

iO-GRID™

**and SIEMENS PLC
Modbus RTU Connection
Operating Manual**



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1. 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
0170-0101	8 pin RJ45 female connector/RS-485 Interface	Interface Module

1.1 Product Description

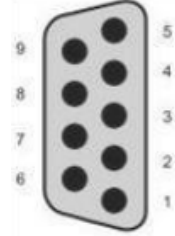
- I. The interface module is used externally to convert Siemens CM 1241's communication module (Modbus RTU) to a RJ45 connector
- II. The main controller is in charge of the management and dynamic configuration of I/O parameters and so on.
- III. The power module and interface module are standard for remote I/Os and users can choose the model or brand they prefer.

2. Siemens S7-1200 Connection Setup

This chapter explains how to use the TIA Portal program to connect S7-1200 to **IO-GRID^m**. For detailed information, please refer to the “SIMATIC STEP 7” section in the user’s manual

2.1 Siemens S7-1200 hardware connection

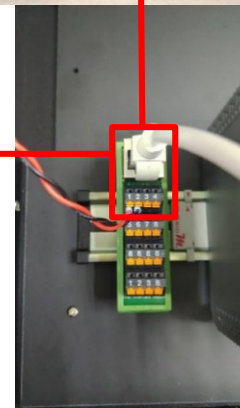
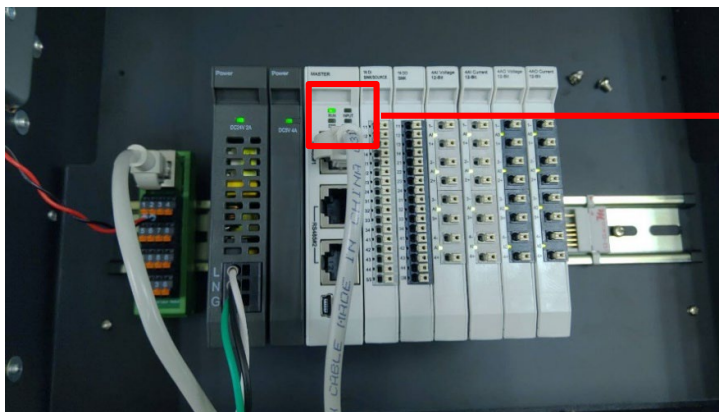
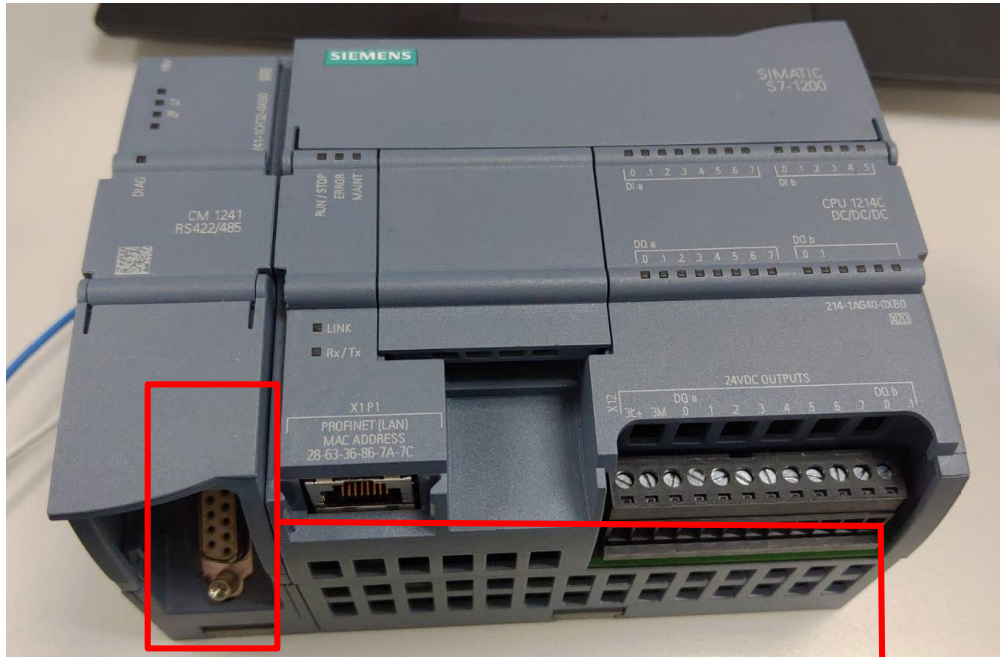
I. The connector is at the bottom of the CM 1241 module and uses RS485 connections

Pin	Description	Connector	Pin	Description
1	Logic ground or communication ground		6 PWR	+5 V and 100 Ω serial resistor output
2 TxD+	For RS422 connection and does not apply to RS485		7	Not connected
3 TxD+	Signal B (RxD/TxD+)		8 TxD-	Signal A (RxD/TxD-)
4 RTS	Request to send (TTL level signal) output		9 TxD-	For RS422 connection and does not apply to RS485
5 GND	Logic ground or communication ground		SHELL	Shell grounding

Notes:

