



**MOONS'**  
*moving in better ways*

# SR

## Digital pulse direct step driver

The SR series are compact, powerful, digital stepper drives feature advanced microstepping performance and sophisticated current control. All drive setup is done via dip or rotary switches.

Advanced Current Control  
Anti-Resonance

Torque Ripple Smoothing  
Microstep Emulation



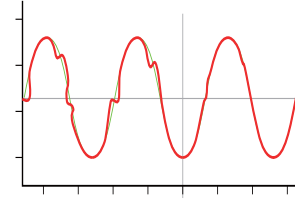
**RoHS**  
Compliant

[www.motiontech.com.au](http://www.motiontech.com.au)

## Feature

### Anti-Resonance

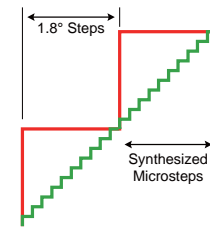
Step motor systems have a natural tendency to resonate at certain speeds. The series of SR driver automatically calculates the system's natural frequency and applies damping to control the algorithm. This greatly improves midrange stability, allows for higher speeds, greater torque utilization and also improves settling times.



**Provides better motor performance and higher speeds**

### Microstep Emulation

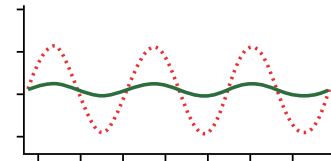
With Microstep Emulation, low resolution systems can still provide smooth motion. The drive can take low resolution step pulses and create fine resolution motion.



**Deliver smoother motion in any application.**

### Torque Ripple Smoothing

All step motors have an inherent low speed torque ripple that can affect the motion of the motor. By analyzing this torque ripple the system can apply a negative harmonic to negate this effect, which gives the motor much smoother motion at low speed.



**Produces smoother motion at low speeds**

### Command Signal Smoothing

Command signal smoothing can soften the effect of immediate changes in velocity and direction, making the motion of the motor less jerky. An added advantage is that it can reduce the wear on mechanical components.



**Improves overall system performance**

### Auto Setup & Self Test

At start-up the drive measures motor parameters, including the resistance and inductance, then uses this information to optimize system performance. The drive can also detect open and short circuits.

Specification	
Speed range	Up to 50 rps
Ambient temp	0 - 40°C
Ambient humidity	90% or less(non-condensing)
Shock	5.9m/s <sup>2</sup> maximum
Storage temp	-10 - 70°C
Cooling way	Natural cooling or forced cooling
Environment	Avoid dust,oil mist and corrosive gas
Mass	SR2/SR2-Plus/SR3-mini: Approx.120g
	SR4/SR4-Plus/SR8/SR8-Plus/3SR8/3SR8-Plus: Approx.310g
Certification	RoHS , CE (EMC): EN 61800-3:2004

Feature	
Idle current	Automatically reduce motor current after 1 second when motor stop, dip switch for setting: 50% or 90% of rated current
Anti-resonance	Driver controls motor current by using the parameter of selectable motor and ratio of inertias For improving system stability and smoothing speed, switch for setting
control mode	Pulse input control Step&Dir
Input signal filter	Filter the input signal noise for protecting wrong moving, switch for setting:2mhz or 150khz(for sr3-mini, 500khz or 150khz)
Microstep Emulation	Switch selectable microstep emulation provides smoother, more reliable motion
Rotating switch for matching motor	Switch selectable microstep emulation provides smoother, more reliable motion
Self-Test	Switch selectable automatic self test, while self test, drive will rotate the motor back and forth, two turns in each direction
Fault output	Optically isolated,30VDC max, 100mA max

Characteristic										
	SR2	SR2-Plus	SR3-mini	SR4	SR4-Plus	SR8	SR8-Plus	3SR2	3SR8	3SR8-Plus
Idle current	√	√	√	√	√	√	√	√	√	√
Anti-resonance	√	√	√	√	√	√	√	√	√	√
Control mode	√	√	√	√	√	√	√	√	√	√
Input signal filter	√	√	√		√		√	√		√
Sinking Method Natural	√	√	√		√		√	√		√
Selecting motor by rotatable switch				√	√	√	√		√	√
Self-test	√	√	√	√	√	√	√	√	√	√
Fault output		√		√	√	√	√		√	√

