

PoCL

(Power over Camera Link)

Mini CL

(Mini Camera Link)

Cameras for Industries



Actual Size



Black & White
KP-F500 PCL (PoCL)
KP-F500 SCL (Mini CL)
 Raw Data Output
KP-FR500 PCL (PoCL)
KP-FR500 SCL (Mini CL)
 Effective 5.05 Megapixel, 16 frame / second

Black & White
KP-F230 PCL (PoCL)
KP-F230 SCL (Mini CL)
 Raw Data Output
KP-FR230 PCL (PoCL)
KP-FR230 SCL (Mini CL)
 Effective 2.01 Megapixel, 30 frame / second

Black & White
KP-F31 PCL (PoCL)
KP-F31 SCL (Mini CL)
 Raw Data Output
KP-FR31 PCL (PoCL)
KP-FR31 SCL (Mini CL)
 Effective 0.33 Megapixel, 120 frame / second

Actual Size



Black & White
KP-F200 PCL (PoCL)
KP-F200 SCL (Mini CL)
 Raw Data Output
KP-FR200 PCL (PoCL)
KP-FR200 SCL (Mini CL)
 Effective 2.01 Megapixel, 15 frame / second

Black & White
KP-F80 PCL (PoCL)
KP-F80 SCL (Mini CL)
 Raw Data Output
KP-FR80 PCL (PoCL)
KP-FR80 SCL (Mini CL)
 Effective 0.81 Megapixel, 36 frame / second

Actual Size



Black & White
KP-F39 PCL (PoCL)
KP-F39 SCL (Mini CL)
 Raw Data Output
KP-FR39 PCL (PoCL)
KP-FR39 SCL (Mini CL)
 Effective 0.33 Megapixel, 91 frame / second

Black & White
KP-F30 PCL (PoCL)
KP-F30 SCL (Mini CL)
 Raw Data Output
KP-FR30 PCL (PoCL)
KP-FR30 SCL (Mini CL)
 Effective 0.33 Megapixel, 60 frame / second

Black & White Separate type
KP-FB30 PCL (PoCL)
KP-FB30 SCL (Mini CL)
 Raw Data Output Separate type
KP-FBR30 PCL (PoCL)
KP-FBR30 SCL (Mini CL)
 Effective 0.33 Megapixel, 60 frame / second



Actual Size

Color
KP-FD500 SCL (Mini CL)
 Effective 5.05 Megapixel, 16 frame / second
KP-FD202 PCL (PoCL)
KP-FD202 SCL (Mini CL)
 Effective 2.01 Megapixel, 30 frame / second

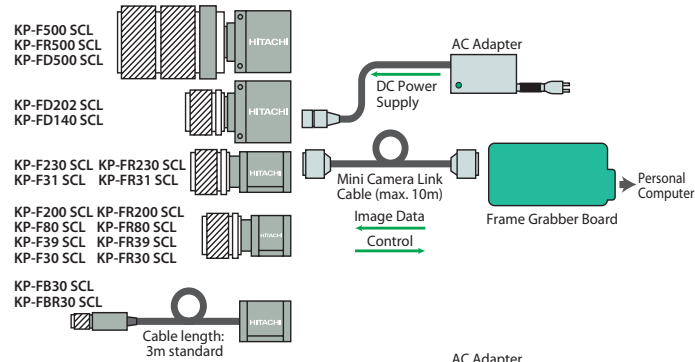
Color
KP-FD140 PCL (PoCL)
KP-FD140 SCL (Mini CL)
 Effective 1.45 Megapixel, 30 frame / second

Mini CL (Mini Camera Link)

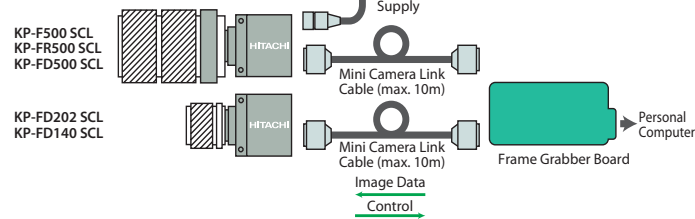
By adopting a Camera Link digital interface, higher speed video data transfer is possible.

Furthermore, by adopting the small connector (SDR) of a Mini Camera Link standard, the size of the camera has been reduced.

