

# FCB-EX Series

Color Block Cameras

**SONY**  
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FCB-EX2400  
FCB-EX2400P



FCB-EX2200  
FCB-EX2200P



FCB-EX2700  
FCB-EX2700P

*Super* **HAD CCD II**

## INTRODUCTION

Sony is proudly introducing a new family of standard definition (SD) camera blocks to the FCB Series block camera line-up. Cameras in the new FCB-EX Series offer excellent picture quality with a horizontal resolution of 670 TV lines, thanks to the use of Super HAD CCD II™ image sensors and a newly developed image processor. These cameras also incorporate high-performance optical zoom lenses (including high-resolution 40x, and bright 28x and 18x lenses), allowing you to select the right camera according to your varying needs. All of these cameras inherit a multitude of features from Sony's world-renowned FCB Series such as Wide-D\*, Auto ICR, and Spherical Privacy Zone Masking, and they are specifically designed to be integrated into security domes/cameras. These features and breadth of choice enable you to pick the right camera every time.

\* Wide dynamic range.

|                                       | FCB-EX2700  | FCB-EX2700P | FCB-EX2400  | FCB-EX2400P | FCB-EX2200  | FCB-EX2200P |
|---------------------------------------|---|-------------|---|-------------|---|-------------|
| Signal systems                        | NTSC  | PAL         | NTSC  | PAL         | NTSC  | PAL         |
| Imager sensor                         | 1/4-type Super HAD CCD II                           |             |   |             |   |             |
| Lens                                  | 40x   |             | 28x   |             | 18x   |             |
| Minimum illumination*                 | 0.6 lx (F1.6, 50%)                                  |             | 0.4 lx (F1.35, 50%)                                 |             | 0.4 lx (F1.4, 50%)                                      |             |
| Digital zoom                          | 12x (480x with optical zoom)                        |             | 12x (336x with optical zoom)                        |             | 12x (216x with optical zoom)                            |             |
| Mass                                  | 265 g (9.3 oz)                                      |             | 245 g (8.6 oz)                                      |             | 225 g (7.9 oz)  |             |
| Dimensions                            | 50.0 x 60.0 x 90.9 mm<br>(2 x 2 3/8 x 3 5/8 inches) |             | 50.0 x 57.5 x 89.8 mm<br>(2 x 2 3/8 x 3 5/8 inches) |             | 52.7 x 57.5 x 88.5 mm<br>(2 1/8 x 2 3/8 x 3 1/2 inches) |             |
| De-fog                                | ●   |             | ●   |             | ●   |             |
| Wide-D (Wide dynamic range)           | ●   |             | ●   |             | ●   |             |
| Image stabilizer                      | ●   |             | ●   |             | ●   |             |
| StableZoom                            | ●   |             | ●   |             | ●   |             |
| Auto ICR (Auto IR-cut Filter Removal) | ●   |             | ●   |             | ●   |             |
| Spherical privacy zone masking        | ●   |             | ●   |             | ●   |             |
| Noise reduction                       | ●   |             | ●   |             | ●   |             |
| Slow AE response                      | ●   |             | ●   |             | ●   |             |

\* IRE 50%, AGC ON.

## FEATURES

### ■ Super HAD CCD II Image Sensor

Thanks to high-performance Super HAD CCD II image sensors, the FCB-EX2400, FCB-EX2400P, FCB-EX2200, and FCB-EX2200P achieve excellent sensitivity at as low as 0.4 lx\* minimum illumination, and the FCB-EX2700 and FCB-EX2700P at 0.6 lx.\* This sensor allows high-quality images to be captured even in dark environments. Furthermore, it delivers an excellent horizontal resolution of 670 TV lines, enabling detail to be captured in scenes.

\* IRE 50%, AGC ON.

### ■ 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.

### ■ Powerful 40x Optical Zoom Lens

FCB-EX2700 and FCB-EX2700P cameras are equipped with a high-resolution 40x optical zoom lens. Together with digital zoom, these cameras achieve a 480x zoom ratio, allowing high-quality picture capture over long distances.

