

FCB-EX1020/

FCB-EX1020P

FCB-EX490E/ FCB-EX490EP FCB-EX995E/ FCB-EX995EP

FCB-EX48E/ FCB-EX48EP



FCB-EX985E FCB-EX985EP

FCB-EX15E/ FCB-EX15EP FCB-EX12E/ FCB-EX12EP

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(NTSC Models) (PAL Models) **FCB-EX1020 FCB-EX1020P** FCB-EX995E FCB-EX995EP FCB-EX985E FCB-EX985EP FCB-EX490E FCB-EX490EP FCB-EX48E FCB-EX48EP FCB-EX15E FCB-EX15EP FCB-EX12E FCB-EX12EP FCB-EX20D FCB-EX20DP FCB-EX11D FCB-EX11DP



These cameras are specifically designed to be integrated into security domes/cameras, police vehicles, photo booths, document stands, and low-vision systems. There are nine cameras in the FCB-EX Series lineup, and each incorporates a wide variety of optical zoom lenses ranging from 10x to 36x. With this breadth of choice, it's never been easier to select the right camera for your specific monitoring applications.

#### Optical zoom lens

Optical Zoom Lens	36x	28x	18x	12x	10x
FCB-EX Series Cameras	FCB-EX1020 FCB-EX1020P	FCB-EX995E FCB-EX995EP FCB-EX985E FCB-EX985EP	FCB-EX490E FCB-EX490EP FCB-EX48E FCB-EX48EP	FCB-EX15E FCB-EX15EP FCB-EX12E FCB-EX12EP	FCB-EX20D FCB-EX20DP FCB-EX11D FCB-EX11DP

## Features

# Bright, Fast, and Robust 28x Zoom Lens

The camera incorporates a new 28x bright zoom lens with f=1.35. This lens has a fast zooming capability (2.5 seconds from tele end to wide end), and high durability.

# Progressive Scan Broadens Capabilities

In Progressive Scan mode, the video signal is processed by progressive scan to achieve clear images without any flicker effect. Since network cameras typically have backend systems based on progressive scan, the original picture quality can be maintained without requiring conversion from interlace scan to progressive scan.

## High-quality Digital Output

The camera is equipped with a digital interface (Y/Cb/Cr 4:2:2) which is comparable to ITU-R BT656. Using this digital interface means that the quality of the camera's video signal does not deteriorate. In addition, there is no need for an external analog/digital converter between the camera and any other equipment.

## Various Operation Modes

The camera has four operation modes so you can choose the best one depending on your priorities for the application: for example, sensitivity, resolution or other factors.

## Enhanced Noise Reduction

By combining 2D and 3D noise reduction, the camera offers a wide selection of noise-reduction settings, from Level 1 to Level 5, to allow the user to choose the ideal level for different shooting conditions.

# Wide Dynamic Range with New Technology

The Wide Dynamic Range (Wide-D) feature allows for the capture of clear images in extreme lighting conditions.

# Auto Mode

When shooting in high- or low-contrast lighting situations, the camera monitors the luminance differences within an image and automatically switches the Wide-D feature on and off, depending on the visibility of the subjects and the background.

# • Interlace Wide-D and Progressive Wide-D Modes

Interlace Wide-D mode is ideally suited to high-contrast environments, while Progressive Wide-D mode is suited to low-contrast environments.

## Image Stabilization

The image stabilization function minimizes the appearance of shaky images caused by low-frequency vibration. This function is useful for outdoor surveillance and traffic monitoring applications.

# 2 StableZoom™

StableZoom is a function for performing correction using the image-stabilization function in accordance with the zoom ratio, and smoothly zooming up using a combination of the optical zoom and digital zoom. In StableZoom mode, this function starts naturally without bringing an abrupt change to the horizontal angle of view.

## 4 High-resolution Images

The camera achieves a high horizontal resolution of 550 TV lines to reproduce very clear and detailed images.

