

# JAEGAR Ranger

## A World Leading Medium to Long Range Surveillance Platform

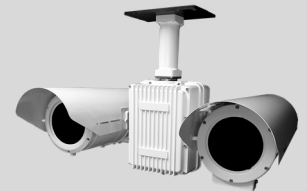
The Jaegar Ranger is a highly modular ready to go Single Mast Surveillance solution, ideal for medium to long range surveillance applications using HD zoom video cameras and uncooled thermal zoom cameras.

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 range of thermal zoom cameras and the 15-500mm HD video camera 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. 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 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.



Boresight Adjustment



Rapid Release Mechanism

### Key Features

- Supporting ranges up to 4.9km for human detection and 15.2km for vehicle detection.
  - Medium to long range thermal cameras (up to 225mm).
  - Medium range 33:1 (15 to 500mm) video / day HD camera.
  - Focal length dependent speed control (pan, tilt and zoom).
  - Anti fog, image stabilization and auto tracking options.
  - 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 option available on the video camera.
  - IP67, REACH, ROHS & CE Compliant.
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- 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.

### 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 Ranger

## 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	26 mm to 105mm	25mm to 150mm	25mm to 225mm
Optical Zoom (Continuous)	4x, Motorised	6x, Motorised	9x, Motorised
F Number	F1.6	F1.4	F1.5
Horizontal Field of View	25.3° (W) to 5.9° (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
Digital Video	14/8-bit LVCMOS/Camera Link®
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)	2300m / 7100m	3290m / 10150m	4930m / 15220m
Recognition (Human / Vehicle)	580m / 1780m	830m / 2540m	1235m / 3805m
Identification (Human / Vehicle)	360m / 1090m	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	HT06	HT07	
Weight	Typically 4Kg / 8.8lb	Typically 14Kg / 30.9lb	
Dimensions (mm)	L460 x W184 x H156	L700 x W254 x H226	

# JAEGAR Ranger

## Jaegar Medium Range HD Video Camera

The Silent Sentinel medium range HD video day / night camera is designed to provide the perfect video 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**

### Lens

Focal Length	15.2mm to 500mm
Optical Zoom (Continuous)	33x, motorised
F Number	F3.0 to F32
Horizontal Field of View	23.42 (W) to 0.78° (T)
Extender	-
Format Size	1/2"
Focus	Push auto focus and motorised manual focus
Iris	Auto iris

### Camera

Sensor	1/1.9" CMOS Sensor (2.38 MP)
Sensor Mode	Full HD 1080p (1920 x 1080) <b>HD</b>
Video Performance (High Sensitivity Mode)	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)
White Balance	Auto / manual
Automatic Level Control (ALC)	Auto / manual
Shutter	1/20 to 1/10,000 (variable)
Day/Night Mode	Auto, manual, colour, monochrome
Backlight Compensation	On / off
Noise Reduction	Yes
Digital Zoom	-
Defog	Yes
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, 1.4A, 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
Weight	Typically 14Kg / 30.9lb
Dimensions (mm)	L700 x W254 x H226

# JAEGAR Ranger

## 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

	High Powered
Repeatability	0.0002°
Speed Control	Zoom dependant speed control
Pan Rotation	360° Continuous
Pan Speed	0.002° up to 80.0° per second (selectable ultra slow speed down to 0.0002°)
Tilt Range	+90° To -90°
Tilt Speed	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 343mm (D) (including mounting adaptor, excluding through shaft and payloads)
Weight	22kg / 48.5lb (excluding camera payload, payload capacity 50kg)

### 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

# JAEGAR Ranger

## 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)
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

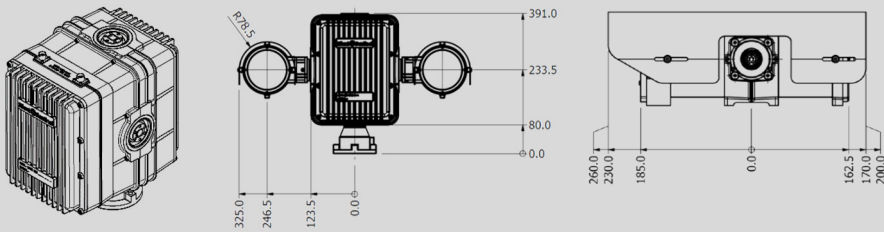
## Options

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.

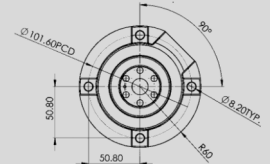
## Part Numbers

JPT-H-RANGER-105-W	Jaegar Ranger – High powered PT, with 640 x 480, 26-105mm thermal camera and a HD, 15.2mm to 500mm video camera
JPT-H-RANGER-150-W	Jaegar Ranger – High powered PT, with 640 x 480, 25-150mm thermal camera and a HD, 15.2mm to 500mm video camera
JPT-H-RANGER-225-W	Jaegar Ranger – High powered PT, with 640 x 480, 25-225mm thermal camera and a HD, 15.2mm to 500mm video camera
Options	All cable, ancillary and optional part numbers are available upon request

Jaegar PT Platform with HT06 Housings



Jaegar PT Platform Mounting



Jaegar PT Platform with HT07 Housings