### ■ 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 background.

#### <Interlace Wide-D and Progressive Wide-D Modes>

There are two modes to choose from. Interlace Wide-D mode is ideally suited to high-contrast lighting environments. Progressive Wide-D mode is suited to low-contrast environments.

### ■ Visibility Enhancer (VE)

The powerful Visibility Enhancer corrects tone curve dynamically and adaptively on a pixel-by-pixel basis while continuously enabling greater visibility in contrasting environments.

### ■ De-fog

The De-fog function helps to improve visibility in low-contrast environments such as foggy or smoky scenes. This feature enhances and optimizes contrast in this type of situation.

### ■ 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, 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 you to choose the ideal level for different shooting conditions.

### ■ 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.

### ■ 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.

## 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 Operating Temperature

These cameras can operate in a range of temperature from -5°C to 60°C.

## Temperature Readout

Each 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.

## Slow AE Response

These cameras allow the user to set the auto response speed (up to two 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.

## Other Features

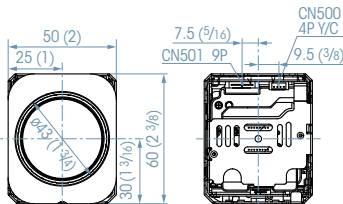
- Auto IR-cut Filter Removal (Auto ICR)
- Advanced Spherical Privacy Zone Masking
- Electronic Flip (E-Flip)
- Multi-line On-screen Display
- Video Motion Detection
- Picture Freeze
- SMART (Sony Modular Automatic Lens Reset Technology)
- Gain Limit Setting
- Zoom Limit Setting
- Zoom Speed-up In Zoom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

# DIMENSIONS

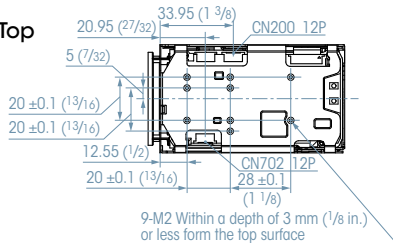
Unit: mm (inches)

