# MULTI SENSOR – DC

## Optimal solution for border and coastal surveillance applications

Long-range thermal camera
Day Night Camera
Pan Tilt system

dat con

# MULTI SENSOR – DC

Long-range
thermal camera
Day Night Camera
Pan Tilt system

Multi sensor system (MS) is composed of Pan tilt system, Day/ Night Camera, Thermal camera and some other possible payloads (LRF, Radar, GPS ...)



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## FUNCTIONALITY

The MS system is equipped with a day and night vision system which allows observation in total darkness and under all weather conditions even in fog, rain or snow. This system consists of a thermal camera and a day-night high resolution camera with very high optical zoom placed on a movable pan & tilt platform. The platform is able to turn the cameras in all directions, both in azimuth and elevation and can be controlled from a remote operator or an existing command and control center.

The movable pan tilt platform is capable of extremely slow/high speed, variable speed in small steps-continuous, panoramic observation with constant speed and tour mode. All these functions can be triggered locally or remotely, it is also possible to program the unit to function automatically with a standard protocol.

Day/Night and Thermal cameras have continuous optical and digital zoom. The System provides stable picture in windy conditions with proven methods of stabilization.

## CONSTRUCTION AND CONNECTION

The operator at the control center is able to monitor the status of all systems (power, camera status...). All data signals output from the MS can be sent to the control center via multiple means of communication (Ethernet, wireless, optic fiber...).



## SYSTEM CONFIGURATION

Multiple payloads on one pan- tilt system within a separate housing (individually removable to enable service of one payload while the other is still operational):

- Long-range thermal camera (cooled MWIR or uncooled LWIR)
- Day/Night camera (regular or low light)
- Laser range finder (optional)
- Radar (optional)
- SWIR (optional)
- Microphone (optional)
- Robust Pan Tilt system
- software SOVA for preview and control
- GPS (optional)
- Digital magnetic compass (optional)
- TCP/IP interface

## GENERAL FEATURES

- Simultaneous preview of day/night camera and thermal
- Continuous zoom on both payloads
- Radar connectivity (Slew to Cue)
- Radar tracking possibility
- Target acquisition and tracking (auto or remote triggering) (optional)
- Auto / manual / remote focus on both payloads
- Rigid system design (up to 90 km/h wind without damage and 50 km/h in use)
- CE marked
- Control and picture streaming via TCP/IP
- Gyro stabilized pan-tilt platform (optional)
- Electronic image stabilization on both payloads
- Temperature range of the whole system: -32 to +55°C
- Maximum humidity of the whole system: 95 %
- Complys with: IP66
  Vibration test: IEC 60068-2-64
  Shock test: IEC 60068-2-27
  Icing test: NEMA 250
  Salt fog test: IEC 60068-2-52

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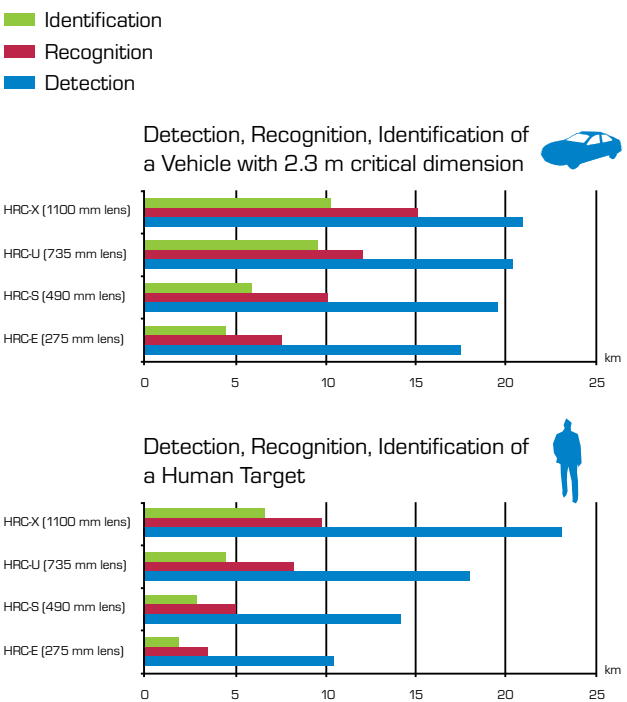
# Cooled MWIR Thermal Camera FLIR HRC - series

The HRC-Series are equipped with a highly reliable, mid-wave, cooled Indium Antimonide (InSb) detector which offers extremely long range detection in total darkness and all weather conditions. The cameras offer a continuous zoom, which provides excellent situational awareness while also giving the possibility to zoom in at suspect activities. The HRC-series can be integrated into existing networks or used as a new stand alone system.

