



Modicon M241

Change Serial Line Config While Controller Running

V1.0

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1. 文件說明

1-1. 目的

1-1-1. 使用 GetSerialConf 讀取 Serial Line port 通訊參數

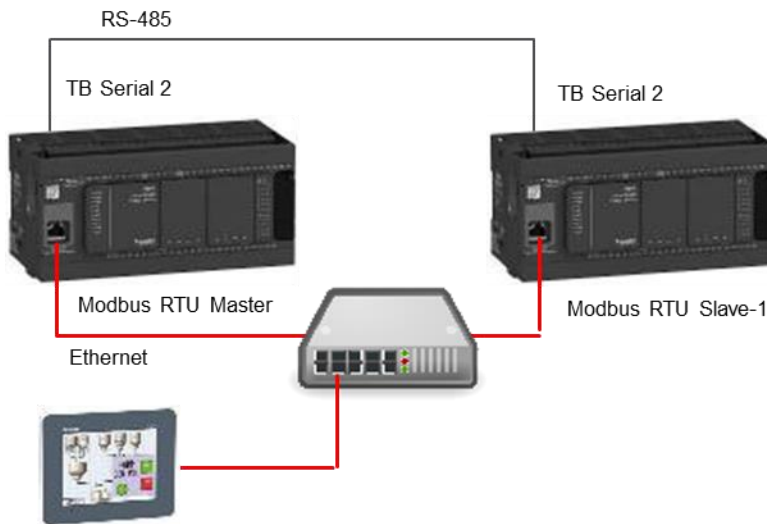
1-1-2. 使用 SetSerialConf 改變 Serial Line port 通訊參數.

1-1-3. 使用者可在人機或圖控軟體修改通訊參數.

1-2. 測試環境與硬體

名稱/型號	版本	數量	備註
Windows 10 Pro 64-bit		1	
M241/TM241CE40R	FW V4.0.6.39	2	
SoMachine	V4.3 Patch2	1	

1-3. 測試架構



2. 功能塊說明

2-1. GetSerialConf 功能塊(讀取 Serial Port 通訊參數)

Input	Type	Range	Comment
Link	LinkNumber	0 hex~5 hex	參考 2-3
PointerToSerialConf	POINTER TO SERIAL_CONF		參考 2-5
Output	Type	Range	Comment
GetSerialConf	Word	0/255	參考 2-4

2-2. SetSerialConf 功能塊(設定 Serial Port 參數)

Input	Type	Range	Comment
Link	LinkNumber	0 hex~5 hex	參考 2-3
PointerToSerialConf	POINTER TO SERIAL_CONF		參考 2-5
Output	Type	Range	Comment
SetSerialConf	Word	0/255	參考 2-4

2-3. LinkNumber 說明

Value	Enumerator	Description
00 hex	USBConsole	USB port
01 hex	COM1	Serial COM 1
02 hex	COM2	Serial COM 2
03 hex	EthEmbed	Embedded Ethernet link
04 hex	CANEmbed	Embedded CANopen link
05 hex	COM3	Serial COM 3

