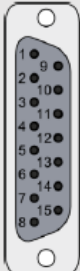


# LinMot Control Type P 脈波控制說明文件(以 C1100 series 為例)

## 1. 接線方式

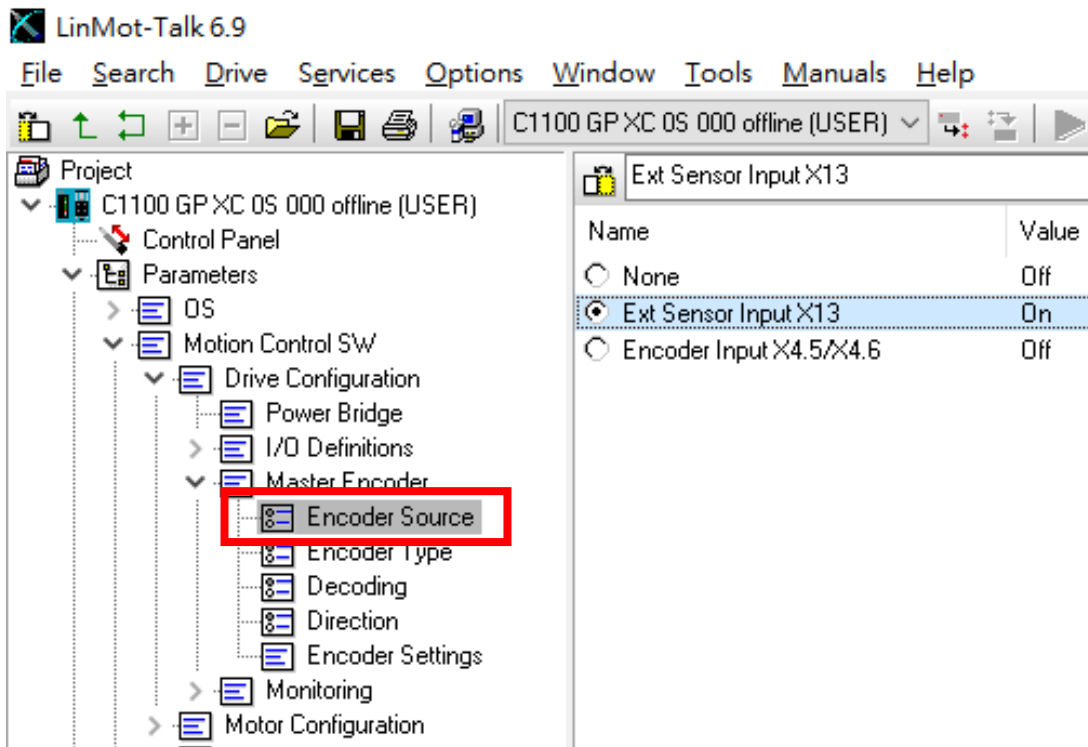
Pin.9 : A+ ; Pin.2 : A-

Pin.10 : B+ ; Pin.3 : B-

7.6 X13				
X13	External Position Sensor Differential Hall Switches			
			<b>ABZ with Hall Switches</b>	<b>SSI* / BiSS-B** / BiSS-C**</b>
	1		+5V DC	+5V DC
		9	A+	A+ (optional)
	2		A-	A- (optional)
		10	B+	B+ (optional)
	3		B-	B- (optional)
		11	Z+	Data+
	4		Z-	Data-
		12	Encoder Alarm (optional)	Encoder Alarm (optional)
	5		GND	GND
		13	U+	nc
	6		U-	nc
		14	V+	nc
	7		V-	nc
		15	W+	Clk+
8		W-	Clk-	
case		Shield	Shield	
DSUB-15 (f)	<b>Position Encoder Inputs (RS422):</b> Max. counting frequency: 10 Mcounts/s with quadrature decoding, 100ns minimal edge separation <b>Differential Hall Switch Inputs (RS422):</b> Input Frequency: <1kHz <b>Enc. Alarm In:</b> 5V / 1mA <b>Sensor Supply:</b> 5VDC max 100mA (300mA since firmware version 6.7)			
	* Since firmware version 6.6			
	** Since firmware version 6.7			

