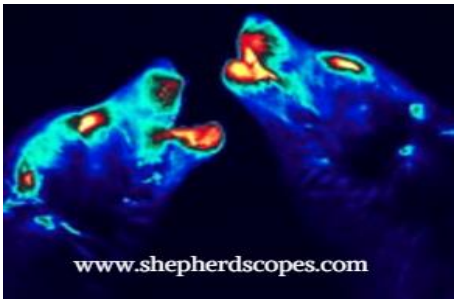
SHEPHERD SCOPES PROWLER

Range Finding Target Sizing Thermal Imaging Weapon Sight

Shepherd Scopes is excited to introduce the first range finding and target sizing thermal imaging scope on the market. Shepherd Scopes, the company that invented the dual reticle scope, has now incorporated their custom range finding drop compensating digital reticle system into its latest and most technologically advanced family of Prowler thermal imaging weapon sights to the sporting, law enforcement, and military markets. The Prowler series product line is based on the latest FLIR Tau 2 VOx microbolometer core. Shepherds new state-of-the-art technology is designed for a variety of uses and mission applications ranging from the seriously committed hunter to the military designated marksman. While primarily designed as a weapon scope, the Prowler functions equally well in its collateral assignments as a magnified spotting scope or handheld thermal imager.

The Prowler is a solid state, uncooled, long-wave infrared, magnified dedicated weapon scope intended for day and night engagements without the need to remove the sight from the rifle. The 24/7 mission capability is just one of its many strengths. Thermal imaging technology also allows you to detect targets by cutting through snow, dust, smoke, fog, haze, and other atmospheric obscurants. Unlike the use of laser targeting or near-infrared illumination to augment Night Vision equipment, the Prowler thermal imaging weapon sight is extremely difficult to detect with other devices, as it emits no visible light or RF energy.

In addition to being the smallest and lightest in their class, Prowler thermal imaging weapon sights are characterized by their simple and intuitive controls, functions, and features that are layered among direct button adjustments, direct combination button functions, and electronic menu selections. This “layering” of easy-to-understand control functions provides the operator with a framework for customizing his preferences and exploiting the robust variety of setting options available in the Prowler. The Prowler has a series of selectable color modes based on a rich, upgradeable software package. A wireless remote switch is included to activate the Prowler thermal imaging weapon sight when positioned in the “standby” mode. The Prowler has the ability to record videos with optional Digital Video Recorder and is also equipped with a video-out capability in operator selectable NTSC or PAL formats. The Prowler uses the same multi-pin connector to provide video-in imagery, where there is a need for map or rangefinder display overlays, and external power access.



Prowler weapon installation is easy, repeatable, and reliable based on a unique and highly user-friendly MIL-STD-1913/ Weaver/ Picatinny rail-compatible, quick-release locking mechanism. The Prowler solid state technology and software algorithms, combined with a complementary color reticle platform, ensures maximum reticle contrast, high-level target accuracy, and boresight retention that cannot be achieved with mechanical boresight adjusters and traditional ballistic drums. This level of accuracy is translated into the electronic zoom (e-zoom) function of the Prowler thermal imaging weapon sights, which can be progressively increased from 1x to 2x, 4x, and 8x, without changing the point-of-aim to point of-impact relationship of the targeting reticle. The Prowlers range finding reticle system is now built into to a display that auto adjusts as you move through magnification. The Prowler now allows users to range and size moving targets without taking their eye from the scope or weapon. The Prowler is now the fastest moving target acquisition and firing technology available today.

- **The lightest and most compact scope in its class**
- **Optical magnification 2x**
- **The latest Tau 2 17-micron uncooled FLIR core technology**
- **Pixel array format: 336×256 or 640×512**
- **Display type: LED VGA 640x480**
- **Easy and intuitive drop-down user interface**
- **Fast 30Hz or 60Hz imaging**
- **Digital e-Zoom: 1x, 2x, 4x, and 8x**
- **Color modes: White Hot/ Black Hot/ Rainbow/ Various Color Modes**
- **6 onboard digitally controlled reticle patterns available: “Dot 4 MOA”, “Line Dot”, “Cross-Center Dot”, “Cross”, “Crosshair”, and “No Reticle”,**
- **Reticle colors: Black, White, Red, Cyan**
- **Electronic Zoom reticle tracking capability maintaining boresight**
- **Extended operation time with optional Extended Battery Pack**
- **Recording: video output / optional Video Recorder with onboard replay**
- **Wireless remote control for tactical operations**
- **CNC machined aircraft-aluminum alloy construction**
- **Rapid start-up**
- **MIL-STD-1913 (Picatinny Rail) Quick Release Mount**
- **Integral MIL-STD-1913 rail on unit for optional accessories**
- **Limited 3-year warranty**
- **10-year warranty on FLIR detector**
- **Made in the USA**

