

## A World Leading Long Range Surveillance Platform

The Jaegar is a highly modular ready to go Single Mast Surveillance solution, ideal for medium to long range surveillance applications using video and thermal cameras.

The fixed through shaft, running through the Jaegar Pan and Tilt (PT) allows the cameras to rotate 360° continuously while keeping a payload on top, fixed in position, perfect to twin with radar and other detection technologies.

A wide range of thermal and video cameras are available, all supplied in cable managed housings for protection in the harshest environments. With harmonic drive gears as standard the Jaegar 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 positing feedback as standard. 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 Jaegar can easily be deployed as a standalone system or a combined solution to increase the performance.

The Jaegar 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 31km for human detection and 50km for vehicle detection.
  - Long range thermal cameras (up to 960mm) including HD thermal.
  - Ultra Low Light long range video / day cameras up to 1000mm (2000mm with extender).
  - HD and 4K visible camera options.
  - Medium to long range SWIR camera (up to 500mm).
  - Focal length dependent speed control (pan, tilt and zoom).
  - Anti fog, anti haze, image stabilisation, autofocus and auto tracking capabilities.
  - Absolute positioning feedback for radar control.
  - 360° continuous rotation.
  - Ultra slow pan / tilt speeds down to 0.0002° per second (and up to 80° per second).
  - Virtually zero backlash with automatic self position correction.
  - Optical encoders for preset accuracy (0.0002° repeatability).
  - Unique rapid release mechanism allows cameras to be quickly changed in the field.
  - Unique boresight positioning for fast alignment.
  - ONVIF Profile S compliant.
  - Highly ruggedised for extreme and marine environments.
  - Wiper options available on all video only cameras.
  - IP67, REACH, ROHS & CE Compliant.
- Options include: Automatic Object Tracking, Image Stabilisation, Laser Range Finders, Mid to Long Range IR and White Illuminators, Laser Illuminators, UAV Effectors, Signal Light Guns, Long Range Acoustic Hailer, Protective Window Flap/Cover, GPS Compass, WiFi, Radar and more.



Boresight Adjustment



Rapid Release Mechanism

### The Silent Sentinel Range

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

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## Jaegar Uncooled Short to Medium Thermal Fixed Lens Cameras

The Silent Sentinel short to medium range uncooled thermal fixed lens cameras are designed to provide the perfect value added video surveillance solution when partnered with the Jaegar PT platform.



### Lens

Focal Length	14mm	25mm	35mm	50mm	65mm	100mm
Optical Zoom (Continuous)	-	-	-	-	-	-
F Number	F1.4	F1.2	F1.2	F1.2	F1.2	F1.6
Horizontal Field of View	44°	24.8°	17.6°	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 (NETd) 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
Image Stabilisation	Yes (cost option)
Image Enhancement	Contrast enhancement
Image Control	Polarity: White Hot / Black Hot, Orientation: Invert / Revert

### Detection, Recognition and Identification Ranges (Johnsons Criteria\*)

Detection (Human / Vehicle)	305m / 950m	550m / 1690m	770m / 2370m	1100m / 3390m	1430m / 4400m	2200m / 6760m
Recognition (Human / Vehicle)	75m / 240m	140m / 420m	190m / 580m	275m / 850m	360m / 1100m	550m / 1690m
Identification (Human / Vehicle)	50m / 150m	85m / 260m	120m / 360m	170m / 520m	220m / 680m	340m / 1040m

\* Human at 1.8m x 0.5m, vehicle at 2.3m<sup>2</sup>, Detection at 2 pixels, Recognition at 8 pixels and Identification at 13 pixels. 50% probability subject to environmental conditions.

### Electrical and Mechanical

Boresight	Yes					
Rapid Release Mechanism	Yes					
Video Output	IP and Composite (PAL / NTSC)					
IP rating	IP67					
Temperature Range	-30°C (-22°F) Up to 65°C (149°F) (-40°C with optional heater)					
Power	28-32VDC, 0.6A, 16W (excludes heater at 65W)					
Window	Germanium thermal optical quality glass, with a Low Reflection Hard Carbon (HCLR) coating					
Fixing Material	Stainless steel with external fall protection					
Housing Material	Iridited aluminium					
Housing Finish	White powder marine grade paint finish (other colours are available upon request)					
Housing Model	HT06					
Weight	Typically 4Kg / 8.8lb					
Dimensions (mm)	L460 x W184 x H156					
Part Number (Camera Only)	RHT06IDB44FW	RHT06IDB25FW	RHT06IDB18FW	RHT06IDB12FW	RHT06PIB09FW	RHT06IDB06FW

## Jaegar Uncooled Medium to Long Range Thermal Zoom Cameras

The Silent Sentinel medium to long range uncooled thermal zoom cameras are designed to provide the perfect video surveillance solution when partnered with the Jaegar PT platform.