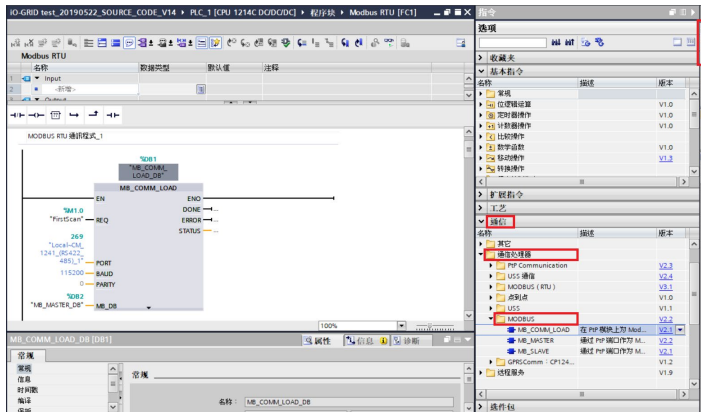
RS485 connection: Pin No.3—RS485 (Signal B) (+); Pin No.8—RS485 (Signal A) (-) No.1 pin’s isoelectric point

II. Connect the COM (RS485 A/B) at the bottom of CM1241 to the interface module (1/2) to convert it into a RJ45 connector, which will be connected to the main controller



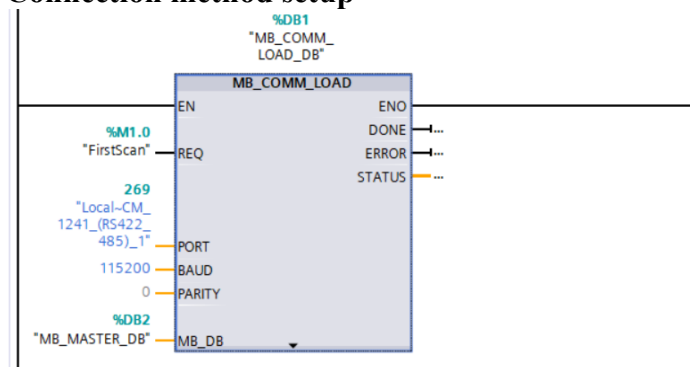
2.2 Siemens S7-1200 Connection Setup

I. Launch the TIA Portal and select “Commands” on the right



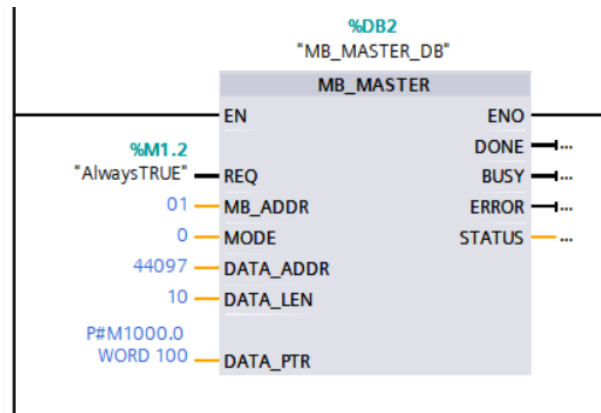
- A. Click on the “Communication” menu
- B. Click on the “Communication Processor” menu
- C. Click on the “Modbus” menu
- D. Click to add a new “MB_COMM_LOAD”
- E. Click to add a new “MB_MASTER”

II. Connection method setup



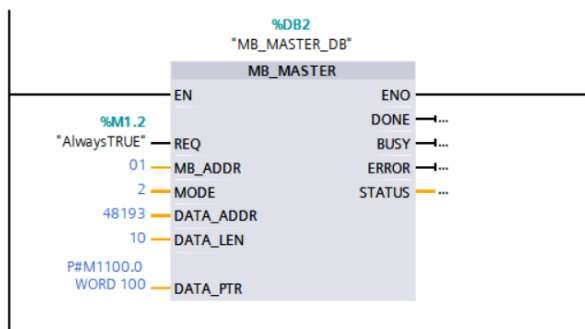
- A. Triggers “REQ” with rising edge
- B. PORT set to “269”
- C. Baud set to “115200”
- D. PARITY set to “0”
- E. MB_DB set to “MB_MASTER” in use

III. Reading of the communication register



Triggers “REQ” with rising edge
 MB_ADDR set to iO-GRID’s station number
 MODE set to “0”
 DATA_ADDR set to “44097”
 DATA_LEN set to “Data Length”
 DATA_PTR set to CPU’s register address

IV. Writing of the communication register



Triggers “REQ” with rising edge
 MB_ADDR set to iO-GRID’s station number
 MODE set to “2”
 DATA_ADDR set to “48193”
 DATA_LEN set to “Data Length”
 DATA_PTR set to CPU’s register address

Notes:

- ※ iO-GRID™’s first GFDI-RM01N has the register address at 1000(HEX) converted to 4096(DEC)+1 and the starting address at 44097
- ※ iO-GRID™’s first GFDO-RM01N has the register address at 2000(HEX) converted to 8192(DEC)+1 and the starting address at 48193
- ※ For MODE settings, please refer to Siemens [DATA_ADDR & MODE Parameters](#)