

# PNP-M night vision monocular

Over the many years of our experience in the design, development and manufacture of night vision monoculars we have worked closely with British, other NATO and non-NATO Armed Forces, Special Forces and Police Special Forces in order to produce the products and features required for today's and tomorrow's threat situations.

Now available with tubes including FC (export licence exempt\*\*) as well as standard licence HD High Definition, XD-4 and XR5. XD-4 and XR5 models can also be supplied with Auto Gating and FC, HD, XD-4 and XR5 are available with green or black and white tubes.

\*\*Does not require UK Export Licence but not available to countries on UN/EU/UK Embargo/Sanctions Lists.

The PNP-M monocular/binocular system is the result of such close co-operations and is a state of the art world beating product which is complemented by a wide range of specially developed accessories enabling the user to perform a huge variety of missions based on just one sensor platform --- PNP-M.

Designed, developed and manufactured in Britain by Pyser Optics to ISO 9001 quality levels the PNP-M is the smallest and lightest monocular in its class. It uses an advanced glass reinforced polymer body with a centre of mass as far to the rear as possible to minimise neck strain during prolonged operations, a single commercial "AA" battery for light weight which gives at least 40 hours operation, high quality multi element all-glass coated optics for maximum image quality and the entire monocular body, electronics and optics are filled with dry nitrogen for ultimate reliability in all missions including down to 20 metres immersion.

ANVS type image intensifiers are fitted including Photonis Autogated and non Autogated types in a range of performance levels up to typical Figures of Merit of 2016 for the most demanding missions and Gen 3 tubes are also available if preferred.

Useable in hand held, helmet mounted, head mounted, monocular or binocular form using the quick fit binocular bridge as well as in

**The world's smallest, lightest and most versatile night vision monocular. pyser optics ltd is one of the world's leading manufacturers of night vision products.**

quick mount/quick release throw lever Picatinny weapon mounted mode behind day sights, the PNP-M does everything. And this includes add-on magnifying lenses for monocular and binocular use, sacrificial and anti-mist filters, adaptors for attaching instantly to camcorders, SLR cameras, CCTV cameras and even spotting scopes for long distance high magnification surveillance. You can even power the PNP- M in both monocular and binocular form directly from a vehicle cigarette lighter socket or any 12v supply.

As well as the in-built IR illuminator there is an in-built daylight bright light photo sensor which prevents accidental operation of the monocular during daylight except when it is disabled for daylight training. This protection, of course, does not activate in darkness in the case of bright flashes, vehicle headlights even at very short distances, nor in street lighting or inside illuminated rooms. For security and convenience the PNP-M monocular on its helmet or head mount auto switches off when flipped up and auto switches on with no switch resetting needed when flipped back down again. Shuttered rubber eyecups are also available which simply screw on without needing to remove the normal soft fold-back eyecup. For added security a red LED inside the 27mm eye relief eyepiece illuminates when the IR diode is switched on and a yellow LED in the eyepiece warns against a low battery charge situation.



# technical specifications

## physical

- dimensions:** 42 mm wide x 67 mm high x 107 mm long (with folded eyecup)
- weight:** 263 gms without battery  
278 gms with lithium "AA" battery  
288 gms with commercial "AA" battery Weight includes eyecup and lens cap
- tripod mount:** Standard 1/4" UNC thread
- construction:** moulded glass filled polymer
- eyeguard:** contoured soft fold back rubber eyecup

## environmental

- waterproof:** immersion proof 20m 1hr, nitrogen filled
- temperature:** operation -45 °C to +55 °C  
storage -51 °C to +65 °C

## optical

- magnification:** 1x
- field of view:** 40 degrees
- focus range (m):** 0.25-infinity
- objective focal length (mm):** 25mm
- objective F number:** F1.19
- dioptr adjustment:** minimum +3 to - 6
- eyepiece lens:** 25mm glass aperture
- eye relief:** 27mm

## electrical

- power source:** single 1.5V "AA" battery or 1.5V "AA" format lithium type L91 (NSN 6135 01 333 6101) or 1.2V "AA" size rechargeable
- battery life:** in excess of 40 - 100 hours dependent on tube & battery type
- IR on indicator:** red LED in eyepiece

autogated	part no.	green tube	part no.
XD-4A*	560-007XD4A	FC	560-007FC2
XR5A*	560-007XR5A	HD*	560-007HD
white tube	part no.	XD-4*	560-007XD4
FCW	560-007FC2W	GEN 3*	560-007G3
XD-4W*	560-007XD4W	XR5*	560-007XR5

flexible  
versatile  
lightweight  
mission proven  
head or helmet mountable  
now available with tubes including FC  
(No Licence Required)

## part no.

## model type

560-007FC2	PNP-MFC lightweight, compact night vision monocular with 1x mag lens, NSN 5855-99-855-1401
560-007HD*	PNP-M HD lightweight, compact night vision monocular with 1x mag lens, NSN 5855-99-855-1401
560-007XD4*	PNP-M XD-4 lightweight, compact night vision monocular with 1x mag lens, NSN 5855-99-855-1401
560-007xD4A*	PNP-M XD-4A lightweight, compact night vision monocular with 1x mag lens, NSN 5855-99-855-1401
560-007XR5*	PNP-M XRA lightweight, compact night vision monocular with 1x mag lens, NSN 5855-99-855-1401
560-007XR5A*	PNP-M XR5A (autogated) lightweight, compact night vision monocular with 1x mag lens, NSN 5855-99-855-1401

**FC, HD, XD-4, XR5 and XR5A products are available with Green or Black & White tubes. For Black & White add W after part number, eg 560-007 XD4AW has Black & White tube.**

## tube comparison chart

typical values	fc	hd	xd-4	xr5
sensitivity (UA/Im)	500	550	700	800
resolution (lp/mm)	45	51	64	72
signal to noise ratio	19	19	23	28
figure of merit typical	855	969	1472	2016

## accessories for PNP-M

103-751M	3x magnification lens, NSN 6650 - 99 - 391 - 2185
103-753	5x magnification lens
550-003F	relay lens for use with CCTV camera, NSN 5836-99-366-5780
550-007	shuttered eyeguard, NSN 6650-99-789-6513
550-006AM	head harness for left and right eye use and accepts binocular bridge
550-006HM	helmet mount, universal fitting for ballistic helmets(left nd right eye use) and accepts binocular bridge
589-998W*	interface for fitting PNP-M to Picatinny rail
560-008	bridge Kit, converts two PNP-Ms into binoculars, interpupillary distance 61-97mm
560-009	sacrificial filter for objective lens
560-010	anti mist filer for eyepiece
589-840-400A	nikon photographic module
589-840-401A	canon photographic module
589-840-300	camcorder/camera 30mm adaptor
589-840-305	camcorder/camera 30.5mm adaptor
589-840-035	camcorder/camera 35mm adaptor
589-840-040	camcorder/camera 37mm adaptor
589-840-042	camcorder/camera 49mm adaptor
589-840-041	camcorder/camera 52mm adaptor
589-840-058A	camcorder/camera 58mm adaptor
589-840-072	camcorder/camera 72mm adaptor
560-015	dioptr locking clamp (garuntees dioptr position when using SLR/camcorder)
589-855	lanyard
583-340	150mw illuminator, IR LED, wide, mid and narrow FOV, 805nm, attaches directly to PNP-MC
560-011	12v car cigarette plug/lead, 2 outputs (needs 560-012) powers PNP-M from vehicle
560-012	12/ 1.5v plug to replace 1.5v battery and cap
560-013	battery charger, including 4 rechargeable 'AA' batteries
FBS-034	small hermetic case, holds PNP-M in it's pouch
FBS-043	medium hermetic case with custom made foam cut outs
FBS-037	large hermetic case with custom made foam cut outs



Monocular helmet and head mounts both allow right eye and left eye use adjustable in 5 axes : pitch, yaw, vertical, lateral and fore/aft with flip up/auto off/ and flip down/auto on and feature lens cap secure stowage point. Binocular form using 2 PNP-Ms with quick attach/detach bridge kit needs no collimation and allows 60 to 97mm interpupillary adjustment with both 1x, 3x and 5x lenses. Binoculars on standard PNP-M helmet/head mount upper modules are adjustable in in 5 axes : pitch, yaw, vertical, lateral and fore/aft.



H & K UMP with PNP-M and EOTECH

H & K 416 with PNP-M and EOTECH

H & K 417 with PNP-M and EOTECH

H & K G36C with PNP-M and EOTECH



H & K G36K with PNP-M and EOTECH

H & K G36E with PNP-M and EOTECH

F2000 with PNP-M and Aimpoint M4

FN Minimi 7.62 with PNP-M and Trijicon

PNP-M uses the day sight aiming mark of any night vision compatible day sight with no need to adjust the zero of the day sight



Colt M4/C8 with PNP-M and EOTECH

A quick attach/release over-centre throw lever attaches mount to rail. PNP-M can be adjusted by user for optimum eye position without changing mount position on rail.



**pyser**  
optics

defence

# PNP-MC

PNP-MC is a powerful, multi-purpose pocket-sized monocular night scope. The pocket scope is designed to be used either as a stand-alone night vision device or in combination with a wide variety of standard video, still-photo, CCTV equipment and spotting scopes.

Now available with tubes including FC (export licence exempt\*\*) as well as standard licence HD High Definition, XD-4 and XR5. XD-4 and XR5 models can also be supplied with Auto Gating and FC, HD, XD-4 and XR5 are available with green or black and white tubes.

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It is ideally suited for covert night-time observation and intelligence-gathering purposes either hand held or using standard photographic media, as well as an effective aid to night-time field missions. PNP-MC employs a choice of image intensifier tubes characterized by high resolution and a clear, bright image including autogated types. It is equipped with its own IR LED - type illuminator, which provides additional, close-range covert illumination, when ambient light is insufficient - especially effective inside buildings etc. A red LED in the eyepiece illuminates when the IR illuminator is on as does a yellow LED when a low battery state occurs.

**PNP-MC the worlds smallest,  
lightest most versatile c-mount  
night vision monocular  
system**

A unique feature is the standard C-mount for the objective lens, enabling standard CCTV camera lenses to be used. Special purpose adaptors enable the PNP to be mounted onto the filter thread of the objective lens of a wide variety of 35mm DSLR/SLR and video cameras (including CCTV cameras). Using the optional optical modules it is possible to mount PNP-MC (and PNP-M) directly onto Canon/Nikon and Pentax DSLR /SLR camera bodies without using the original camera lens or filter thread adaptor. In addition a further range of adaptors allow SLR camera lenses to be used on the PNP-MC in place of CCTV lenses. Thus, standard photographic equipment can be quickly turned into powerful, effective night-time devices, dramatically enhancing your intelligence gathering and observation capability.



PNP-MC with camcorder



PNP-MC small and unobtrusive



PNP-MC long range zoom 6x



PNP-M standard config with 1x lens



## physical

- dimensions:** 42 mm wide x 67 mm high x 114 mm long (with folded eyecup)
- weight:** 293 gms without battery  
308 gms with lithium "AA" battery  
318 gms with commercial "AA" battery Weight includes eyecup and lens cap
- tripod mount:** Standard 1/4" UNC thread
- construction:** moulded glass filled polymer
- eyeguard:** contoured soft fold back rubber eyecup

## environmental

- waterproof:** immersion proof 2m 1hr (only with waterproof lenses, nitrogen filled)
- temperature:** operation -45 °C to +55 °C  
storage -51 °C to +65 °C

## optical

- magnification:** 1x
- field of view:** 40 degrees
- focus range (m):** 0.25-infinity
- objective focal length (mm):** 25mm
- objective F number:** F1.4
- dioptr adjustment:** minimum +3 to - 6
- eyepiece lens:** 25mm glass aperture
- eye relief:** 27mm

## electrical

- power source:** single 1.5V "AA" battery or 1.5V "AA" format lithium type L91 (NSN 6135 01 333 6101) or 1.2V "AA" size rechargeable
- battery life:** in excess of 40 - 100 hours dependent on tube & battery type
- IR on indicator:** red LED in eyepiece

## tube comparison chart

typical values	fc	hd	xd-4	xr5
sensitivity (UA/lm)	500	550	700	800
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PNP-MC 2x lens



PNP-MC 3x lens



PNP-MC 6x zoom lens



PNP-MC / spotting scope



PNP-MC attached to DSLR lens



Picture using DSLR, camera lens zoomed to fill frame



PNP-MC using optical module attached directly to camera body



Picture using optical module and DSLR



PNP-MC using DSLR camera lens



PNP-MC using telephoto DSLR camera lens



## ordering information - part numbers

### part no.

### PNP-MC night vision monocular

560-017FC2	PNP-MCFC lightweight, c-mount night vision monocular with 1x mag lens
560-017HD*	PNP-MC HD lightweight, c-mount night vision monocular with 1x mag lens
560-017XD4*	PNP-MC XD-4 lightweight, c-mount night vision monocular with 1x mag lens
560-017XD4A*	PNP-MC XD-4A (autogated) lightweight, c-mount night vision monocular with 1x mag lens
560-017XR5*	PNP-MC XR5 lightweight, c-mount night vision monocular with 1x mag lens
560-017XR5A*	PNP-MC XR5A (autogated) lightweight, c-mount night vision monocular with 1x mag lens

**FC, HD, XD-4, XD-4A, XR5 and XR5A products are available with Green or Black and White tubes. For Black and White add W after part number eg: 560-007 XD4AW has Black & White tube.**

### accessories for PNP-MC

103-252	25mm lens 1x mag, c-mount with iris & focus (supplied in standard specification PNP-MC)
150-005	50mm lens 2x mag, c-mount with iris & focus
103-751	75mm lens 3x mag C-mount with iris & focus
150-011	Zoom Lens 16mm - 100mm 6x zoom ratio 0.64 to 4x mag, C-mount with iris & focus
103-665	Waterproof 25mm F1.4 lens 1x mag, no iris
103-666	Waterproof 50mm F1.4 lens 2x mag, no iris
550-003F	Relay Lens for use with CCTV camera, NSN 5836-99-366-5780
	Optical Modules to connect PNP-MC directly to a photographic camera body
589-840-400A	Nikon photographic module
589-840-401A	Canon photographic module
589-840-405	Canon EOS mount, use any Canon EOS lens on PNP-MC in place of CCTV lens
589-840-406	Pentax K mount, use any Pentax K lens on PNP-MC in place of CCTV lens
589-840-407	Nikon mount, use any Nikon lens on PNP-MC in place of CCTV lens
589-840-408	Minolta MD mount, use any Minolta MD lens on PNP-MC in place of CCTV lens
589-840-409	Olympus OM mount, use any Olympus OM lens on PNP-MC in place of CCTV lens
550-007	Shuttered Eyeguard, NSN 6650-99-789-6513
560-008	Bridge Kit, converts two PNP-MCs into binoculars, interpupillary distance 61-97mm, NSN 5340-99-934-5341
589-840-300	Camcorder/camera 30mm adaptor
589-840-305	Camcorder/camera 30.5mm adaptor, NSN 6650-99-412-0360
589-840-035	Camcorder/camera 35mm adaptor, NSN 6650-99-000-5183
589-840-040	Camcorder/camera 37mm adaptor
589-840-042	Camcorder/camera 49mm adaptor
589-840-041	Camcorder/camera 52mm adaptor, NSN 6650-99-329-3201
589-840-058A	Camcorder/camera 58mm adaptor, NSN 6650-99-180-7670
589-840-072	Camcorder/camera 72mm adaptor, NSN 6650-99-297-7873 Others available on request
560-015	Dioptre Locking Clamp (guarantees dioptre position when using SLR/camcorder)
583-340150	Battery charger, including 4 rechargeable 'AA' batteries
583-340	150mw illuminator, IR LED, wide, mid and narrow FOV, 805nm, attaches directly to PNP-MC, PNP-M and compatible with NIM, night vision device. Effective distance up to 280 metres with gen 2 & gen 3 devices, NSN 5855-99-341-1382
560-011	12v car cigarette plug/lead, 2 outputs (needs 560-012), powers PNP-M from vehicle, NSN 6150-99-343-1630
560-012	12v/1.5v plug to replace 1.5v battery and cap (two needed for PNP-M in binocular form)
560-013	Battery charger, including 4 rechargeable 'AA' batteries, NSN 6130-99-899-9358
FBS-034	Small Hermetic Case, holds PNP-MC in its pouch
FBS-043	Medium Hermetic Case with custom made foam cut-outs
FBS-037	Large Hermetic Case with custom made foam cut-outs, NSN 6650-99-778-3635
PNP/821Z	Adaptor to fit PNP-MC to Kowa 800 series spotting scope
589-855	Lanyard

**Visit our website on [www.pyseroptics.com](http://www.pyseroptics.com) for further information on the complete range of products available.**



# PNP-MTHD/ PNP-MTHDE & PNP-MTSD/ PNP-MTSDE

Pyser-SGI Limited is one of the world's leading manufacturers of Night Vision products.

