



75Q Quintuplet Refractor User's Manual



By Matthew M Paul & Edward Bevan
2023

WARNING: Never look directly at the Sun with the naked eye or with this optic.
Permanent irreversible eye damage can result.

Overview

The Apertura 75Q Quintuplet Refractor uses an FCD100 extra low dispersion element in its five element Petzval design. It is of excellent quality and produces sharp, bright, high contrast images for both visual and photographic use. The dual speed rack and pinion focuser has an integrated rotator which is useful for imaging as well as quick positional adjustments during visual observations.

SKU	APT-75Q-LTD
Model	75Q-LTD
Series	Apertura Refractors
Focal Ratio	f/5.4
Optical Design	Petzval Refractor
Aperture	75mm (2.95")
Number of Refractor Elements	5 (Quintuplet)
Optical Glass Type	FCD100
Focal Length	405mm
Image Circle	44mm
Focuser Style	Dual Speed Rack & Pinion
Focuser Size	3"
OTA Weight	6lb 13oz with V style Bar 7lb 13oz with D style bar
Length (Dew Shield Extended)	467mm

Using The Telescope

Mounting

The Apertura 75Q comes from the factory with a 11.75" D series dovetail plate installed, which can be attached to most telescope mounts on the market. An 11.25" V series dovetail has been included in the box to allow for mounting in saddles of that style, or replacement of the top handle if so desired. To replace the installed dovetail with the V series dovetail bar, use a 3/16" or 5mm size hex head wrench to remove the four silver screws underneath the dovetail bar that secure the rings to the D series dovetail. Then place the V series dovetail on the rings, positioning as desired, and move it until the holes in the dovetail line up with the holes in the telescope rings. Reinstall the four silver screws, tightening until these are just snug.

Utilizing the V series as a replacement for the handle allows accessories to be mounted on top of the telescope with universal adapters that exist on the market. This allows for versatile placement and quick removal of the supporting accessories, such as mini PCs, Wi-Fi camera controllers, power distribution devices, or guide scopes. Please note that this requires removal of the finder scope base to accommodate the V series bar, which can be done by unscrewing the two silver screws with a 3/32" (2.5 mm). The handle can then be replaced by unscrewing the two screws holding it to the rings with a 5/32" (4 mm) hex head wrench, and reusing these to install the V series dovetail in the handle's place.

Visual Use

1.25" Visual Adapter

This telescope comes with a 1.25" eyepiece holder, for visual use. To attach this, first lock the camera rotator with its thumb screw. Then unthread the spacer for the filter cell along with the cell itself, and thread the visual adapter on in its place (pictured to the right). The 75Q is now ready to accept a 1.25" diagonal!



The telescope is not compatible with 2" diagonals and visual accessories due to the available back focus of the system.

Focusing

With a 1.25" diagonal mirror, like the Apertura 1.25" Carbon Dielectric Mirror Diagonal (APT-D1CF, sold separately), focus should be located around the 25mm mark on the focuser's drawtube. Though, this location will vary a little depending on the diagonal and eyepiece in use.

Photographic Use

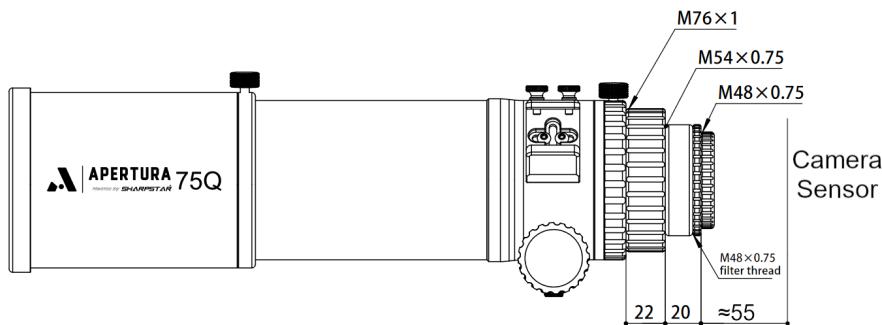


(Shown with optional accessories and items not included with the Apertura APT-75Q-LTD telescope)

