

FCB-EX Series

Colour Block Cameras

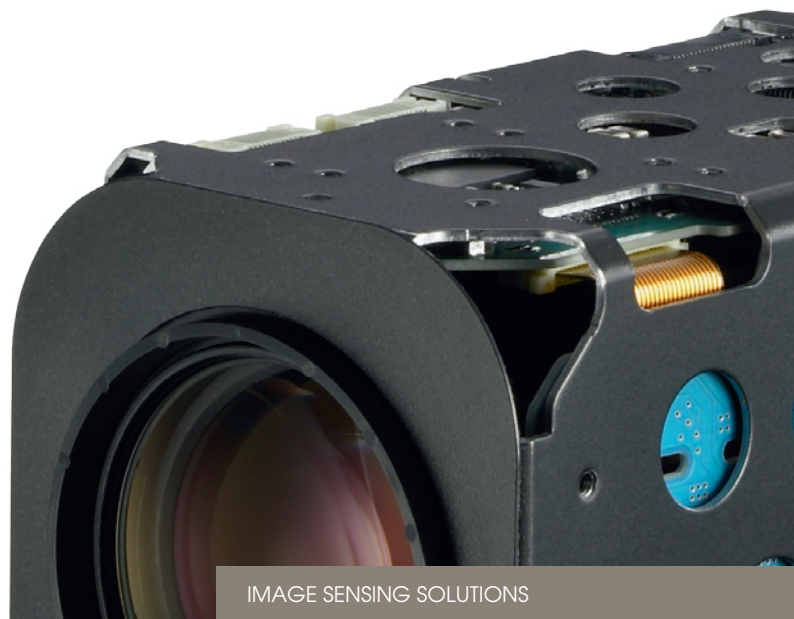


IMAGE SENSING SOLUTIONS

Sony's FCB Series of color block cameras offers excellent picture quality, superb flexibility, and easy operation in a variety of applications ranging from surveillance to traffic monitoring, and in many other visual communication environments.



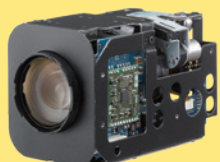
FCB-EX1020/
FCB-EX1020P



FCB-EX995E/
FCB-EX995EP



FCB-EX985E/
FCB-EX985EP



FCB-EX490E/
FCB-EX490EP



FCB-EX48E/
FCB-EX48EP



FCB-EX15E/
FCB-EX15EP



FCB-EX12E/
FCB-EX12EP

(NTSC Models)

FCB-EX1020
 FCB-EX995E
 FCB-EX985E
 FCB-EX490E
 FCB-EX48E
 FCB-EX15E
 FCB-EX12E
 FCB-EX20D
 FCB-EX11D

(PAL Models)

FCB-EX1020P
 FCB-EX995EP
 FCB-EX985EP
 FCB-EX490EP
 FCB-EX48EP
 FCB-EX15EP
 FCB-EX12EP
 FCB-EX20DP
 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

1 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.

3 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.

4 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.

3 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.

4 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.

3 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

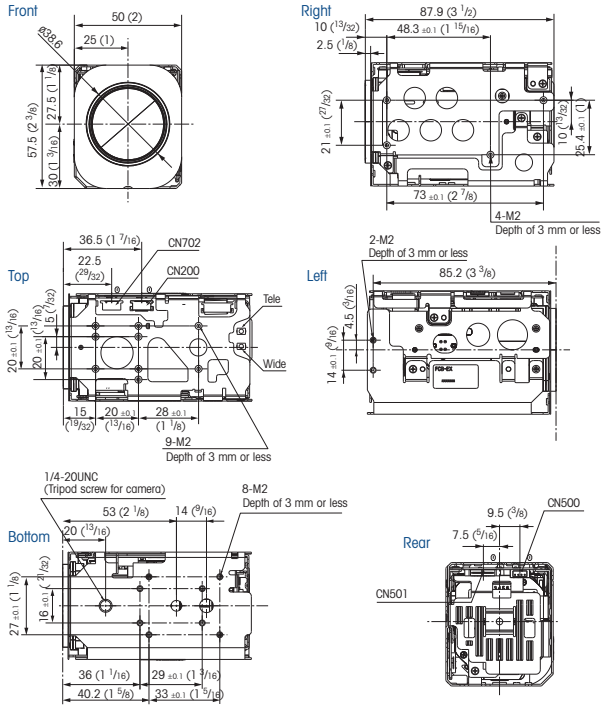
When shooting in high- or low-contrast lighting situations, the camera monitors the luminance differences within an image and automatically switches the Wide-D feature on and off, depending on the visibility of the subjects and the background.

