



PARD SA45

Thermal Imaging that Works

By John Herbert

RECENTLY I TESTED THE PARD 008 NIGHT VISION SCOPE, AND THE CONCLUSION I CAME TO WAS THAT THE UNIT WORKED REALLY WELL ON GAME ANIMALS OUT TO 200M PLUS AND WAS EXCELLENT VALUE FOR MONEY. The minor quirks of the 008 were quickly forgotten because it worked so well, and most importantly, it was light and easy enough to use both day and night.

After testing the 008, I was eager to get my hands on PARD's SA45 Thermal Rifle Scope, and in discussion with PARD's NZ distributor, Fraser from Owl Optics said, "John, you have to try this thing - it's awesome!"

How could I say no to that? The SA45 looks similar to the 008 - both in size and design - but the SA45 cost \$5,700 while the 008 is only \$1,400 ... why the big increase? Well, let's dive into this and find out.

BENEFITS OF A THERMAL IMAGER

Firstly, anyone who's hunted with thermal imagers (TIs) will know that they're the secret to finding game animals when they don't want to be found. The reason is simple: heat is never able to camouflage itself from a TI device. Now that last statement is not 100% correct, but it's fairly close, as even when animals are behind bushes and trees, anything that's visible - a head or a leg for instance - will light up and give them away.

Compare this with night vision where the same image may look just like a bush but be even harder to detect than it is in daylight due

to the lack of colour, contrast and depth of field; while good night vision is useful, a TI unit makes it easier to find the animals in the first place.

CONSTRUCTION

The PARD SA45 uses a quality TI core made by ULIS in France; ULIS make TI cores for military and defence applications and are one of the biggest manufacturers of microbolometers (TI cores) in the world. The core, as mentioned, fits into the same type of housing as the 008 NV unit, so sizewise, it's compact and light. The objective lens has an F1.0 aperture for high light transmission, and behind that is the focus ring. The body of the SA45 has the battery housing on top with the PARD standard set of control buttons on the left-hand side.

Both sides of the unit have Picatinny rails for mounting other devices. At the rear of the unit is the viewfinder focus ring (diopetre) which allows the image, including the crosshair, to be set for your eye. There's a big bellows-style rubber eyepiece that helps prevent any stray light from entering the unit while you're using it.

The SA45 is supplied with a decent

ABOVE:

PARD USES THE SAME FORMAT AND CONTROLS AS THE S008 NV SCOPE. *The controls are easy enough to use when you get used to them.*

Picatinny rail mount; this mount is the same as the unit fitted to the O08 and, when tested, it was both robust and had a very good return to zero when taken off and put back on. That said, there's a small amount of play between the scope and rail, so you must make sure the unit is tightened securely. It's a solid steel mount and does add some weight to the light SA45 body.

Lastly, there's an output jack on the left side of the unit that allows you to plug in an external screen.

FEATURES

The SA45 has a number of options. You can change your heat colours, and there's a Hot Track feature which will indicate on the viewfinder where the hottest area is. I personally find it a bit distracting, but a friend who hunts regularly with a TI unit really likes this feature.

The SA45 has a picture in picture (PIP) feature that allows a magnified view to be shown above the main view. In the menu settings, you can turn PIP off, and when it's off, the magnification button will magnify the complete image rather than just give you a magnified PIP. The SA45 also has a red dot laser which is adjustable via two screws to the side of the battery housing.

The viewfinder gives you Black Hot, White Hot, Red Hot, Iron Red and Sky displays.

You can turn on elevation and cant settings, but the compass is, unfortunately, calibrated for the Northern Hemisphere.

The eye relief is 45mm but will work slightly further back, which is good for the bigger recoiling rifles. Dioptre setting is adjustable and, as mentioned, there's a front focus ring. The display is 1024x768 and shows excellent detail.

ZEROING

The SA45 is a bit different ... to zero, you need a target that can be seen by the TI - some aluminium foil cut or folded into a crosshair works well. Your backing should be something like plywood that will retain the heat as the bullet passes through. This is necessary so you have a hot/cold image. Make sure your rifle is bore sighted. I'd suggest you do this at 50m or less as it's much easier to see the bullet holes. You then press and hold the menu button until

such time as a menu bar comes up for zeroing. Now you can fire a shot. Once you have a hole on the target, you aim back at the centre and press the minus button, this will freeze the image, and from there, the plus and minus buttons will allow you to move the crosshair over to the bullet hole. Fire a second shot to confirm and make any minor adjustments from there. This is similar to the process used for the PARD NV08; I found it reasonably simple, and it only took four shots to zero.

If you want a 100m zero, just make a hole in your aluminium where a 100m would be above a 50m zero; once you have your 50m zero, you can then use the zeroing system to make the adjustment.

I do note that PARD include two small shims to put under the rear of the mount - this allows the reticle to be centred in the middle of the screen rather than at the bottom. This can happen with closer zero ranges and low velocity ammo.