## Electrical Specifications

### SR2

Drive parameter	Min.	Type.	Max.	Unit
Supply voltage	12	-	48	VDC
Output current(peak)	0.3	-	2.2	Amps
Cost current of digital input signal	6	10	15	mA
Step Frequency	2	-	2M	Hz
STEP minimum pulse width	250	-	-	ns
DIR minimum pulse width	80	-	-	us
Under Voltage Protection	-	10	-	VDC
Over-voltage protection	-	52	-	VDC
Input signal voltage	4	-	28	VDC
Initialization time	-	-	2.5	S

### SR2-Plus

Drive parameter	Min.	Type.	Max.	Unit
Supply voltage	12	-	48	VDC
Output current(peak)	0.3	-	2.2	Amps
Cost current of digital input signal	6	10	15	mA
Step Pulse frequency	2	-	2M	Hz
Step Pulse width	250	-	-	ns
Direct pulse width	80	-	-	us
Low-voltage protection	-	10	-	VDC
Over-voltage protection	-	52	-	VDC
Input signal voltage	4	-	28	VDC
Initialization time	-	-	2.5	S
Output current	-	-	100	mA
Output voltage	-	-	30	VDC

# Specification

## SR4

Drive parameter	Min.	Type.	Max.	Unit
Supply voltage	24	-	48	VDC
Output current(peak)	1	-	4.5	Amps
Cost current of digital input signal	6	10	15	mA
Step Pulse frequency	2	-	2M	Hz
Step Pulse width	250	-	-	ns
Direct pulse width	80	-	-	us
Low-voltage protection	-	20	-	VDC
Over-voltage protection	-	60	-	VDC
Input signal voltage	4	-	28	VDC
Initialization time	-	-	2.5	S
Output current	-	-	100	mA
Output voltage	-	-	30	VDC

## SR8

Drive parameter	Min.	Type.	Max.	Unit
Supply voltage	24	-	75	VDC
Output current(peak)	2.4	-	7.8	Amps
Cost current of digital input signal	6	10	15	mA
Step Pulse frequency	2	-	2M	Hz
Step Pulse width	250	-	-	ns
Direct pulse width	80	-	-	us
Low-voltage protection	-	20	-	VDC
Over-voltage protection	-	85	-	VDC
Input signal voltage	4	-	28	VDC
Initialization time	-	-	2.5	S
Output current	-	-	100	mA
Output voltage	-	-	30	VDC

## SR3-mini

Drive parameter	Min.	Type.	Max.	Unit
Supply voltage	12	-	48	VDC
Output current(peak)	0.4	-	3	Amps
Cost current of digital input signal	6	10	15	mA
Step Pulse frequency	2	-	500K	Hz
Step Pulse width	1000	-	-	ns
Direct pulse width	80	-	-	us
Low-voltage protection	-	10	-	VDC
Over-voltage protection	-	53	-	VDC
Input signal voltage	4	-	28	VDC
Initialization time	-	-	2.5	S

## 3SR8

Drive parameter	Min.	Type.	Max.	Unit
Supply voltage	24	-	75	VDC
Output current(peak)	2.4	-	7.8	Amps
Cost current of digital input signal	6	10	15	mA
Step Pulse frequency	2	-	2M	Hz
Step Pulse width	250	-	-	ns
Direct pulse width	80	-	-	us
Low-voltage protection	-	20	-	VDC
Over-voltage protection	-	85	-	VDC
Input signal voltage	4	-	28	VDC
Initialization time	-	-	2.5	S
Output current	-	-	100	mA
Output voltage	-	-	30	VDC

## SR4-Plus

Drive parameter	Min.	Type.	Max.	Unit
Supply voltage	24	-	48	VDC
Output current(peak)	1	-	4.5	Amps
Cost current of digital input signal	6	10	15	mA
Step Pulse frequency	2	-	2M	Hz
Step Pulse width	250	-	-	ns
Direct pulse width	80	-	-	us
Low-voltage protection	-	20	-	VDC
Over-voltage protection	-	60	-	VDC
Input signal voltage	4	-	28	VDC
Initialization time	-	-	2.5	S
Output current	-	-	100	mA
Output voltage	-	-	30	VDC

