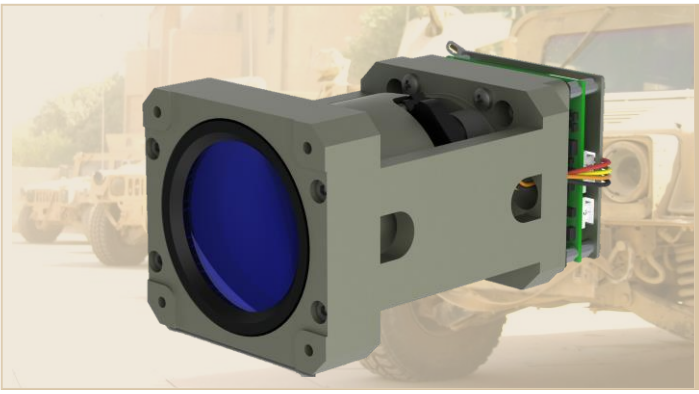
Open Frame 5-50/336

Ruggedized high-sensitivity camera – easy integration
Datasheet



Features

- High sensitivity colour CCD camera
- Selectable HFOV 5.6° to 52° (factory option)
- Operating temperature -40°C to +70°C
- Visible spectrum sensitivity
- Passive cooling for improved image quality
- 12V operating voltage
- MIL-STD-810 shock/vibration

Description

The Open frame 5-50/336 is an integrated unit, based on a highly sensitive colour CCD camera and a rugged fixed-focus lens, ideal for day/night observation/sighting applications. It is designed to deliver high-performance images, even under the harshest conditions and is ready for integration in your desired system.

Rugged design

The camera system is designed to withstand shock/vibration in accordance with MIL STD 810F. It provides high-performance images, even under the harshest conditions, in temperatures ranging from -40°C to +70°C. This makes the camera ideal for mounting on tracked/wheeled vehicles, and for hard mounting on a gun barrel.

Factory configured Fixed Field of View (FOV)

The Open frame 5-50/336 has an integrated, rugged fixed-focus lens that can be factory configured between Hor. FOV 5.6° (Wide) and Hor. FOV 52° (Tele).

Day/Night operation

With the high sensitivity and automatic exposure modes of the Open frame 366_5-50mm, it can operate from dawn to dusk and even produce images in full moonlit conditions. The Extended Night Mode allows low light level operation with up to 4 seconds integration.

Passive cooling

The camera uses passive, conductive cooling to remove heat from the CCD sensor. This reduces random noise in the CCD sensor, resulting in improved image quality, particularly in low-light conditions.

Expanded Hi-Dynamic Range (XDR)

XDR is useful in conditions with large variations in brightness in the scene, i.e. the scene contains 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, the on-board processing will automatically enhance the contrast.

Digital Noise Reduction (DNR)

The Digital Noise Reduction function, based on a 2- and 3-dimensional algorithm, helps reduce noise in low-light conditions.

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.

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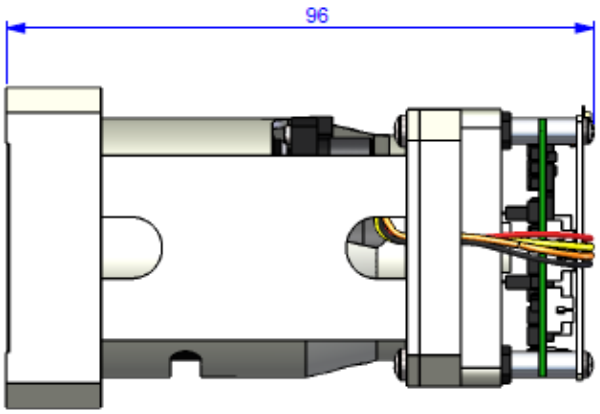
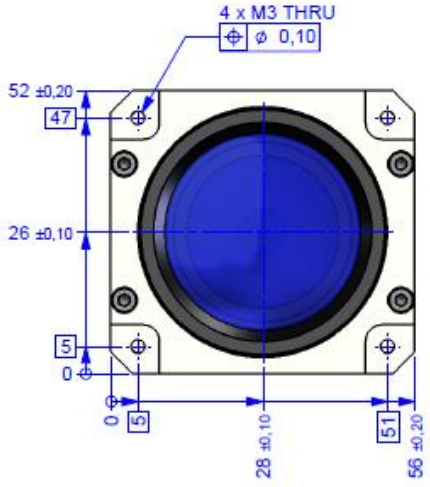
Several configuration options:

- The Open frame 5-50/336 can be factory configured for ***autonomous operation***, whereby the key functions are set to an auto-mode, which allows around-the-clock operation (day and night) without the need for operator/user intervention.
- Alternatively, the Open frame 5-50/336 can be ***fully controlled by a user interface***, as all functions can be selected and configured via the serial UART interface. This is ideal for applications where it is desired to override the built-in automatic functions.

