

ASSEMBLED TYPE SPEED CONTROLLER

組成型速度控制器

● 使用方法與注意事項 INSTRUCTION & PRECAUTIONS

- 電源線請用0.75mm²以上的。
- 變速範圍：50Hz時為90-1400rpm，60Hz時為90-1700rpm。
- 因齒輪減速機構的關係，迴轉方向相反時，請將CW與CCW之結線相反即可。
- STOP與RUN開關，並非電源開關，使用於馬達短時間停止的場合；若馬達須長時間停止時，請將馬達電源關閉。
- Power supply leads should be thicker than 0.75mm².
- Variable speed ranges from 90-1400rpm at 50Hz, and 90-1700rpm at 60Hz.
- Due to the construction of the gear motor, please reverse the CW/CCW wires when you wish to switch to an opposite rotational direction.
- The STOP and RUN switches are for short interval stops only. If the motor must be stopped for a longer period, please turn off the power supply.

感應式機種一覽表 INDUCTION MOTOR MODELS

電壓 VOLTAGE	機種 MODEL	組合式品名 NAME	=	馬達規格 MOTOR	+ 控制器規格 CONTROLLER
1ø 100V~125V	US206-001	M206-001		US206-01	
	US206-401	M206-401		US206-01	
	US315-001	M315-001		US315-01	
	US315-401	M315-401		US315-01	
	US425-001	M425-001		US425-01	
	US425-401	M425-401		US425-01	
	US540-001	M540-001		US540-01	
	US540-401	M540-401		US540-01	
	US560-001	M560-001		US560-01	
	US560-401	M560-401		US560-01	
	US560-601	M560-601		US560-01	
	US590-001	M590-001		US590-01	
US590-601	M590-601		US590-01		
1ø 200V	US206-002	M206-002		US206-02	
	US206-402	M206-402		US206-02	
	US315-002	M315-002		US315-02	
	US315-402	M315-402		US315-02	
	US425-002	M425-002		US425-02	
	US425-402	M425-402		US425-02	
	US540-002	M540-002		US540-02	
	US540-402	M540-402		US540-02	
	US560-002	M560-002		US560-02	
	US560-402	M560-402		US560-02	
	US560-602	M560-602		US560-02	
	US590-002	M590-002		US590-02	
US590-602	M590-602		US590-02		
1ø 240V 50Hz	US206-002E	M206-002E		US206-02E	
	US206-402E	M206-402E		US206-02E	
	US315-002E	M315-002E		US315-02E	
	US315-402E	M315-402E		US315-02E	
	US425-002E	M425-002E		US425-02E	
	US425-402E	M425-402E		US425-02E	
	US540-002E	M540-002E		US540-02E	
	US540-402E	M540-402E		US540-02E	
	US560-002E	M560-002E		US560-02E	
	US560-402E	M560-402E		US560-02E	
	US560-602E	M560-602E		US560-02E	
	US590-002E	M590-002E		US590-02E	
US590-602E	M590-602E		US590-02E		

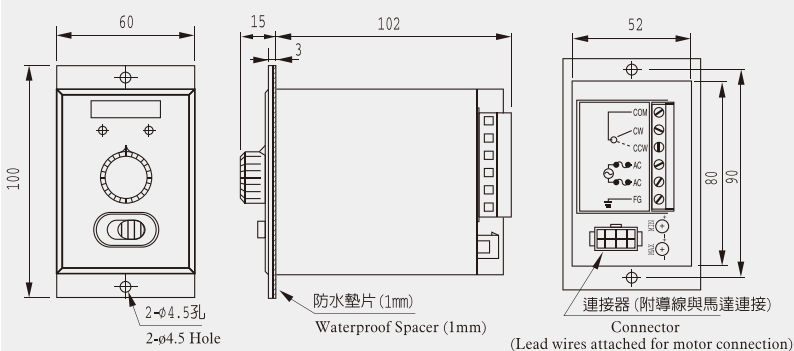


可逆式機種一覽表 REVERSIBLE MOTOR MODELS

電壓 VOLTAGE	機種 MODEL	組合式品名 NAME	=	馬達規格 MOTOR	+ 控制器規格 CONTROLLER
1ø 100V~125V	US206-011	M206-011		US206-11	
	US206-411	M206-411		US206-11	
	US315-011	M315-011		US315-11	
	US315-411	M315-411		US315-11	
	US425-011	M425-011		US425-11	
	US425-411	M425-411		US425-11	
	US540-011	M540-011		US540-11	
	US540-411	M540-411		US540-11	
	US560-011	M560-011		US560-11	
	US560-411	M560-411		US560-11	
	US560-611	M560-611		US560-11	
	US590-011	M590-011		US590-11	
US590-611	M590-611		US590-11		
1ø 200V	US206-012	M206-012		US206-12	
	US206-412	M206-412		US206-12	
	US315-012	M315-012		US315-12	
	US315-412	M315-412		US315-12	
	US425-012	M425-012		US425-12	
	US425-412	M425-412		US425-12	
	US540-012	M540-012		US540-12	
	US540-412	M540-412		US540-12	
	US560-012	M560-012		US560-12	
	US560-412	M560-412		US560-12	
	US560-612	M560-612		US560-12	
	US590-012	M590-012		US590-12	
US590-612	M590-612		US590-12		
1ø 240V 50Hz	US206-012E	M206-012E		US206-12E	
	US206-412E	M206-412E		US206-12E	
	US315-012E	M315-012E		US315-12E	
	US315-412E	M315-412E		US315-12E	
	US425-012E	M425-012E		US425-12E	
	US425-412E	M425-412E		US425-12E	
	US540-012E	M540-012E		US540-12E	
	US540-412E	M540-412E		US540-12E	
	US560-012E	M560-012E		US560-12E	
	US560-412E	M560-412E		US560-12E	
	US560-612E	M560-612E		US560-12E	
	US590-012E	M590-012E		US590-12E	
US590-612E	M590-612E		US590-12E		