## SR8-Plus

Drive parameter	Min.	Type.	Max.	Unit
Supply voltage	24	-	75	VDC
Output current(peak)	2.4	-	7.8	Amps
Cost current of digital input signal	6	10	15	mA
Step Pulse frequency	2	-	2M	Hz
Step Pulse width	250	-	-	ns
Direct pulse width	80	-	-	us
Low-voltage protection	-	20	-	VDC
Over-voltage protection	-	85	-	VDC
Input signal voltage	4	-	28	VDC
Initialization time	-	-	2.5	S
Output current	-	-	100	mA
Output voltage	-	-	30	VDC

## 3SR2

Drive parameter	Min.	Type.	Max.	Unit
Supply voltage	12	-	48	VDC
Output current(peak)	0.3	-	2.2	Amps
Cost current of digital input signal	6	10	15	mA
Step Pulse frequency	2	-	2M	Hz
Step Pulse width	250	-	-	ns
Direct pulse width	80	-	-	us
Low-voltage protection	-	10	-	VDC
Over-voltage protection	-	52	-	VDC
Input signal voltage	4	-	28	VDC
Initialization time	-	-	2.5	S

## 3SR8-Plus

Drive parameter	Min.	Type.	Max.	Unit
Supply voltage	24	-	75	VDC
Output current(peak)	2.4	-	7.8	Amps
Cost current of digital input signal	6	10	15	mA
Step Pulse frequency	2	-	2M	Hz
Step Pulse width	250	-	-	ns
Direct pulse width	80	-	-	us
Low-voltage protection	-	20	-	VDC
Over-voltage protection	-	85	-	VDC
Input signal voltage	4	-	28	VDC
Initialization time	-	-	2.5	S
Output current	-	-	100	mA
Output voltage	-	-	30	VDC

# Mechanical dimension

Unit:mm

<p><b>SR2</b></p>		
<p><b>SR2-Plus</b></p>		
<p><b>3SR2</b></p>		
<p><b>SR3-mini</b></p>		

# Mechanical dimension

Unit:mm

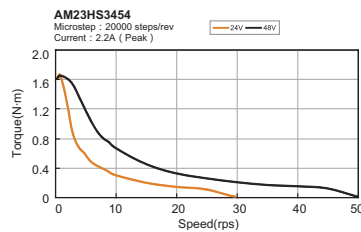
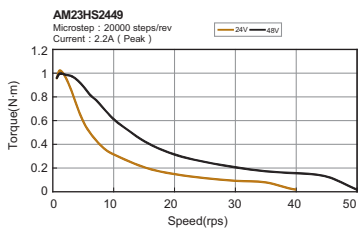
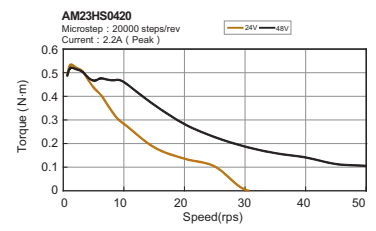
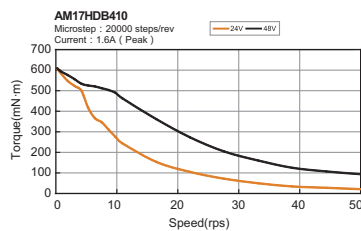
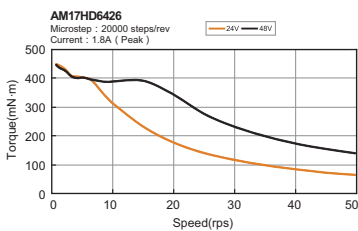
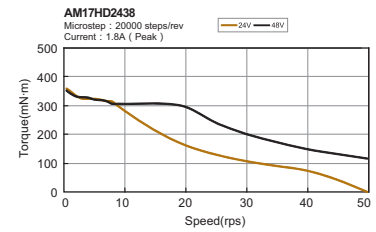
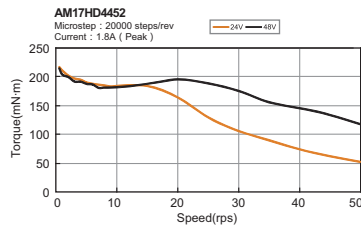
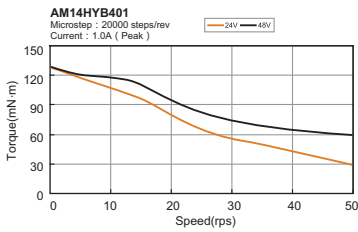
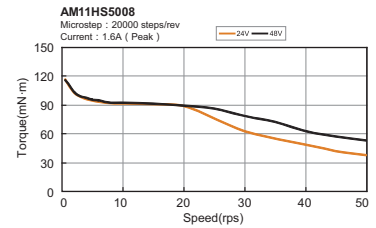
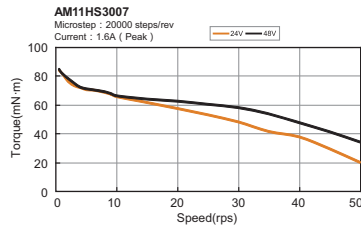
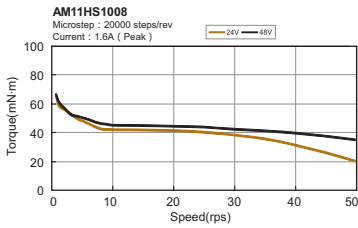
<p><b>SR4/SR8</b></p>		
<p><b>3SR8</b></p>		
<p><b>SR4-Plus/ SR8-Plus</b></p>		
<p><b>3SR8-Plus</b></p>		

