

Binocular Mounts, Tripods and Mounting Accessories

By Ed Zarenski

Over the past several years I have used many binocular mounts and collected a lot of practical use information regarding tripods, heads and mounts that make good combinations for binoculars. In addition, I've had the opportunity to use several different types of mounts. I've attempted to organize some of my notes here so the information may be useful for others. I hope you find it of some benefit.

Edz

Dec., 2005



How Much Tripod and Head Do You Need?

Many times people ask: Why do you say you can't mount an 8# binocular on a tripod head that is rated for 8#? Why do we need to cut back on the load limits? What does a binocular do that is so different? The answer is because the load ratings for camera tripods are determined with the load weight directly over the tripod head and directly over the tripod column. With binocular viewing, we often have a heavy load hanging off of one side. That is acting like a cantilever or an eccentric load. In all things mechanical, it takes a beefier support to hold an eccentric load than it does to take a direct load.

Larry Patriarcha (Universal Astronomics) responded to the criteria that we refer to when determining what a tripod and head is capable of holding. I want to repeat Larry's words here; "Regarding camera tripods and heads in general, a good rule of thumb with camera tripods is to only consider half the rated weight capacity when considering it for a telescope, or big binos. The rated capacities are determined with a camera with little or no magnification, pointed at the horizon, not a long telescope, or big binos, at high power pointed vertical creating a side load."

There has already been a great deal of discussion in the CN binocular forum on the need to use a tripod head rated greater than the weight of a binocular. In general, binoculars for astronomy are used pointing up from about 30° to 90° altitude. As you tilt up higher in altitude, the load becomes more of an eccentric load hanging off of the tripod head. This dramatically reduces the capacity of the tripod head. Placing any component between the head and the binocular, such as a slow motion adapter or the Scopestuff 2D binocular cradle, adds to the eccentricity and decreases the load capacity even further.

Try this little experiment. Hold a 10# barbell in one hand with your forearm bent at the elbow upright in front of your chest. Easy, isn't it? You could probably hold 20# with little increased effort. Now take that same 10# barbell and hold it with your arm extended straight from the elbow in front of you. Which position causes greater strain on your arm? By holding the load with your arm extended out, the eccentric load is decreasing the carrying capacity of your arm by far greater than you might have anticipated. We put those kinds of loads on binocular tripods all the time.

Binoculars Create Eccentric Loads on a Tripod

A clear understanding of mechanics will help you understand the affect of an eccentric load. It is easy to see in terms of mechanics why a heavy binocular will overload a tripod/head combo rated for more than the weight of the binocular. In some ways it is similar to a cantilever beam.

One of the terms used in mechanics is moment arm. In simplistic terms, let's say you put a 10# load directly centered above a column. The weight creates a point load of 10# directed straight down thru the column. The entire load is in compression pushing down on the column. In this case there is No moment arm. Same thing if you put a beam between two columns and put the load somewhere at any point on the beam, only now

the load will be distributed between the two columns. Now let's say you take that same column and put a beam across the top of it and extend one end of the beam out past the supporting column, a cantilever, and let's say you extend the cantilever out 2 feet. Now put that same 10# load right on the very end of the cantilever beam. The effective load on the support column is now 10 pounds multiplied times a 2 foot extension from the column. It has a moment arm length of 2 feet, so the moment arm load is 20 foot pounds.

Eccentric Loads

Now the load is creating not only compression but also tension. Not only is the load compressing the contact point between beam and column closest to the load, but also it is pulling apart the contact point between beam and column on the opposite side from the load. In essence, that moment arm has created tension and is trying to rip apart the connection between the beam and the top of the column. Not only that, but any impacts on the load will be magnified thru the entire structural system. If the cantilever were extended out to 3 feet, the moment arm load on the column would be 30 foot pounds.



Classic Cantilevers – All Eccentric Loads

The beam and column design to carry this 10# cantilever load is much beefier than the beam/column design to carry the point load. In a structural steel building, standard connections of beams to columns are lower cost. Moment connections of beams to columns not only increases the weight of the members needed to build the system but also can add 10x the cost just at the complexity of the connections.

That's similar to what happens in a binocular on a camera tripod. In fact it represents almost every astronomical equipment mount. Basically camera tripod load ratings are based on point loads. But that is not how we use the equipment. We use it in a cantilever position.

A binocular used for astronomy will always be positioned in a hanging or cantilevered

mode. The loads on the head/tripod are not point loads. The moment arm creates both compression and tension on the head/column joint. Movement or bumps on the load will be magnified thru the support system. And they will oscillate back through the system. As the mounted equipment is tilted more towards viewing at zenith, the distance off of the vertical center line increases and moment arm load becomes greater.

How about when the load is counterweighted and now the center of gravity is back over the center column? Then are we back to a point load? Not quite. That would represent a parallelogram mount on a tripod.

In this case you would have a cantilevered load hanging off both sides. Of course, at some point it can be made to reach equilibrium, in which case tension is removed, but they are not point loads because they both have moment arm, just counteracting moment. Often times what happens in this case is the load is balanced in one specific position or in a small range and raising or lowering the arm changes the weight x distance left = weight times distance right resulting in once again being out of balance.

What Happens When You Overstress the Tripod Head?

One of the end result conditions of using undersized heads and too much weight on top of these tripods is a loose top plate. If you use a head that is undersized, you may need to tighten the altitude motion so tight to prevent slip that that up down movement puts undue stress on the junction of the top plate and the center column. Every time you move the tight head in an up down motion, you apply torque on this joint. The joint, over time, may loosen from the stress.

That joint is held together by a spreader bolt assembly that can only be accessed from inside the center column. The top plate on the center column of a tripod has a 1/4" or 3/8" threaded rod that is used to attach your choice of head or mount. That threaded rod is really a bolt and it comes up thru from the underside of the top plate. Not only does that bolt provide the thread to mount your choice of head, but also the bolt tightens a spreader assembly that squeezes the center column against a lip around the underside of the top plate. If that spreader bolt loosens, the top plate rocks back and forth and you lose all stability. Once the top plate gets loose, the effectiveness of the tripod is lost.

The whole point is this, Don't skimp on your tripod.

Detailed high power binocular viewing requires a sturdy and stable mount. You will get more viewing pleasure with a better mount. Under-mount your binoculars and you will be placing too much stress on your tripod.

Everything mentioned above about load limits is hard learned advice. So why do you think it is that some people still maintain they can do just as well with half as much. Well, I've seen some people hike 8 miles up into the wilderness with nothing more than sneakers and a nylon jacket.

For a 7# binocular you are really pushing the limits with a head rated for 8# mounted to a set of legs rated for 13#. For a 10# binocular you need at least a head rated for 13# to

16#. That needs to be mounted on a set of legs rated at least for 20# to 25#. As you will see from some of the results published in this article, if you have a parallelogram that weighs near 30# when loaded up with binoculars and counterweights, you'll need more than a 26# rated tripod to mount it on if you want to get good results.