### Lens

Focal Length	15mm to 100mm	26 mm to 105mm	50mm to 150mm	25mm to 150mm	25mm to 225mm
Optical Zoom (Continuous)	6.6x, Motorised	4x, Motorised	3x, Motorised	6x, Motorised	9x, Motorised
F Number	F1.4	F1.6	F1.6	F1.4	F1.5
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)	25.3° (W) to 4.1° (T)	22.3° (W) to 2.8° (T)
Focus	Manual motorised focus with Athermalization				

### Camera

Detector Type	Uncooled VOx Microbolometer
Resolution	640 x 480
Pixel Size	17 µm
Spectral Band	8 to 14 µm (LWIR)
Sensitivity	< 50 mK (NETd) 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
Image Stabilisation	Yes (cost option)
Image Enhancement	Contrast enhancement
Image Control	Polarity: White Hot / Black Hot, Orientation: Invert / Revert

### Detection, Recognition and Identification Ranges (Johnsons Criteria\*)

Detection (Human / Vehicle)	2200m / 6760m	2300m / 7100m	3290m / 10150m	3290m / 10150m	4930m / 15220m
Recognition (Human / Vehicle)	550m / 1690m	580m / 1780m	830m / 2540m	830m / 2540m	1235m / 3805m
Identification (Human / Vehicle)	340m / 1040m	360m / 1090m	510m / 1560m	510m / 1560m	760m / 2340m

\* Human at 1.8m x 0.5m, vehicle at 2.3m<sup>2</sup>, Detection at 2 pixels, Recognition at 8 pixels and Identification at 13 pixels. 50% probability subject to environmental conditions.

### Electrical and Mechanical

Boresight	Yes				
Rapid Release Mechanism	Yes				
Video Output	IP and Composite (PAL / NTSC)				
IP rating	IP67				
Temperature Range	-30°C (-22°F) Up to 65°C (149°F) (-40°C with optional heater)				
Power	28-32VDC, 1.2A, 33W Peak (excludes heater at 65W)				
Window	Germanium thermal optical quality glass, with a Low Reflection Hard Carbon (HCLR) coating				
Fixing Material	Stainless steel with external fall protection				
Housing Material	Iridited aluminium				
Housing Finish	White powder marine grade paint finish (other colours are available upon request)				
Housing Model	HT07	HT06	HT07		
Weight	Typically 14Kg/30.9lb	Typically 4Kg / 8.8lb	Typically 14Kg / 30.9lb		
Dimensions (mm)	L700 x W254 x H226	L460 x W184 x H156	L700 x W254 x H226		
Part Number (Camera Only)	RHT07IDB15Z100FW	RHT06IDB26Z105FW	RHT07IDB50Z150FW	RHT07IDB25Z150FW	RHT07IDB25Z225FW

## Jaegar Uncooled Medium to Long Range Thermal LR Zoom Cameras

The Silent Sentinel medium to long range uncooled thermal LR zoom lens cameras are designed to provide a real alternative to cooled thermal camera technology.

Creating the perfect video surveillance solution when partnered with the Jaegar PT platform.



### Lens

	15mm to 75mm	25mm to 150mm	25mm to 225mm	40mm to 300mm
Focal Length	15mm to 75mm	25mm to 150mm	25mm to 225mm	40mm to 300mm
Optical Zoom (Continuous)	5x, Motorised	6x, Motorised	9x, Motorised	7.5x, Motorised
F Number	F1.2	F1.4	F1.5	F1.5
Horizontal Field of View	28.7° (W) to 5.9° (T)	17.5° (W) to 3.0° (T)	17.5° (W) to 2.0° (T)	11.0° (W) to 1.5° (T)
Focus	Manual motorised focus with push autofocus and Athermalization			

### Camera

Detector Type	Uncooled VOx Microbolometer
Resolution	640 x 480
Pixel Size	12 µm
Spectral Band	7.5 to 13 µm (LWIR)
Sensitivity	< 30 mK (NETd) f/1.0 @ room temperature
Frame Rate	25 Fps
Frequency	25Hz
Digital Zoom and Pan	4x Digital zoom, Region of Interest
Image Stabilisation	Yes
Image Enhancement	CLAHE / LAP Alpha blending
Image Control	Polarity: White hot / black hot, various user palettes. Orientation: Invert / revert. Shutter and scene based NUC. Spatial / temporal de-noise. Automatic gain control.

