

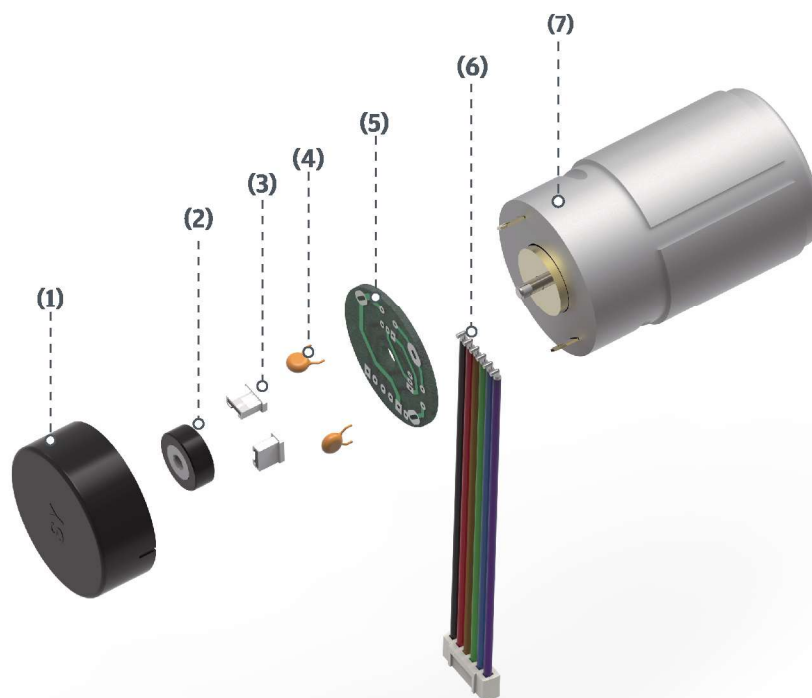


Others

Encoder
Driver

磁性式編碼器

MAGNETIC ENCODER



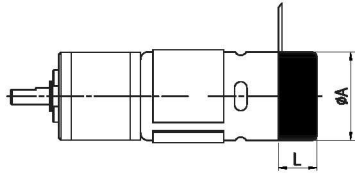
1	上蓋	Cap
2	磁石	Magnet
3	霍爾IC	Hall IC
4	電容器	Capacitor
5	電路板	PCB
6	電線組	Wire harness
7	馬達	Motor

Magnetic Encoders

Two Channel Hall Effect Encoder 雙向霍爾作用編碼器
 One Channel Hall Effect Encoder 單向霍爾作用編碼器

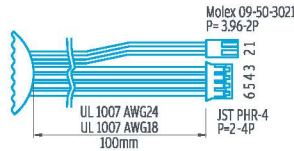
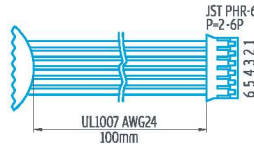
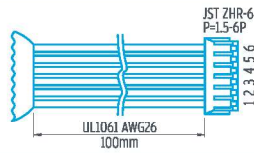


馬達外徑 & 長度/



★ WITHOUT CAP

Motor (φA)	Cap (L)	Counts poles of per turn (PPR)	
		Current	limit.
∅ 12	★ 6.5	2, 6 (1, 3)	6 (3)
∅ 15.4	★ 6.5	2, 6 (1, 3)	6 (3)
∅ 20.3	★ 8.5	2, 6 (1, 3)	6 (3)
∅ 22	12.6	2, 6 (1, 3)	6 (3)
∅ 30	12.1	2, 6, 14 (1, 3, 7)	14 (7)
∅ 32	14.3	14 (7)	14 (7)
∅ 36	13.5	14 (7)	14 (7)
∅ 42.5	15.5	2, 10 (1, 5)	10 (5)
∅ 52 & ∅ 54	18	2, 10 (1, 5)	10 (5)



