



MTC

OPTICS

KING COBRA SERIES USERS MANUAL

edition 5

KING COBRA 8-32x50 F1/F2

FOREWORD

Congratulations on investing in an **MTC King Cobra** riflescope, designed to give you years of accurate, trouble-free shooting.

Manufactured to MTC Optics' exacting brief, King Cobra scopes incorporate cutting edge technology and have been built using state-of-the-art manufacturing processes.



Model shown: King Cobra 8-32x50

Features include:

- **Choice of first or second focal plane scopes**
Choose the scope focal plane you prefer
- **Glass-etched crosshair**
Designs exclusive to MTC Optics
- **Edge-to-edge multi-coated lenses**
Bright, clear picture quality
- **Side parallax adjustment**
Eliminates parallax error and assists in range-finding
- **10-metre minimum focus**
Suitable for airgun use and ultra-close-range shooting
- **Reticle illumination**
Assists with tricky background and lighting scenarios
- **Multi-point AMD2 reticle**
For fast target acquisition over distance
- **30mm body tube**
More substantial build quality and light transmission
- **Magnetic, rotating flip-up lens cover**
Fast and practical protection for lenses when in the field
- **Fully water, fog and shock proof**
Increases longevity of the scope
- **Precise resettable windage/elevation adjustment**
- **Nitrogen purged**
Internal regulation of scope's high-end performance
- **Optional extras**
Objective sunshade and large parallax sidewheel

This User Manual will help you get the very best from your new riflescope. Please read it thoroughly and familiarise yourself with your new scope before fitting it to your rifle.

***Tip:** When mounting your new MTC King Cobra riflescope, use only top-quality mounts. Fitting it to your rifle with cheap, low-quality mounts is false economy. Besides not maintaining zero and potentially creating misalignment with the bore, improper scope mounts may even mark or damage your scope.*

BEFORE STARTING

Please familiarise yourself with the layout of your new MTC King Cobra scope, and the terminology used in this manual.

Model shown: King Cobra 8-32x50



1. 50mm objective lens
2. SMART elevation turret
3. Windage turret
4. Parallax adjustment
5. Reticle illumination rheostat
6. 30mm Scope body tube
7. Zoom ring (magnification)
8. Eye-bell
9. Fast-focus (dioptre adjustment)
10. Flip-up lens cover with magnifier
11. Flip-up lens cover

CARE AND MAINTENANCE

MTC's King Cobra rifle scopes are precision optical instruments, so they need to be treated with care. When cleaning the exterior, use a soft, damp cloth and dry off the surface afterwards. Keep the lens cover(s) closed when not shooting to protect your scope's lenses.

Important: Should you need to clean the lenses, do so with extreme care to avoid scratching or damaging their expensive coatings. Use a camera-quality 'puffer brush' to blow off excess dirt which should then be gently brushed away. Should any dirt remain, put a drop of alcohol-based cleaning fluid on a lint-free cloth and lightly rub the area in a circular motion. **Do not** apply excessive pressure as this could damage the lens surface and invalidate the warranty.

Should you have any questions, please contact your local MTC Optics supplier, or MTC directly via e-mail: support@mtcoptics.com

WARNING

NEVER LOOK DIRECTLY AT THE SUN OR ANY BRIGHT LIGHT THROUGH YOUR SCOPE - PERMANENT EYE INJURY OR EVEN BLINDNESS CAN RESULT

USING THE SCOPE

Mounting the scope to the rifle

Use mounts with 30mm diameter rings that are high enough to allow the scope's objective (front) bell to clear the rifle but still allow you a comfortable head position on the rifle's comb when taking aim.

Set the eye relief by positioning the scope on the rifle (or adjusting the scope position within the mounts) so that you see a sharply-defined sight picture. Important: Do not press your aiming eye against the eye-bell, otherwise injury to your brow may occur during the rifle's firing cycle.

Adjust the primary focus (diopetre) to sharpen the crosshair. Look at an uncluttered background and then turn the fast-focus ring to get the sharpest definition of the reticle. *Tip: do not look through the scope for more than a few seconds at a time when setting up*



the focus, and never look at the sun. Note: Do not worry about the sharpness of the target at this stage. That will be focused by adjusting the parallax sidewheel (secondary focus).