### Detection, Recognition and Identification Ranges\*

Detection (Human / Vehicle)	3920m / 7490m	7760m / 14170m	10070m / 16400m	11970m / 18850m
Recognition (Human / Vehicle)	750m / 3100m	1660m / 6180m	2320m / 8490m	3070m / 10980m
Identification (Human / Vehicle)	510m / 2100m	1020m / 4190m	1440m / 5870m	1910m / 7750m

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

### Electrical and Mechanical

Boresight	Yes
Rapid Release Mechanism	Yes
Video Output	IP and Composite (PAL / NTSC)
IP rating	IP67
Temperature Range	-30°C (-22°F) Up to 65°C (149°F) (-40°C with optional heater)
Power	28-32VDC, 1.2A, 33W Peak (excludes heater at 65W)
Window	Germanium thermal optical quality glass, with a Low Reflection Hard Carbon (HCLR) coating
Fixing Material	Stainless steel with external fall protection
Housing Material	Iridited aluminium
Housing Finish	White powder marine grade paint finish (other colours are available upon request)
Housing Model	HT07
Weight	Typically 14Kg / 30.9lb
Dimensions (mm)	L700 x W254 x H226
Part Number (Camera Only)	RHT07ILB15Z750FW      RHT07ILB25Z150FW      RHT07ILB25Z225FW      RHT07ILB40Z300FW

## Jaegar Cooled Medium to Ultra Long Range Thermal Zoom Cameras

The Silent Sentinel medium to ultra long range cooled thermal zoom cameras are designed to provide the perfect high quality video surveillance solution when partnered with the Jaegar PT platform.



Lens				
Focal Length	15mm to 300mm	35mm to 690mm	45mm to 900mm	80mm to 960mm
Optical Zoom (Continuous)	20x, Motorised	19.7x, Motorised	20x, Motorised	12x, Motorised
F Number	F4.0	F4.0	F4.0	F4.0
Horizontal Field of View	35.5° (W) to 1.83° (T)	15.6° (W) to 0.8° (T)	12.2° (W) to 0.61° (T)	11.0° (W) to 0.9° (T)
Focus	Manual motorised focus with push autofocus and Athermalization			

Camera		
Detector Type	Cooled InSb FPA	CMT
Resolution	640 x 512	1280 x 720 <b>HD</b>
Pixel Size	15 µm	12 µm
Spectral Band	3.4 to 5.1 µm (MWIR)	3.7 to 4.95 µm (MWIR)
Sensitivity	< 25 mK (NETd) @ room temperature	27.5 mK (NETd) Typical
Frame Rate / Frequency	25Hz (30Hz option)	60Hz
Cooler Type	Stirling cycle, integrated (20,000hrs)	Long life linear (50,000hrs)
Cool Down Time	< 10 Minutes, 6 minutes typical	3 to 4 Minutes typical
Image Enhancement	Linear AGC, CLAHE, LAP	Linear, lace, edge enhancement
Digital Zoom	4x	8x
Turbulence Mitigation	-	Yes
Image Stabilisation	Yes	
Image Control	Noise reduction, sharpen, alpha-blend. Palettes: Black-hot, white-hot, ironbow, rainbow + more	Polarity: White-hot / black-hot

Detection, Recognition and Identification Ranges*				
Detection (Human / Vehicle)	10970m / 20110m	21610m / 29400m	24170m / 31170m	30300m / 50000m
Recognition (Human / Vehicle)	2360m / 8790m	5380m / 19040m	6950m / 22670m	8000m / 20600m
Identification (Human / Vehicle)	1440m / 5960m	3300m / 13350m	4280m / 16830m	6300m / 16900m

