

Driver

D30/7.5/4QF-E3xay

General Description

The D30/7.5/4QF-E3xay is a small 4-quadrant digital controller for the control of brushless motor up to 180 W.

Product model	x: Housing	a: Pin # of terminal	Terminal model	y: Direction of terminal
D30/7.5/4QF-E3M10H	M: Metal Housing	10	Molex (430451000)	H: Horizontal
D30/7.5/4QF-E3M3H		3	CJT (A2543WR-3P-2)	
D30/7.5/4QF-E3M4H		4	Molex (430450400)	
D30/7.5/4QF-E3M6H		6	Molex (430450600)	
D30/7.5/4QF-E3M8H		8	Molex (430450800)	
D30/7.5/4QF-E3B10V	B: Bare (no Housing)	10	Molex (430451027)	V: Vertical
D30/7.5/4QF-E3B3V		3	CJT (A2543WV-3P)	
D30/7.5/4QF-E3B4V		4	Molex (430450427)	
D30/7.5/4QF-E3B6V		6	Molex (430450627)	
D30/7.5/4QF-E3B8V		8	Molex (430450827)	

Features:

- Digital speed control - operates as «closed loop» speed controller
- Maximum speed 60,000 rpm (motor with 2 poles)
- Set value input through external analogue voltage (0 ... +5 V)
- Set value input through external PWM 200 Hz
- SCI protocol available
- Firmware control modes: Sensor-based trapezoidal control or Field-Oriented Control (FOC)
- Built-in motor choke
- Direction of rotation preset by a digital signal
- The output stage can be enabled or disabled
- Peak phase current limit: Fixed at 16 A
- Motor speed can be monitored with the «FG» output
- Protection: over-voltage, under-voltage, motor block, short-circuit
- The built-in shunt regulator is designed to limit the supply voltage of the controller
- Compact size with aluminum housing

Technical Specifications:

Input Specifications

Power Supply Input - Nominal	12 - 30 VDC power supply range, ripple < 5%	Applicable to all models
Control Inputs	Analogue speed command: 0 - 5 VDC PWM speed command: 200 Hz Enable signal: +5 VDC Direction signal: +5 VDC Digital input 1 - 4: +5 VDC	Applicable to all models
Position Feedback with Sensor	Interfaces to 3 hall effect position sensors integrated into the motor.	D30/7.5/4QF: -E3M10H, -E3M8H, -E3B10V, -E3B8V
Communication Interface	Serial communication interface	Applicable to all models

Output Specifications

Drive Output	Outputs to one brushless motor: 0.98 * Supply voltage V_{CC} Shunt regulator output «PR»: Max. 3 A Speed output: 20 * output frequency Operation current: 7.5 A, peak phase current limit: fixed at 16 A	Applicable to all models
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PWM Frequency	20 kHz	D30/7.5/4QF: -E3M3H, -E3M4H, -E3M6H, -E3B3V, -E3B4V, -E3B6V
	50 kHz	D30/7.5/4QF: -E3M10H, -E3M8H, -E3B10V, -E3B8V

Operating Mode

Current controller	Open-loop in trapezoidal mode Closed-loop in FOC mode	D30/7.5/4QF: -E3M3H, -E3M4H, -E3M6H, -E3B3V, -E3B4V, -E3B6V
Speed Controller	Support open loop and closed loop. Default closed loop	Applicable to all models
Overcurrent protection	Safe operation enabled only within preset current limits	Applicable to all models

General Specifications

Microprocessor	LCM32F037K6T8	Applicable to all models
Efficiency	96%	Applicable to all models
Mounting	4 x M3 screws	Applicable to all models
Dimensions(L x W x H)	57 x 70.5 x 24.7 mm	D30/7.5/4QF-E3MaH
	66 x 48 x 21 mm	D30/7.5/4QF-E3BaV
Weight	91 g	D30/7.5/4QF-E3MaH
	77 g	D30/7.5/4QF-E3BaV



D30/7.5/4QF-E3M10H



D30/7.5/4QF-E3M3H



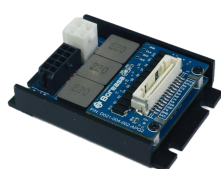
D30/7.5/4QF-E3M4H



D30/7.5/4QF-E3M6H



D30/7.5/4QF-E3M8H



D30/7.5/4QF-E3B10V



D30/7.5/4QF-E3B3V



D30/7.5/4QF-E3B4V



D30/7.5/4QF-E3B6V



D30/7.5/4QF-E3B8V