MOONS'
moving in better ways

Linear Step Motors & Linear Slides

(Ball Screws)

Ball Screw Motors

- BSM08 Series
- BSM11 Series
- BSM14 Series
- BSM17 Series
- BSM23 Series

Linear Slides

- MS20 Series
- MS28 Series
- MS35 Series
- MS42 Series

Stepper Drives

- SR Series
- ST Series

• Quick Response • Design Flexibility • Stable Performance

Milestones

MAY. 2017	AMP & MOONS' Automation (Germany) GmbH was officially registered in Frankfurt, Germany
MAY. 2017	MOONS' Electric was successfully listed on the Shanghai Stock Exchange
JUN. 2015	MOONS' acquired LIN ENGINEERING
MAY. 2015	MOONS' Electric and PBC Linear officially established Joint Venture
JUN. 2014	MOONS' acquired Applied Motion Products
MAR. 2014	MOONS' Guangzhou Branch Office opened
OCT. 2013	MOONS' Industries Japan was established in Yokohama
OCT. 2013	MOONS' Ningbo Branch Office opened
DEC. 2012	MOONS' Xin'an Branch Office opened
JUN. 2012	MOONS' Chengdu Branch Office opened
AUG. 2011	MOONS' Wuhan Branch Office opened
JUN. 2010	MOONS' Industries (South-East Asia) Pte Ltd. was established in Singapore
SEP. 2009	MOONS' Industries (Europe) S.R.L was established in Milan, Italy
JAN. 2009	MOONS' Qingdao Branch Office opened
MAR. 2008	MOONS' PM Stepper Motor production started
FEB. 2007	MOONS' established joint venture with Applied Motion Products and a driver company was set up
JUL. 2006	MOONS' Nanjing Branch Office opened
MAY. 2006	MOONS' new facility was built and factory relocation was completed
JAN. 2005	First LED Driver was introduced to the market
SEP. 2002	MOONS' Beijing Branch Office opened
OTC. 2001	MOONS' Shenzhen Branch Office opened
DEC. 2000	MOONS' Industries (America), Inc. was established in Chicago, USA
NOV. 2000	MOONS' Wiring Harness Factory was set up and put into production.
OCT. 2000	MOONS' Power Supply Factory was set up and production started
APR. 1998	MOONS' International Trading Company was established
FEB. 1998	MOONS' Motor Factory was set up and HB Stepper Motor production started
AUG. 1997	MOONS' Mini-Detective Polling System was introduced to the China market
FEB. 1994	MOONS' was founded

Catalogue

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Ball Screw Motors

MOONS' BSM Series products are designed based on the know-how technology of hybrid step motors , ball screws and nuts. Provide high torque, high precision, and high efficiency to fit the application needs of designers. The combination of motor styles, motor sizes, ball screws and nuts, gives the freedom to use motors of different form factors to exactly fit in the application. And, it provides the best performance with any drive and power supply.

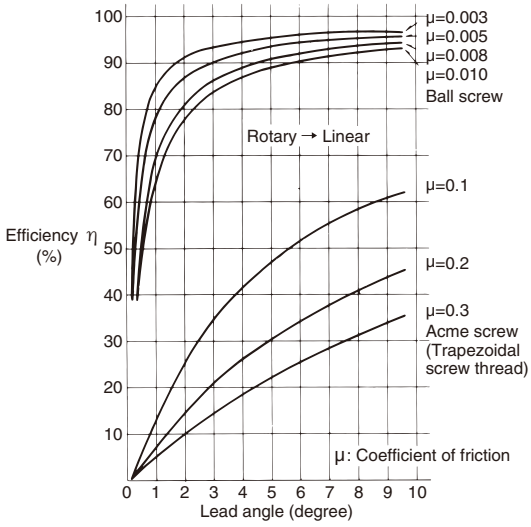
- Five frame Sizes: NEMA08, 11, 14, 17, 23
- Multiple motor lengths and motor sizes
- Each frame size motor has a variety of lead options
- Each frame size motor has a variety of nut options

MOONS' has committed to product innovation design and technical improvement, with excellent product quality,application technology, fast and flexible services,which provide customers with high level Linear motion solutions.

Features of BSM Series

High mechanical efficiency

The Ball screws of BSM Series have outstanding transmission efficiency of over 90%, incomparably higher than lead screws. Their required torque is just less than a third of what the lead screws require. Therefore, it is easier to transfer a linear motion into a rotary motion.



Mechanical efficiency of ball screws

Efficiency of ball screws (Rotary → Linear)

Normal operation: $P = \frac{2\pi \eta_1 \times T}{\ell}$

T=Load torque kgf x cm

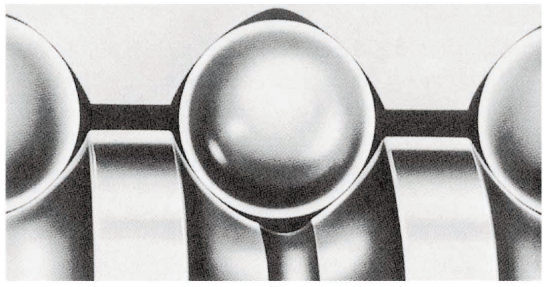
P=Axial external load kgf

ℓ=lead cm

η_1= Efficiency of ball screws

Small axial clearance, High accuracy,High rigidity

The Ball screws of BSM Series adopt a gothic-arch groove profile, its axial clearance can be adjusted in a highly fine pitch as well as it can be lightly rotated. In addition, by giving a preload to the screw, the axial clearance could be adjusted to 0 to achieve advanced rigidity.



Ball screw groove profile

High hardness, Excellent durability

The Ball screws of BSM Series maintain excellent durability achieved by carefully selected materials, proper heat treatment, and machining with advanced product technologies. Ball screws are generally manufactured to maintain the minimum standard hardness at 58 HRC with the materials listed in right table .

	Material	Hardness
Screw shaft	SCM450 S55C	HRC 58° ~ 64°
Nut	SCM415H	HRC 58° ~ 64°
Steel balls	SUJ2	More than 60 HRC

Materials and hardness

For Safety Use

Lubrication

When using the BSM series products,lubricant should be required. If lubricant is not applied with,the problem such as increase of torque and shortened life occurs. Applying lubricant can minimize temperature increases,decline of mechanical efficiency due to friction,and deterioration of accuracy caused by wear.

Be careful with falling off of components due to their own weight.

Since a ball screw has a low friction factor, its shaft or nut could potentially fall off due to its own weight. Be careful not to have your hand or fingers be caught under the fallen component.

Do not disassemble a nut.

When balls have been dropped off the nut or the nut has been removed from a shaft, do not attempt to reassemble them yourself and return them to our company for repair.

(In this case, repairing charges are required.)

If it necessary to disassemble the nut by yourself, Please consult with our technical department first.

Pay careful attention to mounting accuracy.

A moment load caused by misalignment of a ball screw, bearing, guide, nut, and housing and improper angularity may result in malfunction, extraordinary noise, abnormal vibration, shorter product life as well as breakage of screw shaft due to rotating bending fatigue. Be careful with such defects because they may lead to a serious accident.

Working Temperature

Normally,The BSM Series work temperature range is 0~60 ℃ .If it necessary to work beyond the recommended temperatures, Please consult with our technical department first.

Model Numbering System

BSM 172S – B0801 – 100 – AK1 – 0 – XXX

Ball Screw Motor Type Code

Code	Structure Type
BSM	External Nut - Ball screw Shaft

Motor Size Code

Code		Motor Body Length Max(mm)	Step Angle (°)
08	0S	28.3	1.8
	0G	29.5	5
11	1S	32	1.8
	5S	52	
14	1A	28	0.9
	1S	28	1.8
	3S	36	
17	4A	34.3	0.9
	4S	34.3	1.8
	6S	48.3	
23	8S	57	1.8
	AS	79	

Ball Screw Type Code

Code	Nominal Diameter (mm)	Lead (mm)
B0401	4	1
B0601	6	1
B0801	8	1
B0802	8	2
B08025	8	2.5
B0805	8	5
B0808	8	8

Code	Nominal Diameter (mm)	Lead (mm)
B1002	10	2
B1004	10	4
B1010	10	10
B1202	12	2
B1204	12	4
B1205	12	5
B1210	12	10

Ball Screw Lengths(Lx)

###	Provided in 1 mm increments

Rated Current Code

XXX=X.XX(A)	This code defines by our technical department

Special Custom Type

Code	Custom Type
0	Non Special Custom
M	Motor Custom
S	Lead Screw End Machining
B	Add Encoder
E	Add Brake
C	Other Special Custom Type

Nut Type Code

Code		Mating Ball Screw
AK	1	B0401
		B0601
		B0801
		B0802
		B08025
		B1002
		B1202
	2	B1004
BU	1	B0805
BM	1	B0808
		B1010
		B1204
AV	2	B1205
		B1210

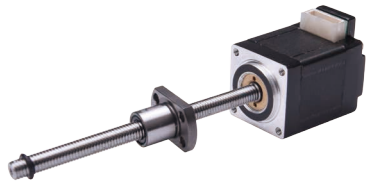
Configuration Table

Nominal Diameter (mm)	Lead (mm)	Ball Screw Code	Motor Options											
			BSM080S	BSM080G	BSM111S	BSM115S	BSM141A	BSM141S	BSM143S	BSM174A	BSM174S	BSM176S	BSM238S	BSM23AS
4	1	B0401	◎	◎	–	–	–	–	–	–	–	–	–	–
6	1	B0601	–	–	◎	◎	–	–	–	–	–	–	–	–
8	1	B0801	–	–	–	–	◎	◎	◎	◎	◎	◎	–	–
8	2	B0802	–	–	–	–	◎	◎	◎	◎	◎	◎	–	–
8	2.5	B08025	–	–	–	–	◎	◎	◎	◎	◎	◎	–	–
8	5	B0805	–	–	–	–	◎	◎	◎	◎	◎	◎	–	–
8	8	B0808	–	–	–	–	◎	◎	◎	◎	◎	◎	–	–
10	2	B1002	–	–	–	–	–	–	–	◎	◎	◎	◎	◎
10	4	B1004	–	–	–	–	–	–	–	◎	◎	◎	◎	◎
10	10	B1010	–	–	–	–	–	–	–	◎	◎	◎	◎	◎
12	2	B1202	–	–	–	–	–	–	–	–	–	–	◎	◎
12	4	B1204	–	–	–	–	–	–	–	–	–	–	◎	◎
12	5	B1205	–	–	–	–	–	–	–	–	–	–	◎	◎
12	10	B1210	–	–	–	–	–	–	–	–	–	–	◎	◎

Note:Marked with " ◎ "is available.

