

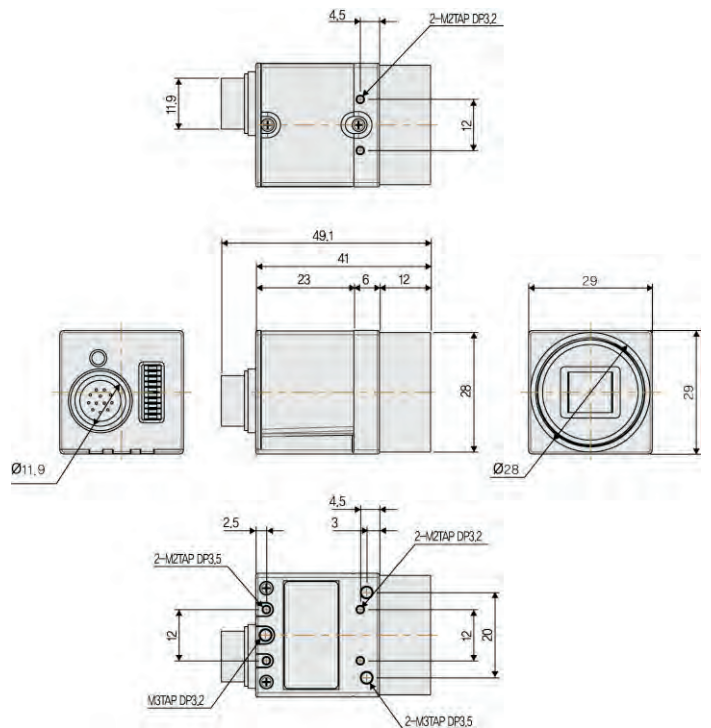
Analog Cameras



Key Features

Mini-size CCD Analog camera
 Trigger input range : +3V~5V
 EIA camera(MV-BE20A, MV-BE30A, MA-D037E)
 High Rates Scanning(HRS mode)

Dimension (Unit : mm)



Pin map

12pin Connector

Pin No.	Name	IN/OUT	Remark
1	GND	-	Power GND
2	Power	IN	+12VDC
3	GND	IN	Video GND
4	Video Signal	OUT	
5	GND	-	HD GND
6	HD	IN/OUT	
7	VD	IN/OUT	
8	GND	-	VD GND
9	HRS	IN	Progressive type only
10	WEN	OUT	
11	Trigger	IN	
12	GND	-	Trigger GND



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- [analog_cognex.zip](#)
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Specification

Model (Mono)	MV-BE20A	MV-BX30A	MV-BS20A
Sensor size	1/2"	1/3"	1/2"
Image Sensor	CCD	CCD	CCD
Resolution	768 x 494	1024 x 772	1360 x 1040
Pixel size (μm)	8.4 x 9.8	4.65 x 4.65	4.65 x 4.65
Max Frame Rate	30fps	30fps	15fps
Interface	1 Vpp Analog Composite Signal		
Binning Modes	Vertical		
Synchronization	Internal, External Trigger		
Sync Level	Input : 3~5 Vpp, TTL input, Output : 5V Level		
Partial Scan	- - - -	Full : 768 Lines/30fps 1/2 : 353 Lines/60fps 1/3 : 218 Lines/90fps 1/4 : 151 Lines/120fps	Full : 1040 Lines/15fps 1/2 : 465 Lines/30fps 1/4 : 169 Lines/60fps 1/6 : 70 Lines/90fps
Horizontal Scan Frequency	Horizontal:31.486KHz(15.734Hz), Vertical:119.88Hz(59.94Hz)	Horizontal:23.6KHz, Vertical 30Hz	Horizontal:16KHz, Vertical 15Hz
Trigger Modes	Edge preset mode(fixed shutter)-Reset,non Reset, Pulse width mode-Reset	Edge preset mode(fixed shutter), Pulse width	
Shutter	Global		
Shutter Speed	Off, 1/125, 1/250, 1/500, 1/1000, 1/2000, 1/4000, 1/10000sec		
Minimum Illumination	0.5 lx (F1.4, 50 IRE)	2.0 lx (F1.4, 50 IRE, 1/30sec)	1.0 lx (F1.4, 50 IRE, 1/15sec)
Horizontal Resolution	570 TV lines (Min)	768 TV lines (Min)	1040 TV lines (Min)
S/N Ratio	56dB		
Optical Axis Accuracy	Image Center ±0.1mm		
Gain	Manual (0dB ~ 12dB)		
Gamma	1.0 (fixed)		
Exposure Trigger Control	Positive and rising mode		
Lens Mount	C mount		
Weight	<44g		
Dimension	29mm x 29mm x 29mm		
Temperature	-5℃ to 45℃ (Operating) / -20℃ to 60℃ (Storage)		
Power consumption	2.0W	1.8W	2.0W
Power Requirements	12VDC (±10%)		
Conformity	CE, RoHS		
Warranty	3 years		