● Base Configuration



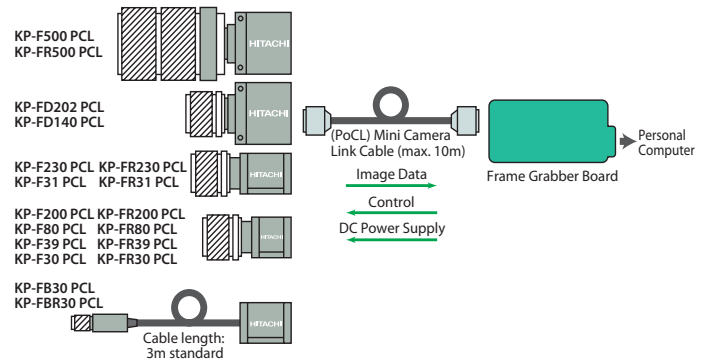
● Medium Configuration



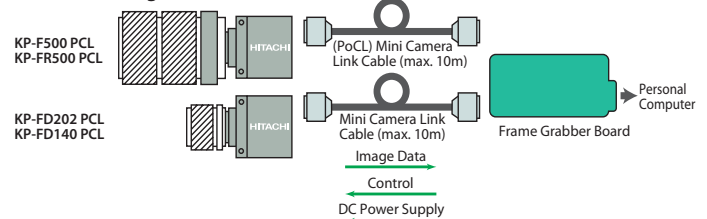
PoCL (Power over Camera Link)

The PoCL version is connected by a single (PoCL) Mini Camera Link cable directly to a frame grabber supporting PoCL. Simple systems construction is possible.

● Base Configuration



● Medium Configuration



Specifications

	KP-F500 PCL / SCL KP-FR500 PCL/SCL	KP-F230 PCL /SCL KP-FR230 PCL /SCL	KP-F31 PCL / SCL KP-FR31 PCL / SCL	KP-FB30 PCL / SCL KP-FBR30 PCL / SCL
Imaging device	2/3-inch interline CCD	1/1.8-inch interline CCD	1/3-inch interline CCD	
Total pixels	2536 (H) x 2068(V)	1688 (H) x 1248(V)	692 (H) x 504(V)	
Effective pixels	2456 (H) x 2058(V)	1628 (H) x 1236(V)	659 (H) x 494(V)	
Pixel size	3.45 (H) x 3.45 (V) μm (square lattice)	4.4 (H) x 4.4 (V) μm (square lattice)	7.4 (H) x 7.4 (V) μm (square lattice)	
Sensing area	9.93 (H) x 8.70 (V) mm	7.16 (H) x 5.44 (V) mm	4.88 (H) x 3.66 (V) mm	
Scanning system	Progressive			
Aspect ratio	4:3			
Frame rate	16 frames/second (full pixel readout)	30 frames/second (full pixel readout)	120 frames/second (full pixel readout)	60 frames/second (full pixel readout)
Scanning frequency	Horizontal: 33.264 kHz Vertical: 16.00 Hz	Horizontal: 37.5 kHz Vertical: 30 Hz	Horizontal: 62.94 kHz Vertical: 119.88 Hz	Horizontal: 31.468 kHz Vertical: 59.94 Hz
Sync system	Internal			
Lens mount	C mount			Special mount
Flange focal distance	17.526 mm			
Video output	Digital output Camera Link			
	Clk = 64 MHz x 2 TAP or 32 MHz x 4 TAP	Clk = 36 MHz x 2 TAP	Clk = 24.5454 MHz x 2TAP	Clk = 24.5454 MHz
Camera remote	Camera Link control			
Resolution	Horizontal/Vertical: 2000TV lines	Horizontal/Vertical: 1200 TV lines	Horizontal: 500 TV line Vertical: 490 TV lines	
Sensitivity	400 lx, F4, 3200 K	500 lx, F5.6, 3200 K	550 lx, F4, 3200 K	750 lx, F5.6, 3200 K
Minimum illumination	1.0 lx, F1.4, MAX GAIN	3.9 lx, F1.4, MAX GAIN	8.6 lx, F1.4, MAX GAIN	5.9 lx, F1.4, MAX GAIN
Signal noise to ratio	50 dB	45 dB	50 dB	
Electronic shutter speed	1/16, 1/60, 1/100, 1/250, 1/1000, 1/2,000, 1/10,000, 1/50,000 second. Factory setting is off (1/16 second) or changeable by variable shutter (10 to 1/100,000 second)	1/30, 1/60, 1/125, 1/250, 1/1,000, 1/2,000, 1/10,000, 1/50,000 second. Factory setting is off (1/30 second) or changeable by variable shutter (1/30 to 1/100,000 second)	1/120, 1/250, 1/500, 1/1,000, 1/2,000, 1/4,000, 1/10,000, 1/50,000 second. Factory setting is off (1/120 second) or changeable by variable shutter (1/120 to 1/100,000 second)	1/60, 1/250, 1/500, 1/1,000, 1/2,000, 1/4,000, 1/10,000, 1/50,000 second. Factory setting is off (1/60 second) or changeable by variable shutter (1/60 to 1/100,000 second)
Gamma compensation	$\gamma = 1$			
Frame on demand	One trigger, fixed shutter and VD reset			
Partial scan	Selectable start position and width of picture grabbing in 1H step.			
Gain setting		0 to +12 dB (Approx. 0.0358 dB step)		0 to +12 dB (Approx. 0.04 dB step)
Ambient temperature	Operating: 0 to +40°C (+32 to +104°F), less than 90 % RH Storage: -10 to +50°C (+14 to +122°F), less than 70 % RH			
Power supply voltage	12 ±1 VDC			
Current consumption	Approx. 310 mA (Approx. 3.7 W)	Approx. 280 mA (Approx. 3.3 W)	Approx. 210 mA (Approx. 2.4 W)	
External dimensions	44 (W) x 44 (H) x 41 (D) mm	29 (W) x 29 (H) x 38 (D) mm		Head: 12 (W) x 12.5 (H) x 47.5 (D) mm CCU: 29 (W) x 29 (H) x 38 (D) mm
Mass	Approx. 110 g	Approx. 50 g		Head: Approx. 18 g CCU: Approx. 50g (without cable)