• Interlace Wide-D and Progressive Wide-D Modes

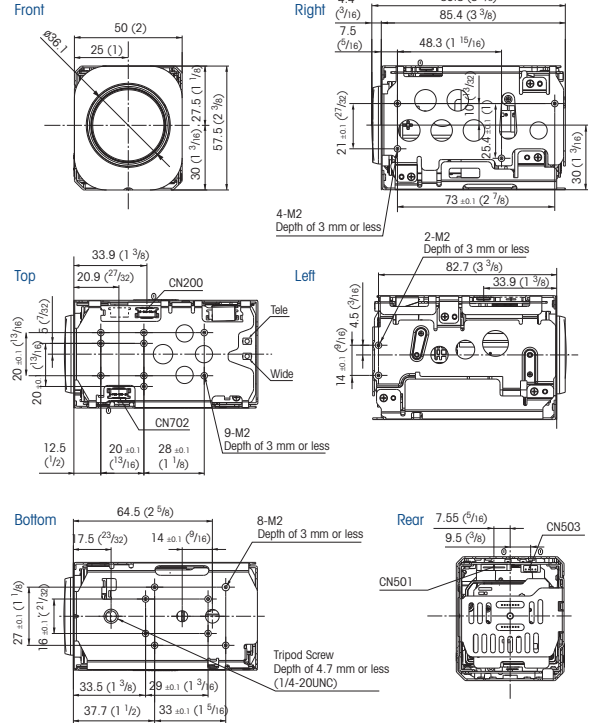
Interlace Wide-D mode is ideally suited to high-contrast environments, while Progressive Wide-D mode is suited to low-contrast environments.

Dimensions (mm)

