MC3336 Series Low Volt AC Controller Manual

Ⅰ, Product Introduction

The Enpower model series MC3336 is an AC motor controller for low volt electric vehicles. It utilizes first-class AC motor control algorithm method to achieve a wide speed range and torque precise control of the motor.

Compared with the DC motor drive system, the AC system can achieve a wider range of motor speed output to improve the vehicle traveling speed. AC motor is brushless, totally enclosed, Maintenance-free, system reliability improve greatly. AC system can achieve higher efficiency, flexible energy feedback control, Which all enhance the driving range of vehicle effectively?

The Enpower MC3336 series are widely used in the short-distance pure electric passenger vehicles, electric sightseeing cars, Electric van, small electric trucks, special electric vehicles and so on.

Ⅱ, Product Features

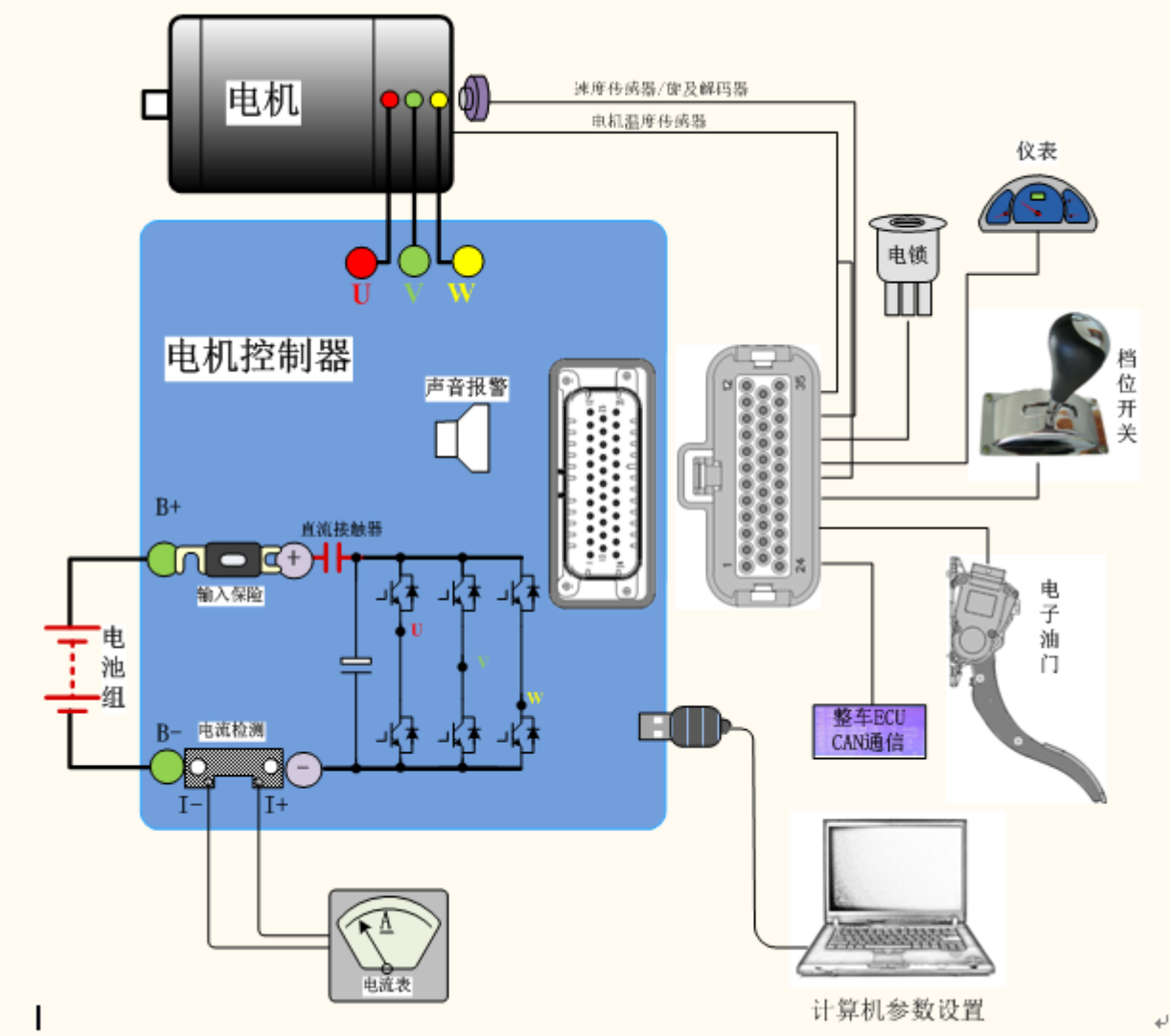
- Taking US company TI’s DSP as the main chip, which help to establish a good platform for achieving the motor speed control algorithms.
- Selected international advanced high-power MOSFET tube as a power device, revealing a low-noise, high efficiency of energy conversion.

- Using advanced vector control algorithm to achieve precise control of the motor torque, speed by the controller.
- Brake energy feedback control, improved the vehicle's driving range, for different customers’ requirement.
- Anti-slide function for slope road improving driving safety.
- Flexible adjustment of parameters, adjusting the steering performance of the vehicle to meet the requirements of different road conditions and the use of a variety of environments.
- Buzzer various failures, easy maintenance.
- Perfect protection function for accelerator fault, undervoltage, overvoltage, overcurrent, overheating improving system reliability.
- CAN bus communication
- It can be made customer-design to meet the customer's individual requirements.

