

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 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.

DEC Module 24/2 1-Q-EC Amplifier



The DEC Module 24/2 (Digital EC Controller) is a 1-quadrant amplifier for controlling EC motors with Hall sensors with a maximum output of 48 watts. Technical data page <AE>.

Operating modes

Digital speed control or open loop speed control operation can be preset by a digital signal.

Excellent price-performance ratio

Reasonably priced 1-Q-EC amplifier optimized for OEM applications in small appliances.

OEM Module

Miniaturized open electronics board. Two connector arrays arranged in a 2.54 mm (0.1") pattern support easy connectivity and integration into the motherboard.

Functionality

Direction of rotation preset by a digital signal. The motor shaft can be enabled or disabled. Adjustable maximum current limitation. Set value speed input through external analog voltage. Status indicator with "Ready"-Output.

Protection circuit

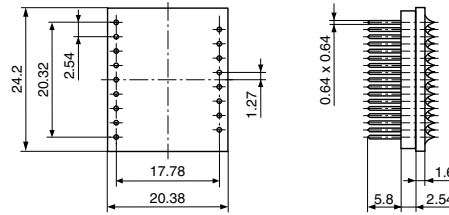
The power amplifier is protected against thermal overload and the control inputs against overvoltage.

DEC Module 24/2

Connections

Male header 8 + 9 = 17 poles
Pitch 2.54 mm

DEC Module 24/2 367661



Dimensions in [mm]

DEC Module 50/5 1-Q-EC Amplifier



The DEC Module 50/5 (Digital EC Controller) is a 1-quadrant amplifier for controlling EC motors with Hall sensors with a maximum output of 250 watts. Technical data page <AE>.

Operating modes

Digital speed control or open loop speed control operation can be preset by a digital signal.

Excellent price-performance ratio

Reasonably priced 1-Q-EC amplifier optimized for OEM applications in small appliances.

OEM Module

Miniaturized open electronics board. Connector arrays arranged in a 2.54 mm (0.1") pattern support easy connectivity and integration into the motherboard.

Functionality

Direction of rotation preset by a digital signal. The motor shaft can be enabled or disabled. Adjustable maximum current limitation. Set value speed input through external analog voltage. Speed can be monitored through the speed monitor output. Status indicator with "Ready"-Output.

Protection circuit

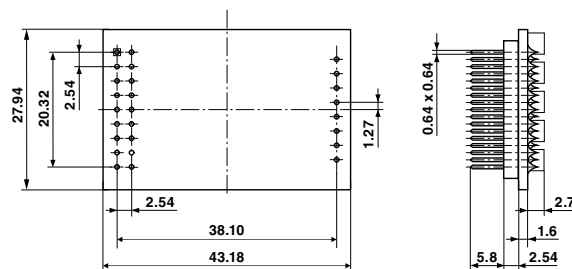
The power amplifier is protected against thermal overload and the control inputs against overvoltage.

DEC Module 50/5

Connections

Male header 1 2 rows, 2 x 9 poles
Male header 2 1 row, 8 poles
Pitch 2.54 mm

DEC Module 50/5 380200



Dimensions in [mm]

1-Q-EC Amplifier Data



DEC Module 24/2 1-Q-EC Amplifier
1-quadrant amplifier for controlling EC motors with Hall sensors with a maximum output of 48 watts.

DEC Module 50/5 1-Q-EC Amplifier
1-quadrant amplifier for controlling EC motors with Hall sensors with a maximum output of 250 watts.

	DEC Module 24/2	DEC Module 50/5
EC motors up to (continuous / maximum)	48 W / 72 W	250 W / 500 W
Sensors	Digital Hall Sensors	Digital Hall Sensors
Operating mode	Speed controller (closed and open loop)	Speed controller (closed and open loop)
Electrical data		
Operating voltage V_{CC}	8 - 24 VDC (optional 5.0 VDC)	6 - 50 VDC (optional 5.0 VDC)
Max. output voltage	V_{CC}	$0.95 \times V_{CC}$
Max. output current I_{max}	3 A	10 A
Continuous output current I_{cont}	2 A	5 A
Switching frequency of power stage	46.8 kHz	46.8 kHz
Max. speed (1 pole pair)	80 000 rpm	80 000 rpm
Input		
Set value	"Speed" 0...+5 V (1024 steps)	"Speed" 0...+5 V (1024 steps)
Current limit	"Current Limit" external resistor against GND	"Current Limit" external resistor against GND
Enable	"Enable" +2.4...24 V	"Enable" +2.4...50 V
Direction	"Direction" +2.4...24 V	"Direction" +2.4...50 V
Output		
Monitor		"Monitor n", digital (5 V)
Status reading "Ready"	"Ready", digital (5 V)	"Ready", digital (5 V)
Voltage outputs		
Hall sensors supply voltage V_{CC} Hall	+5 VDC, max. 35 mA	+5 VDC, max. 35 mA
Possible adjustments	Input "Mode 0" and "Mode 1"	Input "Mode 0" and "Mode 1"
Protective functions		
Blockage protection	Motor current limitation if motor shaft is blocked for longer than 1.5 s	Motor current limitation if motor shaft is blocked for longer than 1.5 s
Thermal protection of power stage	$T > 95^{\circ}\text{C}$	$T > 100^{\circ}\text{C}$
Under- / Overvoltage protection	Switches off when $V_{CC} < 6.5 \text{ V}$ or $V_{CC} > 30 \text{ V}$	Switches off when $V_{CC} < 6 \text{ V}$ or $V_{CC} > 56 \text{ V}$
Ambient temperature and humidity range		
Operation	-10...+45°C	-10...+45°C
Storage	-40...+85°C	-40...+85°C
No condensation	20...80%	20...80%
Mechanical data		
Weight	Approx. 4 g	Approx. 9 g
Dimensions (L x W x H)	24.2 x 20.38 x 12.7 mm (see page <ÜS>)	43.18 x 27.94 x 12.7 mm (see page <ÜS>)
Mounting	mountable on socket terminal strips pitch 2.54 mm	mountable on socket terminal strips pitch 2.54 mm
Connections	See page <ÜS>	See page <ÜS>
Part numbers	367661 DEC Module 24/2 1-Q-EC Amplifier	380200 DEC Module 50/5 1-Q-EC Amplifier

Accessories	370652 DEC Module Eva-Board	370652 DEC Module Eva-Board