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

Electrical and Mechanical			
Boresight	Yes		-
Rapid Release Mechanism	Yes		-
Video Output	IP and Composite (PAL / NTSC)		
IP rating	IP67		
Temperature Range	-30°C (-22°F) Up to 65°C (149°F) (-40°C with optional heater)		-32°C (-25°F) Up to 55°C (131°F)
Power	28-32vDC, 1.7A, 49W Peak (excludes heater at 65W)		28vDC, 0.9A, 25W Peak
Window	Vanadium thermal optical quality glass, with a Low Reflection Hard Carbon (HCLR) coating		Silicon Window Enhanced Diamond Like Carbon (EDLC) coating
Fixing Material	Stainless steel with external fall protection		Black anodised aluminium alloy
Housing Material	Iridited aluminium		Glass fibre polyester resin & gelcoat
Housing Finish	White powder marine grade paint finish (other colours are available upon request)		Gloss white polyurethane finish
Housing Model	HT07		HT07 Custom
Weight	Typically 14Kg / 30.9lb		Typically 20Kg / 44.1lb
Dimensions (mm)	L700 x W254 x H226	L521 x W231 x H257	L600 x W279 x H279
Part Number (Camera Only)	RHT07IGB15Z300FW	RHT07IGB35Z690FW	RHT07IGB45Z900FW

## Jaegar Medium to Long Range SWIR Camera

The Silent Sentinel medium to long range SWIR zoom camera is designed to provide the perfect high quality video surveillance solution when partnered with the Jaegar PT platform.



### Lens

Focal Length	50mm to 500mm
Optical Zoom (Continuous)	10x, Motorised
F Number	F5.0
Horizontal Field of View	15° (W) to 1.46° (T)
Working Spectral Band	0.9 – 1.9µ
Focus	Motorized zoom and focus with autofocus

### Camera

Detector Type	InGaAs PIN-Photodiode
Resolution	640 x 512
Pixel Size	15µm x 15µm
Spectral Band	0.4 to 1.7 µm (SWIR)
Readout Noise (RMS) LG = Low Gain HG = High Gain	LG: <190 electrons (174 electrons typical) HG: <50 electrons (36 electrons typical)
Quantum Efficiency	>80% @ 1.55µm
Full Well Capacity	LG: 650Ke-, HG: 10Ke-
Pixel Operability	>99.5%
Exposure time	10µs to 26.8s
Shutter mode	Global shutter
Frame Rate	25Hz
Dynamic Range	LG: 71dB, HG: 49dB
TE Cooling	Active
Image Correction	3 point NUC (offset, Gain & Dark Current) + pixel correction
Additional Functions	Exposure, intelligent AGC, NUC, Gamma, Pk/Av, TEC,
Digital Zoom	-
Image Stabilisation	Yes (cost option)

### Electrical and Mechanical

Boresight	Yes
Rapid Release Mechanism	Yes
Video Output	IP and Composite (PAL / NTSC)
IP rating	IP67
Temperature Range	-30°C (-22°F) Up to 65°C (149°F) (-40°C with optional heater)
Power	28-32vDC, 1.7A, 49W Peak (excludes heater at 65W)
Window	SWIR optical quality glass
Fixing Material	Stainless steel with external fall protection
Housing Material	Iridited aluminium
Housing Finish	White powder marine grade paint finish (other colours are available upon request)
Housing Model	HT07
Weight	Typically 14Kg / 30.9lb
Dimensions (mm)	L700 x W254 x H226
Part Number (Camera Only)	RHT07ISB50Z500FW

## Jaegar Short to Long Range HD Video Cameras

The Silent Sentinel short to long range HD video day / night cameras are designed to provide the perfect surveillance solution when partnered with the Jaegar PT platform.

Featuring superb low light performance, dynamic noise reduction (saving bandwidth), intelligent auto exposure and autofocus to enable a crisp image at range.



