

# 步进电机驱动器篇 Stepping Motor Driver

## 推荐的步进电机驱动器 Stepping Motor Driver recommendation

为用户更方便地使用MoBo系列及微型执行器系列，作为附件，本公司备有推荐的驱动器。  
KSS provides recommended Stepping Motor Driver for MoBo series and Miniature Actuator series in order to make it easy to use.

### ●标准驱动器/ Standard Stepping Motor Driver

#### KR-A5CC

DC24V 5相步进电机用驱动器。可以进行整步、半步切换。兼具电流自动下降功能。  
This Driver is for 5-phase Stepping Motor operated by DC24V power supply. It has automatic current reduction circuits. You can choose full-step or half step function.



#### KR-A55MC

DC24V 5相步进电机用驱动器。可设定16种步进角，最大分割数为250的微型步进驱动器。  
Micro-Step Driver for 5-phase Stepping Motor with DC24V power supply. 16 step angle types can be set with up to 250 divisions.



#### KR-A535M

可使用AC100~220V电源的5相步进电机用微型步进驱动器。  
最大分割数可达250。  
Micro-Step Driver for 5-phase Stepping Motor, Which can be used with AC100~220V power supply. 16 step angle types can be set with up to 250 divisions.



#### KS9110

建议用于树脂MoBo(树脂螺母滑动丝杠型)及多摩川精机制(2相 □28)带步进电机的微型执行器系列的2相步进电机用驱动器。可通过拨动开关进行整步、半步切换。  
This is recommended 2-phase stepping Motor Driver for Resin MoBo type, which is Resin Lead Screw with Motor and Miniature Actuator series with □28 size 2-phase Stepping Motor made by TAMAGAWA SEIKI. It can be selected for Full-step or Half-step by Dip switch.



#### SD4030B2

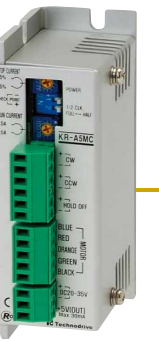
推荐用于2相冷轧MoBo(双极)及Minebea Motor制造的(2相 □25)带步进电机的微型执行器的驱动器。可进行8种步进角设定。  
This is recommended 2-phase stepping Motor Driver for 2-phase Rolled MoBo (Bi-polar) and Miniature Actuator series with □25 size 2-phase Stepping Motor made by Minebea Motor. It has Micro-Step function with 8-step angle.



各推荐驱动器的规格和外形图请见下页以后。  
Outer dimensions and specifications of KSS recommended Driver are shown from next page.

## KR-A5CC DC24V输入 5相步进电机驱动器 DC24V Input 5-phase Stepping Motor Driver

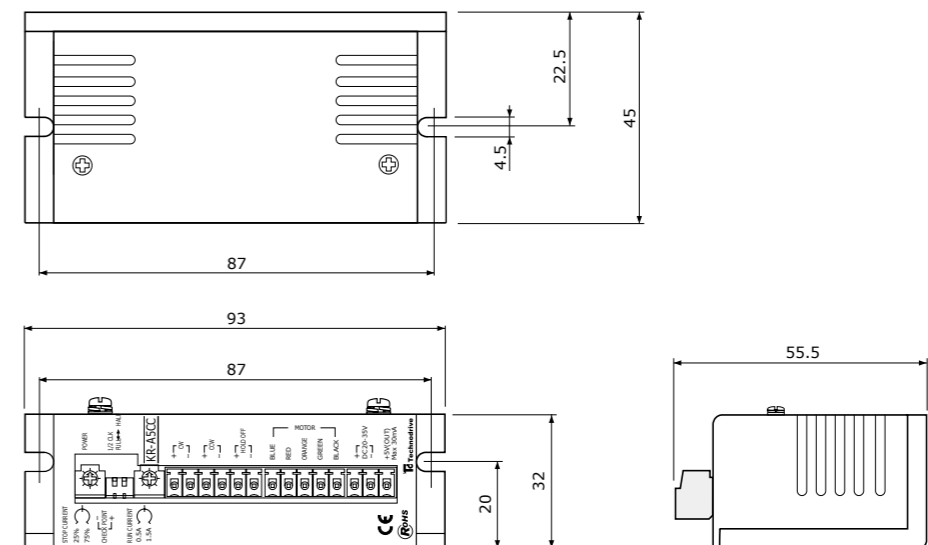
DC24V 适用于0.1~0.9A / 相 0.1~0.9A / phase 整步、半步 Full / Half-Step 箱型 Case type