■ 組成型控制器外型尺寸圖 DIMENSIONS OF ASSEMBLED TYPE SPEED CONTROLLER

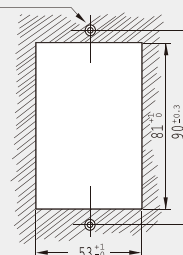
縮尺：1/4 單位：mm 重量：0.5kg SCALE：1/4 UNIT：mm WEIGHT：0.5kg



■ 安裝孔加工圖

THE MACHINING OF THE INSTALLATION HOLES

(2-ø4.5) 安裝孔 (2-ø4.5) Installation Hole(s)



泛用型馬達
GENERAL PURPOSE MOTOR

速度控制型馬達
SPEED CONTROLLED MOTOR

控制器
CONTROLLER

煞車馬達
BRAKE MOTOR

離合煞車馬達
CLUTCH BRAKE MOTOR

轉矩馬達
TORQUE MOTOR

減速機
SPEED REDUCER

零組件類
COMPONENTS

SEPARATED TYPE SPEED CONTROLLER

分離型速度控制器

SS21 / SS22



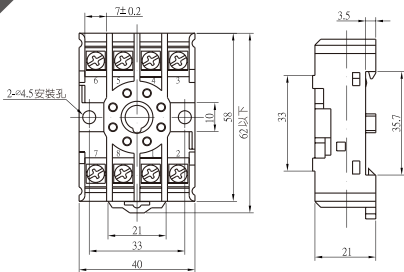
SS31-HR / SS32-HR



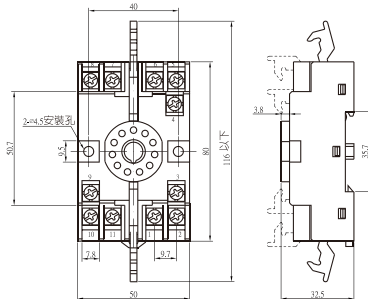
機種規格表 MODEL SPECIFICATIONS

品名 MODEL	SS21	SS22	SS31-HR	SS32-HR
電源範圍 POWER RANGE	100~125V	200~240V	100~125V	200~240V
頻率 FREQUENCY	50/60Hz			
最大容許電流 MAX. CURRENT ALLOWED	2A	2A	3A	3A
適用馬達 SUITABLE MOTOR	6W-90W			
速度控制範圍 SPEED CONTROL RANGE	90~1400rpm (50Hz) / 90~1700rpm (60Hz)			
速度變動率 VARIABLE SPEED RATIO	5%	5%	3%	3%
瞬時剎車 INSTANT BRAKE	-	-	電子式剎車 Electronic Brake	電子式剎車 Electronic Brake
剎車保持力時間 BRAKE HOLDING TIME	-	-	0.5 秒 0.5 Second	0.5 秒 0.5 Second
絕緣阻抗 INSULATION RESISTANCE	外殼與各端子間以DC 500V高阻計量測，測定值在10MΩ以上。 Tested value at 10MΩ and above, measured by DC 500V Hi-Resistance meter between the housing and terminals.			
絕緣耐壓 HI-POT INSULATION	外殼與各端子間以60Hz, 1kV加入一分鐘無異狀。 No damages caused after 1kV at 60Hz was tested between the housing and terminals.			
使用環境溫度 AMBIENT TEMPERATURE	-10~+40°			
保存溫度 STORAGE TEMPERATURE	-20~+60°			

8-PIN 腳座 8-PIN BASE

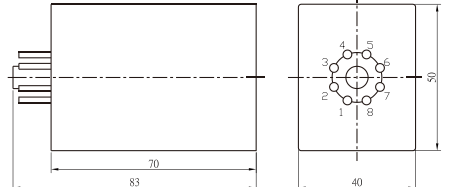


11-PIN 腳座 11-PIN BASE

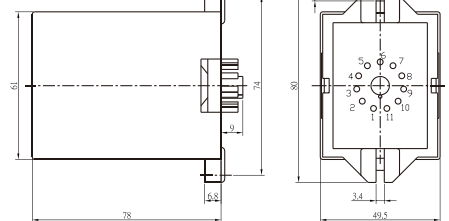


尺寸圖 DIMENSIONS

SS21/ SS22



SS31-HR/ SS32-HR



有段變速的使用 APPLICATION OF STEPPED SPEED

若使用的速度決定後，在切換轉速時，將可變電阻設定成固定電阻值，如下圖所示：

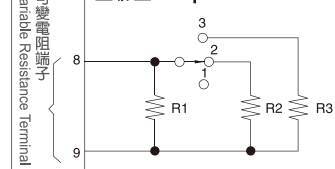
1. 並聯型：切換開關在接點切換時，與接點端子接觸後，再離開原有端子接點。
2. 串聯型：完全離開前一接點，才與另一個接點接觸。

