SVBONY SC715C

SVBONY SC715C Astronomical Camera User Manual

Model: SC715C | Brand: SVBONY

Introduction

The SVBONY SC715C is a high-performance CMOS astronomical camera designed for planetary imaging. It features the advanced IMX715 sensor, a 512MB DDR3 cache, and a dedicated ST4 guiding port, providing exceptional detail and stability for astrophotography. This manual provides essential information for setting up, operating, and maintaining your SC715C camera.

Image: SVBONY SC715C camera with key technical specifications highlighted.

Key Features

- **High-Resolution Sensor:** Equipped with a 1.45 µm pixel sensor, delivering 4K resolution and capturing fine details.
- **IMX715 Sensor:** Offers low read noise, reducing stellar resistance and blur during long exposures.
- **512MB DDR3 Cache:** Ensures fast task execution, reduces focusing delays, and provides smooth

recording.

- **USB 3.0 Interface:** Supports high-speed data transfer at 45.5 fps at full resolution for stable and continuous data flow.
- **ST4 Autoguiding Port:** Allows connection to an equatorial mount for real-time position adjustment, preventing drift and ensuring clear images.
- **Durable Aluminum Alloy Housing:** Provides excellent durability, heat dissipation, and corrosion resistance.
- **Lightweight Design:** Weighs only 147g, ensuring stability without adding significant weight to your astronomical setup.

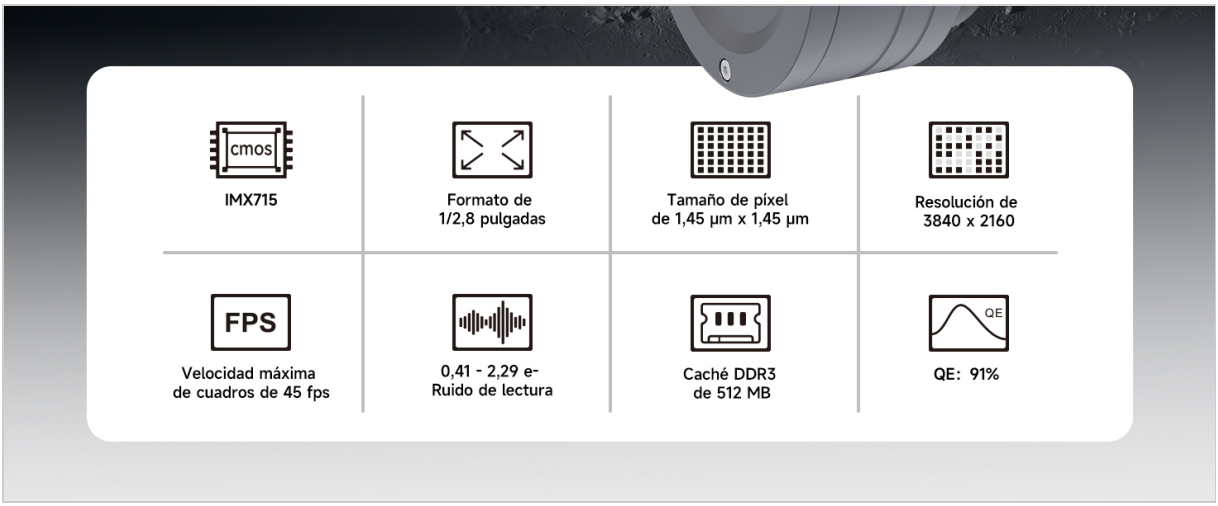

Image: Visual representation of key technical specifications.

What's in the Box

Verify that all items listed below are included in your package:

- 1 x SC715C Astronomical Camera
- 1 x 1.25-inch M42 Thread Adapter Ring
- 1 x C-Lens M42 Thread Adapter Ring
- 1 x C-CS 5mm Adapter Ring
- 1 x M42-M42 Adapter Ring
- 1 x USB 3.0 Data Cable
- 1 x ST4 Guiding Cable
- 1 x User Manual
- 1 x Dust Cover
- 1 x Cleaning Cloth

Image: All components included in the SC715C package.