### ■规格 Specifications

项目 Items	规格值 Specifications		
电源 Power supply	DC20-35V (-10%, +20%) max.3A		
驱动电流 Output current (出厂时 0.35A/相) (0.35A/phase at shipping)	额定电流0.1~0.9A / 相 Rated current : 0.1~0.9A/phase		
驱动方式 Driving Type	双极恒流五角驱动方式 Bipolar pentagon constant current drive		
输入信号回路 Input signal circuit	信号名 Signal name	功能说明 Functional description	输入电阻 Input resistance
	CW+	1时钟模式时的脉冲信号输入	390Ω
	CW-	2时钟模式时的正转信号输入	
	CCW+	1时钟模式时的转向指示输入	390Ω
	CCW-	2时钟模式时的反转信号输入	
	H.O.+ H.O.-	电机励磁OFF控制信号 “H”时电机励磁OFF	Motor exciting OFF control signal "H" for motor exciting OFF
驱动电流值设定 Setting of driving current	脉冲宽度 0.5μsec以上、上升下降时间 1μsec以下 脉冲间隔 0.5μsec以上、脉冲频率 50kpps以下 脉冲电压 "H": 4~8V "L": 0~0.5V 光电耦合器的电流从OFF(逻辑L)到ON(逻辑H)时动作在1时钟模式下, CCW输入为"L"时进行CCW旋转 Pulse width : 0.5μs min., Rising-up time : 1μs max. Pulse interval : 0.5μs min., Pulse frequency : 50kpps max. Pulse voltage : "H" for 4~8V & "L" for 0~0.5V Triggered at the edge of OFF (Logic"L") to ON (Logic"H") of photo-coupler current CCW rotation with CCW input of "L" in 1-clock system		
电流下降值设定 Setting of Stop current	设定驱动电流时, 将电压表连接至CP+ CP-, 并旋转RUN旋钮, 将电压设定为下式得出的电压值。 To change the RUN current, connect the CP+ to the (+) terminal of the voltmeter and the CP- to the (-) terminal of the voltmeter then adjust RUN CURRENT volume. $\text{驱动电流 (A)} = \frac{\text{CP电压 (V)}}{4} \quad \text{Setting current (A)} = \frac{\text{CP voltage (V)}}{4}$ 设定例) 驱动电流设定为0.35A/相时, 将CP电压调整至1.4V Setting example) When drive current is set to 0.35A/phase, the CP voltage is adjusted to 1.4V. 注) 须在电机旋转的状态下设定驱动电流。 Note) Run current should be changed during the operating of motor.		
拨动开关设定 (出厂时的设定均为OFF) Setting of Dip-switches (All off at shipping)	设定电机停止时的电流值。通过STOP旋钮设定 电流下降值以相对于驱动电流值的百分比(%)来设定 In order to reduce the heat adjusting the current, change it using STOP CURRENT volume. The setting value of STOP CURRENT volume is a percentage of the setting volume of RUN CURRENT. 设定例) 驱动电流值设定为1.4A、STOP旋钮设定为50%时, 电机停止时的电流为0.7A/相。 Ex) After setting 1.4A for Run current then put STOP CURRENT volume at 50%, the stop current will be 0.7A. 25% 75%		
工作环境温度、湿度 Operating temperature & humidity	0~40°C 85%RH以下(无结露) 0~40°C 85%RH max. without any dew condensation.		
存放环境温度、湿度 Storage temperature & humidity	-10~70°C 85%RH以下(无结露) -10~70°C 85%RH max. without any dew condensation.		
重量 Mass	约130g Approximately 130g		

### ●驱动器外形尺寸 / Driver Outer Dimensions



# KR-A55MC

## DC24V输入 微型步进驱动器

### DC24V Input Microstep Driver



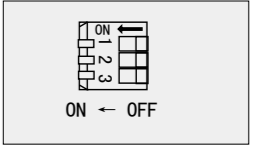
DC24V 适用于0.4~1.4A / 相 0.4~1.4A / phase 微型步进 Micro-step 箱型 Case type