2-4. GetSerialConf/ GetSerialConf 回傳值說明

Value	Description
0	新的通訊參數設定完成
255	新的通訊參數被拒絕, 可能是: 1. 功能塊在執行中 2. 參數不符規定

2-5. SERIAL_CONF 變數結構說明

Variable	Type	Description
Bauds	DWORD	Baud rate: 1200~115200 bps
InterframeDelay	WORD	封包傳送間隔時間(Time between frames), 單位: ms
FrameReceivedTimeout	WORD	封包接收超時, 單位: ms; 0 表示不使用此參數
FrameLengthReceived	WORD	封包接收長度; 0 表示不使用此參數
Protocol	BYTE	0: Modbus RTU or SoMachine 1: Modbus ASCII 2: ASCII
Address	BYTE	Modbus address (Node number) 0: Master node 1 ~ 255: Slave node
Parity	BYTE	0: none 1: odd 2: even
Rs485	BYTE	0: RS232 1: RS485
ModPol	BYTE	polarization resistor 0: no 1: yes
DataFormat	BYTE	Data bits 7: 7 bits 8: 8 bits
StopBit	BYTE	1: 1 stop bit 2: 2 stop bits
CharFrameStart	BYTE	封包起始字元; 0: 沒有起始字元
CharFrameEnd1	BYTE	封包第一結束字元; 0: 沒有第一結束字元
CharFrameEnd2	BYTE	封包第二結束字元; 0: 沒有第二結束字元
CodesysCompliant	BYTE	0: Modbus RTU 1: SoMachine (when Protocol = 0)
CodesysNetType	BYTE	Not used

3. 變數宣告

3-1. Persistent Variables

```
NewBaudRate: DWORD;  
NewCodeSys: BYTE;
```

3-2. Global Variables

```
my_Bauds AT %MD0: DWORD;  
my_InterframeDelay AT %MW2: WORD;  
my_FrameReceivedTimeout AT %MW3: WORD;  
my_FrameLengthReceived AT %MW4: WORD;  
my_Protocol AT %MB10: BYTE;  
my_Address AT %MB11: BYTE;  
my_Parity AT %MB12: BYTE;  
my_Rs485 AT %MB13: BYTE;  
my_ModPol AT %MB14: BYTE;  
my_DataFormat AT %MB15: BYTE;  
my_StopBit AT %MB16: BYTE;  
my_CharFrameStart AT %MB17: BYTE;  
my_CharFrameEnd1 AT %MB18: BYTE;  
my_CharFrameEnd2 AT %MB19: BYTE;  
my_CodesysCompliant AT %MB20: BYTE;  
my_CodesysNetType AT %MB21: BYTE;  
my_PortNo AT %MB22: BYTE;
```

3-3. Program Variables

```
my_FirstScan: r_trig;  
my_StartupDelay: ton;  
my_SerialConf: serial_conf;  
SerialConfReturn: WORD;  
doChangeBaudRate: BOOL:= TRUE;  
doChangeCodeSys: BOOL;
```