| **Camera Technical specifications HRC-Series** | **HRC-E**  | **HRC-S**  | **HRC-U**  | **HRC-X**  |
|---|---|---|---|---|
| IMAGING PERFORMANCE | | | | |
| **Field of View: continuous optical zoom** | 2° (H) x 1.5° (V) to 25° (H) x 18.8° (V) with 22 x 275 mm lens | 1.1° (H) x 0.84° (V) to 14.1° (H) x 10.50° (V) with 39 x 490 mm lens | 0.75° (H) x 0.56° (V) to 9.4° (H) x 7.0° (V) with 59 x 735 mm lens | 0.5° (H) x 0.38° (V) to 6.3° (H) x 4.7° (V) with 88x1100 mm lens |
| **Spatial resolution (IFOV)** | 0.67 mrad for 22 mm lens - 0.055 mrad for 275 mm lens | 0.383 mrad for 39 mm lens - 0.031 mrad for 490 mm lens | 0.256 mrad for 59 mm lens - 0.020 mrad for 735 mm lens | 0.17 mrad for 88 mm lens - 0.014 mrad for 1100 mm lens |
| **Thermal Sensitivity** | 25 mK | 25 mK | 25 mK | 35 mK |
| **Auto front lens cover when parked** | no | yes | yes | yes |
| **Camera Weight** | 7.5 kg | 9.5 kg | 12 kg | 12 kg |



| | |
|---|---|
| Detector type MWIR | Indium Antimonide (InSb) or Mercury Cadmium Telluride (MCT): 640 x 512 pixels |
| Spectral range | 3 to 5 µm |
| Field of View | 12.5x continuous optical zoom |
| Image frequency | 50 Hz (PAL), 60 Hz (NTSC) |
| Focus | Automatic or Manual |
| Continuous Digital Zoom | Yes, up to 16x |
| Selectable preset focus distance | Yes: allows to command the lens to a given focus position |
| Focus athermalisation | Yes |
| Image processing | Tunable Digital Detail Enhancement (DDE), Histogram Equalization |
| Video | PAL / NTSC selectable |
| Input Voltage | 28 V +/- 4 V |
| Consumption | 35 W typical (running after cooldown), < 125 W maximum with heaters |
| Operating temperature range | -32°C to +55°C |
| Storage temperature range | -45°C to +70°C |
| Automatic Window defrost | Yes |

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# Cooled MWIR Thermal Camera
# DAT-CON CLRT - series

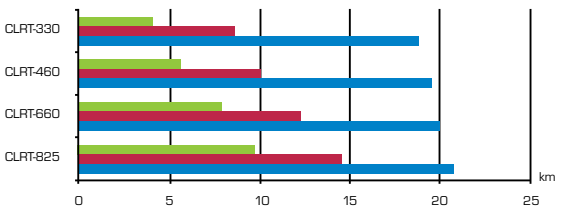
CLRT-Series cameras are a range of cooled Medium Wave Infra-Red (MWIR) thermal imaging cameras. They employ the latest focal plane array technology to meet long-range surveillance and target identification requirements. CLRT-Series have a very high life span (2 times higher than most cameras in this range) because they are fitted with long life cooler and use HOT detector type (XBn) that runs at higher temperatures than regular InSb detectors thus expanding the lifetime of the cooler. CLRT-Series cameras incorporate continuous zoom lenses with autofocus and F/4 to ensure high sensitivity even with high magnification. This makes CLRT-Series cameras an ideal tool for very long range observation over sea and land.

| | |
|---|---|
| Detector type MWIR | 640 x 512 XBn FPA (HOT InSb) |
| Spectral range | 3.4 to 5.1 µm |
| Band | 3.6 to 4.2 µm |
| Detector pitch | 15 µm |
| Continuous Optical Zoom | Yes, up to 22x |
| Continuous Digital Zoom | Yes, up to 16x |
| Focus | Automatic or Manual (remote) |
| Image stabilization | Yes |
| Dynamic range enhancement | Yes |
| MTBF including cooler | 20,200 hours |
| Power | 28 Vdc (18-32 Vdc)<br>Consumption < 35 W, 120 W with heaters on |
| Operating temperature range | -32°C to +55°C |
| Automatic window defrost | Yes |
| Non-uniformity corrector | Built-in optical NUC |
| Video outputs | Analog (NTSC / PAL) and digital Ethernet (H264, ONVIF) |
| Control | RS-422, Ethernet |
| IP rating | IP66, built according to MIL-810 |

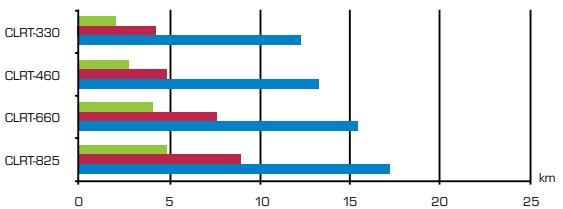


| CLRT-Series | CLRT-330 | CLRT-460 | CLRT-660 | CLRT-825 |
|---|---|---|---|---|
| Lens | 15 – 330 mm | 25 – 460 mm | 30 – 660 mm | 40 – 825 mm |
| Field of View: continuous optical zoom | 1.66° (H) x 1.33° (V) to 35.5° (H) x 28.7° (V) | 1.19° (H) x 0.95° (V) to 21.7° (H) x 17.5° (V) | 0.83° (H) x 0.66° (V) to 18.2° (H) x 14.6° (V) | 0.66° (H) x 0.53° (V) to 13.7° (H) x 11.0° (V) |
| Spatial resolution (IFOV) | 0.0453 to 0.99 mrad | 0.0325 to 0.59 mrad | 0.0226 to 0.49 mrad | 0.0180 to 0.37 mrad |
| Thermal Sensitivity | 23mK | 23mK | 23mK | 23mK |
| Weight | 12,8 kg | 14 kg | 14,6 kg | 15,5 kg |
| Dimensions | 520x220 x210mm | 530x240 x230mm | 540x250 x240mm | 550x250 x240mm |

Detection, Recognition, Identification of a Vehicle with 2.3 m critical dimension




