

DECV 50/5 4-Q-EC Amplifier



The DECV 50/5 (Digital EC Controller Voltage regulated) is a small-sized 4-quadrant digital speed controller for brushless EC motors up to 250 watts. The brushless EC motor must be only equipped with Hall sensors.

Operating modes

Speed controller for speeds from 1000 rpm (not suitable for positioning tasks). Controlled acceleration and braking operation.

Easy start-up procedure

Pluggable screw type terminal block, simple adjustment using DIP switch. Stable speed behaviour when set value and disturbance variable change.

Reduced motor heating

Internally controlled DC link voltage reduces motor current ripple (lower self-heating of motor), particularly suitable for low-impedance motors. No additional motor chokes required.

Flexible

Robust and compact modular metallic housing offers various mounting options. Wide supply voltage range 12 - 50 VDC.

Protection circuit

Protected against overcurrent, overvoltage, undervoltage, short-circuit of motor cables against each other and thermal overload.

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DEC 70/10 4-Q-EC Amplifier



The DEC 70/10 (Digital EC Controller) is a small 4-quadrant digital controller for brushless EC motors up to 700 watts. The brushless EC motor must be only equipped with Hall sensors.

Operating modes

Digital speed controller (via Hall sensor for speeds from 1000 rpm) voltage regulator with IxR compensation or current controller (suitable for positioning tasks) can be adjusted with DIP switch.

Optimised design

Robust and compact metal housing in module form several mounting options.

Easy start-up procedure

Pluggable screw terminal block, no complex adjustment necessary.

All-round functionality

Disabling of motor winding and braking of motor shaft can be controlled. Adjustable maximum current and speed limitation. Status indicator with green and red LED.

Flexible set value input

Set value input by internal or external potentiometer or by analog voltage. Different speed ranges can be selected using built-in DIP-switches. Adjustable speed ramp.

Protection circuit

Protected against overcurrent, overvoltage, undervoltage, short-circuit of motor cables against each other and thermal overload.

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4-Q-EC Amplifier Data



DECV 50/5 4-Q-EC Amplifier
4-quadrant controller for brushless EC motors with Hall sensors up to 250 watts.



DEC 70/10 4-Q-EC Amplifier
4-quadrant controller for brushless EC motors with Hall sensors up to 700 watts.

Operating modes	Speed controller	Voltage regulator with IxR compensation, speed controller, current controller
Electrical Data		
Operating voltage V_{CC}	12 - 50 VDC	10 - 70 VDC
Max. output voltage	$0.95 \times V_{CC}$	$0.9 \times V_{CC}$
Max. output current I_{max}	10 A	20 A
Continuous output current I_{cont}	5 A	10 A
Switching frequency of power stage		50 kHz
Max. efficiency		95 %
Band width current controller		300 Hz
Max. speed (1 pole pair)	60 000 rpm	80 000 rpm
Built-in motor choke per phase		25 μ H / 10 A
Input		
Set value	«Set value speed» 0 ... +5 V (1024 Steps)	«Set value» -10 ... +10 V (1024 Steps)
Current limit	«Set value current» 0 ... +5 V (1024 Steps)	
Enable	«Enable» +2.4 ... 50 V	«Enable» +4 ... 50 V
Direction	«Direction» +2.4 ... 50 V	
Stop / Brake	«STOP» +2.4 ... 50 V	«STOP» +4 ... 50 V
Configurable		«Digital IN» +4 ... 50 V
Output		
Monitor	«Monitor speed», analog, 0 ... 5 V «Monitor current», analog, 0 ... 5 V	«Monitor n» or «Monitor I», -10 ... +10 V
Status reading «Ready»	Open Collector max. 50 V ($I_L < 10$ mA)	Open Collector max. 30 V ($I_L < 20$ mA)
Voltage outputs		
Hall sensors supply voltage V_{CC} Hall	+7 ... 12 VDC, max. 30 mA	+5 VDC, max. 30 mA
Auxiliary voltages	+5 VDC, max. 2 mA	+12 VDC, max. 4 mA; -12 VDC, max. 2 mA
Possible adjustments	DIP switch	DIP switch
Trim potentiometer		n_{max} , Offset, Ramp, I_{max} , n_{gain} , I_{gain}
Indicator	Green LED	Bi-colour LED, green = READY, red = ERROR
Protective functions		
Blockage protection	Error message, if motor shaft is blocked for longer than 0.5 s	
Heat monitoring of power stage	$T > 100^\circ\text{C}$	$T > 115^\circ\text{C}$
Dynamic current limit	$I_{max} = 2 \cdot I_{cont}$ is limited to I_{cont} after 2 s	$I_{max} = 2 \cdot I_{cont}$ is limited to I_{cont} after 2 s
Under- / Overvoltage protection	Switches off when $V_{CC} < 10.3$ V or $V_{CC} > 58$ V	Switches off when $V_{CC} < 9.4$ V or $V_{CC} > 77$ V
Ambient temperature and humidity range		
Operation	0 ... +45°C	-10 ... +45°C
Storage	-40 ... +85°C	-40 ... +85°C
No condensation	20 ... 80%	20 ... 80%
Mechanical Data		
Weight	Approx. 180 g	Approx. 400 g
Dimensions (L x W x H)	95 x 75.5 x 24 mm (see page 299)	120 x 103 x 27 mm (see page 299)
Mounting threads	Flange for M4-screws	Flange for M3-screws
Connections	See page 299	See page 299
Order Number	305259 DECV 50/5 4-Q-EC Amplifier in module housing	306089 DEC 70/10 4-Q-EC Amplifier in module housing
Accessories	309687 DSR 50/5 Shunt regulator	235811 DSR 70/30 Shunt regulator