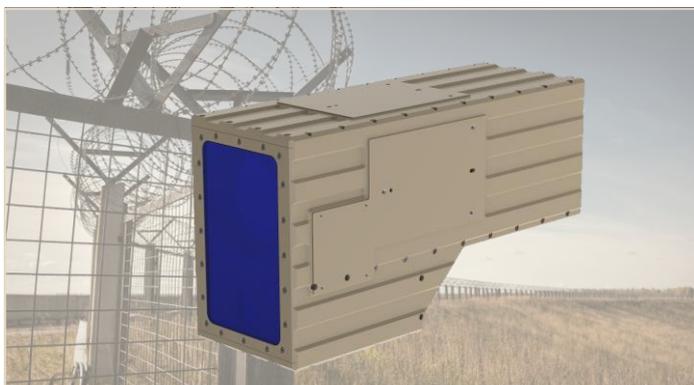


Spectrel DUAL 121000/336

Dual Long-Range Camera System

Datasheet



Features

- High sensitivity 1/3" colour CCD cameras
- Long-range zoom lens 30 to 1000 mm (33x)
- Fixed 20 degree WFOV
- Combined you gain 66x zoom
- Excellent boresight retention
- Sealed housing
- Autofocus-on-demand
- Serial interface to control camera

Description

The Spectrel DUAL 121000/336 is an integrated unit, based on two highly sensitive colour CCD cameras, each with integrated zoom lenses. One camera for short-range (wide FOV) and one for long-range (narrow FOV). This configuration is ideal for day/night coastal surveillance, camp perimeter protection, protection of sensitive infrastructures and similar applications.

It is designed to deliver high-performance images, even under the harshest conditions and in temperatures ranging from -40°C to +70°C.

Optical system

The optical system was developed specifically for use in long range surveillance. It features continuous zoom, with powerful zoom ratio of 30 to 1000 mm, auto-iris and focus adjustment from 3 m to infinity for the long-range channel. The short-range channel provides 2x digital zoom.

The "Auto-Focus on Demand" lets the camera control the focus by the push of a button.

The lens design incorporates oil-free, low-friction surfaces with special coatings. All lens elements are surface coated for high response throughout the visible spectrum.

Stay on target with precise boresight retention

The factory pre-aligned boresight, is aligned in parallel with the optical reference axis of the system. This makes for easy on-site installation.

Typical boresight retention is ± 0.2 milliradians, the equivalent to staying within a target area of 0.2 m, at a distance of 1 km in NFOV.

Expanded Hi-Dynamic Range (XDR)

XDR is useful in conditions where there are large variations in brightness in the picture, i.e. when there are very dark and very bright areas in the picture. XDR amplifies the signal level in dark areas and reduces it in very bright areas thereby improving the visibility in the picture.

Fog penetration

The fog penetration function is designed to automatically increase visibility under conditions such as fog, haze and fire smoke. The camera continuously analyses the picture and once it detects a low-contrast condition, it will automatically enhance the contrast.

Digital Noise Reduction (DNR)

The Digital Noise Reduction in the Spectrel DUAL 121000/336 camera system is a function that analyses the video image and reduces the noise, particularly in low-light conditions. The analysis is based on a 2- and 3-dimensional algorithm.

Reduction of heat haze disturbance

With the Heat haze function turned on, you get a more stable and clear image since the function reduces the disturbance of heat waves that blurs the image.

Optional Wiper and Sunshield

Spectrel DUAL 121000/336 can be configured with a wiper on the side for applications with high probability for rain, sea splash or the like.

An optional sunshield can also be provided on request.