Detection, Recognition, Identification of a Human Target




Identification
Recognition
Detection

Parameters:

- Pixel pitch = 15 µ
- Detector NETD = 23 mK
- STANAG 4347
- 50 % detection probability
- Human target – 1.8x0.5m, 2°K
- Vehicle – 2.3x2.3m, 2°K
- 0.82 / km atmospheric attenuation factor

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# Cooled MWIR Thermal Camera
# DAT-CON CLRT/HD - series

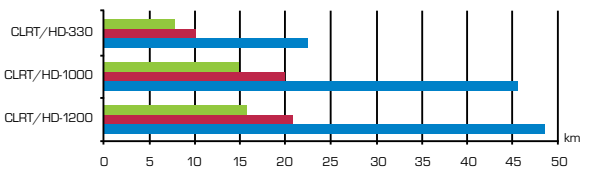
CLRT/HD-Series incorporates an incredible 1.3 mega pixel MWIR cooled detector. It has similar features as CLRT-series only with HD resolution. The resolution can be downsized to HD 1280 x 720 to have a standard 16:9 ratio video image if required. Just like CLRT-series, CLRT/HD-series features a long life cooler which combined with HOT (XBn) detector produce virtual zero maintenance system with an extremely high MTBF. CLRT/HD-Series comes with two continuous zoom lens option with F/3-4 that ensures best image and long range performance even with this huge detector. This makes CLRT/HD-Series cameras an ideal tool for very long range observation over sea and land in HD resolution.

| | |
|---|---|
| Detector type MWIR | 1280 x 1024 XBn FPA (HOT InSb) |
| Spectral range | 3.4 to 5.1 µm |
| Band | 3.6 to 4.2 µm |
| Detector pitch | 10 µm |
| Continuous Optical Zoom | Yes, up to 22x |
| Continuous Digital Zoom | Yes, up to 16x |
| Focus | Automatic or Manual (remote) |
| Image stabilization | Yes |
| Dynamic range enhancement | Yes |
| MTBF including cooler | 20,200 hours |
| Power | 28 Vdc (18-32 Vdc) Consumption < 35 W, 120 W with heaters on |
| Operating temperature range | -32°C to +55°C |
| Automatic window defrost | Yes |
| Non-uniformity corrector | Built-in optical NUC |
| Video outputs | HD-SDI and digital Ethernet (H264, ONVIF) |
| Control | RS-422, Ethernet |
| IP rating | IP66, built according to MIL-810 |

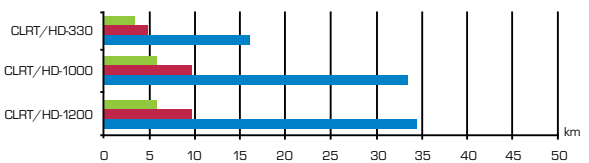


| CLRT/ HD-Series | CLRT/HD-330 | CLRT/HD-1000 | CLRT/HD-1200 |
|---|---|---|---|
| Lens | 15 – 330 mm | 100 – 1000 mm | 57 – 1200 mm |
| Field of View: continuous optical zoom | 1.3 MP: 2.22° (H) x 1.77° (V) to 46.2° (H) x 37.7° (V) HD: 2.22° (H) x 1.25° (V) to 46.2° (H) x 27.0° (V) | 1.3 MP: 0.73° (H) x 0.58° (V) to 7.32° (H) x 5.86° (V) HD: 0.73° (H) x 0.41° (V) to 7.32° (H) x 4.12° (V) | 1.3 MP: 0.61° (H) x 0.34° (V) to 12.81° (H) x 10.26° (V) HD: 0.61° (H) x 0.41° (V) to 12.81° (H) x 7.22° (V) |
| Spatial resolution (IFOV) | 0.0303 to 0.66 mrad | 0.009 to 0.09 mrad | 0.008 to 0.17 mrad |
| Thermal Sensitivity | 25 mK | 25 mK | 25 mK |
| Weight | 13 kg | 20 kg | 20 kg |
| Dimensions | 520x260 x260 mm | 550x260 x260 mm | 550x260 x260 mm |

Detection, Recognition, Identification of a Vehicle with 2.3 m critical dimension




Detection, Recognition, Identification of a Human Target

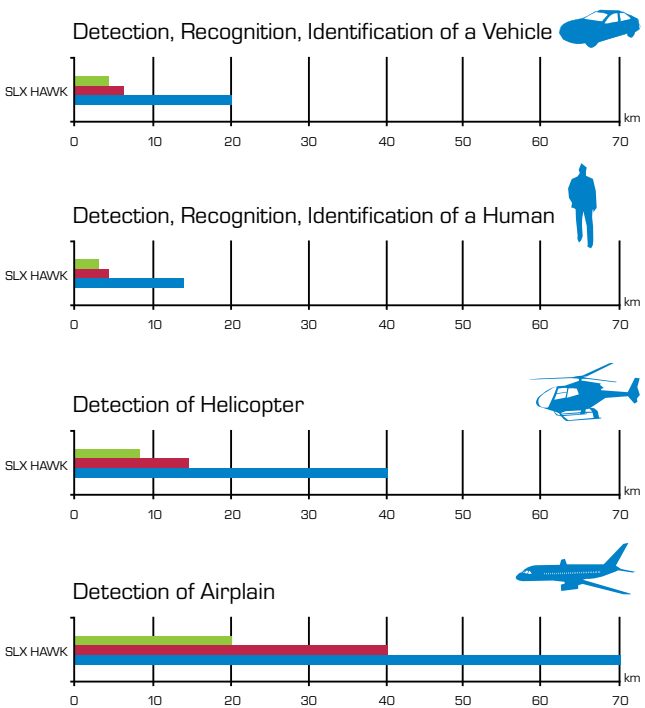



Identification
Recognition
Detection

# Cooled MWIR Thermal Camera SLX HAWK

HIGH PERFORMANCE MWIR THERMAL IMAGING CAMERA WITH CONTINUOUS ZOOM LENS

The SLX-Hawk 2:24cz camera has been designed as a compact, high performance unit which can be applied to a wide range of thermal imaging applications by system integrators and OEMs




