介紹 FX3U 新增指令 ADPRW (利用 FX3U-485ADP-MB 讀取 ModBus RTU 設備):

三菱 FX3U 系列出了一款加裝在左邊的模組 (ADP)，其中有一塊模組特別開發出來連接 ModBus 設備專用通訊模組 (FX3U-485ADP-MB)。其使用方式只要裝上去，再利用 ADPRW 指令可達到 ModBus 直接控制 ModBus RTU 設備。並省掉複雜的 CRC 運算達到節省程式撰寫的方式。

架構:

首先介紹模組的位置(位於主機左邊)。

要連接 ADP 模組時，要有機能擴充基板轉接模組 (FX3U-CNV-BD) 或通訊模組 (FX3U-232-BD、FX3U-422-BD、FX3U-485-BD、FX3U-USB-BD) 才可加裝 ADP 模組，否則無法連接。

不同位置的模組，所佔的讀取位置不同。(在左邊可同時加裝 2 個通訊 ADP 模組)。

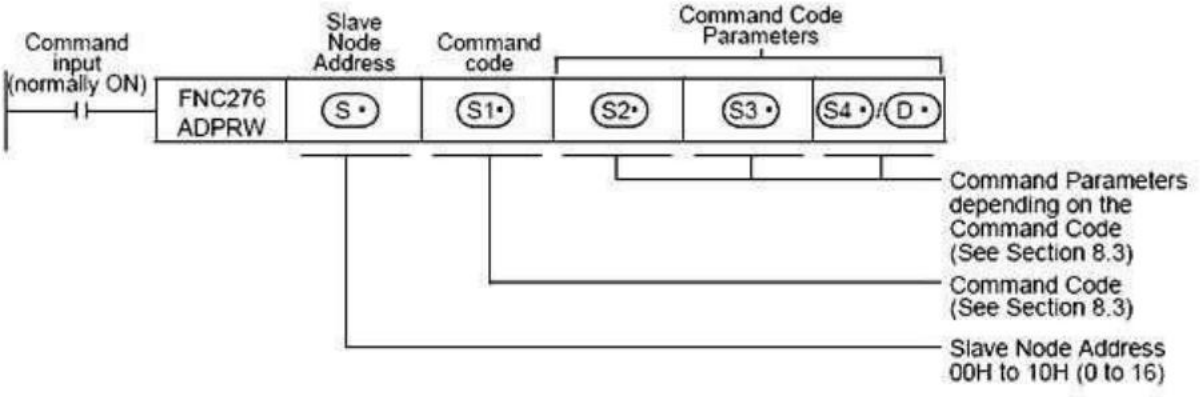
FX3U-485ADP-MB
FX3U-232ADP-MB

FX3U-CNV-BD

FX3U-232-BD
FX3U-422-BD
FX3U-485-BD
FX3U-USB-BD

FX3U 主機

ADPRW 指令使用方式:



介紹:

(S)Slave Node Address：ModBus RTU 站號

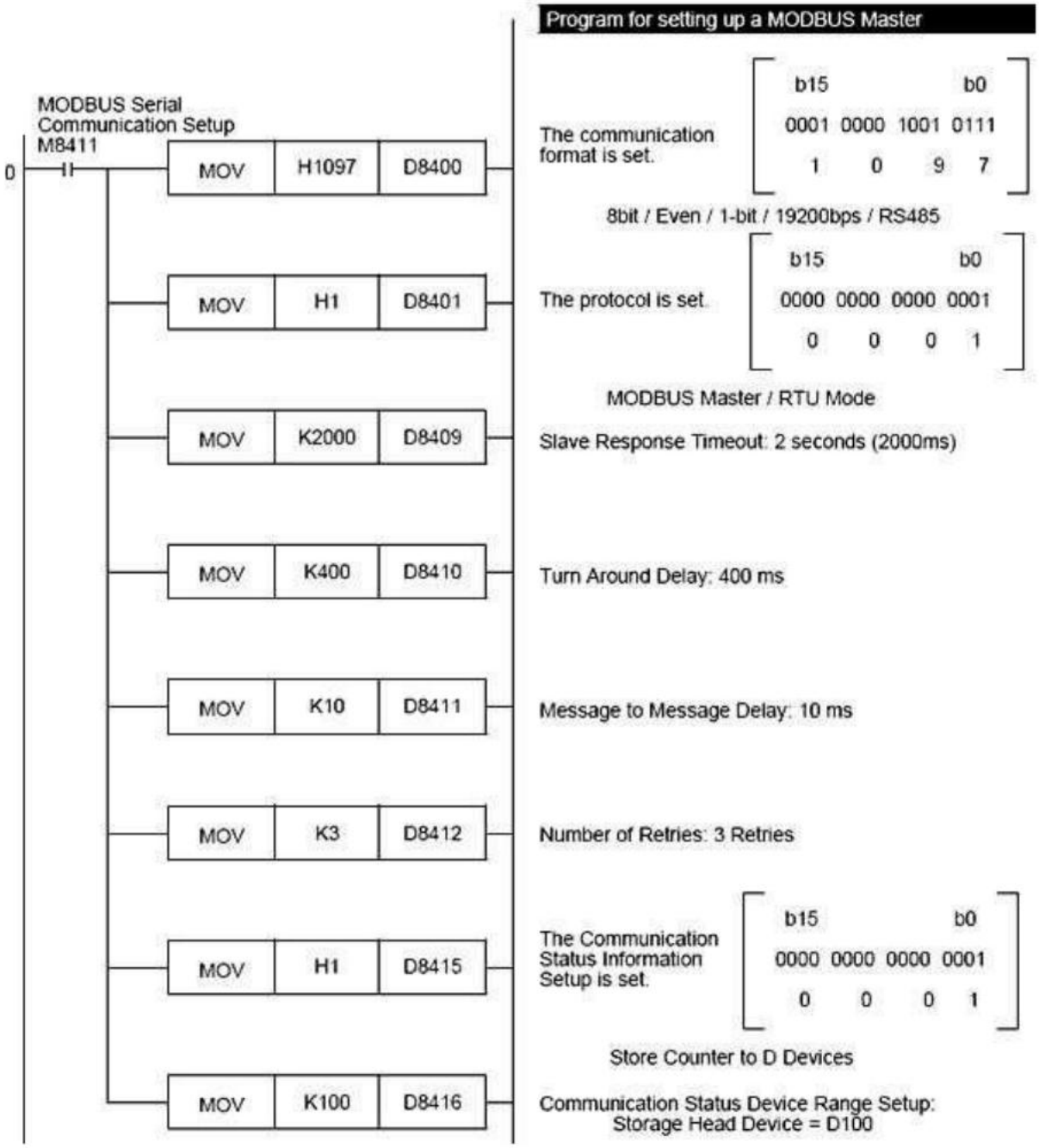
(S1)Command code：所要設定的控制碼

(S2、S3)Command Code Parameters：ModBus RTU 設備的資料位址

(S4)：ModBus RTU 設備的資料位址長度

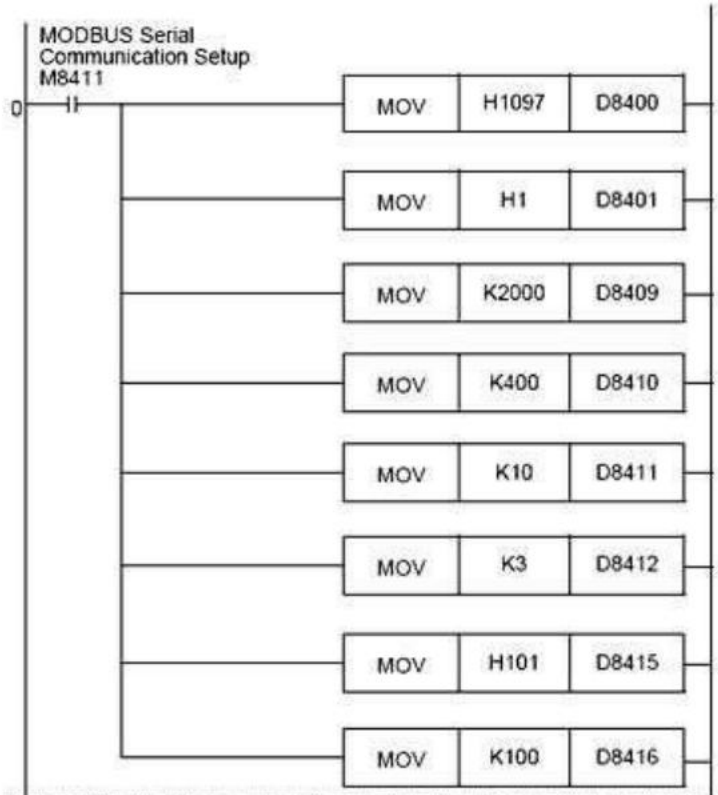
(D)：資料回傳所放的起始暫存

參數設定：


Program for setting up a MODBUS Master
MODBUS Serial
Communication Setup
M8411
0
MOV H1097 D8400
MOV H1 D8401
MOV K2000 D8409
MOV K400 D8410
MOV K10 D8411
MOV K3 D8412
MOV H1 D8415
MOV K100 D8416
The communication format is set.
b15 b0
0001 0000 1001 0111
1 0 9 7
8bit / Even / 1-bit / 19200bps / RS485
The protocol is set.
b15 b0
0000 0000 0000 0001
0 0 0 1
MODBUS Master / RTU Mode
Slave Response Timeout: 2 seconds (2000ms)
Turn Around Delay: 400 ms
Message to Message Delay: 10 ms
Number of Retries: 3 Retries
The Communication Status Information Setup is set.
b15 b0
0000 0000 0000 0001
0 0 0 1
Store Counter to D Devices
Communication Status Device Range Setup:
Storage Head Device = D100