Two Channel Encoder Connections

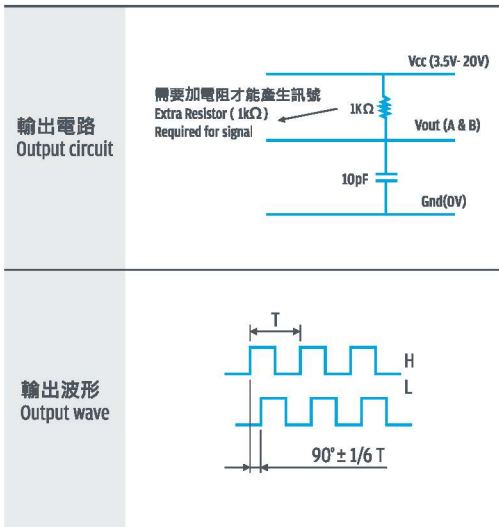
1. Black : - Motor
2. Red : + Motor
3. Brown : Hall Sensor Vcc
4. Green : Hall Sensor GND
5. Blue : Hall Sensor A Vout
6. Purple : Hall Sensor B Vout

One Channel Encoder Connections

1. Black : - Motor
2. Red : + Motor
3. Brown : Hall Sensor Vcc
4. Green : Hall Sensor GND
5. Blue : Hall Sensor A Vout
6. Purple : EMPTY

電氣特性/ Electrical Characteristics

規格特性 Characteristics	代號 Symbol	測試條件 Test conditions	極小 Min.	基準 Ref.	最大 Max.	單位 Units
輸入電壓 Supply voltage	Vcc	--	3.5	-	20	V
輸出飽和電壓 Output saturation voltage	Vce (sat)	Vcc = 14V ; IC = 20mA	-	300	700	mV
輸出漏電流 Output leakage current	Icex	Vcc = 14V ; Vcc = 14V	-	< 0.1	10	μA
輸入電流 Supply current	Ice	Vcc = 20V Output open	-	5	10	mA
輸出上升時間 Output rise time	tr	Vcc = 14V ; R _L = 820 Ω ; C _L = 20pF	-	0.3	1.5	μS
輸出下降時間 Output fall time	tr	Vcc = 14V ; R _L = 820 Ω ; C _L = 20pF	-	0.3	1.5	μS



- 使用相對溼度：20%~85%RH
Operating relative humidity
- 使用溫度範圍：-10°C~+60°C
Operating temperature range