Model Name	PROWLER 336 2-16x50	PROWLER 640 2-16x50
SYSTEM DATA:		
Refresh Rate	30 Hz	30 Hz
Magnification (optical)	2×	2×
Objective Lens Type	Germanium	
Type of Focal Plane Array	FLIR Tau 2	
Pixel Array Format	336×256	640×512
Pixel Size	17 µm	
Display Type	LED VGA	
Pixel Display Format	640×480	
Display Brightness	Discretely Adjustable to 8 Levels	
Turn-on Time, max	3 sec	
Digital Zoom	1×, 2×, 4×, 8x	1×, 2×, 4×, 8x
Image Palettes	White Hot, Black Hot, Fusion, Rainbow, Globow, Ironbow 1, Ironbow 2, Sepia, Color 1, Color 2, Ice-Fire, Rain, and OEM Custom	
Reticle Type	6-Pattern Digitally Controlled: Dot 4 MOA, Line Dot, Cross Center Dot, Cross, Crosshair and “No Reticle”	
Reticle Color	Black, White, Red, Cyan	
Boresight Adjustment	Digitally Controlled	
Analog Input and Output Resolution	640×480 pixels	
Video Recording	Optional Digital Video Recorder with SD card slot	
Remote Control	Wireless	
SPECIAL USER-ADJUSTABLE IMAGING TOOLS:		
Active Contrast Enhancement (ACE) - “CONTRAST”	Yes	
Second Generation Digital Detail Enhancement (DDE) – “SHARPNESS”	Yes	
Smart Scene Optimization (SSO) – “SMART SCENE”	Yes	
Information Based Histogram Equalization (IBHEQ) – “SKY/SEA”	Yes	
User Controlled Manual Non Uniformity Correction/Flat-Field Correction (UCMNUC/FFC)	Yes	
Silent Shutterless NUC ™ (SSN)	Yes	
OPTICAL DATA:		
Objective Focal Length	25mm	
Objective F-number	1:1	
Field of View (ang.)	13° × 10°	25° × 8°
Exit Pupil Diameter	10 mm	
Eye Relief	45 mm	
Focusing Range	20m to inf.	
Diopter Adjustment	Manual	
Diopter Adjustment Range	±5 diopter	
BORESIGHT DATA:		
Windage/ Elevation Boresight Increment	1.2 MOA 0.35 mils 1.3 in / 100 yd 3.5 cm / 100 m	2.3 MOA 0.7 mils 2.5 in / 100 yd 6.6 cm / 100 m
Windage/Elevation / Elevation Adjustment Range	±96 MOA / ±72 MOA	±180 MOA / ±134 MOA
ELECTRICAL DATA:		
Battery	4 CR123A 3V Lithium batteries or CR123 type rechargeable batteries with voltage from 3.0V to 3.7V (2)**	
Battery Life at 20 °C (68 °F)	up to 4 hr (optional up to 12 hrs)	
Extended Battery Pack	Two 18650 rechargeable batteries (3.7V), four CR123 rechargeable batteries with voltage 3.7V max, or four standard CR123A 3V Lithium batteries (operational time up to 8 hr)	
External Power Supply	6VDC / 600 mA	
ENVIRONMENTAL DATA:		
Operating Temperature	-40 to +50°C (-40 to +122°F)	