Over the many years of our experience in the design, development and manufacture of night vision monoculars we have worked closely with British, other NATO and non-NATO Armed Forces, Special Forces and Police Special Forces in order to produce the products and features required for today's and tomorrow's threat situations.

The PNP-MTHD/MTSD monocular range is the result of such close co-operations and is a state of the art world beating product which is complemented by a wide range of specially developed accessories enabling the user to perform a huge variety of missions based on just one sensor platform --- PNP-MTHD/MTSD.

Designed, developed and manufactured in Britain by Pyser-SGI to ISO 9001 quality levels the PNP-MTHD/MTSD is the world's smallest and lightest thermal imaging monocular. It uses an advanced glass reinforced polymer main body with a centre of mass as far to the rear as possible to minimise neck strain during prolonged operations. Two CR123 batteries, for light weight, give up to 5 hours' continuous operation. High quality IR optics are used for maximum image quality and the entire monocular body, electronics and optics are filled with dry nitrogen for ultimate reliability in all missions.

The unique Near Eye OLED display always produces a large crisp image right in front of the eye and overcomes the "tunnel vision" problem common in inferior designs. This gives an image having an apparent angle of view of 35° horizontally, which is similar to that of the human eye and therefore considerably aids speed and clarity of target acquisition. When head/helmet worn in the 17mm lens option model the image as seen by the user is 1:1 ratio to actual size, thereby enhancing judgements of distance and safety of manoeuvre. The 25mm and 35mm give Search & Rescue

**The world's smallest,  
lightest and most versatile  
thermal imaging zoom  
monoculars with dvr option**

capability with a 1.5 & 2x optical magnification respectively. Usable hand held, helmet mounted, head mounted or tripod mounted, the PNP-MTHD/MTSD does everything. This includes optional anti-mist filters and adaptors for attaching instantly to camcorders, DSLR cameras and CCTV cameras for total darkness surveillance. You can even power the PNP-MTHD/MTSD directly from a vehicle cigarette lighter socket (via optional Pyser adaptor) supply and take the live PAL video directly to any compatible recording device or transmitter at the same time as viewing with the naked eye.

For security and convenience the PNP-MTHD/MTSD monocular on its helmet or head mount auto switches off when flipped up and auto switches on with no switch resetting needed when flipped back down again. Shuttered rubber eyecups are also available which simply screw on without needing to remove the normal soft fold-back eyecup.

All accessories can be used with no tools required for attachment, adjustment or operation.

**PNP-MTHD/MTSD**  
**The world's smallest, lightest most versatile Thermal Imaging monocular – and the best.**



## thermal image

- detector:** amorphous silicon microbolometer  
107 mm long (with folded eyecup)
- PNP-MTHD** 640 x 480 pixel array high definition  
**PNP-MTSD** 384 x 288 pixel array standard definition
- 17 micron pixel pitch  
25Hz or 9Hz (optional MTHD only)  
refresh rate
- display:** advanced OLED 852 x 600 pixels SVGA  
monochrome  
35° apparent image horizontal angle of view

## optics

- waterproof:** high quality IR objective lenses  
fully coated eyepiece optics  
25mm glass aperture  
27mm eye relief  
diopetre adjustment -6 to +3

## environmental

- waterproof:** water resistant to IP68 (150mm 15min)
- temperature:** operation -20°C to +55°C  
storage -40°C to +65°C

## controls

- on/off  
polarity white hot / black hot  
electronic zoom 1x, 2x and 4x ratio  
screen brightness  
automatic flip up / switch off, flip down /  
mount with no re-set needed
- power:** 2 x CR123 lithium batteries (give up to 5  
hours' continuous operation)  
E versions have 4 x CR123
- input/output:** single multipin socket for: PAL video out for  
recording or transmission.  
external power via battery power module

## physical

model	length	height	width	weight w/out batteries*
17mm	96mm	74mm	53mm	295g
25mm	112mm	74mm	53mm	325g
35mm	123mm	77mm	55mm	340g

**Please note: E variant (DVR) add 19mm to height and 155g to weight**

- tripod mount** standard 1/4" UNC thread
- construction** moulded glass filled polymer main body

## PNP-MTHD/PNP-MTHDE thermal night vision monocular

### part no.

561-217\*  
561-225\*  
561-235\*  
561-317  
561-325  
561-335

### model type PNP-MTHD

PNP-MTHD with 17mm lens, 36° horizontal fov 1x mag 25Hz, including pouch  
PNP-MTHD with 25mm lens, 25° horizontal fov 1.5x mag 25Hz, including pouch  
PNP-MTHD with 35mm lens, 18° horizontal fov 2x mag 25Hz, including pouch  
PNP-MTHD with 17mm lens, 36° horizontal fov 1x mag 9Hz, including pouch  
PNP-MTHD with 25mm lens, 25° horizontal fov 1.5x mag 9Hz, including pouch  
PNP-MTHD with 35mm lens, 18° horizontal fov 2x mag 9Hz, including pouch

### part no.

561-217E\*  
561-225E\*  
561-235E\*  
561-317E  
561-325E  
561-335E

### model type PNP-MTHDE

PNP-MTHDE with 17mm lens, 36° horizontal fov 1x mag 25Hz, incorporates digital video recorder  
PNP-MTHDE with 25mm lens, 25° horizontal fov 1.5x mag 25Hz, incorporates digital video recorder  
PNP-MTHDE with 35mm lens, 18° horizontal fov 2x mag 25Hz, incorporates digital video recorder  
PNP-MTHDE with 17mm lens, 36° horizontal fov 1x mag 9Hz, incorporates digital video recorder  
PNP-MTHDE with 25mm lens, 25° horizontal fov 1.5x mag 9Hz, incorporates digital video recorder  
PNP-MTHDE with 35mm lens, 18° horizontal fov 2x mag 9Hz, incorporates digital video recorder

## PNP-MTSD/PNP-MTSDE thermal night vision monocular

### part no.

517-217\*  
517-225\*  
517-235\*

### model type PNP-MTSD

PNP-MTSD with 17mm lens, 22° horizontal fov 1x mag 25Hz, including pouch  
PNP-MTSD with 25mm lens, 15° horizontal fov 1.5x mag 25Hz, including pouch  
PNP-MTSD with 35mm lens, 11° horizontal fov 2x mag 25Hz, including pouch

### part no.

517-217E\*  
517-225E\*  
517-235E\*

### model type PNP-MTSDE

PNP-MTSDE with 17mm lens, 22° horizontal fov 1x mag 25Hz, incorporates digital video recorder  
PNP-MTSDE with 25mm lens, 15° horizontal fov 1.5x mag 25Hz, incorporates digital video recorder  
PNP-MTSDE with 35mm lens, 11° horizontal fov 2x mag 25Hz, incorporates digital video recorder

all PNP-MTHD/PNP-MTHDE & PNP-MTSD/PNP-MTSDE - models are delivered in protective pouches, and full pictorial operating instructions.

## accessories for PNP-MTHD/PNP-MTHDE & PNP-MTSD/PNP-MTSDE

550-003F

relay lens for use with CCTV camera, NSN 5836-99-366-5780

550-007

shuttered eyeguard, NSN 6650-99-789-6513

550-006AM

head harness for left and right eye use and accepts binocular bridge, NSN 6650-99-407-0566

550-006HM

helmet mount, universal fitting for ballistic helmets for left and right eye use and accepts binocular bridge, NSN 534

560-010

anti-mist filter for eyepiece, NSN 6650-99-731-1262

589-840-300

camcorder/camera 30mm adaptor

589-840-305

camcorder/camera 30.5mm adaptor, NSN 6650-99-412-0360

589-840-040

camcorder/camera 37mm adaptor, NSN 6650-99-595-0780

589-840-042

camcorder/camera 49mm adaptor, NSN 6650-99-323-6896

589-840-041

camcorder/camera 52mm adaptor, NSN 6650-99-329-3201

589-840-058A

camcorder/camera 58mm adaptor, NSN 6650-99-180-7670

589-840-072

camcorder/camera 72mm adaptor, NSN 6650-99-297-7873 others available on request

560-015

dioptr locking clamp (guarantees dioptr position when using DSLR/camcorder)

[Optical Modules to connect all models directly to a photographic camera body](#)

589-840-400A

nikon photographic module

589-840-401A

canon photographic module

561-409-01

external battery power module

561-409S

12volts dc power supply cable and vehicle connector includes two battery modules

561-409T

12Volts dc power supply cable and vehicle connector includes one battery module (PNP-MTHD/SD)

561-401

video out cable to phono plug

FBS-034

small hermetic case, holds all models in its pouch

## focal lengths actual FOV

HD 640x480	17mm	25mm	35mm
detection (m)	500	735	1029
recognition (m)	167	245	343
identification (m)	83	123	172
FOV degrees h	37	25	18
FOV degrees v	28	19	13
FOV mills h	652	442	320
FOV mills v	489	332	238
magnification	1	1.5	2

SD 384x288	17mm	25mm	35mm
detection (m)	500	735	1029
recognition (m)	167	245	343
identification (m)	83	123	172
FOV degrees h	22	15	11
FOV degrees v	17	11	8
FOV mills h	391	267	190
FOV mills v	293	199	142
magnification	1	1.5	2

**PNP-MTHDE/  
PNP-MTSDE high  
definition thermal  
imaging monocular  
with DVR**



PNP-MTHDE/PNP-MTSDE has an identical specification to PNP-MTHD/PNP-MTSD but is fitted with a 32GB digital video recorder (DVR). The DVR is powered up only when required to conserve power. Recording at 25fps with capacity for up to 120 hours, PNP-MTHDE/PNP-MTSDE offers an added level of post activity analysis, vital in both operational and training scenarios. The DVR is very simple to operate and easy to download via USB connector.

## digital video recorder

encoding H.264  
input channel 1 Ch.  
input impedance 75 ohm unbalanced  
maximum input 1.0Vp-p @ 75 Ohm unbalanced  
output channel 1 Ch.  
output impedance 75 ohm unbalanced  
composite PAL  
maximum output 1.0Vp-p @ 75 Ohm unbalanced  
memory 32Gb

## controls

The DVR is controlled via four buttons located on top of the unit

DVR on/off, record, play and stop

## recording

### video recording resolution

format	PAL
4CIF	704 x 576
2CIF	704 x 288
CIF	352 x 288

format	high	normal	low
4CIF	1800kbps	1000kbps	500kbps
2CIF	1200kbps	800kbps	400kbps
CIF	1000kbps	600kbps	300kbps

### video recording frame rate

PAL 25,12,8,6,3,1 fps

### storage file system

FAT32. Recording time dependent on resolution, 40 hours to 120 hours.

# PNG-M

The Pyser-SGI PNG-M night vision goggle system is a compact ultra lightweight, high resolution twin eyepiece device incorporating superior optics. The unit is supplied with a head mount complete with auto off / auto on flip up capability and is easy to use, requiring only one standard "AA" size battery. The PNG-M series of goggles meets the night vision needs of military and law enforcement forces around the globe, utilises the very latest in tube technology and is available with a wide range of accessories. Now available with tubes including FC (export licence exempt\*\*) as well as standard licence HD High Definition, XD-4, XR5 and INTENS XD-4, XR5 and INTENS models can also be supplied with Auto Gating and FC, HD, XD-4 and XR5 are available with green or black and white tubes.

\*\*Does not require UK Export Licence but not available to countries on UN/EU/UK Embargo/Sanctions Lists.

- multi element all-glass coated optics
- waterproof 2m for 1 hour
- field of view 40°
- focus range 0.25m - ∞
- magnification 1x
- optional 3x and 5x magnification
- compact and reliable
- flip-up/auto switch off
- flip-down/auto switch on, with no reset needed
- built in powerful IR illuminator
- eye relief 27mm
- dioptre +6 to -11
- interpupillary adjustment
- battery life 40 hours (without IR)
- power supply 1 x "AA" size
- size 137mm x 51mm x 142mm
- weight 425g including battery
- yellow LED low battery indicator in eyepiece
- red LED IR-On indicator in eyepiece
- bright light and daylight protection

**PNG-M The world's smallest and lightest night vision goggle**



# technical specifications

<b>magnification:</b>	1x	<b>operating temperature:</b>	-45°C to +55°C
<b>field of view:</b>	40 degrees	<b>storage temperature:</b>	-51°C to +65 C
<b>focus range (m):</b>	0.25-infinity	<b>power supply:</b>	1 x "AA" Battery or "AA" size L91 Lithium or "AA" 1.2V rechargeable
<b>objective focal length (mm):</b>	25mm	<b>battery life:</b>	In excess of 40 hours (commercial "AA")
<b>objective F number:</b>	F1.19	<b>dimensions, mm:</b>	L137mm x H51mm x W142mm
<b>dioptr correction:</b>	+6 to - 11	<b>weight:</b>	425g including battery and lens cap
<b>eyepiece lens:</b>	16mm glass aperture	<b>waterproof:</b>	Immersion proof 2m 1hr, nitrogen filled
<b>eye relief:</b>	27mm	<b>construction:</b>	Moulded glass filled polymer
<b>interpupillary adjustment:</b>	55mm - 75mm		

**PNG-M is supplied with the following:** PNG unit, head harness - flip up, manual, soft carrying case, AA battery, lanyard, instructions

## part no.

## PNG-M night vision goggles

589-100FC2	PNG-MFC lightweight compact night vision goggle with 1 x magnification NSN 5855-99-671-5304
589-100HD*	PNG-M HD lightweight compact night vision goggle with 1 x magnification NSN 5855-99-671-5304
589-100XD4*	PNG-M XD-4 lightweight compact night vision goggle with 1 x magnification NSN 5855-99-671-5304
589-100XD4A*	PNG-M XD-4A (autogated tube) lightweight compact night vision goggle with 1 x magnification
589-100XR5*	PNG-M XR5 lightweight compact night vision goggle with 1 x magnification NSN 5855-99-671-5304
589-100XR5A*	PNG-M XR5A (autogated tube) lightweight compact night vision goggle with 1 x magnification
589-100INTA	PNG-M INTENS (autogated tube) lightweight compact night vision goggle with 1 x magnification

FC, HD, XD-4, XD-4A, XR5 XR5A and ITENS products are available with Green or Black and White tubes. For Black and White add W after part number eg: 589-100XD4AW has Black & White tube.