IG

Right Angle

RA

RB

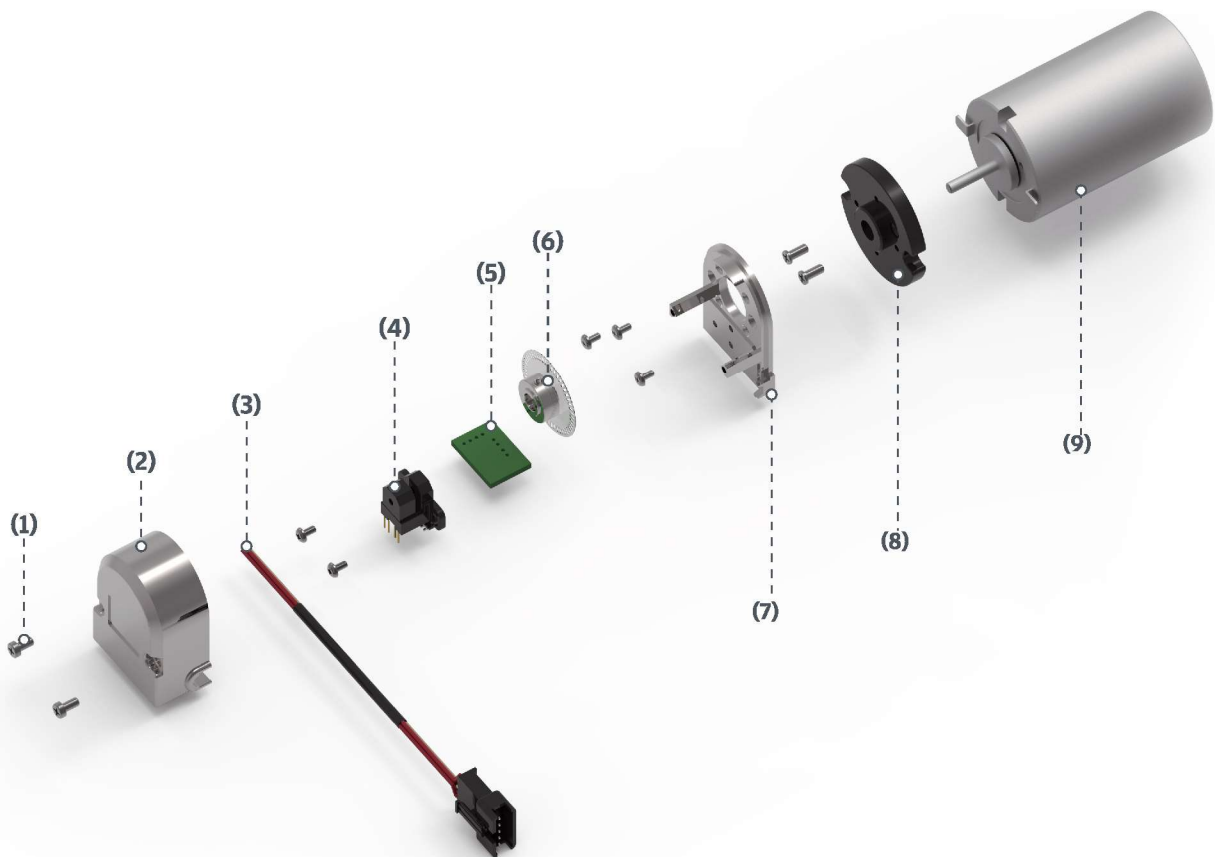
WG

Encoder

Driver

光學式編碼器

OPTICAL ENCODER



1	螺絲	Screw
2	上蓋	Cap
3	電線組	Wire harness
4	編碼器	Encoder
5	電路板	PCB

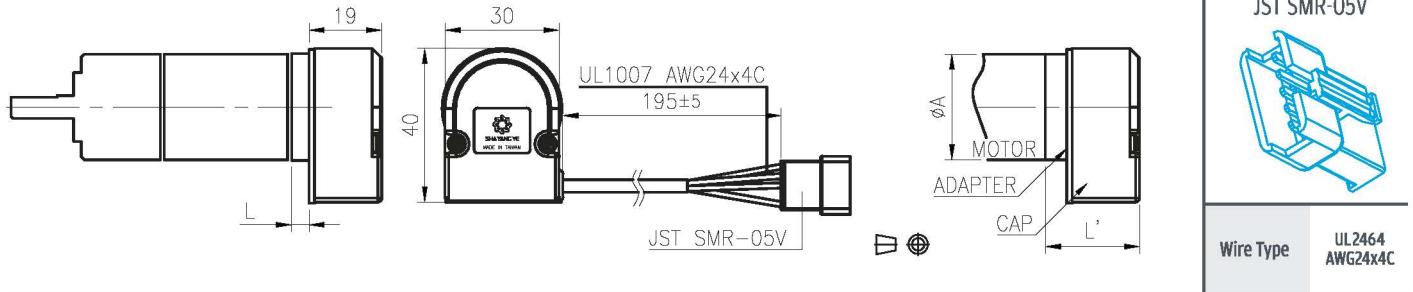
6	碼盤	Hub-Disc
7	下蓋	Base plate
8	連接板	Adaptor
9	馬達	Motor