## FCB-EX2700 / FCB-EX2700P

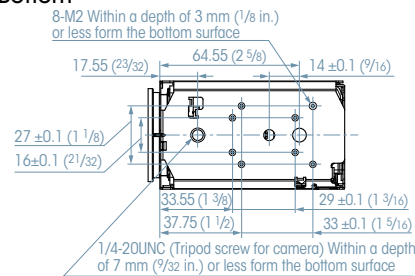
Front



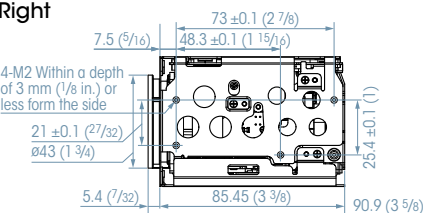
Top



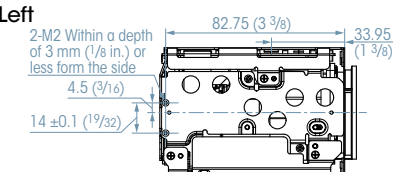
Bottom



Right

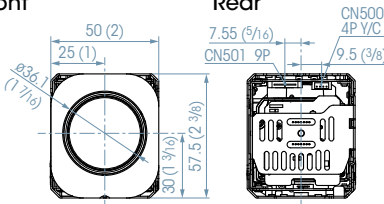


Left

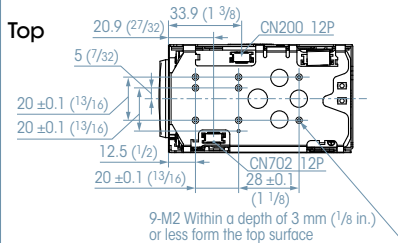


## FCB-EX2400 / FCB-EX2400P

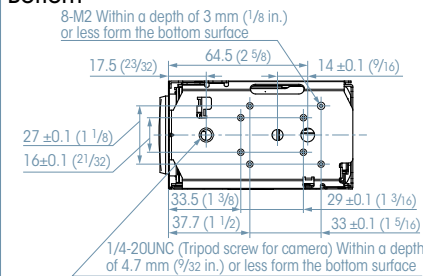
Front



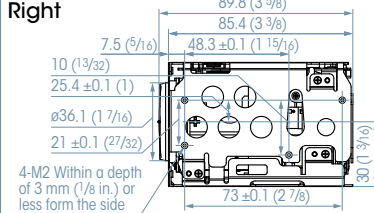
Top



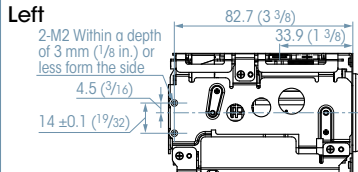
Bottom



Right

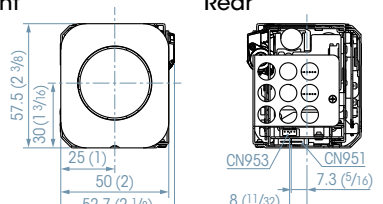


Left

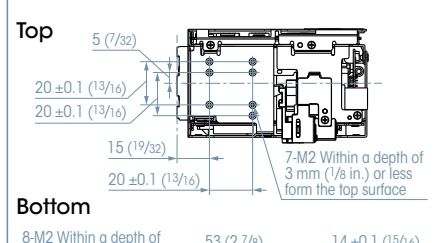


## FCB-EX2200 / FCB-EX2200P

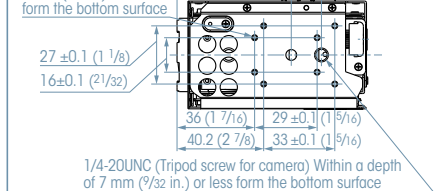
Front



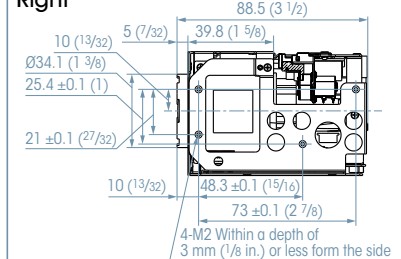
Top



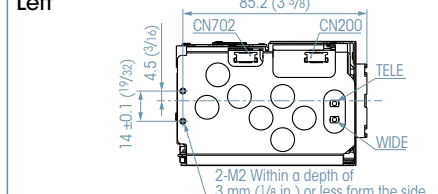
Bottom



Right



Left



# SPECIFICATIONS

|   | FCB-EX2700  | FCB-EX2700P   | FCB-EX2400   | FCB-EX2400P  | FCB-EX2200   | FCB-EX2200P  |
|---|---|---|--|--|--|--|
| <b>Camera</b>                             |   |   |  |  |  |  |
| Image sensor                              | 1/4-type Super HAD II CCD   |   |  |  |  |  |
| Image sensor (Number of effective pixels) | Approx. 480,000 pixels  | Approx. 570,000 pixels  | Approx. 480,000 pixels   | Approx. 570,000 pixels   | Approx. 480,000 pixels   | Approx. 570,000 pixels   |
| Horizontal resolution                     | 670TVL  |   |  |  |  |  |
| Signal system                             | NTSC  | PAL   | NTSC   | PAL  | NTSC   | PAL  |
| Minimum illumination (50%, Normal mode)   | Color: 0.6 lx<br>Typical (F1.6, AGC on, 1/60 s)<br>Color: 0.04 lx<br>Typical (F1.6, AGC on, 1/4 s)<br>ICR-ON: 0.01 lx (F1.6, AGC on, 1/4 s) | Color: 0.6 lx<br>Typical (F1.6, AGC on, 1/50 s)<br>Color: 0.04 lx<br>Typical (F1.6, AGC on, 1/3 s)<br>ICR-ON: 0.01 lx (F1.6, AGC on, 1/3 s) | Color: 0.4 lx<br>Typical (F1.35, AGC on, 1/60 s)<br>Color: 0.03 lx<br>Typical (F1.35, AGC on, 1/4 s) | Color: 0.4 lx<br>Typical (F1.35, AGC on, 1/50 s)<br>Color: 0.03 lx<br>Typical (F1.35, AGC on, 1/3 s) | Color: 0.4 lx<br>Typical (F1.4, AGC on, 1/60 s)<br>Color: 0.03 lx<br>Typical (F1.4, AGC on, 1/4 s) | Color: 0.4 lx<br>Typical (F1.4, AGC on, 1/50 s)<br>Color: 0.03 lx<br>Typical (F1.4, AGC on, 1/3 s) |
| Recommended illumination                  | 100 lx to 100,000 lx  |   |  |  |  |  |
| S/N ratio                                 | More than 50 dB   |   |  |  |  |  |
| Gain                                      | Auto / Manual (-3 step to 28 step, +2 step / total 16 steps)<br>Max. Gain Limit (6 step to 28step, +2 step step / total 12 steps)           |   |  |  |  |  |
| Shutter speed                             | 1/1 s to 1/10,000 s, 22 steps   |   |  |  |  |  |
| Sync system                               | Internal / External (V-Lock)  |   |  |  |  |  |
| Exposure control                          | Auto, Manual, Priority mode (shutter priority & iris priority), Bright, EV compensation, Slow AE  |   |  |  |  |  |
| Backlight compensation                    | Yes   |   |  |  |  |  |
| Aperture control                          | 16 steps  |   |  |  |  |  |
| White balance                             | Auto, ATW, Indoor, Outdoor, Outdoor Auto, Sodium Vapor Lamp (Fix / Auto), One-push, Manual  |   |  |  |  |  |
| Lens                                      | 40x optical zoom<br>f=3.06 mm (wide) to 122.4 mm (tele)<br>F1.6 to F4.6   |   | 28x optical zoom<br>f=3.5 mm (wide) to 98.0 mm (tele)<br>F1.35 to F3.7                               |  | 18x optical zoom<br>f=4.1 mm (wide) to 73.8 mm (tele)<br>F1.4 to F3.0                              |  |
| Digital zoom                              | 12x (480x with optical zoom)  |   | 12x (336x with optical zoom)   |  | 12x (216x with optical zoom)   |  |