BSM08 Series

Phases	2
Step Accuracy	±5%
IP Rating	40
Approvals	RoHS
Operating Temp.	-20°C~+50°C
Insulation Class	B(130°C)
Insulation Resistance	100MegOhms



Ordering Information

BSM 08 0S – B0401 – 100 – AK1 – 0 – XXX

Ball Screw Motor Type Code

Code	Structure Type
BSM	External Nut - Ball screw Shaft

Frame Size Code

Code	Frame Size
08	20mm

Motor Body Length Code

Code	Motor Body Length Max(mm)	Step Angle (°)
0S	28.3	1.8
0G	29.5	5

Ball Screw Type Code

Code	Nominal Diameter(mm)	Lead (mm)	Travel(mm)	
			Travel Per1.8°	Travel Per 5°
B0401	4	1	0.005	0.013889

Rated Current Code

XXX=X.XX(A)	**This code defines by our technical department**

Special Custom Type Code

Code	Custom Type
0	Non Special Custom
M	Motor Custom
S	Lead Screw End Machining
C	Other Special Custom Type

Nut Type Code

Code		Nut Type
AK	1	B0401

Lx

###	**Provided in 1 mm increments**

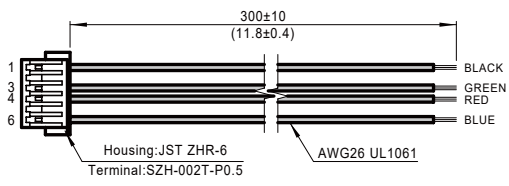
BSM08 Step Motor - 4 Lead Bi-Polar

Motor Type Code	Motor Body Length (mm)	Step Angle (°)	Electrical Connection	Rated Current (Amps)	Winding Resistanc(Ohms) ±10%@20°C	Winding Inductance(mH) Typ.
BSM080S	28.3	1.8°	Plug In Connector	0.4	12.65	4.1
BSM080G	29.5	5°	Plug In Connector	0.6	6.2	1.6

Note: Recommended Driver, DC Input: SR2-Plus, SR3-mini； DC Input Controller Type: ST5-S/Q/C-AN(RN)。

Mating Connector With Leads (order separately)

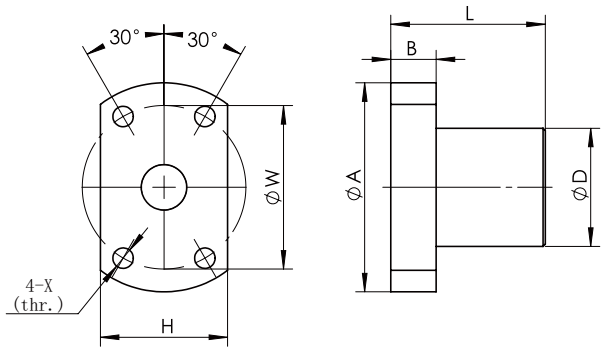
4 Lead Part Number4634 1402 03659



BSM08 Series

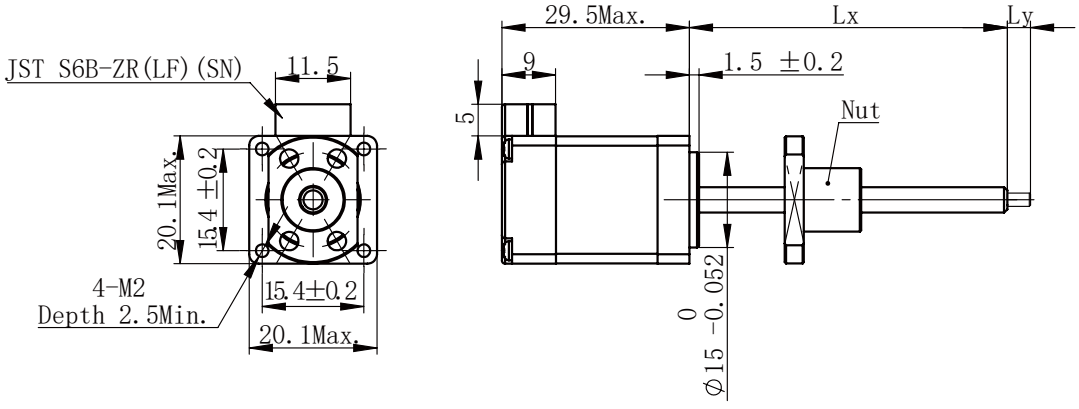
■ Nut Dimension

UNIT:mm



Screw Type	Nut Code		D	A	B	L	W	H	X
B0401	AK	1	10	20	3	12	15	14	2.9

■ Motor Dimension



Note: The Mounting hole size of BSM080G is 16 ± 0.2 mm.

BSM11 Series

Phases	2
Step Accuracy	±5%
IP Rating	40
Approvals	RoHS
Operating Temp.	-20°C~+50°C
Insulation Class	B(130°C)
Insulation Resistance	100MegOhms

Ordering Information

BSM 11 1S – B0601 – 100 – AK1 – 0 – XXX

Ball Screw Motor Type Code

Code	Structure Type
BSM	External Nut - Ball screw Shaft

Frame Size Code

Code	Frame Size
11	28mm

Motor Body Length Code

Code	Motor Body Length Max(mm)	Step Angle (°)
1S	32	1.8
5S	52	1.8

Ball Screw Type Code

Code	Nominal Diameter(mm)	Lead (mm)	Travel(mm) Travel Per1.8°
B0601	6	1	0.005

Rated Current Code

XXX=X.XX(A)	**This code defines by our technical department**

Special Custom Type Code

Code	Custom Type
0	Non Special Custom
M	Motor Custom
S	Lead Screw End Machining
C	Other Special Custom Type

Nut Type Code

Code		Nut Type
AK	1	B0601

Lx

###	**Provided in 1 mm increments**

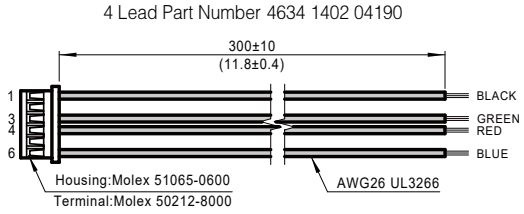
BSM11 Step Motor - 4 Lead Bi-Polar

Motor Type Code	Motor Body Length (mm)	Step Angle (°)	Electrical Connection	Rated Current (Amps)	Winding Resistanc(Ohms) ±10%@20°C	Winding Inductance(mH) Typ.
BSM111S	32	1.8°	Plug In Connector	1	2.7	2.5
BSM115S	52	1.8°	Plug In Connector	1.5	1.65	1.48

Note: Recommended Driver, DC Input: SR2-Plus；DC Input Controller Type: ST5-S/Q/C-AN(RN)。

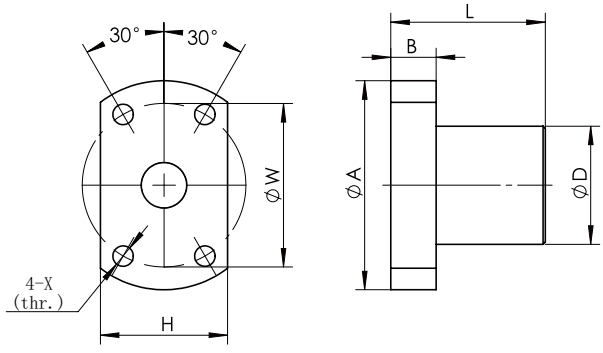
BSM11 Series

Mating Connector With Leads (order separately)



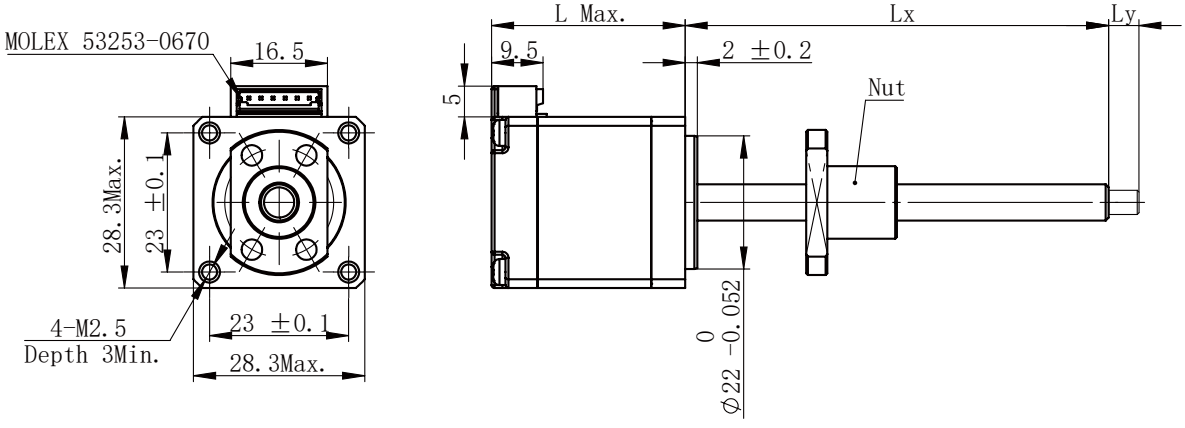
Nut Dimension

UNIT:mm



Screw Type	Nut Code		D	A	B	L	W	H	X
B0601	AK	1	12	24	3.5	15	18	16	3.4

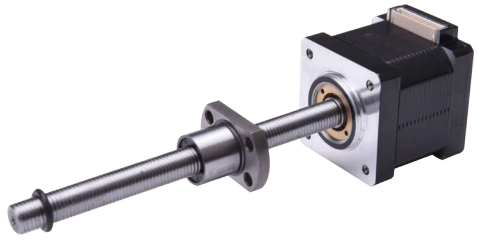
Motor Dimension



Motor type	Dimension "L"
BSM111S	32 mm
BSM115S	52 mm

BSM14 Series

Phases	2
Step Accuracy	±5%
IP Rating	40
Approvals	RoHS
Operating Temp.	-20°C~+50°C
Insulation Class	B(130°C)
Insulation Resistance	100MegOhms



Ordering Information

BSM 14 1S – B0801 – 100 – AK1 – 0 – XXX

Ball Screw Motor Type Code

Code	Structure Type
BSM	External Nut - Ball screw Shaft

Frame Size Code

Code	Frame Size
14	35mm

Motor Body Length Code

Code	Motor Body Length Max(mm)	Step Angle (°)
1A	28	0.9
1S	28	1.8
3S	36	1.8

Ball Screw Type Code

Code	Nominal Diameter(mm)	Lead (mm)	Travel(mm)	
			Travel Per 0.9°	Travel Per 1.8°
B0801	8	1	0.0025	0.005
B0802	8	2	0.005	0.01
B08025	8	2.5	0.00625	0.0125
B0805	8	5	0.0125	0.025
B0808	8	8	0.02	0.04