Ensure the vertical crosshair is perpendicular to the ground by aligning it with a vertical edge – use a plumb line if necessary. Avoid canting (leaning) the rifle during this process – aligning the action with a spirit level will help in this respect.

Turret operation 8-32x50 with SMART turret

This model features MTC's SMART turret with a 2:1 gearing system for super-precise control, along with a host of other useful features.

Both the elevation and windage turret incorporate a locking system to stop them turning inadvertently. On the elevation turret the user can choose elevation POI adjustment by way of click or click-free turns.



The SMART turret can be viewed using the 2x magnifier in the rear lens cap

Besides an external vernier ring, a small window in the elevation turret allows the user to view alternative graduations by way of a vernier range-tape.

A blank tape (90x7mm) may even be customised to suit the specific trajectory of the user's own rifle/ammo combo (refer to MTC Optics' website at:

www.mtcoptics.com/range-tape-calculator

- To lock the elevation (top) turret, move the switch at its base so the arrow points to the 'Lock' position
- To lock the windage (right) turret, move the switch at its base so the arrow points to the uppermost mark
- To alter the point of impact (POI) of the shot up or down, move the switch from 'Lock' and choose either 'Click' adjustments or 'Free' adjustments. To move the POI down, turn the elevation turret clockwise (the range-tape vernier will rotate anti-clockwise in its window). To alter the POI up, turn the elevation turret anti-clockwise (the range-tape vernier will rotate clockwise in its window)
- To alter the POI of the shot right or left, unlock the windage turret by moving the switch to the lowest mark. To move the POI left, turn the windage turret clockwise. To alter the POI right, turn the windage turret anti-clockwise. Remember to return the locking switch to the uppermost mark before shooting
- To reset the elevation and windage turrets' external vernier rings to '0', slacken the hex-headed grubscrews in the knurled section of the turret until the vernier ring spins freely

Turn the vernier ring so that '0' corresponds to the guideline on the drum, then re-tighten the grubscrews.

Important: *Ensure the grubscrews are kept tight at all times while shooting to stop the vernier from inadvertently losing its setting.*

ELEVATION TURRET (GEARED)



Fig.1 Loosen all screws on the turret cap



Fig.2 Access to internal drum to realign or remove



Fig.3



Fig.4

NOTE: MTC Optics' SMART elevation turret uses a gearing system to ensure precise control of the range-tape vernier. 2 turns of the external vernier ring corresponds to just 1 rotation of the inner range-tape vernier. Therefore, to ensure the full range of elevation adjustment is available, it may be necessary to shim the scope mount or use adjustable mounts. See page 7 and 8.

Windage (side) turret operation

To unlock and adjust the side windage turret, pull the vernier outwards, adjust, and push back in to lock (fig.5). After zeroing the vernier can be set to a "0" reference. With the turret in its locked position, loosen the central cap screw a few turns (fig.6) so the vernier can be lifted off its seat (fig.7) and freely rotated to the "0" position. Reseat the vernier and fully tighten the cap screw afterwards.



6



7

Zeroing-in

Initially, set a target at 15 metres (or bore sight the scope) and, aiming at a specific mark, shoot a few shots to observe

the point of impact (POI). Do not compensate your aim during these initial shots, even if the shots do not strike where you intend them to. This initial group is to see how the sights need adjusting.

After you have fired a few shots and established a group on the target, move the elevation and windage adjusters in the direction that the POI needs to shift in order to strike where the central crosshair is. For example, if the group strikes the target low and right of your aiming point, adjust the elevation turret in the direction marked 'U' (Up) and the windage turret in the direction marked 'L' (Left).

When the group is roughly centre, move the target to your usual shooting distance (known as 'zero') and repeat the process to fine-tune the POI.

Tip: Carry out zeroing in windless conditions. When you are happy that your rifle is zeroed, set the turret vernier rings to their "0" mark (see fig.8 to fig.8c).



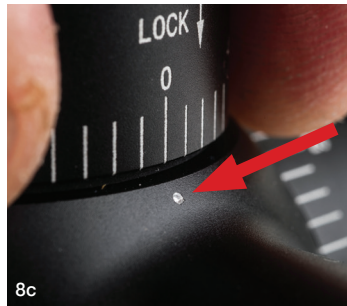
6-24x Turret adjustment



4-16x Turret adjustment



8b



8c

Figures 8-8c:

Loosen the turret cap screw to freely rotate the vernier to the "0" position

Running out of elevation turret adjustment

MTC ships its scopes from the factory with the elevation (top) and windage (side) turret adjusters in the mid-point position, but you should always check that they are set in the middle before zeroing your scope on a rifle for the first time.

