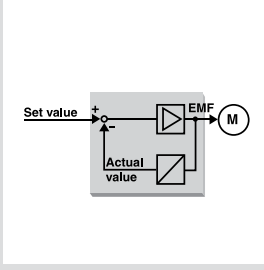
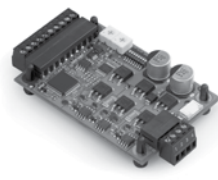
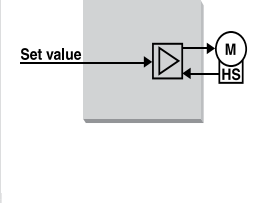

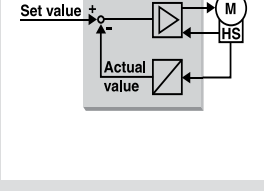



1-Q-EC Amplifier Summary

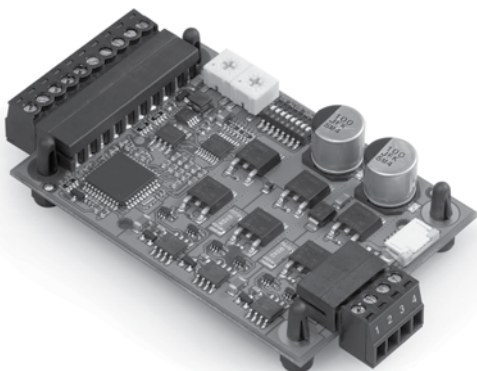
The basic function of EC motors electronics is the electronic commutation of the motor winding. Simple speed controls are possible with and

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.

<p style="writing-mode: vertical-rl; transform: rotate(180deg);">sensorless closed loop</p> 		<p>1-Q-EC Amplifier sensorless DECS 50/5</p> <ul style="list-style-type: none"> - Digital speed control for sensorless EC motors - Selectable control gain - Different start sequences can be selected - Various options for set value - Small design <p>Details on page 322</p> <p>Part Numbers DECS 50/5 343253</p>
<p style="writing-mode: vertical-rl; transform: rotate(180deg);">Hall sensors open loop</p> 		<p>1-Q-EC Amplifier DEC Module 24/2</p> <ul style="list-style-type: none"> - Speed controller with Hall sensors - Motor speed is adjustable with external set value - Direction and enable input <p>Details on page 323</p> <p>Part Numbers DEC Module 24/2 367661</p>
<p style="writing-mode: vertical-rl; transform: rotate(180deg);">Hall sensors closed loop</p> 		<p>1-Q-EC Amplifier DEC Module 50/5</p> <ul style="list-style-type: none"> - Speed controller with Hall sensors - Motor speed is adjustable with external set value - Direction and enable input <p>Details on page 323</p> <p>Part Numbers DEC Module 50/5 380200</p>

DECS 50/5 1-Q-EC Amplifier, sensorless



Controlling sensorless EC motors

The actual rotor position is evaluated by using the Back-EMF sensing technique. Different start sequences with varying start-up procedures can be easily selected.

Operating modes

Digital speed control with selectable regulation gain.

Flexible

Wide supply voltage range 10 - 50 VDC. Pluggable screw type terminal block and a flexprint connector compatible with maxon flat motors.

Small design

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

All-round functionality

Direction can be predetermined using a logic signal. The motor shaft can be disabled or braked, as required. Speed can be monitored through the speed monitor output. Different protective functions safeguard the motor and amplifier. Status indicator with green and red LED.

Flexible set value input

Set value input either by internal potentiometer or external analog voltage. Different speed ranges can be selected using DIP switches.

The DECS (Digital EC Controller Sensorless) is a 1-quadrant amplifier for the control of sensorless EC motors with a maximum output of 250 watts.

Technical data page 324

Dimensions and connections page 326

1-Q-EC Amplifier Data



DECS 50/5 1-Q-EC Amplifier
1-quadrant amplifier for controlling sensorless
EC motors with a maximum output of 250 watts.

Operating modes

Speed controller (sensorless)

Electrical Data

Operating voltage V_{CC}	10 - 50 VDC
Max. output voltage	$0.8 \times V_{CC}$
Max. output current I_{max}	8 A
Continuous output current I_{cont}	5 A
Switching frequency of power stage	50 kHz
Band width current controller	
Max. speed (1 pole pair)	80 000 rpm
Built-in motor choke per phase	

Input

Set value	"Speed" 0...5 V (1024 Steps)
Current limit	
Enable	"Enable" +3.5...50 V
Direction	"Direction" +3.5...50 V
Stop / Brake	"Brake" +3.5...50 V
Configurable	

Output

Monitor	"Monitor n", digital (5 V)
Status reading "Ready"	"Ready" max. +50 V

Voltage outputs

Hall sensors supply voltage V_{CC} Hall

Auxiliary voltages +5 VDC

Possible adjustments DIP switch

Trim potentiometer Speed, I_{max}

Indicator Green LED = READY; red LED = ERROR

Protective functions

Blockage protection Switches off after 5 unsuccessful starting attempts

Heat monitoring of power stage $T > 90^{\circ}\text{C}$

Dynamic current limit

Under- / Overvoltage protection Switches off when $V_{CC} < 9.5\text{ V}$ or $V_{CC} > 59\text{ V}$

Ambient temperature and humidity range

Operation	-10...+45°C
Storage	-40...+85°C
No condensation	20...80%

Mechanical Data

Weight	Approx. 40 g
Dimensions (L x W x H)	73.4 x 50.8 x 21 mm (see page 326)
Mounting threads	4 Hexagonal distance pins with M3 inner thread
Connections	See page 326

Part Numbers

343253 DECS 50/5 1-Q-EC Amplifier sensorless

Accessories

309687 DSR 50/5 Shunt regulator