJ45 female connector/RS-485 Interface	Interface Module

Product Description

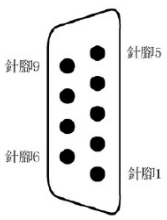
1. The interface module can convert the S7-200 Smart's RS485 port into a RJ45 connector.
2. The main controller is in charge of the management and dynamic configuration of I/O parameters and so on.
3. The power module and interface module are standard for remote I/Os and users can choose the model or brand they prefer.

Siemens S7-200 Smart Connection Setup

This chapter explains how to use the Step7-MicroWINSMART progam to connect S7-200 Smart to **io-GRIDm**.For detailed information, please refer to the S7-200 Smart Series Manual

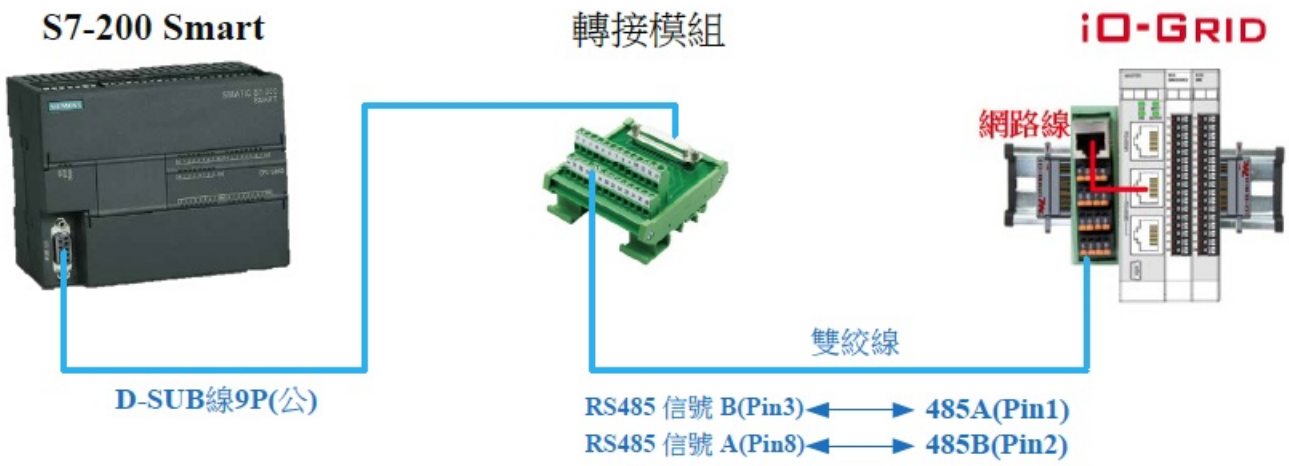
Siemens S7-200 Smart Hardware Connections

The connector is at Port 0 of the CPU module. and uses RS485 connections

Pin	Description	Connector	Pin	Description
1	Case ground wire		6	+5 V, 100 Ω serial resistor
2	Logic common port		7	+24V
3	RS485 (Signal B)		8	RS485 (Signal A)
4	RTS (TTL)		9	Selects 10 bit communication protocol
5	Logic common port		Connect or shell	Case grounding

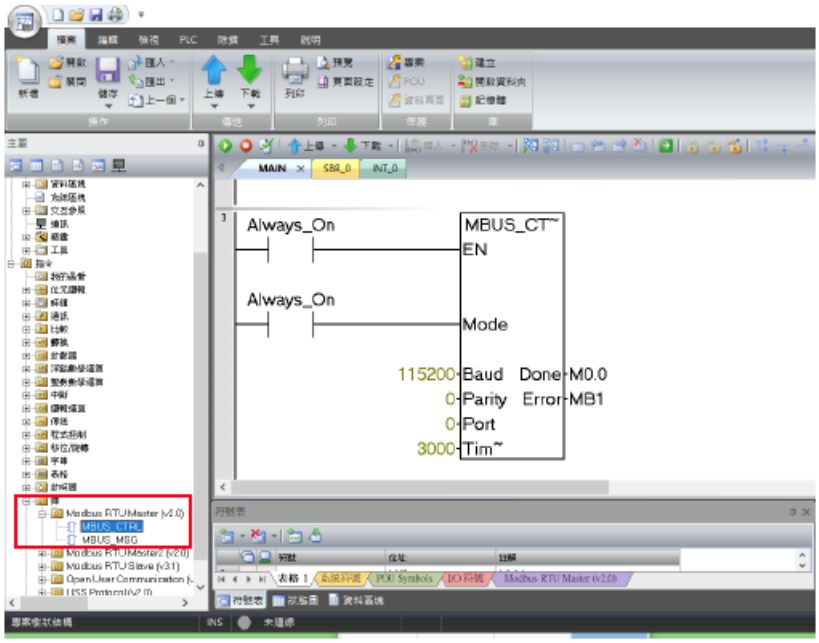
Notes:
RS485 connection: Pin No.3—RS485 (Signal B) (+); Pin No.8—RS485 (Signal A) (-)