Rated Current Code

XXX=X.XX(A)	**This code defines by our technical department**

Special Custom Type Code

Code	Custom Type
0	Non Special Custom
M	Motor Custom
S	Lead Screw End Machining
B	Add Encoder
E	Add Brake
C	Other Special Custom Type

Nut Type Code

Code		Nut Type
AK	1	B0801
		B0802
		B08025
BU	1	B0805
BM	1	B0808

Lx

###	**Provided in 1 mm increments**

BSM14 Step Motor - 4 Lead Bi-Polar

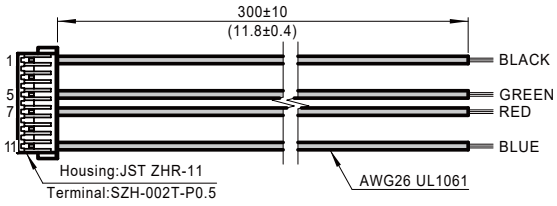
Motor Type Code	Motor Body Length (mm)	Step Angle (°)	Electrical Connection	Rated Current (Amps)	Winding	
					Resistanc(Ohms) ±10%@20°C	Inductance(mH) Typ.
BSM141A	28	0.9°	Plug In Connector	0.6	10.6	12.6
BSM141S	28	1.8°	Plug In Connector	1.5	1.55	1.53
BSM143S	36	1.8°	Plug In Connector	1.5	1.61	2.5

Note: Recommended Driver, DC Input: SR2-Plus； DC Input Controller Type: ST5-S/Q/C-AN(RN)。

BSM14 Series

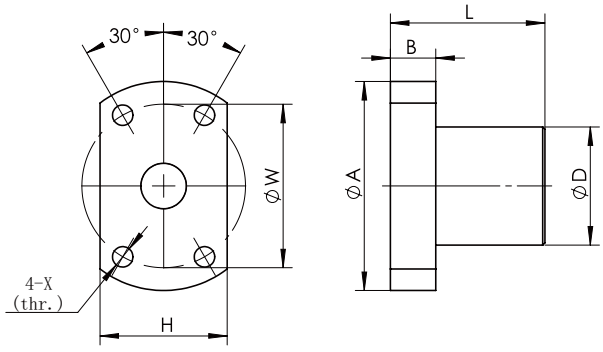
Mating Connector With Leads (order separately)

4 Lead Part Number 4634 1402 04581



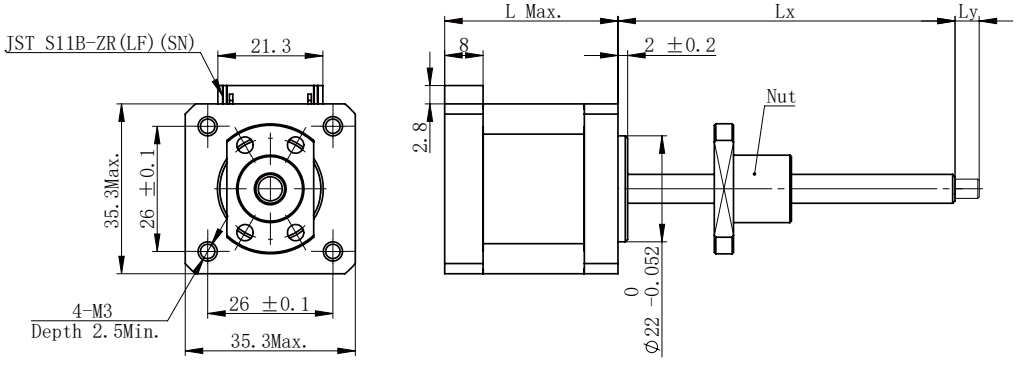
Nut Dimension

UNIT:mm



Screw Type	Nut Code		D	A	B	L	W	H	X
B0801	AK	1	14	27	4	16	21	18	3.4
B0802	AK	1	14	27	4	16	21	18	3.4
B08025	AK	1	16	29	4	26	23	20	3.4
B0805	BU	1	22	38	6	27	29	22	3.4
B0808	BM	1	23	38	5	28	30	24	3.4

Motor Dimension



Motor type	Dimension "L"
BSM141A	28 mm
BSM141S	28 mm
BSM143S	36 mm

BSM17 Series

Phases	2
Step Accuracy	±5%
IP Rating	40
Approvals	RoHS
Operating Temp.	-20°C~+50°C
Insulation Class	B(130°C)
Insulation Resistance	100MegOhms

Ordering Information

BSM 17 4S – B0801 – 100 – AK1 – 0 – XXX

Ball Screw Motor Type Code

Code	Structure Type
BSM	External Nut - Ball screw Shaft

Frame Size Code

Code	Frame Size
17	42mm

Motor Body Length Code

Code	Motor Body Length Max(mm)	Step Angle (°)
4A	34.3	0.9
4S	34.3	1.8
6S	48.3	1.8

Lead Screw Type Code

Code	Nominal Diameter (mm)	Lead (mm)	Travel(mm)	
			Travel Per 0.9°	Travel Per 1.8°
B0801	8	1	0.0025	0.005
B0802	8	2	0.05	0.01
B08025	8	2.5	0.00625	0.0125
B0805	8	5	0.0125	0.025
B0808	8	8	0.02	0.04
B1002	10	2	0.005	0.01
B1004	10	4	0.01	0.02
B1010	10	10	0.025	0.05

Lx

###	**Provided in 1 mm increments**

Rated Current Code

XXX=X.XX(A)	**This code defines by our technical department**

Special Custom Type Code

Code	Custom Type
0	Non Special Custom
M	Motor Custom
S	Lead Screw End Machining
B	Add Encoder
E	Add Brake
C	Other Special Custom Type

Nut Type Code

Code		Nut Type
AK	1	B0801
		B0802
		B08025
		B1002
	2	B1004
BU	1	B0805
BM	1	B0808
		B1010

BSM17 Series

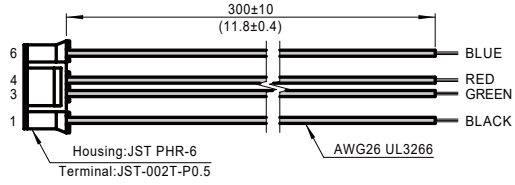
BSM17 Step Motor - 4 Lead Bi-Polar

Motor Type Code	Motor Body Length (mm)	Step Angle (°)	Electrical Connection	Rated Current (Amps)	Winding	
					Resistanc(Ohms) ±10%@20°C	Inductance(mH) Typ.
BSM174A	34.3	0.9°	Plug In Connector	0.7	5.4	14
BSM174S	34.3	1.8°	Plug In Connector	1	4.3	7.7
BSM176S	48.3	1.8°	Plug In Connector	2	1.3	2.9

Note: Recommended Driver, DC Input: SR2-Plus, SR4-Plus；DC Input Controller Type: ST5-S/Q/C-AN(RN)。

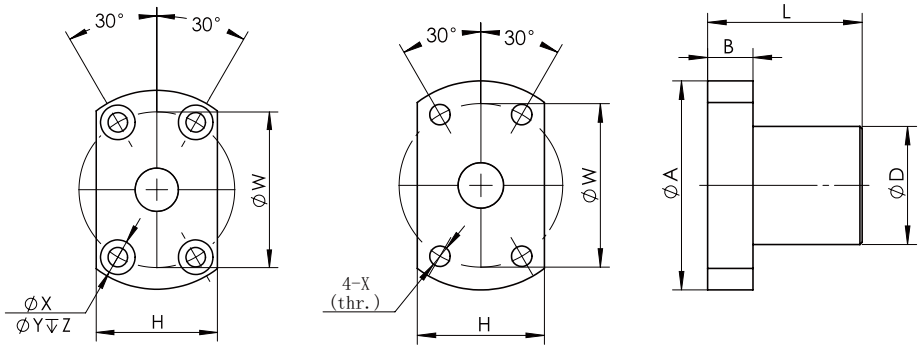
Mating Connector With Leads (order separately)

4 Lead Part Number 4634 1402 00723



Nut Dimension

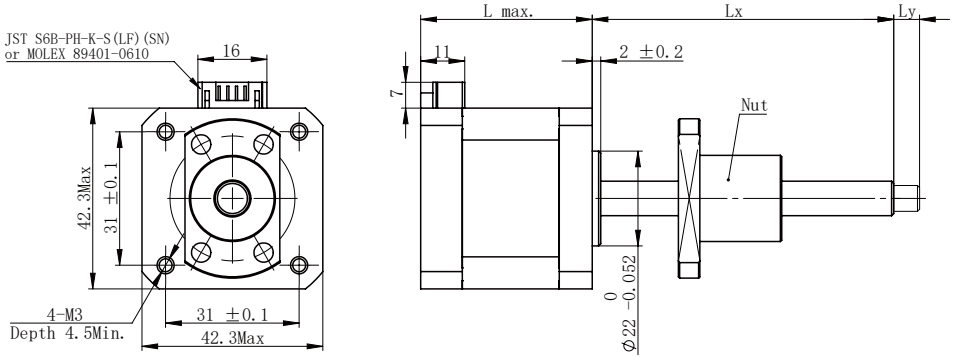
UNIT:mm



AK2 AK1/BU1/BM1

Screw Type	Nut Code		D	A	B	L	W	H	X	Y	Z
B0801	AK	1	14	27	4	16	21	18	3.4	–	–
B0802	AK	1	14	27	4	16	21	18	3.4	–	–
B08025	AK	1	16	29	4	26	23	20	3.4	–	–
B0805	BU	1	22	38	6	27	29	22	3.4	–	–
B0808	BM	1	23	38	5	28	30	24	3.4	–	–
B1002	AK	1	18	35	5	28	27	22	4.5	–	–
B1004	AK	2	26	46	10	34	36	28	4.5	8	4.5
B1010	BM	1	28	47	8	34	36	30	4.5	–	–

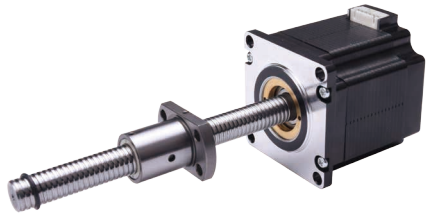
Motor Dimension



Motor type	Dimension "L"
BSM174A	34.3 mm
BSM174S	34.3 mm
BSM176S	48.3 mm

BSM23 Series

Phases	2
Step Accuracy	±5%
IP Rating	40
Approvals	RoHS
Operating Temp.	-20°C~+50°C
Insulation Class	B(130°C)
Insulation Resistance	100MegOhms



