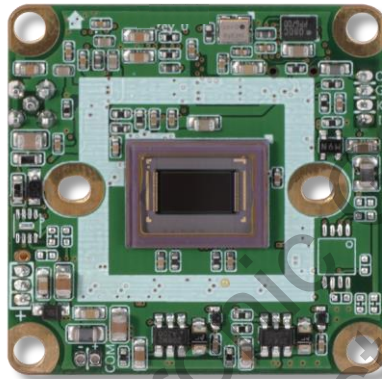


201-ESHSAHCV-662-xyzq

EX-SDI / HD-SDI Full-HD board camera



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Over 1 Million Cameras Worldwide

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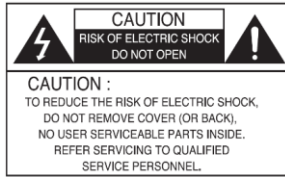
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2. Warning and Safeguards



- **Read instructions before operating the camera.**
- Please read/follow all instructions and read all warnings before operating the camera.
- Installation and servicing should only be done by Qualified Service and Installation Personnel.
- Installation shall be done in accordance with all local and national electrical and mechanical codes.
- Avoid mounting in direct sunlight.
- To reduce the risk of fire or electric shock, do not expose this appliance to rain, water or wet locations.
- If the camera is to be mounted outdoors a secondary waterproof enclosure should be used.


2.1 Precautions

- Do not put objects inside the unit. Make sure that no metal objects or flammable substances get inside the camera. It could cause fire, short-circuits or damages.
- Be careful when handling the unit.
- To prevent damage, do not drop the camera or subject it to strong shock or vibration.
- Install away from electric or magnetic fields.
- Protect it from humidity and dust.
- Protect from high temperature.
- Be careful when installing it close to the ceiling, in a kitchen or boiler room, as the temperature may raise to high levels.
- Cleaning - Dirt can be removed from the cabinet only by wiping it with a soft cloth moistened with a soft detergent solution.
- Mounting Surface - The mounting surface material must be strong enough to secure the camera.
- Avoid viewing a very bright object (such as light fittings) during an extended period.

2.2 Care of the Unit

- Remove dust or dirt on the surface of the lens with a blower (commercially available).
- Avoid the use of volatile solvents such as thinners, alcohol, benzene and insecticides. They may damage the surface finish and/or impair the operation of the camera.
- Be careful not to spill water or other liquids on the unit.

2.3 Operating and Storage Location

- Consult the datasheet of the camera for temperature limits and guidance.
- Avoid damp or dusty places.
- Avoid places exposed to rain.
- Avoid places subject to strong vibration.
- Avoid places close to generators of powerful electromagnetic radiation such as radio or TV transmitters.
-  If the product is to be put out of operation definitively, take it to a local recycling plant for disposal which is not harmful to the environment.

3. Document History

Document History

Revision	Issue Date	Reason
Rev A	10/23/2024	Initial Release

Aegis Electronic Group
www.aegiselect.com

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5. Description

This document describes the specification and the usage guide for this camera.

5.1 Features

- Sony Starvis-2 image sensor with significantly improved its dynamic range compared to conventional sensors
- Up-to-date CLEAR HDR technology for improving HDR image clarity, motion artifacts and chromatic aberration compared to DOL HDR
- Various Dynamic Range enhancements of image by Clear HDR, Digital Overlap HDR and DWDR
- Very Fast Adaptation to light changes by boosting the shutter response
- Superb low light performance by Starvis-2 technology
- Best for low AGC applications
- Multi video output formats 1080p/30, Scaled 720p/60 or 30
- Digital Video Outputs : HD-SDI/EX-SDI(1.0/2.0) selectable
- Analogue Video outputs : HD-Analogues(THD/AHD/CHD)/CVBS selectable
**(HD-SDI/EX-SDI is disabled when CVBS is selected)
- Long-distance digital video transmission using EX-SDI2.0 visually lossless compression technology
- No-latency video transmission unlike IP network products
- UTC(Up-The-Coax) remote control on HD analogues over coaxial cable (Requires matching with DVR protocol)
- Optional VISCA remote control via RS-485
- DC12V power input with reversed polarity protection
- NDAA Compliant

5.2 Dimensions

(unit : mm)