High Resolution & High Speed

High resolution combined with high frame rates are possible with this series of cameras.

Can be used for high-precision and high-speed image processing in many applications.

Then camera list

Black & White Cameras

KP-F500 PCL/SCL	5.05 Megapixel (2456(H)x2058(V))	16 frame/second
KP-F230 PCL/SCL	2.01 Megapixel (1628(H)x1236(V))	30 frame/second
KP-F200 PCL/SCL	2.01 Megapixel (1628(H)x1236(V))	15 frame/second
KP-F80 PCL/SCL	0.81 Megapixel (1034(H)x779(V))	36 frame/second
KP-F31 PCL/SCL	0.33 Megapixel (659(H)x494(V))	120 frame/second
KP-F39 PCL/SCL	0.33 Megapixel (659(H)x494(V))	91 frame/second
KP-F30 PCL/SCL	0.33 Megapixel (659(H)x494(V))	60 frame/second
KP-FB30 PCL/SCL	0.33 Megapixel (659(H)x494(V))	60 frame/second

Raw Data Output Cameras

KP-FR500 PCL/SCL	5.05 Megapixel (2456(H)x2058(V))	16 frame/second
KP-FR230 PCL/SCL	2.01 Megapixel (1628(H)x1236(V))	30 frame/second
KP-FR200 PCL/SCL	2.01 Megapixel (1628(H)x1236(V))	15 frame/second
KP-FR80 PCL/SCL	0.81 Megapixel (1034(H)x779(V))	36 frame/second
KP-FR31 PCL/SCL	0.33 Megapixel (659(H)x494(V))	120 frame/second
KP-FR39 PCL/SCL	0.33 Megapixel (659(H)x494(V))	91 frame/second
KP-FR30 PCL/SCL	0.33 Megapixel (659(H)x494(V))	60 frame/second
KP-FBR30 PCL/SCL	0.33 Megapixel (659(H)x494(V))	60 frame/second

Color Cameras

KP-FD500 SCL	5.05 Megapixel (2456(H)x2058(V))	16 frame/second
KP-FD202 PCL/SCL	2.01 Megapixel (1628(H)x1236(V))	30 frame/second
KP-FD140 PCL/SCL	1.45 Megapixel (1392(H)x1040(V))	30 frame/second

Raw Data Output

(KP-FR500PCL/SCL, KP-FR230PCL/SCL, KP-FR200PCL/SCL, KP-FR80PCL/SCL, KP-FR39PCL/SCL, KP-FR31PCL/SCL, KP-FR30PCL/SCL, KP-FBR30PCL/SCL)

The data before image processing of a camera is transmitted in a RAW data output.