# Matching motor

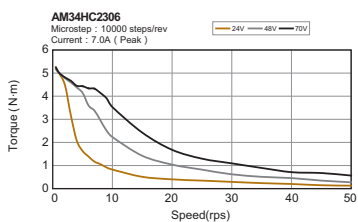
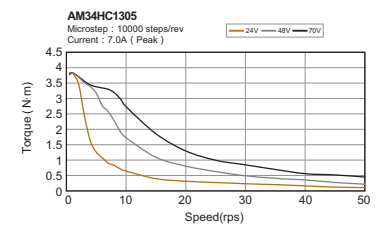
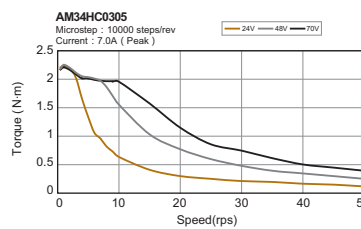
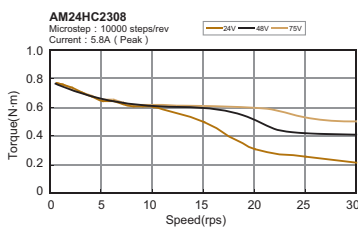
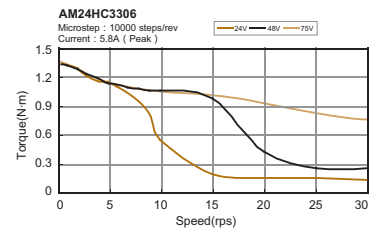
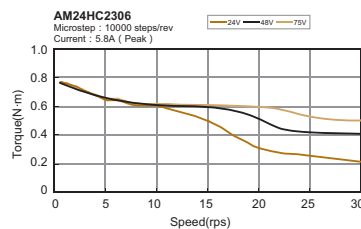
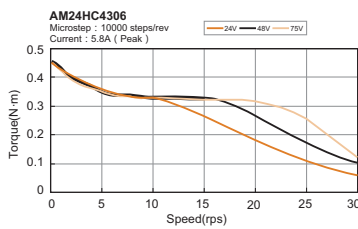
Matching driver	Model	Shaft	Step angle	Leads	Length	Holding torque	Current	Resistance	Rotor inertia	Motor mass	Dielectric strength	
					mm	N-m	A/Phase	Ω/Phase	g-cm <sup>2</sup>	Kg		
2 phase driver	SR2 / SR2-Plus / SR3-mini	AM11HS1008-07	single shaft	1.8°	4	31	0.05	1.6	2.5	9	0.1	500VAC 1 minute
		AM11HS3007-02	single shaft			40	0.08	1.6	1.7	12	0.15	
		AM11HS5008-01	single shaft			51	0.12	1.6	3.5	18	0.2	
		AM14HYB401-03	single shaft			40	0.2	1	4.3	20	0.21	
		AM17HD4452-02N	single shaft			34.3	0.25	1.8	1.5	38	0.23	
		AM17HD4452-01N	double shaft									
		AM17HD2438-02N	single shaft			39.8	0.4	1.8	1.9	57	0.28	
		AM17HD2438-01N	double shaft									
		AM17HD6426-06N	single shaft			48.3	0.5	1.8	2.3	82	0.36	
		AM17HD6426-05N	double shaft									
		AM17HDB410-01N	single shaft			62.8	0.85	1.6	3.2	123	0.6	
		AM23HS0420-01	single shaft			41	0.6	2.2	1.8	135	0.42	
		AM23HS0420-02	double shaft									
		AM23HS2449-01	single shaft			54	1.2	2.2	2.4	260	0.6	
		AM23HS2449-02	double shaft									
		AM23HS3454-01	single shaft			76	1.8	2.2	2.9	460	1	
		AM23HS3454-02	double shaft									
		AM23HS04A0-01	single shaft			39	0.82	2.2	1.5	120	0.4	
		AM23HS04A0-02	double shaft									
		AM23HS84A0-01	single shaft			55	1.5	2.2	2.5	220	0.6	
	AM23HS84A0-02	double shaft										
	AM23HSA4A0-01	single shaft	77			2.3	2.2	3	390	1		
