DAUDIN CO., LTD.

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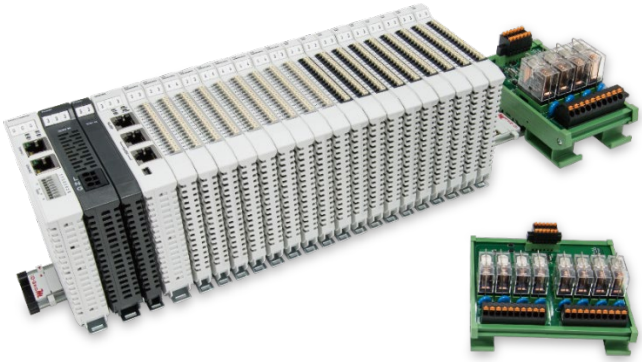
V2.0.0



iO-GRID M

and NX1P2

Modbus RTU Connection Operating Manual

Table of Contents

1. iO-GRID M Module 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 NX1P2'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.

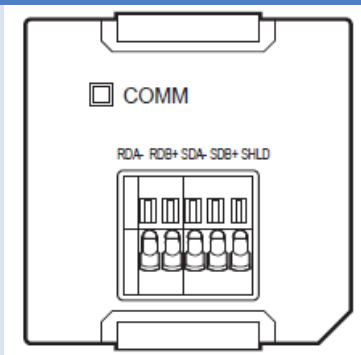
III. The power module and interface module are standard for remote I/Os and users can choose the model or brand they prefer.

2. OMRON-NX1P2 Connection Setup

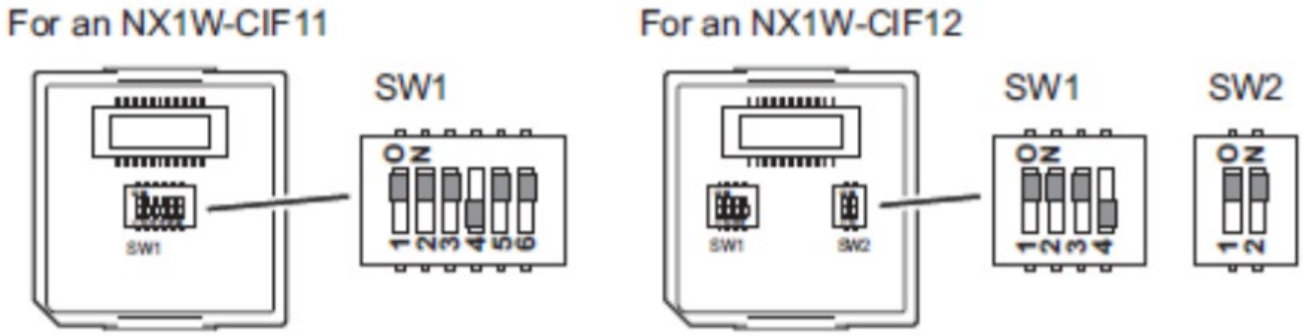
This section details how to use the Sysmac Studio software to connect NX1P2 and io-grid m.
For more details, please refer to the *NX1P2 CPU Unit Manual*

