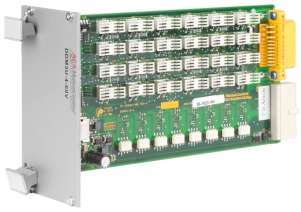
MC4U

PWM Drives



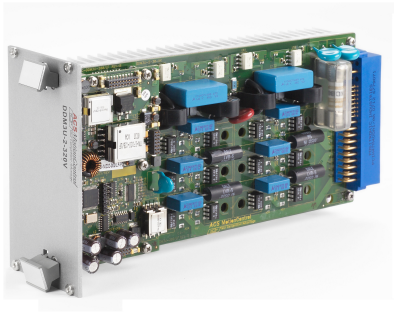
DDM3U-2-60V-4A
DDM3U-4-60V-4A

Up to 4 Universal Drives per Card, 60V, 5A peak, 0.3kW



DDM3U-2-320V-1A
DDM3U-2-320V-2A
DDM3U-2-320V-3A
DDM3U-4-320V-1A
DDM3U-4-320V-2A
DDM3U-4-320V-3A

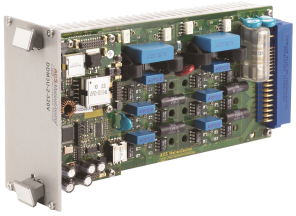
Up to 4 Universal Drives per Card, 320V, up to 6A peak, 0.75kW



DDM3U-2-320V-5A
DDM3U-2-320V-10A
DDM3U-2-320V-15A
DDM3U-2-320V-20A
DDM3U-1-320V-15A
DDM3U-1-320V-30A-SR
DDM3U-1-320V-45A-SR

2 / 1 Universal Drives per Card, 320V, up to 90A peak, 19.1kW

NanoPWM™ Drives



DDM3U-1-100V-15A-NP
DDM3U-1-320V-15A-NP

One Axis NanoPWM™ universal Drive per Card, 100V and 320V, 30A peak, 8.2kW

- Low noise for the best position jitter and velocity smoothness
- Optimal solution for large Gantry tables • Wide power range - 100W to 6kW
- Digital control for easy setup and diagnostics - 100W to 19kW
- Wide range of motos, such as- AC Servo (DC brushless), and DC Brush
- Open and closed loop step motor control with high resolution micro-steps
- ***Nano**PWM* Drive - Subnanometer standstill jitter, nanometer tracking error and optimal velocity smoothness

The MC4U line of universal digital PWM drive modules are specifically designed to provide high performance and cost effective solution for demanding multi-axis applications. The drives are optimized for low noise, providing the best possible stand still jitter and velocity smoothness and are fully programmable for easy setup and diagnostics.

The ***Nano**PWM* drives are the most advanced servo drives available today. It is based on the proprietary and unique ***Nano**PWM* technology that exceeds stand still jitter and tracking error performance that until now has been achieved only with linear drives, with reduced cost of ownership. The low power modules include up to four drives and high power modules include two drives for optimal costs and performance.

The MC4U drive modules support linear and rotary motors covering a wide power range of 100W to 19kW. Each drive can be programmed to control any type of single-, two-, or three-phase motor.

ACS MOTION CONTROL

Drive Characteristics

Part Number Where X represents number of axes	DDM3U-X-60V-4A	DDM3U-1-100V-15A-NP	DDM3U-X-320V-5A	DDM3U-X-320V-10A	DDM3U-1-320V-15A-NP	DDM3U-X-320V-15A	DDM3U-X-320V-20A	DDM3U-1-320V-30A	DDM3U-1-320V-45A	DDM3U-X-320V-1A	DDM3U-X-320V-2A	DDM3U-X-320V-3A
Number of axes	2 or 4	1	1 or 2	1 or 2	1	1 or 2	1 or 2	1	1	2 or 4	2 or 4	2 or 4
Bus Voltage, range [VDC] ±10%	18-60	24-100	24-320									
Phase Current (Cont./Peak), sine amplitude [A]	4/5	15/30	5/10	10/20	15/30	15/30	20/40	30/60	45/90	1/2	2/4	3/6
Phase Current (Cont./Peak), RMS [A]	2.8/3.6	10.6/21.2	3.6/7.1	7.1/14.2	10.6/21.2	10.6/21.2	14.2/28.3	21.2/42.4	31.8/63.6	0.7/1.4	1.4/2.8	2.1/4.2
Peak current time [sec]	1											
Maxi. drive output voltage (phase-to-phase) @ max bus voltage and nominal current, sine amplitude [V] For a given Bus Motor Supply Voltage [VM-DC]	VM-DC x 88%											
Input power @ full output (Cont./ Peak) power at specified voltage [kW]	0.6/1.2 @ 51VDC	1.1/2.2 @ 100VDC	2.8/5.6 @ 320VDC	5.6/11.1 @ 320VDC	3.6/7.3 @ 320VDC	3.6/7.3 @ 320VDC	8.3/11.1 @ 320VDC	7.0/13.4 @ 320VDC	10.2/19.1 @ 320VDC	1.1/2.3 @ 320VDC	2.2/4.4 @ 320VDC	3.4/6.8 @ 320VDC
Max. output power @ nominal bus voltage Cont./ Peak [kW] For 1 axis Total for 2 axes Total for 4 axes	@ 51VDC 0.15 / 0.3 0.3 / 0.6 0.6 / 1.2	@100VDC 1.0 / 2.0 - -	@320VDC 1.36 / 2.7 2.7 / 5.4 -	@320VDC 2.7 / 5.4 5.4 / 10.8 -	@320VDC 3.5 / 7.0 - -	@320VDC 3.5 / 7.0 - -	@320VDC 5.4 / 10.8 8.2 / 21.8 -	@320VDC 6.8 / 12.8 - -	@320VDC 9.9/18.2 - -	@320VDC 0.26/0.52 0.52 / 1.0 1.0 / 2.1	@320VDC 0.5/1.0 1.0 / 2.1 2.1/4.2	@320VDC 0.75 / 1.5 1.5 / 3 3 / 6
Min. load Inductance, at specified bus voltage [mH] At lower bus voltage the minimum inductance value can be reduced proportionally. (Consult factory for using inductance with lower values)	0.25 @ 51VDC	0.5 @ 100VDC	0.5 @ 320VDC									
Heat dissipation at full cont. power [W]	25	73	68	105	116	116	160	235	346	25	45	62
Weight [gram]	290	1,110	840			1,110				800		
Standards	CE, UL, RoHS	UL, RoHS	CE, UL, RoHS		UL, RoHS	CE, UL, RoHS				CE pending, UL, RoHS		

