DollaTek DZ2060

DollaTek 31ZY DC 12V 80RPM Turbo Gear Motor User Manual

Model: DZ2060

1. Product Overview

The DollaTek 31ZY DC 12V 80RPM Turbo Gear Motor is a compact and robust DC reducer worm geared motor designed for various applications requiring controlled rotational movement and self-locking capabilities. This motor features a worm gear mechanism, which provides a self-locking function, meaning the output shaft will not move when power is absent.

Its gearbox output shaft is arranged vertically relative to the motor shaft, offering a shorter overall length compared to general gear motors. This design makes it suitable for installations with specific space requirements.

Key Features:

- **Self-Locking Mechanism:** The worm gear design ensures the output shaft remains stationary when the motor is unpowered.
- **Compact Design:** Vertical arrangement of the gearbox output shaft minimizes overall motor length.
- **Versatile Applications:** Ideal for window openers, door openers, and miniature winches.

Figure 1.1: General view of the DollaTek 31ZY DC 12V 80RPM Turbo Gear Motor. This image shows the main body of the motor with its integrated gearbox and output shaft.

2. Specifications

The following table details the technical specifications for the DollaTek 31ZY DC 12V 80RPM Turbo Gear Motor.

Specification	Value
Rated Voltage	DC 12V
Rated Power	21W
No-Load Speed	80 RPM
Rated Speed	60 RPM
Rated Current	≤1.6A

Specification	Value
No-Load Current	≤350mA
Rated Torque	16 Kg.cm
Maximum Torque	25 Kg.cm
Stall Current	6.5A
Reduction Ratio	100
Motor Size (Diameter x Length)	31mm x 57mm
Gear Box Dimensions (Length x Width x Height)	58mm x 40mm x 35mm
Material	Metal
Item Weight	338 g (0.34 kg)
Model Number	DZ2060
UPC	725835044233

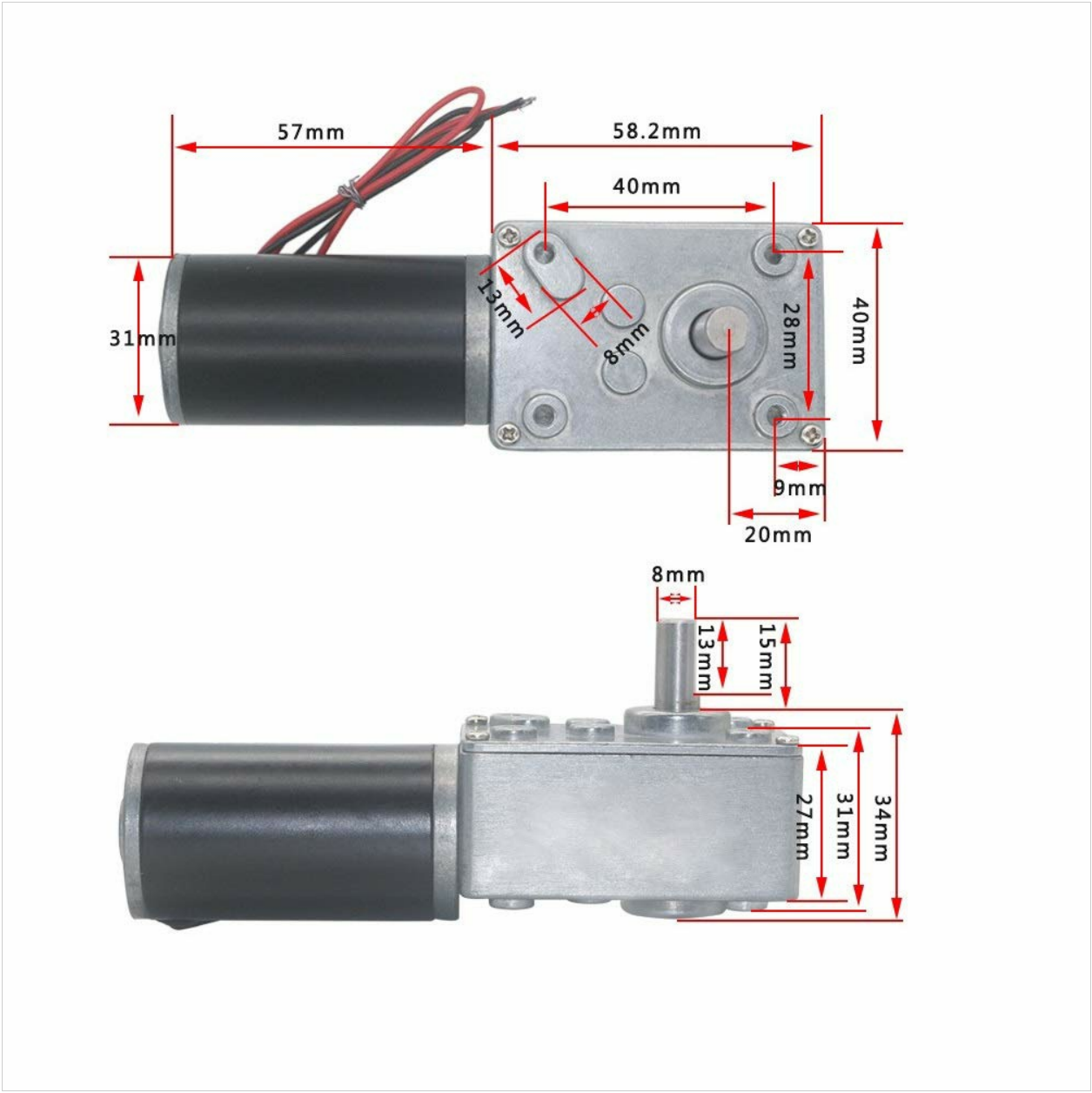

Figure 2.1: Detailed dimensions of the DollaTek 31ZY DC 12V 80RPM Turbo Gear Motor. This diagram provides critical measurements for integration and mounting.