| | |
|---|---|
| Operating waveband | 3 µm - 5 µm (MWIR) |
| Resolution | 640 x 512 pixels (1280 x 1024 with optional Microscan) |
| FOV | 24 x 19.2 degrees to 1.8 x 1.44 degrees |
| Noise Equivalent Temperature Difference (NETD) | 17 mK Typical |
| Non-uniformity correction | User selectable 1, 2 or 3 point NUC with internal thermal reference |
| User control | RS422 |
| Video | 625 line 50 Hz<br>525 line 60 Hz<br>RGB VESA |
| Optional digital output | 16 bit uniformity corrected full dynamic range or 8 bit video |
| Dimensions | (L x W x H)<br>471 mm x 112 mm x 108 mm |
| Power supply | 28V DC<br>(Max 36V, Min 18V) |
| Steady state power consumption | < 35 W |
| Weight | 5.6 kg max |
| Operating temperature | -30°C to +55°C |
| Environmental | DEFSTAN 00-35, MIL STD 810E |
| Reliability | > 22,000 hours (GF) |

Identification
Recognition
Detection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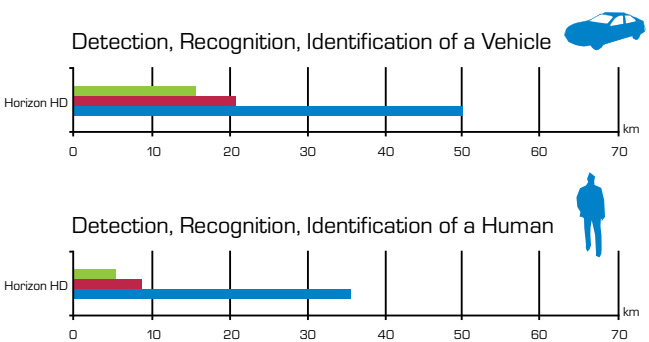
# HD Cooled MWIR Thermal Camera HORIZON HD

The Horizon Medium Wave Infra-Red (MWIR) thermal imaging camera employs the latest focal plane array technology to meet long-range surveillance and target identification requirements. Utilizing a modular Integrated Detector Cooler Assembly, the camera is fitted with High Definition (HD) detector arrays. This design allows for rapid assembly and ease of maintenance. Horizon HD provides a wider Field of View (FoV) for greater Situational Awareness, whilst delivering a narrower IFoV for longer range target identification and engagement. Horizon cameras have been specifically designed with very long life cooling engines with a life span of 50,000 hours. This increases reliability and reduces through-life costs.




| | |
|---|---|
| Detector array resolution | 1280 x 720 (HD) |
| Detector pitch | 12 µm (HD) |
| FOV | 11.0 x 6.2 degrees |
| | to 0.9 x 0.5 degrees (HD) |
| Detector technology | CMT |
| Band | 3.7 µm - 4.95 µm |
| F/Number | F/4 |
| Focal length of continuous | |
| optical zoom | 80-960 mm |
| Communication | RS-422 |
| | Ethernet |
| Analogue video output | NTSC |
| | PAL (CCIR) |
| | HDTV 720p |
| Digital video output | HD-SDI |
| | Ethernet (H264, ONVIF) |
| Operating temperature | -40°C to 55°C |
| Weight | 23 kg |
| Size (L x W x H) | 596.5 mm x 299 mm x 299 mm |
| Power source | 28VDC (18-32V) |
| Nominal power at steady | < 25 W |
| state | LACE |
| Dynamic range enhancement | Linear |
| | Edge enhancement |
| Image stabilization | Yes |
| Turbulence mitigation | Yes |
| Auto focus | Yes |
| Cooling engine | Long life linear (50,000 hrs) |
| Non-uniformity corrector | Built-in reference and quadratic |
| | NUC |
| E-Zoom | Interpolated (up to 8x) |

Identification
Recognition
Detection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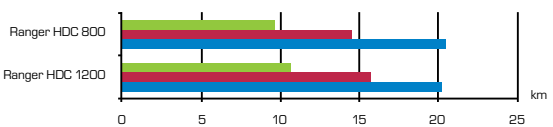
# RANGER HDC

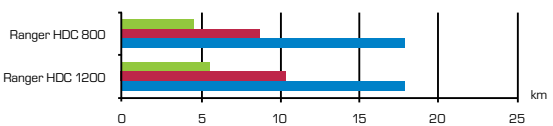
The Ranger HDC enables users to see more details at long range without losing situational awareness with twice the wide area coverage at any distance compared to legacy 640x480 systems. The Ranger HDC provides a 16:9, wide screen video to show more of the scene at a glance.

