

AERON

A World Leading Short to Long Range Compact Surveillance Unit

The Aeron is a highly modular, ready to go, compact surveillance solution using video and thermal cameras which is ideal for short to long range surveillance applications.

The Aeron is a compact, rugged, continuous rotation PTZ camera that has been specifically designed for marine, harsh and challenging environments. With a range of features such as zoom thermal, cooled and uncooled thermal, HD and 4K video as well as IR and white light option, make the Aeron a versatile and cost effective solution.

A wide range of thermal and video cameras are available for the Aeron, all supplied in cable managed housings for protection in the harshest environments. With belt driven gears as standard the Aeron has virtually zero backlash ensuring the capture of stable images even at very long distances over land or water.

All Silent Sentinel Pan and Tilt systems are designed with absolute posing feedback as standard. So when twinned with radar or any automated control program it can be driven automatically to any threat detected and remain on target as the threat moves. As with all Silent Sentinel products the Aeron can easily be deployed as a standalone system or a combined solution to increase the performance.

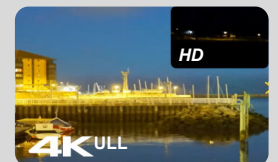
The Aeron platform can be configured and optimised for a broad range of applications and operational theatres with the ability to detect, identify, track and react to the surveillance requirement.

Key Features

- Supporting ranges up to 10.9km for human detection and 20.1km for vehicle detection.
 - Long range thermal cameras with zoom (up to 300mm).
 - HD/4k Low Light and 4k ULL (Ultra Low Light. 0.0006lux) colour cameras.
 - Thermal camera image contrast enhancements.
 - Multiple thermal colour palettes.
 - Focal length dependent speed control (zoom).
 - Anti fog, anti haze, image stabilisation, autofocus and auto tracking capabilities.
 - Absolute positioning feedback for radar control.
 - 360° continuous rotation.
 - High performing pan and tilt speeds up to 160° per second.
 - Virtually zero backlash with automatic self position correction.
 - Optical encoders for preset accuracy (0.05° repeatability).
 - Compact housings with wipers as standard*.
 - ONVIF Profile S compliant.
 - Highly ruggedised for extreme and marine environments.
 - IP67, REACH, ROHS & CE Compliant.
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- Options include: Image Fusion, 2 Axis Gyro Stabilisation, Image Stabilisation, Automatic Object Tracking, Short to Mid Range Infra Red (IR) Illuminators, White Light (WL) Illumination, Hybrid IR/WL Illumination, Heaters, Various Mounting Options, & Custom Paint Colours.



HD 4K



The Silent Sentinel Range

Silent Sentinel offer an extensive range of camera and lens configurations to meet your exact surveillance requirements

Tel: +44 (0) 1920 871 734
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Aeron Uncooled Short to Medium Range Thermal Fixed Lens Camera Modules

The Silent Sentinel short to medium range uncooled thermal fixed lens camera modules are designed to provide the perfect value added video surveillance solution when integrated into the compact Aeron PT platform.



Lens

	14mm	25mm	50mm	65mm	100mm
Focal Length	14mm	25mm	50mm	65mm	100mm
Optical Zoom (Continuous)	-	-	-	-	-
F Number	F1.4	F1.2	F1.2	F1.2	F1.6
Horizontal Field of View	44°	24.8°	12.4°	9.6°	6.2°
Focus	Fixed, preset with Athermalization				