Connect the seriail port 0 on S7-200 Smart to the interface module (DM09-AP02CL) via a D-Sub cable. Connect the terminal block on the interface module to interface module (0170-0101) via a twisted pair cable with an Ethernet cable connecting it to **io-GRIDm** 's port



Siemens S7-200 Smart Connection Setup

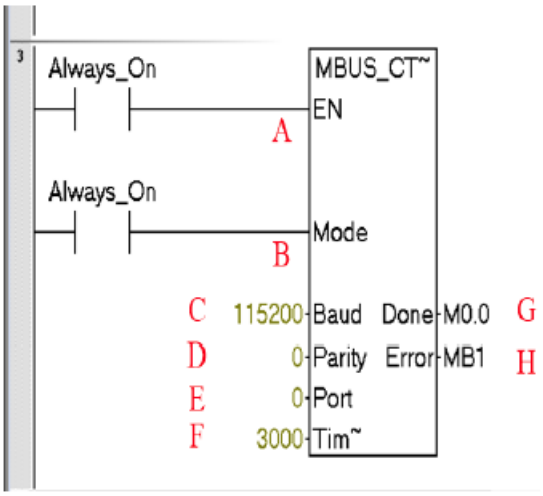
1. **Launch Step7-MicroWINSMART and click on "Commands" on the right side of the program**
   - Click on the "Commands" menu
   - Click on the "Bases" menu
   - Click on the "Modbus RTU Master" menu
   - Click to add a new "MBUS_CTRL"



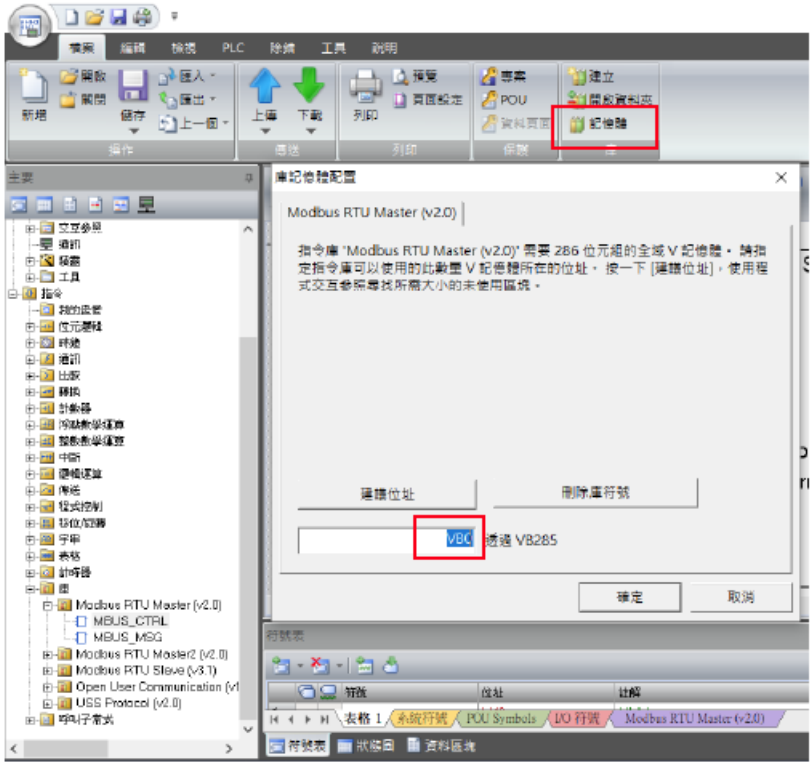
2. **Communication protocol settings**

   Names & Definitions

	Names	Function
A	EN	Enable Bits
B	Mode	With the mode set to “1”, it is set to the Modbus protocol
C	Baud	Baud Settings
D	Parity	Check =0 (No check) =1 (odd parity check) =2 (even parity check)
E	Port	Serial Port Settings: “0” represent CPU’s RS485 port “1” representsthe communication module port
F	Time	Timeout settings (ms)
G	Done	Completed bits
H	Error	Error Code