OPTICAL Encoders

Two Channel Optical Encoders 雙向光學式編碼器



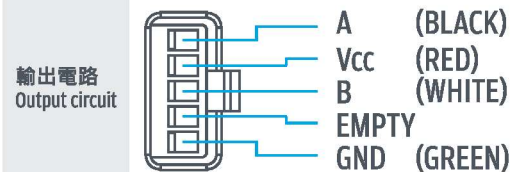
馬達外徑 & 長度/



電氣特性/ Electrical Characteristics

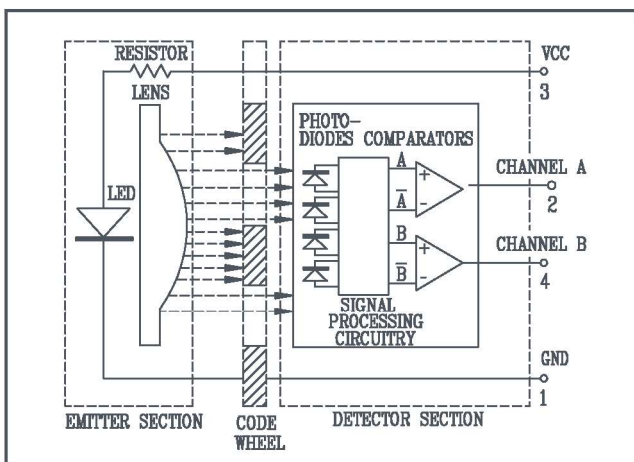
規格特性 Characteristics	規格 SPECIFICATION
輸入電壓 Supply Voltage Vcc	5V ± 10%
相位差 Phase shift	90°e ± 45°e
訊號上升時間 Signal rise time (typically, at CL=25pF, RL=11k, 25°C)	6 ns
訊號下降時間 Signal fall time (typically, at CL=25pF, RL=11k, 25°C)	6 ns
讀取頻率 Count frequency	20-80 kHz
負載端電容 Load Capaitance	100pf
通道輸出電流 Output current per channel	± 20mA

Motor	Overall Length (L')		Resolution
	Adapter (L)	Cap	
∅ 28	4.5 ± 0.5 mm	19 mm	100/200/256 360/400/500
∅ 36	4.5 ± 0.5 mm	19 mm	
∅ 40	None	19 mm	
∅ 42	10 ± 0.5 mm	19 mm	

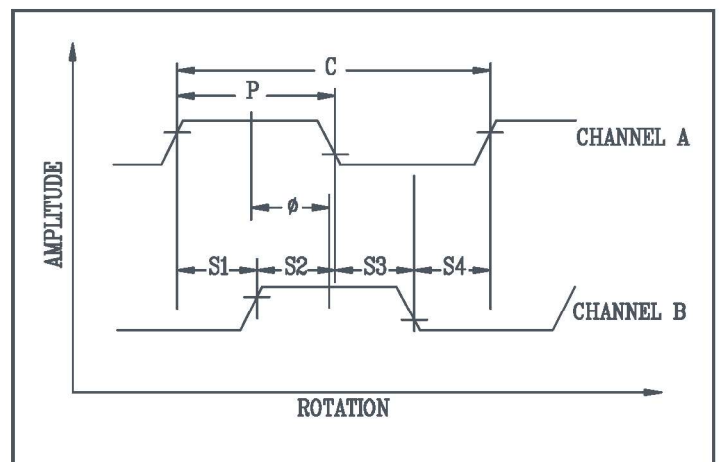


- 使用相對溼度：20%~85%RH ● 使用溫度範圍：-10°C~+60°C
- Operating relative humidity Operating temperature range