## accessories for PNG-M

550-006C	Replacement head harness for PNG-M Night Vision Goggle, NSN 6650-99-736-7843
550-006D	Helmet mount for PNG-M Night Vision Goggle, NSN 5340-99-260-8769
103-751M	3x magnification lens, NSN 6650-99-391-2185
103-753	5x magnification lens
550-003F	Relay lens for use with CCTV camera, NSN 5836-99-366-5780
550-007	Shuttered eyeguard, NSN 6650-99-789-6513
560-009	Sacrificial filter for objective lens, NSN 6650-99-997-5759
560-010	Anti-mist filter for eyepiece, NSN 6650-99-731-1262
589-840-4xx	Optical Modules to connect PNG-M directly to camera body
589-840-400A	Nikon photographic module
589-840-401A	Canon photographic module
589-840-305	Camcorder/camera 30.5mm adaptor, NSN 6650-99-412-0360589-840-305
589-840-035	Camcorder/camera 35mm adaptor, NSN 6650-99-000-5183
589-840-040	Camcorder/camera 37mm adaptor, NSN 6650-99-595-0780
589-840-042	Camcorder/camera 49mm adaptor, NSN 6650-99-323-6896
589-840-041	Camcorder/camera 52mm adaptor, NSN 6650-99-329-3201
589-840-058	Camcorder/camera 58mm adaptor, NSN 6650-99-180-7670
589-840-072	Camcorder/camera 72mm adaptor, NSN 6650-99-297-7873 Others available on request
583-340	150mw illuminator, IR LED, wide, mid and narrow FOV, 805nm, compatible with PNG-M, NIM, PROMS and any night
583-340-002	IR illuminator interface adaptor, attaches illuminator to PNG-M
560-011	12v car cigarette plug/lead, 2 outputs (needs 560-012), powers PNP-M from vehicle, NSN 6150-99-343-1630
560-012	12v/1.5v plug to replace 1.5v battery and cap (two needed for PNP-M in binocular form)
560-013	Battery charger including 4 rechargeable 'AA' batteries, NSN 6130-99-899-9358
FBS-034	Small Hermetic Case, holds PNG-M in its pouch
FBS-043	Medium Hermetic Case with custom made foam cut-outs
FBS-037	Large Hermetic Case with custom made foam cut-outs, NSN 6650-99-778-3635

### tube comparison chart

typical values	fc	xd-4	xr5	itens
sensitivity (UA/Im)	500	700	800	800
resolution (lp/mm)	45	64	72	64*
signal to noise ratio	19	23	28	28*
figure of merit typical	855	1472	2016	1800*

\*Guaranteed minimum values



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# PNP- MUNS F

PNP-MUNS F Universal Night Sight is a state-of-the-art in-line, image intensified, rugged, lightweight and compact weapon sight designed specifically to be used in front of dayscopes from 1x to 8x magnification or higher, with front lenses of up to 60mm diameter.

The advanced in-line optical design, (with no prisms), does not affect the zero of the weapon, nor the user's normal firing position and does not create any parallax errors, offering greater repeatability.

PNP-MUNS F can be attached and released instantly from the weapon's Picatinny rail by means of its over-centre throw lever, with no additional tools needed to attach, release or operate it. PNP-MUNS F can also be used as a stand-alone hand held 1x night vision surveillance tool.

PNP-MUNS F can be supplied with a wide choice of image intensifier tubes of up to FOM 2200, including Autogated types, for the most demanding missions. It uses only one "AA" battery to operate it from 40 to 100 hours depending on the battery type and model of intensifier tube.

PNP-MUNS F is waterproof to 2 metres for 1 hr, with a lens cap on the front for protection against dust, dirt and water.

The product also has a fold-back moulded rubber rear hood to prevent any reflected glow on the front lens of dayscopes of up to 60mm diameter. The hood also prevents ambient light interfering with the image.

PNP-MUNS F is designed and made in the UK by Pyser-SGI Limited to ISO 9001 quality standards and is deliverable world-wide in any image intensifier specification required.

**universal night sight. Clip on,  
ultra compact and lightweight  
with fixed focus**

Now available with tubes including FC (export licence exempt\*\*) as well as standard licence versions HD High Definition, XD-4, XR5 and INTENS.

The XD-4, XR5, and INTENS models can also be supplied with Autogating. The FC, HD, XD-4 and XR5 are available with green or black and white tubes.

\*\*Does not require UK Export Licence but not available to countries on UN/EU/UK Embargo/Sanctions Lists.



# technical specifications

## physical

- dimensions:** length 186 mm  
height 75 mm  
width 85 mm  
optical centreline above picatinny rail  
top surface 35mm\*  
(higher on request)
- weight:** 645 gms without battery  
675 gms with lithium "AA" battery
- rail:** needs 120mm picatinny rail  
length in front of dayscope
- construction:** aluminium alloy and glass polymer
- rear hood:** moulded rubber, fold back  
  
\*optical overlap up to +/- 30m

## optical

- magnification:** 1x
- field of view:** 13 degrees
- focus:** 30m to infinity
- boresight:** permanent, requires  
no re-zoning of dayscope & repeatable  
accuracy to within .4mil
- retention:**
- dayscope compatibility:** all front lens diameters up to 60 mm
- useful practical distance:** up to 600 metres, depending  
on ambient conditions

## environmental

- waterproof:** immersion proof 2m 1hr,  
nitrogen filled
- temperature:** operation -45°C to +55°C  
storage -51°C to +65°C

## electrical

- power source:** single 1.5v "AA" battery or 1.5V "AA"  
'lithium' type (NSN 6135 01 333 6101) or  
1.2V"AA" size rechargeable
- battery life:** 40 - 100 hours  
dependent on tube & battery type

## part no.

## model 400 NSN 5855-99-998-2408

560-200FC2F	PNP-MUNS FC F
560-200FC2WF	PNP-MUNS FCW F
560-200HDF*	PNP-MUNS HD F
560-200XD4F*	PNP-MUNS XD-4 F
560-200XD4AF*	PNP-MUNS XD-4A F Autogated
560-200XR5F*	PNP-MUNS XR5 F
560-200XR5AF*	PNP-MUNS XR5A F Autogated
560-200INTF*	PNP-MUNS INTENS F Autogated

**FC, HD, XD-4, XR5 and XR5A products are available with Green or Black & White tubes. For Black & White add W after part number, eg 560-007 XD4AW has Black & White tube.**

Each PNP-MUNS F is delivered in its soft black (or camouflage on request) padded pouch with clip-on/off rear Lithium battery and fully illustrated operating instructions.

## tube comparison chart

typical values	fc	hd	xd-4	xr5	xr5	int
sensitivity (UA/Im)	500	550	700	700*	700*	800*
resolution (lp/mm)	45	51	64	64*	64*	64*
signal to noise ratio	19	19	23	25*	25*	28*
figure of merit typical	855	969	1472	1600*	1600*	1800*

\*Guaranteed minimum values





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# MUNSTI



MUNSTI is a state of the art compact, lightweight and high performance uncooled Thermal Imaging clip-on sight for use in front of any day optical sight with magnifications up to 16X and more, making it ideally suitable for sniper weapons, anti-materiel weapons and any weapon where the user wishes to leave the daysight in place.

It allows detection ranges up to 2760m (man) and 7000m (vehicle), allows the firer to attach it instantly by its over-centre throw lever shock absorber base on to the Picatinny rail, and switch on to use within eight seconds without affecting the zero of the day sight.

MUNSTI is available with thermal detectors of either 640x480 High Definition HD or 384x288 Standard Definition SD and a choice of optics giving 8 degrees (142 mils) horizontal field of view.

Affordable and virtually maintenance free, its fully featured simple and intuitive push button controls make it the ideal choice for Special Forces, Police elite units and regular forces requiring the best in thermal vision sights.

For surveillance purposes only, Standard Definition models incorporate a 2X electronic zoom giving additional fields of view of 3.5 degrees or 6 degrees depending on choice of lens. Similarly High Definition models incorporate zooms of 2X and 4X giving 3.5 and 1.75 degrees or 6 and 3 degrees additional fields of view respectively.

MUNSTI is designed, developed and manufactured in the UK by Pyser-SGI and requires only a UK export licence.

**clip on in-line  
thermal sniper  
sight**



# technical specifications

## performances

### high definition

human	75mm lens	45 mm lens
<b>detection:</b>	2760m	1650m
<b>recognition:</b>	1380m	825m
<b>identification</b>	920m	550m

### vehicle (land rover size)

<b>detection:</b>	7000m	4200m
<b>recognition:</b>	3500m	2100m
<b>identification</b>	2300m	1400m

### standard definition

human	75mm lens	45 mm lens
<b>detection:</b>	1900m	1140m
<b>recognition:</b>	950m	570m
<b>identification</b>	630m	380m

### vehicle (land rover size)

<b>detection:</b>	4760m	2850m
<b>recognition:</b>	2380m	1425m
<b>identification</b>	1580m	950m

## physical

One piece high strength anodised black aluminium alloy body and lens assemblies. Quick release/attach overcentre lever shock absorbing picatinny rail mount. Nitrogen purged.

MUNSTI	HD75 SD75	HD45 SD45
<b>length mm:</b>	240	200
<b>width mm:</b>	85	76
<b>height mm:</b>	94	85

(inc Picatinny rail mount)

<b>weight gm:</b>	<b>HD</b>	1517	1132
	<b>SD</b>	1517	1132

**rail:** needs 135mm picatinny rail length in front of dayscope

## controls

By single, simple, intuitive push buttons on right and left side of sight

**left side:** on/off  
2x electronic zoom\* - SD models  
2x and 4x electronic zoom\* - HD models  
polarity inversion (black/hot : white/hot)

**right side:** screen brightness

## environmental

**waterproof:** water resistance 2m for 30 mins nitrogen filled

**temperature:** operation -40°C to +60°C

\*Electronic zooms are for surveillance purpose only and must not be used for firing as only the 1x magnification is boresighted to the dayscope.

## optics

High quality germanium F1.0 objective lens 75mm or 45mm focal. 1x magnification

**horizontal field of view 75 mm lens:**  
8 degrees 142 mils HD/SD

**horizontal field of view 45 mm lens:**  
18 degrees 142 mils HD/SD

**focus:** 2.5 metres to infinity 45 mm lens  
5.0 metres to infinity 75 mm lens

fully coated rear lens optics, detachable rear lens shroud

## power supply

**power source:** 4x "AA" type L91 Lithium 1.5V  
OR 4x "AA" Alkaline 1.5V OR 4x "AA"  
Rechargeable 1.2V

**battery life:** HD75/ HD45 - up to 7 hours  
SD75/ SD45 - up to 10 hours  
(with L91/LF1500 type at 21°C)

external 6v power in by milspec socket live PAL composite video out via same socket

## thermal image

### high definition

**pitch:** 17µ **pixels:** 640x480

**detector:** AmSi microbolometer

**spectral band:** 7-14µm **refresh rate** 25Hz  
NETD<45 mK @ 20°C ambient & 30°C scene temp

### standard definition

**pitch:** 17µ **pixels:** 384x288

**detector:** AmSi microbolometer

**spectral band:** 7-14µm **refresh rate** 25Hz  
NETD<45 mK @ 20°C ambient & 30°C scene temp

## part no.

560-360	MUNSTI HD75 NSN 5855-99-732-8504
560-361	MUNSTI HD45 NSN 5855-99-875-7389
560-350	MUNSTI SD75 NSN 5855-99-495-3918
560-351	MUNSTI SD45 NSN 5855-99-471-5300

### optional accessories

560-391	Cable, 6V in/Video out
FBS-043	Medium hermetic case with custom made cutouts
560-200INTF*	PNP-MUNS INTENS F Autogated

## model 400 NSN 5855-99-998-2408

**Ordering information (all units are 25Hz refresh rate, 9Hz available on request) MUNSTI is delivered in its soft black or DPM or sand colour padded pouch complete with clip-on/off rear hood, four "AA" lithium L91 batteries and full operating illustrated instructions.**



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# PNP-MS

The PNP-MS red dot image intensifier night vision weapon sight is based on the highly successful PNP-M, the world's smallest, lightest and best night vision monocular.

It incorporates an illuminated red dot aiming mark for rapid and precise target acquisition, the on/off switch giving the choice of low and high red dot brightness levels. The superimposition of the red dot on the green image intensified picture considerably enhances the speed and clarity of aiming as a result of the instantly obvious colour difference and is much appreciated by firers using red dot or holographic day sights.

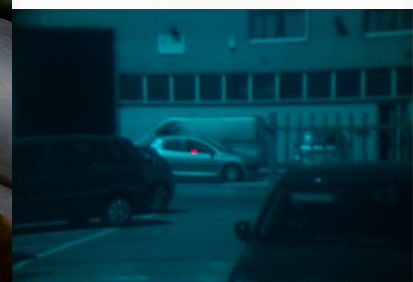
Mounted as standard on the proven Picatinny sight mount, windage and elevation click adjustments are made by slotted screws suitable for coins or screwdrivers.

The PNP-MS is available in a wide range of image intensifier tube specifications, has four lens options, protected by rugged Butler Creek flip up lens caps, giving 1x, 2x, 3x and 6x magnifications and making it ideally suitable for all small arms in calibres 4.6mm to 9mm.

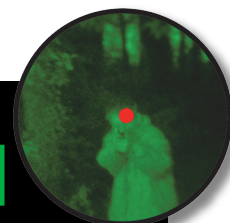
Nitrogen filled, the PNP-MS is submersion resistant to 20m for one hour (applicable for 1x and 2x versions) and this, coupled with its use of only one AA commercial battery giving an autonomy of at least 40 hours, makes it suitable for even the most demanding missions.