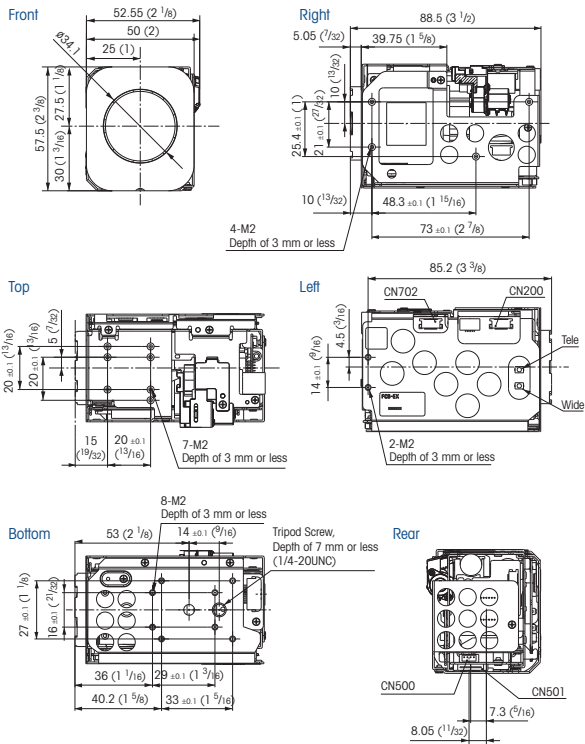
FCB-EX1020/FCB-EX1020P



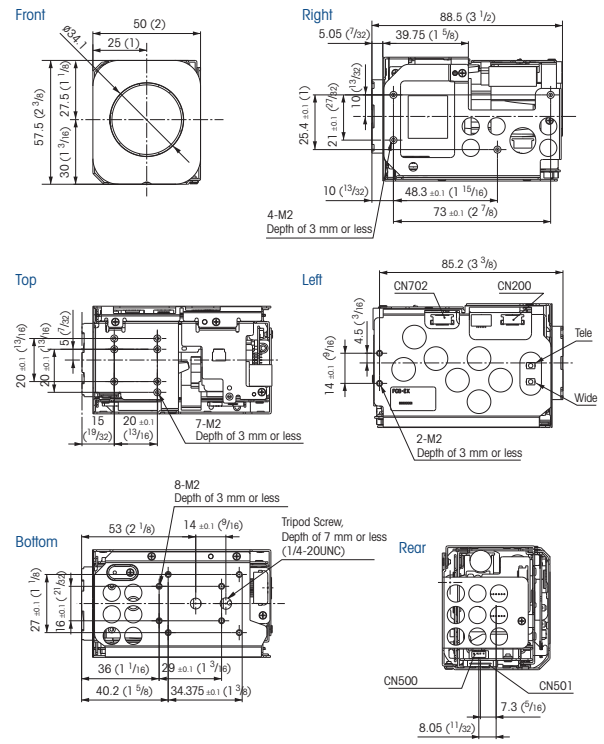
FCB-EX995E/FCB-EX995EP/FCB-EX985E/FCB-EX985EP