兩者都可使用，請依所需形式做好配線工作。使用串聯型的切換開關，在接點切換的瞬間會造成開路狀態，馬達轉速會急速上升，請特別注意。

- Once applicable speed is decided, as speed is changed, variable electric resistance value can be fixed.
1. Parallel Type: the switch first makes contact with the connecting terminal, then returns to the original terminal point.
 2. Series Type: the switch leaves the previous connecting point, then makes contact with another terminal point.
- Either type is applicable, please wire accordingly. When using the parallel type switch, an open-circuit mode is created at the instant of switching, where a rapid increase of motor speed must be taken into precaution.

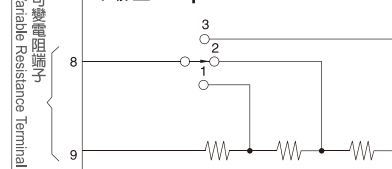
SS21、SS31-HR
SS22、SS32-HR

並聯型 Sequence In Parallel



SS21、SS31-HR
SS22、SS32-HR

串聯型 Sequence In Series



■ 並聯型電阻值 (MAX. 20KΩ) R
Sequence In Parallel Resistance Value = $\frac{R1 \times R2}{R1 + R2}$, $\frac{R1 \times R3}{R1 + R3}$

■ 串聯型電阻值 (MAX. 20KΩ) R
Sequence In Series Resistance Value = $R1 + R2 + R3$

WIRING APPLICATION FOR SEPARATE TYPE CONTROLLER

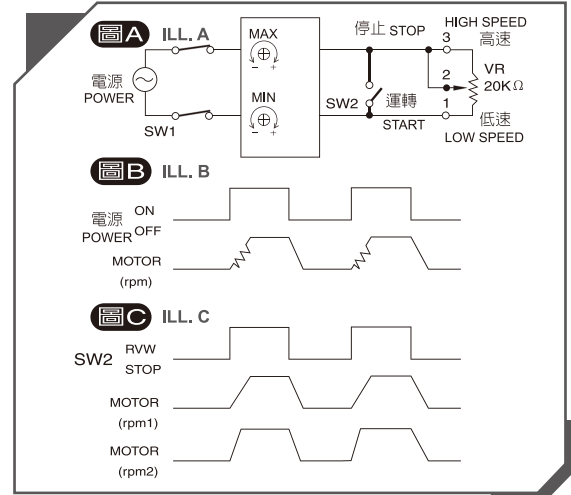
分離型控制器 在配線上的應用

在間歇性使用的場合，如何改善啓動時的特性

HOW TO IMPROVE STARTING FEATURES ON INTERVAL USAGE

控制器的電源開關 (SW1) 切到ON時，馬達需有較長的時間來啓動，且在電源開關ON / OFF間的電源突波，常會造成馬達啓動轉速不穩的暫態現象。(如右圖B)
在間歇性使用的場合，或馬達僅是短時間不使用時，請讓電源常駐於控制器內。改由SW2來控制RUN/STOP，即可獲得較佳的起動特性。(如右圖C的MOTOR rpm1)
若再將MIN的SVR向順時間微調一點點(但馬達未運轉)，以提升其零點的抵補偏壓值，即可獲得最佳的啓動應答性。(如右圖C的MOTOR rpm2)

When turning on power switch (SW1) of the controller, the motor needs more time to start. The surges between ON/OFF cause motor starting speed un-steady temporarily. (see ILL. B)
On interval usage or motor is not in use for short time, please leave power connected to the controller. A better starting feature is available by controlling RUN/STOP with SW2. (see MOTOR rpm1 of ILL. C)
To get a better starting response, turn SVR on MIN. clockwise slightly (but keep the motor still stop) to raise a substitution on bias voltage from zero. (see MOTOR rpm2 of ILL. C)



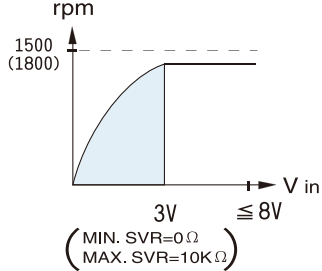
直流電壓控制速度的使用

THE USAGE OF SPEED CONTROL IN DC VOLTAGE

- 速度控制用的可變電阻，可以改用輸入一直流電壓來代替。下圖的配線方法可提供設計應用時參考。
- 在應用時需特別注意V in 不能超過8V，且MIN.的SVR需向左調至0。
- 需特別注意控制信號側 (V in) 和電源側的隔離狀態 (如下表所示)，以免造成控制器燒毀和漏電的情形。
- 確實連接220Ω, 1/2W的電阻器。
- The variable resistance used for speed control could be replaced by inputting a DC voltage. The wiring below is for application reference.
- Be cautious in application that voltage input must not exceed 8V, and the SVR of MIN. must be turned left to zero.
- Special attention to the isolation status between control signal side (V in) and power supply side (see Table 1) to avoid controller burn down and current leakage.
- Be sure to connect 220Ω, 1/2W resistor.

