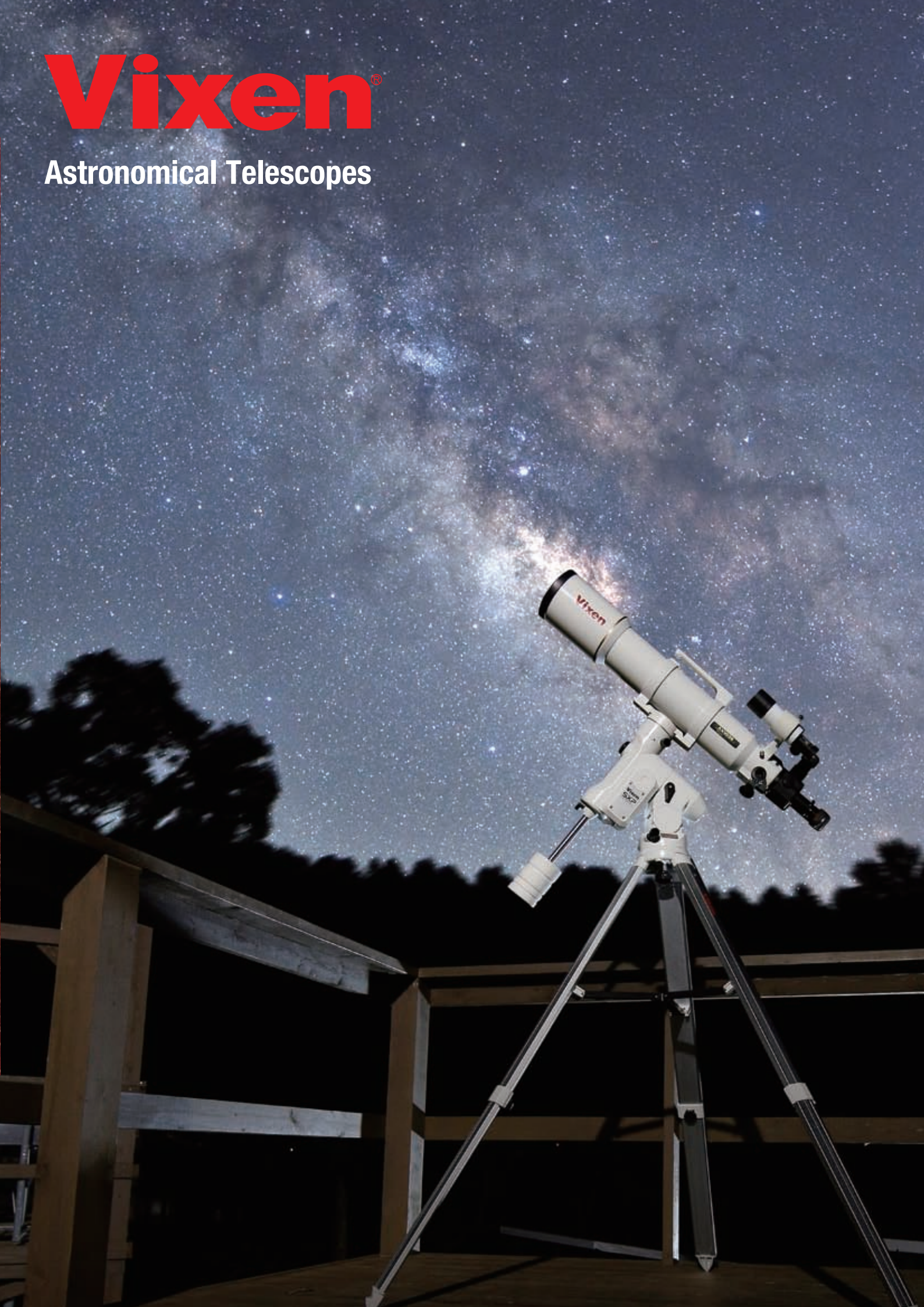
Vixen®

Astronomical Telescopes



Share the Wonder

Vixen Story

Everyone has heard that a team of reindeer pulls Santa Claus' sleigh full of toys on Christmas Eve night. In the 1822 poem composed by American scholar and poet Mr. Clement Clark Moore, Santa calls the reindeer by name and one of them is "Vixen". The Vixen company name derives from the joyous journey of this reindeer and implies the desire of our company to bring happiness to users of Vixen products. Vixen Co., Ltd., a comprehensive manufacturer of optical instruments such as astronomical telescopes, binoculars and microscopes, was founded in 1949. For more than half a century Vixen has succeeded in developing and supplying inspired products emblematic of Japanese manufacturing quality. As a leading manufacturer of consumer optical instruments, Vixen attaches the greatest importance to flexible ideas and continues the goal of technical advancement in pursuit of bringing happiness and satisfaction to the many users of Vixen products. - Vixen's corporate philosophy is to bring emotional satisfaction to users of our products.

Vixen leads in technology with new ideas and adherence to performance and quality.

Design

Product appearance is influential in the decision making process of customers in all optical hobbies. Design engineers, manufacturing engineers, marketing staff and aesthetics designers work together to seamlessly integrate styling with product function. This has launched many innovative products on the market. The Japan Industrial Design Promotion Organization (JIDPO) appreciates original products, not obsessed with conforming to the conventional, with a fresh appearance matched by functionality. This is the most authoritative organization in Japan involved in the comprehensive promotion of design activities. The "Good Design Award" has been awarded by JIDPO to the following Vixen products so far.

"Good Design Award"

- Field Scope GEOMA 65 in 1994
- Magnifiers AR65, AR75 and AR90 in 1999
- Binoculars FORESTA 8x42 and FORESTA 10x42 in 2001
- Equatorial Mount SPHINX in 2003
- Field Scope GEOMA PRO 67A in 2003
- Equatorial Mount AXD in 2011
- Binoculars ARTES 8.5x45 and ARTES 10.5x45 in 2011

"JIDA Design Museum Selected" (Vol.11)

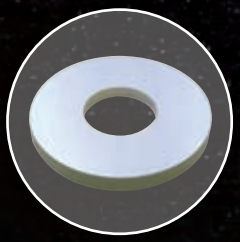
- Binoculars New FORESTA 10x50

"JIDA Design Museum Selected" (Vol.13)

- Equatorial Mount AXD

Intuitive On-screen Go-To Telescope Controller

Computer control devices that automatically locate objects in the sky were once only found in professional observatories. In 1984, Vixen was the first to successfully produce a computer controlled Go-to telescope system to the general consumer. Building on this success, vixen released a more advanced system in 2003. The SPHINX System is an equatorial mount with integrated celestial navigation. The STAR BOOK Controller for the SPHINX Mounts feature a star chart display, a great advancement over conventional character display devices. Now the High Definition STAR BOOK TEN has evolved from the original STAR BOOK.



Unrivaled 6th-order Aspheric Mirror

Vixen has created a unique aluminum vacuum evaporation technology to produce extreme-precision mirror surface. More accurate than the error-prone process of grinding material to form a mirror surface, Vixen's revolutionary system works by controlled layering of aluminum film. The parabolic primary mirror of the long-popular 200mm Newtonian R200SS and the unique sixth-order aspheric Cassegrain primary mirror of the VC200L are produced with this aluminum vacuum evaporation technology.

Renowned Dovetail-Plate Attachment System

Vixen was the first to develop a dovetail plate system or the quick and easy mating of telescopes and mounts. This system was introduced on the GP Equatorial Mounts in 1992. This system simplified the attachment and removal of optical tubes and ensured that the telescope stayed firmly attached to the mount. Presently, this Dovetail Plate system has become accepted as a world standard for mounting and is employed by many manufacturers.

Vixen®

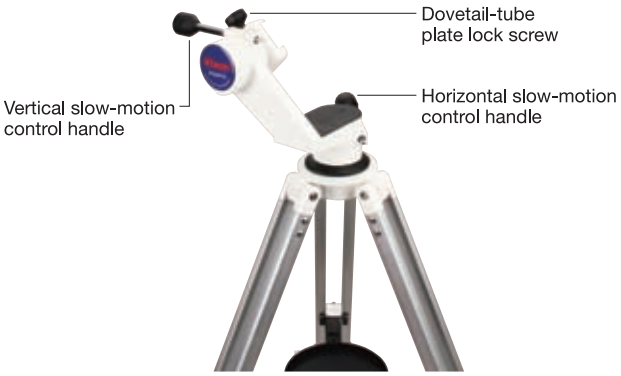
Tips on Selecting a Mount for a Telescope

Types of Mounts - There are two types of telescopes mounts; Alt-azimuth and Equatorial.

Alt-azimuth Mount

Features simple vertical and horizontal motion controls designed to easily point a telescope to the object you want to view.

(PORTAⅡ shown)

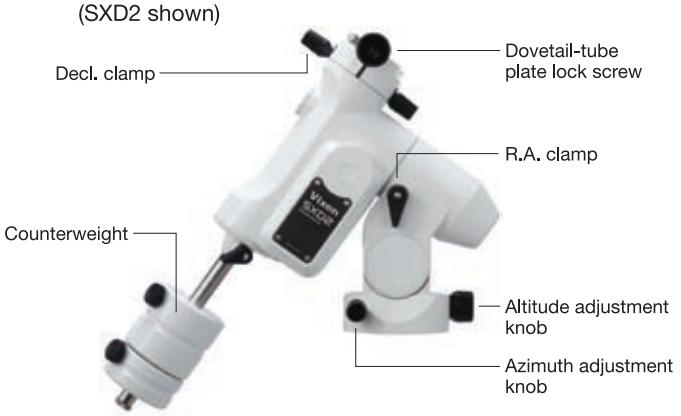


◎ Can be assembled and handled easily due to its simple structure.
◎ Lightweight and portable.
○ Can also be used to mount a spotting scope (Field scope) for terrestrial viewing.
△ Unsuitable for a long observation at powers higher than 150x.
× Not designed for long exposure astrophotography.

Equatorial Mount

Features the ability to track an object in accordance with the diurnal motion (rotation) of the earth.

(SXD2 shown)



◎ Allows accurate tracking of an object over an extended period.
◎ Suitable for long observation at high powers or for astrophotography.
◎ Offers a wide selection from a mount with simple two axes drive to a mount with visual Go-To navigation.
△ You are required to accustom yourself to the motion of the equatorial mount for the beginning.
△ Heavier than alt-azimuth mount generally.

STAR PAL Alt-azimuth Mount 17

A lightweight and simple alt azimuth mount and telescope system with friction controls for easy movement by hand.

MINI PORTA Alt-azimuth Mount 14

A lightweight and compact alt azimuth mount for beginners with features found on the popular Porta Ⅱ Mount.

PORTAⅡ Alt-azimuth Mount 10

An innovative alt azimuth mount suitable not only for beginners but also for serious astronomers who prefer grab and go observation of the night sky. Its excellent functionality and solid tripod provide a stable and comfortable observing platform.

HF2 Alt-azimuth Fork Mount 18

A solid alt Azimuth fork mount designed to carry large aperture astronomical binoculars such as the BT series of giant binocular telescopes.

NEW

AP Equatorial Mount 35

A standard and versatile equatorial mount providing a variety of optional accessories for adapting to your observing needs.

GPD2 Equatorial Mount 38

An upgraded model of GP2 equatorial mount that is suitable for both visual observing and astrophotography. It provides one level higher performance and sturdiness.

NEW

SX2 Equatorial Mount 20

A go-to equatorial mount equipped with sophisticated design and excellent manipulability. It incorporates precision pulse motors and accurate micro-step motion control which makes the rotation of the pulse motors extremely stable and smooth. The mount comes equipped with STAR BOOK ONE dual axis handheld controller.

SXD2 Equatorial Mount 24

The next step up from the SX2 Mount featuring the Hi Def STAR BOOK TEN Hand Controller with built in star chart. The mount body with solid mechanics, is designed for long observing sessions and astrophotography.

SXP Equatorial Mount 27

The summit of the Sphinx series of equatorial mounts with high definition “STAR BOOK TEN” controller. It boasts of ultimate precision and unrivaled performance in the class of highly portable German equatorial mounts.

AXD Equatorial Mount 31

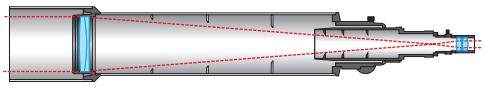
Vixen’s flagship equatorial mount that carries a 30kg (66 lb) photographic payload. It is designed for both superior performance and ease of use to serve serious astrophotographers who demand a perfect imaging platform.

Tips on Selecting an Optical Tube

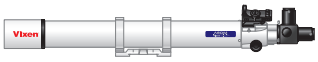
Types of Optical Tubes - There are three types of optical tubes; Refractor, Reflector and Catadioptric.

Refractors

Light is collected through an objective lens.

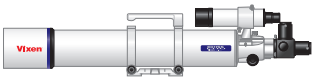


◎ Constantly stable field of view with excellent contrast, suitable for observation of any celestial object.
◎ Features easy handling, storage and maintenance.
○ Good thermal stability against outside temperature. (Except triplet objective)
△ Relatively expensive among other types of optical tubes with the same aperture size.
△ Heavier than the other types of optical tubes due to multiple lens elements made of glass.



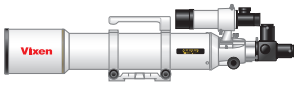
Achromatic Refractors

Vixen Achromatic refractors feature stable and high contrast images.



ED Apochromatic Refractors

Vixen ED (Extra Low Dispersion Glass) refractors feature sharp and clear images free from false color. Recommended for astrophotography.

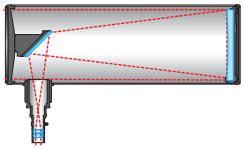


Triplet ED Apochromatic Refractors

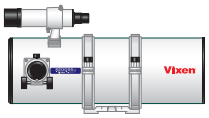
Vixen's quad element design including triplet ED objective lens delivers high quality perfect images with no hint of chromatic aberration. Ideal for both visual observing and astrophotography.

Newtonian reflectors

Light is collected with a concave (parabolic) primary mirror.



◎ Sharp central images with no chromatic aberration (no false color around images)
○ An optical tube even with large aperture is obtainable at a moderate price.
△ Tube currents are conspicuous and affect images if there is a difference in temperature between the inside of the tube and outside. Wait an hour or more to cool down the telescope tube.
× It is not suitable for observation of the sun.

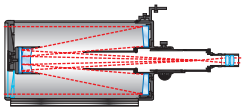


Vixen's Newtonian reflectors feature excellent optical performance with the introduction of advanced high precision mirror formation technologies.

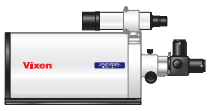
Catadioptric reflector

It is an advanced combination of refractor and reflector.

■ **VMC**
(Vixen Original Maksutove Cassegrain)

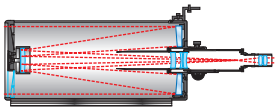


◎ Both the primary and secondary mirrors are made of high-precision spherical mirrors.
◎ The short and compact optical tube design makes it convenient to transport to the observation site and store.
○ Spherical aberration, chromatic aberration and field curvature are all well-corrected.
△ Tube currents are conspicuous and affect images if there is a difference in temperature between the inside of the tube and outside. A good thing is relatively quick cool down time due to open tube design.
× It is not suitable for observation of the sun.



Vixen's original modified Maksutove cassegrain design makes it an all-round telescope not only for visual observation but also for astrophotography.

■ **VISAC**
(Vixen 6th-order Aspherical Catadioptric reflector)



◎ Spherical aberration, coma aberration, chromatic aberration and field curvature are corrected accurately.
○ The compact tube is convenient for carrying and is handy for observing/imaging.
△ Tube currents are conspicuous and affect images if there is a difference in temperature between the inside of the tube and outside. Wait an hour or more to cool down the telescope tube.
× It is not suitable for observation of the sun.

Vixen's original high precision Sixth-order Aspherical Cassegrain (VISAC) optics produces outstanding pinpoint star images without coma and without field curvature. It is highly recommended for serious astrophotography.

Telescope Controllers (For Motor-driven models)

It is essential for long time observing session and taking astrophotography.

NEW

STAR BOOK ONE 21

(Dual axis drive with versatile tacking options)
Supplied as standard with SX2 Mount

The four direction buttons on the STAR BOOK ONE move the mount in X and Y dual axis (RA and DEC directions) either quickly or slowly. Versatile tracking options are available in addition to the sidereal and solar tracking rates.

STAR BOOK TEN 28

(Automatic Go-To slewing and tracking with star chart)
Supplied as standard with SXD2, SXP and AXD Mounts

The revolutionary advanced Go-to navigation controller with built in star chart is the best companion for your observing sessions.

DD-3 38

(Dual axis drive controller)
Optional for GP2 and GPD2 Mounts

Drives each of the installed motors at the R.A and DEC axes on the mount for accurate celestial tracking. An Autoguider port is provided for an external Autoguider.

Tips on Selecting an Astronomical Telescope

Aperture and Magnification – The following table shows examples of what may be viewed for the given magnification and aperture. Sky conditions are also a factor.

Moon

The easiest object to observe; suitable for beginners. It fills the whole field of view at 50x.

Aperture \ Magnification	Low (30x to 70x)	Middle (70x to 140x)	High (over 140x)
60mm	Entire moon can be seen in the field of view.	Lunar craters and seas can be seen.	Can be used only when seeing is good.
80mm	Entire moon can be seen with distinct features.	Craters and mountains can be seen distinctly.	Half of the moon fills the field of view.
100mm	Same as above.	Small craters can be observed.	Many valleys and mountains can be observed.
150mm	Same as above.	Details of small craters can be observed.	Small hills and details of valleys can be observed.

Saturn

Saturn's rings can be seen at about 100x. To see the rings in more detail, raise the magnification to 200x and over.

Aperture \ Magnification	Low (30x to 70x)	Middle (70x to 140x)	High (over 140x)
60mm	Saturn can be seen small in the field of view.	The rings and satellite Titan are easily seen.	Saturn's bands may be visible.
80mm	Mainly used for centering the planet in the field of view.	Saturn's bands, shading of rings, and Cassini's division can be seen.	Magnification over 150x is recommended when making a sketch.
100mm	Same as above.	Same as above and two satellites are visible.	Saturn's bands and three separated rings can be seen.
150mm	Same as above.	Same as above and three satellites are visible.	Saturn's bands can be seen, and the outermost ring can be observed distinctively.

Jupiter

At about 80x, a few cloud bands can be seen. As Jupiter is a bright object, it is possible to make observation at high magnification if seeing is excellent.

Aperture \ Magnification	Low (30x to 70x)	Middle (70x to 140x)	High (over 140x)
60mm	Suitable for observing the four largest satellites.	It is easy to see a satellite crossing the planet and two or three cloud belts.	High magnification can be used only when seeing is good.
80mm	Same as above.	Rough structure of cloud bands can be detected.	Magnification over 150x is recommended when making a sketch.
100mm	Same as above.	Detailed structure of cloud bands can be detected.	Magnification higher than 200x is recommended when making a sketch.
150mm	Too bright to observe.	Suitable for observing the four largest satellites.	Detailed structure and changing of cloud bands can be observed.

Venus and Mercury

Suitable objects for beginners with telescope. These planets are observable only in the west at dusk or in the east just before dawn.

Aperture \ Magnification	Low (30x to 70x)	Middle (70x to 140x)	High (over 140x)
60mm	Mainly used for centering the planet in the field of view.	Cycle of phases on Venus is observable. At the greatest elongation from the Sun, it appears like a half moon.	Easier to view Venus when seeing is good. Too high to view Mercury.
80mm	Same as above.	Same as above.	Easier to view when the planets are high in the sky.
100mm	Same as above.	Should be used when seeing is poor.	Brightness of edge, white spot, and tint of Venus are visible. Mercury's cycle of phases is observable.
150mm	Same as above.	Same as above.	Brightness of edge, white spot, and tint of Venus are visible. Faint pattern on Mercury's may be visible.

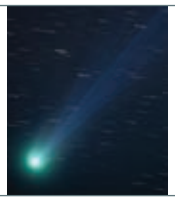
Mars

Mars' appearance changes over time. The best observing seasons occur every 26 months at opposition when it is closest to Earth. Surface patterns and polar ice caps are visible at that time even through small telescopes at high magnification.

Aperture \ Magnification	Low (30x to 70x)	Middle (70x to 140x)	High (over 140x)
60mm	Mainly used for centering the planet in the field of view.	When Mars is at opposition, Syrtis Major and polar ice cap are visible.	Easier to view when seeing is good.
80mm	Same as above.	Polar ice cap and a few contrasting surface patterns are visible.	Magnification over 150x is recommended when making a sketch.
100mm	Same as above.	Should be used when seeing is good.	Various surface patterns can be identified when it comes close to Earth.
150mm	Same as above.	Same as above.	Various features can be identified at magnification over 200x.

Nebulae and Star Clusters

Most of these objects are suitable to view with magnification lower than 50x. For the Andromeda Galaxy and Orion Nebula, magnification of 20x to 30x are recommended.



Multiple Stars, Variable Stars and Comets

Many intriguing deep sky objects, variable stars and comets can be observed with a small telescope if they are not too dim in the field of view of your telescope.

Sun

Never look directly at the sun with a telescope. Use a refractor and a proper sun projection screen for observing the sun safely.

Magnification is not the only factor!

Telescope magnification can be increased to any high magnification theoretically, however, it does not necessarily make the image clear. It is essential to view at an appropriate magnification. An immoderately high magnification deteriorates image quality and will result in blurred image.

High Magnification Does Not Imply High Performance

It is said that the allowable maximum magnification is 2.5 times the effective aperture of the telescope.

For example, if your telescope has 80mm in aperture, usable maximum magnification is 80x2.5 = 200.

Image quality in different apertures

The larger the effective aperture of the telescopes, the higher the light gathering power and resolving power of the telescopes. Even though the image quality is dominated by optical performance of the objective lens or primary mirror, telescopes with large aperture yield bright and high contrast images.

Appropriate magnification

Excessive magnification

Large aperture at high magnification

Small aperture at high magnification

Enjoy Your View of the Night Sky

Viewing Celestial Wonders with an Astronomical Telescope or a pair of Binoculars

When you look at the night sky through an astronomical telescope, you can observe what you cannot see with naked eye such as lunar craters, phases of Venus, the surfaces of planets, faint stars and nebulae, and star clusters. The binoculars are also powerful tools that let you enjoy a night sky more casually. Looking at the moon with binoculars with 7x to 10x magnification, shows the moon as you have never seen it before. It is exciting to see the starry night's sky through an astronomical telescope or binoculars as it will reveal a beautiful would that is totally different from what you have been seen with naked eyes.

Craters of the moon

Saturn's rings

The waxing and waning of Venus

Mounts

Both alt-azimuth mount and equatorial mount are suitable for visual observation. The alt-azimuth mount is simple to use and relatively lightweight and you can quickly set up to observe. The equatorial mount is somewhat complicated in operation as compared to the alt-azimuth mount. However, once you set up and align the equatorial mount correctly, it will readily track the diurnal movement of your celestial target accurately.

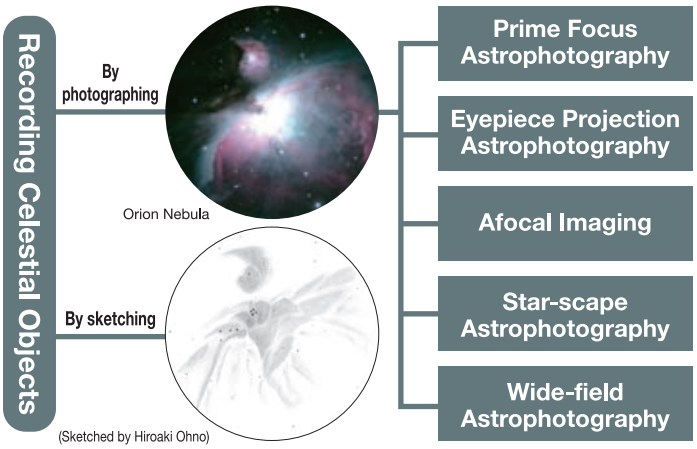
Motor Drive

Motor drive tracking is convenient if your Mount has that option. This allows you to keep your target object centered in the eyepiece during your observing session. The automatic Go-To function finds celestial objects quickly and tracks them automatically. Faint deep sky objects, not seen with the naked eye, are easily centered in your telescope's field of view.

Optical Tube

Any type of telescope tube; refractor, reflector or Catadioptric, can be used for both visual observation and astrophotography. Generally, the larger the telescope' s aperture, the more the telescope can gather light. Lager aperture optical tubes produce bright and clear images using high magnification.

Taking Images with an astronomical telescope



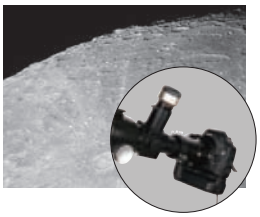
Astrophotography Process

There are various types of astrophotography which you can do with cameras. They can be categorized as follows:

Prime Focus Photography

The prime focus photography technique uses a (D)SLR camera body or a CCD imaging camera attached with adapters to an optical tube. Neither an eyepiece nor a camera lens is used. Though the object size is smaller than the eyepiece projection, the objects appear to be sharp. This method is suitable for photographing the entire moon, nebulae and star clusters.

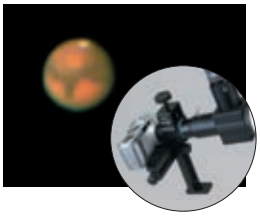
Difficulty: 4-star



Eyepiece Projection Photography

The eyepiece projection photography uses a method which takes images of a magnified object through an eyepiece inserted between the optical tube and a (D)SLR camera body or a CCD imaging camera. The image taken with this technique appears larger than that taken with the prime focus. It is also suitable for photographing an enlarged view of the moon or planets.

Difficulty: 5-star



Afocal Imaging

It is a method which uses direct photographing of an object magnified by an eyepiece. This is suitable for photographing an enlarged view of the moon and planets.

Difficulty: 2-star

Star-scape Astrophotography (Imaging with Polarie on a fixed tripod)

It allows you to take not only pinpoint images of stars but also add nightscapes to your photos by using the Polarie star tracker. This is a new category of astrophotography advocated by Vixen.

Difficulty: 1-star

Wide-field Astrophotography (Piggy-back method of Imaging)

It is a method of astrophotography using a (D)SLR camera with photographic lens which is mounted to a polar-aligned telescope or equatorial plat form to produce trail-free images of stars. This is suitable for photographing constellations and the Milky Way widely.

Difficulty: 3-star

Enjoy simple night sky observation

MINI PORTA

A lightweight and easy-to-handle mount for beginners. Viewing lunar craters and Saturn's ring are fun thanks to the equipped slow motion controls. It is recommended as a gift for children.

MINI PORTA-A70Lf MINI PORTA-VMC95L

PORTA II

Telescope Mount for beginners with has been highly popular since its introduction. The excellent functionality and stable tripod are ideal for comfortable observation of celestial objects.

PORTA II A80Mf PORTA II R130Sf

POLARIE

The Polarie is a portable star tracker that allows you to take images of stars with your camera. Also usable for tracking the moon or sun.

POLARIE Star Tracker POLARIE with Tripod M-184V

Mount		MINI PORTA	PORTA II	POLARIE
	Type	Alt-azimuth	Alt-azimuth	—
	Sidereal Tracking	×	×	○
	Star Chart Go-To	×	×	×
	Dovetail Mounting	○	○	×

For

GPD2

The GPD2 is a high precision German equatorial mount that allows you to customize with a wide variety of optional accessories in order to meet your observation needs.

GPD2-ED103S GPD2-R200SS

SX2

The latest SX2 mount offers simple and easy operation of your telescope with a newly developed STAR BOOK ONE dual axis handheld controller.

SX2-A80M SX2-ED81S II

SXD2

With increased sturdiness the SXD2 comes equipped with STAR BOOK TEN that offers intuitive star chart GO-To Navigation. It is recommended for any level of astronomers for both visual observation and astrophotography.

SXD2-ED115S SXD2-VC200L

Mount		GPD2	SX2	SXD2
	Type	German Equatorial	German Equatorial	German Equatorial
	Sidereal Tracking	○	○	○
	Star Chart Go-To	×	×	○
	Dovetail Mounting	○	○	○

Advance Your Enjoyment of the Night Sky

Binocular Telescopes

The Large Binocular Telescope use the HF2 Altazimuth Fork Mount with friction control.

Alt-azimuth Fork

×

×

○

AP

The AP Mount is ideally suited for beginners who want to become familiar with equatorial mounts or observers who want a simple, yet sturdy mount.

German Equatorial

○

×

○

serious astrophotography and long-time observation

SXP

The summit of the SPHINX series of mounts for the demanding astrophotographer. The SXP employs low friction ball bearings to achieve an extremely precise and comfortable operation.

German Equatorial

○

○

×

AXD

Vixen's flagship equatorial mount that comes with STAR BOOK TEN has superior quality and performance in its class. The AXD is ideally suited for high resolution digital astrophotography.

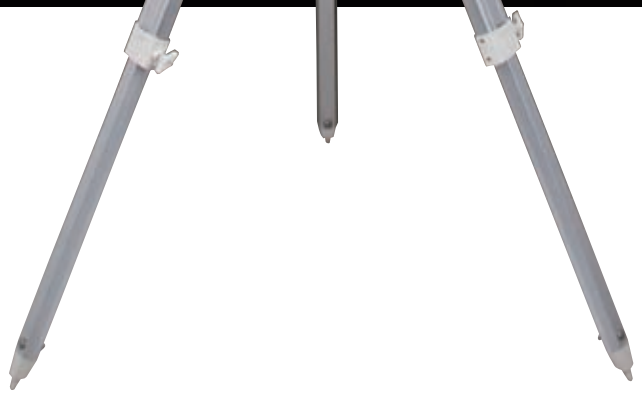
German Equatorial

○

○

×

INDEX



Best Selling and Affordable Alt Azimuth Mount built for Simplicity and Versatility

You no longer need to consider that an astronomical mount is a piece of complicated scientific equipment. The Porta II allows you to swing the telescope in the vertical and horizontal directions while maintaining position with simple friction. The telescope mounted on the PORTA II can be moved by hand and pointed at your selected target object. Searching and tracking is easy using the 2 fine adjustment handles. Removing and installing the telescope tube is quick with the industry standard dovetail attachment system, created by Vixen. This allows the Porta II to accept a variety of optical tubes according to your needs.

PORTA II

PORTA II

39951

PORTA II Alt-azimuth Mount

If you already have a Vixen optical tube assembly, you may choose the PORTA II mount only. The PORTA II mount accepts an optical tube of less than 160mm in outside diameter.

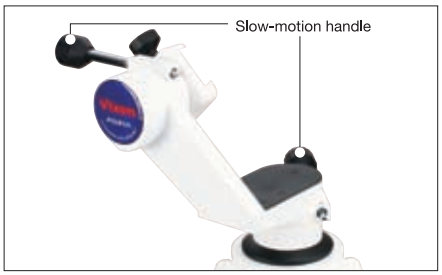
Large tripod legs provide the PORTA II with a solid, stable observation platfrom.

Specifications	PORTA II Alt-azimuth Mount
Mount Type	Alt-azimuth mount
Vertical and horizontal slow motions	Worm and wheel gears with 120-tooth whole-circle movement, complete with slow motion handles
Optical tube setting up	Dovetail-plate attachment system
Maximum loading weight	5 kg / 11 lb
Total weight with tripod	5.8 kg / 6.17 lb
Tripod legs	2-section aluminum legs, adjustable from 900mm to 1300mm in length (705mm to 1200mm in height)

Most amateur astronomers who desire a stable and handy grab-and-go alt-azimuth mount will appreciate the great features of the PORTA II.

Friction Control

Optical tube can be moved freely by hand and the friction holds its position anywhere you stop it. It allows you to manually point the telescope at target celestial objects you wish to view.



Slow Motion Handles

The whole-circle slow motion movement of the PORTA II provides smooth telescope operation at every pointing angle. Handle positions of both vertical and horizontal slow motion controls can be altered in 45-degree increments. This allows a comfortable posture while using the slow motion handles for various size optical tubes.

Compartment for Tools

Slow motion handle positions and the amount of friction on the axes are adjusted with tools located in the compartment under the rubber covering. You will always have your tools available.

Fixing with a Single Bolt

Attaching or detaching the PORTA II mount to/from its tripod is simple with a single fixing bolt. The fixing bolt has a large gripping knob to tighten securely. It is a convenient feature for storage in a limited space.

Dovetail-plate Attachment

With Vixen's renowned dovetail-plate system, many optical tubes, up to 160mm in outer diameter, can easily be swapped on and off the mount.

Accessory Tray

An accessory tray holds small pieces such as a camera or eyepieces. Very useful when observing at night.