方塊示意圖 / Block Diagram



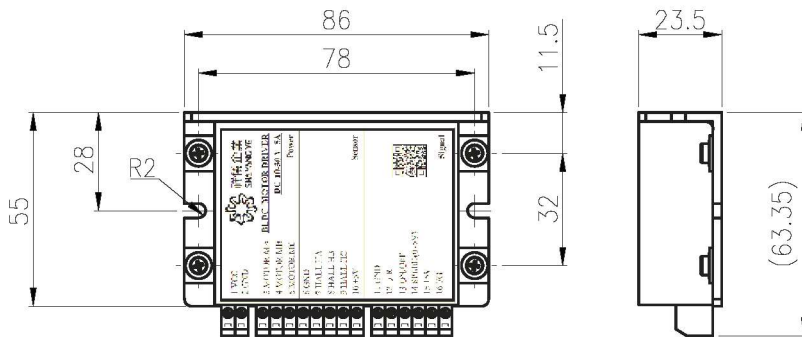
輸出波型 / Output Waveform



BLDC Motor Driver

IG

Right Angle



unit:mm

RA

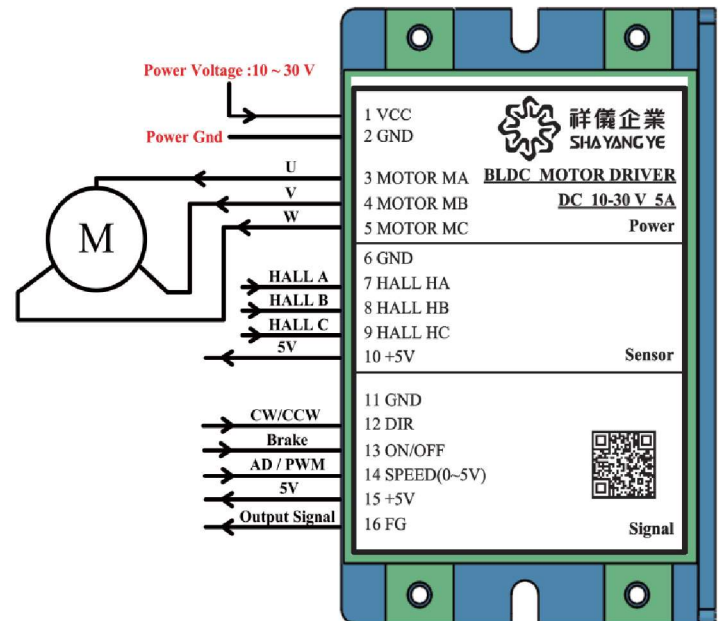
基本技術資訊 Basic technical information

1	輸入電壓 Operation input voltage	10~30	V
2	最大輸出電流 Maximum output current	5	A
3	輔助輸出電壓 Auxiliary output voltage	5	V
4	輔助輸出電流 Auxiliary output current	80	mA
5	速度緩上升時間 Slow rise time speed	100	ms
6	速度緩下降時間 Slow fall time speed	100	ms
7	速度控制訊號 Speed control signal	Analog voltage / PWM	V
8	正反轉 clockwise/counterclockwise	Yes	
9	馬達煞車功能 Motor brake function	Yes	
10	過載保護 Overload protection	Yes	
11	輸出轉速訊號 Output speed signal	Yes	

RB

WG

接線資訊 External connection information



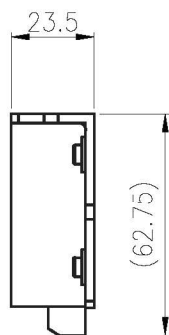
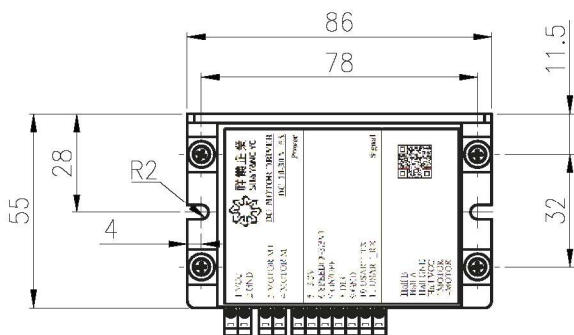
接線功能表 Wiring function list