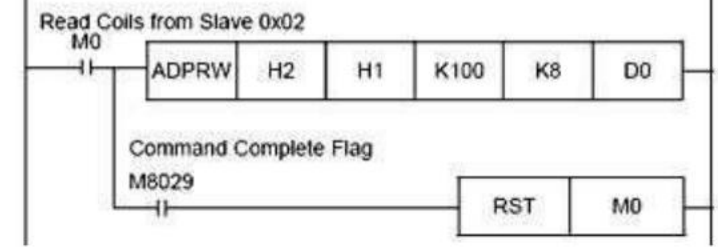
程式範例：

Program for setting up a MODBUS Master

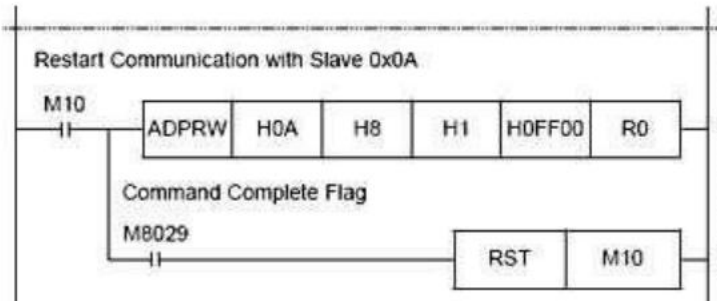


For more details on the Communication Setup Parameters, refer to Section 5.2 of this manual.

Program for Reading Coils

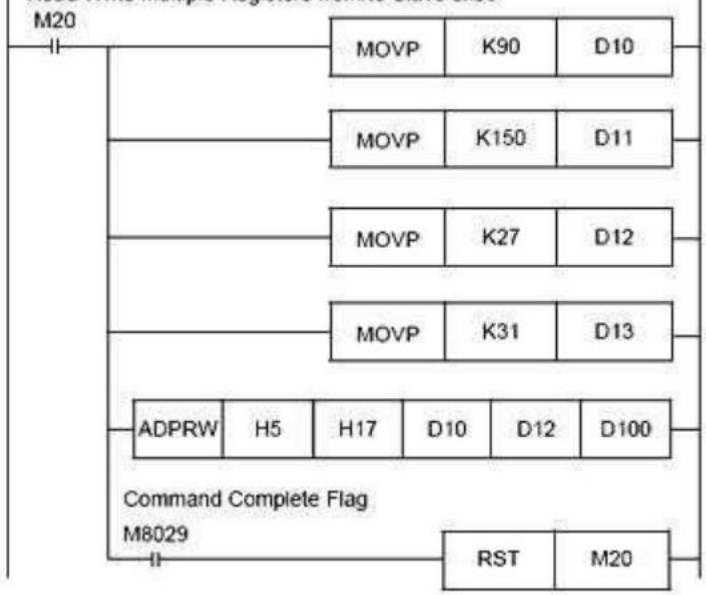


Slave Address: 0x02
Command Code: 0x01
MODBUS Address: 100
Device Count: 8
Destination Device Head: D0
8 coil device values starting at MODBUS Address 100 of Slave 2 are read to the first 8 bits in D0 of the Master.



Program for Restarting Communication

Slave Address: 0x0A
Command Code: 0x08
Subcommand Code: 0x01
Subcommand Parameter: 0xFF00
(Reset Event Log)
Destination Device Head: R0
Communication is restarted between the Master and Slave 0x0A, and the Slave Communication Event Log and Event and Error Counter is reset.



Program for Reading/Writing Multiple Regtisters

Command Parameters:
D10 = 90
D11 = 150
D12 = 27
D13 = 31

Slave Address: 0x05
Command Code: 0x17
Write Address: 90 (D10)
Read Address: 150 (D11)
Write Count: 27 (D12)
Read Count: 31 (D13)
Source/Destination Device Head: D100
27 register device value starting at D100 of the Master are written to MODBUS Address 90 and onward for Slave 5, and 31 register device values starting at MODBUS Address 150 of Slave 5 are read to D127 and onward for the Master.