Setup and Installation

Follow these steps to properly set up your SVBONY SC715C camera with your telescope:

1. **Step 1: Insert the Diagonal Mirror.** If your setup requires it, first insert the diagonal mirror into your telescope's focuser.
2. **Step 2: Insert the SC715C Camera.** Attach the appropriate adapter ring to the SC715C camera, then insert the camera into the focuser or diagonal mirror. Secure it in place.
3. **Step 3: Connect the Transmission Line.** Connect the USB 3.0 data cable from the camera to your computer. If using autoguiding, connect the ST4 guiding cable from the camera to your equatorial mount's autoguiding port.
4. **Step 4: Activate and Use.** Power on your computer and launch the necessary imaging software. Your camera should now be ready for use.

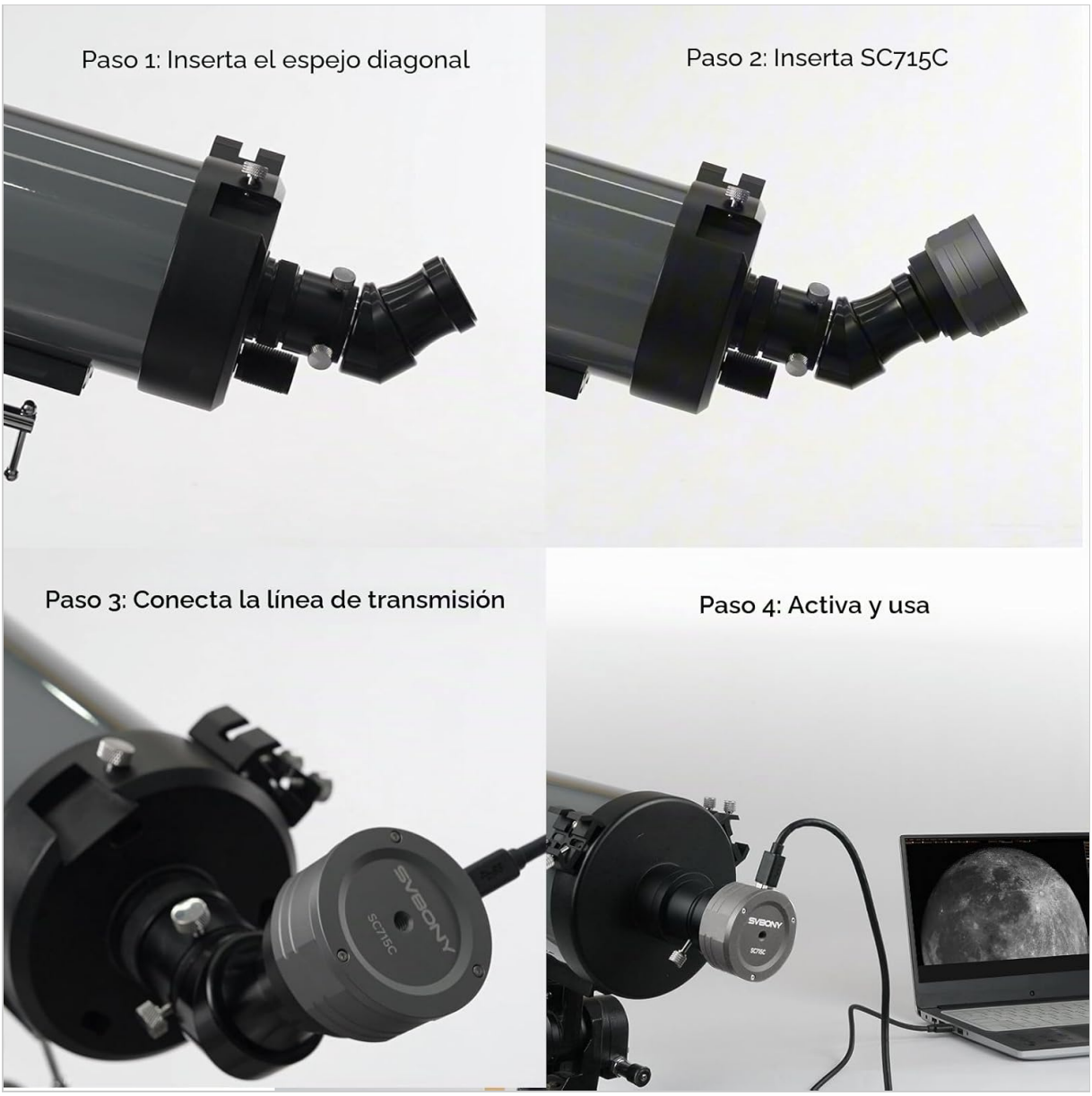

Image: Step-by-step guide for camera installation.

Mounting Solutions

The SC715C camera supports C-mount and CS-mount lenses. The back focus for a C-mount lens is 17.526 mm (requires a 5mm adapter ring), and for a CS-mount lens is 12.5 mm (no 5mm adapter ring needed).

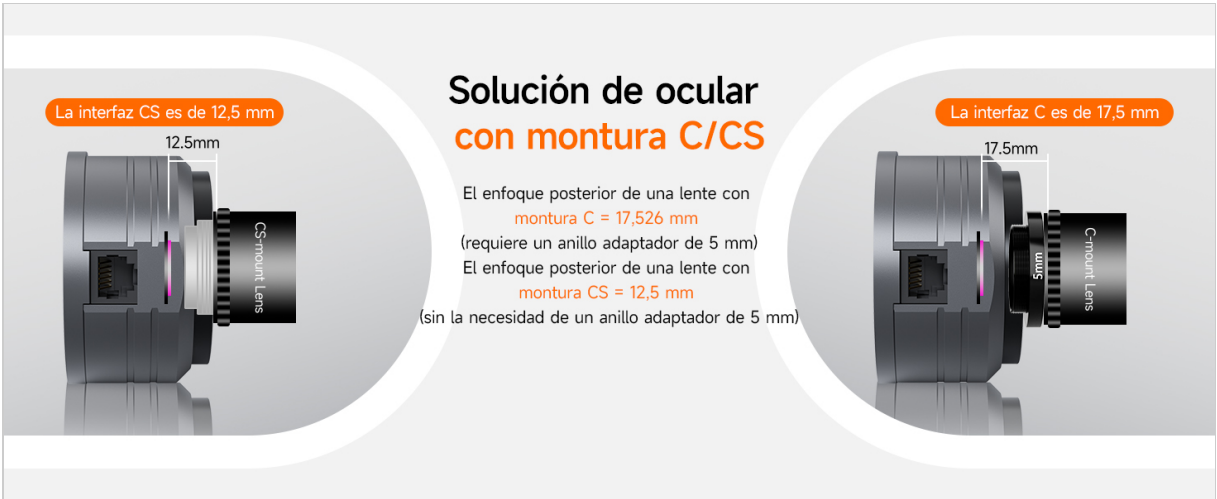

Image: C/CS mount lens solution diagram.