TESTING

Testing showed that the SA45 was capable of finding animals at distances of 600m or more - I say "more" as that was the furthest distance the land I was on allowed me. At close distance, the resolution made the animals extremely easy to identify. I make this point because at that distance, some TI units with ►

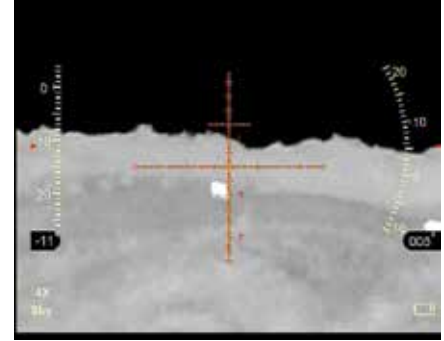
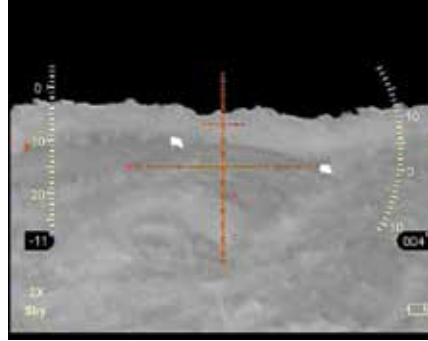
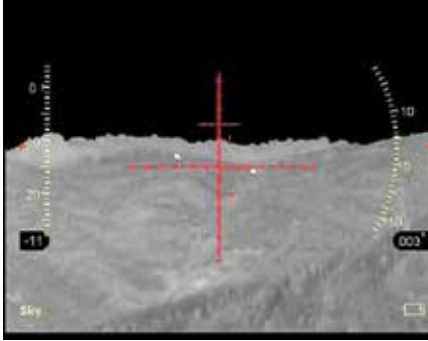


THESE IMAGES CAPTURED OFF THE VIDEO FEED *don't show anywhere near the detail you see when looking through the scope. Clarity is superb and your ability to identify animals out past 500m is excellent.*



SPECIFICATIONS

- MAGNIFICATION** 3.9x-15.6x
- OBJECTIVE LENS** 45mm/F1.0
- SENSOR** 384x288 px, 17m, 50hz
- EYE RELIEF** 45mm
- EXIT PUPIL** 8mm
- DIOPTRIC ADJUSTMENT** +/- 5
- EYEPIECE RESOLUTION** 1024x768
- ANGLE OF VIEW (HXV)** DEGREES 7.2 x 5.2
- INTERCHANGEABLE** RETICLES Yes (5 options)
- HUMAN DETECTING RANGE** 1800m
- VEHICLE DETECTING RANGE** 3800m
- DISPLAY FORMAT** White Hot / Black Hot/ Red Hot / Iron Red / Sky
- VIDEO OUTPUT** Composite Video Out
- DEFECTIVE PIXEL REPAIR** Yes
- 3D GYROSCOPE** Yes
- DIMENSIONS** 170mm x 51mm x 65.5mm
- BATTERY TYPE** 18650 Li-ion
- WEIGHT** (No Battery) 420g



ABOVE:

THESE ANIMALS WERE AT JUST OVER 600M.

The shots are at the default view 2x and 4x.

BELOW:

THE SA45 USES AN 18650 BATTERY. This is a great solution with good run time, easy changeover and it's rechargeable.



An example of this would be spotting animals in gullies; there's no need to walk them looking for a telltale sign – just scan and look for a heat signature. No signature? Move on to the next one. Too easy.

lower resolution show animals up as a glowing blob with no clear definition – it's hard to tell a horse from a cow or deer. The PARD does have user choosable reticles and one is a mil reticle. I wasn't able to test its accuracy, but assuming the reticle graduations are correct, it'd certainly be possible to take shots out past 400m. The resolution, even when magnified, is excellent and would allow precise shot placement. PARD claim a person can be seen out to 1800m.

Battery life was impressive; PARD claim eight hours, and that seems realistic as I had the SA45 on for just over four hours and still had over half of the battery life showing on the metre. The images I captured off the video feed really don't show anywhere near the clarity you see looking through the scope; I'd say the images are at least twice as sharp – maybe more.

CONCLUSION

The big question you have to ask with the SA45 is around the price. It has an RRP of \$5799. This is a fair bit of coin, and unlike its counterpart the NV 008, which can be had for \$1399, the SA45 asks a lot more. The question of which is best is easy – the SA45 has the NV 008 beat in many respects ... range, battery life and the ability to find partially hidden animals are the most obvious. An example of this would be spotting animals in gullies; there's no need to walk them looking for a telltale sign – just scan and look for a heat signature. No signature? Move on to the next one. Too easy. This is really the main reason you'd own a TI over an NV, and having used TI for a number of years now, this feature alone would see me choosing TI every time. With modern, rifle-mounted, high-definition TI like the SA45, it's a compelling reason to buy.

The only real downside for me is the form of the SA45; I don't think it's bad, or even awkward, but there are TI units that look and mount like traditional scopes. Aesthetically, this is desirable, and it can allow a more convenient head position. That said, it's not as high on my list of must haves; things like range, resolution, ease of use and quality have a much greater weight when it comes to buying than the form factor. ■

PROS	CONS
<ul style="list-style-type: none"> • Real world usability • Easy sight-in • High-definition optics give detail at longer ranges • Lightweight at only 420gms • Good battery life 	<ul style="list-style-type: none"> • Menu system requires you to understand what you're doing before it gets dark • Form factor – a scope-like design would be nice
<p>RRP \$5,799</p>	<p>MORE INFO www.pard.co.nz</p>

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