Ordering Information

BSM 23 8S – B1002 – 100 – AK1 – 0 – XXX

Ball Screw Motor Type Code

Code	Structure Type
BSM	External Nut - Ball screw Shaft

Frame Size Code

Code	Frame Size
23	57mm

Motor Body Length Code

Code	Motor Body Length Max(mm)	Step Angle (°)
8S	57	1.8
AS	79	1.8

Lead Screw Type Code

Code	Nominal Diameter (mm)	Lead (mm)	Travel Per 1.8° (mm)
B1002	10	2	0.01
B1004	10	4	0.02
B1010	10	10	0.05
B1202	12	2	0.01
B1204	12	4	0.02
B1205	12	5	0.025
B1210	12	10	0.05

Lx

###	Provided in 1 mm increments

Rated Current Code

XXX=X.XX(A)	This code defines by our technical department

Special Custom Type Code

Code	Custom Type
0	Non Special Custom
M	Motor Custom
S	Lead Screw End Machining
B	Add Encoder
E	Add Brake
C	Other Special Custom Type

Nut Type Code

Code		Nut Type
AK	1	B1002
		B1202
	2	B1004
BM	1	B1204
		B1010
AV	2	B1205
		B1210

BSM23 Series

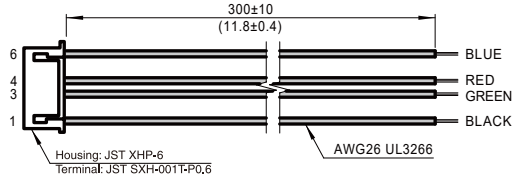
BSM23 Step Motor - 4 Lead Bi-Polar

Motor Type Code	Motor Body Length (mm)	Step Angle (°)	Electrical Connection	Rated Current (Amps)	Winding	
					Resistanc(Ohms) ±10%@20°C	Inductance(mH) Typ.
BSM238S	57	1.8°	Plug In Connector	2.2	1.6	7.2
BSM23AS	79	1.8°	Plug In Connector	3	1.1	5.0

Note: Recommended Driver, DC Input: SR8-Plus；DC Input Controller Type: ST5-S/Q/C-AN(RN), ST10-S/Q/C-AN(RN).

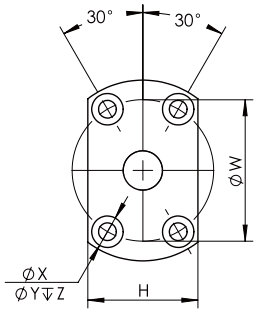
Mating Connector With Leads (order separately)

4 Lead Part Number 4634 1402 01891

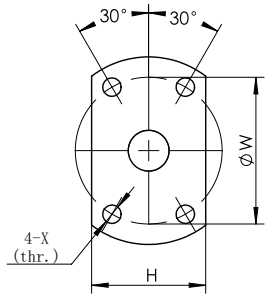


Nut Dimension

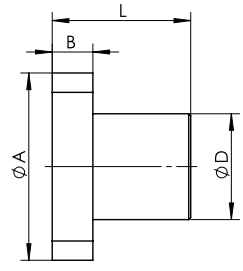
UNIT:mm



AK2/AV2

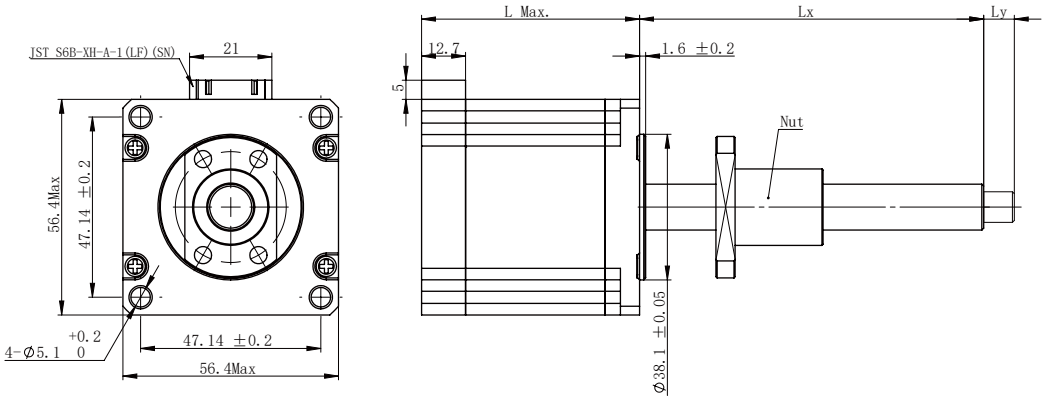


AK1/BU1/BM1



Screw Type	Nut Code		D	A	B	L	W	H	X	Y	Z
B1002	AK	1	18	35	5	28	27	22	4.5	–	–
B1004	AK	2	26	46	10	34	36	28	4.5	8	4.5
B1010	BM	1	28	47	8	34	36	30	4.5	–	–
B1202	AK	1	20	37	5	28	29	24	4.5	–	–
B1204	BM	1	24	40	10	40	32	30	4.5	–	–
B1205	AV	2	30	50	8	35	40	30	4.5	8	4.5
B1210			30	50	10	42	40	32	4.5	8	4.5

Motor Dimension



Motor type	Dimension "L"
BSM238S	57 mm
BSM23AS	79 mm

Encoder Options-Suitable for applications that require feedback

Parameter

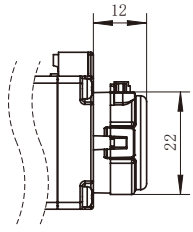
Mating Motor	Supply Voltage (VDC)			CPR	PPR	Operating Temperature(°C)		Vibration (g) (5HZ-2KHZ)	Output	
	Min.	Typ.	Max.			Low	High	Max.		
BSM08/11	4.5	5	5.5	400	1600	-20	100	20	Single-ended Electrical	Differential Electrical
BSM14/17/23				1000	4000	-40	100			

BSM11 with encoder

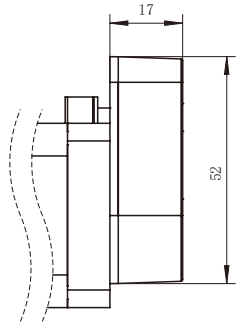
BSM17 with encoder

Dimensional Information

Unit: mm



The encoder mating BSM08/11

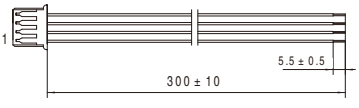


The encoder mating BSM14/17/23

Mating Connector With Leads

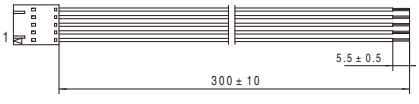
Single-ended Electrical

Pin	Function	Color
1	+5VDC Power	Black
2	A Channel	Green
3	Ground	Red
4	B Channel	Blud



For the encoder mating BSM08/11

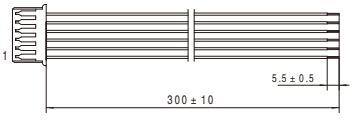
Pin	Function	Color
1	Ground	Black
2	Index	Green
3	A Channel	Red
4	+5VDC Power	Blud
5	B Channel	Yellow



For the encoder mating BSM14/17/23

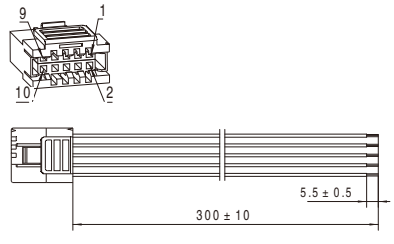
Differential Electrical

Pin	Function	Color
1	Ground	Black
2	A+Channel	Green
3	A- Channel	Red
4	Power	Blud
5	B+Channel	Yellow
6	B- Channel	White



For the encoder mating BSM08/11

Pin	Function	Color
1	-	-
2	Ground	Black
3	I- Channel	Green
4	I+Channel	Red
5	A- Channel	Blud
6	A+Channel	Yellow
7	Power	White
8	-	-
9	B- Channel	Orange
10	B+Channel	Brown



For the encoder mating BSM14/17/23

Brake Options

Parameter

Mating Motor	Supply Voltage (VDC)	Braking Torque (N·M)	Power (W)	Reaction Time (ms)	Insulation Grade
BSM11/14	24	0.4	4	15	B
BSM17	24	0.6	5	50	B
BSM23	24	1.2	4.5	50	B

Note:
1. All the brakes with 300mm leads.
2. 12 VDC brake options are available, please consult our technical department for further information.

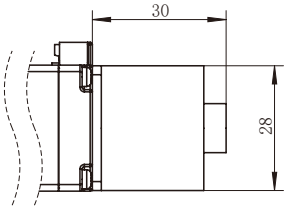
BSM11 with brake

BSM17 with brake

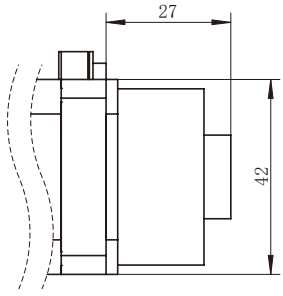
BSM23 with brake

Dimensional Information

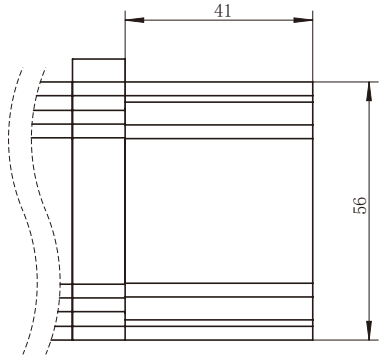
Unit: mm



The brake mating BSM11/14



The brake mating BSM17



The brake mating BSM23

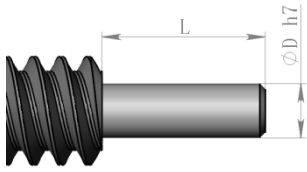
Optional Construction & Modifications

MOONS' often modifies linear actuators to meet application needs. Typical changes include:

· Ball screws: lengths, end machining and so on.
· Nuts: basic style, mounting and so on.

To help our customers design efforts, standardized leadscrew features are available.

■ Ball screw End Machining



NO.	Nominal Diameter (mm)	Dimension	
		D(mm)	L(mm)
1	4	2.5	2.5
2	6	4	5
3	8	6	6
4	10	6	6
5	12	8	8

Linear Slides (Ball Screws)

MOONS' Linear Slides are designed to meet the needs of customers' compact structure. These products offer many advantages such as high integration, small size, quieter operation, stable product quality and lower cost. Not only provides the best performance but also easier to use.

- Integrated design, Easy installation
- 4 Sizes motor options: NEMA08, NEMA11, NEMA14, NEMA17
- Each size of Linear Slides has a variety of lead options.
- Each size of Linear Slides has encoder & brake options.