### HD 4K

Lens				
Focal Length	4.3mm to 129mm	15.2mm to 500mm	16.7mm to 1000mm	4.4mm to 88.4mm
Optical Zoom (Continuous)	30x, motorised	33x, motorised	60x, motorised	20x, Motorised
F Number	F1.6 to F4.7	F3.0 to F32	F3.5 to F16	F2.0 to F3.8
Horizontal Field of View	63.7° (W) to 2.32° (T)	23.42 (W) to 0.78° (T)	21.2° (W) to 0.45° (T)	70.2° (W) to 4.1° (T)
Extender	-	-	2x Extender available (doubles figures above)	-
Format Size	1/2.8"	1/2"	1/1.8"	1/2.5"
Focus	Auto focus and motorised manual focus	Push auto focus and motorised manual focus		Auto focus and motorised manual focus
Iris	Auto iris			

Camera				
Sensor	1/2.8" CMOS Exmor (2.13MP)	1/1.9" CMOS Sensor (2.38 MP)		1/2.5" CMOS (8.51MP)
Sensor Mode	Full HD 1080p (1920 x 1080) <b>HD</b>			QFHD 3840 x 2160
Wide Dynamic Range	Yes (120 dB)	-		Yes (480dB)
Video Performance (High Sensitivity Mode)	Colour 0.01 lux Mono 0.0008 lux	Colour 0.05 lux F1.2 gain of up to 60dB / 0.005 lux F1.2 / AGC @ 42dB (accumulation 25 times) Mono 0.002 lux F1.2 gain of up to 60dB / 0.0002 lux F1.2 / AGC @ 42dB (accumulation 25 times)		Colour 0.4 lux Colour 0.06 lux (slow shutter on)
White Balance	Auto, push and manual	Auto / manual		Auto, push and manual
Automatic Level Control (ALC)	Auto / manual			
Shutter	1/1 s to 1/10,000	1/20 to 1/10,000 (variable)		1/1 to 1/10,000
Day/Night Mode	Auto, colour, monochrome	Auto, manual, colour, monochrome		Day only
Backlight Compensation	On / off			
Noise Reduction	Yes			
Digital Zoom	12x (360x combined)	-		12x (240x combined)
Defog	Yes			
Image Stabilisation	Yes	Yes (cost option)	Lens gyro or electronic image stabilisation (cost options)	Yes

Electrical and Mechanical				
Boresight	Yes			
Rapid Release Mechanism	Yes			
Video Output (PAL / NTSC)	IP (HD-SDI option)	IP and Composite		IP
IP rating	IP67			
Temperature Range	-30°C (-22°F) Up to 65°C (149°F) (-40°C with optional heater)			
Power	28-32vDC, 1.4A, 40W Peak (excludes heater at 65W)			
Window	High Definition optical quality glass, with a low reflection and water resistant coating			
Fixing Material	Stainless steel with external fall protection			
Housing Material	Iridited aluminium			
Housing Finish	White powder marine grade paint finish (other colours are available upon request)			
Housing Model	HT06	HT07	HT07XL	HT06
Weight	Typically 4Kg / 8.8lb	Typically 14Kg / 30.9lb	Typically 17Kg / 37.4lb	Typically 4Kg / 8.8lb
Dimensions (mm)	L460 x W184 x H156	L700 x W254 x H226	L800 x W254 x H226	L460 x W184 x H156
Part Number (Camera Only)	RHT06IYJ30XW	RHT07IHA16Z500W	RHT07IHA16Z1000W	RHT06IYK04Z88W

## Jaegar Ultra Low Light Video Cameras

The Silent Sentinel ultra low light video day / night cameras are designed to provide the excellent images in low light conditions, they create the perfect video surveillance solution when partnered with the Jaegar PT platform.

Featuring industry leading low light performance, intelligent auto exposure and autofocus to enable a crisp image at range in poor lighting conditions.



### HD 4K

### Lens

Focal Length	15.2mm to 500mm	16.7mm to 1000mm	35mm	100mm to 400mm	200mm to 800mm
Optical Zoom	33x, motorised (continuous)	60x, motorised (continuous)	-	4x, manual (vari-focal)	4x, manual (vari-focal)
F Number	F3.0 to F32	F3.5 to F16	F1.4	F4.5 to F5.6	F2.5 to F5.6
Horizontal Field of View	23.42 (W) to 0.78° (T)	24.85° (W) to 0.47° (T)	63°	24° (W) to 6° (T)	12° (W) to 3° (T)
Extender	No	2x Extender available (doubles figures above)	No	No	No
Format Size	1/2"	1/1.8"	35mm Full Frame		
Focus	Push auto focus and motorised manual focus				
Iris	Auto iris				

