

GW-7662 (Modbus RTU 從站)

如何與Modbus 主站設備通訊?

以SIMATIC TIA portal為例

- 測試前準備
- Example 1:Modbus 主站 讀取/寫入 DO 從/至 PLC
- Example 2:Modbus 主站 讀取/寫入 AO 從/至 PLC
- Example 3:Modbus 主站 從 PLC 讀取 DI
- Example 4:Modbus 主站 從 PLC 讀取 AI

- ✓ 檢查 GW-7662 與 Modbus 設備間的通訊線路。

[如何檢查通訊線路?](#)

- ✓ 與 PLC 建立PROFINET連線 (LED => AP:ON, BOOT:OFF, ERR:OFF).

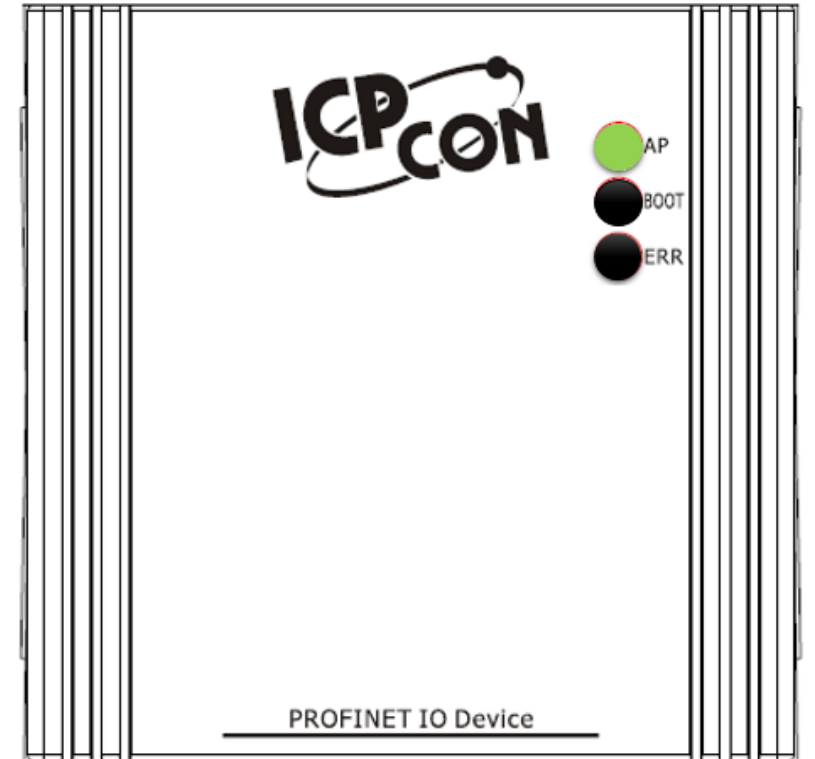
[如何用SIMATIC TIA portal設定GW-7662組態](#)

- ✓ 下載 PFN_Tool 工具軟體

[PFN_Tool](#)

- ✓ 下載 Modbus RTU 主站工具軟體

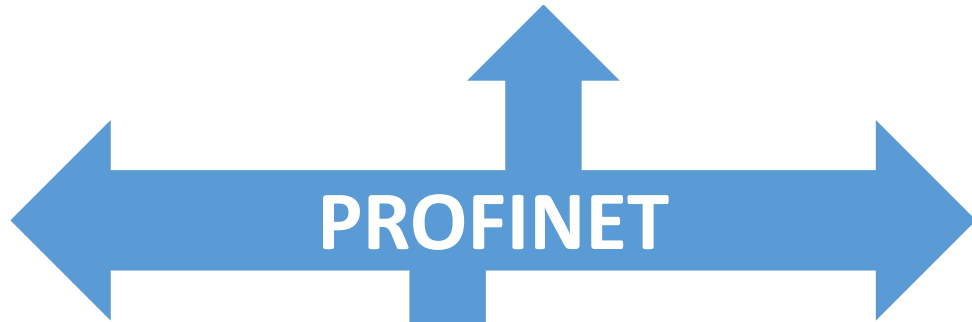
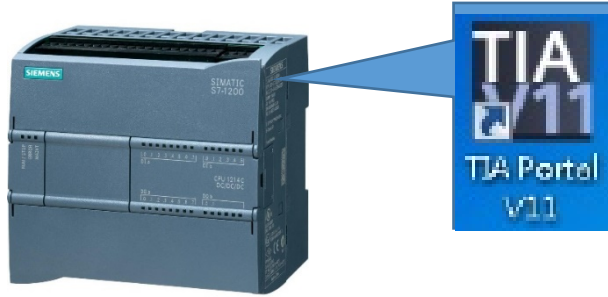
[MBRTU tool](#)





SIMATIC S7-1200

PROFINET IO Controller
(主站)



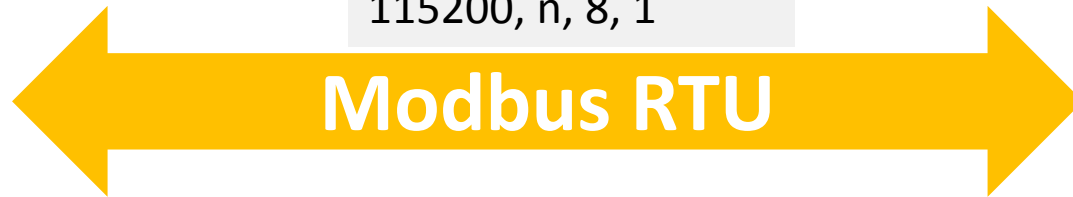
GW-7662



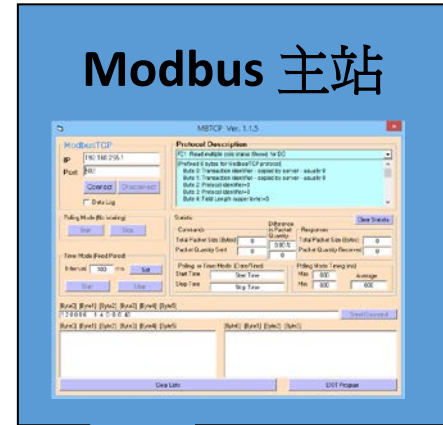
Comport 設定ing:

115200, n, 8, 1

Modbus RTU



Modbus 主站



PROFINET IO device
(從站)

Modbus RTU 從站 (DO)

- Modbus ID:2
- 資料位址: 00001~00016
- 資料長度: 2



PFN_Tool (Version 1.30)

Network Devices : IP: 192.168.77.88 MAC: B8-6B-23-14-E5-76 (Intel(R) Ethernet Connection)

1 搜尋模組 Search Start

Type	Name	IP	Mask	Gateway
GW-7662				
SIMATIC-PC				
S7-PC				
SIMATIC-PC				

2 雙擊模組

Device Basic Configuration

Device Information

Device Type : GW-7662
 Device Name : gw-7662
 IP Address : 0.0.0.0
 Subnet Mask : 0.0.0.0
 Gateway : 0.0.0.0
 Mac Address : 12:34:56:78:9A:BC

Device Name Configure

Device Name : gw-7662

Network Configure

IP Address : 192.168.0.111
 Subnet Mask : 255.255.255.0
 Gateway : 192.168.0.254

Advanced

Device Advanced Configuration

Device Information
 Device Type : GW-7662
 Firmware Version : V1.0

Options
 Load File Save File Download Settings Upload Settings

Modbus Settings Modbus Test Diagnostic Msg. Communication Log Information

Parameters

Modbus Format : RTU Byte Order : Little Endian(Intel) Polling Interval (ms) : 500
 Modbus Type : Master I/O Safe Mode : Last Value Query Timeout (ms) : 500
 Baudrate : 115200
 Line Control : n, 8, 1 Modbus Device ID (dec) : 1 (1~247)

