U.S. OPTICS

(a dba of ZEITZ OPTICS U.S.A., Inc.)

"World's Finest Special Purpose Telescopic Sights"

PROUD OFFICIAL SUPPLIERS TO THE U.S. MARINE CORPS AND OTHER AGENCIES

2004 Custom Engineering Catalog

For viewing by potential U.S.O. customers-not to be copied or downloaded [1]

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Price: Ten Dollars US

U.S. OPTICS-The Custom Telescopic Sight Makers

And

WHY YOU SHOULD READ THIS

To Our Valued Customers and Business Associates,

Thank you very much for looking into the U.S. Optics products. The following two pages are not "company hype" or bragging. **We sell the bacon, not the sizzle!** This information is designed to give you some insights into who we are and why we were formed and what this may mean to you, personally. Please read the following to try to get a perspective to see where we are coming from. We apologize if this offends you or is contradictory to your thoughts but it is true and real and we have a responsibility to say it. We humbly do so.

My name is John B. Williams Jr. and I am proud to say I started U.S.O. and I own and run the company proudly. I want to tell you about our company, the tremendously talented and appreciated associates who work for/with us, who we are, what we are trying to do for American shooters and why we think this company is unique in firearms history in the U.S..

After working in the firearms industry for almost forty years, I recognized the need for an extremely high quality line of American made custom telescopic sights that would give shooters what they wanted and needed, not what some American, Japanese, or German company president (who usually didn't/doesn't even shoot) thought the shooter needed.

In 1978, after accumulating experiences as student, military serviceman, college/ high school teacher, gunsmith schoolteacher, gunsmith, gun writer, factory manager, tool maker, machinist and engineer, I decided I would get into the telescopic sight market for the above reasons. Because of the day-to-day job I had of contending with the "status quo", I was tired of having to solve the same old scope problems for my customers and the scope makers of that era not doing a better job of building. I was aware that the Japanese were copying American scope makers and making the same old products for the same old uninformed and uncaring crowd. It seemed to me the foreign makers and the American scope executives that gave them their orders didn't have a clue what we, the American shooter, wanted (or they didn't care). The gun magazines and editors/writers weren't helping the cause, either. They were playing the same old tired game most of them still play.

Weaver, who up until that time, was the only scope company actually making everything in their plant, had gone out of business. They went out of business, not just because of market share and profits, but because they were competing with Japan and a government supported industry. Some aspects of government in our society penalize businesses, rather than promote them as some other country's governments do. This has to stop in our society. I DON'T EXPECT GOVERNMENT SUPPORT BUT I DO EXPECT A FAIR AND LEVEL PLAYING FIELD WITH REGARD TO TAXATION AND TARIFFS. The American worker and the American industrial system must prevail, in this regard, if our country is to succeed.

That year, I started a company called Fontaine Industries and took in a Japanese National as my partner because he knew the important optics manufacturers in Japan. Our goal was to design, engineer and manufacture better scopes for the American shooters. Our first big client was Warren Center of Thompson Center firearms in New England. He had just designed the first factory made single-shot centerfire pistol for Metallic Silhouette Pistol Shooting and the scopes on the market would not hold up to the recoil. I designed the worlds' first truly recoil proof handgun scope (Warren had tried everything on the market and they all failed) which became an instant success and was copied by all! The Thompson Contender went on to become a big success because Warren had a vision and followed it through. Those were great days, working with Warren, Steve Herrett and others to see Warrens' dream come true. Fontaine Industries built that scope in Japan and it is still being made for T.C. today. My guess is that it probably is the longest consecutively made pistol scope in the world.

The second success was the one-piece bodied (from objective to eyepiece) scope series for Golden Eagle of Texas. These were the first one-piece tube, truly recoil-poof scopes, ever made. I received a patent for this scope design in 1980. Rather than enforce the patent, I allowed the American scope industry to use the system. Today, most scopes are made this way (one piece tube), and a lot of manufacturers are seemingly proud to announce that fact in

their advertisements-good for them, they are learning what the American shooter wants and that is what we need in this country.

We had many more firsts and had a lot of fun. Since we owned no factory, we contracted to have our scopes made at some of the best scope making plants around the world. I still was not happy. I thought I could build them better myself. My working with the foreign plants gave me the correctly assumed realization that their scopes were not made well (methods, materials and market awareness). They thought they knew all of the answers and we didn't. Time proved them wrong and we were right. It is flattering to have the German companies copy many of our American ideas. You may have noticed they copied the Leupold (parallax adjustment) side focus and the U.S. Optics lit reticle (in F.F.P.) and the larger 34/35 mm tube design, as well as, my 1980 Integral saddle patent (now out of date).

Until then, we, the American sportsmen must look at some things realistically. Buying from American owned and operated companies supports American jobs and the American way. Buying from foreign companies hurts American workers, our Tax and tariff system and ultimately destroys our manufacturing base. Yes, you can buy a Chinese or Japanese scope cheaper, but here is another thought. If you could buy a really great American built scope at approximately the same price (or a little more), as a totally Japanese built scope and it had better quality and features, wouldn't you buy it? Please consider that in 2004 when U.S. Optics introduces our "production Made scopes". They will sell below the price of the German scopes(Schmidt &Bender), about the same as some of the better made Japanese scopes Light/Night Force and Zeiss Conquest) and very little more than the Oriental made Nikon and Springfield Armory products, yet they will be American made. **Light/Night Force's Catalog says their scopes are assembled in the U.S.A. but when I asked Light Optics (people who make the NXS scopes) if they sell parts to them to be assembled here the answer was an emphatic "NO"; all scopes are made (complete) in Japan.**

Today, most Japanese makers have gone to China for their lenses. Those lenses show up in Japanese scopes sold by many of our American and European competitors. No other scope company that we know of in the world today makes lenses for their scopes in their own factory, under their own supervision. Almost all of the scope companies have the entire scope made in the orient or elsewhere. Some of these companies have attempted to assemble the Oriental components here. Leupold and Burris build here and do a good job, for being "production scopes". It is my understanding that they do not build any lenses in their plants. They are American companies-check them out and if you don't buy from us, please consider them.

Historically, U.S. Optics, for the eight years it has been in business, has concentrated its efforts on designing and building the finest custom made riflescopes in the world. **We are the only custom scope maker in the world who builds their custom scopes in-house to the exact specifications of the individual customer or an entire army! You get a chance to decide how your scope is made!** We do this at a price that is consistent with the better quality production scopes. The difference is…. we are made in America-by Americans. The result is that we outperform the best scopes in every way. We invite the our potential customers and the competition to compare.

For the last three years we have proudly been the exclusive provider of the U.S.M.C. M-40 sniper scope to Marine Corps System Command. We are extremely proud to be the company of choice by Command to build that scope, refurbish and replace it when the former provider could no longer satisfactorily do the work.

That is not to say that our **custom made** U.S. Optics scopes are made totally here. That is not true. Switches, springs, raw glass, pressings, lens coatings and anodizing are some of the minor things that we sometimes buy outside our plant. This does not necessarily mean offshore. Let's get some facts absolutely straight. Most of the **U.S. made Schott glass** is some of the very best in the world today but is not always available in some types of glass. If we can buy better glass somewhere else we will sometimes do it, because it simply does not matter in the way that some people think it does. Gentlemen, if a lens or lens system meets full and complete manufacturing specifications, from a technical point of view, it does not matter in the least where it was made. I have seen some types of glass sold by Schott offshore that is better than that of most optical glass makers. The Schott glass factory in Duryea, Pennsylvania, makes fantastically good glass, but don't let people tell you foreign glass is not as good as "American" or "German" glass. Ask them to prove it-as it simply isn't true and all of those in the optical field know it (if they really know their job). Yet, you will hear the same old tired phrase, "if it isn't German made, it isn't as good", or "German glass is the best". It is a well known fact that Leitz of Canada (formerly a German company, now owned by Hughes/Raytheon), uses Ohara

glass (a Japanese company) and produces some of the world's best lenses. They were doing that well before Hughes took over, I know, as one of my people worked there.

Interestingly, you will not see lens grinding, polishing and centering machines in the other scope making companies.

Some other companies we have engineered and developed products for, have insisted that we use foreign lenses for their products to keep "prices down". That is their option. We don't mind doing that for them as long as the materials meet our specs.

Our critical lenses are precision, normally taken to tolerances far beyond the expectations of our competition (if they even know what that truly is). We build our reticles in-house, using techniques other companies probably will be copying. Most scope companies never made lit reticles or glass reticles until recently. Front focal plane reticles were also a strange reality to them. Most of the other scope companies don't even know what we are talking about, let alone be able to tell their subcontractors how to do that. Most manufacturers either have their lenses or the entire product made by someone else. Most Japanese scopes with American names use Hoya Lenses made in communist China. **Notice that some scope companies have recently copied the large tube concept (34&35MM dia.) we brought out in 1994!**

It **is not our intent to criticize other scope companies but to point out their good points and bad points and to encourage healthy competition and product improvement to improve the entire industry. That is why we invite true factual comparisons, by *really knowledgeable* people at all levels. We sell the bacon, not the sizzle.**

Please come by for a personal demonstration of these unique products. At U.S. Optics, we are working harder than ever to provide the American Shooter with the best equipment required. You can have confidence that we try to make every U.S. Optics product the very best product on the planet! Hard working Americans produce it in our own plant in America. **We are an American owned company, hiring the very best American workers. We are not owned or controlled by Australian, Japanese, German or any other foreign persons or companies.**

Look for us at our WEB site - - -usoptics.com

John B. Williams Jr., President

Why U.S. Optics?

Product Development

Digital readouts, geared elevation knobs, variable heads, ergonomic objectives and unique mounting systems are all areas we have pursued using unique concepts and putting them into the manufacturing process. State of the art optical coating is technology retained here in the U.S.. We are investigating programs that are taking advantage of this technology base at our fingertips. **We have made designed, developed, and prototyped the world's first digital camera telescopic sight!** See the patented "Smartscope" by Adirondack Optics in this catalog.

Have you ever wondered why a true MIL-SPEC riflescope does not exist? One reason is that there is not a commercially available optical grease that satisfies MIL-STD 810C for temperature, (-55°C to +71°C**). If a company says they are selling a Mil-Spec scope, ask to see their government certifications.**

Whether or not you buy from us, please buy from American owned and operated companies building here in the U.S..

Service

We are only eight years old, and we are a different kind of company. By that, we mean that we do not have the same goals and objectives of the larger mass production companies. We do not want to import, and we do not want to depend on foreign subcontractors. We have built a complete and comprehensive optical plant and laboratory under one roof. WE BUILD ALL PRODUCTS TO THE INDIVIDUAL SHOOTERS' SPECIFICATIONS. WE BUILD EACH SCOPE ONE AT A TIME, KNOWING EXACTLY WHICH CUSTOMER IT IS GOING TO. NO ONE DARES TO DO THIS IN TODAY'S MARKET. We build anything and everything necessary to keep our customers ahead of the competition's customers. We are the only custom scope facility in the entire world and yet our custom made products are priced competitively with the better German non-custom (production) Optics.

Any company that achieves a position of strength in a specialty area services their product. There are several basic reasons for this. For example, if someone other than the original manufacturer tears into our scope with only cursory knowledge of the product and does not perform repairs and reassemble correctly, that unit with our name on it is subject to error and misapplications. We have lost control over our product, and the unit gets a bad name. The damage assessment on this type of scenario is death for a company whose very existence is based on making and selling the highest quality product.

Commercial Warranty Only

(Not applicable to military usage)

U.S. OPTICS' PRODUCTS HAVE A LIMITED LIFETIME, NO CHARGE, AND NO HASSLE SERVICE POLICY.

We do not concern ourselves with the date of purchase; outside of being run over by a forklift, we stand behind our product 100%. The only requirement placed on this policy is that the unit must be returned to the factory for service, and not after repairs have been attempted by the scope owner or others. If you or anyone has attempted to take our scope apart, the warranty is void. We will not guarantee a scope that has had work done to it by anyone but us, in any fashion!

1. The housings and mechanical tube structures are guaranteed against structural failure forever.
2. The Windage and elevation systems are guaranteed to be free from defects and to return to proper incremental alignment.
3. The optics are guaranteed to perform to our specs--unconditionally.
4. **Receipt from the original owner is required for all repairs and replacements**.
5. **All rights to the factory warranty are for the original owner only.**
6. **Dust on the reticle (see catalog section on fog proofing and dust proofing).**

Even though we build our scopes specifically for the individual customer and they usually never sell their scopes, we will usually (absolutely not guaranteed) transfer the guarantee if we inspect the scope first. We usually clean the scope at the same time, free of charge. For that reason, and others, our scopes have the highest resale value on the American scope market.

Military Services Warranty

Same warranty as above, except coverage is for 18 months and we do not cover the following;

1. Scratched and damaged lenses and **dust on the lenses/reticle (dust is created internally on all scopes and glass reticle surfaces are static positive).**
2. Bullet holes and/or fragment hits.
3. Extreme abuse by hits, being run over by vehicles, drops from airplanes etc.
4. Fogging (no scope is fog proof).
5. Prolonged submersion and /or deep water submersion (if you wish to do so, we can especially prepare them for high pressure and sustained submersion). Special testing at the plant is required.

Product Support

U.S. Optics product support and product development programs are subsets of each other. Although we conduct exhaustive testing on each product, real world data is very valuable to us in continued product development. This is another reason why we need to know every problem area that our product demonstrates in the field. If someone fifteen years down the road someone sends us a unit for another reason, we would, under most circumstances, completely update his unit to conform to current specifications. The original customer receives this service free of charge, or, if you will, inclusive with the purchase of an U.S. Optics product.

In just eight years, we have been recognized as being in the forefront of building the very highest quality military and law enforcement telescopic sights. The fact that our company has a policy of making only the best, top of the line product, has earned us a reputation that, early on, has made us respected throughout the optics industry.

Sales & Dealer Policy

We want to know where all of our scopes go, and to whom. We do not want them used illegally. Our optics are considerably more advanced than the competition, and we do not want criminals and military enemies getting them. For that reason, we will sell to dealers, shooting clubs, law enforcement and military agencies, individuals known to be valid competition shooters and other individuals known to us.

Where can I purchase U.S. Optics products? By dealing direct with the factory we can bring to you, the shooter, a product of the highest quality at a reasonable cost. Our products and the U.S. Optics name are the most important entity to us. This translates to satisfied customers, and that translates to our success. You will not find our products in K-Mart, Wal-Mart or any other mass merchandised discount house. You will not find them in discount advertisements. ***Select Factory trained dealers are being selected throughout the U.S. and Europe to sell our standardized line for 2004.***

Capabilities

The U.S. Optics product line consists of only ten basic optical systems and their subsystems. This is, however, the most comprehensive line of quality conventional tactical sighting systems in the world.

In addition to our product line and custom scopes, we offer the following to the firearms/optics industry:

1. Complete O.E.M. manufacturing, engineering, design and evaluative services and are building products and/or designing products for several companies.
2. Scientific optical and radiation consulting services to other companies.
3. Optical laboratory for R&D and telescopic sight evaluation for individuals and companies.

The U.S. Optics Program

Most telescopic sights magnify, resolve, and by use of precise reticular aiming points, adjust the point of aim to coincide with the trajectory of a bullet path at any given point on that trajectory, enabling the shooter to strike the point of aim. Some companies go one step further and provide a method of estimating the distance to the target that is incorporated into the scope. This is called ranging. A few companies have bullet drop compensation scales built into the elevation knobs. These scales have yardage increments that coincide with the strike of the bullet at that yardage, hopefully,

when sighted in. Even fewer companies have combined these features into one scope, as in the U.S. Optics complete optical program. None of these companies have combined:

- **Lit reticles in choice of front or rear focal plane reticles.**
- **Huge objective lenses, to 88mm and beyond, made in the USA.**
- **Tube diameters to 50mm.**
- **"Ruggedized" construction (Mil-Spec), and far, far, beyond.**
- **Sandwiched, etched and filled or chromed glass reticles.**
- **Choice of reticles (even custom designs).**
- **Recoil shoulders on turrets.**
- **Choice of knob styles and types.**
- **Choice of colors and types of finishes.**
- **Individual coil spring (dual springs, not single or cheap flat springs) rebounding with optional locks on Windage and elevation adjustments.**
- **Lifetime adjustable (for wear), low friction ball joint hinges on our erectors.**
- **MOA click travel from 1/20 MOA to 1 MOA per click.**
- **Recoil proof construction practices (most rugged we know of).**
- **Recompressed, high grade optical glass throughout.**
- **Latest "state of the art" multi-coatings.**
- **Opto-electronic, laser and reticular range finding systems.**
- **Total Erector travels to 300 MOA!**
- **Digital photography in scopes (We designed and perfected the first ever).**
- **Internal or external adjustment models.**
- **Choice of tube saddle/turret or objective parallax adjustments.**

Yet these companies all profess to be offering the shooter what he/she wants and needs. They all say they are the best, but they do not offer either the total quality or the comprehensiveness of the U.S. Optics products. We are shooters meeting the needs of shooters, and have been doing that since 1954.

The standard format is based on 30mm tube housings, but we make 35mm, and 40mm diameter tube format optical systems. A 58mm objective is standard, but we make up to 80mm systems and larger on demand. We make up to 42x magnification formulas, or higher. Extra light wave utilization through better design and construction means better visual acuity at longer ranges and under more adverse light and atmospheric conditions. We have the highest resolution scopes in the world, and we will guarantee that. These scopes simply work better.

Take a good look at our competition-why is it that their scopes keep looking more like the U.S.O. trends? Why are their scopes starting to incorporate what we have done for many years?

Year 2004 Product Line – Overview

Our products are manufactured in-house. Utilizing current state of the art computer design and analysis techniques, a totally comprehensive optical laboratory coupled with an extremely talented design and engineering team, U.S. Optics stands at the cutting edge of optical sighting system technologies. Our capabilities include the ability to design proprietary optical systems from the ground up to meet any needed operating parameters for O.E.M. customers, a foreign nation or the individual shooter who wants the best custom scope in the world. Manufacturing capabilities are in-house; to conform to established time and quality parameters. The optical program for 2004 is again, a radical departure over traditional optical systems. The lensmatic systems have been further refined to produce the highest performance in the industry. Our new prismatic systems go even beyond that! All systems are designed to be as rugged and reliable as possible, and carry a limited lifetime warranty to ensure quality over the lifetime of the product.

SN-1/TAR Long Range Precision Counter Sniper Optical System

This was our original flagship of the sniper/counter-sniper lensmatic optical sighting systems. This design effort defined our reticle - ranging format. It is a straightforward optical design formula with appropriate options to address military applications; highest grade optics, fully supported lenses (recoil proof), optical glass reticles (no wires to shake loose), fixed power, minimum moving parts and assemblies, massive construction and the largest optical formula ever put to a shoulder fired weapon.

Basic Models:
17x, 22x, 30x and 42x

SN-2 Ranging Variable

All the features of the SN-1 fixed power put into a unique 4 to 1 or 5 to 1 zoom ratio, variable power scope. Also with sandwiched glass reticle and 1/4-1/20 MOA adjustment features in a choice of several knobs. Same optical systems as the SN-3 below but utilizes a multi-piece tube to accomplish unique and superior purposes for this scope.

Basic Models:
3.2-17x, 3.8x-22x, 8x-30x, 10-42x(SN-9 style body)

SN-3 Special Weapons and Tactics *OMNI-Mission Telescopic Sight

Same as the SN-2 above but with a single piece tube from eyepiece housing to objective.

The most versatile Mid-Perimeter Law Enforcement tool and Omni-Utiliscent scope we know of!

Options to: Pass Military Drop Test. Submarine and air drop contingencies.

The SWAT-OMTS unit offers a choice of many reticles, U.S. Optics lit reticle, tremendous light gathering (objectives of 44, 58, and 80mm), strongest housing made, best parallax adjustment made and more law enforcement and military /target options than any other scope. Can be made to your individual, department, or agencies' needs/specifications--a tremendous advantage to SWAT personnel. One can see the advantage over normal scopes at a reasonable price for even small departments.

Basic Models:
3.2-17x,
3.8-22x,
7-30x,
10-42X(SN-9 style body)

SN-4 Rapid Response Optics

Ultra wide field of view in a fast target acquisition scope. ½ or 5/8 MOA clicks put you on target fast at close ranges. Widest field of view ever made in a **true 1X scope**. Great resolution, long forgiving eye relief, and lit reticle options provide excellent low light capability. A choice of circle-dot (we invented it), circle-chevron (we also were the designer of this reticle) , D.O.E. MKI or D.O.E. MKII reticles. An excellent FBI concept tool. The Circle Dot reticle functions as a ranging device, the ultimate 1st perimeter-shooting tool. The fastest, most rugged, accurate and versatile military and police lensmatic scope ever devised! Used by U.S. Navy Seals, U.S. Department of Energy, U.S. Mint elite security and other elite U.S. forces. **Has won more three gun matches than any riflescope we know of.**	**Basic Models:** 1-4x 23mm

SN-6 Tactical Versatility

All of the features of the SN-3, plus extreme accuracy because of its fixed power. Exceptional resolution and ruggedized features. One can literally pound nails into wood with this scope. In its basic form, it is a 100-1400 yard tack driver. Add the capability for a lit reticle, and you have low light capability. A competent marksman can extend considerably beyond 1400 yards, (100-140 MOA). Can provide 200 MOA on special orders.	**Basic Models:** 8x, 10x44, 17x44 and 58mm

SN-9-2A&B ASAERTS

Huge fixed lenses (no moving erector tube***); external W&E adjustments****;* choice of 58mm, or 80mm objective diameters; world's largest linear elevation travel. Most versatile W&E adjustment system ever made. Shockproof mounting. Most rugged housing made. Available in fixed or variable powers. Such a unique and great scope that a U.S. Patent was granted on it's unique applications. **Over 250 MOA total elevation travel!** All standard features available	**Basic Models:** Fixed Power Models: 17x, 22x, 30x, 42X Variable-Power Models: 3.2-17x, 3.8–22x, 7–30x, 10–42x

ST-10

The ST-10 is a semi-mass produced hand made version of the SN-6. Because we only offer it with certain features, we can reduce the price by making many of them at one time. This saves you, the customer, lots of money and *gives you what we think is the very best scope of its type at a great price.* **We believe it outperforms the more expensive Leupold MKIV at less cost and with more and better features**	**Basic Models:** 10x, 17x

SN-12

The SN-12 was designed to outperform every fixed power, Close Quarter / Tactical scope, in every way. **The Elcan, ACOG and Leupold CQT simply do not compare in optics, ruggedness, accuracy, features and application, yet the price is about the same**	**Basic Models:** 3.5x and 4x Other powers on demand

SN-Construction

Design difference

The U.S. Optics design concept for all of our optical systems is "function without classical design (form) interference and compromise" We don't care too much about what the hunting market or other competitors think about the looks of our scopes. The fact is, most all of the hunting scopes made in the world today are simply a variation on a worn out theme. **Our philosophy is that they will follow us in the future**; we certainly do not want to follow them. By 2005 most surviving scope companies will have deviated from current antiquated and limited forms. **This wave has already started-you can see it in their products.**

Quality you can see & feel

Pick up our scopes-heft them. Notice the hand knurled sections for maximum grip - not inferior extruded grooves. Observe the massive, rugged quality of the design and execution, the flawless hand made appearance and feel. This is 1920's hand made, fitted metal parts with 21st century tolerances, repeatability and flawless function.

Smoother

The threads are a massive 32 threads per inch ("T.P.I.") and are hand lapped and fitted.

More accurately made

Tube run out is .002" with all pieces in place, average. Our competitors' one-piece tubes do not normally do that. Machined from solid billet stock of the world's finest HEAT-TREATED aircraft alloys.

Stronger

Tube thicknesses, turret construction and thread overlap is much greater. Joints are multi-locked and 200% oversized for maximum stress resistance.

Better finished

After machining and hand fitting, all threads are hand lapped and in some cases hand polished. All surfaces are hand detailed and then polished, or matte finished. All non-reflective interior surfaces are machine grooved for radiation breakup, matte finished and lifetime hard coated in your choice of colors and finish textures

Optically and mechanically more efficient

- Dull matte black finish inside.
- Superior erector construction.
- Choice of front or rear focal plane reticles.
- Light baffles machined into the interior surface walls.
- Non-Vignetting angles in the objective erector relationship.
- Superior optical and mechanical design optimization.
- Superior reticle construction, printed or etched glass reticles are made in our plant.
- Superior lens material reconstruction prior to curve generating.
- Maximum state-of-the-art lens coating processing, regeneration and analysis/optimization.

Weight and balance

In a model comparison, between our scopes and most scopes on the market, one would notice ours are slightly heavier in some models, yet lighter in others. One would notice ours resolve better and are apparently stronger and better made. Those concepts are directly related to each other. Heaviness is a result, in some cases, of more metal in the tube design, thus more strength. Heaviness is mostly a result of more high quality optical glass---that is a direct result of more color corrective glass in the design and more corrective optimization in the design.

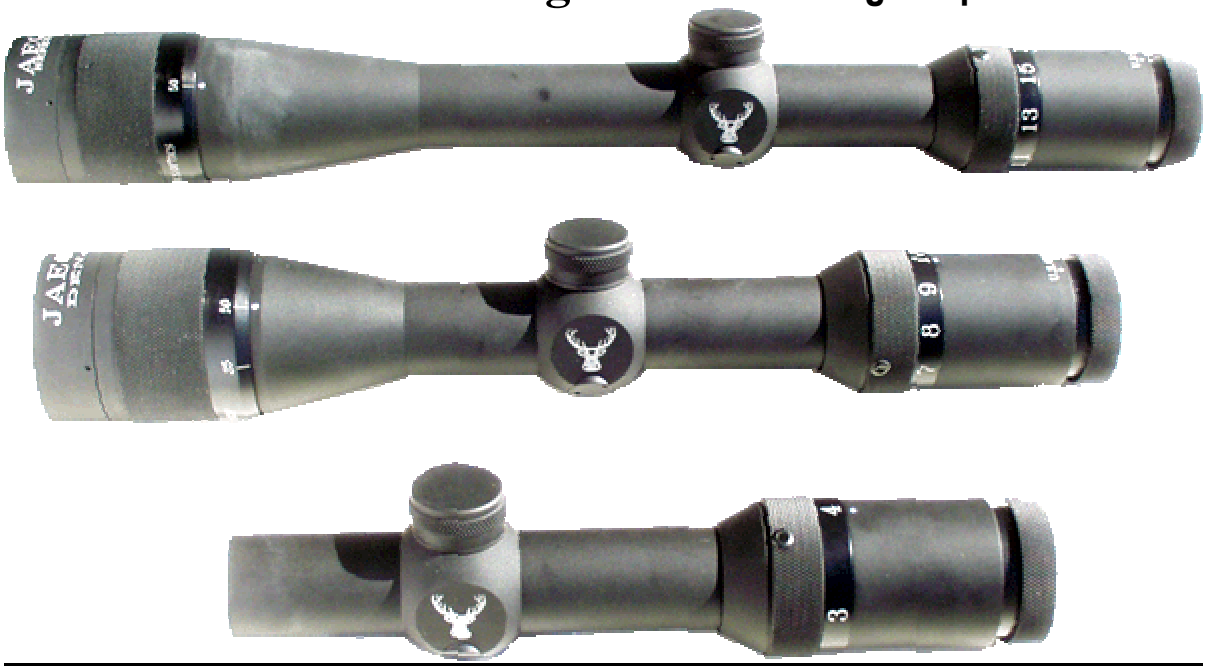
While we are perfecting new lighter designs for the future, that realization is a few years away yet.

U.S. OPTICS' SCOPES ARE UNQUESTIONABLY THE VERY BEST and THE VERY BEST VALUE TODAY.

Jaeger

5900 Dale St., Buena Park, Ca. 90621, 714-994-4901

2004 Jaeger Series Hunting Scopes!!



Specifications:

MAGNIFICATION:
1-4X,1.8-10X, 3.2-17X, 3.8-22X (mid 2004)
OBJECTIVE APERTURES:23mm, 44mm and 58mm.
MAIN TUBE:
DIAMETER: 30mm and 35mm.
CONSTRUCTION: ONE PIECE TUBE AND TURRET
MATERIAL: 6061-T6, 7075-T6,
FINISH
TYPE: Hard Anodized, and/ or baked Teflon polymer
COLOR: Black, OD Green, Gray, Silver.
SURFACE: Matte/Non-Reflective, Brushed or Polished.
TURRET TYPE: Double
LENSES:
MATERIAL: Glass/High Density Recompressed.
QUALITY: Grade A, Fine Anneal.
COATING: FSSBBC, Multi/All Surfaces.
CENTRATION: 20 millionths.
SCRATCH AND DIG: 10/5.
NUMBER OF LENSES: 10+.
LIGHT TRANSFERENCE: 92-94.470, 99.4% per lens.
OCULAR LENS DIAMETER: 35mm.
FIELD OF VIEW:1.8X @100yds=60ft.masked, 64 ft. unmasked, 10.2X @100yds=12.6ft.masked, 13.2 ft. unmasked
EYE RELIEF: Vary w/ the power 2.5" min to 3.25" max (long eye relief eye piece available with 4"-5.5")
EXIT PUPIL SIZE: 10mm @ 3.8X, 2.3 @11.2X.
FOCUS SYSTEM: Diopters -3 to + 3 Adjustment.
ENVIRONMENTAL:
HUMIDITY: Waterproof to 30 ft.
TEMPERATURE: -20 to 140°F.
PARALLAX SETTING: 100mm fixed, others on demand.
KNOBS: US#1 Standard.
MAX MOA ADJUSTMENT: Up to 200 MOA. (depends on the power)
MOA PER CLICK: 1/4 MOA is standard (10X), custom options available. ½ MOA is standard on E.R.E.K.
DIMENSIONS:
WEIGHT: 21oz. (MK III).
LENGTH: 13.8in. (MK III).
WARRANTY: Limited Lifetime-80 years, No Charge, No Hassle Service Policy.
RETICLES (Standard)**:** 10X (MOA scale). 17X(Mil-dot with no brackets). 22X (Mil-dot with no brackets). See standard reticle page for standard (no charge) reticles

JAEGER American made hunting scope information:

The word Jager is the German word for hunter. JAEGER is an Americanized word of the same meaning or origen. Thus U.S. Optics is proud to introduce our hunting line of fine scopes.

After spending the last nine years building the U.S.O. reputation to be recognized as the very finest custom built tactical and special purpose telescopic sights, we now introduce our JAGER hunting scopes!

Designed to be far superior in optical, mechanical, functional performance and features, to the top hunting scopes in the world such as Schmidt & Bender, Zeiss (German), Swarofski, and Hensoldt. U.S.O. JAEGERS offer superiority in variability, versatility, options and applicability. They provide variable power performance with fixed power type of ruggedness. Thicker, stronger tube-turret-eyepiece-objective strength to take more abuse but still maintain a smooth, capable, purposeful classic scope appearance. *We invite comparisons on any level*! You will want one on your favorite hunting rifle the minute you see it. It will perform flawlessly, day in and day out, season after season.

The SN-3 scopes are tactical versions of the JAEGER scopes and all the features found in either can be interchanged-most of them on a standard production basis while others are available on special order.

Extra long eye relief eyepiece

The long range and/or high recoil guns require longer eye relief. U.S. Optics offers (optional), an extra long eye relief eyepiece (5-7"), while decreasing the field of view only about 8%! You can therefore have your choice of the standard extra wide or the extra long wide field eyepiece on any scope!

W&E ADJUSTMENTS:

(Choice of SN series tactical/target knobs or our standard hunting knobs).

HUNTING KNOBS: ¼ M.O.A. clicks and 48 clicks per revolution gives 12 M.O.A. per revolution. These hunting style knobs are low silhouette, finger adjustable (needs no screwdrivers or coins) units with screw on covers.

TACTICLE KNOBS: These are available on some models. As of 2004, all U.S. Optics Tactical SN series scopes have the finest, most positive, most rugged adjustments on the market. All knobs are fully adjustable for travel, backlash, and pressure. There is a choice of calibers for the bullet drop compensation elevation spool with conventional click system. Incremental changes from one-tenth to one MOA adjustment clicks are possible with externally adjustable and reset-able features. The Windage knob is an externally adjustable and reset-able standard one quarter MOA adjustment knob (10x), with protective dust cap. We make military style knobs as an option.

Objective construction

All JAEGER hunting models will have the ERGO parallax system on the objective lens or the saddle/turret tactical/ target type of parallax adjustment as an option.

The fixed, non-adjustable Mil-Spec. type 44mm objective is standard on all models with saddle/turret parallax adjustment. The 58mm Ergo adjustable objective is standard on all models 17x and higher and optional on others.

Tube / Housing construction

Heavy saddle/turret with huge coil rebound springs for windage and elevation. Huge internal optics compensates for poor lighting and gives maximum light transmission. Tube diameters of 30mm are standard and 35mm is available in these products as an option. Any popular military or hunting reticle made can be provided including our mil-dot, M.O.A. scale, Sellers and the Horus Vision ones. Please see the reticle section in our catalog for drawings of those reticles.

Standard model

Variable power configuration with features more rugged than Mil-Spec specifications. European Quick-focus eyepiece, beefy single tube construction from eyepiece to objective bell. Front or rear focal plane reticle options. 30mm tube dia. is standard. No covers provided.

1-4X23mm (w/fixed focus objective)	$1020.00
1.8 – 10X44mm (with "Ergo" Adj. objective)	$1595.00
3.2 – 17X58mm (with "Ergo" Adj. objective)	$1750.00
3.8 – 22X58mm (with "Ergo" Adj. objective)	$2100.00

Deluxe model

All features above plus extremely rugged (Butler Creek style) , eyepiece and objective covers. Duplex is the standard reticle here, while our patented "MIL-SCALE" reticle with BDC and ranging capability is an option, while other reticles are available on demand. Standard generic B.D.C.s can be included, while we can custom engrave your data on the elevation knob as an option. Adaptable to Night Vision C.C.T.V., infra red and laser range.

1.4x – 8X44mm (with "Ergo" adj. Objective)	$1735.00
1.8x – 10X44mm (with "Ergo" adj. Objective)	$1950.00
3.2x – 17X58mm** (with " Ergo" Adj. Objective)	$2150.00
3.8x – 22X58mm (with "Ergo" Adj. Objective)	$2355.00
*6x – 30X58mm (with "Ergo" Adj. Objective)	$2795.00

Deluxe model with long range features

All the above features with your choice of 30 or an optional 35 mm tube ($250.00), an external bubble level, 120-140 MOA erector capacity (w/35mm tube), 1/4, 1/8 or 1/10 MOA (depending on power), elevation clicks, ERGO adjustable objective (to 2000 yds), and choice of precision 30 or 35mm Screw lock rings and one piece extended bridge rail mount or Posa-Slide & Lock one piece quick shift mounts(30mm only). One 4" stackable sunshade/mirage tube is included. Add $320.00 for the 40mm dia. tube (w/rings).

1.8x - 10x44mm (with "Ergo' Adj. objective)	$2295.00
3.2x - 17x58mm** (with "Ergo" Adj. objective)	$2550.00
3.8x - 22x58mm (with "Ergo" Adj. objective)	$2795.00
*6x – 30x58mm (with "Ergo" Adj. Objective)	$3095.00

See the next page (features and options)

JAEGER Features and Options

Optical Extras	**PRICE**
Ergo Easy See Objective (on those models priced with plain objective) extra	$200.00
Extra long eye relief eyepiece for any power model (5-7" E.R.)	$150.00
58mm Adjustable Objective	$200.00
35mm Tube, Housing and Optics	$250.00

Mechanical Extras	**PRICE**
Flip-up Objective and Eyepiece covers (both front and rear included)	$30.00
External Canting Indicator	**PRICE**
Sliding type for Picatinney rail (w/ threaded shock proof covers)	$48.50
Ring type for 30mm tube scopes (w/ threaded shock proof covers)	$68.50
4 Inch Sunshade (stackable)	**PRICE**
44mm dia	$40.00
58mm dia	$70.00
Honeycomb ray blocking insert for above (Installed in Sunshade)	**PRICE**
44mm dia	$40.00
58mm dia	$50.00
Reticle Systems	**PRICE**
Lit reticle Module with 11 position brightness control (front focal plane)	$185.00

Finish Color and Types	**PRICE**
*Matte Olive drab green, Gray, Silver or Blue –allow 8 weeks (Hard Anodized)	$90.00
*Camouflage Matte Desert, Arctic or Forest (Hard Anodized) (allow 8 weeks)	$180.00
Polished finishes available- inquire	

**Same but baked Teflon/ polymer (beautiful, great job done by Robar of Arizona…….. $160.00*

Lit Reticles and Parallax Corrections

U.S. Optics can provide custom reticles made to the customer's or our own designs as applicable. Unlike the competition, we build our own reticles using our own designs. We have been manufacturing sandwiched glass lit reticles for over eighteen years. The competition is new to it. We design reticle systems for many other scope companies, among them is Horus Vision.

Windage and Elevation Knobs

The clicking detent system on U.S. Optics tactical scopes is the simplest, most rugged and failproof of any knob system on the market. The clicker itself is a tool steel unit, hand broached, hard chrome plated and heat-treated. The detent plunger is a tungsten carbide ball and the spring behind it is a lifetime beryllium copper unit. No one in the world makes a Windage & elevation adjustment this strong, precise and impervious to use. Tests show that one can break the entire knob off the scope with a hammer and it will still maintain its point of impact. Schmidt & Bender cannot do this.

SN1 Data Sheet

MODEL SN-1 (2-a)

Picture to follow soon

Look at the SN-2 tech page. The scopes look similar.

Specifications

MAGNIFICATION: Fixed Power
22 and 42X
OBJECTIVE APERTURE:
44mm, 58mm, 80mm
HOUSING
MAIN TUBE DIAMETER:
30mm, 35mm, 40mm, 50mm
MATERIAL: 6061-T6, 7075-T6, Steel, Titanium, and Composite
FINISH:
TYPE: Hard Anodized
COLOR: Matte Black (also O.D. Green, Gray and Silver)
SURFACE: Matte/Non Reflective
TURRET: DOUBLE, OVERSIZE
LENSES:
MATERIAL: Glass/High Density, Recompressed
QUALITY: Grade A, Fine Anneal
COATINGS: Multi/All Surfaces FSSBBC
CENTRATION: 20 millionths
SCRATCH AND DIG: 10/5
NUMBER OF LENSES: 10+
LIGHT TRANSFERENCE: Average of 99.4% per lens
RETICLE: Front Or Rear Focal Plane Mil-dot or fine duplex is standard, others on demand *(Over 200 Patterns available)

OPTICS:
OCULAR LENS DIA.: 35mm-45mm
FIELD OF VIEW: 22X @100yds=7.2ft., 3-3.5", 4-5" (Long eye relief eyepiece)
EYE RELIEF: 3.3in. to 5in.(long eye relief eyepiece)
EXIT PUPIL SIZE: 4MM(22X80MM)
FOCUS SYSTEM: Objective Parallax adj., eyepiece diopters Adjustment
ENVIRONMENT:
HUMIDITY: Waterproof to 30ft.
TEMPERATURE: -20 to 140°F
PARALLAX SETTING: Variable 100m W/Fixed objective systems; others on demand
MECHANICAL
KNOBS: US#1**MAX MOA ADJ**.: Up to 300 MOA (w/SN9 type adjustments)
MOA PER CLICK: 1/4 MOA Std., others on demand
DIMENSIONS:
WEIGHT: 26oz.
LENGTH: 16in.
WARRANTY: Limited Lifetime-80 years, No Charge, No Hassle Service Policy

SN-1 (2a)

The SN-1/TAR was the original U.S. OPTICS counter sniper lensmatic sighting system. This design effort defined our reticular ranging system. It was a straightforward design with the appropriate options to address military and law enforcement applications; highest grade optics in the industry. Fully supported lenses, etched and chromed glass reticles (no wires to shake loose), fixed power, minimum moving parts and assemblies, massive construction and the largest optical formula ever put to a shoulder fired weapon.

For 2004 (started in August 2002), we are building the SN1 with info learned building the BRX system which resolves better than any long range high powered scope we have seen or heard of.

Concept

The BRXV and BRX were highly modified versions of the SN-1 and SN-2. **They were designed to see better than any long range scope on the face of the earth**. WE have now incorporated the best features of the BRX series and the SN-1 series to give you the SN-1 (2a) family of optics.

The SN-1 family of optical systems can be made as front or rear focal plane, fixed power, extreme high power, long range, precision formats. They have the ability to be used “up close”, for high power precision shooting, and have the top end power to make the extreme long-range shots or to identify the subject with great definition at long ranges. This scope, in the fixed 22x58 format is about 17" long and the 42x unit is about 24” long. 10-42X80MM(&58MM), variable is about 25" long. **These are the longest fixed power, modern design scopes that we know of, but they see far better**.

High power, long focal length scopes have some unique advantages over the shorter high power scopes our competitors have gone to. They will resolve far better, both on axis and off. All things being equal, they will outperform better optically in every way. If you see a high-powered scope that is very short, you can bet that they added lenses to do that. That automatically cut down the resolution.

In order to get this extra performance, the scope must, by necessity, be longer in length. Also, as the focal length of the scope increases (and the power increases), **the subtentions of the elevation and Windage knobs decrease**. What this means is that you get fewer MOA travel. This is true in all optics. It is a matter of constant physics.

Optics Construction

We can make them with a 30, 35mm or 40MM tube and a 58 or 80mm extra high resolving objective lens at this time. We can get up to 250 minutes of angle of adjustment (using the SN-9 system). **We can provide a standard eye relief as per the spec. sheet or a 4-5"eye relief (optional cost) eyepiece for extremely high recoil rifles such as the 50 Cal. BMG cartridge. We do this without reducing the field of view!**

Mechanical Construction

The SN-1(2a) series was designed, engineered and built, as an improved modification of the SN-1 to be the world's first fixed power, erector style, lensmatic, extreme long range scope. They have the ability to hold up to the punishing recoil abuse of the .50 cal. BMG round and beyond.
Made specifically for ultra long range tactical and competition use, they are **without equal.** They can be built with the following advantages in that regard.

Features

- Extra-Heavy thickness tube, strongest in the world. More rugged than any lensmatic scope made.
- Massive, extra-long, heavy-duty turret, (Recoil shoulder on the turret).
- Individual Windage and elevation rebound coil springs (2 each).
- Interchangeable, modular components.
- Up to 120 minutes of angle elevation (22X). (Up to 300 MOA using SN-9 E&W system)
- Matte Black, hard-anodized finish, custom colors by request.
- Parallax adjustable objective is standard.
- Waterproof, Recoil proof.
- Knobs guaranteed never to fail or wear out.
- Optical built-in leveling system that is not located in the field of view to obstruct viewing.
- Built from the "Ground Up" to resist heavy recoil
- All glass surfaces multi coated.
- Limited lifetime guarantee.
- Massive, recoil-proof etched glass reticles.
- American Made.
- Extra-long eye relief eyepieces optionally available for heavy recoil guns.
- Widest field of view in the industry
- Finest optical resolution possible anywhere!
- An "ERGO" parallax adjusting system that enables the shooter to look through the scope at the target and range by looking at the front parallax system at the same time. Turret (saddle parallax focusing system is also available)
- The finest, strongest, most versatile glass reticles made in the world.

We guarantee the SN-1 (2a) to be the highest resolving, ruggedest, long range fixed power lensmatic telescopic sight of its type made in the world today!

Impressive standard features, comprehensive optional features. Modular design, as well as rugged Mil-Spec construction, makes this scope TRULY ONE OF THE WORLDS' FINEST LONG RANGE FIXED POWER LENSMATIC OPTICAL SIGHT and the DEFINITIVE STATE- OF- THE- ART OPTICAL SIGHT PLATFORM OF THE 20TH CENTURY.

Pricing

THESE PRICES ARE FOR THE 22 and 42x fixed power scopes. Other powers are not available in this model at this time due to its unusual construction.

SN-1 (22x and 42x)

For those people who demand extremely high resolution in their scopes for long distances at high magnification, while sacrificing little resolution, light gathering, color correction and other desirable characteristics which are normally absent in scopes as power goes up. They have *Fantastic optical characteristics.*

Both rear and front focal plane models are available on demand in most powers (lit reticles available in most models in rear and front focal plane, while Mil-dot or fine duplex crosshairs are standard production with others coming soon(see reticle section). This makes this one of the best values, for the money, of any scope of this type in the world.

The 30mm diameter tube is standard on all powers. The 22x has about 70-100 MOA in the variable version (SN-2&3) and 80-110 MOA in the fixed power (SN-1). The 30x has 50-75 MOA in the fixed power. The 42x has at least 40-55 MOA in the fixed power. The 35MM tube has about 10-20% MORE MOA adjustment capability.

The standard 58mm objective on this model is designed to give extraordinary performance in ordinary and low light. A new 80mm objective (42X only at the moment), gives the same performance as the 58 in average light but enables better performance in poor light. For these types of scopes, the parallax adjustment is on the objective lens system, not the turret. If you desire turret style parallax adjustment, ask your U.S. Optics salesperson for more information. We should have it available by mid 2004.

The US#1 Knob with .250" minute clicks is standard (others on request). Built with some of the best color corrected optics in the world, we guarantee this scope to see better than any long range or high power scope of its type in the world today (except for our SN-9)! W&E knob dust covers, lens covers and mounts are not included at this price.

All scopes below can be made in Ultra-hi resolution on demand –please inquire.

SN-1 (22x58mm)	$2395.00
SN-1 (42X58mm)	$2595.00

SN-1 (22x, 42X) (w/ 35mm Dia. Tube)……..……Extra…. $250.00

All of the above, plus a massive 35mm housing, gives this unit even better optics and even more vertical MOA. The fixed powers have about 10-20% more vertical MOA than the 30mm tube, under extreme elevation and depression.

SN-1 (Same as above but with a 40MM diameter tube)...Extra…$450.00

(About 20% more vertical MOA than the 35mm tube)

SN-1 Same as above but with a 50MM diameter tube)…Extra…$60.00

A NEW, RADICAL DEPARTURE IN ULTRA-LONG RANGE OPTICS

Any of the above scopes made with the SN-9 configuration Mounting and external W&E adjusting system. This system has almost an unlimited MOA travel (In excess of 250 MOA).

We recommend the SN-9 mount system for over 22x.

(See the SN-9 section in this catalog)…….Extra…499.95

Options

Optical Options	PRICE
Extra long eye relief eyepiece for high recoil guns (5" Min)	$185.00
80mm obj. to replace 58mm	$400.00
Easy see Ergo. obj. Adj. on the objective (included)	NC
4" Sunshade (58mm)	$70.00
4" Sunshade (80mm)	$80.00
Honeycomb insert installed in above 58mm	$40.00
Honeycomb insert installed in above 80mm	$50.00

Turret parallax adjustment system (consult with your salesperson)

Optional Reticle Components	PRICE
Custom made reticle to any specification	POR
Battery powered lit reticle system	$185.00

Different color on lit reticle system (consult with your salesperson)

Optional Mechanical Components	PRICE
Left handed operation conversion (When scope is built)	$250.00
Convert customer's right hand scope to left hand use	$300.00
Sliding bubble level for Picatinney rail	$ 48.95
Ring bubble level (clamps on scope tube)	$ 68.95
Windage and elevation covers (extra rugged)	$ 40.00
Windage and elevation covers (standard type, per set)	$ 20.00
Objective and eyepiece covers (Butler Creek flip-ups, per set)	$ 30.00

Mounting Systems	PRICE
Screw Lock MK III Tactical Rings (See ring section)	$ 200.00-$ 275.00
SN9 Mounting System	$ 499.00

Finishes	PRICE
Special camouflage colors and designs	$ 165.00
Special colors & finishes, hard anodized (Silver, Grey, Lt. Grey, O.D. Green Etc)	$ 90.00
Please allow approx. six weeks for delivery on above finishes	

SN2 Data Sheet

MODEL SN-2 (2a)

Model shown: 6-30X Variable with Ergo parallax adj.

Specifications:

MAGNIFICATION:
3.8x-22x, 6-30x 10-42x Variable Power

OBJECTIVE APERTURE:
58mm, 88mm, 100mm

MAIN TUBE:
DIAMETER: 30mm, 35mm, 40mm (50mm is available on some models, please inquire)
MATERIAL: 6061-T6, 7075-T6, Steel, Composite, or Titanium

FINISH:
TYPE: Hard Anodized
COLOR: Black, OD Green, Gray, Silver, camouflage.
SURFACE: Matte/Non-Reflective

TURRET TYPE: Double

LENSES:
MATERIAL: Glass/ High Density, Recompressed
QUALITY: Grade A, Fine Anneal
COATING: Multi/All Surfaces FSSBBC
CENTRATION: 20 Millionths
SCRATCH AND DIG: 10/5
NUMBER OF LENSES: 10+
LIGHT TRANSFERENCE: 99.4% per lens
OCULAR LENS DIAMETER: 35mm

RETICLE: Over two hundred available
Front or rear focal plane

OPTICAL SPECIFICATIONS

FIELD OF VIEW: TBA.

EYE RELIEF: 3.00" to 3.3-5" (min.) 4-5" using the long eye relief eyepiece

EXIT PUPIL SIZE:
15mm @3.8x,
3mm @22x

FOCUS SYSTEM: Objective parallax and Diopters adjustment

PARALLAX SETTING: POI VARIATION: "0" point of impact shift from low power to high power. Less than 1/8 MOA in rear focal plane.

