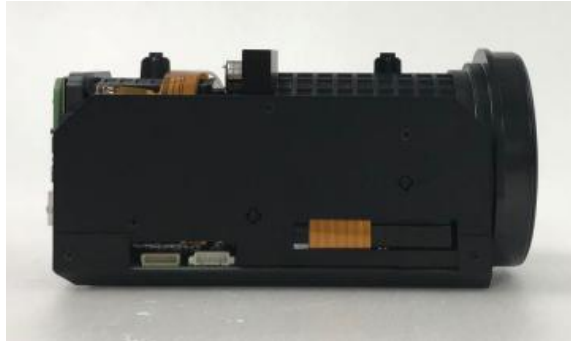
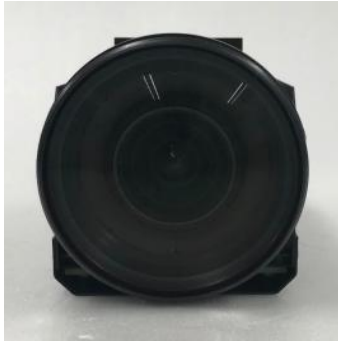


# CCK31838AF

## 1/1.8" High Sensitivity 4K CMOS 31x Zoom/AF/NIR Camera Module (Tentative)



### ■ Overview

- 4K camera module equipped with SONY Startvis2 color image sensor.
- Equipped with 1/1.8" 31x optical zoom lens for 4K.
- Equipped with a visible light cut filter as standard.

### ■ Feature

- Compared to conventional sensors, the NIR sensitivity is greatly improved, and when combined with a visible light cut filter, nighttime surveillance images become clearer.
- Supports auto ICR operation, automatically switching from daytime color images to nighttime near-infrared images.
- Due to Binning mode, the maximum sensitivity is more than doubled compared to Normal.
- 31x optical zoom and 15x digital zoom for a total of 465x zoom.
- Equipped with auto iris, auto electronic shutter, auto gain, auto white balance, and auto focus.
- Equipped with various correction functions according to the image scene (DNR, WDR, fog, heat haze, etc.).
- Supports TMDS output and easily converts to HDMI.
- Supports EX-SDI/3G-SDI/HD-SDI output, enabling long-distance wiring up to 400m without image quality degradation.
- Supports 2160p, 1440p, 1080p, 1080i video formats.
- Flexible support for additional functions.