Request Command

Function Code : FC1 Read multiple coils status (0xxxx) for DO Add
 Modbus ID (dec) : 1 (1~247) PROFINET Info.
 Start Address (dec) : 0 (0~65535) Total Input (Byte) : 8 Modify
 Count (dec) : 1 (1~1024 Bits) Total Output (Byte) : 8 Delete
 Change Word Order (AABB CCDD -> CCDD AABB) System used: 8 Bytes

ID	FC	Start Addr.	Count	Word order	PFN Input Addr.(Byte)	PFN Output Addr.(Byte)

Suggested Module : RSW:0 Input:32Byte Output:32Byte

3 按「Advanced Settings」鈕



1. Modbus 通訊組態設定

2. 添加Modbus 從站類型

3. 儲存設定

Device Advanced Configuration

Device Information
Device Type : GW-7662
Firmware Version : V1.0

Options
Load File Save File Download Settings **Upload Settings**

Modbus Settings Modbus Test Diagnostic Msg. Communication Log Information

Parameters

Modbus Format : RTU Byte Order : Little Endian(Intel) Polling Interval (ms) : 500
Modbus Type : Slave I/O Safe Mode : Last Value Query Timeout (ms) : 500
Baudrate : 115200
Line Control : n, 8, 1 Modbus Device ID (dec) : 2 (1~247)

Request Command

Slave Type : DO (Output Relay/Coil) Add
Count (dec) : 16 (1~4032 Bits) PROFINET Info. Modify
Total Input (Byte) : 10
Total Output (Byte) : 8
 Change Word Order (AABB CCDD -> CCDD AABB) System used: 8 Bytes Delete

	ID	FC	Mapping Table	Count	Word order	PFN Input Addr.(Byte)	PFN Output Addr.(Byte)
▶ 1	2	DO	00001~00016	16	No	8~9	N/A

Suggested Module : RSW:0 Input:32Byte Output:32Byte



I address與Q address的前8個bytes供GW-7663內部使用(1~8)
I address與Q address的第9個bytes開始為Modbus資料(9~32)

Device overview							
...	Module	Rack	Slot	I address	Q address	Type	Order no.
	GW-7662	0	0			GW-7662 2-Port De...	GW-7662
	Internal	0	0 X1			GW-7662	
	RSW:0 Input:32Byte Output:32Byte_1	0	1	1...32	1...32	RSW:0 Input:32Byte...	

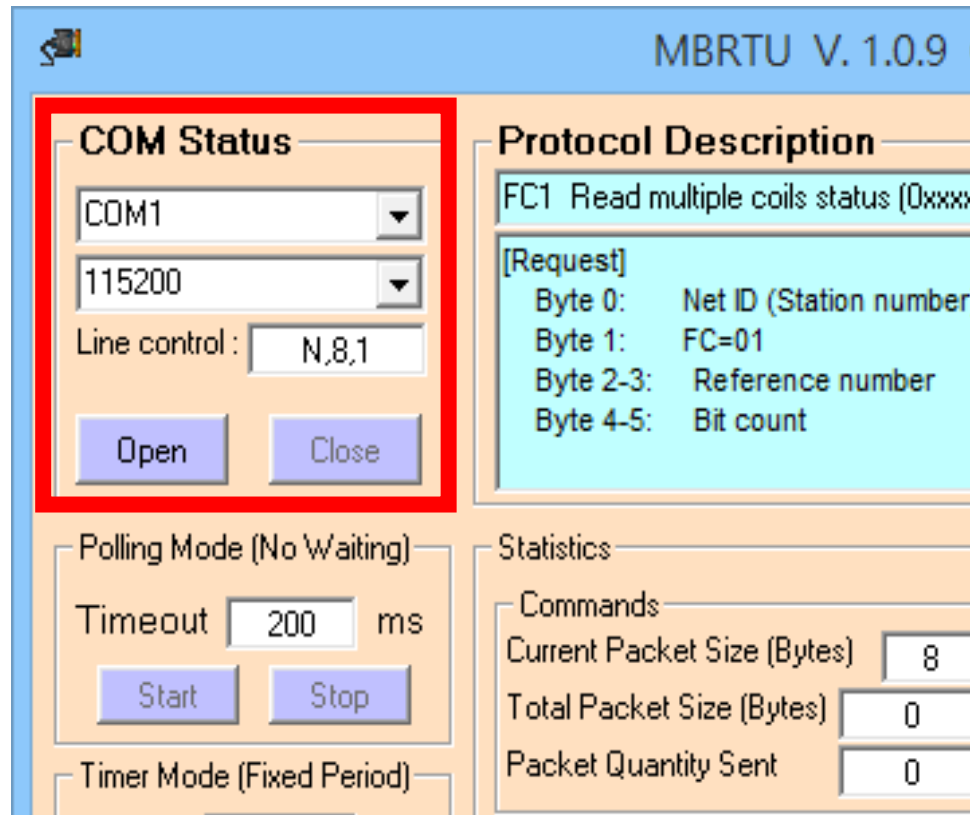
i	...	Address	Display format	Monitor value	M
1		%IB9	Hex	16#00	
2		%IB10	Hex	16#00	
3		%I9.0	Bool	FALSE	
4		%I9.1	Bool	FALSE	
5		%I9.2	Bool	FALSE	
6		%I9.3	Bool	FALSE	
7		%I9.4	Bool	FALSE	
8		%I9.5	Bool	FALSE	
9		%I9.6	Bool	FALSE	
10		%I9.7	Bool	FALSE	
11		%I10.0	Bool	FALSE	
12		%I10.1	Bool	FALSE	
13		%I10.2	Bool	FALSE	
14		%I10.3	Bool	FALSE	
15		%I10.4	Bool	FALSE	
16		%I10.5	Bool	FALSE	
17		%I10.6	Bool	FALSE	
18		%I10.7	Bool	FALSE	

IB9 => 用來從Modbus 主站接收DO 1~8
IB10 => 用來從Modbus 主站接收DO 9~16

I9.0~7 =>用來從Modbus 主站接收DO 1~8
I10.0~7 =>用來從Modbus 主站接收DO 9~16



確認 GW-7662 的 COM port 設定跟 Modbus 主站相同





發送 Modbus 命令 (FC 0F) 改變 DO 狀態(0xAA, 0x55)

The screenshot shows the MBRTU V. 1.0.9 COM1 software interface. The 'COM Status' section shows 'COM1' selected. The 'Protocol Description' section shows 'FC15 Force multiple coils (0xxxx) for DO'. The 'Request' section shows the following details:

- Byte 0: Net ID (Station number)
- Byte 1: FC=0F (hex)
- Byte 2-3: Reference number
- Byte 4-5: Bit count
- Byte 6: Byte count (B=(bit count + 7)/8)

The 'Statistics' section shows the following data:

Commands		Difference in Packet Quantity	Responses	
Current Packet Size (Bytes)	Total Packet Size (Bytes)		Current Packet Size (Bytes)	Total Packet Size (Bytes)
8	33	2	8	
Packet Quantity Sent	3	Packet Quantity Received	1	

The 'Command' section shows the command '02 0F 00 00 00 10 02 AA 55' entered in the 'Command' field. The 'Send Command' button is highlighted. The 'Responses' section shows the response '02 0F 00 00 00 10 54 34' in the 'Responses' field.