3. Installation and Setup

Proper installation is crucial for the optimal performance and longevity of your DollaTek gear motor. This motor is designed for applications such as window openers, door openers, and miniature winches.

Mounting:

- Securely mount the motor using appropriate fasteners through the mounting holes on the gearbox. Refer to Figure 2.1 for mounting dimensions.
- Ensure the mounting surface is stable and can support the motor's weight and operational forces.
- The gearbox output shaft is oriented vertically to the motor shaft, which may influence mounting position in confined spaces.

Electrical Connection:

- Connect the motor to a DC 12V power supply. Observe correct polarity for desired rotation direction. Reversing polarity will reverse the motor's rotation.

- Ensure all electrical connections are secure and insulated to prevent short circuits.
- Use wiring of appropriate gauge to handle the rated current of ≤1.6A and stall current of 6.5A.

Figure 3.1: An alternative view of the motor, useful for planning mounting and integration into a system.

Figure 3.2: Rear view of the motor showing the electrical connection points. Ensure proper wiring for operation.

4. Operation

The DollaTek 31ZY DC 12V 80RPM Turbo Gear Motor is designed for straightforward operation once properly installed and connected to a DC 12V power source.

Basic Operation:

- Apply DC 12V power to the motor terminals. The motor will begin to rotate the output shaft at its rated speed of 60 RPM (no-load speed is 80 RPM).
- To reverse the direction of rotation, reverse the polarity of the DC power supply.
- The motor's worm gear design provides a self-locking feature. When power is removed, the output shaft will resist external rotation, maintaining its last position.

Load Considerations:

- Ensure that the load applied to the output shaft does not exceed the rated torque of 16 Kg.cm or the maximum torque of 25 Kg.cm. Exceeding these limits can damage the motor or gearbox.
- Avoid sudden heavy loads or impacts on the output shaft during operation.

Figure 4.1: Close-up view of the gearbox and output shaft, illustrating the robust construction designed for torque delivery.

5. Maintenance and Safety Warnings

Adhering to these maintenance guidelines and safety warnings will help ensure the longevity and safe operation of your DollaTek gear motor.

Safety Warnings:

- **Avoid Obstructions:** When operating the motor, ensure no foreign objects, such as adhesives, flow into the rotary shaft through bearings, as this can obstruct operation and cause damage.
- **Prevent Overload:** Do not overload the motor or apply excessive force to the rotating shaft. Overloading can significantly shorten the motor's lifespan. Always check that your load goods comply with regulations and do not exceed the motor's torque capabilities.
- **Eccentric Loads:** Avoid manufacturing heavy eccentric loads that could cause harmful radiation or stress, as this can negatively impact the motor's life.
- **Environmental Conditions:** Do not operate the motor in environments with extreme temperatures or high moisture levels unless specifically designed for such conditions.
- **Electrical Safety:** Always disconnect power before performing any maintenance or inspection. Ensure

wiring is correct and secure to prevent electrical hazards.

General Maintenance:

- **Regular Inspection:** Periodically inspect the motor and gearbox for any signs of wear, damage, or loose connections.
- **Cleanliness:** Keep the motor free from dust, dirt, and debris, which can impede cooling and affect performance.
- **Lubrication:** The gearbox is typically pre-lubricated. Consult manufacturer guidelines for any recommended re-lubrication schedules, if applicable.

6. Troubleshooting

This section provides basic troubleshooting steps for common issues you might encounter with your DollaTek gear motor.

Motor Not Running:

- **Check Power Supply:** Verify that the DC 12V power supply is connected correctly and providing the specified voltage.
- **Check Wiring:** Ensure all electrical connections are secure and there are no loose or broken wires.
- **Overload:** Disconnect the load from the motor. If the motor runs without the load, the application may be exceeding the motor's torque capabilities. Reduce the load or consider a more powerful motor.
- **Obstructions:** Inspect the output shaft and gearbox for any physical obstructions preventing rotation.

Reduced Performance or Unusual Noise:

- **Load Check:** Ensure the motor is not operating under excessive load.
- **Mounting:** Check if the motor is securely mounted. Vibrations from loose mounting can cause noise.
- **Wear and Tear:** Inspect the gearbox and shaft for signs of wear or damage.
- **Environmental Factors:** Ensure the motor is not exposed to extreme temperatures or moisture.

7. Warranty and Support

For warranty information, technical support, or service inquiries regarding your DollaTek 31ZY DC 12V 80RPM Turbo Gear Motor, please contact your retailer or the manufacturer directly. Keep your purchase receipt and model number (DZ2060) handy for faster service.

Manufacturer: DollaTek