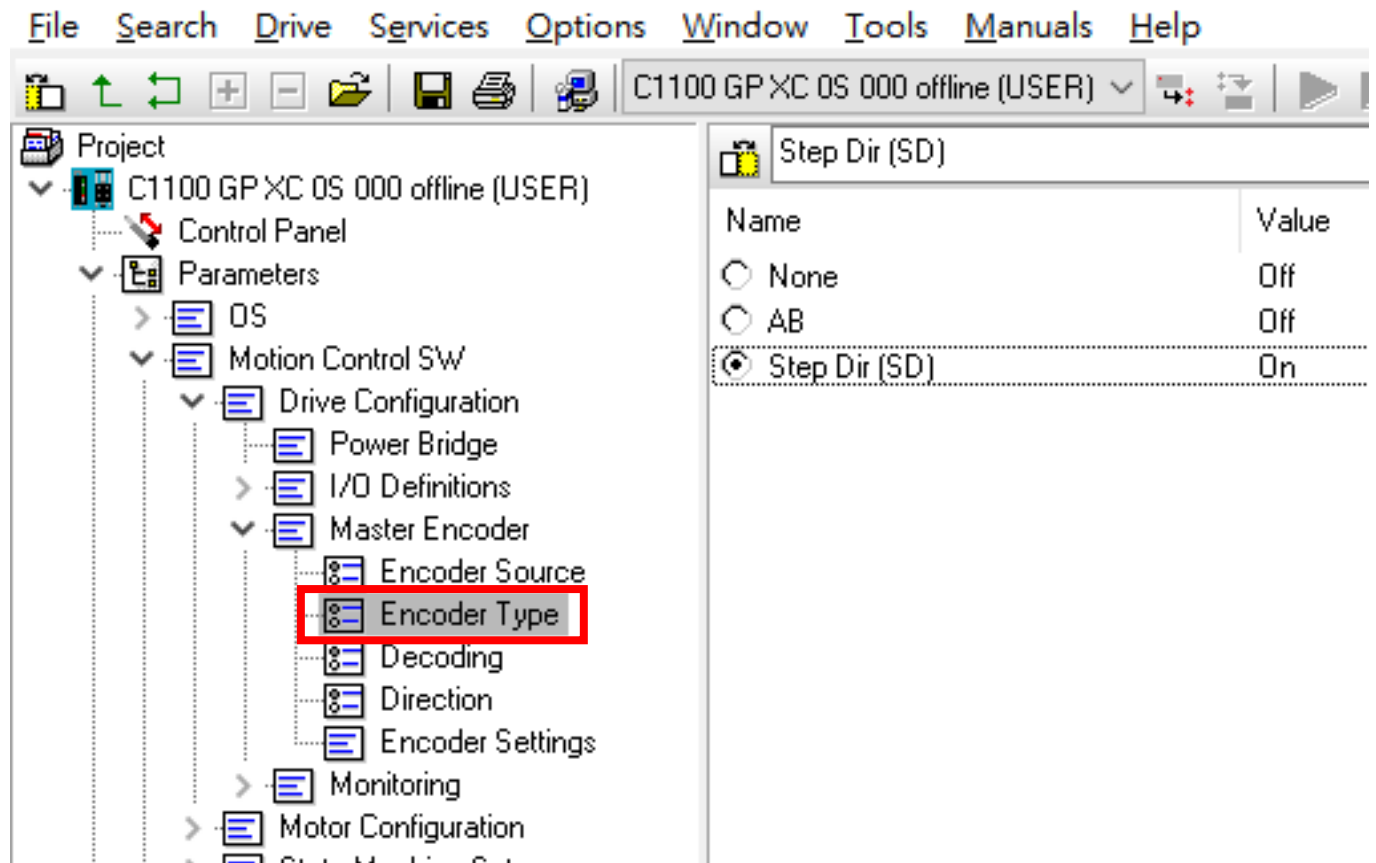
## 2. LinMot Talk 軟體設定

### 2.1 Configuration of inputs



## 2.2 Select between Step Dir(SD) or AB

LinMot-Talk 6.9



File Search Drive Services Options Window Tools Manuals Help

C1100 GP XC OS 000 offline (USER)

