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FCB-EX E Series

Colour Block Cameras



IMAGE SENSING SOLUTIONS

Sony's FCB Series of colour 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-EX20D/FCB-EX20DP FCB-EX11D/FCB-EX11DP

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



These cameras are specifically designed to be integrated into security domes/cameras, police vehicles, photo booths, document stands, and low-vision systems.

There are seven cameras in the FCB-EX E 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.

Product Line up

FCB-EX E Series Cameras	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
Optical Zoom Lens	36x	28x		18x			10x

Features key

Some features are incorporated in selected models only.

Please refer to the table below to check the feature set (icons 01 to 06) of each model.

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
	01	01				
02	02	02				
03	03		03			
04	04	04	04	04		
05	05	05	05		05	
06	06	06	06	06	06	06

Features

Bright, Fast, and Robust 28x Zoom Lens **NEW**

01

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.

Image Stabilisation **UPGRADE**

02

In StableZoom™ mode, image stabilization starts naturally without bringing an abrupt change to the horizontal angle of view.

Progressive Scan Broadens Capabilities **NEW**

03

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

Various Operation Modes **NEW**

03

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

Wide Dynamic Range with New Technology **NEW**

03

<Auto Mode>
 In Auto mode, the Wide Dynamic Range function is automatically turned on and off, depending on the visibility of the subjects and background.

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

For the Wide Dynamic Range function, there are two modes - Interlace mode which provides better performance with moving subjects, and Progressive mode which provides clearer images of still subjects.

Digital Output **NEW**

04

The camera is equipped with a digital interface (Y/Cb/Cr 4:2:2) which is comparable to ITU-R BT656. The video output is free from signal deterioration, and no external analog/digital converter is required between the camera and other equipment.

Enhanced Noise Reduction **NEW**

04

By combining 2D and 3D noise reduction, the camera offers a wide selection of noise-reduction settings, from Level 1 to Level 5. This lets you choose the best level according to current conditions.

High-resolution Images **UPGRADE**

04

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

High-sensitivity Images **UPGRADE**

04

The camera has high sensitivity - high enough for use in video security. 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).

Advanced White Balance **UPGRADE**

04

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 **UPGRADE**

04

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

Temperature Readout **NEW**

04

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.

Slow AE Response **UPGRADE**

04

The camera's Auto Exposure speed for adapting to changes in lighting conditions can be set as slow as required, even as slow as 10 minutes. The speed of adaptation should be slowed down under some conditions, such as an underground parking lot where the camera might otherwise miss some important images when car lights cause an abrupt change in lighting conditions.

Colour Enhancement **NEW**

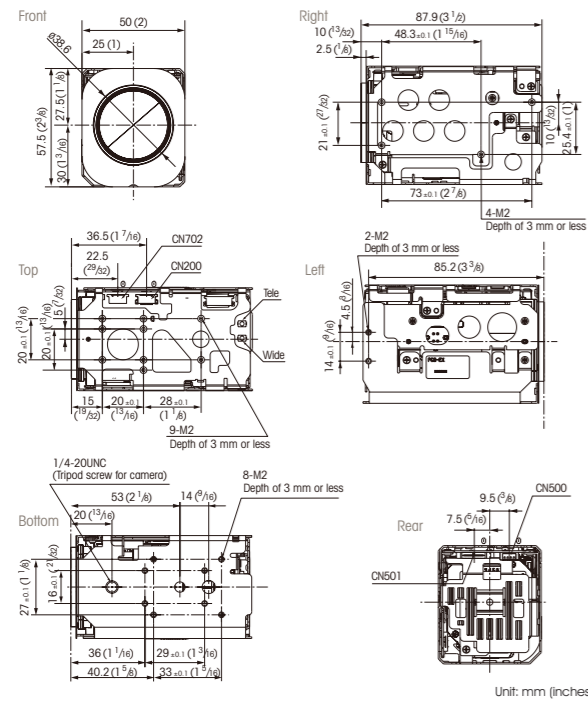
04

Using the Colour Enhancement function, a full-colour image can be changed to black and white, and then inverted into two selected colours. This function can be used in applications for low-vision systems to assist people with weak eyesight to read using a camera and display, relieving them of eye strain.