1. 發送 DO 值
0xAA => DO 1~8
0x55 => DO 9~16

2. 接收回應訊息



PLC 在 PLC 位址 IB9, IB10 接收 DO 狀態(0xAA, 0x55)

	i	...	Address	Display format	Monitor value	Modify value
1			%IB9	Hex	16#AA	
2			%IB10	Hex	16#55	
3			%I9.0	Bool	<input type="checkbox"/> FALSE	
4			%I9.1	Bool	<input checked="" type="checkbox"/> TRUE	
5			%I9.2	Bool	<input type="checkbox"/> FALSE	
6			%I9.3	Bool	<input checked="" type="checkbox"/> TRUE	
7			%I9.4	Bool	<input type="checkbox"/> FALSE	
8			%I9.5	Bool	<input checked="" type="checkbox"/> TRUE	
9			%I9.6	Bool	<input type="checkbox"/> FALSE	
10			%I9.7	Bool	<input checked="" type="checkbox"/> TRUE	
11			%I10.0	Bool	<input checked="" type="checkbox"/> TRUE	
12			%I10.1	Bool	<input type="checkbox"/> FALSE	
13			%I10.2	Bool	<input checked="" type="checkbox"/> TRUE	
14			%I10.3	Bool	<input type="checkbox"/> FALSE	
15			%I10.4	Bool	<input checked="" type="checkbox"/> TRUE	
16			%I10.5	Bool	<input type="checkbox"/> FALSE	
17			%I10.6	Bool	<input checked="" type="checkbox"/> TRUE	
18			%I10.7	Bool	<input type="checkbox"/> FALSE	



發送 Modbus 命令 (FC 05) 改變DO 狀態
設定 DO 通道5(Modbus 位址: 00005): ON

The screenshot shows the MBRTU V. 1.0.9 COM1 interface. The 'COM Status' section shows 'COM1' selected with 'Line control: N,8,1'. The 'Protocol Description' section shows 'FC5 Write single coil (0xxxx) for DO' with a request breakdown: Byte 0: Net ID (Station number), Byte 1: FC=05, Byte 2-3: Reference number, Byte 4: =FF to turn ON coil, =00 to turn OFF coil, Byte 5: =00. The 'Statistics' section shows 'Commands' with 'Current Packet Size (Bytes): 8', 'Total Packet Size (Bytes): 111', and 'Packet Quantity Sent: 11'. The 'Responses' section shows 'Current Packet Size (Bytes): 8', 'Total Packet Size (Bytes): 64', and 'Packet Quantity Received: 8'. The 'Command' field contains '02 05 00 04 FF 00' and the 'Send Command' button is highlighted. The 'Responses' list shows '02 05 00 04 FF 00 CD C8'.

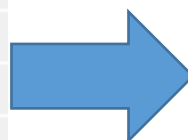
1. 發送 查詢命令

2. 接收回應訊息



PLC 在 PLC 位址 I9.4(通道5) 接收 DO 狀態

	i	...	Address	Display format	Monitor value	Modify value
1			%IB9	Hex	16#AA	
2			%IB10	Hex	16#55	
3			%I9.0	Bool	<input type="checkbox"/> FALSE	
4			%I9.1	Bool	<input checked="" type="checkbox"/> TRUE	
5			%I9.2	Bool	<input type="checkbox"/> FALSE	
6			%I9.3	Bool	<input checked="" type="checkbox"/> TRUE	
7			%I9.4	Bool	<input type="checkbox"/> FALSE	
8			%I9.5	Bool	<input checked="" type="checkbox"/> TRUE	
9			%I9.6	Bool	<input type="checkbox"/> FALSE	
10			%I9.7	Bool	<input checked="" type="checkbox"/> TRUE	
11			%I10.0	Bool	<input checked="" type="checkbox"/> TRUE	
12			%I10.1	Bool	<input type="checkbox"/> FALSE	
13			%I10.2	Bool	<input checked="" type="checkbox"/> TRUE	
14			%I10.3	Bool	<input type="checkbox"/> FALSE	
15			%I10.4	Bool	<input checked="" type="checkbox"/> TRUE	
16			%I10.5	Bool	<input type="checkbox"/> FALSE	
17			%I10.6	Bool	<input checked="" type="checkbox"/> TRUE	
18			%I10.7	Bool	<input type="checkbox"/> FALSE	



	i	...	Address	Display format	Monitor value	Modify value
1			%IB9	Hex	16#BA	
2			%IB10	Hex	16#55	
3			%I9.0	Bool	<input type="checkbox"/> FALSE	
4			%I9.1	Bool	<input checked="" type="checkbox"/> TRUE	
5			%I9.2	Bool	<input type="checkbox"/> FALSE	
6			%I9.3	Bool	<input checked="" type="checkbox"/> TRUE	
7			%I9.4	Bool	<input checked="" type="checkbox"/> TRUE	
8			%I9.5	Bool	<input checked="" type="checkbox"/> TRUE	
9			%I9.6	Bool	<input type="checkbox"/> FALSE	
10			%I9.7	Bool	<input checked="" type="checkbox"/> TRUE	
11			%I10.0	Bool	<input checked="" type="checkbox"/> TRUE	
12			%I10.1	Bool	<input type="checkbox"/> FALSE	
13			%I10.2	Bool	<input checked="" type="checkbox"/> TRUE	
14			%I10.3	Bool	<input type="checkbox"/> FALSE	
15			%I10.4	Bool	<input checked="" type="checkbox"/> TRUE	
16			%I10.5	Bool	<input type="checkbox"/> FALSE	
17			%I10.6	Bool	<input checked="" type="checkbox"/> TRUE	
18			%I10.7	Bool	<input type="checkbox"/> FALSE	



發送 Modbus 命令 (FC 01) 讀取 DO 狀態

The screenshot shows the MBRTU V. 1.0.9 COM1 interface. The 'Protocol Description' section is set to 'FC1 Read multiple coils status (0xxxx) for DO'. The 'Command' field contains the hex value '02 01 00 00 00 10'. The 'Responses' field contains the hex value '02 01 02 BA 55 4E A3'. The 'Statistics' section shows 12 commands sent and 9 responses received.

Field	Value
COM1	COM1
Line control	N,8,1
Timeout	200 ms
Interval	50 ms
Current Packet Size (Bytes)	8
Total Packet Size (Bytes)	119
Packet Quantity Sent	12
Difference in Packet Quantity	3
Current Packet Size (Bytes)	7
Total Packet Size (Bytes)	71
Packet Quantity Received	9

1. 發送 查詢命令

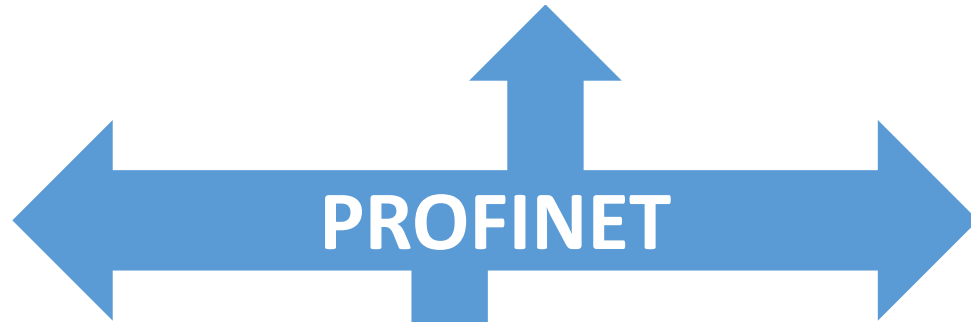
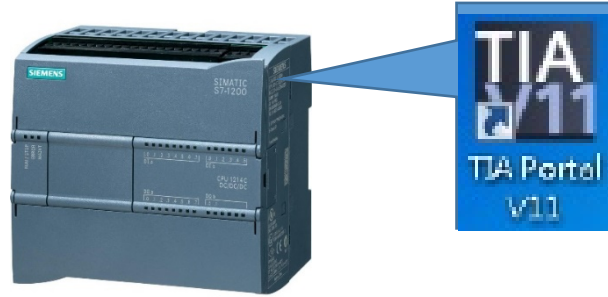
2. 接收 DO 值
0xBA => DO 1~8
0x55 => DO 9~16

Modbus 主站讀取/寫入3通道AO 從/至PLC



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PROFINET IO Controller
(主站)