2.1 NX1P2 Hardware Setup & Connection

I. Communication Module Specification

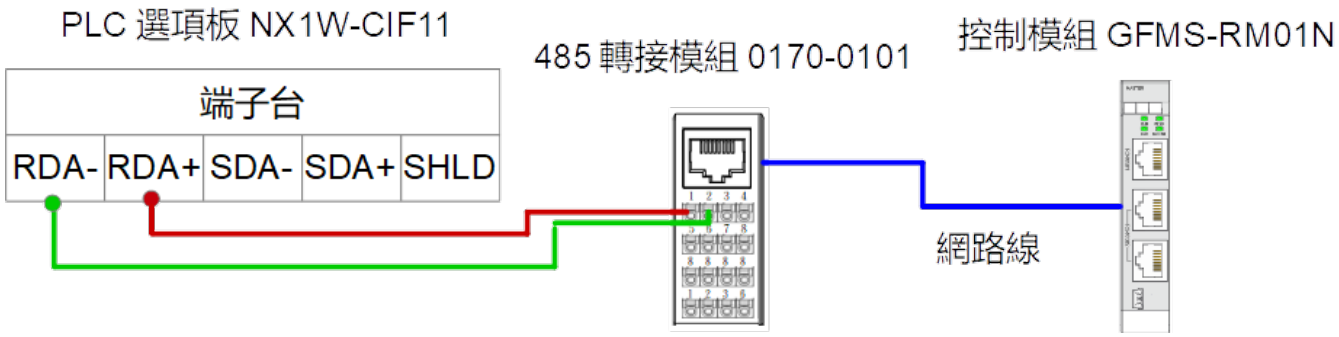
Table of Contents	NX1W-CIF11	NX1W-CIF12
Module Exterior Design		
Communication	RS422A/RS485	RS422A/RS485
Communication Ports	1	1
Communication Protocol	Host link (FINS), Modbus-RTU master, no-protocol	Host link (FINS), Modbus-RTU master, no-protocol
Data Transfer Distance	50m	50m
Externally Connected Terminals	Screwless Terminal Block	Screwless Terminal Block
Insulation	Non-insulated	Insulated

II. How to set up the communication module hardware Connected to iO-GRID M via 2-wire RS485 and Modbus protocol



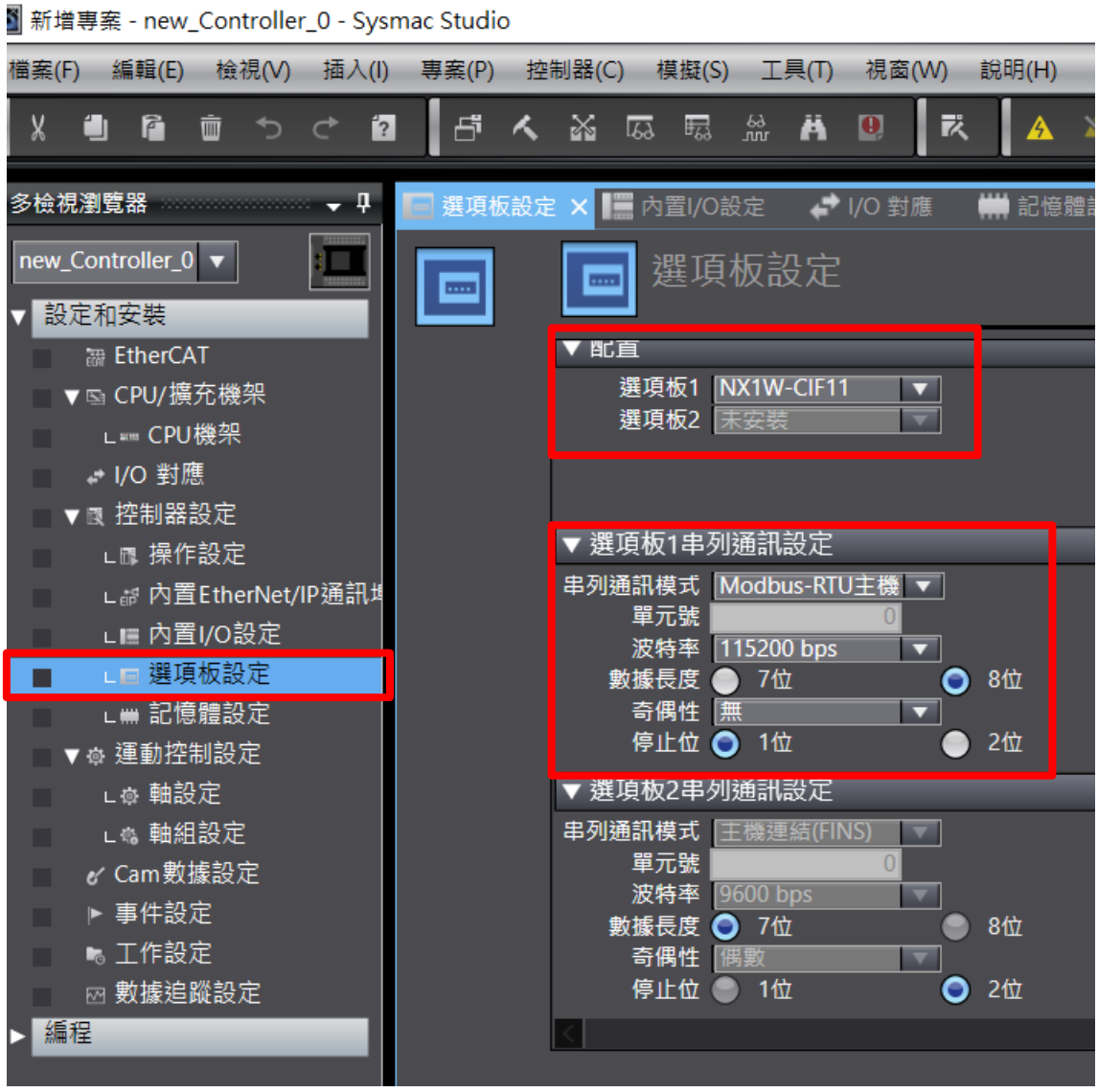
NX1W-CIF11		NX1W-CIF12		Settings	Setting Details
SW	NO.	SW	NO.		
SW1	1	**SW1**	1	ON	With a terminating resistor
	2		2	ON	2-wire
	3		3	ON	2-wire
	4		4	OFF	None
	5	**SW2**	1	ON	Receives RS controls
	6		2	OM	Sends RS controls