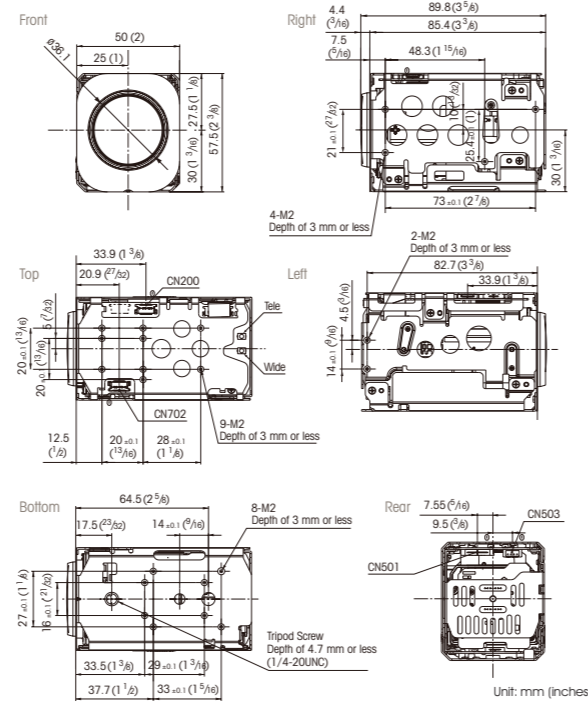
Other Features

Auto IR-cut Filter Removal (Auto ICR)	04
Gain Limit Setting	04
Zoom Limit Setting	04
Zoom Speed-up in Zoom Direct Mode (Focus Trace On/Off)	04
Focus Compensation in ICR Mode	04
Alarm Signal Output in Auto ICR Mode	04
Image Stabilisation Hold	05
Advanced Spherical Privacy Zone Masking	06
Electronic Flip (E-Flip)	06
Multi-line On-screen Display	06
Video Motion Detection	06
Picture Freeze	06
SMART (Sony Modular Automatic Lens Reset Technology)	06