ENVIRONMENTAL:
HUMIDITY: Waterproof to 30ft.
TEMPERATURE: -20 to +160°F

KNOBS: US#1 Standard

MAX MOA ADJUSTMENT: Up to 120MOA(up to 250MOA w/SN-9 Adjustments)

MOA PER CLICK: 1/4-minute standard, others on demand

DIMENSIONS:
WEIGHT: TBA
LENGTH: 16in. TO 25" DEPENDING ON POWER

WARRANTY: Limited Lifetime-80 years, No Charge, No Hassle Service Policy

SN-2 (2a)

Concept

The SN-1(2a) and SN-2(2a) are highly modified versions of the SN-1 and SN-2 (our prior, older model). The SN-2 was the variable power version of the SN-1. Please see the SN-1 section (prior section) as the SN2(2a) is the variable power version of the SN-1 and SN-1(2a). They were designed to see better than any long range scope on the face of the earth (except for the SN-9). The SN-2(2a) family of optical systems can be made as front or rear focal plane, variable or fixed power, extreme high power, long range, precision tactical workhorse formats. They have the ability to be used "up close", for high power precision shooting, and have the top end power to make the extreme long-range shots, or to identify the subject with great definition at long ranges. This is the first ultra high power, long range scope that is a front focal plane, variable power, lensmatic system with no shift of impact with power variation. In the rear focal plane, we average less than 1/8 MOA shift of impact. We challenge the other scope makers to achieve this!

This scope, in the variable 3.8-22x58 format is about 17" long and the 10-42x58 unit is about 24" long. The 10-42X80MM (&58MM) variable is about 25" long. These are the longest variable power scopes in the world that we know of, and they see extremely well because of it. Typically, longer focal length, flatter surface lenses (all things equal) see better.

In order to get this performance, the scope must by necessity, be longer in length. Also, as the focal length increases (and the power increases), the subtentions of the Windage and elevation knobs decrease (all things being equal). What this also means is that you get fewer MOA travel (less overall total elevation and windage travel). This is true in all optics. It is a matter of constant physics.

High power, long focal length scopes have some unique advantages over the shorter length high power scopes our competitors have gone to. They will resolve far better both on axis and off. All things being equal, they will perform better optically in every way.

Optics Construction

We can make it with a 58MM, or 80MM objective lens. We can use our 30MM, 35MM, 40MM, or 50MM tube diameter formats with up to 120 MOA. With the SN-9 mounting system we can get 250MOA! We can provide a standard eye relief as per the spec. sheet or a 4-5"eye relief (optional cost) eyepiece for extremely high recoil rifles such as the 50 Cal. BMG cartridge. We do this without reducing the field of view!

Mechanical Construction

The SN-2 was originally designed, engineered and built to be the world's first variable power scope, made specifically for ultra long range tactical and competition use, it was without equal. With thousands of scopes in the field, we have never had a failure from recoil. The new SN-2 (2a) has surpassed that landmark.

The SN-2 (2a) series was designed, engineered and built, as an improved modification of the SN-2, to be the world's first fixed or variable power, erector style, lensmatic, extreme long range scope. With thousands of scopes in the field, we have never had a failure from recoil. The new SN-2 (2a) has surpassed that landmark. They have the ability to hold up to the punishing recoil abuse of the .50 cal. BMG round. Made specifically for ultra long range tactical and competition use, they are without equal. They can be built with the following advantages in that regard.

Features

- **More rugged than any variable power lensmatic scope made.**
- **Dual heavy-duty coil springs, not a single leaf spring or a single coil spring on an angle.**
- **More MOA than ultra long range internally adjusting scope made!**
- **Finest optical resolution possible-anywhere.**
- **Knobs guaranteed never to fail or wear out.**
- **An "ERGO" parallax adjusting system that enables the shooter to look through the scope at the target and range by looking at the front parallax system at the same time.**
- **The finest, strongest, most versatile glass reticles made in the world.**
- **Optional extra-long eye relief eyepiece for heavy recoil. Interchangeable, modular components.**
- **Up to 120 minutes of angle elevation (22X). (Up to 300 MOA using SN-9 E&W system)**
- **Matte Black, hard-anodized finish, custom colors by request.**
- **Waterproof, Recoil proof.**
- **Optical leveling system that is not located in the field of view to obstruct viewing.**
- **Built from the "Ground Up" to resist heavy recoil**
- **All glass surfaces multi coated.**
- **Massive, recoil-proof etched glass reticles.**
- **American Made.**
- **Widest field of view in the industry**

We guarantee the SN-1 (2a) and SN-2 (2a) to be the highest resolving, ruggedest, long range fixed power lensmatic telescopic sight of its type made in the world today!

Impressive standard features, comprehensive optional features. Modular design, as well as rugged Mil-Spec construction, makes this scope TRULY ONE OF THE WORLDS' FINEST LONG RANGE FIXED POWER LENSMATIC OPTICAL SIGHT and the DEFINITIVE STATE-OF-THE-ART OPTICAL SIGHT PLATFORM OF THE 20TH CENTURY.

SN-2 (2a) Pricing

THESE PRICES ARE FOR THE 3.8-22x58 (& 80) mm Variable and 10-42x58 (& 80) mm Variable Model.
Other powers are not available in this model at this time due to its unusual construction.

SN-2 (2a), (3.8-22x, 10-42x)

For those people who demand extremely high resolution in their scopes for long distances at high magnification without sacrificing resolution, light gathering, color correction and the other detrimental characteristics of higher magnification scopes. It has f*antastic optical characteristics.*

Both rear and front focal plane models are available on demand (lit reticles in most models in rear and front focal plane).

30mm diameter tube is standard.

The standard 58mm objective on this model is designed to give high performance at Dusk. A new 80mm objective (42X only at the moment), gives the same performance as the 58 but enables better performance in poor light.

US#1 Knob with .250" minute clicks standard (others on request), (Special Mil-dot or fine crosshairs standard production, others on request), make this one of the best values for the money of any scope in the world. Built with the best color corrected optics in the world, we guarantee this scope to see better than any long range or high power scope of its type in the world today (except for our SN-9)! W&E knob dust covers lens covers and mounts are not included at this price.

All models below are available in ultra-high resolution-(see tech. sheet in this catalog), please inquire.

SN2 (10-42x80MM)	Hi-Res Optics:$3095.00
SN2 (10-42x58MM)	Hi-Res Optics: $2795.00
SN2 (3.8-22x58MM)	Hi-Res Optics: $2595.00

SN-2 (3.8-22x, 10-42X) (w/ 35mm Dia Housing)……Extra….$250.00

All of the above plus a massive 35mm housing and a proportionately larger erector housing, internal optics and more color corrected optical glass, gives this unit even better optics and even more MOA elevation adjustment. These scopes (3.8-22x) have about 80-100 MOA elevation, under extreme elevation and depression.

SN-2 (3.8-22x, 10-42x58) (w/ 40mm Dia Housing)……Extra…$450.00

A New, Radical Departure In Ultra-Long Range Optics

Any of the above scopes made with the SN-9 configuration Mounting and external W&E adjusting system.
(See the SN-9 section in this catalog)……Extra…499.95
We recommend the SN-9 mount system over the 22x.

Options

Optical	PRICE
Extra long eye relief eyepiece for heavy recoil guns (5” min.)	$250.00
80mm adjustable objective lens system (3.8-22x, 10-42x)	$400.00

Reticle System	PRICE
Battery powered lit reticle with 11 position brightness control	$185.00

Mechanical	PRICE
Left handed conversion	$164.50
Left handed conversion on customers Rt. Hand U.S. Optics scope	$250.00
External canting indicator (Bubble) Slide on Rail	$48.95
4” Sunshade (58mm)	$70.00
4” Sunshade (80mm)	$80.00
Honeycomb diffuser installed in above 58mm	$40.00
Honeycomb diffuser installed in above 80mm	$50.00

Appearance	PRICE
Special colors & finishes (Silver, gray, dark gray, OD Green, etc.)	$90.00
Camouflage finish in desert, arctic and forest (hard anodized,) add	$165.00

Sliding Bubble Level for long range leveling	PRICE
(Fits on the Picatinney Rail)	$48.95
(Fits on 30mm Tube Body)	$68.95

SN-3 Tactical/Target Scopes Data Sheet

MODEL SN- 3

Shown above is the SN-3 MK II, 1.8x-10x (Ergo Objective)
Note: Specs below subject to change. Specs are for 1.8x-10x unless stated otherwise

As seen in E.O.N. production's "Cradle of Life" w/Laura Croft and "Die another Day" w/James Bond. These movies were released in 2003

Specifications:

MAGNIFICATION:
1.8-10x, 3.2-17x, 3.8-22x, 6-30x. (Late 2003, early 2004)
OBJECTIVE APERTURE: 44mm, 58mm, 80mm.
MAIN TUBE:
DIAMETER: 30mm, 35mm, 40mm.
CONSTRUCTION: ONE PIECE TUBE AND TURRET
MATERIAL: 6061-T6, 7075-T6,
FINISH
TYPE: Hard Anodized, and/ or baked Teflon polymer
COLOR: Black, OD Green, Gray, Silver.
SURFACE: Matte/Non-Reflective, Brushed or Polished.
TURRET TYPE: Double
LENSES:
MATERIAL: Glass/High Density Recompressed.
QUALITY: Grade A, Fine Anneal.
COATING: FSSBBC, Multi/All Surfaces.
CENTRATION: 20 millionths.
SCRATCH AND DIG: 10/5.
NUMBER OF LENSES: 10+.
LIGHT TRANSFERENCE: 92-94.470, 99.4% per lens.
OCULAR LENS DIAMETER: 35mm.

FIELD OF VIEW:1.8x @100yds=60ft.masked, 64 ft. unmasked
10.2x @100yds=12.6ft.masked, 13.2 ft. unmasked
EYE RELIEF: Vary w/ the power 2.5" min to 3.25" max (long eye relief eye piece available with 4"-5.5")
EXIT PUPIL SIZE: 10mm @ 3.8x, 2.3 @11.2x.
FOCUS SYSTEM: Diopters -3 to + 3 Adjustment.
ENVIRONMENTAL:
HUMIDITY: Waterproof to 30 ft.
TEMPERATURE: -20 to 140°F.
PARALLAX SETTING: 100m fixed, others on demand.
KNOBS: US#1 Standard.
MAX MOA ADJUSTMENT: Up to 200 MOA. (depends on the power)
MOA PER CLICK: 1/4 MOA is standard (10X), custom options available. ½ MOA is standard on E.R.E.K.
DIMENSIONS:
WEIGHT: 2 lbs + (1.8-10X, MK III)fully equipped
LENGTH: 13.8in. (MK III).
WARRANTY: Limited Lifetime-80 years, No Charge, No Hassle Service Policy.
RETICLES (Standard)**:** 10X(Mil-Dot with brackets. 17X(Mil-dot with no brackets). 22X(Mil-dot with no brackets). Over two hundred custom styles available on special request (front or rear focal plane). See standard reticle page for standard (no charge) reticles.

SN-3 Information

This system fills the gap between the SN-2 and the SN-4 optical systems. The SN-3 gives a wider field of view than the longer ranged SN-2, and more power than the SN-4. (The SN-3 has been our most popular high power scope series). It is essentially the same as the SN-2 but with one piece tube housing.

Designed to be far superior in optical, mechanical and functional performance to the Leupold MK-IV, Light Force NXS-5.5-22x56, Springfield Armory, I.O.R., Shepard and Schmidt & Bender scopes, it also offers superiority in variability, versatility, options and applicability. It provides variable power performance with fixed power type of ruggedness. Thicker, stronger tube-turret-eyepiece-objective strength to take more abuse. *We invite comparisons on any level*!

The SN-3 is a variable power version of the SN-6 and all the features found in either can be interchanged. While the format of the SN-3 is smaller than the SN-2, product overlapping occurs in that the SN-3 MK IV uses the same lens system as the SN-2 in the 3.2-17x power, thus creating a very small high power package. This package, when combined with the Posa-Slide and Lock mount makes the perfect system for the *AR-10 and SR-25* semi-auto rifles. When used with our one-piece rail mount for bolt actions, the same system can be interchanged from gun to gun!

Higher resolution 44mm 17x objective lens

We have a reground Ultra high-resolution 17X objective lens that can be installed on any of our 17x scopes.

They will see better than our standard hi-res 44MM 17X objective and will set lower on the rifle also (see options and accessories area of this section on the SN-3).

Extra long eye relief eyepiece

The long range and/or high recoil guns require longer eye relief. U.S. Optics offers (optional), an extra long eye relief eyepiece (5-7”), while decreasing the field of view only about 8%!

W&E Adjustments

As of 2003, all U.S. Optics scopes have the finest, most positive, most rugged adjustments on the market. All knobs are fully adjustable for travel, backlash, and pressure. There is a choice of calibers for the bullet drop compensation elevation spool with conventional click system. Incremental changes from one-tenth to one MOA adjustment clicks is possible with externally adjustable and resetable features. The Windage knob is an externally adjustable and resetable standard one quarter MOA adjustment knob (10x), with protective dust cap. We make military style knobs as an option. Optional knobs are: USMC M40A1 and USO 90 click per one revolution. E.R.E.K. Knobs (see E.R.E.K. knob section sheet)

Objective construction

The fixed, non-adjustable Mil-Spec. type 44mm ERGO objective is standard on all models up to and including 10x models. The 58mm Ergo adjustable objective is standard on all models 17x and higher and optional on others with an adjustable 80mm Ergo objective unit as an option for all models, 22x and above.

Tube / Housing construction

Heavy turret with individual coil rebound springs two, not one like most scopes for Windage and elevation. Huge internal optics compensate for poor lighting and give maximum light transmission. Recoil shoulder on turret. A recoil sleeve to absorb recoil on the turret face is available also. Tube diameters of 30mm, 35mm and 40mm are available in this product. Any popular military or hunting reticle made can be provided

SN-3 MK I

Variable power configuration with features more rugged than Mil-Spec specifications. European Quick-focus eyepiece, beefy single tube construction from eyepiece to objective bell. Extra layer of aluminum alloy armor over turret adjustment area. Extra thick armor in eyepiece and objective. Front or rear focal plane reticle options. 30mm tube dia. is standard. No covers provided.

1.8 - 10x44mm (without "Ergo" Adj. objective)	$1695.00
3.2 - 17x58 or 44mm (with "Ergo" Adj. objective)	$1850.00
3.8 - 22x58mm (with "Ergo" Adj. objective)	$2200.00

SN-3 MK II

All features above plus extremely rugged (Butler Creek style) (threaded style available as option), eyepiece and objective covers, as well as, shock resistant Windage and elevation armored covers. When all threaded covers and seals are in place the unit is water resistant to 30 ft. and drop resistant at 3ft. on a 10lb. Gun and 5ft. when dropped by itself onto dirt. On land the scope can be used with flip-up plastic covers if quickness is an imperative. Marine Corps "MIL-DOT" without ranging brackets is the standard reticle here, while our patented "MIL-SCALE" reticle with BDC and ranging capability is an option, while other reticles are available on demand. Standard generic B.D.C.s for .223, .308 , .300 Win. Mag. And .338 Lapua graduated to 1000 + yards are available as standard equipmen, or we can custom engrave your data on the knob. Laser Hardened options. Adaptable to Night Vision C.C.T.V., infra red and laser range. 100-130 MOA adjustment with the 30mm tube and 120-150 MOA with the 35mm tube.

1.4x – 8x44mm (with "Ergo" adj. Objective)	$1835.00
1.8x – 10x44mm (with "Ergo" adj. Objective)	$2050.00
3.2x – 17x44 or 58mm** (with " Ergo" Adj. Objective)	$2250.00
3.8x – 22x58mm (with "Ergo" Adj. Objective)	$2455.00
*6x – 30x58mm (with "Ergo" Adj. Objective)	$2895.00

SN-3 MK III

All the features of the MK I and MK II scopes above plus your choice of a 30 or an optional (extra cost $250.00), *35mm dia. extra thick armored tube* with larger dia. Interior space for more W&E use without vignetting. Choice 30mm Posa-Slide & Lock Picatinney rail mount or 30mm & 35mm (ruggedized, Weaver/Picatinney) style rings. 30mm Lever Lock rings for $150.00 more. (Normally $275.00 per set)

1.8x - 10x44mm (with "Ergo" Adj. objective)	$2295.00
3.2x - 17x44 or 58mm** (with "Ergo" Adj. objective)	$2450.00
3.8x - 22x58mm (with "Ergo" Adj. objective)	$2655.00
*6x – 30x58mm (with "Ergo" Adj. Objective)	$3095.00

SN-3 M-4 (Long Range)

All the above features of the MK I and MK-II with your choice of 30 or an optional 35 mm tube ($250.00), an external bubble level, 120-140 MOA erector capacity (w/35mm tube), 1/4, 1/8 or 1/10 MOA (depending on power), elevation clicks, ERGO adjustable objective (to 2000 yds), and choice of; Screw Lock precision 30 or 35mm Screw lock rings and one piece extended bridge rail mount or Posa-Slide & Lock one piece quick shift mounts(30mm only). One 4" stackable sunshade/mirage tube is included. Add $320.00 for the 40mm dia. tube (w/rings).

1.8x - 10x44mm (with "Ergo' Adj. objective)	$2495.00
3.2x - 17x44 or 58mm** (with "Ergo" Adj. objective)	$2650.00
3.8x - 22x58mm (with "Ergo" Adj. objective)	$2895.00
*6x – 30x58mm (with "Ergo" Adj. Objective)	$3295.00

See the next page (features and options), for special 17x, 44mm dia. Ultra High Res reground 58mm Objective lenses.

***Available in late-mid 2004**

SN-3 Features and Options

Optical Extras	PRICE
Ergo Easy See Objective (on those models priced with plain objective) extra	$200.00
Extra long eye relief eyepiece for any power model (5-7" E.R.)	$150.00
58mm Adjustable Objective for MK I	$200.00
44MM Ultra Hi-Res Reground 58MM objective (highest performer & sits lower)	$40.00
88mm Adjustable Objective for MK II, MK III or MK IV (only on 35 and 40mm tubes)	$800.00
35mm Tube, Housing and Optics	$275.00
40mm Tube, Housing and Optics	$350.00
90 Click Elevation Knob (E.R.E.K.)(10X and 17X Only)	$185.00

Mechanical Extras	PRICE
Flip-up Objective and Eyepiece covers (both front and rear included)	$30.00
Left handed conversion (Installed at factory)	$180.00
Left handed conversation (installed after leaving factory)	$340.50
Windage and elevation covers for MK I	$30.00

External Canting Indicator	PRICE
Sliding type for Picatinney rail (w/ threaded shock proof covers)	$48.50
Ring type for 30mm tube scopes (w/ threaded shock proof covers)	$68.50
"Versa-Plumb" Internal Canting Indicator (Not recommended)	$169.00

4 Inch Sunshade (stackable)	PRICE
44mm dia	$40.00
58mm dia	$70.00
88mm dia	$90.00

Honeycomb ray blocking insert for above (Installed in Sunshade)	PRICE
44mm dia	$40.00
58mm dia	$50.00
88mm dia	$80.00

Reticle Systems	PRICE
Lit reticle Module with 11 position brightness control (front focal plane)	$185.00

Finish Color and Types	PRICE
*Matte Olive drab green, Gray, Silver or Blue –allow 8 weeks (Hard Anodized)	$90.00
*Camouflage Matte Desert, Arctic or Forest (Hard Anodized) (allow 8 weeks)	$180.00
Brushed Titanium finish (Blue-Gray-Silver metal look) (Hard anodize- 8 weeks)	$150.00
Polished finishes available- inquire	

**Same but baked Teflon/ polymer (beautiful, great job done by Robar of Arizona)…….. $160.00*

Direct Comparison with the Schmidt and Bender P2 Sniper Scope

Historically, Schmidt & Bender has been a hunting scope manufacturer and its latest effort toward building a purely tactical scope is still only a modification of a hunting scope. This is a tired old concept that other scope manufacturers use. U.S. Optics refuses to do that. We build our tactical scopes from the ground up to withstand the rigors of Military, Law Enforcement and Competition use. We challenge the entire world to build a scope as strong as ours with the features that make it a truly rugged tactical scope. Tactical tests by the U.S. Government and Private Agencies have proven that our scopes are the most rugged scopes made in the world today. In addition, they can be made with further improved features.

SN-3 Advantages Over the S&B P2 Sniper

We have a choice of five different powers. Schmidt & Bender has only two.
Their power-changing ratio in 3-12 is only a 4 ratio. U. S. Optics is at least a five ratio, (1.8-10x, 3.2-17x, 3.8 – 22x etc.)
U.S. Optics objective has a 44, 58 or 80mm objective. Schmidt & Bender is only a 50mm.
U.S. Optics scopes have the finest spring rebound system made in the world today. Dual coil springs that collapses within themselves hold the erector solidly against the knob shafts. This is the only system that has been proven by the U.S. government and private testing laboratories to withstand the rigors of 50 caliber BMG, air gun, 30mm anti tank and machine gun use.

Exit Pupils

The exit pupil or diameter of the exiting light of our 1.8-10x44 is 24.4mm diameter at the low end and 4.4 at the upper end. Schmidt & Bender is 16.6mm in diameter at the low end and 4.16mm at the upper end. U.S. Optics has the following advantages over the Schmidt & Bender:
With the larger exit pupil at the low end you can get on target much faster for running and emergency shots.
A larger exit pupil at the upper end means that we have a better advantage in head positioning (more forgiveness), for those long-range shots where accuracy and consistency are so important.
The larger objective of the U.S. Optics products will see well in low light conditions.
Summary - Model for model, our scopes have larger lenses and exit pupils.

Tube Diameters

Since 1996, U.S. Optics has made a 35mm tube scope. In 1999, Schmidt & Bender copied this concept by introducing the 34mm tube. U.S. Optics still has more MOA correction than Schmidt & Bender. In addition, U.S. Optics can custom build 40mm and 50mm tube scopes for even more minutes of angle. In addition, we can build a 80mm Objective lens. Schmidt & Bender cannot do this.

Yet, on a direct cost comparison, U.S. Optics scopes cost less.

Lit Reticles and Parallax Corrections

Schmidt and Bender, until recently could not combine parallax correction and lighted reticle in one scope, you had a choice of "either/or." U.S. Optics, on the other hand, can put the parallax adjustment on the Objective where it is most efficient (or put on the turret/saddle) and can put the lighted reticle on the turret where it is most effective. On special order we can put both the parallax adjustment, lighted reticle and spring rebound system in the turret area. A new line of scope for 2004 will include these features as standard equipment. Schmidt and Bender cannot do this. In addition we can put two parallax systems in one scope (one on the objective and the other in turret)!

U.S. Optics can provide custom reticles made to the customer's or our own designs as applicable. Unlike the competition, we build our own reticles using our own designs. We have been manufacturing sandwiched glass lit reticles for over eighteen years. The competition is new to it. We design reticle systems for many other scope companies, among them is Horus Vision.

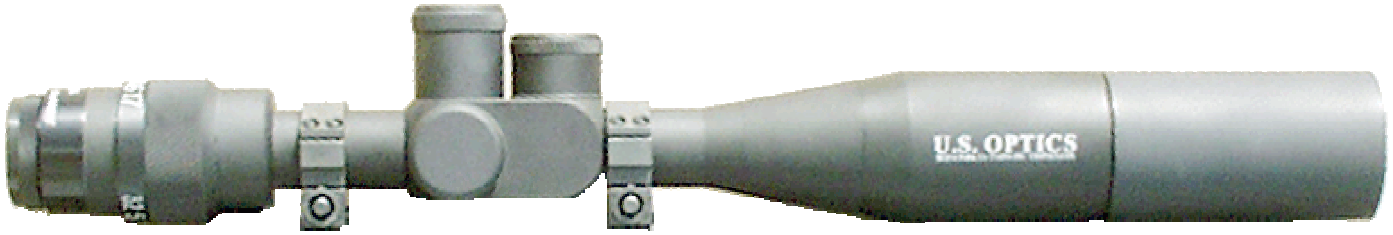
Windage and Elevation Knobs

The clicking detent system on U.S. Optics scopes is the simplest, most rugged and failproof of any knob system on the market. The clicker itself is a tool steel unit, hand broached, hard chrome plated and heat-treated. The detent plunger is a tungsten carbide ball and the spring behind it is a lifetime beryllium copper unit. No one in the world makes a Windage & elevation adjustment this strong, precise and impervious to use. Tests show that one can break the entire knob off the scope with a hammer and it will still maintain its point of impact. Schmidt & Bender cannot do this.

Summary

In all of the above comparisons Schmidt & Bender cannot do the same thing U.S. Optics scopes can do but the U.S. Optics comparisons can do a great many things and do it better than Schmidt & Bender scopes at competitive prices. We stand ready to make any optical, mechanical or feature comparison at any time between the U.S. Optics SN-3 and the Schmidt & Bender P2 Sniper. **In addition, model for model (with comparative features), U.S. Optics SN-3 variables are a lot less money. (comparison with Schmidt and Bender 2003 price list)**

SN-3, T-pal Data Sheet
MODEL SN-3, T-pal



Shown above is the SN-3, T-pal 3.2-17X with lt. side of turret (saddle) parallax adjustment.
Note: Specs below subject to change. Specs are for 3.2-17x unless stated otherwise

Specifications:

MAGNIFICATION:
1.8-10x, 3.2-17x, 3.8-22x (early 2004).
OBJECTIVE APERTURE: 44mm, 58mm, 80mm.
MAIN TUBE:
DIAMETER: 30mm, (35mm, 40mm are optional).
CONSTRUCTION: ONE PIECE TUBE AND TURRET
MATERIAL: 6061-T6, 7075-T6.
FINISH
TYPE: Hard Anodized, and/ or baked Teflon polymer
COLOR: Black s standard, (O.D. green, gray, silver or camo., are options).
SURFACE: Matte/non-reflective, brushed or polished.
TURRET TYPE: Double
LENSES:
MATERIAL: Glass/High density recompressed.
QUALITY: Grade A, fine anneal.
COATING: FSSBBC, Multi/All Surfaces.
CENTRATION: 20 millionths.
SCRATCH AND DIG: 10/5.
NUMBER OF LENSES: 13+.
LIGHT TRANSFERENCE: 92-94.470, 99.4% per lens.
OCULAR LENS DIAMETER: 35mm.
FIELD OF VIEW: 1.8x @100yds=60ft.masked, 64 ft. unmasked,10.2x @100yds=12.6ft.masked, 13.2 ft. unmasked.

EYE RELIEF: Varies w/the power 2.5" min to 3.25" max (long eye relief eye piece available with 4"-5.5")
EXIT PUPIL SIZE: 17X (44mm)=2.58mm
FOCUS SYSTEM: Diopters -3 to + 3 Adjustment.
ENVIRONMENTAL:
HUMIDITY: Waterproof to 30 ft.
TEMPERATURE: -20 to 140°F.
PARALLAX SETTING: 50 yds. (or less)-infinity.
KNOBS: US#1 Standard (others are optional). Uses a side focus knob on left side of saddle(turret).
MAX MOA ADJUSTMENT: Up to 200 MOA. (depends on the power)
MOA PER CLICK: 1/4 MOA is standard (10X), custom options available. ½ MOA is standard on E.R.E.K.
DIMENSIONS:
WEIGHT: 21oz. (MK III, 3.2-17X).
LENGTH: 13.8in. (MK III).
WARRANTY: Limited Lifetime-80 years, No charge, No hassle service policy.
RETICLES (Standard)**:**10X (Mil-Dot),17X (Mil-dot. 22X (Mil-dot). Several optional reticles available. Over two hundred custom styles available on special request (front or rear focal plane). See standard reticle page for standard (no charge) and optional reticles.

SN-3, T-pal (Turret parallax adjusting lens) information

This system is the same as the regular SN-3, except the turret is set up for a truly revolutionary turret parallax adjusting system that can be used with an 11 position lit reticle rheostat in three different positions.

At this time **THERE ARE THRE BASIC TURRET POSITIONS WHERE THE TURRET PARALLAX ADJUSTMENT CAN BE LOCATED. They are:**

1. Left hand side of saddle (rheostat is in front of elevation knob). This is the most common method and the one we use most.

2. Top of saddle (in front of elevation knob) Rheostat is on left side.

3. Right hand side of saddle-in front of windage knob (rheostat is on left side).

This scope is designed to be far superior in optical, mechanical and functional performance to all of today's tactical scopes in variability, versatility, options and applicability. It provides variable power performance with fixed power type of ruggedness. Thicker, stronger tube-turret-eyepiece-objective strength to take more abuse. *We invite comparisons on any level*!

This scope is a variable power version of the SN-6 and all the features found in either can be interchanged.

Extra long eye relief eyepiece

The long range and/or high recoil guns require longer eye relief. U.S. Optics offers (optional), an extra long eye relief eyepiece (5-7"), while decreasing the field of view only about 8%! This is a great application for .50 cal. And other high recoil rifles.

W&E Adjustments

As of 2004, all U.S. Optics scopes have the finest, most positive, most rugged adjustments on the market. All knobs are fully adjustable for travel, backlash, and pressure. There is a choice of calibers for the bullet drop compensation elevation spool with conventional click system. Incremental changes from one-tenth to one MOA adjustment clicks is possible with externally adjustable and reset able features. The Windage knob is an externally adjustable and reset able standard one quarter MOA adjustment knob (10X), with protective dust cap and we make other military style knobs as an option. Optional knobs are: USMC M40A1 and USO 90 click per one revolution. E.R.E.K. Knobs (see E.R.E.K. knob section sheet).

Objective construction

The fixed, non-adjustable Mil-Spec. type 44mm objective is standard on all 10x models. The 58MM non-adjustable objective is standard on all models of 17X with a 44mm non-adjustable objective an option. An adjustable 80mm Ergo or fixed objective unit may soon become an option for most models, 22X and above. Meanwhile, the turret adjustable parallax system is standard on all models up to and including 17X.

WE can build these scopes with both Objective and turret/saddle parallax lens adjustment!!! No one else offers these combinations.

Tube / Housing construction

Heavy turret with two individual coil rebound springs on most models, not one like most scopes. We make a recoil shoulder on the front shoulder of the turret. A recoil sleeve to absorb recoil on the turret face is available also. Tube diameters of 30mm, 35mm and 40mm are available in this product.

SN-3, T-pal, MK I

THIS IS U.S. OPTICS' BASE MODEL Variable power configuration with features more ruggedized than Mil-Spec specifications. All models here come standard with Turret parallax lens correction/focus on the left side of saddle (can be placed on top or rt. Side of saddle also-please inquire. It has European quick-focus eyepiece and 30mm beefy tube construction from eyepiece to objective bell. Extra thick armor in the European rapid focus eyepiece and objective area. Front focal plane reticle is standard, rear can be made as an option. No obj. or W&E covers provided. These American made scopes, model-for-model, have more and better features than the German made competition, while having better optics and a lower price!! These are the finest scopes of their type in the world. The experts say so-let us prove it to you.

1.8 - 10x44mm T-PAL (with turret adj parallax lens control)	$1895.00
3.2 - 17x58mm T-PAL (with turret adj. parallax lens control)	$2050.00
3.8 - 22x58mm T-PAL (with turret adj. parallax lens control)	$2250.00
*6x - 30x58mm T-PAL (with turret adj. parallax lens control)	$2400.00

SN-3, T-pal, MK II

Same scope as above, plus quick action (Butler Creek style) (threaded style available as option), eyepiece and objective covers, as well as, shock resistant Windage and elevation armored covers. When all threaded covers and seals are in place the unit is water resistant to 30 ft., drop resistant at 3ft. on an 8lb. Gun and 5ft. when dropped by itself onto dirt. U.S.M.C. "MIL-DOT", our "MIL-SCALE or "M.O.A. SCALE" reticles with BDC and ranging capability are standard choices. Other custom reticles are available on demand including the Horus Vision reticles. Custom B.D.C.s for any bullet & velocity are possible on custom order on the elevation knobs-please inquire. Adaptable to Night Vision C.C.T.V. and infrared. The MOA capability starts at approx. 100-130 MOA adjustment with the 30mm tube and 120-150 MOA with the 35mm tube (depending on power).

1.4x–8x44mm T-PAL(with turret adj. parallax lens control)	$1895.00
1.8x–10x44mm T-PAL (with turret adj. parallax lens control)	$2050.00
3.2x–17x44 or 58mm T-PAL (with turret adj. parallax lens control)	$2250.00
3.8x–22x58mm T-PAL (with turret adj. parallax lens control)	$2455.00
*6x–30x58mm T-PAL (with turret adj. parallax lens control)	$2795.00

SN-3, T-pal, M-4 (Long Range)

All the above features of the MK I and MK-II with your choice of 30 or an optional 35 mm tube ($250.00), an external bubble level, more MOA erector capacity (w/35mm tube), 1/4, 1/8 or 1/10 MOA (depending on power), elevation clicks, Choice of T-PAL or T-PAL and ERGO adjustable objective (to 2000 yds.), and choice of; precision 30 or 35mm Tactical MK III Screw-Lock rings and one piece extended bridge rail mount or Posa-Slide & Lock one piece Posa-Slide & Lock quick shift mounts (30mm only). One 4" stackable sunshade/mirage tube is included. Add $320.00 for the 40mm dia. tube (w/rings). **All of these features and still less money than a Schmidt&Bender –with better quality and more features-from an American scope!!!**

3.2x - 17x44 or 58mm** (with turret adj. parallax lens control)	$2650.00
3.8x - 22x58mm (with turret adj. parallax lens control)	$2895.00
*6x – 30x58mm (with turret adj. parallax adj. lens control)	$3195.00

See the next page (features and options)

*Available in late 2004

SN-3, T-pal Features and Options

Optical Extras	PRICE
Extra long eye relief eyepiece for any power model;-great for .50B.M.G. cal. (5-7" E.R.)	$150.00
Ergo easy see objective (on those models priced with plain objective) extra	$200.00
NOTE: the above can be installed with or without the T-PAL feature, thus giving You two parallax adjustments in one scopes!!!!.	P.O.R.
58mm Fixed objective to replace 44mm ones	P.O.R.
58mm Adjustable objective for 44mm ones	$200.00
88mm adjustable objective for certain models (only on 35 and 40mm tubes)	$800.00
35mm tube, housing and optics	$275.00
40mm tube, housing and optics	$350.00
44mm reground 58mm Ultra Hi Res objective	**$40.00**

Mechanical Extras	PRICE
90 click elevation knob (E.R.E.K.)(10X and 17X Only)	$185.00
Flip-up objective and eyepiece covers (both front and rear included)	$30.00
Left handed conversion (Installed at factory)	$180.00
Left handed conversation (installed after leaving factory)	$340.50
Windage and elevation covers for MK I	$30.00
External Canting Indicator	**PRICE**
Sliding type for Picatinney rail (w/ threaded shock proof covers)	$48.50
Ring type for 30mm tube scopes (w/ threaded shock proof covers)	$68.50
"Versa-Plumb" Internal Canting Indicator (Not recommended)	$169.00
4 Inch Sunshade (stackable)	**PRICE**
44mm dia.	$40.00
58mm dia.	$70.00
88mm dia.	$90.00
Honeycomb ray blocking insert for above (Installed in Sunshade)	**PRICE**
44mm dia	$40.00
58mm dia	$50.00
88mm dia	$80.00
Reticle Systems	**PRICE**
Lit reticle Module with 11 position brightness control (front focal plane)	$185.00
Finish Color and Types	**PRICE**
*Matte Olive drab green, Gray, Silver or Blue –allow 8 weeks (Hard Anodized)	$90.00
*Camouflage Matte Desert, Arctic or Forest (Hard Anodized) (allow 8 weeks)	$180.00
Brushed Titanium finish (Blue-Gray-Silver metal look) (Hard anodize- 8 weeks)	$150.00
Polished finishes available- inquire	

**Same but baked Teflon/ polymer (beautiful, great job done by Robar of Arizona…….. $160.00*

Direct Comparison with the Schmidt and Bender P2 Sniper Scope

We build our tactical scopes from the ground up to withstand the rigors of Military, Law Enforcement and Competition use. We challenge the entire world to build a scope as strong as ours with the features that make it a truly rugged tactical scope. Tactical tests by the U.S. Government and Private Agencies have proven that our scopes are the most rugged scopes made in the world today. In addition, they can be made with further improved features.

SN-3, T-pal advantages Over the S&B P2 Sniper

We have a choice of five or more different tactical power scopes. Schmidt & Bender has only two (working on three).
Their power-changing ratios are only a 4 ratio. U. S. Optics is a five ratio, (1.8-10x, 3.2-17x, 3.8 – 22x etc.)
U.S. Optics objective has a 44, 58 or 80mm objective. Schmidt & Bender is only a 50mm.
U.S. Optics scopes have the finest spring rebound system made in the world today. Dual coil springs that collapses within themselves hold the erector solidly against the knob shafts. This is the only system that has been proven by the U.S. government and private testing laboratories to withstand the rigors of 50 caliber BMG, air gun, 30mm anti tank and machine gun use.

Exit Pupils

The exit pupil or diameter of the exiting light of our 1.8-10x44 is 24.4mm diameter at the low end and 4.4 at the upper end. Schmidt & Bender is 16.6mm in diameter at the low end and 4.16mm at the upper end. U.S. Optics has the following advantages over the Schmidt & Bender:
With the larger exit pupil at the low end you can get on target much faster for running and emergency shots.
A larger exit pupil at the upper end means that we have a better advantage in head positioning (more forgiveness), for those long-range shots where accuracy and consistency are so important.
The larger objective of the U.S. Optics products will see well in low light conditions.
Summary - Model for model, our scopes have larger lenses and exit pupils.

Tube Diameters

Since 1996, U.S. Optics has made a 35mm tube scope. In 1999, Schmidt & Bender copied this concept by introducing the 34mm tube. U.S. Optics still has more MOA correction than Schmidt & Bender. In addition, U.S. Optics can custom build 40mm and 50mm tube scopes for even more minutes of angle. In addition, we can build a 80mm Objective lens. Schmidt & Bender cannot do this.

Yet, on a direct cost comparison, U.S. Optics scopes cost less.

Lit Reticles and Parallax Corrections

Schmidt and Bender, until recently, could not combine parallax correction and lighted reticle in one scope, you had a choice of "either / or." U.S. Optics, on the other hand, can put the parallax adjustment on the Objective where it is most efficient (or put on the turret, or both) and can put the lighted reticle on the turret where it is most effective. We can put both the parallax adjustment, lighted reticle and spring rebound system in the turret area. The SN-3 P.A.T. line of scopes for 2004 will include these features as standard equipment. Schmidt and Bender cannot do this. In addition we can put two parallax systems in one scope (one on the objective and the other in turret)!

U.S. Optics can provide custom reticles made to the customer's or our own designs as applicable. Unlike the competition, we build our own reticles using our own designs. We have been manufacturing sandwiched glass lit reticles for over eighteen years. The competition is new to it. We design reticle systems for many other scope companies, among them is Horus Vision.

Windage and Elevation Knobs

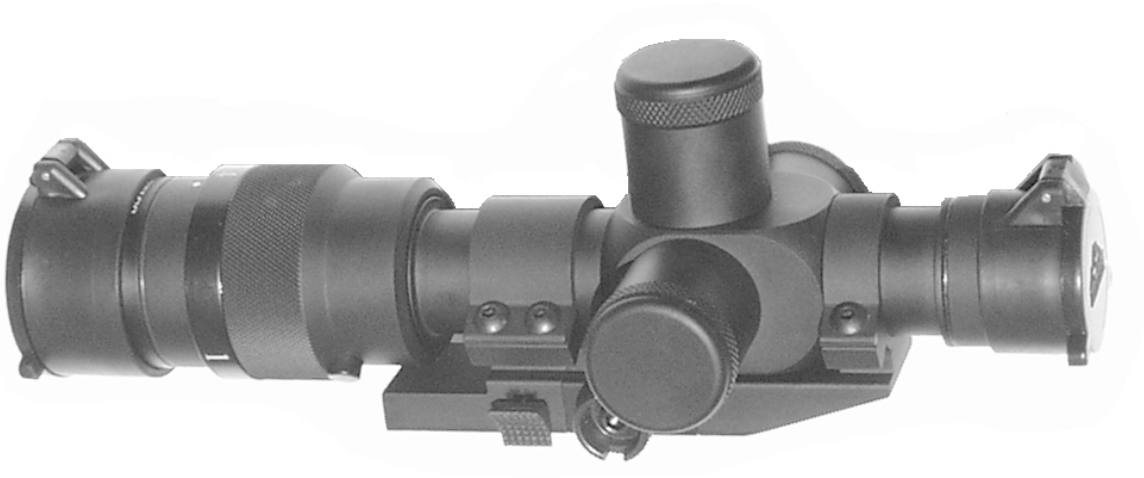
The clicking detent system on U.S. Optics scopes is the simplest, most rugged and failproof of any knob system on the market. The clicker itself is a tool steel unit, hand broached, hard chrome plated and heat-treated. The detent plunger is a tungsten carbide ball and the spring behind it is a lifetime beryllium copper unit. No one in the world makes a Windage & elevation adjustment this strong, precise and impervious to use. Tests show that one can break the entire knob off the scope with a hammer and it will still maintain its point of impact. Schmidt & Bender cannot do this.

Summary

In all of the above comparisons Schmidt & Bender cannot do the same thing U.S. Optics scopes can do but the U.S. Optics comparisons can do a great many things and do it better than Schmidt & Bender scopes at competitive prices. We stand ready to make any optical, mechanical or feature comparison at any time between the U.S. Optics SN-3 and the Schmidt & Bender P2 Sniper. **In addition, model for model (with comparative features), U.S. Optics SN-3 variables are a lot less money. (comparison with Schmidt and Bender 2003 price list)**

SN-4 Data Sheet

MODEL SN-4



Shown above is the MK III with optional knobs and attached mount

Specifications

MAGNIFICATION: 1x-4x
OBJECTIVE APERTURE: 22mm
MAIN TUBE:
DIAMETER:
30mm, 35mm (MKII,III,IV)
MATERIAL:
6061-T6, 7075-T6, Steel, Composite, Titanium
FINISH:
TYPE: Hard Anodized
COLOR: Black, OD Green, Gray, Silver
SURFACE: Matte/Non Reflective
LENSES:
MATERIAL: Glass/High Density, Recompressed
QUALITY: Grade A, Fine Anneal
COATING: Multi/All surfaces FSSBBC
CENTRATION: 20 millionths
SCRATCH AND DIG: 10/5
NUMBER OF LENSES: 13+ Elements
LIGHT TRANSFERENCE: 99.4% per lens
OCULAR LENS DIAMETER: 35mm
RETICLE: Recoil proof, etched and/or chromed on optical glass front focal plane (rear on demand) Circle-dot & others (see reticle section)

FIELD OF VIEW: 1x @100yds=**116ft**.,
4x@100yds=34.2ft, 3x=41ft.
EYE RELIEF: **4.3in**.@1x, 3.3in@4x
EXIT PUPIL SIZE: 22mm@1x, 9.5mm@3x
FOCUS SYSTEM: -3.5 to +3 Diopters,(***can be custom varied to your eyesight)!!!***
ENVIRONMENTAL:
HUMIDITY: Waterproof to 30 feet
TEMPERATURE: -20° to 140°F
PARALLAX SETTING: 100m Fixed, others on demand
P.O.I. VAR. W/PWR. CHNGE: "0"MOA shift!!!
TURRET TYPE: Double and single
KNOBS: #US #1 is standard, hunting style std. on Safari
MAX MOA ADJ: 140 MOA
MOA PER CLICK: .675 MOA Standard on all knobs, 1/4MOA on Safari knobs. .5 MOA option in Mar., 2004
DIMENSIONS:
WEIGHT: 1.6 lbs. (without mount)Tactical models
" 2.2 lbs. (with mount) " "
LENGTH: 9.5in
WARRANTY: Limited Lifetime-80 years, No Charge, No Hassle Service

SN-4

At 1x, this scope has a 116ft field of view. This is wider than all the red-dot sights, including the 40mm units and scopes. The red dot sights, ACOG and Leitz Elcan, do not have diopter adjustment, therefore, one cannot see in perfect focus without eyeglasses. There is also only one focal plane to aim faster and more accurately. As of 2002, all of U.S. Optics scopes have the very finest, most rugged, adjustments on the market. Fully adjustable by travel, backlash and pressure, these are made to repeat exactly for a lifetime of use. These patented features are standard on all models regardless of type of knob.

This scope does what the red dot sights, ACOG, Leitz Elcan, Leupold CQT, Cobra and AUG sights do, **and can do it better**, with more versatility at the same money or less. It has better features and more versatility than any 1-4x German, Japanese, or American scope.

The SN-4 is the world's first non-moving center of impact, front reticle, American Made, Variable power scope. As the power is turned up to 4x or 5.7x, the dot in the circle becomes a long range precision aiming point. When turned down to 1x, the dot fades into the background of the circle. The circle becomes a large, fast aiming dot, or small circle that can give you the height or size measurement at any distance, at any power. The size of the reticle, compared to the target, stays constant at all powers. Only the field of view changes, the accuracy and the point of impact is constant. In that manner, the reticle can be used as a ranging device.

This scope is also available in FIXED POWERS FROM 1x to 4x and 6x on demand as an option. (see price list).

These facts together with long eye relief and our recoil-proof technology, make this scope an ideal choice for big game safari and action competition shooting, in addition to low enforcement and military applications. FBI records and statistics show that 95% of <u>all</u> SWAT team rifle shots are under 80 yards: With options for .223 or .308 cal Bullet Drop Compensators, it is probably the worlds' best choice for SWAT and police work at half the price of European models, and with better optics--it is a great bargain.

Our U.S. Optics optical doubler can be installed on the objective of the SN-4 and the power will go from 1-4x to 2-8x, or from1-5.2x to 2-10.4x! See the optical price list. Our new doubler will be available in early 2004.

Our Posa Slide & Lock mounting system is the strongest, most precise system we know of for this type of application. Properly done, It returns to zero every time, no matter how many times the scope has been removed from the rings.

Over the last 8 years, we have sold thousands of SN-4's. They are the most popular 1-4x variable, of its type, in the world. Most people have wanted the 30mm model with B.D.C. knobs and circle dot reticle .

The following improvements on our standard model SN-4 are included free of charge:

1. Stronger, lighter, more versatile housing with a 30 mm body (ring section turned down to 30mm) at no extra charge. <u>Stronger than any tube type scope on the market</u>.
2. Lighter, stronger, more versatile knobs with tungsten-carbide-<u>to steel</u> (no backlash) adjustments.
3. Thread covers on objectives and eyepiece for accessories (Not standard on MK I)
4. Individual springs for W&E knobs.

Options at an additional cost added to the list are:

1. Covers for the Windage and elevation knobs (standard on MK III only).
2. Threaded, screw-on, stackable sunshades.
3. Threaded covers for eyepiece and objective (fits MK II and III only)
4. Choice of 5 new and totally unique scope mount systems.

U.S. <u>*Dept. of Energy, Navy Seals, U.S. Treasury security forces, Special Forces and others use the SN-4 when other scopes can't do the job. Clearly superior to the ACOG, Alcan and others-let us prove it to you.*</u>

SN-4 MK I Rapid Response

All the above features in an extremely rugged 30mm tube with circle-dot* ranging and acquisition reticle. Windage is via a fast acquisition coverless knob that is ergonomic and extremely rugged. Elevation is the same as the Windage knob, but with both B.D.C. (.223 & .308), (Bullet Drop Compensation) and 1/2 M.O.A. clicks. ** Both knobs are re-settable to zero after being sighted in. Short turret w/no lit reticle provision and no threaded objective cover.

SN-4 MK II Rapid Response

Same as MK II but has an even more rugged tube (30mm or 35mm Dia.), which is almost 400% stronger than most scopes! Built with a huge four sided turret to accommodate the military and police knobs above and an optional 11-position rheostat on the left for a lighted reticle format (**available on MK II, III, and IV only). Has huge, independent coil springs for Windage and elevation rebound, not tiny, flat copper springs as most other scopes. Includes removable threaded sections on front and rear of scope to accommodate all the optional covers, sunshades and caps. Note: W&E knob covers not included.

*Other reticles available on demand.

SN-4 MK III A.N. (Army-Navy, D.O.E.) Rapid Response

Has all the features of MK I & II above plus Butler Creek style flip-up plastic caps on objective and eyepiece to protect the coating on the scope lenses. Screw-on protective (cup), style lens caps are also available (as an option), W & W/O glass inserts. The turret W&E knobs have military style, rugged screw-on protective caps as standard equipment.

SN-4 Safari

Same Rugged optics and internals as MK-II above but instead of a military style B.D.C. elevation knob it has a standard coin slot hunting type unit with screw on cap. Windage is also via a hunting type knob with cover. Both knobs are extremely low profile and SAFARI rugged. These scopes are recoil proofed to surpass .50 BMG and .416 Rigby type recoil! The SAFARI has these standard features;

One of the fastest reticles made in the world; the famous Williams *Circle-dot* (20 std. options and any custom).
The strongest, simplest and ruggedest housing made.
A 1x-4x Variable power system that is stronger and more foolproof than any made.
Optical resolution as good or better than any made.
The widest field of view of any 1-4x variable made (117feet at 100yds.). This, together with the *circle-dot* reticle and an exit pupil of 22mm makes the SN-4 the fastest sighting scope in the world. This is perfect for Alaskan or African safari work!
A 2x doubler option to make the SAFARI a 2-8x!
1/4 MOA E&W knobs are available in a hunting style format at no extra charge

SN-4 Pricing

Scope Model	Prices
SN-4 MK I	$1165.00
SN-4 MK II	$1240.00
SN-4 MK III	$1349.00
SAFARI	$1120.00

None of the Equivalent European Scopes (and most sell for more money), have either the Quality, ruggedness, optical performance or features The SN-4 Rapid Response offers.