III. Physical Connections



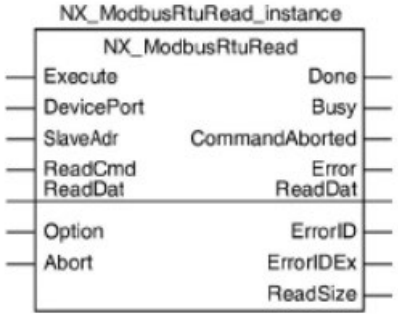
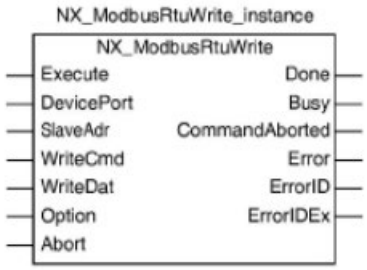
2.2 NX1P2 Connection Setup

I. From the toolbar on the left of "Sysmac Studios", click on "Communication Module Setting".



II. Serial port's communication settings must be the same as iO-GRID M.

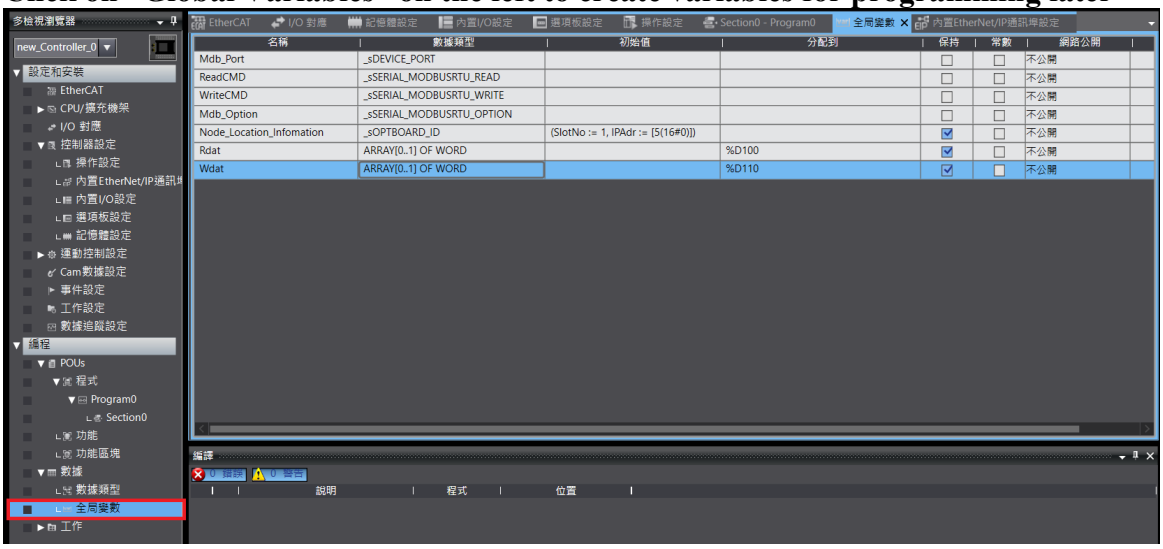
III. Modbus read/write commands:

Commands	Names	FB/FUN	Ladder Diagram
NX_ModbusRtuRead	Send “ModBus RTU's read command”	FB	
NX_ModbusRtuWrite	Send “ModBus RTU's write command”	FB	

Variables:

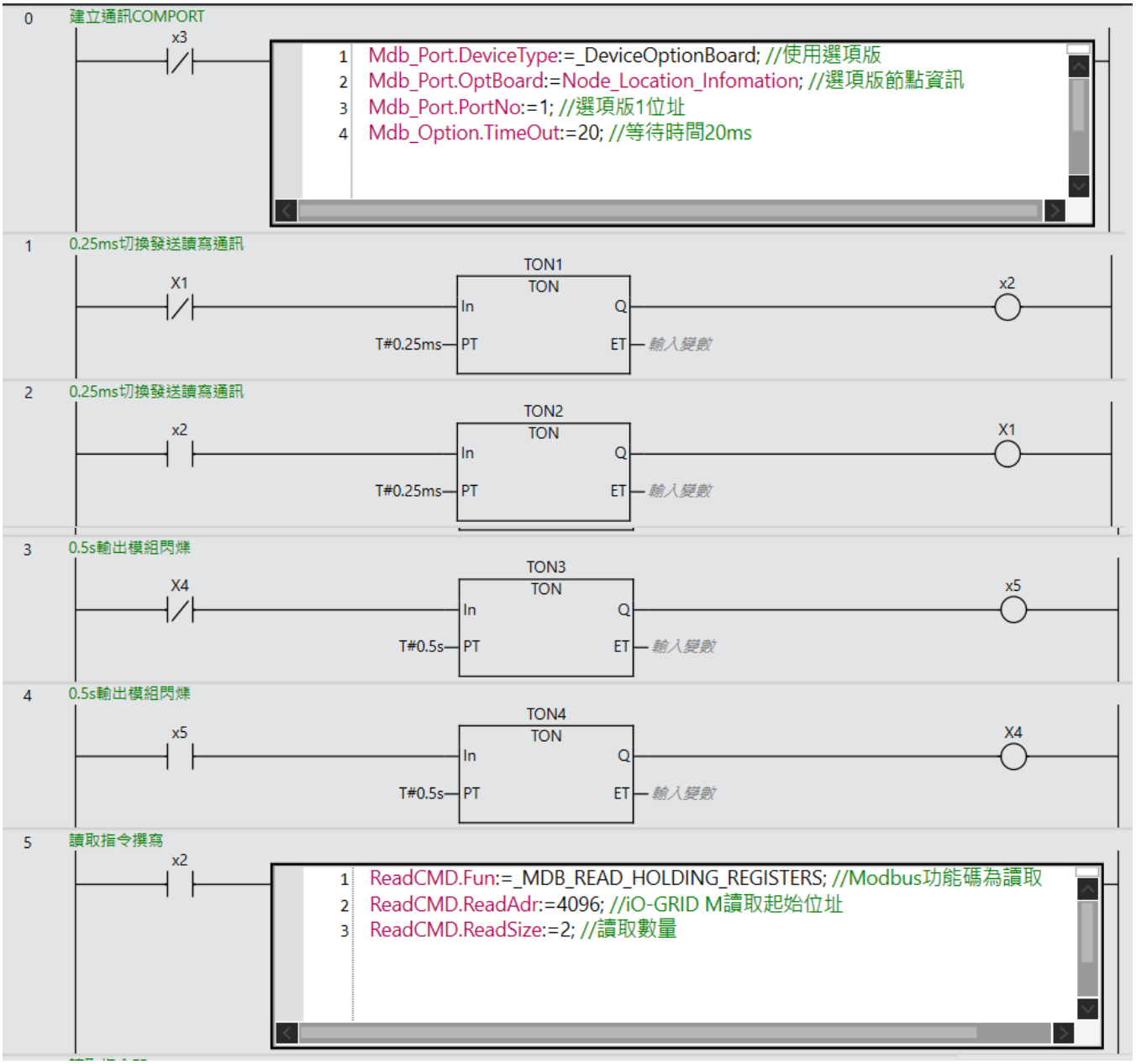
DevicePort: Set up the device communication port using the variable type of“sDEVICE_PORT”
SlaveAdr: Set up the station number of the slave using the variable type of UNIT. Station number can be between 1 to 247.
ReadCmd: Read the commands using the variable type of “_sSERIAL_MODBUSRTU_READ”
WriteCmd: Write commands using the variable type of “_sSERIAL_MODBUSRTU_WRITE”
Option: Options using the variable type of “sSERIAL_MODBUSRTU_OPTION”
Abort: Set up the abort operations with “False” as the default value using the variable type of BOOL
ReadDat[](array): Store the read data using the variable type of an array
ReadDat[](array): Store the write data using the variable type of an array
CommandAborted : Abort the operation.
ReadSize: Set up the number of pieces of data received using the variable type of UINT