MOTOR MA	連接馬達輸入 U 相位置 Connect motor input U phase
MOTOR MB	連接馬達輸入 V 相位置 Connect motor input V phase
MOTOR MC	連接馬達輸入 W 相位置 Connect motor input W phase
HALL HA	連接馬達輸出霍爾訊號 A Motor output Hall signal A
HALL HB	連接馬達輸出霍爾訊號 B Motor output Hall signal B
HALL HC	連接馬達輸出霍爾訊號 C Motor output Hall signal C
DIR	切換馬達正反轉方向 Switch motor rotation direction
ON / OFF	可調整馬達煞車功能 Motor brake function
SPEED	可調整馬達旋轉速度 Motor speed adjustment
FG	可提供馬達輸出轉速訊號 Motor output speed signal

Encoder

Driver

BLDC Sensorless Motor Driver



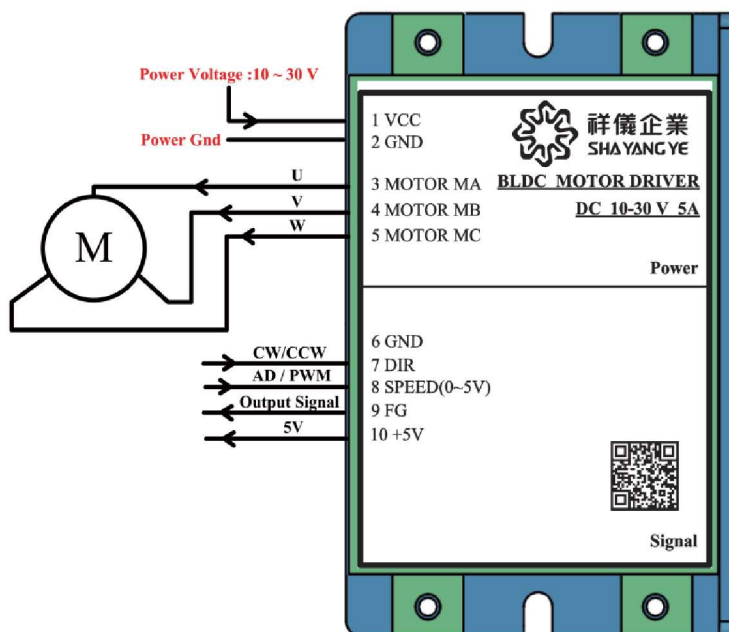
unit:mm



基本技術資訊 Basic technical information

1	輸入電壓 Operation input voltage	10-30	V
2	最大輸出電流 Maximum output current	5	A
3	輔助輸出電壓 Auxiliary output voltage	5	V
4	輔助輸出電流 Auxiliary output current	80	mA
5	速度緩上升時間 Slow rise time speed	3	S
6	速度緩下降時間 Slow fall time speed	3	S
7	速度控制訊號 Speed control signal	Analog voltage / PWM	V
8	正反轉 clockwise/counterclockwise	Yes	
9	馬達煞車功能 Motor brake function	No	
10	過載保護 Overload protection	Yes	
11	輸出轉速訊號 Output speed signal	Yes	

接線資訊 External connection information



接線功能表 Wiring function list

MOTOR MA	連接馬達輸入 U相位置 Connect motor input U phase
MOTOR MB	連接馬達輸入 V相位置 Connect motor input V phase
MOTOR MC	連接馬達輸入 W相位置 Connect motor input W phase
DIR	切換馬達正反轉方向 Switch motor rotation direction
SPEED	可調整馬達旋轉速度 Motor speed adjustment
FG	可提供馬達輸出轉速訊號 Motor output speed signal

