



➤ Features of DM Series

- Advanced microstep performance
- Resolutions from 200 to 51200 PPR
- Flexible current setting
- Change current during operation
- Comprehensive Dynamic Protection
- Rugged MOSFET power stages
- High efficiency compact design
- Natural convection cooling
- Euromodule 3Ux160mm format
- 5 current ranges available
- Range from 0.5 to 16.5A

➤ Integrated Product Range

SmartDrive Ltd. designs and manufactures a comprehensive range of stepper controllers, drives and power supplies to suit a wide variety of applications. These are supplied as individual OEM units, an SA fully cased stand alone package or a 3U 19" rack custom built to your exact specification.

➤ Advanced Microstep Performance

For demanding applications requiring smooth precision motion, the DM range of microstepping drives are the solution. Designed around surface mount ASIC technology, DM drives increase the number of 'steps' a motor makes per revolution from 200 to 51200. With both binary and decimal resolutions available there's a setting to suit all applications.

➤ Flexible Current Setting

Winding current can be easily set to match the motor characteristics to the load whilst the motor is running—either by a rotary 'hex switch' on the front panel or a resistor connected to the drive backplane. In addition the drive has a boost input which increases current output by 30%, useful for rapid acceleration but can be used continuously.

➤ Comprehensive Dynamic Protection

CDP monitors the drives dynamic environment, and reacts within 5µS to protect itself against all motor winding faults, including a short to winding, short to ground and low inductance winding. In addition there is protection against irregular motor supply voltage, low logic supply and over temperature conditions.

➤ Compact Design

Advanced design using MOSFET technology and a compact high efficiency heatsink enables continuous operation from the Euromodule 3Ux160mm format drive, with natural free air convection cooling normally being sufficient. A standard module width of 9HP (1.8") enables as many as 8 drives plus power supply to be housed in one 19" wide rack, 14 with 6HP DM28/DM55.

➤ Reliability

Conservatively rated components are combined with thorough production testing of all units under simulated fault conditions, and for correct thermal performance. This ensures that each DM drive provides a long life of trouble free operation, even during adverse operating conditions.

DM Series Stepper Drives: Technical Data

> Specification Summary

	Motor Winding Output*		Electrical Supply		Mechanical	
	Maximum Peak/RMS (A)	Minimum Peak/RMS (A)	Motor (Standby) Min/Max(V) @ (mA)	Logic Min/Max(V) @ (mA)	Module Width (inch/HP)	Cooling Requirement
DM28/9	2.8 / 2.0	0.88 / 0.62	27/94 @ 150	18/30 @ 80	1.8 / 9	Convect
DM55/9	5.5 / 3.9	1.8 / 1.2	27/94 @ 180	18/30 @ 80	1.8 / 9	Convect
DM75/9	8.0 / 5.7	0.5 / 0.35	27/94 @ 180	18/30 @ 80	1.8 / 9	Convect
DM110/9	11.0 / 7.8	3.5 / 2.5	27/94 @ 250	18/30 @ 80	1.8 / 9	Convect
DM165/9	16.5 / 11.7	5.3 / 3.7	27/94 @ 330	18/30 @ 80	1.8 / 9	Fan

* reduces to 50% one second after motion stops

> LED Status Indicators

Comprehensive Dynamic Protection

Supply Fault	Motor winding supply greater than 94V Logic supply less than 15V
Overtemp	Heatsinks are above maximum operating temperature of 100°C
W1 Fault	Winding 1 short to ground or interwinding short, winding inductance below 0.5 mH, or motor supply less than 27V
W2 fault	Winding 2 short to ground or interwinding short, or winding inductance below 0.5 mH

Other

Energised	Motor windings are energised
Phase 0	On when drive is in full step position - occurs 200 times / rev. Yellow LED may appear at half brightness under normal fast running conditions

> Drive Control Signals

Inputs (Open Collector NPN 24V 10mA)

Reset	Clears CDP shutdown and Phase 0
Boost	Increase motor current 30%
Direction	Motor shaft direction CW/CCW
Sync	Synchronise chopper frequency
Clock	Step motor (500kHz max)
Energise	Motor current ON/OFF
Set Current	External current control resistor

Outputs (Open Collector NPN 24V 10mA)

Fault	Indicates CDP shutdown condition
Phase 0	Indicates Phase 0 condition

> Microstepping Ratios

Microsteps per step (motor)

Binary
2 / 400
4 / 800
8 / 1600
16 / 3200
32 / 6400
64 / 12800
128 / 25600
256 / 51200

Microsteps per revolution (1.8°)

Decimal
5 / 1000
10 / 2000
25 / 5000
50 / 10000
125 / 25000
250 / 50000

> Mechanical

Dimensions

PCB	160 x 112mm
6HP Drive	172 x 25 x 112mm (DM28 & DM55 option only)
9HP Drive	72 x 42 x 112mm
Mounting	In 3U high Eurorack or pcb posts DIN41612 type D 32 way connector

> Front Panel