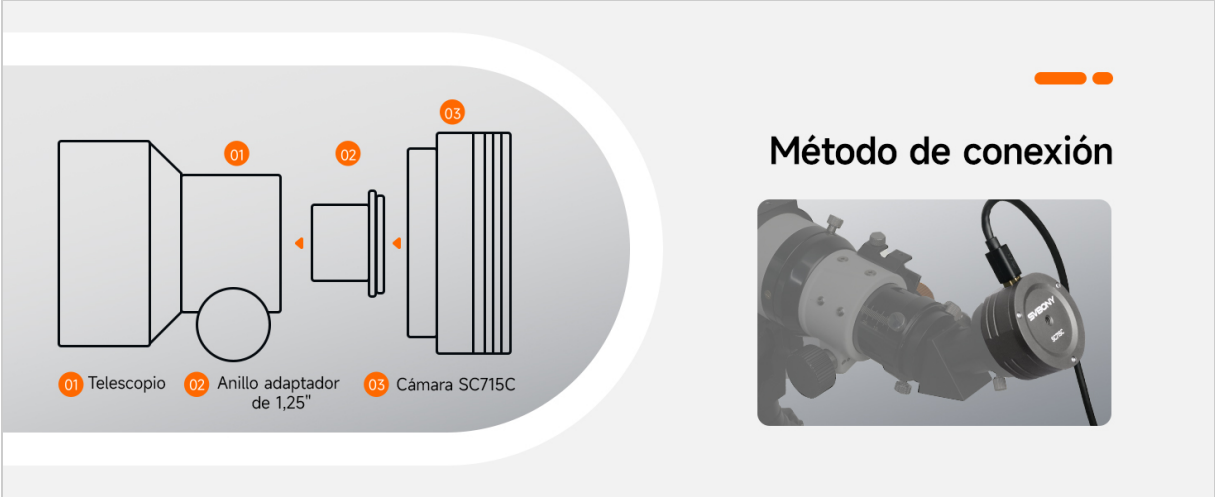

Image: Connection method diagram for the SC715C camera.

Operating Instructions

Software Compatibility

The SC715C camera is compatible with both PC and Mac operating systems. Utilize the included software or other compatible astronomical imaging software to capture and stack images for optimal results.

Image: SC715C camera connected to a laptop, compatible with PC/Mac.

High-Speed Data Transfer

The integrated 512MB DDR3 cache and USB 3.0 interface enable rapid data transfer, supporting up to 45.5 frames per second (fps) at full resolution. This ensures smooth video recording and efficient capture of planetary movements.

Image: DDR3 cache and high-speed data transfer explanation.

Autoguiding Functionality

The ST4 autoguiding port allows the camera to connect to compatible equatorial mounts. This feature enables precise real-time adjustments to the telescope's position, crucial for long-exposure astrophotography to counteract rotational drift and maintain sharp focus.

Image: USB 3.0 and ST4 port diagram.

Sensor Technology and Performance

IMX715 Color Sensor

The SC715C camera utilizes the IMX715 color sensor, capable of capturing highly detailed images with approximately 8.46 megapixels (3840H × 2160V resolution). This sensor offers high sensitivity and low dark current, enhancing its low-light imaging capabilities, especially in the near-infrared spectrum.

Image: IMX715 color sensor detail.

1.45 µm Micropixel Element

Each pixel on the IMX715 sensor measures a mere 1.45 micrometers, contributing to the camera's ability to deliver stunning 4K resolution and superior image quality. This small pixel size allows for greater detail capture compared to larger pixel sensors.

Image: Comparison of 1.45µm micropixel element (IMX715) vs. 2.9µm micropixel element (IMX662).

STARVIS II Technology

The SC715C incorporates STARVIS II technology, which employs advanced image processing algorithms. This results in higher sensitivity and lower noise levels, significantly improving performance in low-light conditions and enhancing the clarity of astronomical observations.