Specification

Model (Mono)	MV-BV30A	MV-BV20A	MV-BE30A
Sensor size	1/3"	1/2"	1/3"
Image Sensor	CCD	CCD	CCD
Resolution	659 x 494	659 x 494	768 x 494
Pixel size (μm)	7.4 x 7.4	9.9 x 9.9	6.35 x 7.4
Max Frame Rate	60fps	60fps	30fps
Interface	1 Vpp Analog Composite Signal		
Binning Modes	Vertical		
Synchronization	Internal, External Trigger		
Sync Level	Input : 3~5 Vpp, TTL input, Output : 5V Level		
Partial Scan	Full : 494 Lines/60fps 1/2 : 239 Lines/120fps 1/3 : 148 Lines/180fps 1/4 : 102 Lines/240fps		- - - -
Horizontal Scan Frequency	Horizontal : 31.468KHz, Vertical 60Hz		Horizontal:31.486KHz(15.734Hz), Vertical:119.88Hz(59.94Hz)
Trigger Modes	Edge preset mode(fixed shutter), Pulse width		Edge preset mode(fixed shutter)-Reset, non Reset, Pulse width mode-Reset
Shutter	Global		
Shutter Speed	Off, 1/125, 1/250, 1/500, 1/1000, 1/2000, 1/4000, 1/10000sec		
Minimum Illumination	1.0 lx (F1.4, 50 IRE, 1/60sec)		1.0 lx (F1.4, 50 IRE)
Horizontal Resolution	494 TV lines (Min)		570 TV lines (Min)
S/N Ratio	56dB		
Optical Axis Accuracy	Image Center ±0.1mm		
Gain	Manual (0dB ~ 18dB)		Manual (0dB ~ 12dB)
Gamma	1.0 (fixed)		
Exposure Trigger Control	Positive and rising mode		
Lens Mount	C mount		
Weight	<44g		
Dimension	29mm x 29mm x 29mm		
Temperature	-5°C to 45°C (Operating) / -20°C to 60°C (Storage)		
Power consumption	1.8W	1.8W	1.8W
Power Requirements	12VDC (±10%)		
Conformity	CE, RoHS		
Warranty	3 years		