Solar Observation with PORTA II

Shown with optional Sun projection screen set B and NPL20 eyepiece. Be sure to remove the finder scope when observing the sun.

Lunar Photography with PORTA II

Shown with an optional Digital camera quick bracket II plus a commercially available compact digital camera.

Lunar Craters
(Afocal lunar photography)

Optional Accessories

NEW

35655

Tube & Tripod Bag 100

- Carry and stores an optical tube less than 950mm (37.4 inches) in length and 125mm (4.9 inches) in diameter or a Vixen Aluminum tripod.
- Available for ED103S or AX103S optical tube.

39969

Carrying Case for PORTA II with Tripod

- Stores a PORTA II mount or MINI PORTA mount and tripod along with slow motion handles and accessory tray.

Weight : 480 g / 16.9 oz

38102

PORTA II Adapter

- Comes equipped with the PORTA II.
- Used to attach the PORTA II mount (head) on a SKYPOD tripod, SX Tabletop tripod, SXG-HAL130 tripod, SXG-AL130 tripod or SXG half pillar

Weight : 142g / 5.01 oz

3942

Camera Tripod Adapter for PORTA

- Used to attach old PORTA or PORTA II mount head onto a camera tripod with 1/4-inch screw.

8800

Flexible Handle 300mm

- A long flexible slow motion control handle enables you to operate the PORTA II comfortably.
- Recommended for children who may have a difficulty reaching the standard handles.

2511

SX Tabletop Tripod

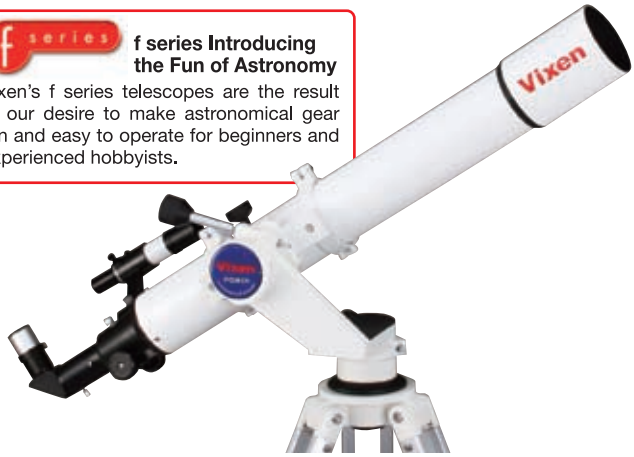
- Enables you to use the PORTA II on a tabletop.
- Usable with a short optical tube (VMC95L or VMC110L) only.

Size : 18.5cm prop radius and 6.4cm high
Weight : 0.9 kg / 1.9 lb

*The specifications are subject to change without notice.

f series Introducing the Fun of Astronomy

Vixen's f series telescopes are the result of our desire to make astronomical gear fun and easy to operate for beginners and experienced hobbyists.



The A80Mf is a standard refractor telescope designed for observation of bright planets, nebulae , and star clusters. With the supplied erect-image diagonal, this telescope can be used for terrestrial viewing in the daytime. It is also usable for solar observing with the use of an optional sun projection screen set A.

PORTA II Mount Package — **Paired with A80Mf** Refractor

39952

PORTA II A80Mf

Contents

Optical tube	D=80mm F=910mm achromatic refractor, multicoated
Finder scope	6x30mm, Field of view 7 degrees
Eyepiece (Power)	PL20mm (46x) and PL6mm (144x)
Tripod	2-section aluminum legs, adjustable from 90cm to 130cm in length
Accessories	Round accessory tray, Erect-image diagonal for terrestrial viewing

Specifications

Limiting magnitude	11.3
Light gathering power	131x unaided eye
Visual back	43mm and 42mm for T-ring threads, 31.7mm push-fit
Total weight	9.0 kg / 19.8 lb (without eyepieces)

The ED80Sf is a premium refractor with 'ED' optical glass which delivers sharp and clear images. The extra-low dispersion ED glass produces the images free of chromatic aberration. Complete with aluminum case for the ED80Sf optical tube.

PORTA II Mount Package — **Paired with ED80Sf** Apo Refractor

39956

PORTA II ED80Sf

Contents

Optical tube	D=80mm F=600mm ED apochromatic refractor, multicoated
Finder scope	9x50mm, Field of view 4.8 degrees
Eyepiece (Power)	NPL20mm (30x) and NPL6mm (100x)
Tripod	2-section aluminum legs, adjustable from 90cm to 130cm in length
Accessories	Flip mirror, Round accessory tray, Aluminum case

Specifications

Limiting magnitude	11.3
Light gathering power	131x unaided eye
Adapter thread	42mm for T-ring
Visual back	50.8mm and 31.7mm push-fit
Total weight	10.5 kg / 23.2 lb (without eyepieces)

The small compact VMC110L optical tube is a compact telescope that delivers great views. Quick set up with this popular package.

PORTA II Mount Package — **Paired with VMC110L** Catadioptric Reflector

39957

PORTA II VMC110L

Contents

Optical tube	D=110mm F=1035mm catadioptric reflector, multicoated
Finder scope	XY Red dot finder (1x aiming device)
Eyepiece (Power)	NPL25mm (41x) and NPL8mm (129x)
Tripod	2-section aluminum legs, adjustable from 90cm to 130cm in length
Accessories	Round accessory tray

Specifications

Limiting magnitude	12.0
Light gathering power	247x unaided eye
Adapter thread	42mm for T-ring
Visual back	31.7mm push-fit
Total weight	8.0 kg / 17.6 lb (without eyepieces)

The R130Sf reflector with a large 130mm parabolic mirror gathers more amount of light than the scopes in this range and more suitable for observing deep-sky objects.

PORTA II Mount Package — **Paired with R130Sf** Newtonian Reflector

39954

PORTA II R130Sf

Contents

Optical tube	D=130mm F=650mm Newtonian reflector, multicoated
Finder scope	6x30mm, Field of view 7 degrees
Eyepiece (Power)	PL20mm (33x) and PL6.3mm (103x)
Tripod	2-section aluminum legs, adjustable from 90cm to 130cm in length
Accessories	Round accessory tray

Specifications

Limiting magnitude	12.3
Light gathering power	345x unaided eye
Adapter thread	42mm for T-ring
Visual back	31.7mm push-fit
Total weight	11 kg / 24.2 lb (without eyepieces)

PORTAII Alt-azimuth Mount and ARK series of Large Binoculars

The ARK series of binoculars, with their large 80mm aperture and outstanding light gathering power, are ideal for star watching. All the ARK models are filled with nitrogen gas to minimize internal fogging. By combining the steady PORTA II alt-azimuth mount, you will enjoy magnificent views of stars a million and celestial wonders. The Porta Multi Plate is required to attach the ARK binoculars to the Porta II Mount.

38011

PORTA Multi-Plate

- Holds a heavy large binocular or a spotting scope.
- Not available for MINI PORTA mount.

Weight : 520 g / 18.34 oz

ARK Series Binoculars

39951

PORTAII Alt-azimuth Mount

(Refer to page 10.)

FORESTA

Amazing clear field of view through this lightweight Porro prism binocular. Triplet objective lens results in perfect color and edge to edge sharpness. Waterproof construction.

14504

FORESTA 7×50 CF

Magnification : 7x
Objective lens : 50mm
Prisms : BaK4
Field of view : 7.1 degrees
Eye relief : 20mm
Size : 18cm x 19cm x 6.5cm
Weight : 930 g / 32.8 oz

Zoom continuously from 16x to 40x magnification for close-up images

1420

16-40×80 BCF GIANT ZOOM

Magnification : 16x to 40x
Objective lens : 80mm
Prisms : BaK4
Field of view : 2.6 degrees to 1.6 degrees
Eye relief : 22mm to 15mm
Size : 33cm x 22.8cm x 9.9cm
Weight : 2450 g / 86.41 oz

Delivers bright images even in low light

1455

ARK 12×80 BCF

Magnification : 12x
Objective lens : 80mm
Prisms : BaK4
Field of view : 4.2 degrees
Eye relief : 18mm
Size : 31.6cm x 22cm x 9.9cm
Weight : 2390 g / 84.3 oz

Bright and wider field of view for less eye fatigue

1456

ARK 16×80 BWCF

Magnification : 16x
Objective lens : 80mm
Prisms : BaK4
Field of view : 4.3 degrees
Eye relief : 17mm
Size : 33cm x 22.8cm x 9.9cm
Weight : 2390 g / 84.3 oz

The best magnification for stargazing

1457

ARK 20×80 BWCF

•Magnification : 20x
Objective lens : 80mm
Prisms : BaK4
Field of view : 3.5 degrees
Eye relief : 17mm
Size : 33cm x 22.8cm x 9.9cm
Weight : 2390 g / 84.3 oz

The 30x magnification reveals more subtle detail

1458

ARK 30×80 BWCF

Magnification : 30x
Objective lens : 80mm
Prisms : BaK4
Field of view : 2.3 degrees
Eye relief : 18mm
Size : 33cm x 22.8cm x 9.9cm
Weight : 2445 g / 86.24 oz

*The specifications are subject to change without notice.

MINI PORTA

MINI PORTA

Most Popular Mount for Beginners for its Great Portability and Ease of Use

Vixen's MINI PORTA alt-azimuth mount is the most affordable mount for grab and go observing. The MINI PORTA has the same function as the PORTA II and you can swing the telescope by hand in the vertical and horizontal directions freely and stop with simple friction. The mount with tripod weighs 2.8kg (6.17 lb) and the mount and tripod sections are detachable for transportation and storage. Set up your telescope in minutes and quickly start your observing session.

39922

MINI PORTA Alt-azimuth Mount

If you already have a Vixen optical tube assembly, you may choose the MINI PORTA mount only. The MINI PORTA mount accepts an optical tube of less than 119mm in outside diameter.

Specifications	MINI PORTA Alt-azimuth Mount
Mount Type	: Alt-azimuth mount
Vertical and horizontal slow motions	: Worm and wheel gears with 90-tooth whole-circle movement, complete with slow motion handles
Optical tube setting up	: Dovetail-plate attachment system
Maximum loading weight	: 3.5 kg / 7.7 lb
Tripod legs	: 2-section aluminum legs, adjustable from 700mm to 1280mm in length (640mm to 1145mm in height)
Total weight with tripod	: 2.8 kg / 6.17 lb

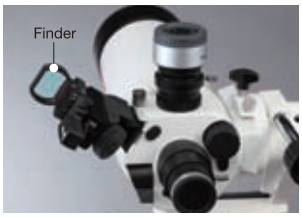
The Mini Porta is a quality mount ideal for the budding Astronomer

Friction Control

Optical tube can be moved freely by hand and the friction holds its position anywhere you stop it. It allows you to manually point the telescope at target celestial objects you wish to view.

Dovetail-plate Attachment

With Vixen's renowned dovetail-plate system, many optical tubes, up to 119mm in outer diameter, can easily be swapped on and off the mount.



Finder Scope

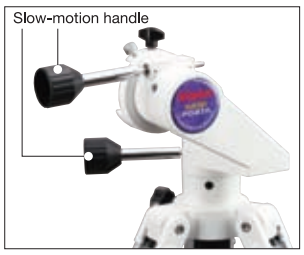
All the optical tubes packaged with the MINI PORTA come with a finder scope or a red dot finder.

Optional Accessories

8800

Flexible Handle 300mm

- A long flexible slow motion control handle enables you to operate the MINI PORTA comfortably.
- Recommended for children who may have a difficulty reaching the standard handles.



Slow Motion Handles

The whole-circle slow motion movement of the MINI PORTA provides smooth telescope operation at every pointing angle. Handle positions of both vertical and horizontal slow motion controls can be altered in 45-degree increments. This allows a comfortable posture while using the slow motion handles for various size optical tubes.

Accessory Tray

An accessory tray holds small pieces such as a camera or eyepieces. Very useful when observing at night.

Compartment for Tools

Slow motion handle positions and the amount of friction on the axes are adjusted with tools located in the compartment under the rubber covering. You will always have your tools available.

35512

Polarie Cradle

- Attachable to MIMI PORTA (or PORTA II) mount for use with POLARIE star tracker.

The A70Lf refractor is a basic all-around telescope that gives beginners intriguing views of lunar craters and Saturn's rings.

MINI PORTA Mount Package — **Paired with A70Lf** Refractor

39941

MINI PORTA-A70Lf

Contents

Optical tube	:	D=70mm F=900mm achromatic refractor, multicoated
Finder scope	:	6x24mm, Field of view 5 degrees
Eyepiece (Power)	:	NPL20mm (45x) and NPL6.3mm (143x)
Tripod	:	2-section aluminum legs, adjustable from 70cm to 128cm in length
Accessories	:	Accessory tray, Erect-image diagonal for terrestrial viewing

Specifications

Limiting magnitude	:	11.0
Light gathering power	:	100x unaided eye
Adapter thread	:	42mm for T-ring
Visual back	:	31.7mm push-fit
Total weight	:	5.3 kg / 11.7 lb (without eyepieces)

The small and very compact VMC95L optical tube fits the MINI PORTA mount nicely.
It is a great starter telescope for beginners.

MINI PORTA Mount Package — **Paired with VMC95L** Catadioptric Reflector

39943

MINI PORTA-VMC95L

Contents

Optical tube	:	D=95mm F=1050mm catadioptric reflector, multicoated
Finder scope	:	XY Red dot finder (1x aiming device)
Eyepiece (Power)	:	NPL25mm (42x) and NPL8mm (131x)
Tripod	:	2-section aluminum legs, adjustable from 70cm to 128cm in length
Accessories	:	Accessory tray

Specifications

Limiting magnitude	:	11.7
Light gathering power	:	184x unaided eye
Adapter thread	:	42mm for T-ring
Visual back	:	31.7mm push-fit
Total weight	:	4.8 kg / 10.6 lb (without eyepieces)

*The specifications are subject to change without notice.

SG 2.1x42

"CONSTELLATION" BINOCULAR

Enjoy Star-Hopping with Ultra Wide-field SG2.1x42

The SG2.1x42 is a handy binocular with a bright 42mm aperture and low 2.1x magnification that is designed and developed for star gazing. Enjoy finding a row of stars in constellations and millions of stars in the Milky Way Galaxy with its ultra wide field of view. The sparkle of beautiful and mysterious stars will never fail to give us a sense of the vastness of the universe.

All Made in Japan

Every element from lens polishing to machining has been carried out to produce a truly unique binocular of exquisite quality.

NEW

19172

SG2.1x42

Magnification : 2.1x
Objective : 42mm, fully multicoated optics
Eye relief : See below.
Near focus : 2m
Interpupillary distance : from 55mm to 74mm
Size : 4.6cm x 12.8cm x 5.4cm
Weight : 410 g / 1.44 oz

- With soft case and neck strap
- Individual focusing
- Corrected vision of 20/20 may be required to focus at infinity
- The whole field of view is not visible if wearing eyeglasses

Note:
The SG2.1x42 binocular uses an optical design of a Galilean type telescope system. With the characteristics of this system, real field of view, apparent field of view and eye relief are not determined strictly. Although only the eye relief is described in the specifications of this product mainly, it is indicated as reference for the person who wears glasses.

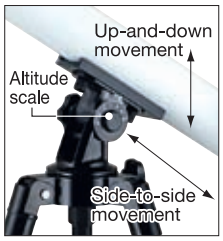
<Reference specifications>
Actual field of view : 12.2 degrees
Apparent field of view : 25.2 degrees
Eye relief : 8.4mm*

* The values of the actual field of view and apparent field of view are measured based on an 8.4mm eye relief. If the distance of the eye relief decreases to 5.6mm, the apparent field of view will increase to 28 degrees (the actual field of view will be 13.6 degrees.) Therefore, these vary with your viewing position.

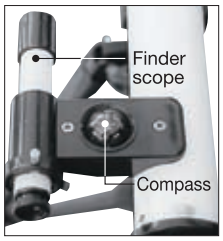
Explore the mystery of the universe and view lunar craters and Saturn's rings!

STAR PAL

The STAR PAL 50L and 60L are designed and manufactured to enable the first-time telescope owner to enjoy exploring the mystery of the universe.



The altitude scale tells you the elevation of your target.



Built-in compass on the finder bracket guides you in the direction of your target.

33101
STAR PAL 50L

33102
STAR PAL 60L

Specifications	STAR PAL 50L	STAR PAL 60L
Optical tube	D=50mm F=800mm achromatic refractor	D=60mm F=910mm achromatic refractor
Limiting magnitude	10.3	10.7
Light gathering power	51x unaided eye	73x unaided eye
Finder scope	5x20mm with compass	6x30mm with compass
Visual back	31.7mm push-fit	31.7mm push-fit
Eyepiece (Power)	H20mm (40x) and H6mm (133x)	H20mm (46x) and H6mm (152x)
Mount	Alt-azimuth with friction control	Alt-azimuth with friction control
Tripod	Steel legs adjustable from 70cm to 116cm in height	Steel legs adjustable from 77cm to 127cm in height
Accessories	Accessory tray, Mirror diagonal	Accessory tray, Mirror diagonal
Total weight	2.5 kg / 6.17 lb (without eyepieces)	3.9 kg / 8.6 lb (without eyepieces)

SPACE EYE

The SPACE EYE 50M and 70M are simple to use and easy to carry. To set up, simply spread the tripod legs apart, place the telescope tube on the mount and tighten the thumbscrew.

Includes everything you need for fun observing the Moon.

5926
SPACE EYE 50M

A complete backyard package for exploring space.

5927
SPACE EYE 70M

Specifications	SPACE EYE 50M	SPACE EYE 70M
Optical tube	D=50mm F=600mm achromatic refractor	D=70mm F=700mm achromatic refractor
Finder scope	5x20mm with compass	5x20mm
Eyepiece (Power)	PL20mm (30x) and PL10mm (60x) Use the mirror diagonal together	PL20mm (35x) and PL10mm (70x) Use the mirror diagonal together
Mount	Alt-azimuth with slow motion control	Alt-azimuth with slow motion control
Tripod	Legs adjustable from 70cm to 127cm in length	Legs adjustable from 70cm to 127cm in length
Accessories	Accessory tray, Mirror diagonal	Accessory tray, Mirror diagonal
Total weight	2.8 kg / 6.17 lb	3.1 kg / 6.8 lb

NATURE EYE

The first telescope for kids.

Table-top"Sky and Land" telescope that is simple to use. Great gift for science-minded children.

5928
NATURE EYE

Specifications	NATURE EYE
Telescope aperture	50mm
Focal length	360mm
Magnification	36x, 72x with 2x Barlow lens Use the mirror diagonal together
Tripod	Tabletop, Legs 43cm long
Accessories	5x Finder scope, H10 Eyepiece, 2x Barlow lens
Total weight	1.26 kg / 2.8 lb

*The specifications are subject to change without notice.

BINOCULAR TELESCOPES

Binocular Telescopes for great Deep Sky Views

There is nothing like viewing celestial objects through a pair of large aperture binoculars. Objects take on an effect like a 3-D and the views of well-known nebulas, globular clusters and open star clusters are magnificent. With the ability to interchangeable eyepieces and erect images, you have the opportunity to view everything from exploring Messier objects in the deep-sky to terrestrial landscape. It is recommended to use the HF2 alt-azimuth fork mount.

38062

HF2 Alt-azimuth Fork Mount

Attachable to SXG-HAL130 and SXG-AL130 tripods sold separately.

Mount : Alt-azimuth fork mount,
Vertical and horizontal friction controls
Maximum loading weight : 13 kg / 28.6 lb
Weight : 3.4 kg / 7.5 lb (without tripod)

Optional Accessories

3798

Swing Bracket (Binocular Cradle)

- Span between trunnions: 251mm
- With UNC 1/4 inch screw with knob

Weight : 1 kg / 2.2 lb

25161

SXG-HAL130 Aluminum Tripod

- Adjustable from 73cm to 115cm in height

Weight : 5.5 kg / 12.1 lb

Image

89221

Aluminum Case for BT125 / BT126

- With storage space for eyepieces and a finder scope

Size : 82cm x 40cm x 31cm
Weight : 8.2 kg / 18 lb

Binocular Telescopes

14305

BT-ED70S-A

Size : 40cm x 19cm x15.5cm
Interpupillary distance : 58mm to 102mm
Visual Back : 31.7mm push-fit
Weight : 4.0 kg / 8.8 lb
Note : Eyepieces are sold separately.

14304

BT81S-A

Size : 48cm x 19cm x 15.5cm
Interpupillary distance : 58mm to 102mm
Visual Back : 31.7mm push-fit
Weight : 4.1 kg / 9.0 lb
Note : Eyepieces are sold separately.

NEW

14306

BT126SS-A

Size : 63cm x 36cm x 20cm
Interpupillary distance : 58mm to 102mm
Visual Back : 31.7mm push-fit
Weight : 10.5 kg / 23.1 lb
Note : Eyepieces are sold separately.

BT-ED70S-A Package

Contents BT-ED70S-A Binocular Telescope, 2x Eyepieces, HF2 Fork mount, Swing bracket (Binocular cradle), Tripod

38067

HF2-BT-ED70S-A

Specifications	HF2-BT-ED70S-A
Objective lens	D=70mm F=400mm ED Apochromatic, multicoated
Limiting magnitude	11.0
Light gathering power	100x unaided eye
Eyepiece*(Power)	2 x SLV20mm (20x)
Mount	Alt-azimuth Fork type
Tripod SXG-HAL130	2-section aluminum legs adjustable from 81cm to 130cm in length
Total weight	14 kg / 30.8 lb (Without eyepiece)

BT81S-A Package

Contents BT81S-A Binocular Telescope, 2 x Eyepieces, HF2 Fork mount, Swing bracket (Binocular cradle), Tripod

38066

HF2-BT81S-A

Specifications	HF2-BT81S-A
Objective lens	D=81mm F=480mm Achromatic, single coating with MgFl
Limiting magnitude	11.3
Light gathering power	134x unaided eye
Eyepiece*(Power)	2 x SLV20mm (24x)
Mount	Alt-azimuth Fork type
Tripod SXG-HAL130	2-section aluminum legs adjustable from 81cm to 130cm in length
Total weight	14.1 kg / 31.0 lb (Without eyepiece)

BT126SS-A package

Contents BT126SS-A Binocular Telescope, 2x Eyepieces, HF2 Fork mount, SXG-HAL130 Tripod

38068

HF2-BT126SS-A NEW

Specifications	HF2-BT126SS-A
Objective lens	D=126mm F=625mm Achromatic, multicoated
Limiting magnitude	12.3
Light gathering power	324x unaided eye
Eyepiece*(Power)	2 x SLV25mm (30x)
Mount	Alt-azimuth Fork type
Tripod SXG-HAL130 Tripod	2-section aluminum legs adjustable from 81cm to 130cm in length
Total weight	10.5 kg / 23.1 lb (without eyepiece)

*Both the LV Zoom and NPL eyepieces are not usable on the BT Binocular Telescopes.
**Be sure to use Vixen eyepieces with a focal length longer than 10mm (medium to low magnification) to prevent from alignment errors at high magnification.
***An optional XY red dot finder or 7x50mm finder with finder bracket is available for the BT Binocular Telescopes.

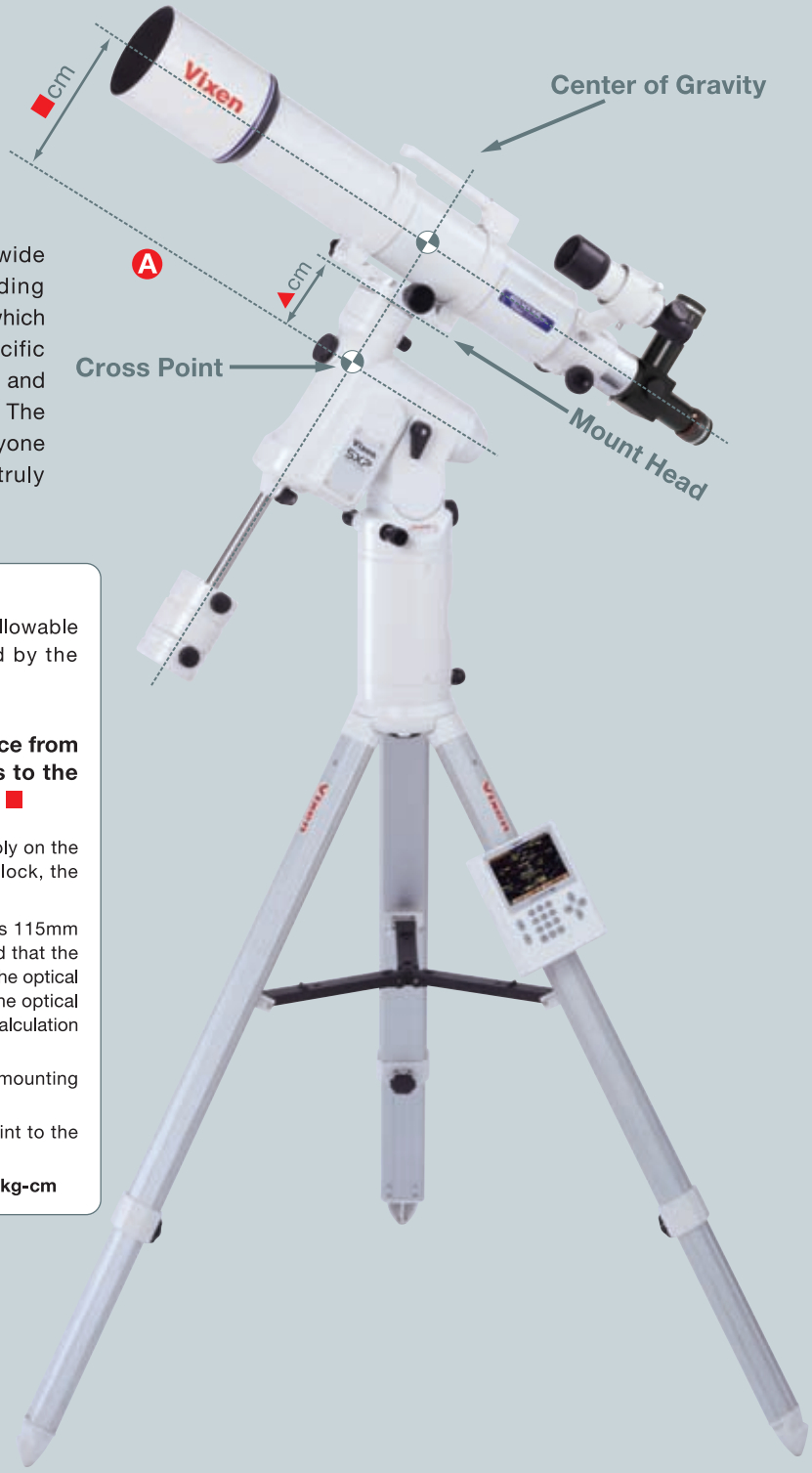
※The specifications are subject to change without notice.

Vixen SPHINX German Equatorial Mounts

SX2
SXD2
SXP

The name “Sphinx” is a Symbol of Intelligence and Integrity

With a Vixen Sphinx equatorial mount, you have a wide selection of Vixen telescope optical tubes, including refractors, reflectors and catadioptric systems, from which to choose. You can select one that meets your specific need, or you can select a small telescope to start with and upgrade later to a lager one as your interest grows. The Vixen equatorial mount is an excellent choice for anyone who wants to start exploring the night sky with a truly reliable instrument.



A About Torque Load

Vixen uses terms of Torque Load as guidance for an allowable loading weight. The torque load can be calculated by the following formula.

Torque Load (kg-cm)
= Weight of an instrument loaded (Kg) x Distance from the place where the RA and Dec axes cross to the center of gravity of an instrument loaded (cm) ■

[Example] When you install an AX103S optical tube assembly on the SXP mount using the dovetail-plate mounting block, the torque load is calculated as follows:

1) You find the outside diameter of the AX103S is 115mm from the specifications on page 42. Supposed that the center of gravity of the AX103S is the center of the optical tube assembly, it would be a point of a half of the optical tube diameter. It is about 6cm here to make a calculation easier.
2) The space of the tube ring and dovetail-plate mounting block is about 4cm in breadth in total.
3) Distance from the RA and DEC axes cross point to the mount head of the SXP is about 10cm. ▲

[Calculation] 6.4 kg x (6cm + 4cm + 10cm) = 128 kg-cm

Quick reference of the Vixen SPHINX series of Equatorial Mount

Mount	Controller	Star Chart Go-To Slewing	Distance to the mount head from the RA and DEC axes cross point	Maximum Torque load*	Photographic loading weight	Polar scope
SX2	STAR BOOK ONE	No	9cm	300 kg-cm	12 kg / 26.5 lb	Optional
SXD2	STAR BOOK TEN Equipped	Yes	9cm	370 kg-cm	15 kg / 33 lb	Standard
SXP	STAR BOOK TEN Equipped	Yes	10cm	400 kg-cm	16 kg / 35.2 lb	Standard

*At a point of 25cm above from the place where the RA and DEC axes cross. **Permanent PEC.

✻The specifications are subject to change without notice.

Casual Observing with the STAR BOOK ONE

SX2 Equatorial Mount

The SX2 mount offers simple and easy operation of your telescope with a newly developed STAR BOOK ONE dual- axis handheld controller. With Vixen's accurate micro-step motion control technology, the SX2 mount achieves highly stable and smooth rotations of the pulse motors. The SX2 mount is a good choice for starting the first step to serious celestial observing.

Pulse Motors and Micro-Step Motion Control System

With the same precision pulse motors (=Step Motors) and micro-step motions control as the SXD2, the SX2 is an excellent performer with smooth response. The four ball bearings used for the RA and DEC worm shafts and the one needle bearing for the DEC clamp unit achieve silky smooth movement of the mount.

Declination Body acting as part of a Counterweight

The massive motor units are placed in the lower part of the declination body so that center of balance of the SX2 shifts to below the crossing point of the RA and DEC axes. This makes a lower portion of the declination body performs as a counterweight and allow the mount to work with less weight.

Retractable Counterweight Bar

Durable stainless steel is used for the counterweight bar. It is moved back into the mount body for storage by loosening the bar lock lever. It is convenient for transporting the mount and for easy set up.

STAR BOOK ONE Controller

The SX2 mount comes as standard with the STAR BOOK ONE handheld controller with a variety of functions in a simple design. Designed for simple and ease of use, the lightweight STAR BOOK ONE controller allows the SX2 mount to move in X and Y dual axis (RA and DEC directions) in one hand. Versatile tracking options are available in addition to the sidereal and solar tracking rates. The backlash compensation, autoguider port and built-in red LED light are part of useful functions provided the STAR BOOK ONE.

STAR BOOK TEN Star Chart Controller

The SX2 Mount works with the STAR BOOK TEN hand controller, featuring an intuitive Star chart Go-To system with a high definition color LCD display. Incorporating over 270,000 celestial objects, the STAR BOOK TEN identifies your target object easily and tracks smoothly.

25071

SX2 Mount NEW

Specifications	SX2 and STAR BOOK ONE
R.A. slow motion	Worm and wheel gears with 180-tooth whole circle micro movement, 72mm in diameter
DEC slow motion	Worm and wheel gears with 180-tooth whole circle micro movement, 72mm in diameter
Worm shaft	9mm in diameter, made of brass
R.A. axis	40mm in diameter, made of aluminum alloy die casting
DEC axis	35mm in diameter, made of aluminum alloy
Number of bearings	5 pieces
Counterweight bar	20mm in diameter, retractable, made of stainless steel
Polar axis scope	Optional
Altitude adjustment	Latitude adjustable between 0 degree and 70 degrees (divided in 3 zones and adjustable +/-15 degrees per zone, for high, middle and low latitudes), altitude scale in 2 degrees increments, Fine adjustments with a tangent screw knob about 0.8 degrees per rotation
Azimuth adjustment	Fine adjustments with twin screw knobs about 1.2 degrees per rotation, adjustable range about +/- 7 degrees
Motor drive	Pulse motors with micro-step motion control (250 pps)
Tracking / Slewing	High precision tracking with STAR BOOK ONE, maximum slewing speed about 1000x of sidereal rate (x999 on display)
Photographic loading weight	12 kg / 26.4 lb (Maximum torque load: 300 kg-cm at a point of 25cm from the place where the RA and DEC axes cross.)
Controller port	D-SUB9PIN Male
Power port	DC 12V EIAJ RC5320A Class4
Power supply	Comes Cigarette-lighter plug cord (center plus polarity) as standard accessory
Working voltage	DC 12V
Electricity consumption	0.3A to 2.0A
Dimensions	343mm x 360mm x 128mm
Weight	7.0 kg (without counterweight)
Counterweight	1.9 kg x 1

SX2 Accessories

25161

SXG-HAL130 Aluminum Tripod

- Adjustable leg length: 81cm to 130cm long
- Adjustable tripod height: 73cm to 115cm high

Weight : 5.5 kg / 12.1 lb

2511

SX Tabletop Tripod

- Not available for a mount with counterweight

Weight : 0.9 kg / 1.9 lb

The New STAR BOOK ONE Dual Axis Handheld Controller for the SX2 Mount

NEW
STAR BOOK ONE

Working voltage : DC12V
(supplied from the mount side)
Dimensions : 13.7cm x 6.6cm x 2.1cm
Weight : 110 g / 3.8 oz
CPU : 32bit CISC Processor
• STAR BOOK ONE is not sold separately.

