

DSA-E₄ SLIM SIZE CANOPEN SERVO AMPLIFIER !

An amplifier for (almost) every application.

The optimized new version of the well established DSA product line offers the best cost-performance ratio ever. The **DSA-E₄** covers a wide power range of brush and brushless drives. A supply voltage of 8.5 V up to 60 V and up to 30 A peak gives maximum flexibility according to the application needs.



Application Range

- ◆ **Pumps**
Speed and volume control
- ◆ **Electric Screwdrivers**
Torque control
- ◆ **Conveyers**
Velocity control
- ◆ **Storage**
Cart positioning
- ◆ **Rigging**
Mechanical stop adjustment
- ◆ **Feeding**
Synchronous component feeding
- ◆ **Winding**
Velocity / torque control of the hub
- ◆ **Dosing**
Injection plunger control
- ◆ **Labeling**
Synchronous label ejection

Did we miss your application?
Please, call us!

We can also offer solutions for multi-axis or complex synchronization applications. zub machine control AG is not just a vendor. We are also your engineering and development partner on demand.

Standardized

Modern bus interfaces and standardized protocols guarantee a maximum of compatibility and long-term investment protection. CANopen is the standard interface. But there are also **DSA-E₄** versions with EtherCAT, Ethernet TCP/IP, Profibus, Modbus, RS485, and RS232 available on request.

Digital

Full digital configuration means 100% reproducibility of all settings and high transparency of all process data. In practice, this means: Quick configuration of series machines and exact control at runtime.

Compact and light-weight

The slim module housing (HxWxD: 75 x 22.5 x 110 mm) enables a space-saving integration in an electrical cabinet. The low weight and the low minimum supply voltage are best prerequisites, particularly for mobile applications.

Product Highlights

- ◆ 8.5 - 60 VDC
- ◆ 8 A / 14 A continuous current
30 A peak current
- ◆ Brush and brushless motors
- ◆ Current / torque, speed and position control
- ◆ CANopen DS402
Optional: EtherCAT, Profibus, Modbus, RS485, RS232

Powerful

The latest MOS-FET technology provides a continuous current of up to 8 A or even 14 A for the version including a heat sink. A peak current of 30 A enables quick motor response and high dynamics.

Optimized for series

The DSA servo amplifier line is designed for usage in machines and devices produced in series:

Pluggable tension spring clamps fit best for low-cost assembly using preconfigured cables, but also for quick service tasks without special tools.

Due to the wide supply range of 8.5 up to 60 VDC and the high continuous and peak current, the DSA can be used for different motor power levels. Such a single component strategy lowers your costs for stock holding and increases your flexibility, especially for special demands.

Please ask for the best priced 12-month contract on a defined number of DSAs.

Small sized Servo Amplifier Module

DSA-E4-6o/8
(Part No. 001340)

Modes of Operation

Torque control	yes	☞ Profile Torque Mode
Velocity control (encoder or hall)	yes	☞ Velocity Mode
Position control (encoder or hall)	yes	☞ Profile Position Mode
OEM custom modes	on request	

Electrical Data

Supply voltage: Logic & I/O	U_B	24 VDC \pm 25 %
Supply voltage: Power stage	U_L	10 ... 60 VDC
Continuous output current	I_{Cont}	DSA-E4-6o/8: 8 A DSA-E4-6o/14: 14 A
Peak output current	I_{Max}	30 A
Efficiency	η_{Max}	95 %
Min. required inductance	L_{Motor}	400 μ H
PWM frequency	f_{PWM}	25 kHz
Current control frequency	f_{CurReg}	5 kHz
Velocity / position control frequency	f_{VelReg}	0.5 ... 2.5 kHz

Position and Velocity Feedback

Encoder signals: A, /A, B, /B, I, /I	Signal type	RS422, 5 V, differential max. 500 kHz
Hall sensors: H1, /H1, H2, /H2, H3, /H3	Signal type	5 V single-ended or differential

Inputs & Outputs

Digital inputs 0 ... 3	U_{In}	Low: 0 ... 5 V / High: 15 ... 30 V
	R_i	5 k Ω
Analogue input 0	$U_{InAnalog}$	-10 ... +10 V (10 Bit)
	R_i	100 k Ω
Digital output 0	U_{Out}	U_B -1 V, high-switching
	I_{Max}	0,5 A, short-circuit proof

Auxiliary Supply

Encoder / Hall power supply	U_{5V}	5 VDC \pm 5 %
	I_{5Vmax}	200 mA

Bus Interfaces

CAN (Standard)	Baud rate	up to 1 Mbit/s
	Protocol, Profile	DS301 V3.0, DSP402 V2.0
Optional interfaces (on request)	EtherCAT, Ethernet TCP-IP, UDP, Profibus, Modbus, RS485, RS232	

Protective Functions

Overtoltage	yes
Overtemperature	yes
Galvanic isolation: CPU - CAN	no
Galvanic isolation: CPU - IO	no

Mechanical Data

Type of housing	Hat rail module (IP20)	
Connector type	Pluggable tension spring clamps	
Dimensions and weight (without connectors)	H x W x D	DSA-E4-6o/8: 75 x 22,5 x 110 mm, approx. 110 g DSA-E4-6o/14: 75 x 40 x 110 mm, approx 260 g

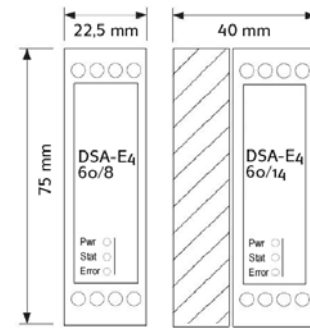
Temperature Range

Operation / Storage	0 ... +50 C / -20 ... +85 C
Humidity (noncondensing)	20 ... 80 %

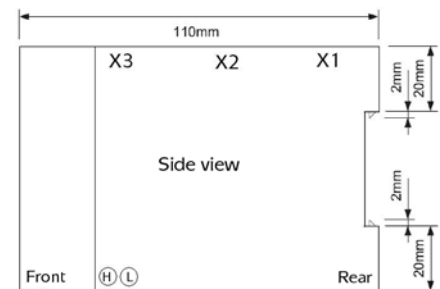
Auxiliary modules for drive positioning and synchronization

Low-cost motion-control modules	MACS3: 1-Axis control unit MACS4: 3-Axis control unit
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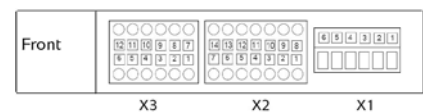
Front view:



Side view:



Top view:



Pin assignment:

CAN + I/Os		Encoder + Hall		Motor + Power	
X3	X2	X1			
1 GND	1 GND	1 PE	1 H1	1 +48V	1
2 -AIN0	2 +AIN0	2 /H2	2 H2	2 GND	2
3 DOUT0	3 DIND	3 /H3	3 H3	3 Ma	3
4 CAN-High	4 DIN1	4 /A	4 A	4 Mb	4
5 CAN-Low	5 DIN2	5 /B	5 B	5 Mtc	5
6 CAN-GND	6 reserv.	6 /Inx	6 Inx		6
		7 GND	7 +Usv		