Therefore, image processing is required after acquisition.

Moreover, software for exclusive use is required.

Frame Shutter

Higher resolution in the vertical directional is ensured for moving object.

Multi-step Shutter

Provided multi-step shutter or variable shutter (minimum 1/100,000 second).

Frame on Demand

The trigger and the shutter can be used to capture an image at the desired timing and the accumulation time.

Remote Control

Through the Camera Link interface, various setting such as shutter, mode, gain, partial scan, bit width, etc can be adjusted.

Partial Scan

The start position and width of the image can be adjusted. Higher frame rates are possible by using partial scan mode.

	KP-F200 PCL / SCL KP-FR200 PCL / SCL	KP-F80 PCL / SCL KP-FR80 PCL / SCL	KP-F39 PCL / SCL KP-FR39 PCL / SCL	KP-F30 PCL / SCL KP-FR30 PCL / SCL
Imaging device	1/1.8-inch interline CCD		1/3-inch interline CCD	
Total pixels	1688 (H) x 1248(V)	1077 (H) x 788(V)	692 (H) x 504(V)	
Effective pixels	1628 (H) x 1236(V)	1034 (H) x 779(V)	659 (H) x 494(V)	
Pixel size	4.4 (H) x 4.4 (V) um (square lattice)	4.65 (H) x 4.65 (V) um (square lattice)	7.4 (H) x 7.4 (V) um (square lattice)	
Sensing area	7.16 (H) x 5.44 (V) mm	4.81 (H) x 3.62 (V) mm	4.88 (H) x 3.66 (V) mm	
Scanning system	Progressive			
Aspect ratio	4:3			
Frame rate	15 frames/second (full pixel readout)	36 frames/second (full pixel readout)	91 frames/second (full pixel readout)	60 frames/second (full pixel readout)
Scanning frequency	Horizontal: 18.75 kHz Vertical: 14.97 Hz	Horizontal: 28.346 kHz Vertical: 35.79 Hz	Horizontal: 46.875 kHz Vertical: 91.73 Hz	Horizontal: 31.468 kHz Vertical: 59.94 Hz
Sync system	Internal			
Lens mount	C mount			
Flange focal distance	17.526 mm			
Video output	Digital output Camera Link Clk = 36 MHz			Digital output Camera Link Clk = 24.5454 MHz
Camera remote	Camera Link control			
Resolution	Horizontal/Vertical: 1200 TV lines	Horizontal/Vertical: 800 TV lines	Horizontal: 500 TV line Vertical: 490 TV lines	
Sensitivity	400 lx, F4, 3200 K		400 lx, F2.8, 3200 K	
Minimum illumination	1.0 lx, F1.4, MAX GAIN, without IR cut filter		2.0 lx, F1.4, MAX GAIN, without IR cut filter	1.0 lx, F1.4, MAX GAIN, without IR cut filter
Signal noise to ratio	50 dB			
Electronic shutter speed	1/15, 1/60, 1/125, 1/250, 1/1,000, 1/2,000, 1/10,000, 1/50,000 second. Factory setting is off (1/15 second) or changeable by variable shutter (1/15 to 1/100,000 second)	1/36, 1/60, 1/125, 1/250, 1/1,000, 1/2,000, 1/10,000, 1/50,000 second. Factory setting is off (1/36 second) or changeable by variable shutter (1/36 to 1/100,000 second)	1/91, 1/250, 1/500, 1/1,000, 1/2,000, 1/4,000, 1/10,000, 1/50,000 second. Factory setting is off (1/91 second) or changeable by variable shutter (1/91 to 1/100,000 second)	1/60, 1/250, 1/500, 1/1,000, 1/2,000, 1/4,000, 1/10,000, 1/50,000 second. Factory setting is off (1/60 second) or changeable by variable shutter (1/60 to 1/100,000 second)
Gamma compensation	$\gamma = 1$			
Frame on demand	One trigger, fixed shutter and VD reset			
Partial scan	Selectable start position and width of picture grabbing in 1H step.			
Ambient temperature	Operating: 0 to + 40°C (+32 to +104°F), less than 90 % RH Storage: -10 to + 50°C (+14 to +122°F), less than 70 % RH			
Power supply voltage	12 ± 1 VDC			
Current consumption	Approx. 170 mA (Approx. 2.1 W)	Approx. 160 mA (Approx. 1.9 W)	Approx. 150 mA (Approx. 1.8 W)	Approx. 120 mA (Approx. 1.5 W)
External dimensions	29 (W) x 29 (H) x 29 (D) mm			
Mass	Approx. 50 g			