FCB-EX490E/FCB-EX490EP



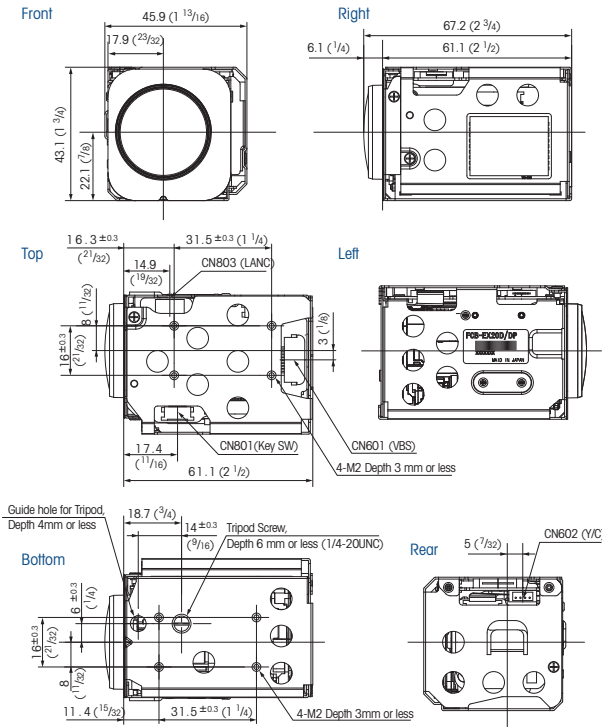
FCB-EX48E/FCB-EX48EP



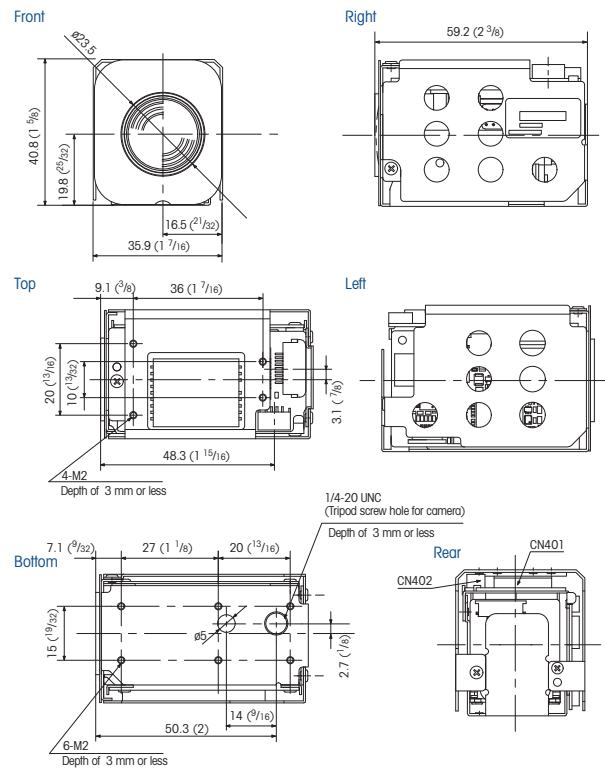


Dimensions (mm)