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## ■ Specifications

Sensor	Image Sensor	1/1.8" SONY CMOS Image Sensor (IMX838-AQR1) Starvis2 for NIR
	Number of pixels	3856(H) x 2200(V), 8.48M Pixels
	Pixel Size	2.00 $\mu$ m(H) x 2.00 $\mu$ m(V)
	Scan Format	3840x2160@30/25/15/12.5fps, 2560x1440@30/25fps, 1920x1080@60/50/30/25fps (Option : 3840x2160@29/14fps, 2560x1440@29fps, 1920x1080@59/29fps)
Lens	F No.	Wide: F1.36, Tele: F4.60
	Focal Length	Wide (x1) :6.91mm, Tele (x31) : 214.64mm
	Zoom	Optical Zoom 1~31times : Stepping Moter Digital Zoom 1~15 times : (Optical + Digital Zoom Max : 465 times)
	Focus	Stepping motor system auto focus Focus range : Wide 2.0m~ $\infty$ , Tele 2.0m~ $\infty$
	Optical Arrange of view	Wide (x1) : D/69.51°, H/61.18°, V/35.33° Tele (x31) : D/2.35°, H/2.05°, V/1.15°
	Optical Filter (Triple ICR)	1: IR Cut Filter (for Day Color) 2: NIR Filter 3: Through Glass
Video	Video Format	TMDS : 2160p30/29/25/15/14/12.5, 1440p30/29/25, 1080p60/59/50/30/29/25, 1080i60/59/50, 1080PsF30/29/25 EX-SDI : 2160p30/29/25/15/14/12.5, 1440p30/29/25, 1080p60/59/50/30/29/25, 1080i60/59/50, 1080PsF30/29/25 3G-SDI : 1080p60/59/50 (Option) HD-SDI : 1080p30/29/25, 1080i60/59/50, 1080PsF30/29/25
	Minimum Illumination	F1.5, Color 0.01 lx, B/W 0.005 lx, IR Cut Filter Off, AGC 42dB, 25IRE
	Signal to Noise Ratio	STD 52dB (Minimum 48dB)
Function	Setting	OSD, UART(2ch)
	Auto Iris	Yes
	Auto Exposure	Yes
	Auto Focus	Yes
	White Balance	Auto / Manual / Preset (One push)
	Manual Shutter	30fps : 1/30, 1/60, 1/120, 1/250, 1/500, 1/1000, 1/2000, 1/4000, 1/8000, 1/15000, 1/30000, 1/60000 25fps : 1/25, 1/50, 1/100, 1/200, 1/400, 1/800, 1/1600, 1/3200, 1/6400, 1/12800, 1/25600, 1/51200
	Sense Up	AGC Max 72dB & Slow Shutter Max 256 times.
	Day & Night Mode	Color / B&W / Auto / External
	Digital Noise Reduction	Yes
	Backlight Control	Yes
	Peak / Average Control	Yes
	Gamma Control	0.35 / 0.45 / 0.55 / 0.65 / 0.75 / 0.85 / 0.95 / Defog(L) / Defog(M) / Defog(H)
	Wide Dynamic Range	Yes
	Eclipse (High Light Clip)	Yes
	Fog Reduction	Yes
	Heat Haze Correction	Yes
	Motion Detection	Yes
	H/V Mirror, Flip	Yes
	OSD Language	English, Japanese, Korean, Chinese(Traditional), Chinese(Simplified)
	Title Display	Yes
Communication Protocol	GCC-CP / Pelco-D / Pelco-P / VISCA	
Privacy Mask	Yes (16 Masks)	
Preset Position	Yes (64 Area)	
Synchronous Mode	Internal	
General	Power Source	DC+12V
	Consumption Current	440mA (30fps)
	Operation Temperature	-10°C ~ +50°C
	Storage Temperature	-30°C ~ +70°C
	Humidity	80% Max
	Outside Dimensions	W63.0mm x H66.8mm x D147.34mm
	Net Weight	500g

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## Pin Assignment

JP502/1002 (USL00-30L-A/KEL)		
1	GND in	Ground
2	TXCLKout-	TMDS Clock-
3	TXCLKout+	TMDS Clock+
4	GND in	Ground
5	TXout0-	TMDS TX0-
6	TXout0+	TMDS TX0+
7	GND in	Ground
8	TXout1-	TMDS TX1-
9	TXout1+	TMDS TX1+
10	GND in	Ground
11	TXout2-	TMDS TX2-
12	TXout2+	TMDS TX2+
13	GND in	Ground
14	485EN1	UART1 RS485 Enable output
15		Reserved
16		Reserved
17	Hot Plug Detect	5V <sub>out</sub> Open:stop
18	+5V Power	5V DC output
19		Reserved
20	GND in	Ground
21	I2CSCL	I2C Serial Clock
22	I2CSDA	I2C Serial Data
23	GND in	Ground
24	RX1	UART1 RX input
25	TX1	UART1 TX output
26	RESET	12V DC input
27	T12V in	12V DC input
28	T12V in	12V DC input
29	T12V in	12V DC input
30	T12V in	12V DC input

JP104/604 (53261-0671/MOLEX)		
1	DC12in	12V DC
2	GND	Power Ground
3	DC12in	12V DC
4	GND	Power Ground
5	IRext	ICR Control
6		Reserved

JP105/605 (SM06B-SRSS-TB/JST)		
1	ENTER	OSD Enter
2	RIGHT	OSD Right/Tele
3	LEFT	OSD Left/Wide
4	UP	OSD Up/Near
5	DOWN	OSD Down/Far
6	GND	Ground