Selectable bit width

Selectable bit width of

12-/10-/8-bit	KP-F500 PCL/SCL, KP-FR500 PCL/SCL
10-/8-bit	KP-F230 PCL/SCL, KP-FR230 PCL/SCL, KP-F200 PCL/ SCL, KP-FR200 PCL/ SCL, KP-F80 PCL/SCL, KP-FR80 PCL/SCL, KP-F31 PCL/SCL, KP-FR31 PCL/SCL, KP-F39 PCL/SCL, KP-FR39 PCL/SCL, KP-F30 PCL/SCL, KP-FR30 PCL/SCL, KP-FB30 PCL/SCL, KP-FBR30 PCL/SCL,
36-/30-/24-bit	KP-FD500 SCL, KP-FD202 PCL/SCL, KP-FD140 PCL/SCL

High Color Fidelity (KP-FD202 PCL/SCL, KP-FD140 PCL/SCL)

(KP-FD500 SCL, KP-FD202 PCL/SCL, KP-FD140 PCL/SCL)

RGB primary color mosaic filter achieve a high color fidelity.

Selectable White Balance Adjustment

(KP-FD500 SCL, KP-FD202 PCL/SCL, KP-FD140 PCL/SCL)

Selectable white balance adjustment method of ATW (auto-tracking), Manual (manual setting of R and B gain) or One-push (one-push auto adjustment)

6-Vector Independent Masking

(KP-FD500 SCL, KP-FD202 PCL/SCL, KP-FD140 PCL/SCL)

Saturation and hue of primary colors R, G, B and complementary colors Cy, Mg, Ye can be independently varied. It is effective at a application (Image capture, microscope, etc) needed highly accurate color fidelity.



KP-F500 PCL/ SCL
KP-FR500 PCL/ SCL
KP-FD500 SCL



KP-F230 PCL/ SCL
KP-FR230 PCL/ SCL
KP-F31 PCL/ SCL
KP-FR31 PCL/ SCL



KP-F200 PCL/ SCL
KP-FR200 PCL/ SCL
KP-F80 PCL/ SCL
KP-FR80 PCL/ SCL
KP-F39 PCL/ SCL
KP-FR39 PCL/ SCL
KP-F30 PCL/ SCL
KP-FR30 PCL/ SCL