Lightweight, Compact and Smart Hand-held Controller

The four direction buttons on the STAR BOOK ONE dual-axis controller move the SX2 mount electrically in X and Y dual axis (RA and DEC directions) either quickly or slowly. The command buttons are laid out neatly so that they are accessible with wearing a glove.

LCD Screen

A 2-line 8-character STN LCD screen furnishes the adjustable LED backlight which is adaptive to your eyes in a dark observation site.

Language Setting

The language is available in Japanese and English.

Red LED Light

The built-in red LED light is equipped on the back of the handheld controller. It allows you to keep accommodating your eyes to darkness at an observation site.

Versatile Tracking

The tracking options are available from sidereal rate, Kings rate, lunar rate, solar rate and many more. Also, different tracking speeds are available for time-lapse photography.

Tracking Direction

The STAR BOOK ONE works in both the northern and southern hemispheres.

Slewing Speed

The slewing speed is selectable from either a preset 4 speed range or different speed ranges (between X0.5 and X999 of sidereal rate) listed in the menu.

Backlash Compensation

The backlash compensation provides a reduced time lag at the point of revised motion where the gears lose contact. It gives smoother rotation of the gears on the mount.

Autoguider

The STAR BOOK ONE can be used for autoguiding in conjunction with an external autoguiding system that is compatible with the SBIG autoguiders.

PEC

The PEC rectifies an irregular motion of the tracking gear wheels that affect long exposure astrophotography. PEC allows you to achieve highly accurate tracking.

STAR BOOK TEN

The STAR BOOK TEN's advanced astronomical navigation with large LCD screen features user-friendly Star Chart Go-To and intuitive operation. It is highly recommended for any stargazing enthusiast from entry-level to experts.

36919
STAR BOOK TEN controller
(Optional for the SX2)

Optional Parts

2573
SX Polar Axis Scope

• Installed on the mount by simply screwing it into a preset position without requiring an additional adjustment.
Weight : 180 g / 6.35 lb

2697
SX Aluminum Case

• Usable with SX2, SXD2 or SXP mount.
Weight : 6.5 kg / 14.3 lb

About Compatibility of Controllers

Both the STAR BOOK ONE and STAR BOOK TEN controllers are not compatible with the SX, SXD, GP2 and GPD2 mounts. Similarly the STAR BOOK controller is not compatible with the SX2, SXD2, SXP, AXD, GP2, GPD2 mounts, and the STAR BOOK Type-S controller is not compatible with the SX2, SXD2, SXP, AXD, SX, SXD mounts. Do not attempt to use the controller in a combination other than the specified ones here. This could damage the controller and mount.

Controller / Mount	SX (SXW, SXC), SXD, New ATLUX*	SX2, SXD2, SXP, AXD	GP2, GPD2
STAR BOOK ONE**, STAR BOOK TEN	×	○	×
STAR BOOK (discontinued)	○	×	×
STAR BOOK Type-S (discontinued)	×	×	○

*New ATLUX with STAR BOOK (Not versions with SkySensor).
**STAR BOOK ONE is not sold separately.

✻The specifications are subject to change without notice.

A good choice for starting the first step to serious celestial observing.

SX2 Mount Package — **Paired with A80M** Achromatic Refractor

25072

SX2-A80M

Contents

Optical tube	D=80mm F=900mm (f11.4) achromatic refractor, multicoated
Finder scope	XY red dot finder
Eyepiece (Power)	NPL20mm (46x) and NPL6mm (152x)
Tripod SXG-HAL130	2-section aluminum legs adjustable from 81cm to 130cm in length
Accessories	SXG half pillar, Flip mirror diagonal, Counterweight 1.0 kg x 1, Parts case

Specifications

Optical tube size	90mm Dia. x 890mm L
Tube weight	3.5 kg
Resolving power	1.45 arc seconds
Limiting magnitude	11.3
Light gathering power	131x unaided eye
Adapter thread	60mm and 42mm for T-ring
Visual back	50.8mm and 31.7mm (with Flip mirror) push-fit
Total weight	18.9kg / 41.6 lb (without eyepieces)

A bit more aperture to view deeper into the night sky.

SX2 Mount Package — **Paired with A105M** Achromatic Refractor

25073

SX2-A105M

Contents

Optical tube	D=100mm F=1000mm (f9.5) achromatic refractor, multicoated
Finder scope	XY red dot finder
Eyepiece (Power)	NPL20mm (50x) and NPL6mm (167x)
Tripod SXG-HAL130	2-section aluminum legs adjustable from 81cm to 130cm in length
Accessories	SXG half pillar, Flip mirror diagonal, Counterweight 1.9 kg x 1, Parts case

Specifications

Optical tube size	115mm Dia. x 1010mm L
Tube weight	4.8 kg
Resolving power	1.1 arc seconds
Limiting magnitude	11.9
Light gathering power	225x unaided eye
Adapter thread	60mm and 42mm for T-ring
Visual back	50.8mm and 31.7mm (with Flip mirror) push-fit
Total weight	21.1 kg / 46.4 lb (without eyepieces)

If you are looking for a high quality small refractor, this is it.

SX2 Mount Package — **Paired with ED81S II** Apochromatic Refractor

25074

SX2-ED81S II

Contents

Optical tube	D=81mm F=625mm (f7.7) SD apochromatic refractor, multicoated
Finder scope	XY red dot finder (1x aiming device)
Eyepiece (Power)	SLV20mm (31x) and SLV5mm (125x)
Tripod SXG-HAL130	2-section aluminum legs adjustable from 81cm to 130cm in length
Accessories	SXG half pillar, Flip mirror diagonal, Counterweight 1.9 kg x 1, Parts case

Specifications

Optical tube size	90mm Dia. x 585mm L
Tube weight	3.6 kg
Resolving power	1.43 arc seconds
Limiting magnitude	11.3
Light gathering power	134x unaided eye
Adapter thread	60mm and 42mm for T-ring
Visual back	50.8mm and 31.7mm (with Flip mirror) push-fit
Total weight	17.3 kg / 38.1 lb (without eyepieces)

A very good choice for those looking for an exceptional telescope for visual and astrophotography.

SX2 Mount Package — **Paired with ED103S** Apochromatic Refractor

25075

SX2-ED103S

Contents

Optical tube	D=103mm F=795mm (f7.7) SD apochromatic refractor, multicoated
Finder scope	7x50 finder with illuminated reticle, Field of view 7 degrees
Eyepiece (Power)	SLV20mm (40x) and SLV5mm (159x)
Tripod SXG-HAL130	2-section aluminum legs adjustable from 81cm to 130cm in length
Accessories	SXG half pillar, Flip mirror diagonal, Counterweight 1.9 kg x 1, Parts case

Specifications

Optical tube size	115mm Dia. x 810mm L
Tube weight	5.4 kg
Resolving power	1.13 arc seconds
Limiting magnitude	11.8
Light gathering power	217x unaided eye
Adapter thread	60mm and 42mm for T-ring
Visual back	50.8mm and 31.7mm (with Flip mirror) push-fit
Total weight	21.7 kg / 47.8 lb (without eyepieces)

NEW

Yields clear and bright images at the center of the field of view.

SX2 Mount Package — **Paired with VMC200L** Catadioptric Reflector

25078

SX2-VMC200L

Contents

Optical tube	D=200mm F=1950mm (f9.75) precision spherical mirror, multicoated
Finder scope	7x50 finder with illuminated reticle, Field of view 7 degrees
Eyepiece (Power)	SLV20mm (98x) and SLV9mm (217x)
Tripod SXG-HAL130	2-section aluminum legs adjustable from 81cm to 130cm in length
Accessories	Flip mirror diagonal, Counterweights 1.9 kg x 2, Parts case

Specifications

Optical tube size	232mm Dia. x 510mm L
Tube weight	6.8 kg
Resolving power	0.58 arc seconds
Limiting magnitude	13.3
Light gathering power	816x unaided eye
Adapter thread	60mm and 42mm for T-ring
Visual back	50.8mm and 31.7mm (with Flip mirror) push-fit
Total weight	23.2 kg / 51.1 lb (without eyepieces)

NEW

Excellent views for both the visual observer and the astrophotographer.

SX2 Mount Package — **Paired with VC200L 'VISAC'** Catadioptric Reflector

25077

SX2-VC200L

Contents

Optical tube	D=200mm F=1800mm (f9) VISAC mirror, multicoated
Finder scope	7x50 finder with illuminated reticle, Field of view 7 degrees
Eyepiece (Power)	SLV20mm (90x) and SLV9mm (200x)
Tripod SXG-HAL130	2-section aluminum legs adjustable from 81cm to 130cm in length
Accessories	Flip mirror diagonal, Counterweights 1.9 kg x 2, Parts case

Specifications

Optical tube size	232mm Dia. x 600mm L
Tube weight	6.9 kg
Resolving power	0.58 arc seconds
Limiting magnitude	13.3
Light gathering power	816x unaided eye
Adapter thread	60mm and 42mm for T-ring
Visual back	50.8mm and 31.7mm (with Flip mirror) push-fit
Total weight	23.3 kg / 51.3 lb (without eyepieces)

NEW

The fast focal ratio is perfect for wide-field viewing and deep sky astrophotography.

SX2 Mount Package — **Paired with R200SS** Newtonian Reflector

25076

SX2-R200SS

Contents

Optical tube	D=200mm F=1800mm (f9) VISAC mirror, multicoated
Finder scope	7x50 finder with illuminated reticle, Field of view 7 degrees
Eyepiece (Power)	SLV20mm (90x) and SLV9mm (200x)
Tripod SXG-HAL130	2-section aluminum legs adjustable from 81cm to 130cm in length
Accessories	Counterweights 1.9 kg x 2, Parts case

Specifications

Optical tube size	232mm Dia. x 700mm L
Tube weight	7.2 kg
Resolving power	0.58 arc seconds
Limiting magnitude	13.3
Light gathering power	816x unaided eye
Adapter thread	60mm and 42mm for T-ring
Visual back	31.7mm push-fit
Total weight	23.6 kg / 52 lb (without eyepieces)

Taken with a Vixen VC200L.

*The specifications are subject to change without notice.

The Next level of Performance

SXD2

SXD2 Equatorial Mount

The SXD2 Mount is a high precision, sturdy mount. The cutting edge STAR BOOK TEN Hand Controller features a high definition color LCD screen with intuitive operations to ensure comfortable and accurate observing.

Increased Loading Capacity

Materials and manufacturing processes have been revised to enhance the rigidity and precision of the original SX Mount. Both the RA and DEC rotations axes of the SXD2 are made of thick steel with brass wheel gears, critical to accurate movement of the mount. Lapping of both worm gears and worm wheels ensures smooth operation. These changes have increased the precision of the SPHINX Mount.

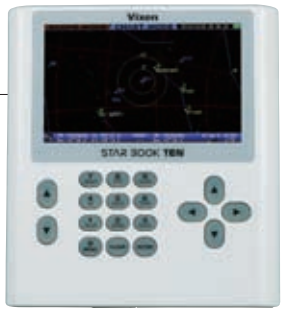
Smooth Motion and Micro-step Motion control

Bearings are used in the RA and DEC Axes and the rotating shafts of the work gears. This reduces the load on the motors and ensures smooth rotation.

Pulse Motors and Micro-Step Motion Control

The heart of the SXD2 is precision pulse motors (= stepper motor) which provide better performance in response than ever. The micro-step motion control system has realized powerful yet silk-smooth drive controls in both a fine motion and a quick slewing.

STAR BOOK TEN



The SXD2 equatorial mount comes with STAR BOOK TEN which features intuitive 'Star-Chart Go-To' system with high definition color LCD display. With the optional Advance Unit installed, the STAR BOOK TEN combined with a CCD video camera works as an advanced Autoguider. On the screen, you can view an image from a CCD video camera, record to or play back from a SD/SDHC memory card, and adjust the shutter exposure controls of a DSLR camera. It is highly recommended for any stargazing enthusiast from entry-level to expert.

25061

SXD2 Mount

Specifications	SXD2 and STAR BOOK TEN
R.A. slow motion	Worm and wheel gears with 180-tooth whole circle micro movement
DEC slow motion	Worm and wheel gears with 180-tooth whole circle micro movement
RA display	On-screen the STAR BOOK TEN, 0.1 minute increments
DEC display	ON-screen the STAR BOOK TEN, 0.1 arc minute increments
Polar axis scope	SX Polar axis scope (pre-installed) 6x20mm, Field of view 8 degree, with illuminated reticle, within 3 arc minutes of setting accuracy
Altitude adjustment	Latitude adjustable between 0 degree and 70 degrees (divided in 3 zones and adjustable +/-15 degrees per zone, for high, middle and low latitudes), altitude scale in 2 degrees increments, Fine adjustments with a tangent screw knob about 0.8 degrees per rotation
Azimuth adjustment	Fine adjustments with twin screw knobs about 1.2 degrees per rotation, adjustable range about +/- 7 degrees
Star Chart Go-To	Automatic Go-To slewing with STAR BOOK TEN, 1000x of sidereal rate at maximum slewing speed
Photographic loading weight	15 kg / 33 lb (Maximum torque load: 370 kg-cm at a point of 25cm from the place where the RA and DEC axes cross.)
Power port	DC 12V EIAJ RC5320A Class4
Power supply	Comes Cigarette-lighter plug cord (center plus polarity) as standard accessory
Working voltage	DC 12V
Electricity consumption	0.45A to 2.5A
Dimensions	36cm x 34.3cm x 12.8cm
Weight	9.2 kg / 20.3 lb (without counterweights)
Counterweights	1.9 kg x 1 and 3.7 kg x 1 / 4.2 lb x1 and 8.15 lb x1

SXD2 Accessory

25161

SXG-HAL130 Aluminum Tripod

• Achieves high solidness and stability
Adjustable leg length : 81cm to 130cm long
Adjustable tripod height : 73cm to 115cm high
Weight : 5.5 kg / 12.1 lb

What is Different?

	SXD2	SX2
Maximum torque load	370 kg-cm	300 kg-cm
Photographic loading weight	15 kg / 33 lb	12kg / 26.5 lb
Rotating shafts	Carbon steel	Aluminum alloy
Wheel gears	Brass	Aluminum
Bearings	9	5
Controller	STAR BOOK TEN	STAR BOOK ONE
Polar axis scope	Equipped	Optional
Counterweights	1.9 kg x 1, 3.7 kg x 1	1.9 kg x 1

Images are breathtakingly sharp and clear with perfect color correction.

SXD2 Mount Package — **Paired with AX103S** 'Apo Maximum' Refractor

25083 NEW

SXD2-AX103S

Contents

Optical tube	D=103mm F=825mm (f8) Quad SD apochromatic refractor, multicoated
Finder scope	7x50 finder with illuminated reticle, Field of view 7 degrees
Eyepiece (Power)	SLV20mm (41x) and SLV5mm (165x)
Tripod SXG-HAL130	2-section aluminum legs adjustable from 81cm to 130cm in length
Accessories	SXG half pillar, Flip mirror diagonal, Counterweights 1.9 kg x 1 and 3.7 kg x 1, Parts case

Specifications

Optical tube size	115mm Dia. x 762mm L (shortened to 670mm L)
Tube weight	6.4 kg
Resolving power	1.13 arc seconds
Limiting magnitude	11.8
Light gathering power	217x unaided eye
Adapter thread	60mm and 42mm for T-ring
Visual back	50.8mm and 31.7mm (with Flip mirror) push-fit
Total weight	28.9 kg / 63.6 lb (without eyepieces)

For astrophotography enthusiasts and those looking for a larger aperture optical tube.

SXD2 Mount Package — **Paired with ED115S** Apochromatic Refractor

25082 NEW

SXD2-ED115S

Contents

Optical tube	D=115mm F890mm (f7.7) SD apochromatic refractor, multicoated
Finder scope	7x50 finder with illuminated reticle, Field of view 7 degrees
Eyepiece (Power)	SLV20mm (45x) and SLV5mm (178x)
Tripod SXG-HAL130	2-section aluminum legs adjustable from 81cm to 130cm in length
Accessories	SXG half pillar, Flip mirror diagonal, Counterweights 1.9 kg x 1 and 3.7 kg x 1, Parts case

Specifications

Optical tube size	125mm Dia. x 930mm L
Tube weight	6.2 kg
Resolving power	1.01 arc seconds
Limiting magnitude	12.1
Light gathering power	270x unaided eye
Adapter thread	60mm and 42mm for T-ring
Visual back	50.8mm and 31.7mm (with Flip mirror) push-fit
Total weight	28.7 kg / 63.2 lb (without eyepieces)

A very good choice for those looking for an exceptional telescope for visual and astrophotography.

SXD2 Mount Package — **Paired with ED103S** Apochromatic Refractor

25081 NEW

SXD2-ED103S

Contents

Optical tube	D=103mm F795mm (f7.7) SD apochromatic refractor, multicoated
Finder scope	7x50 finder with illuminated reticle, Field of view 7 degrees
Eyepiece (Power)	SLV20mm (45x) and SLV5mm (178x)
Tripod SXG-HAL130	2-section aluminum legs adjustable from 81cm to 130cm in length
Accessories	SXG half pillar, Flip mirror diagonal, Counterweights 1.9 kg x 1 and 3.7 kg x 1,Parts case

Specifications

Optical tube size	115mm Dia. x 810mm L
Tube weight	5.4 kg
Resolving power	1.13 arc seconds
Limiting magnitude	11.8
Light gathering power	217x unaided eye
Adapter thread	60mm and 42mm for T-ring
Visual back	50.8mm and 31.7mm (with Flip mirror) push-fit
Total weight	28.7 kg / 63.2 lb (without eyepieces)

Exquisite viewing and imaging performance with flat, distortion-free images from edge to edge.

SXD2 Mount Package — **Paired with VC200L 'VISAC'** Catadioptric Reflector

25085 NEW

SXD2-VC200L

Contents

Optical tube	D=200mm F=1800mm (f9) VISAC mirror, multicoated
Finder scope	7x50 finder with illuminated reticle, Field of view 7 degrees
Eyepiece (Power)	SLV20mm (90x) and SLV9mm (200x)
Tripod SXG-HAL130	2-section aluminum legs adjustable from 81cm to 130cm in length
Accessories	Flip mirror diagonal, Counterweights 1.9 kg x 1 and 3.7 kg x 1, Parts case

Specifications

Optical tube size	232mm Dia. x 600mm L
Tube weight	6.9 kg
Resolving power	0.58 arc seconds
Limiting magnitude	13.3
Light gathering power	816x unaided eye
Adapter thread	60mm and 42mm for T-ring
Visual back	50.8mm and 31.7mm (with Flip mirror) push-fit
Total weight	27.6 kg / 60.8 lb (without eyepieces)

*The specifications are subject to change without notice.

The fast focal ratio is perfect for wide-field viewing and deep sky astrophotography.

SXD2 Mount Package

Paired with R200SS
Newtonian Reflector

25084 NEW

SXD2-R200SS

Contents

Optical tube	:	D=200mm F=1800mm (f9) VISAC mirror, multicoated
Finder scope	:	7x50 finder with illuminated reticle, Field of view 7 degrees
Eyepiece (Power)	:	SLV20mm (90x) and SLV9mm (200x)
Tripod SXG-HAL130	:	2-section aluminum legs adjustable from 81cm to 130cm in length
Accessories	:	Counterweights 1.9 kg x 1 and 3.7 kg x 1, Parts case

Specifications

Optical tube size	:	232mm Dia. x 700mm L
Tube weight	:	7.2 kg
Resolving power	:	0.58 arc seconds
Limiting magnitude	:	13.3
Light gathering power	:	816x unaided eye
Adapter thread	:	60mm and 42mm for T-ring
Visual back	:	31.7mm push-fit
Total weight	:	27.9 kg / 61.4 lb (without eyepieces)

Tripod Mounted Cases

Three types of Accessory Cases

Thee types of accessory cases are available in storing various eyepieces or STAR BOOK TEN / STAR BOOK handheld controller or small accessory parts that are useful at your observing site.

(For Eyepiece)

(For Controller)

(For General Use)

Choose the best accessory case for your purpose. The grey reflective tape stitched along the fastener ensures easy access at night.

(Image)

The accessory case is not only handy for carrying your accessories outside, but also easy to set on your Vixen tripod with the supplied attachment panel.

Attachment Panel for Accessory Case

The accessory cases are available for the SXG series of tripods and PORTA II tripod.

(Accessory Case)

(Attachment Panel)

(Image)

35651 patent pending

Accessory Case Set for Eyepiece

Suggested accessories to store

- 4 to 6 of SLV and/or NPL eyepieces in 31.7mm barrel
- 2 of LVW/SLV eyepieces in 50.8mm barrel and 1 or 2 of SLV/NPL eyepieces in 31.7mm barrel
- 1 of LVW/SLV eyepiece in 50.8mm barrel and 3 or 4 of SLV/NPL eyepieces in 31.7mm barrel

Accessory case size : 175mm H x 225mm W x 95mm
Case weight (Total weight) : 330 g / 11.64 oz (655 g / 23.1 oz)

(Accessory Case)

(Attachment Panel)

(Image)

35652 patent pending

Accessory Case Set for STAR BOOK TEN / STAR BOOK

Suggested accessories to store

- A STAR BOOK TEN handheld controller and a STAR BOOK TEN controller cable.
- A STAR BOOK handheld controller and a STAR BOOK controller cable.

Accessory case size : 185mm H x 255mm W x 80mm
Case weight (Total weight) : 290 g / 10.22 oz (615 g / 21.68 oz)

(Accessory Case)

(Attachment Panel)

(Image)

35653 patent pending

Accessory Case Set for General Use

Suggested accessories to store

- For accessory parts of your choice.

Accessory case size : 185mm H x 255mm W x 100mm
Case weight (Total weight) : 300 g / 10.58 oz (625 g / 22.04 oz)

The summit of the Vixen Sphinx Series for the Serious Astrophotographer

SXP
SXP Equatorial Mount

Combining the best functions of the sphinx series of mounts and the STAR BOOK TEN Controller, the Sphinx Professional is the ultimate mount for high performance observing and astrophotography.

High Precision Pulse Motors

The SXP employs newly developed pulse motors (= stepper motors) which generate small steps of 250 pulses per second. The movement of the mount is surprisingly smooth from slow searching to high slewing speeds and very accurate thanks to Vixen's micro-step motion control system.

Robust RA and DEC shafts

On the SXP, strong 40mm thick carbon steel is used for the declination shaft which easily holds the counterweights and other installed components. The same material is also used in the RA shaft. With these features, the highly compact mount has a photographic loading capacity of 16 kg (35.2 lbs), ensuring precise movement on a sturdy platform.


SXD2 SXP

Smooth RA and DEC Motion

Every movable part of the SXP has been newly designed in pursuit of extremely smooth movements. The SXP employs 15 pieces of low-friction ball bearings to achieve the most precise movement free of stress.

Reduced Weight

With the declination body acting as part of the counterweight, the Sphinx eliminates excess weight. The highly portable equatorial mount has a high loading capacity, rigid body, and simple operation.

25051
SXP Mount

Specifications	SXP and STAR BOOK TEN
R.A. slow motion	Worm and wheel gears with 180-tooth whole circle micro movement, 72mm in diameter made of brass
DEC slow motion	Worm and wheel gears with 180-tooth whole circle micro movement, 72mm in diameter, made of brass
Worm shaft gear	9mm in diameter, made of brass
R.A. axis	40mm in diameter, made of carbon steel
DEC axis	40mm in diameter, made of carbon steel
Counterweight bar	20mm in diameter, retractable, made of stainless steel
Number of bearings	5 pieces
RA display	On-screen the STAR BOOK, 0.1 minute increments
DEC display	ON-screen the STAR BOOK, 0.1 arc minute increments
Polar axis scope	SX Polar axis scope (pre-installed) 6x20mm, Field of view 8 degree, with illuminated reticle, within 3 arc minutes of setting accuracy
Altitude adjustment	Latitude adjustable between 0 degree and 70 degrees (divided in 3 zones and adjustable +/-15 degrees per zone, for high, middle and low latitudes), altitude scale in 2 degrees increments, Fine adjustments with a tangent screw knob about 0.8 degrees per rotation
Azimuth adjustment	Fine adjustments with twin screw knobs about 1.2 degrees per rotation, adjustable range about +/- 7 degrees
Motor drive	Pulse motors with micro-step motion control (250 pps)
Star Chart Go-To	Automatic Go-To slewing with STAR BOOK TEN, 1000x of sidereal rate at maximum slewing speed
Photographic loading weight	16 kg / 35.2 lb (Maximum torque load: 400 kg-cm at a point of 25cm from the place where the RA and DEC axes cross.)
Power port	DC 12V EIAJ RC5320A Class4
Power supply	Comes Cigarette-lighter plug cord (center plus polarity) as standard accessory
Working voltage	DC 12V
Electricity consumption	0.45A to 2.5A
Dimensions	36cm x 34.3cm x 12.8cm
Weight	11 kg / 24.2 lb (without counterweights)
Counterweights	1.9 kg x 1 and 3.7 kg x 1 / 4.2 lb x1 and 8.15 lb x1

Flat Mount Head

The top of the round mount head, 35mm diameter, features eight M8 pitch 1.25mm threaded holes. These are arranged at 45° to each other for installation of various optical tubes.

Optional Parts

3810
Dovetail-plate Mounting Block

- Used to install a dovetail plate attached optical tube
- Fits directly onto the SXP or AXD mount head
- Usable for Accessory plate DX
- With 1/4" threaded holes

Weight : 220 g / 7.76 oz

37612
Portable 12V Power Supply SG-1000SX

- 12V 7Ah

Size : 16cm x 16cm x 7cm
Weight : 3.2 kg / 7.0 lb

2697
SX Aluminum Case

- For SX2, SXD2 or SXP mount
- STAR BOOK TEN and counterweights can be stored with it together

Size : 47cm x 50cm x 22cm
Weight : 6.5 kg / 14.3 lb

3599
AC Adapter 12V 3A

Weigh : 320 g / 11.28 oz

SXP Accessories

25161
SXG-HAL130 Aluminum Tripod

- Achieves high solidness and stability

Adjustable leg length : 81cm to 130cm long
Adjustable tripod height : 73cm to 115cm high
Weight : 5.5 kg / 12.1 lb

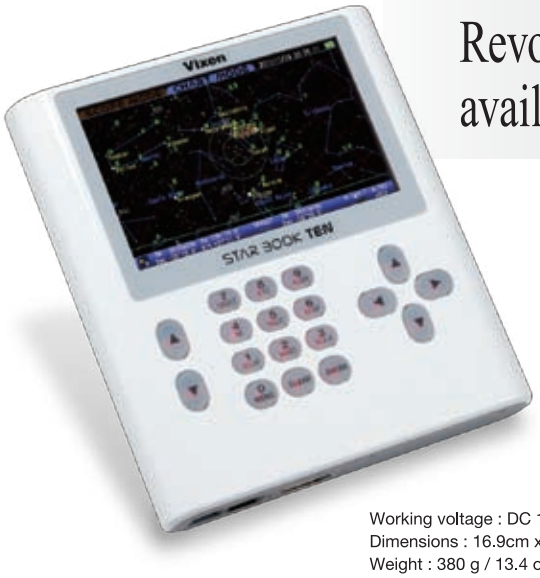
25172
SXG-P85 Pillar

- Provides a less blind area and it allows easily for pointing a telescope on the SXP mount to anywhere

Pipe size : 11.4cm Dia. x 84cm long
Thickness : 3.5mm
Prop radius : 45cm
Weight : 19.5 kg / 43 lb

*The specifications are subject to change without notice.

Revolutionary Star Chart Go-To Navigation controller available for the SX2, SXD2, SXP and AXD Mounts

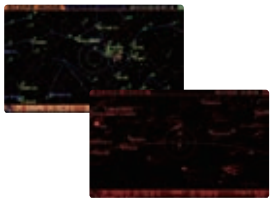


Working voltage : DC 12V
Dimensions : 16.9cm x 15.4cm x 3.0cm
Weight : 380 g / 13.4 oz
CPU : 32bit RISC Processor

STAR BOOK TEN

High Definition Color LCD

The wide 5-inch TFT color LCD of the STAR BOOK TEN displays stars and constellations of the night sky similar to those seen in a planetarium. Its high definition screen (800x480, 65,535 colors) shows you vivid images of stars.



The position of the telescope, the target and other useful information are displayed on the screen in detail. The night vision feature illuminates the whole screen in red, if applied, and will limit the brightness to the observer's eyes. All command and direction keys can be backlit in red to let you identify the keys in the dark. The backlit keys can be adjusted or turned off.

Easy-to-Use Menus

STAR BOOK TEN allows you to call up menus of celestial objects to target in SCOPE MODE as well as in CHART MODE. In addition, you can choose your target by scrolling the star chart in CHART MODE. Frequently used menus are allocated to each of ten keys.

Different Tracking Rate

The tracking rate can be changed according to the type of object you observe. The motion of the sun, moon, planet or comet can be followed independently of the sidereal rate.

Celestial Objects Database

The STAR BOOK TEN contains more than 272,000 celestial objects including approximately 258,977 stars from the SAO catalogue, 109 Messier objects, 7840 NGC objects and 5386 IC objects as well as the sun, moon, and planets. Objects can be called up by common name and information can be customized.

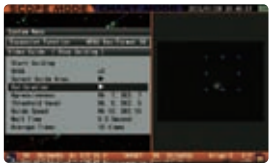
Hibernate

STAR BOOK TEN has a large capacity of backup memory where your alignment information can be stored. This allows you to turn off the power of the mount temporarily to save batteries. The mount resumes tracking and "Go-To" slewing perfectly when you turn on the power again.

P-PEC

Periodic error corrections you have done to improve tracking accuracy of the mount are saved and retained if you turn off the power (It is available for SXP and AXD only). The P-PEC data can be called up next time you use the mount for astrophotography.

Autoguider



STAR BOOK TEN includes an expansion slot. It allows you to retrofit an optional Advance unit which functions as an autoguider. The Advance unit allows you to capture a guide star on the screen by using an optional Vixen CCD video camera (or other commercially available CCD video cameras of similar specifications). You will be able to display the guide star and the star chart side by side on the screen also.

Moon Map

With the Moon Map menu, the telescope can be automatically pointed at the major land forms of the moon. Use Go-To slewing to find well known object listed by their geographical names.

The quad elements apochromatic system includes an SD glass that offers uncompromising optical performance, the pinnacle in its aperture class.

SXP Mount Package — **Paired with AX103S** 'Apo Maximum' Refractor

25093 NEW

SXP-AX103S

Contents

Optical tube	D=103mm F=825mm (f8) Quad SD apochromatic refractor, multicoated
Finder scope	7x50 finder with illuminated reticle, Field of view 7 degrees
Eyepiece (Power)	SLV20mm (41x) and SLV5mm (165x)
Tripod SXG-HAL130	2-section aluminum legs adjustable from 81cm to 130cm in length
Accessories	SXG half pillar, Flip mirror diagonal, Dovet ail-plate mounting block, Counterweights 1.9 kg x 1 and 3.7 kg x 1, Parts case

Specifications

Optical tube size	115mm Dia. x 762mm L (shortened to 670mm L)
Tube weight	6.4 kg
Resolving power	1.13 arc seconds
Limiting magnitude	11.8
Light gathering power	217x unaided eye
Adapter thread	60mm and 42mm for T-ring
Visual back	50.8mm and 31.7mm (with Flip mirror) push-fit
Total weight	30.7 kg / 67.6 lb (without eyepieces)

Images are sharp and high in contrast, offering spectacular views of both the planets and deep-sky objects.