Project

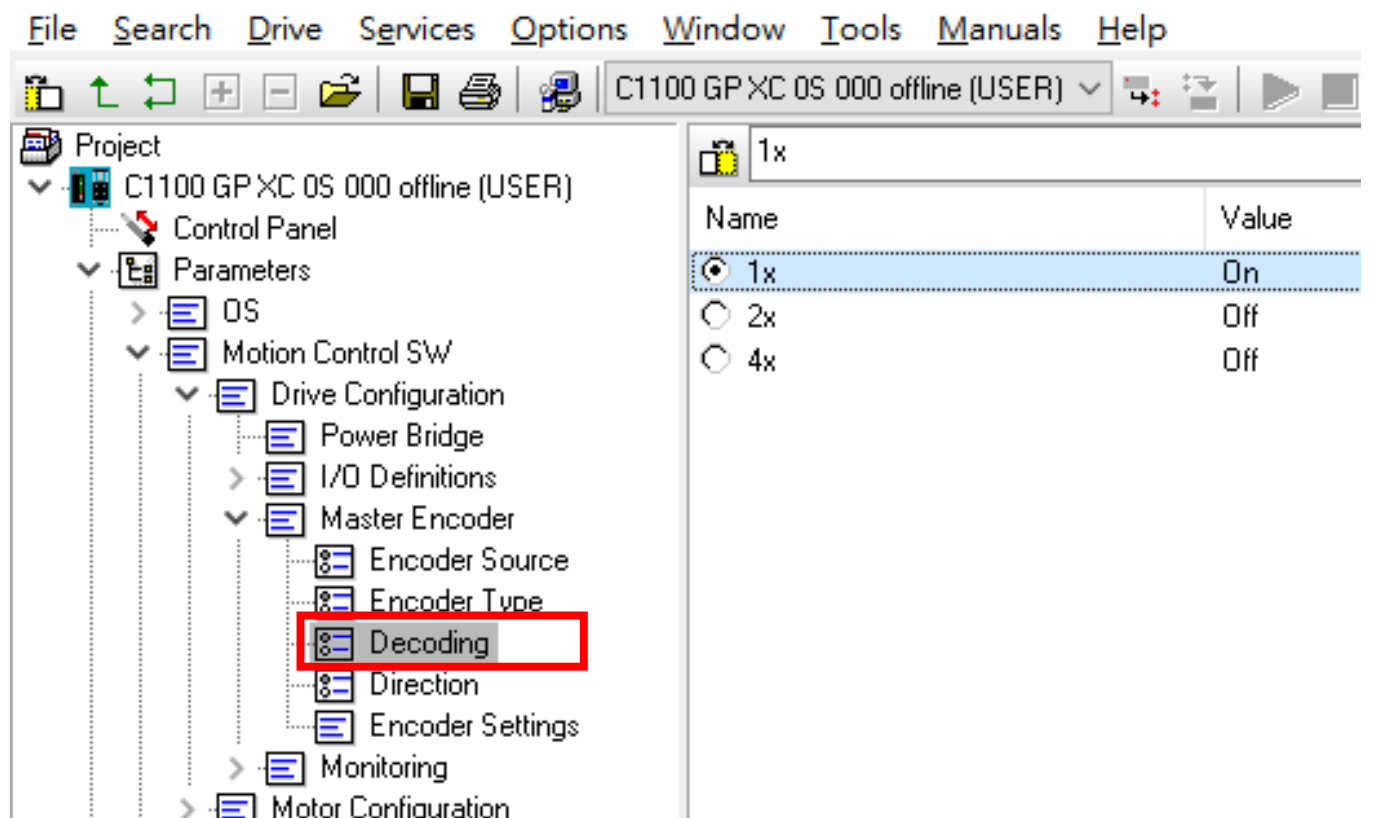
- C1100 GP XC OS 000 offline (USER)
  - Control Panel
  - Parameters
    - OS
    - Motion Control SW
      - Drive Configuration
        - Power Bridge
        - I/O Definitions
        - Master Encoder
          - Encoder Source
          - Encoder Type**
          - Decoding
          - Direction
          - Encoder Settings
        - Monitoring
        - Motor Configuration
        - State Machine Setup

Step Dir (SD)

