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› [Sky-Watcher AZ-EQ5 – Fully Computerized GoTo German Equatorial, Alt-AZ Telescope Mount, and dual-OTA telescope – Computerized Hand Controller with 42,900+ Object Database AZ-EQ5 + Computerized Equatorial](#)

Sky-Watcher S30200

Sky-Watcher AZ-EQ5 Telescope Mount User Manual

Comprehensive Guide for Setup, Operation, and Maintenance

1. INTRODUCTION

The Sky-Watcher AZ-EQ5 is a highly versatile and innovative telescope mount designed for both visual observation and astrophotography. This hybrid mount offers the flexibility to operate in Alt-Azimuth (Alt-Az), Equatorial (EQ), or dual-Optical Tube Assembly (OTA) modes, making it suitable for a wide range of astronomical pursuits. This manual provides detailed instructions for the proper setup, operation, and maintenance of your AZ-EQ5 mount to ensure optimal performance and longevity.

2. PRODUCT OVERVIEW

The AZ-EQ5 mount incorporates advanced features to enhance your observing and imaging experience:

- **Dual-Encoder Motor System (Freedom-Find™):** This patented system allows for manual movement of the mount without losing alignment, providing unparalleled flexibility during observation.
- **SynScan™ Hand Controller:** A user-friendly interface with a database of over 42,000 celestial objects, enabling automatic GoTo slewing and precise tracking. It also supports computer control via a USB connection.
- **Belt-Driven Stepper Motors:** Ensures whisper-quiet operation, minimal backlash, smoother tracking, and reduced periodic error, which is crucial for long-exposure astrophotography.
- **Built-in PEC Training:** For astrophotographers, the SynScan hand controller includes a feature to train out periodic error, leading to more accurate guiding and pinpoint stars in images.
- **DSLR Interface (SNAP Port):** Equipped with a DSLR interface and an intervalometer timer, allowing for automated camera control and exposure sequencing for astrophotography. It can control two cameras simultaneously.
- **Pier Extension:** A sturdy pier extension elevates the mount head, providing ample clearance for the counterweight bar and enabling polar alignment at virtually any latitude.
- **Payload Capacity:** Designed to handle a payload capacity of up to 30 pounds, accommodating a wide range of optical tubes.



**BELT DRIVE ON
BOTH AXES**

- WHISPER QUIET
- MINIMAL BACKLASH
- REDUCES PERIODIC ERROR

Figure 2.1: The Sky-Watcher AZ-EQ5 mount with its SynScan hand controller, highlighting the integrated control system.

INCLUDES DUAL SNAP PORTS FOR EASY DSLR CAMERA AUTOMATION



Figure 2.2: Detail of the belt-driven stepper motors on the AZ-EQ5, illustrating the design for quiet and precise operation.



Figure 2.3: The dual SNAP ports for connecting DSLR cameras, enabling automated astrophotography.

3. WHAT'S IN THE BOX

Your Sky-Watcher AZ-EQ5 mount is shipped in two separate boxes. Please verify that all components are present upon receipt:

- **Box 1 Contents:**

- Mount head
- SynScan hand controller
- Controller cable
- Update cable
- Power cable
- Two Canon EOS trigger cables (Nikon and Sony cables available separately)
- Secondary saddle plate
- User manual

- Counterweight bar extension
- **Box 2 Contents:**
 - Pier tripod
 - Two 7.5lb counterweights
- A polar finderscope is also included to assist with setup.

4. SETUP

Follow these steps to assemble and prepare your AZ-EQ5 mount for use:

1. Tripod Assembly:

Unfold the pier tripod legs and secure them. Ensure the tripod is placed on a stable, level surface. The pier extension provides necessary clearance for polar alignment.

2. Mount Head Attachment:

Carefully attach the mount head to the pier tripod. Secure it firmly using the provided locking mechanisms.

3. Counterweight Installation:

Slide the counterweights onto the counterweight shaft. If needed, use the counterweight bar extension. Position the counterweights to balance your optical tube assembly (OTA).

INCLUDES SKY-WATCHER'S SYNSCAN COMPUTERIZED HAND CONTROLLER

- 42,000+ CELESTIAL OBJECT DATABASE
- MESSIER, CALDWELL, IC AND NGC CATALOGS
- 2-LINE LCD DISPLAY
- RED BACKLIT ILLUMINATED KEYPAD FOR NIGHT TIME USE



Figure 4.1: The retractable counterweight shaft for convenient storage and transport.