## 4 High-sensitivity Images

The camera delivers exceptional high sensitivity - ideal for security applications. In particular, the FCB-EX985E and FCB-EX985EP achieve 0.25 Ix (F1.35, 50IRE) by employing a Super HAD CCD II™ sensor and bright 28x lens (f=1.35).

## Advanced White Balance

For the White Balance function, there are two different modes: Outdoor Auto mode and Sodium Vapor Lamp mode. These modes are designed to adapt to changing natural light outdoors, and to changing sodium vapor lamp lighting, respectively.

#### Extended Operation Temperature

The camera can operate in a range of temperature from  $-5^{\circ}$ C to  $60^{\circ}$ C.

## Image: A state of the state

The camera unit's internal temperature can be read out via VISCA. This data can be used as reference data to activate peripherals such as a fan or heater inside the camera equipment.

## 4 Slow AE Response

These cameras allow the user to set the auto response speed (up to 10 minutes) to enable the cameras to adapt to changes in lighting conditions. For example, when shooting in an underground parking lot, valuable images could otherwise be missed when car headlights cause an abrupt change in lighting conditions.

# 4 Color Enhancement

Ideally suited to low-vision applications, new color enhancement options can make reading text and pictures less challenging. Full-color images can be changed to black and white, and then inverted into two selected colors.



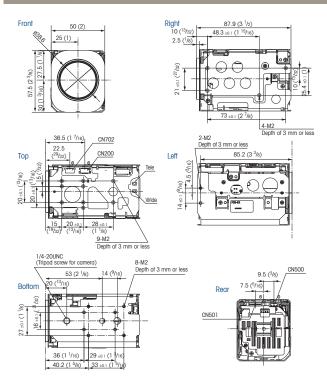
- Auto IR-cut Filter Removal (Auto ICR)
- Advanced Spherical Privacy Zone Masking
- 6 Electronic Flip (E-Flip)
- Multi-line On-screen Display
- Video Motion Detection
- 6 Picture Freeze
- SMART (Sony Modular Automatic Lens
- Reset Technology)
- Gain Limit Setting
- **Zoom Limit Setting**
- Zoom Speed-up in Zoom Direct Mode (Focus Trace On/Off)
- Focus Compensation in ICR Mode
- Alarm Signal Output in Auto ICR Mode
- Image Stabilization Hold

Some features are incorporated in selected models only. Please refer to the table below to check the feature set (icons 1 to 6) of each model.

FCB-EX1020 FCB-EX1020P	FCB-EX995E FCB-EX995EP	FCB-EX985E FCB-EX985EP	FCB-EX490E FCB-EX490EP	FCB-EX48E FCB-EX48EP	FCB-EX15E FCB-EX15EP	FCB-EX12E FCB-EX12EP	FCB-EX20D FCB-EX20DP	FCB-EX11D FCB-EX11DP
	1	1						
2	2	2						
3	3		3		3			
4	4	4	4	4	4	4		
5	5	5	5		5	5	5	
6	6	6	6	6	6	6	6	6

## Dimensions (mm)

#### FCB-EX1020/FCB-EX1020P

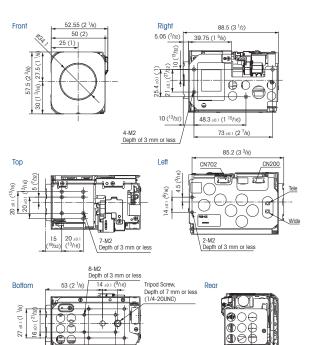


# FCB-EX490E/FCB-EX490EP

36 (1 1/16) 29 ±0.1 (1 3/16

40.2 (1 5/8) 33 ±0.1 (1 5/16)

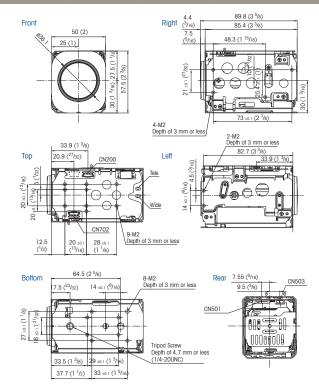
L



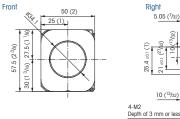
Ā CN500 7.3 (5/16) 8.05 (11/32)