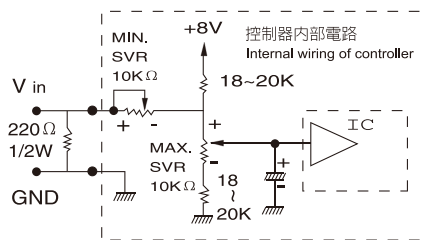
圖A. 馬達轉速對V in的曲線

ILL.A Curves of motor speed against V in



圖B. 控制器V in-GND端子的電路圖

ILL.B Wiring diagram of controller V in-GND terminals



表一/連接端子與電源隔離狀態

Table 1. isolation for connecting terminals and power

品名 Model name	V in 連接端子 connecting terminals	GND 連接端子 connecting terminals	對電源側 隔離狀態 Isolation beside power supply
SS21 SS22	6	3	無 NO
SS31-HR SS32-HR	8	9	有 YES

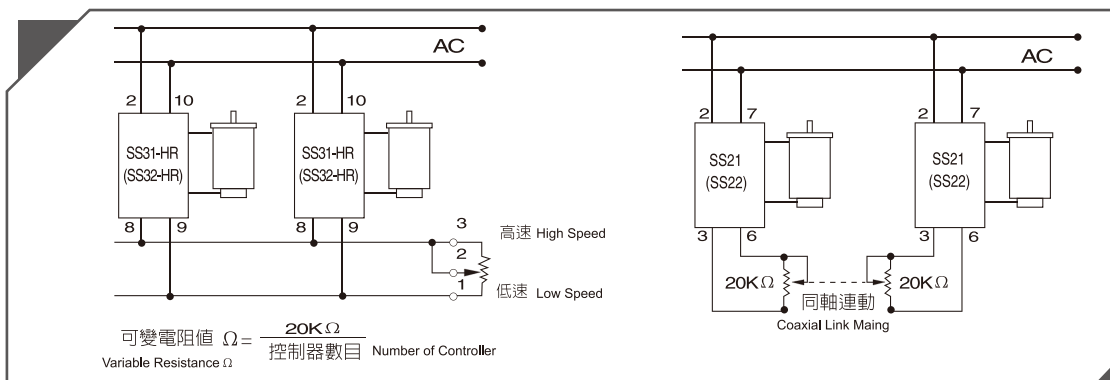
並列運轉

PARALLEL ROTATION

使用一個可變電阻 (僅限SS31 / SS32) 或同軸多組可變電阻 (用於SS21 / SS22) 來控制多個馬達時，控制器的配線，方法如下圖所示。但各個馬達間會因負載的不同及製品的誤差值，使得轉速會有微小的差異。

When a single variable resistance (only for SS31/SS32) or coaxial multi-variable resistances (only for SS21/SS22) are used to control several motors, the wiring of the controller are shown as below.

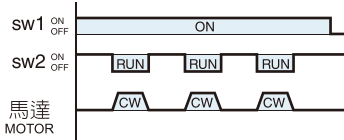
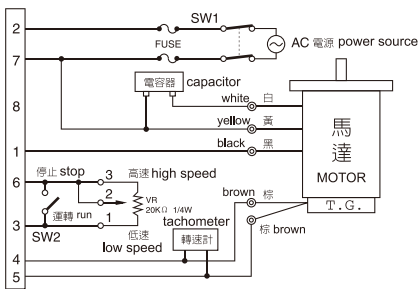
Speed of each motor may have minor variation due to different loading and product tolerance.



SS21 SS22 EXTERNAL WIRING CONNECTIONS

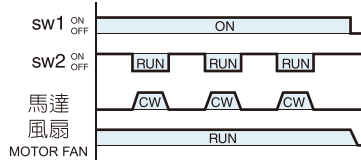
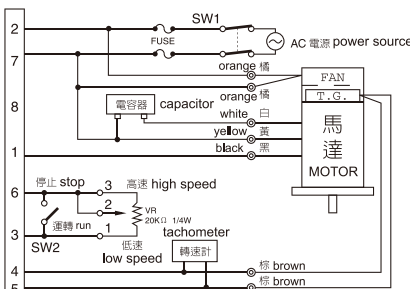
SS21 SS22 外部配線圖

單一方向運轉+變速 SINGLE ROTATING DIRECTION + VARIABLE SPEED



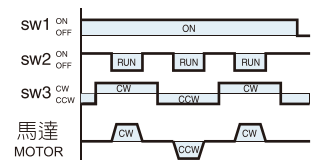
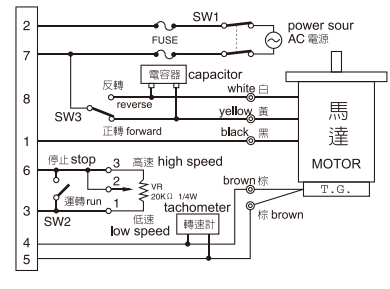
開關編號 SWITCH NUMBER	規格 SPECIFICATION
SW1	AC250V,5A以上above
SW2	DC20V,10mA
可變電阻 Variable resistance(VR)	20KΩ, 1/4W, B特性