Options

Optional Optics	PRICE
1x, 2x, 3x or 4x FIXED POWER ONLY (subtract)	$100.00
1.5-6.2 (extra cost) (has 44mm objective).	$148.50

Not made in ultra Hi Res at the moment

Optional Equipment	PRICE
2x (2 power) doubler - converts a 1-4x scope to 2-8x (40mm) Simply screw this unit on the end of your SN-4 and you have a 2-8x!	$220.00
Adapter and Lock Ring for above to screw on the end of the scope	$28.00
Custom Reticles	POR
$2^{1/2}$ inch Collet sunshade (can be used with Butler Creek style covers)	$60.00
Lit Reticle Module with 11 position brightness control	$185.00
Long turret configuration (for future Lit Reticle Module as above)(extra)	$40.00

Knobs	PRICE
Bullet Drop Compensator Elevation Knob (Re-settable & different calibers available) Standard on the MKII and MKIII (.223 & .308 only on MK I)	$95.00
B.D.C Elevation & Windage knobs for the Safari (.223 and .308 only)	$150.00
Custom calibers for the BDC (#3&4 above) knobs (built to your specs)	$150.00
Flip-up plastic Butler Creek style covers (set)	$30.00
Covers for W & E Knobs (screw-on)(standard on MK III)	$30.00
90 Click E.R.E.K. Elevation Knob	$185.00

Finishes	PRICE
Olive Drab Green, Gray or Silver Anodizing	$90.00
Camo (Desert, forest, Navy blue & gray) includes covers, rings, bases etc (allow 6 weeks)	$180.00

Feature comparisons between U.S. Optics SN-4 MK I and the ACOG

Features	SN-4 MK I	SN-4 Comments	ACOG	ACOG Comments
Magnification	1x - 4x Variable	At 1x, fastest target acquisition.	4x Fixed	1x- 4x variable is superior for rapid acquisition
Optical Resolution	48 line pairs per	Visual acuity better (sees better)	36 line pairs radian	SN-4 resolves better
Single Wave transmission	***98.4% Measured		89%	11% loss
Full Wave Transmission	94.6%	5.4% loss	87%	13% loss
Objective	22 mm	optional 40mm	32mm	
Tube Diameter	30mm		bastard forging	
Exit Pupil Size	1X= 20mm, 4X= 5.8mm	****	8mm	Minimum versatility
Eye Relief	3.8 - 4.5in	works W/gas masks, goggles & glasses.	1.5 in	Too short for; gas masks, goggles and glasses
Field of View	1x = 116ft, *4x= 34ft	*****	37	Minimum versatility
Weight	13.75oz		9.7	
Length	9.25in	Longer scopes have better optical quality	5.8	
Reticle	Front focal plane lensmatic system	200 designs plus custom	BDC on Prism	SN-4 system more accurate than Prismatic reticle
Diopter Adjuster	-4.5 to +3		NONE	No compensation for imperfect eyesight
Elevation Knob	Interchangeable	Steel to steel,3 different knob	Non interchangeable	Brass. No BDC
Windage Knob	Interchangeable	" " " "	Non interchangeable	Brass
Minutes of Angle Adjstmnt	Up to 200MOA	230% more travel	86 MOA (usable)	Tilting prism design has less adjustment
Eye Piece Covers	Any common type		Not possible	Design precludes using reg. covers & accessories.
Objective Sunshades	Any common type		Not possible	" " "
Lighted Reticle	Fully adjustable for intensity	retina recognition	Not adjustable, Always on	
Mounting System	Any 30mm. mounts	Infinite variety of rings & mounts	Picatinny side clamp only	One mount type only
Wndg. & Elvtn. covers	Yes	Full, waterproof, shockproof covers.	NONE	More likely to have vision impairment
Night Vision adaptable	Yes		No	

*38ft optional, ** circle dot standard, *** measured by Interferometry, ****The SN-4 exit pupil provides 250% faster target acquisition time and higher light gathering. *****The SN-4 has 600% more effective field of view, which makes the SN-4 faster to see the full field target and with better eye-brain fusing. By determining the area of the field of view of each scope, one clearly sees the superiority of the SN-4.

Lifetime warranty to orginal owner. Serviced by the factory only. All servicing, modifications, and refurbishing is done at the factory by the same people the make the scopes. This means you get top quality work, and a faster turn around time.

Above information taken from factory specification sheets, 1996 Gun Digest, and other published data.

SN-4 vs. ACOG Summary

SN-4 is:

- **Faster to use**
- **More versatile**
- **Safer and more reliable**
- **Better built**

SN-4 has:

- **Better optics**
- **More mounting options**
- **More choices of knob styles, for BDC etc.**
- **More accessory options; reticles, sunshades, etc.**
- **Better resale value**

Direct feature comparisons between U.S. Optics SN-4 and the Leitz Elcan

Features	SN-4	SN-4 Comments	ELCAN	ELCAN Comments
Magnification	1-4X23MM Variable	At 1x, SN4 is faster	3.4x Fixed	Fixed 3.4x not as efficient
Optical Resolution	48 line pairs / milliradian	(sees better)	44 line pairs/ milliradian	Optical design not as good
Single Wave Transmission	*** 98.4% Measured	1.6% loss	94%	6% loss
Full Wave Transmission	94.6%	5.4% loss	90%	10% loss
Objective	23MM			Even the ACOG is 32mm
Tube Diameter	30MM is standard, 35optional			Cannot accept Ring Mounts
Exit Pupil Size	1X=23MM, 4X=5.7			Min. versatility Measured 8mm
Eye Relief	3.8 - 4.5"is standard,			Too short for Gas masks, Goggles&Glasses
Field of View	1x-116 ft,*4x-34'	*****	40'quoted, Measured 36'	Minimum versatility
Weight	13.75oz		640 grams	Elcan is much heavier than the SN-4.
Length	9.25in	Longer scopes see better	6.3"	
Reticle	** Front focal plane system	200 designs plus custom	BDC printed on Prism	SN-4 system isbetter/more versatile
Diopter adjuster	-4.5 to +3	SN-4 has+2 to -3 diopters of eye.	NONE (Dangerous).	Does not have basic diopters correction
Elevation Knob	Interchangeable	click adjustment spools for <u>any ic B.D.C.W/</u> 1/2 M.O.A. clicks unit.	Non interchangeable	No knob B.D.C., Basic adjustments are coarse, crude and inaccurate.
Windage Knob	Interchangeable	Steel to steel. " " "		
M.O.A. Adjustment	Up to 200 MOA	230% more travel	86 MOA (usable)	Tilting prism design has less adjustment
Eyepiece Covers	Any type	Uses all basic covers Butler Creek	Not possible	Elcan cannot use;Butler Creek Tactical Flip-ups.
Objective Sunshades	Any type	SN-4 sunshades, lazer filters, doubler etc.	Not easily done	Elcan is <u>not attachment compatible</u>.
Lighted Reticle	Fully adjustable for intensity	Has choice of ambient light or battery operated rheostat.	Not adjustable	We use no unsafe radiation such as Tritium . looses power in about 5 years.
Mounting System	Any standard 30mm.	variety. Takes <u>all</u> basic mount systems	Picatinny clamp only	The Elcan has only the Picatinny rail mnt
W. & E. dust covers	Yes	Full, waterproof, shockproof	NONE	None(cheap rubber on some)
Night Vision adaptable	Yes	Easily (eyepiece or objective)	No	
Glass made in	USA			

****The SN-4 exit pupil provides 250% faster target acquisition time and higher light gathering than ELCAN.

*****The SN-4 has 600% more effective field of view, which makes the SN-4 faster to see the full field target and with better eye-brain fusing. By determining the area of the field of view of each scope, one clearly see the superiority of the SN-4.

SN-4 vs. ELCAN Summary, Advantages SN-4 has over the Elcan:

- **Faster on target (faster target acquisition).**
- **More accurate, especially at longer ranges.**
- **More versatile to use (Variable Power).**
- **Ranges (Rangefinding) better.**
- **More versatile lit reticle - works better.**
- **More and better reticle choices.**
- **Better Parallax Correction.**
- **Has diopter correction and is more adjustable to the individual's eye, Elcan has no diopter correction.**
- **Will accept accessories, such as scope covers, sunshades, Etc., Elcan does not.**

- **Technical specifications are equal to, or better in every way compared to Elcan.**
- **More mounting options**
- **More choices of knob styles, for BDC etc.**
- **More accessory options; reticles, sunshades, etc.**
- **Better resale value.**
- **Has won more national 3gun titles and records.**
- **Choice of champions (for target acquisition).**
- **Interchangeable knobs-Elcan can't do that.**
- **Elcan uses Tritium (radiation) can be dangerous.**
- **Tritium in Elcan is non-functional after 4 or 5 years.**

The Elcan is noted for not being able to have conventional interchangeability of el. & wndge. Knobs as found on most quality scopes, can't accept most sunshades etc. and is fixed power only (<u>these are some real</u> <u>handicaps, particularly for military scopes where versatility and fast target acquisition are important</u>).

With all these advantages, the SN-4 is still approximately the same list price as the ELCAN.

Above information taken from factory specification sheets, 1996 Gun Digest, and other published data.

SN-6 Data Sheet

MODEL SN-6

Shown is 10X44mm w/Ergo objective

Specifications

MAGNIFICATION: 10x, 13.2x, 17x, 22x
OBJECTIVE APERTURE: 44mm, 58mm, 80mm(OPTIONAL)
MAIN TUBE: One-piece construction
TUBE DIAMETER: 30mm, 35mm
MATERIAL: 6061-T6, 7075-T6, Steel, Titanium, Carbon Graphite Composite
FINISH
TYPE: Hard Anodized
COLOR: Black, OD Green, Gray, Silver
SURFACE: Matte/Non-Reflective
LENSES:
MATERIAL: Glass/High Density, Recompressed
QUALITY: Grade A, Fine Anneal
COATING: FSSBBC Multi/all surfaces
CENTRATION: 20 Millionths
SCRATCH AND DIG: 10/5 or better
NUMBER OF LENSES: 13 elements
LIGHT TRANSFERENCE: 99.4% per lens (multi-band input)
OCULAR LENS DIAMETER: 30mm
FOCUS SYSTEM: Objective Parallax and Diopters adjustment

FIELD OF VIEW:
10X100yds=12ft.(mskd),14ft. (unmskd)
17x " =7.5ft (masked), 8.5ft (unmskd)
EYE RELIEF: 3.8in.@10x
EXIT PUPIL SIZE: 4.4mm, 5.8mm and 8mm @10x
PARALLAX SETTING: 100 yds to 2000 yds (INFINITY)
ENVIRONMENTAL:
HUMIDITY: Waterproof to 30ft.
TEMPERATURE: -20 to 160°F
TURRET TYPE: Double
KNOBS: US#1 Standard
MAX MOA ADJ.: up to 220MOA
MOA PER CLICK: 1/4 MOA
DIMENSIONS:
WEIGHT: 14.6oz.(6x)
LENGTH: 12.2in. (6x)
WARRANTY:
Limited Lifetime-80 years, No Charge, No Hassle Service

SN-6 Information

More simplified than the SN-3, This scope is designed to outperform (optically and mechanically), similar scopes but have more and better features at a lower price. Its optics are superb! It has a one piece indestructible (more rugged than Mil-Spec type construction), 30mm tube, sandwiched glass Mil-dot reticle, rapid-focus eyepiece, tungsten carbide click adjustments, lifetime dull matte finish that is ¾ the hardness of a diamond and is threaded for all SN-6 (10x) accessories (sunshades, flip-up covers etc). ***See the ST-10 section for size dimensions for the SN-6.***

SN-6 MK I A.N. (Army-Navy)

All of the above features plus, optional ability to interchange reticles, beefy single tube construction from eyepiece to objective bell. Extra layer of aluminum alloy armor over turret adjustment area. Extra thick armor in eyepiece and objective. Front or rear focal plane reticle options. 30mm tube dia. Is standard, 35mm is an option. No eyepiece or objective or W&E covers provided (*optional at extra cost*).

Power	
10x44mm (with fixed objective)	$1295.00
17x58mm (with "Ergo" Adj. objective)	$1550.00
22X58mm (with "Ergo" Adj. objective)	$1695.00

SN-6 A.N. MK II D.M. (Designated Marksman) Marine Corps

All features above plus choice of standard Butler Creek or screw-in (optional) eyepiece and objective covers, as well as, Windage and elevation covers. When all threaded covers and seals are in place the unit is waterproof to 100ft. and drop proof at 3ft. on a 10lb. gun and 5ft. when dropped by itself onto dirt (10x only). On land the scope can be used with flip-up plastic covers if quickness is an imperative. Marine Corps "MIL-DOT" with ranging brackets is the standard reticle here, while our patented "MIL-SCALE" reticle with BDC and ranging capability is an option. B.D.C. for .223, .308, .300 Win. Mag. and .338 Lapua graduated to 1000 + yards. Laser Hardened options. Adaptable to Night Vision C.C.T.V., infra red and laser range- finding . 130 MOA adjustment with the 30mm tube and 15% more MOA with the 35mm tube.

Power	
10x44mm (with adj. "ERGO" objective)	$1650.00
17x58mm (with adj. "ERGO" objective)	$1780.00
22x58mm (with adj. "ERGO" objective)	$1925.00
28x58mm (Ultra wide angle w/Ergo)	$2195.00

SN-6 M-4 L.R. (Long Range)

All the above features of the MK I, MK-II and MKIII plus your choice of 30 or 35mm tube (included), an external bubble level, ELEVATION 130+MOA erector capacity (w/35mm tube), 1/4, 1/8 or 1/10MOA elevation clicks, 44mm adjustable objective (to 2000 yds), and choice of; Screw Lock precision rings and one piece extended bridge rail mount (included), or Posa-Slide one piece quick shift mounts. One 4" stackable sunshade/mirage tube is also included

Power	
10x58 or 44mm (w/ERGO objective)	$2050.00
17X58 or 44mm (w/ERGO objective)	$2200.00
22X58 or 44mm (w/ERGO objective)	$2450.00
28X58mm (Ultra wide angle w/Ergo)	$2595.00

SN-6 Features and Options

Optical Extras	Price
Fixed 58mm Obj. lens instead of 44 fixed	$120.00
58mm Adj. Obj. instead ofj. 44mm ones	$140.00
Fixed 80mm Obj. lens to replace 58 fixed	$780.00
58mm Adj. Obj. to replace adj. 58mm fixed	$140.00
Adj. 44mm Obj. lens to replace 44 fixed	$180.00
80mm Adj. Obj. to replace adj. 58mm ones	$800.00

Honeycomb ray limiter installed in the sunshade (essential on 80mm Objectives)		
44mm $40.00	58mm $50.00	80mm $80.00

Mechanical Extras	Price
35mm dia. Tube housing for MK I and II	$250.00
Shockproof Windage and Elevation covers for MK.I	$30.00
Army M.U. Posa-Slide and Lock Picatinney Rail Q.D. Mount	$179.00
Anti-Canting indicator (Internal), We Recommend external	$120.00
Anti-Canting indicator External (Bubble Level) Threaded into turret or the Screw Lock Rings	$48.00
Anti-Canting indicator External (Bubble Level), mounted on a special ring on tube	$68.00
Anti-Canting indicator External (Bubble Level), mounted on a sliding housing to fit the Picatinney rail	$68.00
Custom optional reticles - made to customer's design	POR
90 Click E.R.E.K. Elevation Knobs	$185.00

Reticle Options	Price
Lit Reticle Module with 11 position brightness control	$185.00

See SN-4 options sheet for more choices of lit reticles

Custom serial numbering	(on scope only-$15.00) (production run min. 100 ea.-$4.00)
Customer's name engraved on turret	$35.00 minimum

Mounting Options	Price
Integral Mounting Rail (MK I, MK II)	$86.00
Custom made Posa-Slide and Lock MK II mount for AR-15/10	$249.00
Same mounts as above without the slide and lock feature	$200.00

Appearance Options	Price
Matte hard anodized special exotic colors: choice of O.D. green, Navy gray, Titanium silver	$90.00
Special hard anodized camouflage finishes: Arctic, Dark Woods, Lt. Woods, Desert	$180.00

(above includes scope body, covers and mounts) (allow 6 weeks)
See accompanying sheets at back of catalog for knobs, lens covers, sunshades, rings and bases

Standard Features (U.S. Optics Exclusives)

Rugged 1/8in thick body—One of the strongest in the world! - Even thicker on 35mm and H.D. models.
Dual individual coil spring windage and elevation rebound springs.
Recoil shoulder on front of turret (can set rings against for recoil absorbtion).
Choice of several standard or over 200 optional custom (we can make any custom reticle you wish) reticle patterns.
"ERGO" Range finding objective --- with the ability to get true objective focusing, (not turret mounted parallax correction like the Leupold Mk IV), while behind the gun looking through the scope at your target. The proprietary and patented (#132 & #26 of Patent #6,640,481 B1) "ERGO" system combines a finer, more precise and conventionally accepted method of parallax correction with the unique ability to see the target while adjusting the objective makes RANGEFINDING truly simple and FAR MORE ACCURATE.

Superiority

The SN-6 10x is guaranteed to be superior to any similar fixed power scope made in the world today, in the total **composite**, of the following features, including:
Leupold, Redfield, Burris, Schmidt & Bender, Zeiss, Swarovski, Doctor Optic, Unertl and all the foreign scopes imported by American companies, such as Springfield Armory, Bushnell, Simmons, Weaver, Tasco, Millett and NightForce.

- Ruggedness.
- Optical resolution.
- Standard and optional features.
- Modular features allowing for future changes as customer's needs and desires change.
- Ability to integrate interchangeable mounting systems specific to special purpose tasks.
- Ability to be built to the needs of the individual, the agency, or the entire Army's specs.
- Ability to be built to, and integrate to the needs of, any special purpose weapon system in the world today with only minor modular changes in the basic optical system.
- Ability to accept lit reticles, night vision, infrared, thermal imaging, laser range finding, digital readout and laser hardening systems.
- Interchangeability of components such as; Windage and elevation knobs, Windage and elevation cover systems, eyepiece and objective covers and sunshades, reticles and basic tube components. Even the power systems can be changed. Fixed power systems can be made interchangeable with variable power systems.

Cost Effectiveness

None OF THE COMPANIES ABOVE OFFER THE VARIETY, VERSATILITY OR COMPOSITE FEATURES THAT THE SN-6 HAS ALREADY BUILT INTO THE SYSTEM.

COMPARED TO THE LEUPOLD MK IV, THE SN-6 HAS BETTER FEATURES, BETTER QUALITY, MORE OPTIONS AND BETTER RUGGEDNESS-AT THE SAME PRICE OR LESS!
MADE IN THE U.S.A.
U.S. Optics is an American owned and operated company, making our scopes in our own plant in the U.S.A.!

SN-9-2A&B ASAERTS*

*Advanced, State of the Art, EXTREME RANGE, Telescopic Sight

WE BELIEVE THIS IS THE VERY FINEST ULTRA-LONG RANGE TELESCOPIC SIGHT EVER MADE, YOU CAN BELIEVE IT TOO, IF YOU READ AND UNDERSTAND WHAT WE AND THE U.S. PATENT OFFICE SAYS WITH REGARD TO OUR PATENT # 6,640,481 B1

PROBLEM: MOST current, state-of-the-art telescopic sights, are basically unchanged from the 1920's. They use an internal adjusting erector tube with very small lenses to magnify, erect and modify the image from the objective lens. These designs have many serious faults. They are:

1. In a 1" dia. Tube, the erector tube has to be about .500" dia to have any serious long-range capability and in the 30mm tube, about. 600". This means those erectors have lenses of about .385" to .500" max.. This means there is poor performance in the erectors or simply that when higher magnification is pumped through the system, it can't handle it. This is diffraction limitation or "empty magnification" and the higher the magnification, the poorer the "seeing power".
2. Because of the condition mentioned above, there is not enough room in the smaller outside tubes, using large erector lenses to get large amounts of elevation travel for long ranges; and when that is accomplished or tried, there is tremendous "vignetting", or optical interference.
3. When the poor performing erector tube and lenses above fail worst, is when vignetting occurs. This occurrence is a result of the erector tube adjusted to a radical angle, where the angle of incidence of incoming radiation is so great that it is poorly utilized. That means you can't see well in that circumstance.
4. Another poor aspect of current competitive design, that our competition is using, is that the scope must be made to accommodate current state of the art designs made for tubular scopes. These designs and the small diameter tubes mandate poor performance, particularly in the shorter "compact scopes" and the very high power "precision scopes".
5. Inaccurateness "built into" the design itself, is compromised by the geometry and methodology. Conceptual purposes are not proven by consistent and empirical results.

SOLUTION: SO WE LEFT the current state of the art scopes behind and built a scope without these flaws.

SUMMARY: A "0" ACCURACY MOVING ERECTOR TYPE LENSMATIC SCOPE IS AN OXY-MORON.

SN-9 ASAERTS EA (EXTERNALLY ADJUSTABLE WINDAGE & ELEVATION) In this optical system the entire telescopic sight moves to accommodate Windage and elevation changes, rather than just moving the internal erector tube, as in most hunting and general service type of telescopic sights. Some very impressive performance features of this system, as applied to long range shooting, are: TOTAL MOVEMENT IN M.O.A.- means longer-range elevation capabilities. *EXTERNAL W&E ADJUSTMENTS ARE NOT LIMITED BY THE ERECTOR TUBE DIAMETER FITTING THE I.D. OF THE TUBE ITSELF. THIS UNIT HAS MORE MOA CAPABILITY THAN ANY LONG RANGE SCOPE MADE IN THE WORLD TODAY!!!*

* Advanced State of the Art-Extreme Range Telescopic Sight: **ASAERTS (**pronounced: Asserts**)**

MORE LIGHT TRANSFER-means that because of larger (lenses or prisms) capacity on the inside of the scope with a lack of an erector more light gets through.

BETTER LIGHT TRANSFER- means that there is less Vignetting or simply that the erector was at too acute of an angle, is now straight and lets qualitatively and quantitatively *better* light through.

MORE ACCURATE ADJUSTMENTS-means that when an erector moves on an angle in any direction from the optical axis, the erector tube-W&E shaft foot, being flat and square, changes angle of incidence, and also it's performance value per click. The ASA-ERTS "no erector tube -full lens diameter" concept has no such change.

STRONGER-MORE RELIABLE-means that without the erector tube, not only can we use larger, better seated lenses, but we make the tube larger, stronger and with more inside clearance.

SN-9 ASAERTS (L) Lensmatic Model Series Prices

Fixed Powers

Power	Objective Size (mm Dia)	Hi-Res.
SN9LF-2258 22x	58mm	$2600.00
SN9LF-2280 22x	80mm	$3000.00
*SN9LF-3880 30x **	58mm	$3200.00

***Available in late 2003**

**Available in limited reticle style- please inquire

Variable Powers

Power	Objective Size (mm Dia)	Hi-Res	
SN9LV-2258 3.8-22x	58mm		$3000.00
SN9LV-2280 3.8-22x	80mm	(Available in mid-late 2004)	$3400.00
*SN9LV-3058 8-30x **	58mm		$3800.00
*SLV9LV-3080 8-30x **	80mm		*$4200.00
SLV9LV-4258 10-42 **	58mm		$3800.00
SLV9LV-4280 10-42**	80mm		$4200.00

*Available in late 2003

**Available in limited reticle style- please inquire

Standard Features
Rapid focus eyepiece
Front and rear rings
U.S. #1 W&E knobs standard
Standard Reticles available
Matte black hard anodized finish
Removable W&E Housing
Ergo adjustable objective (for parallax)

Optional Features	Price
Flip-up lens covers	$30.00
Universal base as shown for attaching to your rifle bases	P.O.R.
External levels for both rail & tube	$68.00
Other colors and finishes	$220.00
4" sunshades (58MM)	$80.00
w/honeycomb	$40.00 more
Special BDC knobs	P.O.R
Lighted Reticles	$205.00
Extra-long eye relief eyepiece	$185.00

Total M.O.A. Travel (Rear Housing size)

Unit A is the lowest rear housing and has about 130 M.O.A.

Next lowest and has about 260 M.O.A.

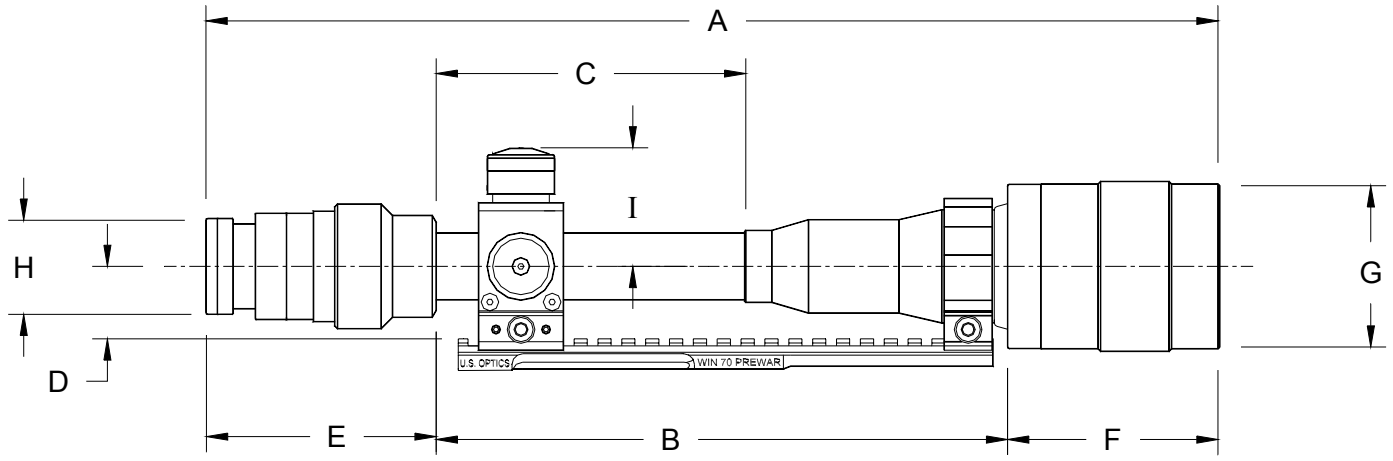
The highest one has over 300 M. O. A. (available in mid 2004)

Knob Values

E&W knob click values are variable. By sliding the rear turret farther rearward, a finer click value is achieved. Preliminary tests indicate values of approximately 1/20 MOA to 1/2 MOA are achieved depending on thread pitch and clicker values. A table of power and subtentions will be included. .250 and .200 MOA is standard- Other values are possible at extra charge- please inquire.

U.S. OPTICS IS AN AMERICAN OWNED AND OPERATED FAMILY COMPANY, BUILDING OUR SCOPES IN OUR OWN PLANT HERE IN THE U.S.A.

SN-9, 2B Profile Dimensions



External Dimensions for the SN-9-2B Variable Power Models

Power	A	B	C	D	E	F	G	H	I	J	* Travel /Click
3.8-22x58			5.48"	1.250"	3.85"	3.66"	2.908"	1.68"	2.110"		Varies
3.8-22x80	17.6"	10.2"	"	"	"	"	3.930"	"	"	7.50"	"
8-30x58	17.6"	10.2"	"	"	"	"	2.908"	"	"		"
8-30x80	17.6"	10.2"	"	"	"	"	3.930"	"	"		"
10-42x58	25"	10.2"	"	"	"	"	2.908"	"	"		"
10-42x80	25"	10.2"	"	"	"	"	3.930"	"	"		"
12-50x58	25"	10.2"	"	"	"	"	2.908"	"	"		"
12-50x80	25"	10.2"	"	"	"	"	3.930"	"	"		"

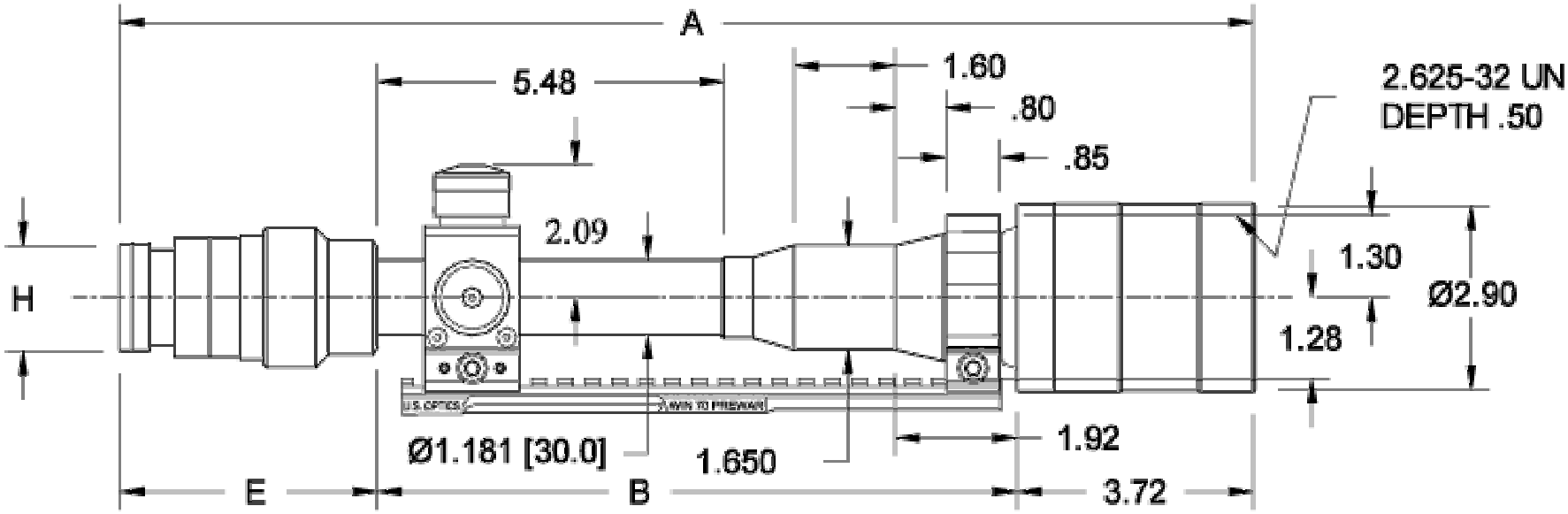
External Dimensions for the SN-9-2B Fixed Power Models

Power	A	B	C	D	E	F	G	H	I	J	* Travel /Click
22x			5.48"	1.25"	3.85"	3.66"	2.908"	1.68"	2.110"		Varies
22x	17.6"	10.2"	"	"	"	"	"	"	"	7.5"	"
30x			"	"	"	"	"	"	"		"

Note: The drawings above show a 58mm diameter objective housing. The measurements for other size objectives are; 80mm = 3.930" dia. (99.84mm)

Long Eye Relief Eye Piece: Slightly larger in diameter & length

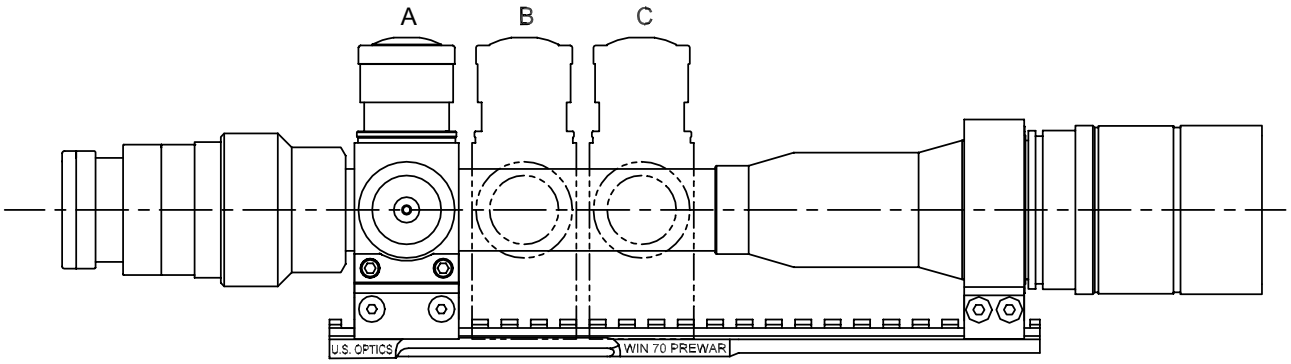
* Travel Per Click: Knob travel per click is determined by the Mount spacing distance in the 3.8-22x58, if the distance between the friont and rear lock screws are 7.5", then the travel per click is .200" each or 1/5 M.O.A. per click. Other powers of SN-9 can be provided with different click values- please inquire.



SN-9 58MM OBJECTIVE CLEARANCES

NOTES:
1. 1.28 IS SCOPE CENTERLINE HEIGHT ABOVE RAIL
2. 1.30 IS RADIUS OF FORWARD RING
3. BODY IS THE SAME FOR 17X AND 3.8-33X MODELS.

SN-9 Mount System



Total M.O.A. Travel of U.S. Optics Products

By using many different thread pitches on our Elevation and Windage knobs, we can vary the travel (per click), to accommodate the needs of the shooter in a specific way. By using at finer thread pitch, the travel per click becomes finer. A coarser thread does the opposite.

By providing more clicks per revolution the travel per click also becomes finer per click. The opposite (fewer clicks per revolution), provides a coarser click.

This will become obvious when you read the chart on the next page.

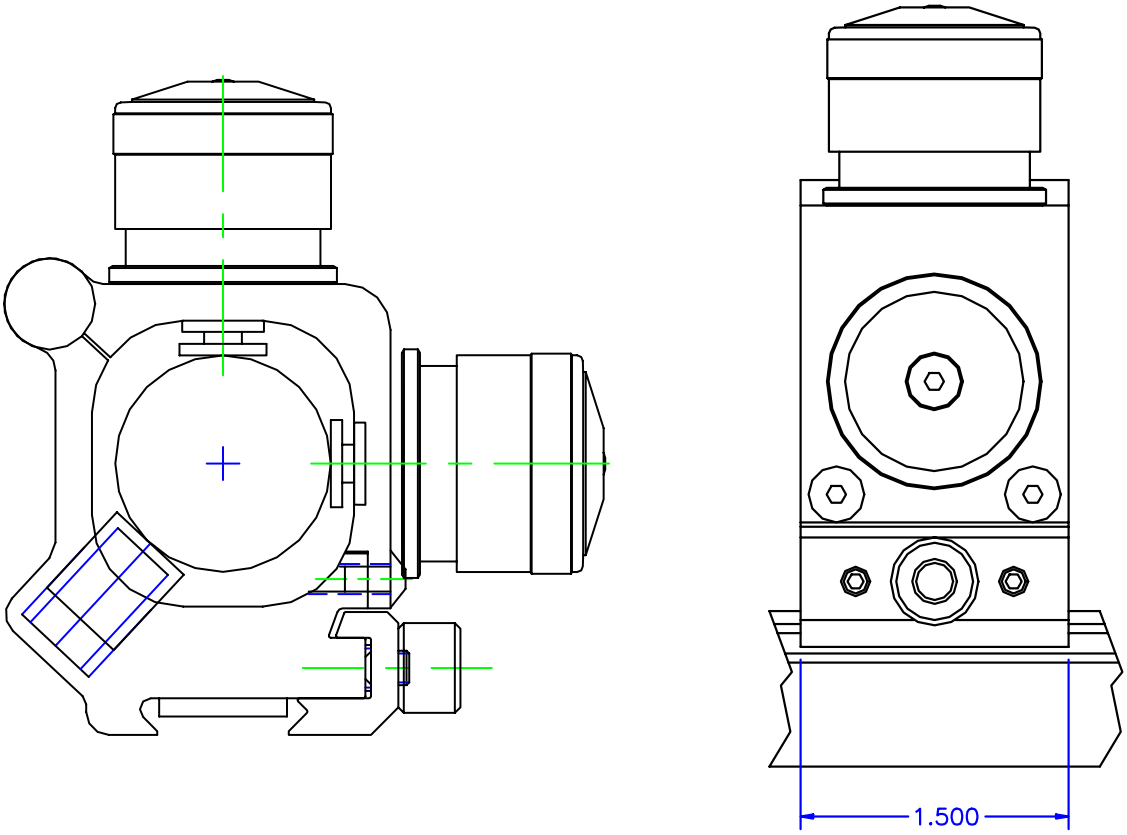
ELEVATION GAIN PER CLICK, MOA

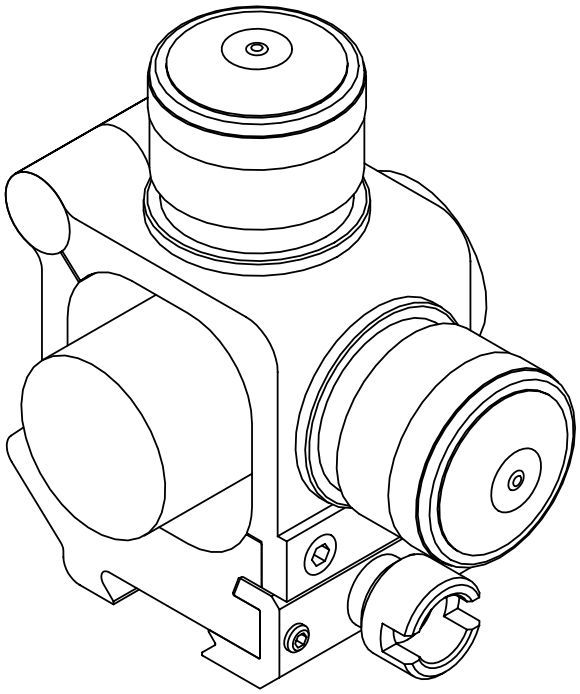
(U.S. #1 Knob)*

(*You may not be able to get "C" value because of the lit reticle-housing placement)

Model & Power	**SCREW TPI \ POSITION**	**A (8.44")**	**B (6.75")**	**C (5.06")**
3.8-22X58 & 44MM	56//TPI 48 Click	1/6 MOA	1/5 MOA	1/4 MOA
3.8-22X58 & 44MM	36/TPI 48 Clicks	1/4 MOA	1/3 MOA	½ MOA

SN-9 Ext Adj. Rear W&E Mount - High





ST-10 Data Sheet

MODEL ST-10

Shown is 10x, 30mm tube, 44mm Fixed Objective

Specifications

MAGNIFICATION: 10x (13x, 17x optional)
OBJECTIVE APERTURE: 44mm (58mm or 44mm in 17x)
MAIN TUBE: Single piece construction
TUBE DIAMETER: 30mm (35mm optional)
MATERIAL: 6061-T6
FINISH
TYPE: Hard Anodized
COLOR: Black, (OD Green, Gray, Silver optional)
SURFACE: Matte/Non-Reflective
LENSES:
MATERIAL: Glass/High Density, Recompressed (highest quality)
QUALITY: Grade A, Fine Anneal
COATING: FSSBBC Multi/all surfaces
CENTRATION: 20 Millionths
SCRATCH AND DIG: 10/5 or better
NUMBER OF LENSES: 13 elements
LIGHT TRANSFERENCE: 99.4% per lens (multi-band input)
OCULAR LENS DIAMETER: 30mm
FIELD OF VIEW:
10x100yds=12ft. (masked), 14ft.(unmasked)
EYE RELIEF: 3.8in. @10x

FOCUS SYSTEM: Diopter adjustment and Objective Parallax (optional)
PARALLAX SETTING: 100 yds. to 2000 yds. (INFINITY)
ENVIRONMENTAL:
HUMIDITY: Waterproof to 30ft.
TEMPERATURE: -20 to 160°F
TURRET TYPE: Double
KNOBS: US#1 Standard
MAX MOA ADJ.: up to 120MOA
MOA PER CLICK: 1/4 MOA
DIMENSIONS:
WEIGHT: 14.6oz.
LENGTH: 12.2in.
WARRANTY:
Limited Lifetime-80 years, No Charge, No Hassle Service

EXIT PUPIL SIZE: 4.6mm @10x

Standard Features

General

- **Widest field of view in industry**
- **Internally threaded objective for accessories.**
- **Interchangeable knob drums for BDC info**
- **30mm dia. Tube (80MOA W&E adjustment)**
- **Rapid focus eyepiece**
- **Mil-Dot (sandwiched glass) reticle**
- **Dual-spring erector rebound system**
- **Extra heavy duty matte black super hard anodized finish**
- **Far superior to Mil-Spec requirements**
- **Recoil proof construction (most rugged 10X scope made!!)**

W&E Adjustments

As of 2000 all U.S. Optics scopes have the finest, most positive, most rugged adjustments on the market. All knobs are fully adjustable for travel, backlash, and pressure. There is a choice of calibers for the bullet drop compensation elevation spool with conventional click system. The Windage knob is an externally adjustable and resetable standard one-quarter MOA adjustment knob (10x), with Protective dust cap(option). We believe our tool steel clickers and tungsten carbide ball plunger systems are the very strongest, longest lasting and most accurate repetitive elevation and Windage knobs in the world!

Objective construction

The fixed, non-adjustable MilSpec. type 44mm objective is standard on the ST10(10X). An adjustable 44mm objective is optional.

Tube /Housing construction

Heavy turret with dual individual coil rebound springs for Windage and elevation. Huge internal optics allow for poor lighting and maximum light gathering. Recoil shoulder on turret. A recoil sleeve to absorb recoil on the turret face is available also. Tube diameters of 30 and 35 are available in this product. Armored eyepiece and objective. Only scope of its type that surpasses the military drop tests. Far more rugged than the Leupold MKIV, Springfield Armory or NightForce.

Reticles

Thickest and best **sandwiched glass reticles** in the entire industry. All lenses fully multicoated Exceptional clarity and resolution. Mil-Dot reticle is true USMC dimensions with extra ranging brackets (true dots, not footballs).

Designed to be far superior in optical, mechanical and functional performance to the Leupold MK-IV **(see comparison sheet),** it also offers superiority in variability, versatility, options and applicability. It provides fixed power type of ruggedness. Thicker, stronger tube-turret-eyepiece-objective strength to take more abuse. *We invite comparisons on any level*! The ST-10 is currently only available in 10x and 17x Mil-Dot Reticles.

American made

If you have been considering purchasing Leupold, Schmidt & Bender or other cheaper foreign scopes such as Night Force, Springfield Armory, etc., we suggest you look at the our American made-American designed scopes. We **invite your comparisons in every way**, optically, mechanically, features, ruggedness and performance. We are totally American owned, operated and we are all shooters. Our designers, engineers and opticians are all multi-generation American citizens..

Greatest Value

The ST-10 is a semi-mass produced hand made version of the SN-6. Because we only offer it with certain features, we can reduce the price by making many of them at one time. This saves you, the customer, lots of money and *gives you what we think is the very best scope of its type at a great price.*

New ST-10 Military Counter Sniper Scope

Pricing

Standard10X ST-10	Price
10x, 30mm tube, 44mm non-adjustable objective, Mil-dot w/brackets	$895.00

1/4 MOA knobs are standard, generic .223 or .308 BDC is included, if wanted

Options

Optical & Power Options	Price
13.2x option	$150.00
17x option (58mm fixed objective)	$200.00
Adjustable objective (for parallax Correction on the 10, 13.2&17X models)	$200.00

Mechanical options	Price
35mm tube (100-120MOA W&E adjustment)	$250.00
11 position lit reticle (FRONT FOCAL PLANE)	$185.00
Sunshades: 4"(able to accommodate honeycomb below)	$60.00
Sunshades: 6"(able to accommodate honeycomb below)	$80.00
Honeycomb filters (see page 128-A) (Install in sunshade)	$40.00
Butler creek style flip up covers for obj. and eyepiece (per set)	$30.00
Military style Anti-Cant device (bubble level)(choice of ring or sliding type)	$48.95

Elevation and Windage Knob Options	Price
U.S.M.C. Knob (M40A1)	$420.00
E.R.E.K.: 90 click, 45 M.O.A. and 90 click in one revolution (combination of USMC M40 and U.S.#1 knob)	$185.00
**U.S. Optics #1 knobs with M40 look alike covers (both W&E)	$40.00
BDC Knob Covers (Extra) (Generic)	$20.00
BDC Knob Covers (Extra) (custom)	$40.00
Windage and elevation knob covers (Screw-on)	$20.00

** (Due to the large diameter of these covers, the screw-on covers will not work on these units)

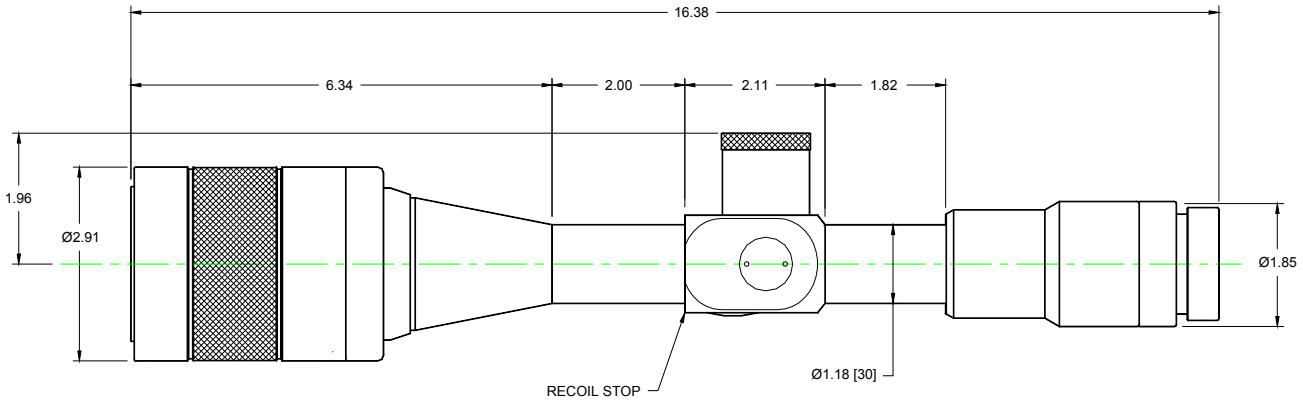
Optional Finishes	Price
Cosmetic Options O.D. Green color (hard anodized) (6 weeks wait)	$90.00
Camouflage (allow 6 weeks) solid colors and camo. Inquire	$180.00

Three Samples of the ST-10

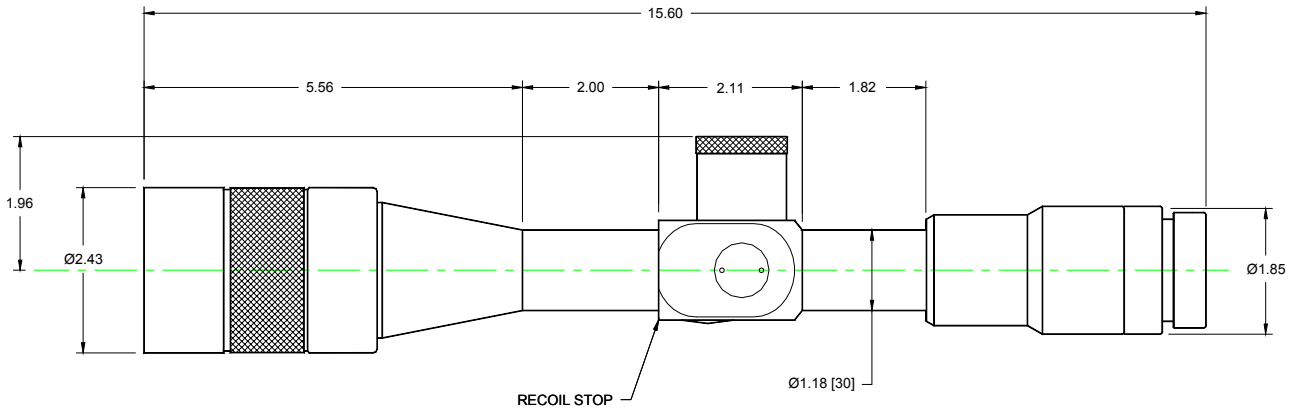
Left: 10X, 30MM tube, turret recoil shoulder, adjustable "Ergo" objective, U.S. #1 knobs (w/o covers) and 11 position lit reticle housing.

Middle: 10X, 30MM tube, turret recoil shoulder, adjustable "Ergo" objective, U.S. #1 knobs (w/o covers) and no lit reticle rheostat.

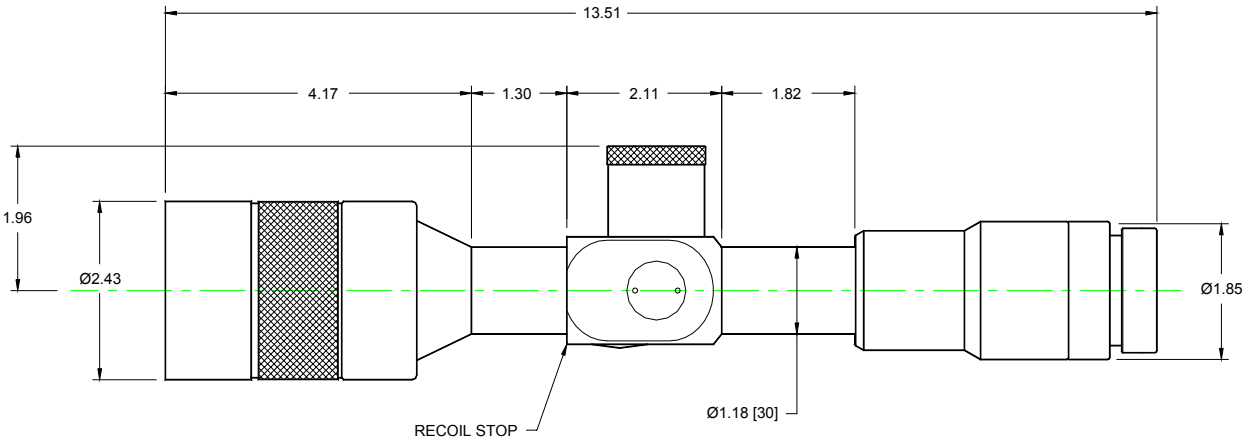
Right: Same as middle but w/fixed objective housing, and no recoil shoulder.