Name	Value
<input type="radio"/> None	Off
<input type="radio"/> AB	Off
<input checked="" type="radio"/> Step Dir (SD)	On

## 2.3 Selection of decoding

LinMot-Talk 6.9



File Search Drive Services Options Window Tools Manuals Help

C1100 GP XC OS 000 offline (USER)

Project

- C1100 GP XC OS 000 offline (USER)
  - Control Panel
  - Parameters
    - OS
    - Motion Control SW
      - Drive Configuration
        - Power Bridge
        - I/O Definitions
        - Master Encoder
          - Encoder Source
          - Encoder Type
          - Decoding**
          - Direction
          - Encoder Settings
        - Monitoring
        - Motor Configuration
        - State Machine Setup

1x

Name	Value
<input checked="" type="radio"/> 1x	On
<input type="radio"/> 2x	Off
<input type="radio"/> 4x	Off

## 2.4 Selection of direction

The screenshot shows the LinMot-Talk 6.9 interface. The left pane displays a tree view of the project structure. The 'Direction' parameter is highlighted with a red box. The right pane shows the configuration for the 'Positive' parameter, with a table of Name and Value.

Name	Value
<input checked="" type="radio"/> Positive	On
<input type="radio"/> Negative	Off

## 2.5 Configuration of the run mode

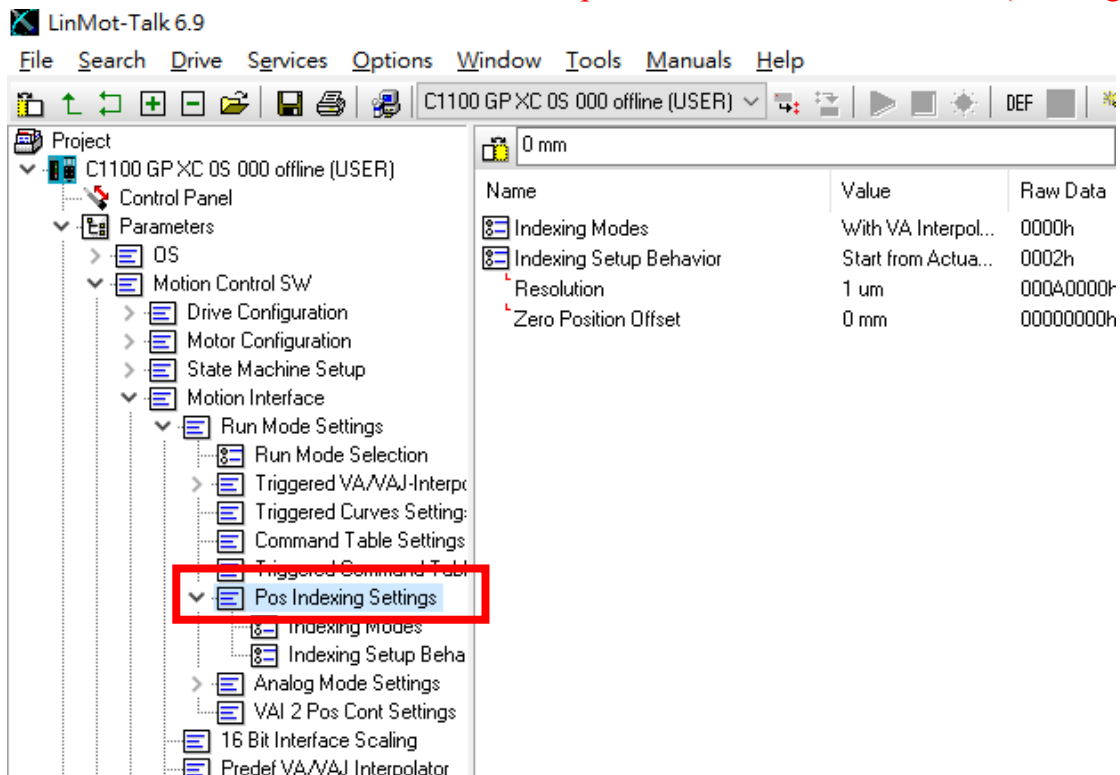
The screenshot shows the LinMot-Talk 6.9 interface. The left pane displays a tree view of the project structure. The 'Run Mode Selection' parameter is highlighted with a red box. The right pane shows the configuration for the 'Position Indexing' parameter, with a table of Name and Value.