Specification

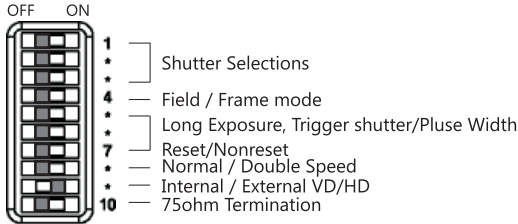
Model (Mono)	MA-D130B	MA-D200B	MA-D210B
Sensor size	1/3"	1/1.8"	1/3"
Image Sensor	CCD	CCD	CCD
Resolution	1280 x 960	1620 x 1220	1920 x 1080
Pixel size (μm)	3.75 x 3.75	4.4 x 4.4	2.2 x 2.2
Max Frame Rate	20fps	15fps	15fps
Interface	1 Vpp Analog Composite Signal		
Binning Modes	Vertical		
Synchronization	Internal, External Trigger		
Sync Level	Input : 3~5 Vpp, TTL input, Output : 5V Level		
Partial Scan	Full : 960 Lines/20fps 1/2 : 435 Lines/40fps 1/4 : 167 Lines/80fps -	Full : 1220 Lines/15fps 1/2 : 550 Lines/30fps 1/4 : 211 Lines/60fps -	Full : 1080 Lines/15fps 1/2 : 493 Lines/30fps 1/4 : 198 Lines/60fps -
Horizontal Scan Frequency	Horizontal:19.841KHz, Vertical 20.042Hz	Horizontal:18.75KHz, Vertical 14.98Hz	Horizontal:16.514KHz, Vertical 15.01Hz
Trigger Modes	Edge preset mode(fixed shutter), Pulse width		
Shutter	Global		
Shutter Speed	Off, 1/100, 1/200, 1/500, 1/1000, 1/2000, 1/4000, 1/10000sec	Off, 1/125, 1/250, 1/500, 1/1000, 1/2000, 1/4000, 1/10000sec	
Minimum Illumination	-	-	-
Horizontal Resolution	960 TV lines (Min)	1220 TV lines (Min)	1080 TV lines (Min)
S/N Ratio	34dB	34dB	-
Optical Axis Accuracy	Image Center ±0.1mm		
Gain	Manual (0dB ~ 12dB)		
Gamma	1.0 (fixed)		
Exposure Trigger Control	Positive and rising mode		
Lens Mount	C mount		
Weight	<44g		
Dimension	29mm x 29mm x 29mm		
Temperature	-5°C to 45°C (Operating) / -20°C to 60°C (Storage)		
Power consumption	1.5W	1.7W	-
Power Requirements	12VDC (±10%)		
Conformity	CE, RoHS, WEEE		
Warranty	3 years		

Specification

Model (Mono)	MA-D030B	MA-D037E
Sensor size	1/3"	1/3"
Image Sensor	CCD	CCD
Resolution	660 x 494	768 x 494
Pixel size (μm)	7.4 x 7.4	6.4 x 7.5
Max Frame Rate	70fps	30fps
Interface	1 Vpp Analog Composite Signal	
Binning Modes	Vertical	
Synchronization	Internal, External Trigger	
Sync Level	Input : 3~5 Vpp, TTL input, Output : 5V Level	
Partial Scan	Full : 494 Lines/70fps 1/2 : 219 Lines/140fps 1/4 : 83 Lines/280fps -	Double speed mode 60fps - - -
Horizontal Scan Frequency	Horizontal : 35.885KHz, Vertical 70.088Hz	Horizontal : 15.734KHz, Vertical 59.94Hz
Trigger Modes	Edge preset mode(fixed shutter), Pulse width	
Shutter	Global	
Shutter Speed	Off, 1/200, 1/500, 1/1000, 1/2000, 1/4000, 1/10000, 1/20000sec	Off, 1/125, 1/250, 1/500, 1/1000, 1/2000, 1/4000, 1/10000sec
Minimum Illumination	-	
Horizontal Resolution	494 TV lines (Min)	570 TV lines (Min)
S/N Ratio	35dB	32dB
Optical Axis Accuracy	Image Center ±0.1mm	
Gain	Manual (0dB ~ 12dB)	Manual (0dB ~ 12dB)
Gamma	1.0 (fixed)	
Exposure Trigger Control	Positive and rising mode	
Lens Mount	C mount	
Weight	<44g	
Dimension	29mm x 29mm x 29mm	
Temperature	-5°C to 45°C (Operating) / -20°C to 60°C (Storage)	
Power consumption	1.5W	1.3W
Power Requirements	12VDC (±10%)	
Conformity	CE, RoHS, WEEE	
Warranty	3 years	