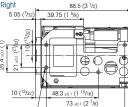
CN501

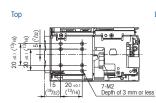
## FCB-EX995E/FCB-EX995EP/FCB-EX985E/FCB-EX985EP

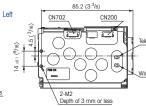


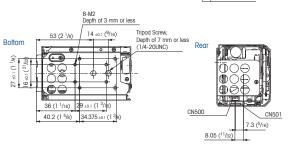
# FCB-EX48E/FCB-EX48EP









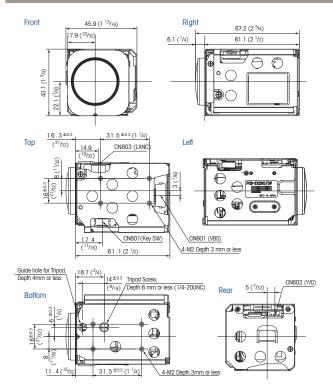




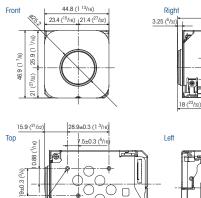


# Dimensions (mm)

FCB-EX20D/FCB-EX20DP



# FCB-EX15E/FCB-EX15EP/FCB-EX12E/FCB-EX12EP





71.8 (2 7/8)

0

⊜

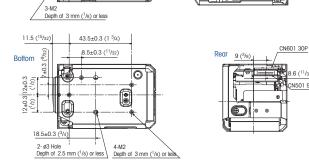
47±0.3 (1 7/8)

(22/6)

5+0.3

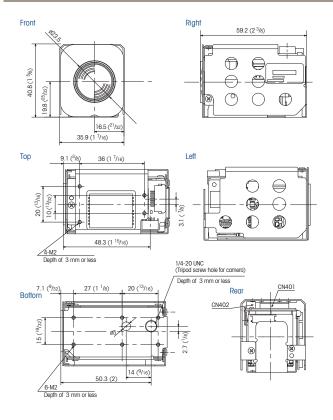
8.6 (11/32)