SN-6 17 X 58

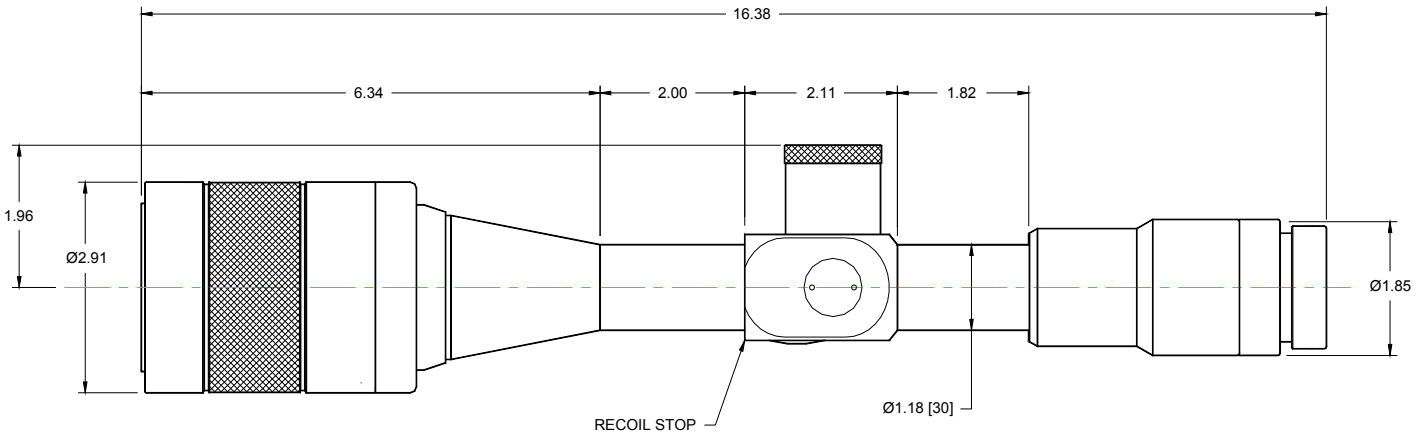


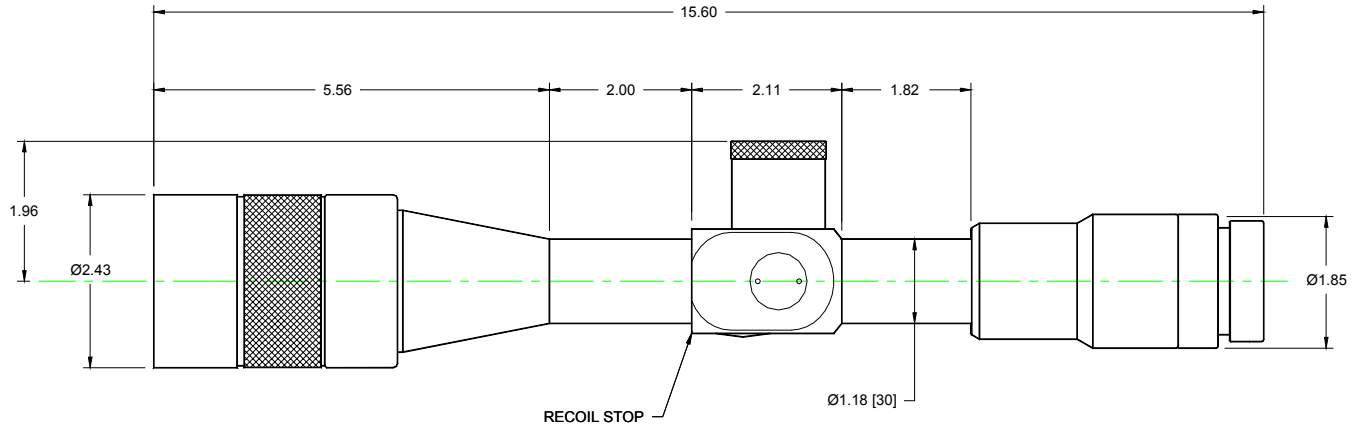
ST-10 17 X 44

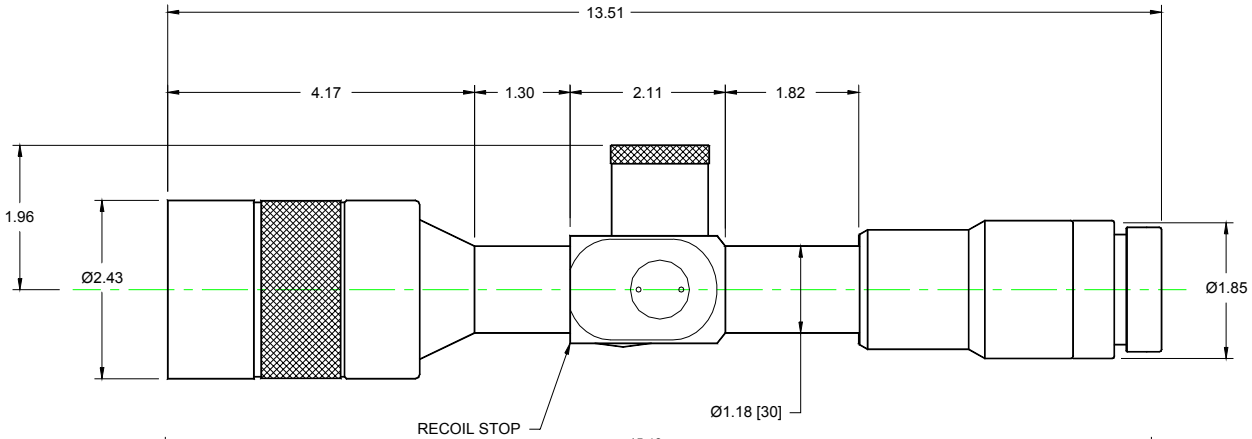


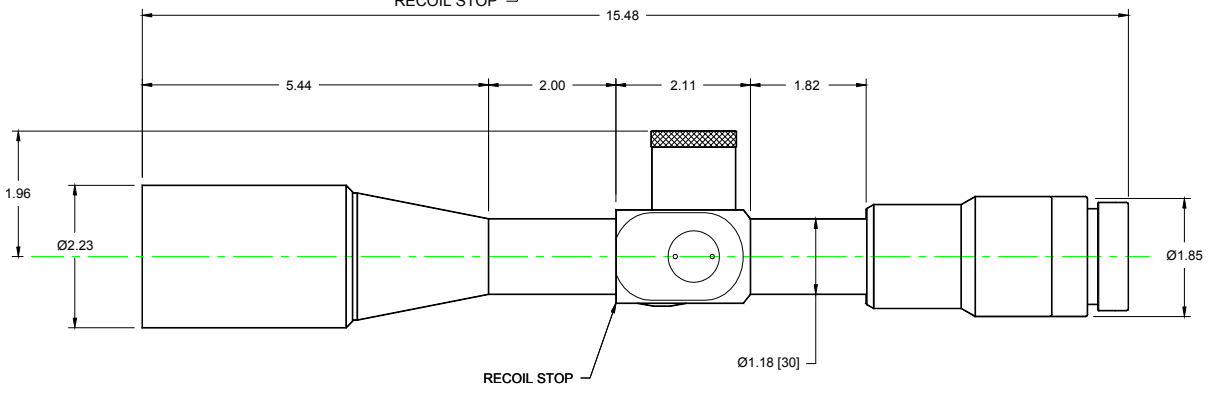
SN-6 10 X 44

ST-10 & SN-6 Family Sampler









ST-10 17 X 44 FIXED

Direct feature comparison between U.S. Optics ST-10, 10X and Leupold MKIV, 10X

Features	ST-10 MK IV(10X)	Leupold Mark IV(10X)
MIL-SPEC Designed for military/Police use. (Not a reworked commercial optical system)	Yes, Designed to be a better tactical scope w/superior features from inception.	No, was a modification of an existing system, but had some good features
Magnification	10X and 17X(1X&22X on special order	10X, 16X only
Optional variable powers	Yes	No
Optical Resolution .5 MOA on the USAF 1951 resolution chart	Yes, optical resolution, both on axis and off axis is superior	No
Lens Centration to within 20 millionths	Yes, more time is taken during assembly	No
Single Wave Transmission		
Full Wave Transmission		
Objective Diameter	44mm and 58mm (88 and 100mm options)	40mm only
Defraction limited by objective size	No	Yes
Tube Diameter	30mm(35mm and 40mm options)	30mm
Optional body materials available on demand(steel, titanium, composite)?	Yes	No
Optional body colors, incl. various camo designs	Yes	No
Modular component design (serviceability)	Yes	No
Exit Pupil Size	(10x) 4.4mm, 5.8mm,8mm, 10mm*	4mm(10X)
Eye Relief	(10x) 3.5 - 4.4(extra long E.R. on demand)	3.6 only(has narrow F.O.V.)
Field of View	**(10x) 16ft@100yds(much wider)**	11.1ft@100yds(narrow)
Can Parallax be adjusted for yardage on the objective while looking through the scope? Is yardage apparent to shooter's eye?	Yes, ERGO design,more accurate, superior	no
Weight	(10x) 16.7oz	21oz
Length	(10x) 13in	13.12in
Reticle	**Front focal plane, sandwiched glass, etched & filled, lit, 4 std. styles, 200 others on custom order. One of world's best reticle systems**	2 styles, not lighted, non glass types cheap metal reticle
Diopter Adjuster	-4.4 - +3.5, Rapid focus very ergonomic	Lock Ring, hard & slow to use
Elevation Knobs (materials & methods)	Steel to steel. Replaceable covers for different caliber's. 4 knob types (.05 - 1 MOA)custom BDC for any bullet wt. & velocity	1 knob type .25MOA only, non variable, **non changeable in field**
Windage Knob	" " " "	1 knob type .25MOA
Minutes of Angle Adjustment	**30MM tube=90-120, 35MM=120-130**	86 MOA usable(10X)
Eye Piece Covers	B.C. flip ups are standard	None
Objective Covers	" " "	None
Lighted Reticle	Yes	No
Windage & Elevation dust covers	Yes, Knobs are well protected	No
Withstand 8ft drop onto hard sod 100 times	Yes	No
Waterproof to 50ft	Yes (tested)	No (Tested)
Factory suggested retail prices (2003)	**$895.00**	**$1807.10**

SUMMARY:ST-10 (American made) is a better scope with more features at a lower price!

ST-10 has:

1. more M.O.A. capability, knobs are interchangeable with many more and better features,
2. wider field of view, better, more rugged and better protected optical system,
3. better, faster and more efficient eyepiece,
4. more options, better standard features, much better reticle system,
5. better optical system, larger exit pupil,
6. can be made with longer eye relief.

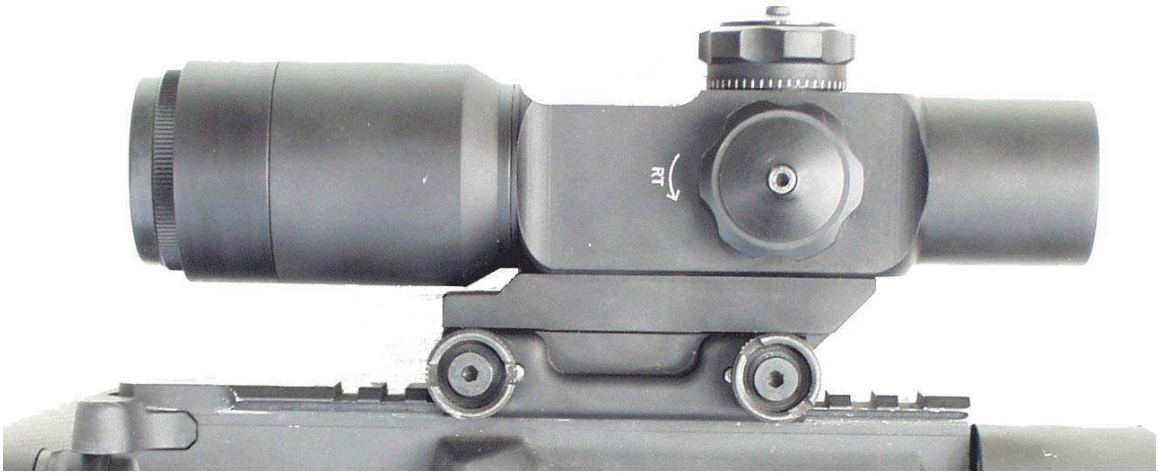
MKIV does not have:

1. screw on El. & W. covers for protection, superior glass reticle and has no reticle illumination.

.Above information taken from factory specification sheets, 1996 Gun Digest, and other published data.

SN-12 Data Sheet

MODEL SN-12 (Rapid Response®)



Specifications

MAGNIFICATION: 3.5x Fixed, others on demand
OBJECTIVE APERTURE: 24mm,
MAIN TUBE:
DIAMETER:
35mm
MATERIAL:
7075-T6
FINISH:
TYPE: Hard Anodized
COLOR: Black, (OD Green, Gray, Silver are optional)
SURFACE: Matte/Non Reflective
LENSES:
MATERIAL: Glass/High Density, Recompressed
QUALITY: Grade A, Fine Anneal
COATING: Multi Band with 2 layers of hard coat
CENTRATION: 20 millionths
SCRATCH AND DIG: 10/5
NUMBER OF LENSES: 10 - 12 Elements
LIGHT TRANSFERENCE: Approx. 99.4% per lens
OCULAR LENS DIAMETER: 34mm
RETICLE: Triple sandwiched optical glass,
Choice of four designs

FIELD OF VIEW:
3.5x@100yds=42ft
EYE RELIEF:
4”@3.5x
EXIT PUPIL SIZE:
6.8MM@3.5x
FOCUS SYSTEM: Diopter (can be custom varied to your eyesight)
ENVIRONMENTAL:
HUMIDITY: Waterproof to 30 feet
TEMPERATURE: -20° to 140°F
PARALLAX SETTING: 100Yds. Fixed, others on demand
TURRET TYPE: Double and single
KNOBS: #1 Standard (low profile w/M40 styling)
MAX MOA ADJ. about 140 MOA. Standard is a .223 BDC for USMC ammo from 200 to 600 yds.
MOA PER CLICK: one MOA Standard w/ BDC included
DIMENSIONS:
WEIGHT: 26 oz.
LENGTH: 7.5 in
WARRANTY: Lifetime, No Charge, No Hassle Service

SN-12 Information

The SN-12 was designed to out perform every fixed power, Close Quarter/Tactical scope, in every way.
The Elcan and ACOG simply do not compare in optics, ruggedness, accuracy, features or application, yet the price is about the same!!
Our scopes are made in the "good ole U.S.A.", theirs are not.
The SN-12 is a completely new concept for the most demanding military and police applications.
Therefore, the SN-5 has all of the superb qualities of the most accurate short, fixed power systems ever made.

Standard Features

Interchangeable elevation and Windage knobs for different click values of M.O.A. and B.D.C..
The Picatinney rail mount is built into the scope body to accept all standard mounts and accessories. In addition, there are over eight heights and types of mounts that can be built into the scope, giving *greater versatility* than ACOG, Elcan or the others.
Choice of 5 standard triple-sandwiched glass reticles and many optional ones.
Huge, independent dual coil springs for Windage and elevation rebound(*strongest made*), assures absolute return to setting.
Returns more accurately than Elcan or ACOG.
Extremely high-resolution optics; much better than ACOG.
The most rugged and versatile reticle housing system on the market
Adjustable diopter(eyepiece) system, (the ACOG&Elcan have none! Adjusts for nearsight-farsight problems that 70% of the American male population have. Rubber recoil shield with Zeiss type rapid focus system.
Eyepiece housing and objective are threaded for accessories, Acog and Elcan are not.

SN-12 Models

SN-12 MK I U.S.M.C.
(This is the model that the U.S.M.C. has purchased for the future applications on the M4 and M16). You can purchase this item also. A basic matte black concept sample with all of the standard features as pictured on the specification sheet. You have a choice of .223 or .308 B.D.C. elevation knobs. The knobs are USMC M40 in appearance, have no screw-on covers and are the low shape(See page 84 also for additional pictures)
Price: $865.00

SN-12MK II
Same features as the MK I, plus W&E knob covers and eyepiece and objective covers (flip up Plastic). This model has U.S. #1 W&E knobs with screw-on covers
Price: $995.00

Above model in round tube **(Uses 30mm MKIII rings or Posa-Slide & Lock)
Price: $895.00
(same , but in 35mm tube)
Price: $995.00

SN-12 MK III 2nd Perimeter Twilighter

All the features of the MK II plus a lighted reticle with 11 position rheostat in the first focal plane. Includes a screw on cover for the rheostat housing
Price: $1175.00

Above model in round tube **(Uses 30mm MKIII rings or Posa-Slide & Lock)
Price: $1075.00
Same, but in 35mm tube
Price: $1175.00

OPTIONS

Optical	Price
2x Power booster is offered; (Ex., 3.5x becomes 7x)	w/ adapter $220.00

(Note: Threaded Objective feature is needed for this unit)

Reticle	Price
Illuminated reticle that can be brightened, softened or turned off	$185.00

Mechanical	Price
Windage and elevation covers (for Mk I)	$20.00
Eyepiece and objective covers (flip-up plastic)(for MK I)	$30.0
Special submersible and airdrop package, good to 200 ft (depth)	$200.00
Protective drop shroud (includes Posa-Slide & Lock mount)	$320.00
Long turret for future lighted reticle installation	$40.00
Threaded objective and eyepiece housings for accessories (includes thread covers)	$50.00

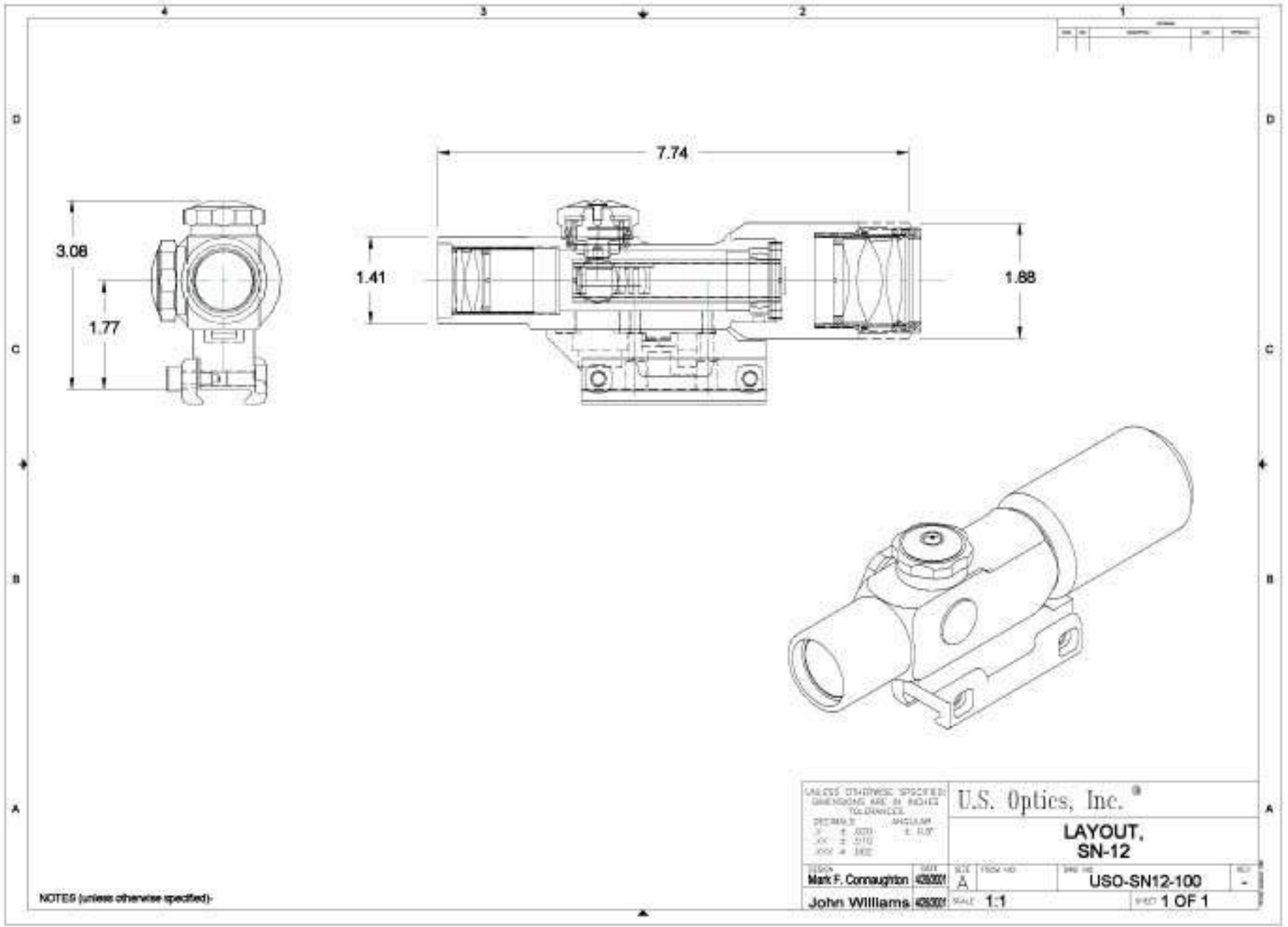
Mounting Systems	Price
M – 16, AR – 15 Handle Mount	$86.00

Optional Finishes	Price
O.D. Green, Navy grey or blue, desert tan, or silver (extra)	$80.00
Same as above in camouflage	$120.00

Note: This scope, compared to that the 3.5X Acog, sees better, has diopter adjustment (theirs doesn't), has reticle interchangeability (theirs doesn't), has a better mounting system, has a better W&E knob system, and has interchangeable BDC system (different calibers etc.), for about the same money)!!!!

This scope is guaranteed to be the finest scope of its type made in the world today!

*Posa-Slide and Lock Picatinney Arsenal removable rail mount (for #s 1&2 above)
** Does not include mounts


7.74
3.08
1.77
1.41
1.88
NOTES (unless otherwise specified):
U.S. Optics, Inc.
LAYOUT,
SN-12
Mark F. Connaughton
John Williams
USO-SN12-100
SCALE 1:1
SHEET 1 OF 1

Direct feature comparison between U.S. Optics SN-12 MK IV and Trijicon ACOG 3.5X36.

Features	SN- 12MK IV	SN-12 Comments	ACOG	ACOG Comments
Magnification	1x,2X,3Xor 4X; more options.	At 1x, fastest target acquisition.	3.5x Fixed	Available as 3.5 only.
Optical Resolution	48 line pairs/ milliradian	25% better (sees better)	36 line pairs-poorer	fewer elements at lower p. values.
Single Wave Transmission	***98.4%	1.6% loss	89%	11% loss
Full Wave	94.6%	5.4% loss	87%	13% loss ***SN-12 transmits better***
Objective	22 &34mm clear aperture	optional 40mm	36mm only	
Tube Diameter	30mm with 35mm option	accepts mounts & accessories well	bastard forging doesn't adapt to accessories well	***SN-12 is more versatile***
Exit Pupil Size	1x=23MM,4x=5.75	larger pupil = faster sighting	9.6mm (lab. measured)	***SN-12 has better exit pupil***
Eye Relief	3.8 - 4.5in	Better for gas masks, Goggles&glasses	1.5 in, to short for gas masks,goggles & glasses	***SN-12 has longer, better eye relief***
Field of View	4x=34', 3.5X=36'	*****	28.9' @ 3.5X(100 yds)	Min. FOV ***SN-12has wider FOV***.
Weight	13.75oz		14oz.	***SN-12 is lighter***
Length	7"-7.3"		8"	***SN-12 is shorter***
Reticle	front or rear focal plane system, using wider choice of reticles	6 designs plus custom ones	BDC reticle on Prism system-very limited promotes inaccuracy	***F.F.P.(SN-12) Lensmatic system is more accurate than Prism based reticle on ACOG***
Diopter Adjuster	-4.5 to +3 diopters adjustment for eye	More people can see better w/the SN-12	NONE	No compensation for imperfect eyesight.***SN-12 has better system***
Elevation Knob	Interchangeable, re-settable, options, steel to steel	Replaceable covers for different caliber's.	Non interchangeable, non resettable cheap brass.	Brass. No BDC. ***SN-12 hasmore precise,longerlasting better system***
Windage Knob	" " "	" " "	" " "	" " "
M.O.A.	Up to 125 MOA	***SN-12 has more MOA***	86 MOA (usable)	Tilting prism-not as good
Objective Sunshades	Any common type	***SN-12 is better system***	Not possible	No common covers or accessories.
Lighted Reticle	11 position rheostat	Fully adj. for retina recog.	Nonadjustable. Uses radioactive material	ACOG can't adj. or turn off
Mounting System	Any standard 30mm. Tactical Slide mounts	Infinite variety ***SN-12 is better system***	Picatinny side clamp only	One mount type only can't use rings
dust covers	Yes	Flip-up mil. covers standard.	Not easily done	***SN-12 has better system***
Night Vision	yes	also accepts doublers, etc.	no	

SN-12 vs. ACOG Summary SN-12 is/has:

- **Faster, easier and more versatile to use.**
- **More user friendly and tactile.**
- **Easier to train with, helps gain more self confidence.**
- **Better built, safer and more reliable.**
- **Made in USA by hard working Americans.**

- **Better, more versatile and more efficient optical system.**
- **More mounting options.**
- **More MOA & better choices of knob styles etc.**
- **More accessory options; reticles, sunshades, etc.**
- **Better resale value.**

What these facts mean to the soldier/shooter using the SN-12 instead of the ACOG

1 By having a diopter (eyepiece) adjustment, all ages and eyesight corrected shooters can focus their scope perfectly. Soldiers and policemen who break or misplace their eyeglasses have a safer scope to use. ACOG & Elcan can't do that

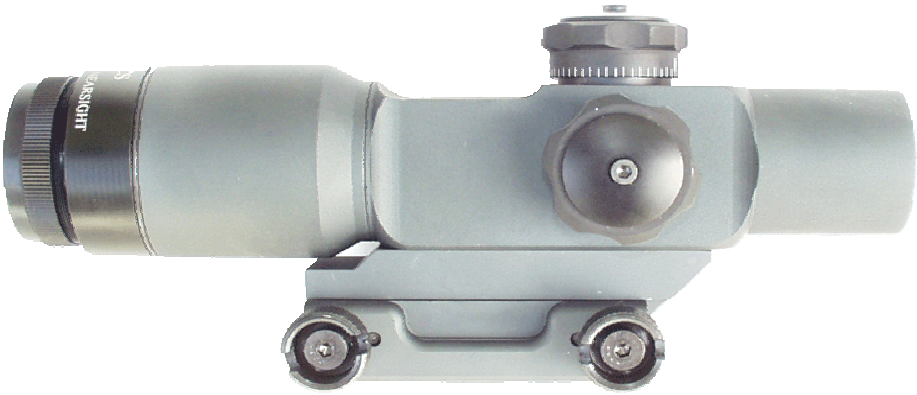
2. The W&E knobs on SN-12 are **field replaceable(advantage for military)** for B.D.C., M.O.A.change, have more M.O.A. capability, are adjustable for backlash, tension and travel.. This means you have a choice of B.D.C. calibers(custom and standard), more M.O.A. travel and can replace the knobs to suit your own taste in the field. Because the internal construction is better(steel to steel), the knobs will last a lifetime, the cheaper brass ones on the ACOG will not. The large laser engraved numbers are easy to see and use from **behind the gun** - you can't do that with the ACOG or Elcan.

With all these advantages, the SN-12 is still approximately the same price as the ACOG or less.

Above information taken from factory specification sheets, Gun Digest, and other published data.

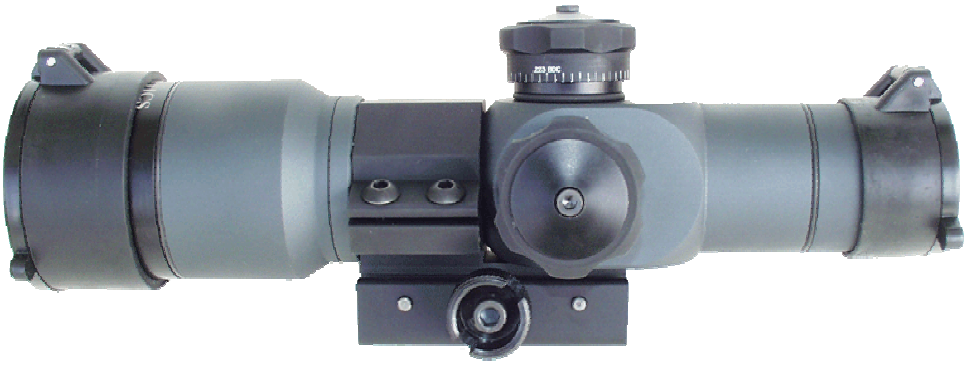
Some variations of the SN-12

Below: Picture of the right side of the SN-12 U.S.M.C. 4X model



Above: Comparison view of the size of the SN-12 to the ACOG

Below: SN-12, showing lens covers and clamp type Picatinney rail mount (not Posa-Slide & Lock type)



U.S. OPTICS

M40 Scopes

New Product Announcement

A third run of the famous MST-100 (M40 U.S.M.C.) Scopes to the public*.

Our first production run of this venerable veteran sold out before we had even completed the production! The second run had sold prior to completion of assembly! This third run is in response to the success of the prior runs and continued tremendously high demand for these scopes. **Thank you American shooters for believing in us!**

History of this scope

Conceived in the late 1960's, made a reality in the early 1970's and instituted universally in the late 1970's, this scope was named the MST-100 (.308 model) and saw service as the 10X Marine Corps "SNIPER SCOPE". Sometimes called the "U----l", it was only partially co-invented by John U-----l, while some very astute Marine Corps officers had a significant hand in the development. Several variations have been made over the years, including F.B.I., Canadian Military, and U.S.M.C. .50 cal models. There have been three major U.S.M.C. model function changes and/or additions over the years. These are the M40, M40A3 on the .308 model and the MST-150(a .50 cal. BMG model). In addition, the BDC turret and windage knobs have been changed twice with three major changes. We, at U.S.OPTICS offer all changes and variations, in fact, we invented the M40A3 (the current U.S.M.C. model), as the old U----l model simply would not work on the new M40 rifle. During the period that the original contractor supplied the scope to the Corps, he, according to his wife, never sold them to the public, as the legend goes.

It is alleged that a large corporate conglomerate (who had never made scopes before) bought and or acquired all or partial rights to the John U----l company. In what we believe was an effort to get the Corps contract, this large company approached us to buy us. We refused their offers and they bought the U----L Company (allegedly) to get the contract and make the scope. When they couldn't, they sued us, we sued them and a settlement followed with them unable to restrict us from making the scopes for the corps.. Even today they are attempting to damage us by calling us imposters and freuds. Strangely enough, we are told that big corporation has fallen on hard times and allegedly sold the U---l company to other individuals who also have never made scopes and are trying to hurt us with the ads that you currently see on their website.

Mrs. U----l told us and others that she sold the U----l name but not the John U----l name.

United States Marine Corps telescopic sight contract.

It is important to eliminate all confusion (from scurrilous competitors) about who supplies these sights to the U.S.M.C.. U.S. OPTICS is the official U.S.M.C. M40

scope replacement, repair, and refurbishment contractor-period. We make the official U.S.M.C. M40 scope-end of story.

In approx.2000, Major Tafolla of U.S.M.C. Systems Command approached Mrs. Unertl to continue to refurbish and supply their M40 scopes. He was told she/they could no longer do the M40 scopes, as her husband had passed away and they had no employees who could do the job satisfactorily. She said she was planning to sell the company. She recommended us as capable of doing the job. In approx. 2001 Major Taffolla and his officers visited us, saw the company and asked us to do the work. We won the contract for scope refurbishment, they ere extremely happy and have been with us since then. We have made and refurbished many scopes, modified and made changes for the corps and have a great relationship with them.

Why these scopes are the best

The official U.S.M.C. 10x sniper riflescope we make is now even better than the original! This remarkable optic of some 20+ years has many new improvements but is still the same sight.

- Water-resistant (They were never waterproof).
- Knobs are now made of stainless steel and are rust proof as well as waterproof.
- Improved optics provides improved resolution, while increasing color and contrast.
- The elevation and windage knobs work better. Modern CNC machinery, material, and practice, enable tighter tolerances, better repeatability and more cohesive engineering and manufacturing practices. Improved elevation travel required for the U.S.M.C. M40A3 rifle.

All of these improvements while maintaining complete part interchangeability with the original scope (the old U.S.M.C. scopes don't have interchangeable parts, but our parts interchange with the old parts).

WE INVITE DIRECT COMPARISONS AT ANY LEVEL. Our scope is better and we can easily prove it. May the better scope prevail!!

Retail price: $2500

A deposit of $1000 is required to start your order.

*Limited Availability

U.S. Optics, 5900 Dale St, Buena Park, CA 90621 (714) 994-4901, sales@usoptics.com

Beware of counterfeits, frauds, imposters and wannabe scope manufacturers!!!

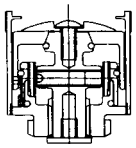
The real truth will prevail

U.S. Optics Adjustment Concepts

Two basic families of elevation and Windage adjustment assemblies are available with many different options in calibration and/or range of travel with more coming in the future. The same basics will be constructed for use in any short range (SN-4, -8, or comparable) scope, but also are applicable to long range scopes (SN-1, -2, or comparable). A selection of screw thread fineness (from 32 threads per inch, up to 56 T.P.I. or more) and alternative click ring serration's (from 40 notches up to 72 notches per revolution) will provide any degree of movement per click that is desired, from the coarse 1 M.O.A. up to 1/10 M.O.A. per click or anything in between. Length of the adjust screw is modified to give enough point-of-impact control for short range 50 M.O.A. adjustments, or to accommodate more than 150 M.O.A. travel that can be needed for 1000 yard or greater working range guns suited by the target models.

U.S.#1 - The generic U.S. adjustment is comprised of a screw with integral clicker that is rotated by the knob to effect in or out motion of internal optical components, which change point of aim. The clicker rides over a mating click ring with a series of notches around its periphery that produces a number of distinct, sensible and audible, detent positions. A broad foot is attached to the bottom of the screw, bearing on the movable optical assembly within the scope that changes reticle position in the field of view. The turret bushing houses all the elements and secures them to the scope body flat surfaces. A calibrated cylinder is created to display the increments of movement, and can be ruled to describe the ballistic profile of any variation in cartridge loading, barrel length, operating range, or any scope magnification setting. The height of the dust cap, knob, screw, click ring, bushing and cylinder defines the total travel capability and is limited only by the clearances between scope tube and internal tube. The knob rises and recedes to make the changes needed. The adjust knob is attached to the adjust screw through a tight, no-slip taper joint that is bound in position by a top cap screw, which allows the knob position to be reset on its datum once the rifle/scope bore sight is achieved.

U.S. #1, Standard and included with all SN models unless noted otherwise



1. Extra Blank spool $20.00
2. **Custom engrave customer's data on his blank spool$40.00 extra**
   " " on our spool (we provide the spool too)$50.00 "
3. Extra screw on dust covers (caps) - $35.00 extra per set

U.S. #4 - This is a BDC (Bullet Drop Compensatory) knob system. It is the above knob (U.S. #1) with a BDC engraved on it as well as the MOA click data The exterior has the caliber and yardage increments from 100 yards or meters to 600 or 700 yards or meters, depending on how much bullet drop we can get in one full revolution of the knob. The thread rate and engraving must be custom made for each caliber. A blank spool and instructions for doing your own BDC can be provided also. After perfecting your drop and establishing your line increments we can engrave the lines on your spool or an extra spool. This is a very quick system for rapid ranging. It is <u>not</u> an extremely precise system – if generic bullet data is used. If you work out the data empirically and send it to us it will be deadly exact and precise.

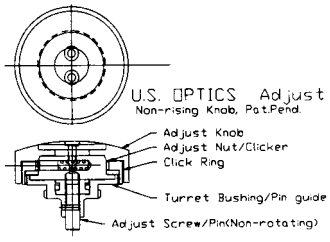
(see #2 and #3 above). Also see next page

E.R.E.K. 90 click Knob system

Please see the next three pages for information on this elevation knob system

U.S.#8 - These novel and revolutionary non-rising adjustment assemblies are low in profile, and provide wide adjustment range in a compact package. The knob is joined to the adjustment nut, with its integral clicker, through a tapered interface secured with two small screws. Similar to the generic assembly above, the clicker rides over click ring serration's to give positive detents, however the click ring is shortened to take advantage of constant height elements. Only the screw, which is constrained from rotation by an axial pin, rises and falls as it is driven by the rotating nut/knob pair. The current design projects only 0.55 inches above the scope body flat surfaces, but can change the point of aim up to 100 M.O.A. in either direction from center in a typical 4x scope! This has never been achieved before to our knowledge.

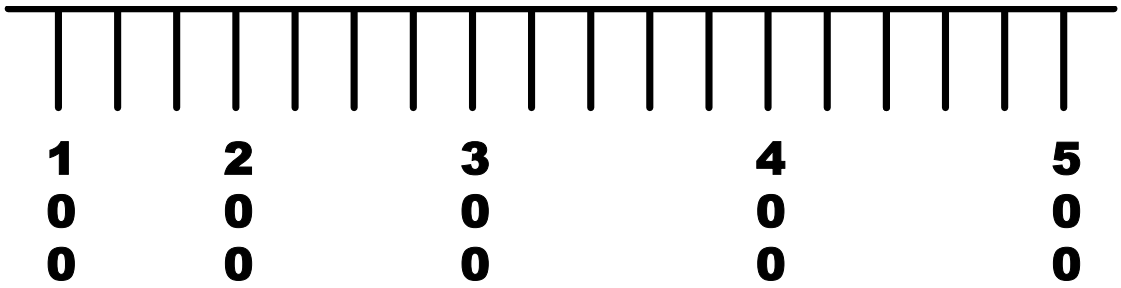
Standard and included with SN-8
Extra Knob dial for M.O.A. change - $160.00
Extra spool/dial only - $20.00
Screw on style SN-8 knob (with screw on covers $60.00
W/flip-closed military covers - $220.00Custom Elevation Knob System



Custom Elevation Knob Engraving System

At U.S. Optics we can engrave a BDC elevation spool to match the indicated yardage scribed onto the spool that has been "shot in" by the shooter. We can do this for any bullet, caliber, velocity, etc. All the customer has to do is ask for a blank spool and mark the lines on the spool while shooting, for what yardage he wishes to indicate. Masking tape will work for this. The shooter can then send the spool (with the taped yardage) to us for engraving.

Still another way is a drawing below. Simply count the elevation clicks between 100 and 200 yards and draw them as indicated.



There are 3 clicks from 100 to 200, 4 clicks between 200 and 300 yards etc. Send this info to us and we will engrave it for you.

90 CLICK E.R.E.K. (EREK)

"The Most Rugged and versatile Elevation Knob Ever Made"

Definition:

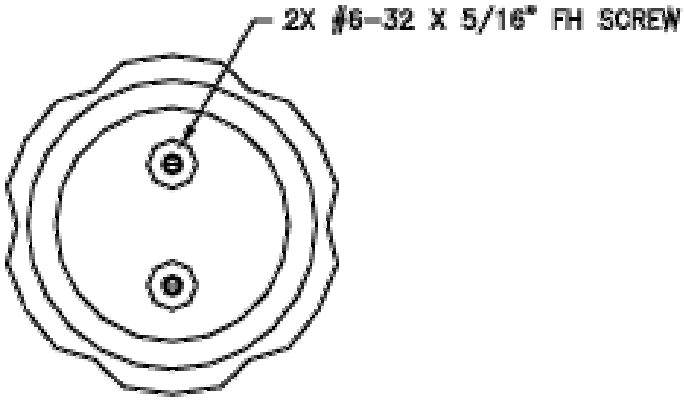
A very unique, low profile, erector repositioning elevation knob, currently made only in a 90 click (90 clicks per one complete revolution) mode. This elevation knob was specifically designed to fill a needed "gap" in knob utilization. That "gap' is between the U.S.O. #1 knob (a 48 click per revolution resetable drum unit), and the U.S.M.C. MST 100/150 (M40A1) knob (a center axis erector repositioning B.D.C. knob). Both of these knobs have very unique advantages and unique disadvantages. The EREK has the advantages of both, with few disadvantages when approaching the following needed applications:

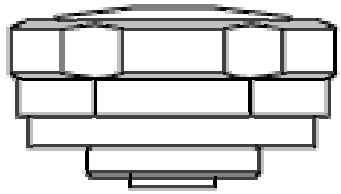
1. A need to reposition the erector to gain maximum elevation usage (without "unwinding" the travel of the knob), thus gaining maximum elevation travel.
2. A need to achieve maximum available M.O.A. elevation travel in a minimum of turns of knob – Example: 200 to 1000 yards B.D.C. can be achieved in less than one revolution! A typical utilization is 90, ½ M.O.A. clicks, which equals a total travel of 45 M.O.A. or more M.O.A. than is needed with a .308 cal. for 200 to 1000 yard usage. In fact, our test rifles were able to go from 200 yds to about 1400 yds.
3. A need to be able to make the knob with different click values, B.D.C. configuration etc.
4. A need to be made internally of solid heat-treated tool steel for many lifetimes of wear and consistent accuracy.

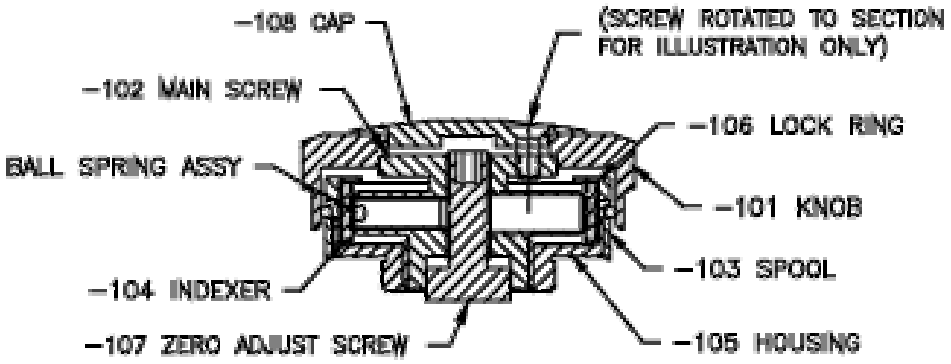
Summary: By combining a large, low knob, housing capacity for 90 to 100 (or so) clicks, with an erector repositioning screw, the perfect mid-range elevation knob is achieved.

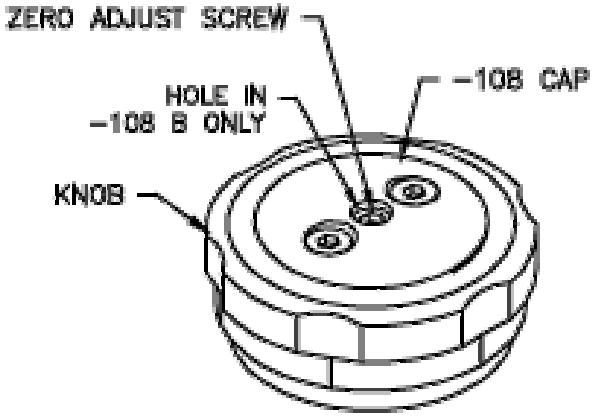
For 10-17x Power Only: Because this knob style was developed primarily for 10x, 13x and some 17x scopes, we regret to inform you that we cannot, at this time, put them on all 22x and higher power systems. This situation will probably change in 2004.

Cost: $185.00 extra









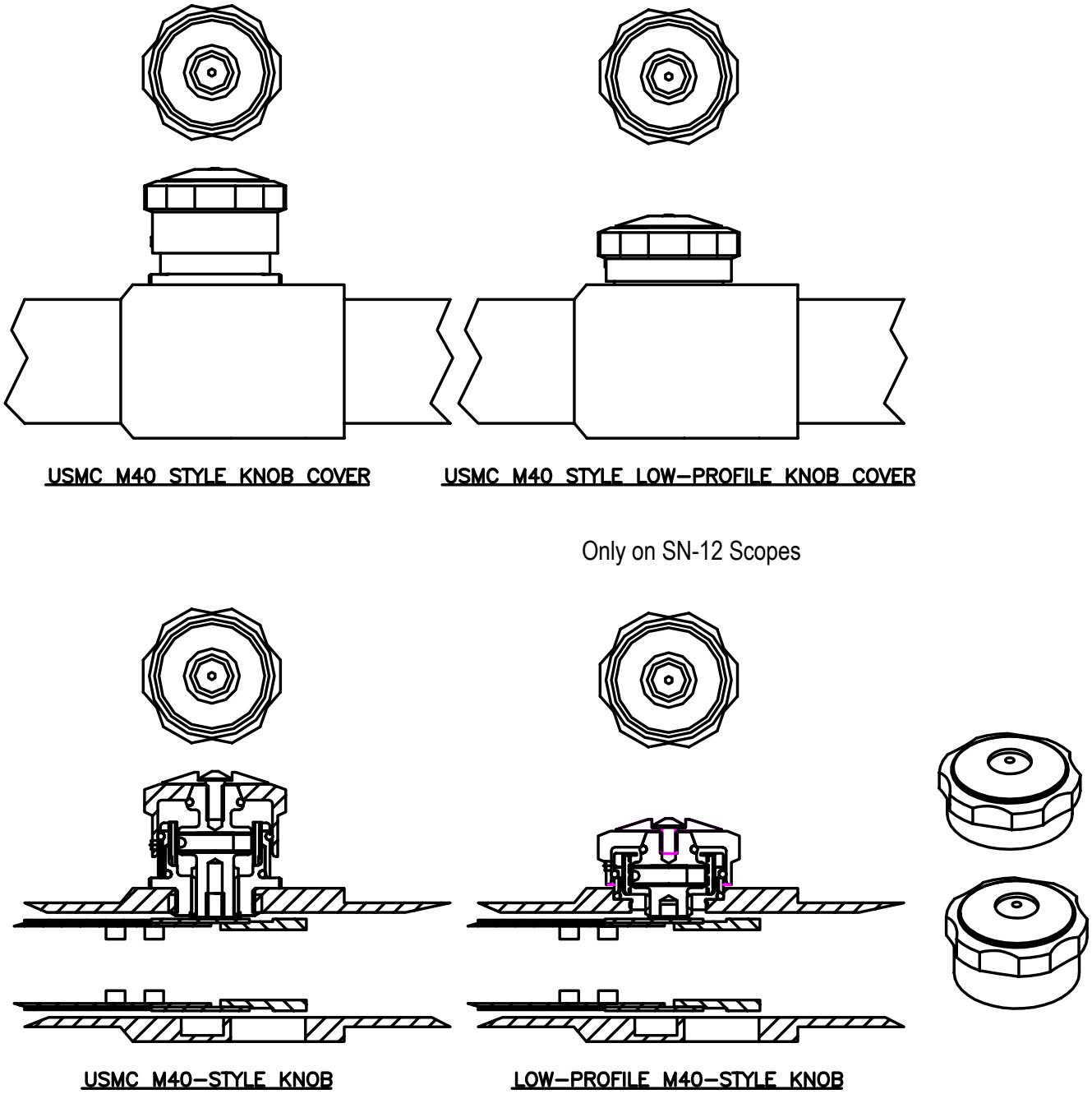
NOTES (unless otherwise specified)-

U.S. Optics, Inc.	
ILLUSTRATION, KNOB USO 90-STEP	
Mark F. Connaughton	SIZE A
John Williams	DWG NO. USO-K90-100
	SCALE 1:1
	SHEET 1 OF 1

Windage and Elevation Knob Profiles

The drawing below gives a good representation of how the M40- “Look-alike” knob covers appear when in place on the scope.

Note: The screw- on outside Target/ Tactical type dust covers will not fit over the M40 “look- alike” knob as they are to long in diameter. Since all U.S.O. knobs are waterproof and dustproof anyway- it doesn’t really matter.