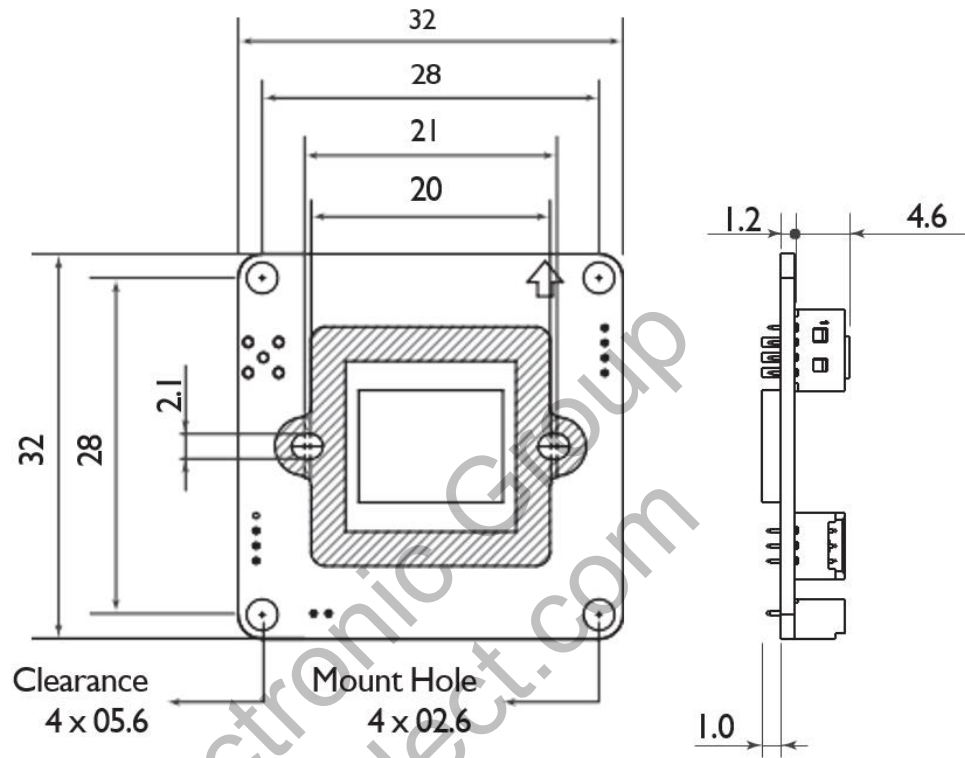


Figure 1. Dimensions

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6. Operating Instructions

6.1 SETUP MENU Table

Camera setup menu can be accessed and controlled by the optional OSD controller.

- EXIT : Selects 'EXIT' menu with save current setting or without save.
- RETURN : Returns to the previous menu.

LENS	DC	MODE (INDOOOR, OUTDOOR, DEBLUR)		
	MANUAL			
EXPOSURE	BRIGHTNESS	0~20		
	SHUTTER	AUTO	NORMAL, DEBLUR	
		MANUAL (SPEED)	1/30, 1/60, 1/120, 1/250, 1/500, 1/1000, 1/2000, 1/4000, 1/8000, 1/5000, 1/30000	
		FLICKERLESS		
AGC	0~10			
BACKLIGHT	OFF			
	HLC	LEVEL, COLOR		
	BLC	H/V-POS, H/V-SIZE		
	HDR	HDR MODE	CLEAR HDR, DOL	
DAY & NIGHT	DAY			
	NIGHT	IRLED, ANTI-SAT.		
	AUTO	ANTI-SAT., D/N THRES, DELAY		
COLOR	WHITE BAL	AUTO, AUTOext, PRESET, MANUAL (C-TEMP, R/B-GAIN)		
	COLOR GAIN	0~20		
IMAGE	SHARPNESS	0~10		
	GAMMA	0.45, 0.5, 0.55, 0.6, 0.65, 0.7, 0.75, AUTO		
	MIRROR	OFF, ON		
	FLIP	OFF, ON		
	D-WDR	LOW, MIDDLE, HIGH, OFF		
	DEFOG	OFF, ON	MODE (AUTO, MANUAL)	
			LEVEL (LOW, MIDDLE, HIGH)	
	SHADING	OFF, ON	WEIGHT(0~100%)	
	PRIVACY	OFF, ON	BOX (ZONE NUM, ZONE DISP, H/V-POS, H/VSIZE, Y LEVEL, CB/CR LEVEL, TRANS)	
SYSTEM	OUTPUT	SDI OUPUT	HD-SDI, EX-SDI 1.0, EX-SDI 2.0, OFF	
		ANALOG OUT0	AHD , CHD, THD, CVBS (HD-SDI/EX-SDI does not output when CVBS is set)	
	FRAME RATE	1080 30P, 720 60P(SCALE DOWN), 720 30P		
TV SYSTEM	US(NTSC) / EU(PAL) switchable			