CN501 9P



С

# FCB-EX11D/FCB-EX11DP



		FCB-EX1020	FCB-EX1020P	FCB-EX995E	FCB-EX995EP	FCB-EX985E	FCB-EX985EP	FCB-EX490E	FCB-EX490EP	
Camera	Signal systems	NTSC	PAL	NTSC	PAL	NTSC	PAL	NTSC	PAL	
	Image sensor		pe EXview HAD Co			1/4-type Supe	r HAD CCD II™ ce Scan)	1/4-type EXvie		
Effective	number of pixels	380,000 pixels	440,000 pixels	380,000 pixels	440,000 pixels	380,000 pixels	440,000 pixels	380,000 pixels	440,000 pixels	
	Lens		36x optical zoom lens 28x optical zoom lens   f=3.4 mm (wide) to 122.4 mm (tele) f=3.5 mm (wide) to 98.0 mm (tele)   F1.6 to F4.5 F1.35 to F3.7					18x optica f=4.1 mm (wide) F1.4 to		
	Digital zoom		optical zoom)		12 x (336x with			12 x (216x with		
	Angle of view (H)	57.8° (wide) 10 mm (wide) to			55.8° (wide) 10 mm (wide) to			48.0° (wide) 10 mm (wide) to	to 2.8° (tele)	
Minimun	n object distance	*Default:			*Default:	300 mm			290 mm	
	Sync system				Internal/Exte	rnal (V-lock)				
Minimum ill	lumination (50IRE)	1.4 lx (F1.	6, 50IRE)	0.65 k (F1	.35, 50IRE)	0.25 lx (F1	.35, 50IRE)	0.7 lx (F1	4, 50IRE)	
Recomme	nded illumination				100 lx to	100,000 lx				
	S/N ratio				More the	an 50 dB				
	Analog				VBS: 1.0 Vp-p (syr	nc negative), Y/C				
Video output	Digital			VI	Cb/Cr 4:2:2 (comp	arable to ITI I-D RTA	56)			
	Digilal			1/0	VISCA (CMC					
Camera	a control interface			Bo	aud rate: 9.6 kbps, Stop b	19.2 kbps, 38.4 kb	ps			
Electro	onic shutter speed				1/1 sec to 1/10,0	000 sec, 22 steps				
	White balance		Auto, ATW		Outdoor Auto, Soc			sh, Manual		
	Gain				ual/Max. Gain Limi		· ·			
	AE control		Auto, Manual, Priority mode (shutter priority & iris priority), Bright, EV compensation, Slow AE							
	Focusing system	Auto (Sensitivity: normal, Iow), One-push AF, Manual, Infinity, Interval AF, Zoom Trigger AF, Focus Compensation in ICR On Mode								
	EV compensation	Yes								
Backlig	ght compensation	Yes								
Camera Features	Aperture control Preset	16 steps 6 positions								
	-D (*) Auto mode		Ye	es		Ν	lo	Ye	es	
	ide-D IS/PS mode		Ye			Ν	10	Ye		
In	nage stabilization StableZoom	Yes (	43x)	Ye	es Yes (	(33x)		N		
	Digital output	103 (	40,7)		Ye			1	0	
Enhance	d noise reduction									
	Auto ICR				Ye	∋s				
Spherical privacy zone masking					Ye					
Spherical priva						es				
					Ye	es es				
	acy zone masking Motion detection Alarm				Ye Ye Ye Ye	es es es es				
	acy zone masking Motion detection			Yes (E-Flip, Nega	Ye Ye Ye	es es es es an 10 minutes)	or Enhancement)			
	ICY zone masking Motion detection Alarm Slow AE response Picture effects Picture freeze			Yes (E-Flip, Nega	Ye Ye Yes Yes (Longer thu Art, Black & White, Ye	es es es an 10 minutes) Mirror image, Col es	or Enhancement)			
	ICY zone masking Motion detection Alarm Slow AE response Picture effects Picture freeze Slow shutter			Yes (E-Flip, Nega	Ye Ye Yes (Longer thr Art, Black & White, Ye Ye	es es es an 10 minutes) Mirror image, Col es es	or Enhancement)			
	Icy zone masking Motion detection Alarm Slow AE response Picture effects Picture freeze Slow shutter apperature readout				Ye Ye Yes (Longer th Art, Black & White, Ye Ye Ye	es es es an 10 minutes) Mirror image, Col es es				
Tem	Icy zone masking Motion detection Alarm Slow AE response Picture effects Picture freeze Slow shutter nperature readout Title display				Ye Ye Yes (Longer th Art, Black & White, Ye Yes (20 characters,	es es es an 10 minutes) Mirror image, Col es es es es es es es				
Tem	Icy zone masking Motion detection Alarm Slow AE response Picture effects Picture freeze Slow shutter aperature readout Title display era mode display				Ye Ye Yes (Longer th Art, Black & White, Ye Yes (20 characters, Yes (20 characters, Yes (English*/Ct	es es es es mirror image, Col es es es es es es es es es es es es es				
