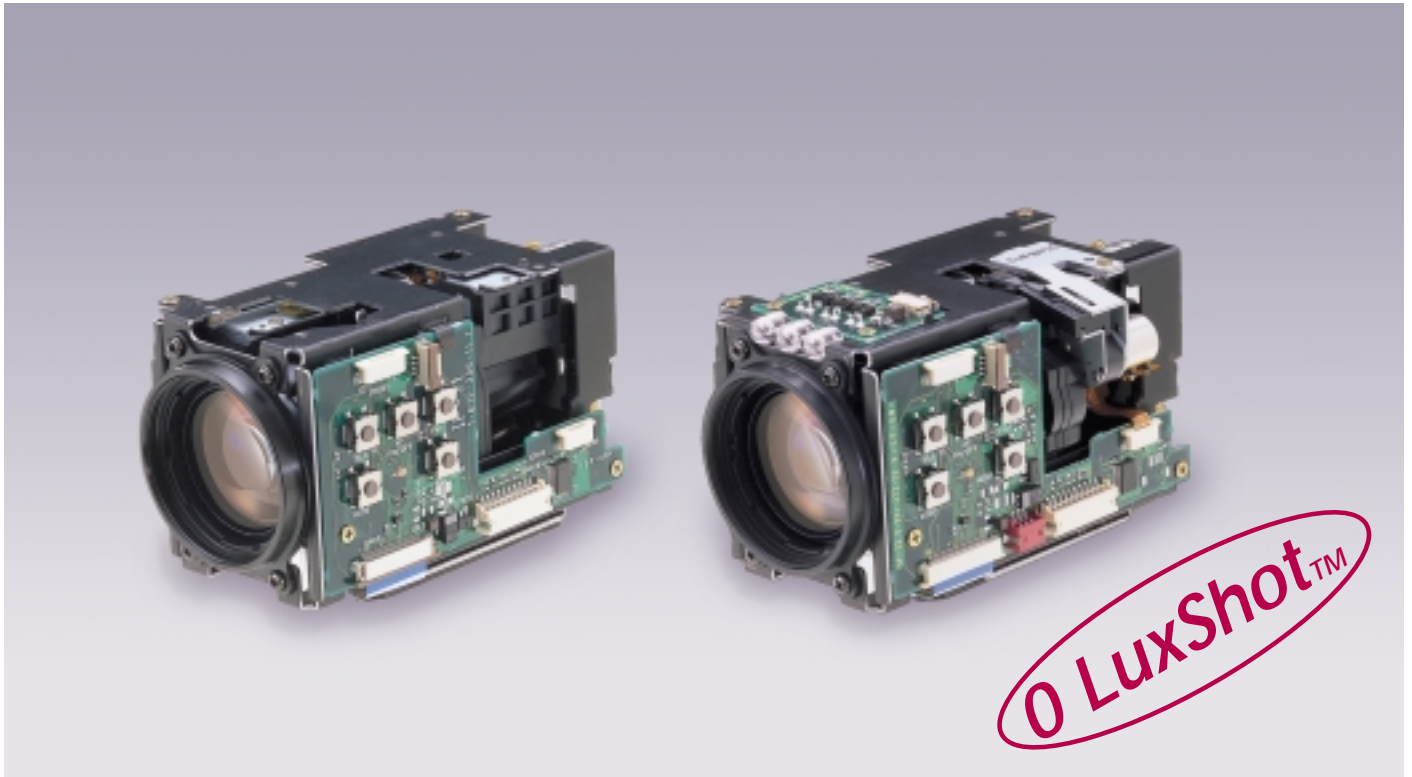


FCB-IX47/IX47P FCB-EX470L/EX470LP

Component/OEM



OUTLINE

The FCB-IX47/IX47P is a color camera module which incorporates a 18x zoom lens and a 1/4 type Super HAD CCD™. In regards to signal processing, the FCB-IX47/IX47P adopts a newly developed DSP which allows the creation of various "Picture Effects" and "Digital Effects".

Also with built-in field memory, slower shutter speeds can be achieved.

The FCB-IX47/IX47P also has a preset function (six preset positions are available), which can save or load camera control functions. Many control functions of the FCB-IX47/IX47P can be controlled via the VISCA™/RS-232C.

The FCB-EX470L/EX470LP is an enhanced version of the FCB-IX47/IX47P as it incorporates the same functionalities as well as a removable IR cut filter, a built-in LED which can capture an image in a "0" lux lighting condition, and an external synchronisation.