I often use both straight up tripods and tripod/parallelogram mounts when I'm out with binoculars. I never have felt like I'm up tight against a tripod, so I'm very comfortable with straight up tripods. I can deal with the 'hard on the neck' positions. If comfort were my primary desire I could sit in a lawn chair and use the UA Basic parallelogram, which I sometimes do. I do like the flexibility of a parallelogram mount, but I also appreciate the compactness and ease of moving around with a slender tripod with binoculars attached.

Tripods I Use Include:

Medium weight surveyor's tripod
Light weight surveyor's tripod
Manfrotto 028B with Bogen 501 fluid head
Bogen 3246 with Bogen 501 fluid head
Bogen 3211/3011 with various heads
Orion Paragon Plus XHD no head
Orion Paragon HD-F2 with Paragon head
Slik 700DX Pro Tripod non detachable head
Slik U212 with detachable non-fluid head
Velbon CX690 non detachable non-fluid head and
Smith-Victor (similar to Orion Paragon HDX) no head
Bogen 3205 Junior tripod, no head

Tripod Heads I Use Include:

Bogen 3247 three way non-fluid head (rated 16.5#)
Bogen 501 (3433) Fluid head (rated 13.2#)
Bogen 410 geared head slow motion head (rated 13.2#)
Bogen 3130 fluid head (rated 8.8#)
Bogen 3025 three D non-fluid head (rated 6.6#)
Orion Paragon fluid head (see D&S F12)
Davis and Sanford F12 fluid head (rated 12#)
(The D&S F12 is the same head as the Orion Paragon head)

Other Mounts, Adapters and Parallelograms I Use Include:

ScopeStuff 2D cradle mount
Orion Slow Motion adapter
Virgo Skymount Paralellogram
Universal Astronomics Unimount Light Basic Pgram
Universal Astronomics Unimount Light Deluxe Pgram
Universal Astronomics Unimount Light New Improved Pgram
Charles Funk Parallelogram
Universal Astronomics Microstar Deluxe
Oberwerk BT100 custom wood surveyor's tripod and custom BT mount

Handheld Versus Mounted

Keep in mind, you will not see as much handheld as you will with mounted binoculars. It is very difficult even with the best 70mm binoculars under mag 5.5 skies to see stars beyond mag 10 when handheld. Seeing stars at mag 10 requires a completely quieted binocular on a stable mount, viewing without touching the eyepieces. A binocular used for scanning, with slight minor shake eliminates most stars over mag 9 from view. Absolute steadiness and some persistence is required to see mag 10.5. This translates to how much can be seen in star fields, open clusters and dense clusters. Deeper magnitude means more stars seen. A steady binocular means more resolution in clusters.

Some of my Favorite Tripod / Head Combinations are:

Bogen 3211 legs with Bogen 3130 head is my most used tripod. Good for all my binocs up to 4#12oz Fujinons. Although I must admit, I've used it to mount a 7.5# Garrett Optical 20x80 Gemini and although I consider that overloaded, it worked. Tall tripod combo, but has no elevator crank. The elevator is a manual slip column with lock screw. I've taken this tripod/head on a 30 mile backpacking trip. There is usually one with legs folded in, but standing up in the corner of the den ready for use.

Bogen 3246 legs with Bogen 501 head holds all my center post design binocs 8# or more with ease. One of the heaviest duty tripods I own. I bought my 3246 used so it's an older model and does not have the third section leg extensions. It's not as tall as current versions of the 3246. Smooth fluid motion and pretty tall, not as tall as the 3211/3130, but the non-slip elevator crank is great. The center column can be unlocked and will not slip down under weight. The 501 head fluid motions still work very well with a 22x100 or 25x100. I'm 6'1", and maybe need to scrunch down an inch or 3 when looking at zenith. Great when used from a seated position with 25x100 binoculars. That's sometimes how I use my 3246/501 with my Oberwerk 25x100s, from a seated position. I never need to move the seat up or down. With one hand on the handle to tilt the head and the other hand on the elevator crank, I get a very fluid motion that works beautifully.

Manfrotto 028B legs with Bogen 501 head holds any of my center post design binocs 8# or more with ease. Tallest heavy duty tripod I own. The tripod is essentially the same as the 3246, only there is a third leg extension inserted inside the bottom leg making this one by far my tallest. I need only about 8" of leg extension and that allows a shorter elevation of the center column. Smooth fluid motions. The non-slip elevator crank is great. The fluid motions still work very well with a 10# 25x100 binocular. I have pointed a 25x100 nearly straight up while standing under it and I can do the same for my 6'5" brothers.



A few combinations shown above including some favorites, left to right
Oberwerk 10x60 Mariner in Scopestuff cradle on D&S F12 on Bogen 3011
Oberwerk 25x100 IF on Bogen 501 head on Bogen 3246
Burgess 20x80 LW on Virgo pgram on Bogen 3205
Fujinon 16x70 on UA Unimount Basic original on light surveyor

Other Tripod / Head Combinations Include:

The **Velbon CX690** is very light, good only for 8x to 10x binocs, or best left in the house for the 35mm camera. The **Slik U212** is 25 years old and shaky, but it works for light binoculars under 4#. The **Smith Victor** is a shaky tripod and does not offer much stability. None of these are tall enough to view zenith, and still I need to scunch down a bit when viewing lower. All are used when I have a field full of equipment set up for a classroom full of kids.

The **Paragon XHD** is very stable, but not very tall. It has nice rubber knurled leg locks. The **Paragon HD-F2** is slightly taller than the XHD but the leg locks are plastic and impossible to grasp and loosen in cold temps. The **Bogen 3205** is high quality but light weight and really short with a maximum height of only 54". It's rated for only 11#. However, it can hold a Virgo parallelogram with a light binocular. The **Surveyor tripods** are for mounting heavy parallelograms.

I've had the **Slik 700DX Pro** tripod in my hands for a while. I would not ever attempt to

mount 8#-10# on this tripod. The top mounting plate is plastic, and like the Velbon, it looks like the head is not detachable. I would say it's good to hold 5#, maybe 6# at the maximum, but most definitely not 10#, at least not 10# of my equipment. I rejected this tripod as a suitable prospect for my summer backpacking trip, not because of the lightweight which would have been desirable, but because of what appeared to be components that did not present themselves as being able to provide durability. Had I tied this tripod on my backpack the same as I did the Bogen 3011, and slipped on wet boulders and fell on the 700DX the same way as I fell on the Bogen 3011, this Slik tripod might have bent in half. The Bogen got a few scratches. If you want your tripods to stand the test of time, look for tripods that don't have plastic parts.

All of these other tripods have an elevator crank center column, but when it is unlocked it will come crashing down under the weight of a binocular. So always put your hand on the crank before unlocking the center column.

I have several straight-up tripods that I use for lighter weight 15x70, 12x50, 10x50 or 8x42 binocs. I have an Orion SloMo adapter mounted on one of these heads that I often use with binocs (up to the weight of the 15x70s) when I'm measuring and want fine movement.