4. 程式碼

```
//setting Serial Line-2 is we want to get configuration  
my_PortNo:=2; // %MB22  
//讀取 Serial Line-2 的通訊參數, 並把參數值寫入 my_SerialConf  
GetSerialConf(Link:= my_PortNo, PointerToSerialConf:= ADR(my_SerialConf));  
//my_SerialConf 寫入 %MD0~%MB21, 提供 HMI 讀/寫  
my_Bauds:= my_SerialConf.Bauds; // %MD0  
my_InterframeDelay:= my_SerialConf.InterframeDelay; // %MW2  
my_FrameReceivedTimeout:= my_SerialConf.FrameReceivedTimeout; // %MW3  
my_FrameLengthReceived:= my_SerialConf.FrameLenghtReceived; // %MW4  
my_Protocol:= my_SerialConf.Protocol; // %MB10  
my_Address:= my_SerialConf.Address; // %MB11  
my_Parity:= my_SerialConf.Parity; // %MB12  
my_Rs485:= my_SerialConf.Rs485; // %MB13
```

```

my_ModPol:= my_SerialConf.ModPol; // %MB14
my_DataFormat:= my_SerialConf.DataFormat; // %MB15
my_StopBit:= my_SerialConf.StopBit; // %MB16
my_CharFrameStart:= my_SerialConf.CharFrameStart; // %MB17
my_CharFrameEnd1:= my_SerialConf.CharFrameEnd1; // %MB18
my_CharFrameEnd2:= my_SerialConf.CharFrameEnd2; // %MB19
my_CodesysCompliant:= my_SerialConf.CodesysCompliant; // %MB20
my_CodesysNetType:= my_SerialConf.CodesysNetType; // %MB21
//把 reboot 前的通訊設定值回寫到暫存位址, 寫入一次
my_FirstScan(CLK:=TRUE , Q=> );
IF my_FirstScan.Q THEN
    my_Bauds:= NewBaudRate;
    my_CodesysNetType:= NewCodeSys;
END_IF
//reboot 後延遲 500ms, 然後把執行一次 SetSerialConf 功能塊
my_StartupDelay(IN:= TRUE, PT:= T#500MS, Q=> , ET=> );
IF my_StartupDelay THEN
    //change baud rete
    IF doChangeBaudRate THEN
        my_SerialConf.Bauds:=NewBaudRate;
        SerialConfReturn:= SetSerialConf(Link:= my_PortNo, PointerToSerialConf:=
ADR(my_SerialConf));
        // doChangeBaudRate 為 True, 將 doChangeBaudRate 設為 False
        doChangeBaudRate:= FALSE;
    END_IF

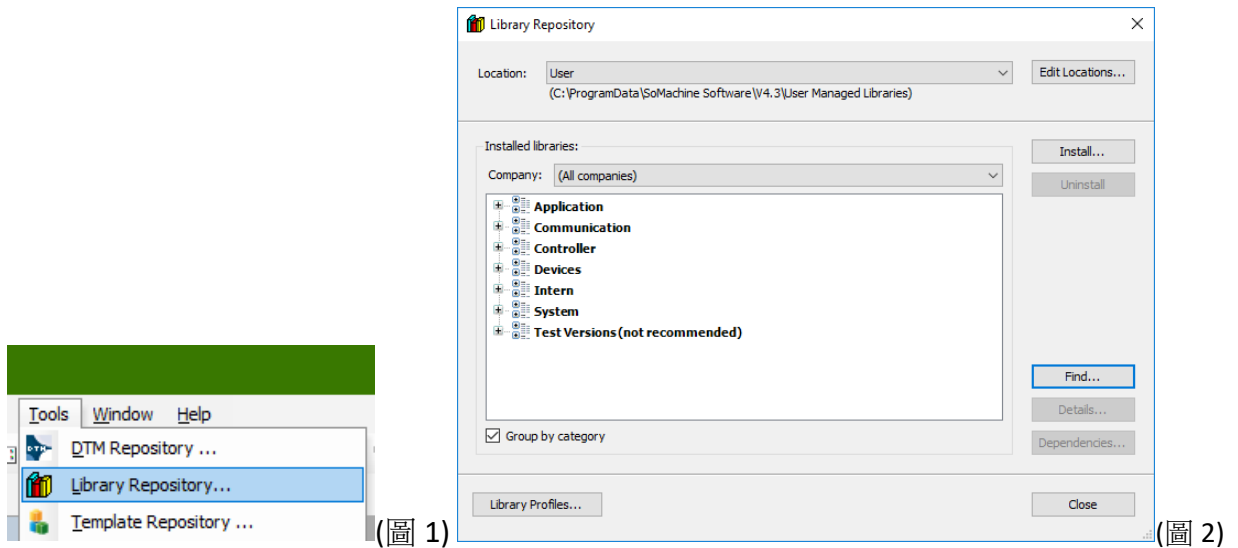
    //change Codesys Compliant
    IF doChangeCodeSys THEN
        my_SerialConf.CodesysCompliant:=NewCodeSys;
        SerialConfReturn:= SetSerialConf(Link:= my_PortNo, PointerToSerialConf:=
ADR(my_SerialConf));
        // doChangeCodeSys 為 True, 將 doChangeCodeSys 設為 False
        doChangeCodeSys:= FALSE;
    END_IF
END_IF