- VISCA™/RS-232C Control (9600 bps)
- Auto Focus, 72x Zoom (Optical 18x, Digital 4x)
- Field Memory
- 0 lux, External Synchronization (V-Lock)
(FCB-EX470L/EX470LP only)

FEATURES

- Newly Developed DSP
- Super HAD CCD™
- 18x AF Zoom Lens
- 4x Digital Zoom
- Field Memory
- Slow Speed Shutter
- Back Light compensation
- Speed Adjustment for Zoom and Focus
- Auto Focus/One push Auto Focus
- VISCA™/RS-232C Control (9600 bps)
- Picture Effects (Mirror Image, Negative/Positive Reversal, Monochrome Image Out)
- Preset
- Camera ID
- On Screen Data/Day and Time
- 0 lux, External Synchronization (V-Lock)
(FCB-EX470L/EX470LP only)

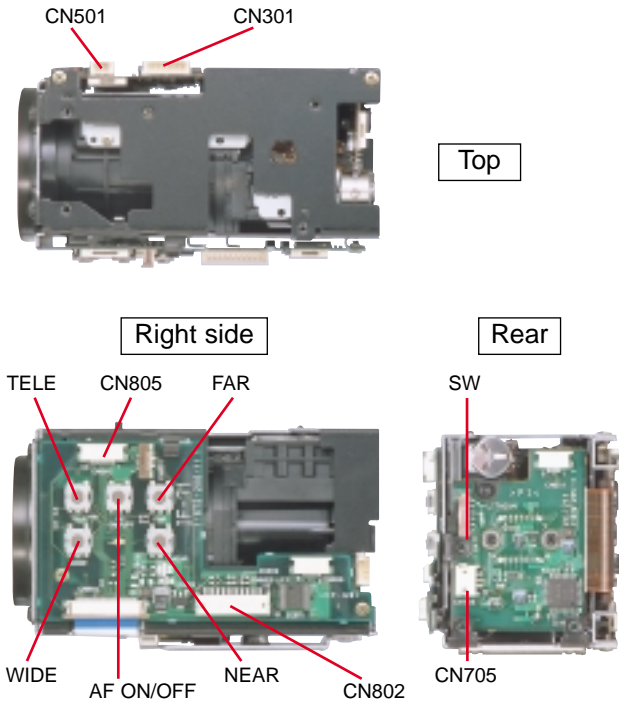
* "0 LuxShot™", "Super HAD CCD™", "VISCA™" are trademarks of Sony Corporation.

* "VISCA" is an acronym of Video System Control Architecture. It is a network protocol designed to interface a wide variety of equipment to computer.

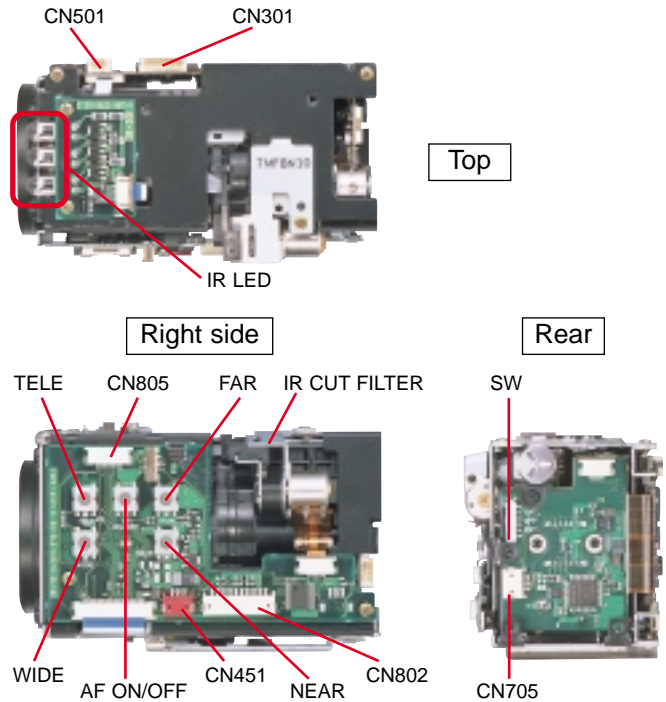
CAMERA CONTROL

- When the FCB-47 Series camera is not being controlled by RS-232C, zoom and focus can be adjusted manually on the camera. The red LED indicates AF mode.

