

CIS-KDDXL-NL Series

KD6R1064DXL-NL

KD6R1247DXL-NL

KD6R1688DXL-NL

Data Sheet

Mitsubishi Electric Corporation
Electronics and Communication Systems Center

Table of Contents

1. Applied model
2. Related documents
3. Specifications
4. Standard Operating Conditions and Property Specifications
 - 4.1 Dark output (DVd)
 - 4.2 Maximum white output (DVpmax)
 - 4.3 White output uniformity
 - 4.4 MTF
 - 4.5 Pixel gap between the Rod Lends Arrays
5. Absolute maximum ratings
6. Operating conditions
 - 6.1 Standard operating conditions (Recommended operation conditions)
 - 6.2 Timing condition
 - 6.3 Data configurations
 - 6.3.1 Relation between output connector and Camera Link™ Configuration
 - 6.3.2 Precautions of Camera Link™ Configurations bit assignments
 - 6.3.3 Base Configuration① (24bit RGB Color, Conformed to Camera Link™ v2.1)
 - 6.3.4 Base Configuration② (8bit Monochrome, Conformed to Camera Link™ v2.1)
 - 6.3.5 Base Configuration③ (10bit Monochrome, Conformed to Camera Link™ v2.1)
 - 6.3.6 Medium Configuration① (24bit RGB Color, Conformed to Camera Link™ v2.1)
 - 6.3.7 Medium Configuration② (30bit RGB Color, Conformed to Camera Link™ v2.1)
 - 6.3.8 Medium Configuration③ (8bit Monochrome, Conformed to Camera Link™ v2.1)
 - 6.3.9 Medium Configuration④ (10bit Monochrome, Conformed to Camera Link™ v2.1)
 - 6.3.10 Full Configuration① (24bit RGB Color, Conformed to Camera Link™ v2.1)
 - 6.3.11 Full Configuration② (30bit RGB Color, Unique Specification)
 - 6.3.12 Full Configuration③ (10bit Monochrome, Unique Specification)
 - 6.3.13 Deca Configuration① (8bit Monochrome , Conformed to Camera Link™ v2.1)
 - 6.3.14 Deca Configuration② (10bit Monochrome, Conformed to Camera Link™ v2.1)
7. Serial communication
8. Connector pin assignments
 - 8.1 Power supply connectors V1 ,V2 ,V3 (for sensor ICs on the CIS)
 - 8.2 Outer (External) illumination control connector L1
 - 8.3 Camera Link™ connector 1 (※Camera Link™ I/F)
 - 8.4 Camera Link™ connector 2 (※Camera Link™ I/F)
9. Precautions
10. Outline drawings

※Camera Link is a trademark or registered trademark of AIA (Automated Imaging Association).

1. Applied model

This document explains about Contact Image Sensor (hereinafter called "CIS") made by Mitsubishi Electric Corporation and is applied for below products. (Hereinafter called "This Product")

KD6R1064DXL-NL

KD6R1247DXL-NL

KD6R1688DXL-NL

This product do not include the illuminations. (Illumination-less products)

2. Related documents

The document related to this product are shown in below.

Table.1 Related documents

Document No.	Name	Remarks
TM-XJ958	Data Sheet	This document. Specification and condition of outgoing inspection etc. are described.
TM-XJ959	User's Manual	Precautions for using this product and guarantee is described. Please read User's Manual before using this product and use this product according to User's Manual.
TM-XJ960	Function Specification	Detailed functions of this product are described. When use the functions do not described on User's Manual, please refer to Function Specification.