```

5. 注意事項

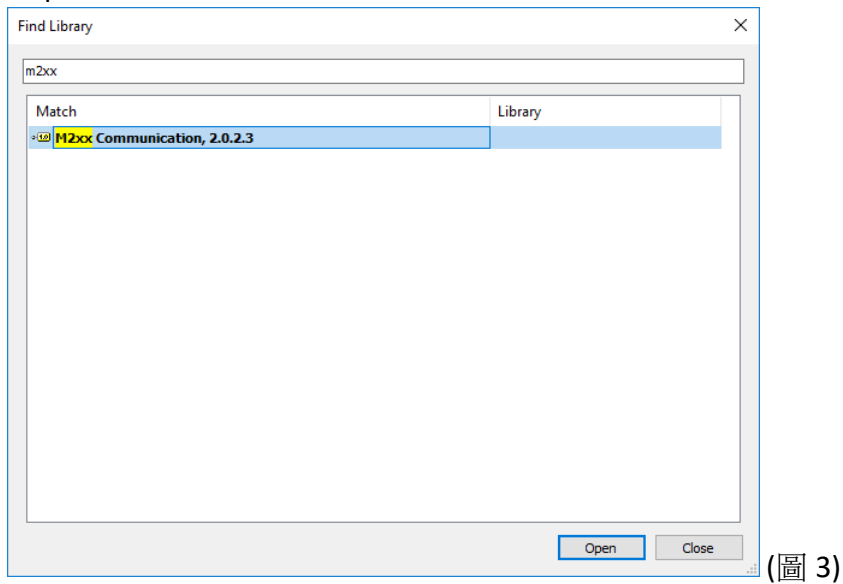
5-1. GetSerialConf, SetSerialConf 及 SERIAL_CONF 包含在 M2xx Communication Library, 檢查是否安裝方式如下:

5-1-1. 在 SoMachine Logic Builder 點選 Tools> Library Repository (圖 1)

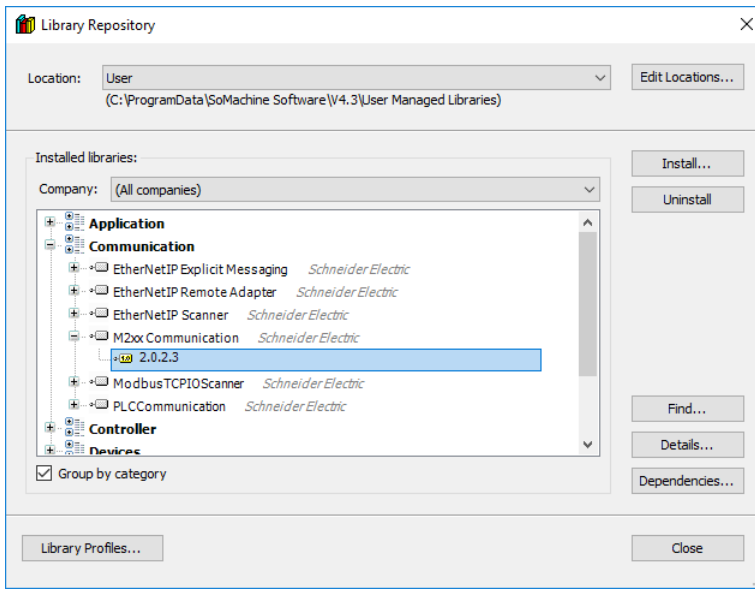


5-1-2. 在 Library Repository 點擊<Find> (圖 2)

5-1-3. 圖 3, Find Library 中輸入關鍵字”M2xx”, 然後點選搜尋到的 M2xx Communication, 點擊<Open>

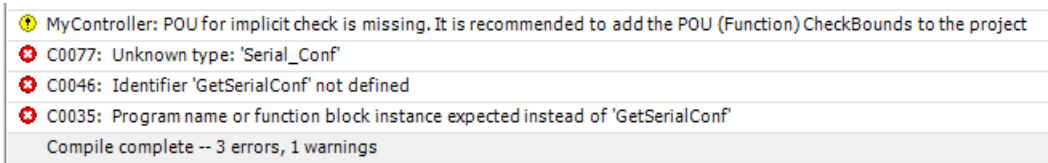


5-1-4. <Uninstall>為黑體字, 表示 M2xx Communication library 已安裝



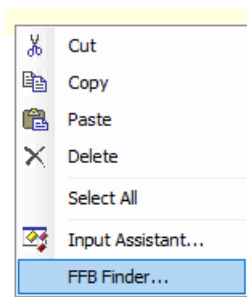
(圖 4)