| Focusing system                           | Auto (Sensitivity: normal, low), One-push AF, Manual, Interval AF, Zoom Trigger AF, Focus compensation in ICR on                            |   |  |  |  |  |
| Horizontal viewing angle                  | 60.0° (wide end) to 1.6° (tele end)   |   | 55.8° (wide end) to 2.1° (tele end)  |  | 48.0° (wide end) to 2.8° (tele end)  |  |
| Minimum object distance                   | 10 mm (wide end) to 1500 mm (tele end) (Default: 320 mm)  |   | 10 mm (wide end) to 1500 mm (tele end) (Default: 300 mm)   |  | 10 mm (wide end) to 800 mm (tele end) (Default: 290 mm)  |  |
| <b>Camera Features</b>                    |   |   |  |  |  |  |
| Auto ICR                                  | Yes   |   |  |  |  |  |
| Wide-D*1                                  | Yes (On / Off) (On: 90dB)   |   |  |  |  |  |
| Noise reduction                           | Yes   |   |  |  |  |  |
| Progressive scan mode                     | Yes   |   |  |  |  |  |
| Image stabilizer                          | Yes   |   |  |  |  |  |
| Stablezoom                                | Yes   |   |  |  |  |  |
| Digital output                            | Yes   |   |  |  |  |  |
| Tone reproduction                         | Yes (VE)  |   |  |  |  |  |
| Spherical privacy zone masking            | Yes   |   |  |  |  |  |
| Motion detection                          | Yes   |   |  |  |  |  |
| Alarm                                     | Yes   |   |  |  |  |  |
| Slow AE response                          | Yes (Approx. 2 minutes)   |   |  |  |  |  |
| Picture effects                           | E-Flip, Nega Art, Black & White, Mirror image, Color enhancement  |   |  |  |  |  |
| Picture freeze                            | Yes   |   |  |  |  |  |
| Slow shutter                              | Yes   |   |  |  |  |  |
| Temperature readout                       | Yes   |   |  |  |  |  |
| Title display                             | 20 characters/line, max. 11 lines   |   |  |  |  |  |
| Camera mode display                       | Yes   |   |  |  |  |  |
| Key switch control                        | Yes   |   |  |  |  |  |
| Camera operation switch                   | Yes   |   |  |  |  |  |
| <b>Interface</b>                          |   |   |  |  |  |  |
| Video output (SD)                         | Analog: VBS Y/C, Digital: Y/Ca/Cr 4:2:2 (ITU-R BT656 Style)   |   |  |  |  |  |
| Camera control interface                  | VISCA (CMOS 5 V level), Baud rate: 9.6 Kbps, 19.2 Kbps, 38.4 Kbps Stop bit: 1 bit   |   |  |  |  |  |
| <b>General</b>                            |   |   |  |  |  |  |
| Power requirements                        | 6.0 V to 12.0 V DC  |   |  |  |  |  |
| Power consumption                         | 2.4 W (zoom / focus inactive, 9 V), 3.2 W (zoom/focus active, 9 V)  |   |  |  |  |  |
| Operating temperature                     | -5 °C to +60 °C (23°F to 140°F)   |   |  |  |  |  |
| Storage temperature                       | -20 °C to +60 °C (-4°F to 140 °F)   |   |  |  |  |  |
| Operating humidity                        | 20% to 80%, Absolute humidity: 36 g/m <sup>3</sup>  |   |  |  |  |  |
| Storage humidity                          | 20% to 95%, Absolute humidity: 36 g/m <sup>3</sup>  |   |  |  |  |  |
| Dimensions (W x H x D)*2                  | 50.0 x 60.0 x 90.9 mm<br>(2 x 2 3/8 x 3 5/8 inches)   |   | 50.0 x 57.5 x 89.8 mm<br>(2 x 2 3/8 x 3 5/8 inches)  |  | 52.7 x 57.5 x 88.5 mm<br>(2 1/8 x 2 3/8 x 3 1/2 inches)  |  |
| Mass                                      | 265 g (9.3 oz)  |   | 245 g (8.6 oz)   |  | 225 g (7.9 oz)   |  |

