

### Features

- Full HD camera
- CMOS with global shutter
- Zoom lens 7 to 210 mm (30x)
- Fog Penetration
- Temperature range -40°C to +70°C
- Excellent boresight retention
- Build in wiper system

### Description

The Spectrel Naval 12210/340/W is an integrated camera system, based on a highly sensitive colour CMOS camera and a powerful zoom lens, ideal for day/night surveillance in harsh environments, such as coastal surveillance, on a remote weapon station and similar applications. The system has an integrated wiper/washer system for keeping the protective window clean.

It is designed to deliver high-performance images, even under the harshest conditions, 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 7 to 210 mm, auto-iris and focus adjustment from 1.5 m to infinity.

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

### Digital zoom

Digital zoom is provided as a continuous digital zoom with 6x range, selectable from the serial interface.

### 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 in NFOV is  $\pm 0.2$  milliradians, the equivalent to staying within a target area of 0.2 m, at a distance of 1 km in NFOV.

### 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

The Digital Noise Reduction in the Spectrel Naval 12200/340W 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.

### Build in ALaRs

ALaRS is the abbreviation of Automatic Light and Resolution system, which optimizes the light regulation and resolution, resulting in an improved image quality.



With ALaRs



Without ALaRs

- A larger dynamic area
- No image disruption or flashing when exposed of shock and vibration
- Fast exposure: Leading to a sharper image when there are moving objects
- Higher resolution during daylight conditions
- CMOS sensor with Global Shutter

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# Spectrel Naval 12210/340W HD

## Datasheet



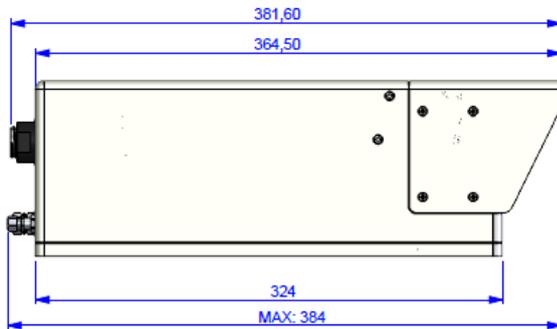
### Digital image stabilization

Advanced image processing algorithms for stabilizing the image is integrated into the core of the camera to ensure the best performance without increased image delay.

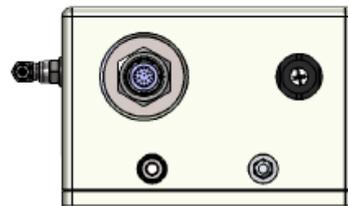
### C-MOS sensor with Global Shutter

Global shutter defines the way the image is handled from the sensor. Global shutter is preferable for applications on the move or where the target is moving. The Global Shutter ensures a stable clear image on all moving objects.

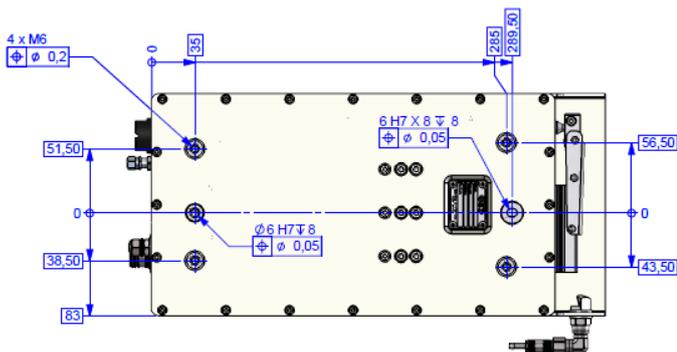
## Mechanical outline and dimensions



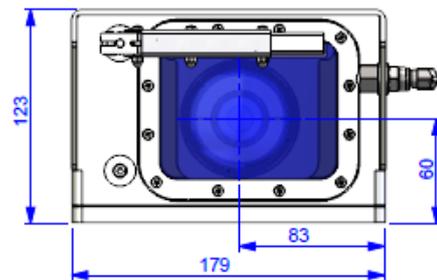
Side view



Rear view



Bottom view



Front view

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### Specifications

Camera System	
Sensor	High resolution 3,2Mp, High-sensitivity 1/1,8" colour CMOS with Global shutter
Effective pixels (H x V)	1920H x 1080V ( sensor 1/2")
Image format	16:9
Scanning system	Progressive
HD-SDI output 3G	1920 x 1080 50p/60p
HD-SDI output SDI	1920x1080-60i/50i/30p/25p
Video out analogue	CVBS, video 1Vpp
System video resolution analogue	Equivalent to 540 TVL 15% video modulation,
Sensitivity	0,03 Lux at F2.6 Full HD
Extended night mode	0,007Lux at F2,6 VGA resolution (pixel binning)
Spectral response	Visible 400nm-700nm
Signal to Noise ratio	> 52dB, AGC off
Scanning system	Progressive scan ( global shutter )
Focal length	7 – 210 mm zoom (30x)
Field of view lens	Narrow: Hor. 1.7°, / Wide: Hor. 45°,
Focus range	1.5 m to ∞
Iris range	f/2.6 to 22 @ WFOV
Zoom control, travel time	≤ 6 sec. (25°C, both ways, Wide to Narrow FOV)
Focus control, travel time	≤ 5 sec. (25°C, both ways, 1.5 m to ∞)
Functions	
Electronic shutter, fixed	1/50 to 1/10,000 sec.
Gamma correction	0.45 / 1.0
Automatic Gain Control	Max 48 DB
White balance	Automatic, Tracking and One-Push
Noise reduction	2D and 3D Digital Noise Reduction in 2 levels
Heat Haze reduction	On and off function
Fog Penetration	Image contrast enhancement
Auto focus	On demand
Continuous Digital Zoom	6 x range / Zoom window
Configuration, serial interface	RS-422 interface (galvanic separation), VISCA/CST protocol
Mechanical	
Overall dimensions (W x H x L)	179 x 123 x 381 mm (incl. connectors & sun shield)
Net weight	< 10 kg
Housing material	Aluminium with corrosion protection coating
Protective housing integrity	IP 67
Window cleaning system	Wiper and washer nozzle
Connector (power, data, control)	D38999 series III
Bore-sighting retention	±0.2 milliradians @ NFOV
Environmental	
Operating voltage	15 to 36VDC (power supply ground isolated from camera housing)
Current consumption	< 30W incl. Active heater in window
Operating temperature	-40°C to +70°C
Storage temperature	-40°C to +70°C
Salt fog	In accordance with MIL-STD-810E
Vibration	MIL-STD 810G , method 514.2 procedure VIII
Shock	3 shocks in each direction, 30G @ 11ms
MTBF	30 000 hours (MIL-HDBK-217-F) ground benign

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## **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 9015:2008, which applies to the whole process flow of design, development, manufacturing and testing. Furthermore, ISO 10007:2003 configuration management standards are 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.

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