In addition the PNP-MS can be quickly removed from the weapon to be used as a hand held night vision monocular using accessories of the world beating PNP-M monocular.

The PNP-MS sight is made by Pyser-SGI in Britain to ISO



## miniature red dot night vision weapon sight



9001 quality standards and meets the operational requirements of military and police operations in all environments.

Now available with tubes including FC (low cost), HD High Definition, XD-4, XR5 and INTENS-4G.

XD-4 and XR5 models can also be supplied with Auto Gating and FC, HD, XD-4, XR5 and INTENS-4G are available with green or black and white tubes.

# technical specifications

## physical

**dimensions:** 1x 30 mm (l) x 77 mm (h) x 67mm \*(w)  
 2x 135 mm (l) x 77 mm (h) x 67mm \*(w)  
 3x 155 mm (l) x 79 mm (h) x 67mm \*(w)  
 6x 168 mm (l) x 79 mm (h) x 67mm \*(w)

**with folded eyecup**

**weight:** 1x 565 gms without battery  
 2x 615 gms without battery  
 3x 690 gms without battery  
 6x 738 gms without battery

weight includes eyecup and lens cap

**construction:** moulded glass filled polymer / aluminium

**eyeguard:** contoured soft fold back rubber eyecup

## environmental

**waterproof:** immersion proof 1x - 2x: 20m 1hr  
 3x - 6x: 2m 1hr  
 nitrogen filled

**temperature:** operation -45°C to +55°C  
 storage -51°C to +65°C

## electical

**power source:** Single 1.5V"AA" battery  
 or 1.5V "AA" format lithium type L91  
 (NSN 6135 01 333 6101)  
 or 1.2V"AA" size rechargeable

**battery life:** in excess of 40 - 100 hours dependent  
 on tube and battery type

**low voltage indicator:** yellow LED in eyepiece

## optical

**magnification:** 1x, 2x, 3x, or 6x

**objective focal length:** 25, 50, 75 or 150mm

**field of view:** 40, 20,13, or 6.7 Degrees

**red dot size:** 4 mils (1x), 2 mils (2x),  
**(low & high brightness selectable)** 1.3 mils (3x), and 0.7 mils (6x)

**focus:** 1x, 2x, fixed, 3x, 6x manual

**diopre adjustment:** minimum +3 to - 6

**eyepiece lens:** 25mm glass aperture

**eye relief** 27mm

lens option	tube type			
	FC	HD	XD-4	XD-4A
25mm 1x mag	560-111FC2	560-111HD	560-111XD4	560-111XD4A
50mm 2x mag	560-121FC2	560-121HD	560-121XD4	560-121XD4A
75mm 3x mag	560-131FC2	560-131HD	560-131XD4	560-131XD4A
150mm 6x mag	560-161FC2	560-161HD	560-161XD4	560-161XD4A
	XR5	XR5A	INTENS-4G	
25mm 1x mag	560-111XR5	560-111XR5A	560-111INTENS-4G	
50mm 2x mag	560-121XR5	560-121XR5A	560-121INTENS-4G	
75mm 3x mag	560-131XR5	560-131XR5A	560-131INTENS-4G	
150mm 6x mag	560-161XR5	560-161XR5A	560-161INTENS-4G	

FC, HD, XD-4, XD-4A, XR5 and XR5A products are available with Green or Black and White tubes. For Black and White add W after part number eg: 560-111 XD4AW has Black & White tube.

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over  
sight

# PNP-MTHU/MTSU

## clip on in-line thermal sniper sight

PNP-MTHU/MTSU is a state-of-the-art compact, lightweight and high performance, uncooled Thermal Imaging clip-on sight for use in front of any day optical sight with magnifications of up to 12X and more, making it ideally suitable for sniper weapons, anti-materiel weapons and any weapon where the user wishes to leave the daysight in place.

It allows detection ranges up to 1km (man) and 2.3km (Nato Target), allowing the firer to attach it instantly by its over-centre throw lever clamp on shock absorber base onto the Picatinny rail, and switch on to use within 5 seconds without affecting the zero of the day sight.

PNP-MTHU/MTSU is available with thermal detectors of either 640x480 High Definition HD or 384x288 Standard Definition SD.

Available with optional Picatinny rail mount adaptor or scope clip-on adaptor.

Affordable and virtually maintenance free, its fully featured simple and intuitive push button controls make it the ideal choice for Special Forces, Police Elite Units and regular forces requiring the best in thermal vision sights.

For surveillance purposes only, models incorporate zooms of 2X and 4X.

PNP-MTHU/MTSU is designed, developed and manufactured in the UK by Pyser-SGI and requires only an UK export licence.



# technical specifications

## performances

### high definition

#### human

<b>detection:</b>	1029m
<b>recognition:</b>	343m
<b>identification</b>	172m

#### nato

<b>detection:</b>	2368m
<b>recognition:</b>	789m
<b>identification</b>	395m

### standard definition

#### human

<b>detection:</b>	1029m
<b>recognition:</b>	343m
<b>identification</b>	172m

#### nato

<b>detection:</b>	2368m
<b>recognition:</b>	789m
<b>identification</b>	395m

## physical

High strength black reinforced nylon body and lens assemblies. Nitrogen purged.

### PNP-MTHU/ MTSU      HD/ SD

<b>length mm:</b>	155
<b>width mm:</b>	50
<b>height mm:</b>	77
<b>weight gm:</b>	<b>HD SD</b> 470g

## controls

By single, simple, intuitive push buttons.

on/off

2x and 4x electronic zoom\*

polarity inversion (black/hot : white/hot/extra contrast)

screen brightness

## environmental

**waterproof:** water resistance 1m for 30 mins

**temperature:** operation -40°C to +55 °C

\*Electronic zooms are for surveillance purpose only and must not be used for firing as only the 1x magnification is boresighted to the dayscope.

**ordering information PNP-MTHU/MTSU is delivered in its soft black or DPM or Sand colour padded pouch complete with two CR 123 lithium batteries and illustrated instructions.**

## optics

High quality germanium objective lens. 1x magnification

### horizontal field of view

17 degrees

11 degrees

### 35 mm lens:

314 mills HD

124 mills SD

### focus:

8 metres to infinity

fully coated rear lens optics

## power supply

### power source:

2x CR123 lithium batteries 1.5V

### battery life:

up to 8 hours

external 6v power in by milspec socket live PAL composite video out via same socket

## thermal image

### high definition

**pitch:** 17µ

**pixels:** 640x480

**detector:** AmSi microbolometer

**spectral band:** 7-14µm

**refresh rate** 25Hz

NETD<50 mK @ 20°C ambient & 30°C scene temp

### standard definition

**pitch:** 17µ

**pixels:** 384x288

**detector:** AmSi microbolometer

**spectral band:** 7-14µm

**refresh rate** 25Hz

NETD<50 mK @ 20°C ambient & 30°C scene temp

### display

advanced OLED. 852 x 600 pixels SVGA. Monochrome

## part no.

561-435THU

PNP- MTHU (HD)

561-435TSU

PNP-MTSU (SD)

### optional accessories

589-998W

Picatinny rail mount adaptor

561-445

Video out/6v in cable

561-444-xx

Clamp mount adaptor (Where xx represents scope objective filter thread diameter)

FBS-034A

Medium hermetic case with custom made cutouts

## model 400 NSN 5855-99-998-2408



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# PNP-MTHDS/PNP-MTHDES & PNP-MTSDS/PNP-MTSDDES

Pyser-SGI Limited is one of the world's leading manufacturers of Night Vision products.

Over the many years of our experience in the design, development and manufacture of night vision monoculars we have worked closely with British, other NATO and non-NATO Armed Forces, Special Forces and Police Special Forces in order to produce the products and features required for today's and tomorrow's threat situations.

The PNP-MTHDS/PNP-MTSDS weapon sight range is the result of such close co-operations and is a state of the art world beating product which is complemented by a wide range of specially developed accessories enabling the user to perform a huge variety of missions based on just one sensor platform --- PNP-MTHDS/PNP-MTSDS.

Designed, developed and manufactured in Britain by Pyser-SGI to ISO 9001 quality levels the PNP-MTHDS is the world's smallest and lightest thermal imaging weapon sight. Four CR123 batteries, for light weight, give up to 7 hours' continuous operation. High quality IR optics are used for maximum image quality and the entire monocular body, electronics and optics are filled with dry nitrogen for ultimate reliability in all missions.

The unique Near Eye OLED display always produces a large crisp image right in front of the eye and overcomes the "tunnel vision" problem common in inferior designs.

This gives an image having an apparent angle of view of 35° horizontally, which is similar to that of the human eye and therefore considerably aids speed and clarity of target acquisition.

**The world's smallest,  
lightest and most versatile  
high definition thermal  
imaging weapon sights  
with dvr option.**

PNP-MTHDS/PNP-MTSDS is designed for use on all small arms in calibres 4.6mm, 5.56mm, 7.62mm and 9mm

- 640 x 480 17µm or 384 x 288 17µm
- choice of 1x, 1.5x or 2x magnification lenses
- digital zoom, 2x and 4x as standard
- user selectable
- live video output
- non itar



# technical specifications

## physical

model	length	height	width	weight w/out batteries*
17mm	96mm	74mm	77mm	347g
25mm	110mm	74mm	77mm	377g
35mm	122mm	74mm	77mm	392g

**Please note: E variant (DVR) add 19mm to height and 185g to weight**

**construction:** moulded glass filled polymer main body

## controls

- by single, intuitive push buttons.
- on/off/nuc (additional nuc facility by remote pressure pad)
- windage and elevation (windage and elevation coordinates are displayed on screen)
- 1 mil per click (windage/elevation) 17mm
- 0.7 mil per click (windage/elevation) 25mm
- 0.5 mil per click (windage/elevation) 35mm
- reticule choice 5 plus no reticule (mthd only)
- 2x and 4x - electronic zoom
- polarity inversion (black/hot : white/hot)
- screen brightness +/-
- battery indication on screen

## focal lengths actual FOV

HD 640x480	17mm	25mm	35mm
detection (m)	500	735	1029
recognition (m)	167	245	343
identification (m)	83	123	172
fov degrees h	37	25	18
fov degrees v	28	19	13
fov mils h	652	442	320
fov mils v	489	332	238
magnification	1	1.5	2

## thermal image

- detector:**
- amorphous silicon microbolometer
  - 7-14 microns wavelength
  - uncooled
  - 640 x 480 or 384 x 288 pixels svga
  - definition 25Hz or 9Hz (optional) refresh rate
- display:**
- advanced OLED 852 x 600 pixels SVGA
  - monochrome
  - 35° apparent image horizontal angle of view

## environmental

- waterproof:** water resistant to IP68 (150mm 15min)
- temperature:** operation -20°C to +55°C  
storage -40°C to +65°C

## optics

- high quality IR objective lens
- fully coated eyepiece optics
- 25mm glass aperture
- 27mm eye relief
- dioptre adjustment -6 to +3

SD 384x288	17mm	25mm	35mm
detection (m)	500	735	1029
recognition (m)	167	245	343
identification (m)	83	123	172
fov degrees h	22	15	11
fov degrees v	17	11	8
fov mils h	391	267	190
fov mils v	293	199	142
magnification	1	1.5	2

Note: All specifications are nominal





User selectable reticles including reticle off (MTHD)

Pictures show windage and elevation coordinates - number of clicks from central nominal boresight position 0.0

**PNP-MTHDES/  
PNP-MTSDDES high  
definition thermal  
imaging monocular  
with DVR**



PNP-MTHDE/PNP-MTSDDE has an identical specification to PNP-MTHD/PNP-MTSD but is fitted with a 32GB digital video recorder (DVR). The DVR is powered up only when required to conserve power. Recording at 25fps with capacity for up to 120 hours, PNP-MTHDE/PNP-MTSDDE offers an added level of post activity analysis, vital in both operational and training scenarios. The DVR is very simple to operate and easy to download via USB connector.

## digital video recorder

encoding H.264  
input channel 1 Ch.  
input impedance 75 ohm unbalanced  
maximum input 1.0Vp-p @ 75 Ohm unbalanced  
output channel 1 Ch.  
output impedance 75 ohm unbalanced  
composite PAL  
maximum output 1.0Vp-p @ 75 Ohm unbalanced  
memory 32Gb

## controls

The DVR is controlled via four buttons located on top of the unit

DVR on/off, record, play and stop

## recording

### video recording resolution

format	PAL
4CIF	704 x 576
2CIF	704 x 288
CIF	352 x 288

format	high	normal	low
4CIF	1800kbps	1000kbps	500kbps
2CIF	1200kbps	800kbps	400kbps
CIF	1000kbps	600kbps	300kbps

### video recording frame rate

PAL 25,12,8,6,3,1 fps

### storage file system

FAT32. Recording time dependent on resolution, 40 hours to 120 hours.

## PNP-MTHDS high definition thermal imaging weapon sight

### part no.

### model type PNP-MTHDS

561-217S*	PNP-MTHDS with 17mm lens, 36° horizontal fov 1x mag 25Hz, including pouch
561-225S*	PNP-MTHDS with 25mm lens, 25° horizontal fov 1.5x mag 25Hz, including pouch
561-235S*	PNP-MTHDS with 35mm lens, 18° horizontal fov 2x mag 25Hz, including pouch
561-317S*	PNP-MTHDS with 17mm lens, 36° horizontal fov 1x mag 9Hz, including pouch
561-325S*	PNP-MTHDS with 25mm lens, 25° horizontal fov 1.5x mag 9Hz, including pouch
561-335S*	PNP-MTHDS with 35mm lens, 18° horizontal fov 2x mag 9Hz, including pouch

## PNP-MTHDES thermal night vision weapon sight with dvr

### part no.

### model type PNP-MTHDES

561-217ES*	PNP-MTHDE with 17mm lens, 36° horizontal fov 1x mag 25Hz, incorporates digital video recorder
561-225ES*	PNP-MTHDE with 25mm lens, 25° horizontal fov 1.5x mag 25Hz, incorporates digital video recorder
561-235ES*	PNP-MTHDE with 35mm lens, 18° horizontal fov 2x mag 25Hz, incorporates digital video recorder
561-317ES*	PNP-MTHDE with 17mm lens, 36° horizontal fov 1x mag 9Hz, incorporates digital video recorder
561-325ES*	PNP-MTHDE with 25mm lens, 25° horizontal fov 1.5x mag 9Hz, incorporates digital video recorder
561-335ES*	PNP-MTHDE with 35mm lens, 18° horizontal fov 2x mag 9Hz, incorporates digital video recorder

## PNP-MTSDS high definition thermal imaging weapon sight

### part no.

### model type PNP-MTSDS

517-217*	PNP-MTSDS with 17mm lens, 36° horizontal fov 1x mag 25Hz, including pouch
517-225*	PNP-MTSDS with 25mm lens, 25° horizontal fov 1.5x mag 25Hz, including pouch
517-235*	PNP-MTSDS with 35mm lens, 18° horizontal fov 2x mag 25Hz, including pouch

## PNP-MTSDDES thermal night vision weapon sight with dvr

### part no.

### model type PNP-MTSDDES

517-217E*	PNP-MTSDDE with 17mm lens, 36° horizontal fov 1x mag 25Hz, incorporates digital video recorder
517-225E*	PNP-MTSDDE with 25mm lens, 25° horizontal fov 1.5x mag 25Hz, incorporates digital video recorder
517-235E*	PNP-MTSDDE with 35mm lens, 18° horizontal fov 2x mag 25Hz, incorporates digital video recorder

all PNP-MTHD/PNP-MTHDE & PNP-MTSD/PNP-MTSDDE - models are delivered in protective pouches, and full pictorial operating instructions.