Using a cooled detector, the Ranger HDC provides exceptional long range performance with detection of man-sized targets beyond 10km and vehicles beyond 20km. The system also supports continuous zoom to maintain situational awareness with target focus in both a wide field of view and during zoom for effective target assessment. This capability ensures users always have an optimized field of view for targets at any range.

Detection, Recognition, Identification of a Vehicle (stanag 4347) 2.3 m x 2.3 m




Detection, Recognition, Identification of a Human Target (0,5 m x 1,75 m)




Identification
Recognition
Detection

ΔT = 2.5°K
Sigma = 0.2 (good weather)
50 % probability



**THERMAL IMAGING PERFORMANCE**

| | |
|---|---|
| Sensor Type | **1280x720 InSb focal plane array** |
| Wavelength | **3-5 µm response** |
| Continuous Zoom Options | **Optical 22x, digital zoom 16x** |
| Image Processing | **IP Engine, incl. auto DDE, CRISP, High performance** |
| Framerates | **50/60Hz (100Hz with windowing)** |

**SYSTEM INTERFACES**

| | |
|---|---|
| Video Out | **Out HD SDI, GigE, IP: MPEG4, MJPEG** |
| Command and Control | **TCP/IP, Gigabit Ethernet 1000 BASE-T, Nexus, and multiple standard protocols** |

**ENVIRONMENTAL**

| | |
|---|---|
| Standards | **MIL-STD 810F** |
| Operating Temperature | **-26°F to 131°F /-32°C to 55°C** |
| Storage Temperature | **-40°F to 158°F /-40°C to 70°C** |

**POWER REQUIREMENTS**

| | |
|---|---|
| Input Power | **18-32 VDC. MIL-STD 1275D (Normal Operating mode)** |
| Power Consumption | **80 W (approx. 180 W with heaters)** |

**DIMENSION & WEIGHT**

| | |
|---|---|
| Size | **630 x 260 x 315 mm** |
| Weight | **18 kg** |

**Ranger HDC 800**

| | |
|---|---|
| Field-of-view | **1.35° (H) to 30° (H), (±7 %),16:9 format** |

**Ranger HDC 1200**

| | |
|---|---|
| Field-of-view | **0.92° (H) to 20.4° (H), (±7 %),16:9 format** |

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# Un-Cooled LWIR Thermal Camera
# DAT-CON ULRT – series

The ULRT-Series are equipped with a highly reliable, long-wave, un-cooled Vanadium Oxide (VOx) detector which offers good long range detection in all weather conditions. There is no maintenance required since there is no cooling device. The cameras offer a continuous zoom. This offers excellent situational awareness while also giving the possibility to zoom in at suspect activities, and have a closer look, once they are detected. The ULRT-series can be integrated into existing networks or used portably.

| | DAT-CON ULRT |
|---|---|
| Detector | Un-cooled Vanadium Oxide (VOx) |
| Detector type | 640 x 480 native detector resol. |
| Spectral range | 7.5 to 14 µm |
| NETD | ≤ 50 mK |
| Detector pixel pitch | 17 µm |
| Lens | See below options |
| Image frequency | 25 Hz (PAL), 30 Hz (NTSC) |
| Focus | Manual (remote) |
| Continuous Digital Zoom | Yes, up to 16x |
| Image processing | Tunable Digital Detail Enhancement (DDE), Histogram Equilazition |
| Video | PAL / NTSC selectable |
| Control interface | RS422, RS485, RS232, Ethernet |
| Consumption | 15 W typical, < 65 W maximum with heaters |
| Operating temperature range | -32°C to +55°C |
| Storage temperature range | -45°C to +70°C |
| IP rating | IP66 |

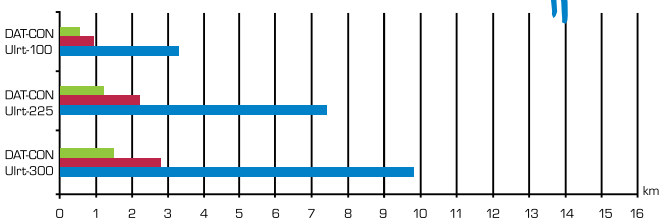


| DAT-CON ULRT-100 | |
|---|---|
| Zoom | Continuous optical zoom |
| Focal Lengths | 15 to 100 mm @ F/1.4 |
| Field of View Range | 39,8° to 6,2° (H) |
| Dimensions | 400 x 220 x 240 |
| Weight | 12 kg |

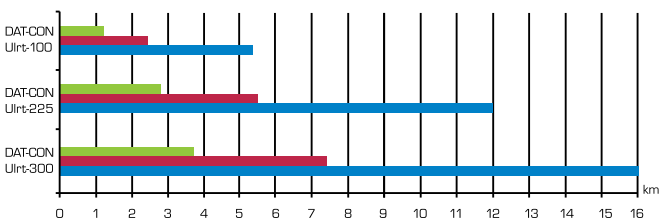
| DAT-CON ULRT-225 | |
|---|---|
| Focal Lengths | 24 to 225 mm @ F/1.5 |
| Field of View Range | 25,5° to 2,8° (H) |
| Dimensions | 500 x 220 x 240 |
| Weight | 15 kg |

| DAT-CON ULRT-300 | |
|---|---|
| Focal Lengths | 40 to 300 mm @ F/1.5 |
| Field of View Range | 16,6° to 2.1° (H) |
| Dimensions | 500 x 240 x 240 |
| Weight | 21 kg |

Detection, Recognition, Identification of a Human




Detection, Recognition, Identification of a Vehicle




Identification
Recognition
Detection

LRSW is a long range Short Wave IR (SWIR) camera with a un- cooled detector that ensures zero maintenance. SWIR wavelength is not visible to human eyes and as a result can often offer a better image than what is achievable with visible light imaging. LRSW incorporates different options of continuous zoom lenses to fulfill any range requirements. In locations where no SWIR radiation is present, a non-detectable by human eye and most cameras illuminators can be used. LRSW is enclosed in an IP66 protection housing that is able to operate in the temperature range between -32°C to 55°C and is built according to MIL-810 standards.