Tem	Icy zone masking Motion detection Alarm Slow AE response Picture effects Picture freeze Slow shutter aperature readout Title display era mode display (ey switch control				Ye Ye Yes (Longer the Art, Black & White, Yes (Longer the Art, Black & White, Yes (Longer the Yes (20 characters, Yes (English*/Ct	es es es es m 10 minutes) Mirror image, Col es es es es es vine, max. 11 lines ninese) *default es				
Tem Cama K	Icy zone masking Motion detection Alarm Slow AE response Picture effects Picture freeze Slow shutter aperature readout Title display era mode display	Yes (Auto)			Ye Ye Yes (Longer th Art, Black & White, Ye Yes (20 characters, Yes (20 characters, Yes (English*/Ct	es es es es m 10 minutes) Mirror image, Col es es es es es vine, max. 11 lines ninese) *default es		Yes (Auto)		
Tem Came K General	Icy zone masking Motion detection Alarm Slow AE response Picture effects Picture freeze Slow shutter nperature readout Title display era mode display (ey switch control Multi-line OSD	Yes (Auto)			Ye Ye Yes (Longer the Art, Black & White, Yes (Longer the Art, Black & White, Yes (Longer the Yes (20 characters, Yes (English*/Ct	es es es es m 10 minutes) Mirror image, Col es es es es filine, max. 11 lines ninese) *default es es Yes (Auto)		Yes (Auto)		
Tem Cam K General Stor	Icy zone masking Motion detection Alarm Slow AE response Picture effects Picture freeze Slow shutter aperature readout Title display era mode display (ey switch control Multi-line OSD Flicker cancel	Yes (Auto)			Ye Ye Yes (Longer th Art, Black & White, Ye Yes (20 characters, Yes (20 characters, Yes (English*/Ct Ye Yes (English*/Ct	es es es es es minor image, Col es es es es virror image, Col es es es es es es virror image, Col es es es es es es es es es es es es es		Yes (Auto)	-	
Tem Cama K General Stor	Icy zone masking Motion detection Alarm Slow AE response Picture effects Picture freeze Slow shutter aperature readout Title display era mode display Key switch control Multi-line OSD Flicker cancel	Yes (Auto)	-		Ye Ye Yes (Longer th Art, Black & White, Yes (20 characters, Yes (20 characters, Yes (English*/Ct Yes (20 characters, Yes (20 characters,	25 25 25 25 25 25 25 25 25 25		Yes (Auto)	-	
Tem Came K General Stor Opera	Acy zone masking Motion detection Alarm Slow AE response Picture effects Picture freeze Slow shutter aperature readout Title display era mode display (ey switch control Multi-line OSD Flicker cancel rage temperature Storage humidity	Yes (Auto)			Ye Ye Yes (Longer the Art, Black & White, Yes (20 characters, Yes (	28 295 295 295 295 295 295 295 295		Yes (Auto)	-	
General Opera Opera	An experience of the second se	Yes (Auto)			Ye Ye Yes (Longer thi Art, Black & White, Ye Yes (20 characters, Yes (English*/Ct Yes (English*/Ct Yes (20 characters, Yes (20	28 295 295 295 295 295 295 295 295		Yes (Auto)		
Tem Came K General Stor Opera Opera	An expression of the second se	Yes (Auto)	- -	Yes (Auto)	Ye Ye Yes (Longer the Art, Black & White, Yes (20 characters, Yes (	25 25 25 25 25 25 25 25 25 25		Yes (Auto) 2.4 W (motors		
Tem Came K General Stor Opera Opera	Icy zone masking Motion detection Alarm Slow AE response Picture effects Picture freeze Slow shutter nperature readout Title display era mode display (ey switch control Multi-line OSD Flicker cancel storage humidity ating temperature perating humidity		8.1 oz)	Yes (Auto)	Ye Ye Yes (Longer thi Art, Black & White, Ye Yes (20 characters, Yes (20 characters, Yes (English*/Ct Ye Yes (20 characters, Yes (English*/Ct Ye Yes (20 characters, Yes (20 characters,	25 25 25 25 25 25 25 25 25 25	)		8.1 oz)	

