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Orion 7829

Orion 7829 EQ-3M Single-Axis Telescope Drive Instruction Manual

Model: 7829

INTRODUCTION

Thank you for choosing the Orion 7829 EQ-3M Single-Axis Telescope Drive. This precision mini-motor is designed to enhance your astronomical observations by providing automatic tracking of celestial objects when attached to a compatible equatorial mount. This manual will guide you through the proper setup, operation, and maintenance of your new drive to ensure optimal performance and longevity.

PRODUCT OVERVIEW

The Orion 7829 EQ-3M Single-Axis Telescope Drive is an electronic motor drive that provides regulated sidereal-rate tracking in right ascension. It is specifically designed to attach to your AstroView equatorial mount, allowing for hands-free tracking of stars and other celestial bodies as they move across the night sky. The included drive controller offers variable speeds for precise adjustments.

Key Features:

- Precision mini-motor for automatic celestial object tracking.
- Electronic motor drive for regulated sidereal-rate tracking in right ascension.
- Drive controller with 2x and 8x speeds for fine adjustments.
- Pause mode for temporary tracking cessation.
- Compatible with AstroView equatorial mounts.



Image: The Orion 7829 EQ-3M Single-Axis Telescope Drive, showing the motor unit, hand controller, and battery case.

PACKAGE CONTENTS

Please verify that all components are present before proceeding with installation:

- Orion 7829 EQ-3M Single-Axis Motor Unit
- Hand Controller
- Battery Case (requires four D-cell batteries, not included)
- Hex keys for installation

SETUP

1. Battery Installation

1. Open the battery case.
2. Insert four D-cell batteries (not included) into the battery case, ensuring correct polarity.
3. Close the battery case securely.

2. Attaching the Motor Unit

1. Locate the Right Ascension (RA) fine tuner shaft on your AstroView equatorial mount.
2. Slide the hollow cylinder of the motor unit over the RA fine tuner post.
3. Align the small hex nut on the motor unit's cylinder with the groove on the RA fine tuner post.
4. Tighten the hex nut using the provided hex key to couple the motor drive to the RA fine tuner. Ensure

it is snug to prevent slipping, but do not overtighten.

5. Attach the motor unit to the mount using the designated attachment points and hex key.

3. Connecting the Hand Controller and Battery Case

1. Connect the cable from the motor unit to the designated port on the hand controller.
2. Connect the cable from the battery case to the designated power input on the hand controller.
3. Ensure all connections are secure.

4. Initial Checks and Polar Alignment

- Before viewing, ensure the N/S switch on the hand controller is set to the correct hemisphere (e.g., "N" for Northern Hemisphere). This switch can be easily bumped, so always verify its position.
- For effective tracking, your equatorial mount must be properly polar aligned. Refer to your telescope mount's manual for detailed polar alignment procedures. A more accurate polar alignment will result in better tracking performance.
- Ensure the RA fine tuner is positioned to allow for full range of motion before starting your viewing session. If the RA fine tuner reaches its limit, you will need to manually reset it.

OPERATING INSTRUCTIONS

1. Powering On and Sidereal Tracking

Once the motor unit, hand controller, and battery case are connected, and batteries are installed, the drive is ready for operation. The motor will begin tracking at the sidereal rate automatically when powered on, assuming the N/S switch is correctly set.

2. Using the Hand Controller

The hand controller allows for precise adjustments to the tracking speed:

- **2x Speed:** Press the 2x button to temporarily increase or decrease the tracking speed by a factor of two. This is useful for centering objects in the eyepiece.
- **8x Speed:** Press the 8x button for faster adjustments, increasing or decreasing the tracking speed by a factor of eight. Use this for larger positional changes.
- **Pause Mode:** The controller may include a pause function to temporarily stop tracking without powering down the unit.
- **Directional Control:** Use the directional buttons (often labeled + and - or arrows) in conjunction with the 2x or 8x speed buttons to move the telescope east or west in Right Ascension.

When making adjustments, especially with the 8x speed, be aware that there might be a slight lag or overshoot when releasing the button. With practice, you will develop a feel for these minor characteristics.

3. Clutch Mechanism

The motor unit features a spring-loaded clutch. This allows for quick disengagement of the motor, enabling manual coarse adjustments to the Right Ascension via the mount's control knob. To re-engage, simply release the clutch. Ensure the thumb screw on the mount shaft is kept as loose as possible while maintaining functionality to prevent gear slipping.

MAINTENANCE

Battery Management

The drive operates on four D-cell batteries. Battery life can vary, but expect approximately 2-2.5 hours of continuous use before performance may degrade. It is highly recommended to use rechargeable D-cell batteries and to carry spare charged batteries for extended viewing sessions. Low battery power can cause timing inaccuracies and lag.

General Care

- Keep the motor unit and controller clean and free from dust and moisture.
- Store the unit in a dry, temperate environment when not in use.
- Avoid dropping or subjecting the unit to harsh impacts.

TROUBLESHOOTING

Problem	Possible Cause	Solution
Motor not tracking or moving	<ul style="list-style-type: none"> • Batteries are dead or incorrectly installed. • Hex nut on motor cylinder is loose. • N/S switch is in the wrong position. • Cables are not securely connected. 	<ul style="list-style-type: none"> • Replace batteries or check polarity. • Tighten the hex nut, ensuring it aligns with the RA shaft groove. • Verify N/S switch setting for your hemisphere. • Check all cable connections.
Drive gear slips	<ul style="list-style-type: none"> • Thumb screw on mount shaft is too tight. • Clutch disengaged too slowly. 	<ul style="list-style-type: none"> • Keep the thumb screw on the mount shaft as loose as possible while maintaining functionality. • If slipping occurs, disengage and re-engage the clutch quickly.
Inaccurate tracking or object drifts out of view quickly	<ul style="list-style-type: none"> • Poor polar alignment. • Low battery power. • N/S switch incorrect. 	<ul style="list-style-type: none"> • Re-perform polar alignment for your mount. • Replace batteries with fresh ones. • Check N/S switch setting.
Lag or overshoot when using 2x/8x speed buttons	Normal operational characteristic.	Practice using the speed controls to develop a feel for the response time. Approach targets from the positive direction to minimize overshoot.

Problem	Possible Cause	Solution
RA fine tuner reaches limit	The RA worm gear has reached its end of travel.	Manually reset the RA fine tuner to its central position before starting a viewing session. This may require temporarily disengaging the motor.

SPECIFICATIONS

- **Model Number:** 7829
- **Type:** Single-Axis Motor Drive
- **Compatibility:** AstroView Equatorial Mounts
- **Tracking Rate:** Sidereal
- **Control Speeds:** 2x, 8x (relative to sidereal rate)
- **Power Source:** 4 x D-cell batteries (6 Volts total)
- **Item Weight:** Approximately 1.35 pounds (0.61 kg)
- **Package Dimensions:** Approximately 9.9 x 7.4 x 2.6 inches (25.1 x 18.8 x 6.6 cm)
- **Color:** Black
- **Manufacturer:** Orion
- **UPC:** 759270078294

WARRANTY AND SUPPORT

For warranty information and technical support, please refer to the official Orion website or contact their customer service department directly. Keep your purchase receipt as proof of purchase.

Orion Customer Service: Please visit www.telescope.com for contact details and support resources.