單一方向運轉+強制風扇+變速 SINGLE ROTATING DIRECTION + FAN + VARIABLE SPEED



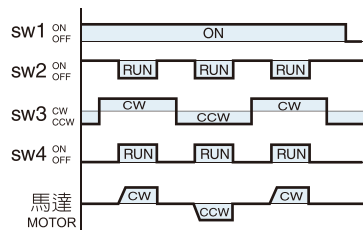
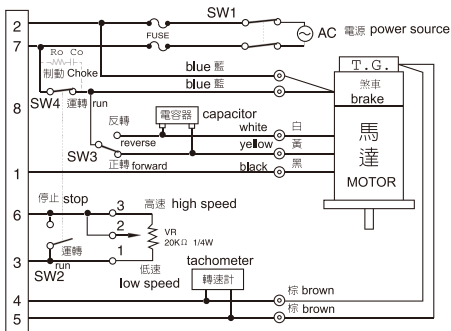
開關編號 SWITCH NUMBER	規格 SPECIFICATION
SW1	AC250V,5A以上above
SW2	DC20V,10mA
可變電阻 Variable resistance(VR)	20KΩ, 1/4W, B特性

正逆轉+變速 REVERSIBLE + VARIABLE SPEED



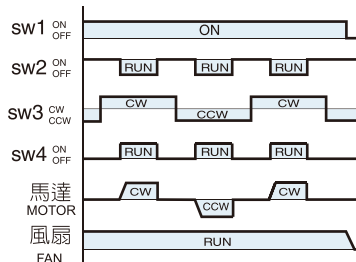
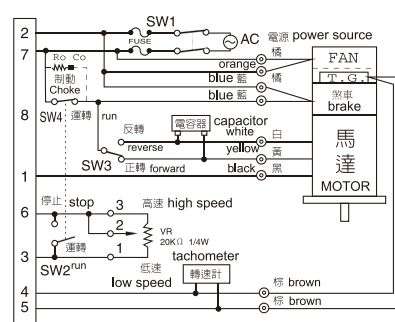
開關編號 SWITCH NUMBER	規格 SPECIFICATION
SW1, SW3	AC250V,5A以上above
SW2	DC20V,10mA
可變電阻 Variable resistance(VR)	20KΩ, 1/4W, B特性

正逆轉+電磁制車+變速 REVERSIBLE + MAGNETIC BRAKE + VARIABLE SPEED



開關編號 SWITCH NUMBER	規格 SPECIFICATION
SW1, SW3, SW4	AC250V,5A以上above
SW2	DC20V,10mA
接觸點保護 Contacting point protection(Ro Co)	Ro=5~200Ω (1/2W以上above) Co=0.1~0.2μF (400VAC以上above)
可變電阻 Variable resistance(VR)	20KΩ, 1/4W, B特性

正逆轉+強制風扇+電磁制車+變速 REVERSIBLE + FAN + MAGNETIC BRAKE + VARIABLE SPEED

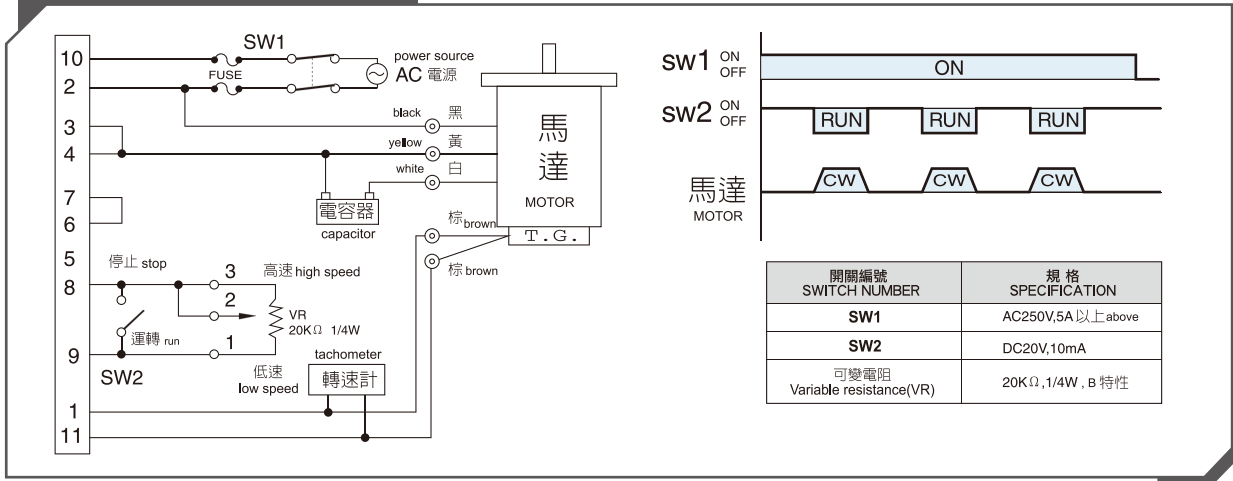


開關編號 SWITCH NUMBER	規格 SPECIFICATION
SW1, SW3, SW4	AC250V,5A以上above
SW2	DC20V,10mA
接觸點保護 Contacting point protection(Ro Co)	Ro=5~200Ω (1/2W以上above) Co=0.1~0.2μF (400VAC以上above)
可變電阻 Variable resistance(VR)	20KΩ, 1/4W, B特性

