

Citadel Dual Cam

Driver Sight camera for armoured vehicles
Datasheet

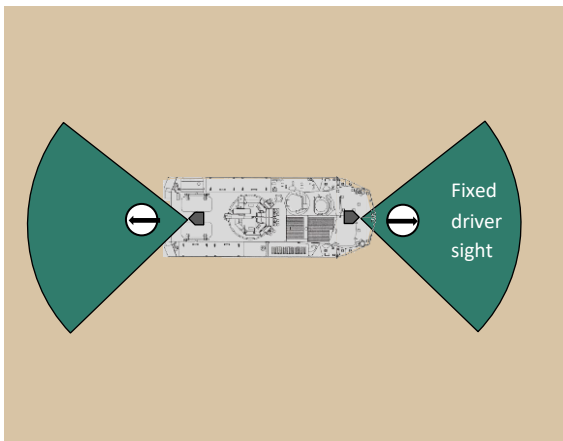


Features

- 57° or 90° horizontal Field of View
- Image merging (Visible & Infrared)
- 24V operating voltage (15 – 36V)
- Wash function through spar
- Graphical insertion
- IP 67

Description

Providing increased safety for the entire vehicle crew of armoured vehicles is of prime importance in the battlefield. In the Citadel Dual Cam you get both a thermal and visual camera build into one unit where the two images is merged providing an optimized sight for drivers inside an armoured vehicle.



Rugged design

The Citadel Dual Cam is encased in a rugged IP 67 housing, designed to withstand vibration in accordance with MIL STD 810G. It provides high-performance images, even under the harshest conditions, in temperatures ranging from -40°C to +70°C. All electrical connections go through a MIL-compliant 38999/23 connector. The integrated mounting bracket allows precise elevation and azimuth alignment of the camera.

Features

Graphical insertion allows configuration of several graphic overlays e.g. in the form of distance markers and text strings.

Fog penetration in the daylight camera. 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.

White / Black hotspot change on thermal camera.

Merging function. The Dual Cam offer the driver/operator to adjust the blending between the daylight and Thermal camera to ensure the maximum information for driving as well as situational awareness (see also note 1, page 3).

Combined sensor technology

The combined sensor technology gives 24/7 operation and provides combat support and service vehicle operators with increased driver's vision capability, survivability, and mobility during day, night and in adverse weather conditions such as dust, smoke, and haze.

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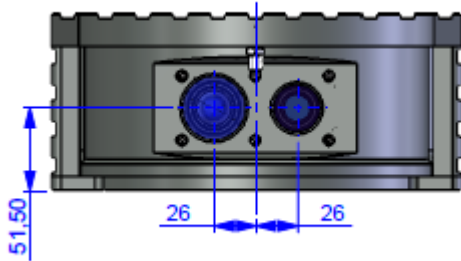
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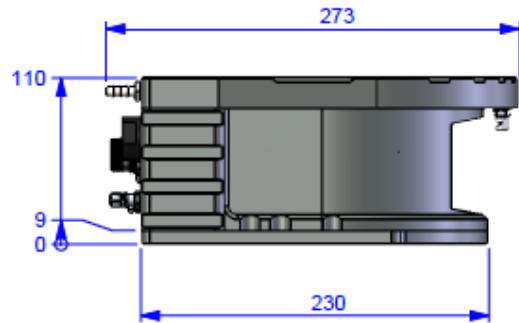
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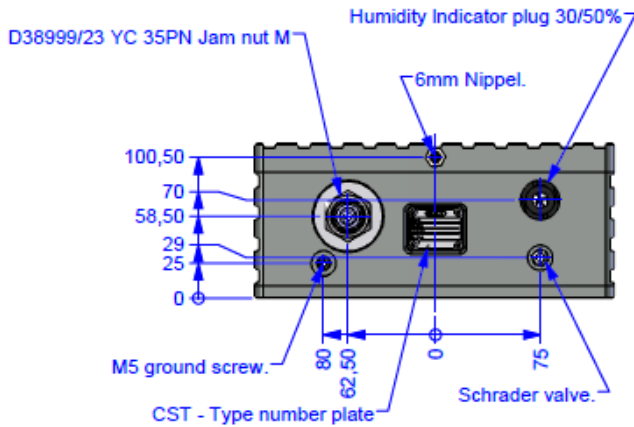
Mechanical outline and dimensions



