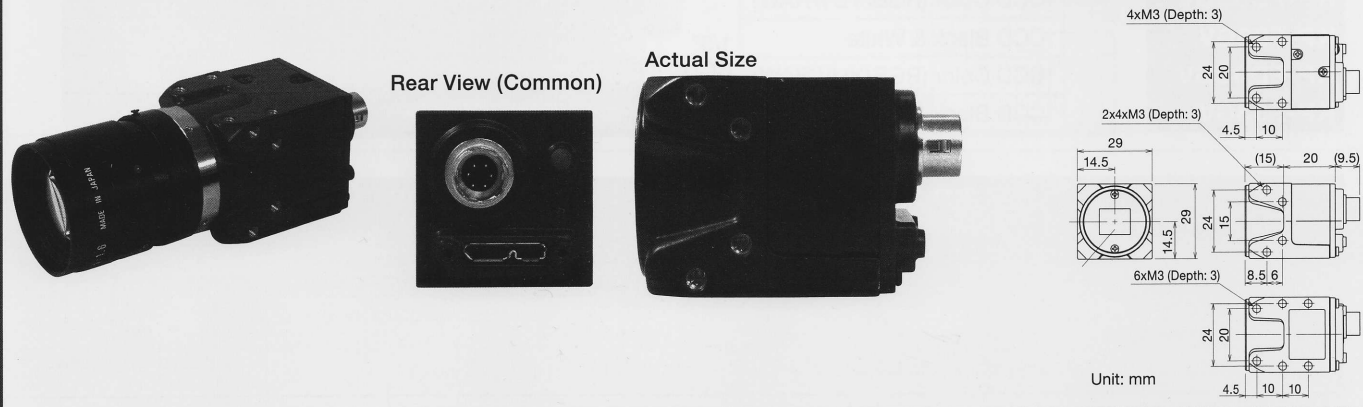


<b>KP-FD510UB</b>	USB3 Vision	1CCD Color (RGB/YUV/RAW)	2/3" CCD	5.05 M Pixels (2456 x 2058)	Max. 18 frames per sec. (YUV) Max. 12 frames per sec. (RGB)	29(W) x 29(W) x 29(D) mm
<b>KP-F510UB</b>		1CCD Black & White			Max. 18 frames per sec.	
<b>KP-FMD200UB</b>		1CMOS Color (RGB/YUV/RAW)	1/1.8" CMOS	UXGA (1.92 M Pixels) (1600 x 1200)	Max. 53 frames per sec.	29(W) x 29(W) x 20(D) mm
<b>KP-FM200UB</b>		1CMOS Black & White				
<b>KP-F31UB</b>		1CCD Black & White	1/3" CCD	VGA (0.32 M Pixels) (652 x 490)	Max. 125 frames per sec.	
<b>KP-F21UB</b>		1CCD Black & White	1/2" CCD			

KP-FM200UB, KP-FMD200UB, KP-F31UB, KP-F21UB

KP-FM200UB, KP-FMD200UB, KP-F31UB, KP-F21UB



		KP-FD510UB KP-F510UB	KP-FMD200UB KP-FM200UB	KP-F31UB	KP-F21UB
Imaging device		2/3-inch CCD	1/1.8-inch CMOS	1/3-inch CCD (ICX424L)	1/2-inch CCD (ICX414L)
	Effective pixels	2456(H) x 2058(D)	1600(H) x 1200(D)	656(H) x 494(D)	
	Pixel size	3.45 μm(H) x 3.45 μm(V) (Square pixel)	4.5 μm(H) x 4.5 μm(V) (Square pixel)	7.4 μm(H) x 7.4 μm(V) (Square pixel)	9.9 μm(H) x 9.9 μm(V) (Square pixel)
	Color filter	RGB primary color mosaic filter (KP-FD510UB/FMD200UB)		-	-
Scanning area		8.47 mm(H) x 7.10 mm(V)	7.2 mm(H) x 5.4 mm(V)	4.88 mm(H) x 3.66 mm(V)	6.52 mm(H) x 4.89 mm(V)
Scanning system		Progressive			
Sync system		Internal			
Lens mount		C-mount (Flange focal distance: 17.526 mm)			
Video output	Interface	USB 3.0 Interface			
	Protocol	USB3 Vision compliant			
	Image format	KP-FD510UB/FMD200UB: RGB 24/3/35 bit, YUV(4:2:2) 24/30/36 bit RAW 8/10/12bit, Mono 8/10/12bit		Mono 8/10/12 bit	
	Image size	2456(H) x 2058(D)	1600(H) x 1200(D)	652(H) x 490(D)	
Frame rate	KP-FD510GV: 18 frames per second (YUV) 12 frames per second (RGB)	53 frames per second		125 frames per second	
	KP-F510GV: 18 frames per second				
Sensitivity		KP-F510UB: 400 lx, F8, 3200K KP-FD510UB: 2000 lx, F5.6, 3200K	KP-FM200UB: 500 lx, F5.6, 3200K KP-FMD200UB: 2000 lx, F5.6, 3200K	550 lx, F4, 3200K	
S/N		50 dB	45 dB	50 dB	
Electric shutter	Mode	OFF / Auto (AES) / Manual (PRESET or VARIABLE), OFF is normal exposure (frame rate)			
	PRESET	1/60, 1/100, 1/200, 1/500, 1/1000, 1/2000, 1/5000, 1/10000, 1/50000 second		1/125, 1/200, 1/500, 1/1000, 1/2000, 1/5000, 1/10000, 1/50000 second	
	VARIABLE	10 to 1/100,000 second	1 to 1/100,000 second	10 to 1/100,000 second	
External trigger	Mode	Fixed shutter (9 steps or Variable)		Fixed shutter (8 steps or Variable)	
	Input	Via USB3.0 cable (Software trigger), 6-pin connector (Hardware trigger)			
External sync signal		VD output: 5 Vp-p ±0.3 V, Strobe out: 5 Vp-p ±0.3 V			
Partial scan		Selectable start position and width of picture grabbing in 1H step	Selectable start position and width of picture grabbing in 1 pixel step	Selectable start position and width of picture grabbing in 1H step	
Binning mode		OFF/ON (Vertical)			
ALC (Auto level control)		Adjustable for video level			
White balance (FD/FMD model)		ATW / MANUAL / One-Push		-	
Color masking (FD/FMD model)		OFF / ON (6 vector independent masking)		-	
Gain		0 to 18 dB by 0.1 dB steps			
Gamma		OFF (γ=1) / LUT (0.45 to 1)			
Image adjustment function		Sharpness, Black level, Knee			
Power supply		DC +5 V ±5 % (via USB3.0 cable)			
Power consumption		Approx. 4 W (800 mA)	Approx. 1.6 W (320 mA)	Approx. 2.5 W (500 mA)	
Ambient temperature	Performance	0 °C to +40 °C / 90 %RH or less			
	Operation	-10 °C to +50 °C / 90 %RH or less			
	Storage	-20 °C to +60 °C / 70 %RH or less (without dew condensation)			
Vibration endurance		15 to 200 to 15 Hz (98.6 m/S <sup>2</sup> ), 10 minutes for each 3 axis			
Shock endurance		490.3 m/s <sup>2</sup> (Once for each side of top, under, left and right)			
External dimensions		29(W) x 29(H) x 29(D) mm (not including lens and protrusions)	29(W) x 29(H) x 20(D) mm (not including lens and protrusions)		
Mass		Approx. 60 g (without lens)	Approx. 45 g (without lens)		