4. Optical Tube Assembly (OTA) Mounting:

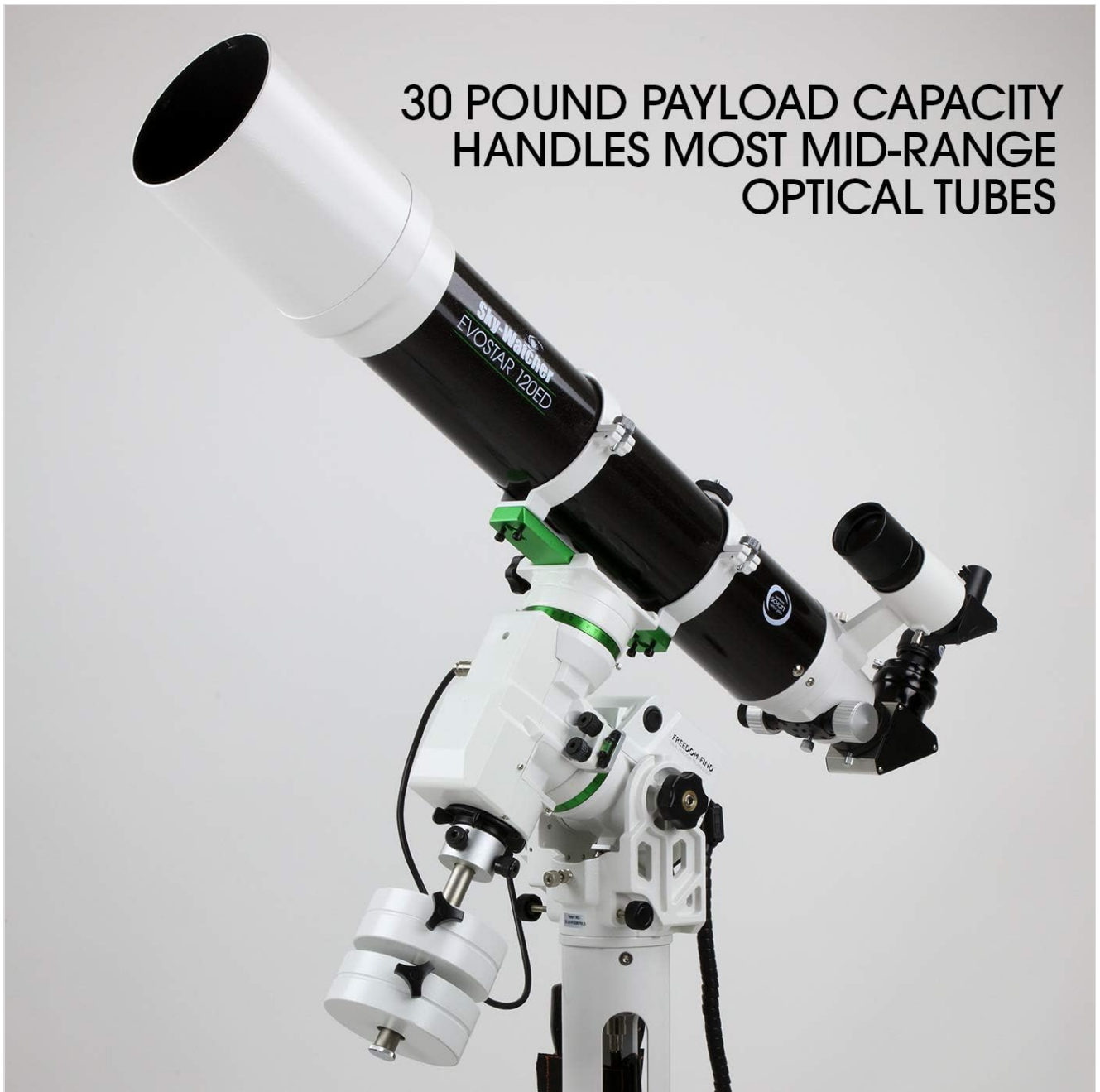
Attach your telescope's optical tube to the mount's saddle plate. Ensure it is securely fastened. If using dual-OTA mode, attach the second OTA to the secondary saddle plate.