## Advantages:

- No Illumination Needed
  LRSW is extremely sensitive to light. Night sky radiance emits up to 7 times more illumination than starlight in SWIR spectrum which enable LRSW to see objects with a high level of detail, even on moonless and starless nights.
- See Through Fog & Haze
  LRSW is able to penetrate fog, smoke and other atmospheric conditions. As a result it is particular useful in cities, marine and coastal protection.
- Effective for Identification
  Unlike thermal energy which is radiated, SWIR is a reflected energy like visible light, which makes LRSW viable for identification purposes.
- See Through Glass
  Unlike LWIR and MWIR thermal cameras, LRSW (SWIR) camera can see through glass

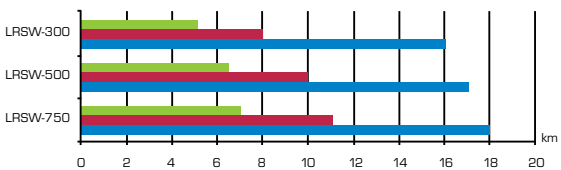


## Technical specification

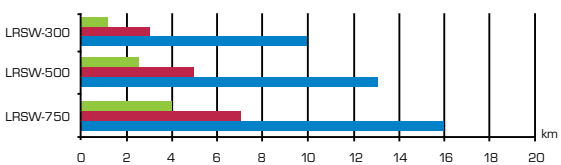
| | |
|---|---|
| Sensor Type | **InGaAs PIN-Photodiode** |
| Active Pixel | **640 x 480 (EIA) / 640 x 512 (CCIR)** |
| Pixel Pitch | **15 µm x 15 µm** |
| Spectral response | **0.4 µm to 1.7 µm** |
| Shutter mode | **Global shutter** |
| Frame Rate | **25 Hz (CCIR) / 30 Hz (EIA)** |
| Quantum Efficiency | **Peak >85 % (>73 % @ 1.064 µm, 78 % @ 1.55 µm)** |
| Digital output | **H.264 (MPEG-4) /Motion JPEG, RTSP, ONVIF, analog** |
| Digital zoom | **16x Continuous** |
| Image transmission protocols | **TFTP, HTTP, RTSP, RTP/TCP, RTP/UDP** |

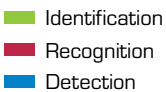
| **Continuous zoom lenses** | **LRSW 750** | **LRSW 500** | **LRSW 300** |
|---|---|---|---|
| **Focal Length / F#** | 20 – 750 mm @ F/4.6 - 7.3 | 50 – 500 mm @ F/5 | 30 – 300 mm @ F/2.85 – 4.5 |
| **Field of View: continuous optical zoom** | 27.0° (H) x 21.7° (V) to 0.73° (H) x 0.58° (V) | 10.1° (H) x 8.80° (V) to 1.10° (H) x 0.88° (V) | 18.2° (H) x 14.6° (V) to 1.82° (H) x 1.46° (V) |
| **Dimensions** | 710 x 240 x 200 mm | 610 x 240 x 200 mm | 610 x 240 x 200 mm |
| **Weight** | 14 kg | 14 kg | 12,5 kg |

For NATO target 2,3 m x 2,3 m
with good atmospheric conditions




DRI for human target 1.8 m x 0. 5 m
with good atmospheric conditions



The LRCS is an integrated unit, based on a highly sensitive CMOS megapixel camera module with sensitivity equal to EM-CCD technology and combined with a powerful zoom lens. It is ideal for day/night surveillance of military camp, homeland security (border protection), and critical infrastructure protection (CIP) applications. It is designed to deliver high - performance images, even under the harshest conditions, in temperatures ranging from - 32°C to + 55°C with IP66 protection, built according to MIL-810 standards.

