

Integrated Stepper Motor and Microstepping Drive DSMS DC Series

- › **Cost effective solution**
- › **Available in DC voltages to +75V**
- › **Available in Three Motor Lengths
and Three Frame Sizes**
- › **Torque sizes 22 to 749 N-cm
(32 to 1061 oz-in)**
- › **Windows Interface for Quick and
Easy Parameter Setup**



Baldor's DSMS stepper motors represent an upgrade of the DSM stepper motors, integrating a high torque stepper motor and microstepping drive. New features include:

- › Advanced second generation current control for exceptional performance and smoothness
- › Quieter operation
- › 20 microstep resolutions including degrees, metric and arc minutes
- › Wider operating voltage range
- › USB programming cable for easy setup

The DSMS motor is ideally suited for machine designers who want the simplicity of an integrated solution. The DSMS motors reduce the wiring in the system and the potential for problems due to electrical noise.

DSMS is available in three frame sizes, NEMA 17, 23 and 34, and in 3 stack lengths. This gives a choice of motor torque values from 22.6 N-cm (32 oz-in) for the smallest motor to 749 N-cm (1061 oz-in) for the largest motor.

A 1.8° high torque motor is combined with a microstepping drive, with up to 20 resolution settings from 400 steps to 51200 steps per motor revolution. The resolution is set using a simple Windows configuration tool and USB Parameter Setup Cable. Additionally, the configuration tool allows the motor run/hold current and motor direction to be changed. These settings can be changed on the fly via an integrated SPI (Serial Programming Interface) port and are stored in non-volatile memory.

Operating voltages for DSMS range from +12VDC to +48VDC for the NEMA 17 frame size, and +12VDC to 75VDC for the NEMA 23 and 34 frame sizes.

Interface connections are accomplished using 30 cm (12") flying leads or an optional spring clip style connector (17 and 23 frame only).

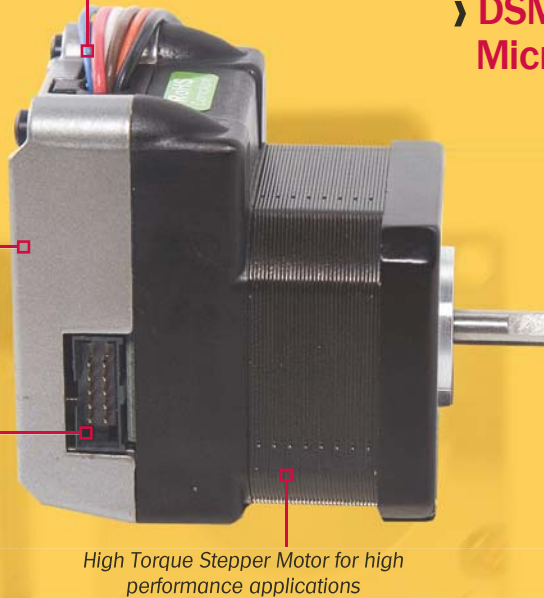
The DSMS motor is a compact, powerful and inexpensive solution that will reduce system cost, design and assembly time for a large range of stepping motor applications. It is ideally suited for use with Baldor's motion controllers, especially the versatile NextMove e100 motion controller.

Connection via flying leads or spring clips*

DSMS - Integrated Stepper Motor and MicroStepping Drive

Integrated microstepping drive electronics improves reliability and reduces system integration costs

SPI connector for setup and configuration. Connects to PC via optional USB converter.



High Torque Stepper Motor for high performance applications

DSMS motors integrate a high torque stepper motor with a microstepping drive to provide a compact stepper solution.

Integrating the stepper drive electronics with the motor reduces machine wiring and improves reliability.

* Dependent on model

Actual size shown

Choice of connectors



The flying lead option brings out all stepper control signals and power to 300 mm (12 in) flying leads.



The P-connector option brings all connections out to spring clips. Wires connect directly to motor. Not available on 34-frame size motor.

Motor Parameters and Parameter Setup Cable

All parameters are set using the Configuration Utility which is included with the USB Parameter Setup Cable (CBL055-501). Parameters can be changed on-the-fly and include the hold current, run current and microstep resolution.

The USB parameter setup cable (CBL055-501) is recommended with the first order. This plugs directly into the USB port on your computer.



CBL055-501: USB to SPI Parameter Setup Cable

Control Knob

The DSMS motor is available with a factory-mounted knob for manual shaft positioning.