General Mount Info	
Mount Type	Alt-AZ/EQ
GoTo	Yes
Payload Capacity (lbs)	30
Mount Height (Min)	41"
Mount Height (Max)	48.7"
Mount Head Weight (lbs)	16.9
Tripod Weight (lbs)	13.4
Fully Assembled Weight (w/ weights)	43.8
Tripod Leg Diameter	1.75"
Mounting Saddle Type	V
Power Type	12V
Clutch	Slip
Polar Scope	Optional
Latitude Range (degrees)	0-90
Computer/Drive System Info	
Object Database	42900+
Controller	Hand Controller
WiFi	Optional WiFi dongle
Polar Align Assist	Yes
Auto Guide	Yes
Permanent Periodic Correction	Yes
Pointing Accuracy (RMS)	5 arc minutes
Dual Encoders	Yes
DSLR Interface	Yes (Dual)
Included Weights	7.5lbs (two)
Motor Type	Stepper
Drive System	Belt

Figure 4.2: The AZ-EQ5 mount supporting a telescope, demonstrating its payload capacity.

5. Hand Controller Connection:

Connect the SynScan hand controller to the mount using the provided cable. Ensure a secure connection.



30 POUND PAYLOAD CAPACITY
HANDLES MOST MID-RANGE
OPTICAL TUBES

Figure 4.3: The SynScan hand controller, featuring a 2-line LCD display and red backlit illuminated keypad for night use.

6. Power Connection:

Connect the power cable to the mount and a suitable 12V power source.

7. Polar Alignment:

For accurate tracking in Equatorial mode, perform polar alignment using the included polar finderscope. The pier extension facilitates alignment at various latitudes. For Alt-Az mode, precise leveling is important.

8. DSLR Camera Connection (Optional):

If using a DSLR for astrophotography, connect it to the mount's SNAP port using the appropriate trigger cable. The mount supports two cameras simultaneously.

5. OPERATING INSTRUCTIONS

Operating the Sky-Watcher AZ-EQ5 mount is intuitive with the SynScan hand controller.

5.1. SynScan Hand Controller Operation

- **Power On:** Turn on the mount. The hand controller will display the initial setup menu.

- **Date, Time, and Location:** Enter the correct date, time, and your geographical coordinates. This information is crucial for accurate GoTo functionality.
- **Alignment Procedure:** Select your desired alignment method (e.g., 1-star, 2-star, 3-star alignment for EQ mode, or Brightest Star/Two-Star Alignment for Alt-Az mode). Follow the on-screen prompts to center the alignment stars.
- **Object Selection and GoTo:** Navigate through the extensive 42,000+ object database using the arrow keys. Once an object is selected, press ENTER to initiate the GoTo function. The mount will automatically slew to the target.
- **Tracking:** After a successful GoTo, the mount will automatically begin tracking the object to keep it centered in your eyepiece or camera field of view.
- **Freedom-Find™ Manual Movement:** You can manually move the telescope by hand without losing the mount's alignment. The dual encoders will keep track of the mount's position. After manual movement, the mount will resume tracking.

5.2. Astrophotography Features

- **PEC Training:** To minimize periodic error for long-exposure astrophotography, access the PEC training function in the SynScan menu. Follow the instructions to record and apply the PEC correction.
- **DSLR Camera Control:** Use the SNAP port and the SynScan hand controller's built-in intervalometer to program exposure length, number of exposures, and delay times. The controller can trigger your DSLR camera automatically. Up to 8 different exposure combinations can be set.

5.3. Computer Control

The AZ-EQ5 mount features a built-in USB port for computer control. This allows you to control the mount using popular astronomy software such as SkyX, Stellarium, and Starry Nights. You may need to install appropriate ASCOM drivers and specific software versions (e.g., Stellarium Qt5 for ASCOM compatibility).

6. MAINTENANCE

Proper maintenance ensures the longevity and optimal performance of your Sky-Watcher AZ-EQ5 mount.

- **Cleaning:** Keep the mount clean and free from dust and debris. Use a soft, dry cloth for cleaning. Avoid using harsh chemicals or abrasive materials.
- **Storage:** When not in use, store the mount in a dry, dust-free environment. It is recommended to disassemble the mount into its main components for long-term storage or transport.
- **Cable Management:** Ensure all cables are neatly routed and not under tension to prevent damage.
- **Firmware Updates:** Periodically check the Sky-Watcher website for firmware updates for your SynScan hand controller. Updates can improve performance and add new features. The mount has a built-in USB port for firmware updates.
- **Mechanical Checks:** Occasionally inspect all mechanical connections and fasteners to ensure they are secure. While the mount is designed for smooth operation, if you experience any unusual stiffness or binding in the axes, it is advisable to consult the manufacturer's support.