SXP Mount Package — **Paired with ED103S** Apochromatic Refractor

25091 NEW

SXP-ED103S

Contents

Optical tube	D=103mm F795mm (f7.7) SD apochromatic refractor, multicoated
Finder scope	7x50 finder with illuminated reticle, Field of view 7 degrees
Eyepiece (Power)	SLV20mm (45x) and SLV5mm (178x)
Tripod SXG-HAL130	2-section aluminum legs adjustable from 81cm to 130cm in length
Accessories	SXG half pillar, Flip mirror diagonal, Dovetail-plate mounting block, Counterweights 1.9 kg x 1 and 3.7 kg x 1,Parts case

Specifications

Optical tube size	115mm Dia. x 810mm L
Tube weight	5.4 kg
Resolving power	1.13 arc seconds
Limiting magnitude	11.8
Light gathering power	217x unaided eye
Adapter thread	60mm and 42mm for T-ring
Visual back	50.8mm and 31.7mm (with Flip mirror) push-fit
Total weight	29.7 kg / 65.4 lb (without eyepieces)

Detailed views of planets and faint celestial objects are brighter with a little larger aperture.

SXP Mount Package — **Paired with ED115S** Apochromatic Refractor

25092 NEW

SXP-ED115S

Contents

Optical tube	D=115mm F890mm (f7.7) SD apochromatic refractor, multicoated
Finder scope	7x50 finder with illuminated reticle, Field of view 7 degrees
Eyepiece (Power)	SLV20mm (45x) and SLV5mm (178x)
Tripod SXG-HAL130	2-section aluminum legs adjustable from 81cm to 130cm in length
Accessories	SXG half pillar, Flip mirror diagonal, Dovetail-plate mounting block, Counterweights 1.9 kg x 1 and 3.7 kg x 1, Parts case

Specifications

Optical tube size	125mm Dia. x 930mm L
Tube weight	6.2 kg
Resolving power	1.01 arc seconds
Limiting magnitude	12.1
Light gathering power	270x unaided eye
Adapter thread	60mm and 42mm for T-ring
Visual back	50.8mm and 31.7mm (with Flip mirror) push-fit
Total weight	30.5 kg / 67.1 lb (without eyepieces)

Producing pinpoint stars from edge to edge is the best for astrophotography. The rack-and-pinion focuser eliminates image shift common to SCTs.

SXP Mount Package — **Paired with VC200L 'VISAC'** Catadioptric Reflector

25095 NEW

SXP-VC200L

Contents

Optical tube	D=200mm F=1800mm (f9) VISAC mirror, multicoated
Finder scope	7x50 finder with illuminated reticle, Field of view 7 degrees
Eyepiece (Power)	SLV20mm (90x) and SLV9mm (200x)
Tripod SXG-HAL130	2-section aluminum legs adjustable from 81cm to 130cm in length
Accessories	Flip mirror diagonal, Dovetail-plate mounting block, Counterweights 1.9 kg x 1 and 3.7 kg x 1, Parts case

Specifications

Optical tube size	232mm Dia. x 600mm L
Tube weight	6.9 kg
Resolving power	0.58 arc seconds
Limiting magnitude	13.3
Light gathering power	816x unaided eye
Adapter thread	60mm and 42mm for T-ring
Visual back	50.8mm and 31.7mm (with Flip mirror) push-fit
Total weight	29.4 kg / 64.7 lb (without eyepieces)

The fast focal ratio is perfect for wide-field viewing and deep sky astrophotography.

SXP Mount Package — **Paired with R200SS** Newtonian Reflector

25094 NEW

SXP-R200SS

Contents

Optical tube	D=200mm F=1800mm (f9) VISAC mirror, multicoated
Finder scope	7x50 finder with illuminated reticle, Field of view 7 degrees
Eyepiece (Power)	SLV20mm (90x) and SLV9mm (200x)
Tripod SXG-HAL130	2-section aluminum legs adjustable from 81cm to 130cm in length
Accessories	Counterweights 1.9 kg x 1 and 3.7 kg x 1, Parts case

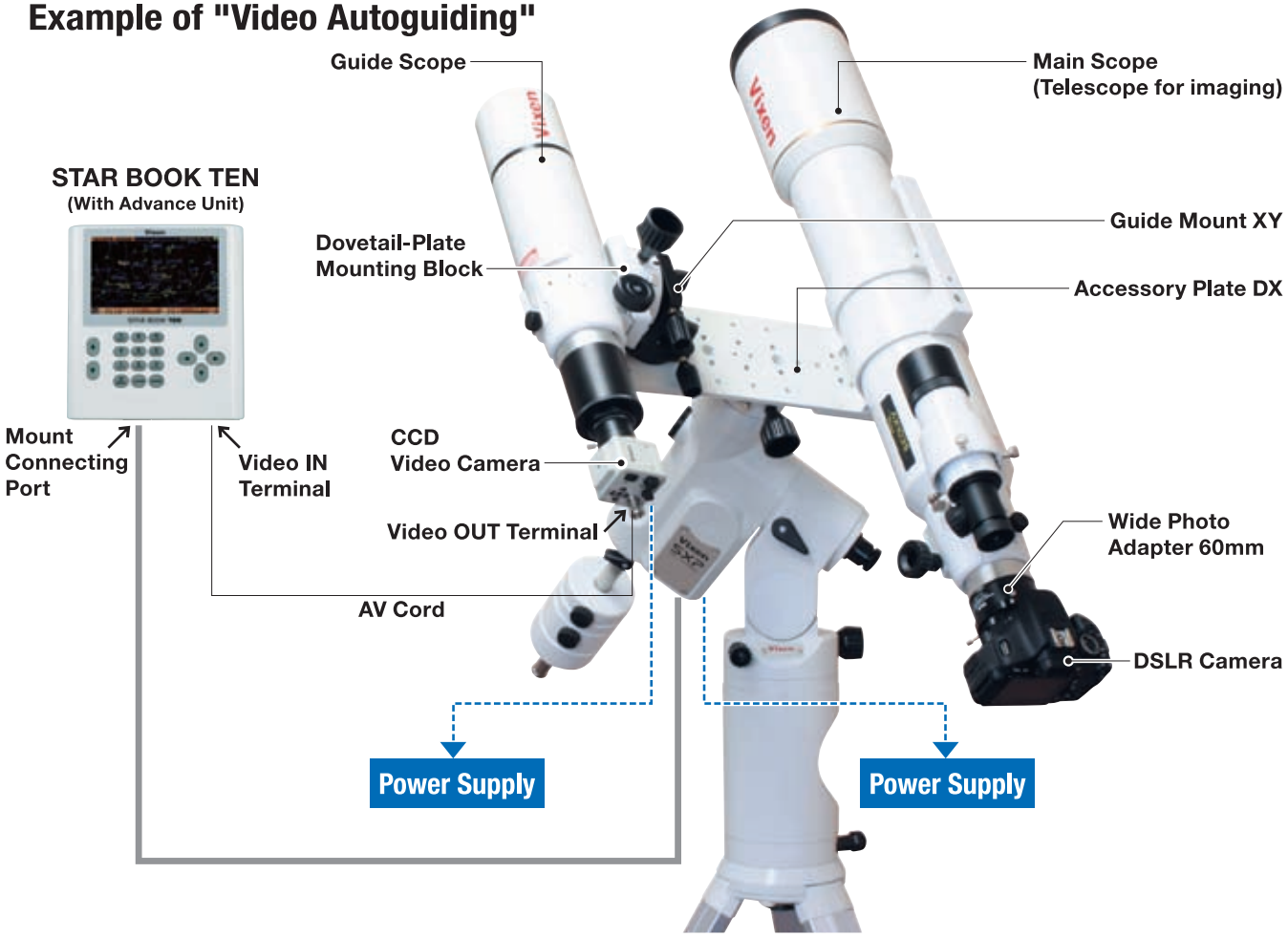
Specifications

Optical tube size	232mm Dia. x 700mm L
Tube weight	7.2 kg
Resolving power	0.58 arc seconds
Limiting magnitude	13.3
Light gathering power	816x unaided eye
Adapter thread	60mm and 42mm for T-ring
Visual back	31.7mm push-fit
Total weight	29.7 kg / 65.4 lb (without eyepieces)

*The specifications are subject to change without notice.

Advanced Autoguiding with Advance Unit

Example of "Video Autoguiding"



If you take photos of faint deep sky objects such as nebulae with a telescope and DSLR camera (Prime focus astrophotography), you often need to apply long exposure times. The longer the focal length of the telescope, the larger the atmospheric refraction of stars appear. This is affected by accurate tracking of your mount. Mechanically inherent periodic motions of the mount may further influence the tracking that precisely follows a guide star's diurnal motion.

The Advance Unit for STAR BOOK TEN allows you to perfect autoguiding as shown in the system above. The CCD video camera attached to the guide scope keeps the guide star in view to achieve highly accurate tracking. This is a simple and comfortable autoguiding system that does not require a PC. Autoguiding with the use of the Advance Unit is defined as "Video Autoguiding"

Optional Parts

25301

Advance Unit

The Advance unit is compatible with the STAR BOOK TEN only.
- Works as a built-in autoguider in combination with an optional CCD video camera.
- Video images by analog AV signal (NTSC composite signal) can be displayed on the screen of STAR BOOK TEN. The video images can be recorded to a commercially available SD/SDHC memory card sold separately.
- Remote shutter release control of a DSLR camera is possible.

Size : 90mm x 76mm x 24mm
Weight : 100g / 3.52 oz

35621

Guide Mount XY

- A low-profile mount for installing a guide scope on it.
- Fine adjustable +/-6.5 degrees from side to side both in X and in Y directions with lock levers.

Base : 10mm thick, M8 holes x 2
(35mm from each other)
Top : 10mm thick, M6 threaded holes x 2,
M8 threaded holes x 2 (35mm from each other)
Size : 100mm x 79mm x 160mm
Weight : 750 g / 26.45 lb

33801

Color CCD Video Camera C0014-3M

(For details, refer to page 63.)

3748

C-Mount Tele-Extender 2.4X (31.7mm nose)

(For details, refer to page 63.)

Vixen's Flagship Equatorial Mount combining Superior Performance and Ease of Use

AXD
AXD Equatorial Mount

The AXD Mount has superior quality and performance to deliver breathtaking images of deep sky wonders.

Avid astronomers will find that the high performance and precise tracking of the AXD mount will raise their level of astrophotography. With its exceptionally ease of use and superior performance, the AXD mount offers novice astronomers the opportunity to be a successful astro-photographer.

No matter how you are involved in astronomical observing or astrophotography, the superior interface of the STAR BOOK TEN lets you operate the AXD mount without any difficulty.

36911

AXD Mount

Specifications	AXD and STAR BOOK TEN
R.A. slow motion	Worm and wheel gears with 270-tooth whole circle micro movement, 135mm in diameter made of brass
DEC slow motion	Worm and wheel gears with 216-tooth whole circle micro movement, 108mm in diameter, made of brass
Worm shaft gear	14.5mm in diameter, made of brass
R.A. axis	50mm in diameter, made of A7075 super aluminum-alloy
DEC axis	50mm in diameter, made of A7075 super aluminum-alloy
Counterweight bar	25mm in diameter, retractable, made of stainless steel
Number of bearings	21 pieces
RA display	On-screen the STAR BOOK TEN, 0.1 minute increments
RA setting circle	10 minutes increments, 1 minute increment with vernier
DEC display	ON-screen the STAR BOOK TEN, 0.1 arc minute increments
DEC setting circle	2 degrees increments, 10 arc minutes (0.167 degrees) increments with vernier
Polar axis scope	SX Polar axis scope (pre-installed) 6x20mm, Field of view 8 degree, with illuminated reticle, within 3 arc minutes of setting accuracy
Altitude adjustment	Latitude adjustable between 0 degree and 70 degrees (divided in 3 zones and adjustable +/-15 degrees per zone, for high, middle and low latitudes), altitude scale in 2 degrees increments, Fine adjustments with two tangent screw bolts about 0.5 degrees per rotation
Azimuth adjustment	Fine adjustments with twin screw knobs about 1.0 degrees per rotation, adjustable range about +/- 7 degrees
Motor drive	Pulse motors with micro-step motion control (400 pps)
Star Chart Go-To	Automatic Go-To slewing with STAR BOOK TEN, 800x of sidereal rate at maximum slewing speed
Photographic loading weight	30 kg / 66 lb (Maximum torque load: 750 kg-cm at a point of 25cm from the place where the RA and DEC axes cross.)
Power port	DC 12V EIAJ RC5320A Class4
Power supply	Comes Cigarette-lighter plug cord (center plus polarity) as standard accessory
Working voltage	DC 12V
Electricity consumption	0.45A to 2.5A
Dimensions	45.7cm x 46.5cm x 15.2cm
Weight	25 kg / 55.1 lb (without counterweights)
Counterweights	1.5 kg x 1 and 7.0 kg x 1 / 3.3 lb x1 and 15.4 lb x1

AXD Accessories

36917

AXD-P85 Metal Pillar

Pipe size : 114.3mm dia. x 881.5mm L
Thickness : 3.5mm
Prop radius : 44cm
Weight : 14.5 kg / 31.9 lb

36918

AXD Large Accessory Plate

Size : 400mm x 200mm
Thickness : 15mm
Weight : 2.9 kg / 6.38 lb

36915

AXD Half Pillar

Size : 15.8cm dia. x 27.5cm L
Weight : 4.9 kg / 10.8 lb

25173

AXD-P85DX Metal Pillar

- Robust observatory pillar

Pipe size : 139.8mm dia. x 881.5mm L
Thickness : 3.8mm
Weight : 24.5 kg / 53.9 lb

36916

AXD-TR102 Aluminum Tripod

Adjustable leg length: 76cm to 101.8cm
Adjustable tripod height: 69cm to 91.5cm
Leg pipe : 55mm dia.
Prop radius : 57cm
Weight : 10.3 kg / 22.7 lb

36912

AXD Counterweight 1.5 kg (3.3 lb)

36913

AXD Counterweight 3.5 kg (7.7 lb)

36914

AXD Counterweight 7.0 kg (15.4 lb)

89222

AXD Aluminum Case

Weight : 6.7 kg / 14.7 lb

Optional Accessories

3810

Dovetail-plate Mounting Block

- Used to install a dovetail plate attached optical tube
- Fits directly onto the SXP or AXD mount head
- Usable for Accessory plate DX
- With 1/4" threaded holes

Weight : 220 g / 7.76 oz

37612

Portable 12V Power Supply SG1000SX

Weight : 3.2 kg / 7.0 lb

3599

AC Adapter 12V 3A

Weight : 320 g / 11.28 oz

35621

Guide Mount XY

Weight : 750 g / 26.45 lb

25301

Advance Unit

Weight : 100 g / 3.52 oz

33801

CCD Video Camera C0014-3M

Weight : 245g / 8.64 oz

*The specifications are subject to change without notice.

Sturdy Axes and Lightweight Body

The structure of German equatorial mounts has been thoroughly examined in order to create the sturdy but lightweight AXD equatorial mount. The A7075 super-alloy, which is the strongest material among this group of aluminum alloys, is used for the RA and DEC axes. The tension of the A7075 super-alloy is stronger than titanium a lightweight material of high strength. Its specific gravity is 38% less than titanium. Both axes are as thick as 50mm in diameter. The use of the A7075 super-alloy for the axes makes the AXD lightweight while retaining its sturdiness.

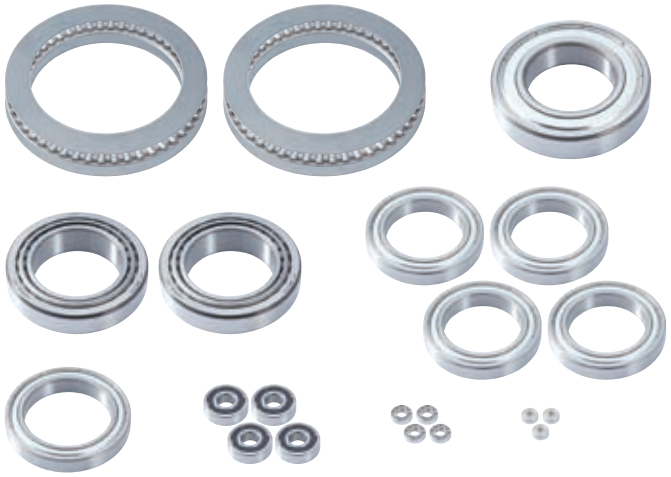
RA Axis DEC Axis

Worm Wheels

Sizes of the worm wheels have been increased in the AXD design. The AXD has 270 teeth in RA and 216 teeth in DEC. It achieves a high level of tracking accuracy and tracking stability.

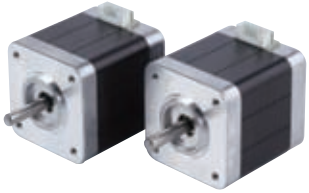
Bearings

The rotational parts of the AXD have 21 pieces of bearings in total. This provides extremely smooth motion for tracking and slewing to the target objects.



Pulse Motors

Vixen selected accurate pulse motors for better response and which enable the AXD to fully realize its performance potential. A drawback associated with the ticktack motion of large step pulse motors has been eliminated by a newly developed micro-step motion control system generating high speed 400 pulse per second. As a result, the AXD delivers surprisingly smooth tracking free of oscillation. The pulse motors maintain sufficient torque. This is most evident when you observe at high magnification and for high resolution CCD imaging.



Minimum Backlash

Vixen's micro-step motion control system accurately works the pulse motors from low speed to high speed. This eliminates the need for reduction gears in the motor gear train and dramatically decreases backlash of the gears.

Ultimate VPEC Periodic Error Correction

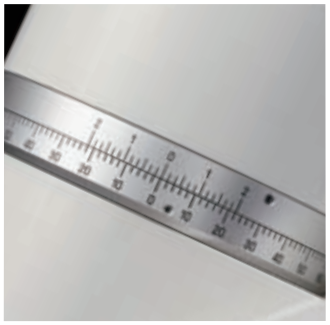
The periodic motion of each AXD mount has been measured precisely and stored in the nonvolatile memory inside the mount at Vixen's factory before shipment. This is called VPEC. The VPEC works automatically as you use the mount. It provides tracking as accurate as +/-4 arc seconds. You will be able to raise the tracking accuracy further by adding your own recorded PEC as the occasion demands.

Elegant Appearance

The flattened side-forms with minimal protrusions are inherited from former generations of ATLUX. The white and silver colored external appearance of the AXD looks elegant and functional. It stands as the flagship of Vixen's full line of well-designed mounts and telescopes.

Silver Setting Circles

Polished silver anodized setting circles in RA and DEC have both beauty and utility. They not only match the white AXD body nicely but also allow you to point your telescope to a target well within the provided verniers. The RA reads 1 minute (hour angle) and the DEC reads 10 arc minutes (or about 0.167 degrees).



Retractable Counterweight Bar

A 50mm thick retractable counterweight bar made of stainless steel is stored into the declination body. It is helpful for a quick set up.

Reliable Electronics

Al the electronic parts inside the AXD are located on one electric circuit board to simplify electrical wiring. The mount is equipped with a highly reliable electric circuit board.

Original Motor Layout

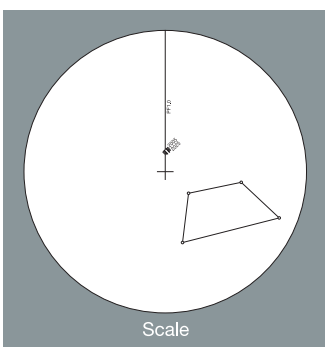
The massive RA and DEC motor units are placed in the lower part of the declination body so that the center of balance of the AXD shifts to below the crossing point of the RA and DEC axes. This makes the lower portion of the declination body act as a counterweight. Additionally, the low-profile mount head allows the AXD to balance with less weight.

Mount Head

The mount head of the AXD is an anodized aluminum plate that is resistant to scratches. Threaded holes on the mounting head for an optical tube cradle accept Vixen's mounting plates and are designed for other manufacturer's plates.

Polar Axis Scope

A 6x20mm polar axis scope with illuminated reticle is provided with the AXD. With the help of a built-in Polaris position scale, it achieves an easy and accurate polar alignment within 3 arc minutes in the northern hemisphere. For polar alignment in the southern hemisphere, a pattern of four stars in Octantis is used as a scale.



Vibration-Free Tripod

A sturdy tripod or a pedestal with a high grade of stability is essential to fully utilize the AXD. The exclusive AXD-TR102 tripod for the mount with 55mm thick legs, is constructed so that the legs are strong enough against the tension. This achieves perfect stability when using the AXD.

*The specifications are subject to change without notice.

The quad elements apochromatic system includes SD glass offering uncompromising optical performance, the pinnacle in the aperture class.

AXD Mount Package — **Paired with AX103S** 'Apo Maximum' Refractor and AXD-TR102 Tripod

36921

AXD-AX103S

Contents

Optical tube	D=103mm F=825mm (f8) Quad SD apochromatic refractor, multicoated
Finder scope	7x50 finder with illuminated reticle, Field of view 7 degrees
Eyepiece	Optional
Tripod	2-section aluminum legs adjustable from 76cm to 101cm in length
Accessories	AXD half pillar, Flip mirror diagonal, Dovetail-plate mounting block, Counterweights 1.5 kg x 1 and 7.0 kg x 1

Specifications

Optical tube size	115mm Dia. x 762mm L (shortened to 670mm L)
Tube weight	6.4 kg
Resolving power	1.13 arc seconds
Limiting magnitude	11.8
Light gathering power	217x unaided eye
Adapter thread	60mm and 42mm for T-ring
Visual back	50.8mm and 31.7mm (with Flip mirror) push-fit
Total weight	55.3 kg / 121.8 lb (without eyepieces)

The 103mm f8 SD apochromatic refractor, designed for both visual observing and astrophotography, comes mounted on a sophisticated AXD atop a steel pedestal.

AXD Mount Package — **Paired with AX103S** 'Apo Maximum' Refractor and AXD-P85 Pillar

36922

AXD-AX103S-P

Contents

Optical tube	D=103mm F=825mm (f8) Quad SD apochromatic refractor, multicoated
Finder scope	7x50 finder with illuminated reticle, Field of view 7 degrees
Eyepiece	Optional
Metal Pillar	139.8mm dia. x 881.5mm long, 3.5mm thick pipe wall
Accessories	AXD half pillar, Flip mirror diagonal, Dovetail-plate mounting block, Counterweights 1.5 kg x 1 and 7.0 kg x 1

Specifications

Optical tube size	115mm Dia. x 762mm L (shortened to 670mm L)
Tube weight	6.4 kg
Resolving power	1.13 arc seconds
Limiting magnitude	11.8
Light gathering power	217x unaided eye
Adapter thread	60mm and 42mm for T-ring
Visual back	50.8mm and 31.7mm (with Flip mirror) push-fit
Total weight	59.5 kg / 131 lb (without eyepieces)

The large 260mm aperture yet lightweight VC260L comes mounted on a sophisticated AXD and well-designed sturdy tripod. It can be easily transported to distant observing sites.

AXD Mount Package — **Paired with VMC260L** Catadioptric Refractor and AXD-TR102 Tripod

36923

AXD-VMC260L

Contents

Optical tube	D=260mm F=3000mm (f11.5) Precision spherical mirror, multicoated
Finder scope	7x50 finder with illuminated reticle, Field of view 7 degrees
Eyepiece	Optional
Tripod	2-section aluminum legs adjustable from 76cm to 101cm in length
Accessories	Dovetail saddle plate, Flip mirror diagonal, Counterweights 1.5 kg x 1 and 7.0 kg x 1

Specifications

Optical tube size	1304mm Dia. x 680mm L (shortened to 670mm L)
Tube weight	12.1 kg
Resolving power	0.45 arc seconds
Limiting magnitude	13.8
Light gathering power	1380x unaided eye
Adapter thread	60mm and 42mm for T-ring
Visual back	50.8mm and 31.7mm (with Flip mirror) push-fit
Total weight	55.9 kg / 123.1 lb (without eyepieces)

The great light gathering power and long focal length are the best for detailed views of the planets and faint deep-sky objects. The robust pillar is suitable for use in a dome observing base.

AXD Mount Package — **Paired with VMC260L** Catadioptric Refractor and AXD-P85 DX Pillar

36925

AXD-VMC260L-P

Contents

Optical tube	D=260mm F=3000mm (f11.5) Precision spherical mirror, multicoated
Finder scope	7x50 finder with illuminated reticle, Field of view 7 degrees
Eyepiece	Optional
Metal Pillar	139.8mm dia. x 881.5mm long, 3.8mm thick pipe wall
Accessories	Dovetail saddle plate, Flip mirror diagonal, Counterweights 1.5 kg x 1 and 7.0 kg x 1

Specifications

Optical tube size	1304mm Dia. x 680mm L (shortened to 670mm L)
Tube weight	12.1 kg
Resolving power	0.45 arc seconds
Limiting magnitude	13.8
Light gathering power	1380x unaided eye
Adapter thread	60mm and 42mm for T-ring
Visual back	50.8mm and 31.7mm (with Flip mirror) push-fit
Total weight	70.1 kg / 154.4 lb (without eyepieces)

Easy-to-use Mount with Versatility, Customizing Your Own Stargazing Style

AP
Advanced Polaris Equatorial Mount


AP Mount


AP-SM Mount

Easy to use Versatile Mount. Customize to fit Your Observing Style.

The Advanced Polaris (abbreviated as AP) Mount is ideally suited for beginners who want to become familiar with equatorial mounts or experienced observers who want a simple grab and go mount. The AP mount securely supports your telescope optical tube for comfortable observing. With its friction control mechanism, the mount can be quickly moved to your target object. A wide selection of optional accessories are available for the AP mount to meet your observation needs.

The AP mount consists of several modules or units that are joined together to make a highly portable German equatorial mount of excellent quality. With the available R.A motor module, complete with the STAR BOOK ONE controller, it is easy to accurately track celestial objects.

There are two basic versions of the AP mount from which to choose. The basic AP mount comes standard with both the R.A and DEC manual slow motion control modules for manual operation. The AP-SM mount employs the R.A motor module for celestial tracking in place of the R.A manual slow motion control module and it comes standard with STAR BOOK ONE. The upgrading will be completed with an addition of the optionally available DEC motor module.

Optional Accessories

25803 NEW

Polar Alignment Scope for AP Mount

A completely new type of Polar Scope using a simple alignment method. Place Polaris and 2 known stars (Delta UMi and 51 Cep) in the proper location on the reticle in the northern hemisphere. Use a trapezoid (sigma, Chi, Tau and Upsilon Octantis) in Octans in the Southern hemisphere to match the reticle with the trapezoid in the polar scope's field of view. No hour angle setting is required.

25191 NEW

APP-TL130 Tripod

25804 NEW

R.A Motor Module and STAR BOOK ONE Set

25805 NEW

DEC Motor Module

NEW

STAR BOOK ONE

Working voltage : DC12V
(supplied from the mount side)
Dimensions : 13.7cm x 6.6cm x 2.1cm
Weight : 110 g / 3.8 oz
CPU : 32bit CISC Processor
(For details, refer to page 21.)

Note: The STAR BOOK ONE recognizes the Vixen Mount to which it is attached. Only functions or commands that are applicable to that mount will be displayed on the screen.

39972 NEW

AP Mount

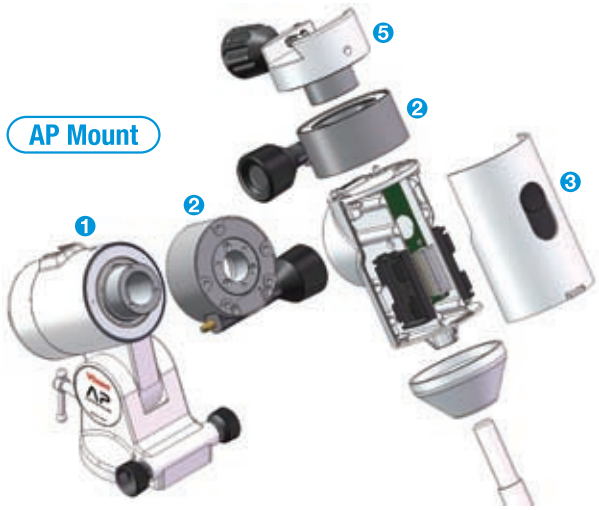
39973 NEW

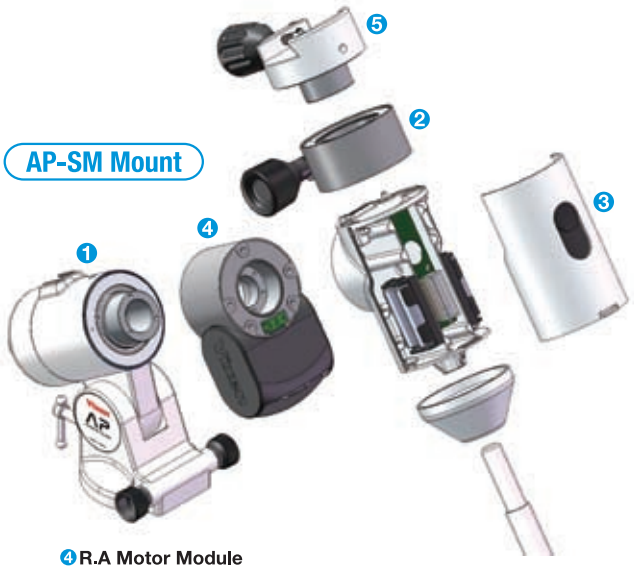
AP-SM Mount

Specifications	AP Mount	AP-SM Mount
R.A. slow motion	Worm and wheel gears with 144-tooth whole circle micro movement	
DEC slow motion	Worm and wheel gears with 144-tooth whole circle micro movement	
R.A. axis	59mm in diameter, A5056 Aluminum alloy	
DEC axis	59mm in diameter, A5056 Aluminum alloy	
Number of bearings	7 pieces (Ball bearings)	7 pieces (Ball bearings)
Counterweight bar	20mm in diameter, steel	20mm in diameter, steel
Counterweight	1.0 kg x 1	1.0 kg x 1
Polar axis scope	Optional	Optional
Altitude adjustment	Between 0 degree and 65 degrees with a tangent screw bolts about 1.9 degrees per rotation	
Azimuth adjustment	Twin screw knobs about 1.4 degrees per rotation	
Motor drive	Optional	Pulse motor (R.A)
Tracking / Slewing	Manual operation	STAR BOOK ONE, 60x slewing speed at maximum
External Power Supply	Unnecessary	Micro USB-B
Loading weight	6 kg / 13.2 lb (Maximum torque load: 150 kg-cm)	
Dimensions	263mm x 302mm x 96mm (Setting at 35 degrees latitude)	

*The specifications are subject to change without notice.

Modules and Components





❶R.A Body Unit with Mount Base

R.A axis	45mm in diameter, aluminum alloy
Clamp	Friction lock clamp system
Ball bearing	2 pieces
Azimuth fine adjustments	+/- 6.5 degrees with twin screw knobs about 1.4 degrees per rotation
Altitude adjustment range	Between 0 degree and 65 degrees
Altitude fine adjustments	With tangent screw bolts about, 1.9 degrees per rotation
Other features	Accessory shoe for Polar meter

❷Manual Slow Motion Control Module

(The manual slow motion control modules are usable on either axis.)

Wheel gear	144-tooth, 58.4mm in diameter, aluminum alloy
Worm shaft	9mm in diameter, brass
Ball bearing	2 pieces
Rotation axis	45mm in diameter, aluminum alloy

❸DEC Body and Counterweight Unit

Battery compartment	4 x AA batteries
Counterweight bar	20mm in diameter
Counterweight	1.0 kg x 1 piece

❹R.A Motor Module

RA slow motion	Full circle micro-movement
Wheel gear	144-tooth, 73.5mm in diameter, aluminum alloy
Worm shaft	10mm in diameter, brass
Ball bearing	2 pieces
Rotation axis	45mm in diameter, aluminum alloy
Motor	Pulse motor
Controller connecting port	D-SUB 9PIN (Male)
External power supply	Micro USB-B (DC between 4.4V and 5.26V)

❺AP Mount Head Unit

Optical tube attachment	Vixen style dovetail plate
Clamp	Friction lock clamp system
Rotational axis	45mm in diameter, aluminum alloy
Ball bearing	1 piece

Designed to meet the needs of Astronomers who want an affordable refractor with room to grow in the future.

AP Mount Package — **Paired with A70Lf** Refractor

39975 NEW

AP-A70Lf

Contents

Optical tube	D=70mm F=900mm achromatic refractor, multicoated
Finder scope	6x24mm, Field of view 5 degrees
Eyepiece (Power)	PL20mm (45x) and PL6.3mm (143x)
Mount	AP mount with manual RA and DEC slow motion control modules
Tripod	3-section aluminum legs adjustable
Accessories	Erect-image diagonal for terrestrial viewing, Counterweight 1.0 kg x 1, Parts case

Specifications

Optical tube size	76mm Dia. x 860mm L
Tube weight	2.5 kg
Resolving power	1.66 arc seconds
Limiting magnitude	11.0
Light gathering power	100x unaided eye
Adapter thread	42mm for T-ring
Visual back	31.7mm

A good choice for starting the first step to serious observing.