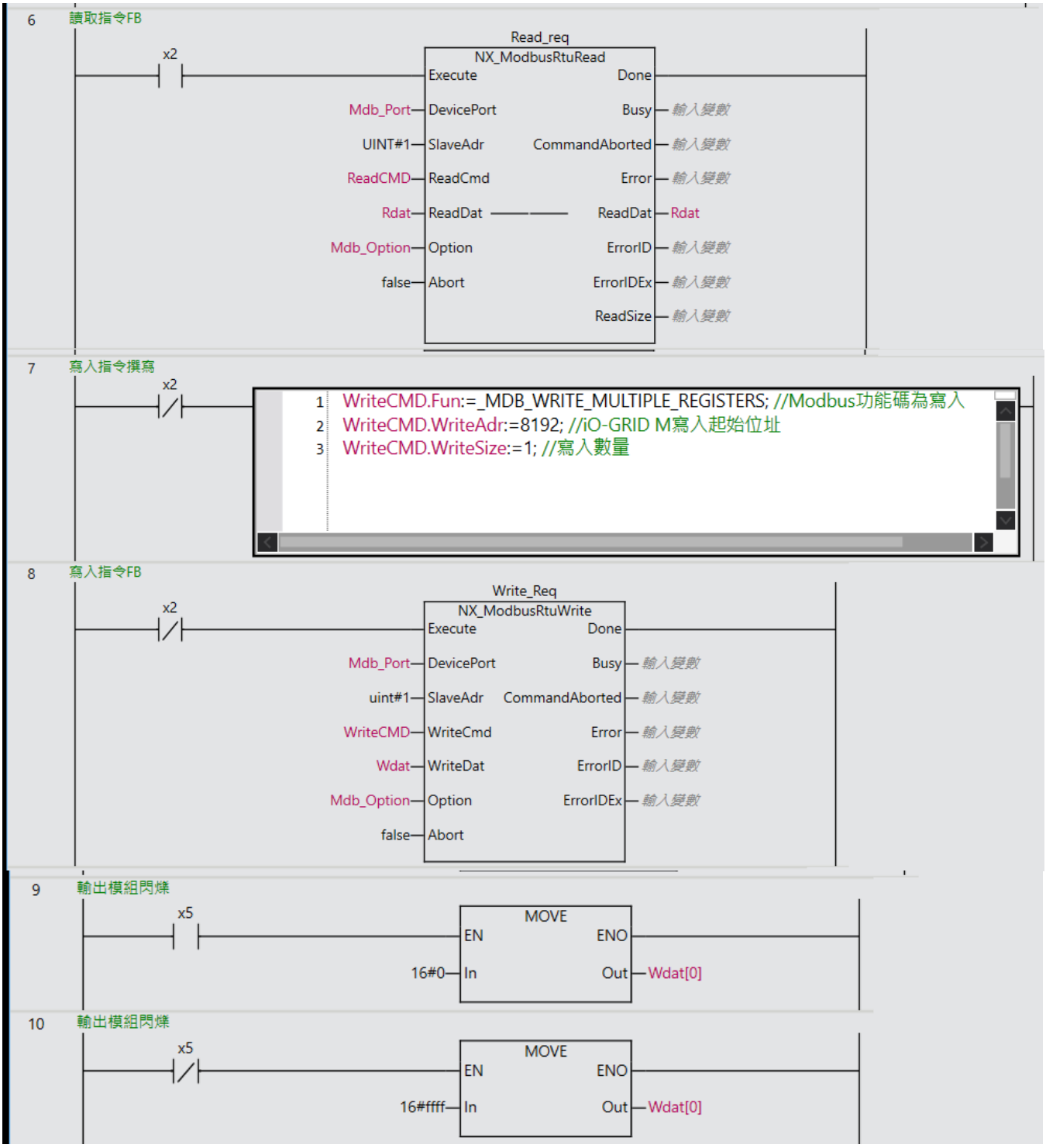
IV. Click on “Global Variables” on the left to create variables for programming later