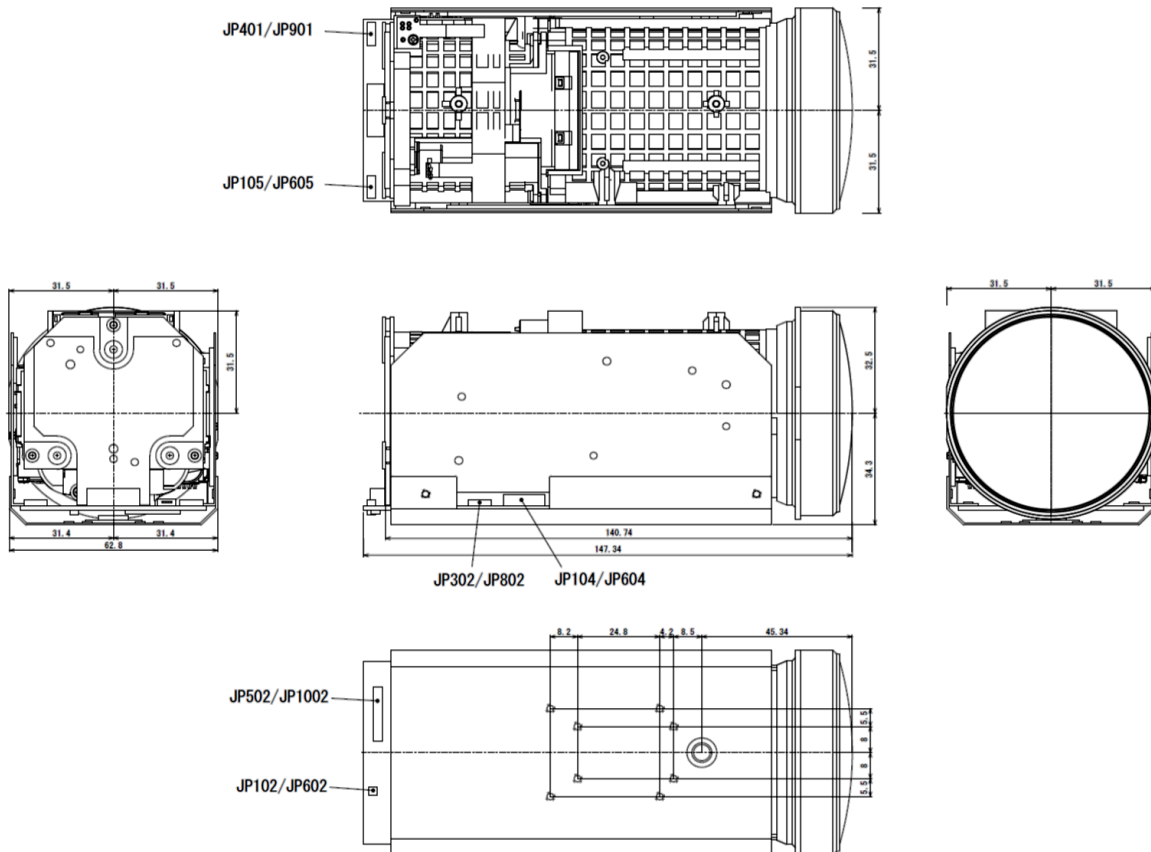
JP107/607 (SM05B-SRSS-TB/JST)		
1	GND	Ground
2	TX2	UART TX (3.3V)
3	RX2	UART RX (3.3V)
4	DC33out	3.3V DC
5	485EN2	RS485 Enable (3.3V)

JP102/602 (AYU1-1P-02676-120/JST)		
1	EX-SDI	EX-SDI TX
2	GND	Video Ground

JP401/901 (SM04B-SRSS-TB/JST)		
1	DC33out	3.3V DC
2	ARin	Audio R
3	ALin	Audio L
4	AGND	Ground

(Option)