MOONS' has committed to product innovation design and technical improvement, with excellent product quality,application technology, fast and flexible services,which provide customers with high level motion control solutions.

MS20 Series

MS28 Series

MS35 Series

MS42 Series

MS20 Series

- **Integrated design, Easy installation**
- **Small size, Width 23mm**
- **Ball screws, High accuracy**

Ordering Information

MS20 – 3E1 0 T – B AH 1 – XX – 0 – XXXX

Series Code

Code	Mating Motor
MS20	NEMA08

Motor Length Code

Code	Motor Length Max(mm)
3E1	29.5(BSM080S)

Additional Options Code

Code	Additional Options*
0	No additional
E	Encoder

Outlet Direction Code

Code	Outlet Direction**
T	Top
B	Bottom
L	Left
R	Right

Screw Type Code

Code	Screw Type
B	Ball Screw

Special Custom Type Code

This code defines by our technical department

Sensor Options Code

Code	Sensor Quantity
0	No Sensor
1	1
2	2

Stroke (MAX:80mm)

###	Effective stroke(Customize), Provided in 10 mm increments

Nut Type Code

Code	Nut Type
1	Standard Nut

Lead code

Code	Lead (mm)
AH	1

Note:

*Additional Options: Additional Options: MOONS' provides encoders for BSM08 series motors as additional options,see page17 for more details.

**Outlet Direction:Customer can choose the outlet direction according to the actual requirements,see the dimensional information for outlet direction definition in next page.

MS20 Series

Technical Data

Series	Lead code	Lead	Maximum Speed (mm/s)	Maximum Load(kg) Motor: BSM080S	
				Horizontal	Vertical
MS20	AH	1	10	1	0.5

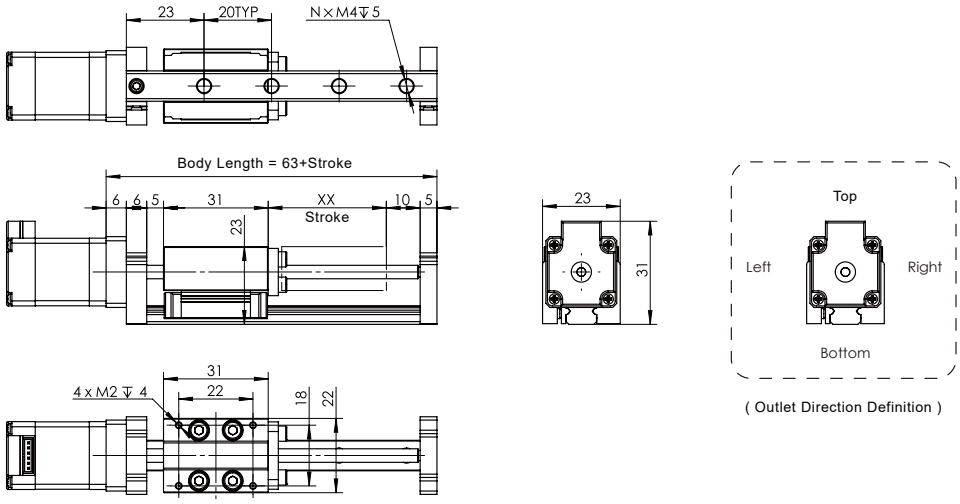
Note:

1.The above options are common choices, please consult our technical department for further information.

2.Recommended Driver, DC Input: SR2-Plus; DC Input Controller Type: ST5-S/Q/C-AN(RN).

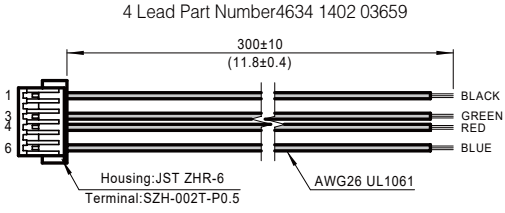
Dimensional Information

Unit: mm



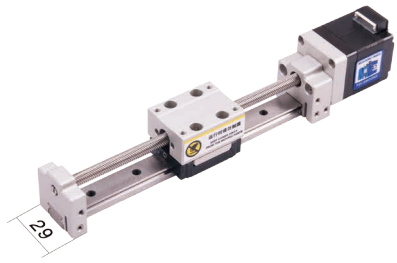
(Outlet Direction Definition)

Mating Connector With Leads



MS28 Series

- **Integrated design, Easy installation**
- **Small size, Width 29mm**
- **Ball screws, High accuracy**



Ordering Information

MS28 – 3D1 0 T – B AH 1 – XX – 0 – XXXX

Series Code

Code	Mating Motor
MS28	NEMA11

Motor Length Code

Code	Motor Length Max(mm)
3D1	32 (BSM111S)

Additional Options Code

Code	Additional Options*
0	No additional
B	Brake
E	Encoder

Outlet Direction Code

Code	Outlet Direction**
T	Top
B	Bottom
L	Left
R	Right

Screw Type Code

Code	Screw Type
B	Ball Screw

Special Custom Type Code

This code defines by our technical department

Sensor Options Code

Code	Sensor Quantity
0	No Sensor
1	1
2	2

Stroke (MAX:150mm)

###	Effective stroke(Customize), Provided in 10 mm increments

Nut Type Code

Code	Nut Type
1	Standard Nut

Lead code

Code	Lead (mm)
AH	1

Note:

*Additional Options: Additional Options: MOONS' provides encoders & brakes for BSM11 series motors as additional options,see page 17 & page 18 for more details.

**Outlet Direction:Customer can choose the outlet direction according to the actual requirements,see the dimensional information for outlet direction definition in next page.

MS28 Series

Technical Data

Series	Lead code	Lead	Maximum Speed (mm/s)	Maximum Load(kg) Motor: BSM111S	
				Horizontal	Vertical
MS28	AH	1	10	3	2

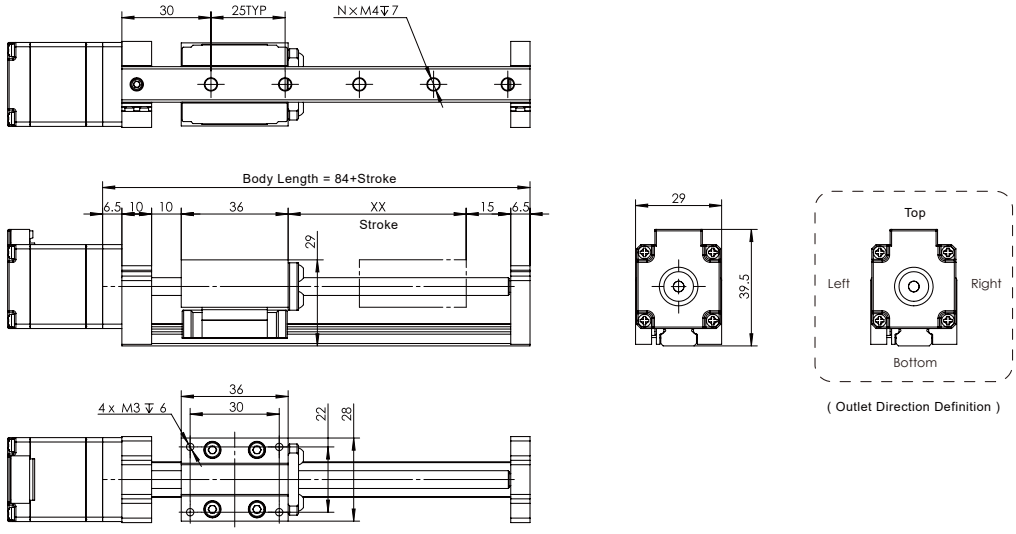
Note:

1.The above options are common choices, please consult our technical department for further information.

2.Recommended Driver, DC Input: SR2-Plus; DC Input Controller Type: ST5-S/Q/C-AN(RN).

Dimensional Information

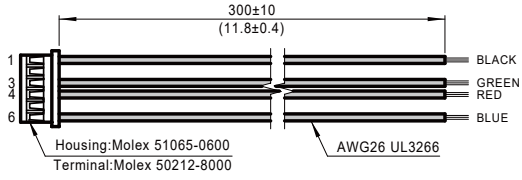
Unit: mm



(Outlet Direction Definition)

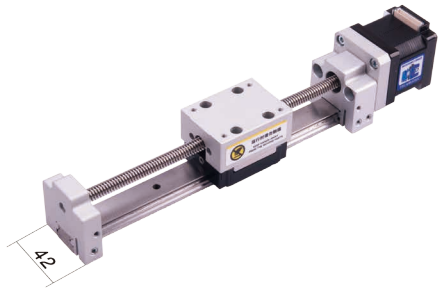
Mating Connector With Leads

4 Lead Part Number 4634 1402 04190



MS35 Series

- **Integrated design, Easy installation**
- **Small size, Width 42mm**
- **Ball screws, High accuracy**



Ordering Information

MS35 – 3C2 0 T – B AE 1 – XX – 0 – XXXX

Series Code

Code	Mating Motor
MS35	NEMA14

Motor Length Code

Code	Motor Length Max(mm)
3C1	27.3 (BSM141S)
3C2	36 (BSM143S)

Additional Options Code

Code	Additional Options*
0	No additiona
B	Brake
E	Encoder

Outlet Direction Code

Code	Outlet Direction**
T	Top
B	Bottom
L	Left
R	Right

Screw Type Code

Code	Screw Type
B	Ball Screw

Special Custom Type Code

This code defines by our technical department

Sensor Options Code

Code	Sensor Quantity
0	No Sensor
1	1
2	2

Stroke (MAX:250mm)

###	Effective stroke(Customize), Provided in 10 mm increments

Nut Type Code

Code	Nut Type
1	Standard Nut

Lead code

Code	Lead (mm)
AH	1
AG	2
AD	2.5
AX	5
BH	8

Note:

*Additional Options: Additional Options: MOONS' provides encoders & brakes for BSM14 series motors as additional options,see page 17 & page 18 for more details .

**Outlet Direction:Customer can choose the outlet direction according to the actual requirements,see the dimensional information for outlet direction definition in next page.