## accessories for PNP-MTHD/PNP-MTHDE & PNP-MTSD/PNP-MTSDDE

550-003F	relay lens for use with CCTV camera, NSN 5836-99-366-5780
550-007	shuttered eyeguard, NSN 6650-99-789-6513
550-006AM	head harness for left and right eye use and accepts binocular bridge, NSN 6650-99-407-0566
550-006HM	helmet mount, universal fitting for ballistic helmets for left and right eye use and accepts binocular bridge, NSN 534
560-010	anti-mist filter for eyepiece, NSN 6650-99-731-1262
589-840-300	camcorder/camera 30mm adaptor
589-840-305	camcorder/camera 30.5mm adaptor, NSN 6650-99-412-0360
589-840-040	camcorder/camera 37mm adaptor, NSN 6650-99-595-0780
589-840-042	camcorder/camera 49mm adaptor, NSN 6650-99-323-6896
589-840-041	camcorder/camera 52mm adaptor, NSN 6650-99-329-3201
589-840-058A	camcorder/camera 58mm adaptor, NSN 6650-99-180-7670
589-840-072	camcorder/camera 72mm adaptor, NSN 6650-99-297-7873 others available on request
560-015	dioptr locking clamp (guarantees dioptr position when using DSLR/camcorder) <a href="#">Optical Modules to connect all models directly to a photographic camera body</a>
589-840-400A	nikon photographic module
589-840-401A	canon photographic module
561-409-01	external battery power module
561-409S	12volts dc power supply cable and vehicle connector includes two battery modules
561-401	video out cable to phono plug
FBS-034	small hermetic case, holds all models in its pouch

The logo for Pyser Optics, featuring the word 'pyser' in a bold, lowercase, sans-serif font with a green-to-white gradient, and the word 'optics' in a smaller, white, lowercase, sans-serif font below it. The logo is set against a green rectangular background.

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# PNP MUNS

PNP-MUNS Universal Night Sights are state of the art in-line image intensified, rugged, lightweight and compact weapon sights designed specifically to be used in front of dayscopes from 1x to 8x magnification and higher with front lenses up to 60mm diameter.

The advanced in-line optical design, with no prisms, does not affect the zero of the weapon, nor the user's normal firing position and does not create any parallax errors.

The PNP-MUNS is attached and released instantly from the weapon's Picatinny rail by means of its over-centre throw lever and no tools are needed to attach, release or operate it. PNP-MUNS can also be used as a stand-alone hand held night vision surveillance tool.

PNP-MUNS can be supplied with a wide choice of image intensifier tubes up to FOM 2016, including Autogated types, for the most demanding missions and it needs only one "AA" battery to operate it from 40 to 100 hours depending on battery type and model of intensifier tube.

PNP-MUNS is available in 2 versions: PNP-MUNS 600, weighing 667g and PNP-MUNS 900, which weighs only 937g and offers extra focal length for enhanced detail. Each has a lens cap on the front for total protection against dust, dirt and water. Both versions have a fine distance focus adjustment for optimum performance.

PNP-MUNS 600 is recommended for distances up to 600m and PNP-MUNS 900 up to 900m.

The product also has a fold-back moulded rubber rear hood to prevent any green reflected glow on the front lens of dayscopes up to 60mm diameter.

**universal night sights  
clip on, ultra compact  
and lightweight**



PNP-MUNS is designed and made in the UK by Pyser-SGI Limited. to ISO 9001 quality levels and is deliverable world-wide in any image intensifier specification.

Now available with tubes including FC (export licence exempt\*\*) as well as standard licence HD High Definition, XD-4 and XR5.

XD-4 and XR5 models can also be supplied with Auto Gating and FC, HD, XD-4 and XR5 are available with green or black and white tubes.

\*\*Does not require UK Export Licence but not available to countries on UN/EU/UK Embargo/Sanctions Lists.

# technical specifications

## physical

**pnP-muns 600**

**dimensions:** length: 186mm, height: 75mm, width: 85mm  
Optical centreline above Picatinny rail top surface 35 mm\* (higher on request).

**weight:** 667 gms without battery  
690 gms with lithium "AA" battery

**rail:** Needs 120mm Picatinny rail length in front of dayscope

**construction:** Aluminium alloy and glass polymer

**rear hood:** Moulded rubber, fold back

**pnP-muns 900**

length: 208mm, height: 87mm, width: 90mm  
Optical centreline above Picatinny rail top surface 43.5 mm\* (higher on request).

983 gms without battery  
1006 gms with lithium "AA" battery

Needs 135mm Picatinny rail length in front of dayscope

Aluminium alloy and glass polymer

Moulded rubber, fold back

## optical

**magnification:** 1x                      **field of view:** 13°

**focus:** 4m to infinity

**boresight retention:** permanent, requires no re-zeroing of dayscope

**dayscope compatibility:** all front lens diameters up to 60mm

**useful practical distance:** up to 600 metres depending on ambient conditions

1x    **field of view:** 8°

6m to infinity

permanent, requires no re-zeroing of dayscope

all front lens diameters up to 60mm

up to 900 metres depending on ambient conditions

## electrical

**power source:** Single 1.5v "AA" battery or 1.5V "AA" 'Lithium' type (NSN 6135 01 333 6101) or 1.2v "AA" size rechargeable

**battery life:** 40 -100 hrs dependent on tube & battery type

Single 1.5v "AA" battery or 1.5V "AA" 'Lithium' type (NSN 6135 01 333 6101) or 1.2v "AA" size rechargeable

40 -100 hrs dependent on tube & battery type

## environmental

**waterproof:** immersion proof to 2m 1hour, nitrogen filled

**temperature:** operation -45°C to +55°C  
storage -51°C to +65°C

immersion proof to 2m 30 mins, nitrogen filled

operation -45°C to +55°C  
storage -51°C to +65°C

### part no.

### model 600

560-200FC2	PNP-MUNS 600 FC
560-200FC2W	PNP-MUNS 600 FCW
560-200HD*	PNP-MUNS 600 HD
560-200XD4*	PNP-MUNS 600 XD-4
560-200XD4A*	PNP-MUNS 600 XD-4A Autogated
560-200XR5*	PNP-MUNS 600 XR5
560-200XR5A*	PNP-MUNS 600 XR5A Autogated

### part no.

### model 900

560-201FC2	PNP-MUNS 900 FC
560-201FC2W	PNP-MUNS 900 FCW
560-201HD*	PNP-MUNS 900 HD
560-201XD4*	PNP-MUNS 900 XD-4
560-201XD4A*	PNP-MUNS 900 XD-4A Autogated
560-201XR5*	PNP-MUNS 900 XR5
560-201XR5A*	PNP-MUNS 900 XR5A Autogated

Each PNP-MUNS is delivered in its soft black (or camouflage on request) padded pouch with clip-on/off rear hood, "AA" Lithium battery and fully illustrated operating instructions.

## tube comparison chart

typical values	fc	hd	xd-4	xr5
sensitivity (UA/Im)	500	550	700	800
resolution (lp/mm)	45	51	64	72
signal to noise ratio	19	19	23	28
figure of merit typical	855	969	1472	2016



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TISI



Designed specifically for assault rifles, submachine guns, machine guns and sharpshooter roles, TISI represents cutting edge uncooled thermal night vision technology in a compact, low profile and lightweight weapon sight.

TISI is available with thermal detectors of either 384x288 or 640x480 resolutions and with a choice of optics giving either 3X or 5X magnification, horizontal angles of view of either 8/7 degrees (142/124 mils) or 13.7/12 degrees (244/213 mils) and detection ranges of up to 2760m (man) and 7000m (vehicle).

Standard Definition models (SD) also have a 2x electronic zoom giving a total of 6X or 10X magnification in addition to the basic 3X and 5X magnifications. High Definition models (HD) incorporate both a 2X and a 4X zoom giving total magnifications of 3X, 6X and 12X (HD 45 model) or 5X, 10X and 20X in the case of the HD 75 version.

Rapidly attached with no tools to any Picatinny rail, TISI is operational within eight seconds from switch on. Simple, intuitive push button controls make it an extremely easy sight to use while offering the user a fully featured advanced night sight.

Large diameter eyepiece optics with very long eye relief make TISI extremely user friendly for rapid target acquisition on all weapons and enhanced ease of use in particular in sharpshooter and machine gun roles.

Affordable and virtually maintenance free, it is the ideal choice for Special Forces, Police elite units and regular forces requiring the best in night vision sights.

TISI is designed, developed and manufactured in the UK

thermal sight for  
assault rifles, smgs  
and machine guns



# technical specifications

## performances

### high definition

human	75mm lens	45 mm lens
<b>detection:</b>	2760m	1650m
<b>recognition:</b>	1380m	825m
<b>identification</b>	920m	550m
<b>vehicle (land rover size)</b>		
<b>detection:</b>	7000m	4200m
<b>recognition:</b>	3500m	2100m
<b>identification</b>	2300m	1400m

### standard definition

human	75mm lens	45 mm lens
<b>detection:</b>	1900m	1140m
<b>recognition:</b>	950m	570m
<b>identification</b>	630m	380m
<b>vehicle (land rover size)</b>		
<b>detection:</b>	4760m	2850m
<b>recognition:</b>	2380m	1425m
<b>identification</b>	1580m	950m

## physical

One piece high strength anodised black aluminium alloy body and lens assemblies. Quick release/attach picatinny rail mount. Nitrogen purged.

TISI	HD75/ SD75	HD45/ SD45
<b>length mm:</b>	225	185
<b>width mm:</b>	85	76
<b>height mm:</b>	94	85
<small>(inc Picatinny rail mount)</small>		
<b>weight gm:</b>		
<b>HD</b>	1380	995
<b>SD</b>	1380	995

## power supply

**power source:** 4x "AA" type L91 Lithium 1.5V  
OR 4x "AA" Alkaline 1.5V OR 4x "AA"  
Rechargeable 1.2V

**tisi battery life:** HD75/ HD45 - up to 7 hours  
SD75/ SD45 - up to 10 hours  
(with L91/LF1500 type at 21°C)

external 6v power in by milspec socket live PAL composite video out via same socket

## controls

By single, simple, intuitive push buttons on right and left side of sight

**left side:** on/off/ NUC (additional nuc facility by remote pressure pad)  
windage (right and left buttons)  
elevation (up and down buttons)  
0.20/0.19 mils per click (windage/elevation) HD75  
0.32/0.30 HD4, 0.18/0.17 SD75, 0.30/0.28 SD45  
windage/elevation range +/- 128 clicks  
2x electronic zoom\* - SD models  
2x and 4x electronic zoom\* - HD models  
polarity inversion (black/hot : white/hot)

**right side:** screen brightness

## part no.

## high definition

560-380	TISI HD75 NSN 5855-99-151-6865
560-381	TISI HD45 NSN 5855-99-709-1502

### optional accessories

560-390	remote pressure pad NUC switch
550-007T	shuttered eyeguard
560-391	cable, 6V in/video out
FBS-043	medium hermetic case with custom made cutouts

## optics

High quality germanium F1.0 objective lens 75mm or 45mm focal. 5x mag (75mm lens) 3x mag (45mm lens)

**horizontal field of view 75 mm lens:**  
8 degrees 142 mils HD  
7 degrees 124 mils SD

**horizontal field of view 45 mm lens:**  
13.7 degrees 244 mils HD  
12 degrees 213 mils SD

**focus:** 2.5 metres to infinity 45 mm lens  
5.0 metres to infinity 75 mm lens

fully coated rear lens optics, detachable rear lens shroud  
apparent field of view 26 degrees, 462 mils

fully coated eyepiece lens optics

dioptr adjustment +3 to -3

eyepiece lens glass diameter 31mm

eye relief 50 mm

## thermal image

**high definition pitch:** 17µ **pixels:** 640x480

**detector:** AmSi microbolometer

**spectral band:** 7-14µm **refresh rate** 25Hz  
NETD<45 mK @ 20°C ambient & 30°C scene temp

**standard definition pitch:** 25µ **pixels:** 384x288

**detector:** AmSi microbolometer

**spectral band:** 7-14µm **refresh rate** 25Hz  
NETD<45 mK @ 20°C ambient & 30°C scene temp

**display:** advanced OLED, 852 x 600 pixels SVGA

## environmental

**waterproof:** water resistance 2m for 30 mins

**temperature:** operation -40°C to +60°C

## part no.

## standard definition

560-370	TISI SD75 NSN 5855-99-155-8828
560-371	TISI SD45 NSN 5855-99-226-6732

**Ordering Information (All units are 25Hz refresh rate, 9Hz available on request) TISI is delivered in its soft black or DPM or Sand colour padded pouch, four "AA" Lithium L91 batteries and full operating illustrated instructions.**

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# Pyser small arms collimator

This remarkably simple, robust and effective device gives all users the ability to zero, check zero or re-zero their weapons in the field with no live firing, improves operational capability and optimises the use of training resources.

The range of Francis Barker small arms collimators is the product of years of experience with defence and security forces the world over. The unique, fully proven design allows all weapon users to maintain complete operational readiness with deployed, providing all personnel with total confidence in their weapon systems.

**on target right  
from the start**





## the requirement

In out-of-country, covert and peace-keeping missions, live firing is often impossible. The lack of resources to check the alignment of weapon sighting systems quickly and regularly, means that the operational advantages of putting sights on weapons can easily be lost.

The increasing use of rapid deployment forces and increasing legal framework in which soldiers now operate means that systems are needed to allow the user to zero, check zero and validate the weapon and its sighting systems at any time and in any place.

## the solution

The design concept provides dedicated SAC's tuned to the exact operational requirements of the client. Each collimator is factory calibrated to the operational zeroing range and ballistic characteristics of the users ammunition. Every collimator is supplied with the unique confidence checker ensuring that the user knows the SAC is correct before use.

The single piece, rigid aluminium casting, sealed and purged optics and spring fixed spigot, allows users to zero their weapons, without the need for live firing.

## ease of use

Simply insert the collimator into the barrel of the weapon and align the sight with the markings on the SAC graticule to either a common zero position or, where known, to a personal zero position.

As SAC's are not adjustable and have no moving parts, they will give an accurate and repeatable result everytime - straight out of the bag!

The rugged design has been proven to give years of trouble free and reliable service, requiring little maintenance with very low through life cost.