**Bogen 3011/3211 tripods with
Bogen 3130 fluid head, Davis and Sanford F-12 fluid head,
Bogen 3025 minihead, Bogen 3047 three way head,
Bogen 410 geared slow motion head**

I've got three of these Bogen (3011 silver) (3211 black) tripods that I use with several different heads, a Bogen 3130 head, a Davis and Sanford F-12 head (which is the same as an Orion Paragon head) and the third tripod I switch out different heads. I sometimes use one of the 3011 legs as a base for a Virgo Skymount. The Bogen 3011/3211 legs are rated for 13.2#.

The D&S F12 head on a 3011 tripod would be stressed with the 7.5# 20x80. The D&S F12 head on a Bogen 3011 holds the 3#10oz. Burgess 20x80 LW easily and with that load the fluid motions operate very smoothly.

I have two other Bogen heads I bought cheap used. One is a Bogen 3025 minihead (rated 6.6#) that has no fluid motions. It's either locked or unlocked, and good when I need an extra head for a light load. I often mount my Orion slow motion adapter atop the 3025 head and I can use this very comfortably for any binoculars up to about 3.5#.

The other used head is a Bogen 3047 head, (rated 16.5#) also non-fluid. It's an old heavy clunker, but very capable. When mounted on my 3211/3011 tripod, it's capable of holding a 10# binocular, but it's over the tripod load limit, so shows shake. I relied on it to hold 25x100s and 22x100s until I bought the 501 fluid head. The 3047 head is capable of being used for a small scope as an Alt/Az head by flopping the platen over to the side. On the 3246 tripod or a surveyor tripod this 3047 head is solid as a rock.

Right now my spare 3211 tripod has the heaviest duty of my small heads, a Bogen 410 geared slow motion head that is rated (13.2#). It carries quite a bit more than the 3130 (rated 8.8#) fluid head. This is a precision slow motion head. I can mount anything up to a 7.5# 20x80 on the Bogen 410 geared head and use the slow motion controls to allow precise movement. There are times when I need that type of control. In comparison, the Orion slow-motion adapter is more of an accessory capable of at best carrying only small binoculars.



Fujinon 16x70 on a Bogen 410 Geared Head on a Bogen 3211 Good Combo

I don't put my 25x100 on any of these combinations. I have tried the 10# 25x100s mounted on some of these combos and I consider the 3130, the 3025 and the F12 heads undersized and underrated for binoculars that big. The Bogen 3047 is the heaviest duty head I own and is very capable of holding a 25x100 binocular, but it would be much better if mounted atop the Bogen 3246. The Bogen 410 would work for 10# if you couldn't get some bigger head, but it is more expensive than a 501 head.

A 7.5# 20x80 Mounted on a Bogen 3011 Tripod / 3130 Fluid Head.

With the legs fully spread out and the column all the way up, the binocular eyepieces will be about 5'8 to 5'9 off the ground, depending on the angle to the object. For me that is just 2-3" too low to stand straight up, but still very usable. With this tripod, you can bring the legs in a bit and make the whole thing a little bit higher if you need to. I can gain that 2-3" that I need just by bring the leg spread in. I'm 6'1". The 20x80 is a bit heavy for this tripod, but as I said above, you can make it work, but you would need to be very careful with a 7# binocular up 6' atop this tripod with the legs at less than full spread. You will need to loosen and retighten the altitude tension knob each time you move the binocular in altitude to prevent stress on the column top plate. Whether a 20x80 or not, what's really nice is you can leave this set up in a corner and be out the door in 60 seconds.

Orion Paragon XHD, Orion Paragon HD-F2 Tripods with Orion Paragon fluid head, Davis and Sanford F-12 fluid head,

I've used both Orion Paragon tripods, the sturdier XHD and the taller HD-F2. Both have the same head. The Orion XHD Paragon tripod and head is a Tiffen / Davis and Sanford Provista 7518 with the D&S F12 head. I own both the D&S F12 head and the Orion Paragon. There is only one difference. The D&S head mounts to a 3/8" thread bolt, the Orion Paragon head mounts to a 1/4" thread bolt. Other than that they are exactly the same. Both have a certain amount of slop in the head joints and in the quick release plate. The slop is easily eliminated from the quick release plate by adding 4 layers of masking tape on both edges of the quick release mount platform. You cannot eliminate the slop in the joints.

The Davis and Sanford F12 head is rated for 12#. It is nowhere near capable of carrying a 12# binocular. While I would consider the XHD tripod sufficient to carry a 10# binocular, I would not consider the Paragon head (D&S F12) capable for 10#. You could probably get away using it, but I consider 10# binoculars beyond the capability of this head. For instance, the Bogen 3130 head is rated for 13.3#. I find the 3130 head overloaded with an 8# binocular. The Paragon/D&S F12 head cannot carry as much load as a Bogen 3130. The Paragon/D&S F12 head would be stressed with the 7.5# 20x80s. It would be OK with binoculars less than 6#. It held the 3#10oz. Burgess 20x80 LW easily and with that load the fluid motions operate very smoothly.

I had the Orion Paragon XHD for a while. I liked it. It's sturdy and stable, but it's too short for me at 6'1" for upright viewing with binoculars. It's a good platform for a parallelogram mount. I've had a HD-F2 for years. Both of these are really too lightweight for 8# binoculars, maybe even too light for 6#. But, at one time I used my HD-F2 to hold my 7.75# Oberwerk 20x80 Deluxe. It was way too much load, but it worked. I'd use it again if I had too. Both of these would be fine with 4.75# Fujinon 16x70s or 3.2# Oberwerk 15x70s. The HD-F2 is 2" taller @ 69". The center braced XHD is more stable and has much better leg locks.



Burgess 20x80 LW on a D&S F 12 head on Bogen 3011 tripod. Good Combo

Mounting Considerations for 100mm Binoculars

If you've never seen or held or looked thru a pair of 100mm binoculars like the Oberwerk 22x100, the Celestron 25x100, or the Oberwerk 25x100 IF, when you first do get the chance, you will find these are dramatically different than anything else smaller you've used. These are big, real big. And they show it. They require a substantial mount, not just any tripod but a heavy-duty tripod with a heavy-duty head. These binocs weigh about 10#. Most light or basic parallelogram mounts groan under the weight. Few tripod/head combinations have the capacity to operate smoothly with such a heavy load.

There are NO heavy duty tripod / head combos for under a \$150.

Plan on a range of \$300-\$350 for a suitable tripod/head mount for 25x100s. If you are looking for a parallelogram mount, at minimum you should consider the UA Unimount Light with the heavy duty binocular bracket and a Medium load surveyor tripod. The 3211/3130 is about \$150 value and may just suffice for the 7.5# 20x80s but is not enough mount for the 10# 25x100s. The 501/3246 is about \$350. This is definitely a case where you will spend as much or more for the mount than you will for the binocular.



The best mount I have to use for these heavy binoculars is a sturdy Bogen 3246 tripod with a heavy duty Bogen 501 head (or my similar but taller Manfrotto 028B shown here). That combination setup will easily hold these 100mm binoculars. The 25x100s are solid on the 501 head, move smooth and have no shake or shimmy. I use both those tripods to hold all of my center post design binocs 8# - 10#. They have smooth fluid motion and the non-slip elevator crank is great. The Manfrotto 028B can extend extremely tall.

