UCOS – Unique Counter Observation System

Application
VIP protection
Sniper detection, night vision, lasers, IR devices
Border and territory protection
Covert and anti-terrorist operations
Counter-surveillance/espionage
Detection of covert video and photo shooting

UCOS is based on unique patented technology. It is compact and lightweight and can be easily concealed. Ideal for mobile or stationary covert operations and is very effective in anti-terrorist, peacekeeping, security operations and border control applications.

UCOS detects all existing types of optics. It can detect and locate optics with ±15m of accuracy at distances of up to 1200m, it can record information and display on a monitor in real time. It can also distinguish between optics and non-optics. UCOS can detect several optical objects simultaneously.
The range gating mode enables it to focus on areas of specific interest whilst suppressing other sources of light or optical reflections. UCOS can detect several optical objects simultaneously.

General Specifications

Detection range	15m – 1200m
Field of view	4.3°
Operating temperature	-10 °C + 40 °C
Power supply	rechargeable battery, AC mains, car cigarette lighter (9-36 V)
Power consumption	13 Watt
Operating time from 1 battery	1.5hrs
TV video signal	standard CCIR (black & white)
Dimensions, L x W x H	325mmx140mmx80mm
Weight	2.1Kg

SAE Systems Ltd, 121 Paddock Street, Soham, Cambridgeshire, UK. email: info@sae-ltd.com tel: +44 7775 717231

Q: How does UCOS detect optics?
A: UCOS employs unique patented laser technology to detect optics. UCOS is a Class 3B laser product. Optics detection is achieved using a method similar to 'sonar' – a signal is emitted, then a response is received and read, then identified. The precise way this is done is proprietary information.

UCOS detection range is up to 1200 m

Q: How critical is the orientation of detectable optics? Do they have to be looking straight at you in order to be detected?
A: Optics obviously must be within the field of view of UCOS to be seen. UCOS, in turn, has to be within the field of view of the target optics to be able to detect them. This field of view will vary, depending on the type of optics used – a camera may have a wide-angle lens, whereas a sniper scope will be narrower. UCOS would normally search from within the most vulnerable point. Anytime 'enemy' optics is pointed in your direction, you will see them, most often, before they see you.

Q: Is it safe to use this laser product? Is there any health hazard to a user?
A: It is safe to use UCOS as long as common sense is used.

Q: Can you deliberate on that subject?
A: Though UCOS is a class 3B laser product, it is not hazardous to a user if used sensibly. Through tests, carried out on UCOS in one military laboratory in the US, scientists determined that it is safe to look at a working UCOS even with a naked eye from the distance of 10 (ten) meters.
Through rigorous experiments the scientists also found out that it is safe to look at UCOS through 7x40 or 7x50 binoculars from 20-25 meter distance. It is also hazard free for other optics operator to use against UCOS observation equipment with the aperture of 120mm from the distance of 65 meters. These are the US mil lab tests results:

Nominal Ocular Hazard Distances:

Unaided eye	9.1m
5cm optics	18.5m
8cm optics	29.7m
12cm optics	61.8m

Q: How does UCOS display detected optics?
A: UCOS shows bright spots of detected optics with dark contours of surrounding objects displayed.

Observer using binoculars from a car with tinted windows (left picture).

UCOS detected binoculars at 150 metres (right picture).

Q: How does UCOS display images?
A: UCOS has a standard black and white CCIR TV signal (PAL) in the viewfinder and has standard composite video output as well. The picture you see is black and white.

Q: What else can UCOS show or detect?
A: The primary function of UCOS is to detect optics. It can also show the movement and the scene ahead at day and night. At night UCOS shows camouflage uniforms as glowing white figures. It can be effectively used for covert operational surveillance.

Q: If UCOS emits some kind of laser signal when they detect optics, can other IR cameras or night vision goggles detect that signal?
A: Any IR equipment will 'see' another IR device. Therefore, using an IR camera or night vision goggle you can spot IR emission from UCOS but at a limited distance only. The best night vision goggles can produce a credible picture to a maximum distance of 400-600 m. UCOS covers twice that distance, allowing you to see without being seen.

Q: Is UCOS operation can be affected by smoke or fog and will this impair detection of optics?
A: All imaging equipment will be affected by smoke and fog to a greater or lesser extent. During a comparative trial, when a thermal imager would only work to 60-80 metres, UCOS detected a pair of binoculars at 150 m.