## deployment qualities

Individual organisations define their own needs but typically SAC's are deployed on the basis of:

- 1 per section or squad for front line infantry
- 1 per support weapon
- weapon repair facilities
- hq units
- 1 per sniper pair
- 1 per weapon type per armed response vehicle
- armourers



## operational scenarios

Many armed and police forces around the world now use Francis Barker SAC's in their standard operational procedures:

- for checking alignment before any weapon user goes out on patrol
- on guard posts
- before live firing on a range
- for secure military compounds in civil security operations
- on peace keeping missions
- for front line infantry units
- for special forces
- on operations requiring the changing of sights e.g. from day to night fighting roles
- for rapid intervention teams

The SAC provides a high degree of confidence in the weapon system and ensures that when the weapon is used, it will be effective.

## benefits

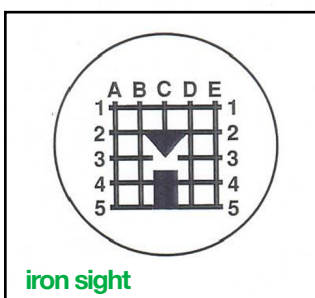
- sights can be zeroed in the field to an accuracy and repeatable of 0.25mil (25mm in 100m / 1 inch on 100 yards) in less than a minute, without needing specialist personnel or resources.
- cost effective, rapid, accurate and safe zeroing of all small arms, by day or night, without the need for live firing
- capability to zero and check zero sights any time, any place with no live firing
- big increases in soldiers' confidence in their weapons and their shooting ability
- increased in hit probability of over 200% compared to conventional zeroing techniques
- reduced need for firing range and time/ personnel/ travel and ammunition costs
- copy personal zero to other weapons
- unique self-checking system
- weapons delivered to front line units already zeroed
- increased weapon life, reduced maintenance costs

## user configurations

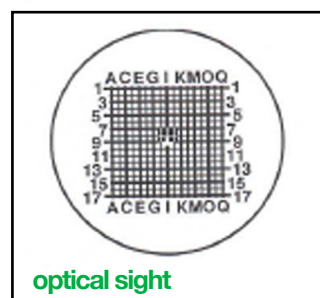
All aspects of the SAC are user definable. Manufactured to full military specifications, they are passive and they require no power source for their operation. Supplied complete with instructions, a pouch offering suitable protection and a confidence checker. An optional Gaseous Tritium Light Source (GTLS) or battery powered light source is available for full night time use with image intensifier night sights of any generation or for zeroing sight in darkness.

## graticule (reticule) patterns

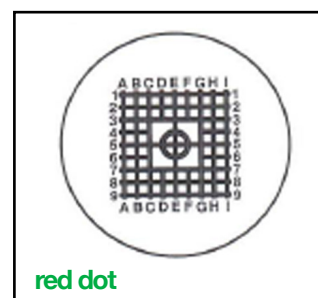
Each SAC is fitted with a graticule pattern designed to maximize the accuracy of zeroing for the type of weapon sight system used. As with all aspects of the Francis Barker Collimator the designs of the calibrated graticule within the SAC are available according to user requirements. Examples of typical standard graticule patterns are shown below.



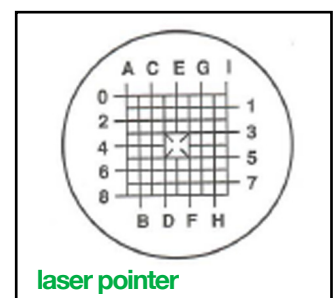
iron sight



optical sight



red dot



laser pointer

## design criteria

More than 70 different SAC models are available for all/ any weapons from 5.50mm to 40mm caliber using iron sights, day optical and II night vision and laser pointers.

**accuracy/ repeatability:**  $\pm 0.25$  mil (25mm in 100m/1 inch in 100 yards)

**options:** tritium or battery powered light source

**status:** in current use, in current production

**service:** operationally deployed by more than 30 armed forces world-wide, including six NATO countries

**NSN:** NATO stock numbers available for all models

**pyser optics - ficroft way, edenbridge, kent, TN8 6HA tel: +44 (0) 1732 864 111 mail: sales@pyseroptics.com www.pyseroptics.com**

# Francis Barker laser collimator

**Pyser-SGI Limited are pleased to announce an extension to their range of small arms zeroing collimators with the development of the Francis Barker laser collimator.**

In out-of-country, covert and peace keeping missions live firing is frequently impossible. Lack of resources to check the alignment of weapon sighting systems quickly and often means that the operational advantages of mounting laser aimers on small arms can be easily compromised. With the introduction of the Francis Barker laser collimator, night fighting forces can now be quipped with a simple, cost effective device which gives them the ability to zero and check the zero of their lasers in the field without the need to fire their weapons at anytime day or night. Based on the same successful design concept as the small arms collimator the laser collimator gives your front line night fighting force total confidence in their advanced sighting systems.

Alignment of the laser pointer is easily achieved by adjusting it to align with the centre of the collimator reticle, the laser light spot being viewed through the night vision goggles while this adjustment is being made. The entire process is completed in seconds. The unit is passive and requires no power source for its operation. Designed for front line use and built to exacting military standards, the unit consists of a one-piece rigid aluminium casting with a fixed spigot. As users cannot alter settings, the laser collimator requires no calibration prior to use.



Francis Barker laser collimators are available for all small arms from 5.56 to 12.7mm calibres equipped with any type of invisible laser aimer and are pre-set during manufacture to the zeroing range specified by the customer to give zeroing accuracies and repeatability to within  $\pm 0.25$ mil ( $\pm 2.5$ cm at 100 metres).

The availability of the Francis Barker laser collimator ensures your investment in advanced night fighting equipment delivers real operational advantages in the field in terms of speed of deployment of forces, increases in hit probability and soldier confidence.

**pyser**  
optics

defence

# military binoculars

The Francis Barker Defence Products Division of Pyser optics has been manufacturing and supplying quality, precision-engineered optical products for over 50 years. Throughout this time binoculars have been supplied to armed forces worldwide, resulting in a committed long-term supplier/customer relationship based upon a comprehensive through-life-cycle support. This success has been achieved by supplying a product with superb fully coated optics and prisms for the brightest possible image and a wide, clear field of view, housed in a precision-cast, finely machined, ultra-light anodised alloy body.

All the binoculars have robust rubber armouring to protect against the hardest environmental conditions, are filled with dry nitrogen to prevent fogging and are protected by objective lens and eyepiece covers against dirt. Naturally, all binoculars are totally immersion proof and have large exit pupils for superb low light usage. Classic style models have individual eyepiece focussing whereas compact models have centre focus. Foldback rubber or pop-up eyecups are standard for ease of use by wearers of spectacles, sunglasses or goggles. Each binocular is supplied with a comfortable wide fabric neck strap and in a case with neck strap. The 8x42RM is the UK Armed Forces standard issue binocular.



6 x 30 r



7 x 50 r



10 x 50 r



7 x 50 rc



e8 x 42 rm



model	6 x 30 r	7 x 50 r	10 x 50 r	7 x 50 rc	e8 x 42 m*
style	classic	classic	classic	classic	roof prism
part no.	102-634	102-176	102-106	102-271	102-112
NATO stock number	6650-99-458-7548	6650-99-862-0115	6650-99-367-1837	6650-99-915-4713	6650-99-226-0668
magnification	6x	7x	10x	7x	8x
objective lens dia (mm)	30	50	50	50	42
field of view in degrees	8.0	7.5	6.0	7.0	6.2
field of view in metres	140 at 1000m	131 at 1000m	105 at 1000m	122 at 1000m	108 at 1000m
eye relief distance (mm)	16.5	18	12	18	19
exit pupil diameter (mm)	5.0	7.1	5.0	7.1	5.2
minimum close focus distance (m)	9	18	14	18	3
eyepiece lens diameter (mm)	15	16	16	16	20
individual eyepiece dioptical focusing	yes	yes	yes	yes	yes*
interpupillary adjustment (mm)	58 to 72	58 to 72	58 to 72	58 to 72	57 to 73
mils reticle/graticule	V +50 to -50 mils	V +50 to -50 mils	V +40 to -40 mils	V +80 to 0 mils	
	H +50 to -50 mils	H +50 to -50 mils	H +40 to -40 mils	H +40 to -40 mils	H +40 to -40 mils
	In 5 Mil Divisions	In 5 Mil Divisions	In 5 Mil Divisions	In 5 Mil Divisions	In 10 Mil Divisions
optical coating	MgF2 fully coated	MgF2 fully coated	MgF2 fully coated	MgF2 fully coated	MgF2 fully coated
prisms	bak-4	bak-4	bak-4	bak-4	bak-4
relative brightness	25	50.4	25	50.4	27
length (mm)	128	177	177	177	139
width (open)	187	205	205	205	125
depth (mm)	66	72	72	85	53
weight (grams)	850	1170	1170	1170	635
construction of body	aluminium diecast	aluminium diecast	aluminium diecast	aluminium diecast	aluminium diecast
waterproof rating	1m for 5min	1m for 5min	1m for 5min	1m for 5min	1m for 5min
nitrogen filled repurgeable	yes	yes	yes	yes	yes
colour	black	black	black	black	black
case	hard black	hard black	hard black	hard black	soft black

Fitted as standard is a precise, clear reticle/graticule calibrated vertically and horizontally in 5 Mil divisions for accurate range finding. The 7x50RC model also contains an in-built liquid filled compass calibrated in degrees, the bearing being displayed clearly in the field of view at all times.

Available to special order (minimum quantities may apply):

- **7 x 35 R and 16 x 35 R models.**
- **in-built laser protection filters are available for all models in ISK-167 laser protection specification.**
- **green colour in place of black for both binoculars and hard cases.**
- **soft pouches including DPM fabric in place of hard or DPM fabric in place of soft black cases.**



# spotting scopes

## military PSP-60, 20-60x zoom

The PSP-60 is a robust, rubber armoured spotting scope with high definition optics for accurate focussing and offering high performance in the toughest of environments.

It has the following features:

- **60mm objective lens**
- **water-proof 1m, 5min.**
- **nitrogen gas filled to prevent fogging**
- **fully multi-coated optics**
- **robust black rubber coating**
- **fixed eyepiece zoom 20x - 60x (waterproof)**
- **objective lens cover and eyepiece protection cap**
- **tripod mount thread**
- **close focussing: 10m**
- **compact and easy to handle**
- **weight complete: 1050g**

objective	60mm
waterproof	1m 5mins
optics	muliti coated
eyepiece	20-60x zoom
colour	black
finish	rubber
weight	1050g
length	340mm
width	80mm
height	80mm
standard spec	PSP-60 scope, lens cap & eyepiece cover
options	carry case, tripod



### ordering information

102-501	PSP-60 military spotting scope
102-502	carry case for above
120-662	tripod (small type, sniper application)
820800-17a	tripod (full height)

**pyser**  
optics

defence

# DANOS 2



**Danos 2 is a man portable day and night sensor system featuring high performance thermal and day sensors for fast permanent and temporary surveillance needs.**

- detection ranges up to 13.7 km
- 4 Sensor heads per control station
- UAS package with pyser optics available
- rapid deployable man portable system
- housed inside two ruggedised air portable boxes
- hard wired/microwave transmitter/receiver



# man portable day & night observation system

## surveillance sensor

Danos 2 is configured to operate with a wide range of sensors as follows:-

- day camera:** including lenses up to 2004 mm
- mini tiu3:** range of thermal cameras including standard and high definition with lenses up to 150mm. fitted as standard
- tisi:** thermal weapon sight (removable to be used as hand held) optional
- visi:** thermal hand held observation system (removable to be used as hand held) optional

## pan/ tilt positioner

**operational angles**      **pan**      **tilt**

- over the top:** Continuous 360°-90° to +25° using slip rings
- backlash:** less than 0.15°
- speed:** 30° per sec.

## control station

- housed in a waterproof case the control unit lap top provides control of up to 4 camera outstations with full pan tilt, zoom control and camera selection.
- video transmission and data transmission modules fitted
- batteries and charger as standard
- optional video stabilisation
- optional video enhancement

## hard disk digital video recorder

- input signal:** composite analogue or S-Video
- output signal:** USB 2.0
- audio input:** external audio source
- power:** 5V, USB bus
- support:** 25 Frames/sec in 720 x 576 PAL video resolution
- compatible with:** windows® 2000/XPvista 32bit/ windows7

default settings allow up to 24 hours recording on a 32gb card



## standard danos 2 camera

- germanium window as standard (thermal)
- totally light independent
- detection range to 13.7km (vehicle)
- 25Hz refresh rate as standard
- thermal band 8-14µ m
- video motion detection compatible
- all weather IP67 sealed units
- rugged epoxy painted aluminium housing
- day camera colour/monochrome

## rf/microwave link (optional)

- 4.9-5.8GHz -1W max- multi channel
- range < 1000m (longer range available as an option)
- digital secure MPEG2
- 128 bit HW AES Encryption
- ID pairing, QOS
- dynamic power /channel setting
- MIMO technology
- integrated directional antennae
- IP65 housing

### data transmission

- 433.92MHz (EU)
- RS485
- baud rate 2400, 4800, 9600, 19200
- supports 8 bit data, with no 'forbidden' codes
- data transmitted indicator
- data received Indicator
- data error Indicator
- test packet transmit mode to aid installation
- 2 Independent Relay Outputs
- IP65 housing
- compliant with ETSI EN 300 220-1

### sensor head outstation

all the above control equipment is housed in a waterproof case with battery back up and external power supply.