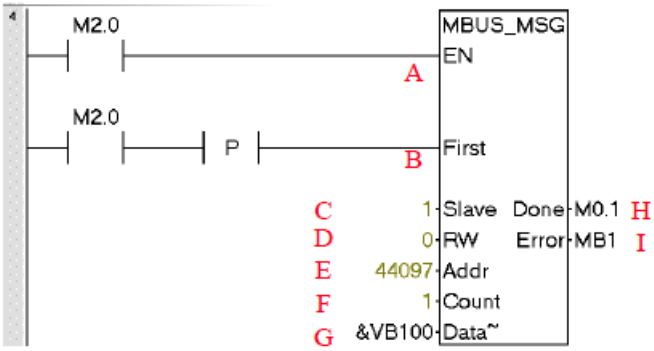
3. **Command Memory Configurations**
   - Click on the “Memory” menu
   - Set up a command’s starting address and once finished, click on “Confirm”



4. **Reading of the communication register**

Names & Definitions

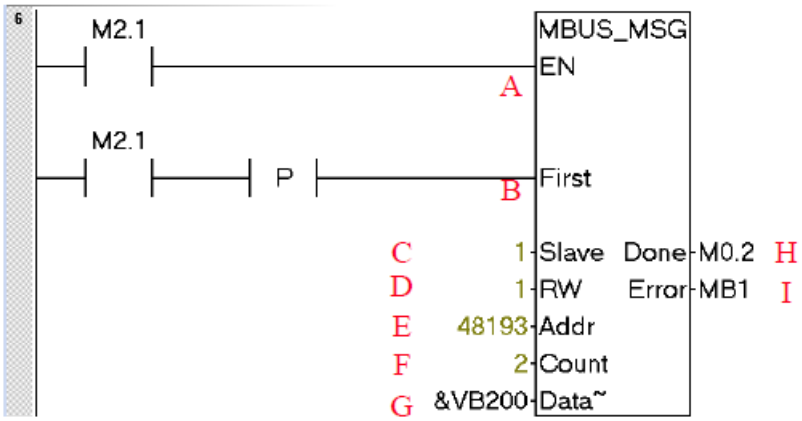
	Names	Function
A	EN	Enable Bits
B	First	Every command must be triggered with a pulse
C	Slave	Control modules' station numbers
D	RW	Read/Write setting, with "0" representing "Read"
E	Addr	Slave Station Number The input module is set to "44097", and Modbus 0X03 command
F	Count	Data count
G	Data	Address where the data is stored
H	Done	Completed bits
I	Error	Error Code



5. **Writing of the communication register**

   Names & Definitions

	Names	Function
A	EN	Enable Bits
B	First	Every command must be triggered with a pulse
C	Slave	Control modules' station numbers
D	RW	Read/Write setting, with "1" representing "Write"
E	Addr	Slave Station Number, the input module is set to "48193", Modbus 0X06 and 0X10 commands
F	Count	Data count
G	Data	Address where the data is stored
H	Done	Completed bits
I	Error	Error Code