MS35 Series

Technical Data

Series	Lead code	Lead	Maximum Speed (mm/s)	Maximum Load(kg) Motor: BSM141S		Maximum Load(kg) Motor: BSM143S	
				Horizontal	Vertical	Horizontal	Vertical
MS35	AH	1	10	5	3	5	3
	AG	2	20	5	3	5	3
	AD	2.5	25	5	3	5	3
	AX	5	50	5	3	5	3
	BH	8	80	3.3	2.2	4.4	2.9

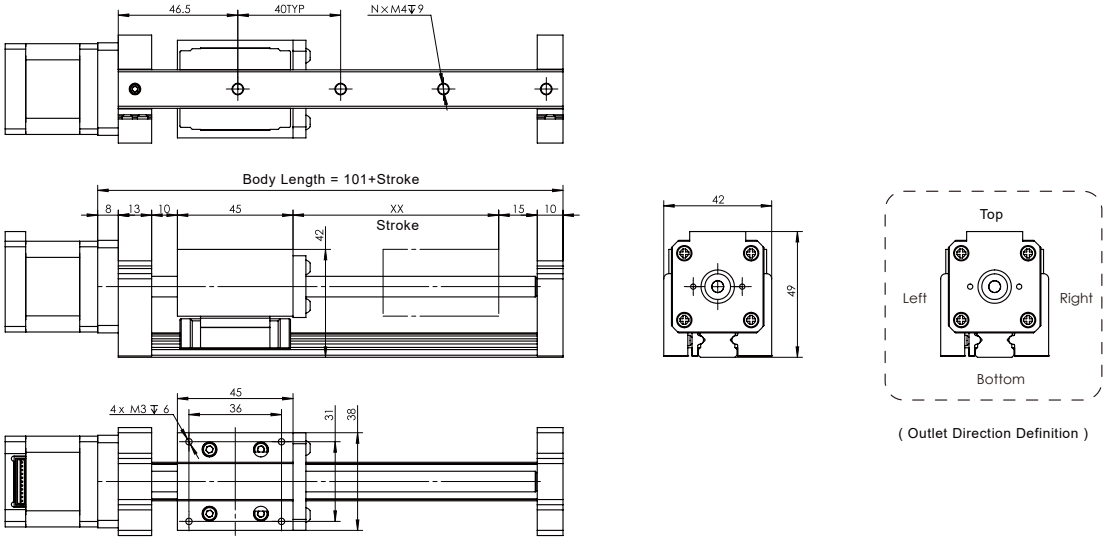
Note:

1.The above options are common choices, please consult our technical department for further information.

2.Recommended Driver, DC Input: SR2-Plus; DC Input Controller Type: ST5-S/Q/C-AN(RN).

Dimensional Information

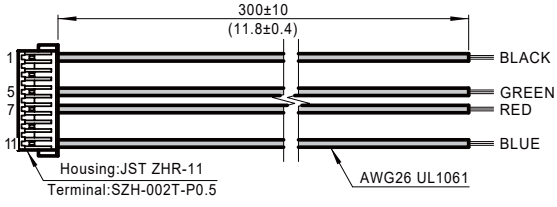
Unit: mm



(Outlet Direction Definition)

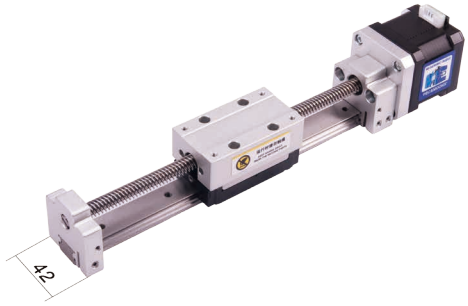
Mating Connector With Leads

4 Lead Part Number 4634 1402 04581



MS42 Series

- **Integrated design, Easy installation**
- **Small size, Width 42mm**
- **Ball screws, High accuracy**



Ordering Information

MS42 – 3A1 0 T – B AH 1 – XX – 0 – XXXX

Series Code

Code	Mating Motor
MS42	NEMA17

Motor Length Code

Code	Motor Length Max(mm)
3A1	39.8 (BSM172S)

Additional Options Code

Code	Additional Options*
0	No additional
B	Brake
E	Encoder

Outlet Direction Code

Code	Outlet Direction **
T	Top
B	Bottom
L	Left
R	Right

Screw Type Code

Code	Screw Type
B	Ball Screw

Special Custom Type Code

This code defines by our technical department

Sensor Options Code

Code	Sensor Quantity
0	No Sensor
1	1
2	2

Stroke (MAX:350mm)

###	Effective stroke(Customize), Provided in 10 mm increments

Nut Type Code

Code	Nut Type
1	Standard Nut

Lead code

Code	Lead (mm)
AH	1
AG	2
AD	2.5
AX	5
BH	8

Note:

*Additional Options: Additional Options: MOONS' provides encoders & brakes for BSM17 series motors as additional options,see page 17 & page 18 for more details.

**Outlet Direction:Customer can choose the outlet direction according to the actual requirements,see the dimensional information for outlet direction definition in next page.

MS42 Series

Technical Data

Series	Lead code	Lead	Maximum Speed (mm/s)	Maximum Load(kg) Motor: BSM172S	
				Horizontal	Vertical
MS42	AH	1	10	5	3
	AG	2	20	5	3
	AD	2.5	25	5	3
	AX	5	50	5	3
	BH	8	80	5	3

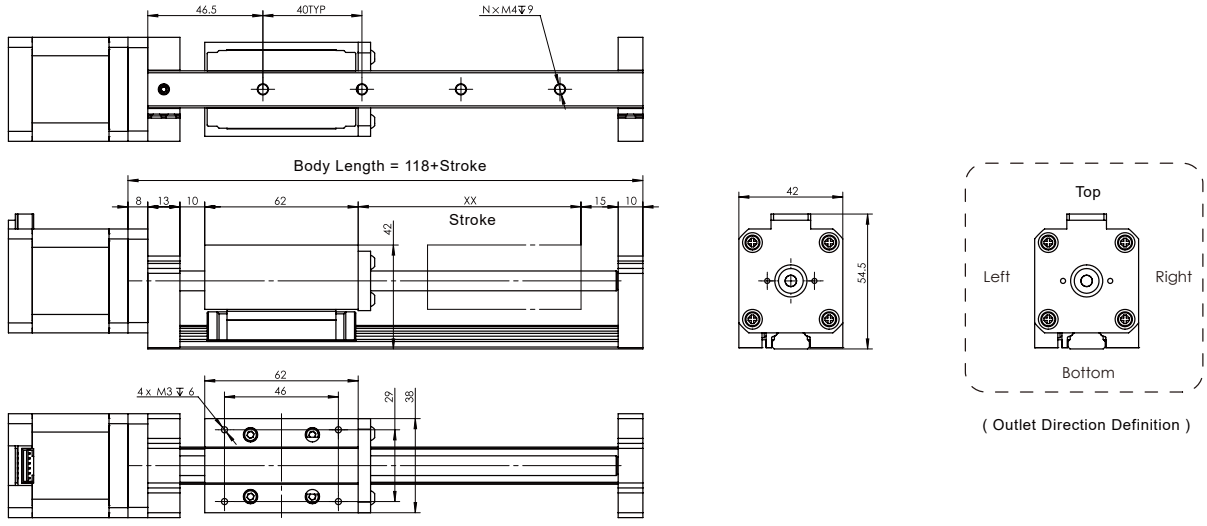
Note:

1.The above options are common choices, please consult our technical department for further information.

2.Recommended Driver, DC Input: SR2-Plus; DC Input Controller Type: ST5-S/Q/C-AN(RN).

Dimensional Information

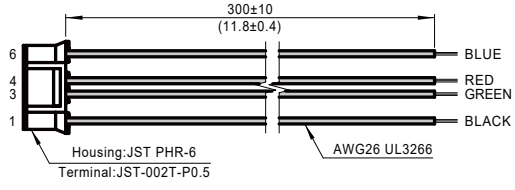
Unit: mm



(Outlet Direction Definition)

Mating Connector With Leads

4 Lead Part Number 4634 1402 00723



DC Input Stepper Drive-SR Series

SR Series Drives

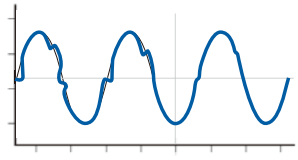
The SR series are compact, powerful, digital stepper drives feature advanced microstepping performance and sophisticated current control.All drive setup is done via dip or rotary switches.

- **Advanced Current Control**
- **Anti-Resonance**
- **Torque Ripple Smoothing**
- **Microstep Emulation**
- **Self Test**

Features

Anti-Resonance

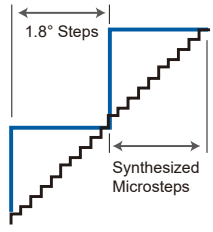
Step motor systems have a natural tendency to resonate at certain speeds. The SR drives automatically calculate the system's natural frequency and apply damping to the control algorithm. This greatly improves midrange stability, allows higher speeds and greater torque utilization, and also improves settling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



Provides better motor performance and higher speeds

Microstep Emulation

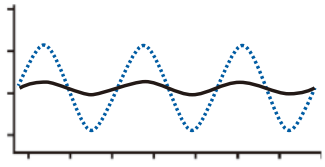
With Microstep Emulation, low resolution systems can still provide smooth motion. The drive can take low resolution step pulses and create fine resolution motion.



Delivers smoother motion in any application

Torque Ripple Smoothing

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



Produces smoother motion at low speeds

Command Signal Smoothing

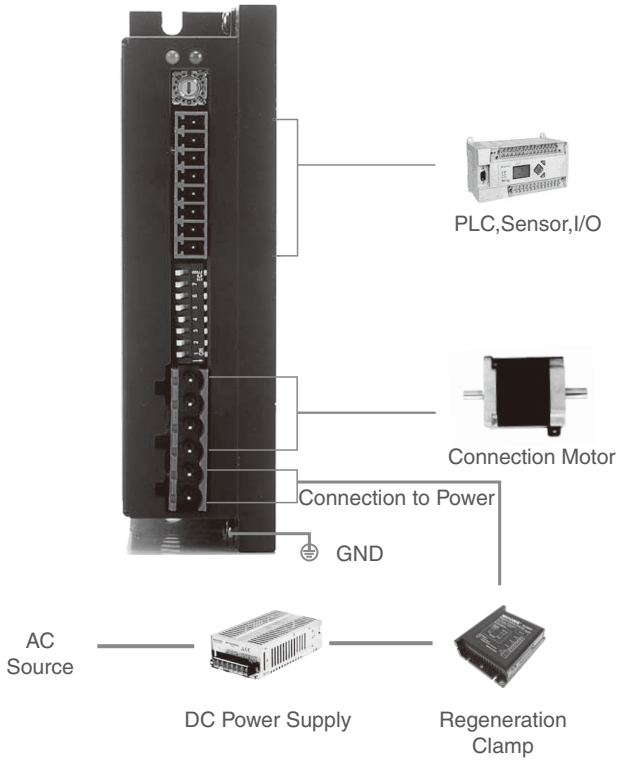
Command Signal smoothing can soften the effect of immediate changes in velocity and direction, making the motion of the motor less jerky. An added advantage is that it can reduce the wear on mechanical components.

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.

