

TSL-GB1806

Brushless DC Frameless Torque Motor

Optional magnetic encoder configurations available.



Rated Voltage 12 V	Rated Torque 0.03 N.m	Rated Speed 800 RPM	Motor Size Ø22 × 20.5 mm
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High Torque Density

Compact frameless design for continuous torque output.

High Performance

Smooth running with stable speed response.

Precise Control

Low inertia rotor for accurate dynamic response.

Encoder Options

AS5600 and AS5048A magnetic encoder configurations.

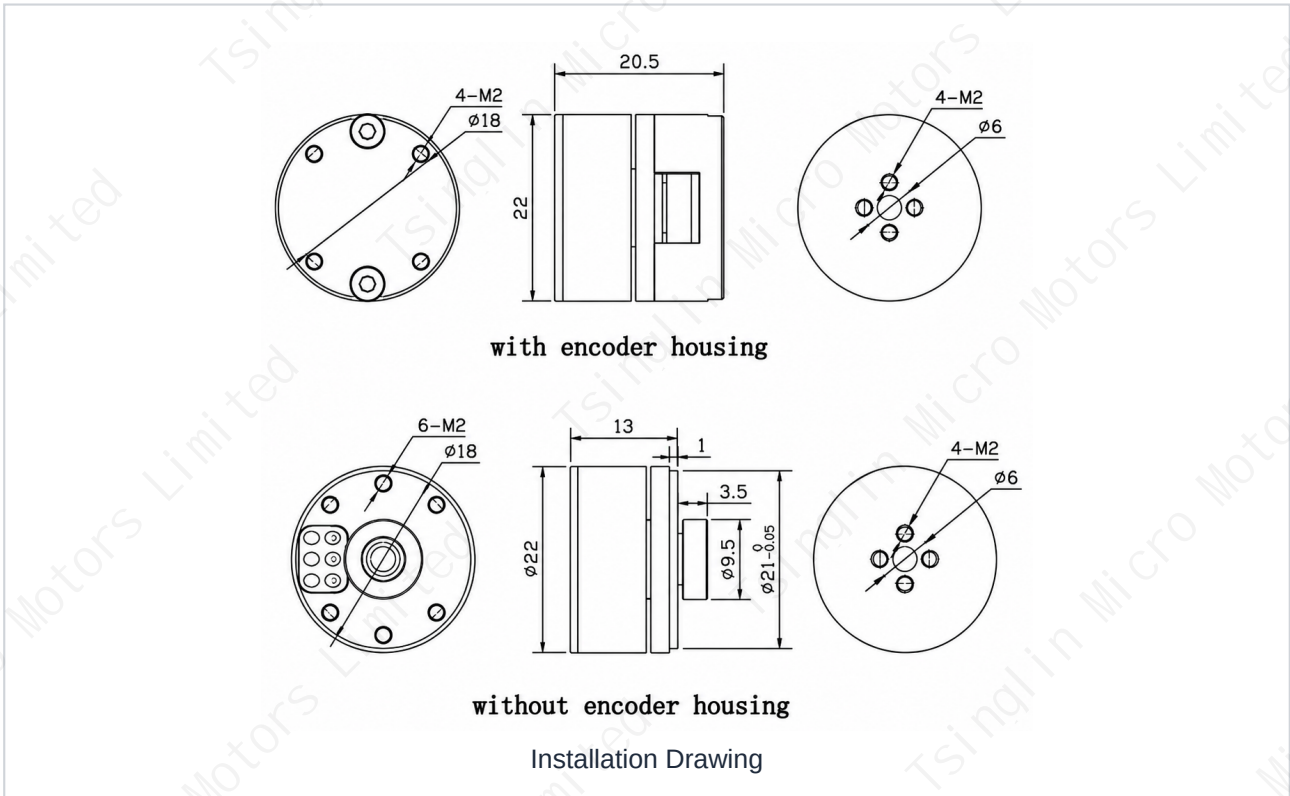
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Brushless DC Frameless Torque Motor

TSL-GB1806

Gimbal Motor | GB Series

2. Installation Drawing



Drawing	TSL-GB1806
Version	V1.0
Updated	2025-07-10

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3. Product Parameters

Detailed performance specifications of the TSL-GB1806.

Parameter	Unit	TSL-GB1806
Rated Voltage	V	12
Rated Current	A	0.66
Rated Torque	N.m	0.03
Rated Speed	RPM	800
Peak Speed	RPM	5017
Stall Torque	N.m	0.06
Stall Current	A	1
Winding Turns of Motor	T	45
Phase Resistance	Ω	5.9
Phase Inductance	mH	1.3
Speed Constant	rpm/V	395
Torque Constant	N.m/A	0.06
Rotor Inertia	g.cm ²	40
Number of Pole Pairs	Pairs	7
Motor Weight without Encoder	g	19.9
Motor Weight with Encoder	g	25
Encoder Type	-	AS5048A / AS5600
Working Temperature	°C	20 to 80
Max Demagnetization Temperature	°C	120

Note: The above parameters are for reference only and can be customized according to customer requirements.