FCB-IX47/IX47P



FCB-EX470L/EX470LP



Pin Assignment

CN501 (Power)

1	DC IN(6~12V)
2	GND

CN301 (Video out)

1	GND
2	C OUT
3	GND
4	Y OUT
5	GND
6	VBS OUT

SW (Memory Backup)

INT	Internal Battery
OFF	No Battery-up
EXT	External Battery (3Vdc)

CN705 (Backup)

1	BATT IN (3V)
2	GND
3	NC

CN451 (External Sync. IN)

1	VL PULSE IN
2	GND
3	NC

CN802 (RS-232C)

1	TXD IN
2	DTR IN
3	DSR IN
4	RXD IN
5	TXD OUT
6	DTR OUT
7	DSR OUT
8	RXD OUT
9	GND
10	NC

CN805 (External Control)

1	GND
2	GND
3	KEY AD0
4	KEY AD1
5	KEY AD2
6	KEY AD3
7	KEY AD4
8	KEY AD5
9	KEY AD6
10	AF ON LED
11	DIGITAL ZOOM POS
12	OPTICAL ZOOM POS

*FCB-EX470L/EX470LP

- Please refer to the "RS-232C Command List" when controlling the camera via RS-232C. The following functions can be selected and adjusted.

Zoom	: Zoom Control 16384 steps	IR Light	: IR LED ON/OFF (FCB-EX470L/EX470LP only)
Zoom Speed	: Zoom Speed Control 8 steps	LR Reverse	: Mirror Image
Digital Zoom	: Digital Zoom Control 12288 steps	Freeze	: Still Image on Field Memory
Focus	: Focus Control (AF, Manual, One Push) 45056 steps	Memory	: Preset 6 sets
Focus Speed	: Focus Speed Control 8 steps	Display	: On Screen Data / Day and or Time ON/OFF
AE Mode	: Auto Exposure Mode 9 modes	Key Lock	: Key Lock ON/OFF
WB Mode	: White Balance Mode 6 modes	ID Write	: Camera ID (0 to 65535)
Aperture	: Aperture Control 16 steps	Power	: Camera Power ON/OFF
Back Light	: Back Light Compensation	External	: Switching of External Synchronization and V-Lock Mode (FCB-EX470L/EX470P only)
Zero Lux Shot	: IR Cut Filter ON/OFF (FCB-EX470L/EX470LP only)		

The "RS-232C Command List" and demonstration software Windows® 95, Windows® 98 and Windows® NT4.0 are available upon request.

Software for the FCB-47 series camera is available for evaluation and/or demonstration only. Use of the software with customer developed application software may damage hardware, application program and the camera. Sony Corporation is not liable for any damages under these condition.

* Microsoft®, Windows® are trademarks of Microsoft Corporation.

Picture Effect

Pastel	: Pastel Image
Neg.Art	: Negative/Positive Reversal
Sepia	: Sepia Image
Black White	: Monochrome Image
Solarize	: Enhanced Contrast
Mosaic	: Mosaic Image
Slim	: Vertical Stretch
Stretch	: Horizontal Stretch

Digital Effect

Still	: Motion Image on Still Image
Flash	: Continuous Still Image
Lumi	: Motion Images on Binaried Still Image
Trail	: Afterimage Lag of Motion Object

AE MODE

Full Auto	: Auto Iris and Gain, Fixed Shutter
Shutter Priority	: Variable Shutter Speed (1/4 or 1/3 to 1/10000 s, 20 steps, std. shutter 16 steps, slow shutter 4 steps) Auto Iris and Gain
Iris Priority	: Variable Iris (F1.4 to Close, 18 steps), Auto Gain and Shutter
Gain Priority	: Variable Gain (-3dB to 18dB, 8 steps), Auto Iris and Fixed Shutter

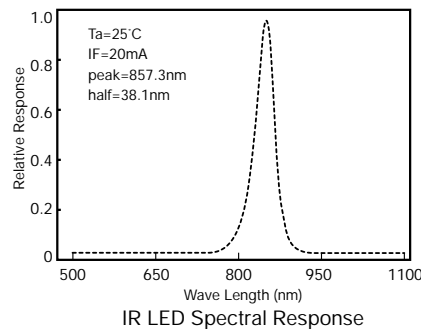
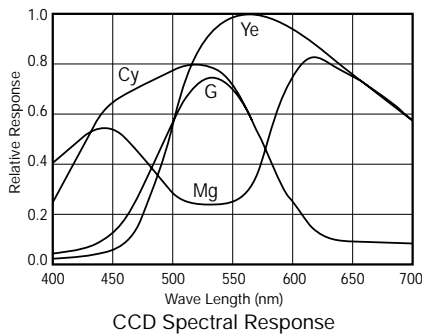
WB MODE

