



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



# FCB-EX Series

## Colour Block 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

(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**



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.

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.

#### 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.

#### 2 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.

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		
5	5	5	5		5	5	5	
6	6	6	6	6	6	6	6	6

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

#### 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 lx (F1.35, 50IRE) by employing a Super HAD CCD II™ sensor and bright 28x lens (f=1.35).

#### 4 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.

#### 4 Extended Operation Temperature

The camera can operate in a range of temperature from -5°C to 60°C.

#### 4 Temperature Readout

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

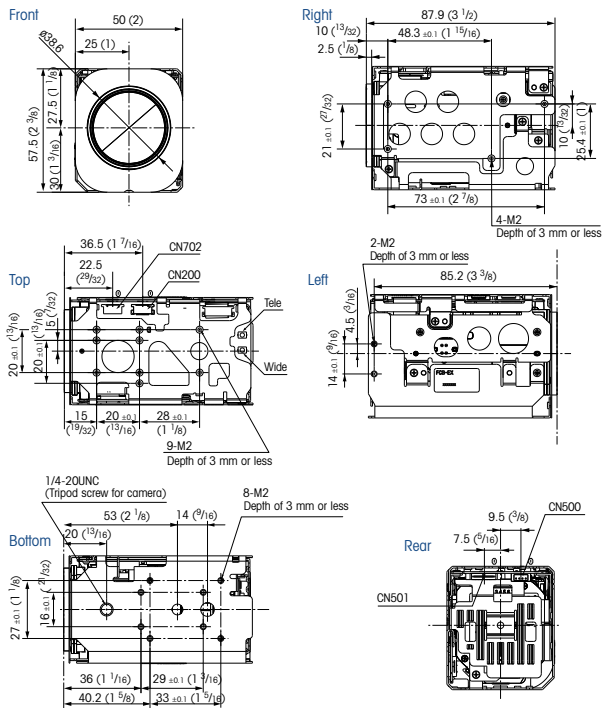
Ideally suited to low-vision applications, new color enhancement options can make reading text and pictures less challenging. Full-color images can be changed to black and white, and then inverted into two selected colors.