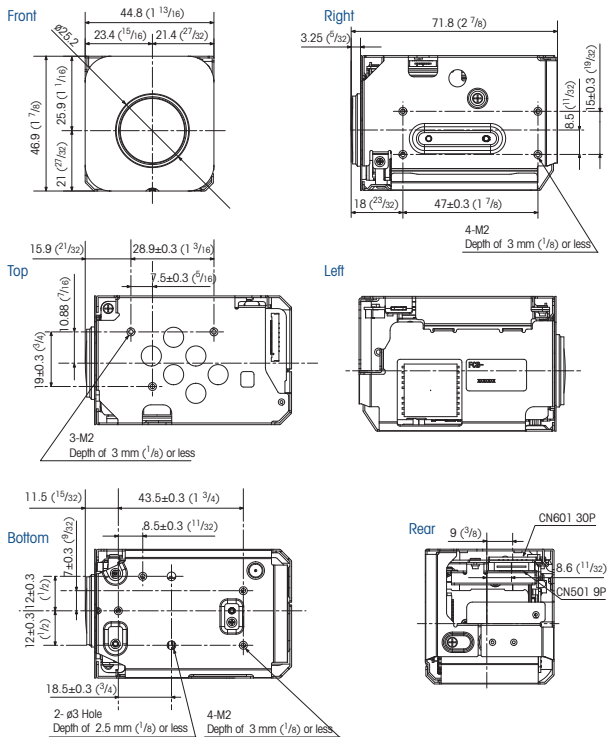
FCB-EX20D/FCB-EX20DP



FCB-EX11D/FCB-EX11DP



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



Specifications

	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	1/4-type EXview HAD CCD™ (Progressive Scan)				1/4-type Super HAD CCD II™ (Interface Scan)		1/4-type EXview HAD CCD™ (Progressive Scan)	
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 f=3.4 mm (wide) to 122.4 mm (tele) F1.6 to F4.5		28x optical zoom lens f=3.5 mm (wide) to 98.0 mm (tele) F1.35 to F3.7			18x optical zoom lens f=4.1 mm (wide) to 73.8 mm (tele) F1.4 to F3.0		
Digital zoom	12 x (432x with optical zoom)		12 x (336x with optical zoom)			12 x (216x with optical zoom)		
Angle of view (H)	57.8° (wide) to 1.7° (tele)		55.8° (wide) to 2.1° (tele)			48.0° (wide) to 2.8° (tele)		
Minimum object distance	10 mm (wide) to 1,500 mm (tele), *Default: 320 mm		10 mm (wide) to 1,500 mm (tele) *Default: 300 mm			10 mm (wide) to 800 mm (tele), *Default: 290 mm		
Sync system	Internal/External (V-lock)							
Minimum illumination (50IRE)	1.4 lx (F1.6, 50IRE)		0.65 lx (F1.35, 50IRE)		0.25 lx (F1.35, 50IRE)		0.7 lx (F1.4, 50IRE)	
Recommended illumination	100 lx to 100,000 lx							
S/N ratio	More than 50 dB							
Video output	Analog VBS: 1.0 Vp-p (sync negative), Y/C							
	Digital Y/Cb/Cr 4:2:2 (comparable to ITU-R BT656)							
Camera control interface	VISCA (CMOS 5 V level) Baud rate: 9.6 kbps, 19.2 kbps, 38.4 kbps Stop bit: 1 bit							
Electronic shutter speed	1/1 sec to 1/10,000 sec, 22 steps							
White balance	Auto, ATW, Indoor, Outdoor, Outdoor Auto, Sodium Vapor Lamp (fix/auto), One-push, Manual							
Gain	Auto/Manual/Max. Gain Limit (-3 dB to +28 dB, 2 dB steps)							
AE control	Auto, Manual, Priority mode (shutter priority & iris priority), Bright, EV compensation, Slow AE							
Focusing system	Auto (Sensitivity: normal, low), One-push AF, Manual, Infinity, Interval AF, Zoom Trigger AF, Focus Compensation in ICR On Mode							
EV compensation	Yes							
Backlight compensation	Yes							
Aperture control	16 steps							
Preset	6 positions							
Camera Features								
Wide-D (*) Auto mode	Yes				No		Yes	
Wide-D IS/PS mode	Yes				No		Yes	
Image stabilization	Yes							No
StableZoom	Yes (43x)		Yes (33x)				No	
Digital output	Yes							
Enhanced noise reduction	Yes							
Auto ICR	Yes							
Spherical privacy zone masking	Yes							
Motion detection	Yes							
Alarm	Yes							
Slow AE response	Yes (Longer than 10 minutes)							
Picture effects	Yes (E-Flip, Nega Art, Black & White, Mirror image, Color Enhancement)							
Picture freeze	Yes							
Slow shutter	Yes							
Temperature readout	Yes							
Title display	Yes (20 characters/line, max. 11 lines)							
Camera mode display	Yes (English*/Chinese) *default							
Key switch control	Yes							
Multi-line OSD	Yes							
Flicker cancel	Yes (Auto)	-	Yes (Auto)	-	Yes (Auto)	-	Yes (Auto)	-
General								
Storage temperature	-20°C to +60°C							
Storage humidity	20% to 95%							
Operating temperature	-5°C to +60°C							
Operating humidity	20% to 80%							
Power requirements	DC 6.0 V to 12.0 V							
Power consumption	2.4 W (motors active: 5.1 W)		2.6 W (motors active: 5.0 W)		2.2 W (motors active: 4.6 W)		2.4 W (motors active: 4.4 W)	
Mass	230 g (8.1 oz)		238 g (8.4 oz)				230 g (8.1 oz)	
Dimensions (W x H x D)	50.0 x 57.5 x 87.9 mm (2 x 2 3/8 x 3 1/2 inches)		50.0 x 57.5 x 89.8 mm (2 x 2 3/8 x 3 5/8 inches)				50.0 x 57.5 x 88.5 mm (2 x 2 3/8 x 3 1/2 inches)	

