

Jieotwice GIM6010-8

Jieotwice GIM6010-8 Mini Planetary Gear Motor Instruction Manual

Comprehensive guide for installation, operation, and maintenance.

1. INTRODUCTION

This manual provides essential information for the safe and efficient use of the Jieotwice GIM6010-8 Mini Planetary Gear Motor. This high-torque, lightweight motor is designed for applications such as robotic exoskeletons, robotic dog joints, and other precision drive control systems. Please read this manual thoroughly before installation and operation.

2. SAFETY INFORMATION

Adherence to the following safety guidelines is crucial to prevent injury and damage to the motor or connected equipment.

- Ensure the power supply voltage matches the motor's rated voltage (DC 24V, range 16-28V). Incorrect voltage can cause damage.
- Disconnect power before performing any installation, maintenance, or troubleshooting.
- Avoid exceeding the rated torque (5 N.m) and blocking torque (11 N.m) to prevent motor overload and damage.
- Operate the motor within the specified operating temperature range of -20°C to 80°C.
- Protect the motor from excessive moisture and dust. The motor has an IP54 rating, indicating protection against dust ingress and splashing water.
- Ensure proper mechanical mounting to prevent vibration and misalignment, which can lead to premature wear.
- Do not attempt to disassemble the motor or drive unit unless specifically instructed by a qualified technician.

3. PACKAGE CONTENTS

Verify that all items are present and undamaged upon unpacking.

- 1 x Jieotwice GIM6010-8 Mini Planetary Gear Motor

4. SPECIFICATIONS

Detailed technical specifications for the GIM6010-8 motor:

电机参数

额定电压(Nominal Voltage)	V	24
电压范围(Voltage Range)	V	16~28
功率(Power)	W	65
额定扭矩(Nominal Torque)	N.m	5
堵转扭矩(Stall Torque)	N.m	11
减速后额定转速(Nominal Speed After Reduce)	rpm	120
减速后最大转速(Max Speed After Reduce)	rpm	420
额定电流(Nominal Current)	A	10.5
堵转电流(Stall Current)	A	25
相间电阻(Phase to Phase Resistance)	Ω	0.214
相间电感(Phase to Phase Inductance)	mH	0.000124
转速常数(Speed Constant)	rpm/v	12.3
扭矩常数(Torque Constant)	N.M/A	0.47
转子惯量(Rotor Inertia)	gcm ²	26.3
极对数(Number of Pole Pairs)	Pairs	14
减速比(Gear Rate)	/	8:1
减速器类型(Gear Type)	/	Planetary
减速器齿轮材料(Reducer Gear Material)	/	STEEL
减速器齿轮背隙(Reducer Gear Backlash)	arcmin	5~10
电机重量不带驱动(Motor Weight without Driver)	g	370
电机重量带驱动(Motor Weight with Driver)	g	388
电机尺寸不带驱动(Size without Driver)	mm	Ø80*29.5
电机尺寸带驱动(Size with Driver)	mm	Ø80*40
轴向最大负载(Max Axial load)	N	600
径向最大负载(Max Radial load)	N	800
噪音(Noise)	dB	<60
防水防尘等级(Protection Grade)	/	IP54
工作温度范围(Working Temperature)	°C	-20~80
驱动协议(Communication)	/	CAN and RS485(选配扩展板)
板载编码器精度(Resolution of Encoder on Driver)	Bit	12
是否支持第二编码器 (Second Encoder on Output Shaft)	/	YES
是否支持单独编码器(Separate Encoder)	/	NO

Image 4.1: Technical specifications table for the GIM6010-8 Mini Planetary Gear Motor. This table lists various electrical and mechanical parameters such as voltage, power, torque, speed, current, resistance, inductance, speed constant, torque constant, rotor inertia, number of pole pairs, reduction ratio, gear type, gear material, backlash, weight, size, axial load, radial load, noise, IP rating, and operating temperature range.

Table 4.1: GIM6010-8 Motor Specifications

Parameter	Value	Unit
Product Name	Mini Planetary Gear Motor	-
Model	GIM6010-8	-
Rated Voltage	24	V
Voltage Range	16-28	V
Power	65	W
Rated Torque	5	N.m
Blocking Torque	11	N.m
Rated Speed (after deceleration)	120	RPM
Maximum Speed (after deceleration)	420	RPM
Rated Current	10.5	A
Blocking Current	25	A
Phase-to-Phase Resistance	0.214	Ω
Inductance Between Phases	0.000124	H
Speed Constant	12.3	RPM/V
Torque Constant	0.47	N.M/A
Rotor Inertia	26.3	gcm ²
Number of Pole Pairs	14	Pairs
Reduction Ratio	8:1	-
Reduction Gear Type	Planetary	-
Reducer Gear Material	STEEL	-
Reducer Gear Backlash	5-10	Arcmin
Motor Weight with Drive	388	g
Motor Weight without Drive	370	g
Motor Size with Drive	$\phi 80 \times 40$	MM
Motor Size without Drive	$\phi 80 \times 29.5$	MM
Maximum Axial Load	600	N