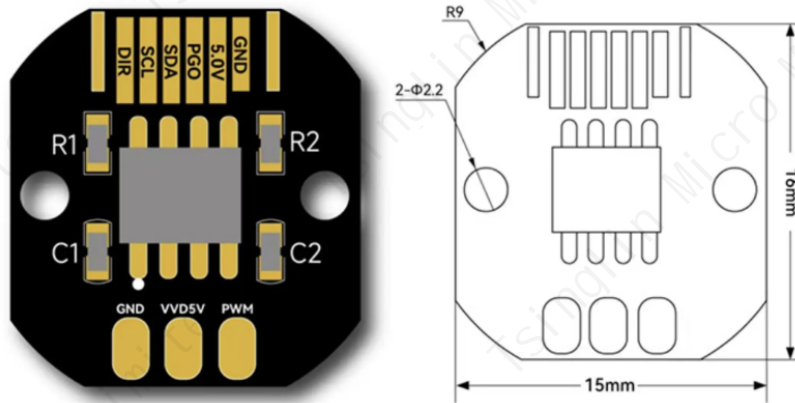
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4. AS5600 Encoder Board Option

The magnetic encoder board is an optional customer-selectable configuration.

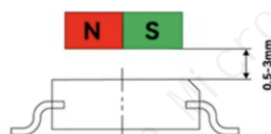
AS5600 编码器板文档 AS5600 Encoder Board Document



引脚描述 Pin Description

名称Name	类型Type	说明Description
GND	电源(Supply)	电源地(Ground)
5.0V	电源(Supply)	5V直流电源(supply in 5V)
PWM	输出(Output)	460HzPWM输出(460HzPWM utput)
PGO	输入(Input)	编程引脚(Program option)
SDA	输入/输出(Input/Output)	I ² C 数据引脚(I ² C Data)
SCL	输入(Input)	I ² C 时钟引脚(I ² C Clock)
DIR	输入(Input)	方向(Direction polarity)

磁铁安装要求 Magnet Installation Requirements



根据磁铁，磁铁与编码器表面距离为 0.5-3mm

According to the magnet, the distance between the magnet and the encoder surface is 0.5-3 mm.

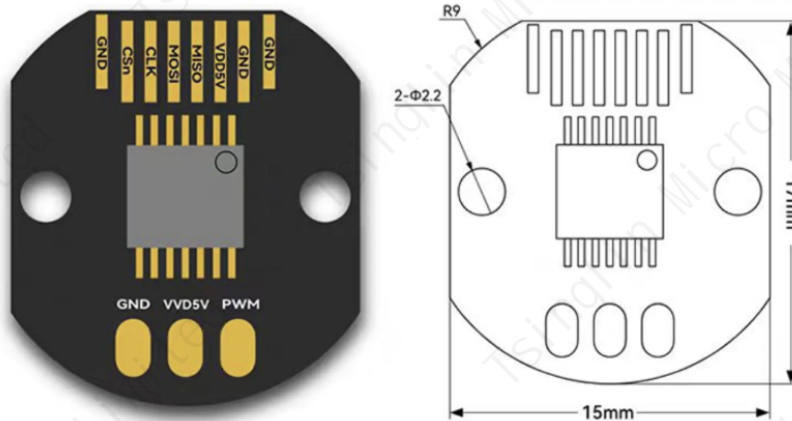
TSL-GB1806

Gimbal Motor | GB Series

5. AS5048A Encoder Board Option

The magnetic encoder board is an optional customer-selectable configuration.

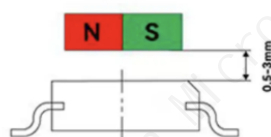
AS5048A 编码器板文档 AS5048A Encoder Board Document



引脚描述 Pin Description

名称Name	类型Type	说明Description
GND	电源(Supply)	电源地(Ground)
CSn	数字输入(Digital input)	SPI片选信号, 低有效(SPI chip select, active low)
CLK	数字输入(Digital input)	SPI时钟信号(SPI clock)
MOSI	数字输入(Digital input)	SPI MOSI信号(SPI master data output, slave input)
MISO	数字输入(Digital input)	SPI MISO信号(SPI master data input, slave output)
VDD5V	电源(Supply)	5V直流电源(supply in 5V)
PWM	输出(Output)	460HzPWM输出(460HzPWM utput)

磁铁安装要求 Magnet Installation Requirements



根据磁铁, 磁铁与编码器表面距离为 0.5-3mm

According to the magnet, the distance between the magnet and the encoder surface is 0.5-3 mm.