1-Q-EC Amplifier Summary

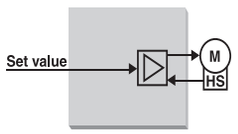
NRND See page 13
Not recommended for New Design

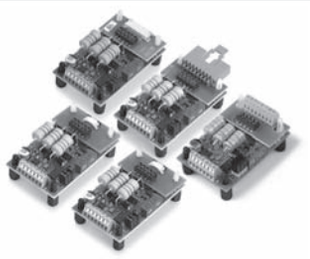
The basic function of EC motors electronics is the electronic commutation of the motor winding. Simple speed controls are possible with and without Hall sensors. A further distinction is made between open or closed loop speed control.

1-Q amplifier functions in motor operation. Direction reverse via digital signal.

Hall sensors

open loop

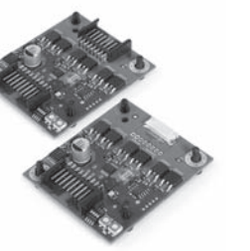




1-Q-EC Amplifier DEC 24/1
- Speed controller with Hall sensors
- Motor speed is adjustable with built-in potentiometer or external set value
- Direction, brake and disable input

Details on page 384

Part Numbers DEC 24/1 **318305** **249630** **381510** **249631** **249632**

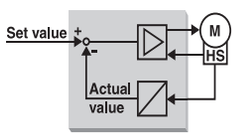


1-Q-EC Amplifier DEC 24/3
- Speed controller with Hall sensors
- Motor speed is adjustable with built-in potentiometer or external set value
- Direction, brake and disable input

Details on page 385

Part Numbers DEC 24/3 **336286** **336287**

closed loop

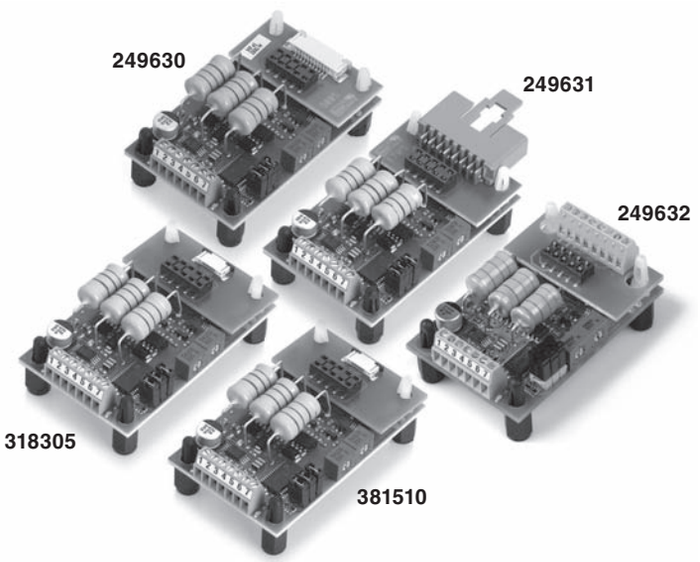


1-Q-EC Amplifier DEC 50/5
- Speed controller with Hall sensors
- Motor speed is adjustable with built-in potentiometer or external set value
- Direction, brake and disable input

Details on page 385

Part Numbers DEC 50/5 **230572**

DEC 24/1 1-Q-EC Amplifier



Operating modes
Digital speed control or open loop speed control operation can be selected with a built-in jumper.

Flexible
Wide supply voltage range 5 - 24 VDC. A range of adapter boards allows the use of different maxon EC micro motors.

Small design
Open and compact electronics board. Easy mounting with hexagonal distance pins with inside thread.

All-round functionality
Direction can be predetermined with a logic signal. Motor shaft can be disabled or slowed down as required. Adjustable maximum current limitation. Status indicator with green LED.

Flexible set value input
Set value input either by internal potentiometer or external, analog voltage. Different speed ranges can be selected using built-in jumpers.

The DEC 24/1 (Digital EC Controller) is a 1-quadrant amplifier for controlling EC motors with Hall sensors with a maximum output of 24 watts.

Technical data page 386
Dimensions and connections page 388

1-Q-EC Amplifier Data

NRND See page 13
Not recommended for New Design

DEC 24/1 1-Q-EC Amplifier
1-quadrant amplifier for controlling EC motors with Hall sensors with a maximum output of 24 watts.

Operating modes	
	Speed controller, open loop speed controller
Electrical Data	
Operating voltage V_{CC}	5 - 24 VDC
Max. output voltage	V_{CC}
Max. output current I_{max}	2 A
Continuous output current I_{cont}	1 A
Switching frequency of power stage	39 kHz
Band width current controller	
Max. speed (1 pole pair)	120 000 rpm
Built-in motor choke per phase	150 µH / 1 A
Input	
Set value	“Speed” 0…5 V (1024 Steps)
Current limit	
Enable	“/Disable” +2.4…24 V
Direction	“Direction” +2.4…24 V
Stop / Brake	“/Brake” +2.4…24 V
Configurable	
Output	
Monitor	“Monitor n”, digital (5 V)
Status reading “Ready”	
Voltage outputs	
Hall sensors supply voltage V_{CC} Hall	+4.5…5 VDC, max. 30 mA
Auxiliary voltages	
Possible adjustments	Jumpers
Trim potentiometer	Speed, I_{max}
Indicator	Green LED
Protective functions	
Blockage protection	Motor current limitation if motor shaft is blocked for longer than 1.5 s
Heat monitoring of power stage	
Dynamic current limit	$I_{max} = 2 \cdot I_{cont}$ is limited to $0.9 \cdot I_{cont}$ after 1 s
Under- / Overvoltage protection	
Ambient temperature and humidity range	
Operation	-10…+45°C
Storage	-40…+85°C
No condensation	20…80%
Mechanical Data	
Weight	Approx. 20 g
Dimensions (L x W x H)	57 x 36 x 24 mm (see page 388)
Mounting threads	4 Hexagonal distance pins with M3 inner thread
Connections	See page 388
Part Numbers	
	DEC 24/1 1-Q-EC Amplifier **318305** DEC 24/1 with FPC pitch 0.5 mm **381510** DEC 24/1 with FPC pitch 0.5 mm **249630** DEC 24/1 with FPC pitch 1.0 mm **249631** DEC 24/1 with a pin con. pitch 2.5 mm **249632** DEC 24/1 with screw type terminal block pitch 2.54 mm
Accessories	