## 规格 Specifications

项目 Items	规格值 Specifications			
电源 Power supply	DC20-35V (-10%, +20%) max.3A			
驱动电流 Output current (出厂时 0.75A/相) (0.75A/phase at shipping)	额定电流0.4~1.4A/相 Rated current : 0.4~1.4A/phase 可利用数字开关[RUN]在0.4~1.4A/相的范围内设定。 Capable of setting the current to 0.4~1.4A/phase by the digital switch "RUN"			
驱动方式 Driving Type	双极恒流五角驱动方式 Bipolar pentagon constant current drive			
输入信号回路 Input signal circuit	信号名 Signal name	功能说明 Functional description	输入电阻 Input resistance	
	CW+	1时钟模式时的脉冲信号输入	Pulse signal input for 1 clock mode	270Ω
	CW-	2时钟模式时的正转信号输入	CW rotation input for 2 clock mode	
	CCW+	1时钟模式时的转向指示输入	Rotational direction input for 1 clock	270Ω
	CCW-	2时钟模式时的反转信号输入	CCW rotation input for 2 clock	
	H.O.+	电机励磁OFF控制信号	Motor excitation OFF control signal	390Ω
	H.O.-	"H" 时电机励磁OFF	"H" for motor exciting OFF	
	D.S.+	微步插值选择信号	Micro-step interpolation selection	390Ω
D.S.-	"L" 时选择MS1、"H" 时选择MS2	"L" for MS1 & "H" for MS2		
脉冲宽度 0.25μsec以上、上升下降时间 1μsec以下 Pulse width : 0.25μs min., Rising-up time : 1μs max. 脉冲间隔 0.25μsec以上、脉冲频率 500kpps以下 Pulse interval : 0.25μs min., Pulse frequency : 500kpps max. 脉冲电压 "H" : 4~8V "L" : 0~0.5V Pulse voltage : "H" for 4~8V & "L" for 0~0.5V 光电耦合器的电流从OFF (逻辑L) 到ON (逻辑H) 时动作 Triggered at the edge of OFF (Logic"L") to ON (Logic"H") of photo-coupler current 在1时钟模式下, CCW输入为"L" 时进行CCW旋转 CCW rotation with CCW input of "L" in 1-clock system				
输出信号回路 Output signal Circuit	信号名 Signal name	功能说明 Functional description	输出容量 Output capacity	
	Z.P.+	原点励磁信号输出	Origin exciting output signal	DC30V max.
Z.P.-	原点励磁时ON	Switched ON while origin is being excited	50mA max.	
励磁顺序为[0]时ON, 使用0.72°电机时每7.2度输出。接通电源时, 若切换步进角则可能无法输出。 This signal is ON at the exciting sequence of [0] and is transmitted at each 7.2 degrees for the Step Motor with 0.72°steps. When micro-step angle is changed after the power supply is turned on, it may not be transmitted.				
微步插值设定 (出厂时MS1 : 5、MS2 : 0)	仅采用1种微步驱动时, 通过数字开关MS1设定插值数。 For micro-step driving of one type only, set the number interpolation using the digital SW MS1. 采用2种微步驱动时 (在往复运动的前进、返回过程中改变速度时), 通过数字开关MS1、MS2设定各插值数。 For micro-step driving of two types. (i.e. when changing speed for going and returning in reciprocating motion) set respective numbers of interpolation using the digital SW MS1 and MS2.			
	设定编号 Set No.	0 1 2 3 4 5 6 7 8 9	插值数 Interpolation	
Setting of micro-step Interpolation (MS1 : 5, MS2 : 0 at shipping)	A B C D E F	50 80 100 125 200 250		
	微步插值的设定编号选择0.1时, 内部将发生1/4插值的低振动驱动。 When the setting of micro-step interpolating No. is "0.1", 1/4-interpolate low-frequency driving takes place inside.			
驱动电流的设定 (出厂设定 : 5)	根据下表选择电机旋转时的电流, 并通过数字开关RUN进行设定。 The output current to the motor in rotation is set by the digital switch "RUN" to select from the table below.			
	设定编号 Set No.	0 1 2 3 4 5 6 7 8 9	电流 (A) Current (A)	
Setting of driving current (Setting "5" at shipping)	A B C D E F	0.4 0.5 0.57 0.63 0.71 0.77 0.84 0.9 0.96 1.02		
	A B C D E F	1.09 1.15 1.22 1.27 1.33 1.4		
电流自动下降的设定 (出厂设定 : 5)	根据下表选择电机停止时的电流, 并通过数字开关STOP进行设定。 The output current to the motor at stationary is set by the digital switch "STOP" to select from the table below. 该数值为相对于RUN电流的百分比。最终脉冲输入约后500ms, 电流开始减少。 The value is set by the percent to "RUN" current. The current decreases at approx. 500ms after the last pulse.			
	设定编号 Set No.	0 1 2 3 4 5 6 7 8 9	百分比 (%)	
Automatic current-down (Setting "5" at shipping)	A B C D E F	27 31 36 40 45 50 54 58 62 66		
	A B C D E F	70 74 78 82 86 90		



