Datasheet of the Easy Servo Driver

RMCS-6609

20 - 80VDC, 10A Peak, Close-loop, No Tuning

Features

- Step and direction control
- Closed position loop for no loss of movement synchronization
- Operating voltage: 20-80 VDC
- Load based output current of 0.1 - 10 A
- High torque at starting and low speed
- No torque reservation
- High stiffness at standstill
- Significantly reduced motor heating
- Smooth motor movement and extra low motor noise
- Quick response, no delay and zero settling time
- No loss of steps; no hunting; no overshooting
- Plug-and-play and no tuning

Descriptions

RMCS-6609 is one of the models in motor series easy servo drives which can take 20-80 VDC operating voltage and output 0.1 -10A continuous load-based current. It is capable of driving NEMA 17, 23, 24 and 34 easy servo motors (stepper motors with encoders) with the position loop closed in real time.

Based on latest DSP technology and adopting Novo's advanced control algorithm, RMCS-6609 easy servo drive applies servo control on easy servo motors. When adopted with an easy servo motor, it combines features of both open loop steppers & brushless servo systems, and offers many unique advances features for excellent motion control system performance.

When an RMCS-6609 easy servo drive is implemented with a novo SC series easy servo motor, there is No Configuration Needed for almost all applications. The output resolution from JK-HSD86 with the output resolution defaulted to output resolution of 2,000 pulses per resolution (equal to 10 microstep in 2-phase stepper systems). Via DIP switches, a user can also easily change the output resolution to one of 15 output resolutions 400 to 51,200 (equal to 2-256 microstep in 2-phase stepper systems). With novo configuration software, ProTuner, an advanced user can also set custom settings of resolution, current & position loop parameters, idle current percentage, etc.

Applications

With many unique advanced features, RMCS-6609 easy servo systems are ideal for many industries to upgrade stepper performance or replace brushless servo systems in many applications.

Jkongmotor OEM clients have successfully implemented RMCS-6609 driven easy servo systems in applications such as small-to-large size CNC routers, CNC mills, plasmas, large-scale laser cutters / engravers, labeling equipments, robotics, gemstone processing machines, pick & place machines, X-Y tables.