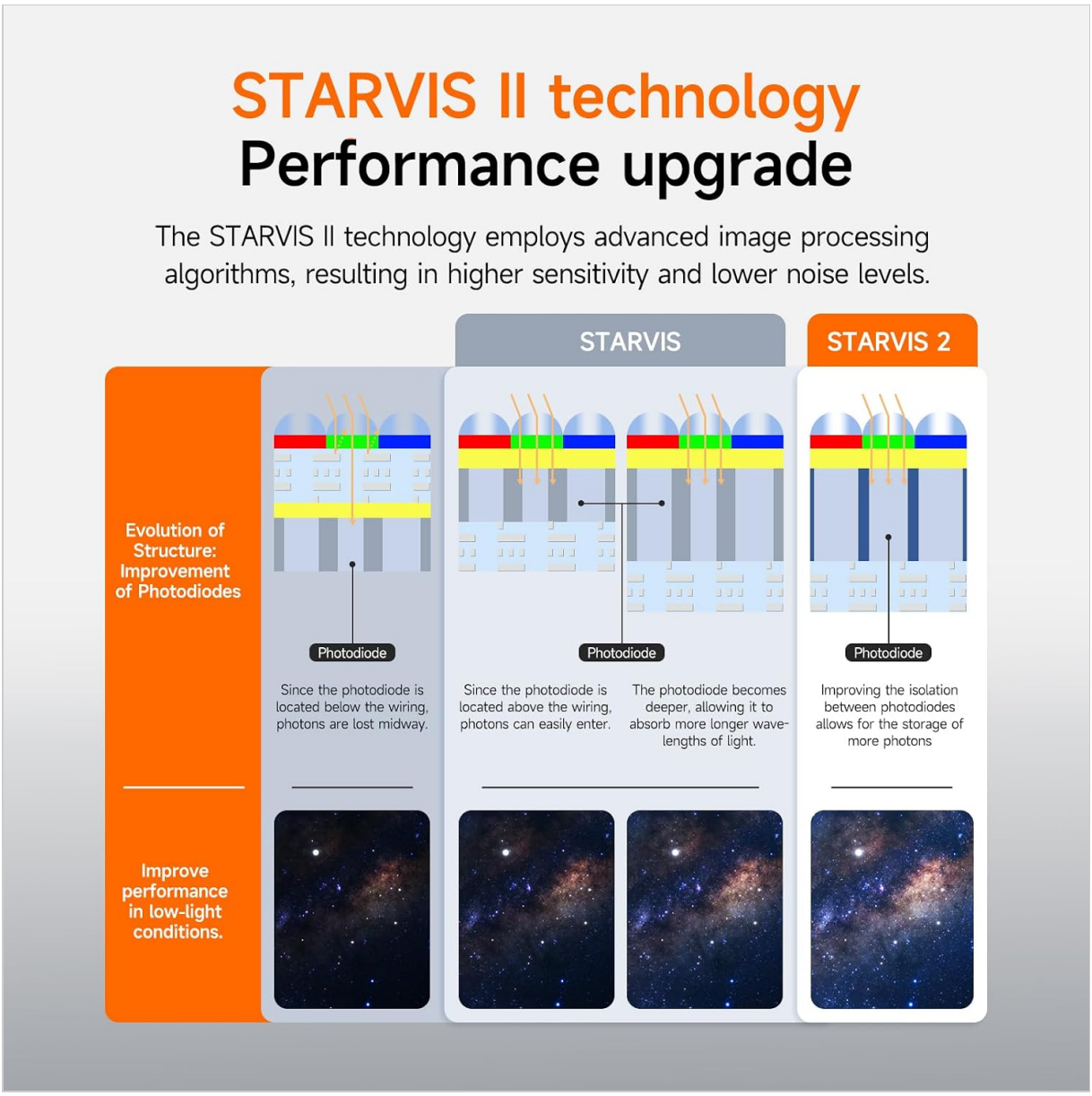

Image: Explanation of STARVIS II technology and its benefits.

Low Light Performance

Combined with the IMX715 sensor and BIN 2x2 technology, the camera delivers superior performance in low-light environments, allowing for clearer capture of faint celestial objects.

Image: Low light performance comparison with BIN 2x2 vs BIN 1x1.

Quantum Efficiency and Read Noise

Quantum Efficiency (QE) and read noise are critical parameters for camera performance. The SC715C boasts a high QE (approximately 91%) and very low read noise, which significantly improves the image signal-to-noise ratio, resulting in cleaner and more detailed astronomical images.

