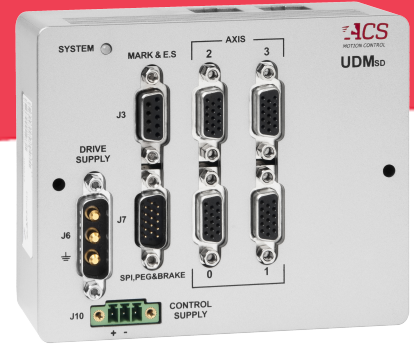


UDM_{SD}



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 mm³
 - > 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 $\pm 20\%$ 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.

Specifications

	UDMs _d A	UDMs _d 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 [mm ³]	121 x 100 x 48	
Standards	CE (pending), UL	

Example: UDMsd 4A4NOR

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).

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)
Absolute 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)

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

UDMs_d-ACC1 Mating connectors' set

UDMs_d-ACC2 Din-rail mounting kit

UDMs_d-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