Specifications

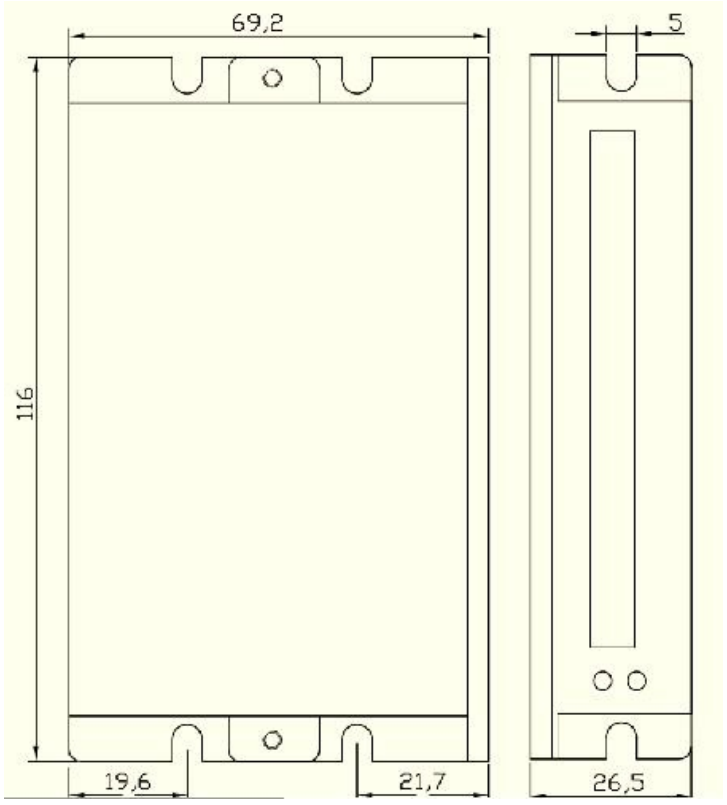
Electrical Specifications

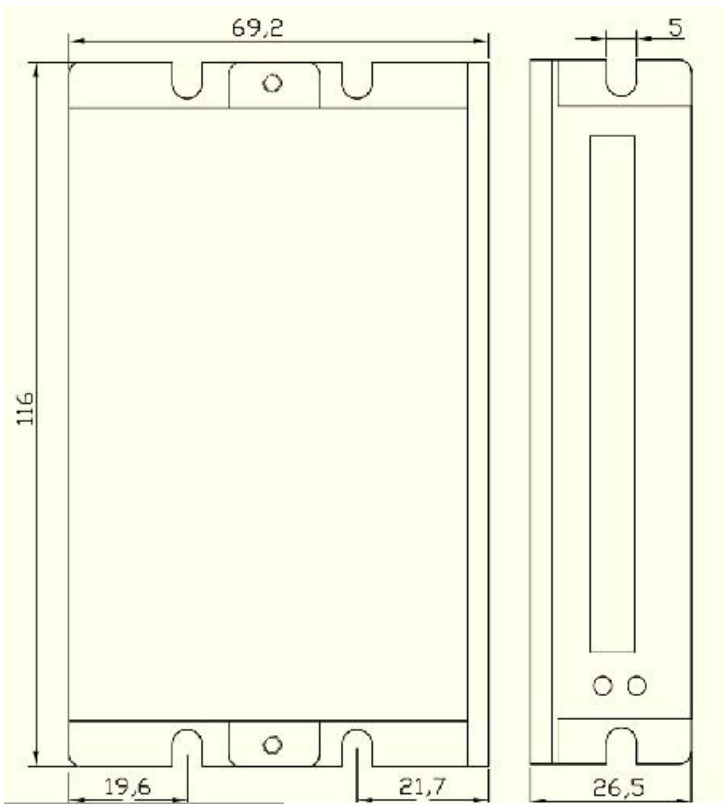
Parameter	Min	Typical	Max	Unit
Input Voltage (RMCS-6609)	20	36 48	50	VDC
Input Voltage (RMCS-6609)	24	36 48	80	VDC
Input Voltage (SC8680C)	24VAC	60AC	80VAC 100VDC	VVDC
Output Current	0.1	-	10(Peak)	A
Pulse Input Frequency	0	-	200	kHz
Logic Signal Current	7	10	16	mA
Isolation Resistance	500	-	-	MΩ

Operating Environment

Cooling	**Natural Cooling or Forced cooling**	
Operating Environment	Environment	Avoid dust, oil fog and corrosive gases
	Storage Temperature	-20℃ — 65℃ (-4℉ — 149℉)
	Ambient Temperature	0℃ — 50℃ (32℉ — 122℉)
	Humidity	40%RH — 90%RH
	Operating Temperature (Heat Sink)	70℃ (158℉) Max
Weight	580 g (20.5 oz)	

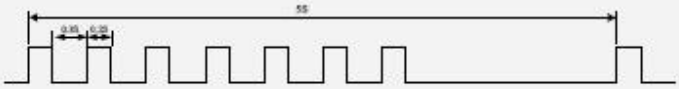
Mechanical Specifications





Protection Indications

The green indicator turns on when power-up. When drive protection is activated, the red LED blinks periodicity to indicate the error type.

Priority	Time(s) of Blink	Sequence wave of RED LED	Description
1st	1		Over-current protection
2nd	2		Over-voltage protection
3rd	7		Position Following Error

Connectors and Pin Assignment

The RMCS-6609 has four connectors, connector for control signals connections, connector for status signal connections, connector for encoder feedback and connector for power and motor connections.