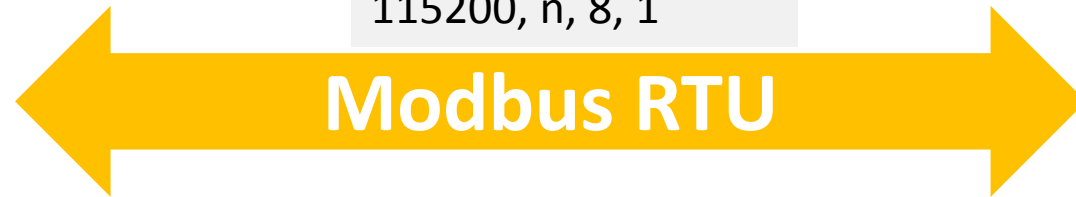
GW-7662



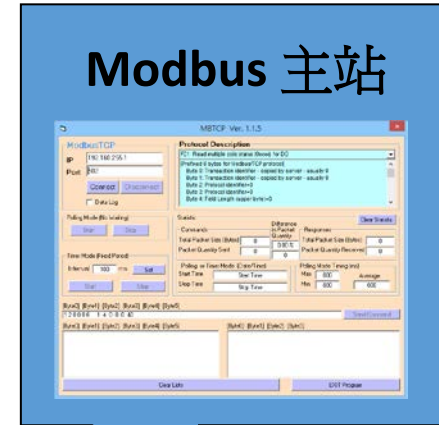
Comport 設定ting:

115200, n, 8, 1

Modbus RTU



Modbus 主站



PROFINET IO device
(從站)

Modbus RTU 從站 (AO)

- Modbus ID:4
- 資料位址: 40001~40003
- 資料長度: 3



PFN_Tool (Version 1.30)

Network Devices : IP: 192.168.77.88 MAC: B8-6B-23-14-E5-76 (Intel(R) Ethernet Connection)

1 搜尋模組 Search Start

Type	Name	IP	Mask	Gateway
GW-7662				
SIMATIC-PC				
S7-PC				
SIMATIC-PC				

2 雙擊模組

Device Basic Configuration

Device Information

Device Type : GW-7662
 Device Name : gw-7662
 IP Address : 0.0.0.0
 Subnet Mask : 0.0.0.0
 Gateway : 0.0.0.0
 Mac Address : 12:34:56:78:9A:BC

Device Name Configure

Device Name : gw-7662

Network Configure

IP Address : 192.168.0.111
 Subnet Mask : 255.255.255.0
 Gateway : 192.168.0.254

Advanced

Device Advanced Configuration

Device Information
 Device Type : GW-7662
 Firmware Version : V1.0

Options
 Load File Save File Download Settings Upload Settings

Modbus Settings Modbus Test Diagnostic Msg. Communication Log Information

Parameters

Modbus Format : RTU Byte Order : Little Endian(Intel) Polling Interval (ms) : 500
 Modbus Type : Master I/O Safe Mode : Last Value Query Timeout (ms) : 500
 Baudrate : 115200
 Line Control : n, 8, 1 Modbus Device ID (dec) : 1 (1~247)

Request Command

Function Code : FC1 Read multiple coils status (0xxxx) for DO Add
 Modbus ID (dec) : 1 (1~247) PROFINET Info.
 Start Address (dec) : 0 (0~65535) Total Input (Byte) : 8 Modify
 Count (dec) : 1 (1~1024 Bits) Total Output (Byte) : 8 Delete
 Change Word Order (AABB CCDD -> CCDD AABB) System used: 8 Bytes

ID	FC	Start Addr.	Count	Word order	PFINET Input Addr.(Byte)	PFINET Output Addr.(Byte)

Suggested Module : RSW:0 Input:32Byte Output:32Byte

3 按「Advanced Settings」鈕



Device Advanced Configuration

Device Information
Device Type : GW-7662
Firmware Version : V1.0

Options
Load File Save File Download Settings **Upload Settings**

Modbus Settings Modbus Test Diagnostic Msg. Communication Log Information

Parameters

Modbus Format : RTU Byte Order : Little Endian(Intel) Polling Interval (ms) : 500
Modbus Type : Slave I/O Safe Mode : Last Value Query Timeout (ms) : 500
Baudrate : 115200
Line Control : n, 8, 1 Modbus Device ID (dec) : 4 (1~247)

Request Command

Slave Type : AO (Output/Holding Register) Add
Count (dec) : 3 (1~252 Words) PROFINET Info. Total Input (Byte) : 14 Modify
Total Output (Byte) : 8 Delete
 Change Word Order (AABB CCDD -> CCDD AABB) System used: 8 Bytes

	ID	FC	Mapping Table	Count	Word order	PFN Input Addr.(Byte)	PFN Output Addr.(Byte)
▶ 1	4	AO	40001~40003	3	No	8~13	N/A

Suggested Module : RSW:0 Input:32Byte Output:32Byte

1. Modbus 通訊組態設定

2. 添加Modbus 從站類型

3. 儲存設定



I address與Q address的前8個bytes供GW-7663內部使用(1~8)
I address與Q address的第9個bytes開始為Modbus資料(9~32)

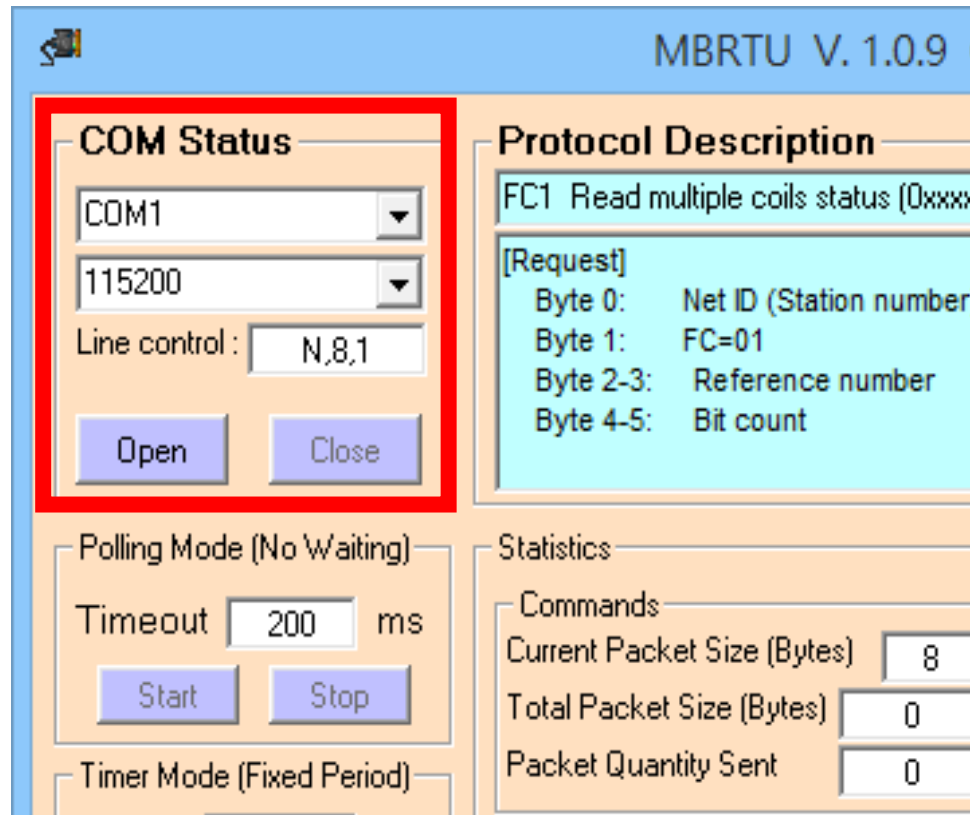
Device overview							
...	Module	Rack	Slot	I address	Q address	Type	Order no.
	▼ GW-7662	0	0			GW-7662 2-Port De...	GW-7662
	▶ Internal	0	0 X1			GW-7662	
	RSW:0 Input:32Byte Output:32Byte_1	0	1	1...32	1...32	RSW:0 Input:32Byte...	