* Wide dynamic range

	FCB-EX48E	FCB-EX48EP	FCB-EX15E	FCB-EX15EP	FCB-EX12E	FCB-EX12EP	FCB-EX20D	FCB-EX20DP	FCB-EX11D	FCB-EX11DP
Camera										
Signal systems	NTSC	PAL	NTSC	PAL	NTSC	PAL	NTSC	PAL	NTSC	PAL
Image sensor	1/4-type CCD (Interlace Scan)		1/4-type EXview HAD CCD™ (Progressive Scan)		1/4-type CCD (Interlace Scan)		1/3-type Super HAD CCD II™ (Interlace Scan)		1/4-type EXview HAD CCD™ (Interlace Scan)	
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	380,000 pixels	440,000 pixels
Lens	18x optical zoom lens f=4.1 mm (wide) to 73.8 mm (tele) F1.4 to F3.0		12x optical zoom f=3.7 mm (wide) to 44.4 mm (tele) F1.6 to F2.5		12x optical zoom f=3.7 mm (wide) to 44.4 mm (tele) F1.6 to F2.5		10x optical zoom lens f = 5.1 mm (wide) to 51.0 mm (tele) F1.8 to F2.1		10x optical zoom lens f = 4.2 mm (wide) to 42.0 mm (tele) F1.8 to F2.9	
Digital zoom	12x (216x with optical zoom)		12x (144x with optical zoom)		12x (144x with optical zoom)		12x (120x with optical zoom)		12x (120x with optical zoom)	
Angle of view (H)	48.0° (wide) to 2.8° (tele)		53.6° (wide end) to 4.6° (tele end)		53.6° (wide end) to 4.6° (tele end)		52.0° (wide) to 5.4° (tele)		46.0° (wide) to 4.6° (tele)	
Minimum object distance			10 mm (wide) to 800 mm (tele), *Default: 290 mm				10 mm (wide) to 800 mm (tele), *Default: 150 mm		10 mm (wide) to 800 mm (tele), *Default: 200 mm	
Sync system	Internal / External (V-lock)									
Minimum illumination (50IRE)	0.4 lx (F1.4, 50IRE)		0.95 lx (F1.6, ICR off) 0.02 lx (F1.6, ICR on)		0.6 lx (F1.6, ICR off) 0.01 lx (F1.6, ICR on)		1/60 s, 1/50 s mode: 0.25 lx (typical) (F1.8, 50IRE) 1/4 s, 1/3 s mode: 0.015 lx (typical) (F1.8, 50IRE) 1/4 s, 1/3 s mode & ICR On: 0.0004 lx (typical) (F1.8, 50IRE)		1.0 lx (typical) (F1.8, 50IRE)	
Recommended illumination	100 lx to 100,000 lx									
S/N ratio	More than 50 dB									
Video output	Analog	VBS: 1.0 Vp-p (sync negative), Y/C		VBS: 1.0 Vp-p (sync negative)			VBS: 1.0 Vp-p (sync negative), Y/C		VBS: 1.0 Vp-p (sync negative), Y/C	
	Digital	Y/Cb/Cr 4:2:2 (comparable to ITU-R BT656)		Y/Cb/Cr 4:2:2 via LVDS (comparable to ITU-R BT656)						
Camera control interface	VISCA (CMOS 5 V level) Baud rate: 9.6 kbps, 19.2 kbps, 38.4 kbps Stop bit: 1 bit									
Electronic shutter speed	1/1 sec to 1/10,000 sec, 22 steps									
White balance	Auto, ATW, Indoor, Outdoor, Outdoor Auto, Sodium Vapor Lamp (fix/auto), One-push, Manual						Auto, ATW, Indoor, Outdoor, One-push, Manual			
Gain			Auto/Manual (-3 dB to +28 dB, +2 dB step/total 16 steps) Max. Gain Limit (+6 dB to +28 dB, +2 dB step/total 12 steps)			Auto/Manual (-3 dB to +28 dB, 2 dB steps)				
AE control	Auto, Manual, Priority mode (shutter priority & iris priority), Bright, EV compensation, Slow AE									
Focusing system	Auto (Sensitivity: normal, low), One-push AF, Manual, Infinity, Interval AF, Zoom Trigger AF, Focus Compensation in ICR On Mode						Auto (Sensitivity: normal, low), One-push AF, Manual, Infinity, Interval AF, Zoom Trigger AF		Auto (Sensitivity: normal, low), One-push AF, Manual, Infinity, Interval AF, Zoom Trigger AF	
EV compensation	Yes									
Backlight compensation	Yes									
Aperture control	16 steps									
Preset	6 positions									
Camera Features										
Wide-D (*) Auto mode	No		Yes			No				
Wide-D IS/PS mode	No		Yes			No				
Image stabilization	No									
StableZoom	No									
Digital output			Yes			No				
Enhanced noise reduction			Yes			No				
Auto ICR	No					Yes				No
Spherical privacy zone masking	Yes									
Motion detection	Yes									
Alarm			Yes			No				
Slow AE response	Yes (Longer than 10 minutes)		Yes (Longer than 10 minutes)			Yes (Up to 32 times)				
Picture effects	Yes (E-Flip, Nega Art, Black & White, Mirror image, Color Enhancement)						Yes (E-Flip, Nega Art, Black & White, Mirror, Image)			
Picture freeze	Yes									
Slow shutter	Yes									
Temperature readout			Yes			No				
Title display	Yes (20 characters/line, max. 11 lines)									
Camera mode display	Yes (English*/Chinese) *default									
Key switch control	Yes		No			Yes		No		
Multi-line OSD	Yes									
Flicker cancel	Yes (Auto)	-	Yes (Auto)	-	Yes (Auto)	-	Yes (Auto)	-	Yes (Auto)	-
General										
Storage temperature	-20°C to +60°C									
Storage humidity	20% to 95%									
Operating temperature	-5°C to +60°C						0°C to +50°C			
Operating humidity	20% to 80%									
Power requirements	DC 6.0 V to 12.0 V		6.0 V to 12.0 V DC			DC 6.0 V to 12.0 V				
Power consumption	2.0 W (motors active: 3.1 W)		2.4 W (zoom/focus inactive) / 3.6 W (zoom/focus active)		1.9 W (zoom/focus inactive) / 3.2 W (zoom/focus active)		2.8 W (motors active: 6.5 W)		1.9 W (motors active: 2.8 W)	
Mass	230 g (8.1 oz)		150 g (5.3 oz)			140 g (5 oz)		95 g (3.3 oz)		
Dimensions (W x H x D)	50.0 x 57.5 x 88.5 mm (2 x 2 3/8 x 3 1/2 inches)		44.8 x 46.9 x 71.8 mm (1 13/16 x 1 7/8 x 2 7/8 inches)			45.9 x 43.1 x 67.2 mm (1 13/16 x 1 3/4 x 2 3/4 inches)		35.9 x 40.8 x 59.2 mm (1 7/16 x 1 5/8 x 2 3/8 inches)		