	LANGUAGE	ENG, CHN(S), CHN, JPN, KOR, GER
	CAM TITLE	OFF, RIGHT UP, LEFT DOWN
	COMM	CAM ID(0~255) BAUD RATE(2400, 4800, 9600, 57600, 115200)
	FACTORY RESET	OFF, DONE
EXIT	SAVE, CANCEL	

Table 1. Setup Menu table

6.2 SETUP MENU

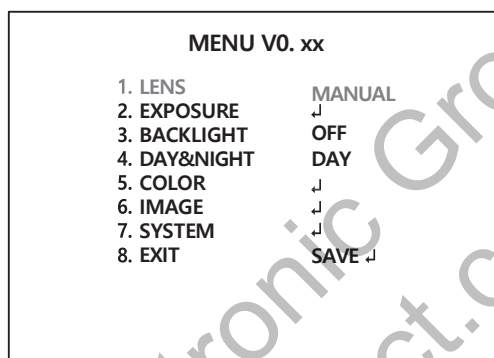


Figure 2. Setup Menu

6.2.1 Lens (Default Manual)

LENS must be selected, either DC or MANUAL lens according to lens type.

- **Manual**
Selects MANUAL when a fixed aperture lens is mounted.
- **DC** (This feature does not work due to hardware limitations on this product.)
Selects DC when an auto-iris lens is mounted.
 - **INDOOR:** Optimized for indoors by weighting the shutter speed range to accommodate low light conditions.
 - **OUTDOOR:** Optimized for outdoors by weighting the shutter speed range in response to bright light.
 - **DEBLUR:** Improves motion blur that may occur due to slow shutter speeds indoors. Band noise may occur under lighting such as fluorescent lights.

6.3 EXPOSURE

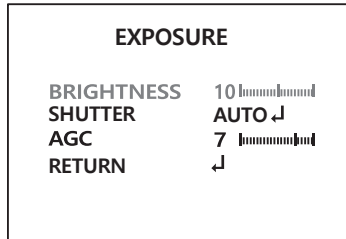


Figure 3. Exposure

6.3.1 BRIGHTNESS

Higher (lower) values brighten (darken) the image. (0~20).

6.3.2 SHUTTER

Selects AUTO or set MANUAL

If SHUTTER set to MANUAL modes, SENS-UP mode is inactivated.

- AUTO: Automatically controls shutter speed to obtain appropriate image level depending on lighting level.
- MANUAL : Selects a shutter speed out of 1/30, 1/60, 1/120, 1/250, 1/500, 1/1000, 1/2000, 1/4000, 1/8000, 1/15000, 1/30000. Auto-iris lens needs to be essentially used.
- FLICKERLESS : Removes flickering in video caused by differences in TV mode and electrical frequency. (e.g., NTSC at 50Hz site or PAL at 60Hz site)

6.3.3 AGC

The set AGC value stands for the amplifier's maximum gain that can be reached when it is at its darkest, and the gain varies automatically within the set AGC depending on the light level. Overall noise level increases by higher AGC.

6.4 BACKLIGHT

Compensates the video image by one out of HLC, BLC or HDR.

6.4.1 HLC (High Light Compensation)

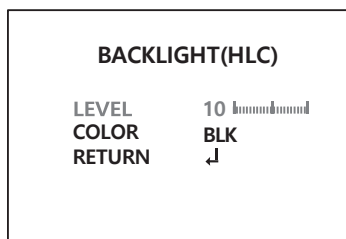


Figure 4. High Light Compensation

- LEVEL (0~20): Sets the threshold level of video to be cut and masked.
- COLOR : Sets the mask color out of Black, White, Yellow, Cyan, Green, Magenta, Red, Blue and Customize.

6.4.2 BLC (Backlight Compensation)

BLC brightens the objects under the back-lit environments.