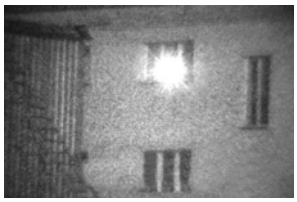
Q: How does UCOS differentiate real optics from sunglasses and spectacles?
A: Camera lenses and other optics have at least two and more lenses; sunglasses and spectacles have only one. UCOS reacts to several lenses thus distinguishing complex optics. Field trials with complex optics, such as sniper scopes, binoculars, laser range finders interspersed with broken bottle glass proved that UCOS can tell them apart. Correct use of this equipment makes differentiation simple.

Q: What about human or animal eyes? Does UCOS detect them?
A: Yes indeed. You will see two bright spots close to each other through the viewfinder. Animals' eyes tend to be on the move more than humans' and you can also see the context of the image around the eyes, which aids identification. UCOS imaging is good enough to see a person hiding behind bushes or trees. As mentioned earlier, in most cases, UCOS will show a camouflage uniform as a white glowing silhouette, further aiding identification.

Q: OK. But what if somebody stands well back inside a darkened room at night, using observation equipment. It is hard for conventional optics to penetrate inside buildings during the daytime to say nothing of night. Will UCOS detect such activities?
A: Yes it will. Double glazed, tinted windows present no significant barrier, nor do window treatments (lace curtains and such). It makes no difference whether it is night-time, or you are looking from bright sunshine into shadows. As long as somebody can see you, no matter how far inside the space he is, you will see him, even if that person is inside a completely dark attic or room. What's more, UCOS may also show you the environmental context: pieces of furniture, door exits and silhouettes of other people if they are there. Obviously you will also see optics if you are in its field of view.

A sniper in a building hiding behind blinds (left picture)

UCOS detected sniper scope at 370 metres (right picture)



Q: Is UCOS distracted by street lighting during urban operations?
A: Not entirely. Of course it is hard to operate in urban surroundings because of extra light sources. UCOS has a special operational mode called 'Pulse' to deal with this. 'Pulse' mode enables to distinguish optics from non-optics, like street lamps. UCOS sends a pulsed signal and optics, within the same field of view, will start pulse back. Non-optics, like street lamps or other conventional lamps used in flats and houses, will stay visible, but will not pulse.

Q: What about car headlamps? They are made of photocathode elements used in some optical devices. Can they 'fool' UCOS?
A: When you use UCOS, you will also see the whole car body. Headlamps will react as normal optics, but you also see them in the context of the vehicle. At some conditions you can see inside the vehicle and detect a person using optics against you as well. Should headlights be switched on in an attempt to dazzle you, UCOS will be unaffected by that and will clearly show passengers inside a vehicle and its number plates at distances of up to 30-50 m.

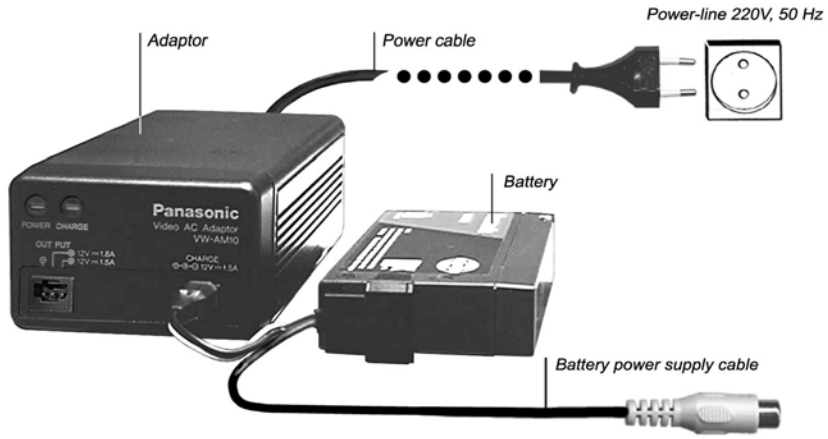
Q: What else does UCOS react to?
A: At night road signs coated with reflective paint, luminous/reflective stripes on police, ambulance and emergency workers' jackets will all show up brightly through UCOS viewfinder. But there is no confusion, because you could see as clearly as if you were using night vision equipment. During daytime it's even clearer.