If, with the scope's elevation adjustment turret set to its midpoint, the initial POI is a long way below or above the central crosshair, you will need to alter the angle of the scope in the mount. This is achieved with adjustable mounts available from the MTC online store <https://mtcoptics.com/store> or by using a shim in the cradle of the rear mount (fig.9).

If the POI is a long way below the horizontal crosshair, shim the cradle of the rear mount. *Tip: Use a strip of silver foil, folded to greater thickness if necessary, as a shim. Do not use adhesive tape as this can cause the scope to move within the mounts when the temperature changes. Never shim the scope more than 0.3mm.*



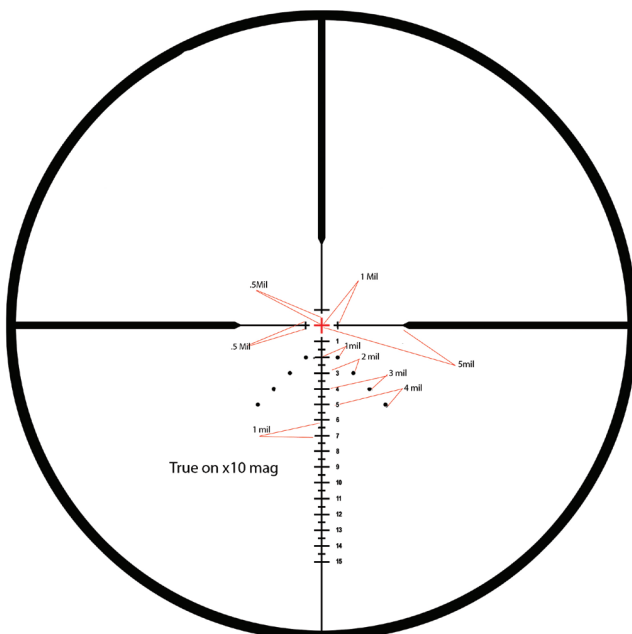
MTC's Blueprint adjustable mounts with a choice of 20mm Picatinny or 3/8" dovetail



Fig.9: Put a strip of silver foil in the cradle of the rear mount to 'shim' the scope if the POI is initially a long way below the horizontal crosshair

AMD2 Reticle

The King Cobra 8-32x50 features a second-generation Advanced Mil Dot (AMD2) reticle is suitable for all airguns and firearms as its multi-stadia design provides a multitude of aiming reference marks for holdover, hold under and wind allowance (see image below). Its design is based around milliradian spacings. A milliradian is known as a 'MIL' and $1 \text{ MIL} = 3.6''$ at 100 yards ($7.2''$ @ 200yds; $1.8''$ @ 50yds etc).



When the scope's magnification ring is set to the higher powers, the AMD2's multi-stadia design can also be used for range-finding (refer to section 'Parallax focusing'). The King Cobra 8-32x50 F2 reticle is set for 10x magnification.

First (F1) or second (F2) focal plane?

On F1 scopes the reticle is situated in the first focal plane (FFP), the relationship between the SCB2's various graduations and the target stays relative to each other regardless of what magnification the scope is set to.

On F2 scopes the reticle is situated in the second focal plane (SFP) the reticle remains the same size whatever the magnification is set to.

Illuminated reticle

When shooting in tricky lighting conditions (e.g. targets in low light, or against high contrast or dark backgrounds), the very centre of the crosshair can be illuminated in red. To illuminate the crosshair, turn the rheostat ring located on the parallax sidewheel turret from '0' (off - black) to the required brightness level (see fig.11). When the illuminated reticle is not required, return to position '0' to preserve battery life. The rheostat is powered by a CR2032 battery, accessed by unscrewing the rheostat cover on the side turret (fig.10).



Fig.10: The illuminated reticle battery is housed in the parallax sidewheel turret

Parallax focusing (secondary focus)

The King Cobra series of scopes allows for parallax error to be corrected when shooting targets at varying distances.