Camera

Detector Type	Uncooled VOx Microbolometer
Resolution	640 x 480 (Lower resolution 320 x 240 versions are available upon request)
Pixel Size	17 µm
Spectral Band	8 to 14 µm (LWIR)
Sensitivity	< 50 mK (NEΔT) f/1.0 @ room temperature
Frame Rate	25 Fps (9 fps, 30fps options)
Frequency	25Hz (9Hz, 30Hz options)
Digital Zoom and Pan	4x Digital zoom, Region of Interest
Digital Video	14/8-bit LVCMOS/Camera Link®
Video Output	IP and Composite (PAL / NTSC)
Window	Germanium thermal optical quality glass, with a Low Reflection Hard Carbon (HCLR) coating
Image Stabilisation	Yes (cost option)
Image Enhancement	Image Contrast Enhancement (ICE™)
Image Control	Polarity: White Hot / Black Hot, Orientation: Invert / Revert
Part Numbers	Please refer to the last page of this document for the standard Aeron product combinations

Detection, Recognition and Identification Ranges (Johnsons Criteria*)

Detection (Human / Vehicle)	740m / 950m	1320m / 1690m	2650m / 3390m	3440m / 4400m	5290m / 6760m
Recognition (Human / Vehicle)	190m / 240m	330m / 420m	660m / 850m	860m / 1100m	1320m / 1690m
Identification (Human / Vehicle)	110m / 150m	200m / 260m	410m / 520m	530m / 680m	810m / 1040m

* Human at 1.8m x 0.75m, vehicle at 2.3m², Detection at 2 pixels, Recognition at 8 pixels and Identification at 13 pixels. 50% probability subject to environmental conditions.

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Aeron Uncooled Short to Medium Range Thermal Zoom Lens Camera Modules

The Silent Sentinel short to medium range uncooled thermal zoom lens camera modules are designed to provide the perfect value added video surveillance solution when integrated into the compact Aeron PT platform.



Lens			
Focal Length	15mm to 100mm	26 mm to 105mm	50mm to 150mm
Optical Zoom (Continuous)	6.6x, Motorised	4x, Motorised	3x, Motorised
F Number	F1.4	F1.6	F1.6
Horizontal Field of View	42.2° (W) to 6.2° (T)	25.3° (W) to 5.9° (T)	12.5° (W) to 4.1° (T)
Focus	Fixed, preset with Athermalization		

Camera	
Detector Type	Uncooled VOx Microbolometer
Resolution	640 x 480 (Lower resolution 320 x 240 versions are available upon request)
Pixel Size	17 µm
Spectral Band	8 to 14 µm (LWIR)
Sensitivity	< 50 mK (NEΔT) f/1.0 @ room temperature
Frame Rate	25 Fps (9 fps, 30fps options)
Frequency	25Hz (9Hz, 30Hz options)
Digital Zoom and Pan	4x Digital zoom, Region of Interest
Digital Video	14/8-bit LVCMOS/Camera Link®
Video Output	IP and Composite (PAL / NTSC)
Window	Germanium thermal optical quality glass, with a Low Reflection Hard Carbon (HCLR) coating
Image Stabilisation	Yes (cost option)
Image Enhancement	Image Contrast Enhancement (ICE™)
Image Control	Polarity: White Hot / Black Hot, Orientation: Invert / Revert
Part Numbers	Please refer to the last page of this document for the standard Aeron product combinations

Detection, Recognition and Identification Ranges (Johnsons Criteria*)			
Detection (Human / Vehicle)	5290m / 6760m	5560m / 7100m	7940m / 10150m
Recognition (Human / Vehicle)	1320m / 1690m	1390m / 1780m	1990m / 2540m
Identification (Human / Vehicle)	810m / 1040m	860m / 1090m	1220m / 1560m

* Human at 1.8m x 0.75m, vehicle at 2.3m², Detection at 2 pixels, Recognition at 8 pixels and Identification at 13 pixels. 50% probability subject to environmental conditions.