Storage Temperature	-50 to +70°C (-58 to +158°F)
Recoil Resistance	700 *g*
Environmental Rating	Water and Fog-Resistant
MECHANICAL DATA:	
Weapon Mount Type	Picatinny, MIL-STD 1913, and Weaver Rails
Height of the Scope Axis above Rail	42 mm (1.65 in)
Overall Dimensions	194×68×78 mm / 7.6×2.7×3.1 in
Weight (w/o Batteries)	0.63 kg / 1.4 lbs
WARRANTY DATA:	
Warranty	3 years
Warranty on FLIR detector	10 years

STANDARD COMPONENTS:
Packing Box
Soft carrying Case
Two Lithium Battery CR123A
Battery Cassette
Lens Tissue
Instruction Manual with Warranty Card
Video Cable
AWReC (Advanced Wireless Remote Control) #94
Picatinny adapter for AWReC (Advanced Wireless Remote Control)

OPTIONAL EQUIPMENT:	
Name	Part No.
AMRF2200 - Advanced Modular Range Finder	IALA00AMRF22001
DVR - Digital Recorder/External Battery Pack	ATAM000004
HD DVR - High Definition Digital Recorder	ATAM000005
Extended Battery Pack - Extended Battery Pack with Rechargeable Batteries	ATAM000008

SUPPLEMENTAL RETICLE INFORMATION

NOTE:
The Shepherd Prowler 2-16x50 has 2x optical magnification with up to 8x digital zoom. Pushing the zoom control button (2) will magnify the displayed scene. The 2x, 4x, and 8x symbols that appear at the top of the display refer to the digital zoom. The total magnification is the product of the optical magnification (2x) multiplied by the zoom. If, for example, the digital zoom is set to 4x, the total magnification would be (2x) x (4x) = 8x. The magnification range of the Prowler is 2x-16x.

ADDITIONAL SHEPHERD SCOPES RETICLES
The range-finding, ballistic drop compensating (BDC) reticles included in the Shepherd Prowler cover a wide variety of calibers and loads. There are also two post reticles, a shotgun reticle, and a large dot reticle. To select a reticle, see part 3.2.2 (Reticle Menu) in the operation manual.

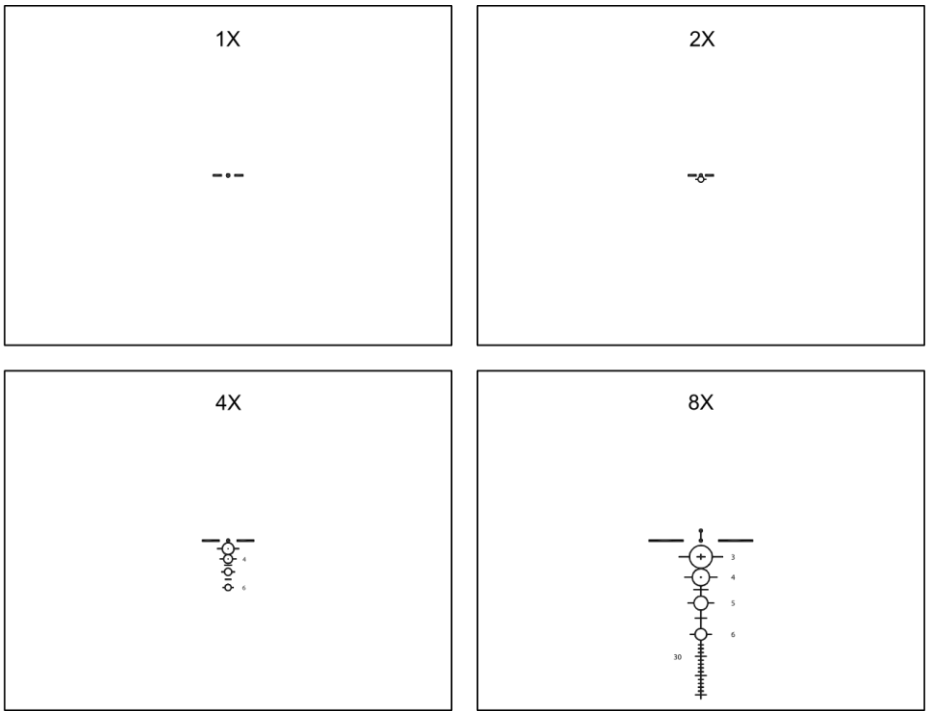


FIGURE . KV5A RETICLE AT DIFFERENT DIGITAL ZOOMS

Range Finding
Each of the KV reticles has a series of ranging circles that can be used to determine the range of a target at a specific distance. The circles are 18" in diameter at their respective ranges. For example, the circle with a 4 next to it covers an 18" target at 400 yds. 18" is a common size for deer from shoulder to brisket, coyote standing from ground to top of back, and military silhouette targets. Simply find the circle that fits the target and fire. If the target is larger than one circle but smaller than the next, aim between the two circles.