Back Focal Distance

"Back focus" is the term used to describe the distance between the metal back of the telescope and the camera sensor. Meticulously spacing the camera out to this distance is typically critical not only to ensure that it can reach focus, but also to obtain the sharpest, brightest, best corrected image from the optics. Petzval optical designs are typically described as eliminating the need to calculate and space the back focus distance, however this isn't the whole story. Scopes of this design still need the camera sensor positioned at a suitable location that allows the camera to reach focus. What the Petzval design *does* eliminate is the need to exactly set the spacing for great optical performance - so long as your camera is spaced out enough to reach focus, the telescope will perform optimally.

The Apertura 75Q is designed to have a back focal distance around the industry standard 55 mm. This is the typical back focus of a DSLR with T-adapter, or cooled astronomy camera with its included adapters.



The telescope offers optional M52 and M76 connections for flexibility in specialized applications, should they be needed.

2" Filter Cell

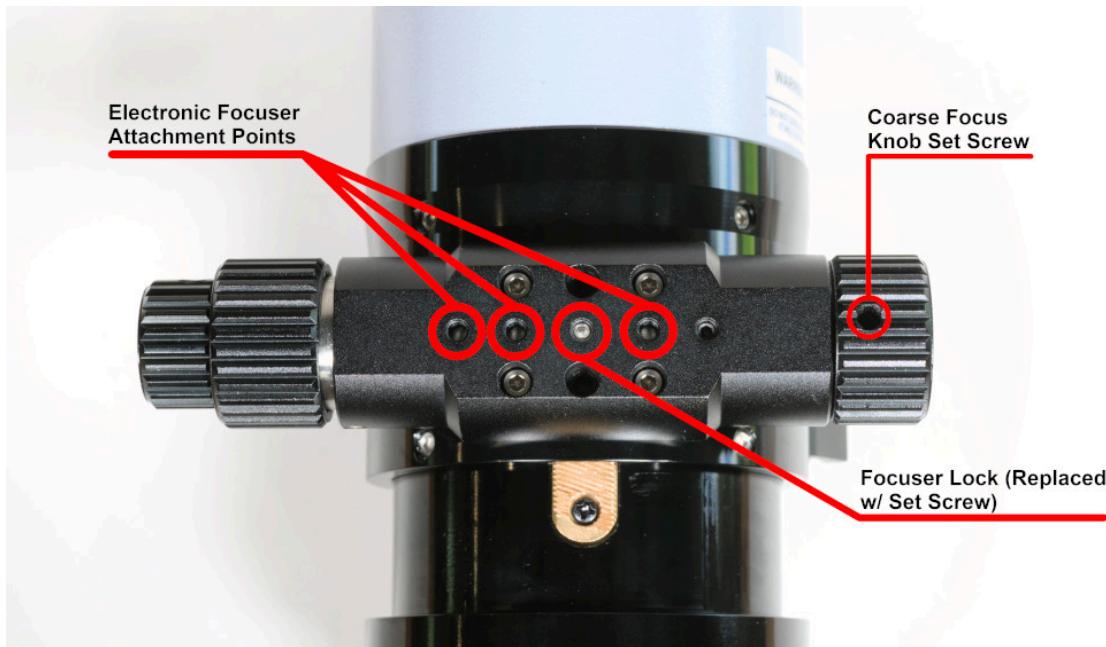
The 75Q comes equipped with a built in threaded 2" filter cell. To install a filter, first unthread the knurled section at the very back of the telescope, the section that the rear dust cap threads on to. Inside this section are threads to hold a filter inside the telescope when the cell is reinstalled. Simply thread a 2" filter into these and thread the cell back into the telescope.



Focuser

The dual speed focuser comes from the factory with two options to operate the focuser lock. The focuser lock functions by holding the focuser draw tube in place, making accidental adjustments impossible; useful when manually setting the focus point. A small thumb screw comes preinstalled on the scope. Depending on the position of the dovetail plates and how the scope is used, this thumb screw can be difficult to manipulate by hand. Inside the black cardboard package that houses the V style dovetail bar there is a bag with a small set screw and a hex key. By removing the telescope from the tube rings, the thumb screw can be replaced with this set screw which allows the focus lock to be manipulated through the use of the hex key, though the bottom of the dovetail bar.

