

# JAEGAR Ultra LRC

## A World Leading Ultra Long Range Surveillance Platform

The Jaegar Ultra Long Range Camera (LRC) is a highly modular ready to go Single Mast Surveillance solution, ideal for ultra long range surveillance applications using HD zoom video and HD zoom 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 HD cooled thermal and 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.



**HD**

## 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.
  - Long range video / day cameras (up to 2000mm) including HD.
  - 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 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.



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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**[www.silentsentinel.com](http://www.silentsentinel.com)**



# JAEGAR Ultra LRC

## Jaegar Cooled Long Range HD Thermal Zoom Camera

The Silent Sentinel long range cooled HD thermal zoom camera is designed to provide the perfect high definition thermal images at distanced... Creating the best of breed surveillance solution when partnered with the Jaegar PT platform.



### Lens

|                           |   |
|---------------------------|---|
| Focal Length              | 80mm to 960mm   |
| Optical Zoom (Continuous) | 12x, Motorised  |
| F Number                  | F4.0  |
| Horizontal Field of View  | 11.0° (W) to 0.9° (T)                                       |
| I FOV (µrad)              | 12.5  |
| Focus                     | Motorized zoom and focus with athermalization and autofocus |

### Camera

|                        |  |
|------------------------|--|
| Detector Type          | CMT (HgCdTe – Cadmium Mercury Telluride) |
| Resolution             | 1280 x 720 <b>HD</b>                     |
| Pixel Size             | 12 µm                                    |
| Spectral Band          | 3.7 to 4.95 µm (MWIR)                    |
| Sensitivity            | 27.5 mK (NETD) Typical                   |
| Frame Rate / Frequency | 60Hz                                     |
| Cooler Type            | Long life linear (50,000hrs)             |
| Cool Down Time         | 3 to 4 Minutes typical                   |
| Image Enhancement      | Linear, lace, edge enhancement           |
| Digital Zoom           | 8x                                       |
| Turbulence Mitigation  | Yes                                      |
| Image Stabilisation    | Yes                                      |
| Image Control          | Polarity: White-hot / black-hot          |

### Detection, Recognition and Identification Ranges\*

|                                  |                 |
|----------------------------------|-----------------|
| Detection (Human / Vehicle)      | 30300m / 50000m |
| Recognition (Human / Vehicle)    | 8000m / 20600m  |
| Identification (Human / Vehicle) | 6300m / 16900m  |

\* Ranges are based upon the NVThermIP model and associated DRI criteria of 2.7, 14.5 and 18.8 cycles at 50% probability on a MODTRAN standard atmosphere.

### Electrical and Mechanical

|                         |   |
|-------------------------|---|
| Boresight               | No  |
| Rapid Release Mechanism | No  |
| Video Output            | IP and Composite (PAL / NTSC)   |
| IP rating               | IP67  |
| Temperature Range       | -32°C (-25°F) Up to 55°C (131°F)  |
| Power                   | 28vDC, 0.9A, 25W Peak   |
| Window                  | Silicon Window Enhanced Diamond Like Carbon (EDLC) coating                              |
| Fixing Material         | Black anodised aluminium alloy  |
| Housing Material        | Fire retardant chopped strand glass fibre in a polyester resin with a polyester gelcoat |
| Housing Finish          | Gloss White, with polyurethane finish   |
| Housing Model           | HT07 Custom   |
| Weight                  | Typically 23Kg / 50.7lb   |
| Dimensions (mm)         | L597 x W299 x H299  |

# JAEGAR Ultra LRC

## Jaegar Long Range HD Video Cameras

The Silent Sentinel long 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.



### Lens

|                           |   |
|---------------------------|---|
| Focal Length              | 16.7mm to 1000mm                              |
| Optical Zoom (Continuous) | 60x, motorised                                |
| F Number                  | F3.5 to F16                                   |
| Horizontal Field of View  | 21.2° (W) to 0.45° (T)                        |
| Extender                  | 2x Extender available (doubles figures above) |
| Format Size               | 1/1.8"  |
| 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)<br>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                       | Lens gyro or electronic image stabilisation (cost options)   |

### 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           | HT07XL   |
| Weight                  | Typically 17Kg / 37.4lb  |
| Dimensions (mm)         | L800 x W254 x H226   |

# JAEGAR Ultra LRC

## 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<br>(selectable ultra slow speed down to 0.0002°)  |
| Tilt Range        | +90° To -90°  |
| Tilt Speed        | 0.002° up to 80.0° per second<br>(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:<br>Power Outputs - 12vDC, 6A / 24vDC, 15A / 48vDC, 10A<br>Network Output – Cat5e, 10/100 Base T<br>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<br>Streaming: RTSP, RTP, HTTP, Web Sockets<br>Management: HTTP, HTTPS, Bonjour, ONVIF, PSIA, ION API, SNMP, SMTP<br>Security: Basic / Digest Authentication, SSL |
| Latency           | Can reach less than 100ms latency  |

# JAEGAR Ultra LRC

## 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<br>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   |

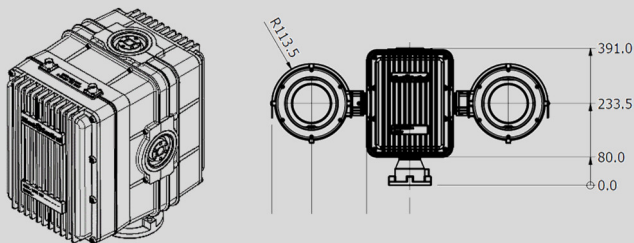
## Options

|                             |  |
|-----------------------------|--|
| 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.<br>Please contact us if you have a specific requirement that is not mentioned. |

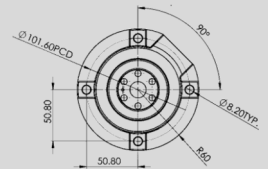
## Part Numbers

|                      |   |
|----------------------|---|
| JPT-H-ULTRALRC-960-W | Jaegar Ultra LRC - High powered PT, with a HD 1280 x 720, 80-960mm thermal camera and a HD, 16.7mm to 1000mm video camera |
| Options              | All cable, ancillary and optional part numbers are available upon request   |

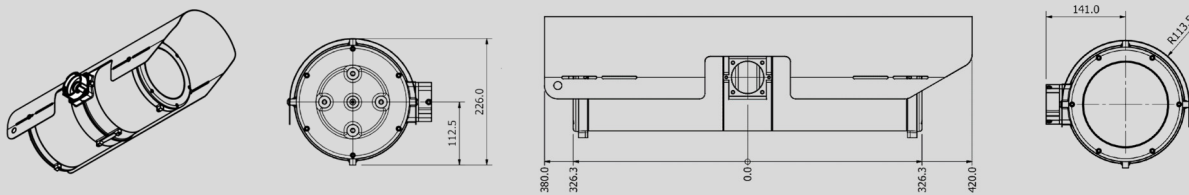
Jaegar PT Platform with typical HT07 Housings



Jaegar PT Platform Mounting



HT07XL Camera Housing



HT07 Custom Camera Housing