Oberwerk 25x100 IF on Bogen 501 head on Manfrotto 028B tripod. Good combo

With 25x100s mounted to my older 3246/501 combo, elevator shaft fully extended and with binoculars pointed at an altitude of 60°, the eyepieces are 68" above the ground. I can stand comfortably behind the eyepieces to view. I'm 6'1" and maybe need to scrunch down 3-4 inches when looking at zenith. The 3211/3130 combination is not up to the load of these big 100mm binoculars.

For a 7#-8# 20x80, I would still consider the same level of tripod mount. However, you can get away with less, something like the 3130 head on a 3011 tripod (~\$150), but there are precautions you would need to take to prevent repeated stress to your equipment.

Using the Scopestuff Cradle

The Scopestuff 2D cradle gives you the ability to have several motions for your binoculars. Stability would most likely be improved if the cradle were used without the azimuth post, but versatility would be diminished. You would need to move azimuth with your pan handle and you would need to supplement altitude with your tripod head tilt and you would not have that extra 2" to 3" of stand off that makes it easier to get under the mount for zenith viewing. When you mount this cradle such that the azimuth post is pointing at the North star, the motions can be used as if this were an equatorial mount, a nice feature. However, this cradle mount is not convertible. If you purchase the model with the azimuth post the cradle bottom hole is reamed out to attach the azimuth post. That leaves no way to remove the azimuth post and attach the cradle to your tripod.

This cradle is best used mounted to a tripod head. The net affect is it reduces the load that you would otherwise be able to carry on that head. So, if you plan on using this Scopestuff cradle for some heavy binoculars, you'd better have some very heavy equipment to put under it. Otherwise, you're in for some long waits for settling.



Left - Fujinon 16x70 Scopestuff Cradle Bogen 3130 head Bogen 3011 tripod.

A head / tripod combo that normally carries the 4.75# Fujinons very well has its load capacity decreased by adding the cradle. This is too much load for this setup.

Right - Oberwerk 10x60 Scopestuff Cradle Bogen 3025 head Bogen 3211 tripod.

The Bogen 3025 head is rated 6.6#. The 3# 2oz. Oberwerk Mariner is just about the maximum load you could put in the cradle on this small mount.

The following combinations were mounted on a Bogen 3211 tripod:

I mounted the cradle with azimuth post atop a Bogen 3025 head on a Bogen 3211 tripod. The cradle with azimuth post and a large standard L bracket weighs 2#4oz. I locked the 3025 head fixed at about a 45° position so the azimuth post would have the desired tilt for my area. With the 3#8oz. Burgess 20x80 LW attached, the load on the cradle was fine

and the mount now had nice motions and would hold its place without swinging. But it would not stop that annoying micro-shake, that minor oscillation that keeps the image from ever being still.

Next smaller size binocular was an Oberwerk 10x60. Now this is a heavy 10x60. At 3#2oz., it weighs the same as the Oberwerk 15x70. This combo worked pretty well, but I still saw that micro shake. The Bogen 3025 head is rated for 6.6#. But, it turns out with the 2#4oz. cradle assembly attached at a 45° tilt and a pair of 3#2oz. binoculars mounted in the cradle, this small Bogen head is overloaded. The Bogen 3025 head wouldn't hold the cradle still with any binocular over 3#. It just kept shaking with little oscillations in the image.

The Bogen 3130 head worked very well with the ScopeStuff 2D cradle and the 3#2oz. Oberwerk 10x60 Mariner. Also worked very well with the lighter 2#8oz. Orion 15x63 Mini Giant. The 3130 head, rated for 8.8#, was just sufficient to allow use of the cradle up to about 4#.

The Oberwerk 15x70 was used in the cradle/3130 combo and it needed a little time to settle down each time it was bumped. The 4#12oz Fujinon is a little too much for the ScopeStuff cradle mounted on a Bogen 3130. I spent more time calming the view down with this combo than any of the others.

This combination was mounted on a Bogen 3246 tripod:

I mounted the cradle on my Bogen 501 head attached to a Bogen 3246 tripod, a setup that without the cradle easily handles a 10# Oberwerk 25x100. Using the cradle, you get ease of movement, but you need to be prepared to allow time for the image in the binocular to stop shaking before you can view. A major move with hands needs 8 to 10 seconds for movement to stop after you take your hands off. Bumping the binoculars with your eyebrows needs 5 or 6 seconds to settle. With this binocular mounted to the same tripod, moving and aiming or bumping the tripod mounted binoc with eyebrows causes shake that lasts for only 2 or 3 seconds. So mounting in the cradle takes two to three times as long to stop shaking.

Just don't try to overload this mount and it'll do fine. Attach it to a stable platform rated greater than your load and it will provide you with a nice versatile movement. If you're looking for a mount with no shake, I would say the Bogen 3011 tripod with a 3025 head should be able to carry up to a 2# binocular and the 3130 head should be able to hold up to a 4# binocular with little shake. To get a setup with minimum shake, the Bogen 501 head on a 3246 tripod with this cradle should be able to carry a 6# to 7# binocular and you might be able to use an 8# to 10# binocular with the Bogen 3047 head.

Do make sure you really tighten all the screws prior to going out with heavy binoculars. Several times I had binoculars swing all the way around on me, a frightening experience! I would be very careful choosing a tripod/head to which you will attach this mount! Because of the mechanics and the tremendous stresses caused by eccentric loads, you should think twice about attaching this cradle with your binocs to any head with plastic parts. I would say, just don't do it.

Parallelogram Mounts

Is a parallelogram mount the best way to go for an 8 pound binocular?

For versatility, YES. But for stability, well maybe. I use both parallelograms and straight up tripods. And both work well. So what are the advantages?

A Pgram mount like the newer model UA Unimount Light would handle an 8# binocular and really give you a wide range of viewing, even for people of different height, and even for seated viewing. But you'll have a little movement in the binocs. The base tripod you put it on will have an affect on the overall stability. A tripod/head combo like the Bogen 501 on a 3246 legs would be rock solid and would still provide some vertical adjustment, but you won't have that wide range of height or swing. The same tripod with a parallelogram mount and an 8# binocular is going to show some shake in the image every time you move it.

The Virgo has less versatility than the Unimount. Because the Virgo Skymount needs to be straight in front of you, it can't be used from a reclined or seated position of a lawn chair. You need to purchase separately and dedicate a binocular L bracket to the Virgo mount. It must be screwed onto the mount with a screwdriver and it is not adjustable in the field.

The Funk parallelogram is a work in progress. Charlie Funk has been soliciting feedback on the performance of his pgram mount so he can incorporate suggestions and make improvements to his mount. The Funk pgram is a heavy steel mount, heavier than the comparable sized UA Unimount. The Funk mount requires a very substantial base platform to hold the weight of the mount and binoculars. Several suggestions that might improve operation of the mount are already being taken into consideration at the time of this writing. It will be interesting as time goes on to see if more improvements result in an even better product that fills a market segment. In the words of Charles Funk, "I am committed to making this a better mount."

