

SLT TECHNOLOGY, INC.

4QD Controllers for Electric Scooters and Electric Cars

(Distributed by SLT Technology, Inc.)

4QD-150D, 4QD-200D and 4QD-300D ranges of motor speed controllers for 24v, 36v and 48v motors. They are designed to give currents in the range 100 to 300 amps making them probably the most powerful controllers in their price range. Although small they are fully electronic and need no external relays whatsoever. They have many fail-safes built in for reliable long time use and misuse.

The controllers are wide supply voltage range, 36v and 48v both working also down to below 24v, so there is no separate 24v version, the 36v version should be used.

Models

3 basic models are available in several voltage options:

4QD-150-24/36 or -48: 160 amps cold

4QD-200-24/36 or -48: 210 amps cold

4QD-300-24/36 or -48: 320 amps cold

The 4QD-150, 4QD-200 and 4QD-300 are full Four-Quadrant chopper drivers suitable for speed control of battery operated motors up to 300A and voltages between 24 and 60. They give full control of forward and reverse acceleration and braking. They have been developed in conjunction with a top motor manufacturer and golf buggy manufacturers. There is, as far as we know, no other design of controller of comparable specification at a similar price.

Input is suitable for a joystick (center zero) or for a single ended speed pot plus separate reversing switch (mode is selected on board by a moveable link). There is an on-board adjustment to alter input sensitivity. Alternatively an external pot or switch can be added to give a user top-speed control.

Also on board is an adjustable torque limit, which limits the continuous motor current, to avoid overloading smaller motors.

Direction switching and drive/brake switching is entirely electronic so in a vehicle equipped with a 4QD it is quite permissible to change the direction switch whilst traveling at full forward speed. The 4QD will brake, stop and reverse under full control. There are on board ramp controls to separately adjust acceleration and deceleration rates. With maximum rates the controller is very lively!

Output devices are kept in their safe operating area so failures are rare. However 4QD have considered the possible failure mechanisms. Worst would be an output device failing short-circuit so the drive would go to full speed. Such failures normally cause the MOSFET gate to go short-circuit. This condition is normally detected by internal circuitry and shuts the controller off completely and safely. Control circuit failures could be over-ridden by the ignition switch.

Mechanical construction is such that the controller can be mounted in thermal contact with the vehicle chassis, so this acts as additional heat-sinking, although this is not normally required.

You can buy with confidence as the controllers come with a detailed instruction manual and we give full technical service and advice, covered by the 12 month guarantee.

Specifications

Supply voltage		18v to 45v	24/36v version	
		18v to 66v	48v version	
Over-voltage operation		47v	24/36v version	
		68v	48v version	
Supply current		70mA	-150 and -200	
		100mA	-300	
Voltage drop at 100 amps (typical, full speed)		800mV	-150	
		600mV	-200	
		400mV	-300	
Output voltage	on 24v	0v to +24v		
	on 36v	0v to +36v		
	on 48v	0v to +48v		
Output current	max, cold	160A, 210A and 320A	typical	
	4 minute rating	120 amps	4QD-150-24 without additional heatsink.	
		150 amps	4QD-200-24 without additional heatsink.	
	hot	120A, 160A and 240A		
Current limit adjustment		20% to 100% full current		
Reverse current limit		70% of forward current	for -150 & -200	
		85% of forward current	for -300	
Overheat cut-out		95°C internal temperature		
Acceleration		0.3s to 12 sec, linear	adjustable	
Deceleration		0.3s to 12 sec, linear	adjustable	
'Ignition On' threshold		> 3v		
'Reverse' threshold		> 3v		
Switching frequency		20kHz approximately		
Size (mm)		250 x 103 x 60	for 4QD-150 and 4QD-200	
		280 x 103 x 60	for 4QD-300 series	
Weight	150 and 200	1300g	of which heatsink is 650gm	
	300	1685g	of which heatsink is 725gm	
Input		from Pot or Joystick (5K to 25K) or voltage following		
		Single-ended mode	0-3v (adjustable)	separate forward reverse signal
		Joystick mode	5.5v +/- 1.5v	speed and direction
Mode switch		Single ended or Joystick		
Brake output		1A	over-current operates at about 1.2 amp	