Parallax error is the apparent shift of the crosshair in relation to the target caused by inconsistent eye-to-scope alignment. It is more prominent at closer ranges. Ideally, the scope's parallax should be set to the target's exact distance before shooting to eliminate the possibility of aiming errors.

To set the parallax, look at the target through the scope and, using the parallax side adjuster, move the sight picture's focus until the target looks at its sharpest. *Tip: The crosshair's primary focus should have first been set for your eye's dioptre - refer to page 4 section 'Mounting the scope to the rifle'.*

Always shoot with a sharp sight picture to ensure parallax error has been eliminated. *Tip: Because the King Cobra's parallax side adjuster fine focuses the sight picture, the distance vernier on the side adjuster can also serve as a rudimentary range-finding guide (fig.11a).*

Note the outer ring, which is used to switch on and set the brightness level of the illuminated crosshair.



Fig.11: The illuminated reticle dial





TECHNICAL SPECIFICATIONS

	KING COBRA 8-32x50 F1/F2
Magnification range	8-32x
Objective lens diameter	50mm
Field of view @ 100m	13.6-3.1 feet (2.6°-0.6°) 4m-1m
Dioptr adjustment	+2/-2
Eye relief	100mm
Parallax range	10m – infinity
Adj per click	1/20mil
Max turret adjustment	12MIL
Clicks per turret revolution	60
MILs per turret revolution	3
Tube diameter	30mm
Length	415mm
Weight	820g
Reticle type	AMD2
Reticle position	First Focal Plane
Reticle illumination	Yes. Separate on/off

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[illegible]

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[illegible]

WARRANTY

MTC scopes are warranted for the original purchaser for a period of five years. By registering online, within 30 days of original purchase, the warranty is extended to the lifetime or 30 years for the original purchaser.

MTC Optics Registration can be made either by completing this form and returning it by email to office@mtcoptics.com, or posting it to: MTC Optics, Unit 3, Raleigh Hall industrial Estate, Eccleshall, Staffordshire ST21 6JL United Kingdom.

Alternatively you can register online at

<https://mtcoptics.com/warranty/>



TERMS OF WARRANTY

- The warranty commences on date of sale, shown on the sales receipt
- The original receipt must be/have been provided for the purposes of a warranty claim
- Scopes should be used as outlined in the MTC Optics User Manual supplied with the scope
- Other than signs of intended use, scopes should not show any evidence of having been tampered with, or been abused in any way in a manner not in keeping with the purpose for which it was designed
- The original owner is responsible for returning the scope to MTC Optics (see below). The company reserves the right to charge return postage
- This warranty is in addition to your statutory rights and does not affect your legal rights in your own country or region
- Warranty excludes additional losses and expenses direct or indirect
- The warranty is subject to the laws of Great Britain and Northern Ireland. In other regions local laws apply and can be supplied by the local importing agent

Exclusions

- Scopes should be used as outlined in the MTC Optics User Manual supplied with the scope. Damage, whether accidental or due to misuse (including damage due to the use of accessories, such as parallax side-wheels, night vision add-ons, etc), is excluded from the terms of the warranty
- The lifetime warranty excludes any electronic components such as illuminated reticles and laser range finding modules which retain a five-year warranty
- Where a scope cannot effectively be repaired under a legitimate warranty claim, MTC Optics will provide a replacement scope, not a refund
- In the case of obsolete scope models requiring replacement, an alternative model of at least equivalent specification and value will be substituted
- Lifetime warranty is subject to the completion of the online registration without which warranty will revert to statutory limitations.

WARRANTY DETAILS

Date of Purchase:

Dealer Stamp/Details:

Dealer Signature:

Customer Name:

Customer Address:

Customer Email:

Once completed, email to office@mtcoptics.com

or post to:

MTC Optics

Unit 3, Raleigh Hall industrial Estate,

Eccleshall,

Staffordshire

ST21 6JL

United Kingdom





www.mtcoptics.com | support@mtcoptics.com

**MTC Optics Ltd, Unit 3, Raleigh Hall Industrial Estate,
Eccleshall. Staffordshire ST21 6JL United Kingdom.**

While every effort is taken to ensure the accuracy of the information in this instruction manual, MTC Optics Ltd or their agents cannot be held responsible for errors or omissions. Products are continually updated and specification may change without notice. E&OE.

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