...	Address	Display format	Monitor va
1	%IW9	Hex	16#0000
2	%IW11	Hex	16#0000
3	%IW13	Hex	16#0000

IW9 => 用來從 Modbus 主站接收 AO 1
IW11 => 用來從 Modbus 主站接收 AO 2
IW13 => 用來從 Modbus 主站接收 AO 3



確認 GW-7662 的 COM port 設定跟 Modbus 主站相同





發送 Modbus 命令 (FC 10) 改變 AO 狀態(0x1122, 0x3344, 0x5566)

The screenshot shows the MBRTU V. 1.0.9 COM1 interface. The 'Protocol Description' section is set to 'FC16 Write multiple registers (4xxxx) for AO'. The 'Request' section shows the following details:

- Byte 0: Net ID (Station number)
- Byte 1: FC=10 (hex)
- Byte 2-3: Reference number
- Byte 4-5: Word count
- Byte 6: Byte count (B=2 x word count)

The 'Command' field contains the hexadecimal string: 04 10 00 00 00 03 06 11 22 33 44 55 66. The 'Send Command' button is highlighted with a red box. Below the command field, the 'Responses' section shows the received data: 04 10 00 00 00 03 80 5D. The 'Include CRC' checkbox is checked. The 'Clear Lists' and 'Exit Program' buttons are at the bottom.

1. 發送 AO 值

0x1122 => AO 1

0x3344 => AO 2

0x5566 => AO 3

2. 接收回應訊息



PLC 在PLC 位址 IW9, IW11, IW13 接收 AO 狀態(0x1122, 0x3344, 0x5566)

	i	...	Address	Display format	Monitor value	Mo
1			%IW9	Hex	16#1122	
2			%IW11	Hex	16#3344	
3			%IW13	Hex	16#5566	



發送 Modbus 命令 (FC 06) 改變 AO 狀態
設定 AO 通道2(Modbus 位址: 40002): 0xABCD

The screenshot shows the MBRTU V. 1.0.9 COM1 interface. The 'Protocol Description' section is set to 'FC6 Write single register (4xxxx) for AO'. The 'Request' section shows the command structure: Byte 0: Net ID (Station number), Byte 1: FC=06, Byte 2-3: Reference number, and Byte 4-5: Register value. The 'Command' field contains the hexadecimal string '04 06 00 01 AB CD'. The 'Responses' section shows the received data: '04 06 00 01 AB CD 66 FA'. The 'Statistics' section shows 'Commands' and 'Responses' counts.

Statistics	Commands	Responses
Current Packet Size (Bytes)	8	8
Total Packet Size (Bytes)	155	95
Packet Quantity Sent	15	12

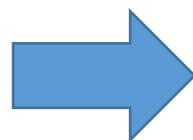
1. 發送 查詢命令

2. 接收回應訊息



PLC 在 PLC 位址 IW11 接收 AO 狀態(0xABCD)

	i	...	Address	Display format	Monitor value	Mo
1			%IW9	Hex	16#1122	
2			%IW11	Hex	16#3344	
3			%IW13	Hex	16#5566	



	i	...	Address	Display format	Monitor value	Mo
1			%IW9	Hex	16#1122	
2			%IW11	Hex	16#ABCD	
3			%IW13	Hex	16#5566	



發送 Modbus 命令 (FC 03) 讀取 AO 狀態

The screenshot shows the MBRTU V. 1.0.9 COM1 interface. The 'COM Status' section shows 'COM1' selected. The 'Protocol Description' section shows 'FC3 Read multiple registers (4xxxx) for AO'. The 'Command' field contains the hex string '04 03 00 00 00 03'. The 'Responses' field contains the hex string '04 03 06 11 22 AB CD 55 66 EB C2'. The 'Statistics' section shows 'Commands' and 'Responses' counts.

Field	Value
COM1	COM1
Line control	N,8,1
Protocol Description	FC3 Read multiple registers (4xxxx) for AO
Request	Byte 0: Net ID (Station number) Byte 1: FC=03 Byte 2-3: Reference number Byte 4-5: Word count
Timeout	200 ms
Interval	50 ms
Current Packet Size (Bytes)	8
Total Packet Size (Bytes)	179
Packet Quantity Sent	18
Difference in Packet Quantity	3
Current Packet Size (Bytes)	11
Total Packet Size (Bytes)	126
Packet Quantity Received	15
Command	04 03 00 00 00 03
Response	04 03 06 11 22 AB CD 55 66 EB C2

1. 發送 查詢命令

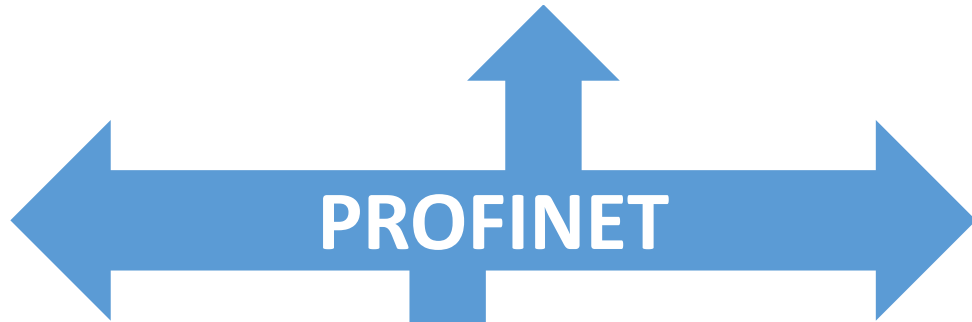
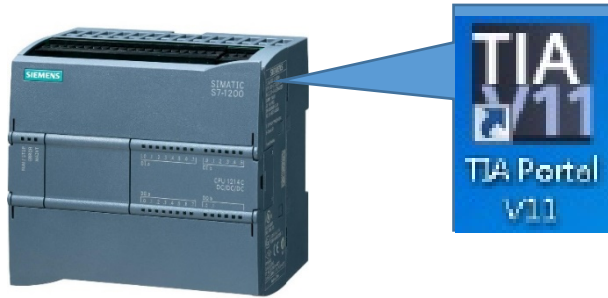
2. 接收 AO 值
0x1122 => AO 1
0xABCD => AO 2
0x5566 => AO 3

Modbus 主站從 PLC 讀取 14 通道 DI



SIMATIC S7-1200

PROFINET IO Controller
(主站)

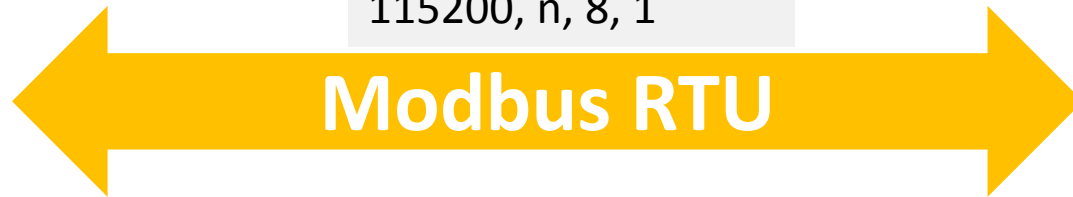


GW-7662

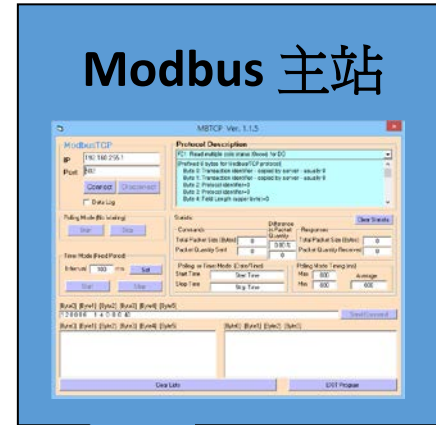


Comport 設定ting:

115200, n, 8, 1



Modbus 主站



PROFINET IO device
(從站)

Modbus RTU 從站 (DI)

- Modbus ID:3
- 資料位址: 10001~10014
- 資料長度: 2



PFN_Tool (Version 1.30)

Network Devices : IP: 192.168.77.88 MAC: B8-6B-23-14-E5-76 (Intel(R) Ethernet Connection)