KP-FB30 PCL/ SCL
KP-FBR30 PCL/ SCL



KP-FD202 PCL/ SCL
KP-FD140 PCL/ SCL

Specifications

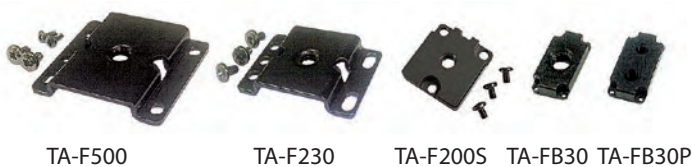
	KP-FD500 SCL	KP-FD202 PCL / SCL	KP-FD140 PCL / SCL
Imaging device	2/3-inch interline CCD	1/1.8-inch interline CCD	1/2-inch interline CCD
Total pixels	2536 (H) x 2068(V)	1688(H) x 1248(V)	1434(H) x 1050(V)
Effective pixels	2456 (H) x 2058(V)	1628(H) x 1236(V)	1392(H) x 1040(V)
Unit cell size	3.45 (H) x 3.45 (V) μm (square lattice)	4.4(H) x 4.4(V) um (square lattice)	4.65(H) x 4.65(V) um (square lattice)
Color filter	RGB primary color mosaic filter		
Scanning system	Progressive		
Aspect ratio	4:3		
Frame rate	16 frames/second(full pixel readout)	30 frames/second (full pixel readout)	
Scanning frequency	Horizontal: 33.264 kHz Vertical: 16.00 Hz	Horizontal: 37.5 kHz Vertical: 29.95 Hz	Horizontal: 33.519 kHz Vertical: 30.13 Hz
Sync system	Internal		
Lens mount	C mount		
Flange focal distance	17.526 mm		
Video output	Digital output Camera Link (a) 24 bits (R: 8 bits G: 8 bits B: 8 bits) (Base configuration) (b) 30 bits (R: 10 bits G: 10 bits B: 10 bits) (Medium configuration) (c) 36 bits (R: 12 bits G: 12 bits B: 12 bits) (Medium configuration) Clk = 64 MHz / 81 MHz switchable		
Camera remote	Camera Link control	Clk = 72 MHz	Clk = 57.6 MHz
Sensitivity	2000 lx, F8, 3200 K	2000 lx, F8, 3200 K	
Minimum illumination	5.0 lx, F1.4, MAX GAIN		
Electronic shutter speed	1/16, 1/60, 1/100, 1/250, 1/1,000, 1/2,000, 1/10,000, 1/50,000 second. Factory setting is off (1/16 second) or changeable by variable shutter (10 to 1/100,000 second)	1/30, 1/60, 1/100, 1/250, 1/1,000, 1/2,000, 1/10,000, 1/50,000 second. Factory setting is off (1/60 second) or changeable by variable shutter (10 to 1/100,000 second)	
Frame on demand	Fixed shutter, one trigger and VD reset	Factory setting is all off	
Partial scan	Selectable start position and width of picture grabbing		
Gain setting	Auto/Manual (0 to +18.5dB)(Approx. 0.04dB step)		
Auto Exposure (ALC: Auto level control)	Adjustable for video level		
White balance	ATW / MANUAL / One-push		
Enhanced functions	Gamma: OFF / LUT, Color masking: OFF / ON (6 vector independent masking), Color saturation: Adjustable, Color level: Adjustable (Paint-black), Sharpness: Adjustable, Brightness: Adjustable		
Power supply voltage	12 ± 1 VDC		
Current consumption	Approx. 400 mA (Approx. 4.8 W)	Approx. 340 mA (Approx. 4.1 W)	Approx. 300 mA (Approx. 3.6 W)
Ambient temperature	Operating: 0 to + 40°C (+32 to +104°F), less than 90 % RH Storage: -10 to + 50°C (+14 to +122°F), less than 70 % RH		
External dimensions	44 (W) x 44 (H) x 41 (D) mm		
Mass	Approx. 130 g	Approx. 110 g	

Optional Accessory List

Type		Color1CCD		Raw Data Output				Black & White			
Model Name		KP-FD500SCL	KP-FD202PCL/SCL KP-FD140PCL/SCL (*)	KP-FR500PCL/SCL (*)	KP-FR230PCL/SCL KP-FR31PCL/SCL (*)	KP-FR200PCL/SCL KP-FR80PCL/SCL KP-FR39PCL/SCL KP-FR30PCL/SCL (*)	KP-FBR30PCL/SCL (*)	KP-F500PCL/SCL (*)	KP-F230PCL/SCL KP-F31PCL/SCL (*)	KP-F200PCL/SCL KP-F80PCL/SCL KP-F39PCL/SCL KP-F30PCL/SCL (*)	KP-FB30PCL/SCL (*)
Junction Box	JU-M1A	○		○	☆	☆	☆	☆	☆	☆	☆
	JU-F1	○		○	☆	☆	☆	☆	☆	☆	☆
Tripod Adaptor	TA-F500	○	○	○				○			
	TA-F230				○				○		
	TA-F200S					○				○	
	TA-FB30/FB30P						○				○
Mini Camera Link Cable (for SCL Model) SDR-MDR (for High Frequency)	(1m)	C-101SCL	○	○	○	○	○	○	○	○	○
	(2m)	C-201SCL	○	○	○	○	○	○	○	○	○
	(3m)	C-301SCL	○	○	○	○	○	○	○	○	○
	(5m)	C-501SCL	○	○	○	○	○	○	○	○	○
	(10m)	C-102SCL				○	○	○	○	○	○
	(10m)	C-102SCL (HF)	○	○	○	○	○	○	○	○	○
PoCL Cable (for PCL Model) SDR-SDR	(1m)	C-101PCL (SS)		○	○	○	○	○	○	○	○
	(2m)	C-201PCL (SS)		○	○	○	○	○	○	○	○
	(3m)	C-301PCL (SS)		○	○	○	○	○	○	○	○
	(5m)	C-501PCL (SS)		○	○	○	○	○	○	○	○
	(10m)	C-102PCL (SS)				○	○	○	○	○	○
PoCL Cable (for PCL Model) SDR-MDR	(1m)	C-101PCL (SM)		○	○	○	○	○	○	○	○
	(2m)	C-201PCL (SM)		○	○	○	○	○	○	○	○
	(3m)	C-301PCL (SM)		○	○	○	○	○	○	○	○
	(5m)	C-501PCL (SM)		○	○	○	○	○	○	○	○
	(10m)	C-102PCL (SM)				○	○	○	○	○	○
Camera Cable	(2m)	C-201KSM	○	○	○	☆	☆	☆	○	☆	☆
	(5m)	C-501KSM	○	○	○	☆	☆	☆	○	☆	☆
	(10m)	C-102KSM	○	○	○	☆	☆	☆	○	☆	☆
12 Pin Plug	HR10A-10P-12S	○	○	○	○	○	○	○	○	○	
Dummy Glass	ARC1214			○	○	○		○	○	○	