Common Characteristics

Type: digital current control with field oriented control and space vector modulation
Current ripple frequency: 40 kHz
Current loop sampling rate: 20 kHz
Programmable Current loop bandwidth: up to 5 kHz
Commutation type: sinusoidal. Initiation with and without Hall sensors
Switching method: advanced unipolar PWM

Supplies

The drive must be supplied by two power sources
A drive supply and a control 24VDC supply
The drive supply is generated by the MC4U PSM3U modules
During emergency conditions there is no need to remove the control 24VDC source

Control Supply Specification

Control supply input voltage: 24VDC±10%
Maximum input power: 11.4W
Input current: Maximum: 0.6A @ 19V; Nominal: 0.48A @ 24V

Motor Types

Single-phase motors: DC Brush, Voice coil
Two- and three-phase step motor (always using microstepping control)

Drive Protection

- Overvoltage
- Supply missing
- 24VDC control supply missing
- Phase-to-phase short circuit
- Short to ground
- Overcurrent
- Overtemperature protection

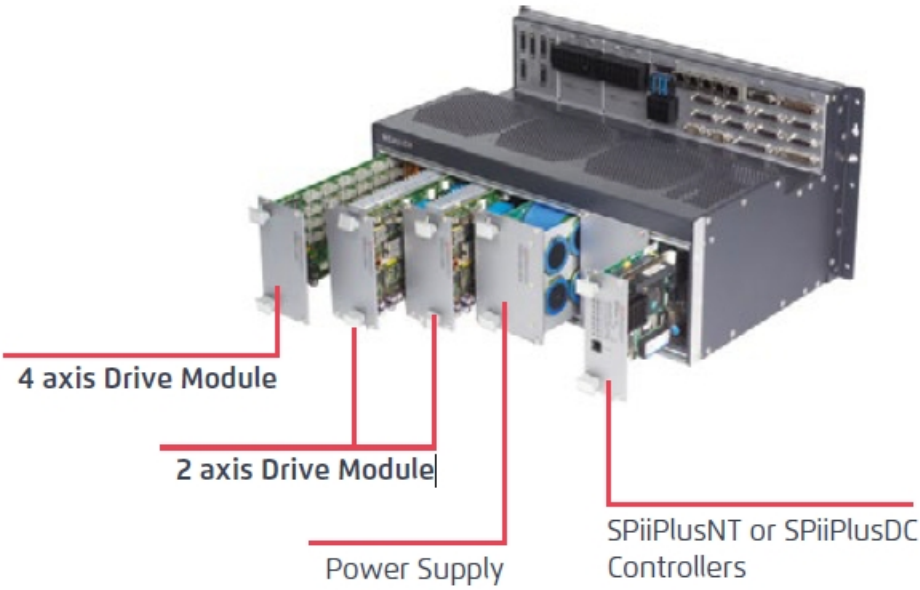
Drive Faults Reported

- Power supply undervoltage
- Power supply missing
- Short circuit
- Overcurrent
- Temperature too high

Ambient Temperature

Operating range: 0 to + 40°C
Storage and transportation range: -25 to +60°C
Humidity (operating range): 5% to 90% non-condensing

MC4U configuration example



Copyright © ACS Motion Control All rights reserved. Ver. 3.14.01a, 08-2024