Parameter	Value	Unit
Maximum Radial Load	800	N
Noise	<60	dB
Waterproof and Dustproof Grade	IP54	-
Operating Temperature Range	-20~80	°C
Communication	CAN and RS485 (optional expansion)	-
Resolution of Encoder on Driver	12	Bit
Second Encoder on Output Shaft	YES	-
Separate Encoder	NO	-

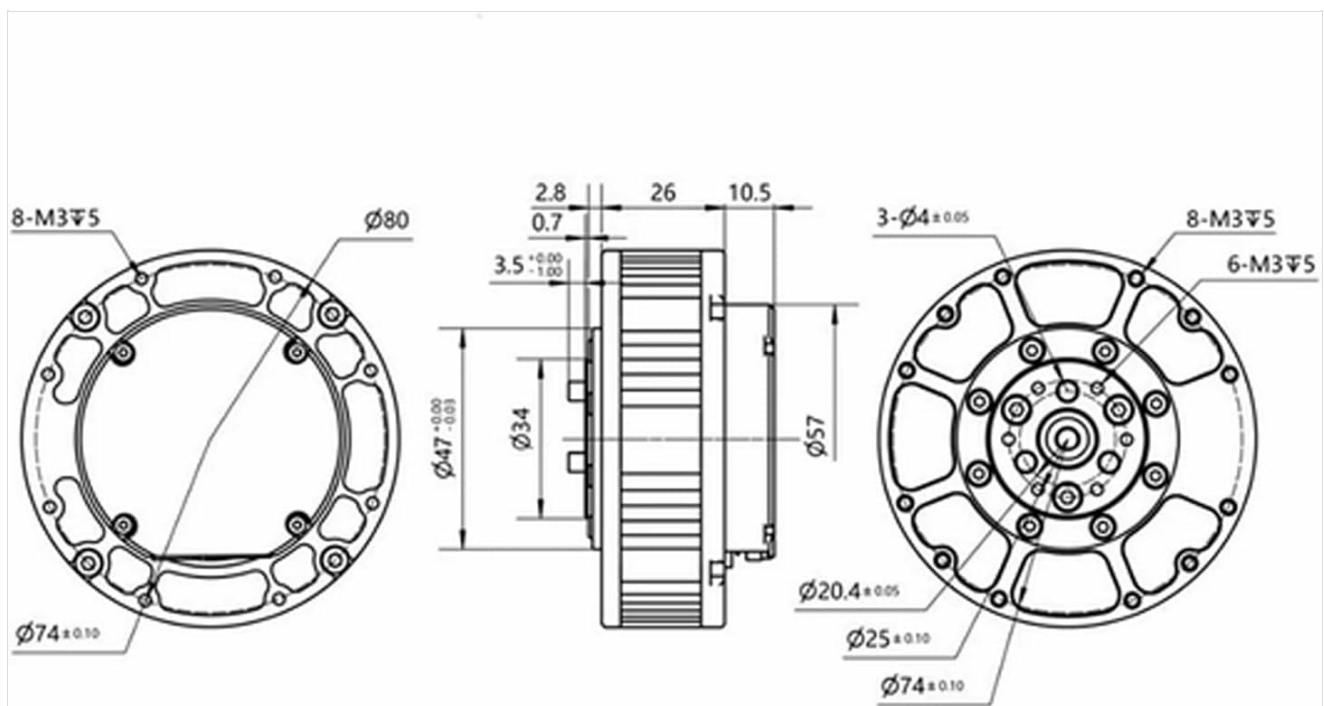


Image 4.2: Technical drawing illustrating the dimensions and mounting points of the GIM6010-8 Mini Planetary Gear Motor. This diagram provides critical measurements for integration into mechanical systems.

5. SETUP AND INSTALLATION

Proper installation is critical for the motor's performance and longevity.

1. Mechanical Mounting:

Mount the motor securely using appropriate fasteners to the intended structure. Refer to the technical drawing (Image 4.2) for mounting hole patterns and dimensions. Ensure the mounting surface is flat and rigid to prevent misalignment or vibration.



Image 5.1: Bottom view of the GIM6010-8 motor, highlighting the mounting holes and the output shaft. This view is essential for mechanical integration.