Name	Value
<input type="radio"/> Motion Command Interface	Off
<input type="radio"/> Triggered VA-Interpolator	Off
<input type="radio"/> Rise Triggered VAI For/Backward ...	Off
<input type="radio"/> Triggered Time Curves	Off
<input type="radio"/> Command Table Mode	Off
<input type="radio"/> Triggered Command Table	Off
<input checked="" type="radio"/> Position Indexing	On
<input type="radio"/> Analog	Off
<input type="radio"/> Triggered Analog	Off
<input type="radio"/> VAI 2 Pos Continuous	Off
<input type="radio"/> Continuous Curve	Off
<input type="radio"/> PC Motion Command Interface	Off

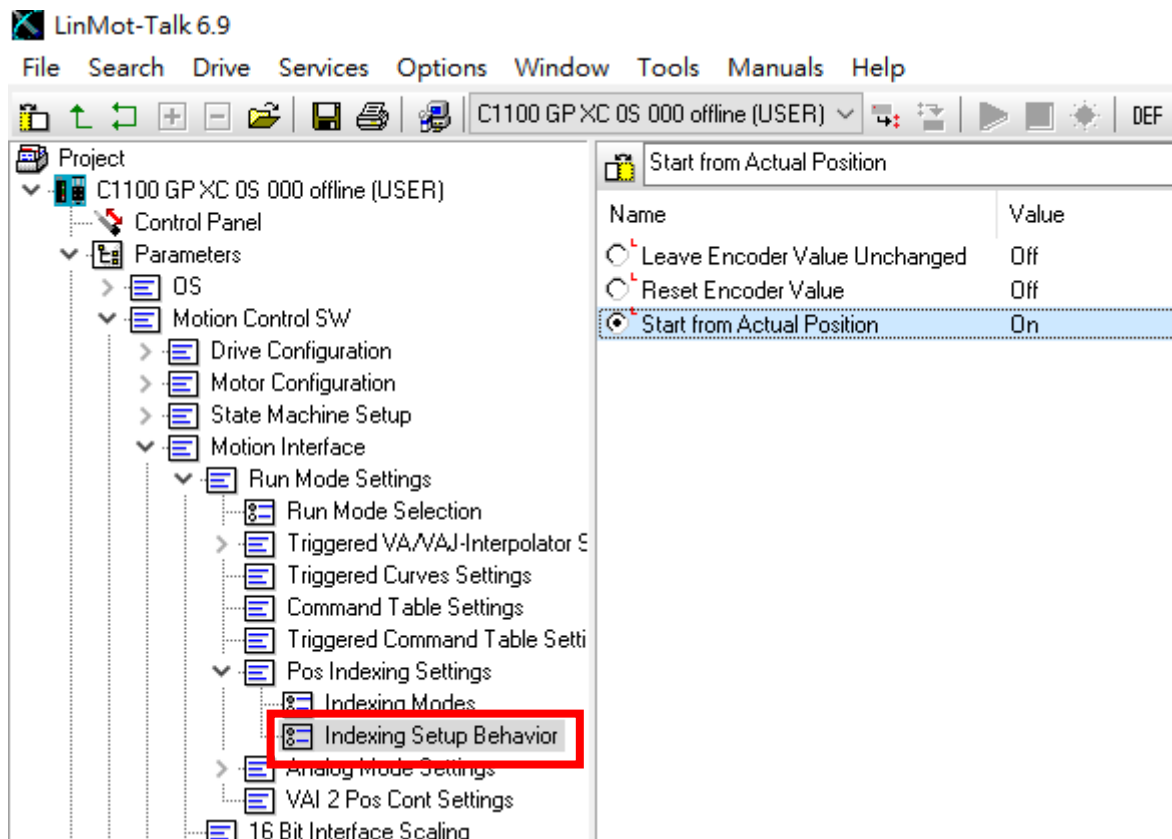
## 2.6 Pos Indexing Setting 設定：設定 Resolution (解析度) 及 Zero Position Offset(零點位移量)