# lens options and detection distances

## standard definition sd 384 x 288

			danos code	human			vehicle		
	HFOV			I	R	D	I	R	D
*15 mm	HFOV	35°	S15	127	192	381	318	529	953
*35 mm	HFOV	15.5°	S35	296	449	889	741	1235	2223
*45 mm	HFOV	12°	S45	381	577	1143	953	1587	2858
50 mm	HFOV	11°	S50	423	641	1270	1058	1764	3175
75 mm	HFOV	7.3°	S75	635	962	1905	1588	2648	4763
100 mm	HFOV	5.5°	S100	846	1282	2540	2116	3528	6350
150 mm	HFOV	3.7°	S150	1270	1824	3810	3166	5292	8526

## high definition hd 640 x 480

			danos code	human			vehicle		
	HFOV			I	R	D	I	R	D
14 mm	HFOV	44°	H14	170	283	508	423	706	1271
*18 mm	HFOV	34.8°	H18	220	367	660	550	917	1650
*25 mm	HFOV	25.1°	H25	306	509	917	764	1273	2292
*35 mm	HFOV	17.9°	H35	428	713	1283	1069	1782	3208
*45 mm	HFOV	13.7°	H45	550	917	1650	1375	2292	4125
50 mm	HFOV	12.4°	H50	611	1019	1833	1528	2546	4583
75 mm	HFOV	8.3°	H75	917	1528	2750	2292	3819	6875
100 mm	HFOV	6.2°	H100	1222	2037	3667	3056	5093	9167
150 mm	HFOV	4.2°	H150	1833	3056	5500	4583	7639	13750

**key: I = Identification, R = Recognition, D = Detection. All distances in metres. Lenses marked \* are manual focus, others are motorised focus. HFOV = horizontal field of view**



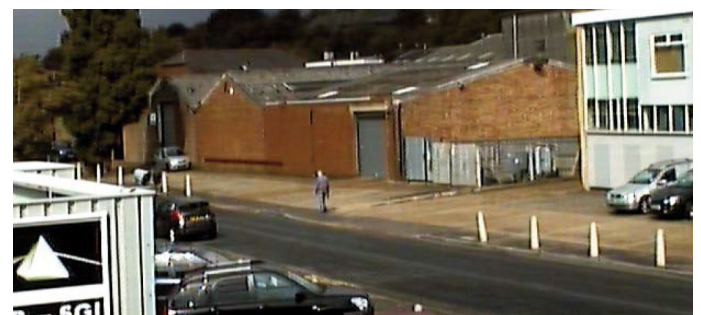
thermal 25 mm focal length lens hd

**standard day camera** 8 mm - 96 mm HFOV 43°-3°

Other focal lengths available on request up to 2004mm



day - 96 mm - lens at full zoom



day - 8 mm - lens at wide angle



# ordering information danos 2

**danos 2 consists of two modules:**

## 1. control station comprising:-

- semi ruggedized laptop computer
- rechargeable battery pack, charger and
- mains cable
- power and telemetry control equipment pre-equipped for up to four camera head/outstations
- all fitted into Peli-type case
- all interconnect cables

## 2. camera head/ outstation comprising:-

- day/night 8-96mm colour/monochrome camera (other options available on request)
- mini TIU3 thermal surveillance camera (user selected - see below)
- continuous rotation pan / tilt on rugged tripod
- rechargeable battery and mains supply pack in peli-type box

The above gives a complete hard wired system and is delivered in one air-transportable Peli-type box.

## ordering a basic system with one camera head/outstation

Part No 8256015 is the basic generic Danos 2 system complete, the camera head/ outstation being connected by cable to the control station **thermal camera still to be added.**

The choice of thermal camera uses the Danos 2 code appearing against each camera in the table on page 3. This code is added to the end of the generic part number above. For example 8256015H45 is a complete Danos 2 system using a mini TIU3 high definition camera with a 45mm lens, H meaning high definition and 45 defining the lens focal length.

The complete list of standard configurations is:-

### standard definition sd 384 x 288

8256015S15  
8256015S35  
8256015S45  
8256015S50  
8256015S75  
8256015S100  
8256015S150

### high definition hd 640 x 480

8256015H14  
8256015H18  
8256015H25  
8256015H35  
8256015H45  
8256015H50  
8256015H75  
8256015H100  
8256015H150

## adding more camera head/outstations

The control station is pre-equipped as standard to serve up to four camera head/outstations with no modification necessary. This means that more can be added later in addition to the initial number ordered. So up to three extra outstations can be added as extra modules to the basic single outstation system, either as part of the initial system or at a later date. In common with the initial outstation each additional one includes the complete equipment list and day camera listed under point 2 above.

Additional units use exactly the same part number as the basic system but with the addition of the number 2, 3 or 4 – each number defining an outstation.

For example 825601 means a second outstation which is equipped with a Mini TIU 3 Standard Definition with a100mm lens. So a complete system with three outstations in total would be ordered as follows :-

8256015H45 Basic Danos 2 system with first outstation using a high definition 45mm lens mini TIU3 camera

8256015S752 Second outstation using a standard definition 75mm lens Mini TIU3 camera

8256015H1503 third outstation using a high definition 150mm lens mini TIU3 camera

## adding microwave control/radio TX and RX

All Danos 2 systems are pre-equipped to operate any outstation by cable or RF/Microwave link.

Conversion from cable to RF/Microwave can be done as part of the initial system order or as a retrofit with no modifications needed to the control station. To add RF/Microwave functionality to any outstation, or to a single outstation system simply add the letter M to the end of the part number.

## for example

8256015H45M is a Basic Danos 2 system with first outstation using a High Definition 45mm lens Mini TIU3 camera operated by RF/Microwave up to 1 Km line of sight instead of hard wired by cable. And a three outstation system could be 8256015H45 is a complete Danos 2 single outstation basic system using a Mini TIU3 High Definition with a 45mm lens in its first outstation, cable connected

## plus

8256015H1002M is a second outstation using a Mini TIU3 high definition with a 100mm lens with RF/Microwave instead of cable connected

## plus

8256015S753 is a third outstation using a Mini TIU3 standard definition with a 75mm lens, cable connected.

## other configurations

Danos 2 is a very versatile and flexible modular system and can be custom made to any user specific requirements.

It can be configured with outstations using:-

- alternative day or day/low light cameras of focal lengths up to 2004mm
- twin day or day/low light cameras instead of single day and single thermal cameras
- single or twin thermal cameras including variable or step zoom models
- image intensified cameras including Pyser-SGI BICAM, TRICAM and VERTIGO
- VISI and TISI hand held thermal imaging surveillance cameras and sights

In addition electronic image stabilisation and/or electronic image enhancement can be incorporated into the control station to **function on all cameras.**

Please contact us for your specific system requirements.

# Mini TIU3



The ultimate in day and night CCTV detection, recognition and identification. High Definition 640 x 480 25Hz and Standard Definition 384 x 288 25Hz. Thermal surveillance video in all weather environments.



- Germanium window as standard
- Totally light independent
- Detection range to 5.5 km
- 25Hz refresh rate as standard
- Thermal band 8-14 $\mu$ m
- Video Motion Detection compatible
- All weather IP67 sealed units
- Rugged epoxy painted aluminium
- Housing





## lens options and detection distances

high definition 640 x 480	human			vehicle		
	I	R	D	I	R	D
*18mm H-FOV 34.8°	220	367	660	550	917	1650
*25mm H-FOV 25.1°	306	509	917	764	1273	2292
*35mm H-FOV 17.9°	428	713	1283	1069	1782	3208
*45mm H-FOV 13.7°	611	1019	1833	1528	2546	4583
50mm H-FOV 12.4°	306	509	917	764	1273	2292
75mm H-FOV 8.3°	917	1528	2750	2292	3819	6875
100mm H-FOV 6.2°	1222	2037	3667	3056	5093	9167
150mm H-FOV 4.2°	1833	3056	5500	4583	7639	13750

standard definition 384 x 288	human			vehicle		
	I	R	D	I	R	D
*15mm H-FOV 35°	127	192	381	318	529	953
*35mm H-FOV 15.5°	296	449	889	741	1235	2223
*45mm H-FOV 12°	381	577	1143	953	1587	2858
50mm H-FOV 11°	423	641	1270	1058	1764	3175
75mm H-FOV 7.3°	635	962	1905	1588	2646	4763
100mm H-FOV 5.5°	847	1283	2540	2117	3528	6350
150mm H-FOV 3.7°	1270	1924	3810	3175	5292	9525

**Key: I = Identification, R = Recognition, D = Detection. All distances in metres. Lenses marked \* are manual focus, others are motorised focus.**



# technical specifications

## Mini TIU3

- operating temperature -30°C to +50°C
- polarity control black/white hot - automatic gain
- 12v DC input - PAL composite video output
- environmentally protected to IP67 including germanium protective window.
- zoom. continuous electronic zoom to 4x 640x480, electronic 2x 384x288.
- single MilSpec socket for video out/power in and camera control functions

## Mini TIU3 HD

- Pitch 17μ
- Pixels 640x480
- Detector AmSi microbolometer
- Spectral band 7-14μm
- NETD<45 mK @ 20° ambient and 30° scene temperature
- Refresh rate 25Hz

## Mini TIU3 HD

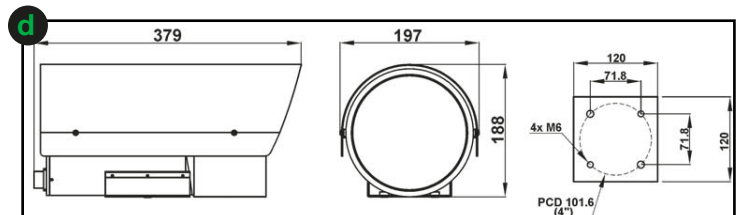
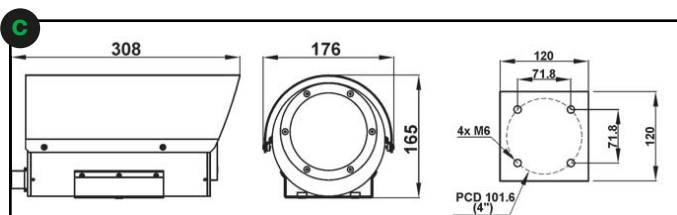
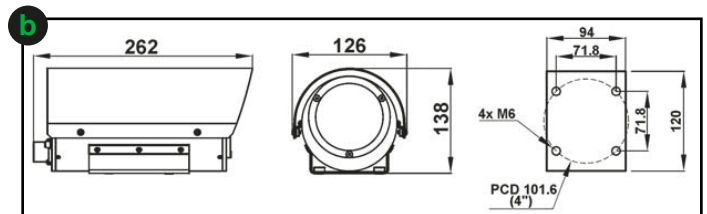
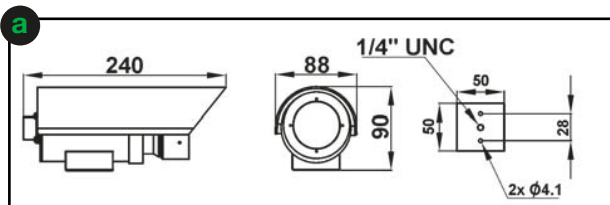
- Pitch 25μ
- Pixels 384x288
- Detector AmSi microbolometer
- Spectral band 7-14μm
- NETD<45 mK @ 20° ambient and 30° scene temperature
- Refresh rate 25Hz

## dimensions & weight

part no.	model type	mount	weight(g)
<b>Mini TUI3 high definition 640 x 480 thermal imaging camera</b>			
567-018HD	18mm manual focus lens external use HD 640 x 480 34.8° H-FOV	a	840
567-025HD	25mm manual focus lens external use HD 640 x 480 25.1° H-FOV	a	811
567-035HD	35mm manual focus lens external use HD 640 x 480 17.9° H-FOV	a	862
567-045HD	45mm manual focus lens external use HD 640 x 480 13.7° H-FOV	a	924
567-050HD	50mm motorised lens external use HD 640 x 480 12.4° H-FOV	b	2317
567-075HD	75mm motorised lens external use HD 640 x 480 8.3° H-FOV	b	2365
567-100HD	100mm motorised lens external use HD 640 x 480 6.2° H-FOV	c	245
567-150HD	150mm motorised lens external use HD 640 x 480 4.2° H-FOV	d	5464

## dimensions & weight

part no.	model type	mount	weight(g)
<b>Mini TUI3 standard definition 384 x 288 thermal imaging camera</b>			
567-015SD	15mm manual focus lens external use 384 x 288 35° H-FOV	a	840
567-035SD	35mm manual focus lens external use 384 x 288 15.5° H-FOV	a	862
567-045SD	45mm manual focus lens external use 384 x 288 12° H-FOV	a	924
567-050SD	50mm motorised lens external use 384 x 288 11° H-FOV	b	2317
567-075SD	75mm motorised lens external use 384 x 288 7.3° H-FOV	b	2365
567-100SD	100mm motorised lens external use 384 x 288 5.5° H-FOV	c	2464
567-150SD	150mm motorised lens external use 384 x 288 3.7° H-FOV	d	5464



## accessories for Vertigo

589-706	Vertigo control box, including 3m cable for day Vertigo
589-706C	Vertigo control box, including 3m cable for all changeover Vertigo models
589-706T	Vertigo control box, including 3m cable for all thermal Vertigo models
820600-02	Electronic Image Stabilisation Unit
583-334	Video image enhancer, MicroTest EV9

## part no.

## model type

### high definition 640 x 480

567-018HDC	Thermal imaging camera Mini TIU3 18mm lens HD 640 x 480
567-025HDC	Thermal imaging camera Mini TIU3 25mm lens HD 640 x 480
567-035HDC	Thermal imaging camera Mini TIU3 35mm lens HD 640 x 480
567-045HDC	Thermal imaging camera Mini TIU3 45mm lens HD 640 x 480
567-050HDC	Thermal imaging camera Mini TIU3 motorised 50mm lens HD 640 x 480.
567-075HDC	Thermal imaging camera Mini TIU3 motorised 75mm lens HD 640 x 480
567-100HDC	Thermal imaging camera Mini TIU3 motorised 100mm lens HD 640 x 480
567-150HDC	Thermal imaging camera Mini TIU3 motorised 150mm lens HD 640 x 480

### standard definition 384 x 288

567-015SD	Thermal imaging camera Mini TIU3 15mm lens SD 384 x 288
567-035SD	Thermal imaging camera Mini TIU3 35mm lens SD 384 x 288
567-045SD	Thermal imaging camera Mini TIU3 45mm lens SD 384 x 288
567-050SD	Thermal imaging camera Mini TIU3 motorised 50mm lens SD 384 x 288
567-075SD	Thermal imaging camera Mini TIU3 motorised 75mm lens SD 384 x 288
567-100SD	Thermal imaging camera Mini TIU3 motorised 100mm lens SD 384 x 288
567-150SD	Thermal imaging camera Mini TIU3 motorised 150mm lens SD 384 x 288

## accessories

567-204	Mini TIU3 control box with 3 metre cable (longer available up to 25m)
820800-02B	Electronic image stabilisation unit



# NIM - night intensification module

NIM is a small lightweight optical module containing the latest in image intensifier technology.

NIM can be used with any CCTV camera and compatible CCTV lenses. It requires only 12V DC input and can effectively turn any day camera into an extreme low light surveillance system.

Now available with tubes including FC (export licence exempt\*\*) as well as standard licence HD High Definition, XD-4 and XR5.

XD-4 and XR5 models can also be supplied with Auto-Gating and FC, HD, XD-4 and XR5 are available with green or black and white tubes.

\*\*Does not require UK Export Licence but not available to countries on UN/EU/UK Embargo/Sanctions Lists.

- compatible with 1" format lenses
- compatible with 1/2" & 1/3" cameras
- very simple and very quick to install
- tripod mountable
- gain in excess of 20,000



# technical specifications

## optical

- magnification:** 1x
- field of view:** depending on lens/ camera config
- objective lenses**
- mounting type:** 'C' mount (1"-32 TPI) interchangeable
- lens options** A complete range of 1 "C" mount lenses including zoom, tele and wide-angle
- connector:** 2.1mm tubular low power connector (female) length in front of dayscope

## physical

- dimensions:** 73 mm (L) x 44 mm (Dia)
- weight:** 216 g
- tripod mount:** Standard 1/4" UNC threading

## ordering information

### 5 models available:

model	tube	part no
NIM FC2	FC	575-221FC2
NIM HD	HD	575-221HD*
NIM XD-4	XD-4	575-223XD4*
NIM XD-4A	XD-4 auto-gated	575-223XD4A*
NIM XR5	XR5	575-223XD4A*
NIM XR5A	XR5 auto-gated	575-226XR5A*

\*Export of this product from the UK is controlled under U.K. Export Licence Regulations. All goods are supplied under our standard conditions of trade. We reserve the right to amend design and specifications without prior notification.