SS31-HR SS32-HR EXTERNAL WIRING CONNECTIONS SS31-HR SS32-HR 外部配線圖

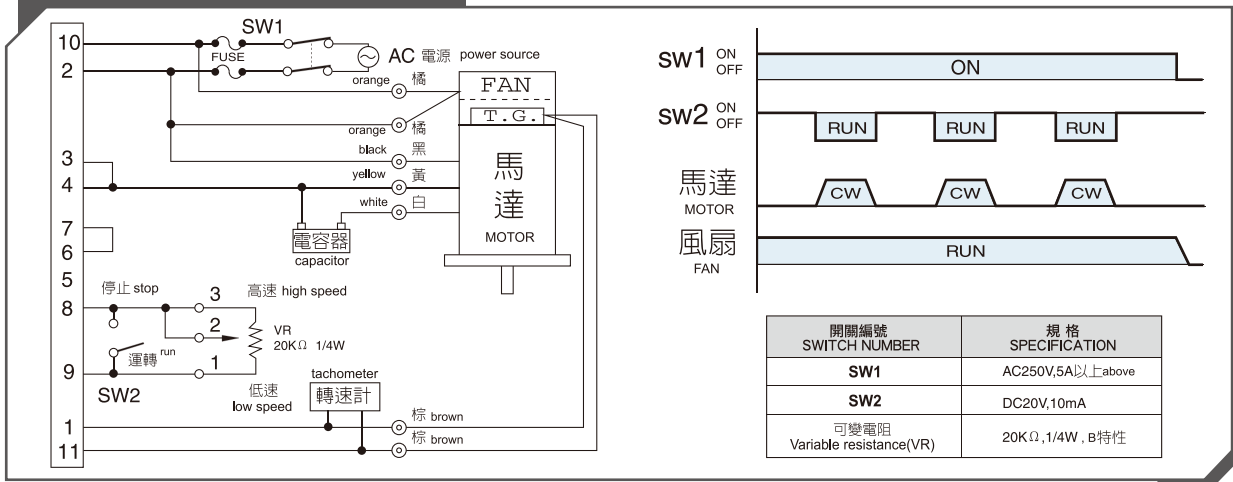
單一方向運轉+變速

SINGLE ROTATING DIRECTION + VARIABLE SPEED



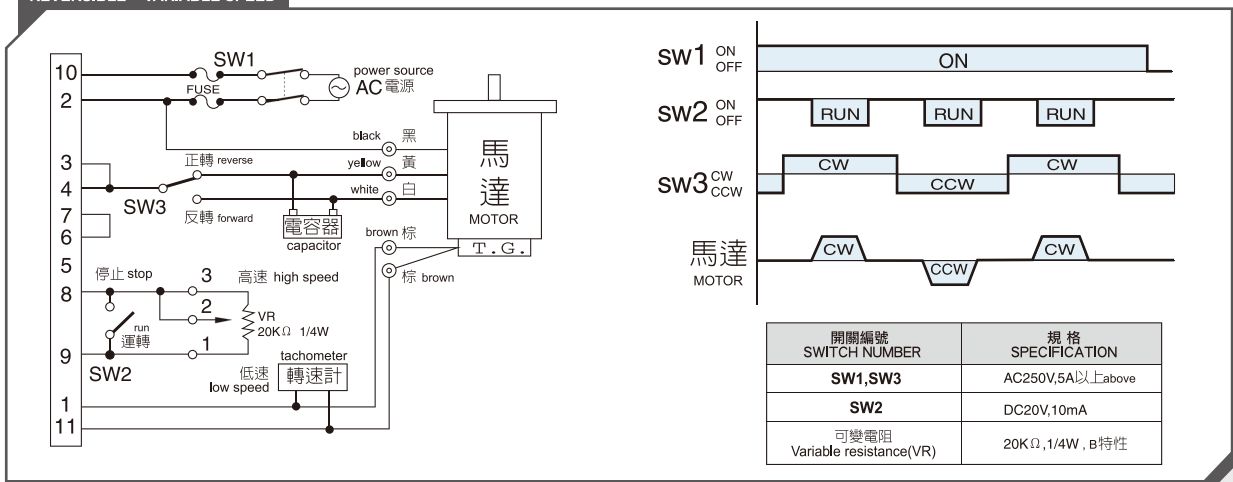
單一方向運轉+強制風扇+變速

SINGLE ROTATING DIRECTION + FAN + VARIABLE SPEED



正逆轉+變速

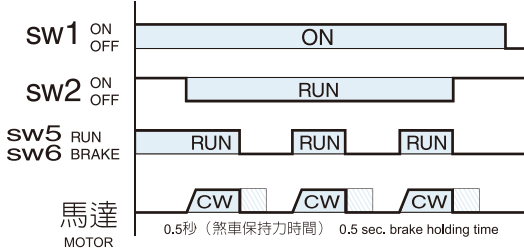
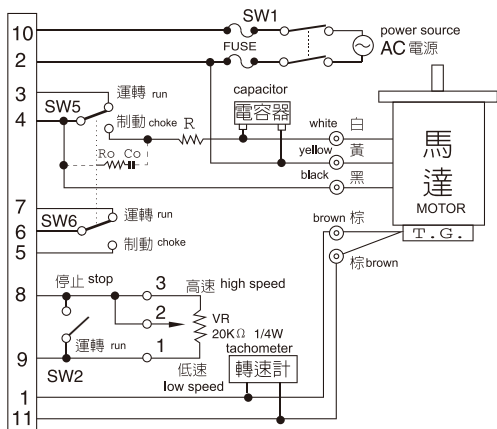
REVERSIBLE + VARIABLE SPEED



SS31-HR SS32-HR EXTERNAL WIRING CONNECTIONS

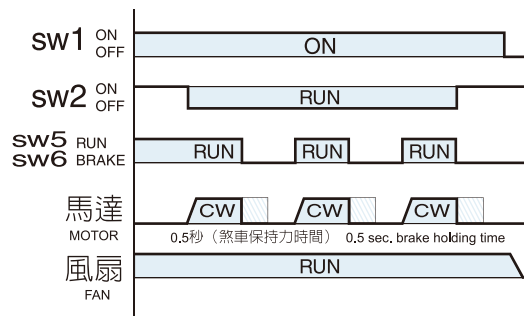
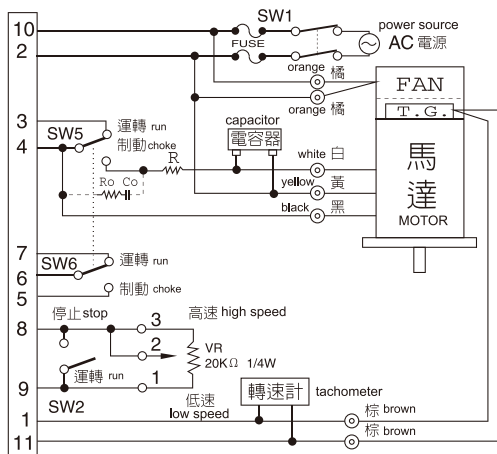
SS31-HR SS32-HR 外部配線圖

單一方向運轉+變速+電子式剎車 SINGLE ROTATING DIRECTION + VARIABLE SPEED + ELECTRONIC BRAKE



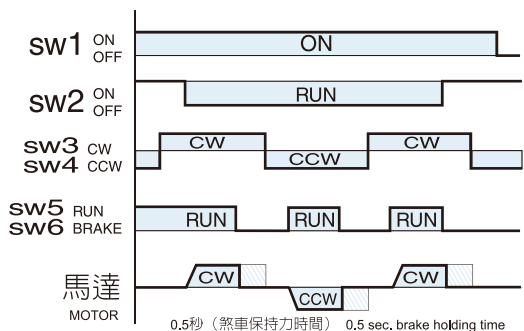