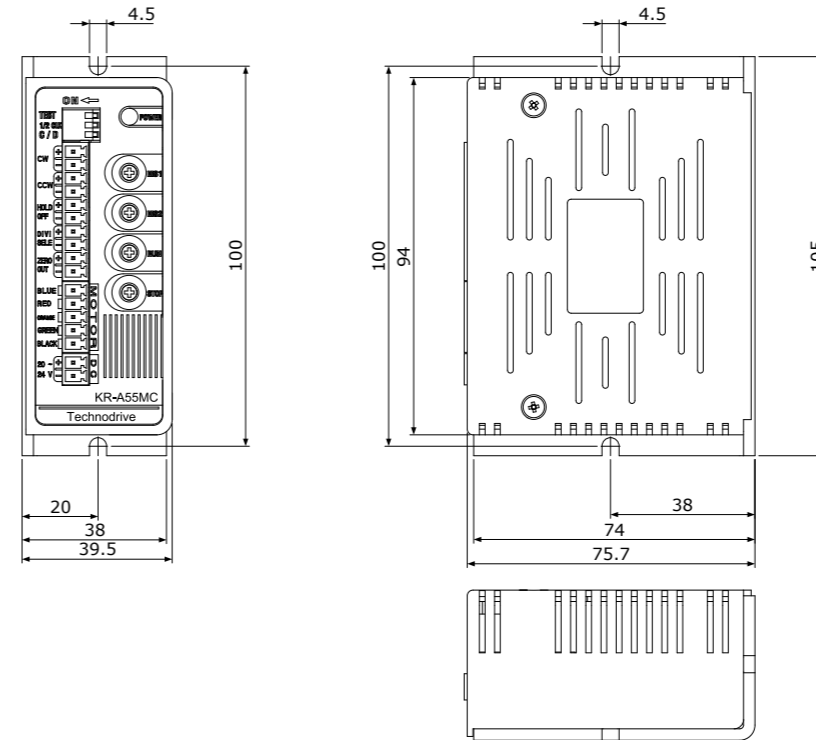
项目 Items	规格值 Specifications				
	No.	显示 symbol	功能 Function	ON	OFF
拨动开关设定 (出厂时的设定均为OFF) Setting of dip-switches (All off at shipping)	1	TEST	自测功能 Self test function	约250pps时旋转 Rotating at 250pps	常规动作 Normal operation
	2	1 / 2 CLK	时钟模式切换 Switching of clock	1时钟模式 1 clock mode	2时钟模式 2 clock mode
	3	C / D	电流自动下降 Automatic current-down	不使用 Invalid	使用 Valid
工作环境温度、湿度 Operating temperature & humidity	0~40° C 85%RH以下(无结露) 0~40° C 85%RH Max. without any condensation.				
存放环境温度、湿度 Storage temperature & humidity	-10~70° C 85%RH以下(无结露) -10~70° C 85%RH Max. without any dew condensation.				
重量 Mass	约220g Approximately 220g				



注2 (Note2)

注1) 1脉冲的微步角度 = 基本步进角 / 插值数  
Note 1) Micro-step angle for 1 pulse = Basic step angle / Number of interpolation  
注2) 无论插值数的设定如何, 在内部发生约250pps, 拨动开关No.2 ON时进行CCW旋转, OFF时进行CW旋转。  
Note 2) Approx. 250pps is generated inside, regardless of splits setting; CCW rotation when the dip switch NO.2 is ON, and CW rotation when the dip switch NO.2 is OFF.