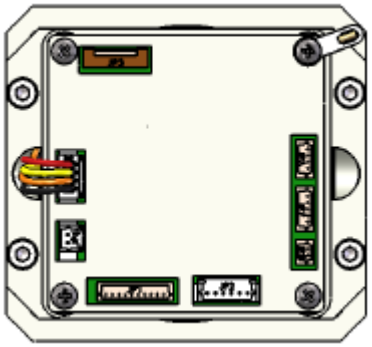
Mechanical outline and dimensions



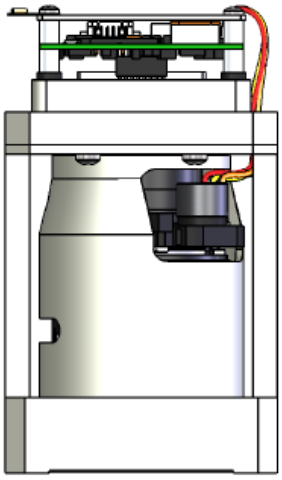
Side view (left side)



Front view



Rear view



Bottom view

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Specifications

	PAL	NTSC
Image system		
Sensor	High sensitivity 1/3”colour CCD sensor with complementary mosaic	
Lens	Fixed Field of View (FOV), fixed focus, IR-corrected, f/1.6	
Effective pixels (H x V)	976 x 582 (4:3 image format)	976 x 494 (4:3 image format)
Field of View	Factory configuration between H. 5.6° / V. 4.2° (Wide) and H. 52° / V. 40° (Tele)	
Depth of focus	From 1.8m to ∞ (in Tele setting and lens-iris fully open)	
Scanning system	2:1 Interlace	
Frame rate	25 Hz (50 fields/sec)	30 Hz (59.94 fields/sec)
Electrical specifications and functions		
Video output	Composite VBS, 1 Vpp, 75 ohm or YC	
Horizontal resolution	650 TVL	
Sensitivity	0.007 lx, 25% video @ f/1.6, AGC on	
Spectral response	Visible	
Signal to noise ratio	> 52 dB, AGC Off	
Electronic shutter, fixed	1/50 to 1/10,000 sec.	1/60 to 1/10,000 sec.
Gamma correction	0.45 / 1.0	
Automatic Gain Control. range	0 to +36 dB + 6 DB DGC	
Extended Night Mode	Frame integration up to 4 sec.	
Day/Extended night mode switching	Via serial UART interface	
Lens Iris	Built-in Auto-Iris	
Image overlay	Simple cross-hair (centre line, horizontal and vertical)	
Dynamic Range Enhancement	XDR-function evens out extremely dark / bright image portions	
Fog penetration	Adaptive algorithm for image contrast enhancement 3 Levels	
White balance	Auto Tracking White Balance (ATW)	
Noise reduction	2D and 3D Digital Noise Reduction algorithms 2 Levels	
Heat haze reduction	On and off function	
Image Mirroring	Horizontal and Vertical image flip	
Configuration, serial interface	Serial UART interface (3.3V LVTTL), CST protocol	
Mechanical		
Overall dimensions (W x H x L)	56 x 52 x 96 mm	
Net weight	< 500g	
Mounting method	4 x M3 in the front	
Environmental		
Operating voltage	12V DC	
Current consumption	200 mA	
Operating temperature	-40°C to +70°C	
Storage temperature	-40°C to +70°C	
Operating humidity	20 % to 95%, non-condensing	
Shock	11 msec. @ 30 G according to MIL STD 810F	
Vibration	Wheeled vehicle MIL-STD 810G , method 514.6 Optional version for tracked vehicle MIL-STD 810G	
MTBF	30 000 hours (MIL-HDBK-217-F) Ground mobile	

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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, 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.