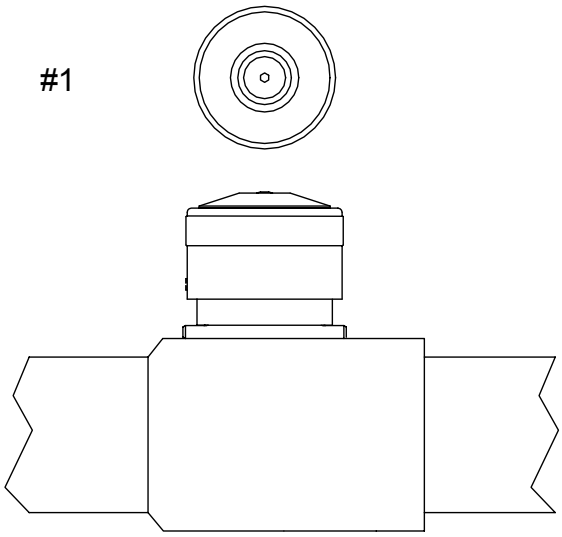


Knob Cover Types

The above knob cover(drum) can be used with screw on dust covers

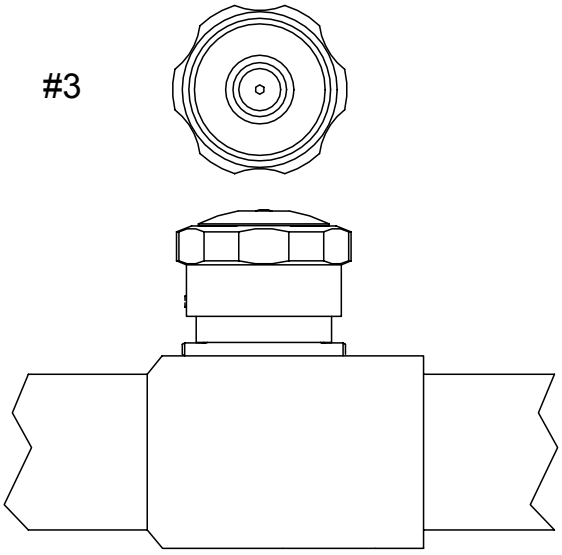
The above cover (drum) cannot be used with screw on dust covers

#1



#1: U.S. OPTICS STANDARD KNOB COVER

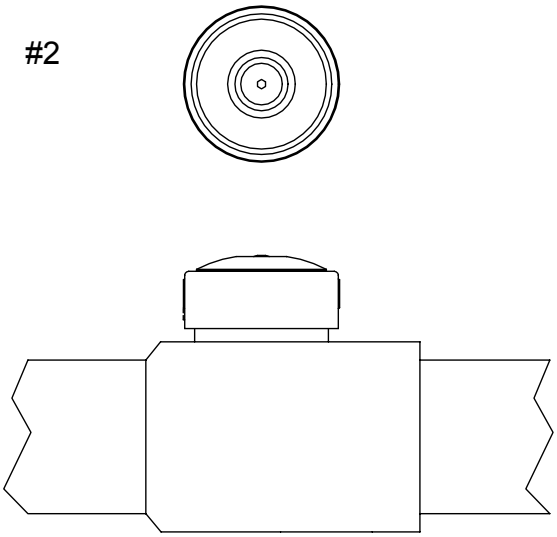
#3



USMC M40 STYLE KNOB COVER

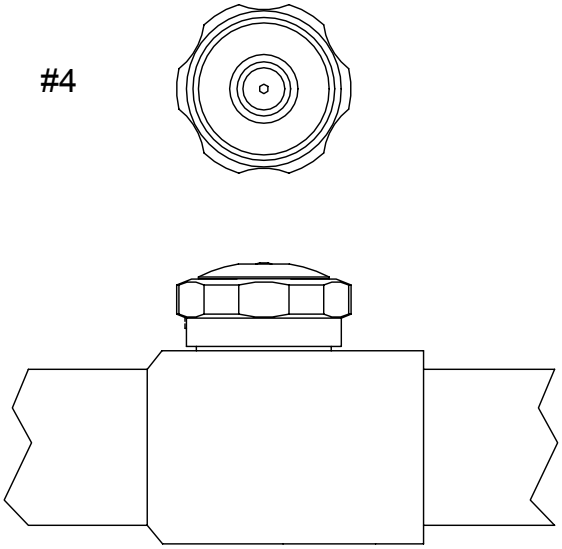
The two M40 knob styles above (#3 & # 4) cannot be used with screw on dust covers, while the standard styles (#1 & #2) can.

#2



U.S. OPTICS LOW-PROFILE KNOB COVER

#4



USMC M40 STYLE LOW-PROFILE KNOB COVER

Multi-Axis Magnetic Alignment System (M.A.M.A.S.)©

(coming Soon)

Definition

Often called a "Bore Scope," "Bore Sighter," "Scope Sighter," "Bore Aligning Tool," etc., this tool is actually an Optical Columnator. Its purpose is to align the bore of a firearm on a parallel axis with an optical sight, such as a telescopic sight. With care it can also be used for conventional or "Iron Sight" work.

Need

From 1954 to about 1960, I used the Sweany "Site-Align." It was simply a crosshair behind a set of lenses and it worked very well. In the 1960's the grid concept was added by Bushnell.

I still have my old Sweany and Bushnell. Both systems used spuds or arbors to work. There was a great chance for error. When the military semi-autos became popular we found that we needed adapters to raise the optical portion of the tool higher to work well. Muzzle brakes created even more problems.

It became obvious that the industry needed a better bore scope system.

Features

The MAMAS has these advantages over old systems:

No spuds, sprung plugs or arbors are needed.

The optical housing of the columnator is aligned parallel with the bore axis of the firearm by holding it at a true 90° angle to the muzzle of the firearm. Since the muzzle crown is cut at a true 90° to the bore axis, the system is always parallel to the bore whether it is rotated to the left or the right. Only when it is tipped at an angle does the alignment change its parallelity.

Has an integral grid system, which when properly used, not only shows true alignment but shows the disparity of scope axis to bore axis alignment in columnar grids, thus allowing one to count the M.O.A. he is off the center axis.

Needs no extra height attachment for the high rifles and scopes. The magnetic feature allows the unit to be slid up or down or at an angle, all the while maintaining its axis-to-axis alignment.

Results

The resulting use of this tool is a simpler, easier to use optical axis alignment tool. It uses fewer accessories and can be used in situations and under conditions where other columnators cannot.

Precautions

Do not drop!!! This is a precision optical instrument. Its accuracy has been triple-checked before being shipped to you. If you drop it, the following can happen:

The unit (because of weight & balance) will land on the magnetic portion of the housing and bend it out of shape and it won't be accurate.

There are glass lenses and a precision grid screen inside. They will break and be jarred out of position if dropped

WARRANTY IS VOID IF DROPPED!!

Do not attempt to take apart. The warranty will be void. We can easily tell if you try to take it apart.

Instructions for use

Set the unloaded rifle in a cradle or padded vise. Hold the rifle in the stock area, not by the barrel.

Install scope, base and rings as per the manufacture's suggestion/directions.

With the scope erector perfectly centered (see U.S.O. "reticle centering directions" – this is very, very important!), adjust the rings and base to the point where the picture looks like sketch # "A."

Try to machine the base with about 20 M.O.A. down and use Windage adjustable rings of high quality. The average scope elevation adjustment will then travel downward past the #10 line on the graph to about where the #14 line would be (if there was one). The average Windage adjustment travel left and right to about the #9 or 10 area.

If you can do the above on a benchmark average rifle (Rem. 700 .308 cal.), you should have enough elevation adjustment to sight in at 100-200 yards and also reach over 1000 yards.

I suggest setting your minimum deflection of elevation to the #1 line and maximum to about the #14 line. Remember 200 yards will be about the 1st horizontal line after the #1 line (going downward).

Windage

At the #1 line you will not have complete left to right Windage travel. At #10 line you will. At #14 line you will not have complete Windage travel.

There is no need to use the area on the grid above the #1 line. That area is less than 100 yards in subtentions and the average shooter never goes there.

The grid subtentions: Each square represents 4 M.O.A. or 4" at 100 yards. There are 10 grids downward from #1 so that represents 40 M.O.A. or 40 inches (don't fight the extra fraction of an inch = true 1 M.O.A.).

On the average scope with ¼ M.O.A. clicks you will have four clicks per 1" grid or 160 clicks from #1 true to the #10 line.

This will vary from scope to scope.

Note: Our goal is to help the shooter. If you have any additional questions or comments we would like to hear them.

Good Shooting!!

Instructions For Telescopic Sight Erector Centering

By John Williams

Note: This is a very important procedure prior to sighting-in your telescopic sight!!

Today, as more and more shooters shot longer-range firearms, there becomes a very significant and trouble-causing syndrome attached to that sport.

The problem, briefly stated, is that most scopes don't have enough M.O.A. to get out to the longer ranges without serious problems developing with the rifle / scope combination.

The following is an awareness – problem solving methodology to hopefully help those poor souls who seek some answers to the above questions.

Problem awareness:

1. There does not seem to be enough elevation or windage in a given scope to "get on target."
2. The scope crosshair seems to move by itself. It seems to shoot here, then there, without making adjustments to do so.
3. The scope seems to have major and minor adjustment corrections when normal or average adjustments are dialed in.
4. When "boxing" or tracking the scope, the crosshairs jump or move erratically.

Problem Analysis: (what to do to see if these imagined perceptions are true):

1. Center the erector (instructions are below).
2. Check the centering by rotation. (Instructions are below).
3. Compare the location of the reticle on the collimator when centered to the bore axis, to the reticle in the scope. How far apart are they?
4. Is there enough adjustment to correct the situation to where the scope reticle and the bore axis are aligned? How do you know that?
5. If there is enough adjustment, is the erector positioned to give further windage and elevation without causing problems? How do you know that?

Definition:

If you understand the interior function of a scope, maybe you will understand better how to handle what you perceive as problems in operation and sighting in.

In early scopes the windage and elevation adjustments were on the outside of the scope, usually at the rear and when adjustments were made, the entire scope moved up, down, or sideways to accomplish these tasks.

Today, most every lensmatic telescopic sight has an erector that replaces the earlier exterior adjusting system. The erector is a group of lenses housed in an inner tube usually hinged at the rear, spring loaded at the side and controlled by the windage and elevation knobs bearing directly on them.

The primary function of the erecting system is to re-erect the image from the objective lens system that turned the image upside-down when the image was magnified.

The secondary function this system has, and perhaps the most relevant for our purposes, is to allow the scope to have self-centering windage and elevation correction within the scope itself. When the windage and elevation knobs are actuated the erector moves up or down or sideways in a 360 degree circle on a plane (right angle to the optical axis), and parallel (when centered), to the axis (lengthwise alignment), of the optical system. The result is that the instrument then has the capability of making windage and elevation corrections necessary to the function of the weapon.

Problems Encountered:

When the scope is newly installed the installer does not know whether the erector has been centered or not. The end result of this is:

1. The installer does not know where the scope is sighted in.
2. The installer does not know if there will be enough correction possible in the instrument to correct for elevation and windage problems as well as inaccurate machining in the rifle.
3. It is not possible for the person sighting in and using the gun to know if the instrument is going to have enough elevation for long distance shooting.

Reasoning:

If the erector is not centered when the weapon is sighted in, allowing the shooter to see how much windage and elevation he has, he may not be able to accomplish his goals.

If a telescopic sight hypothetically has seventy minutes of angle total adjustment and is perfectly installed on the receiver with the axis of the telescopic sight perfectly parallel to the bore, there will probably only be about forty minutes of angle that will actually be usable for elevation or windage. Therefore it is very important to center the erector to determine the relationship of the rifle and its bore (where it will impact), to the target.

Methodology:

Set the scope on maximum power (magnification). While looking through the scope at a target, turn the windage knob all the way from one side of the scope to the other, watching the movement of the crosshairs on the target. Count only the clicks that the crosshairs actually move. Do not count the clicks after the movement on the target has stopped. Now turn the knob back toward where you started and stop turning when you have reached half of the total clicks moved. If you moved 100 clicks you should turn back 50 clicks. This will theoretically put you near center.
Do the same with the elevation knob.

Lay the scope in two V blocks engaging the round tube portion on either side of the turret. This can be done with mechanical V blocks, a cardboard box with V's cut in it or any similar method of holding a round tube true spinning thus allowing one to look through the scope at the same time.

The concept here is to spin the outside tube of the scope physically while looking through the scope at a target. The imaginary ellipse that is formed on the surface of the target with the rotation of the cross hair is gradually diminished by turning the windage and elevation knobs in or out until the circle or ellipse is diminished to where it no longer forms that circle or ellipse.

This means the erector is then centered to the inside of the tube.

Some scopes such as the SN-4 will have to be held at the eyepiece and objective rather than the tube, as it is too short. By doing this you can also leave the mount installed on the scope.

By putting an optical columnator into the bore of the rifle, one can see the disparity between the center of the scope and where the bullet will strike. This disparity theoretically should not occur. There should be perfect alignment of the scope to the bore but this never happens in the real world. The reasons are that barrels are not put in receivers straight, receivers are machined crooked and mounts are often inaccurate. A combination of all three factors is disastrous.

Results:

The degree of misalignment between the optical axis of the scope when centered and the center of the bore (longitudinal axis), at the muzzle is often very significant. Sometimes to the point where there is hardly any adjustment left in the scope. *See schematic on next page*.

This means that the shooter will never be able to get on target and if he does there will not be enough windage and elevation correction left for the scope to function as needed

This also means that the erector will be so off-center that it will be pressed against the interior wall of the tube in such a way as to cause **erratic adjustment function (<u>see accompanying</u> <u>schematic</u>)**. ***In this situation the shooter will experience erratic center of impact shifts, as well as, erratic functions when the windage and elevation knobs are worked into a repeated box pattern to track the patterning and repeatability of the adjustments.***

Optical vignetting can also occur when the W&E knobs are used to push the erector hard against the interior scope wall. This occurrence will severely restrict your ability to see the field of view well. Ironically, it usually occurs at longer range when you want to see better, not worse.

What to do if the above situation is radical:

Here are some choices:

1. Return the rifle to the manufacturer or gunsmith and bring the situation to his attention.
2. Correct the situation by correcting the mount.
3. Use windage and elevation correcting mounts.

What to do if all of the above scenarios are executed perfectly and there is a definite perceivable problem with the W&E adjustments:

1. Identify the problem.
2. Execute the "Scientific Method" by defining the degree of the problem exactly and specifically how it occurs.
3. Notify the scope maker of your findings.

Habits:

Try to develop good shooting habits. When working with scope sights, iron sights or other methods of sighting always try to do the following:

1. Get your sights correctly sighted in and **<u>leave them alone. Don't play with the knobs unnecessarily.</u>**
2. **<u>Remember, readjusting the objective lens after sighting in will change the point of impact of the bullet.</u>**
3. If the reticle is in the rear focal plane there will be a shift of impact in bullet strike at the target of about 1.5-2" from low power to high power. This is for Leupold and other American assembled scopes. Front focal plane scopes will not do this.

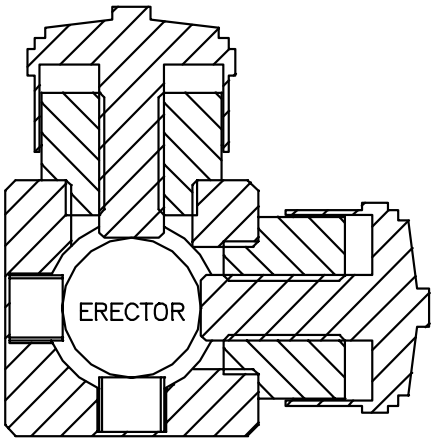


FIGURE A.
CENTERED ERECTOR

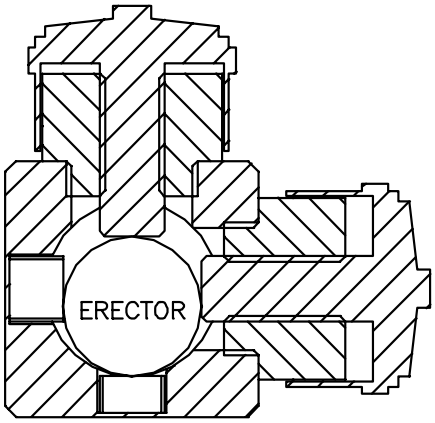


FIGURE B.
Lots of elevation adjustment remaining
(Little or no depression remaining)
(Little or no windage remaining)

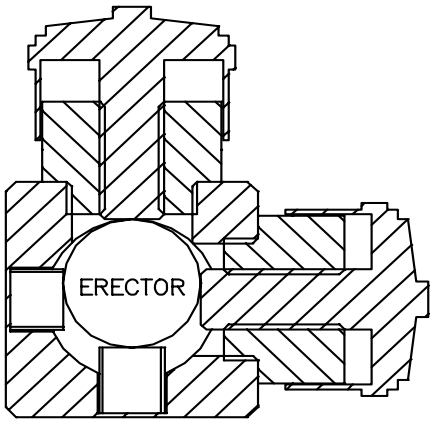


FIGURE C.
Lots of elevation used
Little or no elevation remaining
Little or no windage remaining

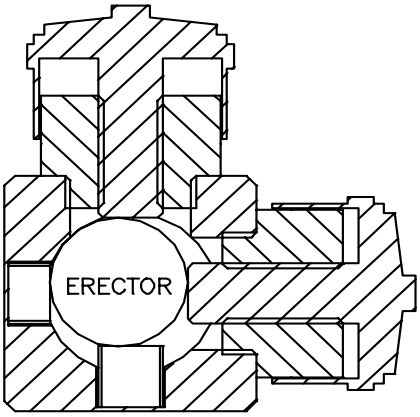


FIGURE D.
Little or no left windage remaining
Little or no elevation remaining

Result:

Windage corrections affect elevation adjustments and vice-versa.

Solution:

1. Center erector perfectly before doing anything else. "See Erector Centering Instructions"
2. Put the scope on the rifle and see where it columnates or boresights to.
3. Determine how much windage and elevation correction you need to make to get on target. Do this without changing the scope erector centering (that means don't touch the Windage and elevation knobs).
4. Then determine how much elevation correction is needed in the mount to go from your minimum range to your maximum shooting range.
5. Make the rough elevation or windage corrections to the mount system, not the scope
6. Ideally, when all adjustments are made and the rifle is sighted in, you should have little or no more downward adjustment left at 100 yds. (Or whatever your minimum shooting distance is). This will give you maximum elevation adjustment to get out to where your maximum shooting distance is (hopefully).

U.S. Optics Objective Housing Styles

"ERGO" Adjustable Focus Objective

One of the world's strongest, simplest and most usable style of parallax/focus adjustment. This system has these following unique features; (SEE FIG. 1).

Able to actually see range yardage lettering and front objective while adjusting with left hand, yet keeping finger on trigger while the right eye looks through the scope at target, thus you always know the range to target yet never take eye off target. An extremely useful tactical application.

- Rugged enough to drive nails into wood.
- Uses all accessory features such as, sunshades, long mirage tubes, laser filter, optical glass covers, flip up covers, Etc.
- A non-spin front addition cover added to keep the flip up objective cover from turning.

TARGET ADJUSTABLE FOCUS OBJECTIVE: (See Photo of SN-1 on technical specification page); The standard classic adjustable Parallax/Focus Objective mechanism with these features; (SEE FIG 2).

Yardage/Distance ring cannot be viewed from shooter's position without building a special vertical ring---hence the "Ergo" Objective above.

Usually made without a non-rotating front attachment when you do not desire the flip-up cap to spin with the objective.

FIXED (Non-Rapid Adj.) Focus/Parallax Objective Adjustment: In this extremely simple, ruggedized (even more rugged than "I" above) system, the parallax/focus adjustment is pre-set, usually at 100 or 200 yards, depending on the application. This is totally satisfactory for scopes under 10x when extreme ruggedness is desired. (SEE FIG 3).

TURRET STYLE PARALLAX ADJUSTMENT (LEUPOLD MK IV STYLE). While U.S. Optics can make this system, we prefer not to as the objective style is non-efficient optically and mechanically. (SEE FIG. 4).

SECOND FOCAL PLANE PARALLAX ADJUSTMENT: Again, we prefer not to build this type of adjustment as both "IV" and "V" have no significant advantages and are less efficient optically and mechanically. (SEE FIG. 5)

Fog proofing and Waterproofing of Scopes

You can realize how important it is to have your scope completely fog proof when you think of what happens under varying conditions of temperature and weather. If the temperature of/in the scope increases, the air inside the tube tries to expand, and there is outward pressure. If the scope gets cold-as it will, often the field-(the air inside the tube), tries to shrink, and the atmospheric pressure is inward. If there is the slightest leakage, air will enter the telescope tube from the outside, and with it will enter a certain amount of water vapor in the air. If the scope is filled with warm air with relatively high moisture content, a cooling-off of outside temperature (as often happens in hunting), will tend to condense the moisture of the air within the scope. Many a "perfect shot" has been lost by a scope with inside surfaces fogged at crucial moments.

The definition of a fog proof scope is one that is waterproof and moisture proof under all atmospheric variations, temperature changes or other conditions normally encountered in the field. Except for immersion in deep water where the pressure is great, a really "fog proof" scope resists the entrance of even the smallest amount of moisture, as well as a completely "waterproof" scope would. This means that a waterproof scope may not be fog proof, in fact, it usually isn't.

You can readily test for fog proofing without ruining the scope, if it does not prove to be completely waterproof. Immerse the scope in a pan of water that is warmer than the room temperature by about 50 degrees or 60 degrees a little hotter than the hands can stand. The pan or basin should be large enough to allow the scope to lie flat, with two or three inches of water above it. Within a few seconds the warm water will expand the air inside the scope and create an outward pressure. If there is any leak, a stream of tiny bubbles will rise from the point of leakage, and you can be sure that the scope is not fog proof. With this test, water does not enter the scope. The test should not be applied to any scope, which is not supposed to be fog proof, and any scope that is given this test should be removed within a few minutes so that the scope will not have a chance to cool and to draw water into the tube. **By making or doing this test you also run the risk of ruining your scope and voiding any warranty.**

Another test is the "icebox test". By taking a scope from a warm room and placing it in the freezing compartment of a refrigerator, duplication of actual field conditions is approximated. In this test, moisture from warm air will condense on the glass surfaces. Internal fogging is not necessarily a certain indication of leaky construction. This icebox test is not recommended for sights that have optical elements cemented with Canadian Balsam(we don't use this old type of lens cement), but even the new super lens adhesives (that the better scopes use) will not prevent certain lenses from cracking due to expansion . Quick changes of temperature may cause their failure, which can also result in separation of lens elements, **thus ruining your scope and voiding any warranty.**

In most scopes, either the eyepiece or objective lenses will fog. This is because there are air gaps in this first group of elements that restrict airflow. Despite the fact that manufacturers try to increase the airflow to prevent that, we find this is usually the area that fails in most of our competitor's scopes that are supposed to be permanently nitrogen filled. This is not necessarily because they did a poor job. Please read on to find out why.

Nitrogen Filling

Some scopes are advertised as being filled with dry nitrogen or other inert gas. However, nitrogen filling is only temporary. This is a procedure followed when scopes are assembled and sealed in normal atmospheres, which on some days may have high moisture content. By filling the scope tube with a dry gas, the atmospheric air is driven out, a process known as "scavenging". It is obvious that no type of gas filling helps or hurts tightness of construction; if there are leaks, gas can leak out, and air can leak in. Scavenging is not necessary for manufacturers who do much of this sort of work since they do all final assembly in special clean rooms in which humidity is carefully controlled and atmospheric air is filtered.

Even the focusing adjustment of the eyepiece acts as a pump to change the air pressure inside the tube. When the adjustment of the eyepiece increases the overall length of the telescope tube, the air pressure within the tube is reduced. When the adjustment decreases the length of the tube, the air inside the tube is compressed, thus over a period of time the amount of nitrogen left in the scope is not enough to keep the scope from fogging.

Progress has now been made to the extent that telescopic sights can be fairly satisfactorily made fog-resistant without materially increasing their size or weight. **The fact of the matter is, all scopes manufactured today (that we know of), are not fog proof but fog-resistant at the time of sealing and filling.** From my check of dealers' stocks, it would seem that adequate fog proofing is either not being done by all manufacturers who claimed to have a fog proof scope or the scopes have lost their gas by compression. An examination of competitor's scopes fresh off the dealer's shelf shows that there is usually no desiccant (nitrogen) of any kind present in the scopes, yet they usually pass the submersion test for leaks. I think one of the reasons is because of the above compression action taking place within the scope. Another reason is that hydrogen has an affinity for nitrogen and hydrogen is usually present in the pores of finish processed alloys. **Therefore, we can safely say that most all scopes made to date are not, and should not be expected to be, fog proof**. Don't expect your favorite scopes not to fog when you go from hot temperature to cold temperature or vice versa. This does not mean scope manufacturers are defrauding their customers. They simply do not usually know that the above case is true since they don't make their own scopes, but rely on foreign companies to do so.

Summary: After about six months or less, all scopes, are void or nearly void of nitrogen. This is not necessarily because of poor sealing. We have tested sealed tubing purged and filled with nitrogen where the sealing was simple, easy and very straight forward due to only having joints at each end and at the sensor. After 24 hours the gas was still present and after a few months it was not. The seals did not fail and the gas was not present. Leupold has told us they have discovered the same facts. We believe them-it is true.

This raises the question, "if nitrogen filling is only temporary because of the above situations, should the filling be done at all"? Also, should those companies realistically call their scopes "Fogproof"?

Dust proofing

If the scope is 100% tight and completely sealed, it will also be dustproof and weatherproof and will provide permanently clean inside lens surfaces. One exception to this is aluminum alloy scope bodies. The anodized surfaces on threads will normally "spall" and leave dust when worked even in a dust free-assembled scope! That dust will settle on surfaces with a positive static charge, such as glass reticle surfaces. Almost all scopes today are made of aluminum alloy because, despite these few drawbacks it is still the superior and preferred material. Titanium has similar but more unique problems. Steel, when black oxided, has been shown to also have similar problems. Therefore, it is probable that microscopic anodize dust will settle on lenses and glass reticles on these scopes also. These particles will only usually be seen if they land on a focal plane or area that is in focus. The first and second focal plane areas, in erector style scopes, are typical places where you can possibly see "Dust". If they land on most other lenses they usually are not seen because they are out of focus. **This does not mean the scope is defective nor has poor quality control**. Despite having a perfectly clean scope, lapping threads before anodizing and abrading the threads after anodizing, the situation will occur. You, however may not see this occur since the inside of the housings on high quality scopes are usually coated with a substance to act as a 'fly trap", trapping the dust in its intended web.

Summary: You will, at some time, on glass reticled scopes, see specks of "dust" in the field of view. It will not be as obvious or easily seen on wire or metallic reticles.

Lens cleaning

It is important to know that if telescopic sight lens surfaces are not kept absolutely clean and free of mud, dust, water and oils, the lens surfaces will degrade the image to the point to where one cannot use the scope effectively. Try to avoid cleaning as even the slightest abrasive scrubbing will ultimately scratch the surfaces to where the coatings are worn off or damaged. At this point the lens is left bare and actual glass degradation takes place.

So what methods and techniques can be employed by the shooter to lessen this situation?

Here are a few tips to prevent ruining your favorite scope.

Keep the lenses covered with dust proof and waterproof caps.

If possible **have clear optical glass covers made** and put screw-on or flip-up covers over them.

If you absolutely have to clean dust off the lens surfaces, use an artists camel hair, or similar, brush with the handle cut off. Make or buy a dust-proof container for the brush and try to keep it in the buttstock hole or handy to where you can use it promptly and effectively.

Do not put water on your scope lenses to "wash off" the lens surfaces. Water will attack the lens coatings **and** the lenses. Lenses are hygroscopic and amorphic in nature, meaning they are composed of a certain percentage of water and the molecular structure is always moving. If you look at glass windows in ancient castle and buildings, you will notice the glass panes are sagging. Glass moves and therefore, gravity pulls the molecules of glass downward.

If you have to clean your lenses, use lint-free surgical Q-Tips (not the plastic ones) or swabs and fresh filtered acetone. Pour a little acetone in a ceramic or clean metal cup (acetone will melt plastic). Dip the swab in the acetone and make a single clean circular pass starting at the center of the lens. Throw the swab away (don't dip back in the acetone because it will contaminate the acetone and the surface of the lens), and with another fresh swab, repeat the process until the lens is absolutely clean. Do not rub or scrub with a scrubbing motion, make a single pass with a clean acetone soaked swab and throw the swab away, repeat the operation.

Don't do's:

Don't wipe lenses off with dry clothes, lens pencils or coarse brushes.

Don't put water on the lens.

Don't leave lenses uncovered.

Don't put your fingerprints on the lenses.

Don't take a scope from a very warm interior of a building to the outside where it is cold. A shift of forty degrees in temperature variation will overcome the dissicant in the scope (if there is any), fogging the scope.

Parallax Explained

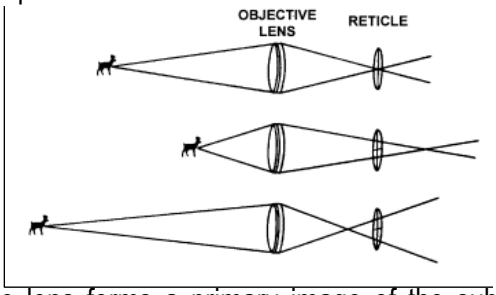
Whenever riflescopes are discussed, a topic that frequently arises is *parallax*. There seems to be a great amount of misunderstanding and confusion concerning this subject. Parallax can be defined appropriately to riflescopes as; the **apparent movement of objects within the field of view in relation to the reticle.**

In a telescopic sight, parallax occurs when the "primary image" of the object is formed either in front of, or behind the reticle. If the eye is moved from the optical axis of the scope, this also creates parallax. If the primary image is formed on the same focal plane as the reticle, or if the eye is positioned in the optical axis of the scope, then there is no parallax, regardless of the position of the primary image.

High magnification scopes, or scopes for long range shooting, where even slight sighting errors would be serious, should be equipped with a parallax adjustment. This adjustment of the objective part of the optical system would ensure that the target can be brought in the exact focal plane of the reticle at any distance. Tactical style scopes have historically not been supplied with parallax adjustment because the exact range of the target can never be anticipated (this is changing). Scopes of lower magnification are not usually supplied with parallax adjustment either, because at lower powers the amount of parallax is so small as to have no importance for practical, fast target acquisition.

THERE ARE TWO FACTORS WHICH CAUSE AND DETERMINE THE AMOUNT OF PARALLAX IN A RIFLESCOPE:

They are;



1. **The distance of the target to the objective--** The objective lens forms a primary image of the subject being viewed and subsequent components invert the image, and there is no parallax. The actual position at which the image is formed is dependent on the distance the target is from the objective. Closer targets are formed farther away from the objective and farther targets are formed closer to the objective. Since the reticle is in a fixed position within the scope housing, the image is not always formed in the same plane as the reticle and, hence parallax.
2. **The distance the eye can move from the optical axis of the scope---**, is determined by exit pupil size. There is no parallax, at any distance, as long as the eye is lined up exactly with the optical axis of the scope. An exit pupil small enough to do this would be impractical. It is important to know that in every scope, there is some parallax. It is also important to know that in every scope, there is some one shooting distance in which there is no parallax. In most riflescopes, this one point of no parallax is usually placed at a suitable mid-range point in the scopes' focal range.

In lower quality scopes, there are other sources of parallax. If the reticle is not precisely placed the correct distance from the objective, the distance of no parallax will be exaggerated. Reticles that are not securely mounted and allowed to move even a few thousandths of an inch, will always have changing amounts of parallax. Parallax is also caused by optical deficiencies in the objective, either by design or manufacture. If spherical or astigmatic aberrations have not been corrected, images will form a considerable distance from the reticle. If you see a scope in which the apparent movement of the reticle compared with the image viewed is different from when you move your eye up and down than when you mover your eye side to side, it is because of a bad objective. No adjustment of the scope will eliminate these faults or optical deficiencies.

You can check the parallax of any scope by sighting an object at normal shooting distance (not indoors), by moving your eye side to side (or up and down), as far as you can, keeping the sighted object within the field of view. The apparent movement of the reticle in relation to the target is parallax.

Parallax Corrective Methods, Construction AND Utilization

I. REAR (2ND FOCAL PLANE TYPE) CORRECTIVE ADJUSTMENTS. (See Fig 1)

This feature is usually a numbered range ring from minimum yardage (usually 50) to maximum yardage (usually infinity) and sets directly in front of the eyepiece, similar to the usual variable power ring but controls the Parallax Adjustment. This is almost always found **only on fixed power scopes**, due to the internal construction. This adjustment is usually found on scopes of more than 8x and less than 20x. *Some Examples are Tasco, Phrobis and Baush&Lomb tactical scopes.*

Advantages: Is near the shooter and can be reached easily. Cheap to make.

Disadvantages: Very coarse adjustment and hard to use, especially on higher power. Left eye cannot see the yardage indicator while looking through the scope and movement is extremely coarse. Difficult, if not impossible, to make work on conventional variable power scopes.

II. MIDDLE (TURRET/SADDLE TYPE) CORRECTIVE METHOD. (See Fig. 2)

Usually on left side of turret with yardage increments printed around the radius of a third knob. Designed to be easily reachable and adjustable with left hand while looking through scope. An example is Leupold Mark IV Tactical.

Advantages: Easy reachable from shooting position.

Disadvantages: Most companies using this style build it in such a way as to not be able to easily read the yardage numbers without shifting the head from looking through the scope which defeats the mission of the concept.

Is very coarse and not as finely tunable, particularly at higher power without putting a very large (3" or larger) knob on, which again, defeats the concept.

Has more mechanical systems to fail.

More expensive to make, *if done well*

III. FRONT (OBJECTIVE LENS TYPE). (See Fig. 3)

One of the oldest, most proven and still the probably the best and most versatile system optically and mechanically. Either very fine or rapid gain fast threads can be used, depending on the application. If made properly, it can be as rugged and abuse resistant, as the three other types of adjustment, while offering many advantages the first two methods don't have. This method is usually seen as a fixed objective, (set at the factory and non-adjustable w/o special tools), or fully adjustable by hand.

Advantages:

Optically the most proven and efficient.

Mechanically, the most versatile and effective way.

Historically, fixed objective scopes up to 10x have been most accepted by the military because of ruggedness.

Disadvantages: On extremely long scopes can be hard to reach from the shooter's position.

Cannot easily see the range or yardage increments from shooter's position.

Can Leak easier,(on hand adjustable models), if not made well

IV. U.S. OPTICS "ERGO" ADJUSTMENT SYSTEM. (See Fig. 4)

After many years of designing and building scopes for myself and other companies, I think this system, which is a refinement of #3 above, *has all the advantages of the above systems and none of the disadvantages*. Those advantages are:

One can see the yardage increments very clearly with the left eye while looking through the scope with the right eye.

Is easily reachable while in shooting position.

Has a finer adjustment than knob-turret type designs.

Can be made to accommodate slow or rapid gain operation, depending on the need and application.

Can be made as rugged and sealable as necessary.

Is modularly modifiable for different applications.

We can build all four of the above systems, depending on the need, but prefer and recommend the #4 "ERGO" system by far.

Reticles: How ranging reticles work

Non BDC type Ranging Reticles

Basically, with any reticle, whether it is a front or rear focal plane reticle and regardless of shape, size or configuration, they all work as follows;

Pick the power you wish to range with and set the scope to that power.

Using a known grid (it may be a yardstick, measuring tape or whatever), at a known distance (I suggest 100 yards), determine what value the portion of the reticle occupies. If you are using the space between lines (Mil-Scale), or if you are using the shape of the reticle and/or spaces (Mil-Dot), determine what those spaces and/or shapes equal in size at that distance. If you are using any geometric line or shape, do the same.

Once you know the above criteria, you can apply the dimensions to an unknown distance, using a known sized object. For example, if you know a space in the reticle equals 2" at 100yds, you know the space equals;

2 M.O.A., at 200 yds. which = approx. 4 inches (4.160")

2 M.O.A., at 400 yds. which = approx. 8 inches (8.320")

2 M.O.A., at 1000 yds. which = approx. 20 inches (20.8"), etc.

The known object is your final piece of criteria. A visual comparison of the M.O.A. (inches) that the reticle subtends against the known size of the object will tell you the distance. Example: a Coca-Cola can (12 oz.) is 5 1/4" high. If a reticle space subtends 2" at 100yds, and the space almost exactly covers the height of the can, you know the distance is slightly over 250yds.

Since a good military sniper or target shooter either memorizes or lists his trajectory tables, it is a simple matter of dialing the number of clicks it takes to make the strike of the bullet (trajectory) coincidental to the optical path (axis), which is optically the aiming point of the reticle.

***1 M.O.A. =1.04" approx.** (Round off to 1"or one shooter's MOA) at 100yds. ***1 M.O.A. =1.144" approx.** (Round off to 1.4" or 30MM) at 100 meters). It also equals 1/60 of one degree.

1 SMOA (shooter's MOA)=.95493" actual MOA. or 1" at one hundred yards.

Radian=180degrees divided by 3.1416 (57.3 degrees).

Mill radian (MIL)=57.3 degrees divided by 1000 (.0573 degrees). Also equals approx. 36inches at 1000 yards. Also equals .0573(60)=3.438 minutes of angle (M.O.A.)**. (**Easy way to figure: 1 Mil =36" at 1000yds., 18" at 500yds., 9" at 250yds. and even multiples in between). Also approximates 3.6"(not 3.6 MOA) at 100 yards

Mil-Dot reticle=1 Mil between dots (on center). The dots are 3/4 M.O.A. in size (not 3/4 Mil), if round and 1.25" long (if oval or football shaped) By 3/4M.O.A. high(3/4"). A Mil-dot reticle should subtend 3.5755" at 100 yards (center of dot to center of dot). It is usually rounded off to 3.6" at 100 yds., 36" at 1000 yds. and equal proportions thereof at other distances.

Metric Data:

1 M.O.A. = 30MM at 100 meters (approx.) It also equals 1/60 of one degree.

1 Click (1Centimeter) at 100 Meters =1/3 M.O.A. If you are shooting standard 1/4 M.O.A. scopes at 100 meters you can figure there are about 4.7 clicks (4.7240) to one M.O.A. and you can round off to 5 clicks out to 1000 meters and not miss by more than the fractional equivalency thereof.

Mil-Dot Reticle Design

The U.S.M.C. designed the Mil-Dot reticle to be installed in their sniper scopes. The M40A1 riflescope, although not the very first scope in the Corps to have such a reticle, is none-the-less generally associated with being the first.

1 Radian = 57.3 degrees (180 degrees divided by 3.1416)

1 MOA = 1/60 of one degree and subtends approx. 1.040" at 100 yards

1 Mill radian = .0573 degrees

1 Mill radian= 3.438 MOA or 3.575" at 100 yards.

1 Mill radian= Approx. 30mm @ 100 meters

The 10x Mil-dot system has basic subtentions that when applied to other magnification (power) scopes, do not look the same in appearance. The 10x reticle subtentions when applied to a 20x scope, make the reticle appear out of proportion when compared to the target. For instance, a 22x reticle when installed in a 17x scope, will give 4 MOA between dots and the dots will be 1 MOA in diameter. This is much easier to use than the conventional 10x measurements. After all, why work with milliradians when it is much easier and consistent to use MOA!!!

For that reason, we often (particularly on a custom BDC scope), will use other value Mil-Dot reticles to achieve best results. If you absolutely demand the 10x configuration subtentions when using a higher or lower magnification scope we usually can oblige. Please tell us your preference or we will use our judgment on what works best.

(BDC Type Ranging Reticles)

The neuvo-sniper elite, who sell themselves as "the authority" and some misguided and unsophisticated scope builders (I should say, importers, since they usually don't build their products), place one or more BDC trajectory impact tables on their reticle face, usually in the rear focal plane. This can be and usually is, semi-effective in shorter focal length units but a very bad idea on higher power scopes, if the scope company sells the shooter on the idea of relying totally on these tables for long range accuracy.

Categorically, here is why that system has flaws. Since the longest (and therefore the most critical), ranges are at the bottom of the reticle and therefore the bottom of the field of view, this method is prone to the following negatives;

1. More aberrations and resolution loss (bottom of field of view), at a time when you need more resolution, not less.

2. More parallax present. Only center field is parallax free (if parallax is corrected). This means that for the longer, more critical shots you are using the worst portion of the optical system.

3. Creates headaches and eye-brain de-synchronization.

Lines should be made thinner at bottom for more finite aiming and usually are not.

4. The reticle BDC is irreversible, one trajectory only with no variables available. In addition, the front focal plane and rear focal plane reticle is not easily changed except in the cheaper scopes.

Note: at U.S. Optics we can engrave a BDC elevation spool to match the indicated yardage scribed onto the spool that has been "shot in" by the shooter. We can do this for any bullet, caliber, velocity, etc. All the customer has to do is ask for a *blank spool and mark the lines while shooting for what he wishes to indicate and return to in the future or he may return the corrected spool to U.S. OPTICS for engraving at a nominal fee.**(See page 65)*

Types of U.S. Optics reticles we offer

Choosing a custom reticle, getting it made and installing it

We can make any kind of reticle fairly rapidly. We have many types of pre-engineered reticle drawings we can put into production. We probably have several hundred designs we have put into our AutoCAD system. A lot of them have been made in black and white (non-illuminated), glass prototypes for testing. We have also made many one-time custom orders for customers. A few of these have been offered from time to time to see how the public accepted them. If they don't sell well we don't make more of them. We try to stay with what is popular for standard reticles.

We constantly get requests from our custom scope customers for "custom " reticles. Typically, those customers want to see the many reticle designs we have available. That is almost impossible. We cannot send all of them in the first place (there are too many) and secondly, we cannot just grab a drawing we sent you (or you send us) and make a reticle for you. It doesn't work that way. No scope company can do that. What we can do is council you, arrive at a design you like, build the tooling for that reticle and install one in your scope. In other words, once you know exactly what you want, we will look to see if we have that item or something similar that we have made before. If we have such an item, we will use it. If we do not, we can give you a price and time for building tooling and installing the reticle. This involves making a precise drawing in Auto-Cad, making a photomask or other mask and tooling, cutting and sizing the correct glass blank/s and engraving the reticle. We then sandwich the reticle blanks in a proprietary way, install them in our erector/reticle housings and perform our reticle lighting techniques. It is not a quick or simple task.

Using BDC knobs and ranging reticles

For the most part, BDC (bullet drop compensating) reticles for long-range scopes have not been that popular. As stated on the prior page in this catalog, BDC reticles placed on glass reticles are not a real good idea. Once you understand that you can see why most knowledgeable shooters have left them behind. They don't work that well. Most scope making companies have come to realize that. The few others just haven't gotten the picture. About the only place they work fairly well is in short-range scopes where the margin of error is not so great.

Ranging reticles are also not as popular as they used to be. Today, the Mil-Dot and scaled reticles are used primarily for "point of aim only", as laser rangefinders are cheap, effective and easy to get. When the laser rangefinder is used with a "pre shot-in BDC knob, engraved for precisely the load you shot in on your rifle and we engraved, you have a deadly, precise and fast system. It takes some work to do this but the result is faster and more precise than ranging reticles and generic factory BDC's. Having said that, the Mil-Dot is still our most popular and fastest selling reticle.

Cost of custom reticles

U.S. Optics Reticles

Production Reticles

The following pages are actual Auto-Cad engineering drawings with manufacturing tolerances and measurements removed to show you an artist's concept of each reticle and how it would appear, looking through the given power scope.

The actual subtentions are given elsewhere in the catalog (under the scope model information).

Custom Reticles

Since we custom build scopes as well as producing standard "off the shelf" scopes. We can <u>custom build any reticle you desire.</u>

We have several hundred designs in Auto-Cad that we have designed and built over the last eight years, or we can design "from scratch."

A custom template for etching the reticle costs us about $400.00 - $1000.00 ea., depending on the complexity. If it is a one-up item, the Auto-Cad drawing and engineering runs $75.00 up and the template of $400.00 - $1000.00 brings the custom design price to about $475 - $1075.00 ea., for each new reticle.

So, if you really do want to design a particular "custom" reticle, we can do it. The design work is fairly inexpensive. If your sketches are in M.O.A. and well sketched, the mechanical AutoCAD drawing will cost you about $120.00. The photomasks will run from about $380.00-1000.00 depending on how it is done. The construction work on the glass is about

$70.00-150.00 each. If the reticle is to be lighted, additional diode and electronic work (included if you buy our scope and the custom reticle is assembled as the scope is built) must be done.

Reticles: Front or Rear Decisions

Introduction and History

There are two planes of focus in the common rifle scope (lensmatic), for the placement of the reticle. They are commonly called the front focal plane and rear focal plane models. One exception is the Shepherd scope, which has both. Artillery rangefinders have always had at least two reticular focal planes, and sometimes three or four. Optical collimating scopes have always had two focal plane reticles, or aiming points. Interferometers need more than one focal plane aiming point to function.

Why front or rear focal plane placement?

Question: What are focal planes and what is the difference between putting the reticle in the front or rear focal plane?

Answer: Only in a variable power scope is the reticle placement a major problem. In the rear focal plane, or behind the power changing lens system (erector tube), was the first solution that occurred to optical engineers, and most American scopes are still being built that way. Unfortunately, this apparently ideal solution has a very serious flaw.

Any tolerance change in the centration of the lens system and their spherical/longitudinal movement with the power change will shift the point of impact. *A variation of one thousandth of an inch will move the zero point approximately one inch at 100 yards.* Since the mechanical parts that hold the power changing lens system slide inside each other, (some allowances are made for temperature changes, manufacturing tolerances and wear), there must be some movement made to accommodate this. Consequently, this lateral and vertical movement will often *shift zero* by as much as *several inches, as power is changed on a rear focal plane scope.*

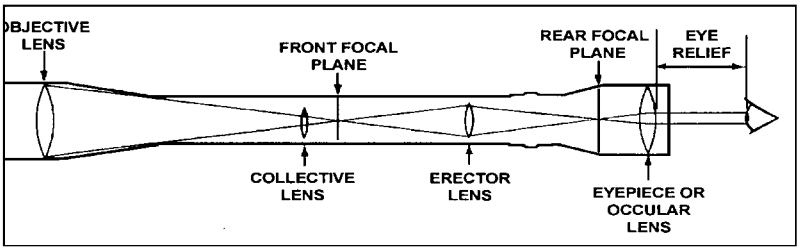
A better solution is to place the reticle in the front focal plane, or ahead of the power changing lens system. The movement of the erector system will, optically, have no effect on the point of aim here. So why don't all scope manufacturers build them this way? The downside of this method is that Americans typically do not like reticles that grow in size when the power is turned up. There is no actual growth in the reticle size. As the magnification increases, so does the reticle along with the objects in the field of view. A one-inch dot reticle will still be one inch, at any power, be it low or high. It is only the appearance that is altered. If the power is turned from 2x to 4x, or doubled, the size of the objective image is doubled, and so is the reticle along with it.

Since the front focal plane reticle is a superior aiming device but aesthetically not very popular, there is only that problem to overcome. This clearly is not a matter of opinion on which system one likes best, but rather, having a clear understanding of the good points and bad points of each and making a decision based on functionality.

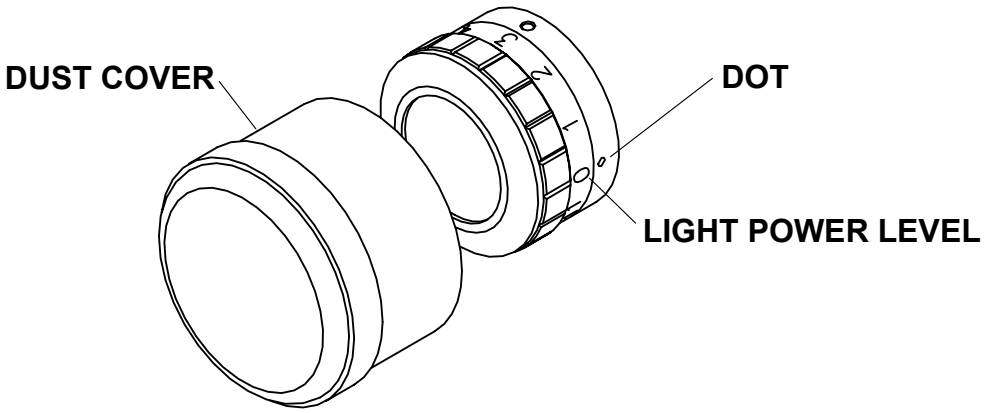
That problem has been solved by U.S. Optics engineers in the form of creating a series of front focal plane reticles that do not appear to change in apparent size as the power is changed. These reticles all have the same effect when sighting with them. U.S. Optics designs these reticles to not only diminish the negative idea of apparent change, but uses that concept to create an exclusively positive concept change. In other words, we use the single image concept of a reticle magnified to an almost unusable thick, heavy image at high power to create another entirely different and very usable, highly magnified reticle, without the normal disadvantages. We call this system of reticles our High-Low Imaging System, or High-Low Reticle. It is a completely different picture at high power, thus usage is dual purpose and increases the versatility of the scope tremendously.

With this system, the variable power scope no longer has any disadvantages, and many decidedly great advantages over a fixed power scope.

My prediction is that all American, European and Japanese scope manufacturing companies will use the rear focal plane system on their variable power scopes by 2005.



11 Position lit reticle



Definition, purpose, operation and scope of the 11 position lighted reticle system

Definition: Eleven position lighted reticle

In order to contrast a scope's aiming system (reticle) against a background, it is appropriate and sometimes necessary to reflect light off the reticle in order to do so. There are many ways of doing this, as explained in the beginning of this chapter. For the purpose of this paper we will discuss only the eleven position lighted reticle.

How This Works

A variable power rheostat is used, having a battery for power and a multi-position variable impedance switch, with eleven positions of varying power, plus one position that is the off mode. This switch gives a varying amount of power to a diode, that in turn, varies the brightness of the reticle. The diode or diodes are placed in a pattern around the edge of a glass reticle. The light reflects off the cross hair pattern, which has been engraved in the surface of the glass and filled with reflective media. The end result is that one can vary the power to the lighted reticle by turning the rheostat to any one of eleven positions, ranging from very subdued lighted to very intense bright lighting. This allows the shooter to use the reticle in anyone of many conditions ranging from a very dark night to bright daylight. If power is lost or the unit is turned off, the black reticle still works as it normally would!

Advantages of This System

The advantages of this system are:

This system allows the user many choices of power and brightness to accomplish his goals.

This system can be turned off and the black reticle still works.

This system uses no ambient light or radioactive material.

System is not dependent on other light sources.

System uses common, readily available components.

Disadvantages of This System

In the early days using this system there were the usual failures of reliability, but as time has gone by this system is now very reliable, can be made extremely rugged and offers distinct advantages over other systems. We have not experienced any failures of this system for over five years!!

Summary

This is probably the best and most utilitarian method of lighting a reticle by today's standards.