		FCB-EX48E	FCB-EX48EP	FCB-EX15E	FCB-EX15EP	FCB-EX12E	FCB-EX12EP	FCB-EX20D	FCB-EX20DP	FCB-EX11D	FCB-EX11DP
Camera Siana	l systems	NTSC	PAL	NTSC	PAL	NTSC	PAL	NTSC	PAL	NTSC	PAL
	ge sensor		(Interlace Scan)	1/4-type EXvie	w HAD CCD™	1/4-type CCD (		1/3-type Supe	r HAD CCD II™	1/4-type EXvie	w HAD CCD™
Effective nu				(Progress	ive Scan)	174 1990 000 (		(Interlac	ce Scan)	(Interlac	ce Scan)
Ellective no	pixels	380,000 pixels	440,000 pixels	380,000 pixels	440,000 pixels	380,000 pixels	440,000 pixels	380,000 pixels	440,000 pixels	380,000 pixels	440,000 pixels
	Lens	f=4.1 mi to 73.8 r	al zoom lens m (wide) mm (tele) to F3.0	f=3.7 mr to 44.4 m	cal zoom n (wide) nm (tele) o F2.5	12x optic f=3.7 mr to 44.4 m F1.6 to	nm (tele)	f = 5.1 m to 51.0 n	l zoom lens m (wide) nm (tele) o F2.1	f = 4.2 m to 42.0 n	l zoom lens m (wide) nm (tele) o F2.9
Digi	ital zoom	12 x (216x with	n optical zoom)	12x (144x with	optical zoom)	12x (144x with	optical zoom)	12x (120x with	optical zoom)	12x (120x with	optical zoom)
Angle of		48.0° (wide)	to 2.8° (tele)	53.6° (wide end)		53.6° (wide end)	to 4.6° (tele end)		to 5.4° (tele)		to 4.6° (tele)
	m object distance				o 800 mm (tele), : 290 mm				o 800 mm (tele), : 150 mm		o 800 mm (tele), : 200 mm
Syn	c system					Internal / Exte	ernal (V-lock)				
Minimum illumination (50IRE)		0.4 lx (F1	I.4, 50IRE)	0.95 lx (F1. 0.02 lx (F1.		0.6 lx (F1. 0.01 lx (F1.		(typical) (I 1/4 s, 1/3 s m (typical) (I 1/4 s, 1/3 s m	mode: 0.25 lx F1.8, 50IRE) node: 0.015 lx F1.8, 50IRE) ode& ICR On: cal) (F1.8, 50IRE)	1.0 lx (typcal	) (F1.8, 50IRE)
	mended mination					100 lx to	100,000 lx				
	S/N ratio					More the	an 50 dB				
	Analog		(sync negative),		VBS: 10 Vp-p (	svnc neaative)			sync negative),		sync negative),
Video output	, includy		/C		vbo. 1.0 vp-p (	s, no nogalive)		Y,	/C	Y,	/C
ouipui	Digital		2 (comparable R BT656)	Y/Cb/Cr4	4:2:2 via LVDS (c	omparable to ITU	J-R BT656)				
	a control interface				Bau	VISCA (CMC id rate: 9.6 kbps, Stop b	19.2 kbps, 38.4 l	kbps			
Electroni	ic shutter					1/1 sec to 1/10,0	000 sec, 22 steps				
White	speed balance	Auto, ATW, Inc	door, Outdoor, Ou	utdoor Auto, Soc	lium Vapor Lami	o (fix/auto). One	-push. Manual	Auto, A	ATW, Indoor, Outo	loor. One-push.	Manual