### Camera

Sensor	2/3" CMOS Sensor (2.2MP)		35mm Full Frame Exmor CMOS Sensor (Total sensor pixels 12.2MP)		
Sensor Mode	Full HD 1080p (1920 x 1080) <b>HD</b>		4240 x 2832 <b>4K</b>		
Wide Dynamic Range	72dB		100dB		
Video Performance (High Sensitivity Mode)	Colour 0.005 lux at F1.4 / 50 IRE Mono 0.00000001 lux at F1.4 / 50 IRE		Colour 0.0006 lux at F1.2 / 50 IRE Colour 0.0004 lux at F1.2 / 30 IRE		
White Balance	Auto and manual		Auto, push and manual		
Automatic Level Control (ALC)	Auto / manual				
Shutter	Up to 1/10,000 (variable)				
Day/Night Mode	Auto, colour, monochrome		Day only		
Backlight Compensation	On / off				
Noise Reduction	Yes		Yes, XDNR® Technology		
Digital Zoom	10x (330x combined)	10x (600x combined)	2x		
Defog	Yes				
Image Stabilisation	Yes (cost option)	Lens gyro or electronic image stabilisation (cost options)	No		

### Electrical and Mechanical

Boresight	Yes				
Rapid Release Mechanism	Yes				
Video Output	IP or Composite (HD-SDI option) (PAL / NTSC)		IP (PAL / NTSC)		
IP rating	IP67				
Temperature Range	-30°C (-22°F) Up to 65°C (149°F) (-40°C with optional heater)				
Power	28-32vDC, 1.4A, 40W Peak (excludes heater at 65W)				
Window	High Definition optical quality glass, with a low reflection and water resistant coating				
Fixing Material	Stainless steel with external fall protection				
Housing Material	Iridited aluminium				
Housing Finish	White powder marine grade paint finish (other colours are available upon request)				
Housing Model	HT07	HT07XL	HT07		
Weight	Typically 14Kg / 30.9lb	Typically 17Kg / 37.4lb	Typically 14Kg / 30.9lb		
Dimensions (mm)	L700 x W254 x H226	L800 x W254 x H226	L700 x W254 x H226		
Part Number (Camera Only)	RHT07ICB16Z500W	RHT07ICB16Z1000W	RHT07IYM63W	RHT07IYM24W	RHT07IYM12W

## Jaegar Pan and Tilt (PT) Platform

The robust aluminium housing is rated to IP67, it is anodised and powder coated to withstand harsh environmental conditions. The PT employs harmonic drive gearing with virtually zero backlash and the optical encoder ensures the unit retains position and will even self correct.



### Pan and Tilt Unit

	Standard	High Powered
Repeatability	0.002°	0.0002°
Speed Control	Zoom dependant speed control	
Pan Rotation	360° Continuous	
Pan Speed	0.02° up to 45° per second	0.002° up to 80.0° per second (selectable ultra slow speed down to 0.0002°)
Tilt Range	+90° To -90°	
Tilt Speed	0.02° up to 45° per second	0.002° up to 80.0° per second (selectable ultra slow speed down to 0.0002°)
Actuation	Pan and tilt stepper motors	
Position encoders	Optical encoders on pan and tilt motors	
Housing Material	Cast hard anodised aluminium	
Housing Finish	Powder marine grade paint finish	
Colour	White (other colours available upon request)	
Fixing Material	Stainless steel with external fall protection	
IP rating	IP67	
Temperature Range	-30°C (-22°F) Up to 65°C (149°F) (-40°C with optional heater)	
Power	48vDC, 1.1A, 53W Nominal / 3.5A, 168W Peak (excluding camera payload)	
Output Options	-	4x External Connectors Allowing for a selection of the following: Power Outputs - 12vDC, 6A / 24vDC, 15A / 48vDC, 10A Network Output – Cat5e, 10/100 Base T Antenna Connections – Cellular, GPS, WiFi, IP Radio, GPS Compass
Dimensions	434mm (H) x 343mm (W) x 245mm (D) (including mounting adaptor, excluding through shaft and payloads)	434mm (H) x 343mm (W) x 343mm (D) (including mounting adaptor, excluding through shaft and payloads)
Weight	20kg / 44.1lb (excluding camera payload, payload capacity 30kg)	22kg / 48.5lb (excluding camera payload, payload capacity 50kg)
Part Number	JPT-MK2-I36045W	JPT-MK2-I36080W