Directions

To Use

Unscrew the dust cap cover on the left-hand side of the turret. This will expose the lighted reticle rheostat. Please notice there is an indicator dot machined into the base of the rheostat. This serves to locate the number on the rheostat that will give you, the operator, an indication of what number is being used. Example: when the zero number is next to the indicator the unit is completely off and no power is going from the battery to the diode. When the number 1 is adjacent to the indicator, the reticle is lightest and the smallest amount of current possible is then flowing to the diode, lighting the reticle. When the number 11 position is adjacent to the indicator, most current possible is flowing to the reticle diode, making it the brightest position. Therefore, any position in between is going to light the reticle in variable degrees of brightness. The highest number being the brightest and the lowest number being the least bright.

Note: Always keep the position at zero when not in use to save battery power.

Replacement of Battery

With the scope resting on your lap, hold the rheostat housing (A.) firmly with your right hand to keep it from turning and with your left hand unscrew the (B.) thin outer portion (cover) of the rheostat housing. See the picture below to get an idea on how to do this. Take the battery out of the retainer clips using your fingernails. Stick a new battery back in, putting it in much the same way as it came out and allowing the clips to hold it firmly. Screw the cover back on snugly but not so tight you can't get it back off easily.

The dust cover that goes over the rheostat housing is designed in such a way that a piece of double-sided tape can be stuck to the inside flat in such a way that an extra battery can be held in abeyance ready to be used. In this way you will always have an extra battery on hand that can be quickly utilized should your old one wear down.

We use the German made 3Volt Lithium "coin type" VARTA battery (code #CR 2032).

The Energizer CR2032 is the same battery. These can be found in any drugstore or supermarket photo section, photoshop or electronic store (Radioshack etc.).

Special M.O.A. - Dot Reticle

For 10x Scopes

We can provide, in our scopes, a M.O.A. dot reticle instead of Mil-Dot reticle. It works much easier. Let's face it, no one likes to think in Mils. Also the knobs are in M.O.A. So this is what we do for a lot of our own personal scopes here. It looks exactly like a Mil-Dot reticle except subtentions are as follows:

.250" = 1 click (MOA) at 100 yds.

- = (5") = 20 clicks at 100 yds. (1/4 MOA Clicks)
- = 10" at 200 yds (1/4 MOA Clicks)

(If you are using our 90 click E.R.E.K. knob, the value per click is ½ M.O.A)

The equation works this way;

The dots (center-to-center) are 4.8 MOA.

That equals different greater subtentions in inches at longer ranges, here is what those 4.8 MOA subtends at 100 – 1000 yds. in inches.

4.8 MOA

Distance Yds	Round off
100 yds. = 4.8"	5"
200 yds. = 9.6"	10"
250 yds. = 12"	12"
300 yds. = 14.4"	15"
350 yds. = 16.8"	17"
400 yds. = 19.2"	20"
500 yds. = 24"	24"
600 yds. = 28.8"	29"
700 yds. = 33.6"	34"
750 yds. = 36"	36"
800 yds. = 38.4"	39"
900 yds. = 43.2"	44"
1000 yds. = 48"	48"

This reticle can be supplied at no extra charge. Simply state on your order you prefer the M.O.A. – Dot reticle instead of Mil-Dot.

Windage and Elevation Click Values at Various Yardage's

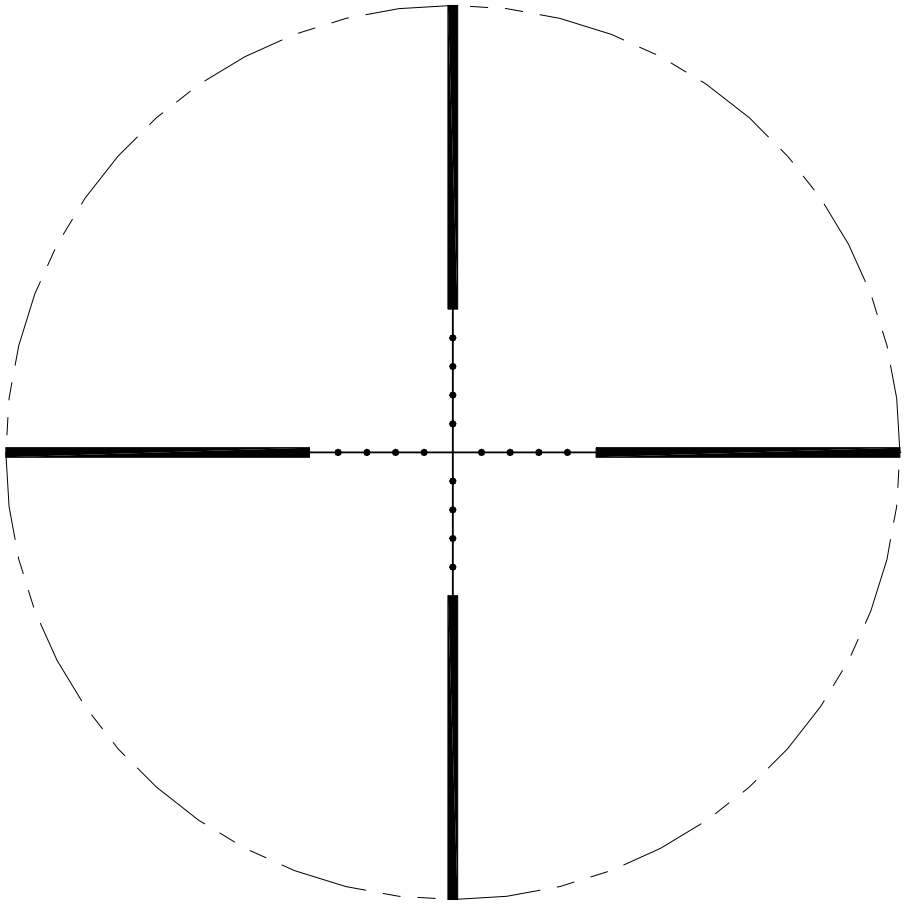
1 each

¼" MOA Click Equals Approximately	True MOA Values
.25 (1/4 MOA Clicks) at 100 yards	
.500 (1/4 MOA Clicks) at 200 yards	
.625 (1/4 MOA Clicks) at 250 yards	
.750 (1/4 MOA Clicks) at 300 yards	
.875 (1/4 MOA Clicks) at 350 yards	
1.0 (1/4 MOA Clicks) at 400 yards	
1.250 (1/4 MOA Clicks) at 500 yards	
1.5 (1/4 MOA Clicks) at 600 yards	
1.75 (1/4 MOA Clicks) at 700 yards	
(1/4 MOA Clicks) at 750 yards	
2.00 (1/4 MOA Clicks) at 800 yards	
2.25 (1/4 MOA Clicks) at 900 yards	
2.5 (1/4 MOA Clicks) at 1000 yards	

Production Reticles

The following pages are actual Auto-Cad engineering drawings with manufacturing tolerances and measurements removed to show you an artist's concept of each reticle and how it would appear, looking through the given power scope.

The actual subtentions are given elsewhere in the catalog (under the scope model information Models: SN-1 through 12



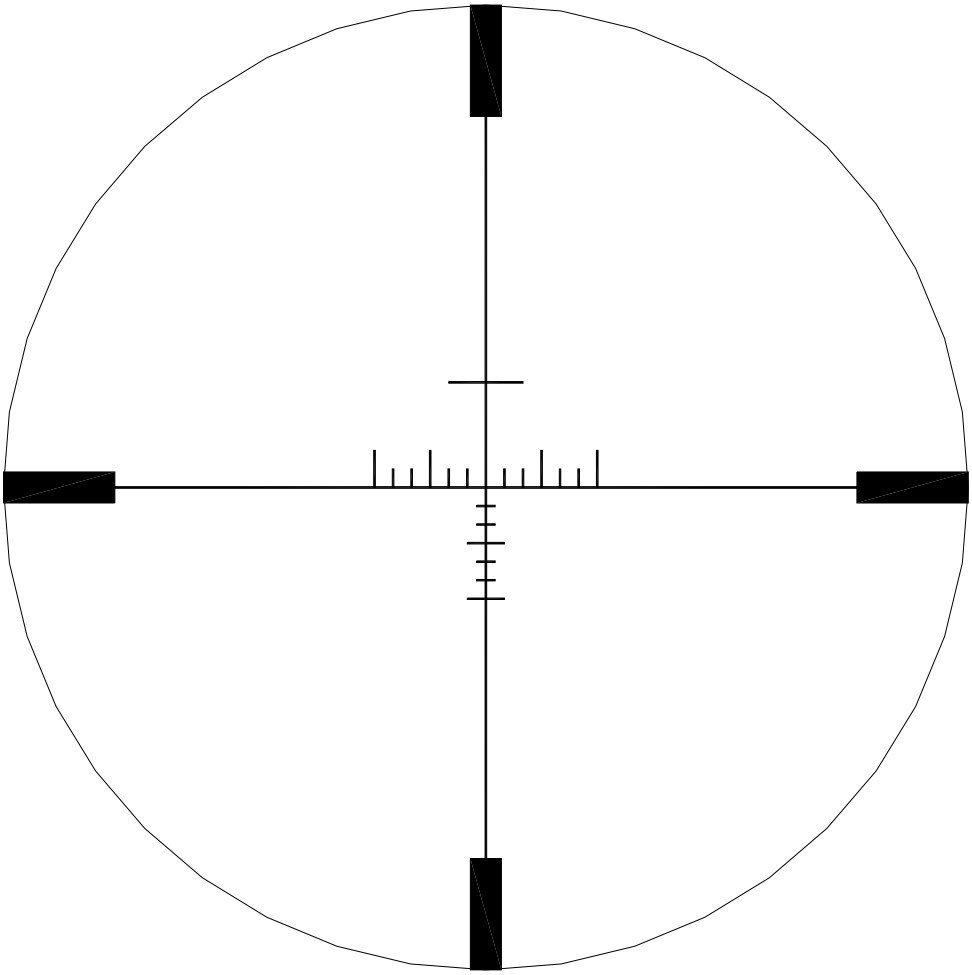
STANDARD USMC MEASUREMENTS

(1 MIL SPACING BETWEEN DOTS, ¾-MOA DOTS)

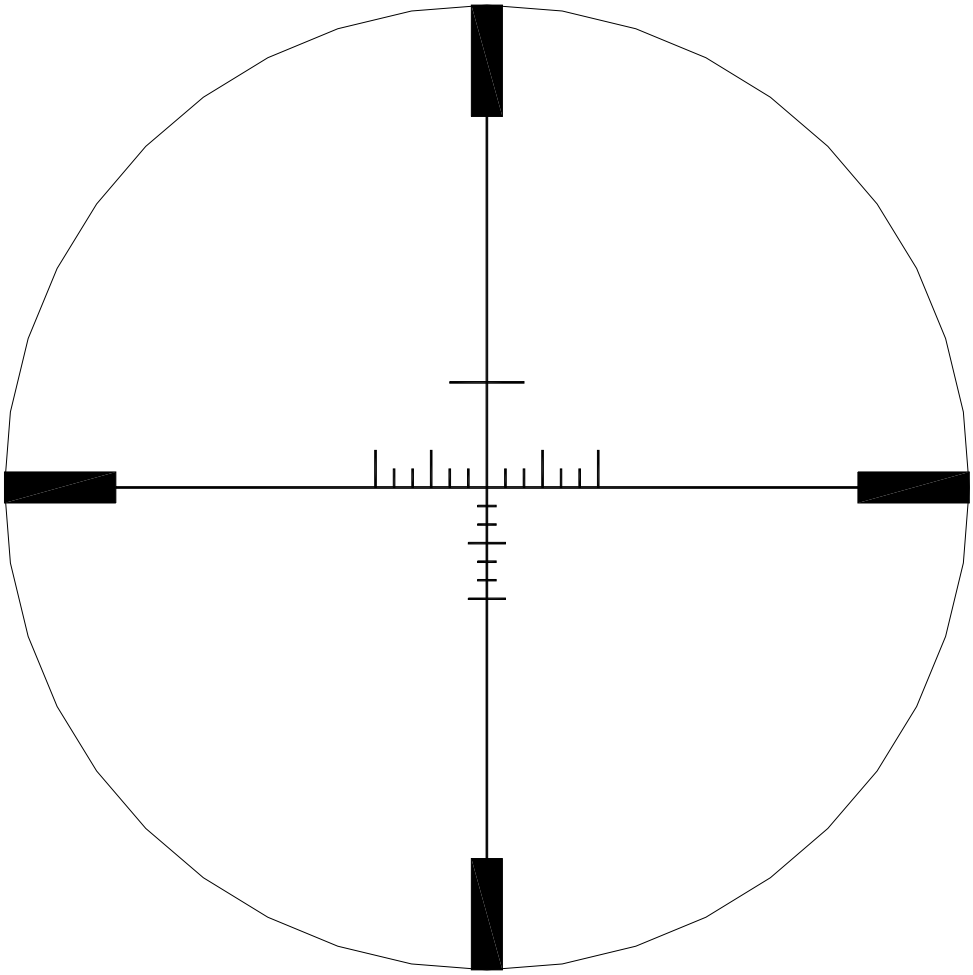
Available Now in 10x, 17x and 22x

Also, please consult prior pages entitled "Special Mil-dot Reticles". We have designs that subtend in even MOA instead of Mils which, when you think about it, work much better and faster WHEN the E. & W. knobs track in MOA instead of Mils. Please inquire about power

Sellers M.O.A. Scale Reticle (10X)



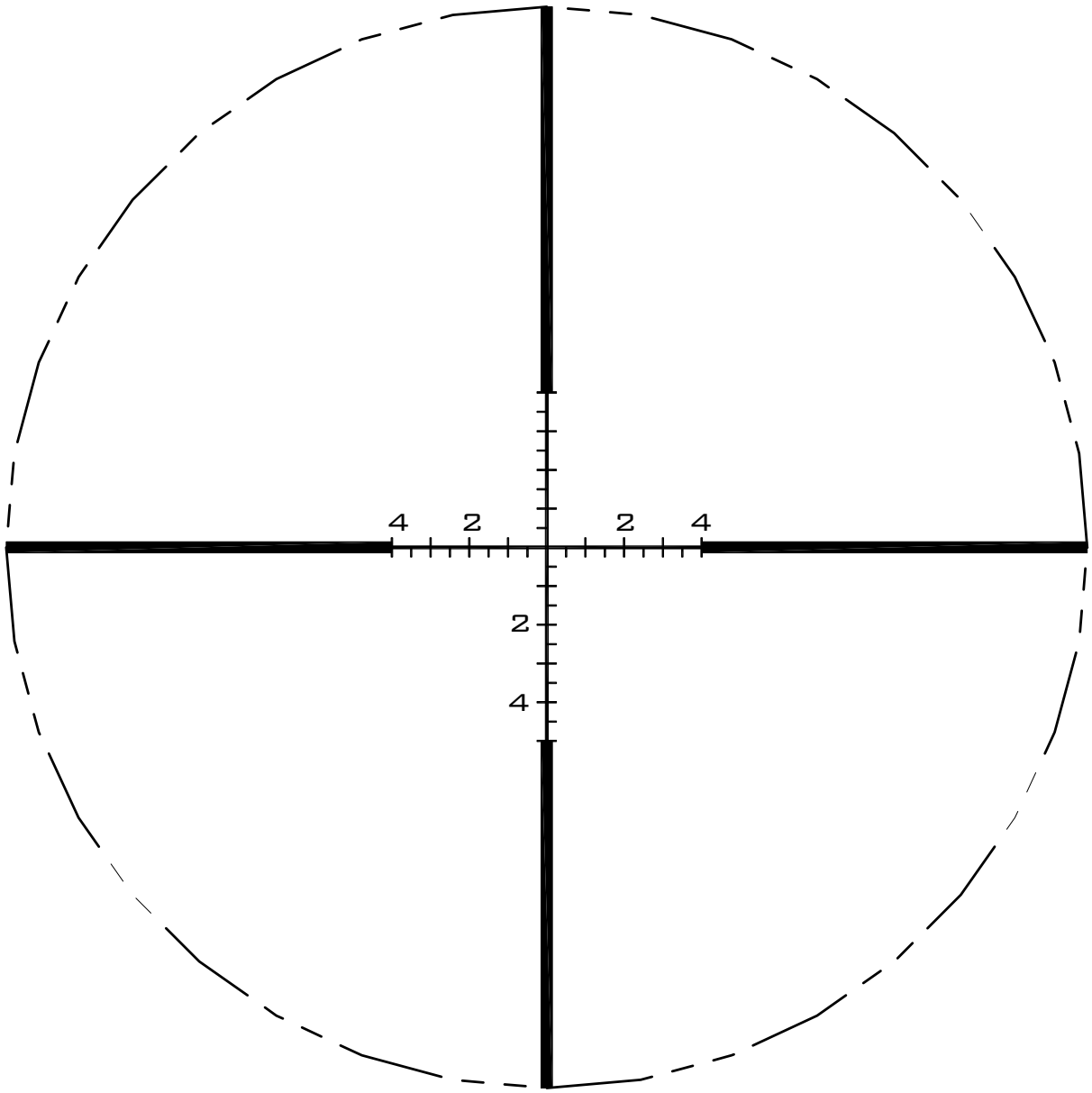
Spaces between fine ticks: 3 M.O.A.
Spaces between coarse ticks: 9 M.O.A.
Quadrant linear subtentions: 18 M.O.A.
Fine tick height: 3 M.O.A.
Fine tick width (total): 3 M.O.A.
Coarse tick height: 6 M.O.A.
Coarse tick width (total): 6 M.O.A.
Fine crosshair thickness: .250 M.O.A.
Coarse crosshair thickness: 5 M.O.A.



Sellers M.O.A. Scale Reticle (17X)

Spaces between fine ticks: 2 M.O.A.
Spaces between coarse ticks: 6 M.O.A.
Quadrant linear subtentions: 12 M.O.A.
Fine tick height: 2 M.O.A.
Fine tick width (total): 2 M.O.A.
Coarse tick height: 4 M.O.A.
Coarse tick width (total): 4 M.O.A.
Fine crosshair thickness: .150 M.O.A.
Coarse crosshair thickness: 3 M.O.A.

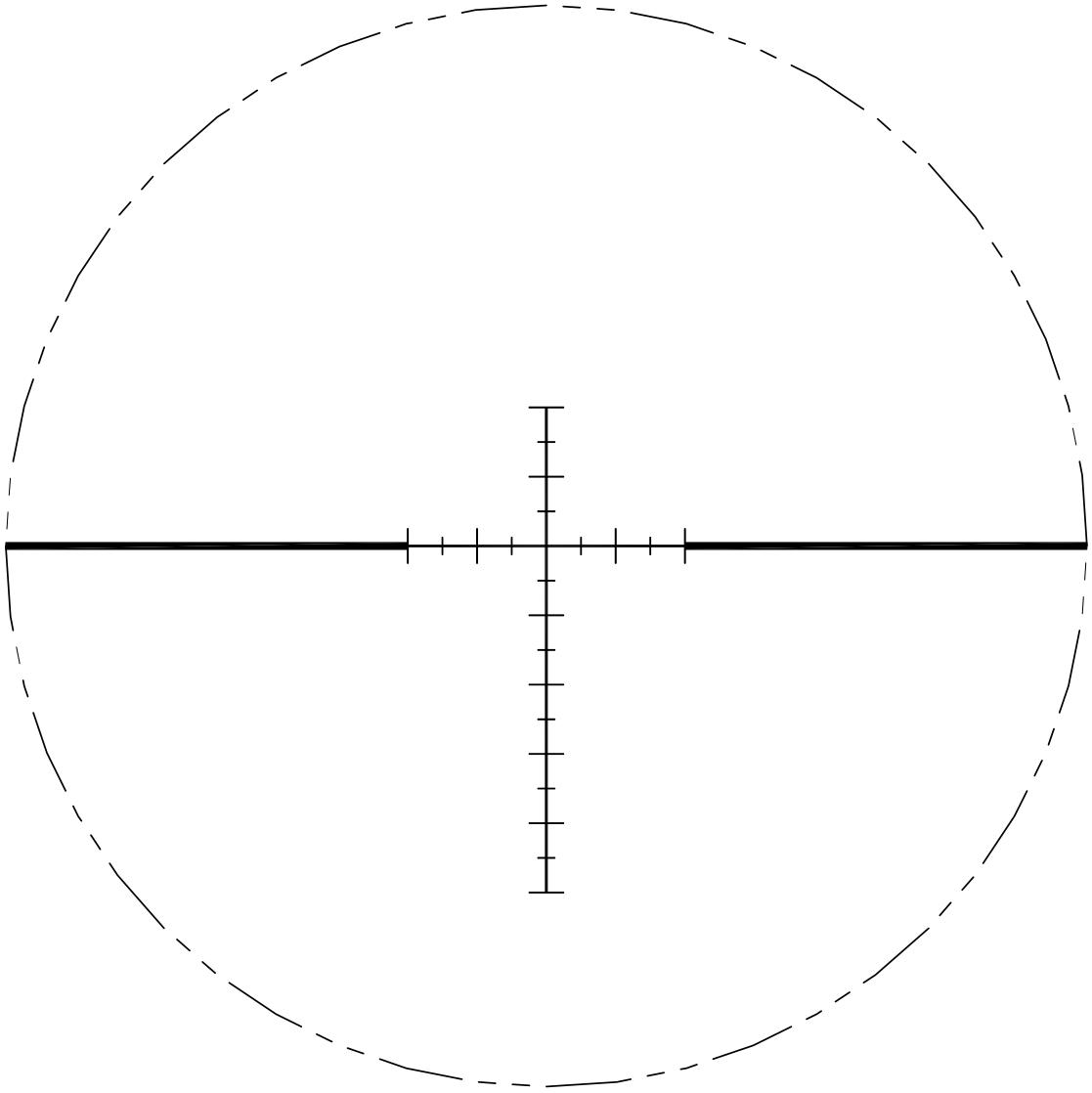
Space reserved for HORUS VISION reticles (page should be up and complete in December, 2003.



MIL SCALE RETICLE, TYPE 1 *

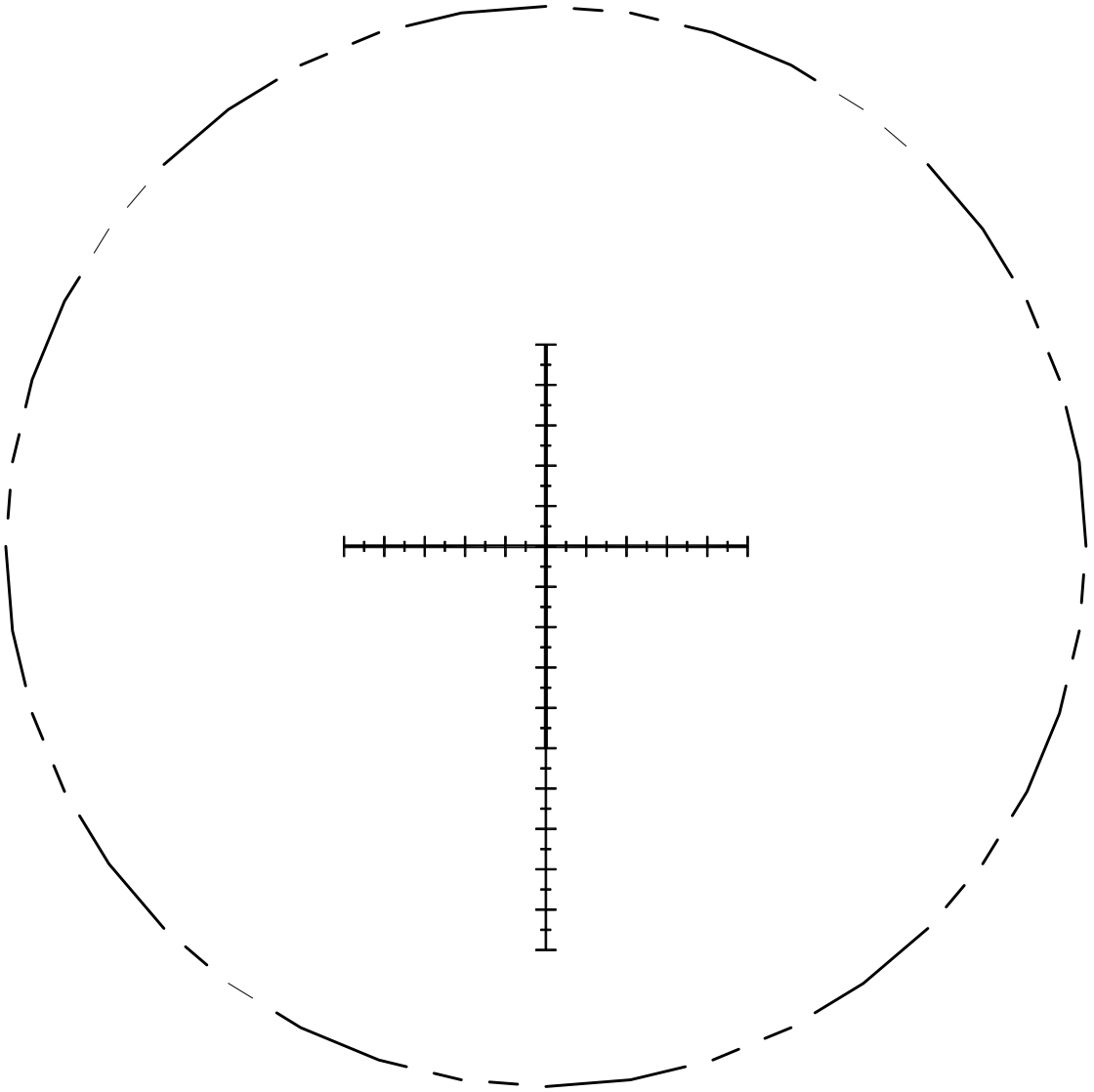
(Shown is the 10X Mil Scale reticle shown at 10 power)

AXES: 5 Mils per Quadrant (LOWER), 4 Mils per quadrant (TOP AND SIDES)
SPACING: ½ Mil small tick lines are exactly ½ the distance between large mil tick marks(1/2 Mil)
LINE THICKNESS: Center quadrant lines approx. ¼ M.O.A.., outer lines are approx. one M.O.A.
***Available February 2000 In 10x, 17x and 22x**



M.O.A. SCALE RETICLE, TYPE 2*

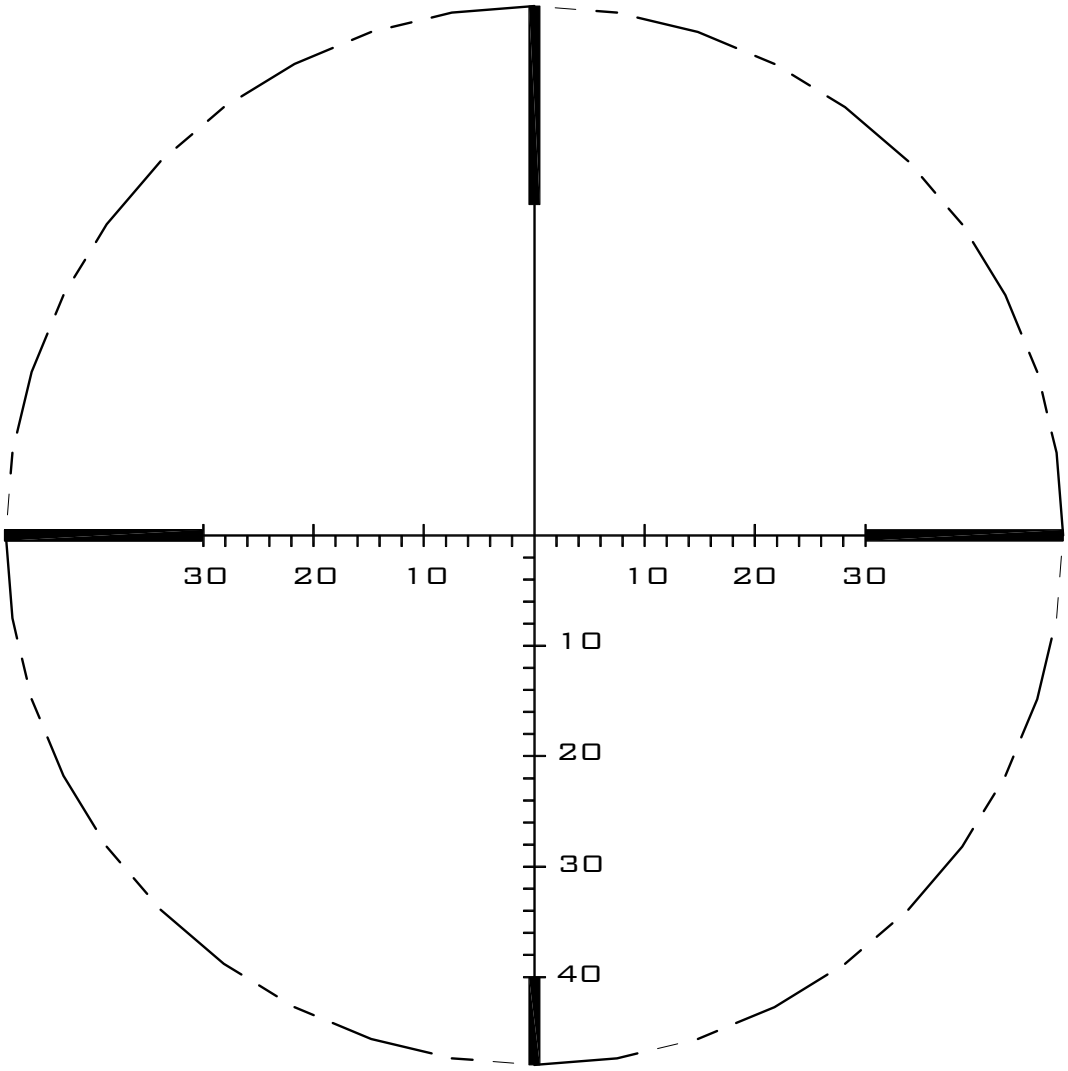
MINOR TICS: 5 MOA SPACING, 2.5 MOA LONG (WIDE)
MAJOR TICS: 10 MOA SPACING, 5 MOA LONG (WIDE)
(DESIGN PT. APPLIED FOR)
***Available in February 2004**
In 10x, 17x, and 22x



Mil Scale Type 2*

MINOR TICS: 1/2 MIL SPACING, 1/4 MIL LONG (WIDE)
MAJOR TICS: 1 MIL SPACING, 1/2 MIL LONG (WIDE), 10 MILS WIDE, 15 MILS VERTICALLY
LINE THICKNESS: HORIZONTAL AND VERTICLE QUADRANT LINES ARE APPROX. 1/8 MOA THICK, MAJOR AND MINOR TICK LINES ARE SLIGHTLY SMALLER

*** Available in May 2004 In 10x, 17x and 22x**



M.O.A. SCALE, TYPE 1*

(SHOWN AT 17x)

This is, next to the Mil-Dot, our most popular reticle. Basically, it is the same as the Mil-Scale type 1 reticle except in a simpler, more definitive and usable M.O.A. form. Lets face it, almost all windage and elevation knobs are designed to subtend in MOA, not MILS so to equate mil style reticles to MOA knobs promotes more inaccuracy attrition.

M.O.A. PER SMALL SPACE: 2 M.O.A., 10 M.O.A. between #'s

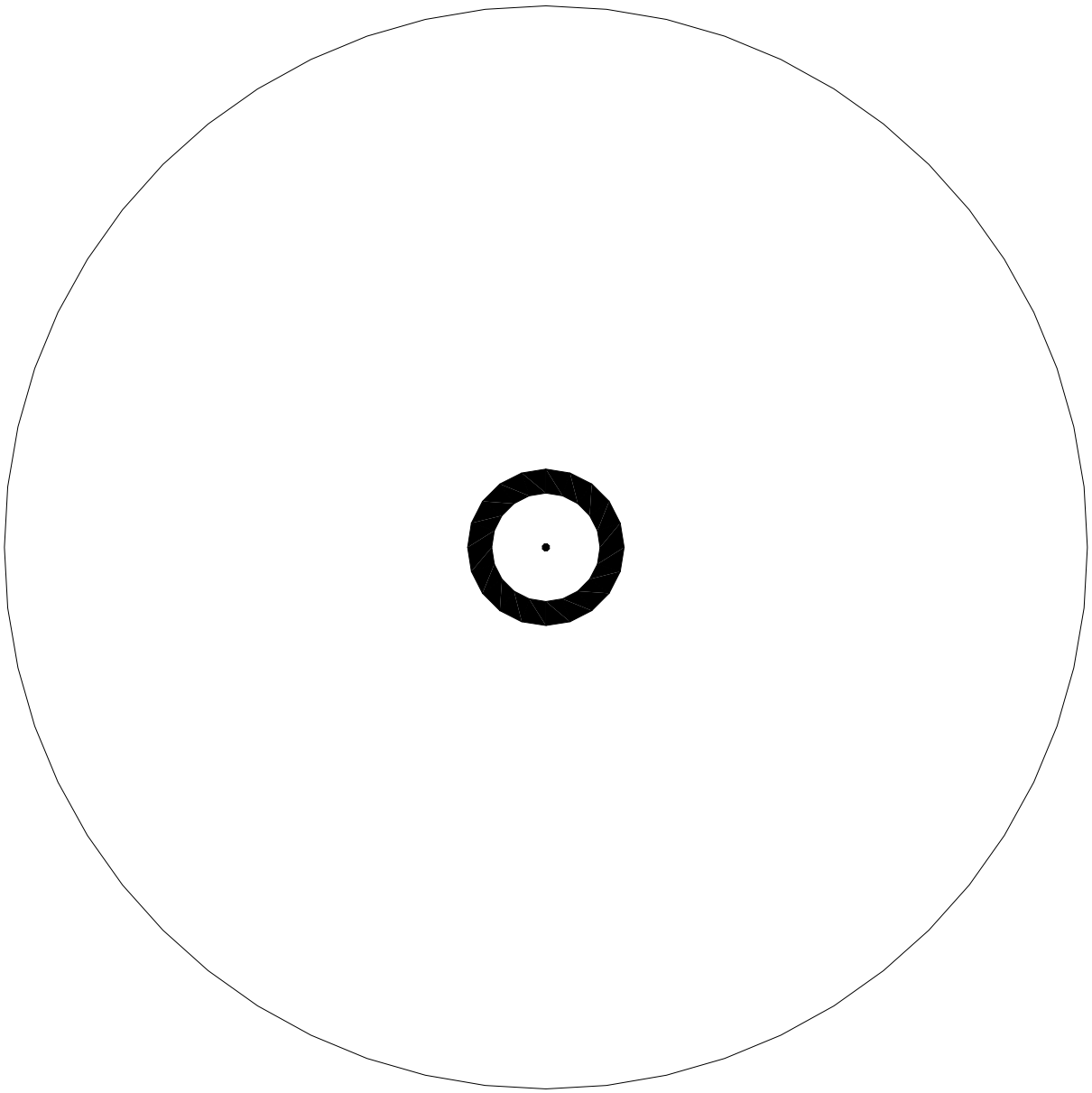
AXES LINE THICKNESS: .25 MOA THICK

TICS LINE THICKNESS: .125 MOA THICK

HEAVY LINE THICKNESS:APPROX. 1 M.O.A.

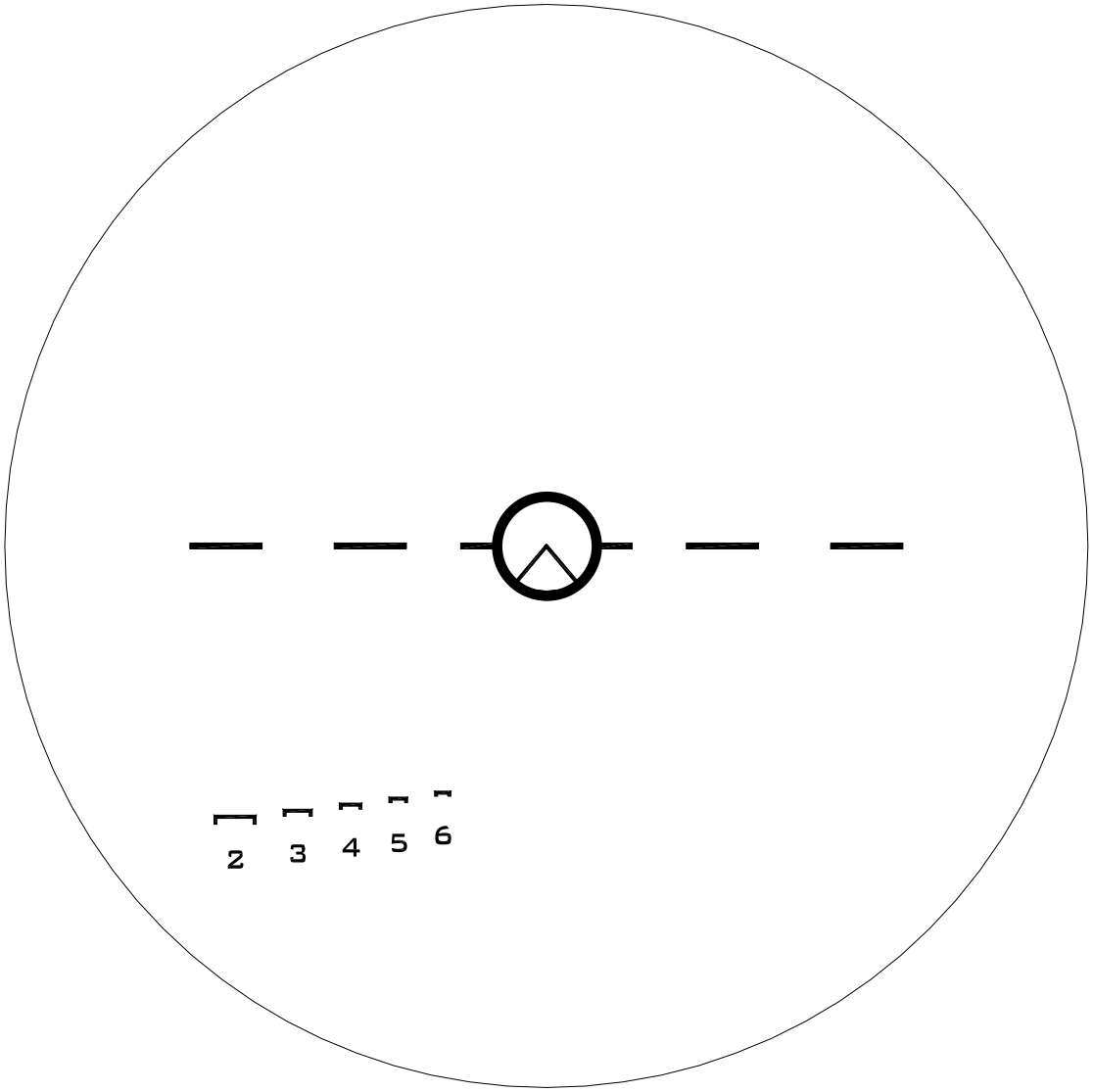
*Available in April 2004 in 10x, 17x and 22x

Reticles



Circle Dot, 4X

METHOD OF USE: This reticle is deigned primarily for front focal plane reticles to produce a rapid response scenario**.** At 1X, the circle is used to quickly encircle the target for fastest target acquisition, while **at 4X the** circle grows to be almost outside of the field of view and the dot becomes the fine aiming point for the longer range target acquisition. We believe this to be one of, if not the fastest targetacquisition reticle in the world when put into the SN-4.
DIAMETER OF OUTSIDE OF CIRCLE:
DIAMETER OF INSIDE OF CIRCLE:
DIAMETER OF DOT: 3 M.O.A.

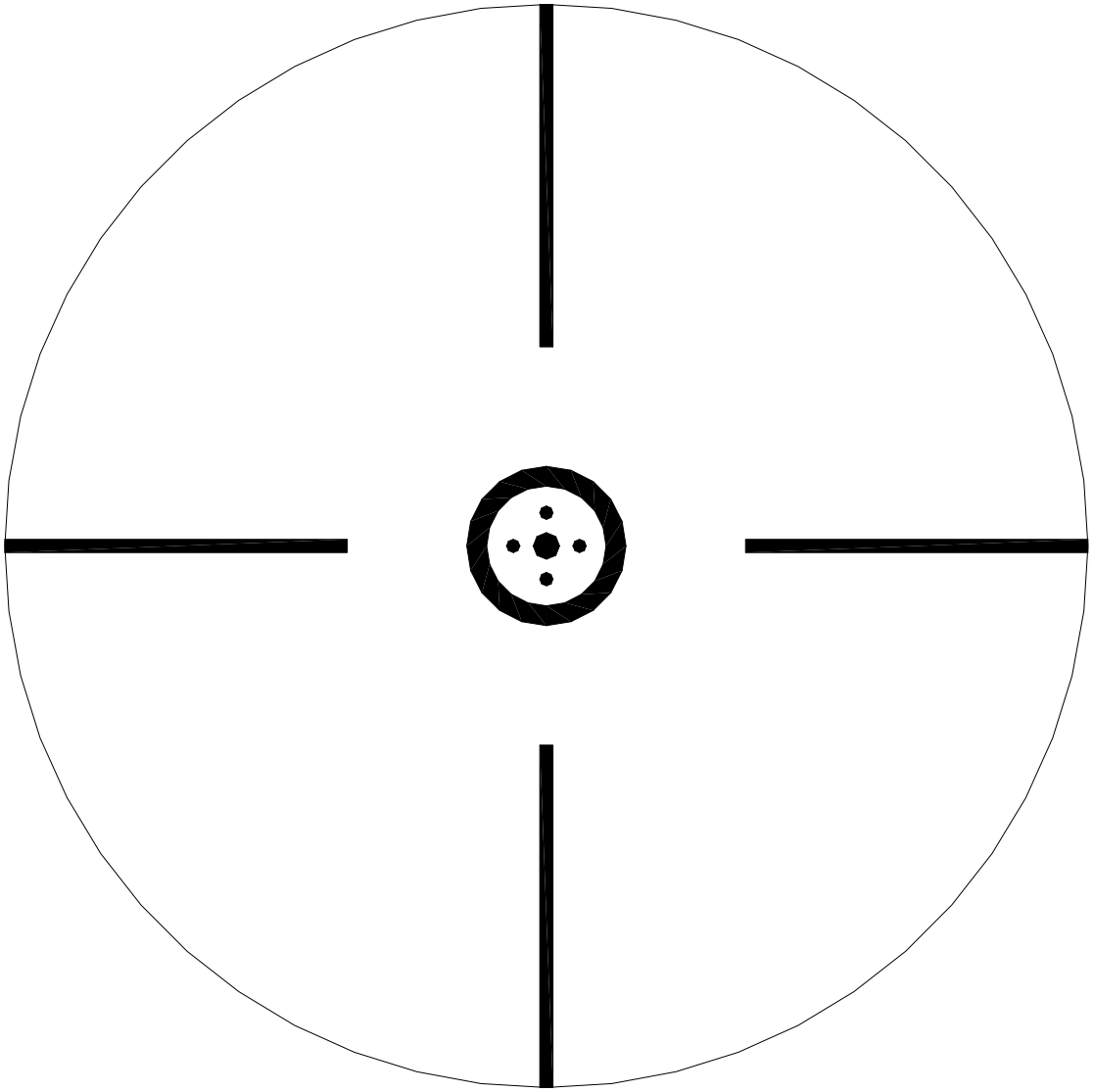


Circle Chevron, 4X

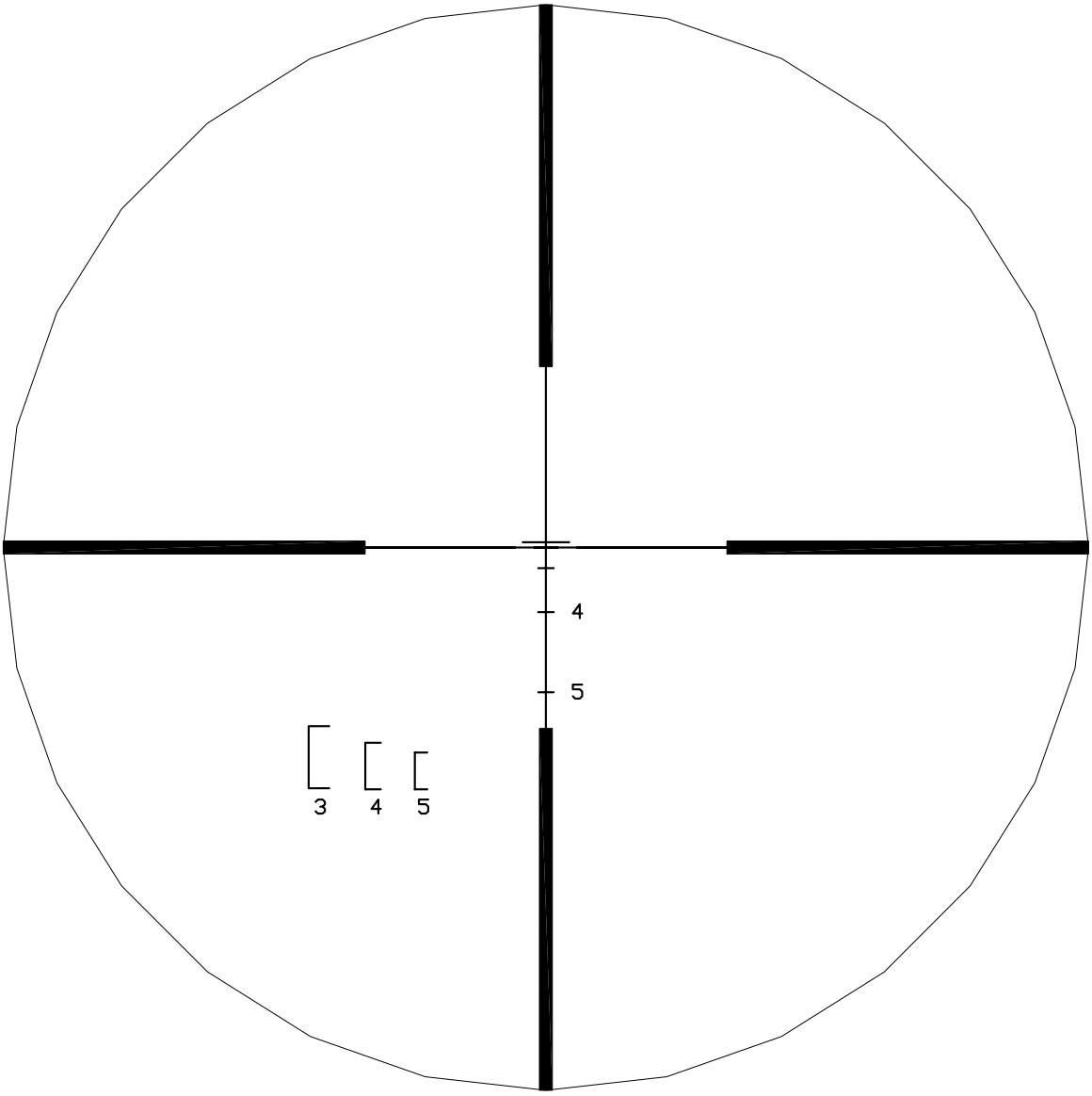
INSIDE DIA. OF CIRCLE:
OUTSIDE DIA. OF CIRCLE:
WIDTH OF SPACE CLOSEST TO CIRCLE:
WIDTH OF SPACES FARTHEREST FROM CIRCLE:
WIDTH OF LINES CLOSEST TO CIRCLE:
WIDTH OF LINES FARTHEREST FROM CIRCLE:
THICKNESS OF HORIZONTAL LINES:
WIDTH THAT HORIZONTAL BRACKETS SUBTEND AT INDICATED YARDAGE:

Available in SN-12 & some SN-4's

Allen Smith 4X



Available in SN-4 Only



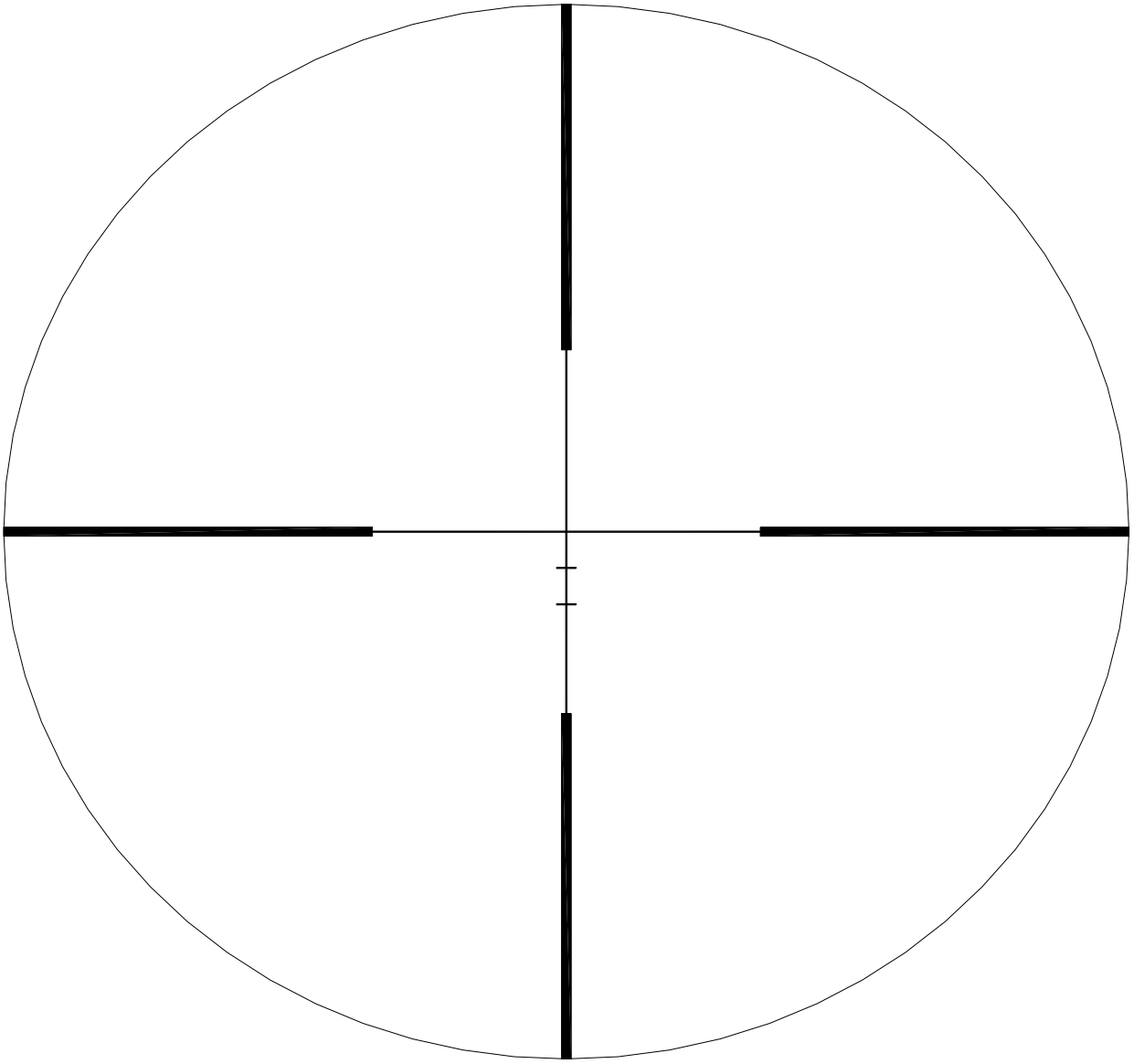
DOE MK I, 4X

(Shown at 4X)

This 4X reticle is a combination of ranging brackets(3 each that equal 5'-10" at 300, 400 and 500 yards) and a bullet drop format (100, 200, 300,400 and 500 yards) on the lower quadrant. The fine horizontal line is at the 200 yard aimpoint, while the line above it is the 100 yard mark. The horizontal lines below are 300 yards while the 400 and 500 yards are as marked. This BDC format was designed for a 55 gr. bullet traveling at about 2500 fps. . Remember, this BDC is not important if you are shooting a different bullet and velocity as we can design a perfect BDC elevation knob that will have exact accuracy so the reticle is not so important. Also, while the reticle cannot easily be changed easily to accommodate other drop data, the knob can and we do that all the time. You can have as many drop data knobs in your shooting box as you desire and they can be changed in about 15 seconds!!!