AP Mount or AP-SM Mount Package — **Paired with A80Mf** Refractor

39976 NEW

AP-A80Mf

39977 NEW

AP-A80Mf-SM

Contents

Optical tube	D=81mm F=910mm (f11.4) achromatic refractor, multicoated
Finder scope	6x30mm, Field of view 7 degrees
Eyepiece (Power)	PL20mm (46x) and PL6.3mm (144x)
Mount	AP mount with manual RA and DEC slow motion control modules or AP-SM mount with RA motor module and STAR BOOK ONE controller
Tripod	3-section aluminum legs adjustable
Accessories	Erect-image diagonal for terrestrial viewing, Counterweight 1.0 kg x 1, Parts case

Specifications

Optical tube size	90mm Dia. x 860mm L
Tube weight	3.3 kg
Resolving power	1.45 arc seconds
Limiting magnitude	11.3
Light gathering power	131x unaided eye
Adapter thread	43mm and 42mm for T-ring
Visual back	31.7mm

Move up a step to the false color free Ed Refractor.

AP Mount or AP-SM Mount Package

Paired with ED81Sf
Apochromatic Refractor

39981 NEW
AP-ED80Sf

39982 NEW
AP-ED80Sf-SM

Contents

Optical tube	D=80mm F=600mm (f7.5) SD apochromatic refractor, multicoated
Finder scope	XY red dot finder
Eyepiece (Power)	NPL20mm (30x) and NPL6mm (100x)
Mount	AP mount with manual RA and DEC slow motion control modules or AP-SM mount with RA motor module and STAR BOOK ONE controller
Tripod	3-section aluminum legs adjustable
Accessories	Flip mirror diagonal, Counterweight 1.0 kg x 1 (+1.9 kg x 1 for AP-SM), Parts case

Specifications

Optical tube size	100mm Dia. x 570mm L
Tube weight	4.8 kg
Resolving power	1.45 arc seconds
Limiting magnitude	11.3
Light gathering power	131x unaided eye
Adapter thread	42mm for T-ring
Visual back	50.8mm, 31.7mm (with Flip mirror) push-fit

Start with this affordable reflector package and move up when your needs change.

AP Mount or AP-SM Mount Package

Paired with R130Sf
Newtonian Reflector

39978 NEW
AP-R130Sf

39979 NEW
AP-R130Sf-SM

Contents

Optical tube	D=130mm F=650mm (f5.0) Newtonian refractor, multicoated
Finder scope	6x30mm, Field of view 7 degrees
Eyepiece (Power)	PL20mm (33x) and PL6.3mm (103x)
Mount	AP mount with manual RA and DEC slow motion control modules or AP-SM mount with RA motor module and STAR BOOK ONE controller
Tripod	3-section aluminum legs adjustable
Accessories	Round accessory tray, Counterweight 1.0 kg x 1 (+1.9 kg x 1 for AP-SM), Parts case

Specifications

Optical tube size	119mm Dia. x 370mm L
Tube weight	2.3 kg
Resolving power	1.05 arc seconds
Limiting magnitude	12.0
Light gathering power	247x unaided eye
Adapter thread	42mm for T-ring
Visual back	31.7mm

Great first scope paired with the easy to use AP Mount.

AP-SM Mount Package

Paired with VMC110L
Catadioptric Reflector

39985 NEW
AP-VMC110L-SM

Contents

Optical tube	D=81mm F=910mm (f11.4) achromatic refractor, multicoated
Finder scope	XY red dot finder
Eyepiece (Power)	NPL25mm (41x) and NPL8mm (129x)
Mount	AP-SM mount with RA motor module and STAR BOOK ONE controller
Tripod	3-section aluminum legs adjustable
Accessories	Round accessory tray, Counterweight 1.0 kg x 1 , Parts case

Specifications

Optical tube size	119mm Dia. x 370mm L
Tube weight	2.3 kg
Resolving power	1.05 arc seconds
Limiting magnitude	12.0
Light gathering power	247x unaided eye
Adapter thread	42mm for T-ring
Visual back	31.7mm

If you are looking for a high quality small ED refractor, this is it!

AP-SM Mount Package

Paired with ED81SII
Apochromatic Refractor

39984 NEW
AP-ED81SII-SM

Contents

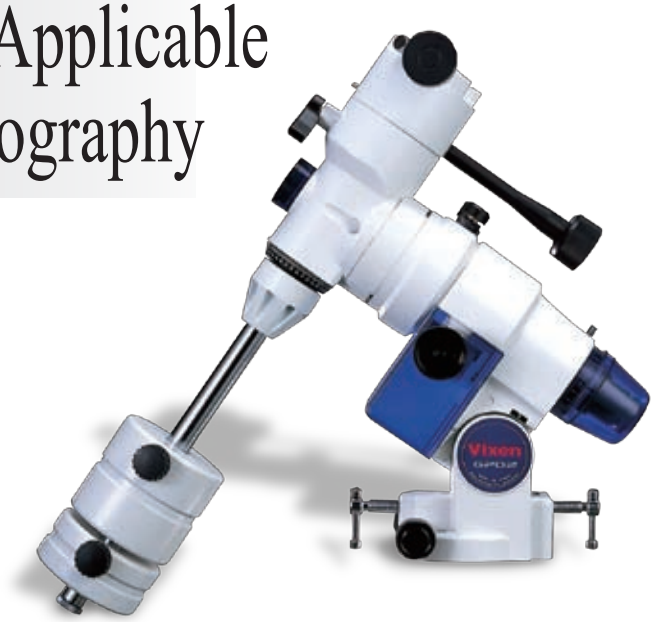
Optical tube	D=81mm F=625mm (f7.7) SD apochromatic refractor, multicoated
Finder scope	XY red dot finder
Eyepiece (Power)	SLV20mm (31x) and SLV5mm (125x)
Mount	AP-SM mount with RA motor module and STAR BOOK ONE controller
Tripod	3-section aluminum legs adjustable
Accessories	Flip mirror diagonal, Counterweight 1.0 kg x 1 and 1.9 kg x 1, Parts case

Specifications

Optical tube size	90mm Dia. x 585mm L
Tube weight	3.6 kg
Resolving power	1.43 arc seconds
Limiting magnitude	11.3
Light gathering power	134x unaided eye
Adapter thread	60mm and 42mm for T-ring
Visual back	50.8mm and 31.7mm (with Flip mirror) push-fit

*The specifications are subject to change without notice.

Precision Equatorial Mount Applicable to Long Exposure Astrophotography



GPD2 Mount

The GPD2 mount is a simple yet sturdy German equatorial mount that is suited for astrophotography. A wide selection of optional accessories is available to meet your observation needs.

3991

GPD2 Mount

Specifications	GPD2 Mount
R.A. slow motion	Worm and wheel gears with 144-tooth whole circle micro-movement
DEC slow motion	Worm and wheel gears with 144-tooth whole circle micro-movement
Setting Circle	RA in 10 arc minute increments, DEC in 2 degree increments
Polar axis scope	Built-in polar scope 6x20mm will illuminator
Altitude adjustment	0 degree to 62 degrees in 2 degree increments
Azimuth adjustment	Twin screws fine adjustment
Motor drive	Optional
Photographic loading weight	10 kg / 22 lb (250kg-cm torque load at a point of 25cm from the place where the RA and DEC axes cross.)
Weight	8.5 kg / 18.7 lb (without counterweight)
Counterweights	1.9 kg x 1 and 3.7 kg x 1 / 4.2 lb x 1 and 18.15 lb x 1

A Platform for Serious Astrophotography

The GPD2 mount is a German equatorial mount that lets you enjoy long astronomical observation and serious astrophotography. Its aluminum die-cast body is built to be strong yet light, to satisfy both stability and ease-of-portability needs. The RA and DEC axis shafts are made of durable steel. The worm gears are precision machined worm gears with high accuracy. The sturdy aluminum tripod quickly dampens vibration to provide stable and smooth operation.

Built-in Polar Scope

The GPD2 comes equipped with a 6x20mm polar axis scope as standard accessory to let you align the polar alignment precisely and easily.

Quick Polar Alignment

The polar scope has 8 degrees wide field of view and it has a reticle indicating Polaris position. By simply setting the observing date on the graduation ring to the observing time on the hour graduation ring, the Polaris position indicator can be set to Polaris within accuracy of 3 arc minutes.

Illuminated Reticle

The built-in variable intensity illuminator allows you a quick and easy setting of the Polaris position indicator.

GPD2 Accessories

37912

DD-3 Dual-Axis Motor Drive Set

The dual-axis drive controller DD-3 works simply on the GP2 or GPD2 equatorial mount

- Consists of a DD-3 dual-axis hand controller, two MT-1WT stepper motors and a battery box

Specifications	DD-3
Drive speed	1x, 1.5x, 2x and 32x sidereal rate, pause and reverse motions
Autoguider port	A 6-pole 6-wire modular jack, compatible with SBIC autoguiders
Continuous operation duration	About 20 hours at 20 degrees C (68 degrees F)
Operating temperature	0 degree C to 40 degrees C (32 degrees F to 104 degrees F)
Power source	DC8V to 12V, 950mA (max.)
Batteries	8x D-size alkaline batteries (not included)
Size	6.5cm x 19cm x 2.6cm
Weight	270 g / 9.52 oz (hand controller only)

3752

MT-1WT RA/DEC Motor

37911

DD-3 Dual-Axis Hand Controller

3828

Manual Operation Clutch – GP

25167

SXG Half Pillar

- Available for SX2, SXD2, SXP, GP2 or GPD2

Weight : 1.8 kg / 3.9 lb

3881

GP Aluminum Case

25161

SXG-HAL130 Aluminum Tripod

- Adjustable leg length: from 81cm to 130cm long

Weight : 5.5 kg / 12.1 lb

7331

GP Compass

If you are looking for a high quality small refractor, this is it.

GPD2 Mount Package — **Paired with ED81S II**
Apochromatic Refractor

39861 NEW

GPD2-ED81S II

Contents

Optical tube	D=81mm F=625mm (f7.7) SD apochromatic refractor, multicoated
Finder scope	XY red dot finder
Eyepiece (Power)	SLV20mm (31x) and SLV5mm (125x)
Tripod SXG-HAL130	2-section aluminum legs adjustable from 81cm to 130cm in length
Accessories	Flip mirror diagonal, Counterweight 1.9 kg x 1 and 3.7 kg x 1, Parts case

Specifications

Optical tube size	90mm Dia. x 585mm L
Tube weight	3.6 kg
Resolving power	1.43 arc seconds
Limiting magnitude	11.3
Light gathering power	134x unaided eye
Adapter thread	60mm and 42mm for T-ring
Visual back	50.8mm and 31.7mm (with Flip mirror) push-fit
Total weight	23.2 kg / 51.1 lb (without eyepieces)

A very good choice for those looking for an exceptional telescope for both visual observing and astrophotography.

GPD2 Mount Package — **Paired with ED103S**
Apochromatic Refractor

39862 NEW

GPD2-ED103S

Contents

Optical tube	D=103mm F=795mm (f7.7) SD apochromatic refractor, multicoated
Finder scope	7x50 finder with illuminated reticle, Field of view 7 degrees
Eyepiece (Power)	SLV20mm (40x) and SLV5mm (159x)
Tripod SXG-HAL130	2-section aluminum legs adjustable from 81cm to 130cm in length
Accessories	Flip mirror diagonal, Counterweight 1.9 kg x 1 and 3.7 kg x 1, Parts case

Specifications

Optical tube size	115mm Dia. x 810mm L
Tube weight	5.4 kg
Resolving power	1.13 arc seconds
Limiting magnitude	11.8
Light gathering power	217x unaided eye
Adapter thread	60mm and 42mm for T-ring
Visual back	50.8mm and 31.7mm (with Flip mirror) push-fit
Total weight	25.0 kg / 55.0 lb (without eyepieces)

The fast focal ratio is perfect for wide-field viewing and deep sky astrophotography.

GPD2 Mount Package — **Paired with R200SS**
Newtonian Reflector

39863 NEW

GPD2-R200SS

Contents

Optical tube	D=200mm F=1800mm (f9) VISAC mirror, multicoated
Finder scope	7x50 finder with illuminated reticle, Field of view 7 degrees
Eyepiece (Power)	SLV20mm (90x) and SLV9mm (200x)
Tripod SXG-HAL130	2-section aluminum legs adjustable from 81cm to 130cm in length
Accessories	Counterweights 1.9 kg x 1 and 3.7 kg x 1, Parts case

Specifications

Optical tube size	232mm Dia. x 700mm L
Tube weight	7.2 kg
Resolving power	0.58 arc seconds
Limiting magnitude	13.3
Light gathering power	816x unaided eye
Adapter thread	60mm and 42mm for T-ring
Visual back	31.7mm push-fit
Total weight	26.8 kg / 59 lb (without eyepieces)

Exquisite viewing and imaging performance with flat, distortion-free images from edge to edge.

GPD2 Mount Package — **Paired with VC200L 'VISAC'**
Catadioptric Reflector

39864 NEW

GPD2-VC200L

Contents

Optical tube	D=200mm F=1800mm (f9) VISAC mirror, multicoated
Finder scope	7x50 finder with illuminated reticle, Field of view 7 degrees
Eyepiece (Power)	SLV20mm (90x) and SLV9mm (200x)
Tripod SXG-HAL130	2-section aluminum legs adjustable from 81cm to 130cm in length
Accessories	Flip mirror diagonal, Counterweights 1.9 kg x 1 and 3.7 kg x 1, Parts case

Specifications

Optical tube size	232mm Dia. x 600mm L
Tube weight	6.9 kg
Resolving power	0.58 arc seconds
Limiting magnitude	13.3
Light gathering power	816x unaided eye
Adapter thread	60mm and 42mm for T-ring
Visual back	50.8mm and 31.7mm (with Flip mirror) push-fit
Total weight	26.5 kg / 58.3 lb (without eyepieces)

*The specifications are subject to change without notice.

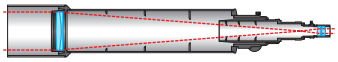
Vixen Optical Tubes

Vixen's Mounts are available with a variety of optical tubes, including refractors, reflectors, and catadioptric. Select the one that is best suited to your purpose. You may choose a small telescope to start with and upgrade later to a larger aperture optical tube as your interest grows. The optical tubes and mounts can be easily connected without using special tools.

Achromatic Refractor Optical Tube Assemblies

Achromatic lenses, typically composed of convex crown glass and concave flint glass elements, reduce chromatic and spherical aberrations and produce the bright and stable images associated with refractor telescopes.
Vixen achromatic refractors allow sharp views of the moon and planets, as well as pinpoint images of stars. The easy-to-maintain refractor is an excellent choice for beginners through experts.

Optical arrangement with the incoming light path shown in red



Shown with eyepieces sold separately

Shown with eyepieces sold separately

2602 A70Lf OTA

2603 A80Mf OTA

Specifications	A70Lf Optical tube assembly	A80Mf Optical tube assembly
Achromatic objective	D= 70mm F=900mm (f12.9), multicoated optics	D=80mm F=910mm (f11.4), multicoated optics
Resolving power	1.66 arc seconds	1.45 arc seconds
Limiting magnitude	11.0	11.3
Light gathering power	100x unaided eye	131x unaided eye
Finder scope	6x24mm finder, 5 degrees field of view	6x30mm finder, 7 degrees field of view
Adapter thread	42mm for T-ring	42mm for T-ring
Visual back	31.7mm push fit	31.7mm push fit
Accessories	Two 31.7mm eyepieces, Erect-image diagonal 31.7mm	Two 31.7mm eyepieces, Erect-image diagonal 31.7mm
Photography applicable to	Prime focus and Eyepiece projection	Prime focus and Eyepiece projection
Size and weight	76mm dia. x 860mm long and 2.5 kg / 5.5 lb	90mm dia. x 860mm long and 3.3 kg / 7.26 lb

2606 A80M OTA

26143 A105M OTA

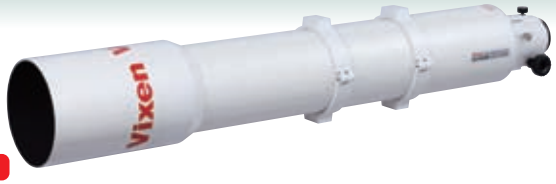
Specifications	A80M Optical tube assembly	A105M Optical tube assembly
Achromatic objective	D=80mm F=910mm (f11.4), multicoated optics	D=105mm F=1000mm (f9.5), Mgfl single coated
Resolving power	1.45 arc seconds	1.1 arc seconds
Limiting magnitude	11.3	11.9
Light gathering power	131x unaided eye	225x unaided eye
Finder scope	XY Red dot finder (1x aiming device)	XY Red dot finder (1x aiming device)
Adapter thread	60mm and 42mm for T-ring	60mm and 42mm for T-ring
Visual back	50.8mm and 31.7mm push fit with the supplied Flip mirror diagonal	50.8mm and 31.7mm push fit with the supplied Flip mirror diagonal
Accessories	Tube rings, Dovetail tube plate, Flip mirror diagonal, Carry strap	Tube rings, Dovetail tube plate, Flip mirror diagonal, Carry strap
Photography applicable to	Prime focus and Eyepiece projection	Prime focus and Eyepiece projection
Size and weight	90mm dia. x 890mm long and 3.5 kg / 7.7 lb	115mm dia. x 1010mm long and 4.8 kg / 10.57 lb

NEO Achromatic Refractor Optical Tube Assemblies

Chromatic aberration of achromatic refractors increases as their aperture increases. This becomes especially apparent for achromatic refractors with short focal length (less than F8) with apertures lager than 120mm. To compensate for this, Vixen's "NEO Achromatic" refractor has an additional two-element objective lens behind the primary objective lens, to give a bright image with excellent color correction compared to conventional achromatic refractors. As a result, star images are reduced less than 60 microns in size at the edge of field of view.

Optical arrangement with the incoming light path shown in red

Dual Speed Focuser



NEW

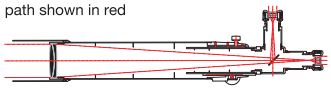
58681 NA140SS OTA

Specifications	NA140SS Optical tube assembly
NEO Achromatic objective	D=140mm F=800mm (f5.7), multicoated optics
Resolving power	0.82 arc seconds
Limiting magnitude	12.5
Light gathering power	400x unaided eye
Finder scope	Optional
Adapter thread	60mm
Visual back	50.8mm
Accessories	Dual speed focuser, 50.8mm compression ring
Photography applicable to	Prime focus and Eyepiece projection
Size and weight	140mm dia. x 1040mm long and 6.7 kg / 14.75 lb

SD Apochromatic Refractor Optical Tube Assemblies

Vixen ED apochromatic refractors feature “Super extra-low Dispersion” SD optical glass in its objective lens. The optical design with SD glass suppresses residual chromatic aberration far under the threshold of visibility and produces outstanding sharp images with high contrast for both visual and photographic applications.

Optical arrangement with the incoming light path shown in red



Shown with eyepieces sold separately

2617

ED80Sf OTA

Specifications	ED80Sf Optical tube assembly
Apochromatic objective	D=80mm F=600mm (f7.5), multicoated optics
Resolving power	1.45 arc seconds
Limiting magnitude	11.3
Light gathering power	131x unaided eye
Finder scope	9x50mm finder, 4.8 degrees field of view
Adapter thread	42mm for T-ring
Visual back	50.8mm and 31.7mm push fit with the supplied Flip mirror diagonal
Accessories	Tube rings, Dovetail tube plate, Flip mirror diagonal
Photography applicable to	Prime focus and Eyepiece projection
Size and weight	100mm dia. x 570mm long and 4.8 kg / 10.57 lb

NEW

Shown with eyepieces sold separately

26083

ED81SII OTA

Specifications	ED81SII Optical tube assembly
SD Apochromatic objective	D=81mm F=625mm (f7.7), multicoated optics
Resolving power	1.43 arc seconds
Limiting magnitude	11.3
Light gathering power	134x unaided eye
Finder scope	XY Red dot finder (1x aiming device)
Adapter thread	60mm and 42mm for T-ring
Visual back	50.8mm and 31.7mm push fit with the supplied Flip mirror diagonal
Accessories	Tube rings, Dovetail tube plate, Flip mirror diagonal, Carry handle
Photography applicable to	Prime focus and Eyepiece projection
Size and weight	90mm dia. x 585mm long and 3.6 kg / 7.92 lb

Shown with eyepieces sold separately

2609

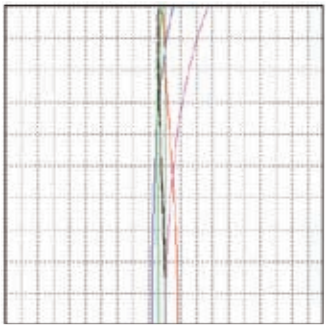
ED103S OTA

Specifications	ED103S Optical tube assembly
SD Apochromatic objective	D=103mm F=795mm (f7.7), multicoated optics
Resolving power	1.13 arc seconds
Limiting magnitude	11.8
Light gathering power	134x unaided eye
Finder scope	7x50mm finder, 7 degrees field of view
Adapter thread	60mm and 42mm for T-ring
Visual back	50.8mm and 31.7mm push fit with the supplied Flip mirror diagonal
Accessories	Tube rings, Dovetail tube plate, Flip mirror diagonal, Carry handle
Photography applicable to	Prime focus and Eyepiece projection
Size and weight	115mm dia. x 810mm long and 5.4 kg / 11.89 lb

The SD lenses focus visible rays of light from the C-ray (red), d-ray (yellow), e-ray (green), F-ray (blue) to g-ray (purple) at nearly the very same position, as compared with our previous models, as shown in the diagrams of spherical aberration below. It verifies that the chromatic aberration is highly corrected over a wide spectrum of light with the SD lenses. Especially the g-ray, which affects image contrast, is depressed excellently.

●Comparisons of Spherical Aberration with the previous ED models

Scale: 10 microns per division



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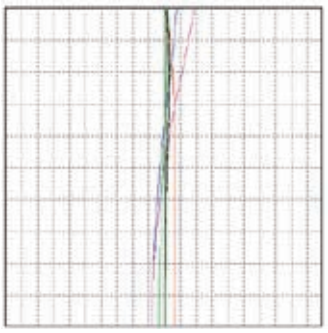
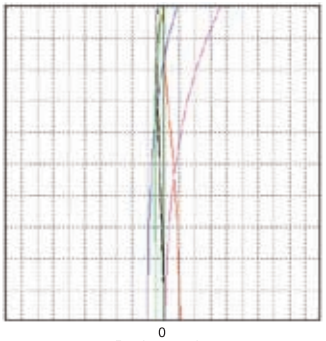
Previous model



0
ED81SII



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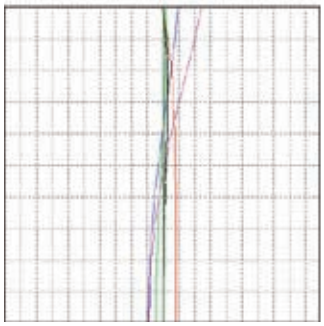
Previous model



0
ED103S

Shown with eyepieces sold separately

2616

ED115S OTA

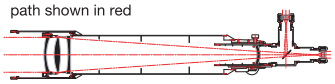
Specifications	ED115S Optical tube assembly
SD Apochromatic objective	D=115mm F=890mm (f7.7), multicoated optics
Resolving power	1.01 arc seconds
Limiting magnitude	12.1
Light gathering power	270x unaided eye
Finder scope	7x50mm finder, 7 degrees field of view
Adapter thread	60mm and 42mm for T-ring
Visual back	50.8mm and 31.7mm push fit with the supplied Flip mirror diagonal
Accessories	Tube rings, Dovetail tube plate, Flip mirror diagonal, Carry handle
Photography applicable to	Prime focus and Eyepiece projection
Size and weight	125mm dia. x 930mm long and 6.2 kg / 13.65 lb

*The specifications are subject to change without notice.

"Apo Maximum" SD Apochromatic Refractor with Quad Element Design

Vixen AX103S features a three element objective lens, incorporating an SD lens in its center, and the fourth lens inside of the focuser drawtube. The "Apo Maximum" lens elements are laid in the precision machining cells to exhibit the designated superb optical performance. This advanced optical design produces crystal-clear, sharp and high contrast images with no trace of false color.

Optical arrangement with the incoming light path shown in red



Shown with eyepieces sold separately

Below is a comparison of spherical aberration between the AX103s and Vixen' s "Fluorite" FL102S, which was renowned as a masterpiece for its excellent color correction. The diagram shown below shows how the AX103S out performs the fluorite optical tube. The bundle of light rays (spectrum) on the AX103S is straighter than on the FL102S. The result is that residual chromatic aberrations are reduced far below the threshold of visibility. The spherical aberration of g-ray(purple), which affects contrast by digital imaging, is excellently decreased on the AX103S. In spot diagrams of the AX103S, the star images are more concentrated and are seen as small as 20 microns at the edge of the imaging field. In addition, vixen' s "Precision Multi-coatings" applied to each surface to the AX103S lenses enhances visible light transmission to 99.5% on any single surface and assure extremely high light transmission.

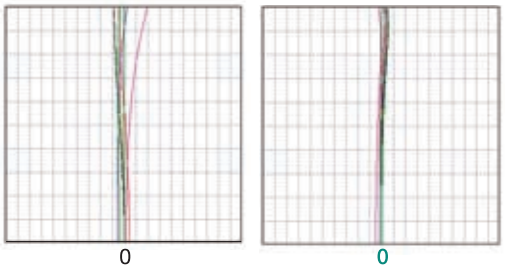
26144

AX103S OTA

Specifications	AX103S Optical tube assembly
Quad SD Apochromatic objective	D=103mm F=825mm (f8.0), multicoated optics
Resolving power	1.16 arc seconds
Limiting magnitude	11.8
Light gathering power	204x unaided eye
Finder scope	7x50mm finder, 7 degrees field of view
Adapter thread	60mm and 42mm for T-ring
Visual back	50.8mm and 31.7mm push fit with the supplied Flip mirror diagonal
Accessories	Tube rings, Dovetail tube plate, Flip mirror diagonal, Carry handle
Photography applicable to	Prime focus and Eyepiece projection
Size and weight	115mm dia. x 762mm long (Retractable to 670mm) and 6.2 kg / 13.65 lb

●Comparison of Spherical Aberration

Scale: 20 microns per division

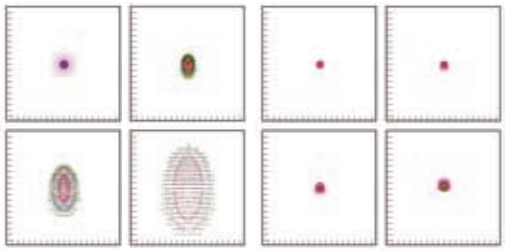


0 Fluorite Refractor FL102S

0 AX103S

●Comparison of Spot Diagrams

Scale: 10 microns per division



Fluorite Refractor FL102S

AX103S

Pleiades Star Cluster

Taken with a Vixen AX103S by Masahiro Shimada (Vixen technical consultant)

M42 The Great Orion Nebula

Taken with a Vixen AX103S by Masanori Senshu

A Pair of Tube Rings

The Vixen optical tubes come as standard with a pair of tube rings

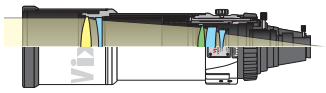
2664	SX Tube Ring 90mm	• Applicable to A80M, A80Mf, ED81S, ED81SII Weight : 350 g / 12.34 oz
2665	SX Tube Ring 115mm	• Applicable to A105M, ED103S, AX103S, Not available for VSD100F3.8 Weight : 400 g / 14.11 oz
2666	SX Tube Ring 125mm	• Applicable to ED115S Weight : 500 g / 17.63 oz
2668	SX Tube Ring 140mm DX	• Applicable to NA140SS Weight : 625 g / 22.04 oz
2671	SX Tube Ring 176mm	• Applicable to R150S Weight : 1100 g / 38.8 oz
2672	SX Tube Ring 232mm	• Applicable to R200SS Weight : 1400 g / 49.38 oz

Astrograph

Ultra Short-Focus Refractor for Astrophotographers featuring a 5 Elements in 5 Group Lens Design

The Vixen VSD100F3.8 features a surprisingly fast f-ratio of F/3.8 which is the fastest in this class of quality refractors. The wide and flat imaging field that covers 645 medium format cameras and an innovative 5 elements in 5 group lens design completely eliminates a violet tint in chromatic aberration (blue halo).

Optical arrangement with the incoming light path shown in red



It employs a SD lens in the front objective group and an ED lens in the rear objective group to achieve a superb color correction. The blue halos around stars, that are perceptible in astrophotography and that are hard to reduce with a 4 elements in 4 group lens design, are corrected successfully. In addition, astigmatism and coma aberrations are corrected to an extremely high level of image quality.

The Strehl intensity on the lens design of the VSD100F3.8 is better than that on a 4 elements in 4 group lens design by approximately 10%. It does not decrease abruptly on stars away from the center of a photographic field. It is ideally suited to detect faint stars. The image circle is as large as 70mm in diameter (60% illuminated). The star images are as small as 15 microns around the corners, resulting in excellent field flatness.

The VSD100F3.8 has the most up-to-date coatings of extremely high reflectivity. These have been developed to match the characteristics of each lens element in order to avoid the deterioration of image contrast due to the increase of lens elements. It boasts of 99.9% light transmission at the maximum per lens surface and achieves superb images with extremely high contrast with no ghost and no flare images. (Patent pending)

Precision Over-sized Focuser and Large Rubber Focus Ring

The VSD100F3.8 has an oversized focuser that can be attached to the 645 medium format cameras without difficulty. Highly accurate focusing is possible with the non-rotational helical fine focuser, where the distance of drawing in and out the focuser can be read as small as 20 microns with the provided vernier scale. All the graduations are engraved. The grooved large rubber focusing ring can be grasped easily even when wearing gloves. The thick rubber ring on the top of the dew shield absorbs shock and protects the optics. The stopper piece inside the helical fine focuser has a slot for smooth focusing movements without slack. This works with the large rubber focus ring allowing the focuser to turn smoothly with a large CCD camera attached.

The length of the dew shield, the positions of the inner baffles and their proportions to the diameter of the optical tube have been designed to eliminate ghost in the lens design process and to successfully prevent stray light and flare images.

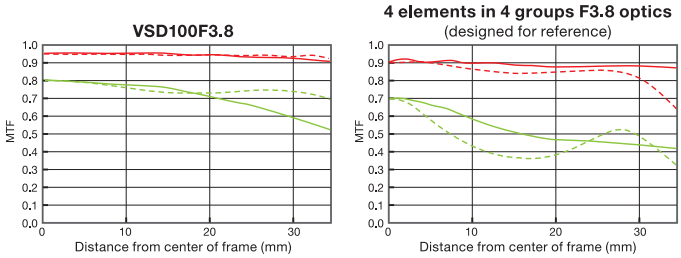
26145 NEW

VSD100F3.8 OTA

Specifications	VSD100F3.8 Optical tube assembly
Quintuple SD Apochromatic objective	D=100mm F=380mm (f3.8), AS coating
Resolving power	1.13 arc seconds
Limiting magnitude	11.8
Light gathering power	217x unaided eye
Finder scope	Optional
Adapter thread	80mm, 60mm and 42mm for T-ring
Visual back	60.2mm and 31.7mm push fit
Accessories	Aluminum carrying case
Photography applicable to	Prime focus and Eyepiece projection
Size and weight	115mm dia. x 497mm long and 4.5 kg / 9.91 lb

Describing Lens Performance with MTF Characteristics

Vixen's goal was to develop a process to outperform the views from a premium photo lens. The result is the introduction of MTF (Abbreviation of Modulation Transfer Function), typically used for evaluating the optical performance of camera lenses. The diagram clearly describes the optical performance of the VSD100F3.8 as compared to a 4 element 4 group design.



Thus, it allows for a more precise evaluation of the photographic performance as compared to conventional spot diagrams. This is a new direction in the choice of an astrograph.