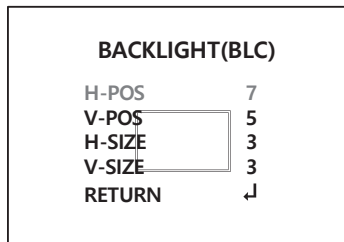


Figure 5. Back Light Compensation

- H-POS, V-POS :
Sets the start position of BLC window.
- H-SIZE, V-SIZE :
Sets the size of BLC window.

6.4.3 HDR

HDR improves the dynamic range of images in various ways.

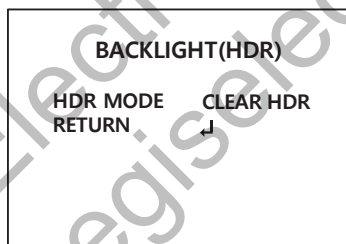


Figure 6. High Dynamic Range

HDR MODE

Selects how to improve the dynamic range of an image using HDR.

Two HDR modes of CLEAR HDR and DOL(Digital Overlap) HDR are available.

- CLEAR HDR : Sony's latest HDR for Starvis-2 sensor delivers vivid, clean, natural images with reduced motion artifacts and chromatic aberration. CLEAR HDR captures a single image with high shutter speed and creates the 2nd image with the gain amplification and synthesizes them to generate CLEAR HDR image.
- DOL : Image sensor operates at double the speed, capturing images at long and short shutter speeds and synthesizing them to create HDR image. Long /short shutter speeds are determined by the image sensor.

6.5 DAY & NIGHT

MENU V0. xx	
1. LENS	MANUAL
2. EXPOSURE	↓
3. BACKLIGHT	OFF
4. DAY&NIGHT	DAY
5. COLOR	↓
6. IMAGE	↓
7. SYSTEM	↓
8. EXIT	SAVE ↓

Figure 7. Day & Night

DAY

Forcibly set to DAY. No transition to NIGHT

NIGHT

Forcibly set to NIGHT. No transition to DAY.

AUTO

Determines DAY or NIGHT by light level through the lens and DAY from/to NIGHT is switched automatically according to the light level.

- IR-LED ANTI-SAT. : Increasing IR-LED ANTI-SAT reduces the white clipping of images of objects close to light sources like LEDs, but darkens the background.
- D=>N THRES : Sets the threshold level for transitioning from DAY to NIGHT.
N=>D THRES : Sets the threshold level for transitioning from NIGHT to DAY.
- DELAY : Increasing DELAY reduces unwanted switching caused by short-term lights, such as those from passing cars.

DAY & NIGHT(AUTO)	
IR-LED ANTI-SAT.	10
D=>N THRES	13
N=>D THRES	7
DELAY	MIDDLE
RETURN	↓

Figure 8. Day & Night (Auto)

6.6 COLOR

COLOR	
WHITE BAL	AUTO
COLOR GAIN	10
RETURN	↓

Figure 9. Color

6.7.4 FLIP

Flips the image vertically.

6.7.5 D-WDR

Compensates image brighter for the dark area.

6.7.6 DEFOG

Enhances the foggy image for better visibility.

MODE :

- AUTO : Compensates image automatically according to status of scene.
- MANUAL : Sets the compensation level fixed.
- LEVEL : Sets the degree of the compensation.

6.7.7 SHADING

Compensates image at the corners for even brightness across the screen.

6.7.8 PRIVACY

16 privacy masks are available, and each one is programmable in size, color, position and transparency. The privacy mask can be set in the form of a box.

BOX	
WINDOW NUM.	0
BOUNDARY	ON
H-POS	12
V-POS	2
H-SIZE	3
V-SIZE	3
BOX COLOR	↓
RETURN	↓

Figure 12. Privacy BOX

BOX

- WINDOW NUM : Selects the privacy mask number to be adjusted.
- BOUNDARY : Turns the selected mask ON or OFF.
- H-POS, V-POS : Sets the H, V start coordinates of BOX mask area.
- H-SIZE, V-SIZE : Sets the mask size of BOX mask area.
- BOX COLOR : Sets the color of the mask.

6.8 SYSTEM

Sets the system related functions.

SYSTEM	
OUTPUT	↓
FRAME RATE	1080 30
TV SYSTEM	US(NTSC)
LANGUAGE	ENG
CAM TITLE	OFF
COMM	↓
FACTORY RESET	ON
RETURN	↓

Figure 13. SYSTEM

6.8.1 OUTPUT

Sets the output video types.