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Aeron Cooled Medium to Long Range Thermal Camera Modules

The Silent Sentinel medium to long range cooled thermal zoom cameras are designed to provide the perfect high quality video surveillance solution when integrated into the compact Aeron PT platform



Lens

Focal Length	19mm to 275mm	15mm to 300mm
Optical Zoom (Continuous)	14.4x, Motorised	20x, Motorised
F Number	F5.5	F4.0
Horizontal Field of View	28.3° (W) to 2.0° (T)	35.5° (W) to 1.83° (T)
Focus	Motorized zoom and focus with autofocus	

Camera

Detector Type	Cooled InSb FPA
Resolution	640 x 512
Pixel Size	15 µm
Spectral Band	3.4 to 5.1 µm (MWIR)
Sensitivity	< 25 mK (NEΔT) @ room temperature
Frame Rate / Frequency	25Hz (30Hz option)
Cooler Type	Stirling cycle, integrated (20,000hrs)
Cool Down Time	< 10 Minutes, 6 minutes typical
Image Enhancement	Linear AGC, CLAHE, LAP
Digital Zoom	4x
Video Output	IP and Composite (PAL / NTSC)
Window	Vanadium thermal optical quality glass, with a Low Reflection Hard Carbon (HCLR) coating
Image Stabilisation	Yes
Image Control	Noise reduction, sharpen, alpha-blend. Palettes: Black-hot, white-hot, ironbow, rainbow + more
Part Numbers	Please refer to the last page of this document for the standard Aeron product combinations

Detection, Recognition and Identification Ranges*

Detection (Human / Vehicle)	8790m / 16520m	10970m / 20110m
Recognition (Human / Vehicle)	1910m / 7150m	2360m / 8790m
Identification (Human / Vehicle)	1180m / 4890m	1440m / 5960m

* Ranges are based upon 50% probability on a MODTRAN standard atmosphere. Detailed calculation notes available upon request.

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Aeron Compact Pan and Tilt Unit

The Aeron's compact, robust aluminium housing is rated to IP67, it is hard anodised and has a white marine grade paint to withstand harsh environmental and marine conditions.



The Aeron employs belt drives with virtually zero backlash and the optical encoder ensures the unit retains position and will even self correct.

Electrical and Mechanical

Repeatability	0.05°
Optical Encoder Preset Accuracy	0.01°
Pan Rotation	360° Continuous
Pan Speed	160° per second (excluding ramping)
Tilt Range	+90° to -30° upright (-68° inclined), +30° to -90° inverted
Tilt Speed	160° per second (excluding ramping)
Speed Control	Zoom dependant speed control
Position Control	Capable of retraining position without drift. Automatic position recovery if forced away by a 'non-control' intervention
Motor Drive	Long life toothed polypropylene belt drive, Pulleys bonded to keypad shafts for minimum backlash
Rotational Contacts	Heavy duty slip rings for power, data, video and switching for washer
Pan / Tilt Bearings	Sealed for life – no maintenance required
Actuation	Pan and tilt stepper motors
Position Encoders	Optical encoders on pan and tilt motors
Mounting Profile	Upright or inverted
IP rating	IP67
Temperature Range	-20°C (-4°F) Up to 65°C (149°F) (-40°C with optional heater)
Power	14 to 36vDC or 14 to 26vAC, 45W peak (100W with optional heater) (20W typical in low power mode when idle without heater)
Fixing Material	Stainless steel with external fall protection
Housing Material	Die-cast hard anodised aluminium
Housing Finish	White powder marine grade paint finish (other colours are available upon request)
Weight	9.3kg (20.5lb)
Turning Diameter	340mm / 13.40" Normal - 370mm / 14.57" Offset
Height	370mm / 14.57" Normal - 340mm / 13.86" Offset

Telemetry

Presets	127x Preset positions, 16x preset tours (maximum of 60 positions each), four 8 minute mimic tours
Protocols	Pelco-D, Pelco P, Pelco D Extended, CBC OCP485, Forward Vision Mic1 FV300, Philips, Vicon, SSP, ONVIF Profile-S
Parameter Programming	IP, RS485 (not IP)
Privacy Zones	Maximum of eight on-screen simultaneously
Positioning	Absolute positioning
Additional features	Programmable text within picture (camera ID), parameter control (RS232 or RS485) TCP/IP prepared, compass heading (cardinal point and/or degrees), focal length dependant pan and tilt control, in built real time clock and date