(*) : ☆ is available for only SCL type. Cannot use it for PCL type.

Tripod Adaptor



TA-F500

TA-F230

TA-F200S

TA-FB30

TA-FB30P

Camera Link Cable



SDR-MDR

SDR-SDR

Rear View



KP-F500 PCL/SCL
 KP-FR500 PCL/SCL
 KP-FD500 SCL
 KP-FD202 PCL/SCL
 KP-FD140 PCL/SCL

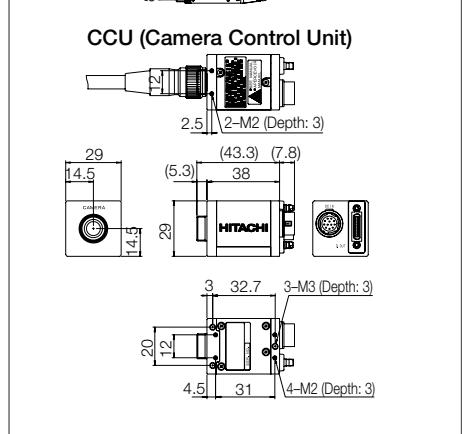
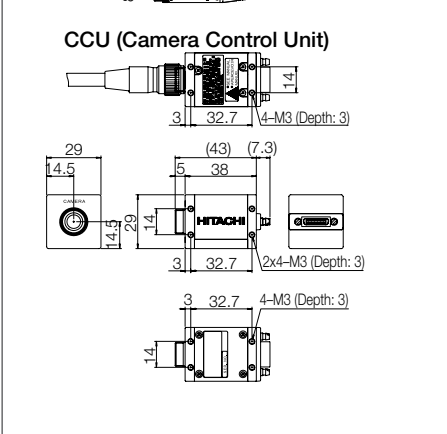
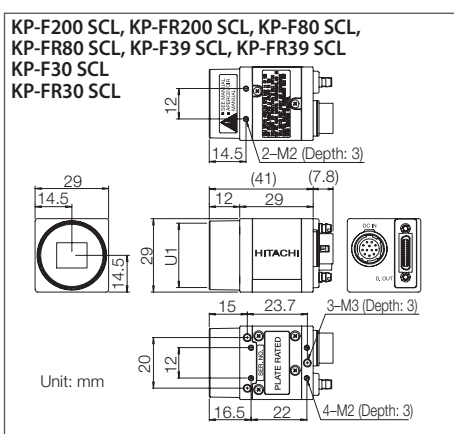
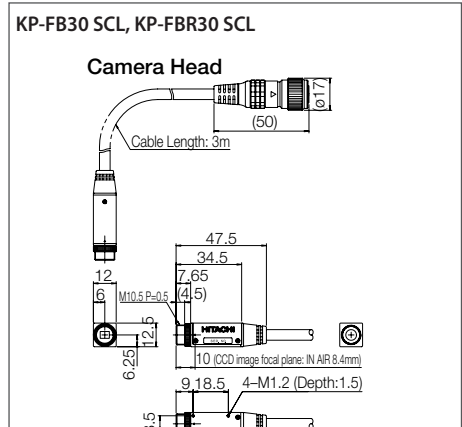
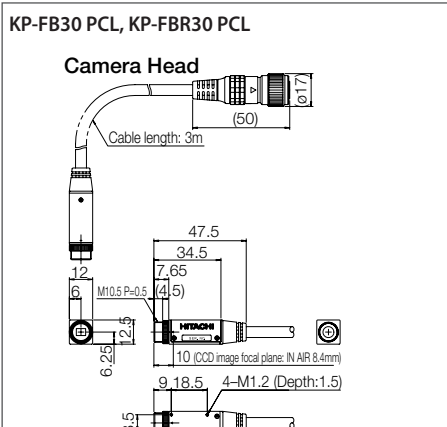
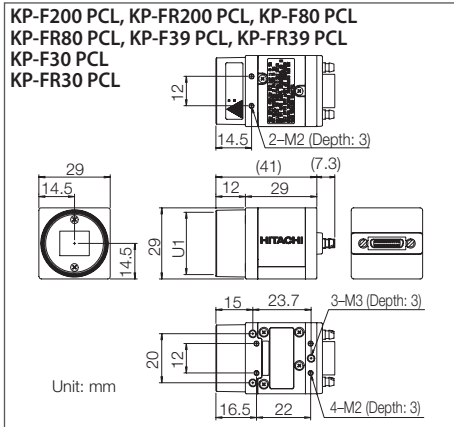
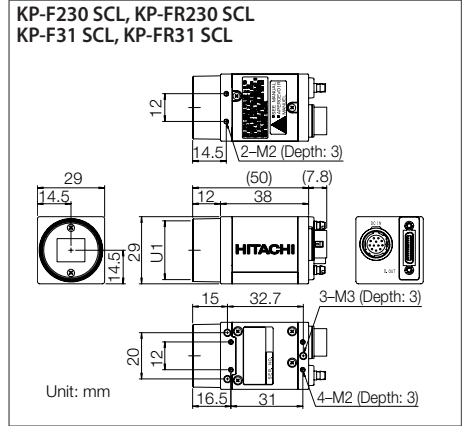
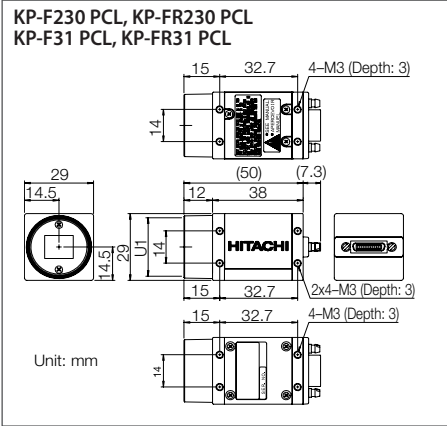