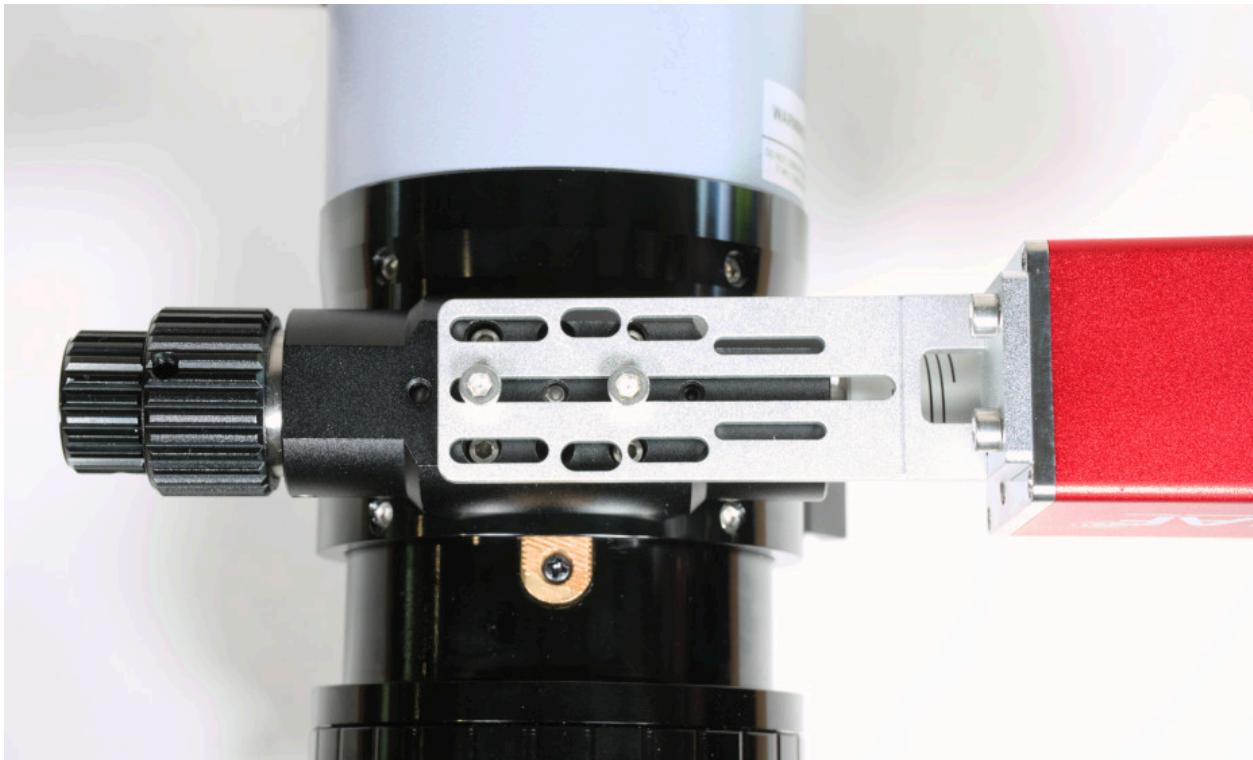
When using an autofocuser it might be a good idea to replace the thumb screw with the lower profile set screw. By doing so the hardware will not interfere with the auto focuser bracket.



Autofocuser Installation

Install the autofocuser on the coarse knob side of the telescope. Use the 2mm hex key that is included with the telescope to loosen the set screw that holds the coarse focus knob in place. Then, remove the coarse focus knob from the telescope.

The Apertura 75Q has a 6mm connection on the coarse adjustment shaft. This is the size adapter or flex coupler that will need to be used when installing the auto focuser. There are three possible M4 screw holes on the bottom of the focuser shaft housing that can be used to mount the autofocuser bracket; these holes are shown in the image above. Below is an image showing a common autofocuser installed on the 75Q.