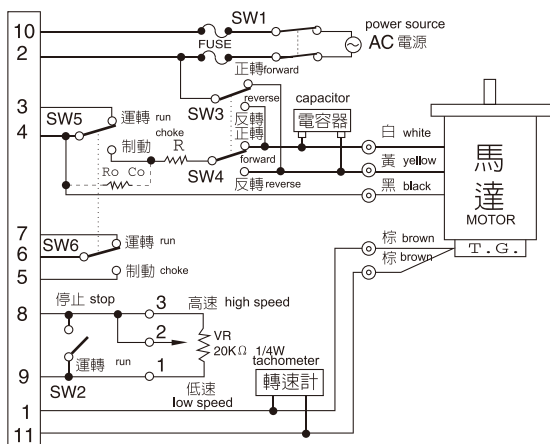
開關編號 SWITCH NUMBER	規格 SPECIFICATION
SW1,SW5,SW6	AC250V,5A以上 above
SW2	DC20V,10mA
外接電阻 External resistance(Ro Co)	10W 10Ω
接點保護 Contacting point protection(Ro Co)	Ro=5-200Ω (1/2W 以上 above) Co=0.1-0.2 μF (400VAC 以上 above)
可變電阻 Variable resistance(VR)	20KΩ, 1/4W, B 特性

單一方向運轉+強制風扇+變速+電子式剎車 SINGLE ROTATING DIRECTION + FAN + VARIABLE SPEED + ELECTRONIC BRAKE



開關編號 SWITCH NUMBER	規格 SPECIFICATION
SW1,SW3,SW4,SW5,SW6	AC250V,5A 以上 above
SW2	DC20V,10mA
外接電阻 External resistance(R)	10W 10Ω
接點保護 Contacting point protection(Ro Co)	Ro=5-200Ω (1/2W 以上 above) Co=0.1-0.2 μF (400VAC 以上 above)
可變電阻 Variable resistance(VR)	20KΩ, 1/4W, B 特性