	Gain	, (010), (11), (10		1		dB, +2 dB step/to			/Manual (-3 dB t		
						dB, +2 dB step/t				10 +20 UB, 2 UB S	
A	E control					(shutter priority &	iris priority), Brig		y: normal, low),	Auto (Sopsitivit	y: normal, low),
	g system			vity: normal, Iow), One-push AF, Manual, Infinity, m Trigger AF, Focus Compensation in ICR On Mode Yes				Manual, Infinity,	One-push AF, N Interval AF, Zc	, Manual, Infinity,	
EV comp	Backlight										
comp	ensation					Ye					
Apertur	e control Preset					16 s					
Camera Fe						6 pos	anons				
W	'ide-D (*) Ito mode	Ν	٩o	Ye	∋s			N	lo		
Wide-D IS/		И	10	Ye	es			N	lo		
Image sta						N					
	bleZoom al output			V	es	N	0		N		
	ed noise										
r	eduction			Ye	es				N	0	
	Auto ICR	1	No			Ye	es			N	lo
Spherica zone	masking					Ye	∋s				
Motion d	detection					Ye	∋s	T			
Slow AF	Alarm	Voc (Longers !!	ap 10 min +>	Ye	es Voc (Longor th	an 10 min. +>			Nos (Up to		
Slow AE r Pictur	response e effects		an 10 minutes) s (E-Flip, Nega Ar	t, Black & White		an 10 minutes) :olor Enhanceme	ent)	Yes (E-Flir	Yes (Up to o, Nega Art, Blac		r, Imaae)
	re freeze	100	(p/oga/1			Ye					
	w shutter					Ye	es				
Tem	perature readout			Ye	es				N	0	
Title	e display				Ye	s (20 characters)	/line, max. 11 lin	es)			
	ra mode					Yes (English*/Ch					
Kovanit	display	V	<i>'</i> 05		N				06		0
Key switc Multi-	line OSD	Y	'es		N	lo Ye	es	Ye	es	N	
	er cancel	Yes (Auto)	-	Yes (Auto)	-	Yes (Auto)	-	Yes (Auto)	-	Yes (Auto)	-
General tem	Storage perature					-20°C to	o +60°C				
	humidity					20% to	o 95%				
	perating perature			-5°C to	→+60°C				0°C to	+50°C	
Operating						20% te	o 80%				
Power requ	irements	DC 6.0 V	/ to 12.0 V			12.0 V DC			DC 6.0 V	to 12.0 V	
	umption	20W (motors	active: 3.1 W)	2.4 W (zoom/fo 3.6 W (zoom/		1.9 W (zoom/fo 3.2 W (zoom/	focus active) /	2.8 W (motors	active: 6.5 W)	1.9 W (motors	active: 2.8 W)
Power cons	sumption	210 11 (1101010									
Power cons	Mass		(8.1 oz)	0.0 W (20011)		(5.3 oz)		140 g	(5 oz)	95 g (	3.3 oz)
Dir		230 g 50.0 x 57.5	(8.1 oz) 5 x 88.5 mm 3 1/2 inches)	0.0 W (20011)	150 g ( 44.8 x 46.9			45.9 x 43.1	(5 oz) x 67.2 mm 1 x 2 3/4 inches)		x 59.2 mm