System Configuration



Numbering System

SR 2 - PLUS

Series	Max.Current	Blank=Standard
	2=2.2A Max.	Plus=Enhanced
	3=3.0A Max.	Mini=Compact
	4=4.5A Max.	
	8=7.8A Max.	

Ordering Information

Model	Current	Voltage	Microstep Selection	Current Selection
SR2-Plus	0.3-2.2A	12-48VDC	16	8
SR3-mini	0.4-3.0A	12-48VDC	16	8
SR4-Plus	1.0-4.5A	24-48VDC	16	8
SR8-Plus	2.4-7.8A	24-75VDC	16	8

Drive Specifications

Specification	
Speed Range	Up to 3000RPM
Operating Temperature	0 - 40℃
Ambient Humidity	90% or less(non-condensing)
Vibration Resistance	5.9m/s^2 maximum
Storage Temperature	-10 - 70℃
Heat Sinking Method	Natural cooling or fan-forced cooling
Atmosphere	Avoid dust, oily mist and corrosive air
Mass	SR2-Plus/SR3-mini: Approx. 120g
	SR4/8-Plus: Approx. 310g
Certification	RoHS , CE (EMC): EN 61800-3:2004
Features	
Idle Current	Automatic idle current reduction to reduce heat after motor stops moving for 1 second Dip switch selectable 50% or 90%
Anti-Resonance	Raises the system-damping ratio to eliminate midrange instability and allow stable operation throughout the speed range of the motor, dip switch selectable load inertia
Control Mode	Pulse input control Step&Dir
Inupt Signal Filter	Digital filters prevent position error from electrical noise on command signals, Dip switch selectable 2MHz or 150KHz
Microstep Emulation	Switch selectable microstep emulation provides smoother, more reliable motion
Motor Database	Rotary switch easily selects from many popular motors
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

Electrical Specifications

SR2-Plus

Parameter	Min.	Typical	Max.	UNIT
Power Supply	12	-	42	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
OUT maximum output current	-	-	100	mA
OUT maximum voltage	-	-	30	VDC

SR3-mini

Parameter	Min.	Typical	Max.	UNIT
Power Supply	12	-	48	VDC
Output Current (Peak)	0.4	-	3	Amps
Cost current of digital input signal	6	10	15	mA
Step Frequency	2	-	500K	Hz
STEP minimum pulse width	1000	-	-	ns
DIR minimum pulse width	80	-	-	us
Under Voltage Protection	-	10	-	VDC
Over Voltage Protection	-	53	-	VDC
Input Signal Voltage	4	-	28	VDC
Initialization time	-	-	2.5	S

SR4-Plus

Parameter	Min.	Typical	Max.	UNIT
Power Supply	24	-	48	VDC
Output Current (Peak)	1	-	4.5	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	-	20	-	VDC
Over Voltage Protection	-	60	-	VDC
Input Signal Voltage	4	-	28	VDC
Initialization time	-	-	2.5	S
OUT maximum output current	-	-	100	mA
OUT maximum voltage	-	-	30	VDC

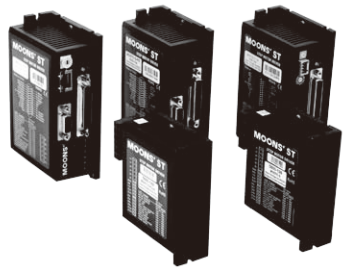
SR8-Plus

Parameter	Min.	Typical	Max.	UNIT
Power Supply	24	-	75	VDC
Output Current (Peak)	2.4	-	7.8	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	-	20	-	VDC
Over Voltage Protection	-	85	-	VDC
Input Signal Voltage	4	-	28	VDC
Initialization time	-	-	2.5	S
OUT maximum output current	-	-	100	mA
OUT maximum voltage	-	-	30	VDC

DC Input Controller Type Stepper Drive-ST Series

ST Series

The ST series are compact digital stepper drives with multiple control options and many sophisticated features. Step motors run smoother and faster than ever with features of advanced current control.



With mutiple control options, ST series support stand-alone programming and various bus control as RS-232/485, Ethernet UDP/TCP, CANopen and Ethernet/IP.

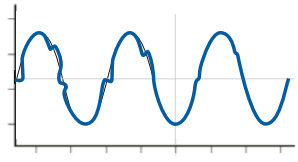
The ST series also has optional encoder feedback with close loop for improved system performance and reliability.

- **Advanced Current Control**
- **Anti-Resonance**
- **Torque Ripple Smoothing**
- **Microstep Emulation**
- **Stall Detection and Stall Prevention**

Features

Anti-Resonance

Step motor systems have a natural tendency to resonate at certain speeds. The MSST drives automatically calculate the system's natural frequency and apply damping to the control algorithm. This greatly improves midrange stability, allows higher speeds and greater torque utilization, and also improves settling times.



Provides better motor performance and higher speeds

Microstep Emulation

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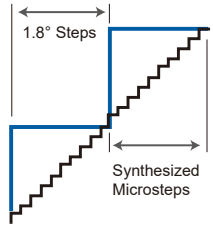

Delivers smoother motion in any application

Torque Ripple Smoothing

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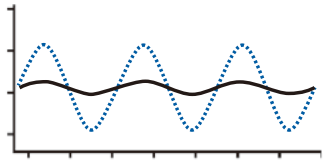
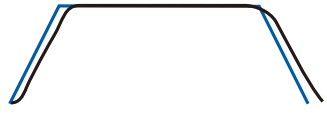


Produces smoother motion at low speeds

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

Stall detection & Stall prevention (only available on drives with encoder option)

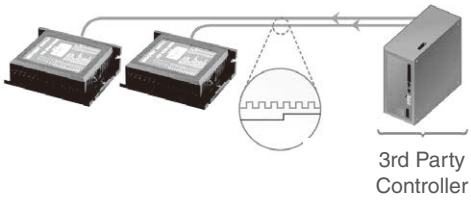
The optional encoder detects the rotor's position to provide Stall Detection and Stall Prevention unctions.

Auto Setup & Self Test

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

■ Which model is right for your application?

Step & Direction



S

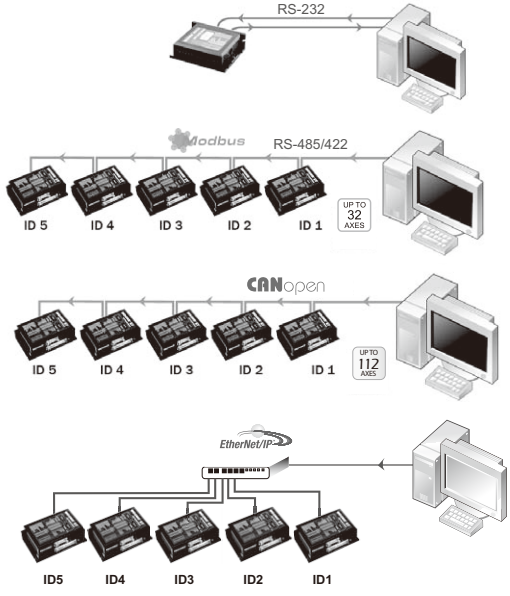
- Step & Direction
- CW & CCW pulse
- Master Encoder

Oscillator / Run-Stop

S

- Software Configuration
- Two Speeds
- Vary speed with analog input
- Joystick compatible

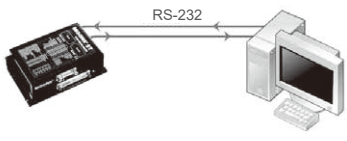
Host Control



S Q C IP

- Accepts commands from host PC or PLC
- Multi-axis capable
- Real time control

Stand Alone Programmable



Q

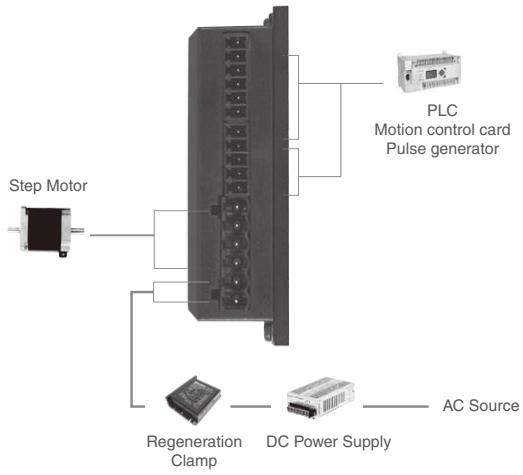
- Accepts commands from host PC or PLC
- Multi-axis capable
- Real time control

Stepper Drives

ST Lineup Control Modes

-S Pulse Input Control

Controlled via pulse generator.

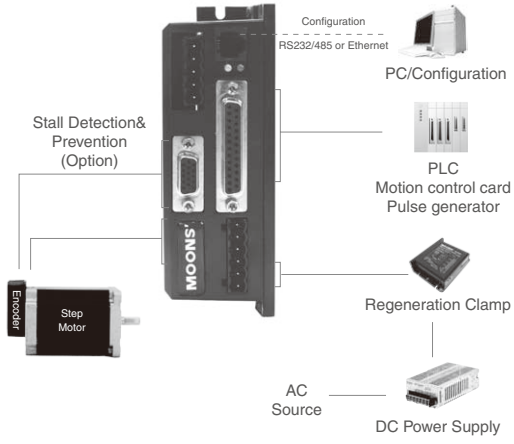


Main Features

• Accepts three types of pulse signal input as Pulse&Direction, CW/CCW and A/B Quadrature

-Q Built-in programmable motion controller (Includes Modbus/RTU Type)

Run stand-alone with sophisticated and functional programs. Commands for controlling motion, inputs & outputs, drive configuration and status, as well as math operations, register manipulation, and multi-tasking.



Main Features

• Stand-alone operation plus Serial host control

• Math operations

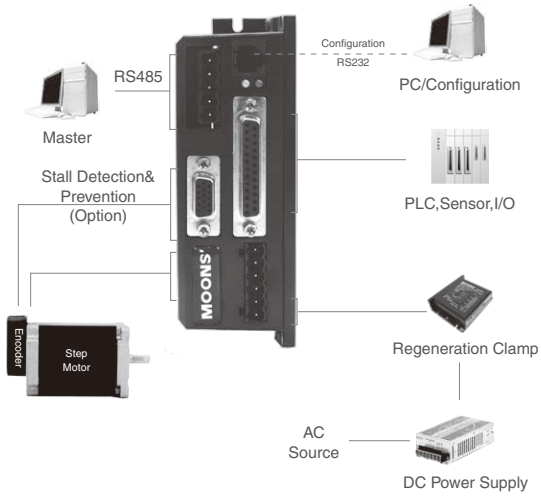
• Register manipulation

• Multi-tasking

• With all features in S type

-S/Q Basic type with RS-232/RS-485 communication

Controlled via pulse signals, analog signal or MOONS' SCL streaming series commands.