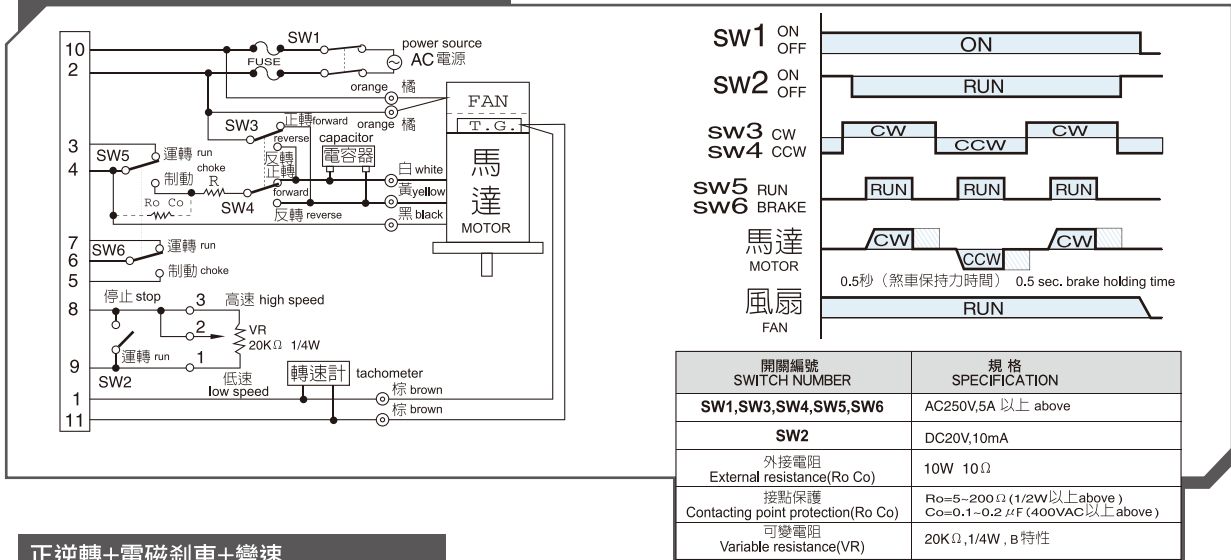
正逆轉+變速+電子式剎車 REVERSIBLE + VARIABLE SPEED + ELECTRONIC BRAKE



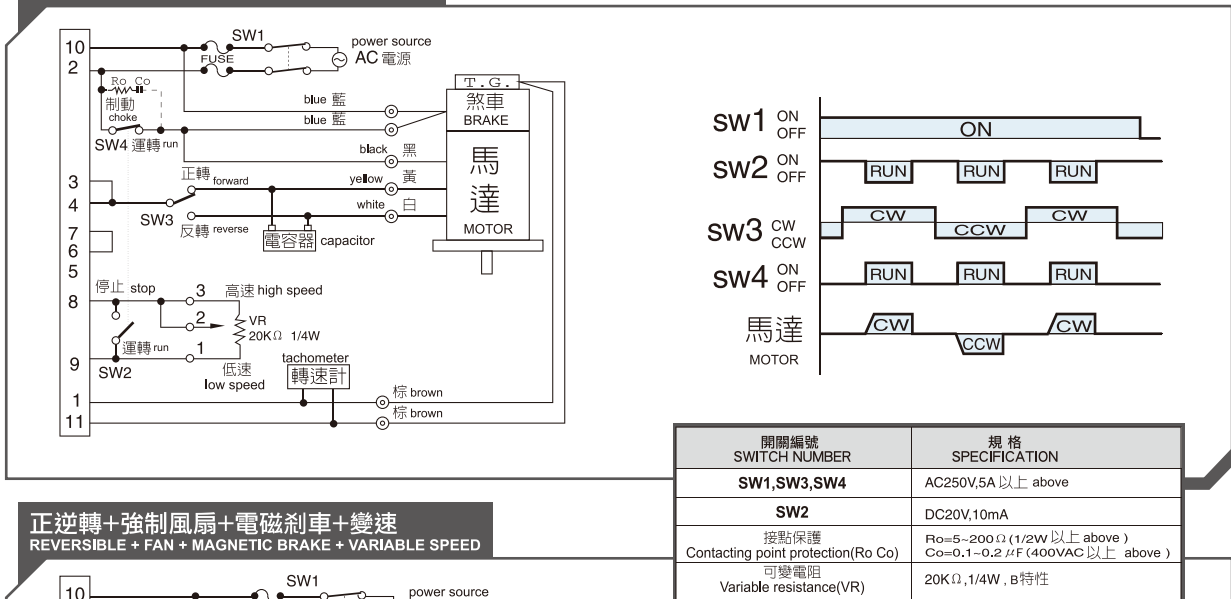
馬達 MOTOR 0.5秒 (煞車保持力時間) 0.5 sec. brake holding time

SS31-HR SS32-HR EXTERNAL WIRING CONNECTIONS SS31-HR SS32-HR 外部配線圖

正逆轉+強制風扇+變速+電子式剎車
REVERSIBLE + FAN + VARIABLE SPEED + ELECTRONIC BRAKE



正逆轉+電磁剎車+變速
REVERSIBLE + MAGNETIC BRAKE + VARIABLE SPEED



正逆轉+強制風扇+電磁剎車+變速
REVERSIBLE + FAN + MAGNETIC BRAKE + VARIABLE SPEED