5-2. 使用 GetSerialConf, SetSerialConf 及 SERIAL_CONF 在編譯時出現錯誤 (圖 5), 可以執行下列步驟:



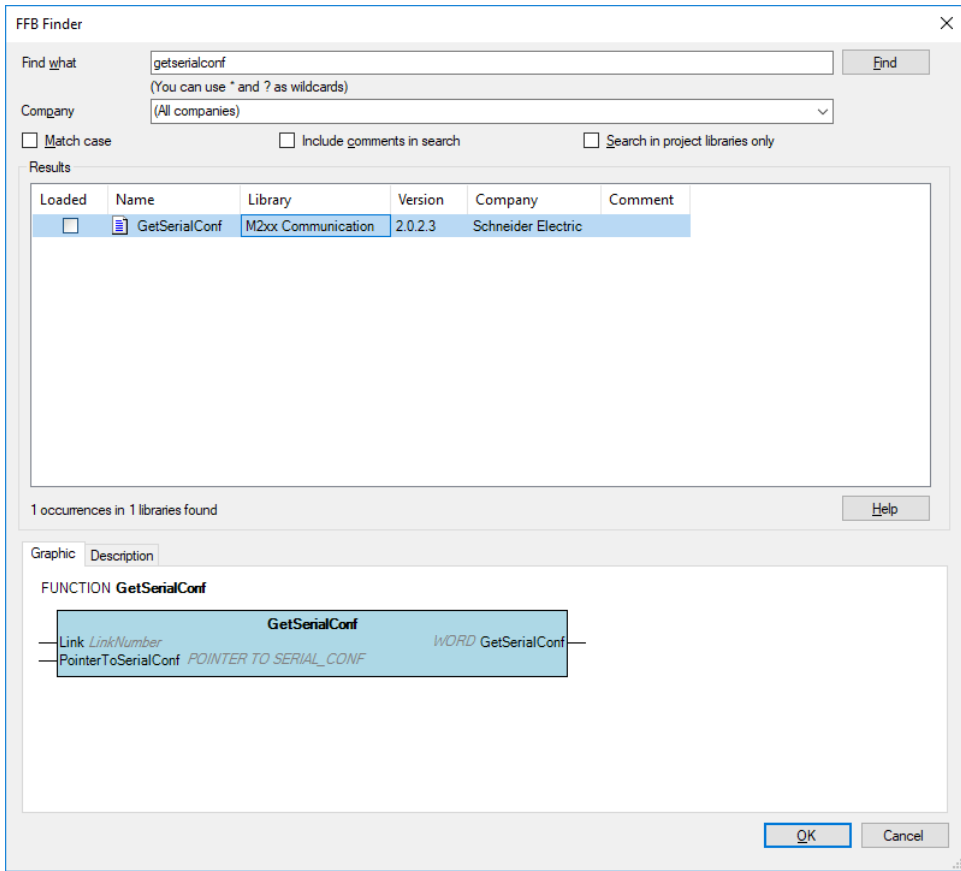
(圖 5)

5-2-1. 滑鼠右鍵點擊程式撰寫區, 點擊選單上的<FFB Finder> (圖 6)



(圖 6)

5-2-2. 圖 7, 輸入關鍵字如: “getserialconf”, 點擊<Find>, 然後選擇搜尋到的功能塊, 點擊<OK>



(圖 7)

6. 修改歷程

日期	版次	修改說明	校訂者
2019/04/03	V1.0	初版	Morrie Lai