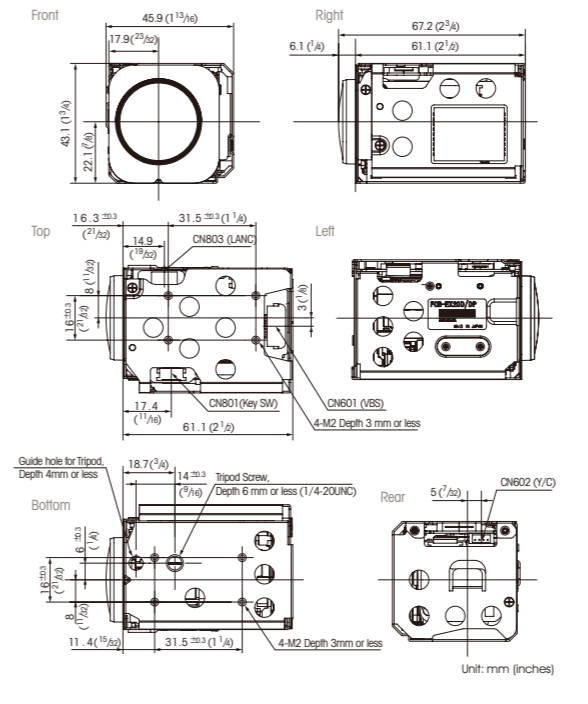
FCB-EX1020/FCB-EX1020P



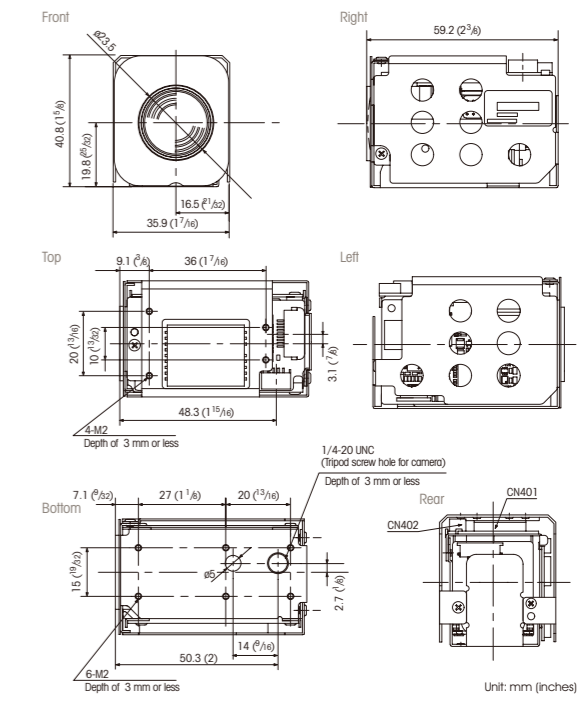
FCB-EX995E/FCB-EX995EP/FCB-EX985E/FCB-EX985EP



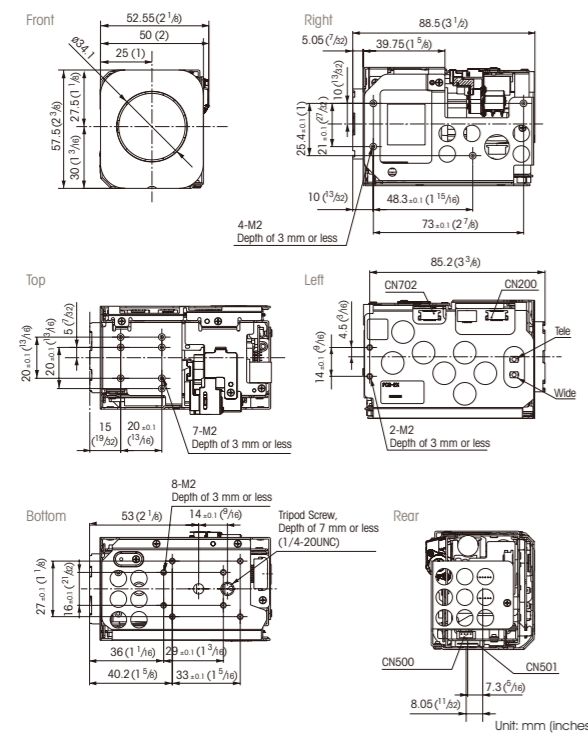
FCB-EX20D/FCB-EX20DP



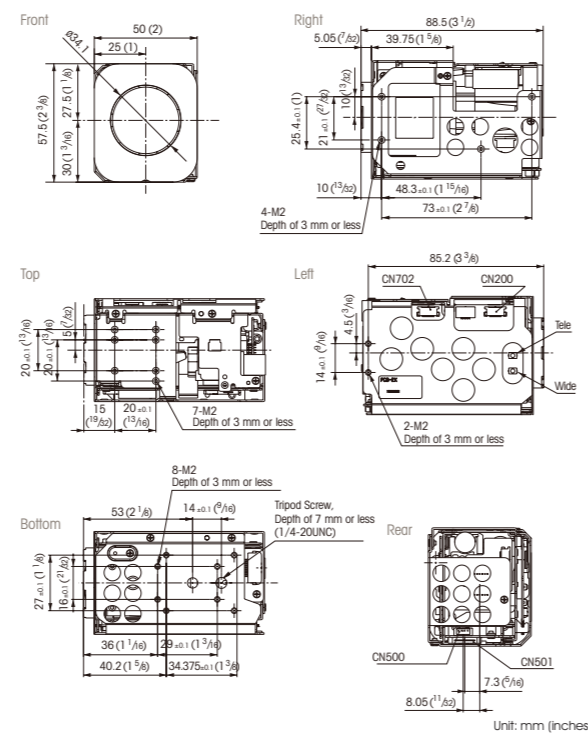
FCB-EX11D/FCB-EX11DP



FCB-EX490E/FCB-EX490EP



FCB-EX48E/FCB-EX48EP



Pin Assignment

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)	-

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

CN601 - FCB-EX20D / FCB-EX20DP

CN401 - FCB-EX11D / FCB-EX11DP

Pin No.	Name	Level
1	RxD	TTL/CMOS Level Read Data
2	TxD	TTL/CMOS Level 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-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+ [FPC 0.5 mm Pitch]