### 驱动器外形尺寸 / Driver Outer Dimensions



# KR-A535M

## AC100-220V输入 微型步进驱动器

### AC100-220V Input Microstep Driver

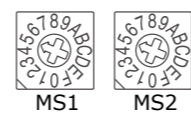


AC100-220V 适用于0.4~1.4A / 相 0.4~1.4A / phase 微型步进 Micro-step 全连接型 Full connector

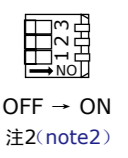


#### 规格 Specifications

项目 Items	规格值 Specifications			
电源 Power supply	AC100-220V (±10%) max.3A 50/60Hz			
驱动电流 Output current (出厂时 0.75A/相) (0.75A/phase at shipping)	额定电流0.4~1.4A/相 Rated current : 0.4~1.4A/phase 可利用数字开关[RUN]在0.4~1.4A/相的范围内设定。 Capable of setting the current to 0.4~1.4A/phase by the digital switch "RUN"			
驱动方式 Driving Type	双极恒流五角驱动方式 Bipolar pentagon constant current drive			
输入信号回路 Input signal circuit	信号名 Signal name	功能说明 Functional description	输入电阻 Input resistance	
	CW+	1时钟模式时的脉冲信号输入	Pulse signal input for 1 clock mode	270Ω
	CW-	2时钟模式时的正转信号输入	CW rotation input for 2 clock mode	
	CCW+	1时钟模式时的转向指示输入	Rotational direction input for 1 crock	270Ω
	CCW-	2时钟模式时的反转信号输入	CCW rotation input for 2 clock	
	H.O.+	电机励磁OFF控制信号	Motor exciting OFF control signal	390Ω
	H.O.-	"H"时电机励磁OFF	"H" for motor exciting OFF	
	D.S.+	微步插值选择信号	Micro-step interpolation selection	390Ω
D.S.-	"L"时选择MS1、"H"时选择MS2	"L" for MS1 & "H" for MS2		
输出信号回路 Output signal Circuit	信号名 Signal name	功能说明 Functional description	输出容量 Output capacity	
	Z.P.+	原点励磁信号输出	Origin exciting output signal	DC30V max.
微步插值设定 Setting of micro-step interpolation (MS1 : 5, MS2 : 0 at shipping)	仅采用1种微步驱动时, 通过数字开关MS1设定插值数。 采用2种微步驱动时 (在往复运动的前进、返回过程中改变速度时), 通过数字开关MS1、MS2设定各插值数。 For micro-step driving of one type only, set the number interpolation using the digital SW MS1. For micro-step driving of two types. (i.e. when changing speed for going and returning in reciprocating motion) set respective numbers of interpolation using the digital SW MS1 and MS2.			
	设定编号 Set No.	0 1 2 3 4 5 6 7 8 9	插值数 Interpolation	
驱动电流的设定 Setting of driving current (Setting "5" at shipping)	设定编号 Set No.	0 1 2 3 4 5 6 7 8 9	电流 (A) Current (A)	
	根据下表选择电机旋转时的电流, 并通过数字开关RUN进行设定。 The output current to the motor in rotation is set by the digital switch "RUN" to select from the table below.			
电流自动下降的设定 Automatic current-down (Setting "5" at shipping)	设定编号 Set No.	0 1 2 3 4 5 6 7 8 9	百分比 (%)	
	根据下表选择电机停止时的电流, 并通过数字开关STOP进行设定。 该数值为相对于RUN电流的百分比。最终脉冲输入约后500ms, 电流开始减少。 The output current to the motor at stationary is set by the digital switch "STOP" to select from the table below. The value is set by the percent to "RUN" current. The current decreases at approx. 500ms after the last pulse.			