4-pin for Y/C Video Out

CN500

FCB-EX1020/FCB-EX1020P
FCB-EX995E/FCB-EX995EP
FCB-EX985E/FCB-EX985EP
FCB-EX490E/FCB-EX490EP
FCB-EX48E/FCB-EX48EP

CN602

FCB-EX20D/FCB-EX20DP

CN402

FCB-EX11D/FCB-EX11DP

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)

9-pin for DC/Video Out

CN501

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

CN601

FCB-EX20D/FCB-EX20DP

CN401

FCB-EX11D/FCB-EX11DP

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 \pm 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-EX490E/FCB-EX490EP

FCB-EX48E/FCB-EX48EP

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

FCB-EX490E/FCB-EX490EP
FCB-EX48E/FCB-EX48EP

CN801

FCB-EX20D/FCB-EX20DP

Pin No.	Name	Level
1	GND	-
2	GND	-
3	KEY_AD0	Pull up to 3.0 V by 100 k Ω
4	KEY_AD1	Pull up to 3.0 V by 100 k Ω
5	KEY_AD2	Pull up to 3.0 V by 100 k Ω
6	KEY_AD3	Pull up to 3.0 V by 100 k Ω
7	KEY_AD4	Pull up to 3.0 V by 100 k Ω
8	KEY_AD5	Pull up to 3.0 V by 100 k Ω
9	KEY_AD6	Pull up to 3.0 V by 100 k Ω
10	KEY_AD7	Pull up to 3.0 V by 100 k Ω
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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