Auto	: Avoid fixing "white" with single color scenes by limiters of R and B gain (3200 to 6000°K)
ATW	: Auto Tracing White Balance (2000 to 10000°K)
Indoor	: 3200°K
Outdoor	: 5600°K
One Push WB	: One Push White Balance
Manual WB	: Manual Control of R and B gain, 256 steps

Manual	: Variable Shutter, Iris and Gain
Bright	: Variable Iris and Gain (Closed to F1.6, 17 steps at 0dB; F1.4, 7 steps from 0 to 18dB)
Shutter Auto	: Variable Iris and Gain
Iris Auto	: Variable Gain and Shutter
Gain Auto	: Variable Iris and Shutter
Exposure Comp	: Gain Compensation (-10.5 to +10.5dB, 15 steps at 1.5dB)

0 LuxShot

The FCB-EX470L/EX470LP is equipped with a mechanism which moves the IR cut filter. When the IR cut filter is in the OFF mode and the IR LED light is on, light on supplied IR LED, the FCB-EX470L/EX470LP realizes "0 lx" as a minimum sensitivity. In the "0 lx" shot mode, the image looks slightly greenish, like an image intensifier picture. When "Black White" on "Picture Effect" is selected, the FCB-EX470L/EX470LP generates monochrome video images.



The supplied IR LED has a limited energy range allowing a working distance of approximately 2 to 3 meters.

OTHERS

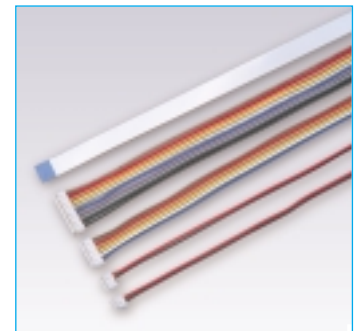
Supplied Accessories

There are five cables supplied with the camera.

Type of connectors	: JST	
CN501 (Power)	: Camera side S2B-ZR-SM3A-TF	Cable side housing ZHR-2
CN705 (Ext.Battery)	: Camera side S3B-ZR-SM3A-TF	Cable side housing ZHR-3
CN301 (Video)	: Camera side S6B-ZR-SM3A-TF	Cable side housing ZHR-6
CN802 (RS-232C)	: Camera side S10B-ZR-SM3A-TF	Cable side housing ZHR-10
	All receptacles are SZH-003T-P0.5	
Type of connector	: Molex	
CN805 (External Control)	: Camera side 52689-1293	FCC (0.5mm pitch)

<FCB-EX470L/EX470LP only>

Type of connectors	: JST
CN451 (External Synchronization IN)	: Camera side S3B-ZR-SM3A-TF Cable side housing ZHR-3



Optional Accessory

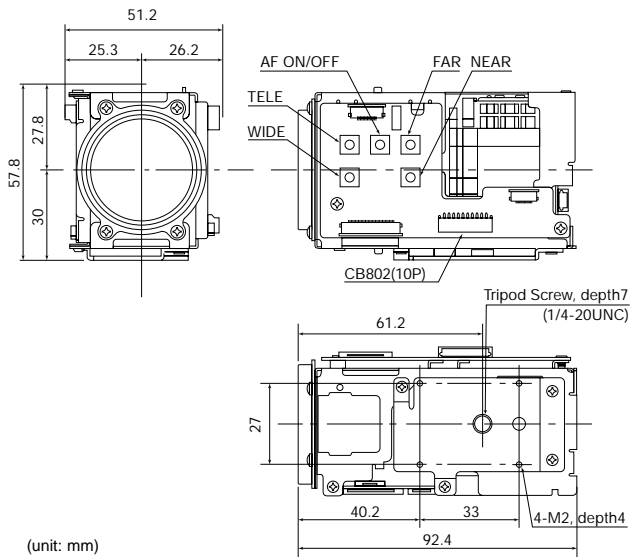
The FCB-47 Series camera comes with $\varnothing 37\text{mm}$ P=0.75mm filter screw in the front of the zoom lens. Optional conversion lens is available as a consumer product item.