\*1 Wide dynamic range. \*2 The values for dimensions are approximate.

# PIN ASSIGNMENTS

## 4-pin for Y/C Video Out

CN953: FCB-EX2200/FCB-EX2200P  
CN500: FCB-EX2400/FCB-EX2400P, FCB-EX2700/FCB-EX2700P

| Pin No. | Name               | Level   |
|---------|--------------------|---|
| 1       | Y_OUT              | 1.0 Vp-p (75 Ω terminate)<br>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

CN951: FCB-EX2200/FCB-EX2200P  
CN501: FCB-EX2400/FCB-EX2400P, FCB-EX2700/FCB-EX2700P

| Pin No. | Name                   | Level   |
|---------|------------------------|---|
| 1       | RxD                    | CMOS 5.0 V (Low: max 0.8 V, High: min 2.0 V)<br>Read Data |
| 2       | TxD                    | CMOS 5.0 V (Low: max 0.1 V, High: min 4.4 V)<br>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<br>(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-EX2200/FCB-EX2200P, FCB-EX2400/FCB-EX2400P,  
FCB-EX2700/FCB-EX2700P

| 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]

## 12-pin for Key Switch Control

CN702: FCB-EX2200/FCB-EX2200P, FCB-EX2400/FCB-EX2400P,  
FCB-EX2700/FCB-EX2700P

| Pin No. | Name     | Level                            |
|---------|----------|----------------------------------|
| 1       | GND      | -                                |
| 2       | GND      | -                                |
| 3       | KEY_ADD0 | 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 firing pulse (0 to 3.0 V) |

Connector: KYOCERA ELCO 08 6222 012 101 848+

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