	AM23HSA4A0-02	double shaft										
	SR4 / SR4-Plus	AM23HS0421-01	single shaft			41	0.6	4.5	0.48	135	0.42	
		AM23HS0421-02	double shaft			54	1.2	4.5	0.63	260	0.6	
		AM23HS2450-01	single shaft									
		AM23HS2450-02	double shaft			76	1.8	4.5	0.75	460	1	
		AM23HS3455-01	single shaft									
		AM23HS3455-02	double shaft			39	0.82	4.5	0.4	120	0.4	
		AM23HS04B0-01	single shaft									
		AM23HS04B0-02	double shaft			55	1.5	4.5	0.63	220	0.6	
		AM23HS84B0-01	single shaft									
		AM23HS84B0-02	double shaft			77	2.3	4.5	0.8	390	1	
		AM23HSA4B0-01	single shaft									
		AM23HSA4B0-02	double shaft			111	3.2	4.5	1.2	750	1.5	
		AM23HS5412-01	single shaft									
		AM23HS5412-02	double shaft			54	1.2	4.5	0.43	450	0.83	
		AM24HS2402-08N	single shaft									
		AM24HS2402-11N	double shaft			85	2.5	4.5	0.65	900	1.4	
		AM24HS5401-10N	single shaft									
		AM24HS5401-24N	double shaft			66.5	3	7	0.24	1100	1.6	
		AM34HD0404-08	single shaft									
		AM34HD0404-09	double shaft			96	5	7	0.33	1850	2.7	
	AM34HD1404-06	single shaft										
	AM34HD1404-07	double shaft	125.5			7.1	7	0.49	2750	3.8		
AM34HD2403-07	single shaft											
AM34HD2403-08	single shaft	3	1.2°	3	45.5	0.5	5.8	0.33	180	0.5		
AM24HC2306-01	single shaft							54.5	0.9	0.4	280	0.8
AM24HC3306-03	single shaft							76.5	1.5	0.63	460	1.3
AM24HC4306-03	single shaft							45.5	0.5	0.33	180	0.5
AM24HC2308-02	single shaft							54.5	0.9	0.4	280	0.8
AM24HC3306-07	single shaft							76.5	1.5	0.63	460	1.3
AM34HC0305-01	single shaft						66.5	2.5	0.53	1100	1.6	
AM34HC1305-01	single shaft						96	4	0.58	1850	2.7	
AM34HC2306-01	single shaft						125.5	5.5	0.9	2750	3.8	