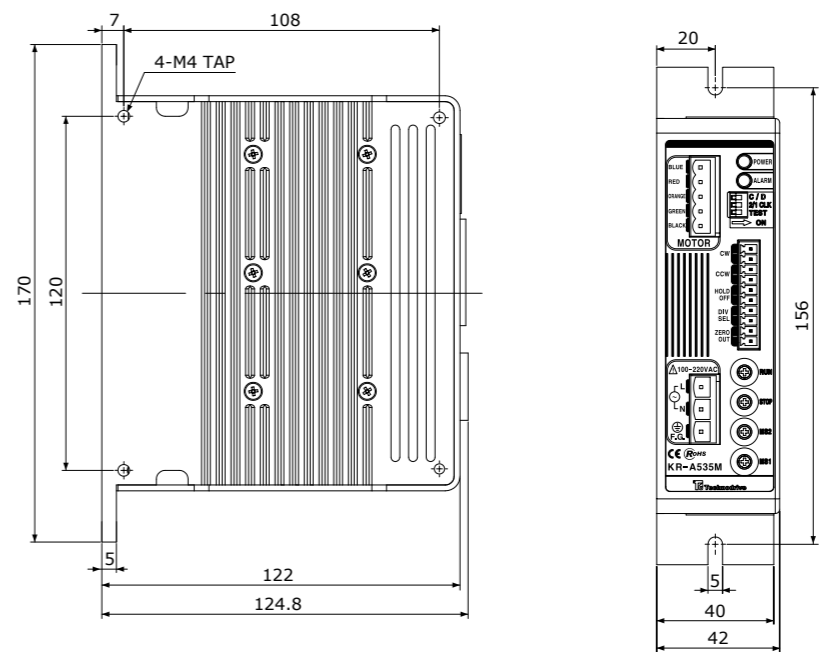


项目 Items	规格值 Specifications				
	No.	显示 symbol	功能 Function	ON	OFF
拨动开关设定 (出厂时的设定均为OFF) Setting of dip-switches (All off at shipping)	1	TEST	自测功能 Self test function	约250pps时旋转 Rotating at 250pps	常规动作 Normal operation
	2	1 / 2 CLK	时钟模式切换 Switching of clock	1时钟模式 1 clock mode	2时钟模式 2 clock mode
	3	C / D	电流自动下降 Automatic current-down	不使用 Invalid	使用 Vaild
工作环境温度、湿度 Operating temperature & humidity	0~40° C 85%RH以下(无结露) 0 ~ 40° C 85%RH Max. without any condensation.				
存放环境温度、湿度 Storage temperature & humidity	-10~70° C 85%RH以下(无结露) -10 ~ 70° C 85%RH Max. without any dew condensation.				
重量 Mass	约660g Approximately 660g				



注1) 1脉冲的微步角度=基本步进角 / 插值数  
注2) 无论插值数的设定如何, 在内部发生约250pps, 拨动开关No.2 ON时进行CCW旋转, OFF时进行CW旋转。  
Note 1) Micro-step angle for 1 pulse=Basic step angle / Number of interpolation  
Note 2) Approx. 250pps is generated inside, regardless of splits setting; CCW rotation when the dip switch NO.2 is ON, and CW rotation when the dip switch NO.2 is OFF.

