White Hot – Black Hot

The Guide IR518 thermal imaging camera is supplied in a smart and practical padded black camera bag

Jules Whicker *get a taste of hi-tech observation with the Guide IR518C Thermal Camera*

As a boy, hunting with an air rifle, I was repeatedly defeated by a stand of holm oaks in whose branches pigeons would seem to disappear as soon as they alighted, defying the best my 12-year-old's patience and late '70s optics could do to draw a bead on them. If only, I used to think, there was some way to see the heat coming off them...

Fast-forward over thirty years, and I'm standing in my back garden, and scanning the trees along its boundary through the viewfinder of a Guide IR518 thermal camera. Every now and then I pick up a bright white dot. I stop on the nearest dot and turn the rubber-armoured objective lens until the focus is sharp. Then I stretch out my little finger to blip the power button to calibrate the image for contrast and gain, and now the dot is identifiable as a pigeon's head, attached to a pale grey body. For a better look, I depress my ring finger and blip the button marked M/P, flipping the display from white-hot (wHOT) to black-hot (bHOT), which takes away the glare of the hot spot around the bird's beak and eye and gives a clearer sense of its whole form. Then, with my middle finger I blip the "Plus/Magnify" button, digitally doubling the size of the bird in the viewfinder. That'll make a nice snapshot, I think, as I press down on the final "Minus/Camera" button with my fore-finger and record the image onto the 4Gb memory card housed alongside four rechargeable lithium AA cells in the battery compartment. I could just as easily have taken a video clip, too, merely by holding the button down until a pulsing dot icon appeared on the display and pressing again to stop recording.

Little bigger than a camcorder

Of course, thermal cameras have been around for a while now, but their size, complexity and cost have tended to mean that their use was only a practical option for the military, rescue services, security firms and so on. But the Guide defies expectations, being little bigger than a camcorder, simple to operate (see above – though there is also a full range of menu functions for the advanced user), easy to maintain (just recharge the batteries and keep the lenses clean), and costing significantly less than £5K. What's more, it's imported into the UK by Thomas Jacks, who won't add anything to their inventory unless they're satisfied it will maintain the reputation for quality and value they've built up over the last 20 years and who back it up with a 2-year manufacturer's warranty.

I've put the specifications down in a table at the end, but suffice to say here that there's nothing else out there at a comparable price that offers focusable ocular and objective lenses, on-board recording of both stills and video, a fast 50 Hz refresh rate, a 384 x 288 pixel sensor and a 852 × 600 pixel display. Other refinements include: an adjustable padded hand strap with a retaining stud for the lens cover; a protective rubber jacket; a sensor that extends battery life by activating the camera when you bring it up to your eye and switching it to standby mode when you take it away again; a padded carry case with accessory pockets and shoulder strap; lens cleaning cloths, a set of rechargeable batteries, complete with charger and leads; mains adaptor; external video/monitor/computer connect cable; and an instruction manual on CD ROM.


An adjustable hand strap frees your fingers to operate the buttons and incorporates a stud for securing the lens cover when open

There's also a multi-function socket at the front of the camera that allows it to be powered from a mains or vehicle supply whilst delivering video to a remote monitor. I didn't have the Guide long enough to try such a set-up, but the 1/4" thread in the underside of the camera was just crying out to be attached to a motorised pan/tilt tripod head and mounted on the roof of my shooting wagon, with the video routed out to a tablet PC on the dashboard. Repeatedly peering through the Guide's eyepiece can be a bit hard on your eyes and natural night vision unless you manually reduce the gain, but I reckoned the setup described here would let me make continual 360-degree scans in regal comfort.

The devil is in the detail

In case you're thinking that, in this age of multi-megapixel digital cameras, a resolution of 288 x 384 is unimpressive, you'd be surprised how much detail the Guide's 852 × 600 Pixel, 256-level, greyscale display allows you to make out - and how far away the camera can detect a heat source. For example, I was picking up sheep and cattle easily at 900m, and an animal spotted moving through long grass at 200m, which through a laser-illuminated Gen2 night vision add-on system could not be reliably identified, was immediately revealed by the Guide as a fox rather than a badger. I have even picked up a fox while it was moving towards me through the undergrowth on the far side of a hedgerow, when it could not be detected through the binos, giving me plenty of time to get ready for the shot before it emerged... and this was in broad daylight.

The basic drill is to scan regularly with the Guide set to wHOT. Most of the image will be various shades of dark grey, but as soon as a living creature enters the field-of-view it shows up as an unmistakable white shape. WHOT is best for target acquisition, but switching to bHOT makes it easier to interpret the image. Meanwhile, the spotter can give a target indication to the shooter, who uses his day scope or night vision device to acquire and engage the target. At night you could even mount an IR laser pointer or illuminator to the camera's tripod thread to "cue in" the shooter to whatever you've picked up. You won't be able to see the laser, but he will.