# Torque Curves

## SR2/SR2-Plus/SR3-mini

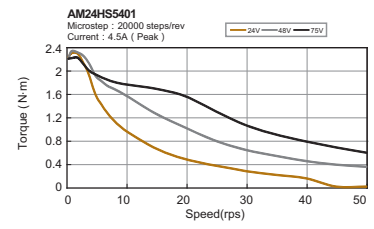
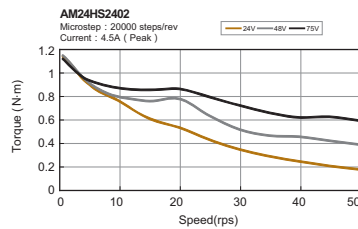
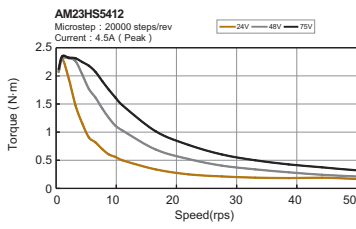
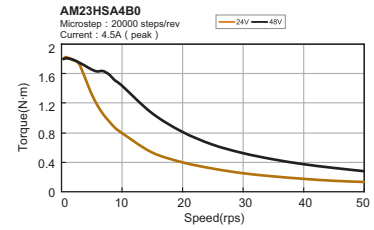
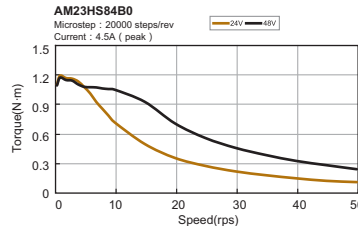
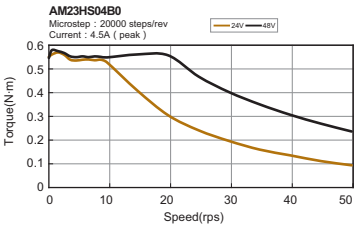
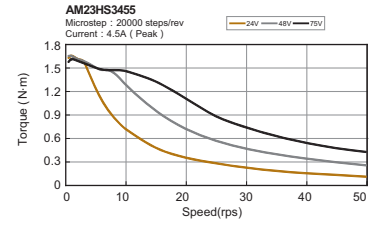
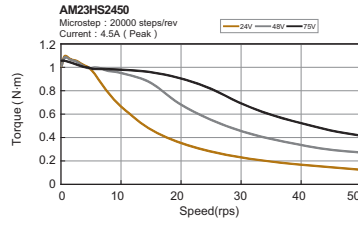
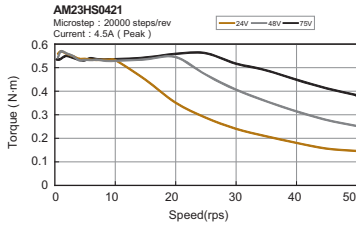


## 3SR8/3SR8-Plus

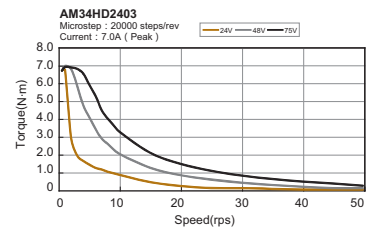
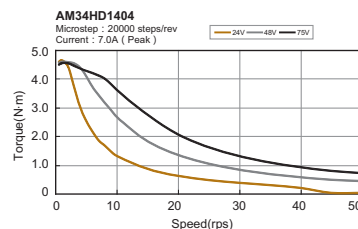
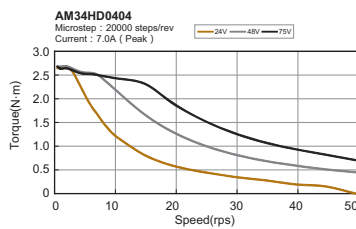




