

Product Description

The **ZIM1636-18-12** is an All-in-One mini servo motor for industrial/medical applications with compact system mechanism and accurate control requirements of torque/speed/position. It integrated a servo driver module ZID16-18-12-USA in a slot-less BLDC motor with 16mm diameter, 18W continuous power with 12V input voltage.

VCOR's unique and advanced algorithm of FOC control based on the on-board angular sensor makes it to be excellent for applications with requirements of high speed/position accuracy, fast response, high efficiency, low audible noise, low mechanism vibration, low torque ripple, etc.

Two-wire USART interface, which means a minimum wiring for system connection, makes **ZIM1636-18-12** to be very concise and easy to use for motion control.

Customized service for gear installation, software and protocol is also available, contact www.vcor.com.cn for more details.

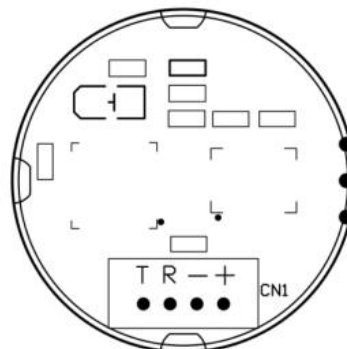
Features & Benifits

- Typical 6V Input Voltage
- Wide 3.5V~12V Input Range
- Up to 18W Power with 12Vin
- Adaptive Control-loop Parameters Adjustment with Different Input Voltage
- FOC Control for High Efficiency, Fast Response and Low Noise
- Position/Speed/Torque Control Mode
- On-board Angular Sensor with In-axis Mounting
- 0.1° Resolution for Position Mode
- <1% Ripple for Speed Mode
- Two-wire USART Interface
- Programmable OCP, OTP, Lock Protection
- Auto/Mannual-calibration Function to Solve the Effect Caused by Magnet/Board Misalignment
- Motor Diameter: 16mm

Recommended Operation Condition

Input Voltage Range.....	3.5V~12V
Typical Input Voltage.....	6V
USART Rx/Tx Voltage Level.....	0V~3.6V
Operation Temperature.....	-20°C - 70°C
Storage temperature.....	-40°C - 125°C

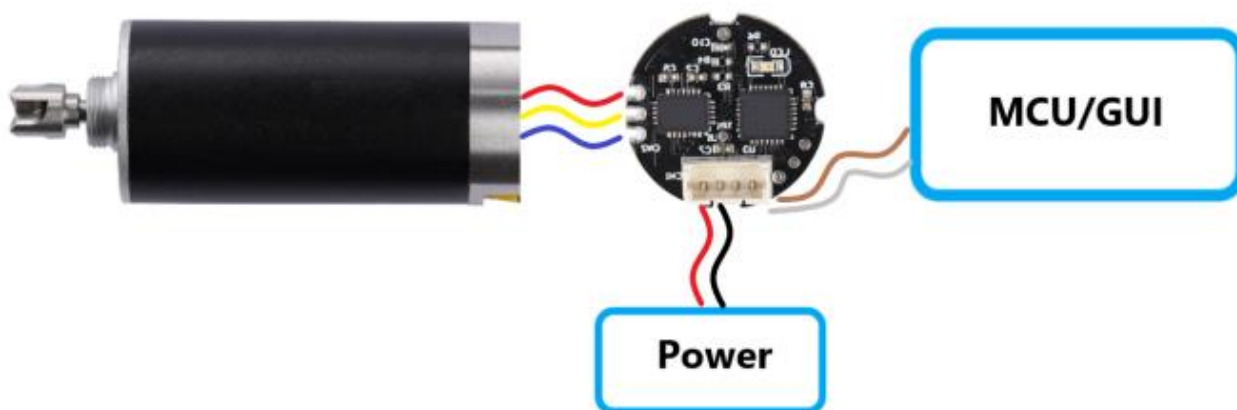
Interface & Connection



CN1		
Pin#	Symbol	Definition
1	+	VIN. Connect to the positive pole of input voltage.
2	-	GND. Connect to the negative pole of input voltage.
3	R	RX. Receive port of USART interface.
4	T	TX. Transmit port of USART interface.