NEW
26636

VSD Tube Rings 115mm

- Comes standard with a rigid attachment plate for Vixen SXP/AXD mount
- Hinged tube ring using quality parts
- Felt lined on interior the tube ring to prevent the optical tube from scratching

NEW
37315

Camera Mounting Adapter for 645D

- 55mm image circle at 70% illuminated
- With 58mm thread for a commercially available filter
- Quality mat finish inside

NEW
26635

VSD Finder Bracket Shoe

- Fine anodized aluminum finish
- Low-profile design to fit the aluminum case when attached to the main body
- Side face flat lock without marring the finder bracket

NEW
26637

Focal Reducer 0.79X

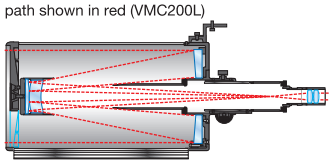
- Transforms VSD100F3.8 to an even faster astrograph with 300mm in focal length at f3.0 (0.79X)
- Optical design of 3-element in 3-group including extra-low dispersion (ED) glass for color correction
- 99.9% light transmission coatings per lens surface
- With 58mm thread for a commercially available filter
- Suitable for DSLR with a 35mm full-frame sensor (69% illuminated)

*The specifications are subject to change without notice.

Vixen original Maksutov Cassegrain Telescopes

The newest Catadioptric design from Vixen features a combination of a meniscus lens unit in front of the secondary mirror and high-precision spherical mirrors that are shaped with extreme accuracy. Spherical aberration and curvature of field are corrected to a high level of optical performance for clear and sharp images. Open tube design of the VMC telescopes eliminates the dew problem that is common with Schmidt-Cassegrain designs. They are suited for observation of all types of celestial objects, from the moon and planets to deep sky objects.

Optical arrangement with the incoming light path shown in red (VMC200L)



17P/Comet Holmes
Taken with a Vixen VMC200L by Junji Nagano

26141

VMC95L OTA

Shown with eyepieces sold separately

Specifications	VMC95L Optical tube assembly
Primary Mirror	D=95mm F=1050mm (f11.1), precision spherical mirror, multicoated
Resolving power	1.22 arc seconds
Limiting magnitude	11.7
Light gathering power	184x unaided eye
Finder scope	XY Red dot finder (1x aiming device)
Adapter thread	42mm for T-ring
Visual back	31.7mm push fit
Accessories	Built-in Flip mirror diagonal, Dovetail attachment plate
Photography applicable to	Prime focus and Eyepiece projection
Size and weight	107mm dia. x 360mm long and 2.1 kg / 4.62 lb

2605

VMC110L OTA

Shown with eyepieces sold separately

Specifications	VMC110L Optical tube assembly
Primary Mirror	D=110mm F=1035mm (f9.4), precision spherical mirror, multicoated
Resolving power	1.05 arc seconds
Limiting magnitude	12.0
Light gathering power	247x unaided eye
Finder scope	XY Red dot finder (1x aiming device)
Adapter thread	42mm for T-ring
Visual back	31.7mm push fit
Accessories	Built-in Flip mirror diagonal, Dovetail attachment plate
Photography applicable to	Prime focus and Eyepiece projection
Size and weight	119mm dia. x 370mm long and 2.3 kg / 5.06 lb

2633

VMC200L OTA

Shown with eyepieces sold separately

Specifications	VMC200L Optical tube assembly
Primary Mirror	D=200mm F=1950mm (f9.75), precision spherical mirror, multicoated
Resolving power	0.58 arc seconds
Limiting magnitude	13.3
Light gathering power	816x unaided eye
Finder scope	7x50mm finder, 7 degrees field of view
Adapter thread	60mm and 42mm for T-ring
Visual back	50.8mm and 31.7mm push fit with the supplied Flip mirror diagonal
Accessories	Flip mirror diagonal, Dovetail attachment rail, Carry handle
Photography applicable to	Prime focus and Eyepiece projection
Size and weight	232mm dia. x 510mm long and 6.8 kg / 14.97 lb

5829

VMC200L OTA

Specifications	VMC200L Optical tube assembly
Primary Mirror	D=200mm F=1950mm (f9.75), precision spherical mirror, multicoated
Resolving power	0.58 arc seconds
Limiting magnitude	13.3
Light gathering power	816x unaided eye
Finder scope	Optional
Adapter thread	60mm and 42mm for T-ring
Visual back	50.8mm push fit
Accessories	Dovetail attachment rail, 50.8mm compression ring and carry handle
Photography applicable to	Prime focus and Eyepiece projection
Size and weight	232mm dia. x 510mm long and 5.9 kg / 13.0 lb

26301

VMC260L OTA

Shown with eyepieces sold separately

Specifications	VMC260L Optical tube assembly (with attachment for SXP or AXD)
Primary Mirror	D=260mm F=3000mm (f11.5), precision spherical mirror, multicoated
Resolving power	0.45 arc seconds
Limiting magnitude	13.8
Light gathering power	1380x unaided eye
Finder scope	7x50mm finder, 7 degrees field of view
Adapter thread	60mm and 42mm thread for T-ring
Visual back	50.8mm and 31.7mm push fit with the supplied Flip mirror diagonal
Accessories	Large dovetail attachment rail and Cradle, Carry handle
Photography applicable to	Prime focus and Eyepiece projection
Size and weight	232mm dia. x 510mm long and 12.1 kg / 26.65 lb

5831

VMC260L OTA

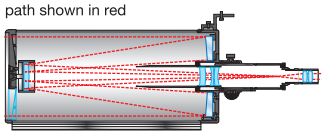
Shown with 7x50 finder scope and eyepieces sold separately

Specifications	VMC260L Optical tube assembly (with attachment for SXD2)
Primary Mirror	D=260mm F=3000mm (f11.5), precision spherical mirror, multicoated
Finder scope	Optional
Adapter thread	60mm
Visual back	50.8mm
Accessories	Dovetail attachment rail, 50.8mm Compression ring
Photography applicable to	Prime focus and Eyepiece projection
Size and weight	232mm dia. x 510mm long and 10.2 kg / 22.46 lb

Vixen Sixth-order Aspherical Catadioptric system – VISAC

Vixen's unique catadioptric system consisting of a high precision sixth-order aspherical primary mirror, a convex secondary mirror and a triple corrector lens, provides high definition star images to the edge of a wide imaging field and offers exceptionally outstanding performance in astrophotography.

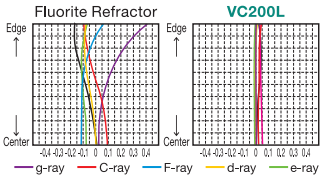
Optical arrangement with the incoming light path shown in red



As coma aberration, spherical aberration and curvature of field are perfectly corrected, images captured with the VISAC are stunningly sharp. Star images are less than 15 micros across all the way to the very edge of the 42mm image circle. The VISAC mirror produced by a unique aluminum vacuum evaporation technology is a superb optical system truly designed for both visual observation and astrophotography.

VISAC vs. Fluorite

This comparison reveals extremely minute chromatic aberration, in very small five hundredth millimeters unit, clearly showing that the aberration in the VISAC is far less than on a fluorite refractor.



Scale: 10 microns per division

Optical Design Comparisons

Telescope System	Spherical Aberration	Coma	Field Curvature
Classical Cassegrain	○	—	—
Dall-Kirkham	○	—	—
Ritchey-Chretien	○	○	—
Schmidt-Cassegrain	○	—	—
VISAC	○	○	○

Shown with eyepieces sold separately

2632

VC200L OTA

Specifications	VC200L Optical tube assembly
Primary Mirror	D=200mm F=1800mm (f19.0) VISAC mirror, multicoated
Resolving power	0.58 arc seconds
Limiting magnitude	13.3
Light gathering power	816x unaided eye
Finder scope	7x50mm finder, 7 degrees field of view
Adapter thread	60mm and 42mm thread for T-ring
Visual back	50.8mm and 31.7mm push fit with the supplied Flip mirror diagonal
Accessories	Flip mirror diagonal, Dovetail attachment rail, Carry handle
Photography applicable to	Prime focus and Eyepiece projection
Size and weight	232mm dia. x 600mm long and 6.9 kg / 15.19 lb

Galaxy in the Triangle (M33)
Taken with a Vixen VC200L
by Yasuteru Bessho

Newtonian Reflectors

Newtonian reflector telescopes are completely free of chromatic aberration and they are generally less expensive than refractor telescopes of equal aperture. The primary mirror of the R200SS is produced with a unique aluminum vacuum evaporation technology to form a high precision parabolic mirror surface constantly. The lightweight and high quality R200SS with faster F4 focal ratio is best suited for astrophotography of nebulae, star clusters and comets.

M42 (Orion Nebula)
Taken with a Vixen R200SS by
Hiroaki Ohno

2604

R130Sf OTA

Specifications	R130Sf Optical tube assembly
Primary Mirror	D=130mm F=650mm (f5.0) parabolic mirror, multicoated
Resolving power	0.89 arc seconds
Limiting magnitude	12.3
Light gathering power	345x unaided eye
Finder scope	6x30mm finder, 7 degrees field of view
Adapter thread	42mm thread for T-ring
Visual back	31.7mm push fit
Accessories	Tube rings, Dovetail tube plate, Two 31.7mm eyepieces
Photography applicable to	Prime focus and Eyepiece projection
Size and weight	160mm dia. x 575mm long and 5.3 kg / 11.67 lb

Shown with eyepieces sold separately

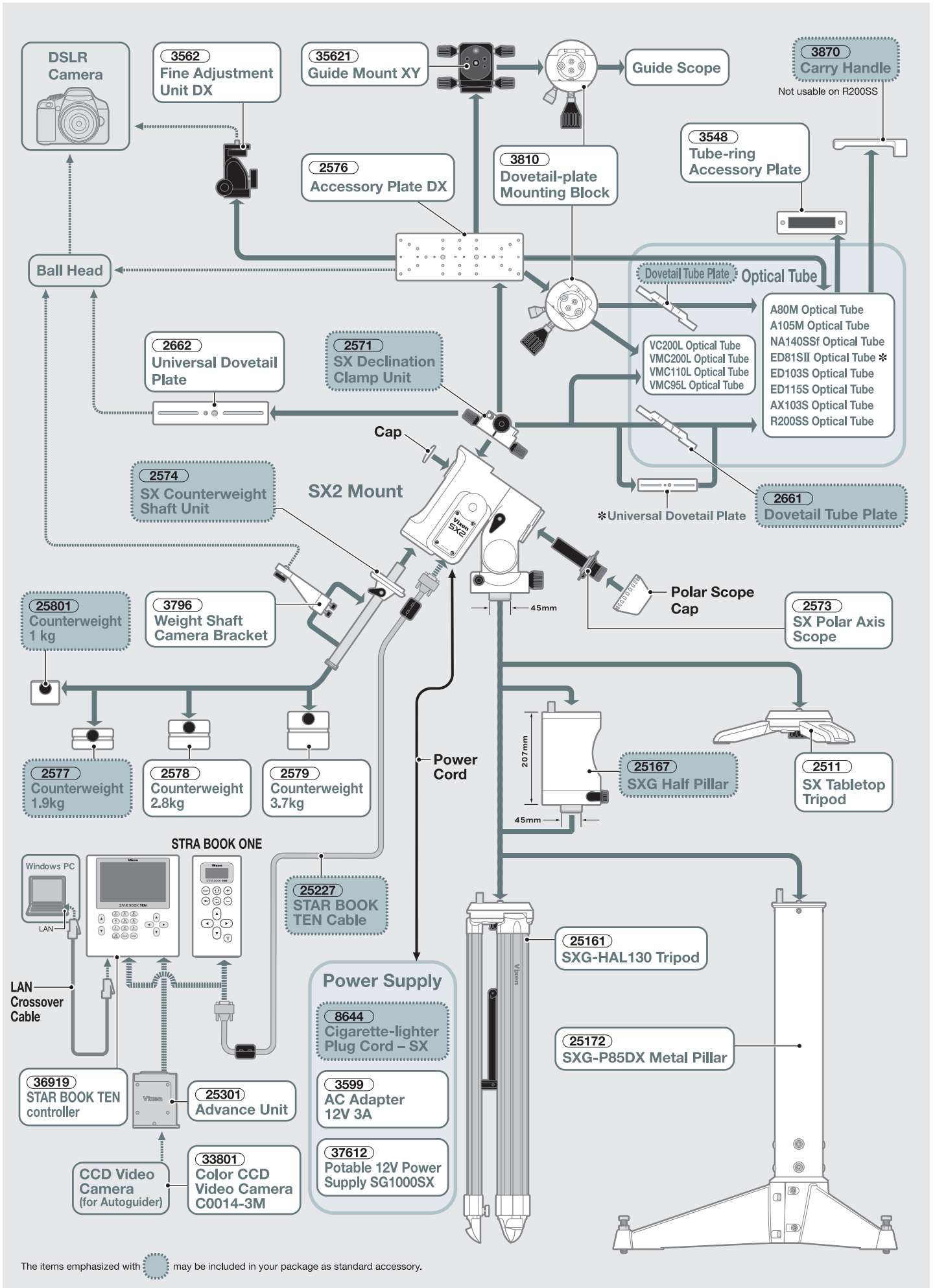
2642

R200SS OTA

Specifications	R200SS Optical tube assembly
Primary Mirror	D=200mm F=800mm (f4.0) parabolic mirror, multicoated
Resolving power	0.58 arc seconds
Limiting magnitude	13.3
Light gathering power	816x unaided eye
Finder scope	7x50mm finder, 7 degrees field of view
Adapter thread	60mm and 42mm thread for T-ring
Visual back	31.7mm push fit
Accessories	Tube rings, Dovetail tube plate, Cary strap
Photography applicable to	Prime focus and Eyepiece projection
Size and weight	232mm dia. x 700mm long and 7.2 kg / 15.85 lb

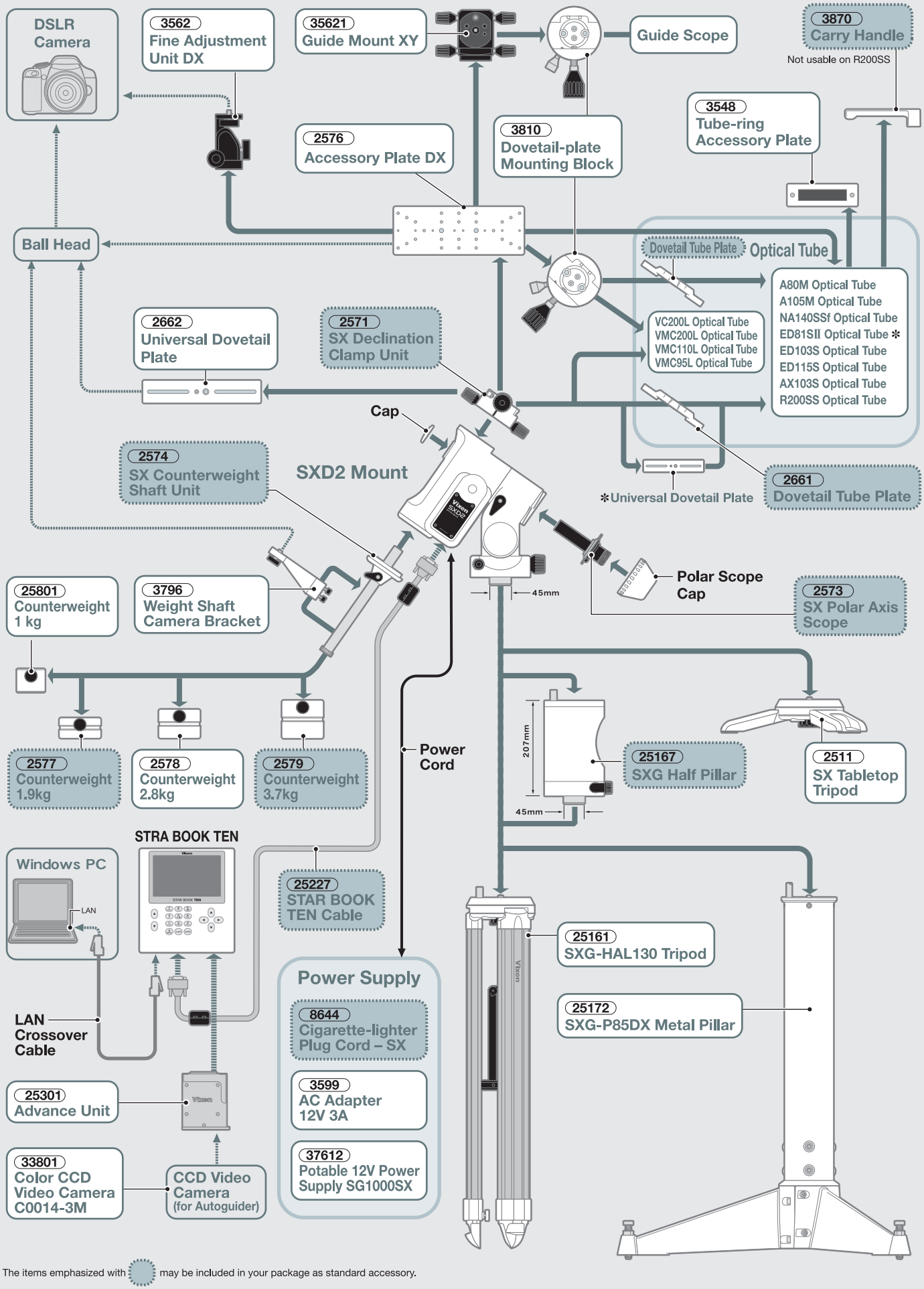
*The specifications are subject to change without notice.

SX2 System Structure Diagram



The items emphasized with ⬚ may be included in your package as standard accessory.

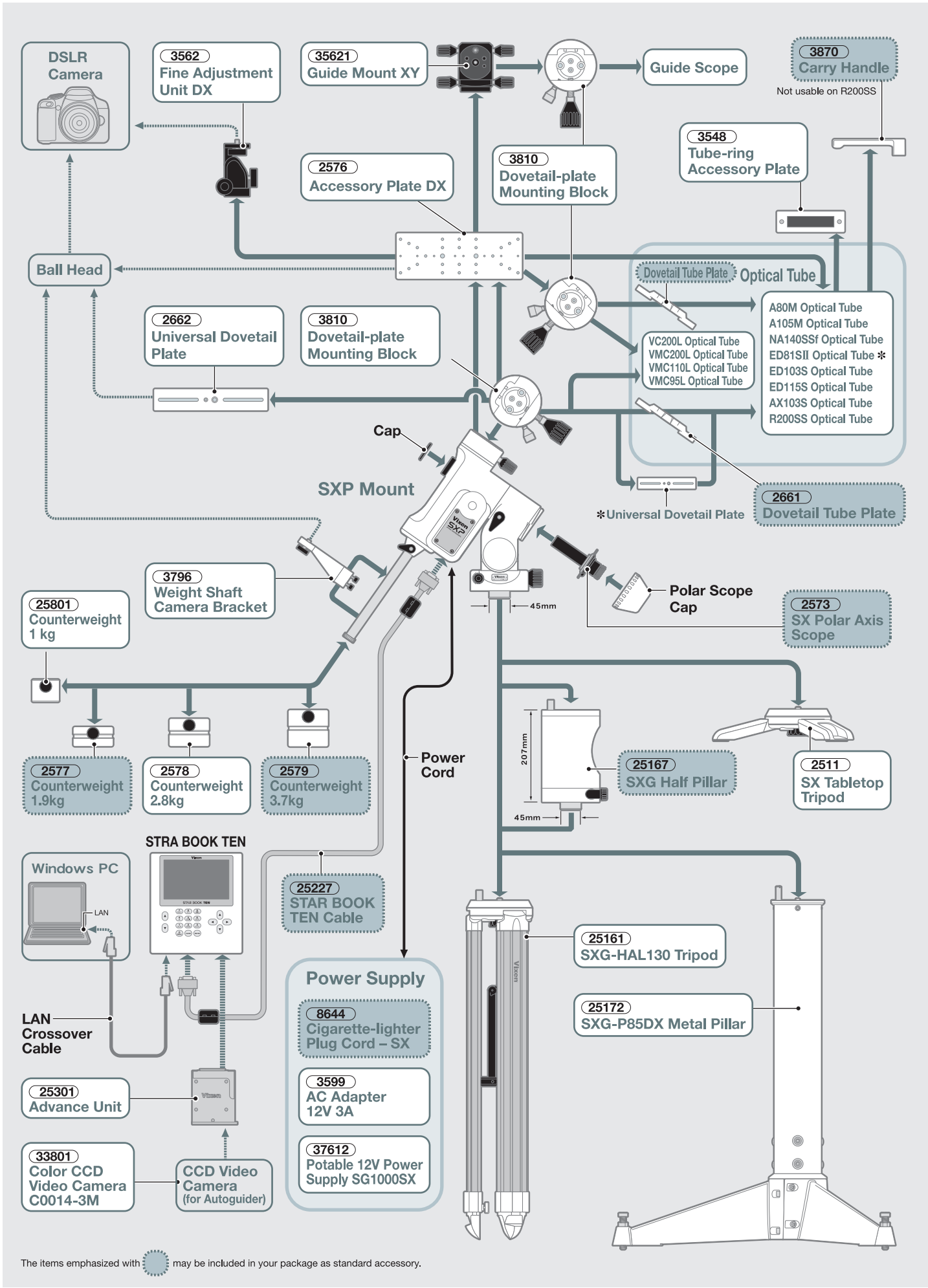
SXD2 System Structure Diagram



The items emphasized with ⬭ may be included in your package as standard accessory.

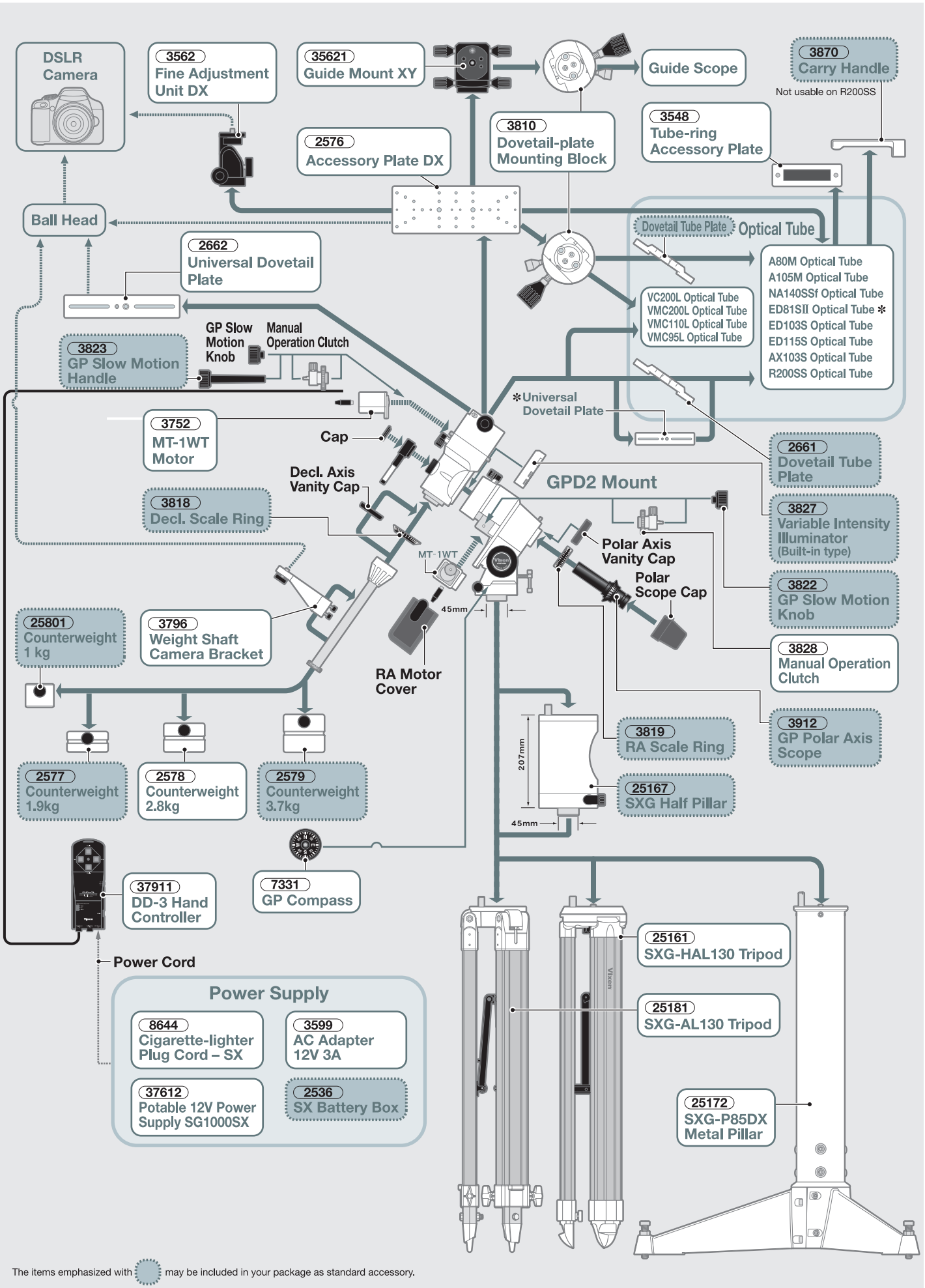
✻The specifications are subject to change without notice.

SXP System Structure Diagram



The items emphasized with ⬭ may be included in your package as standard accessory.

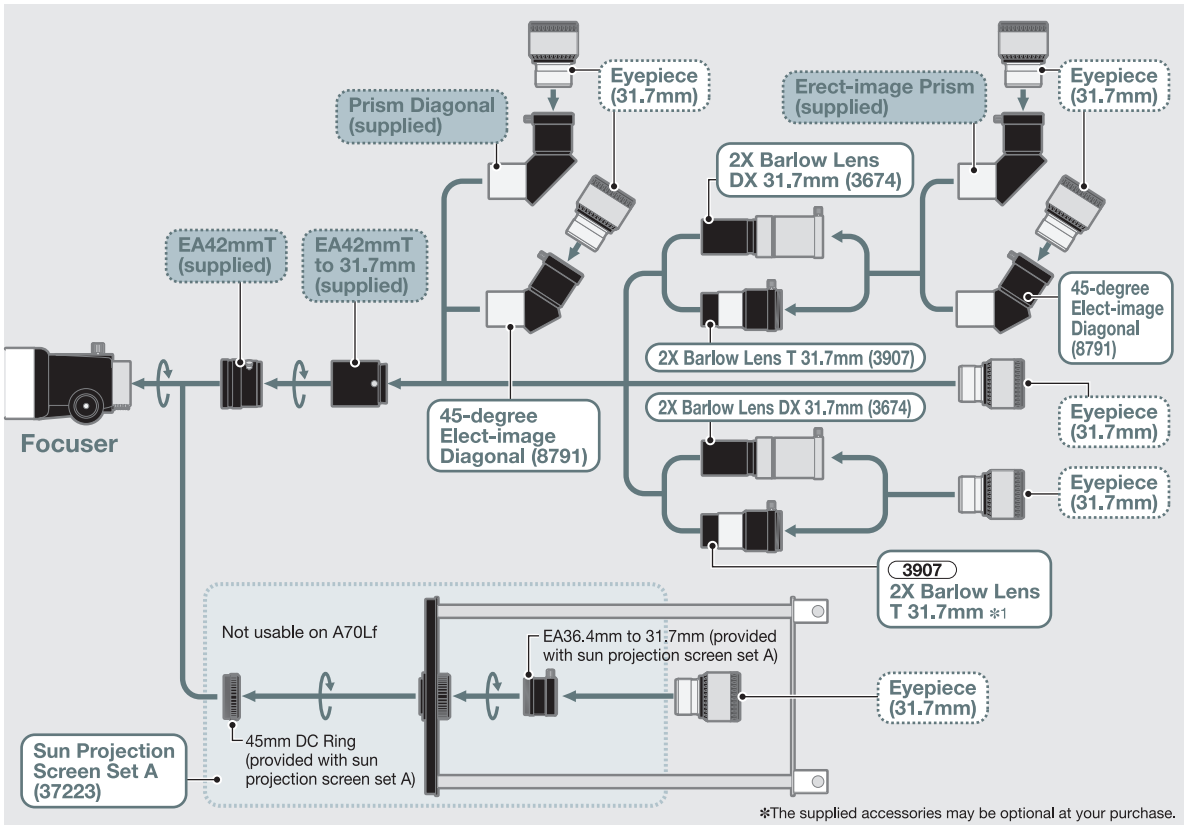
GPD2 System Structure Diagram



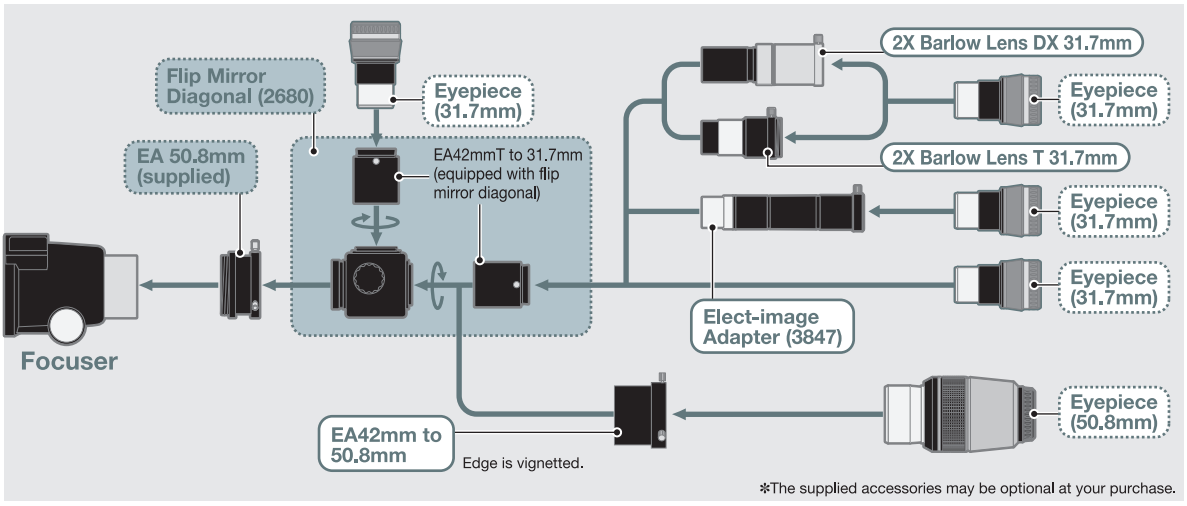
The items emphasized with ⬭ may be included in your package as standard accessory.

✻The specifications are subject to change without notice.