## Dimensions



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■ OSD Menu

Menu	Parameter	Default	Range		
LENS	IRIS	MODE	AUTO	AUTO, MANUAL	
		AUTO H-LIMIT	0	0-16	
		AUTO M-LIMIT	4	0-16	
		AUTO L-LIMIT	16	0-16	
		MANUAL LEVEL	16	0-16	
		INTERLOCK	ON	OFF, ON	
	ZOOM	POSITION	----	----	
		DZ-MODE	OFF	OFF, LINK, MANUAL	
		DZ-LIMIT	X1	X1, X2, X4, X6, X8, X10, X12, X15	
		DZ-MANUAL	200	0-400	
		POSITION	----	---- x---,--	
		SPEED	2	0-4	
	FOCUS	MODE	AFTER TELE	MANUAL, AUTO, INTERVAL, AFTER ZOOM, AFTER TELE, DIRECT	
		ONE TIME AF	ON	↓	
		POSITION	----	----	
		SPEED	2	0-4	
	DAY&NIGHT	INTERVAL	10sec	10sec, 30sec, 1min, 5min, 10min, 30min, 60min	
		MODE	AUTO	AUTO, DAY, NIGHT, EXTERN	
		D-FILTER	IR-CUT	IR-CUT, THROUGH, NIR	
		N-FILTER	THROUGH	IR-CUT, THROUGH, NIR	
		D->N LEVEL	13	0-24	
		N->D LEVEL	7	0-24	
		DELAY	SLOW	SLOW, MIDDLE, FAST	
	START UP	POSITION	----	DAY, NIGHT	
		INITIALIZE	ON	OFF, ON	
		MOVE	OFF	OFF, ON	
	PRESET	PRESET No.	0	0-63	
		No.	0	0-63	
		SAVE	ON	↓	
	DIS	LOAD	ON	↓	
		MODE	OFF	OFF, ON	
		RANGE	10%	10%, 20%, 30%	
		LEVEL	HIGH	LOW, MIDDLE, HIGH	
	EXPOSURE	BRIGHTNESS	AUTO CENTER	50%	OFF, 50%, 100%
			MODE	10	0-20
			SHUTTER	MODE	AUTO
AUTO H-LIMIT				1/60000	30fps : 1/30, 1/60, 1/120, 1/250, 1/500, 1/1000, 1/2000, 1/4000, 1/8000,
AUTO M-LIMIT		1/1000		1/15000, 1/30000, 1/60000	
AUTO L-LIMIT		1/30		25fps : 1/25, 1/50, 1/100, 1/200, 1/400, 1/800, 1/1600, 1/3200, 1/6400,	
SENS-UP		MANUAL LEVEL	1/30	1/12800, 1/25600, 1/51200	
		MODE	OFF	OFF, X1, X2, X4, X8, X16, X32, X64, X128, X256	
AGC		MODE	AUTO	AUTO, MANUAL	
		PRIORITY1	IRIS>AGC	IRIS>AGC, AGC>IRIS	
		PRIORITY2	AGC>SENS	AGC>SENS, SENS>AGC	
		AUTO LIMIT	72dB	0-72dB	
		MANUAL LEVEL	0dB	0-72dB	
		AUTO GAMMA	OFF	OFF, LOW, MIDDLE, HIGH	
		AUTO SETUP	10	0-20	
PEAK-AVE		POSITION	----	----	
		MODE	10	0-20	
BACKLIGHT		MODE	OFF	OFF, ON	
		H-POSI	16	0-38	
		V-POSI	12	0-35	
		H-SIZE	6	0-38	
		V-SIZE	10	0-35	
ECLIPSE		MODE	OFF	OFF, ON	
		LEVEL	10	0-20	
		COLOR	BLACK	WHITE, YELLOW, CYAN, GREEN, MAGENTA, RED, BLUE, BLACK	
WDR		MODE	OFF	OFF, ON	
		LEVEL	HIGH	LOW, MIDDLE, HIGH	
COLOR		WB	AUTO	MANUAL, AUTO, AUTO-EXT, PRESET	
		MANUAL TEMP	5000K	3000K, 5000K, 8000K,	
		R-GAIN	10	0-20	
		B-GAIN	10	0-20	
		COLOR GAIN	10	0-20	
		SUPPRESS	0	0-10	
		BLACK ADJUST	NIGHT	OFF, ON, COLOR, NIGHT	
		NIGHT COLOR	OFF	OFF, ON	