Unlike optical night-vision devices that depend on active illumination, the Guide doesn't emit any radiation: that's done by the objects in front of it giving off heat. This means that it's fully covert and undetectable by animals or humans alike.

It doesn't care whether it's night or day either, enabling woodland stalkers to detect deer approaching rides, and making it easier to find animals that have run at the shot, since it will also distinguish a recently killed animal in undergrowth. Indeed, a friend of mine suggested that ▶

The IR518 is also available with a 25mm lens but this top-of-the-line "C" model has a more powerful, 50mm lens, focusable from a few feet to infinity

The battery compartment holds the data card and four AA batteries. The rechargeable lithium cells will give about 4 hours regular use

A rubber jacket provides a secure and comfortable grip and protects the alloy body of the camera from knocks and scratches. Note the eye-sensor opening between the ocular lens and the battery cover. Also note the four buttons that control the camera's functions. P is for "polarity" (bHOT/wHOT)

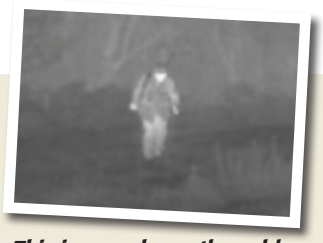
A single port in the front of the housing takes a cable that both supplies power and lets you connect to an external monitor via a choice of three formats

it might be just the thing when picking up after a busy grouse drive, since it's notoriously easy to lose track in the thick of the action, and equally hard to spot the birds in the heather with the naked eye. Having tried the test unit, he plans to get a Guide for himself, so I'll report back on how he gets on. Closer to home, I reached for the Guide myself after I had carelessly ejected a couple of spent cases into the long grass and it found them for me immediately.

Nit-picking...

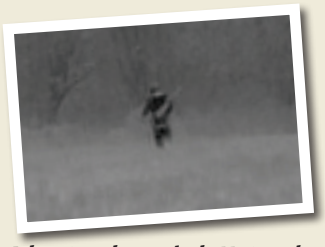
So, is there anything that makes this handy device less than magic? Well, very little, but I would prefer the in/out port to be located at one side or underneath the housing rather than at the front, where the cable needs to be tied back to avoid obstructing the lens – but this will probably be rarely used by most people. Also, the cable itself can be a bit tricky to detach. This is better that than being too loose of course, but still not ideal.

However, I'm probably nitpicking, this is a truly game-changing device that immensely enhances the hunter's ability to spot game, and the gamekeeper's ability to spot poachers, with a speed and at ranges that are hard to equal with other optical devices – day or night. The uses are endless, the quality is everything it should be, and the price has never been better! **GM**



This image shows the cold muzzle of the moderator compared to its neoprene cover, whilst the extra heat generated by tramping uphill is evident in the thighs and the face.

This close-up of a sheep shows just how precisely and sensitively the camera detects heat radiation – and also how well its wool insulates its body



A hunter shown in b-Hot and w-Hot modes. His rifle with a synthetic stock and neoprene scope and moderator covers blends with the vegetation, but even warmly-dressed he shows up clearly. In the picture on the right, note the two distinct bars on his back created by the heating elements of an Alpenheat thermal waistcoat worn under the stalking jacket.

Cows and their calves at around 500m. Selecting the wHOT polarity setting make heat sources easier to spot, and relative intensities easier to distinguish, but shapes can be harder to interpret (2x zoom is being used)

Selecting the bHOT polarity setting makes the image easier to interpret (2x zoom is being used). The IR518 produces greyscale images precisely because the mind makes sense of them significantly quicker than multi-coloured ones.

A pair of rabbits about 70m away in bHOT mode...

...and the same pair in wHOT mode.

TECHNICAL SPECIFICATION

Guide IR518C Thermal Camera

Detector Type:	Uncooled FPA microbolometer
Spectral range:	8~14μm
Pixel	384×288
Lens:	50mm/F1.1 lens
FOV:	10.97° × 8.24°
Focal length	50mm
Focus range	5m~∞
Video output	PAL
Electronic Zoom	2X
Adjust	Auto/Semi-auto brightness and contrast adjustment
Polarity	Black/White hot
Display	OLED viewfinder 852 × 600 Pixels
Displaying area	12.78 × 9mm2 256 level greyscale
Power:	Rechargeable Ni-MH battery (1.2V/2500mAh X4) and AC/DC adapter (110-240V AC → 9V DC)
Operation time:	>2 hours@25°C
Operating Temperature:	40°C+60°C
Interfaces:	Analogue video output USB port RS232
Casing colour	Black
Weight	760g (with batteries and SD card)
Dimensions:	182mm x 97mm x 68mm
Price:	SRP £4849.95 inc. VAT
Contact:	Thomas Jacks Ltd. Tel: 01789 264100 (Trade only) www.thomasjacks.co.uk

The new Guide IR518C thermal camera from Thomas Jacks literally opens up new vistas for the hunter or gamekeeper.