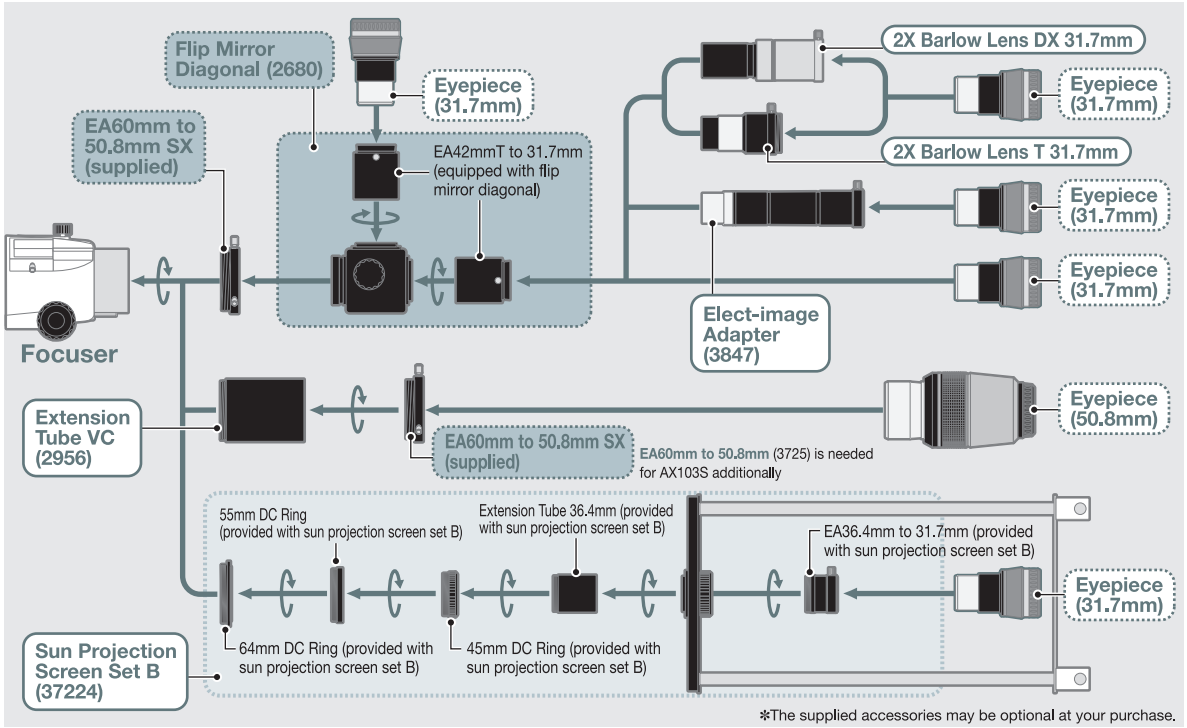
Visual Back Guide: A70Lf and A80Mf Optical Tubes



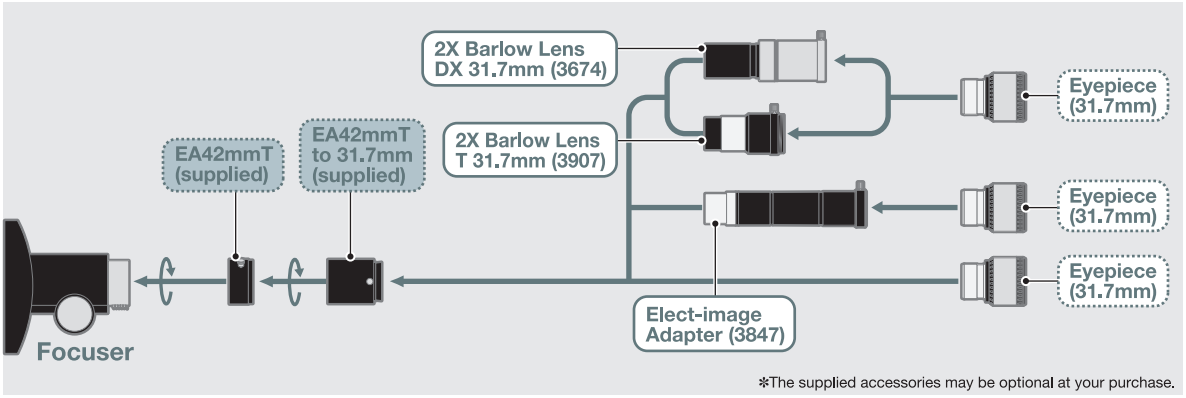
Visual Back Guide: ED80Sf Optical Tube



Visual Back Guide: A80M, A105M, NA140SS, ED81SII, ED103S, ED115S and AX103S Optical Tubes

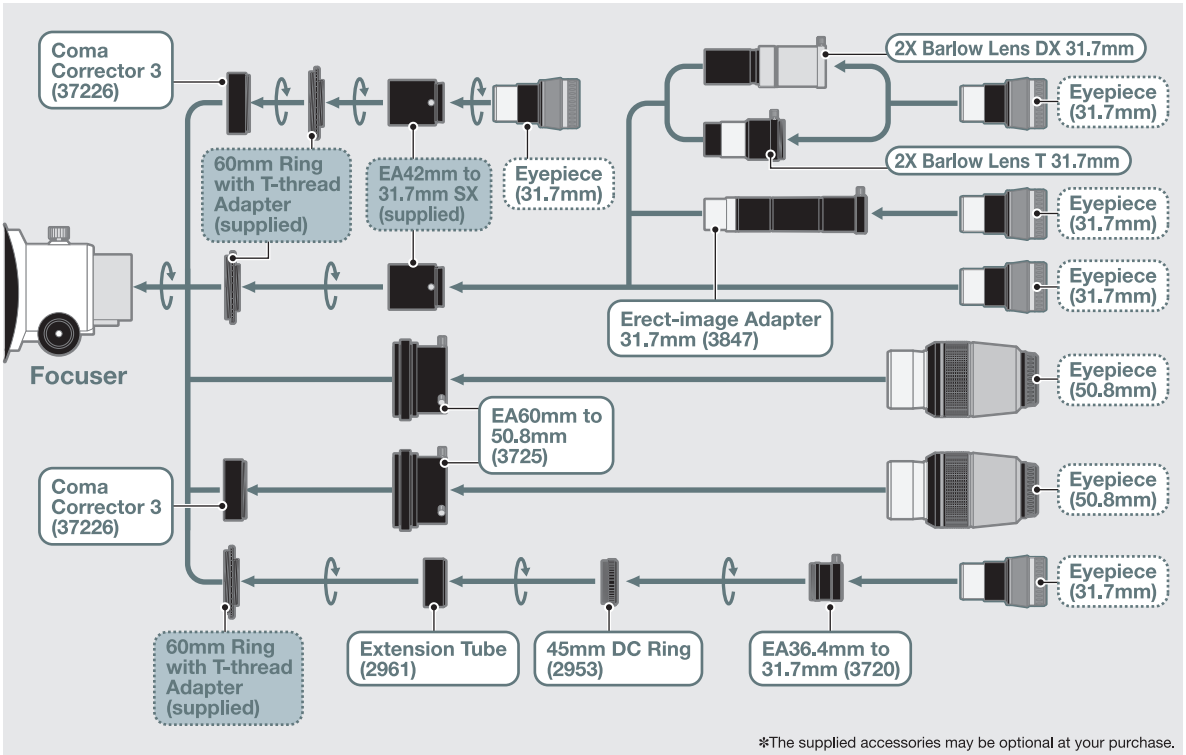


Visual Back Guide:
R130Sf Optical Tube



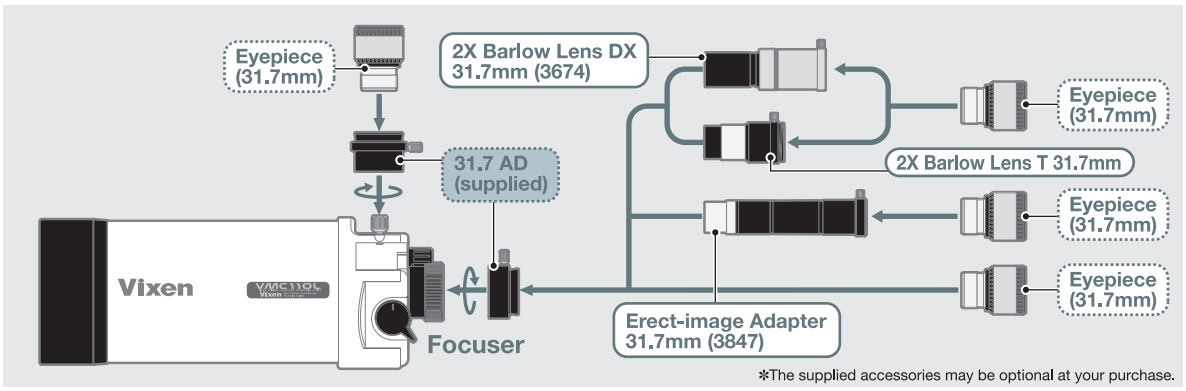
*The supplied accessories may be optional at your purchase.

Visual Back Guide:
R200SS Optical Tube



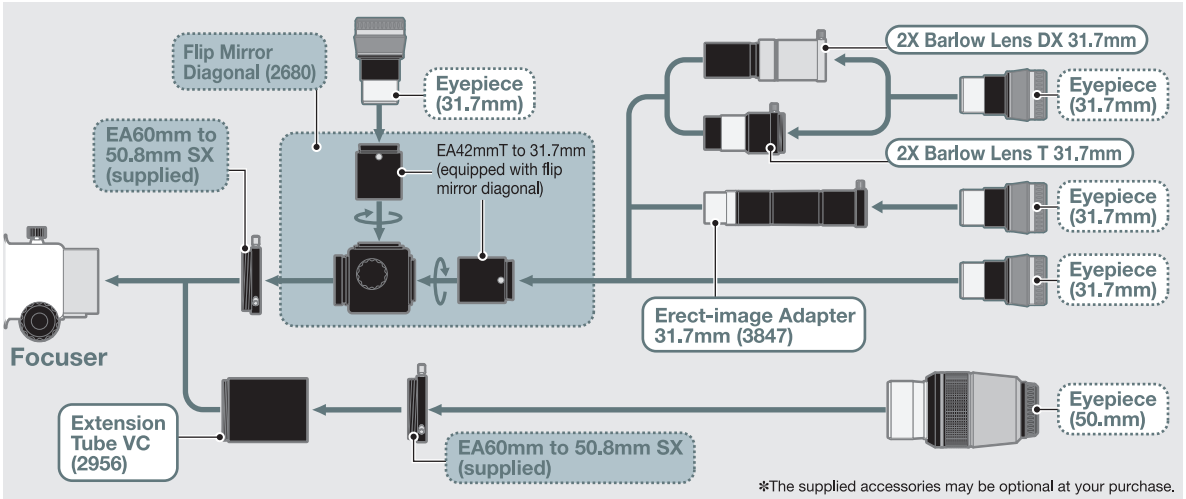
*The supplied accessories may be optional at your purchase.

Visual Back Guide:
VMC95L and VMC110L Optical Tubes



*The supplied accessories may be optional at your purchase.

Visual Back Guide:
VC200L, VMC200L and VMC260L Optical Tubes



*The supplied accessories may be optional at your purchase.

*The specifications are subject to change without notice.

Vixen Premium Eyepieces

SLV Series of 31.7mm Eyepieces

Patent pending

The SLV Series of eyepiece feature a hexagonal shaped eyepiece barrel, long 20mm eye relief, and twist up click stop eyecup for adjusting to the most comfortable eye point for viewing. The SLV eyepieces with high grade Lanthanum glass, deliver remarkably clear and high contrast star images to the edge of the viewing circle. The lenses are fully multi-coated for high light transmission.

Item No.	Description	Push-fit Size	Apparent FOV	Eye relief	Weight
37202	**SLV2.5mm**	31.7mm	50 degrees	20mm	173 g / 6.10 oz
37203	**SLV4mm**	31.7mm	50 degrees	20mm	168 g / 5.92 oz
37204	**SLV5mm**	31.7mm	50 degrees	20mm	165 g / 5.82 oz
37205	**SLV6mm**	31.7mm	50 degrees	20mm	165 g / 5.82 oz
37206	**SLV9mm**	31.7mm	50 degrees	20mm	176 g / 6.20 oz
37207	**SLV10mm**	31.7mm	50 degrees	20mm	175 g / 6.17 oz
37208	**NLV12mm**	31.7mm	50 degrees	20mm	172 g / 6.06 oz
37211	**NLV15mm**	31.7mm	50 degrees	20mm	163 g / 5.74 oz
37212	**NLV20mm**	31.7mm	50 degrees	20mm	155 g / 5.46 oz
37213	**NLV25mm**	31.7mm	50 degrees	20mm	151 g / 5.32 oz

NPL Series of 31.7mm Eyepieces

The 2-group 4-element Plossl optical design of the NPL series eyepieces delivers flat and clear images with good color correction. The NPL20mm, NPL25mm, NPL30mm and NPL40mm eyepieces employ twist-up eye-guards for viewing comfort. The lenses are fully multi-coated for high light transmission.

Item No.	Description	Push-fit Size	Apparent FOV	Eye relief	Weight
39201	**NPL4mm**	31.7mm	50 degrees	2.3mm	70 g / 2.47 oz
39202	**NPL6mm**	31.7mm	50 degrees	3.0mm	70 g / 2.47 oz
39203	**NPL8mm**	31.7mm	50 degrees	4.5mm	79 g / 2.79 oz
39204	**NPL10mm**	31.7mm	50 degrees	6.5mm	80 g / 2.82 oz
39205	**NPL15mm**	31.7mm	50 degrees	11mm	100 g / 3.53 oz
39206	**NPL20mm**	31.7mm	50 degrees	15mm	110 g / 3.88 oz
39207	**NPL25mm**	31.7mm	50 degrees	19.5mm	130 g / 4.59 oz
39208	**NPL30mm**	31.7mm	50 degrees	24mm	120 g / 4.23 oz
39209	**NPL40mm***	31.7mm	40 degrees	36mm	120 g / 4.23 oz

* Not available for eyepiece projection photography with R200SS.

Note: The following older optional accessories are not compatible with the SLV and NPL series of eyepieces.
SX Camera Adapter (3931), Universal Digital Camera Adapter (3919) and NST Camera Adapter 36.4 (3911).

LVW Series of 31.7mm Eyepieces

The LVW series, the finest in Vixen's premium telescope eyepieces, features comfortable 20mm long eye-relief and wide 65 degrees apparent field of view. The LVW eyepieces with high-grade Lanthanum glasses deliver remarkably clear and high contrast star images to the edge of the viewing circle with excellent aberration correction. The lenses are fully multi-coated for high light transmission.

Item No.	Description	Push-fit Size	Apparent FOV	Eye relief	Weight
3856	**LVW3.5mm**	31.7mm	65 degrees	20mm	452 g / 15.95 oz
3857	**LVW5mm**	31.7mm	65 degrees	20mm	441 g / 15.56 oz
3895	**LVW8mm**	31.7mm	65 degrees	20mm	435 g / 15.35 oz
3896	**LVW13mm**	31.7mm	65 degrees	20mm	399 g / 14.08 oz
3897	**LVW17mm**	31.7mm	65 degrees	20mm	370 g / 13.06 oz
3898	**LVW22mm**	31.7mm	65 degrees	20mm	349 g / 12.31 oz

LV Zoom Eyepiece

Item No.	Description	Push-fit Size	Apparent FOV	Eye relief	Weight
3777	**LV8-24mm Zoom**	31.7mm	60-40 degrees	19mm	215 g / 7.58 oz

NLVW / LVW / NLV 50.8mm Eyepieces

Item No.	Description	Push-fit Size	Apparent FOV	Eye relief	Weight
39301	**LVW30mm**	50.8mm	65 degrees	22.4mm	363 g / 12.80 oz
3727	**LVW42mm**	50.8mm	65 degrees	20mm	545 g / 19.22 oz
39302	**NLV50mm**	50.8mm	45 degrees	38mm	419 g / 14.77 oz

Eyepiece and Magnification

Dividing the focal length of the telescope by the focal length of the eyepiece gives the magnification.
[Example] When an SLV 10mm eyepiece is used with a A80Mf telescope (focal length = 910mm), the magnification is calculated as follows: 910mm ÷10mm = 91

Barlow Lenses

3674

2X Barlow Lens DX 31.7mm

- High aberration correction with 3-element lens design
- Fully multi-coated
- 2.6x with use of No.3675 Prism Diagonal
- Best for telescopes with faster focal ratio

Weight : 140 g / 4.94 oz

3907

2X Barlow lens T 31.7mm

- Threaded for T-ring
- Coated optics
- 3.3x with use of No.3675 Prism Diagonal

Weight : 80 g / 2.82 oz

Star Diagonals

2680

Flip Mirror Diagonal 31.7mm

- Attached to 50.8mm visual back
- Accepts two 31.7mm eyepieces
- Threaded to fit T-ring
- 119mm long light pass

Weight : 295 g / 10.4 oz

3675

Prism Diagonal 31.7mm

- 64mm long light pass
- Not usable on reflectors

Weight : 124 g / 4.37 oz

5449

Mirror Diagonal 50.8mm

- High reflectivity dielectric coating mirror
- With compression ring and 31.7mm eyepiece adapter
- 104mm long light pass

Weight : 370 g / 12.95 oz

Terrestrial Viewing Adapters

8791

45-degree Erect-image Diagonal 31.7mm

- For use with a middle to low magnification eyepiece only
- 88mm long light pass
- Not usable on reflectors

Weight : 116 g / 4.09 oz

3847

Erect-image Adapter 31.7mm

- Usable on both refractors and reflectors
- Coated optics

Weight : 190 g / 6.7 oz

Eyepiece Adapters

3720

EA36.4mm to 31.7mm

- Threaded into 36.4mm thread
- 27mm long light pass

Weight : 29 g / 1.02 oz

2689

EA42mmT to 31.7mm SX

- Fits 42mm male T-thread
- 55mm long light pass

Weight : 46 g / 1.62 oz

37292

EA42mmT to 50.8mm

- Fits 42mm male T-thread
- 38mm long light pass

Weight : 60 g / 2.12 oz

3725

EA60mm to 50.8mm

- Threaded into 60mm thread
- 13mm or 34mm long light pass (Reversible)
- Suitable for R200SS

Weight : 66g / 2.33 oz

5971

Compression Ring 50.8mm

- Threaded into 60mm female thread
- 10mm long light pass

Weight : 63 g / 2.22 oz

37293

EA60mm to 50.8mm SX

- Threaded into 60mm thread
- 10mm long light pass

Weight : 63 g / 2.22 oz

37291

EA50.8mm to 43mm

- Fits to 50.8mm visual back
- Converts to 43mm thread

Weight : 85 g / 3.0 oz

Extension Tubes and Rings

2956

Extension Tube VC

- Threaded into 60mm thread
- 66mm long light pass

Weight : 115 g / 4.06 oz

2957

Extension Tube 43mm

- Threaded into 43mm thread
- 41mm long light pass

Weight : 37 g / 1.31 oz

2951

64mm DC Ring

- Converts 60mm thread to 53mm thread
- 4mm long light pass

Weight : 22 g / 0.78 oz

2952

55mm DC Ring

- Converts 53mm thread to 43mm thread
- 3mm long light pass

Weight : 19 g / 0.67 oz

2953

45mm DC Ring

- Converts 43mm thread to 36.4mm thread
- 8mm long light pass

Weight : 19 g / 0.67 oz

2961

Extension Tube R200SS

- Same part supplied with R200SS focuser
- Converts 42mm T-thread to 43mm thread
- 20mm long light pass

Weight : 11 g / 0.38 oz

2954

60mm Ring with T-thread Adapter

- Same part supplied with R200SS focuser
- Rotator to change an image orientation in photography
- Threaded into 60mm thread
- Converts to 42mm T-thread
- 4mm long light pass

Weight : 26 g / 0.91 oz

Focal Reducers and Coma Correctors for Astrophotography

3666

Focal Reducer for F7.7 ED

- Usable on ED81S, ED103S or ED115S
- Reduces focal length by 0.67x (Changes to F5.2)
- Wide photo adapter 60mm and T-ring are needed separately for prime focus photography
- Not available for eyepiece projection photography nor visual observation

Weight : 174 g / 6.14 oz

3871

Focal Reducer for VMC

- Usable on VMC200L, VMC260L or VMC330L
- Reduces focal length by 0.62x (VMC200L, VMC260L and VMC330L change to F6, F7.1 and F8.1 respectively)
- Wide photo adapter 60mm and T-ring are needed separately for prime focus photography
- Not available for eyepiece projection photography nor visual observation

Weight : 183 g / 6.46 oz

37228

Focal Reducer for AX103S (For APS-C use)

- Designed for APS-C format camera
- Reduces focal length by 0.7x (Changes to F5.6)
- Wide photo adapter 60mm and T-ring are needed separately for prime focus photography
- Not available for eyepiece projection photography nor visual observation

Weight : 140 g / 4.93 oz

37231 for Nikon
37232 for Canon EOS
39233 for Sony Alpha

Focal Reducer for ED80Sf

- For Nikon, Canon EOS or Sony Alpha DSLR camera
- Reduces focal length by 0.85x (Changes to F6.4)
- Supplied with a T-mount ring
- Not available for eyepiece projection photography nor visual observation

Weight : 242 g / 8.54 oz (Excluding T-mount ring)

37229

Focal Reducer 2 for VC200L

- Reduces focal length by 0.71x (Changes to F6.4)
- Wide photo adapter 60mm and T-ring are needed separately for prime focus photography
- Not available for eyepiece projection photography nor visual observation

Weight : 131 g / 4.62 oz

37226

Coma Corrector 3 for R200SS

- Fits directly into the focuser drawtube, T-ring is required additionally for prime focus photography
- Not available for eyepiece projection photography
- 52mm filter thread

Weight : 83 g / 2.92 oz

*The specifications are subject to change without notice.

Finders and Attachments

2650

XY Red Dot Finder

- Unity finder, 1x magnification
- Adjustable dim red dot
- CR2032 battery

Weight : 160 g / 5.64 oz

8616

7x50 Finder with illuminated reticle

- 7.0 degrees field of view
- With illuminated crosshair
- CR2032 battery

Weight : 365 g / 12.87 oz

2656

50mm Low-profile Finder Bracket (S)

Weight : 195 g / 6.88 oz

2659

50mm Standard Finder Bracket (L)

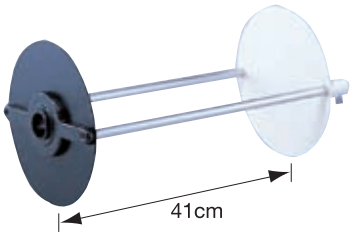
Weight : 195 g / 6.88 oz

2654

Finder Bracket Shoe

Weight : 96g / 3.39 oz

Solar Observation Accessories



37223

Sun Projection Screen Set A

- For use exclusively with A80Mf refractor
- Consisting of 24cm dia. Sun projection white screen and sunshade, 45mm DC Ring and EA36.4mm to 31.7mm Adapter

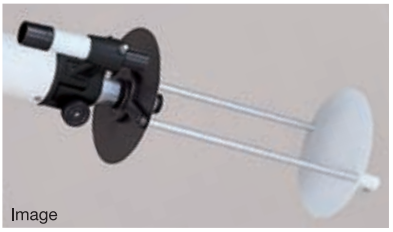
Weight : 914 g / 32.03 oz

37224

Sun Projection Screen Set B

- For A80M, A105M, ED81II, ED103, ED115 or AX103 refractors
- Consisting of 24cm dia. Sun projection white screen and sunshade, 64mm, 55mm and 45mm DC Rings, EA36.4mm to 31.7mm Adapter and 36.4mm Extension tube

Weight : 980 g / 34.17 oz



Image

It is recommended to use a magnification from 40x to 60x to view the whole disk of the Sun.

Mounting Brackets and other useful Accessories

Image


3796

Weight-shaft Camera Bracket

- Attachable to a count weight bar having a diameter of 20mm or 25mm

Weight : 302 g / 10.65 oz

3562

Fine Adjustment Unit DX

- 1/4"-20 screw pan head with tangent-screw slow motion controls
- Movable within +/- 10 degrees vertically and horizontally

Weight : 340 g / 12 oz

3548

Tube-ring Accessory Plate

- With a threaded 1/4" bolt
- Attached to a pair of Vixen tube rings to mount a guide scope or a photographic accessory on it

Size : 191mm x 48mm
Weight : 276 g / 9.74 oz

3943

Camera-platform Adapter

- Attached to the Vixen tripod head to mount a photographic accessory on it
- With a threaded 1/4" bolt

Weight : 380 g / 13.4 oz

2661

Dovetail Tube Plate

Size : 190mm x 43.5mm x 20mm
Weight : 160 g / 5.64 oz

2662

Universal Dovetail Plate

- Useful to balance a telescope tube
- With threaded 1/4" and 3/8" holes

Size : 230mm x 44m x 20mm
Weight : 310g / 10.93 oz

26631 NEW

Dovetail Slide Bar M

Size : 211mm x 50mm x 21mm
Weight : 270 g / 9.52 oz

26632 NEW

Dovetail Slide Bar L

Size : 285mm x 50mm x 21mm
Weight : 360 g / 12.69 oz


Image

25167

SXG Half Pillar

- Usable with SX, SXD, SXP or GPD2
- An optional adapter is needed additionally if used with GPD2 with the former 60mm mounting base

Weight : 1.8 kg / 3.96 lb.

3810

Dovetail-plate Mounting Block

- Usable with Vixen optical tubes equipped with dovetail tube plate
- Fits the mount head of AXD or SXP directly
- With threaded 1/4" holes

Weight : 220 g / 17.76 oz

2576

Accessory Plate DX

- Usable with SX, SXD, SXP, GP2 or GPD2
- Equipped with dovetail slide rail
- A dovetail-plate mounting block is needed additionally if used on VC or VMC optical tube

Size : 330mm x 120mm x 12mm
Weight : 1275 g / 44.97 oz

38012

PORTAII Adapter

- The same piece as equipped with PORTAII
- Used to attach the PORTAII mount to the tripod head of Vixen tripod or half pillar

Size : 104mm dia. x 29mm thick
Weight : 142 g / 5.0 oz

3565

Accessory Parts Case

- Semitransparent plastic case with carry handle

Size : 215mm x 305mm x 80mm
Weight : 835 g / 29.45 oz

6228 Pink
6227 Blue
6230 Grey
6218 Green
6209 Moss Green

Non-woven Cloth Bag

- A protective bag for an eyepiece

Bags and Cases

Image

35655 NEW

Tube & Tripod Bag 100

- For a telescope or tripod less than 950mm long and less than 125mm in width
- Usable with A80M, A80Mf, A70Lf, ED103S, AX103S optical tube or others

Image

3880

VC200L Aluminum Case

- For VC200L or VMC200L

Size : 335mm x 670mm x 270mm
Weight : 6.2 kg / 13.65 lb.

Image

3881

GP Aluminum Case

Size : 460mm x 485mm x 148mm
Weight : 4.8 kg / 10.57 lb.

Image

2697

SX Aluminum Case

Size : 470mm x 500mm x 220mm
Weight : 6.5 kg / 14.31 lb.

Image

89222

AXD Aluminum Case

Size : 450mm x 540mm x 240mm
Weight : 6.7kg / 14.75 lb.

35651

Accessory Case Set for Eyepiece

(For details, refer to page 26.)

35652

Accessory Case Set for STAR BOOK TEN / STAR BOOK

(For details, refer to page 26.)

35653

Accessory Case Set for General Use

(For details, refer to page 26.)

For STAR BOOK TEN

25301

Advance Unit

- Works as a built-in autoguider in combination with an optional CCD video camera
- Displays images on the screen of STAR BOOK TEN via CCD video camera (NTSC composite signal)

Weight : 100 g / 3.52 oz

Guide Mount

35621

Guide Mount XY

- A low-profile mount for installing a guide scope (80mm or smaller in aperture)
- Holes for 8mm and threads for M6 screws

Size : 100mm x 79mm x 160mm
Weight : 750 g / 26.45 lb

Dew Heater

37225

Dew Heater2

- Water-resistant rubber heater
- 16.2 Ohm resistor (12V, 8.9W)
- 655mm long heater with 2.2m cable
- 2.1mm jack with center-minus polarity
- With Battery box

Weight : 120 g / 4.23 oz

For AXD

36918

AXD Large Accessory Plate

Size : 400mm x 200mm x 15mm
Weight : 2.9 kg / 6.38 lb

Power Supply and Cables

37612

Portable 12V Power Supply SG1000SX

- Suitable for SX2, SXD2, SXP, AXD or GPD2 with DD3
- Equipped with two 'cigarette lighter' output ports and an indicator of battery recharge
- 12V 7Ah Rechargeable

Size : 160mm x 160mm x 70mm
Weight : 3.2 kg / 7.04 lb.

2536

SX Battery Box

- For 8x D-size alkaline batteries
- Available for DD-3 controller
- With 2.1mm DC plug cable with center-plus polarity

Size : 140mm x 80mm x 80mm

8619

Battery Box

- For 8x D-size alkaline batteries
- Available for DD-2 controller, Dew Heater2 or C14-3M CCD video camera
- With 2.1mm DC plug cable with center-minus polarity

Size : 140mm x 80mm x 80mm

3599

AC Adapter 12V 3A

- Input 100V to 240V
- Output 12V 3A
- Suitable for SX2, SXD2, SXP, AXD or GPD2 with DD3
- With a convertible cable to change polarity

Weight : 320 g / 11.28 oz

8644

Cigarette-lighter Plug Cord – SX

- 2.1mm DC plug with center-plus polarity
- Available for SX2, SXD, SXP, AXD, GPD2 with DD-3 or others

8643

Cigarette-lighter Plug Cord – Center-minus

- 2.1mm DC plug with center-minus polarity
- Available for DD-2 controller, Dew Heater2 or C0014-3M CCD video camera

Miscellaneous

37227

Dual Speed Focuser

- Allows dual speed focusing with coarse and fine speed adjustment at a ratio of 1:7
- Attachable to the focuser on the current Vixen optical tubes except for VMC95, VMC110L, VMV260L, VMC330L, A70Lf, A80Mf, ED80Sf and R130Sf

Weight : 170 g / 6.0 oz

7331

GP Compass

- For GP2 or GPD2

Weight : 2 g / 0.07 oz

37222

Moon Glass ND 31.7mm

- Neutral density filter (ND4) for the bright moon
- Filter aperture 19mm dia.
- Threaded into the 31.7mm eyepiece barrel

Weight : 10 g / 0.35 oz

Image

3732

Light Baffle Hood

- Blocks stray light in astrophotography
- Available for VC200L, VMC200L or R200SS
- Wrapping shade, 20cm long

Weight : 110 g / 3.88 oz

3870

Metal Carry Handle

- With M6 screw for attachment
- Not usable on A70Lf, A80Mf, R130Sf, VSD100F3.8, NA140SS, R200SS and VMC260L optical tubes

Weight : 220 g / 7.76 oz

*The specifications are subject to change without notice.

Accessories for Astrophotography

Prime Focus Photography

Prime focus photography is a typical method in photographing nebulae or star clusters. It employs a (D)SLR (Digital Single Lens Reflection) camera directly attached on the astronomical telescope.

Specially, it is a method of astrophotography in which the telephoto lens is replaced by the astronomical telescope tube. This enables photography with a high magnification at a reasonable cost as compared to the use of a dedicated telephoto lens for the (D)SLR camera.

When you take photographs of deep sky objects using prime focus photography, it is necessary to track the object accurately over a long period of time.

What you need

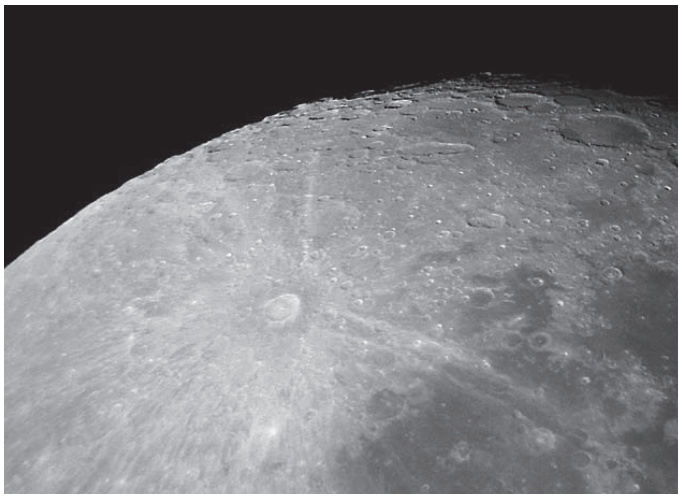
An equatorial mount such as SX2, SXD2, SXP, AXD or GPD is recommended. Long exposure is required for capturing faint objects like nebulae and star clusters. Thus use of a sturdy mount with motor drive for autoguiding is required.

Eyepiece Projection Photography

Eyepiece projection photography is employed when you take photographs of the moon's surface or planets. Unlike the prime focus photography in which only the telescope tube is used, the eyepiece is added to magnify images of the object searching for details.

What you need

An equatorial mount such as SX2, SXD2, SXP, AXD or GPD is recommended.



Camera Adapters and T-rings

39361

Eyepiece Projection Camera Adapter

- Fits a telescope with flip mirror diagonal or focuser on R200SS, VSD100F3.8 directly
- Not available for LVW eyepieces and 50.8mm eyepieces

Size : 60mm dia. x 105mm
Weight : 242 g / 8.54 oz

3523

Camera Adapter 43DX

- For both prime focus and eyepiece projection photography
- Fits 43mm visual back
- With 48mm filter thread
- Not available for 50.8mm eyepieces

Size : 63mm dia. x 164mm
Weight : 390 g / 13.76 oz

3876 for Canon EOS or Four Thirds
3878 for General type

Wide Photo Adapter 60mm

- For prime focus photography
- Fits the focuser on R200SS directly
- An extension tube VC is required additionally if the focal reducer is not used for photographing
- A T-ring that is appropriate to your camera is needed.