Q: Does UCOS show a full-scale picture in front of you, like binoculars, or can you focus in on areas of interest?
A: It can do both, depending on the situation. You can spend more time by analysing objects of interest without interference from other light sources or by suppressing unwanted images or features. This technique is known as 'range gating' and is invaluable for detailed study of suspicious areas.

Q: What type of batteries does UCOS use?
A: It uses rechargeable batteries similar to Panasonic VW-VBM 10 Type 23 which are commercially available.
UCOS is also supplied with AC mains adapter as part of the kit.

Q: Does the AC/DC adapter work as charger as well?
A: Yes. Panasonic VW-AM10EG works as AC mains adapter and a battery charger. If this particular adapter or batteries are not available on the market, we substitute them with other commercially available equipment that meets UCOS requirements.

BATTERY CHARGING



Q: How many batteries are there in the kit?
A: The kit contains two batteries and one AC/DC adapter. At full charge each battery works 1.5 hours continuously.

Q: If UCOS operator is in a car, is it possible to use a cigarette lighter as an alternative power source?
A: In a mobile mode operator can use a car cigarette lighter as UCOS power source. That allows preserving and extending main battery life.

Q: After switching on UCOS, through the viewfinder one can see a number for a couple of seconds before it disappears. What is it?
A: At switching UCOS 'On' operator first will see a number that disappears after 1-3 seconds. This number shows how many hours Image Intensifier Tube has worked. This information is useful and essential as it helps operator to know what minimum (1000 hours) is left in it.

Q: What is UCOS warranty?
A: Standard warranty is 12 months from purchase date. The warranty is not applicable if device has been misused, mishandled or tampered with.

Q: Is UCOS shock or waterproof?
A: No. As any optics with microchips and 3rd generation image intensifier tubes, UCOS works perfectly well in normal non-extreme situations. UCOS is supplied in a Pelican/Storm case, which is air/watertight

and shockproof. UCOS is not really used in the front line battle conditions on the line of fire where you have to run, jump or crawl with it to face the enemy. This equipment is essentially designed for covert operations, where your aim is to detect observers, snipers or any optical equipment without being detected yourself.

Q: What maintenance is required?
A: UCOS is low maintenance equipment. Look after it in the same way, as you would after batteries, radios or consumer electronic equipment.

Q: Is there any other equipment capable of doing the same as UCOS?
A: Not entirely. UCOS has unique capabilities. But there are other systems:

SLD 400 – made in France. It weighs 80 kg, against 2.1kg of UCOS, and needs 3 people to operate it. It is 40% less effective and several times more expensive.

'Obzerv', previously known as 'ATV–2000i', is made in Canada. It weighs 84 kg and is nearly as expensive as SLD 400. It does not have UCOS capabilities and is a Class 4 laser system.

UCOS is small enough to be hidden under a coat. This makes it ideal for use in covert operations.

Q: Can you describe all major UCOS features that make it unique and allowing standing out from other known conventional optics?
A: By all means. Here they are:

UCOS unique features

- Works from batteries and AC mains 24/7
- Detects sniper sights with or without mesh/honeycomb filters (Not Possible with Conventional Optics - NPWCO)
- Detects optics used behind nylon curtains/veils, through multiple double glazed and/or tinted windscreens and windows (NPWCO)
- Works uninterruptedly against bright light/flashes (NPWCO)
- Detects IR cameras hidden behind IR filter (NPWCO)
- Detects laser audio-monitoring equipment (NPWCO)
- UCOS detects optics:
    - From a building into a car and vice versa
    - From a building into another building
    - From outside into a building and a car and vice versa (NPWCO)
- UCOS has a video output which enables the use of a separate monitor/video recording (NPWCO)
- UCOS shows distance to the target with ± 15 m accuracy at the distances of 45m to over 1200m day or night.

Lightweight and portable, UCOS is used for Heads of State/VIP protection, anti-terrorist operations, counter-surveillance/espionage, protection of state buildings, sensitive areas, military/naval/air bases, HQs, petroleum/chemical facilities, nuclear power plants, airfields and borders. Ideal for covert operations.

Please note: UCOS specifications and delivery kit are subject to change without notice.

End User Certificate is required.