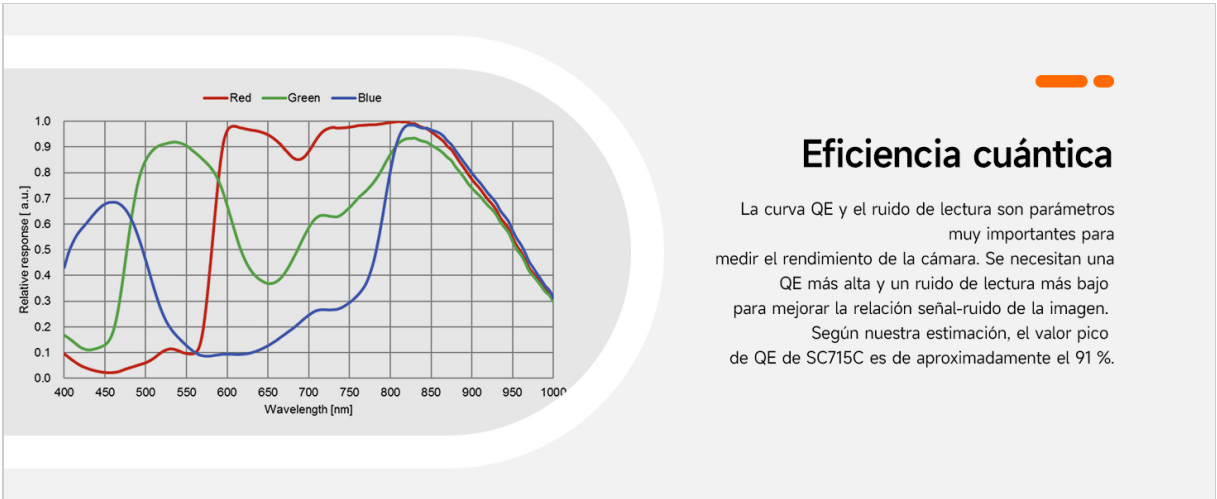

Image: Quantum Efficiency graph.

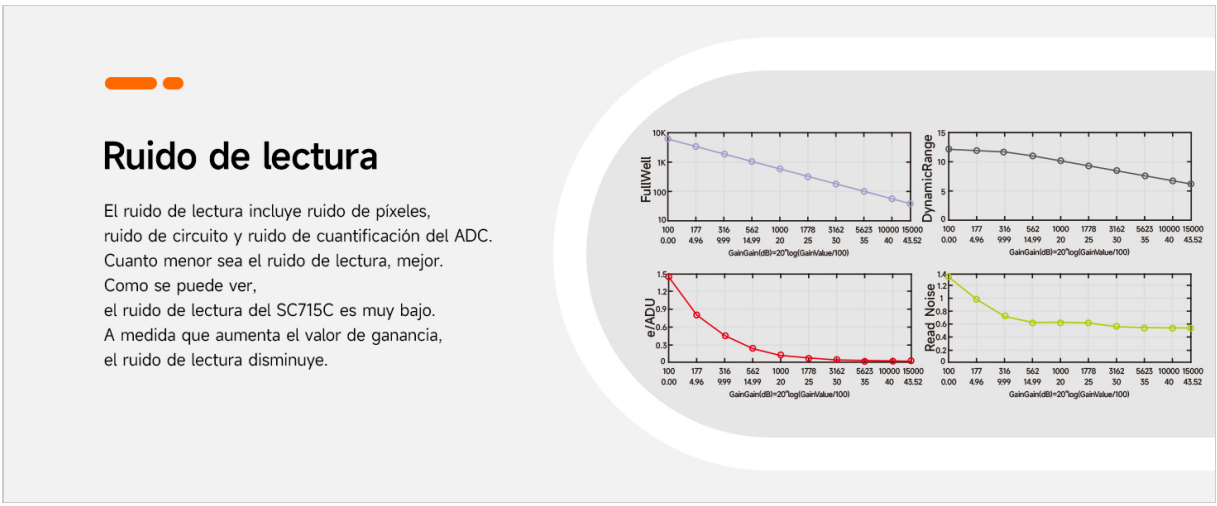

Image: Read Noise graphs.

Example Image

Image: Lunar surface captured with the SC715C camera.

Specifications

Feature	Detail
Model Name	SC715C

Feature	Detail
Sensor Type	CMOS (IMX715)
Effective Image Resolution	8.46 MP
Video Capture Resolution	4K
Continuous Shooting Speed	45 FPS
DDR3 Cache	512 MB
Interface	USB 3.0, ST4 Autoguiding Port
Pixel Size	1.45 µm
Product Dimensions	6.25 x 6.25 x 3.66 cm
Product Weight	147 g (camera body) / 680 g (package)
Exposure Control Type	Shutter Aperture Priority
ISO Range	100-6400
Focus Type	Manual Focus
Water Resistance Level	Not Water Resistant