Ⅲ， Specifications and Technical Parameters

Technical Parameter			
Specifications		**MC3336-4840**	**MC3336-7240**
		48V	72V
Electrical performance	Input volt range（*DC/V*）	***30~60***	***50~96***
	Max. Output current（*AC/A*）	***400***	***400***
	Rated output current（*AC/A*）	***120***	***120***
	Controller starting volt（*DC/V*）	***35***	***48***
	Max. Output power（*KW*）	***20***	***30***
Operating temperature		*-30℃------- 55℃*	
Protection Grade		*IP65*	
INS. Class		Between Input Circuit or Output Circuit and Main Case:DC 1000V,Leakage Current: 0.05mA,Insulation Resistance:20MΩ	
Ambient Temperature		*-40℃------70℃*	
Efficiency		*98%*	
Cooling		Air-cooling	
Shock and Vibration		*GB/T2423*	
The Control Method of The Motor		The Vector Control Algorithm with Speed Sensor	
Communication protocol		*CAN*	
Dimension		As attached	
Cooling requirement		The Controller Must be Installed in the Place of Good Ventilation ,or Forced Cooling Must be Added.	

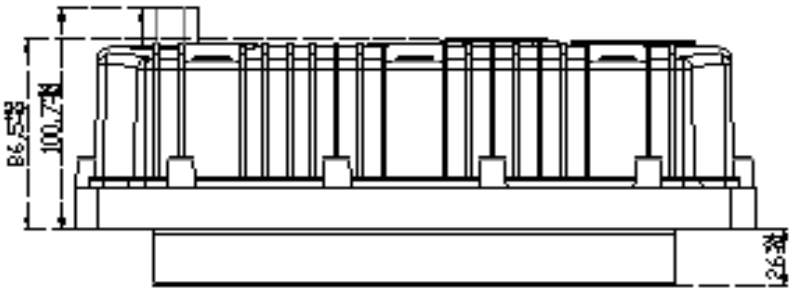
Ⅳ， Power Wiring of AC Motor Controller



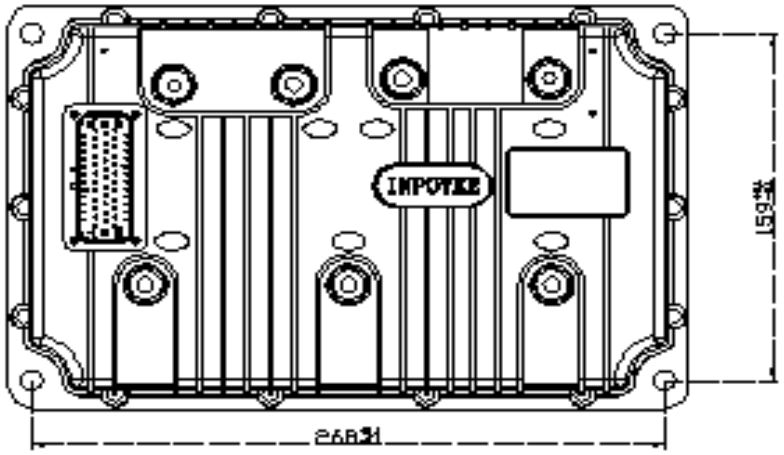
Ⅴ， Application Example:

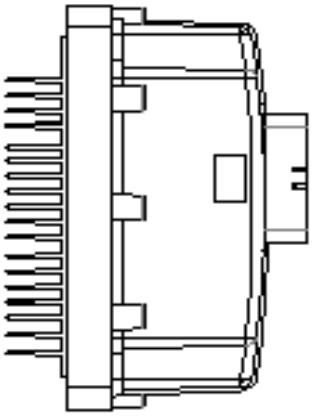
Voltage	***48V***	***72V***
the weight of the car with full load	***800kg***	***1.2T***
Tyre Radius	***0.25m***	***0.25m***
Gear Ratio	***18:1***	***8.0:1***
Max Speed	***25km/h***	***75km/h***
The output current with Max Speed	***70A***	***115A***
Normal Speed	***20km/h***	***55km/h***
The output current with Normal Speed	***50***	***60A***
Climbing Ability(loaded)	***25%***	***25%***
0~50km/h Accelerate		***9s***

Ⅵ， Installation size(mm)：



单位： MM
数量： 1PCS





Ⅶ， Trouble Shooting:

Fault Code	sound	Possible causes
0	No sound	All good
1	continual beep	1, Pedal has been pushed down when turning on the KSI . That means all good. 2, Pedal connection wrong or signal mismatching with controller
2	1 long 2 short	Ignition failed (restart)
3	1 long 3 short	Over current (motor wiring short circuit, bolt loosened or encoder signal fault)
4	1 long 4 short	Controller overheat(stop and cooling)
5	1 long 5 short	Relay lose or bad connection on terminal B+(check out if value between B+ and B- is as same as battery volt)
6	1 long 6 short	Current detectors broken (depot repair)
7	1 long 7 short	Encoder fault
8	1 long 8 short	BMS fault (which is just for lithium Battery system)

9	1 long 9 short	Low volt(Check the battery voltage)
10	1 long 10 short	Over volt(Check the battery voltage)t
11	1 long 11 short	Motor overheat (stop for cooling or check the wiring of tem. sensor on motor)
13	1 long 13 short	Pedal fault 1, There is no lock signal output when pushing pedal. 2, No pushing on pedal but there is signal (more than 0.5v)output. 3,Output signal exceed 4.8V(check out the pedal signal output.