## electrical

- power requirement:** 12 V DC



## tube comparison chart

typical values	FC	HD	XD-4	XR5
sensitivity (UA/Im)	500	550	700	800
resolution (lp/mm)	45	51	64	72
signal to noise ratio	19	19	23	28
figure of merit typical	855	969	1472	2016

**pyser**  
optics

distance

# PROMS 2

The Portable Rapid deployment Observation Monitoring System (PROMS 2) is designed to cater for all static urban and rural surveillance operations. PROMS 2 provides ultra long range Surveillance Target Acquisition using its combination of day or optional night sensor technology providing much higher times magnification than normal spotting scopes in service today.

PROMS 2 is man portable and can be rapidly deployed within a few minutes. With its unique remote monitoring system, surveillance operators are able to monitor and record information observed from the target area well away from where the sensor platform is deployed. This allows operators to work in complete safety and allows the use of multiple observers without compromising the position of the sensor platform or the operator.

**Portable rapid  
deployment  
observation and  
monitoring system**







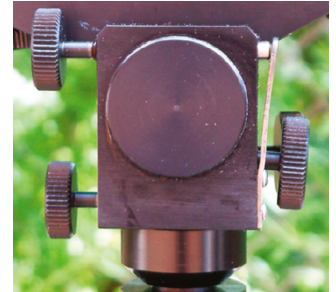
## capability

- colour video display 80x to 720x optical zoom magnification, facial recognition to 3km
- 100% continuous optical zoom in two ranges 80x to 240x and 240x to 720x
- video out for recording and radio transmission
- monitor deployable up to 40m from sensor platform for secure stand-off (1m and 10m supplied as standard)
- SD card DVR. DVR will record with case fully closed and monitor off.
- rapid deployable - man portable - in camo or black webbing backpack
- additional optional zoom ranges 29x to 86x and 40x to 120x
- optional zoom image intensified night vision on screen (to 540x) or naked eye use (to 240x).
- image enhancement and electronic image stabilisation as standard
- USB output as standard for direct connection to PC/Laptop. (Software supplied)

	FoV degrees*	FoV mils*	zoom magnification*
<b>colour camera</b>			
ultra low zoom range	(O) 1.3 to 0.4	27 to 9	29x to 86x
low zoom range	(O) 1.0 to 0.3	18 to 6	40x to 120x
medium zoom range	(I) 0.5 to 0.2	9 to 3	80x to 240x
high zoom range	(I) 0.17 to 0.06	3 to 1	240x to 720x
<b>II camera</b>			
ultra low zoom range	(O) 1.7 to 0.6	30 to 10	23x to 65x
low zoom range	(O) 1.3 to 0.4	24 to 8	30x to 90x
medium zoom range	(I) 0.7 to 0.2	12 to 4	60x to 180x
high zoom range	(I) 0.2 to 0.08	4 to 1.4	180x to 540x
<b>II scope</b>			
ultra low zoom range	(O) 4.2 to 1.4	75 to 25	9x to 30x
low zoom range	(O) 3.1 to 1.0	55 to 19	15x to 45x
medium zoom range	(I) 1.5 to 0.5	27 to 9	28x to 80x
high zoom range	(I) 0.5 to 0.2	9 to 3	80x to 240x



- SD card DVR
- electronic stabilisation
- electronic video enhancement
- PROMS 2 camera on/off and battery level



## operation

Simply find a location, set up the primary optical module and the selected secondary optical module (high mag, medium mag or optional low or ultra low mags), connect control station and pictures will be relayed in live video to the LCD up to 40 metres away. Cables are supplied as standard for stand-offs of 1m and 10m. Use the coarse adjustment along with the finder scope to get on target, then target precisely using the fine vertical and horizontal micrometric knobs. 100% optical zooming and precise focussing are then available by simple manual controls.

Sensor platform quick releases from the low profile sniper type tripod and attaches to any full size tripod fitted with world standard 1/4" UNC thread while maintaining full use of the special coarse / ultra fine adjustment pan and tilt head.

The control station incorporates simple, user friendly controls operating on/off, electronic image enhancement of full screen and windows selection for zone enhancement, electronic image stabilisation to eliminate vibration and DVR recorder on/off/replay.

## Standard Specification (Day model. Day/Night model is identical but includes NIM image intensification module)

- Water resistant optical system with fully coated ED optics 82mm Ø objective lens
- Two secondary optical modules- high and medium magnification zoom ranges
- Ultra lightweight and rigid low profile tripod mounting with coarse and fine vernier pan/tilt control
- Digital high resolution waterproof colour low light CCD video camera, 795 x 596 effective pixels PAL output
- 4 x 20 Finder Scope mounted on rail for left and right side mounting.
- Camouflage cover for telescope and mount. (Black cover also available).
- Camouflage DPM protective back pack for all equipment. (Black back pack also available).
- Flexible cable from telescope to control station 1metre and 10 metres.
- Rechargeable Lithium 12v battery. Useable charge 8-10 hours depending upon temperature and equipment used.
- Two battery chargers – mains 220-240v and also 12v from vehicle cigarette lighter
- Man portable
- Control station incorporates 8" LCD colour monitor, real time electronic stabilisation, real time video enhancement and SD card DVR.
- Supplied with quick release 32GB SD card as standard, giving up to 29 hours recording time.
- Battery level indicator.

## key optional extras (see complete list in table below)

**PROMS 2 is already equipped as standard to accept all accessories as retro-fits with no modifications necessary**

**40m** Interconnecting extension cable

**night vision on screen** NIM Night Vision module using \*\*FC, HD\*, XD-4\*, XR5\* and XR5A\* autogated image intensifier tubes. This module retrospectively converts Day Use PROMS 2 to Day/Night version. See NIM technical leaflet for full details

**naked eye night vision** PNP-M Night Vision Monocular or PNG-M night vision goggle using FC, HD\*, XD-4\*, XR5\* and XR5A\* autogated image intensifier tubes. See PNP-M and PNG-M technical leaflets for full details

**radio video transmission TX/RX modules**  
available to special order

**wide and ultra wide angle video**  
Two secondary optional modules are available giving lower magnifications (wider angles of view)  
Stowage cut-outs already provided in standard PROMS 2 backpack for these.

**external 12v operation** A 12v charger is available to power PROMS 2 and it's accessories, and maintain battery charge.

\*\*Now available with tubes including FC (export licence exempt\*\*) as XD-4 and XR5 models can also be supplied with Auto Gating and FC  
HD, XD-4 and XR5 are available with green or black and white tubes.

\*\*Does not require UK Export Licence but not available to countries on UN/EU/UK Embargo/Sanctions Lists.

## ordering information

830800I	PROMS 2 day use model
830803	PROMS 2 day/night use model with FC image intensified night vision
830804*	PROMS 2 day/night use model with HD image intensified night vision
830810*	PROMS 2 day/night use model with XD-4 image intensified night vision
830806*	PROMS 2 day/night use model with XR5 image intensified night vision
830806A*	PROMS 2 day/night use model with XR5A (autogated) image intensified night vision

## accessories

830800-01U	mains power adaptor for PROMS 2, UK only (IEC cable supplied)
830800-01E	mains power adaptor for PROMS 2, EU only (IEC cable supplied)
560-007XXX	PNP-M night vision monocular (see models available)
589-100XXX	PNG-M Night Vision Goggles (see models available)
830800-05A	wheeled hard PROMS 2 system in backpack
830800-06	wheeled hard PROMS 2 case, including foam cut-outs (to replace black or camouflage backpack)
820800-05A	wheeled protective case to hold PROMS 2 system in backpack
820800-06	wheeled hard PROMS 2 case, including foam cut-outs (to replace black or camouflage backpack)
820800-21	ultra low secondary optical module (in addition to PROMS 2 standard specification), nominal 29-86x, FOV (Day) 22 - 9 Mils
820800-11	low secondary optical module (in addition to PROMS 2 standard specification), nominal 40-120x, FOV (Day) 18 - 6 Mils
820800-08	medium secondary optical module (included in PROMS 2 standard specification), nominal 80-240x, FOV (Day) 9 - 3 Mils
820800-07	high secondary optical module (included in PROMS 2 standard specification), nominal 240-720x, FOV (Day) 3 - 1 Mils
820800-12	vehicle charger for PROMS 2, operates PROMS 2 from 12v cigarette lighter socket and maintains charge supplied
820800-14	PROMS 2 video - USB port device and cable for recording direct to PC/laptop
820800-16	low light water resistant monochrome camera for PROMS 2
820800-17	full height tripod for PROMS 2
820800-40	40m interconnecting extension cable

**pyser**  
optics

surveillance

**VISI**



Designed specifically for surveillance, the Pyser-SGI VISI thermal observation scope allows 24/7 use. It can be comfortably hand held, or mounted on a tripod, and enables the user to detect humans at almost 3 km and vehicles at up to 7 km.

VISI is available with thermal detectors of either 384x288 or 640x480 resolution and with a choice of optics giving either 3X or 5X basic magnification, horizontal angles of view of either 7 degrees (125 mils) or 12 degrees (210 mils) and detection ranges of up to 2760m (man) and 7000m (vehicle).

Standard Definition models (SD) also have a 2x electronic zoom giving a total of 6X or 10X magnification in addition to the basic 3X and 5X magnifications. High Definition models (HD) incorporate both a 2X and a 4X zoom giving total magnifications of 3X, 6X and 12X (HD 45 model) or 5X, 10X and 20X in the case of the HD 75 version.

Light enough to be hand held but rapidly attached with no tools to any tripod, VISI is operational within eight seconds from switch on. Simple, intuitive push button controls make it an extremely easy unit to use while offering the user a fully featured advanced surveillance tool, including video out & power in.

Large diameter eyepiece optics with very long eye relief make VISI extremely user friendly. Affordable and virtually maintenance free, it is the ideal choice for law enforcement, border protection, public safety, search and rescue, fire fighting and security.

VISI is designed, developed and manufactured in the UK by Pyser-SGI and requires only a UK export licence.

**thermal  
observation system**



# technical specifications

## performances

### high definition

human	75mm lens	45 mm lens
<b>detection:</b>	2760m	1650m
<b>recognition:</b>	1380m	825m
<b>identification</b>	920m	550m
<b>vehicle (land rover size)</b>		
<b>detection:</b>	7000m	4200m
<b>recognition:</b>	3500m	2100m
<b>identification</b>	2300m	1400m

### standard definition

human	75mm lens	45 mm lens
<b>detection:</b>	1900m	1140m
<b>recognition:</b>	950m	570m
<b>identification</b>	630m	380m
<b>vehicle (land rover size)</b>		
<b>detection:</b>	4760m	2850m
<b>recognition:</b>	2380m	1425m
<b>identification</b>	1580m	950m

## physical

One piece high strength anodised black aluminium alloy body and lens assemblies. Quick release tripod mount. Nitrogen purged.

VISI	SD45/ HD45	SD75/ HD75
<b>length mm:</b>	185	225
<b>width mm:</b>	76	85
<b>height mm:</b>	85	94
<small>(inc tripod mount)</small>		
<b>weight gm:</b>	<b>HD</b> 900	1285
	<b>SD</b> 900	1285

## power supply

**power source:** 4x "AA" type L91 Lithium 1.5V  
OR 4x "AA" Alkaline 1.5V OR 4x "AA"  
Rechargeable 1.2V

**tisi battery life:** HD75/ HD45 - up to 7 hours  
SD75/ SD45 - up to 10 hours  
(with L91/LF1500 type at 21°C)

external 6v power in by milspec socket live PAL composite video out via same socket

## controls

By single, simple, intuitive push buttons on right and left side of sight

**left side:** on/off/NUC (additional NUC facility by remote pressure pad)  
2x electronic zoom - Standard Definition models  
2x & 4x - electronic zoom High Definition models  
polarity inversion (black/hot : white/hot)

**right side:** screen brightness

## optics

hard coated with anti reflective coatings, high quality germanium F1.0 objective lens, 45mm or 75mm focal length 5x mag (75mm lens models) 3x mag (45mm lens models)

**horizontal field of view 75 mm lens:**  
7 degrees 125 mils HD  
8 degrees 142 mils SD

**horizontal field of view 45 mm lens:**  
13.7 degrees 243 mils HD  
12 degrees 213 mils SD

**focus:** 2.5 metres to infinity 45 mm lens  
5.0 metres to infinity 75 mm lens

apparent field of view 26 degrees, 462 mils

fully coated eyepiece lens optics  
dioptr adjustment +3 to -3  
eyepiece lens glass diameter 31mm  
eye relief 50 mm

## thermal image

**high definition pitch:** 17µ **pixels:** 640x480

**detector:** AmSi microbolometer

**spectral band:** 7-14µm **refresh rate** 25Hz  
NETD<45 mK @ 20°C ambient & 30°C scene temp

**standard definition pitch:** 25µ **pixels:** 384x288

**detector:** AmSi microbolometer

**spectral band:** 7-14µm **refresh rate** 25Hz  
NETD<45 mK @ 20°C ambient & 30°C scene temp

**display:** advanced OLED, 852 x 600 pixels SVGA

## environmental

**waterproof:** water resistance 20m for 1 hour

**temperature:** operation -40°C to +60°C

## part no.

## mid definition

V560-370

VISI SD75

v560-370

VISI SD45

### optional accessories

560-390

remote pressure pad NUC switch

550-007T

shuttered eyeguard

560-391

cable, 6V in/video out

FBS-043

medium hermetic case with custom made cutouts

## part no.

## high definition

v560-380

VISI HD75

v560-381

VISI HD45

**VISI is delivered in its soft black padded pouch, four "AA" Lithium L91 batteries and fully illustrated operating instructions.**

**pyser**  
optics

science

# pyser optics LRD 25 x 150 mt-sx

The unique LRD 25x150 MT-SX giant binocular introduces a completely new dimension to long distance day and night surveillance. The large 150mm apochromatic lenses offer incredible resolution and light gathering power with standard day-time eye pieces fitted. These can easily be replaced by special night vision eyepieces equipped with state-of-the-art XR5A autogated image intensifier tubes to give superb night surveillance.

The waterproof, seawater-resistant body allows these powerful binoculars to be used in all weather conditions. The specially designed eyepieces are comfortable and the binocular can be used for many hours without fatigue.

**magnification:** 25x

**objective lens diameter:** 150mm

**eye relief:** 18.6mm

**field of view:** 2.7°

**field of view at 1000m:** 47m

**apparent field of view:** 67.5°

**exit pupil diameter:** 6mm

**relative brightness:** 36

**interpupillary distance:** 60-70mm

**length:** 962mm

**max width:** 365mm

**weight:** 19kgs

**long range  
binocular with  
mount and tripod**