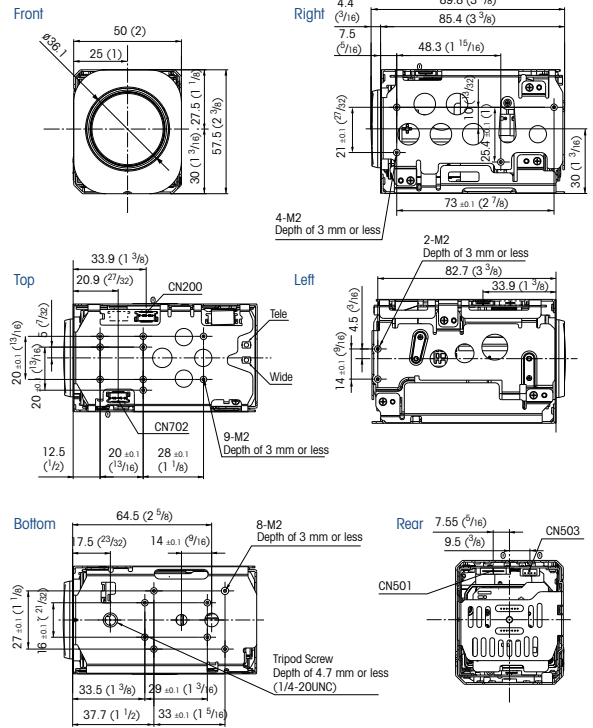
#### Other Features

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

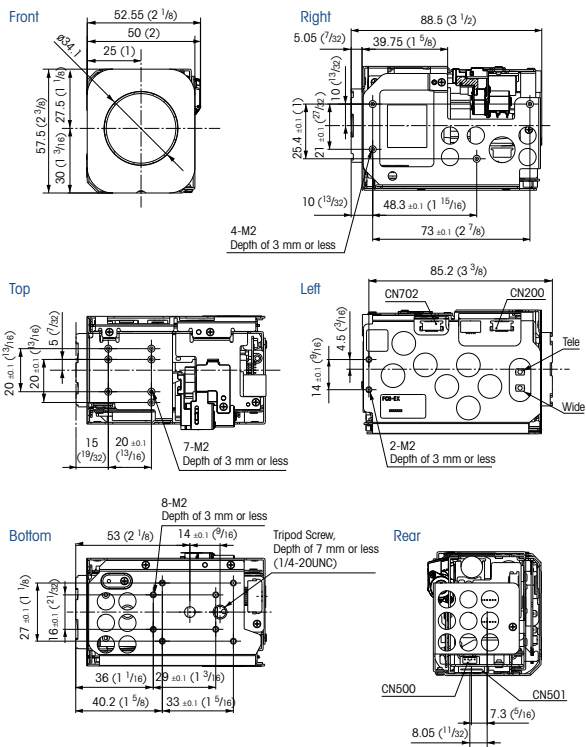
FCB-EX1020/FCB-EX1020P



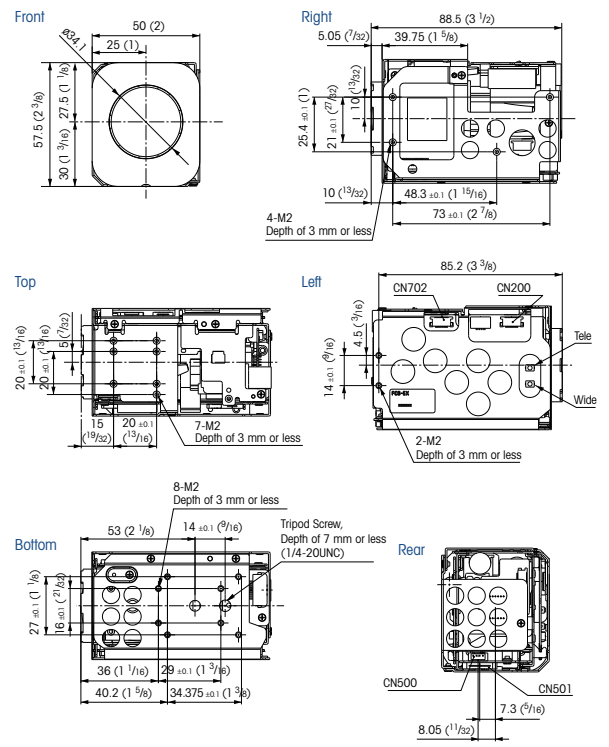
FCB-EX995E/FCB-EX995EP/FCB-EX985E/FCB-EX985EP