SPECIFICATIONS

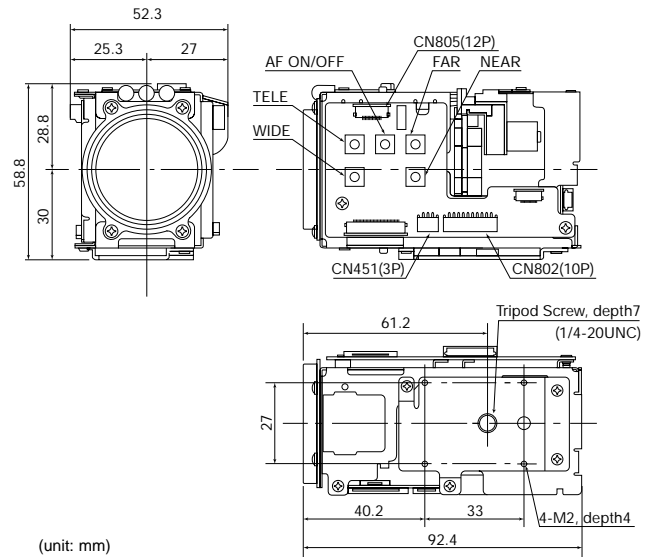
	FCB-IX47	FCB-EX470L	FCB-IX47P	FCB-EX470LP
Image Sensor	1/4 type Super HAD CCD™			
Picture Elements	768(H) x 494(V)		752(H) x 582(V)	
H. Resolution	more than 470TVL		more than 460TVL	
Lens	18 x Zoom f=4.1 to 73.8mm (F1.4 to F3.0)			
Digital Zoom	4x (72x with optical zoom)			
Angle of View (H)	approx. 48° (wide end)		approx. 2.7° (tele end)	
Min. Working Distance	10mm (wide end)		800mm (tele end)	
Sync System	Internal			
Min. Sensitivity	3 lx (F1.4)	0 lx (F1.4) IR CUT OFF IR LED-ON	0.2 lx (F1.4) IR CUT OFF IR LED-OFF	3 lx (F1.4) 0 lx (F1.4) IR CUT OFF IR LED-ON
S/N Ratio	more than 50dB			
Back Light Compensation	ON/OFF			
Electronic Shutter	1/4 to 1/10000 s, 20 steps		1/3 to 1/10000 s, 20 steps	
White Balance	Auto, ATW, Indoor, Outdoor, One Push WB, Manual WB			
Gain	Auto/Manual (-3 to 18 dB, 8 steps)			
Aperture	16 steps			
Preset	6 positions			
Battery Back-up	approx. 6 months (fully charged)			
Video Output	VBS:1.0Vp-p (Sync Negative) and Y/C			
Storage Temp./Humidity	-20 to 60°C/20 to 95%			
Operating Temp./Humidity	0 to +50°C/20 to 80%			
Power	6 to 12 Vdc/2.8 W (FCB-IX47/IX47P active motors), 3.6 W (FCB-EX470L/EX470LP active motors and IR LED ON)			
Weight	205g	220g	205g	220g
Dimensions (W x H x D)(mm)	51.2 x 57.8 x 92.4	52.3 x 58.8 x 92.4	51.2 x 57.8 x 92.4	52.3 x 58.8 x 92.4

DIMENSIONS

FCB-IX47L/IX47P



FCB-EX470L/EX470LP



Product information is available on the ISP Home Page

Sony online <http://www.sony.co.jp/ISP/>



Product Information

Information including product features and catalogs

Document & Software

Product document information and sample software downloads

Product catalog

User's Guide

Application Guide

Instruction Manual
Command List
FCB-IX47/IX47P
FCB-EX470L/EX470LP

Sample software
FCB-IX47/IX47P
FCB-EX470L/EX470LP

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- Sony of Canada Ltd. (CANADA)
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Germany
France
UK
Nordic
Italy

- 1 Sony Drive Park Ridge, NJ 07656
- 115 Gordon Baker Rd, Toronto, Ontario M2H 3R6
- Schipholweg 275 1171 PK Badhoevedorp The Netherlands

Hugo-Eckener-Strasse 20 D-50829 Kohn
16-26 rue Morel 92110 Clichy
The Heights, Brooklands, Weybridge, Surrey KT13 0XW
Per Albin Hanssons vag 20 S-214 32 Malmo Sweden
Via Galileo Galilei 40 I-20092 Cinisello Balsamo, Milano

- (TEL:+1-800-686-7669)
- <http://www.sony.com/videocameras>
- (TEL:+1-416-499-1414) (FAX:+1-416-497-1774)
- (TEL:+31-20-44-99-351) (FAX:+31-20-44-99-333)
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- (TEL:+44-990-331122) (FAX:+44-1932-817011)
- (TEL:+46-40-190-800) (FAX:+46-40-190-450)
- (TEL:+39-02-61-83-84-26) (FAX:+39-02-618-38-402)