Riser Block System

The Apertura 75Q now includes a pair of machined aluminum riser blocks for those users who require extra clearance. This is especially useful for imagers that use a focus mask to manually focus the telescope and lock the focuser in place using the focuser locking thumb screw. The riser blocks allow for extra clearance to manipulate the locking thumb screw.

When using the D series plate the riser blocks allow for more space under the telescope to mount accessories.

When using the V series dovetail bar the spacers can give an increased clearance between the telescope and the equatorial mount's saddle, especially on mounts which have a wide saddle with a deeply recessed V series groove.

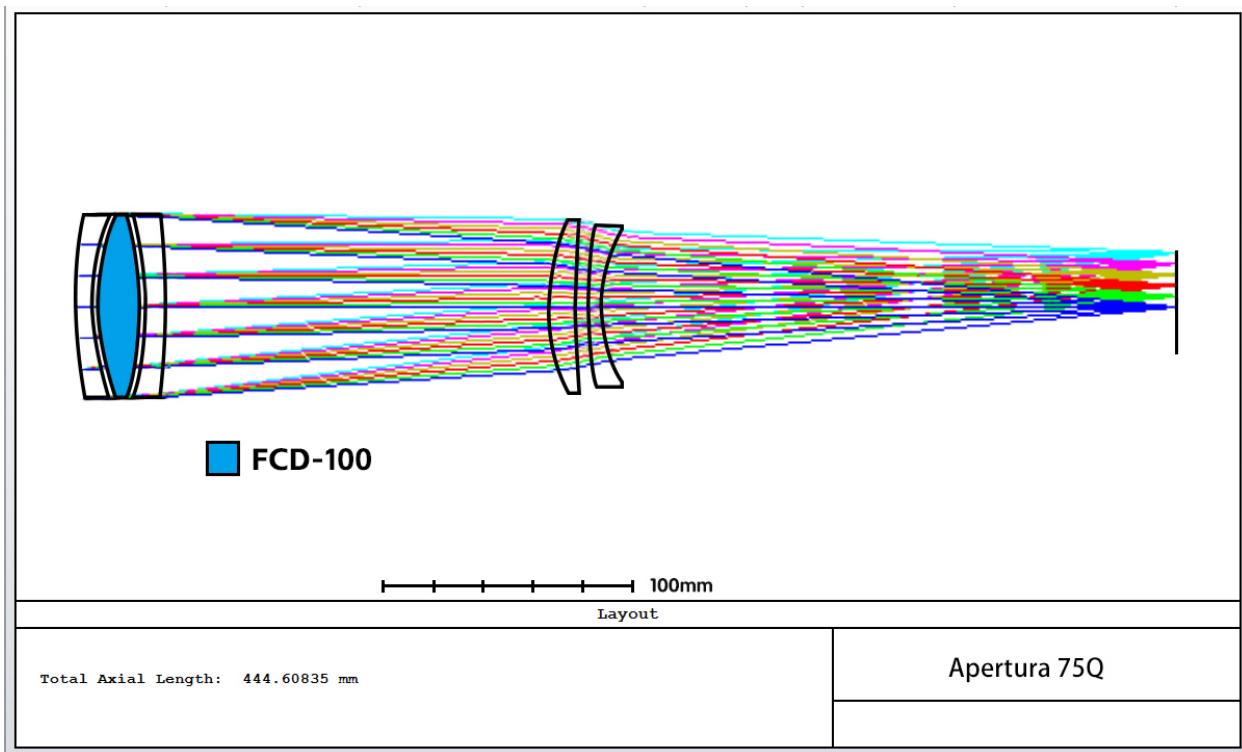
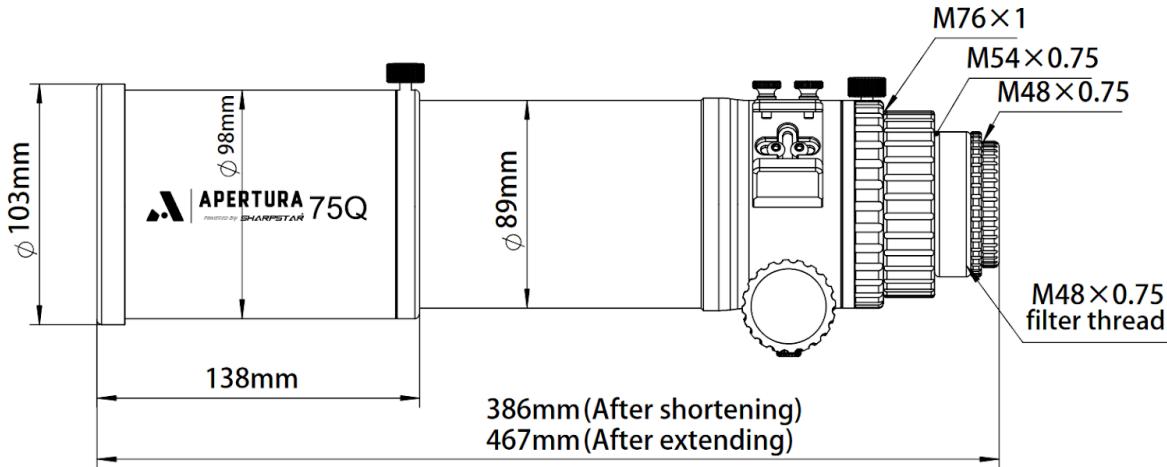
The telescope includes four different M6 cap head screw lengths for the best fit with each combination of parts. The correct pairing of screws, riser blocks, and dovetail bars is as follows:

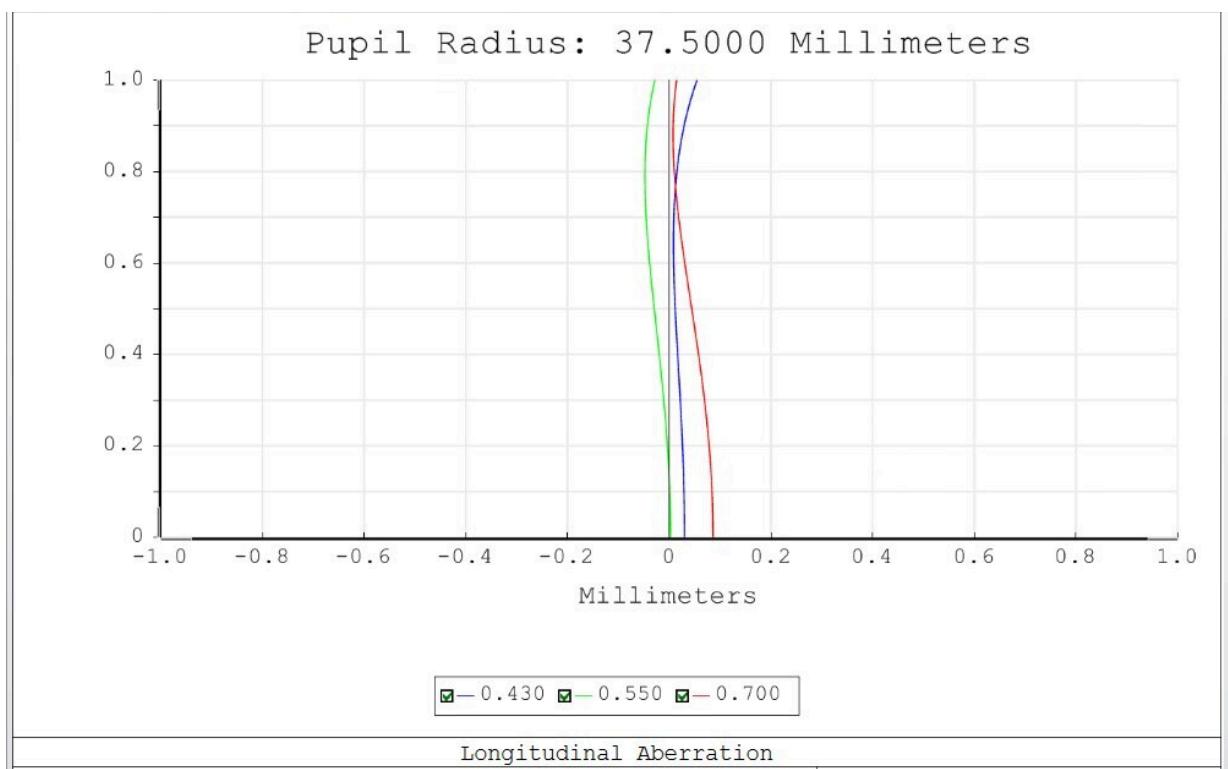
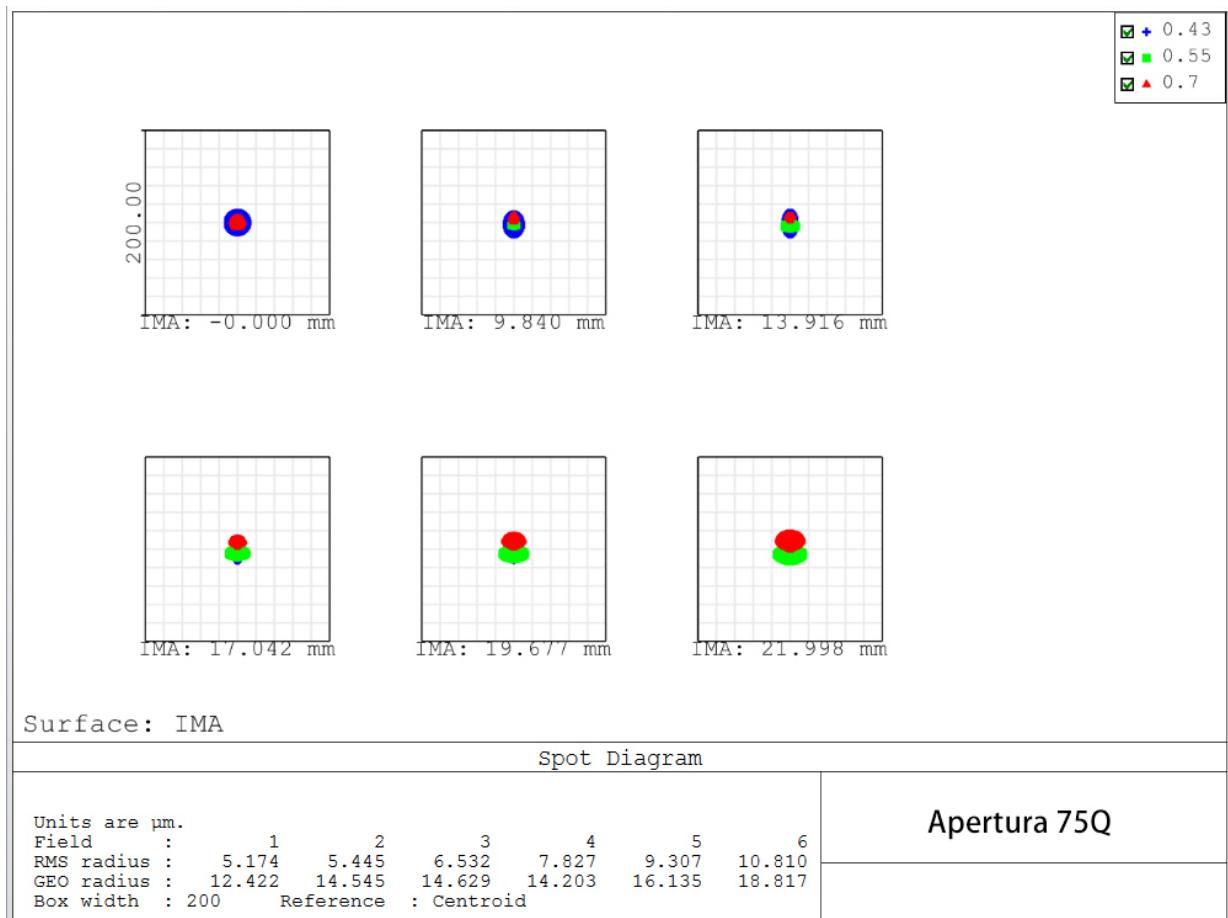
- D series and no Riser Blocks
 - M6 x 15mm
- D series and Riser Blocks
 - M6 x 30mm
- V series and no Riser Blocks
 - M6 x 10mm
- V series and Riser Blocks
 - M6 x 25mm

