



General Description

The D30/5(7.5)/4(1)Q-E2 is a small 4-quadrant (or 1-quadrant) digital controller for the control of brushless motor up to 150 W (or 225 W), equipped with digital hall sensors.

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 ... +3.3 V)
- Set value input through external PWM 200 Hz
- SCI protocol available
- Direction of rotation preset by a digital signal
- The output stage can be enabled or disabled
- Motor speed monitoring via «FG» output
- Status indication via «Ready» output
- Motor blocked protection (current limit for blocked motor)
- Protection: over-voltage, under-voltage, motor block, short-circuit
- Standardized connector strip with 2.54 mm and 2 mm pitch
- The built-in shunt regulator is designed to limit the supply voltage of the controller

Technical Specifications

Input Specifications

Power Supply Input - Nominal	12 - 30 VDC power supply range, ripple < 5%
Control Inputs	Analogue speed command: 0 - 3.3 VDC PWM speed command: 200 Hz Current command: 0 - 2 VDC Enable signal: +3.3 VDC Direction signal: +3.3 VDC Digital input 1 - 4: +3.3 VDC
Position Feedback with Sensor	Interfaces to 3 hall effect position sensors integrated into the motor.
Communication Interface	Serial communication interface

Output Specifications

Drive Output	Outputs to one brushless motor: $0.95 \cdot \text{supply voltage } V_{CC}$	
	Speed output: $20 \cdot \text{output frequency}$	
	Shunt regulator output «PR»: Max.10 A	D30/5/4Q-E2, D30/7.5/4Q-E2
	Operation current: 5 A, peak phase current limit: default at 10 A	D30/5/4Q-E2, D30/5/1Q-E2
	Operation current: 7.5 A, peak phase current limit: default at 20 A	D30/7.5/4Q-E2, D30/7.5/1Q-E2
PWM Frequency	50 kHz	

Operating Mode

Speed controller	Default closed loop.
Current Limiting	The drive can safely operate when it exceeds preset current limits.

General Specifications

Microprocessor	STM32F103C8T6
Efficiency	95%
Mounting	Plug-in (female headers RM 2.54 mm and RM 2.0 mm)
Dimensions (L x W x H)	48 x 35 x 12.7 mm
Weight	12 g