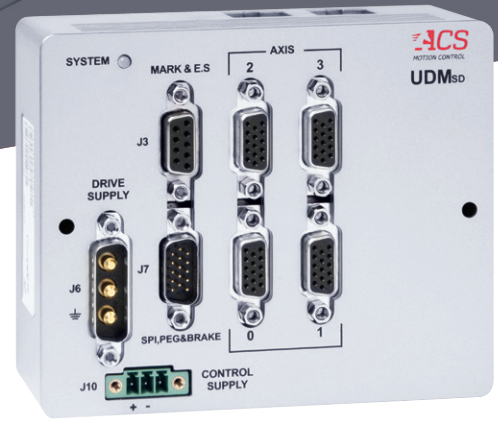


UDM_{SD}



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 UDM_{SD} 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 UDM_{SD} 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 UDM_{SD} ideal for mounting remotely on moving axes. It is available with currents of 1.25/2.5A and 2.5/5A (cont./peak).

The UDM_{SD} 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 UDM_{SD} is panel or din rail mountable.

The unit is supplied with the drive and control connectors.

CE (Pending), **UL**

EtherCAT[®] is registered trademark and patented technology, licensed by Beckhoff Automation GmbH, Germany

**In-Position
Technologies**
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ACS
MOTION CONTROL

Specifications

	UDM _{SD} A	UDM _{SD} 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]	121x100x48	
Standards	CE (pending), UL	

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 (2.5/5model 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

Control Supply

Range: 24Vdc ±20%

Maximum input power: 15W

Input current: < 1A

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 & 2-axis 5A unit requires 4)
Absolute encoders type	4	N	N- None, 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: UDM_{SD}4A4N0R

Field	1	2	3	4	5	6
PN UDM _{SD}	4	A	4	N	0	R

Feedback

Types: incremental digital encoders, optional: absolute encoders

Incremental Digital Encoder: Up to four, one per axis. A&B,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

For the latest updates visit our website at www.acsmotioncontrol.com