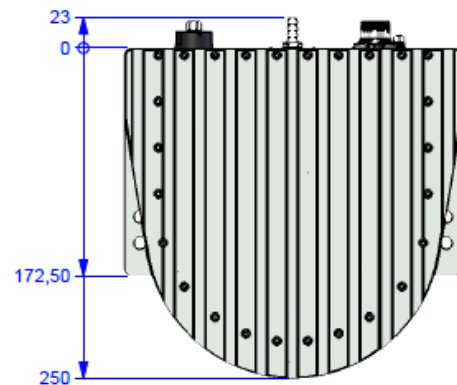
Front view



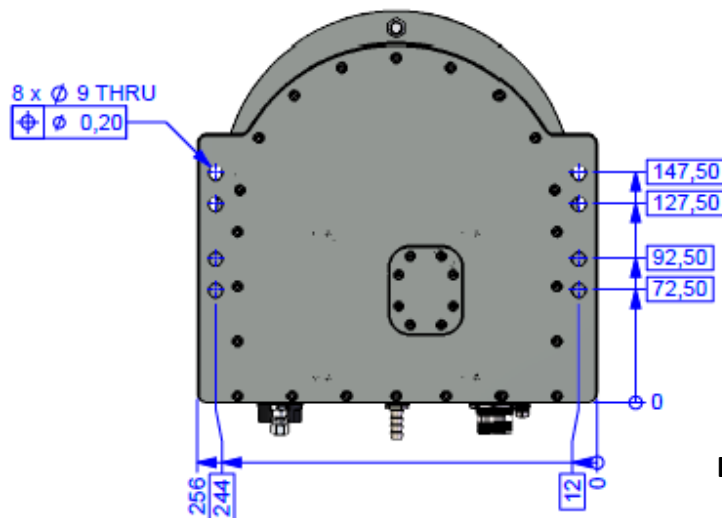
Side view (left side)



Rear view



Top view



Bottom view

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Specifications

Channel	Colour / Visual	Thermal
Image system		
Sensor	High sensitivity 3 Gen 1/3" colour CCD	Uncooled VOx or A-si Micro bolometer
Lens FOV.	57° or 90° HFOV at F1.4 (NOTE 1)	57° or 90° (HFOV) (NOTE 1)
Effective pixels (H x V), per camera	PAL-976 x 582 (4:3 image format), NTSC-976 x 494 (4:3 image format)	640 x 480 (4:3 image format)
Detector pitch	5 µm x 6,25 µm	17 µm
Electrical specifications and functions		
Video output	PAL or NTSC, Composite VBS, 1 Vpp, 75 ohm	
Sensitivity in real time	0.007 lx, 25% video @ f/1.6, AGC on	50 mK
Sensitivity in extended night mode	0.001 lx, 25% video @ f/1.6, AGC on	
Spectral response	400-700nm (NOTE 2)	8 -14 µm
Dynamic Range Enhancement	XDR-function	
Picture inversion	Pos/neg	
Fog penetration	Image contrast enhancement	
Image Mirroring	Horizontal and Vertical image flip	
Configuration, serial interface	RS-422, CST protocol (CAN-BUS is optional)	
Mechanical		
Overall dimensions (W x H x L)	256 x 110 x 250 mm (Not incl. connectors)	
Net weight	App. 6 kg	
Housing material	Aluminium with corrosion protection coating	
Protective housing integrity	IP-67, back-filled with dry nitrogen	
Camera window	Float glass with multi-layer AR coating (NOTE 3)	Hard Carbon coated front window
Connector	D 38999 / 23	
Environmental		
Operating voltage	15 – 36 V DC (Galvanic separation from housing)	
Over voltage protection	MIL-STD-1275-D	
Current consumption	Max. 25 W (incl. Active heater in window)	
Operating temperature	-40°C to +70°C (solar load)	
Storage temperature	-40°C to +70°C	
Shock / Vibration	MIL STD 810G (wheeled vehicle profile)	
EMC	MIL STD 461F RS103 and RE102	
MTBF	30 000 hours GB	
Start-up time for full operation	15 sec to driver mode	

Note 1: Other FOV on request. Merging with 90 degrees FOV will have a little distortion between the two camera pictures.

Note 2: It is optional to order the camera without IR-cut filter making it open for IR-light with a spectral response between 400-950nm.

Note 3: Optional heater in front window for deicing.

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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 9001:2008, which applies to the whole process flow of design, development, manufacturing and testing. Furthermore, the ISO 10007:2003 configuration management standard 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.

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