\*解析度如設 1um，倍率設定 1x，則輸入 1pulse 實際走的距離為  $1 * 1(\text{decoing}) = 1\text{um}$

\*解析度如設 250um，倍率設定 4x，則輸入 1pulse 實際走的距離為  $250 * 4(\text{decoing}) = 1\text{mm}$



- 建議設定 **Start from Actual Position**：若無作此設定，在 servo off 期間有手動移動 LinMot，再次 servo on 時會移動到之前 servo on 的最終位置。



## 2.7 PID 的參數調整：

\*當出現共振的聲音→解決方法：FF Acceleration 調至 0

\*當出現位置穩態誤差→解決方法：調大 I Gain

The screenshot shows the LinMot-Talk 6.9 interface. The left sidebar displays a tree view of the project structure, with 'Control Panel' > 'Parameters' > 'Motion Control SW' > 'Drive Configuration' > 'Control Parameter Set A' selected. The main window displays a table of parameters:

Name	Value	Raw Data
FF Constant Force	0 A	0000h
FF Friction	0 A	0000h
FF Spring Compensation	0 A/m	0000h
FF Damping	0 A/(m/s)	0000h
<b>FF Acceleration</b>	<b>0 A/(m/s<sup>2</sup>)</b>	0000h
Spring Zero Position	0 mm	00000000h
P Gain	1.5 A/mm	000Fh
D Gain	3 A/(m/s)	001Eh
D Filter Time	0 us	0000h
<b>I Gain</b>	<b>0 A/(mm*s)</b>	0000h
Integrator Limit	25 A	61A8h
Maximal Current	25 A	61A8h
Maximal Current Positive	25 A	61A8h
Maximal Current Negative	25 A	61A8h
Noise Deadband Width	0 mm	0000h

## 2.8 設定速度限制：設定脈波控制下最大速度及加減速的限制。

The screenshot shows the LinMot-Talk 6.9 interface. The left sidebar displays a tree view of the project structure, with 'Control Panel' > 'Parameters' > 'Motion Control SW' > 'Motion Interface' > 'Predef VA/VAJ Interpolator' selected. The main window displays a table of parameters:

Name	Value	Raw Data	Value...	UPID
Max. Speed	0.5 m/s	0007A120h	*** m/s	148Eh
Acceleration	10 m/s <sup>2</sup>	000F4240h	*** m...	14BFh
Deceleration	10 m/s <sup>2</sup>	000F4240h	*** m...	14C0h

### 3. I/O 設定

X4		Logic Supply / IO Connection			
X4.11 X4.10 X4.9 X4.8 X4.7 X4.6 X4.5 X4.4 X4.3 +24VDC DGND		11	AnIn-	X4.11	Configurable differential analog Input (with X4.10)
		10	AnIn+	X4.10	Configurable differential analog Input (with X4.11)
		9	AnIn	X4.9	Configurable single ended analog Input
		8	In	X4.8	Configurable digital Input
		7	In	X4.7	Configurable digital Input
		6	In	X4.6	Configurable digital Input
		5	In	X4.5	Configurable digital Input
		4	Out	X4.4	Configurable digital Output
		3	Out	X4.3	Configurable digital Output
		2	+24VDC Supply		Logic Supply 22-26 VDC
		1	GND	Supply	Ground
DSUB-9 (f) Spring cage connector (has to be ordered separately: see chapter 14)		Inputs (X4.5 ... X4.8): Outputs (X4.3 & X4.4): Analog inputs: X4.9: X4.10/X4.11:	24V / 5mA (Low Level: -0.5 to 5VDC, High Level: 15 to 30VDC) 24V / max.500mA, Peak 1.4A (will shut down if exceeded) 10 bit A/D converted Single ended analog input to GND, 0..10V, Input Resistance: 51kΩ to GND Differential analog input, +/- 10V. Common mode range: +/- 5VDC to GND, Input Resistance 11.4kΩ for each signal to GND.		
		- Use 60/75°C copper conductors only - Conductor cross-section max. 1.5mm <sup>2</sup> - Stripping length: 10mm - The 24VDC supply for the control circuit (X4.2) must be protected with an external fuse (3A slow blow)			

#### 3.1 啟用開機自動復歸(Auto Switch On & Auto Homing)