### Telemetry

Presets	127x Preset positions, 16x preset tours
Protocols	Pelco D, Pelco D Extended, SSP, ONVIF Profile-S
Parameter Programming	Via RS485 or RS422
Privacy Zones	4
Positioning	Absolute positioning feedback
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

### Network

Ethernet	10/100 Base T
Connectivity	Cat5e via multicore cable tail/PSU (RJ45)
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

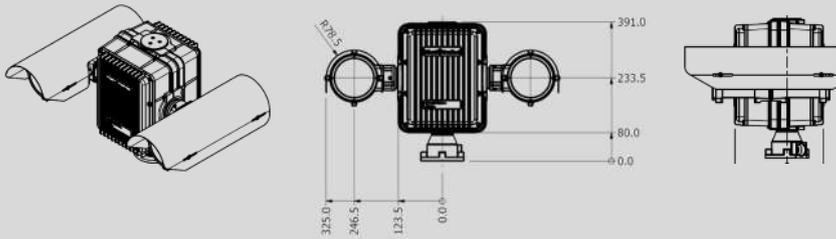
## Image Processing

Video Compression	H.264/MPEG4 Part 2, M-JPEG (H.265 option available up on request)
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 available as standard)
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

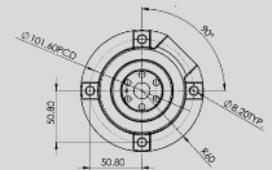
## Options

Through Shaft and Brackets	'Thru-shaft' top mount 200mm & 130mm extensions, top mount brackets and side mount L brackets
Wiper	Wiper, wiper nozzle and wash tank (for the video camera only)
Gyro	2 Axis gyro stabiliser on Jaegar Unit
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	Automatic Object Tracking, Image Stabilisation, Laser Range Finders, Mid to Long Range IR and White Illuminators, Laser Illuminators, UAV Effectors, Signal Light Guns, Long Range Acoustic Hailer, Protective Window Flap/Cover, Radar, WiFi, GPS, GPS Compass, Cellular, IP Radio and more. Please contact us if you have a specific requirement that is not mentioned.

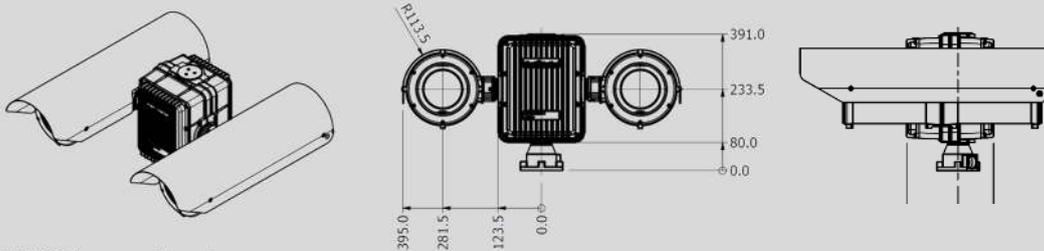
Jaegar PT Platform with HT06 Housings



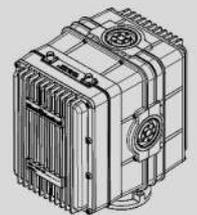
Jaegar PT Platform Mounting



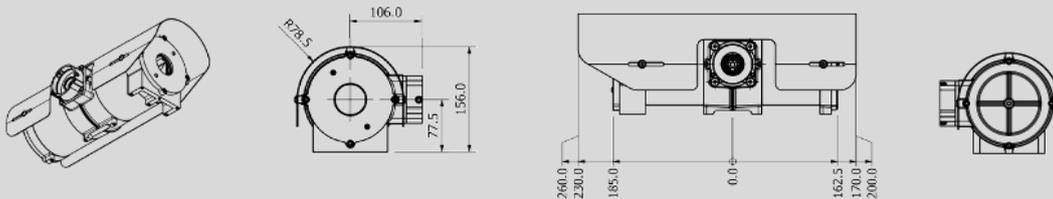
Jaegar PT Platform with HT07 Housings



High Powered Jaegar PT



HT06 Camera Housing



HT07 Camera Housing \* 'HT07XL' & 'HT07 Custom Housing' drawings available upon request