IG

Right Angle

RA

RB

WG

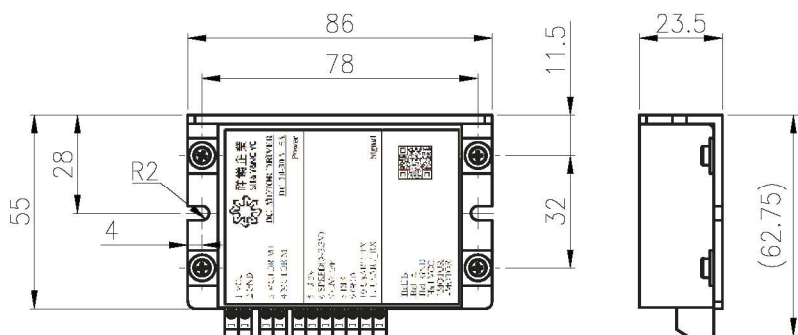
Encoder

Driver

DC Motor Driver

IG

Right Angle



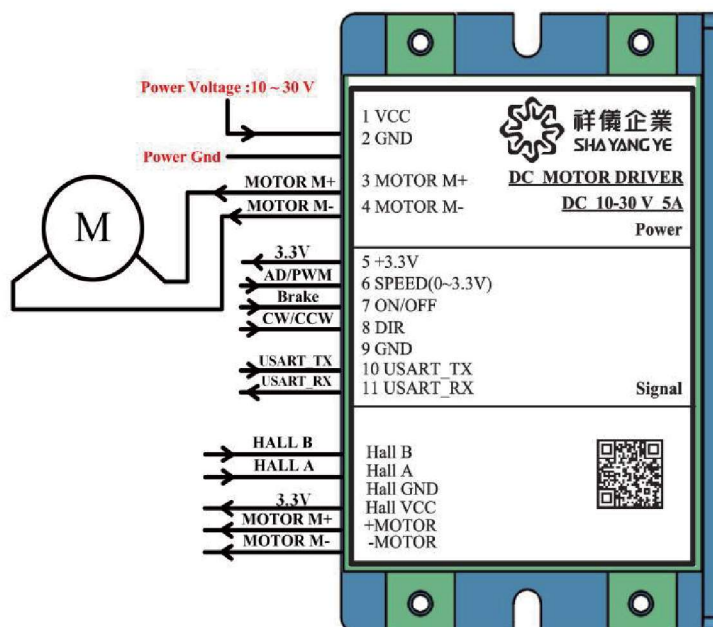
unit:mm

RA

基本技術資訊 Basic technical information

1	輸入電壓 Operation input voltage	10-30	V
2	最大輸出電流 Maximum output current	5	A
3	輔助輸出電壓 Auxiliary output voltage	3.3	V
4	輔助輸出電流 Auxiliary output current	200	mA
5	速度緩上升時間 Slow rise time speed	200	ms
6	速度緩下降時間 Slow fall time speed	200	ms
7	速度控制訊號 Speed control signal	Analog voltage / PWM	V
8	正反轉 clockwise/counterclockwise	Yes	
9	馬達煞車功能 Motor brake function	Yes	
10	過載保護 Overload protection	Yes	
11	輸出轉速訊號 Output speed signal	Yes	

接線資訊 External connection information



RB

WG

接線功能表 Wiring function list

MOTOR M +	連接馬達正電位置 Motor positive voltage
MOTOR M -	連接馬達負電位置 Motor Negative voltage
DIR	切換馬達正反轉方向 Switch motor rotation direction
ON / OFF	可調整馬達煞車功能 Motor brake function
SPEED	可調整馬達旋轉速度 Motor speed adjustment
USART_TX	傳輸訊號與數據的發送 Signal and data transmission
USART_RX	傳輸訊號與數據的接收 Signal and data reception

Encoder

Driver

祥儀標準品規格接線表 Sha Yang Ye specification Wiring list

- MOTOR	連接馬達負電位置 Motor negative voltage
+ MOTOR	連接馬達正電位置 Motor positive voltage
Hall A	連接輸出編碼器A相訊號 Connect output encoder A signal
Hall B	連接輸出編碼器B相訊號 Connect output encoder B signal