## SR4/SR4-Plus



## SR8/SR8-Plus



## Selectable power supply

### Feature

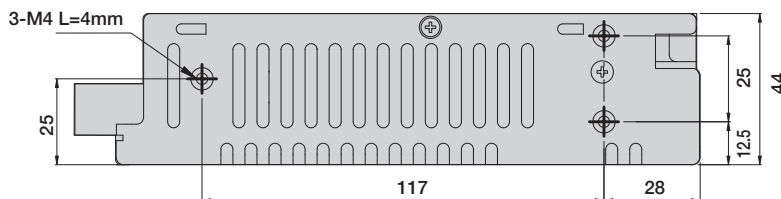
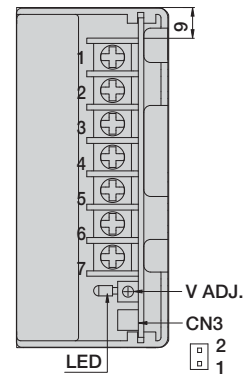
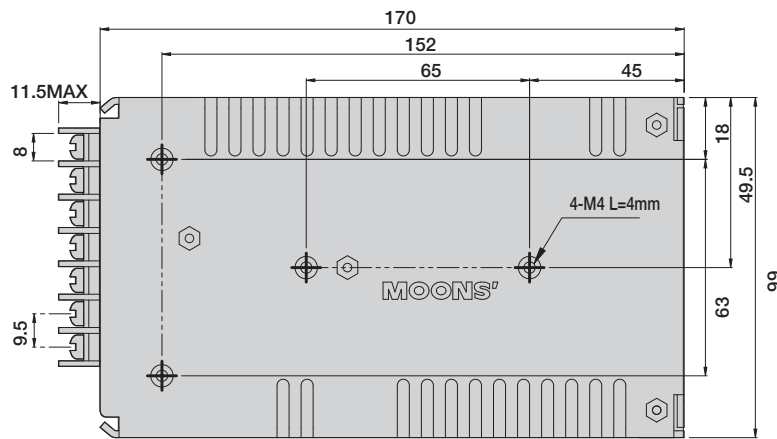
- Universal AC input/full range:85-265VAC or 120-370VDC
- Active PFC build-in, PF>0.95,compliance to EN 6100-3-2
- Safety: UL/UV/CB/CE
- Protection:short circuit, overload, over voltage, over temperature
- LED indicator for power on
- Vertical terminal is standard, horizontal terminal/connector modes are available
- 100% full load burn-in test
- compact size, high performance, high reliability
- RoHS compliant
- 2-year warranty



Single output  
170 x 99 x 50mm

### Model of power supply: **MF150A24AG-V**

rated output voltage (V)	range of output current (A)	peak output current (A)	rated output power (W)	adjustable range of output voltage*1 (V)	ripple and noise (p-p)*1, *2 (mV)	Line regulation*2 (mV)	Load regulation*2 (mV)
24	0~6.3	9.5	151	21.6~26.4	150	96	120



(Unit: mm)

#### • Pin configuration

Pin no.	Assignment
1	AC / L
2	AC / N
3	FG ⊥
4,5	DC OUTPUT/_V
6,7	DC OUTPUT/+V

#### • CN3: JST S2B-XH or Equivalent(optional)

Pin no.	Assignment	Output: Equivalent	Contact Pin:equivalent
1	RC+	JST XHP Equivalent(optional)	JST SXH-001T-P0.6 Equivalent(optional)
2	RC-		

## Selectable Power Supply

### Characteristic Of Power Supply

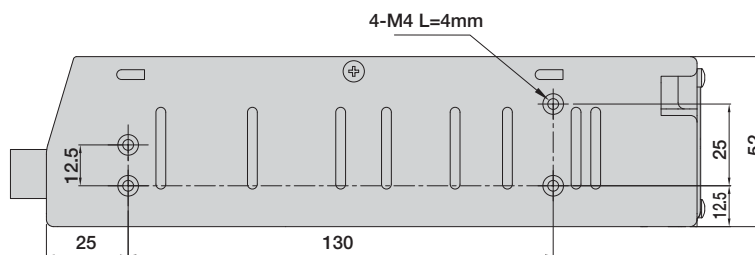
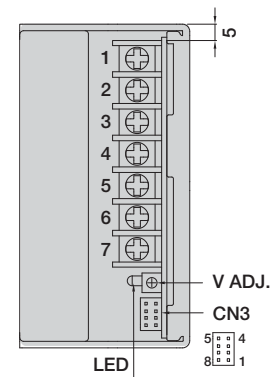
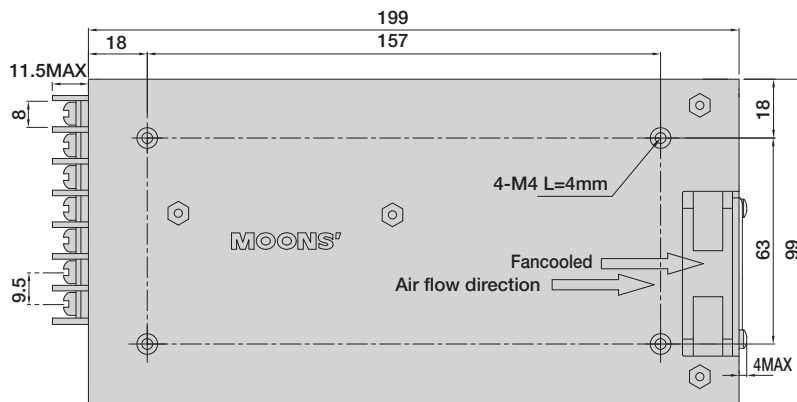
- Universal AC input/full range:85-265VAC or 120-370VDC
- Active PFC build-in, PF>0.95,compliance to EN 6100-3-2
- Safety: UL/UV/CB/CE
- Protection:short circuit, overload, over voltage, over temperature
- LED indicator for power on
- Vertical terminal is standard, horizontal terminal/connector modes are available
- 100% full load burn-in test
- compact size, high performance, high reliability
- RoHS compliant
- 2-year warranty