- SDI OUTPUT : Selects the digital video output out of HD-SDI, EX-SDI1.0, EX-SDI2.0 or OFF.
- ANALOG MODE : Selects the analog video type out of AHD, THD, CHD or CVBS.

OUTPUT	
SDI OUTPUT	HD-SDI
ANALOG MODE	THD
RETURN	↓

Figure 14. Output

6.8.2 FRAME RATE

Sets the output video resolutions out of 1080 30p for 1920x1080, 720 60p or 720 30p for 1280x720 are available.

6.8.3 TV SYSTEM

Sets TV SYSTEM to US(NTSC) in 60Hz area or EU(PAL) in 50HZ area.

6.8.4 LANGUAGE

6 languages are available for OSD menu.

English, Korean, Japanese, Chinese(S), Chinese, German.

6.8.5 CAM TITLE

Camera title can be alphanumeric, and its display location can be selected out of OFF, RIGHT UP or LEFT DOWN.

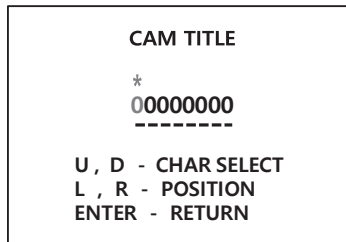


Figure 15. Cam Title

6.8.6 COMM

Sets the ID and the RS-485 speed. (Default is ID: 1, 9600BPS)

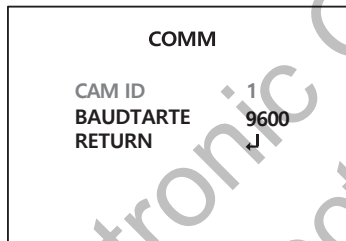


Figure 16. Comm

6.8.7 FACTORY RESET

Loading Factory Default.

6.9 EXIT

Exits SETUP MENU and returns to the normal display.

6.9.1 SAVE

Save all the settings and exit the setup menu.

6.9.2 CANCEL

Exit the setup menu without save.

7. Specifications

Image Sensor/ISP		IMX-662, 1/2.8" SONY STARVIS-2 CMOS Sensor/Eyenix EN-772s
Effective Pixels		1965 (H) x 1113 (V) = approx. 2.18 MP
Video Resolution/ Frame rate	HD	1920x1080p 30/25 fps, Scaled 1280x720p 60/50 fps or 30/25 fps
	CVBS	720x480i 60 fps, 720x576i 50 fps, 16:9 aspect ratio
Video Output	Digital (note1)	HD-SDI @1.485Gbps, non-compressed
		EX-SDI 2.0@135Mbps, EX-SDI 1.0@270Mbps, visually lossless compressed
	Analog	THD, AHD, CHD (compatible to HDTVl, AHD, HDCVI) @1Vpp unbalanced CVBS @1Vpp unbalanced
HDR		Clear HDR, Digital Overlap(DOL) HDR
D-WDR		LOW, MIDDLE, HIGH, OFF
Shutter speed		1/30 ~ 1/30000 fps
Min. Illumination		0.15Lux @ Color
DSS(Digital Slow Shutter)		No
Day/Night		Color/B&W/Auto
White Balance		Auto/Auto-Ext/Preset/Manual
Noise Reduction		2D-NR
Motion detection		No
Defog		ON/OFF
BLC/HLC		ON/OFF
Digital Zoom		No
ePTZ		No
Privacy Mask		Yes
Extra CVBS output		No
Image Orientation		Normal, H-Mirror, V-Upside Down
Remote Control	UTC	Up-The-Coax over coaxial video cable from Digital Video Recorder (note1)
	RS-485	Optional (VISCA protocol)
Dimensions / Weight		32 mm(W) x 32 mm(D) x 6.8 mm(H) / 6 g
NDAA Compliant		Yes

note 1) UTC requires matching with DVR protocol and remote distance is dependent on video cable length.

Table 2. Specifications



8. Contact Information

Excellence for More Than 25 Years

Founded in 1995, Videology is a global leader in the design, engineering and manufacturing of industrial-grade embedded video cameras, related systems, software and solutions. For more than 25 years we have been providing performance excellence in a broad spectrum of applications including biomedical devices, life sciences, banking, aerospace, traffic management, pipe inspection, and more. In October 2021, Videology was acquired by inTEST Corporation and currently is a part of the Process Technologies Division.



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an inTEST Company

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