Motor Control & Communication

The **ZIM1636-18-12** communicates with external system through a 2-wire USART interface, which helps to minimize the wiring number. As shown in below picture, only 4 wires are required for the connection between **ZIM1636-18-12** and the system, two wires for power connections and the other two wires for USART communication with system MCU or GUI.



By communicating with USART, the system can give speed/position control command to the motor, inquire the motor operation status(including the motor speed, the motor current and the rotor position), program the threshold of OCP, etc.

The communication Baud rate is set to be 115200, and the communication protocol is illustrated in a dedicated instruction file.

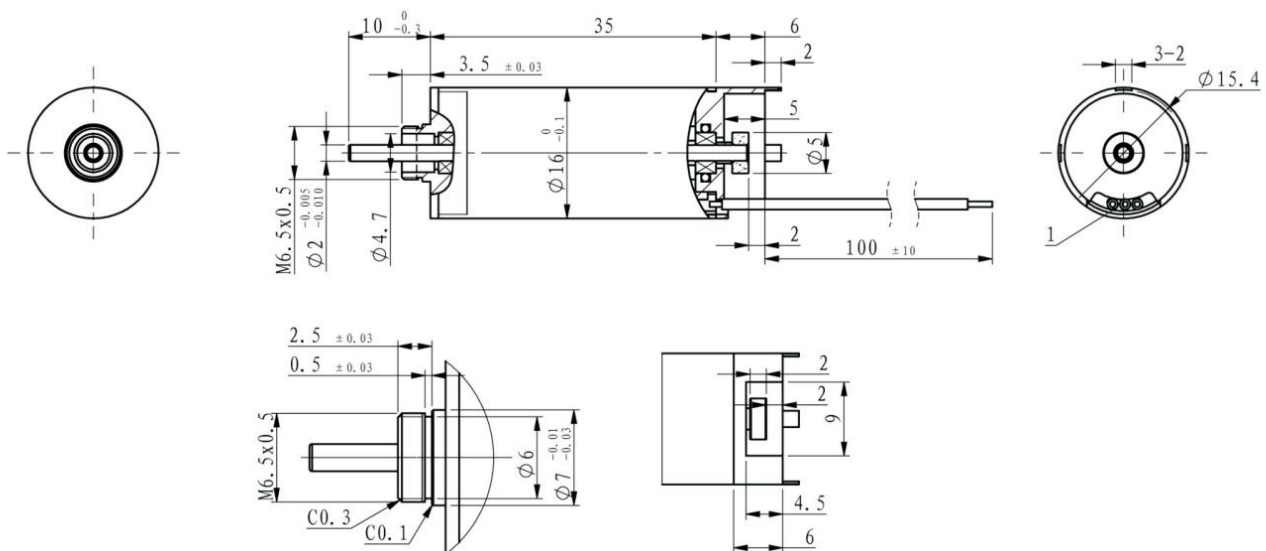
Motor Parameters

Basic Motor Parameters		
Parameters	Value (Typ.)	Unit
Nominal Voltage	6.0	V
No Load Speed	12000	rpm
No Load Current	0.17	A
Stall Torque	22.30	mNm
Stall Current	5	A
Terminal Resistance	1.20	Ω
Torque Constant	4.62	MNm/A

Rated Operation Point		
Parameters	Value	Unit
Torque	3.48	mNm
Speed	10130	rpm
Current	0.92	A
Efficiency	67	%

Max. Power Output Point		
Parameters	Value	Unit
Torque	11.17	mNm
Speed	6000	rpm
Current	2.58	A
Efficiency	45.2	%

Motor Dimension Information



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