Technical specification

| **Lens** | **LRCS A2200** | **LRCS B2200** | **LRCS A1000** | **LRCS B1000** | **LRCS A750** | **LRCS B750** | **LRCS A375** | **LRCS B375** |
|---|---|---|---|---|---|---|---|---|
| **Focal length** | 20-2200 mm zoom 110x (with built in continuous optical extender) | | 20-1000 mm zoom 50x (40-2000 mm with x2 e-extender) | | 20-750 mm zoom 37.5x (40-1500 mm with x2 e-extender) | | 15-375 mm zoom 25x (30-750 mm with x2 e-extender) | |
| **Field of view** | A2200 Narrow: Hor. 0.18° / Wide: Hor. 20.4° | B2200 Narrow: Hor. 0.23° / Wide: Hor. 24.8° | A1000 Narrow: Hor. 0.4° (0.2°) / Wide: Hor. 20.4° (10.2°) | B1000 Narrow: Hor. 0.5° (0.25°) / Wide: Hor. 24.8° (12.4°) | A750 Narrow: Hor. 0.55° (0.28°) / Wide: Hor. 20.4° (10.2°) | B750 Narrow: Hor. 0.67° (0.34°) / Wide: Hor. 24.8° (12.4°) | A375 Narrow: Hor. 1.1° (0.55°) / Wide: Hor. 26.9° (13.5°) | B375 Narrow: Hor. 1.34° (0.67°) / Wide: Hor. 32.7° (16.4°) |
| **Dimensions** | 780 x 240 x 200 mm | | 780 x 240 x 200 mm | | 710 x 240 x 200 mm | | 610 x 240 x 200 mm | |
| **Weight** | 16,5 kg | | 16 kg | | 14 kg | | 13 kg | |



| **Camera System Specifications** | **Model A** (LRCS A2200 / LRCS A1000 / LRCS A750 / LRCS A375) | **Model B** (LRCS B2200 / LRCS B1000 / LRCS B750 / LRCS B375) |
|---|---|---|
| **Sensor** | High sensitivity 1/1,8" CMOS sensor | Ultra high sensitivity 2/3" CMOS sensor equivalent to EM-CCD |
| **Pixels (H x V)** | 1920 (H) x 1080 (V) | |
| **Digital output** | H.264 (MPEG-4) / Motion JPEG, RTSP, ONVIF, analog | H.264 (MPEG-4) / Motion JPEG, RTSP, ONVIF, HD-SDI, analog |
| **Resolution** | • 1920 x 1080 HDTV – 1080 p<br>• 1280 x 720 HDTV – 720 p<br>• 640 x 480 VGA | |
| **Sensitivity** | • Color 0. 1 Lux @ (F1.4, AGC ON)<br>• B/W: 0. 01 Lux @ (F1.4, AGC ON | • Color 0. 005 Lux @ (F1.4, 30 fps) |
| **Spectral response** | Switchable between visible only (colour with IR cut filter) and visible + NIR (monochrome) | |
| **Signal to Noise ratio** | > 50 dB | |
| **Scanning system** | Up to 60 fps @ 1920 x 1080 (No WDR) | Up to 30 fps @ 1920 x 1080 |
| **Digital zoom** | 16x Continuous | |
| **Image transmission protocols** | TFTP, HTTP, RTSP, RTP/TCP, RTP/UDP | |

# Lens Cleaning System LCS

Lens Cleaning System (LCS), unlike traditional cleaning systems that use wipers, our state of the art system uses only high pressured distilled water and air to clean camera lenses. The key advantage of this system is that there is no mechanical contact with the lens that could potentially damage it or its anti-reflective coating. This advantage is especially effective on systems that are subjected to salt water, mist or sand since the traditional wiper cleaning process scratches the surface of these highly priced sensitive lenses. With its three-stage procedure, the LCS gently and efficiently removes all of the dirt and any deposits from camera lenses. The initial design of the system is slightly complex, but it becomes increasingly practical and economically viable with the size of the multi-sensor and the number of payloads (cameras, laser range finder, etc.). The entire cleaning process is fully automated and controlled through software for maximum convenience.

**The three stages of the cleaning procedure are:**

**1st Stage:** Applying distilled water to the lens.
Soaks the lens with distilled water to dissolve salt and buildup and prepares the lens for the 2nd stage to gently remove dirt and deposits.

**2nd Stage:** Removing dirt and deposits from the lens with a mixture of high-pressure air and distilled water.
A high-pressure mixture of air and distilled water is sprayed on the lens, removing all of the dirt and deposits on the lens without mechanically touching and damaging the lens.

**3rd Stage:** Air drying the lens.
High-pressure air removes the distilled water from the lens and makes the camera ready for operation.

## Technical specification

| | |
|---|---|
| High pressure nozzles | **2 or more, depends on the multi sensor system** |
| EM control valves | **4 or more, depends on the multi sensor system** |
| High pressure distilled water reservoir | **20 litres** |
| High pressure air reservoir | **6 litres** |
| Power supply | **230 Vac 50Hz** |
| Max. power consumption | **1,5 kW (while compressor is running)** |
| Temperature range | **0°-55° (can be used in sub-zero temperatures if appropriate antifreeze liquids are used)** |
| Weight | **25Kg** |