Network

Ethernet	10/100 Base T, auto sensing, half/full duplex
Connectivity	ONVIF Profile S, auto MDIX, port forwarding
Configuration	Via web browser
Network Protocols	Networking: IPv4/v6, UDP, TCP, IGMP, ARP, DHCP, DNS, NT Streaming: RTSP, RTP, HTTP, Web Sockets Management: HTTP, HTTPS, Bonjour, ONVIF, PSIA, ION API, SNMP, SMTP Security: Basic / Digest Authentication, SSL
Latency	Can reach less than 100ms latency

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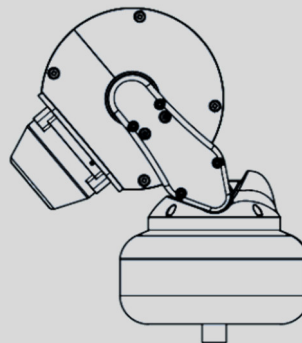
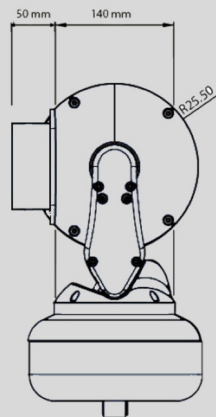
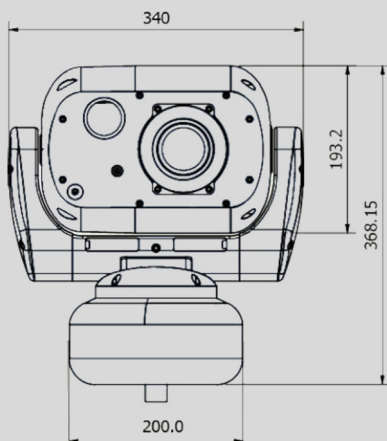
Image Processing

Video Compression	H.264/MPEG4 Part 2, M-JPEG
H.264 Performance (Standard)	Total D1 at 390 fps or Full HD 1080p at 65 fps Examples: 2x 1080p at 30 fps (HD video/thermal) or 2x D1 at 30 fps (thermal / SD)
H.264 Performance (4k 8.51MP Camera)	30 fps at 3840x2160 and 30 fps at 1080p (H.265 also available)
H.264 Performance (4k 12.2MP Camera)	30 fps at 3840 x 2160 (supports up to 20 clients/connections over 5 streams) (various resolutions from 320 x 180 available)
Image Processing	Image resizing and scaling ratio, noise reduction, edge enhancement (sharpness), ROI based video compression
Software Update	Remote / IP accessible
Other Features	Email Notifications, Text Overlay

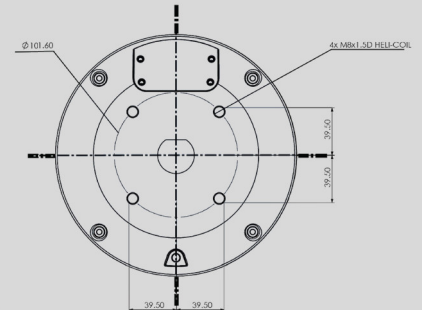
Options

Brackets	Tower mount, pole mount, 1m pendant mount, wall mount, corner mount, swan neck mount
Wiping	Wiper nozzle and wash tank (for the video camera only)
Gyro	2 Axis gyro stabiliser
Image Fusion	Thermal and video Image Fusion with stepped preset zoom
Analogue	Analogue composite camera alternatives are available upon request
Storage	Up to 64GB in total via SD/MMC (32GB available per channel if using thermal and video / 2x cameras)
Additional Optional Modules	Bird Spike, Sunshield, Automatic Object Tracking, Image Stabilisation, White Light, Infra Red Illuminator, Hybrid White Light and Infra Red Illumination, Heater, Custom Paint Colours Please contact us if you have a specific requirement that is not mentioned or detailed in the part numbers

Typical Aeron Compact PTZ Camera



Aeron Fixing Points
(base of the Aeron with an industry standard 4" PCD mount)



* Dimensions (mm) and designs are indicative and subject to the final camera configuration/model.