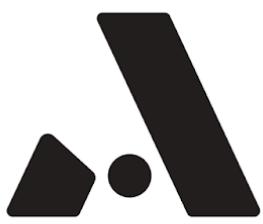
To install the riser blocks, start by flipping the telescope upside down so that the four M6 screws that hold the dovetail bar are revealed. Using the included 5mm hex key, remove the four screws and choose the appropriate screws from the above list that work for your combination. If using rise blocks, sit the blocks on the bottom of the rings. Then, position the dovetail bar and align the holes. Reinstall the desired hardware and gently tighten the cap head screws.



Additional Technical Information







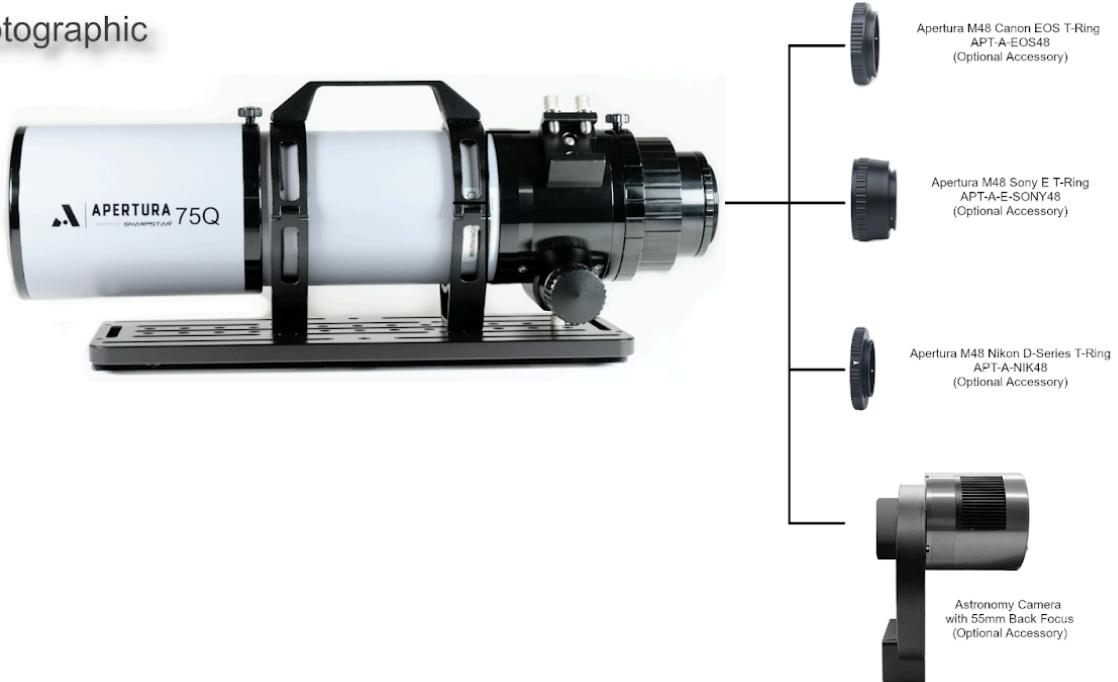
APERTURA

Apertura 75Q Refractor - System Diagram

Visual



Photographic



Warranty

The *Apertura Absolute Warranty* provides two years of coverage against product defects. After the initial two-year warranty expires, this product qualifies for Apertura's Three-Year Accident Replacement Program. In addition, the Apertura Absolute Warranty is transferable! It is important to keep your original receipt and the product's original boxes and packaging, should you need to make a claim.