Ballistic Drop Compensation
The circles of each KV reticle are spaced so that the holdover is matched to specific ballistics. There are 7 available reticles, each with a different ballistic drop. The KV1B is for high-powered, flatter shooting bullets, so the circles are closer together relative to the KV3 that is matched to slower bullets with more drop and more space (holdover) between the circles.

Matching Ammunition to KV Reticles

To find the correct reticle for specific ammunition it is best to know the Ballistic Coefficient (BC) and the Velocity of the ammo as well as the elevation of the location of use. There are many online ballistic calculators including the one at **shepherdscopes.com/shepherd-scope-finder** that can be used to match ammo to one of the KV reticles. Figure 3-30 is a drop table for all the KV reticles.

	KV 1B		KV 1		KV 2		KV 3A		KV 3	
Range (yds)	MOA	inches	MOA	inches	MOA	inches	MOA	inches	MOA	inches
200	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
300	-1.6*	-5.03*	-2.10	-6.60	-2.50	-7.85	-2.60	-8.17	-3.00	-9.42
400	-3.60	-15.08	-4.60	-19.27	-5.50	-23.04	-5.80	-24.29	-6.50	-27.23
500	-5.90	-30.89	-7.50	-39.27	-8.90	-46.60	-9.40	-49.22	-10.70	-56.03
600	-8.50	-53.41	-10.80	-67.86	-12.80	-80.42	-13.50	-84.82	-15.60	-98.02

*The KV1B does not have a 300 yd circle because of the tight spacing, use the top of the "4" circle as a point of aim.

	KV 5A	
Range (yds)	MOA	inches
100	2.6	2.72
200	0	0.00
300	-4.2	-13.19
400	-9.5	-39.79
450	-12.7	-59.85
500	-16.2	-84.82
550	-20.1	-115.77
600	-24.3	-152.68

	KV SUBSONIC	
Range (yds)	MOA	inches
50	5.5	2.88
100	0	0.00
150	-7.3	-11.47
200	-15.2	-31.83
250	-23.7	-62.05
300	-32.4	-101.79
350	-41.2	-151.01
400	-50.5	-211.53

FIGURE KV RETICLE BALLISTIC DROP COMPENSATION TABLE

Using a ballistic calculator is the best way to match ammo to the correct KV reticle, but Figure 3-31 is a list of ammunition specification that can be used as a general guide. The table assumes a 200 yard zero (except KV Subsonic which uses a 100 yard zero), a 2.5" sight height, temperature of 59°F (15°C), and an elevation of 1000'.

	KV 1B	KV 1	KV 2	KV 3A	KV 3		KV 5A		KV SUBSONIC
BC	Velocity (fps)					BC	Velocity (fps)	BC	Velocity (fps)
0.40	3330	3000	2800	2730	2580	0.22	2580	0.30-0.32	1100
0.45	3250	2940	2750	2670	2520	0.28	2380	0.45-0.50	1050
0.50	3190	2880	2700	2600	2470	0.36	2220	0.60-0.65	1030
	7mm Rem M 300 Wea Mag 30-378 Wea M	6.5 Creedmoor .270 Win 300 Wim Mag 338 Lapua	.556 68-75 gr 30-06 SPRG .308 Win	6.5 Grendel 6.5x55 Swedish	7mm Mauser 8mm Mauser 375 H&H		300 AAC BLK 7.62x39 Soviet 416 Rem Mag		300 BLK (SUB) 7.62x39 (SUB)

FIGURE. SUGGESTED AMMUNITION CHARACTERISTICS FOR EACH KV RETICLE

Shotgun Reticles

The outside ring of the Shotgun reticle represents the pattern size of an improved cylinder choke (104 MOA). The inside ring represents the pattern size of a full choke (63 MOA).