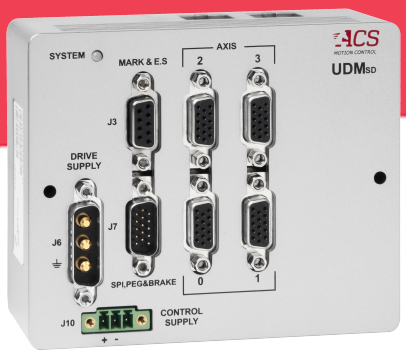
UDMSD



EtherCAT® Dual/Quad Axis Drive Module

- Universal dual/quad EtherCAT® drive modules
- 12Vdc to 48Vdc, up to 2.5A continuous and 5A peak current
- Digital control for easy setup and diagnostics
- Supports any of the following motor types by software settings only: 2, 3 phase permanent magnet (AC servo / DC brushless) with sinusoidal commutation, DC brush, voice coils, closed and open loop step motors
- Feedback
  - 4 digital incremental encoders
  - 2 absolute encoders (optional)
- Digital I/O
  - Inputs: 4 Registration Mark
  - Outputs: 1 PEG, 2 motor brake (24V, 0.5A)
- Small enclosure: 121x100x48 mm^3
  - SPI interface for special feedback devices
  - Sub-D connectors

The UDMSD is a series of compact EtherCAT modules with dual/quad-axis universal drives for servo, step, and voice coil motors with a continuous power range of 10W to 100W (200W peak). The type of motor is selected by the user and can be set differently for each drive.

The UDMSD addresses the needs of demanding multi-axis motion applications with limited space, such as moving inspection heads, small manipulators, and table-top motion stages. The small size, low weight, and minimal cable interface makes the UDMSD ideal for mounting remotely on moving axes. It is available with currents of 1.25/2.5A and 2.5/5A (cont./peak).

The UDMSD supports four digital incremental and two absolute encoders.

It includes a Serial Peripheral Interface (SPI) to support other feedback devices, such as autofocus signals.

The unit is powered by a 12 to 48Vdc drive supply voltage and by a separate 24Vdc ±20% control supply that keeps all logic signals alive during emergency conditions.

All connectors of the motors, the encoders and the I/Os are sub-D type connectors.

The UDMSD is panel or din rail mountable.

The unit is supplied with the drive and control connectors.

Contact us: sales@acsmotioncontrol.com | **www.acsmotioncontrol.com**

ACS MOTION CONTROL

Specifications

	UDMsd A	UDMsd B
Number of axes	2, 4	2, 4
Motor voltage input range [VDC]	12 - 48	
Control voltage input [Vdc]	24 ±20%	
Phase current (Cont./ Peak) Sine amplitude [A]	1.25/2.5	2.5/5
Phase current (Cont./ Peak) RMS [A]	0.9/1.8	1.8/3.6
Peak current time [sec]	1	
Max. output voltage to motor [Vdc]	(Drive supply) x 93%	
Max. RMS input current at 48Vdc [W]	4.3	8.6
Min. load Inductance, at maximum motor voltage [mH]	0.050	
Max. Heat dissipation per axis [W]	0.7	2
Weight [gram]	304	
Dimensions [mm³]	121 x 100 x 48	
Standards	CE (pending), UL	

Ordering Options

Ordering Options	Field	Example User Selection	Values
Number of axes	1	4	2, 4
Continuous Current (Peak is double)	2	A	A - 1.25A, B - 2.5A
Total number of feedback channels	3	4	2,4 (4-axis unit requires 4)
Abosulte encoders type	4	N	N - None, U - User selectable E - EnDat 2.1(digital)/2.2 S - Smart Abs, P - Panasonic, B - Biss-A/B/C, I - SSI
Number of absolute encoders interface	5	0	0, 1, 2
I/O configuration	6	R	N - Outputs & limits: 24V/SOURCE (PNP), Inputs: 24V/SINK (NPN) S - Inputs & limits: 24V/SINK (NPN) Outputs: 24V/SOURCE (PNP) R - Limits: 5V/SOURCE (PNP) Inputs: 5V/SINK (NPN) Outputs: 24V/SOURCE (PNP) T - Inputs & limits: 5V/SINK (NPN) Outputs: 5V/SOURCE (PNP) A - Hall, no limits Inputs: 24V/SINK (NPN) Outputs: 24V/SOURCE (PNP) B - Hall, no limits Inputs: 5V/SINK (NPN) Outputs: 24V/SOURCE (PNP) C - Hall, no limits Inputs: 5V/SINK (NPN) Outputs: 24V/SOURCE (PNP)

Example: UDMsd 4A4N0R

Field		1	2	3	4	5	6
PN	UDMsd	4	A	4	N	0	R

Servo
A standard comprehensive set of powerful algorithms to enhance accuracy, move & settle time, smooth velocity, stability, and robustness
- Advanced PIV cascaded structure
- Loop shaping filters
- Gain Scheduling
- Gantry MIMO control (2.5/5 model only)
- Dual feedback / loop control
- Disturbance rejection control

Optional *ServoBoost™* algorithm that provides better, more consistent servo performance, insensitive to noise and large changes in the system

Drives
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
Protection: over voltage, motor phase-to-phase short circuit, motor phase to ground short circuit, over-current, over-temperature

Supplies
The module is fed by two power sources. A motor supply and control supply. During emergency conditions there is no need to remove the control supply
Drive Supply
Range: 12Vdc to 48Vdc
Current rating should be calculated based on actual load
Mating connector supplied.
Control Supply
Range: 24Vdc ±20%
Maximum input power: 15W
Input current: < 1A
Mating connector supplied.

Motor Types
Two- and three-phase permanent magnet synchronous (DC brushless/AC servo), DC brush, voice coil, two- and three-phase stepper (micro-stepping open or closed loop).

Feedback
Types: incremental digital encoders, optional: absolute encoders
Incremental Digital Encoder: Up to four, one per axis. AqB,I and Clk/Dir, Type: Differential RS-422
Max. rate: 50 million encoder counts/sec
Protection: Encoder error, not connected
Absolute encoders (optional): Up to two. EnDat 2.1(Digital)/2.2, Panasonic, SmartABS, and BiSS-C, SSI
5V feedback supply: Feedback devices are fed by a 5V±5% supply. Total available current to all encoders is 1A

Digital I/O
Safety Inputs: Left and right limit inputs per axis
Type: Single-ended, 24V±20%,opto isolated, source E-Stop: 24V, Max., opto isolated, two terminal, input current 4-14mA. Unused safety inputs can be used as general purpose inputs.
Registration MARK (High Speed Position Capture): Four. Fast, 24V±5%, opto-isolated, 'sink' type. 4-10mA input current.. Can be used as general purpose fast inputs.
Motor Brake Outputs: Two, opto-isolated, 24V±20%, 0.5A per output. Can be used as general purpose outputs
Position Event Generator (PEG): One, RS422. Can be used as general purpose output.
Pulse width 26nSec to 1.75mSec
Maximum rate with RS422 outputs: 10MHz
SPI Interface One. Requires customized software to activate. Consult ACS representative

Environment
Operating range: 0 to +50°C
Storage and transportation range: -25 to +70°C
Humidity (operating range): 5% to 90% non-condensing

Communication
Two EtherCAT ports, In and Out

Accessories
UDMsd-ACC1 Mating connectors' set
UDMsd-ACC2 Din-rail mounting kit
UDMsd-ACC3 Mating connectors with 1.5m cables with flying leads , 4 axes

Certifications
CE: Yes
Safety: IEC 61010-1
EMC: EN 61326-1
UL Certification: UL508C