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› Walfront DC 12V High Torque Turbine Worm Gear Motor with Encoder User Manual

Walfront Walfrontqmzs7kda9p-02

Walfront DC 12V High Torque Turbine Worm Gear Motor with Encoder User Manual

1. PRODUCT OVERVIEW

This Walfront DC 12V high torque turbine worm gear motor features an integrated encoder and strong self-locking capabilities. The gearbox output shaft is arranged vertically relative to the motor shaft, resulting in a compact design suitable for various installation requirements. It is designed for stable and reliable performance with a long service life and low noise operation.

Key Features

- Two-phase reduction gear motor with encoder for precise control.
- Utilizes precious metals carbon brush for enhanced durability.
- Offers long service life, low operational noise, and high torque output.
- Ensures stable and reliable performance in various applications.
- Capable of both forward and reverse rotation for versatile use.



Figure 1: Walfront DC 12V High Torque Turbine Worm Gear Motor with Encoder. This image displays the overall structure of the gear motor, highlighting its compact design with the motor unit attached to the worm gear reduction box.

2. SETUP AND WIRING

Proper wiring is crucial for the correct function of the motor and encoder. Please refer to the following instructions and the provided diagram. Note that wiring details can sometimes vary; always verify connections before applying power.

Wiring Instructions (by wire color)

- **Red:** Motor power + (Connecting this wire to positive voltage will drive the motor. Swapping Red and White wires controls rotation direction.)
- **Black:** Coding power - negative (Connect to ground. This pin requires 3.3-5V. Ensure correct polarity.)
- **Yellow:** Signal feedback (Encoder output signal)
- **Green:** Signal feedback (Encoder output signal)
- **Blue:** Coding power + positive (Connect to 3.3-5V power supply. Ensure correct polarity.)
- **White:** Motor power - (Connecting this wire to negative voltage/ground will drive the motor. Swapping Red and White wires controls rotation direction.)

Important Note: Some users have reported variations in wiring, particularly for encoder power and signal lines. For example, some units may have Green as Sensor power + and Blue/Yellow as signal outputs. Always cross-reference with any markings on your specific unit's PCB or connector, and test connections carefully before full deployment.

Wiring Diagram (by pin function)



Figure 2: Detailed wiring diagram showing the 6-pin connector and corresponding functions. Pin 1: Motor power input-pole, Pin 2: GND encoder power input, Pin 3: C1 encoder A phase, Pin 4: C2 encoder B-phase, Pin 5: 3V3 encoder power supply + pole (5V/3.3V), Pin 6: M2 motor power input+pole.

3. OPERATION

Basic Motor Control

The motor operates on a 12V DC power supply. To control the motor's rotation, connect the Red and White wires to your 12V DC source. Swapping the polarity (connecting Red to negative and White to positive) will reverse the direction of rotation. Ensure your power supply can provide sufficient current (up to 1.3A stall current) for the chosen RPM variant.

Encoder Functionality

The integrated encoder provides feedback on the motor's rotation. The Yellow and Green wires (or C1 and C2 pins) output signals that can be read by a microcontroller or other control system to determine rotational speed and position. The encoder requires a separate 3.3-5V power supply connected via the Blue and Black wires (or 3V3 and GND pins).

4. MAINTENANCE

This worm gear motor is designed for durability, but proper maintenance can extend its lifespan and ensure optimal performance.

- **Keep Clean:** Periodically clean the exterior of the motor and gearbox to prevent dust and debris accumulation, which can affect heat dissipation and mechanical parts.
- **Check Connections:** Regularly inspect all wiring connections for tightness and integrity. Loose connections can lead to intermittent operation or damage.
- **Avoid Overloading:** Do not exceed the maximum torque ratings specified for your motor variant. Consistent

overloading can lead to premature wear of gears and motor components.

- **Operating Environment:** Ensure the motor operates within its intended temperature and humidity ranges. Avoid exposure to excessive moisture or corrosive environments.

5. TROUBLESHOOTING

If you encounter issues with your Walfront gear motor, consider the following common troubleshooting steps:

- **Motor Not Running:**
 - Verify that the 12V DC power supply is connected correctly to the Red and White motor power wires and is providing sufficient voltage and current.
 - Check for any loose or disconnected wires.
 - Ensure the motor is not stalled due to excessive load.
- **Incorrect Rotation Direction:**
 - Reverse the polarity of the 12V DC power supply connected to the Red and White motor power wires.
- **Encoder Not Providing Feedback:**
 - Ensure the encoder's 3.3-5V power supply (Blue and Black wires/3V3 and GND pins) is correctly connected and powered.
 - Verify the Yellow and Green signal feedback wires (C1 and C2 pins) are correctly connected to your control system.
 - Double-check the wiring against the provided diagrams and any markings on your specific unit, as variations have been noted.
- **Excessive Noise or Vibration:**
 - Ensure the motor is securely mounted and not vibrating against other components.
 - Check for any obstructions or foreign objects interfering with the gearbox or output shaft.
 - If the noise is significant and persistent, it may indicate internal wear or damage; consider replacing the unit.

6. SPECIFICATIONS

The following table details the technical specifications for the Walfront DC 12V High Torque Turbine Worm Gear Motor. Please note that different RPM variants have different torque and reduction ratios.