One real big advantage of the side-arm parallelogram mounts is the ability to use it from a seated position. That makes it really versatile, more-so than any tripod ever will be. Another advantage for all styles is the ability to stand under it and view zenith. But not too many people will contort to that position for a night of viewing. If you want to view zenith, use the pgram from a seated position.

That highlights a disadvantage of the tripod. Few tripods provide the ability to see zenith, but then again, I don't spend a lot of my time viewing above 75-80 altitude. Just wait an hour, it won't be at zenith anymore and it will be within range of just about any mount.

The Pgrams work well, but for my real big binocs my preferred setup is the Bogen 3246/501. Solid as a rock. Seems like not even a second of shimmy. The Oberwerk 25x100 mounted on a Bogen 501 head on a 3246 or 028 tripod just simply does not move. You can tilt the binocular or swing them, and when you take your hands off, it just sits there as still as can be. I've taken to sometimes observing with the big binocs

mounted to the tripod while I sit behind it on a chair or stool. The changing height of the eyepieces is easily accommodated by the center column. I've found I can keep one hand on the crank and one hand on the handle of the head and I can move the binocular to any position as smooth as can be, no shake, no shimmy.



Virgo Skymount Pgram. on a Bogen 3011 (same as 3211)

This is versatile, compact, easy to move and good for anything up to my 4#12oz Fujinons. I have used it with long 5#12oz 20x80 Oberwerk Standards and it worked OK. Nice thing I like about this setup is you can fold up tripod and pmount like a long pole, without collapsing or dismounting anything, with binocs still attached, and carry it over your shoulder or under your arm out the door or around the yard and be set up in 20 seconds. Cannot be used seated. My ready to go pmount.

Virgo Skymount Pgram. on the Orion Paragon XHD

This is also versatile, compact, easy to move and good for anything up to my 4#12oz Fujinons. I set this up at instructional sessions I hold for school kids and families. The low base allows the Pgram to get down pretty low for kids and when necessary, I can not only raise the pgram but also crank up the elevator shaft if I need a bit more elevation. Cannot be used seated. Good for binoculars up to 4#-5#.

Universal Astronomics UA Unimount Light Basic with a deluxe L adapter

I mount this to several different tripod bases. It can be mounted to the Orion Paragon XHD, a Bogen 3211, a Bogen 3246 or a medium or light weight surveyor tripod. Currently I'm using a lightweight surveyor tripod to hold this mount. It is a breeze to move binoculars around to view in any position. It's better for standing than sitting. Best use for weight up to the 4#12oz Fujinon 16x70s, with 3#12oz Oberwerk 15x70s it's like the binoculars aren't even there. With binocs up to 8# it's usable, but can be considered taxed and requires a sturdier base.



Viewing Zenith Fujinon 16x70 UA Unimount Light Basic Light Surveyor

UA Unimount Light Deluxe original.

I also use the same several tripod bases listed above with this mount. Recently, I dedicated my Orion Paragon HD-F2 tripod to this mount for seated observations, since the mount is used mostly for seated. My Paragon HD-F2 tripod has a broken leg lock and can only open two leg sections. In this position it is extremely stable, but not very tall, perfect for a heavy load of the UA Deluxe while seated. If I'm using this Pmount standing up, it goes on a surveyor tripod. Still I think it is best used with binocs less than 8#. My perfect reclined viewing setup is this tripod/mount with 4#12oz. Fujinon 16x70s. The 3#10oz. Burgess 20x80 LW on this mounted is another combination that makes it seem like the equipment isn't even there. It moves easily and damps quickly and with that load the fluid motions operate very smoothly.



Seated Viewing Burgess 20x80 LW UA Unimount Deluxe on Orion Paragon HD-F2

The 6 degrees of movement in the UA Deluxe is a considerable benefit over the Light Basic for seated use. For seated/reclined views with the Fujinon or anything lighter, the UA Unimount Light Deluxe cannot be beat.

Funk parallelogram.

The Funk pgram is heavy. I've used it on a Bogen 3246 and a light surveyor tripod. The parallelogram provides 22" of vertical height adjustment. The mount itself weighs about 8#. The counterweight shaft weighs just less than 1#. It is supplied with 9# of counterweights, three weights just over 3# each. Total weight of the mount is about 18#. When using a 7.5# 20x80, I approached maximum load on the 3246 tripod. It performs better on the light surveyor and would benefit from moving up to a medium surveyor. I had some balance and drift issues with a 7.5# 20x80. A few small wrenches are needed to tighten up all the joints to your liking and solve any drift problems. As this goes to press, a new Funk pgram has just arrived with new counterweight, new and better knobs and a new altitude lock knob. More lock knobs, less wrenches. Improvements.

UA Unimount Light New Version.

I recently picked up a new version of the UA Unimount Light. I also have an older one. At the time the older one was called the Unimount Light Basic.



Original Unimount Light Basic

New Unimount Light Slotted Head

The new model has heavier duty parts. The new head bracket has slotted connections to assist balancing. You can move the altitude slot up/down and you can move the binocular post slot forward/rearward. This allows you to adjust the centerline of load directly in line with the axis of the mount. Balancing options are unlimited.

The mount will hold the binocs wherever you want to point them, but with a 10# binocular it takes some time to quiet down. I had a pair of 10# 25x100s on the new one for several nights of viewing. It worked, but I did notice the dampening time. Not so much when swinging, but more-so after tilting to a new altitude. Once I was at the altitude for the object, I was able to push the swing of the Pgram along with just a little pressure from the bridge of my nose. Re-adjusting the binocular tilt set the whole thing in motion. Walking up behind the eyepieces and bumping the whole binocular with your head would take a while to quite down. With an 8# binocular and the mount on a surveyor tripod, the damping time was very good.

The new Unimount Light parallelogram provides 35" of vertical height adjustment. The Unimount itself weighs 5#. The counterweight rod weighs 2.25#, with a large portion of that weight at the very end of the bar, adding to the counterweight action. Add 12.5# of counterweights and the mount total weighs 20#. Add to that a 10# binocular and the total load on the tripod is 30#. For heavy binocs like 25x100s that weigh near 10#, the parallelogram mount should be mounted on the sturdiest tripod you have available, in my case the medium surveyor. For a 10# binocular with 12.5# of counter-weight, plus the weight of the parallelogram, it seems the Bogen 3246 is not be enough tripod. For a 7.5# 20x80 with 10# of counterweight, the total load is 25# and just under the load limit of the Bogen 3246. With the center column fully retracted, it seems to work good.

Parallelograms do allow me a lot more view from any one spot than I would typically get from seated behind my tripods. For detailed observations like looking for mag12 stars in

Cr399, the rock solid tripod gives a better platform. For moving around the sky, the Unimount Light gave the advantage.

Normally, I mount my 25x100 to a tripod with adjustable height center column. For one session I used a UA Unimount Light with a new heavy duty binocular bracket. All mounted on a UA medium surveyor tripod. I only used 10# of counter weight, so the rod extended out a little to far to balance the 10# Oberwerk 25x100s. This allowed too much shake in the image. Initial focusing was difficult because the binocular was not completely still. With 12.5# of counterweight it keeps the rod in closer to the center post. This provided a little more stability. For most viewing the little bit of shake settled out fast enough.