Names	Variable Types
Node Location Information	_sOPTBOARD_ID
Mdb Port	_sDEVICE_PORT
ReadCMD	_sSERIAL_MODBUSRTU_READ
WriteCMD	_sSERIAL_MODBUSRTU_WRITE
Mdb_Option	_sSERIAL_MODBUSRTU_OPTION
Rdat	ARRAY[0..?] OF WORD
Wdat	ARRAY[0..?] OF WORD

3. Programming Example




6
讀取指令FB
x2
Read_req
NX_ModbusRtuRead
Execute
Done
Mdb_Port
DevicePort
Busy
輸入變數
UINT#1
SlaveAdr
CommandAborted
輸入變數
ReadCMD
ReadCmd
Error
輸入變數
Rdat
ReadDat
ReadDat
Rdat
Mdb_Option
Option
ErrorID
輸入變數
false
Abort
ErrorIDEx
輸入變數
ReadSize
輸入變數
7
寫入指令撰寫
x2
1 WriteCMD.Fun:=_MDB_WRITE_MULTIPLE_REGISTERS; //Modbus功能碼為寫入
2 WriteCMD.WriteAdr:=8192; //iO-GRID M寫入起始位址
3 WriteCMD.WriteSize:=1; //寫入數量
8
寫入指令FB
x2
Write_Req
NX_ModbusRtuWrite
Execute
Done
Mdb_Port
DevicePort
Busy
輸入變數
uint#1
SlaveAdr
CommandAborted
輸入變數
WriteCMD
WriteCmd
Error
輸入變數
Wdat
WriteDat
ErrorID
輸入變數
Mdb_Option
Option
ErrorIDEx
輸入變數
false
Abort
9
輸出模組閃爍
x5
MOVE
EN
ENO
16#0
In
Out
Wdat[0]
10
輸出模組閃爍
x5
MOVE
EN
ENO
16#ffff
In
Out
Wdat[0]