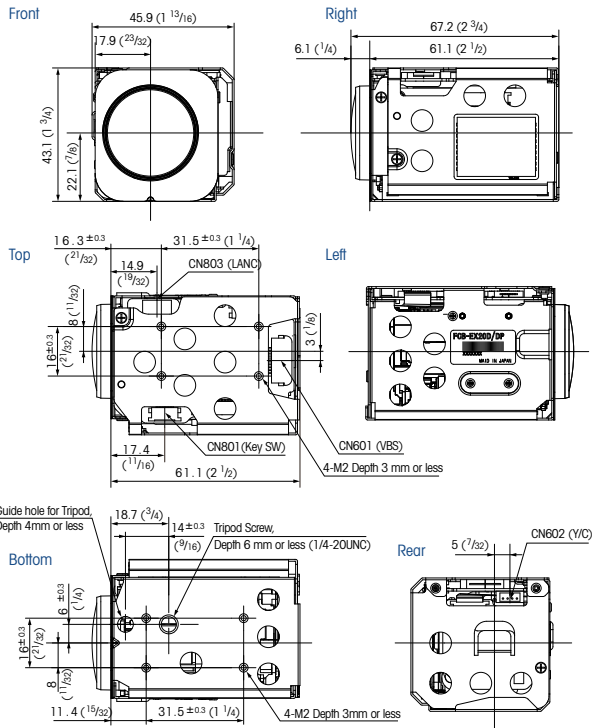
FCB-EX490E/FCB-EX490EP



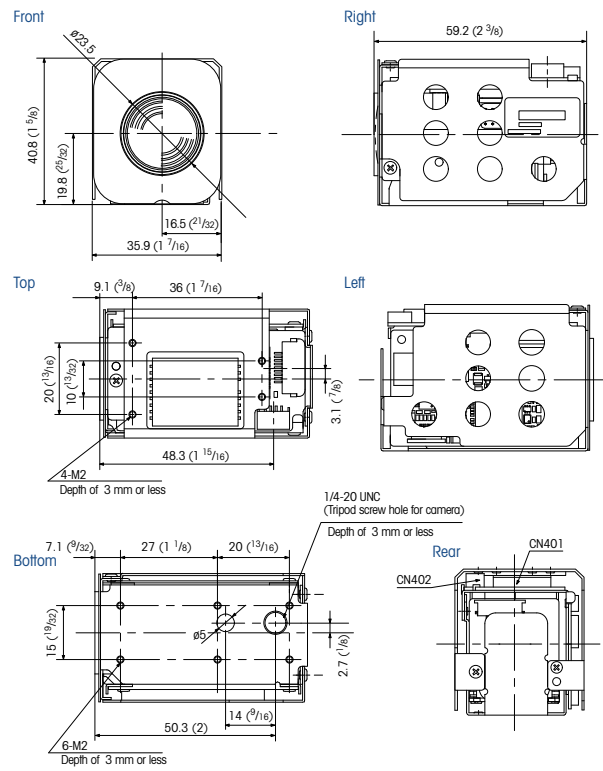
FCB-EX48E/FCB-EX48EP



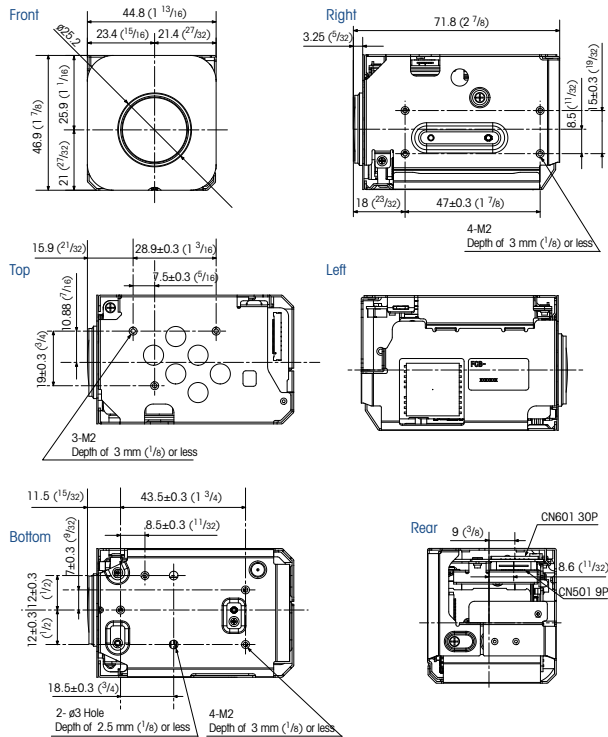
**FCB-EX20D/FCB-EX20DP**



**FCB-EX11D/FCB-EX11DP**



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



# FCB-EX Series Specifications

Camera

	FCB-EX1020	FCB-EX1020P	FCB-EX995E	FCB-EX995EP	FCB-EX985E	FCB-EX985EP	FCB-EX490E	FCB-EX490EP	
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								
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)	-	
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)			

Camera Features

General

	FCB-EX48E	FCB-EX48EP	FCB-EX15E	FCB-EX15EP	FCB-EX12E	FCB-EX12EP	FCB-EX20D	FCB-EX20DP	FCB-EX11D	FCB-EX11DP	
Signal systems	NTSC		PAL		NTSC		PAL		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	Analogue	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										
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										
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)	-	
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 ±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-EX985E/FCB-EX985EP    FCB-EX48E/FCB-EX48EP  
FCB-EX995E/FCB-EX995EP    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-EX490E/FCB-EX490EP  
FCB-EX995E/FCB-EX995EP    FCB-EX48E/FCB-EX48EP  
FCB-EX985E/FCB-EX985EP

### CN801

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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