# LASER RANGEFINDER PRODUCT LINE

| Technical data | LDC1 | LDC2 | LDC3 | LDC4 | LDC5 |
|---|---|---|---|---|---|
| |  |  |  |  |  |
| **Laser type** | Erbium glass | | | | |
| **Wavelength** | 1,54 µm | | | | |
| **Safety** | Class 1M according to IEC 60825-1 ED 2 of 2007-3 | Class 1 according to ANSI 136.1-2007 and IEC 60825-1 ED 2 of 2007-3 | | | |
| **Measuring range** | 80 m to 20 000 m | | 200 m to 20 000 m | 80 m to 10 000 m | 50 m to 12 000 m |
| **Range resolution** | 5 m | 1 m | | | 2 m |
| **Range accuracy** | ±10 m | ±5 m | | | |
| **Extinction** | 37 dB* | | 43 dB* | 31 dB* | 32 dB* |
| **Measuring rate** | 6 ppm continuous, Fast measuring rate 1 measurement every second for 6 pulses at supply voltage of > 28V | 2 pps continuous | 1 pps continuous | 3 pps continuous, 6 pps burst for 30 seconds | 1 pps continuous |
| **Multiple targets** | First, second and last target | | | | |
| **Multiple target resolution** | 50 m | 30 m | | | |
| **Nominal ocular hazard distance (NOHD)** | 0 m | | | | |
| **External power** | 9-32 V DC | 14-33 V DC | 17-32 V DC | 14-33 V DC | 10-33 V DC |
| **Operating temperature** | -32°C to +65°C | -40°C to +70°C | | | |
| **Storage temperature** | -40°C to +70°C | | | | |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DC PT systems deliver high performance and stabilization for demanding payloads. Their light weight and compact size makes them ideal for mobile solutions. All systems are IP67 approved to make them suitable for all weather conditions and harsh environments. Proven in critical security and observation applications with 24/7 operation. In a fully machined aluminium body lies a single powerful motion control board. Simplicity in construction adds to a unit's robustness and long life time. All units undergo a series of environmental and endurance tests before leaving production to ensure end-user satisfaction. Mechanical assembly kits and software packages can be fully customized to meet customer specifications.

## FEATURES:

- Robustness
- High accuracy
- Smooth motion
- Big speed range
- Easy to control
- Stabilisation
- Tracking capabilities

## APPLICATIONS:

- Observation systems
- Target tracking and control
- Communication systems
- Target acquisition

| Technical Specifications | Tracer | Locator | Blade |
|---|---|---|---|
| |  |  |  |
| **Max load (kg)** | 35 kg/60 Nm | 50 kg / 60 Nm | 30 kg + 30 kg /60 Nm; Static top load: 50 kg |
| **Weight (kg)** | 16,5 kg | 30 kg | 43 kg (full configuration) |
| **Height/width /length (mm)** | 323 x 220 x 336 mm | 552 x 754 x 172 mm | 412 x 735 x 302 mm |
| **Pan angle** | n x 360° | | |
| **Tilt angle** | ± 90° | ± 45° | ± 90° * |
| **Pan movement speed** | 0.001°/ s - 60°/s | 0.001° to 100°/sec | |
| **Tilt movement speed** | 0.001°/ s - 40°/s | 0.001° to 100°/sec | |
| **Accuracy Resolution Park / Home position** | 0.02° 0.005° Yes | 0,05° 0,005° Yes | |
| **Backlash** | None | | |
| **Stabilization** | ±300 µrad (option) | | |
| **Peak Power** | 160 W | 120 W | |
| **Operating voltage (v)** | 24 - 48 VDC | | |
| **Communication** | RS-232, RS-485, RS-422, Ethernet | | |
| **Control protocol** | DC-PT protocol, PelcoD (optional) | | |
| **Operating temperature** | -32°C to +55°C | | |
| **Material** | Aluminium | | |
| **IP rating** | IP 66 compliant | | |

**Products have Slovenian origin. Products have CE marking and fulfill MIL-std-810 requirements.**

* May vary depending on application



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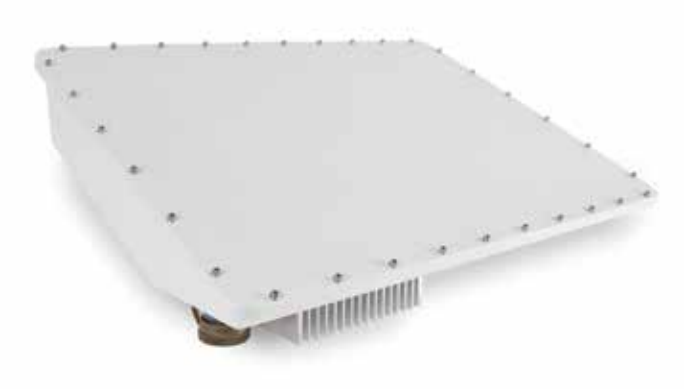
# Video processing unit (VPU-ST)



VPU-ST is a hardware processing unit that is the “brains” of the multi sensor system. It combines all the payloads and PT unit into a single unit for the external observer and enable a single Ethernet connection to the whole unit including access to video streams and control of the entire system. VPU-ST enables standard protocols such as ONVIF (optional) or dedicated advanced protocol that includes video as well as status and control. It has a powerful built in processor, that enables functions like video stabilization, H.264 encoding, video tracking, blending,...

**FEATURES:**

- ONVIF (optional) and/or dedicated advanced protocol
  - Video streams
  - Status
  - control

- H.264 Video encoding for all video payloads
  - MPEG2 TS (H.264+KLV metadata)
  - MPEG4
  - RTP M-JPEG
  - Enables up to three input sources
  - HD and/or SD resolutions
  - Adjustable bitrate, quality, frame rate, resolution,...

- Video stabilization with roll correction
  - Accurate frame to frame change detection
  - Remove high frequency jitter (flicker)
  - Correction of platform roll motion

- Video tracking (optional)
  - Robust tracking – automatic track re-initialization
  - Track through temporary obstructions
  - Low latency

- Video presentation
  - PiP (Picture in Picture)
  - Multi spectral blending - example: thermal and day camera (optional)
  - Switching
  - Multiple streams

- Motion detection
  - Detects very small mowing objects
  - Simple track selection method
  - Three different MTI modes support
  - Uses color based (histogram) difference algorithms




dat con

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