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

CN80 - FCB-EX20D/FCB-EX20DP

Pin No.	Name	Level
1	GND	-
2	GND	-
3	KEY_ADO	Pull up to 3.0 V by 100 kΩ
4	KEY_ADO	Pull up to 3.0 V by 100 kΩ
5	KEY_ADO	Pull up to 3.0 V by 100 kΩ
6	KEY_ADO	Pull up to 3.0 V by 100 kΩ
7	KEY_ADO	Pull up to 3.0 V by 100 kΩ
8	KEY_ADO	Pull up to 3.0 V by 100 kΩ
9	KEY_ADO	Pull up to 3.0 V by 100 kΩ
10	KEY_ADO	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+

Specifications

	FCB-EX1020	FCB-EX1020P	FCB-EX995E	FCB-EX995EP	FCB-EX985E	FCB-EX985EP	FCB-EX490E	FCB-EX490EP	FCB-EX48E	FCB-EX48EP
Signal systems	NTSC	PAL	NTSC	PAL	NTSC	PAL	NTSC	PAL	NTSC	PAL
Sync systems	Internal/External (V-Lock)									
Image sensor	1/4-type EXview HAD CCD (Progressive Scan)				1/4-type Super HAD CCD II (Interlace Scan)		1/4-type EXview HAD CCD (Progressive Scan)		1/4-type CCD (Interlace Scan)	
Effective picture elements	380,000 pixels (NTSC)	440,000 pixels (PAL)	380,000 pixels (NTSC)	440,000 pixels (PAL)	380,000 pixels (NTSC)	440,000 pixels (PAL)	380,000 pixels (NTSC)	440,000 pixels (PAL)	380,000 pixels (NTSC)	440,000 pixels (PAL)
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)			
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			
Horizontal viewing angle	67.8 degrees (wide) to 1.7 degrees (tele)		55.8 degrees (wide) to 2.1 degrees (tele)				48.0 degrees (wide) to 2.8 degrees (tele)			
Horizontal resolution	550 TV lines									
Focus systems	Auto (Sensitivity: normal, low), One-push AF, Manual, Infinity, Interval AF, Zoom Trigger AF, Focus Compensation in ICR On Mode									
Minimum illumination	1.4 lx (F1.6, 50IRE)		0.65 lx (F1.35, 50IRE)		0.25 lx (F1.35, 50IRE)		0.7 lx (F1.4, 50IRE)		0.4 lx (F1.4, 50IRE)	
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	VISCA (TTL signal level) Baud rate: 9.6 kbps, 19.2 kbps, 38.4 kbps Stop bit: 1/2 bit selectable									
Electronic shutter	1/1 sec to 1/10,000 sec, 22 steps									
Gain	Auto/Manual/Max. Gain Limit (-3 dB to +28 dB, 2 dB steps)									
Exposure control	Auto, Manual, Priority mode (shutter priority & iris priority), Bright, EV compensation, Slow AE									
EV compensation	Yes									
Backlight compensation	Yes									
White balance	Auto, ATW, Indoor, Outdoor, Outdoor Auto, Sodium Vapor Lamp (fix/auto), One-push, Manual									
S/N ratio	More than 50 dB									
Picture effects	E-Flip, Nega Art, Black & White, Mirror image, Colour Enhancement									
Camera operation switch	Yes (Zoom Tele, Zoom Wide)									
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)		2.0 W (motors active: 3.1 W)	
Operating temperature	-5°C to +60°C									
Storage temperature	-20°C to +60°C									
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-D Auto mode	Yes		No				Yes			
Wide-D IS/PS mode	Yes		No				Yes			
Image Stabilisation	Yes		Yes				No			
StableZoom	Yes (43x)		Yes (33x)				No			
Digital output	Yes									
Enhanced Noise Reduction	Yes									
Auto ICR	Yes				No					
Spherical Privacy Zone Masking	Yes									
Motion Detection	Yes									
Alarm	Yes									
Slow AE response	Yes (Longer than 10 minutes)									
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									
E-flip	Yes									
Flicker Cancel	Yes (Auto)	-	Yes (Auto)	-	Yes (Auto)	-	Yes (Auto)	-	Yes (Auto)	-