Settling Times for Parallelogram Mounts and Tripods

Dampening times are going to vary all over the place by how much weight you have on the set-up, if the center post is completely down or fully extended and most importantly, how hard and where you rap the equipment. Also affecting settling times is how far out the counterweight shaft is extended and what tripod base you have the mount attached to. If you rap the tripod the dampening time will be relatively short. However, use only half the same force and tap the binoculars and the dampening time is increased to maybe twice as long. This is more realistic. In some cases after taping the binoculars the whole setup did not come back to a completely quite view for a period of 15 to 20 seconds.

Virgo Skymount on Bogen 3211
with 4.75# 16x70 damps in 5-6 sec slight bumps in 3 sec

Virgo Skymount on Paragon Plus XHD
with 3.2# 15x70 damps in 5 sec, slight bumps damps in 3 sec

Funk Pgram on Bogen 3246 tripod
with 7.5# 20x80 maximum settling long time 10-15 sec. unusable setup.
with 4.75# 16x70 maximum settling 8 seconds, slight bumps 5-6 sec

Funk Pgram on Light Surveyor tripod
with 7.5# 20x80 maximum settling time 6 sec, bumps 4 sec.

UA Unimount Basic original on Paragon Plus XHD
With 7.75# 20x80 damps in 8 sec
With 4.75# 16x70 damps in 4 sec

UA Unimount Basic original on Bogen 3246
with 4.75# 16x70 damps max 4 sec, bumps die out quickly.

UA Unimount Basic original on UA Light Surveyor
With 7.75# 20x80 damps in 8-10 sec
With 4.75# 16x70 damps in 4-5 sec

UA New Unimount Light on Paragon HD-F2 seated
with 4.75# 16x70 damps max 3-4 sec, bumps die out quickly.

UA New Unimount Light on Bogen 3246
with 7.5# 20x80 damps in 6 sec max, 3-4 sec for bumps.

UA New Unimount Light on Light Surveyor
with 10# 25x100 damps in 8 sec, 5-6 sec for bumps
with 7.5# 20x80 damps in 5-6 sec max, 3-4 sec for bumps.

UA New Unimount Light on Medium Surveyor
with 10# 25x100 damps in about 5-6 sec max, 3-5 seconds for bumps.

UA Microstar deluxe on Bogen 3246
with 7.5# 20x80 damps in 2-3 sec, bumps die out quickly.

Scopestuff 2D Cradle on Bogen 501 head on Bogen 3246 tripod
with 10# 25x100 damps in 8-10 sec, 5-6 sec for bumps

BT100 on BT100 custom wood surveyor
with 26# Oberwerk BT100 damps in 1-2 sec

Orion Paragon HD-F2 w/ Paragon fluid pan head:
with 7.75# 20x80s on fully extended center shaft 73" high = 5-6 seconds.
with 3.2# 15x70s on fully extended center shaft 73" high = 3-4 sec.

Orion Paragon XHD w/ Paragon fluid pan head:
with 3.2# 15x70s on fully extended center shaft 70" high = 3-4 sec.

Bogen 3011 w/3130 fluid pan head:
with 7.5# 20x80s on fully extended center shaft 75" high = 5-6 seconds.
with 3.2# 15x70s fully extended center shaft 75" high = 3-4 seconds.

Bogen 3246 w/501 fluid pan head:
with 10# 25x100 fully extended center shaft 75" high damps in 2-3 sec
with 8# 20x80s fully extended center shaft 75" high = 1-2 seconds.

Six Degrees of Motion of a Parallelogram

The 3 motions typical of a straight in front parallelogram are
(1) swing on the tripod = Right Ascension (rotation of the parallelogram around the vertical axis post on the tripod),
(2) parallel arm adjust = standing height (this the parallelogram exercising up and down)
and
(3) mount head tilt = Declination or altitude. This is pointing the binoculars, or target acquisition that remains on target even when you move motion 2. It's what allows you to

show someone else an object by raising or lowering motion 2. Of course, if you swing motion 1 left or right you'll need to swing back to the object. But the position of motion 3 will put you right back on target.

These are the three motions you get with a Virgo Skymount or any similar stand in front mount. The Universal Astronomics Unimount also provides these three motions, although it achieves the 3rd a little differently.

In addition, you stand to the side of the UA Unimount Basic and the UA Basic provides a 4th degree of motion. This separates the UA Unimount Basic from the rest of the straight in front parallelogram mounts.

(4) The 4th degree allows you to stand in one spot and sweep back and forth in addition to up and down, without swinging the whole parallelogram arm on the vertical axis post. This is done by providing an axle for the binocular L adapter screw plate to rotate left and right (actually fully around if you had small binoculars attached). If you're mounting a larger binocular with a center post, like a 20x90 or a 22x100, this screw plate, instead of have the L adapter screwed into it, has the post screwed into it and still provides the 4th degree of motion.

This 4th degree of motion is the single most important motion to allow seated viewing. Try seated viewing with a Virgo Skymount style pgram and attempt to view an object 20° or 30° to your left or right. What happens? Just to get the binoculars pointed at that object off to the side, you need to swing the entire parallelogram arm on the tripod. That puts the back end of the binoculars in mid-air about a foot or so off to the side of your chair.

You can add even more versatility to the Unimount Basic. A 5th degree of motion can be added by purchasing UA's articulated Deluxe L adapter rather than a rigid L adapter. For me this was a easy decision. Since I would have needed to spend \$16.95 for a deluxe rigid L adapter and the UA deluxe with added motion was \$29.95, I opted to get the additional motion.

(5) Added Deluxe L adapter. Only for binoculars that need a typical L bracket, where the screw attaches to the binocular at the front of the bridge. This provides a screw with a swivel. Although it is screwed into and securely attaches the binoculars, it allows you to swivel the binoculars at this joint, like a plane tilting its wings. This provides for tilting your perspective to the field of view.

Going one step further, the Unimount Light "Deluxe" offers even one more range of motion.

(6) the 6th degree of motion in the Unimount Light Deluxe adds an elbow to allow the entire head, where the head attaches to the parallelogram arms, to bend forward and back. This allows you to literally bend, twist, swivel and cavort to any conceivable position in the sky. It also gives more leeway in tripod placement alongside the chair. With this motion, there isn't any place you can't point the binoculars.

The Universal Astronomics Microstar

I recently picked up a Microstar Basic mount from Universal Astronomics. Actually, I also picked up several option parts which make it a Deluxe and provide not only a slotted rail for attaching a scope, but also a dovetail slot for quick releasing any scope with dovetail rail. I also picked up a heavy duty binocular bracket capable of carrying giant binoculars and attachable by either inserting in the dove tail slot or attaching to the slotted rail. With the dovetail slot head, I can change out from a scope to binoculars in the dark in about 15-20 seconds.

This is now the most compact scope/tripod binocular/tripod combo mount I have that I can keep set up and walk right out the door and be viewing in a matter of a minute. It stays exactly where you point it and has a nice fluid movement. It does not have the same versatility as a pgram, but it is far more compact.