CN500	CN602	CN402
FCB-EX1020/FCB-EX1020P	FCB-EX20D/FCB-EX20DP	FCB-EX11D/FCB-EX11DF
FCB-EX995E/FCB-EX995EP		
FCB-EX985E/FCB-EX985EP		
FCB-EX490E/FCB-EX490EP		
FCB-EX48E/FCB-EX48EP		

Pin No.	Name	Level		
1	Y_OUT	1.0 Vp-p (75 Ω terminate) Luminance signal		
2	GND (for Y signal)	-		
3	C_OUT	Chrominance signal		
4	GND (for C signal)	-		

Connector: JST S4B-ZR-SM4A-TF (LF)

CN501	CN601	CN401
FCB-EX1020/FCB-EX1020P	FCB-EX20D/FCB-EX20DP	FCB-EX11D/FCB-EX11DP
FCB-EX995E/FCB-EX995EP		
FCB-EX985E/FCB-EX985EP		
FCB-EX490E/FCB-EX490EP		
FCB-EX48E/FCB-EX48EP		
FCB-EX15E/FCB-EX15EP		
FCB-EX12E/FCB-EX12EP		

Pin No	Name	Level
1	RxD	CMOS 5.0 V (Low: max 0.8 V, High: min 2.0 V) Read Data
2	TxD	CMOS 5.0 V (Low: max 0.1 V, High: min 4.4 V) Send Data
3	GND (for RxD & TxD)	-
4	DC IN	9.0 V ±3.0 V
5	GND (for DC IN)	-
6	VBS OUT	1.0 Vp-p (75 Ω terminate)
7	GND (for VBS OUT)	-
8	V LOCK PULSE	External VD-Lock Pulse (Negative, 3.0 Vp-p 50% duty)
9	GND (for V LOCK	-
	PULSE)	

Connector: KYOCERA ELCO 00 6200 509 130 000+

# 12-pin for Digital Out

## CN200

FCB-EX1020/FCB-EX1020P FCB-EX995E/FCB-EX995EP

FCB-EX985E/FCB-EX985EP FCB-EX48E/FCB-EX48EP FCB-EX490E/FCB-EX490EP

Pin No.	Name	Level
1	GND	
2	Digital Out 0	0 - 3.3 Vp-p
3	Digital Out 1	0 - 3.3 Vp-p
4	Digital Out 2	0 - 3.3 Vp-p
5	Digital Out 3	0 - 3.3 Vp-p
6	Digital Out 4	0 - 3.3 Vp-p
7	Digital Out 5	0 - 3.3 Vp-p
8	Digital Out 6	0 - 3.3 Vp-p
9	Digital Out 7	0 - 3.3 Vp-p
10	GND	
11	CLOCK	0 - 3.3 Vp-p
12	GND	

Connector: KYOCERA ELCO 08 6222 012 101 848+ (FFC 0.5 mm Pitch)

# 30-pin for Digital Out

## CN601

FCB-EX15E/FCB-EX15EP

## FCB-EX12E/FCB-EX12EP

Pin No.	Name	Level
1	TXOUT3+	
2	TXOUT3-	
3	TXCLKOUT+	
4	TXCLKOUT-	
5	TXOUT2+	
6	TXOUT2-	
7	TXOUT1+	
8	TXOUT1-	
9	TXOUT0+	
10	TXOUT0-	
11	GND	
12	TxD	CMOS 5 V (Low: Max. 0.1 V, High: Min. 4.4 V)
13	RxD	CMOS 5 V (Low: Max. 0.8 V, High: Min. 2.0 V)
14	DC IN	6 to 12 V DC
15	DC IN	6 to 12 V DC
16	DC IN	6 to 12 V DC
17	DC IN	6 to 12 V DC
18	DC IN	6 to 12 V DC
19	GND	
20	GND	
21	GND	
22	GND	
23	GND	
24	GND	
25	GND	
26	GND	
27	VBS OUT	
28	GND	
29	V LOCK PULSE	
30	GND	

Connector: USL00-30L-C (KEL Corp.)

# 12-pin for Key Switch Control

CN702	
FCB-EX1020/FCB-EX1020P	FCB-EX4
FCB-EX995E/FCB-EX995EP	FCB-EX4
FCB-EX985E/FCB-EX985EP	

CN801 490E/FCB-EX490EP

# 48E/FCB-EX48EP

FCB-EX20D/FCB-EX20DP

Pin No.	Name	Level
1	GND	-
2	GND	-
3	KEY_AD0	Pull up to 3.0 V by 100 kΩ
4	KEY_AD1	Pull up to 3.0 V by 100 kΩ
5	KEY_AD2	Pull up to 3.0 V by 100 kΩ
6	KEY_AD3	Pull up to 3.0 V by 100 kΩ
7	KEY_AD4	Pull up to 3.0 V by 100 kΩ
8	KEY_AD5	Pull up to 3.0 V by 100 kΩ
9	KEY_AD6	Pull up to 3.0 V by 100 kΩ
10	KEY_AD7	Pull up to 3.0 V by 100 kΩ
11	NC	-
12	Strobe	Strobe timing pulse (0 to 3.0 V)

Connector: KYOCERA ELCO 08 6222 012 101 848+

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PHC\_17/02/2012



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