QUADRANT LINE (FINE) THICKNESS: APPROX. ¼ M.O.A.L

QUADRANT LINE (COARSE) THICKNESS: APPROX. 2 M.O.A.



DOE MK II, 4X

(Shown at 4X)

As in the DOE MK I, this reticle is designed for fast target acquisition in a 4X scope but it is also designed for the low end (1X) use as well as, the high end (4X).

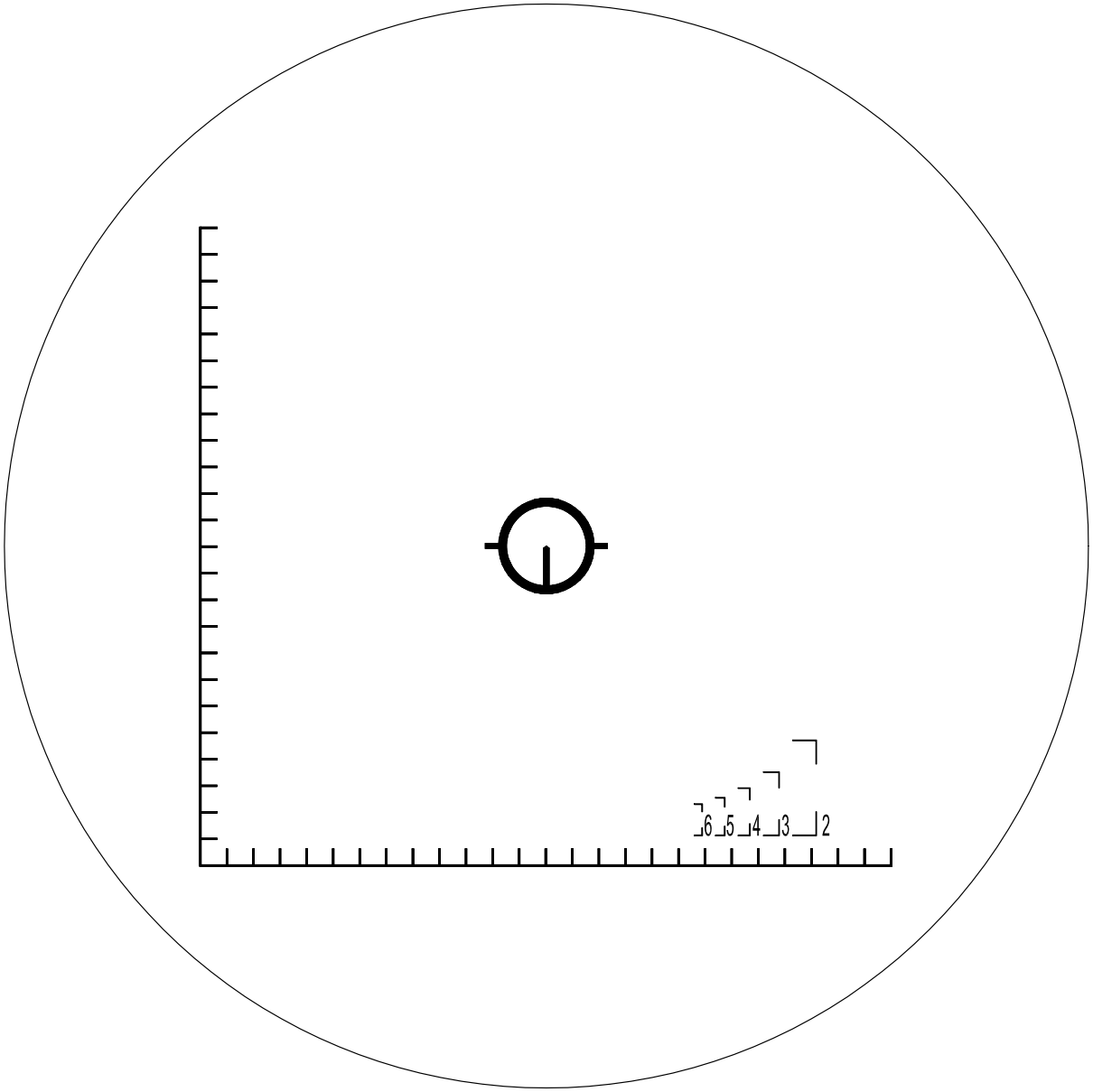
THICKNESS VALUES FOR FINE LINES: APPROX. ½ M.O.A..

THICKNESS VALUES FOR COARSE (HEAVY DUPLEX) LINES: APPROX. 2 M.O.A..

DROP VALUES FOR THE TWO SPACES ON LOWER QUADRANT: APPROX. 18 M.O.A. EACH.

Available in SN-4 and SN-12

Circle Bracket Parvin 4X



Available in SN-4

Aberrations

Chromatic Aberrations -- The inability of a lens or a system to bring to common focus light rays of different colors produces chromatic aberrations. Present when images formed by different colors of light, which make up "white" light, are at different distances from the lens or are of unequal size.

Result: These out of focus images form colored halos around the object you are looking at, and seem to blur them together.

Solution: Chromatic aberration is corrected by the optical design, combining different types of glass which will form several colors at the same point.

Spherical Aberration -- Inability of the different zones of a lens to form an image all in one plane at the same distance from the lens

Result: The middle portion of a convex lens has a longer focal length than the outer portions. Makes sharp focus impossible.

Solution: The designer must make sure the proper shapes of the lens to correct this problem does not upset the correction for chromatic and other aberrations.

Coma -- A spherical aberration that passes light obliquely through the lens.

Result: Comet shaped image of a distant point. The image appears blurred because each detail appears "smeared".

Correction: Design must correct this problem.

Distortion -- Failure of the lens to form images of straight lines in the field as straight lines.

Result: Distortion occurs because the magnification of the lens system is not consistent throughout the entire field of view. A round object will appear oval, or a square will have a non-square geometric shape, etc.

Correction: The designer must design an orthoscopic prescription for the lens system.

Curvature of Field -- Occurs when the shape of the objective image is not formed on a flat plane, but on a concave area.

Result: The scope can be brought into sharp focus in the center of the field, but the edge of the field will be out of focus, and vice versa.

Correction: The erector lens system, in particular, must be corrected properly to achieve necessary flatness of field image.

The U.S. Optics **HiRes** series of optical prescriptions have been thoroughly optimized to make the proper corrections for all aberrations to achieve the highest resolution possible. Lenses are manufactured, (as all U.S. Optics systems are), to exact tolerances and quality control standards. Any deviations from tolerances in grinding/polishing of lens components or machining operations produce unwanted aberrations and deteriorated optical performance. The U.S. Optics **Ultra-HiRes** series of optics undergo extra steps in an already exacting manufacturing process, to ensure that these optical prescriptions are manufactured and assembled as perfectly as possible. These steps include the following:

1. Using the highest resolution optical design practical to begin with.
2. More corrective time and effort necessary to achieve the conditions we need.
3. Extra testing procedures to insure the very highest quality.
4. Special procedures above and beyond those necessary to achieve high resolution.

Light Transmittance versus Light Gathering

There seems to be confusion with some people about what constitutes light transmission and light gathering. Most lay people (and some professionals) I talk to, use these terms in an erroneous way, perhaps due to a lack of understanding of what is taking place. They seem to interchange the terms as if they think they are the same thing, or at least, interchangeable terms in some context. These terms are not interchangeable. For that reason, I believe it is necessary to "set the record straight" and do it in a way that leaves no confusion in the minds of the reader.

Before getting into this discussion, it is necessary to define those components that interact with and interplay in, these amazing feats of physics. Once we understand the components and what they do, we can understand the overall effects and the true meanings of the above terms. Those definitions are as follows;

Objective lens:

The objective (in a conventional systemic sense) gathers light, magnifies it, inverts and reverses the image and, if properly done, corrects that image to perform satisfactorily as a part of the overall system. There are other jobs the objective can perform.

Erecting system:

Most scopes use an erector lens system (some scope uses an erecting prism), to capture the rays from the objective, magnify and reverse the inversion and reversion of the image and correct the image further. If an erecting prism is used, *there is typically little or no magnification that takes place*. An erecting prism does, however, usually *shorten* the overall length of the system. There are other jobs an erector system can perform but they will not be mentioned at this time.

Reticle system:

Reticular-aiming points can be front or rear focal point oriented. They, historically, have been metallic, membranes, synthetic and/or natural wire (hair), and glass.

Glass is superior in that the optical system can be further corrected and enhanced by glass, if properly done. A three element sandwiched glass reticle, using corrective differentiated glass, optically coated (and in some cases with curved surfaces), helps correct the system far better than a single pane of glass (plano-plano). This is the most difficult and expensive reticle to build in a conventional scope system. U.S. Optics has a patent pending on this type. The other reticle materials mentioned above cannot possibly add to, or enhance the optical system under any circumstances. Please be clear in your mind about that.

Ocular system

Most ocular systems are designed to do the final correction to the entire optical system. This results in effect modifications of the performance characteristics happening at and behind the second focal plane (in conjunction with what the system did before getting there), such as eye relief, exit pupil, field of view and object enhancement on the focal plane. There are, again, other jobs the ocular can perform.

Light Gathering

Since the purposes of the objective lenses are to gather light waves and restructure them, there are questions of how this works and how these factors benefit the scope user and in what regard. Further questions are;

1. Does a larger objective always gather more effective and usable light waves than a smaller one? The answer is that if all things are equal other than diameter of the lens, the larger lens will perform better in low light but not necessarily as well in average or bright light. The larger lens can be counter-productive by allowing too much light to be gathered in very bright light conditions. The end effect of this is a lack of resolution (image is not well defined), thus defeating the purpose. In this case a cone reducer, diaphragm, or other tool should be used to reduce the incoming radiation (particularly the scatter), thus increasing the resolution.

Light Transmittance versus Light Gathering, continued

2. Does a larger objective always resolve better than a smaller one? The answer to this should be obvious from reading number one above. The answer is no. The larger lens does not perform as well in extremely bright light. Some further considerations are these:

   Not all lenses see (perform), the same. On a 10x scope, a*n average performing larger lens of say, 50mm diameter will not see as well as an extremely good smaller lens of say, 44mm, under any light*

   conditions, bright or dim. This is simply because the lenses are not made to the same quality specifications, thus they can't perform the same. A poor lens is a poor lens no matter how big or small and no matter whom makes it.

   A 44mm diameter lens can be made to outperform a 50mm lens under most conditions. Better design utilizing more expensive color correcting glass and manufacturing techniques, can produce better lenses than the current market of manufacturers are willing to utilize in their scopes (see BRX systems in this catalog).

3. Does a larger objective allow one to see better in poor light than a smaller one? Yes, if the quality and design of the lens is such and all things are equal, it will normally gather more light, thus resolving better under poor light conditions. This does not mean it will perform better under all circumstances, as mentioned above. It is a proven fact that when viewing low contrast targets in low light conditions, a larger objective will perform better. All things being equal, it will image a target with more contrast value because you will see more contrast.

   Also, in very bright light the pupil of the eye is constricted, allowing the eye to not see as well as when it is dilated or expanded. The reason for this is that the eye, when dilated, allows more light from the scope to be used, thus seeing more and better.

4. Does a larger objective always allow one to see better in very bright light? No! As mentioned above, the larger lens system can be counter-productive if not used with a reduction system for use during very bright light conditions.

Measurement of the above: There are formulas to determine light gathering but they are theoretical and not totally accurate and dependable. Two formulas are:

Twilight Factor: Measurement of image detail in low light performance conditions. This formula has some **severe limitations** in that while it is a fairly good indicator of light gathering abilities of an optical instrument, it does not take into consideration the loss that takes place with an increase in magnification. It also does not take into account the fact that all scopes do not have the same light transmission values.

Twilight Factor = square root of the power x Objective Diameter (clear aperture)

Light Gathering: (Objective Lens Transmission): the amount of light that an objective lens will gather and deliver to the human eye can be determined by dividing the lens diameter (mm), multiplied by itself, by the diameter of the human eye (mm), multiplied by itself, under the circumstances in which the lens and eye are found (how much ambient light etc.).

Light Gathering = lens dia. (mm), squared, divided by pupil dia (mm), squared

Summary

Larger diameter objective lenses work better in low light, can be a detriment in bright light and always provide a larger exit pupil. Larger lenses do not provide a wider field of view. That is usually the job of the ocular system. As a general rule, when power is increased, the objective needs to be larger to maintain exit pupil size, contrast and resolution, or in other words, when one doubles the power of an optical instrument, one loses 50% of all those good qualities we just mentioned.

Light Transmittance

Now that we have defined light gathering, we have solved some of the basic questions about how light in an optical system is transmitted. The idea in building a really great scope is to design, engineer and build lens systems to transmit as much of the primary (most desired), radiation as possible.

We do that by computer designing the system with the very best correction possible.

Probably the best indicator of good computerized optical design and function is the Modulation Transfer function, or M.T.F. The M.T.F. curve is theoretical however, and cannot truthfully be used in advertising as the definitive function of an optical system. In the hands of a good computer literate optical designer, the M.T.F. curve can be worked and reworked to an exactingly deadly degree of accuracy.

We then play with the laboratory engineering to further correct the system. The end result is that the scope must be tested on machines especially built and programmed to ascertain the true functions of the system. An especially built light measuring instrument is used to measure the amount and quality of light entering and leaving the scope.

The scope must then be fully tested in and out of the laboratory on resolution charts by a variety of people both inside the plant and outside where varying lighting conditions can be used to determine true usability.

The one true test of scope performance is how it performs on the resolution chart.

I agree with the great Alan B. Hale, President of Celestron, who wrote, in "How To Choose Binoculars", "All the various indices (R.B.I., Twilight Factor, R.I.E.) are guidelines to try and compare the brightness of different size binoculars. Their usefulness by themselves is questionable. More important are the objective lens diameter and secondarily, the magnification in finding the optimum amount of "brightness" (contrast), and detail delivered to your eyes. Also to be considered are the type of prisms being used, as well as, the type of optical coatings."

While the term "brightness" is not a scientific term, it does convey a meaning that generally is accepted. What is meant here is the word "contrast".

Summary:

No matter how you slice the cake, the end result is that RESOLUTION is the one key optical term, which determines how a scope sees. "Brightness", my friend is not the answer. You can have an extremely "bright" (contrasty), scope and not be able to see the target in a clearly defined aspect.

Resolution is the end result of how well the optical system is corrected, how well it sees and how well it can be used

Optical Design

The ability of a riflescope to form an image is called “definition”. The quality of image definition in a scope determines how clearly you can see the target, how accurately you can sight and how quickly you can aim and shoot. How one arrives at the quality of definition in an optical system is dependent on three things:

1. Excellence of optical design,
2. Amount of correction present in that design,
3. Control of materials, precision of manufacturing and assembly to design specifications.

The way you determine excellence of definition is by resolution. This is a method of actually measuring what the eye can see in each system, and goes beyond that into the theoretical realm of possible resolution of the instrument.

Resolution

Throughout the years, riflescopes have been made with one consideration: “design the optical system to the resolution specs of the human eye, and no better.” Most companies have not even gone that far.

The average eye will resolve about 40 line pairs per milliradian, which has become the industry standard for acceptance in determining the maximum resolution of a scope with the human eye. Problem is, their resolution falls off at the edge of field and will not typically do even 35 LP.

Nine out of ten scopes one sees on the dealer’s shelf, will not resolve 50 line pairs per milliradian at the center of the field of view, let alone the entire field. Their justification for this has been that”...you only aim with the center of the field, so why worry about the edge?” When reviewing riflescopes today, most editors are bright enough to use a proper resolution chart to determine full field resolution. Hopefully, they will soon learn to observe and be able to evaluate the other problems most scopes have, such as coma, chromatic aberrations, light transmission, fogproofing, adequate diopter adjustment, parallax and usable true eye relief, (true distance of use in which 95% of the field of view can be seen.) The term “Brightness” has no place in proper scope evaluation.

Resolution depends basically on two factors;

1. Correction of aberrations that degrade image quality,
2. All things being equal, a larger objective resolves finer detail than a smaller one.

Because the above items are apparent, it then becomes necessary to discuss aberrations in order to understand resolution. Once we understand this phenomenon, we then can understand the concept of ultra-high resolution.

Ultra High Resolution

U.S. Optics “Hi Res” optical systems “see” better than the human eye on axis, some even off axis.

We can, on special order build even higher resolution into the scope but unless one is using an instrument such as a camera or other device that sees better than the human eye, it is a waste. All U.S. Optics “Ultra Hi Res” optical systems see better than the human both off axis and on axis.

Optical Terms and their Definitions

(by John B. Williams)

Field of View

ANGULAR FIELD: Expressed in degrees of angulation diverging from the objective.

Example: 5° = 65 feet @ 100yds.

LINEAR FIELD: The angular field X power = distance from side to side of the area viewed through the eyepiece of the scope

How it works optically: Generally, decreasing the eye relief widens the field of view if properly designed.

POWER (Magnification)

In a telescopic sight, the first number indicates the power. Example: 15x58, 15x is the power, 58mm the objective diameter (1mm = .0394in.) This means that the image is magnified 15 times the normal size, making an object that is 1500yds away appears to be 100yds away.

COATINGS:

Lens coatings reduce glare and the amount of light loss, and increase transmission and contrast. Reflected light is a very important determining factor in scope optical systems. 3-5% of transmitted light is lost *per each surface* of glass throughout the lens system without any coatings being used. When 5-7 surfaces of a 10 or 11 lens system is uncoated, 50% or more of the light is lost from scatter and reflection.

The following is a breakdown on how this works;

COATING	COATING TYPE	LIGHT LOSS (10-11 Lens System)
N.C.	NONE	40-42%
F.C.	M_gF_2	18-22%
M.C.	M_gF_2+BBC	11-15%
F.M.C.	BBC	10-14%
U.S. OPTICS	FSSBBC	5-8%
U.S. OPTICS	FSSBBC	.6% per lens U.S. Optics=All lenses and glass surfaces fully multi-coated for proprietary broad band spectrum with specialty band emphasized for maximum contrast and resolution. Special top coat on eyepiece and objectives.*

N.C.=No Coating
F.C.=All glass surfaces coated
M.C.=One or more lenses multi-coated
F.M.C.=All glass surfaces fully multi-coated
B.B.C.=Broad Band Coating
F.S.S.=Full Spectrum + Specialty Spectrum

BRIGHTNESS: (not a scientifically valid term) (Resolution) Definition or resolution is determined by;

A. Amount of light present at target,
   1. Size, type and quality of glass used for lenses,
   2. Amount and quality of light passing through the scope determined by;
      a. Coating type and quality,
      b. Restriction of scatter in the interior of the scope,
      c. Amount of correction in the design,
      d. Magnification (a 2x increase in power, diminishes light and resolution by 1/2)

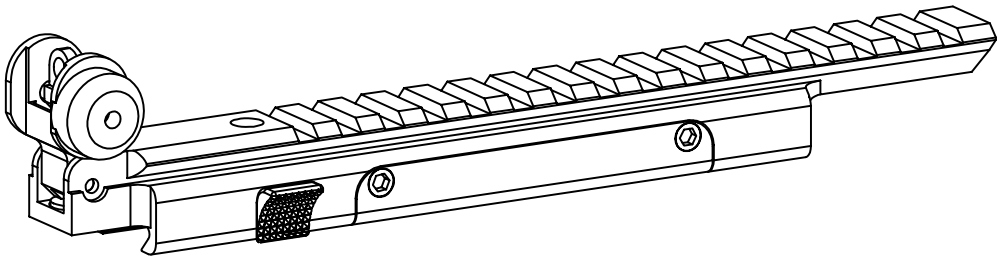
FACTORS TO CONSIDER:

Larger objective lenses admit more light into the system,
Larger objective increases optical performance,
Higher magnification decreases other optical performance, (in most cases),
Higher magnification decreases resolution, (in some cases),
Higher magnification and smaller objective decreases and limits exit pupil, or usable physical parameters of the optics.
Higher magnification increases susceptibility to mirage.

*A proprietary coat (last coat) on all objective and eyepiece lenses to help prevent scratching of coatings. In addition we have special proprietary optical glass covers available at extra cost. These can be replaced when scratched.

Riser and Extender Rail

For the AR-15, M-16, AR-10, SR-25 and other similar rifles.



This rail was designed to raise and extend our telescopic sights and mounts forward to accommodate the needs of the shooter doing longer range shooting with longer eye relief scopes. Made to fit any standard Picatinney rail configuration mount or rifle. It also helps overcome the problem of shorter pull distance on AR-15 and AR-10 type of rifles. Specifically, it is designed to achieve these purposes;

Completely versatile and comprehensive platform for all optical and mechanical sighting systems including short or long eye relief scopes, red dot sights, night vision, and carrying handle/metallic sights.

Extends and/or positions the scope to a more effective position.

Built without the longitudinal center groove, where material is needed for some mounts, and with more cross cuts to handle all rings.

Has a faster detaching and more positive locking system than others.

Stronger, more rugged with a **steel locking bar for the cross-slots to prevent recoil shift.**

Provides a higher scope mounting height when needed (when front sight is in the way and/or bigger objectives are used)

This unit is built in two different models	**Price**
MK I (AS) Allen Screw model uses standard Allen wrench to lock side clamp	$168.95
(KK) Knurled knob model allows 4 second mounting and locking	$168.95
MK II (AS) As in AS above but w/pop-up rear sight for .223 or .308. (Specify caliber)	$234.95
(KK) As in KK above but w/pop-up rear sight for .223 or .308. (Specify caliber)	$234.95

Material: 6061-T6 Aircraft Alloy. Steel Knobs and checkered locking bar.

Lock Up: A solid Steel .187" square bar locks solidly in the recoil slots for fast, absolute lock-up.

Finish: Precision Hard Anodized in Matte Black (other colors available as option)

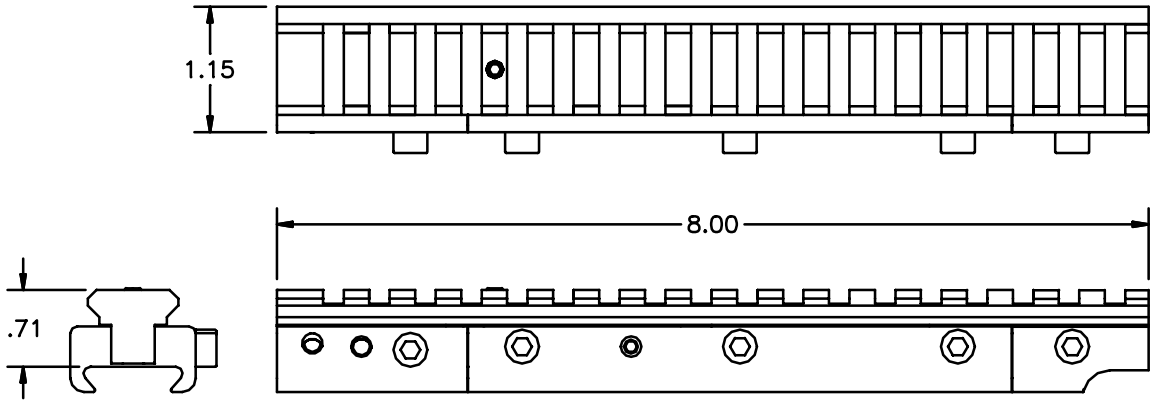
Rugged, simple, precise, flawless construction with a "proper look"

Available Now!

Made in our plant in the U.S.A.!

F.A.E. Rail®

(Flattop Adjustable Elevation-Rail)
FOR THE
AR-10, AR-15 and SR-25 Type Rifles



THIS ELEVATION-ADJUSTABLE MOUNTING RAIL IS DESIGNED TO;

1. Allow rifle to shoot at extended distances not possible on the standard flat receiver rail Because of the extremely curved trajectory of the .308 Win. Cartridge at 800 to 1000 yards, most scopes do not have enough elevation adjustment (M.O.A. travel), to compensate for the distance. If one machines an angled riser rail with a steep enough angle for the elevation adjustment on the scope to reach 1000 yards, there often is not enough downward adjustment to reach 100 yards. The F.A.E. Rail® has the best of both worlds. It can be adjusted to place the maximum MOA capable from the scope exactly where it is most usable, at the most efficient distances.
2. Provide a mounting surface slightly higher than the normal rail height on the upper receiver. This allows for the head to be more upright when properly positioned on the stock comb.
3. Provide a platform further forward (toward the muzzle), of the regular surface, allowing the scope to be mounted further forward. This is necessary because of the longer eye relief and longer length of the higher power scopes used for longer distances.
4. Allow the original handle sight to slide onto the F.A.E. Rail to be used with a higher front sight or the entire F.A.E. Rail can be removed easily and quickly.
5. Allows exact relocation on the rifle's rail when installed, allowing the scope to maintain it's zero.

(Continued to next page)

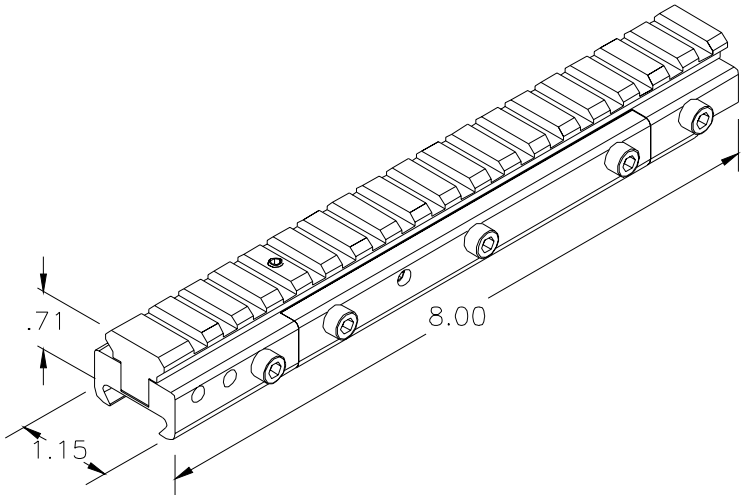
(F.A.E. Rail continued from prior page)

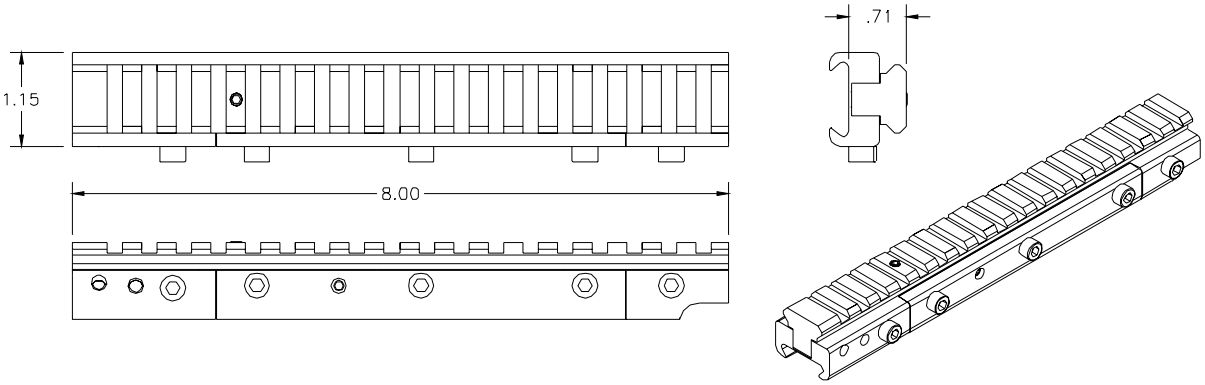
For Flattop 1913 Picatinney Rail Style Receivers

Description: Three piece C.N.C. precision machined, hinged at front, adjustable in rear for 0, 20, or 60 Approx. M.O.A.. Made of high strength 7075 aircraft alloy, matte finished and hard anodized in black or O.D. Green. Extremely rugged, lightweight and precise.

Specs for AR-10 Model: Length: Width: Height: Weight:

Model	Price
AR-10 (MK I) $249.95	$249.95
SR-25 (MK I-SR)…$259.95	$259.95
AR-15/M-16 (MK II)……$239.95	$239.95
2" extra long top rail for mounting long scopes further forward	extra $20.00





Bases

Picatinney (NATO Modified Weaver style) one-piece Bridge Mount Bases.

All bases (except where noted), are made of solid 6061-T6 or 7075-T6 Aluminum Alloy (same material the M-16/AR-15 upper and lower receivers are made of).

Model	Price(base only)
Accuracy International AW, AWP(4 holes must be drilled and tapped in the receiver)	$120.00
" " " AE (we have both20 & 30 MOA down (Drill & Tapping not required)	$120.00
" " " Aw & AWP, 20 MOA dn.,(Drill& Tapping required)	$200.00
" " " AW50 riser rail	$200.00
Blaser (needs special work-please inquire)	$115.00
Browning bolt action (we need the ser. #, photo and dimensions)	$120.00
Browing BAR Semi-auto sporting rifle	$129.95
Fabrique Nationale (F.N) (copy of Win. Mod 70) tactical rifle (state which model)	$134.00
Heckler & Koch USC.45,top $99.00, Side (set)$110, bottom $60, complete set	$250.00
Mauser 98 (receiver must be machined to FN dimensions) & F.N. Com. Mauser 98	$124.00
Remington 700 Short action (Rt. hand or left)	$124.95
Remington 700 Long action (Rt. hand or left)	$139.95
Sako TRG 41, 42, 21 & 22	$144.00
Savage 110,10,11,111,12,14 (specify model number, action length, flat or round rear receiver ring, caliber, rt. Or lt. Hand and color)	$129.95
Steyr SSG (needs four holes drilled and tapped)	$134.00
SIG 3000 (needs 2 holes- must be drilled and tapped)	$120.00
Winchester mod 70 long (Magnum) post-64(Need screw hole dimensions)	$129.95
Winchester mod 70 pre-64 (NEED SCREW HOLE DIMENSIONS)	$134.95
Weatherby Mark V Long action	$129.95
Weatherby Mark V Varmiter (small dia. action)	$149.95

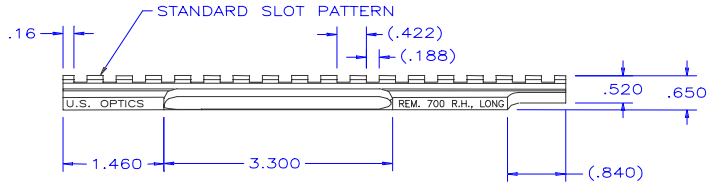
We can custom drill and tap and install the above bases for you

Extended models

Extends approximately 1"to 6" beyond the front of the receiver (extra cost) $10.00 to $40.00

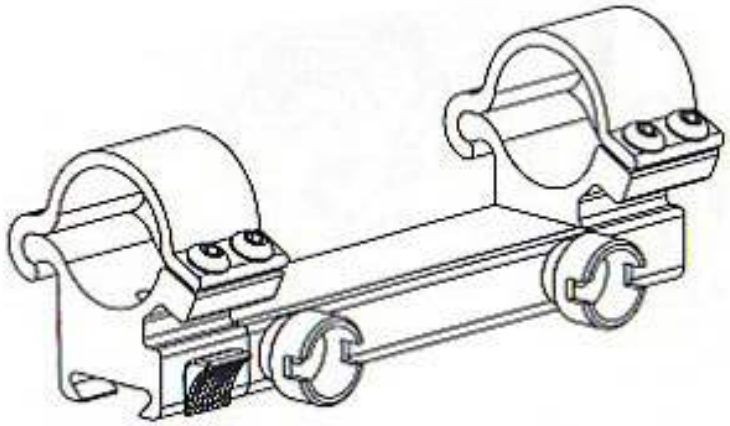
(can be made as long as you wish)…Please inquire

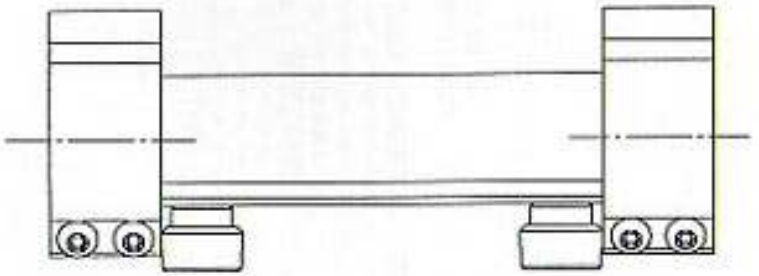
Rem. 700 short

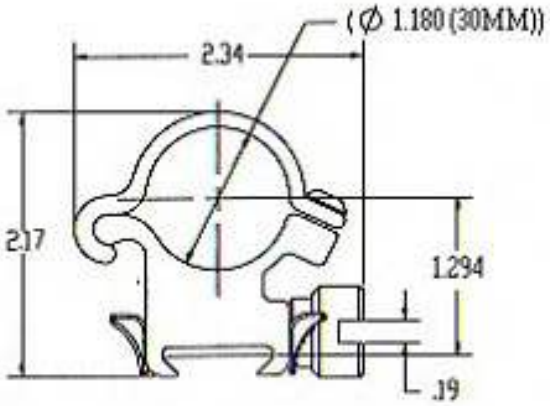


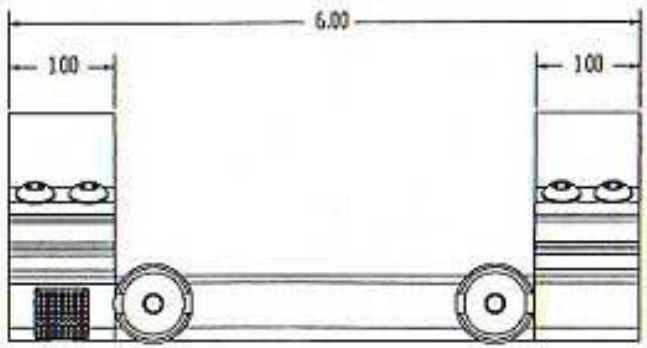
Extends .840 beyond receiver. Provides superior versatility in scope placement for proper eye relief. Provides a single, non-interrupted platform. Machined from a solid billet of 6061-T6 20MOA down angle std. can be custom machined for more MOA and left hand shooters.

DIMENSIONS FOR CONSUMER'S USE







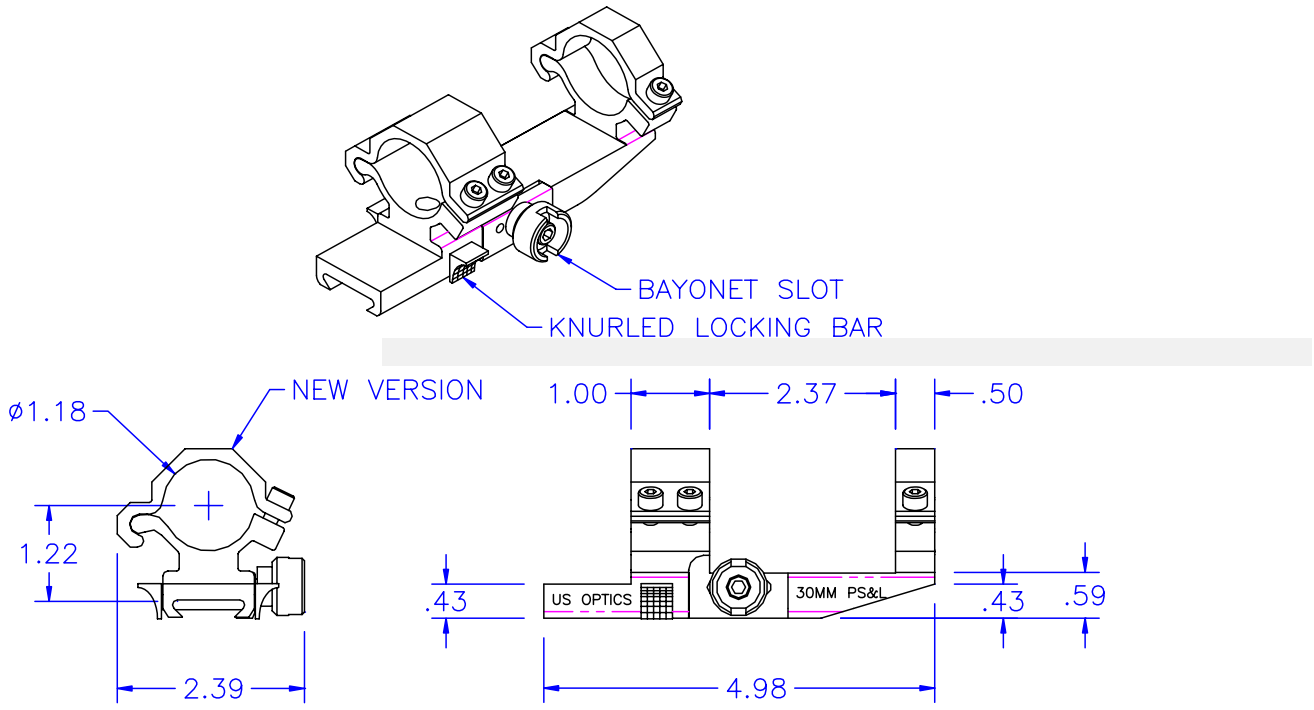


U.S. OPTICS,

POSA-SLIDE &LOCK MK II (30MM)

Posa-Slide & Lock

Tactical Scope Mount



ATTENTION AR-15, AR-10, AND SR-25 Owners!

Do you have these problems?

1. Your flattop is not long enough for long eye relief scopes?
2. Tired of using screwdrivers, Allen and torx wrenches, dropping them or loosing them?
3. Not able to shift scope forward and rearward for position shooting matches **fast enough** to accommodate all shooting positions?
4. Using a piggyback lever throw system that is ugly, bulky, inaccurate, and heavy?

The Posa-Slide and Lock mount from U.S. Optics is the answer.

THE MOST ACCURATE PICATINNY ARSENAL* RAIL TYPE TACTICAL MOUNT AVAILABLE. WHY?

-Front ring bottom to Rear ring bottom circumferential axial alignment is within .0005" run out.
-Top of ring halves align automatically to bottom halves and scope circumference to hold the .0005" run out.
-Bottom dovetail (rail slot) is axially made in the same setup to keep a maximum run out of .0005".
-This method is far more accurate from mount to mount than castings, Powder metal or injection metal mold units such as Leupold, ARMS and others. We can prove it easily.

THE FASTEST PICATINNY ARSENAL RAIL TYPE MOUNT MADE. HERE IS WHY:

-Can slide back and forth on rail and relocked in less than 4 seconds!
-Can slide off gun in less than 3 seconds!
-When reinstalled it will return to exact zero.

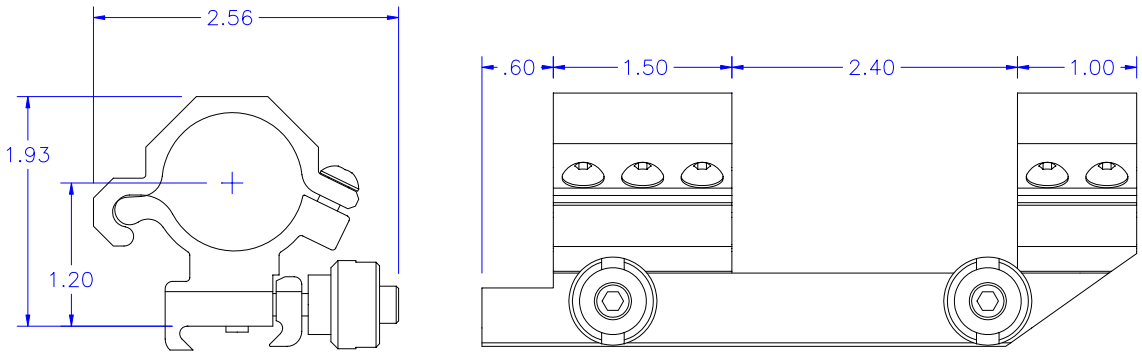
THE MOST VERSATILE MOUNT OF ITS TYPE IN THE WORLD!

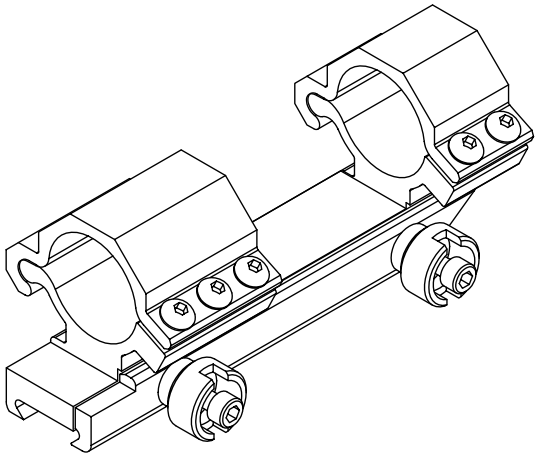
-Will accept any properly sized 30MM dia. tube, be it a scope, red dot sight or ?
-Fits any rifle, shotgun or submachine gun with a standard PICATINNEY RAIL.
-Has largest, strongest, most fail proof locking system of any lock-in-the-groove type system.
-Will position long eye relief scopes farther forward than any other locking mount.

MATERIAL: 6061-T6 Aircraft alloy. Checkered steel knob, pivot axles and Locking bar.
LOCK UP: A solid Steel .187" square bar locks solidly in place for recoil and when lifted allows the entire mount to slide forward or rearward on the rail.
LIGHTWEIGHT: The entire mount weighs only 8 1/2 ounces.
FINISH: Precision hard anodized in matte black, gray, green, or stainless.

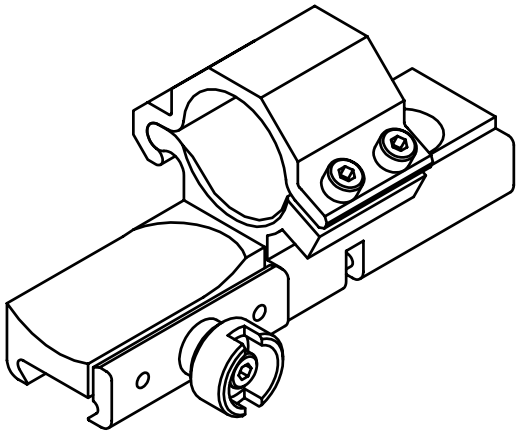
Now, position military match target shooters can quickly change scope positions forward and rearward on the rail without disturbing point of aim or cheek weld. Can be quickly slid off for transit and carrying handle can be slid on for steel sight matches-all with NO tools. MK I models as shown above.....**PRICE: $249.95**
**Note: These mounts fit the 1913 NATO/Picatinney STANDARDIZED rail. While the Weaver rail is similar, it is different enough to damage your rings or mount- use only a Picatinney Rail of the proper size and configuration-not the cheap foreign imitations!*
***Posa -Slide and Lock .50 Cal. BMG Long Range Military Model**:* Same as above but longer, more rugged, has two fastening knobs and works with all .50 Cal. BMG Picatinney long-range style bases (not shown).....**PRICE:$299.00**

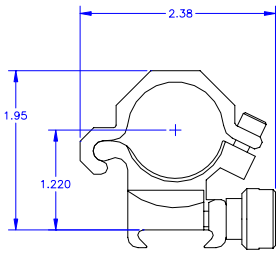
Pos-Lock model (as shown below): This model has no locking bar as above but instead has hardened tool steel pins

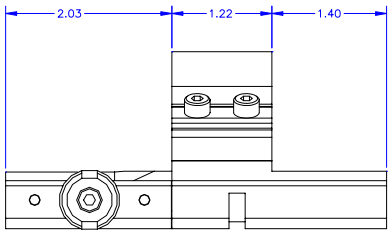




MK V
Posa-Shift & Lock
Tactical Scope Mount







Places a scope farther forward and are lighter weight (4½ oz.) than any Picatinney rail mount made!

Fits these Mount systems:

1. SR 25 Flat top.
2. AR-10 Flat top.
3. AR-15, M-16 Flat top.
4. Any rifle with Weaver or Picatinney rail setup

Note: we make only the NATO/Picatinney international standard Weaver modified style size, not the non-standardized commercial Weaver dimensions.

Fits these sights:

1. Any 30mm Scope.
2. Any 30mm Red Dot sight, such as Aimpoint and others.
3. Any 30mm dia. Flashlight.
4. Any 1" scope or sight (uses inserts).
5. Any metric or inch equivalent sight of unusual size smaller than 30mm dia.

5. Any metric or inch equivalent sight of unusual size smaller than 30mm dia.

Lock System:

Posa-Shift and Lock clamp with solid steel spring loaded rail lock. Returns to zero battery absolutely every time. Removes or installs in 4 seconds with no tools!

PRICE: $189.95

U.S.OPTICS

SCOPE RINGS, TACTICAL PRECISION MK I STEEL

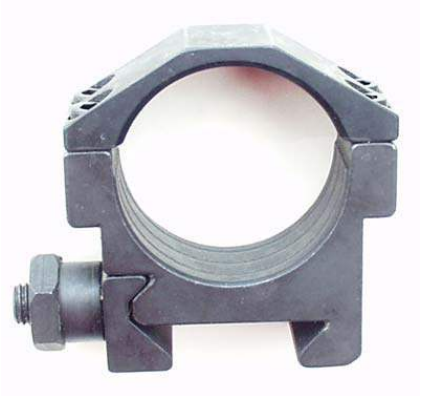
These are THE GENERIC TYPICAL TACTICAL scope rings. They are similar to the Leupold, Badger and other great rings that are already on the market. By similar we mean that there is a fixed foot on one side and an adjustable foot for clamping on the other side. We make these to satisfy the guys who think these types of rings are the greatest and think they can use only these type of rings. What is even funnier, they think they need to be made of steel. For those people, here they are. They are not as versatile, universal or as application specific as our MKIII rings, which we believe are the very best rings on the market.

Theory of how they work: The rings clamp down and to the side, pulling the ring down to the top of the rail while the fixed foot aligns one side of the ring to the lower angle on the Picatinney rail. Theoretically, the tighter the nut is tightened, the tighter the ring is clamped to the rail. A ¼ 28 tpi cross bolt locks into the grooves in the rail to prevent linear slippage and lock the ring properly in the correct groove.
There are no previsions for windage or elevation adjustment in these rings. Look at our MK III rings for superior elevation using windage adjustment in the rings for maximum M.O.A..

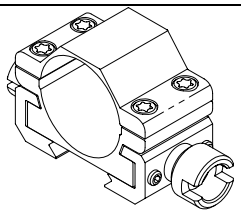
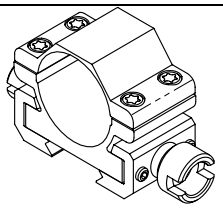
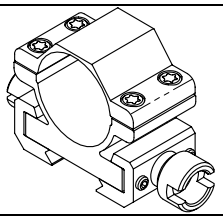
How the rings are made: They are C.N.C. (Computer Numerically Control) machined from solid 4140 Chrome Molybdenum steel, heat treated, black oxide treated and oiled in a rust preventative solution. Tolerences are universally held to .001" concentricity and deviation.