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Standard Part Codes and Configurations*

SS-A-3-3-3-1	Aeron, IP, 640x480 thermal camera with a 65mm, F1.2 thermal lens, and a HD video camera with optical zoom of 30x, white colour
SS-A-3-2-3-1	Aeron, IP, 640x480 thermal camera with a 100mm, F1.6 thermal lens, and a HD video camera with optical zoom of 30x, white colour
SS-A-3-B-3-1	Aeron, IP, 640x480 thermal camera with a 15mm-100mm, F1.4 thermal zoom lens, and a HD video camera with optical zoom of 30x, white colour
SS-A-3-H-3-1	Aeron, IP, 640x480 thermal camera with a 26mm-105mm, F1.6 thermal zoom lens, and a HD video camera with optical zoom of 30x, white colour
SS-A-3-D-3-1	Aeron, IP, 640x480 thermal camera with a 50mm-150mm, F1.6 thermal zoom lens, and a HD video camera with optical zoom of 30x, white colour
SS-A-3-3-E-1	Aeron, IP, 640x480 thermal camera with a 65mm, F1.2 thermal lens, and a Ultra 4K video camera with 20x optical zoom, white colour
SS-A-3-2-E-1	Aeron, IP, 640x480 thermal camera with a 100mm, F1.6 thermal lens, and a Ultra 4K video camera with 20x optical zoom, white colour
SS-A-3-B-E-1	Aeron, IP, 640x480 thermal camera with a 15mm-100mm, F1.4 thermal zoom lens, and a Ultra 4K video camera with 20x optical zoom, white colour
SS-A-3-H-E-1	Aeron, IP, 640x480 thermal camera with a 26mm-105mm, F1.6 thermal zoom lens, and a Ultra 4K video camera with 20x optical zoom, white colour
SS-A-3-D-E-1	Aeron, IP, 640x480 thermal camera with a 50mm-150mm, F1.6 thermal zoom lens, and a Ultra 4K video camera with 20x optical zoom, white colour
SS-A-3-7-F-1	Aeron, IP, 640x480 thermal camera with a 14mm, F1.4 thermal lens, and a 4k ultra low light video camera with a 35mm lens, white colour
SS-A-3-8-F-1	Aeron, IP, 640x480 thermal camera with a 25mm, F1.2 thermal lens, and a 4k ultra low light video camera with a 35mm lens, white colour
SS-A-3-4-F-1	Aeron, IP, 640x480 thermal camera with a 50mm, F1.2 thermal lens, and a 4k ultra low light video camera with a 35mm lens, white colour
SS-A-7-I-3-1	Aeron, IP, 640x480 cooled thermal camera with a 19mm-275mm, F5.5 thermal zoom lens, and a HD video camera with optical zoom of 30x, white colour
SS-A-7-J-3-1	Aeron, IP, 640x480 cooled thermal camera with a 15mm-300mm, F4.0 thermal zoom lens, and a HD video camera with optical zoom of 30x, white colour
SS-A-7-I-E-1	Aeron, IP, 640x480 cooled thermal camera with a 19mm-275mm, F5.5 thermal zoom lens, and a Ultra 4K video camera with 20x optical zoom, white colour
SS-A-7-J-E-1	Aeron, IP, 640x480 cooled thermal camera with a 15mm-330mm, F4.0 thermal zoom lens, and a Ultra 4K video camera with 20x optical zoom, white colour

* Please contact us if you have a specific requirement that is not mentioned in the datasheet or detailed in the part numbers above.