Garrett Optical 20x80 Gemini on UA Microstar on Bogen 3246 Good Combo

I tried the Microstar attached atop several tripods including a Bogen 3211, a Bogen 3246, a Manfrotto 028B and a surveyor's tripod. The light Bogen 3211 with the very small Microstar basic head makes this really compact and works well for lighter binoculars. For a 7.5# 20x80, I had to put the Microstar on a Bogen 3246 tripod. The Microstar never drifted once, was not too tight in fluid movements and very capably held my

20x80s pointed straight up to zenith without any problem. This worked very well as a combination. As I pointed the binoculars at different altitudes, the non-slip center column of the 3246 was beneficial when it came time to need slight adjustment up or down to get the eyepieces back to the height of my eyes.

I find the movement of this mount smoother and far less shaky than a parallelogram. I think one of the key design elements of this mount is the dovetail slot. I can slide the binocular mount dovetail rail up and down until the binocular center of mass is directly in line with the central pivot axis. That allows placing the binocular in line with the rotational axis and provides better balance without tightening too much tension on the altitude bearing knob. So movement remains smooth and effortless and the load stays perfectly balanced.

Are Mirror Mounts Less Expensive and Easier to Use?

Someone stated that he could see fainter stars with the mirror, because there was no shake in his arm to wipe out the fainter stars. True? Well, yes, if you compare a mirror mount to hand held observing, but this is not a valid comparison of a mirror mount to other mounts. Even a straight up \$89 tripod will hold the binocular perfectly still and provide the same if not better view as the mirror. When compared in that context, a mirror will not provide the same depth as no mirror. The mirror has a reflectivity of only about 88% at best. Without the mirror, that 12% loss doesn't enter into the equation.

It is true that the mirror may fog up with dew, but the dew can be evaporated with a hair dryer. But now you need to carry a power pack or electric cable with you.

The eyepiece height remains fairly constant with a mirror-mount. It can be set on the tripod or table low enough that everyone can see. But, think versatility here. The table top works in some cases, but wouldn't for me. You can't very easily move a table around, so the mirror would need to be mounted on a tripod. Then it could be moved to another area of the yard. That makes the tripod, IMO, almost always a necessity.

Some people choose the mirror mount because they consider parallelogram mounts big and heavy and awkward and difficult to transport and you must still crane your neck to look up if they are used at high altitudes. Well, in some cases that is true, but not always. I have three different kinds of Pgram mounts. Although my favorite is a Unimount Basic, I have a Virgo that stays mounted to a dedicated tripod. Fold up the legs and it can stand up in the corner. I can pick it up, it's light, it's compact like a pole when folded up, easy to carry and sets up in 10 seconds. And when I walk outside, I can drop it to the ground without thinking twice about hurting it. If I use my Unimount from a reclining lawn chair, I put no stress at all on my neck.

Does it seem that a Trico mount would be cheaper and a lot of people pay a lot more for expensive and heavy parallelogram mounts? Is the Trico a smaller, lighter, cheaper, and easier to use alternative? Can people who own simple 50-60mm binoculars justify the high cost of a parallelogram mount and tripod? Or wouldn't a mirror mount be much less

expensive making the purchase justifiable for a pair of 50mm binoculars that would be terrific under the sky if they could be held very still?

These are the questions that help people make their decisions. I think the versatility issues were all addressed above. OK, let's compare cost. Let's assume a 3# binocular, something like a 12x50. Generally, that might be a tripod about \$89 to \$159 that would serve you for straight up tripod viewing.

A Trico mirror mount sells (or did sell) for \$229. If you don't use a table, you may still need a tripod to move around. Since the Trico adds weight, potentially you might need a heavier tripod than what you would purchase for the binocular alone. So a tripod to mount the Trico with binoculars might be \$129 to \$159, but without the head, so \$99 to \$129.

So, what's the real total cost comparison?

Tripod for binoculars straight up with a good head \$89 to \$159

Tripod for Trico \$129 to \$159 plus Trico \$229 = \$358 to \$388

Tripod to carry Pgram \$99 to \$159 plus Virgo Skymount \$229 = \$328 to \$388

Tripod to carry Pgram \$99 to \$159 + Unimount Basic (seated) \$299 = \$398 to \$458

Tripod to carry Microstar \$99 to \$159 plus Microstar Deluxe \$229 = \$328 to \$388

All the tripods and Pgrams can carry a heavier binocular with ease. The Trico may require added cost for a heavier arm if you choose to use it with a heavier binocular.

So the conclusion is: There seems to be little or no savings at all to go with the mirror mount. In fact a very good tripod and head cost far less. And three different Pgrams cost about the same and have greater flexibility to carry heavier binoculars. Of course, you could save by setting the Trico on a table, but the versatility is then limited.

I'm not really for or against these mirror mounts. Whatever is your pleasure, go for it. To me it's a cool contraption. But the cost claims didn't ring out to me. So I had to understand why. After the comparisons, now I know why.

It looks pretty bulky to me, a lot more bulky than my Virgo on it's tripod. Even my Unimount basic is no big deal for bulk. And the new Microstar is reaching the definition of compact form and function. The Trico is by far the most fragile and needs special care.

I might agree that they will save you some neck strain, unless of course you use a seated Pgram mount. But the mirrors are not really more versatile or cheaper at all.

Oberwerk BT100 Binocular Telescope

The BT100 at 26# (12kg), is heavier than my largest telescope, a 1200mm f8 6" refractor. The BT100 should not be picked up while mounted on its tripod, as it is very much top-heavy. You must first set out the custom tripod then attach the BT100s. You would not move it while mounted. You must first take the binocs off the tripod.

The tripod mount assembly permanently attached to the binocular has an integral slow motion altitude dial. It has a locking dial, which when unlocked allows you to tilt the binocs in altitude with a little effort. They will not move on their own if unlocked, but the slow motion dial will not engage. The dial provides a range of several degrees of vertical slow motion movement. I found this extremely useful when I was conducting critical observations recently at 50x. The modified tripod head has an azimuth lock. Best this is locked when viewing to prevent fairly easy swivel.



The standard tripod, a specially modified heavy-duty wood surveyor's tripod is low, so it requires the need to sit in a chair under the binoculars to view at any altitude. Actually, I've found for most altitudes this can be very comfortable. Rather than invest in an alternative mount to raise or lower the BT100, I purchased a StarDust Observing chair from Helix Manufacturing. It adjusts from about 12" to about 36". It works great.

Oberwerk BT100 on Custom Tripod and Head, note Altitude SloMo

Binocular to Tripod L Adapters

IMHO, the two best tripod adapters are Orion's deluxe (search in Orion accessories), the simple tall L bracket and Universal Astronomic's deluxe. UA's is by far the best. Orion's is thicker metal and taller than most simple L brackets. UA's deluxe is even thicker than Orion's deluxe and it allows the binocs freedom of movement to tilt a little left right. Orion's sell for about \$18.95. UA's sells for \$29.95, but it's worth it.

20x80 binoculars are too big for a small L adapter. I'd advise picking up a tall heavy duty binocular L adapter, not just a short thin one. That will help eliminate shakes. Most large 20x90, 22x100 and 25x100 binoculars do not require a separate adapter. The center mounting post is the adapter.