Menu	Parameter		Default	Range	
IMAGE	SHARPNESS		5	0-10	
	DNR		HIGH+	OFF, LOW, LOW+, MIDDLE, MIDDLE+, HIGH, HIGH+	
	HEAT HAZE		OFF	OFF, LOW, MIDDLE, HIGH	
	DWDR		OFF	OFF, LOW, MIDDLE, HIGH	
	DEFOG	MODE	OFF	OFF, MANUAL, AUTO	
		LEVEL	MIDDLE	LOW, MIDDLE, HIGH	
	GAMMA		0.45	0.35, 0.45, 0.55, 0.65, 0.75, 0.85, 0.95, DEFOG-L, DEFOG-M, DEFOG-H	
	PRIVACY	NO.	0	0-15	
		DISPLAY	OFF	OFF, ON	
		H-POSI	12	0-60	
		V-POSI	2	0-34	
		H-SIZE	3	0-60	
		V-SIZE	3	0-34	
		Y-LEVEL	10	0-20	
		CB-LEVEL	10	0-20	
		CR-LEVEL	10	0-20	
	TR-LEVEL	0	0-3		
	MIRROR		OFF	OFF, ON	
	FLIP		OFF	OFF, ON	
FREEZE		OFF	OFF, ON		
COLORBAR		OFF	OFF, ON		
SYSTEM	COMM	CAMERA ID	0	0-63	
		BAUDRATE	115200	2400, 4800, 9600, 19200, 38400, 57600, 115200	
		PROTOCOL	GCC-CP	GCC-CP, PELCO-D, PELCO-P, VISCA	
		PORT	1	1, 2	
	VIDEO	FRAMERATE	30/60Hz	30/60Hz, 25/50Hz, (Option 29.97/59.94Hz)	
		FORMAT	2160p 30	30/60Hz : 1080p30, 1080p60, 1440p30, 2160p15, 2160p30, 1080i60, 1080PsF30 25/50Hz : 1080p25, 1080p50, 1440p25, 2160p12.5, 2160p25, 1080i50, 1080PsF25 29/59Hz : 1080p29, 1080p59, 1440p29, 2160p14, 2160p29, 1080i59, 1080PsF29	
		SDI MODE	EX-2.1 1.5G	OFF, HD-SDI, 3G-SDI, EX-2.0 135M, EX-2.1 135M, EX-3.0 135M,	
		TMDS MODE	RGB	OFF, RGB, YCbCr	
		IMAGE RANGE	FULL	FULL, COMP	
		COLOR SPACE	HD-PbPr	YUV, SD-CbCr, HD-PbPr	
		CONFIRM	ON	↓	
	AUDIO		OFF	OFF, ON	
	LANGUAGE		ENGLISH	ENGLISH, JAPANESE, KOREAN, CHINESE(T), CHINESE(S)	
	TITLE	CAM TITLE	OFF	OFF, ON	
		TIME CODE	OFF	OFF, ON	
		POSITION	TOP-R	TOP-R, TOP-L, BOTTOM-R, BOTTOM-L	
	MOTION	WINDOW	MODE	OFF	OFF, ON
			No.	0	0-3
			USE	ON	OFF, ON
			H-POSI	0	0-30
			V-POSI	0	0-17
			H-SIZE	30	0-30
		V-SIZE	16	0-17	
SENSITIVITY	5	0-5			
DISPLAY		OFF	OFF, ON		
TEXT ALARM		OFF	OFF, ON		
VERSION	S/N	----	----		
	FIRMWARE	----	----		
	VERSION	----	----		
RESET		ON	↓		

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