Size : 72mm dia. x 20mm
Weight : 55 g / 1.94 oz

T-rings (Thread 42mm pitch 0.75mm)

T-Ring for Nikon

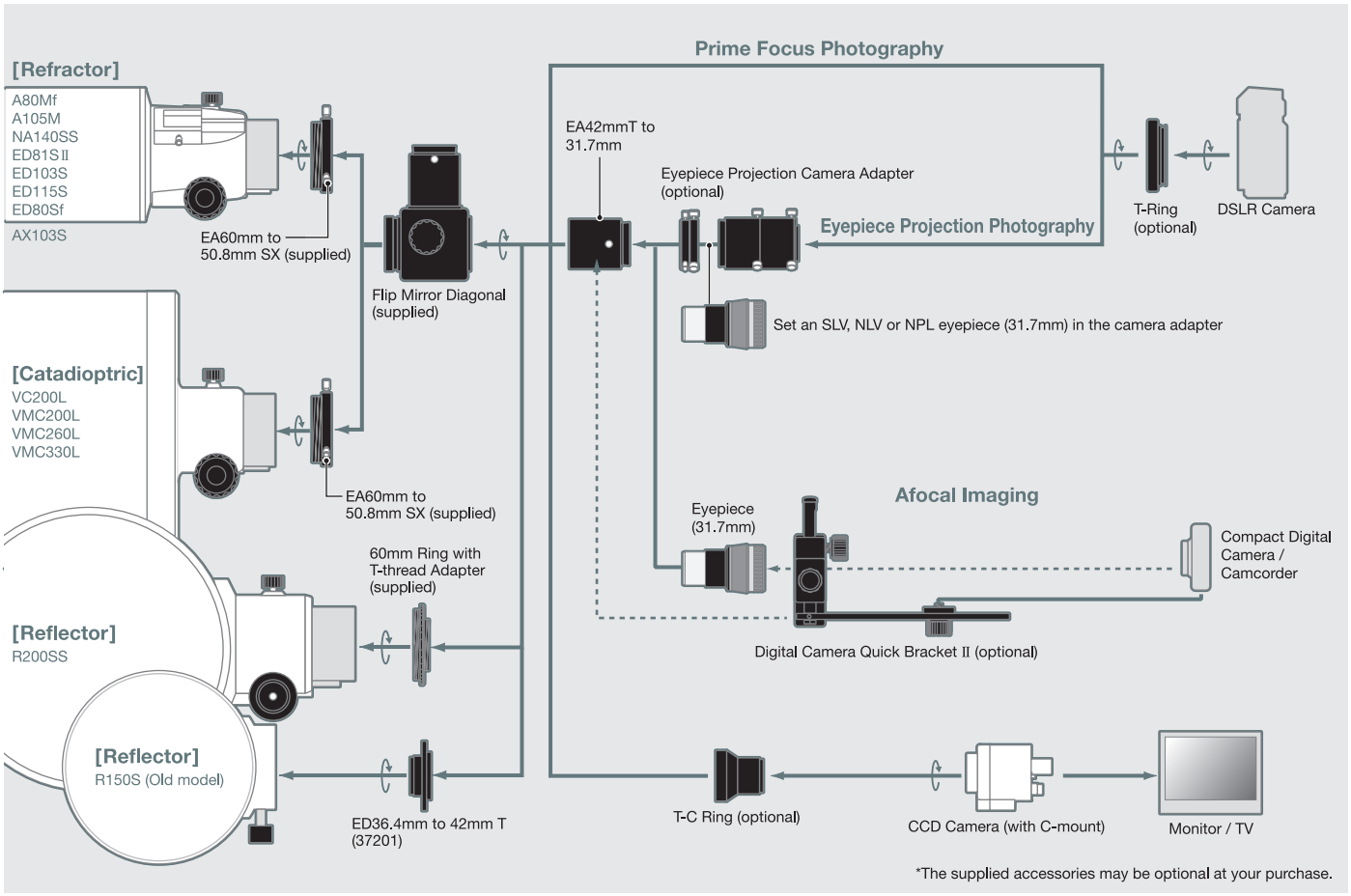
T-Ring for Canon

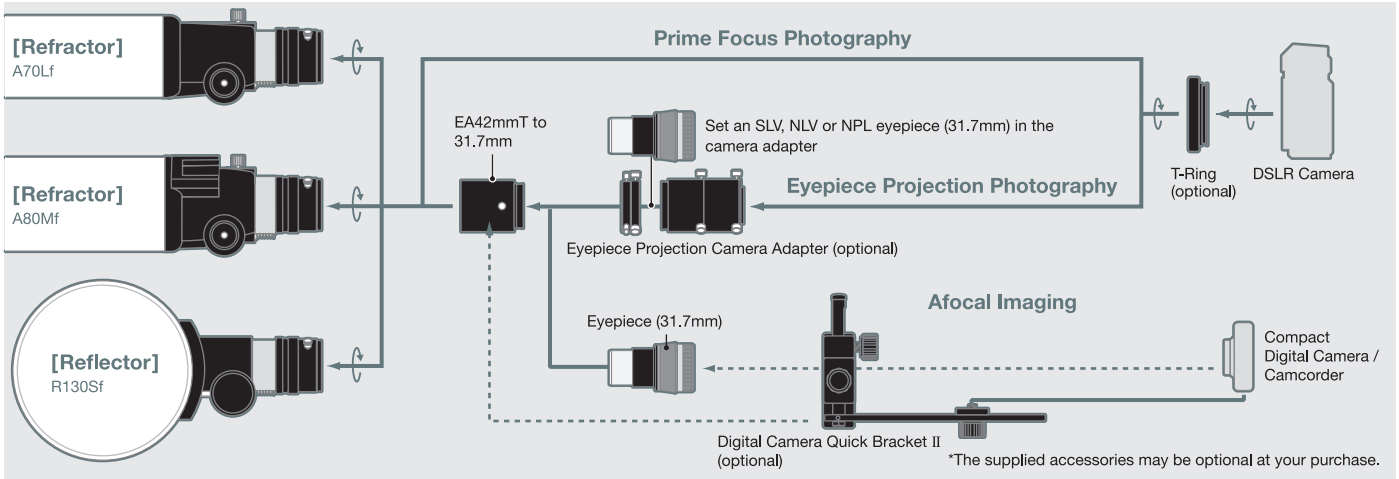
T-C Ring for C mount

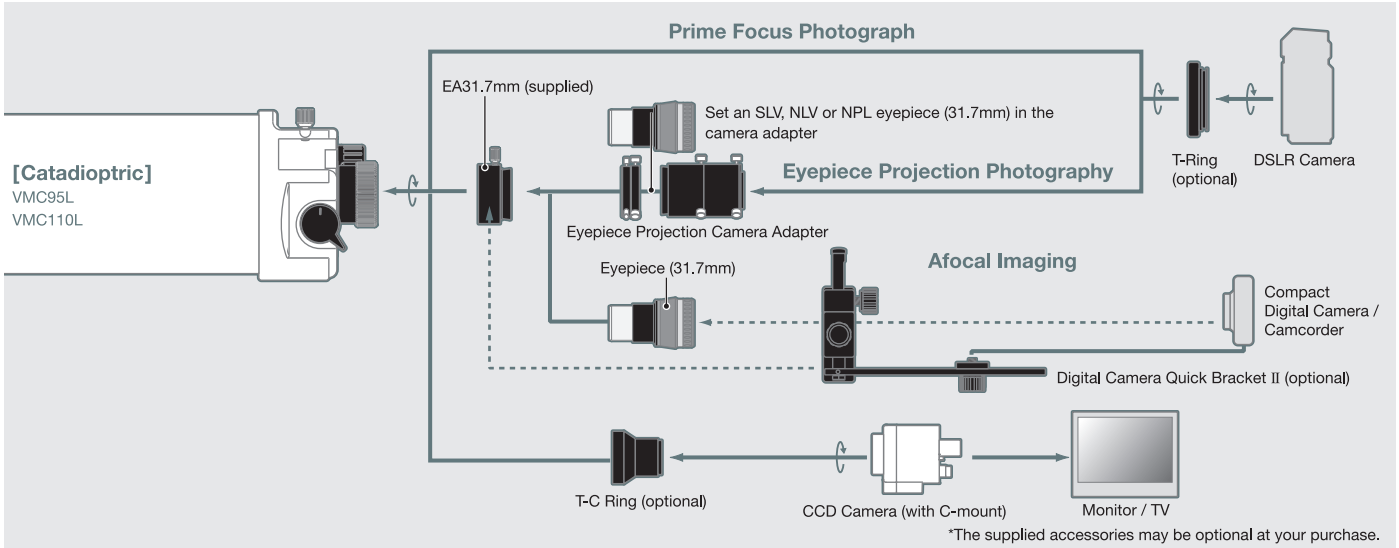
Item No.	Find your Camera Brand	Weight
37301	**Nikon, Fuji Film**	22 g / 0.78 oz
37303	**Sony Alpha (Konica Minolta Alpha)**	45 g / 1.59 oz
37314	**Sony E**	113 g / 3.98 oz
37304	**Minolta (for manual focus)**	30 g / 1.06 oz
37305	**Canon (for manual focus)**	40 g / 1.41 oz
37306	**Canon EOS, EOS Rebel**	52 g / 1.83 oz

Item No.	Find your Camera Brand	Weight
37307	**Practica (Screw mount)**	25 g / 0.88 oz
37308	**Vixen, Pentax K, Ricoh, Cosina**	36 g / 1.27 oz
37302	**Four Thirds**	58 g / 2.04 oz
37313	**Micro Four Thirds**	110 g / 3.88 oz
3763	**T-C Ring (for C mount)**	52 g / 1.83 oz

Components Guide for Astrophotography







*The specifications are subject to change without notice.

Afocal Imaging (Collimation Photography)

If you've been thinking that you need to have special skills to enjoy astro-photography, you may be pleasantly surprised with a simple method of photographing the moon by using a compact digital camera.

What you need

An altazimuth mount with slew motion control works well for shooting the moon and bright planets. You just place your compact digital camera attached on the camera adapter in tandem with the visual back of your astronomical telescope so that it is aligned straight to the eyepiece of the astronomical telescope.

Lunar Craters
Taken with PORTA A70Lf
by means of afocal imaging
by Masafumi Suzuki

Photographing with a compact digital camera

39196

Digital Camera Quick Bracket II

- Designed to pinch the barrel of visual back having 34mm to 63mm (1.42 in. and 2.63 in.) in diameter
- Equipped with a quick release knob to swing the attached camera aside
- Allows for a quick change between camera view and visual viewing
- Eyepieces with long eye relief are recommended to minimize vignetting of images
- Loading capacity 300g (10.5 oz)

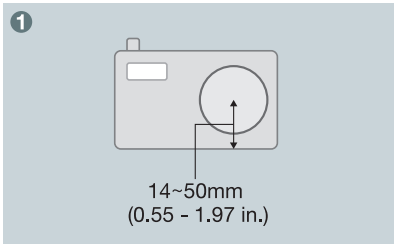
Weight : 240 g / 8.46 oz

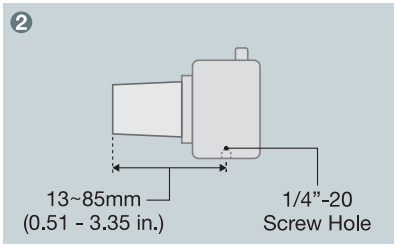
Suitable for compact digital cameras with the following specifications:

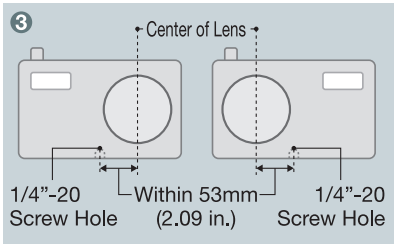
❶ The height from the camera's bottom to the center of the camera's lens is between 14mm and 50mm (0.55 in. and 1.97 in.)

❷ The distance from the camera's tripod socket to the camera's lens tip is between 13mm and 85mm (0.51 in. and 3.35 in.)

❸ The 1/4" tripod socket is equipped within the distance of 53mm (2.09 in.) from the centerline of the camera's lens







Photographing with a smart phone

39197

Universal Digital Camera Adapter

- Designed to pinch the barrel of visual back or eyepiece having grip of 28mm to 45mm (1.17 in. and 1.88 in.) in diameter (Not usable with SLV, NLV, NPL, LVW or NLVW eyepiece)
- Equipped with vertical and horizontal slow motion screws
- Eyepieces with long eye relief are recommended to minimize vignetting of images
- With a smart phone adapter
- Loading capacity 800 g (28.2 oz)

Weight : 370 g / 13.05 oz

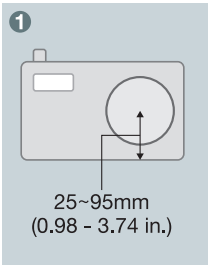
Suitable for compact digital cameras or smart phones with the following specifications:

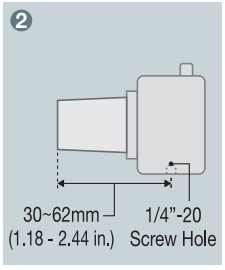
❶ The height from the camera's bottom to the center of the camera's lens is between 25mm and 95mm (0.98 in. and 3.74 in.)

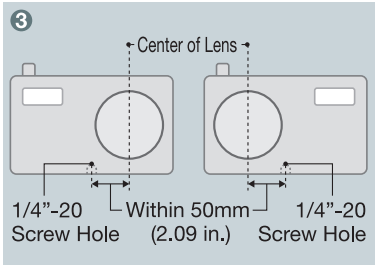
❷ The distance from the camera's tripod socket to the camera's lens tip is between 30mm and 62mm (1.18 in. and 2.44 in.)

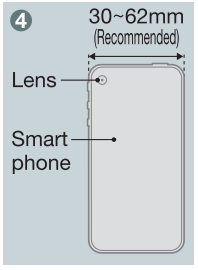
❸ The 1/4" tripod socket is equipped within the distance of 50mm (2.09 in.) from the centerline of the camera's lens

❹ Smart phones in width between 45mm and 65mm (1.88 in. and 2.71 in.) is available for the smart phone adapter









Eliminate vibration at shutter release

39183

Cable Release Bracket II

Size : 82mm (extendable to 114mm) x 134mm x 30mm
Weight : 80 g / 2.82 oz

Suitable for compact digital cameras with the following specifications:

❶ The position of the camera's shutter is not over 32mm (1.133 in.) distant from the side of the bracket

❷ The camera's height is lower than 80mm (3.34 in.) from the bottom of the bracket

❸ The 1/4" tripod socket is equipped within the distance of 100mm (4.18 in.) from the side of the bracket

Size of a cable release head connectable

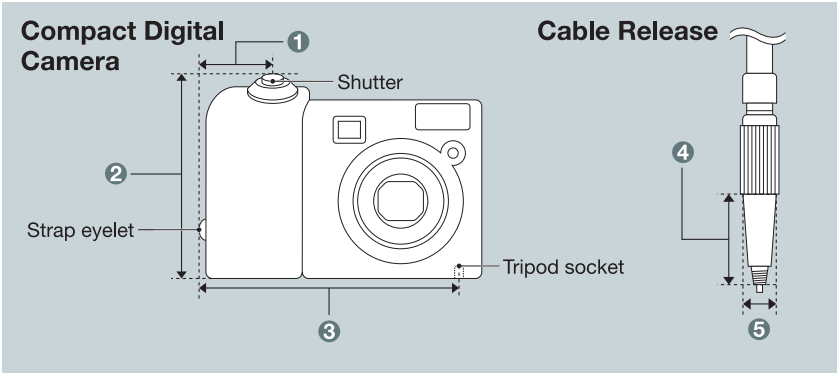
❹ Longer than 12mm (0.5 in.)

❺ Smaller than 7mm (0.29 in.) in diameter

39184

Cable Release 30AS

Size : 21mm dia. x 300mm long
Weight : 26 g / 0.91 oz



Two-stage focuser for both coarse and fine adjustments

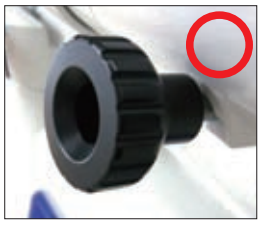
37227

Dual Speed Focuser

• Available for A80M, A105M, ED81SII, ED103S, ED115S, AX103S, VC200L, VMC200L or R200SS
Weight : 170 g / 6.0 oz

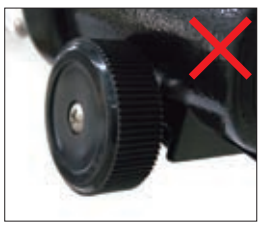
Adaptability to the Vixen Rack-and-Pinion Focusers

Fits the focuser with metal focus knob



Fits the focuser with plastic focus knob shown below

Does not fit the focuser with cylindrical plastic focus knob (a screw in its center)



✻The specifications are subject to change without notice.

Taking photos of the night sky has never been easier!

POLARIE

POLARIE STAR TRACKER

The POLARIE Star Tracker makes imaging of the night sky accessible to everyone. Put POLARIE in your knapsack or camera bag and go out to snap pictures of the beautiful starry sky. The POLARIE is your traveling companion and records memories of night sky scenes.
With simple set up for polar alignment, the POLARIE on a camera tripod allow you to take images of stars without trailing as it automatically follows the movement of the stars. Share Your Universe.

Batteries for the POLARIE

The POLARIE works with 2 AA alkaline batteries for about two hours. (It is possible to use rechargeable batteries.)
For long hours of use, the POLARIE is equipped with a USB-miniB plug socket available for external power supply.

35505

POLARIE Star Tracker

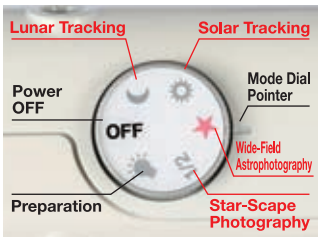
Specifications	POLARIE
Tracking mode	Celestial tracking, 1/2 celestial tracking, Solar tracking, Lunar tracking, usable in both northern and southern hemispheres
Drive gears	Worm gear and 57.6mm dia. wheel gear with 144-tooth
Polar axis	40mm dia. made of aluminum alloy
Bearings	2 pieces
Drive motor	Pulse motor
Polar sight hole	About 8.9 degrees field of view
Tilt indicator	Angles between 0 degree and 70 degrees (5 degrees increments)
Compass	Detachable, Supplied as standard accessory
Working voltage at 2.0kg loading capacity	2x AA size batteries – DC2.4V to 3.0V, Max 0.6A External power supply – DC4.4V to 5.25V, Max 0.3A
External Power supply	USB-miniB
Duration of operation	About 2 hours at 20 degrees (68F) temperature and a 2kg / 4.4 lb loading weight with use of alkaline batteries
Operating temperature	0 degree to 40 degrees
Dimensions	95mm x 137mm x 58mm (3.7 x 5.9 x 2.3 inches)
Weight	740 g / 26.1 oz (without batteries)
Optional accessory	POLARIE Polar axis scope

Easy Setup in a dark place

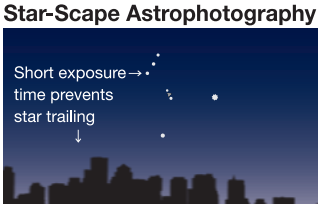
The built in indicator is backlit in red for the northern hemisphere. The legend on the mode dial will also illuminate.

Different Tracking Speed

Besides the ordinary celestial tracking rate, the POLARIE has solar rate, lunar rate and a half speed of the celestial rate which allows you to take images of the night sky with minimal blurring of the foreground ('star-scape' mode). Each position on the mode dial is backlit if selected.

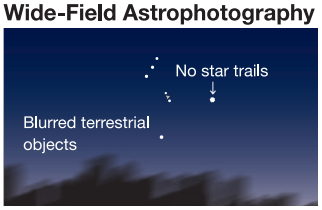


Star-Scape Astrophotography



It allows moderately long exposures with minimal blurring of the foreground.

Wide-Field Astrophotography



It allows moderately long exposures with no star trails but blurred terrestrial objects.

35517 NEW

POLARIE with Tripod M-184V

This is a package of a POLARIE star tracker and a sturdy M-184V tripod including a ball head adapter for a mounting a camera. Just putting a camera on the POLARIE and you are ready to start capturing images of the starry sky.

POLARIE Accessories

35516 NEW

Tripod M-184V

Specifications	Tripod M-184V
Model	M-184V Tripod
Tripod legs	4-section legs
Working height	560mm to 1840mm (1370mm without using the elevators)
Elevator pole extension	200mm long with use of the geared elevator 280mm long with use of the center friction column
Minimum tripod size	575mm
Camera attachment screw	UNC 1/4 inch
Suggested maximum loading weight	3 kg / 6.6 lb
Weight	1.98 kg / 4.36 lb (without ball heads)
Standard accessories	QHD-43 and QHD-44 ball heads

35508

POLARIE Polar Axis Scope

It fits to the center hole of the POLARIE to make more precise Polar alignment, used in both northern and southern hemispheres.

35511

Polar Meter

The Polar Meter is a compass with a bubble level and an altitude scale used for locating Polaris with ease. It attaches to the accessory shoe on POLARIE.
Weight : 100 g / 3.52 oz

35512

Polarie Cradle

It is useful to mount a POLARIE on a MIMI PORTA (or PORTA II) mount.
Weight : 500 g / 17.6 oz

35509

QHD-33 Ball Head

Weight : 130 g / 4.58 oz

Turn Your Tripod into a Star Tracker

The POLARIE works as a star tracker when set up to follow diurnal motion of stars. It is essential that the rotation axis of the POLARIE is set to be parallel to that of the diurnal motion of the stars. This is called polar alignment. You will be able to align the POLARIE within a few minutes if you follow the procedure below. (Setting Up and polar alignment in the northern hemisphere are described here.)

If you have a digital camera which enables to open the shutter for one minute or more and focus manually to infinity, all you really need is a POLARIE and a TRIPOD to shoot for the stars.

❶Set up your camera tripod on level ground and install the POLARIE on the pan head of the camera tripod.

❷Remove the camera mounting block on the front of the POLARIE by loosening the two thumb screws on its side.

❸Attach a commercially available ball head firmly on the camera mounting block. (The QHD-33 ball head is supplied as standard accessory if you purchased the POLARIE with tripod as a package.)

❹Then, attach the camera on the ball head.

'Polar' Align the POLARIE

Set up the POLARIE-mounted tripod on level ground where you can view north sky and the area of sky you want to photograph.

Setting up the POLARIE

❺Take off the compass from the back of the POLARIE. Locate north with the compass and face the front side of the POLARIE on the tripod to the north.

❻Set the mode dial to 'preparation' position on the POLARIE. Unlock the pan head and tilt the POLARIE so that the built-in tilt indicator on the side of the POLARIE points your latitude.

❼Look through the polar sight hole and confirm that Polaris can be seen somewhere in the field of view. Lock the pan head firmly.

❽Attach the camera mounting block with the camera to the front of the POLARIE.

❾Set the mode dial to either star-scape photography or wide-field astrophotography according to your planned imaging. Now, you are ready to shoot for the stars.

*The specifications are subject to change without notice.

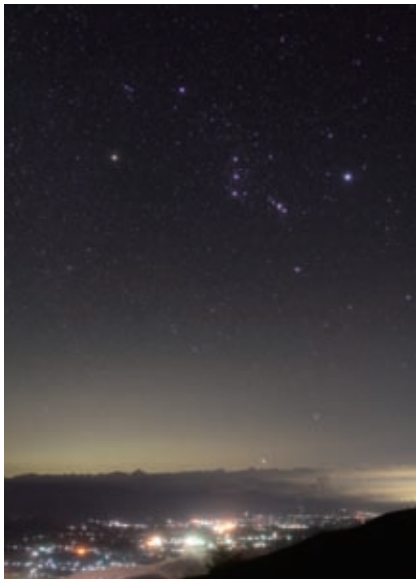
Using the POLARIE

It is easy to take pinpoint images of stars using a wide field photographic lens shorter than 50mm in length and with an exposure time of 5 minutes or less. The POLARIE can mount a DSLR camera with photographic lens weighing less than 3kg (7 lbs).

Wide-Field Astrophotography

Photographs of wide filed views of constellations and the Milky Way are called wide field astrophotography. Usually nightscapes are not included in the frames of these images or they will be in the background of the image. There are two types of wide field astrophotography. One is fixed tripod astrophotography with a tripod mounted camera and the other is piggy back astrophotography, with a camera attached to a polar aligned equatorial mount.

The POLARIE is a totally new photographic accessory which easily allows you take pinpoint photos of stars and constellations. It is designed to follow the apparent motion of the stars caused by the earth's rotation, eliminating star trails.



Star-Scape Astrophotography

Photographs of wide-field views of constellations and the Milky Way plus night landscapes under starry skies that are included in the frames of photographs.

The POLARIE allows you to not only take pinpoint photos of stars and constellations but also to create 'star-scape' photos in night-sky scenes by adding a motionless night landscape or silhouetted figure in the foreground of your frame.

Capturing the motion of the stars with time-lapse astrophotography!

The POLARIE time-lapse adapter allows you to put a POLARIE level on a camera tripod to set up a camera stably. It shifts the rotational axis of the POLARIE to be tandem with the camera tripod head for adding slow panning motion to your time-lapse movie.


Image

35518 NEW

Polarie Time-lapse Adapter

- With dual UNC 1/4 and 3/8 inch threads (patent pending) for camera tripod

Weight: 165 g / 5.82 oz

A handy and versatile equatorial platform for guided-camera astrophotography

The AP Photo Guider is a lightweight star tracker for long exposure astrophotography having the same precision of the AP mount and the ease of portability. The AP Photo Guider comes equipped with the STAR BOOK ONE controller that provides you both accurate tracking for hours and comfortable operation. A moderate Telephoto lens used with the AP Photo Guider will produce images of well known bright Messier objects. The AP Photo Guider is upgradable to the AP-SM mount with optionally available parts.

39989 NEW

AP Photo Guider

Mount	:	AP Mount R.A Body Unit with Mount Base
Motor Drive	:	R.A Motor Module and STAR BOOK ONE Controller
Tripod	:	APP-TL130 Tripod
Accessories	:	PG Mount Head Unit Dovetail Silde Bar PG Polar Alignment Scope

LED Compass

The LED compass has a good selection of popular colors.

The LED compass is encapsulated in a transparent body and its pointer is visible from the underside to check your direction. Pressing the button on the side of the compass will illuminate the inside of the compass with the red LED light. It is a convenient future at star gazing when you use a Planisphere over your head to find constellations. The LED compass is filled with oil which helps to stabilize the pointer and absorb shock.

NEW

43021 Pink
43022 Yellow
43023 Green
43024 Blue
43025 Purple

LED Compass

Weight : 30 g / 1.05 oz

Imaging with a CCD Video Camera

33801

C0014-3M Color CCD Video Camera

- High sensitivity color CCD camera for astronomy
- Threaded for C/CS mounts (24.5mm / 1 inch)

Size : 45mm x 65mm x 51mm
Weight : 245 g / 8.64 oz

3748

C-Mount Tele-Extender 2.4x

- Fits 31.7mm visual back
- Extends focal length by 2.4x

Weight : 37g / 1.31 oz

Specifications	C0014-3M Color CCD Video Camera
TV system	NTSC
Image sensor size	Color 1/3-inch CCD sensor
Number of pixels	410,000 pixels
Video signal sync	Internal synchronization
Minimum sensitivity	0.012 lux at F1.2/20 IRE level, AGC ON, Monochrome 0.0014 lux at F1.2 /20 IRE level, 32 frames accumulation, Monochrome
Horizontal line resolution	540 lines
White balance	AWB mode (3200 to 10000 K), ATW mode (2800 to 9600 K)
S/N ratio	50 db (Min.), 58 db (Max.) with AGC set to OFF
Frame accumulation	OFF / ON (2, 4, 8, 16, 32, 64, 128 or 256 frames)
Mirror reverse mode	Horizontal and vertical
Backlight compensation	ON / OFF
Digital zoom	2x
IR-cut filter switch	Auto or manual (Daytime or night, and external control)
Gamma correction	0.45 or 1.0
Gain control	AGC ON / OFF
Iris control	Applicable to auto iris CCTV lens
Electronic shutter speed	AES (Auto electric shutter) 1/60s to 1/120000s ALC (Auto lens control) 1/60s (OFF), 1/100s, 1/125s, 1/500s, 1/1000s, 1/2000s, 1/4000s and 1/10000s
Video output	Composite (NBC), 1.0V peak to peak, 75 ohm
Power supply	2.1mm DC jack with center plus polarity
Operating voltage	DC12V +/-1V
Electricity consumption	150mA (maximum)

A Starry Night Sky in your Room!

Covered with semi-transparent hemisphere screens.

7313

SPACE 800M Home Planetarium

- Projects all 88 constellations and 805 bright stars down to magnitude 3 on the ceiling and wall of a room
- Workable as a celestial globe by projecting constellations onto semi-transparent hemisphere screens included with the planetarium
- Intriguing patterns of star constellations, from both northern and southern hemispheres, can be enjoyed in your room
- Battery operation makes it easy to use everywhere
- Runs for about 8 hours at 20 degrees C (68 degrees F) room temperature

Rotation of the globe	3 minutes per rotation
Workable projection distance	0.5m to 1m
Batteries	6x C-size alkaline batteries
Size	260mm x 290mm x 295mm (H)
Weight	990 g / 34.92 oz

About the Unification of the Connection Specifications between Mounts and Tripods

Historically, Vixen GP Mounts and Sphinx Mounts have used different tripods. Vixen has now created one tripod, the SXG Tripod, to fit all of these mounts. With this unification, a single common tripod is used for all the different mount types such as the GP equatorial and HF2 altazimuth fork mounts.

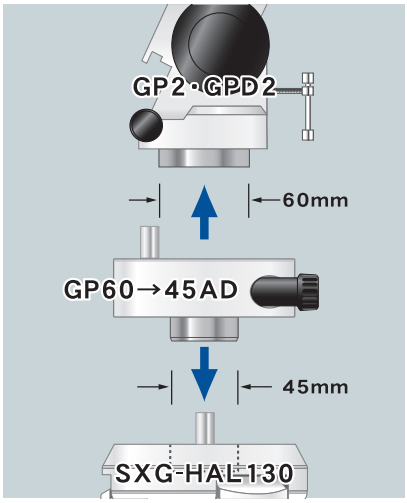
The new mounting base of the GP2/GPD2 mounts which fits the tripod head of the new SXG tripod is changed from 60mm to 45mm in diameter. The peg on the tripod head of the new SXG tripod can be positioned in place according to the mount types used. You will need an optional adapter if you want to use the former GP2/GPD2 mount (60mm dia. mounting base) with the new SXG tripod.

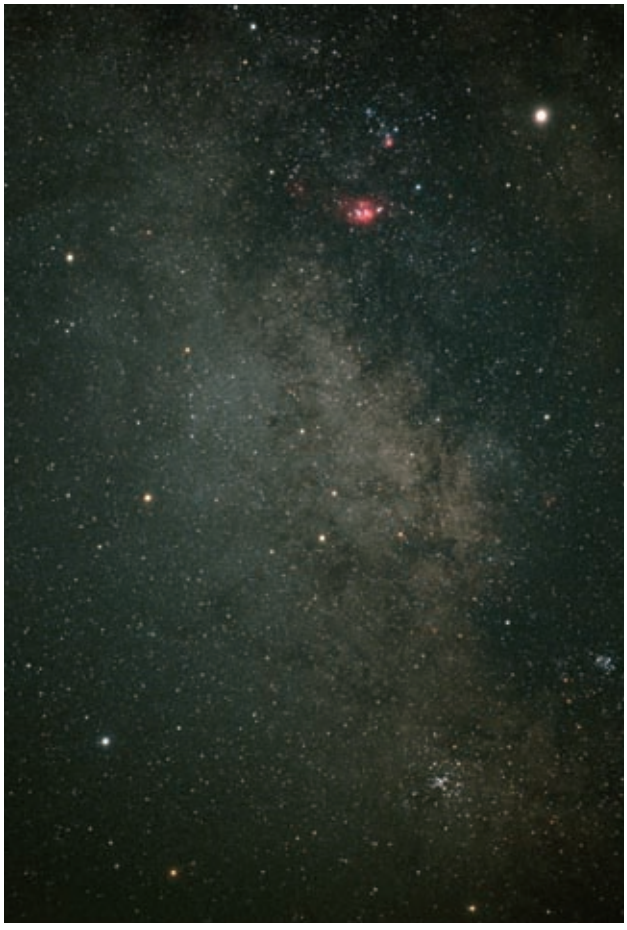
25169

GP60 to 45AD

- Needed to attach the former GP2/GPD2 mounts to the new SXG tripod (or SXG Half Pillar)

Weight : 775 g / 27.3 oz





*The specifications are subject to change without notice.

Vixen VSD100F3.8 for Digital Imaging

Tony Hallas Says: "*To have this level of performance from an f/3.8 is remarkable. All in all, a very impressive little telescope! The telescope is essentially sensational. It accomplishes the impossible. Mechanically superb as well, supporting the heavy STX16803 camera without any complaint and the enormous helical focuser is tight and accurate. With extremely fast optics, flat field, and superb color correction it is a unique product not just a rehash of the same.*"

Image courtesy of Tony Hallas, USA (M42 the Great Orion nebula and the Horsehead nebula with VSD100F3.8)

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Image courtesy of Tony Hallas, USA (M42 the Great Orion nebula and the Horsehead nebula with VSD100F3.8)

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