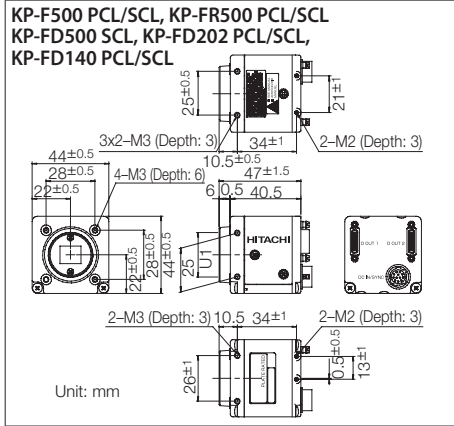


KP-F230 PCL KP-FR230 PCL
 KP-F200 PCL KP-FR200 PCL
 KP-F80 PCL KP-FR80 PCL
 KP-F31 PCL KP-FR31 PCL
 KP-F39 PCL KP-FR39 PCL
 KP-F30 PCL KP-FR30 PCL
 KP-FB30 PCL KP-FBR30 PCL (CCU)



KP-F230 SCL KP-FR230 SCL
 KP-F200 SCL KP-FR200 SCL
 KP-F80 SCL KP-FR80 SCL
 KP-F31 SCL KP-FR31 SCL
 KP-F39 SCL KP-FR39 SCL
 KP-F30 SCL KP-FR30 SCL
 KP-FB30 SCL KP-FBR30 SCL (CCU)

Dimensions



CAUTION: To ensure safe operation, please read the instruction manual before using this product.

These Specifications are subject to change without notice.

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