Control Signal _ Screw Terminal

Pin	Name	I/O	Description
1	PUL+	I	Pulse Signal: In single pulse (pulse/direction) mode, this input represents pulse signal, each rising or falling edge active (software configurable, see easy servo drive software manual for more detail); In double pulse mode (software configurable), this input represents clockwise (CW) pulse, active both at high level and low level. 4.5-28V when PUL-HIGH, 0-0.5V when PUL-LOW. For reliable response, pulse width should be longer than 2.0 μ s.
2	PUL-	I	
3	DIR+	I	Direction Signal: In single-pulse mode, this signal has low/high voltage levels, representing two directions of motor rotation. In double-pulse mode (software configurable), this signal is counter-clock (CCW) pulse, active both at high level and low level. For reliable motion response, DIR signal should be ahead of PUL signal by 2us at least. 4.5-28V when DIR-HI 0-0.5V when DIR-LOW. Please note that rotation direction is also related to motor-driver-encoder wiring match. Exchanging both the connection of two wires for a coil and an encoder channel to the driver he connection will reverse motion direction. Or you can toggle the SW5 to reverse the motion direction.
4	DIR-	I	
5	ENA+	I	Enable Signal: This signal is used for enabling/disabling the driver. In default, high level (NPN control signal) for enabling the driver and low level for disabling the driver. Usually left **UNCONNECTED (ENABLED)**. Please note that PNP and Differential control signals are on the contrary, namely Low level for enabling. The active level of ENA signal is software configurable.
6	ENA-	I	

Connectors and Pin Assignment (Continued)

Status Signal Connector – Screw Terminal			
Pin	**Name**	**I/O**	**Description**
7	**ALM+**	O	ALM Signal: OC output signal, active when one of the following protection is activated: over-voltage, over current and position following error. This port can sink or source 70m current at 24V. In default, the resistance between ALM+ and ALM- is low impedance in normal operation and become high when RMCS-6609 goes into error. The active level of al signal is software configurable.
8	**ALM-**	O	

Encoder Feedback Connect _ Screw Terminal			
Pin	**Name**	**I/O**	**Description**
1	**EB+**	I	Encoder channel B+ input
2	**EB-**	I	Encoder channel B- input
3	**EA+**	I	Encoder channel A+ input
4	**EA-**	I	Encoder channel A- input
5	**VCC**	O	+5V @ 100 mA max.
6	**EGND**	GND	Signal ground

Power and Motor Connect _ Screw Terminal			
Pi	**Name**	**I/O**	**Description**
1	**A+**	O	Motor Phase A+
2	**A-**	O	Motor Phase A-
3	**B+**	O	Motor Phase B+
4	**B-**	O	Motor Phase B-
5	**+Vdc**	I	Power Supply Input (Positive) 20-80VDC recommended, leaving rooms for voltage fluctuation and back-EMF.
6	**GND**	**GND**	Power Ground (Negative)

Microstep Resolution (SW1-SW4)

Steps/Revolution	SW1	SW2	SW3	SW4
Software Configured (Default 400)	on	on	on	on
800	off	on	on	on
1600	on	off	on	on
3200	off	off	on	on
6400	on	on	off	on
12800	off	on	off	on
25600	on	off	off	on
51200	off	off	off	on
1000	on	on	on	off
2000	off	on	on	off
4000	on	off	on	off
5000	off	off	on	off
8000	on	on	off	off
10000	off	on	off	off
20000	on	off	off	off
40000	off	off	off	off

DIP Switch Settings (Continued)

Motor Direction (SW5) and Pulse Mode (SW6)

	Function	On	Off
SW5	Default DirectionDi *Note*	CW (clock-wise)	CCW (counter-clock-wise)
SW6	Pulse Mode	CW/CCW	PUL/DIR

Note: The actual direction is related to the DIR level. You can toggle SW5 to change it once.

Current Control

The motor current will be adjusted automatically regarding to the load or the stator-rotor relationship. However, the user can also configure the current in the tuning software. The configurable parameters include close-loop current, holding current, encoder resolution, micro step and etc. There are also PID parameters for the current loop, and they have been tuned for motor's matching motors so the user does not need to tune them.