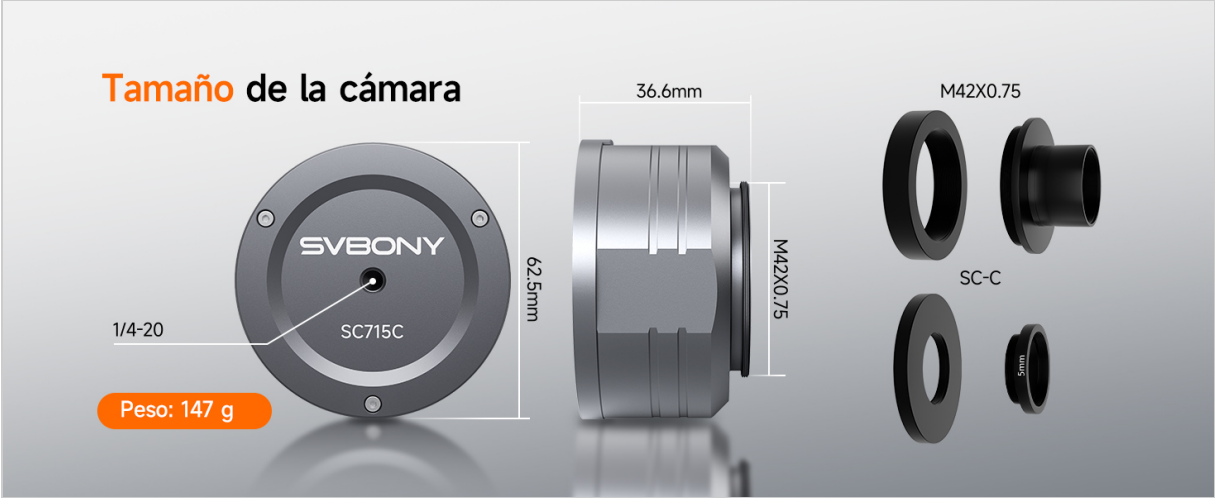

Image: Camera dimensions and components.

Maintenance

- **Cleaning:** Use the provided cleaning cloth or a soft, lint-free cloth to gently wipe the camera body. For optical surfaces, use specialized lens cleaning solutions and cloths to avoid scratches.
- **Storage:** When not in use, store the camera in a dry, dust-free environment. Use the dust cover to protect the sensor and connections.
- **Handling:** Avoid dropping or subjecting the camera to strong impacts. Handle cables carefully to prevent damage to connectors.
- **Temperature:** Operate and store the camera within recommended temperature ranges to ensure optimal performance and longevity.

Troubleshooting

If you encounter issues with your SC715C camera, consider the following common troubleshooting steps:

- **Camera Not Detected:**
  - Ensure the USB 3.0 cable is securely connected to both the camera and your computer.
  - Try a different USB port on your computer.
  - Verify that the necessary drivers are installed. Refer to the manufacturer's website for the latest drivers.
  - Restart your computer and the imaging software.
- **No Image/Black Screen:**
  - Check if the dust cover has been removed from the camera's optical window.
  - Ensure the telescope's objective cap is removed.
  - Adjust exposure settings in your imaging software. Very short exposures in dark conditions can result in a black image.
- **Poor Image Quality/Blurry Images:**
  - Ensure the telescope is properly focused.
  - Check for vibrations in your setup.
  - Verify that the camera's optical window is clean.
  - Adjust gain and exposure settings in your software.
- **Autoguiding Issues:**
  - Ensure the ST4 cable is correctly connected to both the camera and the mount.
  - Verify that your autoguiding software is configured correctly and detecting the camera and mount.
  - Check the mount's autoguiding port functionality.

For further assistance, please contact SVBONY customer support.

Warranty and Support

SVBONY products are designed for reliability and performance. For information regarding warranty coverage, terms, and conditions, please refer to the warranty card included with your product or visit the official SVBONY website. For technical support, product inquiries, or service requests, please contact SVBONY customer service through their official channels.
Online Resources:

- SVBONY Official Store on Amazon
- User Guide (PDF)