Copenhagen Sensor Technology A/S

Symfonivej 15
DK-2730 Herlev
Denmark

Phone +45 44 92 18 55
E-mail info@copst.com
Web www.copst.com

Document no. L10-000-D01
Revision/Date E / Sept. 2016
Author XB

Spectrel DUAL 121000/336

Dual Long-Range Camera System

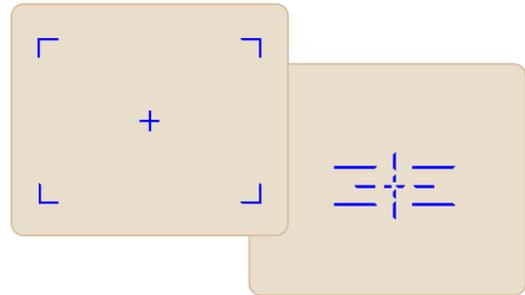
Datasheet



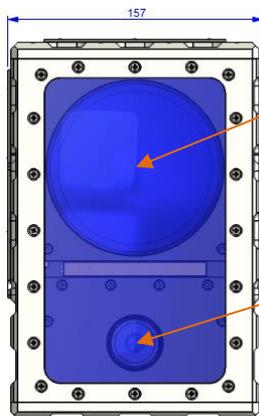
Graphic overlays

The system has a built-in graphic overlay generator that allows arbitrary graphic overlays to be inserted into the image output. Typical overlays are text strings, showing azimuth, elevation, GPS data or status of weapon systems and symbols, such as hair crosses or other reticles. Programming the graphic overlay engine is done via the RS-422 / CAN-BUS interface. Graphic overlays can be customized to suit specific user requirements.

To the right there is an example of graphic overlays.