Specifications

	FCB-EX20D	FCB-EX20DP	FCB-EX11D	FCB-EX11DP
Signal systems	NTSC	PAL	NTSC	PAL
Sync systems	Internal/External (V-Lock)			
Image sensor	1/3-type Super HAD CCD II (Interlace Scan)		1/4-type Super HAD CCD II (Interlace Scan)	
Effective picture elements	380,000 pixels (NTSC)	440,000 pixels (PAL)	380,000 pixels (NTSC)	440,000 pixels (PAL)
Lens	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	12 x (120x with optical zoom)			
Minimum object distance	10 mm (wide) to 800 mm (tele), *Default: 150 mm		10 mm (wide) to 800 mm (tele), *Default: 200 mm	
Horizontal viewing angle	52.0 degrees (wide) to 5.4 degrees (tele)		46.0 degrees (wide) to 4.6 degrees (tele)	
Horizontal resolution	High Resolution Mode On: 530 TV lines (default) High Resolution Mode Off: 470 TV lines (NTSC), 460 TV lines (PAL)			
Focus systems	Auto (Sensitivity: normal, low), One-push AF, Manual, Infinity, Interval AF, Zoom Trigger AF			
Minimum illumination	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)	
Video output	VBS: 1.0 Vp-p (sync negative), Y/C			
Camera control	VISCA (TTL signal level) Baud rate: 9.6 kbps, 19.2 kbps, 38.4 kbps Stop bit: 1/2 bit selectable			
Electronic shutter	1/1 sec to 1/10,000 sec, 22 steps			
Gain	Auto/Manual (-3 dB to +28 dB, 2 dB steps)			
Exposure control	Auto, Manual, Priority mode (shutter priority & iris priority), Bright, EV compensation, Backlight compensation, Slow AE			
EV compensation	Yes			
Backlight compensation	Yes			
White balance	Auto, ATW, Indoor, Outdoor, One-push, Manual			
S/N ratio	More than 50 dB			
Picture effects	E-Flip, Nega Art, Black & White, Mirror, Image			
Camera operation switch	Yes (Zoom Tele, Zoom Wide)			
Power requirements	DC 6.0 V to 12.0 V			
Power consumption	2.8 W (motors active: 6.5 W)		1.9 W (motors active: 2.8 W)	
Operating temperature	0°C to +50°C			
Storage temperature	-20°C to +60°C			
Mass	140 g (5 oz)		95 g (3.3 oz)	
Dimensions (W x H x D)	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)	
Wide-D Auto mode	No			
Wide-D IS/PS mode	No			
Image Stabilisation	No			
StableZoom	No			
Digital output	No			
Enhanced noise reduction	No			
Auto IC	Yes		No	
Spherical Privacy Zone Masking	Yes			
Motion Detection	Yes			
Alarm	No			
Slow AE response	No			
Picture freeze	Yes			
Slow shutter	Yes			
Temperature readout	No			
Title display	No			
Camera mode display	No			
Key switch control	No			
Multi-line OSD	Yes			
E-flip	Yes			
Flicker Cancel	Yes (Auto)	-	Yes (Auto)	-

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HCT_8395_UK_xv10/2010

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