1 搜尋模組

Type	Name	IP	Mask	Gateway
GW-7662				
SIMATIC-PC				
S7-PC				
SIMATIC-PC				

2 雙擊模組

Device Basic Configuration

Device Information

Device Type : GW-7662
Device Name : gw-7662
IP Address : 0.0.0.0
Subnet Mask : 0.0.0.0
Gateway : 0.0.0.0
Mac Address : 12:34:56:78:9A:BC

Device Name Configure

Device Name : gw-7662

Network Configure

IP Address : 192.168.0.111
Subnet Mask : 255.255.255.0
Gateway : 192.168.0.254

Advanced

Device Advanced Configuration

Device Information
Device Type : GW-7662
Firmware Version : V1.0

Options
Load File Save File Download Settings Upload Settings

Modbus Settings Modbus Test Diagnostic Msg. Communication Log Information

Parameters

Modbus Format : RTU Byte Order : Little Endian(Intel) Polling Interval (ms) : 500
Modbus Type : Master I/O Safe Mode : Last Value Query Timeout (ms) : 500
Baudrate : 115200
Line Control : n, 8, 1 Modbus Device ID (dec) : 1 (1~247)

Request Command

Function Code : FC1 Read multiple coils status (0xxxx) for DO Add
Modbus ID (dec) : 1 (1~247) PROFINET Info. Modify
Start Address (dec) : 0 (0~65535) Total Input (Byte) : 8
Count (dec) : 1 (1~1024 Bits) Total Output (Byte) : 8
 Change Word Order (AABB CCDD -> CCDD AABB) System used: 8 Bytes Delete

ID	FC	Start Addr.	Count	Word order	PFN Input Addr.(Byte)	PFN Output Addr.(Byte)

Suggested Module : RSW:0 Input:32Byte Output:32Byte

3 按「Advanced Settings」鈕



Device Advanced Configuration

Device Information
Device Type : GW-7662
Firmware Version : V1.0

Options
Load File Save File Download Settings **Upload Settings**

Modbus Settings Modbus Test Diagnostic Msg. Communication Log Information

Parameters

Modbus Format : RTU Byte Order : Little Endian(Intel) Polling Interval (ms) : 500
Modbus Type : Slave I/O Safe Mode : Last Value Query Timeout (ms) : 500
Baudrate : 115200
Line Control : n, 8, 1 Modbus Device ID (dec) : 3 (1~247)

Request Command

Slave Type : DI (Input Relay/Coil) Add
Count (dec) : 14 (1~4032 Bits) PROFINET Info.
Total Input (Byte) : 8 Modify
Total Output (Byte) : 10
 Change Word Order (AABB CCDD -> CCDD AABB) System used: 8 Bytes Delete

	ID	FC	Mapping Table	Count	Word order	PFN Input Addr.(Byte)	PFN Output Addr.(Byte)
▶ 1	3	DI	10001~10014	14	No	N/A	8~9

Suggested Module : RSW:0 Input:32Byte Output:32Byte

1. Modbus 通訊組態設定

2. 添加Modbus 從站類型

3. 儲存設定



I address與Q address的前8個bytes供GW-7663內部使用(1~8)
I address與Q address的第9個bytes開始為Modbus資料(9~32)

Device overview							
...	Module	Rack	Slot	I address	Q address	Type	Order no.
	▼ GW-7662	0	0			GW-7662 2-Port De...	GW-7662
	▶ Internal	0	0 X1			GW-7662	
	RSW:0 Input:32Byte Output:32Byte_1	0	1	1...32	1...32	RSW:0 Input:32Byte...	

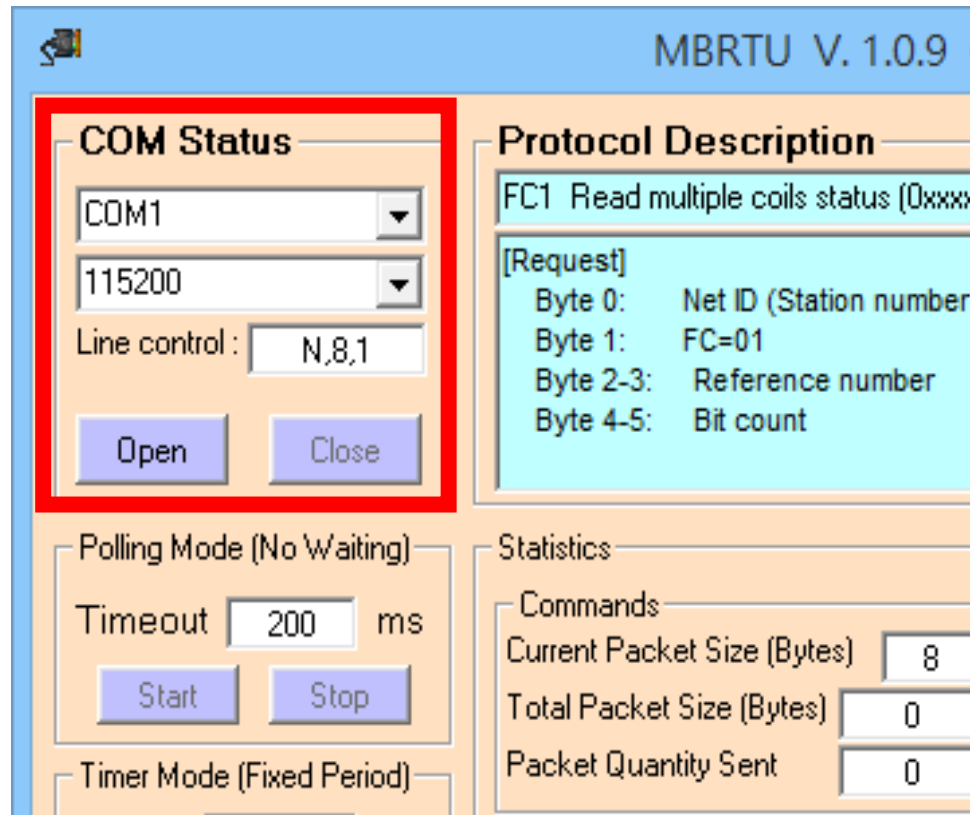
...	Address	Display format	Monitor value	Modify
1	%QB9	Hex	16#00	
2	%QB10	Hex	16#00	
3	%Q9.0	Bool	FALSE	
4	%Q9.1	Bool	FALSE	
5	%Q9.2	Bool	FALSE	
6	%Q9.3	Bool	FALSE	
7	%Q9.4	Bool	FALSE	
8	%Q9.5	Bool	FALSE	
9	%Q9.6	Bool	FALSE	
10	%Q9.7	Bool	FALSE	
11	%Q10.0	Bool	FALSE	
12	%Q10.1	Bool	FALSE	
13	%Q10.2	Bool	FALSE	
14	%Q10.3	Bool	FALSE	
15	%Q10.4	Bool	FALSE	
16	%Q10.5	Bool	FALSE	

QB9 => 用來更新 DI 1~8
QB10 => 用來更新 DI 9~14

Q9.0~7 => 用來更新 DI 1~8
Q10.0~5 => 用來更新 DI 9~14



確認 GW-7662 的 COM port 設定跟 Modbus 主站相同





發送 Modbus 命令 (FC 02) 讀取 DI 狀態

The screenshot shows the MBRTU V. 1.0.9 COM1 interface. The 'COM Status' section shows 'COM1' selected. The 'Protocol Description' section shows 'FC3 Read multiple registers (4xxxx) for AO'. The 'Statistics' section shows 'Commands' and 'Responses' data. The 'Command' field contains '03 02 00 00 00 0E' and the 'Send Command' button is highlighted. The 'Responses' field contains '03 02 02 00 00 C0 78'. The 'Include CRC' checkbox is checked.