MV-BE20/30A/D037E

Mode Switch



Normal Shutter

OFF	1/125	1/250	1/500	1/1000	1/2000	1/4000	1/10000
1 <input type="checkbox"/>	1 <input type="checkbox"/>	1 <input type="checkbox"/>	1 <input type="checkbox"/>	1 <input type="checkbox"/>	1 <input type="checkbox"/>	1 <input type="checkbox"/>	1 <input type="checkbox"/>
2 <input type="checkbox"/>	2 <input type="checkbox"/>	2 <input type="checkbox"/>	2 <input type="checkbox"/>	2 <input type="checkbox"/>	2 <input type="checkbox"/>	2 <input type="checkbox"/>	2 <input type="checkbox"/>
3 <input type="checkbox"/>	3 <input type="checkbox"/>	3 <input type="checkbox"/>	3 <input type="checkbox"/>	3 <input type="checkbox"/>	3 <input type="checkbox"/>	3 <input type="checkbox"/>	3 <input type="checkbox"/>

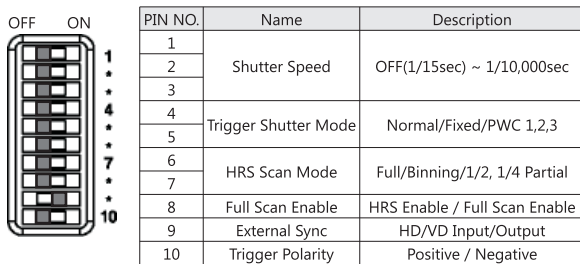
* Normal Shutter is automatically set up 1/100 second when shutter off in trigger shutter mode.

Mode setting

Standard	Trigger operation				Long exposure
	Trigger shutter (Reset)	Trigger shutter (Nonreset)	Pulse width (Reset)	Pulse width (Nonreset)	
5 <input type="checkbox"/>	5 <input type="checkbox"/>	5 <input type="checkbox"/>	5 <input type="checkbox"/>	5 <input type="checkbox"/>	5 <input type="checkbox"/>
6 <input type="checkbox"/>	6 <input type="checkbox"/>	6 <input type="checkbox"/>	6 <input type="checkbox"/>	6 <input type="checkbox"/>	6 <input type="checkbox"/>
7 <input type="checkbox"/>	7 <input type="checkbox"/>	7 <input type="checkbox"/>	7 <input type="checkbox"/>	7 <input type="checkbox"/>	7 <input type="checkbox"/>
Field/Frame		Double Speed	External HD/VD	Termination Resistor	
Field	Frame			75ohm	Open
4 <input type="checkbox"/>	4 <input type="checkbox"/>	8 <input type="checkbox"/>	9 <input type="checkbox"/>	10 <input type="checkbox"/>	10 <input type="checkbox"/>

MA-D130B/D200B/D210B/D030B

Mode Switch



Shutter Speed

1 : MA-D130B 2 : MA-D200B
3 : MA-D210B 4 : MA-D030B

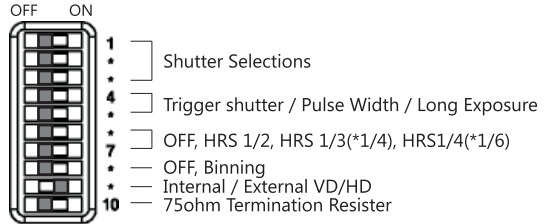
	OFF	1/100	1/200	1/500	1/1000	1/2000	1/4000	1/10000
1	OFF	1/100	1/200	1/500	1/1000	1/2000	1/4000	1/10000
2	OFF	1/125	1/250	1/500	1/1000	1/2000	1/4000	1/10000
3	OFF	1/125	1/250	1/500	1/1000	1/2000	1/4000	1/10000
4	OFF	1/200	1/500	1/1000	1/2000	1/4000	1/10000	1/20000
	1 <input type="checkbox"/>	1 <input type="checkbox"/>	1 <input type="checkbox"/>	1 <input type="checkbox"/>	1 <input type="checkbox"/>	1 <input type="checkbox"/>	1 <input type="checkbox"/>	1 <input type="checkbox"/>
	2 <input type="checkbox"/>	2 <input type="checkbox"/>	2 <input type="checkbox"/>	2 <input type="checkbox"/>	2 <input type="checkbox"/>	2 <input type="checkbox"/>	2 <input type="checkbox"/>	2 <input type="checkbox"/>
	3 <input type="checkbox"/>	3 <input type="checkbox"/>	3 <input type="checkbox"/>	3 <input type="checkbox"/>	3 <input type="checkbox"/>	3 <input type="checkbox"/>	3 <input type="checkbox"/>	3 <input type="checkbox"/>
	9.99ms	5.0ms	1.99ms	984.10us	482.50us	231.70us	92.37us	36.63us

* Trigger Mode가 Normal 또는 Fixed Mode일때 Shutter 설정값임.