7. TROUBLESHOOTING

This section addresses common issues you might encounter with your AZ-EQ5 mount.

- **Mount Not Responding / Motors Not Moving:**
 - Ensure all power and control cables are securely connected.
 - Verify the power supply is providing the correct voltage (12V) and sufficient current.
 - Check the hand controller display for any error messages.
- **Inaccurate GoTo / Tracking Issues:**
 - Confirm that the correct date, time, and location (latitude/longitude) are entered into the hand controller.

- Re-perform the alignment procedure with care, ensuring alignment stars are accurately centered.
- For Equatorial mode, verify precise polar alignment using the polar finderscope.
- For Alt-Az mode, ensure the tripod and mount head are perfectly level. The mount's built-in bubble level should be cross-referenced with an external level for maximum accuracy.
- Ensure the mount is properly balanced with your optical tube assembly and counterweights.

• **Computer Control Disconnects / Software Issues:**

- Ensure the correct ASCOM drivers for Sky-Watcher mounts are installed on your computer.
- Verify that your astronomy software is compatible and correctly configured to communicate with the mount (e.g., using the appropriate COM port).
- Some software, like Stellarium, may require specific versions (e.g., Qt5) for ASCOM compatibility.
- Check the USB connection cable for damage or loose connections.

• **Mechanical Stiffness / Jerky Movement:**

- While the belt-driven system minimizes backlash, if you experience persistent stiffness or jerky motion, ensure no components are overtightened.
- If the issue persists, it is recommended to contact Sky-Watcher customer support for further assistance.

If you encounter issues not covered here or require further assistance, please contact Sky-Watcher customer support.

8. SPECIFICATIONS

Key specifications for the Sky-Watcher AZ-EQ5 mount (Model S30200):



Figure 8.1: Visual representation of the Sky-Watcher AZ-EQ5 mount specifications.

Feature	Detail
Mount Type	Alt-AZ/EQ Hybrid
GoTo Capability	Yes
Payload Capacity	30 pounds (13.6 kg)
Mount Height (Min)	41 inches
Mount Height (Max)	48.7 inches
Mount Head Weight	16.9 pounds (7.7 kg)
Tripod Weight	13.4 pounds (6.1 kg)
Fully Assembled Weight (w/ weights)	43.8 pounds (19.9 kg)

Feature	Detail
Tripod Leg Diameter	1.75 inches
Mounting Saddle Type	Vixen (V)
Power Type	12V
Clutch	Slip
Polar Scope	Optional (Included)
Latitude Range (degrees)	0-90
Object Database	42,900+
Controller	Hand Controller (SynScan)
WiFi	Optional WiFi dongle
Polar Align Assist	Yes
Auto Guide	Yes
Permanent Periodic Correction (PEC)	Yes
Pointing Accuracy (RMS)	5 arc minutes
Dual Encoders	Yes (Freedom-Find™)
DSLR Interface	Yes (Dual SNAP ports)
Included Weights	Two 7.5lb counterweights
Motor Type	Stepper
Drive System	Belt
Product Dimensions	18 x 18 x 13 inches
Item Weight	33 pounds
ASIN	B0758MXFZ8
Item Model Number	S30200
Date First Available	September 22, 2017
Manufacturer	Sky-Watcher
Color	White
Form Factor	Tripod
Compatible Devices	DSLR Cameras, Telescopes, Optical Tube Assemblies
Mounting Type	Tabletop

9. WARRANTY AND SUPPORT

The Sky-Watcher AZ-EQ5 mount is manufactured by Sky-Watcher. For specific warranty information, please refer to the warranty

card included with your product or visit the official Sky-Watcher website.

For technical support, service, or inquiries regarding parts and accessories, please contact Sky-Watcher customer service. Ensure you have your model number (S30200) and purchase details available when contacting support.

Regular firmware updates are released to enhance performance and add features. These can be downloaded from the Sky-Watcher website and installed via the mount's USB port.