Field	Value
COM1	COM1
Line control	N,8,1
Timeout	200 ms
Interval	50 ms
Current Packet Size (Bytes)	8
Total Packet Size (Bytes)	235
Packet Quantity Sent	25
Difference in Packet Quantity	4
Current Packet Size (Bytes)	7
Total Packet Size (Bytes)	198
Packet Quantity Received	21
Max	000
Average	000
Min	100

Command: 03 02 00 00 00 0E

Responses: 03 02 02 00 00 C0 78

1. 發送查詢命令

2. 接收 DI 值

0x00 => DI 1~8

0x00 => DI 9~14



改變 QB9, QB10 值為 0xAA, 0x15

	i	...	Address	Display format	Monitor value	Modify value
1			%QB9	Hex	16#AA	16#AA
2			%QB10	Hex	16#15	16#15
3			%Q9.0	Bool	<input type="checkbox"/> FALSE	
4			%Q9.1	Bool	<input checked="" type="checkbox"/> TRUE	
5			%Q9.2	Bool	<input type="checkbox"/> FALSE	
6			%Q9.3	Bool	<input checked="" type="checkbox"/> TRUE	
7			%Q9.4	Bool	<input type="checkbox"/> FALSE	
8			%Q9.5	Bool	<input checked="" type="checkbox"/> TRUE	
9			%Q9.6	Bool	<input type="checkbox"/> FALSE	
10			%Q9.7	Bool	<input checked="" type="checkbox"/> TRUE	
11			%Q10.0	Bool	<input checked="" type="checkbox"/> TRUE	
12			%Q10.1	Bool	<input type="checkbox"/> FALSE	
13			%Q10.2	Bool	<input checked="" type="checkbox"/> TRUE	
14			%Q10.3	Bool	<input type="checkbox"/> FALSE	
15			%Q10.4	Bool	<input checked="" type="checkbox"/> TRUE	
16			%Q10.5	Bool	<input type="checkbox"/> FALSE	



再次發送 Modbus 命令 (FC 02) 讀取 DI 狀態

The screenshot shows the MBRTU V. 1.0.9 COM1 interface. The 'Protocol Description' section shows 'FC3 Read multiple registers (4xxxx) for AO'. The 'Command' field contains '03 02 00 00 00 0E'. The 'Responses' section shows a response packet: '03 02 02 AA 15 7F 17'. The response is highlighted with a red box. The 'Send Command' button is also highlighted with a red box.

Field	Value
COM1	COM1
Line control	N,8,1
Timeout	200 ms
Interval	50 ms
Current Packet Size (Bytes)	8
Total Packet Size (Bytes)	259
Packet Quantity Sent	28
Difference in Packet Quantity	4
Current Packet Size (Bytes)	7
Total Packet Size (Bytes)	219
Packet Quantity Received	24
Max	000
Min	100
Average	000

Command: 03 02 00 00 00 0E

Responses: 03 02 02 AA 15 7F 17

1. 發送查詢命令

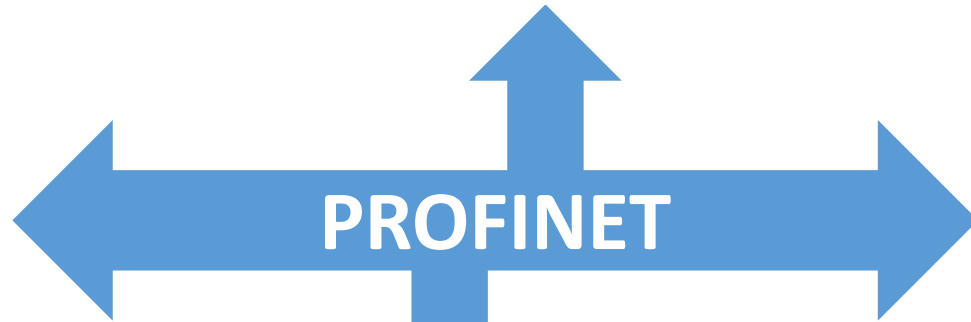
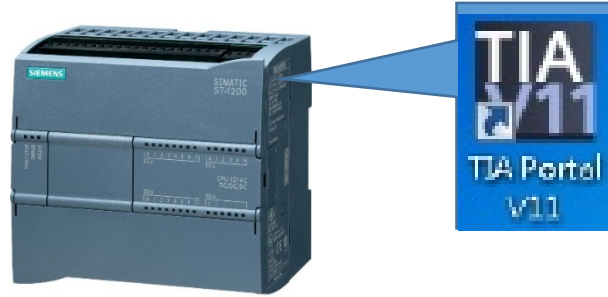
2. 接收 DI 值
0xAA => DI 1~8
0x15 => DI 9~14

Modbus 主站從 PLC 讀取 4 通道 AI



SIMATIC S7-1200

PROFINET IO Controller
(主站)



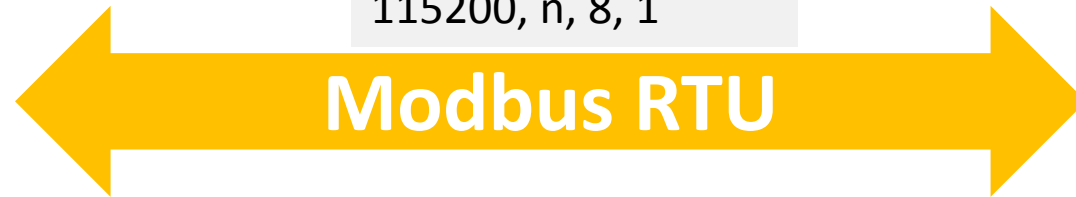
GW-7662



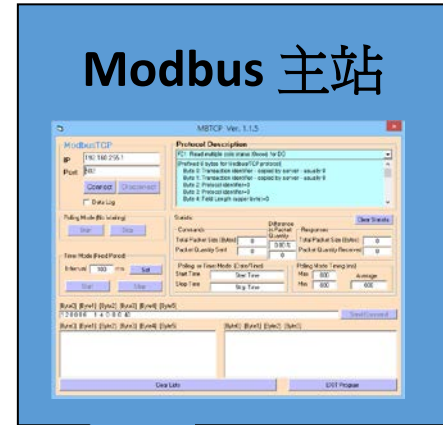
Comport 設定ing:

115200, n, 8, 1

Modbus RTU



Modbus 主站



PROFINET IO device
(從站)

Modbus RTU 從站 (AI)

- Modbus ID:5
- 資料位址: 30001~30004
- 資料長度: 4



PFN_Tool (Version 1.30)

Network Devices : IP: 192.168.77.88 MAC: B8-6B-23-14-E5-76 (Intel(R) Ethernet Connection)

1 搜尋模組

Type	Name	IP	Mask	Gateway
GW-7662				
SIMATIC-PC				
S7-PC				
SIMATIC-PC				

2 雙擊模組

Device Basic Configuration

Device Information

Device Type : GW-7662
 Device Name : gw-7662
 IP Address : 0.0.0.0
 Subnet Mask : 0.0.0.0
 Gateway : 0.0.0.0
 Mac Address : 12:34:56:78:9A:BC

Device Name Configure

Device Name : gw-7662

Network Configure

IP Address : 192.168.0.111
 Subnet Mask : 255.255.255.0
 Gateway : 192.168.0.254

Advanced

Device Advanced Configuration

Device Information
 Device Type : GW-7662
 Firmware Version : V1.0

Options
 Load File Save File Download Settings Upload Settings

Modbus Settings Modbus Test Diagnostic Msg. Communication Log Information

Parameters

Modbus Format : RTU Byte Order : Little Endian(Intel) Polling Interval (ms) : 500
 Modbus Type : Master I/O Safe Mode : Last Value Query Timeout (ms) : 500
 Baudrate : 115200
 Line Control : n, 8, 1 Modbus Device ID (dec) : 1 (1~247)

Request Command

Function Code : FC1 Read multiple coils status (0xxxx) for DO Add
 Modbus ID (dec) : 1 (1~247) PROFINET Info.
 Start Address (dec) : 0 (0~65535) Total Input (Byte) : 8 Modify
 Count (dec) : 1 (1~1024 Bits) Total Output (Byte) : 8 Delete
 Change Word Order (AABB CCDD -> CCDD AABB) System used: 8 Bytes