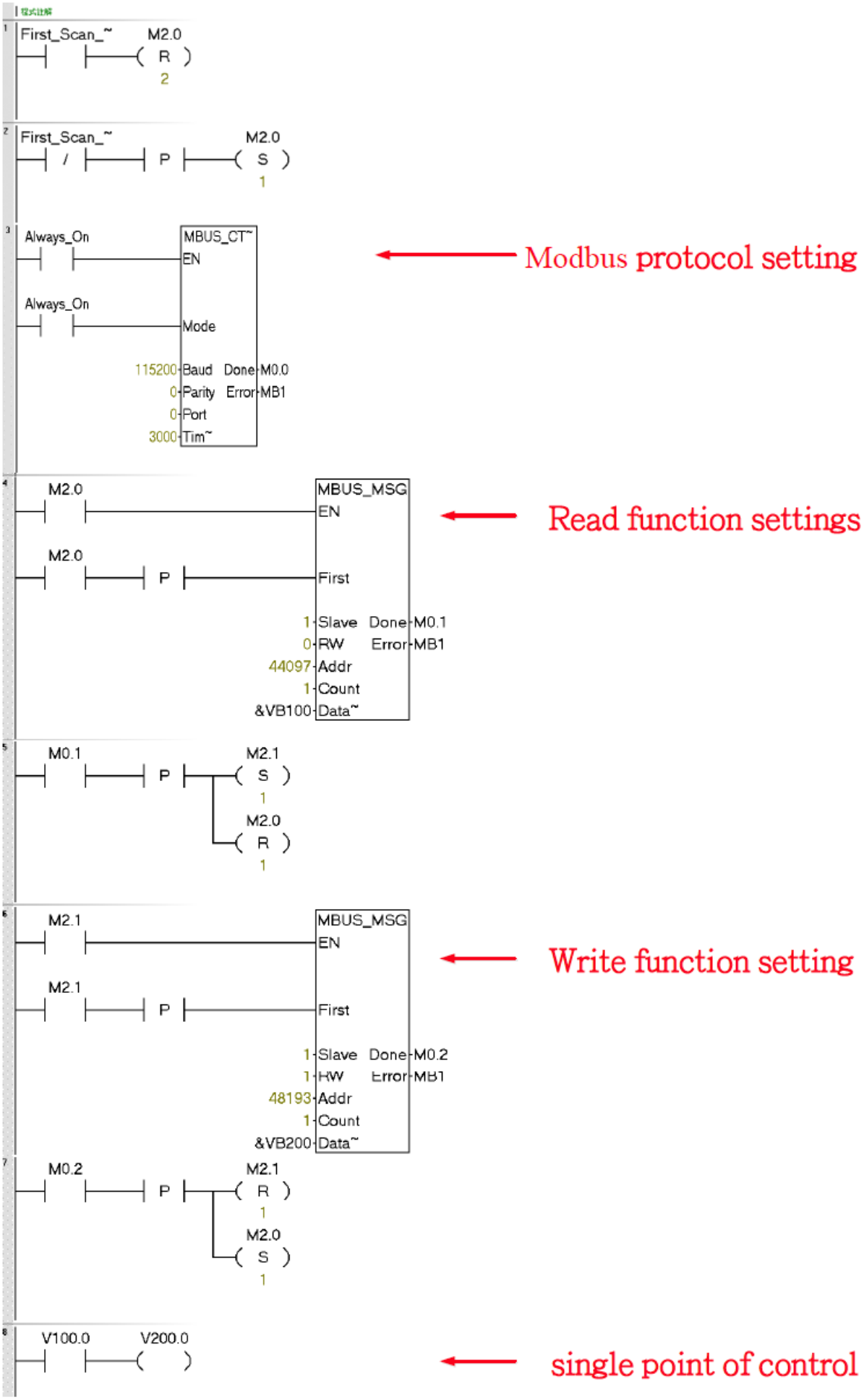
Notes:

- **io-GRIDm**'s first GFDI-RM01N has the register address at 1000(HEX) converted to 4096(DEC)+1 and the starting address at 44097

- **io-GRIDm**'s first GFDO-RM01N has the register address at 2000(HEX) converted to 8192(DEC)+1 and the starting address at 48193

Sample Program

Control with one GFDI-RM01N and one GFDO-RM01N
When the first point of DI has received a signal and is triggered, the first point of DOwill output a signal as it is connected


First_Scan_~
M2.0
R
2
First_Scan_~
M2.0
P
S
1
Always_On
MBUS_CT~
EN
Always_On
Mode
115200 Baud
Done M0.0
0 Parity
Error MB1
0 Port
3000 Tim~
Modbus protocol setting
M2.0
MBUS_MSG
EN
M2.0
P
First
1 Slave
Done M0.1
0 RW
Error MB1
44097 Addr
1 Count
&VB100 Data~
Read function settings
M0.1
P
M2.1
S
1
M2.0
R
1
M2.1
MBUS_MSG
EN
M2.1
P
First
1 Slave
Done M0.2
1 RW
Error MB1
48193 Addr
1 Count
&VB200 Data~
Write function setting
M0.2
P
M2.1
R
1
M2.0
S
1
V100.0
V200.0
single point of control

Documents / Resources

	DAUDIN iO-GRIDm and SIEMENS PLC Modbus RTU Connection [pdf] User Manual GFMS-RM01S, GFDI-RM01N, GFDO-RM01N, GFPS-0202, GFPS-0303, DM09-AP02CL, 0170-0101, iO-GRIDm and SIEMENS PLC Modbus RTU Connection, iO-GRIDm, SIEMENS PLC Modbus RTU, iO-GRIDm and SIEMENS PLC Modbus RTU