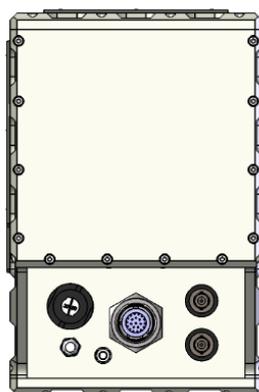
Mechanical outline and dimensions



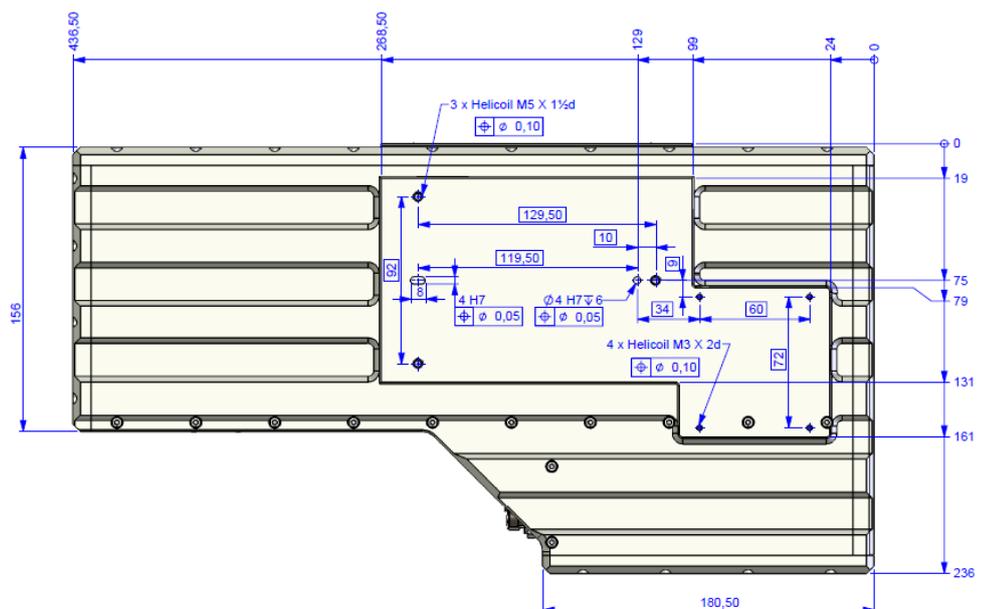
Long-Range Optic

Short-Range Optic

Front View



Rear view



Side View

Copenhagen Sensor Technology A/S

Symfonivej 15
DK-2730 Herlev
Denmark

Phone +45 44 92 18 55
E-mail info@copst.com
Web www.copst.com

Document no. L10-000-D01
Revision/Date E / Sept. 2016
Author XB

Spectrel DUAL 121000/336

Dual Long-Range Camera System

Datasheet



Specifications

	Long-range zoom	Short-range fixed
Camera System		
Sensor	High sensitivity 1/3" colour CCD with complementary mosaic	
Effective pixels (H x V)	976 x 582	976 x 582
Aspect ratio	4:3	4:3
Video output	Composite CVBS, 1 Vpp, 75 ohm include SBS (side by side)	
Video resolution, CVBS	560 TVL (15% video modulation, with lens)	
Sensitivity	100 mLux, 25% video, F4.6	7 mLux, 25% video, F1.2
Spectral response	Visible	
Signal to Noise ratio	> 52 dB, AGC off	
Scanning system	2:1 Interlace	
Horizontal frequency	15.625 kHz	
Vertical frequency	50 Hz	
Focal length	30 to 1000 mm zoom (33x)	14 mm (2x)
Field of view	Narrow: Hor. 0.3° Wide: Hor. 8°	Hor. 20°, Vert. 15°
Focus range	3 m to ∞	2.0m to ∞ (narrow FOV)
Iris range	f/4.5 to 22 @ WFOV	f/1.8 to 360 incl. Spot filter
Zoom control, travel time	≤ 5 sec. (25°C, both ways, Wide to Narrow FOV)	No zoom
Focus control, travel time	≤ 8 sec. (25°C, both ways, 2.5 m to ∞)	Not relevant when no zoom
Functions		
Electronic shutter, fixed	OFF, 1/50 to 1/10,000 sec.	OFF, 1/50 to 1/10,000 sec.
Gamma correction	0.45 / 1.0	
Automatic Gain Control. range	0 to +36 dB	
White balance	Automatic, Tracking	
Noise reduction	2D and 3D Digital Noise Reduction	
Heat haze reduction	On and off function	
Fog Penetration	Image contrast enhancement	
Digital zoom	Up to 2X zoom	
Auto focus	On demand	
Video overlays	On screen text and reticles (customizable)	
Configuration, serial interface	RS-422 (galvanic separation), VISCA protocol	
Mechanical		
Overall dimensions (W x H x L)	157 x 236 x 436.5 mm	
Net weight	< 12 kg	
Housing material	Aluminium with corrosion protection coating	
Protective housing integrity	IP 67	
Connector (power, data, control)	22-pin circular - In accordance with MIL 38999	
Bore-sighting retention	±0.2 milliradians @ NFOV	
Environmental		
Operating voltage	15 to 36VDC (power supply ground isolated from camera housing)	
Power consumption	< 15W	
Humidity	20% to 95%, non-condensing	
Operating temperature	-40°C to +70°C	
Storage temperature	-40°C to +70°C	
Vibration	Wheeled vehicle MIL-STD 810G - 3.05 Grms	
Shock	3 shocks in each direction, 30G @ 11ms	
Inside Pressure	0.2 bar	

Copenhagen Sensor Technology A/S

Symfonivej 15
DK-2730 Herlev
Denmark

Phone +45 44 92 18 55
E-mail info@copst.com
Web www.copst.com

Document no. L10-000-D01
Revision/Date E / Sept. 2016
Author XB

Spectrel DUAL 121000/336

Dual Long-Range Camera System

Datasheet



About Us

CST - Copenhagen Sensor Technology A/S is a privately held Danish company specialising in the design and manufacture of high-performance electro-optical solutions for demanding battlefield and surveillance applications.

Founded in 2001, CST has rapidly grown to a mature organisation, capable of serving a global customer base. In modern facilities on the outskirts of Copenhagen, Denmark, CST houses R&D, production, QA and sales and marketing functions. With a collective experience in CCD camera, optics, electronics and software development, the highly skilled staff at CST is committed to creating rugged, durable and innovative electro-optical solutions.

CST is certified to ISO 9001:2008, which applies to the whole process flow of design, development, manufacturing and testing. Furthermore, ISO 10007:2003 configuration management standards is used as a guideline for design and development activities. CST products are not restricted by ITAR.

Customer and OEM solutions

CST has a long tradition of working closely with its customers, identifying unmet needs and creating solutions with sustainable value for the users.

With a strong R&D base at the headquarters in Denmark, CST is able to provide mechanical, optical, software and hardware customisations while meeting the toughest requirements for military, homeland security and high-end surveillance applications.

Whether the need calls for a ruggedized high-precision zoom lens or a highly sensitive CCD camera, or a complete system comprising lens, camera and advanced video processing, CST can offer a fast-track design process. Contact us to discuss your specific requirements. Together we can create a solution that provides the best price and performance ratio.

Copenhagen Sensor Technology A/S

Symfonivej 15
DK-2730 Herlev
Denmark

Phone +45 44 92 18 55
E-mail info@copst.com
Web www.copst.com

Document no. L10-000-D01
Revision/Date E / Sept. 2016
Author XB