Compatible Motion Control Range

Baldor offers a complete range of panel mount and PCI based motion controllers compatible with the DSMS range of motors.

NextMove e100 can coordinate up to 16 axes over the real-time Ethernet network ETHERNET Powerlink. In addition, there is support for 4 stepper axes and 3 standard servo axes. The NextMove ESB controller offers similar capabilities but without the Ethernet interface.

The NextMove PCI-2 controller is a PC based card supporting up to 12 axes of servo or stepper control. The NextMove ES is a EuroCard format rack mounted card that supports 2 servo and 4 stepper axes.

Baldor's motion controllers offer a complete solution from simple indexing style moves to more complex moves such as cam profiles and flying shears.

All NextMove controllers are programmable in Baldor's powerful and flexible multi-tasking Basic like language, Mint®. Mint programming provides the capability to develop simple and complex applications with ease. Mint's Basic like structure will be familiar to many engineers.

Compatible Motion Control Range



NextMove ESB



NextMove PCI-2



NextMove e100



NextMove ES

Motor Specifications



DSMS-17



DSMS-23

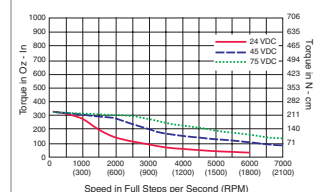
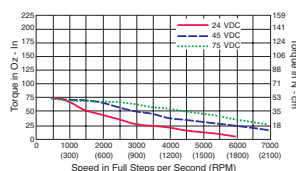
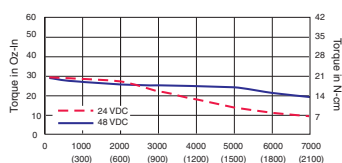


DSMS-34

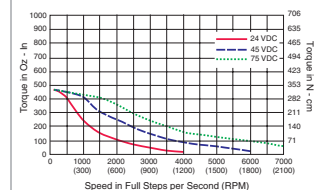
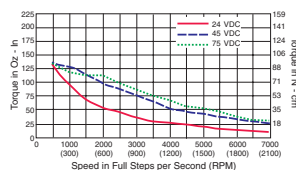
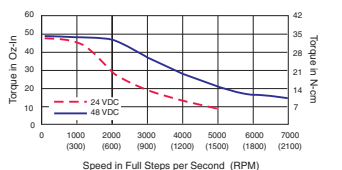
Stack Size »	1	2	3	1	2	3	1	2	3	
	Electrical Specification									
	+12 to 48 VDC			+12 to +75 VDC			+12 to +75 VDC			
	Step Clock, Direction and Enable									
	+5V to +24 VDC Isolated (Sourcing or Sinking)									
	2 MHz (Step/Direction, Quadrature, Step Up/Step Down)									
	200, 400, 800, 1000, 1600, 2000, 3200, 5000, 6400, 10000, 12800, 20000, 21600, 25000, 25400, 25600, 36000, 40000, 50000, 51200									
	Motor Specifications									
	Holding Torque N-cm (oz-in)	22.6 (32)	42.4 (60.0)	52.9 (74.9)	64 (90)	102 (144)	169 (239)	269 (381)	406 (575)	749 (1061)
	Detent Torque N-cm (oz-in)	1.17 (0.82)	2.08 (1.47)	2.45 (3.47)	2.7 (3.9)	3.92 (5.6)	6.86 (9.7)	7.7 (10.9)	10.0 (14.16)	14.0 (19.83)
Rotor Inertia kg-cm² (oz-in-sec²)	0.038 (0.00053)	0.057 (0.00080)	0.082 (0.00116)	0.18 (0.00025)	0.26 (0.00037)	0.46 (0.0065)	1.0 (0.014161)	1.6 (0.02266)	3.4 (0.04815)	
Weight gm (oz)	295 (10.4)	340 (12.0)	431 (15.2)	612 (21.6)	748 (26.4)	1111 (39.2)	1900 (65.6)	2500 (88.0)	4000 (140.8)	
Power Supply Current (max)	2A	2A	2A	2A	2A	2A	4A	4A	4A	