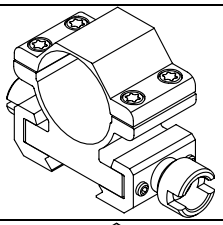
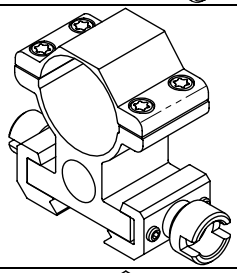
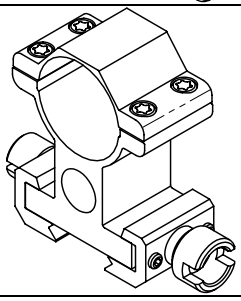
Specifications: ¼ tpi cross bolt and nut. The top clamp is held to the bottom half and clamps the scope tube tightly, using four 8-32 tpi screws. Only one height is available in the 30MM ring at the moment. It is a "low" ring and the height is approx. .820" from the center of the scope tube to the top of the base flat when mounted, while the 35MM rings are about .865" in that dimension. The 30 and 35MM rings are about 5/8"(16MM) thick, as are the inserts.

30MM ……$110.00
1 Inch inserts for the above……$20.00
35MM……...$130.00
30MM inserts for above……...$20.00



Screw-Lock MK II Tactical
All Steel Ultra Long Distance Rings
(Available June 2004)

	**Extra Low** Center of hole to Base Top = .750” Price = $189.95
	**Low** Center of hole to Base Top = .825” Price = $199.95
	**Medium** Center of hole to Base Top = .925” Price = $209.95

	**High** Center of hole to Base Top = 1.0625” Price = $219.95
	**Extra High** Center of hole to Base Top = 1.400” Price = $239.95
	**Extra, Extra High** (XXH) Center of hole to Base Top 1.625”

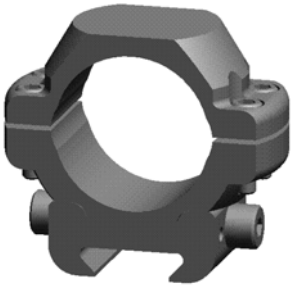
Scope Ring, Tactical, MKIII Price Sheet

These are some of the ruggest, strongest, precision made rings in the world

Screw-Lock Rings (patent pending) *see ring page for heights*

Item	Ring Type	Material	Machining	Size	Height	Price
1.	Screw Lock MK III	7075 T6Alloy	Totally Mchnd.	30mm	5 Hts	$200.00
2.	Screw Lock MK III	" " " " "	Totally Mchnd.	34mm	5 Hts	$220.00
3.	Screw Lock MK III	" " " " "	Totally Mchnd.	35mm	5 Hts	$225.00
4.	Screw Lock MK III	" " " " "	Totally Mchnd.	40mm	5 Hts	$250.00
5.	Screw Lock MK III	" " " " "	Totally Mchnd.	50mm	5 Hts	$300.00

S.L. MKIII Rings Standard



S.L. MKIII M&P, (T&L)Tactical

Screw Lock Rings with Windage Adjusting Features
All Screw Lock MKIII rings have up to about 20 M.O.A. of sideways travel (Windage), and are a tremendous help in mounting your scope when you lack enough Windage travel to compensate for a badly mounted barrel or base.

Screw Lock MKIII Standard (custom look) rings.

All units are designed for the standard Picatinney rail system. For a Weaver base system, we suggest milling Rectangular cross groves in the base (similar to the Picatinney rails), as the cross groove size on this type of base varies a great deal in size.

Specifications:

How made: Ultra-precision machined on latest Hi-tech C.N.C. machining centers (in house). **There are no cheap castings and they are not machined in the orient. Totally made in the U.S.A.!**

Materials: Bodies are machined from solid **forged** and turned billets of a special ultra high strength heat treated 7075 alloy. Steel can be used to make the bodies but it is no stronger(by weight) and is heavier, so we don't use that material.

Clamping bolts: 1/4-28 t.p.i. heat-treated steel Allen heads (available with or without knurled steel knobs.

Recoil lug: The cross boss that acts as a recoil lug, setting in the top cross groove in the Picatinney rail system is machined into the scope ring body and **can never work loose like the competition's rings!!**

Note: we will build the above MKIII rings with only one side clamp on special order. This is like shooting yourself in the foot to miss the war---it really is not a good idea. (Add $20.00).

Unless ordered otherwise, all MKIII custom and Tactical ring units have *four* piece bodies *with a clamping foot on each side*-thus allowing for rough pre-mount Windage when needed. The left side has one ¼-20 t.p.i. Allen head cap screw and the right side has one ¼ - 20 Allen head cap screw or bolt with a hex -flange- locking nut. **Two each heat-treated 1/8" dia. Tool steel guide pins position, reinforce and guide the Windage feet as they are adjusted and positioned**.

Screw Lock MKIII M&P (Military and Police), T&L (Tactical and Logistical).

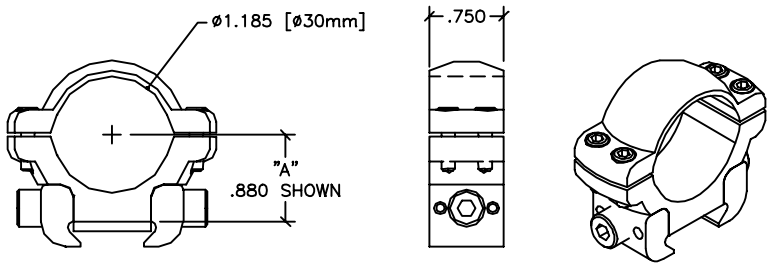
Our tactical rings have all the features mentioned above. In addition, they are "beefier" than the rings above.
Advantages over the common tactical ring such as Leupold, Badger and GG&G:

1. More precisely made, thus fit better.
2. Lighter in weight than steel, but stronger.
3. Stronger, more foolproof lug system.
4. Stronger bolt and screw system.
5. Expansion co-efficient is more consistent with aluminum and titanium scopes. Steel is not.
6. Rustproof.

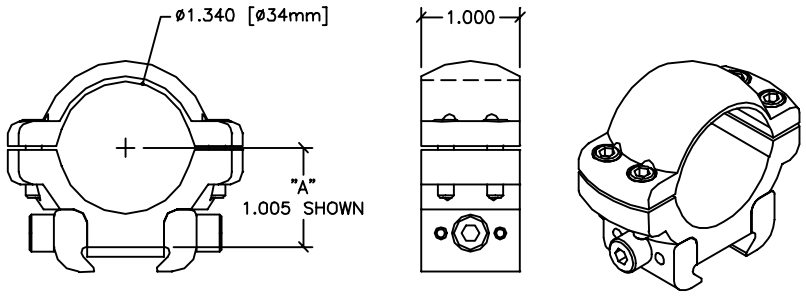
Note: all of our bases are available with about 20 M.O.A. of muzzle-down angle built in. We have an adapter for flattop rifles that is like a riser rail but has an adjustable feature giving 10, 20 or 30 M.O.A. (adjustable), down angle also. (See F.A.E. Rail page at back of catalog)

MK III Commercial (rounded tops, rather than faceted tactical tops).

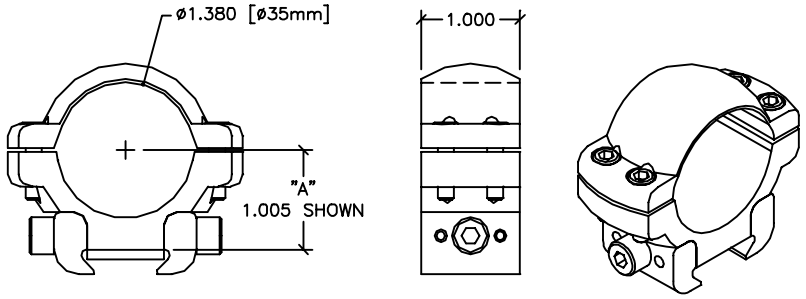
MODEL	DIM "A"
P6M–3000–XL	.880
P6M–3000–L	.990
P6M–3000–M	1.100
P6M–3000–H	1.250
P6M–3000–XH	1.350



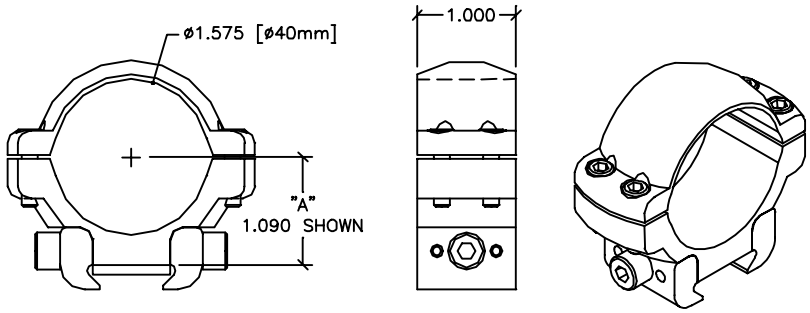
MODEL	DIM "A"
P6M–3400–XL	1.005
P6M–3400–L	1.065
P6M–3400–M	1.210
P6M–3400–H	1.385
P6M–3400–XH	1.515



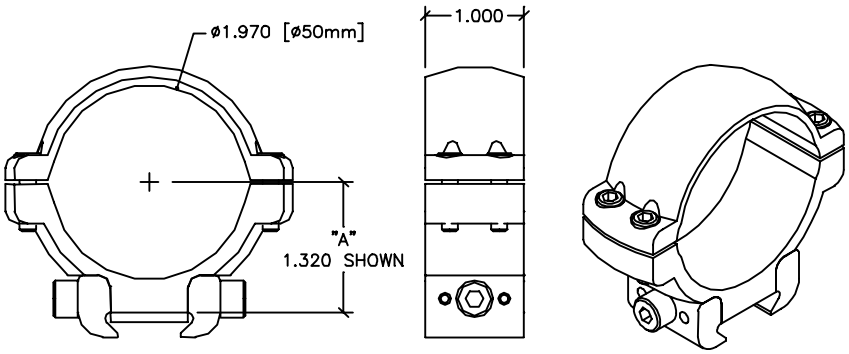
MODEL	DIM "A"
P6M–3500–XL	1.005
P6M–3500–L	1.065
P6M–3500–M	1.210
P6M–3500–H	1.385
P6M–3500–XH	1.515



MODEL	DIM "A"
P6M–4000–XL	1.090
P6M–4000–L	1.150
P6M–4000–M	1.300
P6M–4000–H	1.450
P6M–4000–XH	1.625

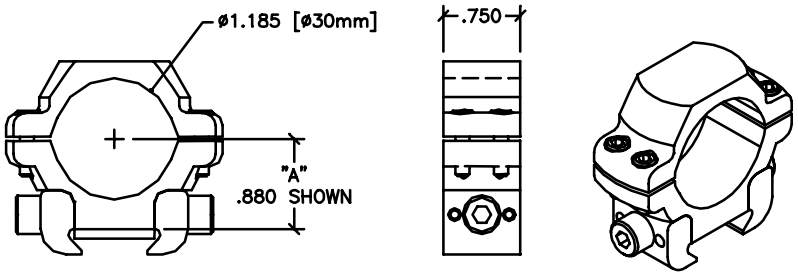


MODEL	DIM "A"
P6M–5000–XL	1.320
P6M–5000–L	1.400
P6M–5000–M	1.550
P6M–5000–H	1.700
P6M–5000–XH	1.850



MK III M&P, T&L

MODEL	DIM "A"
P6M–3000–XL	.880
P6M–3000–L	.990
P6M–3000–M	1.100
P6M–3000–H	1.250
P6M–3000–XH	1.350



MODEL	DIM "A"
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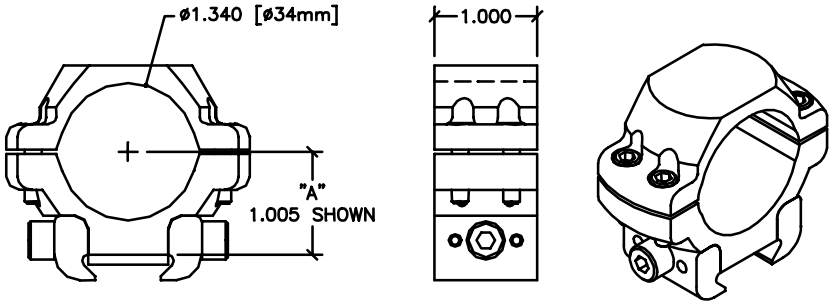
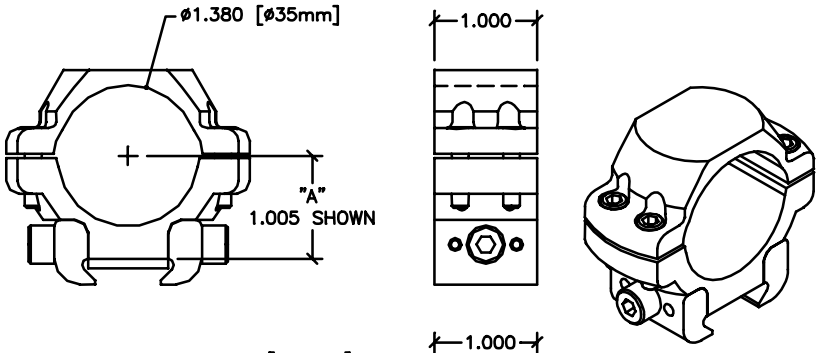
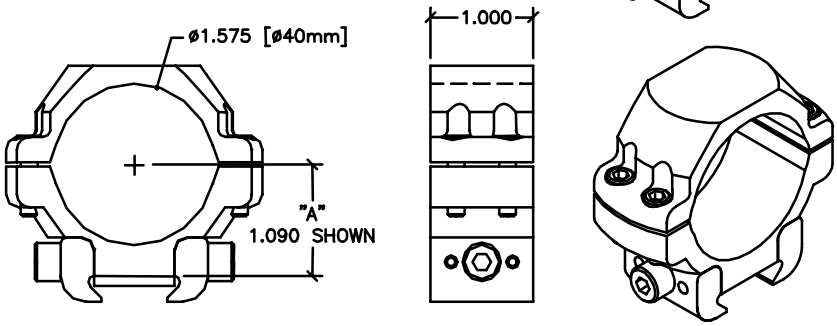
P6M–3400–M	1.210
P6M–3400–H	1.385
P6M–3400–XH	1.515



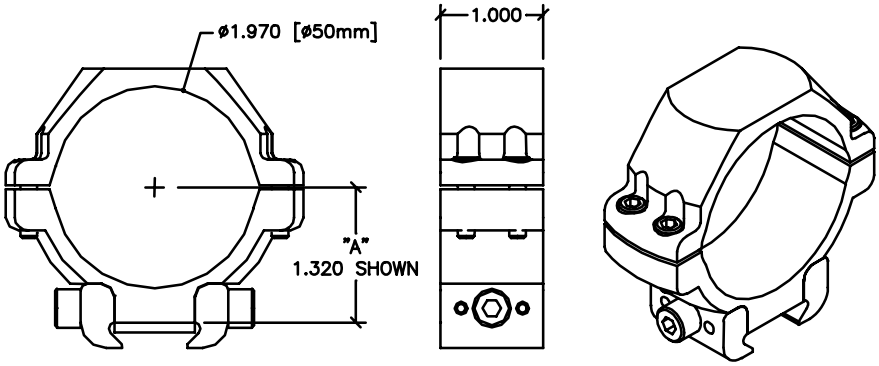
MODEL	DIM "A"
P6M–3500–XL	1.005
P6M–3500–L	1.065
P6M–3500–M	1.210
P6M–3500–H	1.385
P6M–3500–XH	1.515



MODEL	DIM "A"
P6M–4000–XL	1.090
P6M–4000–L	1.150
P6M–4000–M	1.300
P6M–4000–H	1.450
P6M–4000–XH	1.625

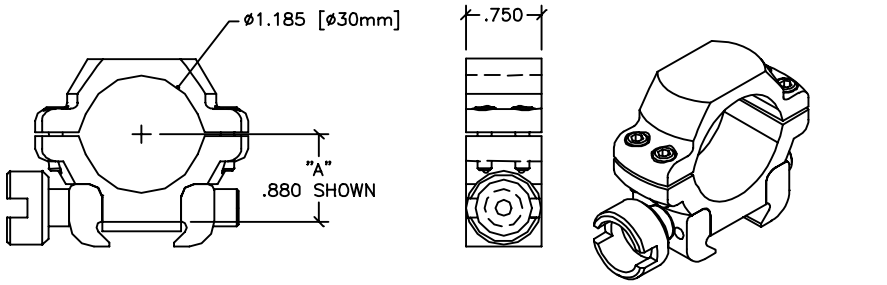


MODEL	DIM "A"
P6M–5000–XL	1.320
P6M–5000–L	1.400
P6M–5000–M	1.550
P6M–5000–H	1.700
P6M–5000–XH	1.850

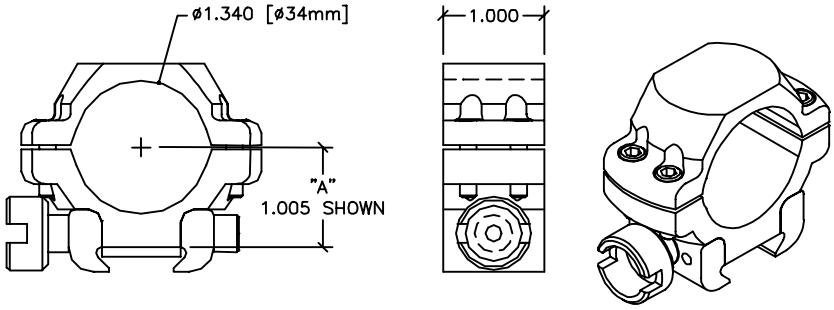


MK III M&P, T&L with Windage Knob

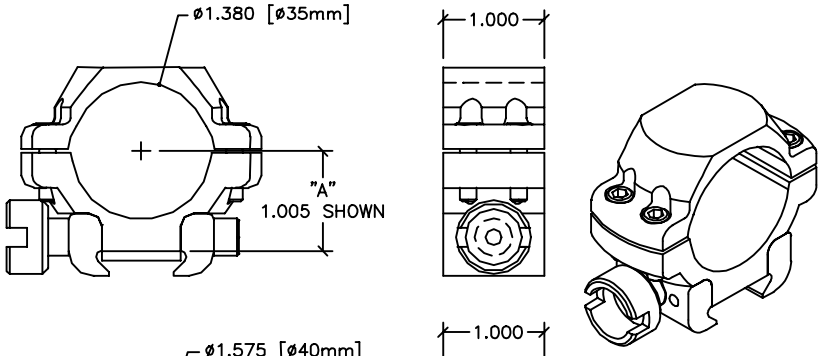
MODEL	DIM "A"
P6M–3000–XL	.880
P6M–3000–L	.990
P6M–3000–M	1.100
P6M–3000–H	1.250
P6M–3000–XH	1.350



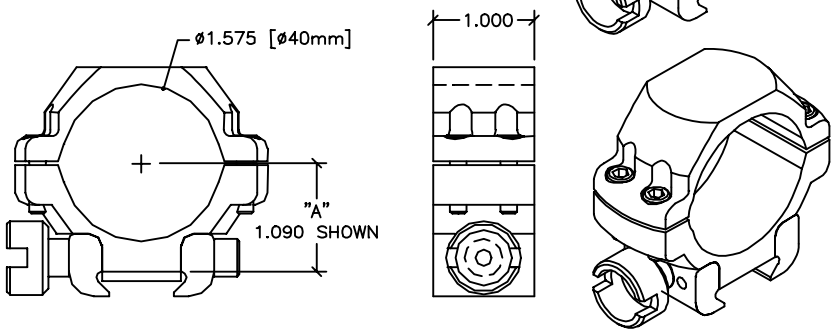
MODEL	DIM "A"
P6M–3400–XL	1.005
P6M–3400–L	1.065
P6M–3400–M	1.210
P6M–3400–H	1.385
P6M–3400–XH	1.515



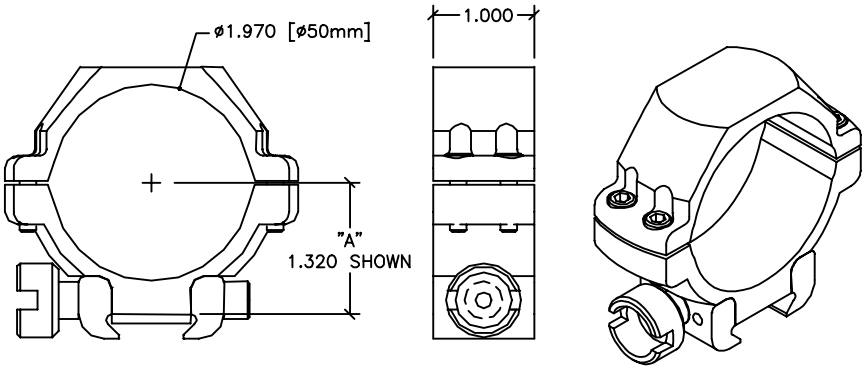
MODEL	DIM "A"
P6M–3500–XL	1.005
P6M–3500–L	1.065
P6M–3500–M	1.210
P6M–3500–H	1.385
P6M–3500–XH	1.515



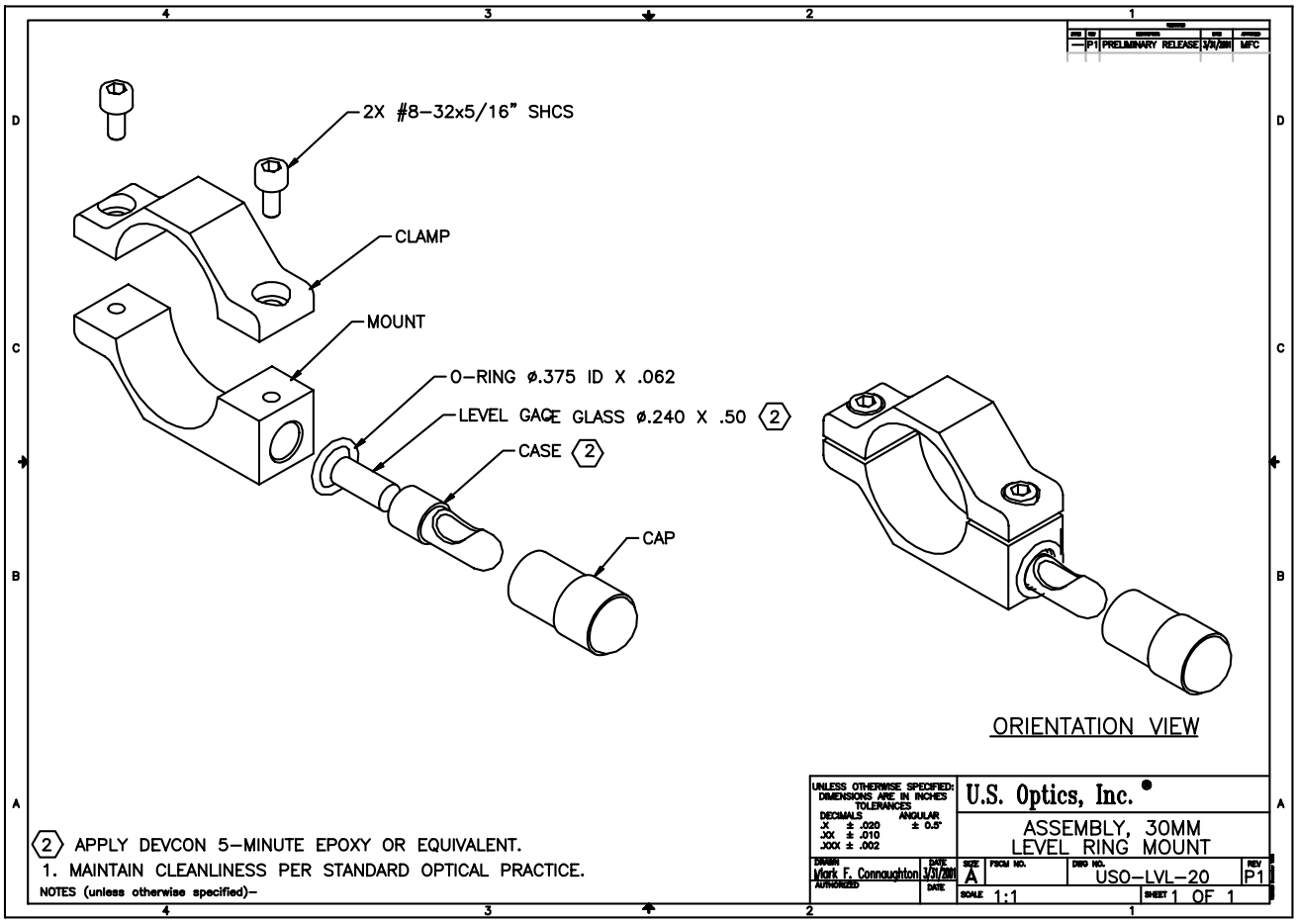
MODEL	DIM "A"
P6M–4000–XL	1.090
P6M–4000–L	1.150
P6M–4000–M	1.300
P6M–4000–H	1.450
P6M–4000–XH	1.625



MODEL	DIM "A"
P6M–5000–XL	1.320
P6M–5000–L	1.400
P6M–5000–M	1.550
P6M–5000–H	1.700
P6M–5000–XH	1.850



Anti-Cant Device (Ring type)



Anti-Cant Device (bubble level, ring type)

This device is available in 30mm and soon will be available in 35 and 40mm diameters.

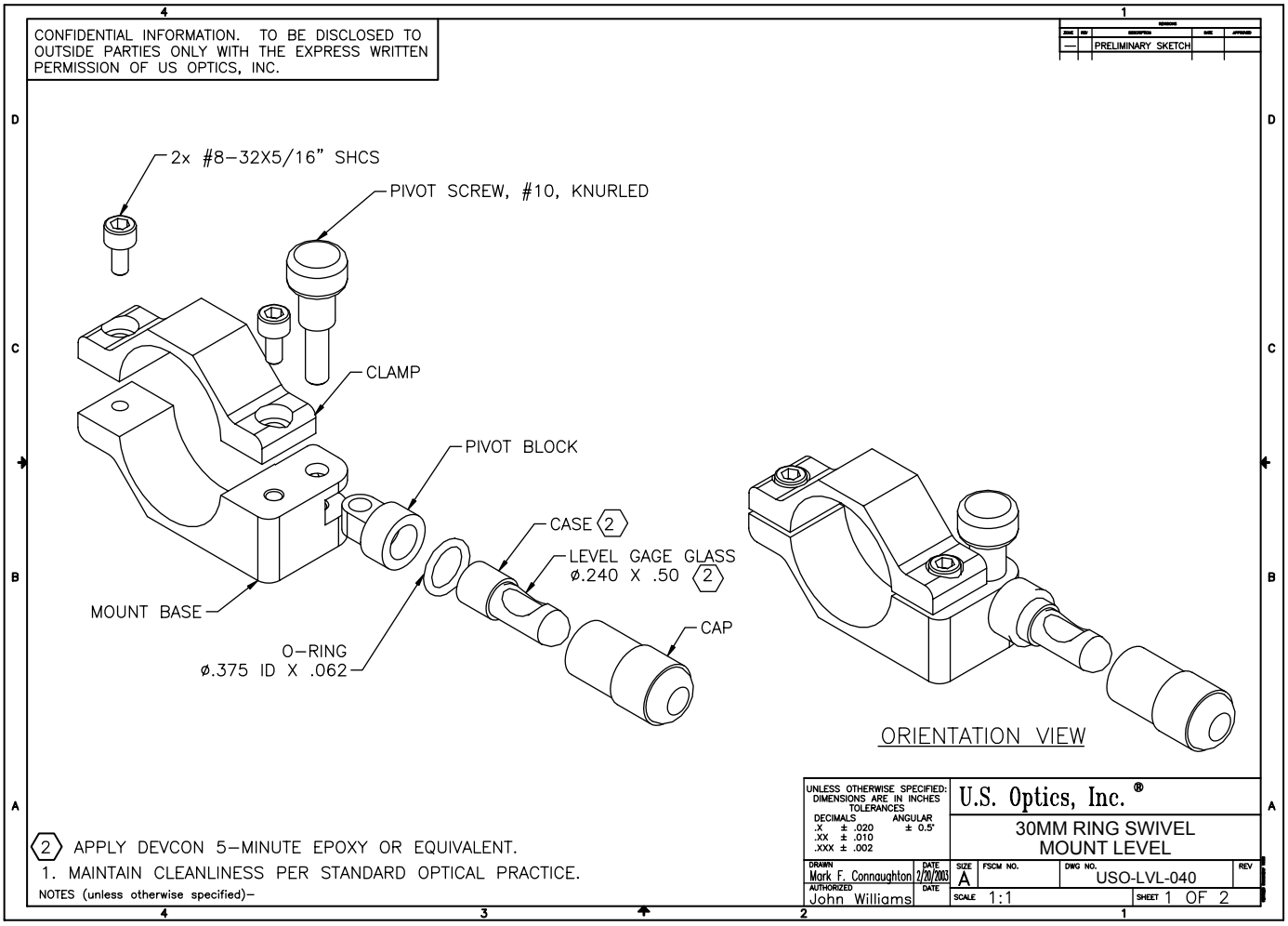
It can be positioned anywhere on the scope tube (can slide back and forth), for maximum visual use.

It can be made in any color to match the scope.

It can also be rotated to the angle you wish. Usually the bubble is aligned horizontally to be at a 90-degree angle to the vertical crosshairs in the scope. A 0 degree angle to the horizontal line or stadia is also a good way of doing it in the absence of a vertical hair or stadia line.

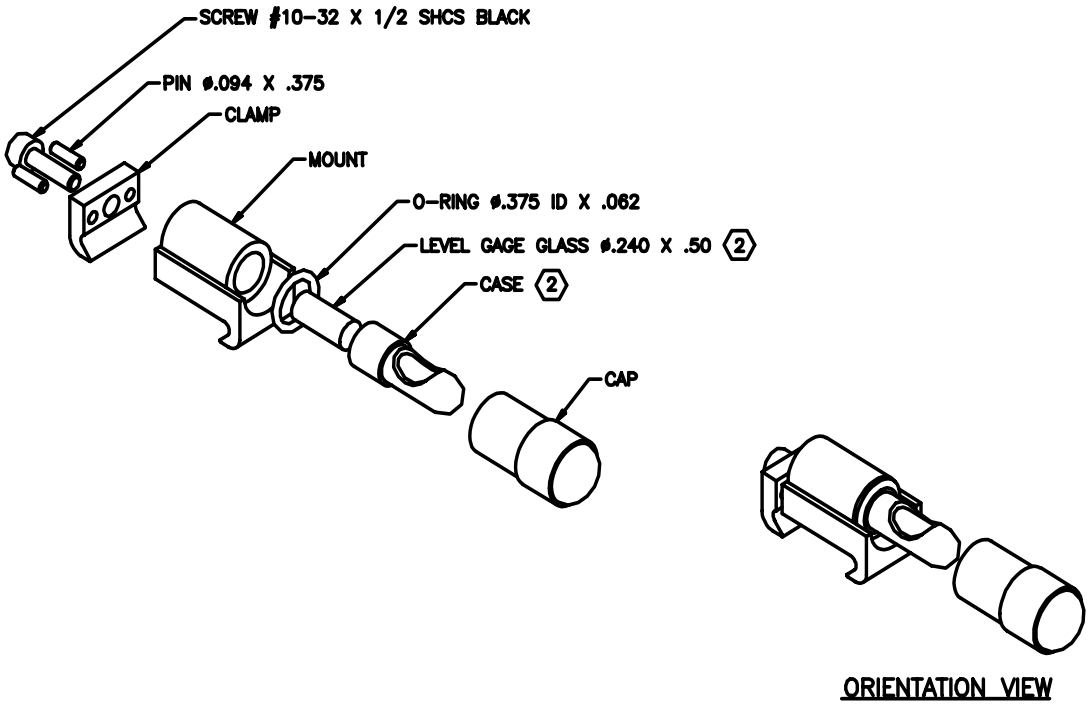
Note: it is not important to have the bubble exactly aligned at a precise angle with the horizontal or vertical elements of the scope (Reticle, turret, rail top etc.), as long as the bubble is placed in the same position and alignment each time you shoot. It is a common mistake to assume that the accuracy of the repeatability of the device depends on the exact vertical or horizontal alignment, but it is very important to make sure the location of the bubble is repeated each and every time you take a shot.

Price: $59.95 (colors extra)



This unit is an advanced, modified version of the standard non-folding version on the prior page. All of the features of that unit are present in this device plus this one has the ability to fold rearward out of harms way. Under recoil the bubble level is held in position by inertia, as well as the friction screw on which it pivots.

Price:$69.95



Anti-Cant Device (bubble level, - Picatinny style)

This device can be placed on a standard Picatinney rail and moved backwards and forward to bring into focus with the eye while shooting.

This places the bubble at the 90-degree angle to the vertical crosshairs (Horizontal). From unit to unit the angle may vary 1 degree or 2 degrees, don't be alarmed by this.

Note: it is not important to have the bubble exactly aligned as long as the bubble is placed in the same position and alignment each time. It is a common mistake to assume that the accuracy of the repeatability of the device depends on the exact vertical or horizontal alignment, but it is very important to make sure the location of the bubble is repeated each and every time you take a shot.

Price: $48.95

Sunshades and Optical Glass Lens Covers

One of the worst on-going problems with high-grade optics is the accumulation of dust, oils, vapor drops and scratches on the eyepiece and objective lenses. The thin metallic coatings, which are put there to increase resolution and other properties - by color/wave, separation-are literally **worn and/or scratched off by cleaning the lenses over time**. The result is optical quality so bad that sometimes it is even difficult to see through the scope. One might as well be using iron sights or a cheap, poor quality scope.

Our lens cover glass is optical lens glass: ground and polished to "0" flatness! That is flat - distortion free flatness! We then broad band coat the lenses and put a topcoat of Magnesium Fluoride for hardness over that. The result is very little loss in fine optical properties - but there is a little loss. *When you need absolute maximum resolution you should remove the glass covers.*

What do you want; a scratched, hard to see through scope or a very, very slight loss of resolution? The answer is obvious.

Price List 2004

Sunshades and Lens Covers

Target style sunshade and screw in cap

Threads onto the inside diameter of the objective housing, allowing you to add such items as lens covers, dust caps and mirage tubes. Stackable in design and orientation to make a unit as long as you wish. Will screw into the Ergo style or tapered target style unit. ***Will accept threaded screw in end cap, clear optical glass inserts w/bezel and/or Butler Creek style flip-up cap sand/or the honeycomb filters.***

4 inch Sunshade (shown A)	Price
34mm	$ 45.00
44mm	$ 55.00
58mm	$ 70.00
72mm	$ 80.00
88mm	$ 90.00
100mm	$110.00

4" Sunshade

Sunshade with Honeycomb diffuser installed

Optical glass clear lens covers & bezelsfor 2" and 4" objective lens sunshade

Size (dia.)	2"	4"
22 mm	$25.00	$30.00
32 mm	$35.00	$40.00
44 mm	$45.00	$55.00
58 mm	$65.00	$75.00
88 mm	$75.00	$85.00
100 mm	$105.00	$115.00

Eyepiece Optical Glass lens cover w/bezel and extension (to cover and clear the diopter adjustment).
Remember: by adding the optical glass eyepiece cover you will be limiting the eye relief by as much as 1"!
All Models $50.00
Screw in (6061t-6) Target/Tactical style screw-in covers (to fit the units above and on the next page)

Size	Price
22 mm	$15.00
32 mm	$15.00
44 mm	$20.00

Size	Price
58 mm	$25.00
88 mm	$30.00
100 mm	$35.00

Laser Filter Glass Insert and Bezel (we need to know the wave length of the incoming radiation).
For use with threaded objective lens covers. Can also be installed into end caps and sunshades. Notice: Optical glass covers on the eyepiece can cut down the eye relief by as much as 1".

Size	Price
22mm	$ 75.00
34mm	$ 75.00
44mm	$ 75.00

Size	Price
58mm	$ 85.00
88mm	$115.00
100mm	$145.00

12 inch Threaded Lightweight Mirage Tube (stackable)

Size	Price
44mm	$ 65.00
58mm	$ 75.00

Size	Price
88mm	$135.00
100mm	$185.00

Target Type Screw-in Caps SN-1 and SN-2

Size	Objective	Eyepiece
58mm	$45.00	$20.00
88mm	$80.00	$20.00

Angular Ray and Energy Deflection Devices (Honeycomb) *these are great items for any scope!!!!*
This unit consists of a primary ray laboratory standard honeycomb device used to limit radiation to primary or near primary (theoretical), radiation, a retaining bezel and two retaining spacers.

Size	Price
22mm	$40.00
32mm	$55.00
44mm	$60.00

Size	Price
58mm	$70.00
80mm	$85.00
100mm	$95.00

Laboratory standard optical (bandwave), filters can be provided for specific wavelength filtration and limitation on demand. These can be used separately or together. We have provided these methods on scopes for over 15 years and they work very well.

Honeycomb Optical Diffuser (H.O.D.)

This device has been used by U.S. Optics for over 10 years now and has been a standard in optical laboratories around the world for over 50 years. We were the first scope company that we know of, to use the honeycomb concept for limiting “scattered visual light” coming into the scope.

Here is how the H.O.D.® works;

Incoming reflections off objects create resolution problems in optical instruments, therefore we try to limit incoming light to primary rays off the object we are looking at.

The above process creates better color, resolution and contrast.

Each individual hexagonal cell acts as an individual “sunshade”, yet by cleverly limiting wall thickness we don’t cut down much on the actual volume of light gathered.

This drastically improves the ability for the telescopic sight to see better, particularly in extremely bright light and heavy reflections.

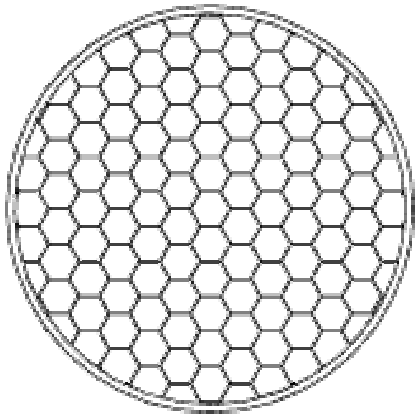
H.O.D.® Prices (When installed in a 4” U.S.O. sunshade)

Size	Sunshade Type	Cost
24mm/32mm (SN-4 & SN-12)	4”	$30.00 + Sunshade
44mm (SN-6, SN-3, etc.)	4”	$40.00 + Sunshade
58mm (All Scopes)	4”	$50.00 + Sunshade
88mm (All Scopes)	4”	$80.00 + Sunshade
100mm (All Scopes)	4”	$90.00 + Sunshade

Reg. 1986

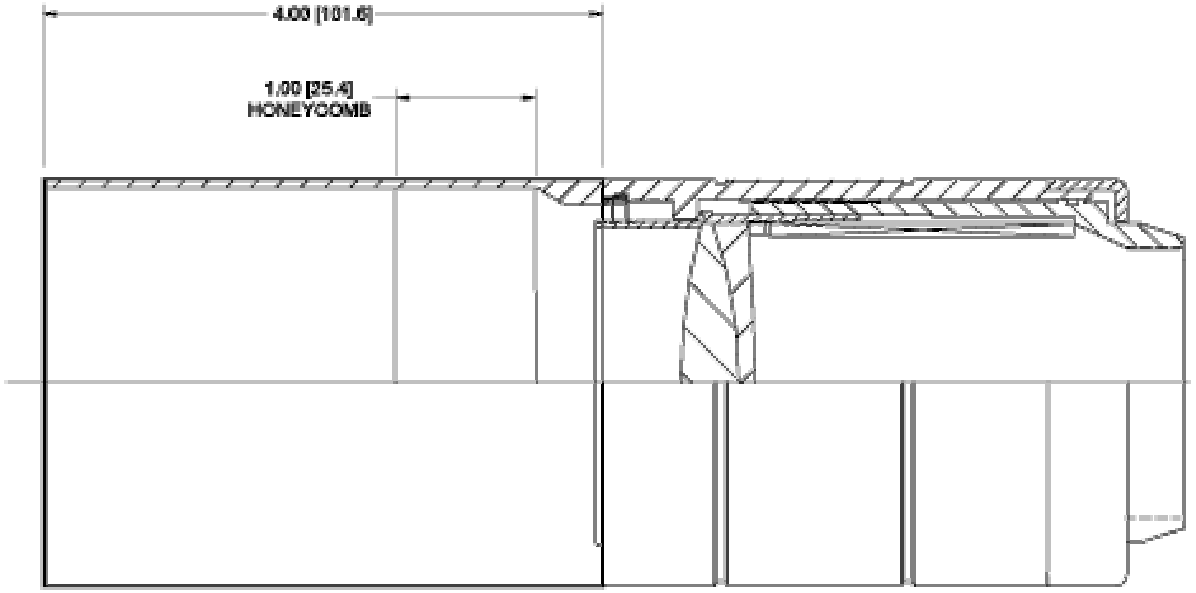
H.O.D.

58MM Honeycomb Optical Diffuser
(Shown Installed)



1/4" HONEYCOMB

End View



SUNSHADE - 58mm SHOWN

Objective

U.S. Optics Scope Finishes
(Standard)

The U.S.O. standard finish on all our custom telescopic sights is precision hard anodizing. The surface hardness is about three-quarters of the hardness of a diamond, or roughly that of a ruby.

This makes a virtually scratchproof, wear proof finish. Most scopes use a standard anodized finish, which is not as thick and the result is, it is not as hard and does not wear well.

We apply a proprietary matte surface finish prior to applying the finish, which creates a beautiful dull matte black color and texture. It is non-reflective and has these qualities:

1. 5% salt spray (military spec. testing), 1000 hours no failure.
2. Rockwell surface hardness – off the "C" scale.
3. Totally solvent proof.
4. 100% relative humidity – 1000 hours – no failure.
5. Cold check: 100 cycles; 24 hours at 50 degrees, 24 hours at 140 degrees – no failure.
6. Tabor abrasion: CS-17 wheel, 1000 gm load, no visual tap state loss in 100 cycles.
7. Impervisions to oils, solvents and vehicles (acetone, keystone, MEK, etc.)

Summary

What the above means is that you can wash the finish, freeze the finish, heat the finish, spill oils, solvents, and thinners on the finish and the finish will be unaffected.

With normal wear this finish will virtually last a lifetime.

Special Scope Finishes
(Exterior)

In addition to our regular hard matte black (hard anodized) finishes, we offer an O.D. green hard anodized matte finish. The prices for these are included in the optional section of each scope model area. The hard anodized finish is extremely durable but takes time to do.

We also offer camouflaged finishes in the following colors:

1. Desert storm (tans, crème and black)
2. Forest green, tan and black
3. Navy gray, blue and white

This is a polymer finish that has the following advantages:

1. Chemical Resistant
2. Water Resistant
3. Excellent Adhesion
4. Mar and Abrasion Resistant
5. Excellent Hardness
6. Excellent Impact Resistance
7. Custom Colors and Camouflage
8. Interior is left black hard anodized for optimum performance.

Performance List

- 5% Salt Spray – 1000 hours – no failure
- Pencil Hardness…2H
- Solvent and Chemical Resistant
- 100% Relative Humidity – 500 hours – no failure
- Cold Check: 16 cycles; 24 hours @ 100% humidity; 24 hours @ 10 degrees farenheight, 24 hours @ 77 degrees farenheight.
- Taber abrasion – CS 17 wheel, 1000 gm load; < 100 mg. loss in 1000 cycles
- Impact resistance: Forward 100 inch pounds. Reverse 80 inch pounds
- Lubricating oil, hydraulic fluids and cutting oils, excellent resistance

The Robar Company in Arizona, who does an absolutely great job, applies this finish on the exterior of our parts prior to assembly. We can do rings, mounts and the entire rifle to match!
Prices average about $165.00 to do this finish on the scope, rings and bases.

Ordering Procedure

All orders received at U.S. Optics are for custom made products. That means specifically made to your order, in a special way, just for you. For that reason, we require a deposit. That deposit is, of course, non-refundable. It also means that after the initial order is started, there can be no changes w/o additional charges, except if the parts are of a modular nature and can be interchanged without modification to parts already built for your scope. If you have any questions about specific changes to your order, please feel free to contact us.

This policy is for obvious reasons. After we start building an optical system, we cannot change the order because a customer has difficulties, etc. Our scopes usually take a minimum of 7 days to build (unless we have pre-made that unit), can take 90-120 days for some models and may take longer if the particular order has something special about it which will require extra time to fabricate. It can also take longer if we change designs to a newer and/or more sophisticated unit. In such a situation, the customer is allowed and given the newer, more expensive model at no extra charge. In the event that we cannot make the product at all, all moneys deposited will be refunded. *Time delays do not constitute our not being able to perform our contract.* There will be no exceptions to this rule. Plenty of time must be allowed for us to make your product, just as one does for a **custom** rifle or shotgun.

Fill out the Quote/Order Form on the opposite side of this page to the best of your ability. Send that sheet to us, and we will treat it as a quote and return it to you promptly, giving you the following:

1. Complete breakdown of item costs.
2. Estimated delivery time from receipt of deposit or payment.
3. Specific item descriptions.
4. Total cost of optical system.
5. Your invoice number.
6. Amount required for minimum deposit and balance due after deposit is placed.
7. Suggestions that we might have concerning your order.

If all items on quote sheet agree with what you want in your optical system, send the quote sheet back to us with your signature at the top. We will send you an order sheet with a contract on the back. Send the order sheet with the contract signed (on the back side of the Order sheet), and your 50% deposit. If you wish, we will then send you a confirmation Invoice/Receipt form which will reflect both the deposit amount paid by you and the unpaid balance, as well as, the dates in which your funds cleared our bank. At the time we receive your order and funds, this will be a binding sales contract with the following terms:

1. Custom Optical system to be made as specified on Invoice/Receipt.
2. Deposit paid to start work on optical system is non-refundable.
3. Changes in order must be made enough in advance to prevent the rework of components.
4. Signature is required on all Quote/Order Forms sent in with deposit.
5. Delivery dates are approximate, and we reserve the right to extend delivery dates when beyond our control, and without previous notice. Our materials suppliers cannot always meet our dates and delays result. Scopes are not critical emergency items. If time requirement for your optical system is more critical and delivery date is more imperative than Quality--please do not order from us. We work as expeditiously as possible, and critical dates only create pressure for all.

Security

Your credit card and personal information are completely safe, and private with us. We use the latest technology anytime we need your name, address, e-mail address, and credit card info or telephone number. Don't worry, we never sell, rent, or give out our cutomers personal information to anyone, anytime. Our site runs best on the latest update of Microsoft Internet Browser or Netscape Communicator.

Thank you in advance and if there are any questions in your ordering process please do not hesitate to call me personally. I am here to help you with any inquiry or just to let you know we care!!

I have read the above, understand and agree to those items. Signature:_____ date: _____

U.S. Optics

A dba of ZEITZ OPTICS U.S.A., Inc.
"Worlds Finest Sighting Systems"
5900 Dale St.
Buena Park, CA 90621 U.S.A.
WEB Sight: *www.usoptics.com*
(714) 994-4901 FAX (714) 994-4904

Data Sheet For Quote

Name_____
Date_____ Phone Number_____

The following data, once completed, will give us a better insight into how we can best serve your needs. These facts plus the Quote Sheet information will give us a more comprehensive look at the actual application.

Type of Rifle Action_____Caliber_____
Bullet 1st choice_____B.C._____Velocity_____
Bullet 2nd choice_____B.C._____Velocity_____
Type of Stock_____
Mount Base_____Rings_____
Do you have a weight restriction?_____
Do you have a length restriction?_____
What type of protection do you want to use on the lenses?_____
_____
Unusual features that would affect the scope_____
_____
_____
_____
Type of climate used in_____
Application of the rifle (it's use)_____
_____
_____
How much shooting at night or in poor light?_____
Distance 90% of shooting will be at_____
How many M.O.A., total, do you need?_____
What value do you want your W. &E. clicks to be? 1st choice_____
2nd choice_____3rd choice_____
Distance longest shots will be at_____
Distance shortest shots will be at_____
Do you need a range finding mechanism?_____
Do you have any eye problems?
Near sighted_____ Far sighted_____
Astigmatism_____Other_____
Any other information you think is important_____
_____
_____
_____
_____

U.S. OPTICS

a dba of ZEITZ OPTICS U.S.A., Inc.
5900 Dale St., Buena Park, CA 90621 U.S.A.
WEB Sight: *www.usoptics.com*
(714) 994-4901 – Catalog and General Information
(714) 994-4904 – Fax (714) 994-4902 – Technical Services Only

ORDER:	QUOTE: (GOOD FOR 30 DAYS)	DATE:	SERIAL #
Customer's Name			
Street Address, (no P.O. Box #)			
City, State, Zip and Country			
Phone #	HOME:	FAX:	WORK:
Alternate and/or additional			
Signed:		DATE:	

SPECIFICATION	Description	COST
Model, Sub Model & Optical Resolution		
Parallax Control		
Power		
Objective Size & Type		
Objective cover		
Objective sunshade		
Honeycomb Diffuser		
Tube size		
Color, and finish		
Material		
Eyepiece type		
Extra Long Eye Relief Eyepiece		
Eyepiece covers		
Reticle type and location		
Reticle lighting type		
Knob type (elevation) & MOA (Per Click)		
Windage knob type & travel		
Bullet drop compensator& caliber		
Mount Base Type		
Mounts: ring type & size		
External cant indicator		
What Rifle & Caliber?		

Received Date:		SUB TOTAL	
Deposit Paid:			
Credit Card #:		**TOTAL**	
C. C. Type:	**Exp. Date:**	**DEPOSIT**	
Customer is responsible for shipment method and results		Shipping, packing & insurance charges	
3% service charge on all credit cards	**$**	TOTAL PAID	
		BALANCE DUE	