Main Features

• Pulse control

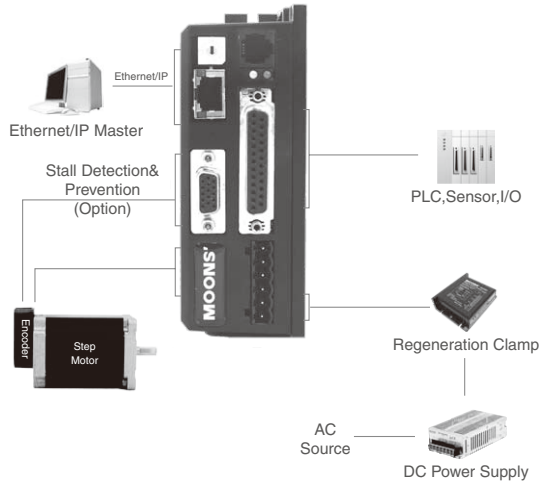
• Analog control

• Host real time control using SCL via RS-232/RS-485

• Up to 32 axes per channel for RS-485

-Q With Ethernet communication

Run stand-alone with sophisticated and functional programs, controlled via MOONS' SCL streaming commands.

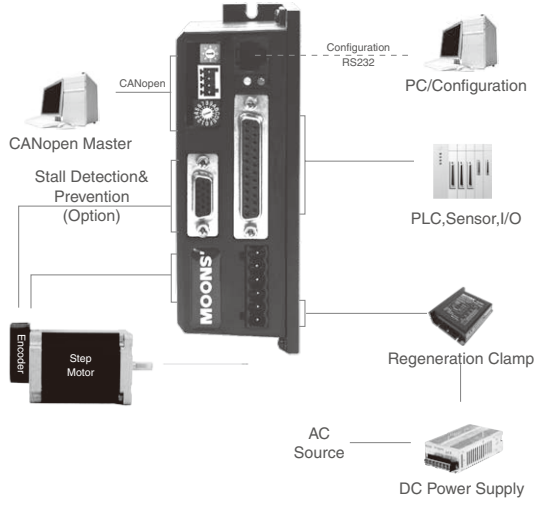


Main Features

- Stand-alone operation
- Host real time control using SCL via Ethernet UDP/TCP

-C With CANopen communication

Operates on a CANopen communication network and conforms to CiA301 and CiA402. It supports runing stored Q programs via MOONS'-specific CANopen objects.

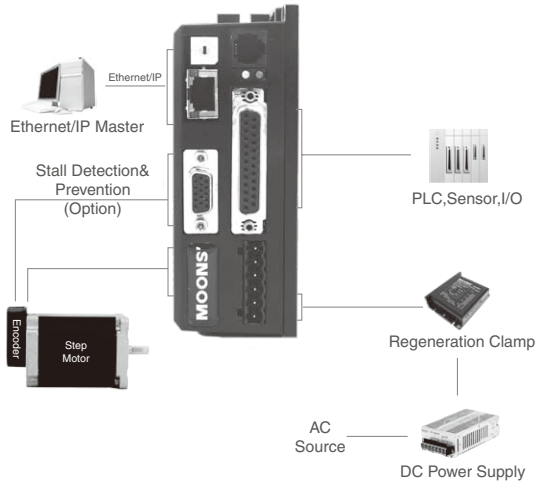


Main Features

- CANopen network
- Up to 112 axes per channel
- Objects for Q programming

-IP With EtherNet/IP communication

Communicate with PLCs and other industrial devices supporting the Ethernet/IP standard. They can also be commanded to execute stored Q programs.



Numbering System

MSST 5 - Q - A E

- Series
- Output Current
  - 5 = 5A Peak
  - 10 = 10A Peak
- Control Mode
  - S = Basic Type
  - Q = Q Program Type(Modbus/RTU)
  - C = CANopen
  - IP = EtherNet/IP
- Feedback(Blank in S type)
  - N = None
  - E = Encoder
- Communication(Blank in S type)
  - A = RS-232
  - C = CANopen
  - E = Ethernet
  - R = RS-485

Ordering Information

Model	Control	Current	Voltage	Encoder	RS-232	RS-485	Modbus/RTU	CANopen	Ethernet	EtherNet/IP
MSST5-S	S	0.1-5A	24-48VDC		✓					
MSST10-S		0.1-10A	24-75VDC		✓					
MSST5-Q-AN	Q	0.1-5A	24-48VDC		✓					
MSST5-Q-AE				✓	✓	✓	✓			
MSST5-Q-RN					✓	✓	✓			
MSST5-Q-RE				✓	✓					
MSST5-Q-EN									✓	
MSST5-Q-EE				✓					✓	
MSST10-Q-AN		0.1-10A	24-75VDC		✓					
MSST10-Q-AE				✓	✓					
MSST10-Q-RN					✓	✓	✓			
MSST10-Q-RE				✓	✓	✓	✓			
MSST10-Q-EN									✓	
MSST10-Q-EE				✓					✓	
MSST5-C-CN	C	0.1-5A	24-48VDC		✓			✓		
MSST5-C-CE				✓	✓			✓		
MSST10-C-CN		0.1-10A	24-75VDC		✓			✓		
MSST10-C-CE				✓	✓			✓		
MSST5-IP-EN	IP	0.1-5A	24-48VDC						✓	✓
MSST5-IP-EE				✓					✓	✓
MSST10-IP-EN		0.1-10A	24-75VDC						✓	✓
MSST10-IP-EE				✓					✓	✓

Drive Specifications

Amplifier Type	Dual H-Bridge, 4 Quadrant
Current Control	4 state PWM at 16 KHz
Protection	Over-voltage, under-voltage, over-temp, internal motor shorts (phase-to-phase, phase-to-ground)
Idle Current	Automatic idle current reduction to reduce heat after motor stops moving, software selectable current and idle delay
Microstep Resolution	Software selectable from 200 to 51200 steps/rev in increments of 2 steps/rev
Microstep Emulation	Performs high resolution stepping by synthesizing fine microsteps from coarse steps. Reduces jerk and extraneous system resonances.
Anti-Resonance	Raises the system damping ratio to eliminate midrange instability and allow stable operation throughout the speed range and improves settling time
Torque Ripple Smoothing	Allows for fine adjustment of phase current waveform harmonic content to reduce low-speed torque ripple in the range of 0.25 to 1.5 rps
Encoder Feedback	Optional encoder feedback for stall detection and stall prevention
Non-Volatile Storage	Configurations are saved in FLASH memory on-board the DSP
Approvals	RoHS, CE
Humidity	90% non-condensing
Ambient Temperature	0 - 40°C when mounted to a suitable heat sink
Mass	-S: Approx. 0.2Kg, -Q/C/IP: Approx. 0.3Kg

I/O Specifications

-S	STEP, DIR inputs: Optically isolated, differential, 5 VDC, minimum pulse width = 250 ns, maximum pulse frequency = 2 MHz EN input: Optically isolated, 5-12 VDC OUT output: Optically isolated, 24 VDC max, 10 mA max AIN analog input: Range = 0-5 VDC, resolution = 12 bits
-Q/C/IP	X1, X2 inputs: Optically isolated, differential, 5 VDC, minimum pulse width = 250 ns, maximum pulse frequency = 2 MHz X3-X6 inputs: Optically isolated, single-ended, shared common, sinking or sourcing, 12-24 VDC X7, X8 inputs: Optically isolated, differential, 12-24 VDC Y1-Y3 outputs: Optical darlington, single-ended, shared common, sinking, 30 VDC max, 100 mA max Y4 output: Optical darlington, sinking or sourcing, 30 VDC max, 100 mA max Analog inputs IN1, IN2: Can be used as two single-ended inputs or one differential input. Range =software selectable 0-5, +/-5, 0-10, or +/-10 VDC. Software configurable offset, deadband, and filtering. Resolution = 12 bits (+/-10 volt range), 11 bits (+/-5 or 0-10 volt range), or 10 bits (0-5 volt range).

How To Get Samples Quickly

If you require a specific configuration, and wish for our engineering department to provide samples that meet your critical parameters, please fill out the application data sheet below and sent to MOONS' .

(E-mail : info@moons.com.cn)

Application info. of Linear Step Motors & Linear Slides

Customer Info.

Customer: _____ Contact Info.: _____

Project No.: _____ Telephone: _____

Project Info.

Products Category : ☐ Linear Step Motors ☐ Linear Slides ☐ Stepper Drive

Background: ☐ New Design ,Competitor: _____ ☐ Substitution Project ,Current State: _____

Quantity of samples: _____ EAU: _____ Pain: _____

Expected Delivery Time: _____ Target Price: _____ USD/EA

Design Info.

Installation: ☐ Horizontal ☐ Vertical

Driving Condition: Voltage : _____ V Current : _____ A

Thrust Force: _____ N Working Speed: _____ mm/s

Stroke: _____ mm Repeatability: ± _____ mm

Working Frequency: _____ cycles per hour, _____ hours per day.

Additional Options : ☐ Add Encoder ☐ Add Brake ☐ No additional

Environment : ☐ Indoor(Normal) ☐ Indoor(Dust-free) ☐ Medium or Heavy Dust ☐ Sticky Substance

☐ High Humidity ☐ Salt Spray ☐ High Temp. _____ ℃ ☐ Low Temp. _____ ℃

☐ Vacuum ☐ Others: _____

Industry

☐ Factory Automation ☐ Biochemical Analysis ☐ Medical Science ☐ 3D Printer ☐ Automatic Vending

☐ Semiconductor Mfg. ☐ Lithium Battery Mfg. ☐ Photovoltaic Mfg. ☐ Electron Mfg. ☐ Measuring Instrument

☐ Coordinate Robot ☐ Packaging Equipment ☐ Others: _____

Application Description

(Please describe your application so we can ensure the best possible solution.)

Worldwide Service Map

MOONS' Business Philosophies

• Customer satisfaction

MOONS' aims to enhance customer satisfaction through the provision development of innovative solutions, manufacture of high quality products, on-time delivery and outstanding customer support.

• Employee satisfaction

MOONS' values and respects our employees' input and encourages them to grow together with the company. We have been working to develop tools and trainings to build a thriving culture of excellence internally to support the future growth of our employees and the company.

• Partnership

MOONS' strongly believes in a true integrated partnership between all partners in business including customers, distributors and all these in supply chain. As a result of this philosophy, we endeavor to provide the best value contribution to all partners, which can help our partners improve their competiveness to achieve the win-win situation.

MOONS' Headquarter

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- All specifications and technical parameters of the products provided in this catalog are for reference only, and are subject to change without notice. For details, please contact our sales team.