Orion sells two L adapters. if you look there, get the deluxe, it's taller, thicker, sturdier. You don't need an articulated L adapter unless you are using it attached to a pgram. 05250 Bino Tripod L-adapter, Large is the one you want. I'm assuming there must be a small. BTW, the large binoc adapter from Orion, which is taller and thicker, cost 16\$.

The large binoc adapter from Adorama, also taller and thicker, also cost \$16.95. I have a problem keeping it screwed tight to the binocular. It's always coming loose. I'm going to put a thin rubber gasket between the metal and the binocular and see if this helps. The large adapter was sufficient for 5# binoculars, but I was always annoyed when the binoculars got loose. The large adapter is too wide for the shape of the body of Pentax 12x50 and 16x60 and 20x60. They won't close down to my IPD of 62mm. You can get the Pentax adapter from B&H or Adorama.

Adorama has the tripod adapter for the Nikon Superior E (NKBTA) for \$35.95. That's just a few \$ more than a deluxe 1/4-20 tripod adaptor.

Don't get plastic! It would only suffice for mounting a pair of 7x35 or 8x42, maybe a pair of 10x50. The plastic adapters have so much flex in them they never stop wiggling. However, if you have a plastic binocular adapter, don't throw it away. Pentax PCF binoculars have such a dropped shape to the barrels, that's the only shape adapter that works with them.



The UA Deluxe L Bracket

For what I think is one of the best binoc adapters you can get, get the deluxe model at Universal Astronomics website for \$29.95. The screw that attaches to the binocular allows you to tilt the binoculars from side to side.

Vertical Post Mounts on Giant Binoculars

The mounting post on the Celestron 25x100 is a polished chrome bar without base plate. I found it difficult to keep it tightened against a tripod mounting plate. In addition it deforms the rubber on the tripod mount plate. Also, the center mounting post was simply too short. I could not mount these binoculars on any decent tripod without the bottom of the barrels rubbing against the top of the tripod mount plate. If I were a person with a very narrow inter-pupillary distance, I would not have been able to achieve anything less than about 60mm IPD with the currently supplied mounting post.

The vertical post on the Oberwerk 25x100 is too short. That means the binocular barrels rest on top of the tripod head and there is limited range to slide the vertical post for balancing. When pointed up, it didn't seem to pose any problem. It would be a problem if you were using them to look horizontally and you wanted to move the balance point forward. While the slide rod is probably 10" long, once that vertical post is attached to the top of the tripod, you can only use about 5" of that full slide rod length. I would have preferred a taller vertical post similar to the post on the older 20x80 Deluxe.

I added a 1" extension post obtained from ScopeStuff. It solves the problem very nicely. With the 1" post this binocular mounted on a Bogen 501 head attached to a Bogen 3246 tripod is the perfect portable large binocular setup. The 1" post extension for \$16 is just the ticket needed to get these big binoculars up off a tripod head. I keep this in place on the bottom of my 25x100 mount post to get the binocs up off the 501 mount plate. This gives me a bit more room on the slide bar for balancing while still keeping the ability to close down to my IPD. This too-short stock mount post provided with this binocular is a serious oversight on the part of the manufacturer. Manufacturers please take note, the vertical bar must be taller than the depth of the binocular barrels to allow adjustment for IPD and balance on the mount.



Added Post Extension Needed to Raise Binocular up From Hitting Tripod Head

Repairing a Bogen Center Column Top Plate

I use many different types of fluid heads, non-fluid heads, slow-motion heads and parallelogram mounts atop my tripods, so I'm always taking something off and putting something else on. Every time you remove or reattach a head or mount to the top plate of a tripod you apply some twisting force on that top plate. Well, it could be partly for this reason or it could be from overloading the tripods, but recently the center column top mounting plates on my Bogen 3246 and my Bogen 3011 came loose.

I tried a couple things that only worked temporarily. I needed to find a permanent fix. In the past I've had a similar problem on a much simpler tripod and I knew what I needed to get at to fix it. After looking over the problem, the only thing I could see that would really work was to take the bottom out of the center column. The part that I needed to get at was inside the center column.

I had this happen before to an Orion Paragon tripod, so I knew what to look for. Not only was the top plate loose, but the 3/8" bolt was screwing back inside, with less threads sticking out to attach a head. Twice I tried wrapping the 3/8 screw head with thick paper and tightening it with a pair of pliers. That did not work and I was beginning to slightly damage the threads, so I had to stop. I resigned myself to take this apart and fix it.

On the 3246, the center column travels up down inside a thin metal tube. That tube has the Bogen/Manfrotto name and model number on it. It simple screws up into the underside of the tripod crank assembly. Firmly grasp that tube and unscrew it. You need to get this tube out of the way so you can get your fingers on the next part to remove it.

At the bottom of the center column is another 3/8 bolt. A socket is needed to get the nut off. I think it was 13mm. That nut & bolt also tightens a spreader. This one tightens against the bottom plastic stop that keeps the center column from cranking right out the top when it is fully extended. Once you take that nut off, grasp the 1" long plastic bottom piece and work it off the bottom of the center column. Now you can get to the inside of the center column.

Up inside the center column, at the underside of the top plate, is the head of the bolt that goes thru the spreader, the top plate and finally becomes the 3/8 thread that sticks out the top of the plate. You need a long rod to use as a socket extension to get at this bolt. Again, I think this is a 13mm bolt. For my long socket extension rod I use a backyard grill rotisserie rod. It's a little smaller than my 3/8 socket but it works. You need to insert the rod UP into the center column so as to not lose the socket. Wiggle it around and you will feel when it engages the bolt head.

Hold your top plate level and tighten this bolt. The 3/8 threads sticking out the top of the plate will extend slightly with every turn of the bolt. But also, the spreader will tighten the center column against the lip on the underside of the top plate. This is what holds the center column top plate onto the top of the center column. It doesn't take much to tighten it up, but this access from the inside is the only way to do it.

Put the bottom spreader and bottom security stop back into the bottom of the center column and retighten. Then you can hand tighten the center column sleeve back into the underside of the tripod crank assembly and you are all done.

Fixing the 3011 or 3211 is much easier. Just pop off the rubber stopper on the bottom of the center column and you have access to the inside.

If you notice the center column top plate of your tripod wiggle back and forth as you tilt your head up and down in altitude, this is the problem that needs to be fixed. I've never used my grille rotisserie rod to do a chicken, but I'll never get rid of it because I couldn't fix my Bogen tripods without it.

Pick the Right Tool for the Job

I have a lot of different mounts. They all have different advantages. It's not so much that one could be considered better than another, but for certain criteria, they do have different advantages or disadvantages. I wouldn't say a Bogen 3246 with a 501 head is better for mounting a 3# 15x70 when I know a \$79 Paragon HD-F2 would do the job just fine. Just keep in mind the task you are asking your equipment to perform. Buy enough mount to handle the job. Don't overload your mount and long-term you will have a much more enjoyable viewing experience.

Pick the right tool for the job. Happy Viewing!