Torque Speed Curves

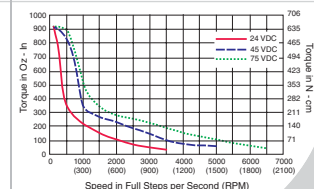
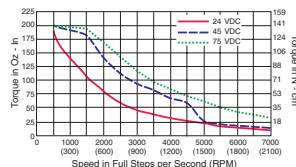
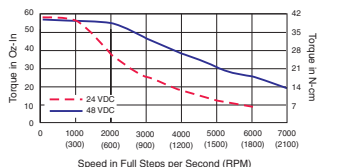
Stack Size 1



Stack Size 2



Stack Size 3



Axial and Radial Load



DSMS-17 - 6.8kg (15lbs) Radial, 3.6kg (8lbs) Axial

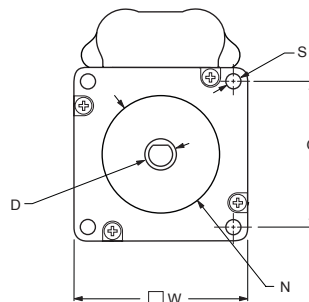
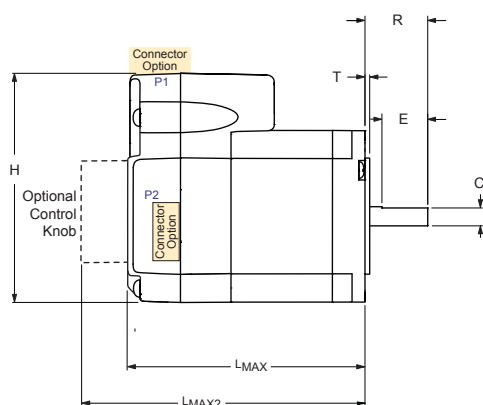
DSMS-23 - 11.3kg (25lbs) Radial, 6.8kg (15lbs) Axial

DSMS-34 - 27.2kg (60lbs) Radial, 13.6kg (30lbs) Axial

Any axial load can potentially move the shaft. If the unit has an encoder we recommend that the axial load to be ZERO.

Note that the radial load is located 1.27cm (0.5 in) from the mounting face

› Mechanical Specifications - Dimensions in mm (inches)



Detailed dimensions are available on request

Stack Size »	DSMS-17			DSMS-23			DSMS-34		
	1	2	3	1	2	3	1	2	3
Length - L _{MAX}	55.9 (2.20)	61.7 (2.43)	70.4 (2.77)	67.3 (2.65)	76.7 (3.02)	98.6 (3.88)	94.2 (3.71)	114.3 (4.50)	154.2 (6.07)
Length (Control Knob Fitted) - L _{MAX2}	70.9 (2.79)	76.7 (3.02)	85.6 (3.37)	85.3 (3.36)	94.7 (3.73)	116.6 (4.59)	112.3 (4.42)	132.3 (5.21)	172.2 (6.78)

	W	H	D	C	R	E	N	T	S	G
DSMS-17	42.7 (1.68)	58.3 (2.30)	5.0 (0.197)	4.5 (0.177)	23.9 (0.94)	15.0 (0.59)	22.0 (0.866)	2.0 (0.08)	M3 x 0.5 Thread	31.0 (1.68) SQ
DSMS-23	56.4 (2.22)	75.2 (2.96)	6.35 (0.25)	5.8 (0.23)	20.6 (0.81)	15.0 (0.59)	38.1 (1.5)	1.5 (0.06)	5.0 (0.197)	47.1 (1.86) SQ
DSMS-34	86.1 (3.39)	94.7 (3.73)	14.0 (0.551)	13.0 (0.512)	37.1 (1.46)	25.0 (0.984)	73.0 (2.874)	2.0 (0.08)	5.51 (0.217)	69.8 (2.74) SQ

Dimensions in mm (inches)

› Ordering Information

D	S	M	S		-		-	
Frame Size				Options				
17 23 34				M - Manual control knob				
Connection Type				Voltage Code				
F - 30cm (12") flying leads - std P - Pluggable clamp terminal ①				A - 48VDC ② B - 75VDC ③				
				Motor size				
				1 2 3				

- (1) Not available on frame size 34
 (2) Only available on frame size 17
 (3) Only available on frame sizes 23 and 34

Example: **DSMS23F-1B**
 Specifies a 23 frame single stack motor (12-75 VDC input), with flying lead

› Accessories

Catalog #	Description
CBL055-501	USB Parameter setup cable
Note: Latest configuration software can be downloaded from www.baldormotion.com/supportme	

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