2. Electrical Connections:

Identify the power and communication ports on the motor. The motor features a Type-C port and dedicated VBUS, GND, CANH, and CANL terminals.



Image 5.2: Top view of the GIM6010-8 motor, displaying the Type-C port for configuration/data and the VBUS, GND, CANH, CANL terminals for power and CAN bus communication.

- **Power (VBUS, GND):** Connect a stable DC 24V power supply within the 16-28V range to the VBUS (positive) and GND (negative) terminals. Ensure correct polarity.
- **Communication (CANH, CANL):** Connect the CANH and CANL terminals to your CAN bus network for control and feedback. Refer to your system's CAN bus specifications for proper termination and wiring.
- **Type-C Port:** This port is typically used for initial configuration, firmware updates, or direct debugging/control via a computer. Consult the manufacturer's software documentation for its specific use.

3. Initial Power-Up:

After all connections are verified, apply power. Observe for any unusual noises or movements. If the motor does not respond as expected, immediately disconnect power and review connections.

6. OPERATING INSTRUCTIONS

The GIM6010-8 motor is controlled via a CAN bus interface. Specific operating parameters and control commands will depend on your application and the motor's integrated drive.

- **Control Modes:** The motor typically supports various control modes such as position control, velocity control, and torque control. Refer to the motor's communication protocol documentation for details on implementing these modes via CAN bus.
- **Parameter Configuration:** Use the provided software tools (often accessible via the Type-C port) to configure motor parameters such as PID gains, current limits, and communication settings.
- **Monitoring:** The motor's integrated encoder and drive provide feedback on position, velocity, and current. Monitor these parameters to ensure the motor operates within safe limits and performs as expected.
- **Load Management:** Avoid continuous operation at or near the blocking torque (11 N.m) to prevent overheating and damage. Design your application to keep the motor operating within its rated torque (5 N.m) for optimal performance and lifespan.



Image 6.1: Front view of the GIM6010-8 Mini Planetary Gear Motor, showcasing its compact design and integrated cooling fins.

7. MAINTENANCE

Regular maintenance helps ensure the longevity and reliable operation of your motor.

- **Cleaning:** Periodically clean the exterior of the motor, especially the cooling fins, to ensure efficient heat dissipation. Use a soft, dry cloth. Avoid using solvents or abrasive cleaners.
- **Inspection:** Regularly inspect all electrical connections for signs of wear, corrosion, or looseness. Check mechanical mounting for tightness.
- **Environmental Conditions:** Ensure the operating environment remains within the specified temperature and humidity ranges.
- **Lubrication:** The planetary gearbox is typically sealed and pre-lubricated for life. Do not attempt to lubricate unless specifically instructed by the manufacturer. Unauthorized disassembly will void the warranty.

8. TROUBLESHOOTING

This section addresses common issues you might encounter. For problems not listed here, contact technical support.

- **Motor Not Responding:**
 - Check power supply: Ensure it is connected correctly (VBUS, GND) and providing the rated DC 24V within the 16-28V range.
 - Check communication: Verify CAN bus connections (CANH, CANL) and ensure the control signal is being sent correctly. Confirm CAN bus termination if applicable.
 - Check Type-C connection: If using for direct control or configuration, ensure the cable is secure and drivers are installed on your computer.
- **Motor Overheating:**
 - Reduce load: The motor might be operating under excessive load, exceeding its rated torque.
 - Improve cooling: Ensure cooling fins are clear of obstructions and the ambient temperature is within the specified range.
 - Check for short circuits: Internal or external short circuits can cause excessive current draw and heat.
- **Unusual Noise or Vibration:**
 - Check mounting: Ensure the motor is securely mounted and there is no mechanical misalignment with the connected load.
 - Inspect for foreign objects: Verify no debris has entered the motor or gearbox.
 - Reduce load: Excessive load can cause strain and noise.

9. WARRANTY AND SUPPORT

Jieotwice provides a standard warranty for manufacturing defects. For specific warranty terms and conditions, please refer to your purchase documentation or contact Jieotwice customer support.

For technical assistance, troubleshooting beyond this manual, or spare parts inquiries, please contact Jieotwice customer service through their official channels. When contacting support, please have your motor model (GIM6010-8) and purchase information readily available.

Ask about setup, troubleshooting, compatibility, parts, safety, or missing instructions. Manuals+ will review the question and use this page's manual context to help answer it.

Name

Anonymous

Email

you@example.com

After a successful submission, we securely hash the supplied account or form email before sending it to Microsoft Advertising for conversion attribution. [Privacy details](#).

Question

Example: How do I reset this device or fix this error?

Details

Model number, symptoms, what you tried, or the section of the manual you are using.

Submit question