MV-BS20/BX30/BV30A

Mode Switch

* Note : MV-BS20A Model is applied



Normal Shutter(unit:second)

OFF	1/125	1/250	1/500	1/1000	1/2000	1/4000	1/10000
1 <input type="checkbox"/>	1 <input type="checkbox"/>	1 <input type="checkbox"/>	1 <input type="checkbox"/>	1 <input type="checkbox"/>	1 <input type="checkbox"/>	1 <input type="checkbox"/>	1 <input type="checkbox"/>
2 <input type="checkbox"/>	2 <input type="checkbox"/>	2 <input type="checkbox"/>	2 <input type="checkbox"/>	2 <input type="checkbox"/>	2 <input type="checkbox"/>	2 <input type="checkbox"/>	2 <input type="checkbox"/>
3 <input type="checkbox"/>	3 <input type="checkbox"/>	3 <input type="checkbox"/>	3 <input type="checkbox"/>	3 <input type="checkbox"/>	3 <input type="checkbox"/>	3 <input type="checkbox"/>	3 <input type="checkbox"/>

* Normal Shutter is automatically set up 1/100 second when shutter off in trigger shutter mode.

Mode Setting

* Note : MV-BS20A Model is applied

External Trigger operation			Long Exposure	Binning	
OFF	Trigger Shutter	Pulse width		OFF	ON
4 <input type="checkbox"/>	4 <input type="checkbox"/>	4 <input type="checkbox"/>	4 <input type="checkbox"/>	8 <input type="checkbox"/>	8 <input type="checkbox"/>
5 <input type="checkbox"/>	5 <input type="checkbox"/>	5 <input type="checkbox"/>	5 <input type="checkbox"/>		
HRS				External HD/VD	Termination Resistor 75ohm
OFF	1/2	1/3(*1/4)	1/4(*1/6)		
6 <input type="checkbox"/>	6 <input type="checkbox"/>	6 <input type="checkbox"/>	6 <input type="checkbox"/>	9 <input type="checkbox"/>	10 <input type="checkbox"/>
7 <input type="checkbox"/>	7 <input type="checkbox"/>	7 <input type="checkbox"/>	7 <input type="checkbox"/>		

Trigger Shutter Mode

Normal (Freerun)	External Trigger Operation		
	Fixed	PWC1	PWC2/3
4 <input type="checkbox"/>	4 <input type="checkbox"/>	4 <input type="checkbox"/>	4 <input type="checkbox"/>
5 <input type="checkbox"/>	5 <input type="checkbox"/>	5 <input type="checkbox"/>	5 <input type="checkbox"/>

- Fixed : Trigger Sync. Reset Mode
 - PWC1 : Trigger Sync Reset Mode
 - PWC2 : Trigger Sync. Non-Reset (VD Reset) Mode
 - PWC3 : Long Exposure Mode
 (Ext.Sync Mode가 'ON'이고 SW-Shutter Speed가 'OFF' 일때만 설정됨)

HRS Scan Mode

Scan Mode			
FULL	Binning	1/2 Partial	1/4 Partial
6 <input type="checkbox"/>	6 <input type="checkbox"/>	6 <input type="checkbox"/>	6 <input type="checkbox"/>
7 <input type="checkbox"/>	7 <input type="checkbox"/>	7 <input type="checkbox"/>	7 <input type="checkbox"/>

Etc

Full Scan Enable		External Sync		Trig Polarity	
OFF	ON	OFF	ON	Positive	Negative
8 <input type="checkbox"/>	8 <input type="checkbox"/>	9 <input type="checkbox"/>	9 <input type="checkbox"/>	10 <input type="checkbox"/>	10 <input type="checkbox"/>