#### 驱动器外形尺寸 / Driver Outer Dimensions



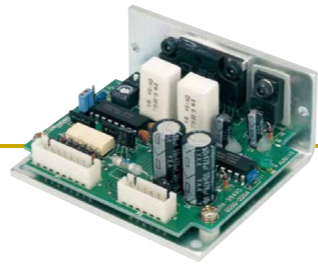
Stepping Motor Driver 步进电机驱动器

Stepping Motor Driver 步进电机驱动器

# KS9110

## DC24V输入 2相步进电机驱动器

### DC24V Input 2-phase Stepping Motor Driver

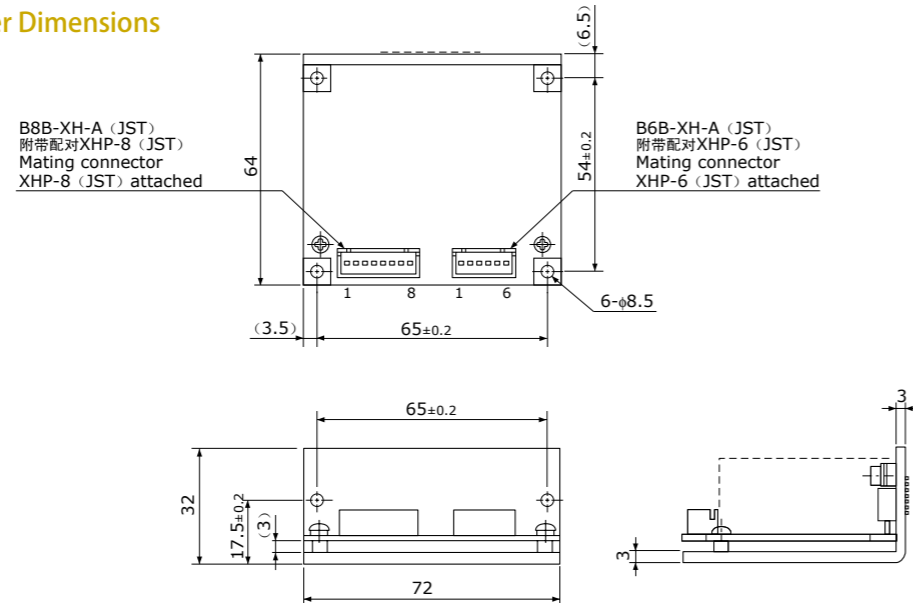


DC24V 0.35~2A / 相 0.35~2A / phase 整步、半步 Full / half step 电路板类型 Board type

### 规格 Specifications

项目 Items	规格值 Specification						
电源 Power supply	DC+24V ±10% 3A Max. (总消耗电流) (total current consumed)						
输出电流 Output current	0.35~2A Max / 相 通过可变电阻VR设定 (出厂时 1A / 相) 0.35~2A Max. / phase Variable resistor (VR) setting (Set to 1 A / phase when shipped)						
驱动方式 Drive method	单极恒电流斩波方式 Chopper mode by Uni-polar constant current						
励磁方式 (出厂时2相励磁) Excitation method (2 phase excitation at shipment) 整步 / 半步 Full / half	<table border="0"> <tr> <td>1相励磁 1-phase excitation 拨动开关 Dip switch</td> <td></td> <td>1-2相励磁 (半步/half step) 1-2 phase excitation 拨动开关 Dip switch</td> <td></td> <td>2相励磁 (整步/full step) 2 phase excitation 拨动开关 Dip switch</td> <td></td> </tr> </table>	1相励磁 1-phase excitation 拨动开关 Dip switch		1-2相励磁 (半步/half step) 1-2 phase excitation 拨动开关 Dip switch		2相励磁 (整步/full step) 2 phase excitation 拨动开关 Dip switch	
1相励磁 1-phase excitation 拨动开关 Dip switch		1-2相励磁 (半步/half step) 1-2 phase excitation 拨动开关 Dip switch		2相励磁 (整步/full step) 2 phase excitation 拨动开关 Dip switch			
输入信号回路 Input signal circuit	光电耦合器TLP521 (东芝) 输入电阻220Ω Photo coupler TLP521 (Toshiba), Input resistance 200Ω 光电耦合器的输入电流10mA以上20mA以下 Photo coupler input current, over 10mA, below 20mA						
输入信号 Input signal	1个脉冲输入 1-pulse input PULSE DIR	跨接开关 Jumper switch		DIR信号的光电耦合器的电流与旋转方向 DIR signal's photo coupler current and rotation direction			
	2个脉冲输入 2-pulse input CW CCW	跨接开关 Jumper switch		注: CW输入时, CCW输入的光电耦合器电流须为OFF; CCW输入时, CW输入的光电耦合器电流须为OFF。同时, 不得向CW, CCW中同时输入脉冲。 Note: Make sure that CCW input photo coupler current is OFF during CW input and CW input photo coupler current is OFF during CCW input. Never input pulse to both CW and CCW at the same time.			
	有效 ENABLE	光电耦合器的电流为ON时, 电机不励磁; 光电耦合器的电流为OFF时, 电机励磁。 When photo coupler current is ON, motor is not excitable. When photo coupler current is OFF, motor is excitable.					
(出厂时输入1个脉冲) (Set to 1 pulse input at shipment)	脉冲宽度为5μsec以上, 上升下降时间为2μsec以下, 光电耦合器的电流从ON转为OFF后工作 Pulse duration is 5μsec or more, rise / fall time is 2μsec or less. Operation starts when photo coupler current is switched from ON to OFF.						
输出信号 Output signal	CKOUT (CKO)	输入脉冲确认用焊盘 (Land): TTL输出 Land for checking input pulse: TTL output					
	电源设定端子 (IS) Current terminal (IS)	输出电流确认用端子: 0.23 (V)=1 (A / 相) Terminal for checking output current: 0.23 (V)=1 (A/phase)					
电流自动下降 (出厂时动作设定) Automatic current down (Set ON at shipment)	工作时 When in operation 拨动开关 Dip switch		输入脉冲上升约1sec后, 输出电流下降至约50%。 Approximately 1 sec after turning on input pulse, output current drops approximately 50%.	不工作时 When not in operation 拨动开关 Dip switch			
环境温湿度 Surrounding environment	动作时 / Driving Type	0~40° C 90%RH以下 (无结露) 0~40° C under 90% RH (no condensation)					
	存放时 / Stand-by	-10~70° C 90%RH以下 (无结露) -10~70° C under 90% RH (no condensation)					
附件 Accessories	连接器外壳XHP-6 (JST) 1个、XHP-8 (JST) 1个、接触器BXH-001T-P0.6 (JST) 14个 Connector housing 1pc XHP-6 (JST), 1pc XHP-8 (JST), 14pcs contacts BXH-001T-P0.6 (JST)						
重量 Mass	106g						