Specification	Value
Brand	Walfront
Model Number	Walfrontqmzs7kda9p-02
Rated Voltage	12V DC
No-load Revolving Speed Options	10rpm, 20rpm, 30rpm, 40rpm, 100rpm
Rated Current	≤0.6A
Stall Current	1.3A
No-load Current	≤60mA
Weight	Approx. 165g
Material	Metal (Gearbox)

Performance by Speed Option

Speed (rpm)	Rated Torque (kg.cm)	Max. Torque (kg.cm)	Reduction Ratio
10	22.5	25	600
20	12	25	340
30	7.4	25	200
40	5.6	24	150
100	1.5	6.4	40

Dimensional Drawing

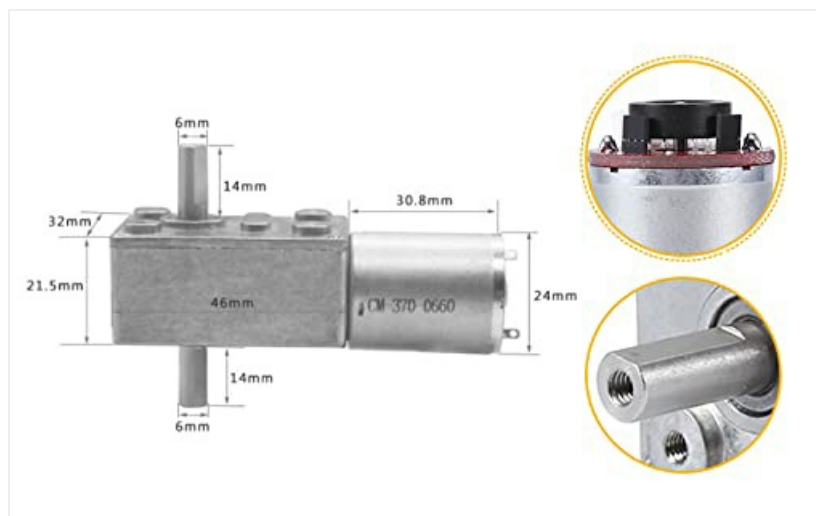


Figure 3: Dimensional drawing illustrating the key measurements of the motor and gearbox, including shaft dimensions and overall length. All dimensions are in millimeters.

7. APPLICATIONS

The Walfront DC 12V High Torque Turbine Worm Gear Motor is widely adapted for various applications requiring precise control, high torque, and a compact form factor. Its self-locking feature makes it suitable for applications where holding a position without continuous power is beneficial.

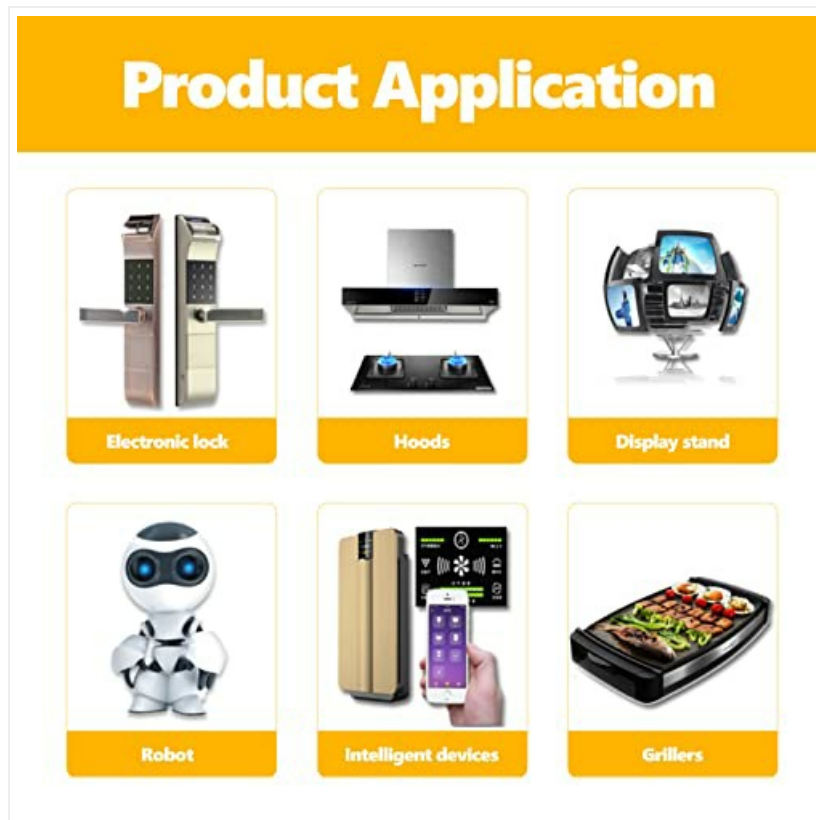


Figure 4: Examples of typical applications for this gear motor, including electronic locks, range hoods, display stands, robotics, intelligent devices, and grill rotisseries.

8. WARRANTY AND SUPPORT

Warranty Information

Specific warranty details for this product are not provided in the available information. Please refer to the retailer or manufacturer's official website for current warranty terms and conditions.

Customer Support

For technical assistance, troubleshooting beyond this manual, or inquiries regarding parts and service, please contact Walfront customer support through their official channels or the retailer from whom the product was purchased.