ID	FC	Start Addr.	Count	Word order	PFN Input Addr.(Byte)	PFN Output Addr.(Byte)

Suggested Module : RSW:0 Input:32Byte Output:32Byte

3 按「Advanced Settings」鈕



Device Advanced Configuration

Device Information
Device Type : GW-7662
Firmware Version : V1.0

Options
Load File Save File Download Settings **Upload Settings**

Modbus Settings Modbus Test Diagnostic Msg. Communication Log Information

Parameters

Modbus Format : RTU Byte Order : Little Endian(Intel) Polling Interval (ms) : 500
Modbus Type : Slave I/O Safe Mode : Last Value Query Timeout (ms) : 500
Baudrate : 115200
Line Control : n, 8, 1 Modbus Device ID (dec) : 5 (1~247)

Request Command

Slave Type : AI (Input Register) Add
Count (dec) : 4 (1~252 Words) PROFINET Info.
Total Input (Byte) : 8 Modify
Total Output (Byte) : 16
 Change Word Order (AABB CCDD -> CCDD AABB) System used: 8 Bytes Delete

	ID	FC	Mapping Table	Count	Word order	PFN Input Addr.(Byte)	PFN Output Addr.(Byte)
▶ 1	5	AI	30001~30004	4	No	N/A	8~15

Suggested Module : RSW:0 Input:32Byte Output:32Byte

1. Modbus 通訊組態設定

2. 添加Modbus 從站類型

3. 儲存設定



I address與Q address的前8個bytes供GW-7663內部使用(1~8)
I address與Q address的第9個bytes開始為Modbus資料(9~32)

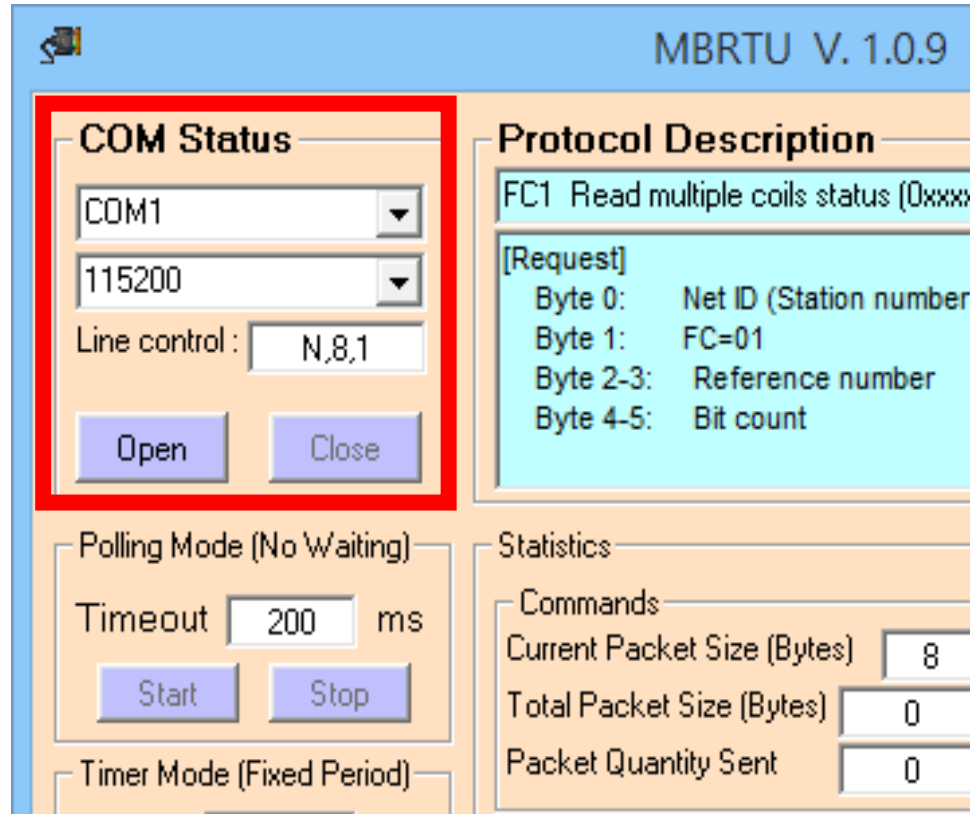
Device overview							
...	Module	Rack	Slot	I address	Q address	Type	Order no.
	▼ GW-7662	0	0			GW-7662 2-Port De...	GW-7662
	▶ Internal	0	0 X1			GW-7662	
	RSW:0 Input:32Byte Output:32Byte_1	0	1	1...32	1...32	RSW:0 Input:32Byte...	

	i	...	Address	Display format	Monitor value	Modify
1			%QW9	Hex	16#0000	
2			%QW11	Hex	16#0000	
3			%QW13	Hex	16#0000	
4			%QW15	Hex	16#0000	

QW9 => 用來更新 AI 1
QW11 => 用來更新 AI 2
QW13 => 用來更新 AI 3
QW15 => 用來更新 AI 4



確認 GW-7662 的 COM port 設定跟 Modbus 主站相同





發送 Modbus 命令 (FC 04) 讀取 AI 狀態

The screenshot displays the MBRTU V. 1.0.9 COM1 interface with the following sections:

- COM Status:** COM1, 115200, Line control: N,8,1. Buttons: Open, Close.
- Protocol Description:** FC4 Read multiple input registers (3xxxx) for AI. [Request] details: Byte 0: Net ID (Station number), Byte 1: FC=04, Byte 2-3: Reference number, Byte 4-5: Word count.
- Statistics:** Clear Statistics button. Commands: Current Packet Size (Bytes) 8, Total Packet Size (Bytes) 195, Packet Quantity Sent 20. Difference in Packet Quantity 4. Responses: Current Packet Size (Bytes) 13, Total Packet Size (Bytes) 139, Packet Quantity Received 16.
- Timer Mode (Fixed Period):** Interval 50 ms. Buttons: Start, Stop.
- Command Input:** 05 04 00 00 00 04. Send Command button.
- Response Output:** 05 04 08 00 00 00 00 00 00 00 31 3D.
- Buttons:** Clear Lists, Exit Program.

1. 發送 查詢命令

2. 接收 AI 值
0x0000 => AI 1
0x0000 => AI 2
0x0000 => AI 3
0x0000 => AI 4



改變 QW9, QW11, QW13, QW15 值為 0x1122, 0x3344, 0x5566, 0x7788

	i	...	Address	Display format	Monitor value	Modify value
1		"...	%QW9	Hex	16#1122	16#1122
2			%QW11	Hex	16#3344	16#3344
3			%QW13	Hex	16#5566	16#5566
4			%QW15	Hex	16#7788	16#7788



再次發送 Modbus 命令 (FC 04) 讀取 AI 狀態

The screenshot shows the MBRTU V. 1.0.9 COM1 interface. The 'Protocol Description' section shows 'FC4 Read multiple input registers (3xxxx) for AI'. The 'Request' section shows the following details:

- Byte 0: Net ID (Station number)
- Byte 1: FC=04
- Byte 2-3: Reference number
- Byte 4-5: Word count

The 'Statistics' section shows the following data:

Commands	Responses
Current Packet Size (Bytes): 8	Current Packet Size (Bytes): 13
Total Packet Size (Bytes): 227	Total Packet Size (Bytes): 191
Packet Quantity Sent: 24	Packet Quantity Received: 20

The 'Command' field contains the hex string: 05 04 00 00 00 04. The 'Send Command' button is highlighted with a red box. The 'Responses' section shows the following data:

Commands	Responses
05 04 00 00 00 04 F0 4D	05 04 08 11 22 33 44 55 66 77 88 01 3D
05 04 00 00 00 04 F0 4D	05 04 08 11 22 33 44 55 66 77 88 D0 76

The response data is highlighted with a red box. The 'Clear Lists' and 'Exit Program' buttons are visible at the bottom.

1. 發送查詢命令



2. 接收 AI 值
0x1122 => AI 1
0x3344 => AI 2
0x5566 => AI 3
0x7788 => AI 4