### 驱动器外形尺寸 / Driver Outer Dimensions



# SD4030B2

## DC24V输入 2相微步驱动器

### DC24V Input 2-phase Microstep Driver



DC24V 0.5~3 / 相 0.5~3A / phase 微型步进 Micro-step 电路板类型 Board type

### 规格 Specifications

项目 Items	内容 Description	备注 Note	
输入电源电压 Input voltage	DC+18V~40V		
输出电流 Output current	0.5~3Apeak (±5%)/相 0.5~3Apeak (±5%)/phase	电源超过24V时会降额 Being lower rated output current beyond Power Supply 24V	
驱动方式 Drive method	双极恒电流斩波方式 Chopper mode by Bipolar constant current	也可使用单极型 It can be used for uni-polar type.	
电流下降功能 Current down function	电流自动下降 脉冲停止约0.7秒后, 电流下降至CDN旋钮设定的电流 Auto Current down Adjusting to set lower current of CND volume after 0.7 second after pulse stop	可通过开关选择功能 Selectable by switch.	
最大输入脉冲频率 Maximum input pulse cycle	100Kpps		
调整功能 Adjusting	RUN	励磁电流设定用 (0.5~3A) For excitation current 出厂时设定为2A The default factory setting is 2A.	
	STOP	用于设定电流下降时的电流 For current down value on current down mode. RUN电流的10%~60% Selectable between 10% to 60% of RUN current.	
	MIX	用于设定混合衰减率 (0%、20%、40%、60%、80%) Mixed Decay ratio (0%、20%、40%、60%、80%) 出厂时设定为80% The default factory setting is 80%	
	JOG	用于设定JOG速度 For JOG speed setting. 300pps~14Kpps	
选择功能 Select function	SW-1,2,3	插值数选择 Select of Resolutions 1/2, 1/8, 1/10, 1/16, 1/20, 1/32, 1/40, 1/64	
	SW-4	自动电流下降有效/无效选择 ON/OFF for function of auto current down mode. 开关ON时有效、OFF时无效, 出厂时设为“有效” Switch ON is active and OFF is no active. The default factory setting is ON.	
	SW-5,6	JOG选择功能 Select of JOG function SW-5ON时JOG有效, SW-6 ON: CW, OFF: CCW SW-5 ON is active for JOG, SW6 ON is CW, OFF is CCW	
输入信号 Input signals	P+,P-	指令脉冲 Pulse Command	指令脉冲可选择1脉冲或2脉冲。 Selection of 1 pulse or 2 pulse for pulse command.
	D+,D-	指令方向 Direction Command	通过光电耦合器进行输入绝缘 Isolated by photo coupler
	OFF+,OFF-	励磁OFF No excitation	
输出信号 Output signals	ALM+,ALM-	警报 (检测出功率元件过热) 功率元件内的温度达到170° C (Typ.) 时输出 Alarm (Prospecting of over-heat for Power device) Output at over 170° C (Typ.) of power device	通过光电耦合器绝缘, 正常时为ON、报警时为OFF Photo Isolation, ON is active, OFF is no active (ALARM).
外形尺寸 Dimension	W90×D55.5×H28		
工作环境温度、湿度 Operating Temperature and Humidity	0~40° C、35~80% RH		无结露 No condensation
存放环境温度、湿度 Storage Temperature and Humidity	-20~+85° C、35~80% RH		无结露 No condensation
重量 Mass	约106g Approximately 106g		

### 驱动器外形尺寸 / Driver Outer Dimensions