Single Output  
199 × 99 × 52mm

### Model Of Power Supply: MF320A48AG-V

Rated Output Voltage (V)	Range Of Output Current (A)	Peak Output Current (A)	rated output power (W)	adjustable range of output voltage*1 (V)	Ripple And Noise (P-P)*1, *2 (mV)	Line Regulation*2 (mV)	Load Regulation*2 (mV)
48	0~6.7	8.7	321	43.2~52.8	240	96	240



(Unit: mm)

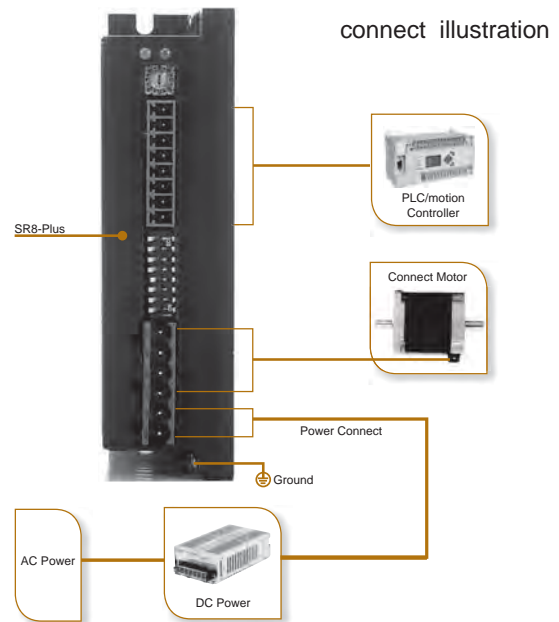
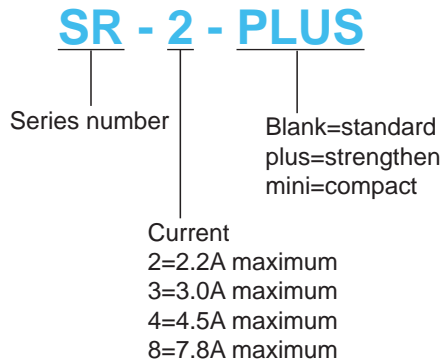
#### • Pin configuration

Pin No.	Assignment
1	AC / L
2	AC / N
3	FG ⊥
4,5	DC Output -V
6,7	DC Output +V

#### • CN3: JST S8B\_PHDSS or Equivalent(optional)

Pin No.	Assignment	Pin No.	Assignment
1	COM	8	PF
2	RC+	7	RC-
3	VO-	6	-S
4	VO+	5	+S

## Numbering System



## Ordering information

Type	Model	Current	Voltage	Selectable Microstep	Selectable Current
2 Phase Driver	SR2	0.3-2.2A	12-48VDC	16 settings	8 settings
	SR2-Plus			16 settings	
	SR3-mini	0.4-3A	12-48VDC	16 settings	
	SR4	1.0-4.5A	24-48VDC	8 settings	
	SR4-Plus			16 settings	
	SR8	2.4-7.8A	24-75VDC	8 settings	
SR8-Plus	16 settings				
3 Phase Driver	3SR2	0.3-2.2A	12-48VDC	16 settings	
	3SR8	2.4-7.8A	24-75VDC	8 settings	
	3SR8-Plus			16 settings	



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