MC4U Linear Drives

- **Optimal solution for demanding position jitter, high accuracy and smooth velocity and low noise**
- **Two current versions: 8 [A] and 16 [A] peak phase current**
- **Digital control for easy setup and diagnostics**
- **AC Servo (DC brushless), DC Brush motors**
- **Built in dynamic brake activation**

The MC4U line of digitally controlled universal linear drives is specifically designed for applications having demanding specifications for position jitter, velocity smoothness and low electrical noise.

The linear drive is ideal for noise - sensitive environments where PWM switching cannot be tolerated and EMI has to be completely eliminated.

The drive can be programmed to control any type of single or three phase motor. With full digital control, set-up is easy. The MMI Adjuster enables you to achieve the optimal performance within minutes without the need to change resistors and capacitors.

Two current levels are available: 8 [A] and 16 [A] peak phase current. The drives are tuned to operate from 45Vdc up to 60Vdc. Operating from a lower voltage is available upon request.

RoHS

ACS MotionControl
Your Competitive Advantage

Drive Characteristics

The following table summarizes drive characteristics

Part Number	LDM3U-55V-8A		LDM3U-55V-16A	
Number of Axes	1		1	
Bus Voltage, nominal [Vdc] ± 10% Lower voltage is available upon request.	45-60		45-60	
Phase Current cont. / peak, sine amplitude [A]	4 / 8		4 / 16	
Phase Current cont. / peak, RMS [A]	2.83 / 5.66		2.83 / 11.31	
Allowed peak current time [sec]	2		1.5	
Maximum drive output voltage (phase to phase) without saturation For [D] drives: For [A] drives: For [S] drives: For a given Bus Motor Supply Voltage (VM-DC)	@ No Load VM-DC x 80% VM-DC x 80% VM-DC x 95%	@ Full Load VM-DC x 75% VM-DC x 75% VM-DC x 90%	@ No Load VM-DC x 80% VM-DC x 80% VM-DC x 95%	@ Full Load VM-DC x 75% VM-DC x 75% VM-DC x 90%
Input power @ full output cont. / peak power at specified voltage [W]	216 / 433 @51 Vdc		216 / 866 @51 Vdc	
Maximum output power cont. / peak [W] For [D] drives: For [A] drives: For [S] drives:	@51Vdc 138 / 276 138 / 276 158 / 317		@51Vdc 138 / 552 138 / 552 158 / 635	
Minimal load Inductance [mH]	0		0	
Minimal load resistance per phase [Ω]	0.5		0.5	
Maximum power dissipation, cont / peak [W]	204 / 385		204 / 674	
Dimensions: Height, Width, Length [mm]	128 X 46 X 246			
Weight [gram]	830			

Common Characteristics

Digital current control with field - oriented control. The loop is closed by the controller.

Additional options are available upon request:

- Analog current loop control. The loop is closed by the drive
  - *Advantage:* Achieving the best possible jitter
  - Tuning by changing resistors and capacitors on a chip carrier
- Special digital control algorithm to increase maximum speed. The loop is closed in the controller
  - *Advantage:* Increases the actual available output voltage and maximum speed by 15% for the same bus voltage and same power dissipation (higher efficiency)
  - It consumes two controller axes instead of one
- *Lower voltage operation*

Current loop sampling rate: 20 kHz
Programmable Current Loop bandwidth: Adjustable up to 5 kHz
Commutation type: Sinusoidal. Initialization with and without Hall sensors.

Motor Types

Single phase motors: DC Brush, Voice coil
3 phase AC synchronous motor (AC Servo, DC Brushless)
Upon request: 2 phase motors and micro-steppers

Drive Protection

- Over voltage
- Supply missing
- Phase-to-phase short circuit
- Short to ground
- Over current
- Over temperature

Drive faults reported

- Power supply too high
- Power supply missing
- Short circuit
- Over current
- Temperature too high

Standards and Environment Specification

CE (EMC, Safety) certified.
RoHS compliant.
Ambient Temperature:
Operating range: 0 to + 40°C
Storage and transportation range: -25 to +60°C
Humidity (operating range): 5% to 90% non-condensing

How To Order

Example: LDM3U-55V-8A-D

[55V] - 45Vdc to 60 Vdc. Lower voltages upon request

Peak current: [8A] - 8 Amps, [16A] – 16 Amps

*Optional field: Current loop control:
[D] – Digital current loop
[A] – Analog current loop
[S] – Special algorithm to increase maximum speed

*Note: By default, the drive comes with Digital Current Loop control method. Please consult the factory for choosing other current loop control methods.

Warranty

The warranty of this product is according to the Terms and Conditions of Sale and is effective for one year from date of shipment from ACS Motion control. For further warranty information, please see the hardware guide.

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