3. Specifications

Table. 2 Specifications

Items		Specifications			Remarks
		KD6R1064DXL-NL	KD6R1247DXL-NL	KD6R1688DXL-NL	
Imaging element		CMOS Line Sensor			288 pixels x 3 colors per chip
Valid scan width (mm)		1064.3	1247.8	1688.2	
Weight (kg)		5.9	6.8	9.1	
Pixel density		600 dpi			Pixel density in the chip. Density between chips are equivalent to 300dpi.
Total pixels (pixel)	Pixel interpolation: OFF	25,056 × 3	29,376 × 3	39,744 × 3	Color Output
	Pixel interpolation: ON	25,142 × 3	29,477 × 3	39,881 × 3	
	Pixel interpolation: OFF	25,056	29,376	39,744	Monochrome Output
	Pixel interpolation: ON	25,142	29,477	39,881	
Maximum line rate (kHz/line)	10bit	600dpi	24.0 / 53.0	20.1 / 53.0	Color / Monochrome (Camera Link™ Color: Full Configuration 2ch Output Monochrome: Deca* Configuration 2ch Output) Pixel Interpolation: OFF
		300dpi	47.5 / 90.4	39.4 / 90.4	
		200dpi	71.0 / 124.2	58.0 / 124.2	
		150dpi	82.0 / 153.0	78.0 / 153.0	
	8bit	600dpi	35.1 / 55.0	29.3 / 55.0	
		300dpi	72.1 / 93.4	60.8 / 93.4	
		200dpi	104.4 / 127.2	88.5 / 127.2	
		150dpi	134.5 / 155.0	114.6 / 155.0	
Focal position (mm)		62.5mm from datum hole (27.3mm from glass surface)			
Output frequency		Max. 84 MHz			Camera Link™ Ver2.1compliant 48MHz~84MHz ANSI/TIA/EIA-644Standard
RoHS		Compliant(10 substances)(Note1)			The samples are not received RoHS certificate.
CE Mark		Compliant		—	
Functions		Select number of output channels of Camera Link™ Select Camera Link™ Configurations Illumination (LED) Control Electronic Shutter Control Dark Correction (each pixel) White Correction (each pixel) PGA(Programmable Gain Amp) Line Adjustment Gamma correction Interpolation Test Pattern Output Switching Resolution 600/300/200/150dpi (*1) Overlap Output Function (board gap:6.1mm, 144pixels@600dpi) Save User Settings (3 patterns for user and 1 pattern for factory setting)			(*1) Interpolation ON only for 600dpi at the factory initial setting. When changing resolution, value of the black/white correction need to be updated. After the update, please use “Save user settings” function to save the correction value. Factory setting of the black/white correction value is for 600dpi.
Optical system		Rod lens array			1 row,TC=80 [mm]
Connection of Rod Lends Array		No	Yes (1 point)		
Illumination		None			
Power supply	For sensors (IDD)	5V 2lines (20A Max.)	5V 3lines (24A Max.)	5V 3lines (31A Max.)	
Exposure control		Illumination pulse Duty adjustment / Electronic shutter			Output the pulse to control outer (external) illuminations.
Communication format		Camera Link™ Ver2.1 compliant Serial communication (UART)			Baud Rate : 9.6kbps,19.2kbps,115.2kbps Data bit : 8bit Parity bit : None Stop bit : 1bit Flow Control : None
Outline drawings		Fig.5~9			

* In this product, Camera Link™ Specification 8bit-Modes, 80bit and 10bit-Modes, 80bit is called "Deca Configuration".
(Note1) Applicable RoHS Exemptions are the following ones. AnnexⅢ 6(a),6(c),7(a),7(c)- I ,15,34

TM-XJ958D

4. Standard Operation Conditions and Property Specifications (Ta=25°C)

Table. 3 Specifications

Item	Symbol	Model	Specifications		Unit	Refer to
Dark output	DVd	All	8bit	2~54	digit	4.1
Maximum white output	DVpmax	All	8bit	123~244	digit	4.2
White output uniformity	UEp	All	50 MAX		%	4.3
MTF	MTF	All	30 MIN		%	4.4
Pixel gap between the Rod Lends Arrays	-	L5,L6	(commonly applied for horizontal and vertical scanning directions) 3 MAX		pixel	4.5

※L4=KD6R1064DXL-NL,L5=KD6R1247DXL-NL,L6=KD6R1688DXL-NL

(Note) This specification is measured by the LED Illumination IDBB-LSRC1900 and white-basis-chart prepared by Mitsubishi Electric.

4.1 Dark output (DVd)

(dark correction :OFF, white correction :OFF, illuminations :OFF)

DVd is an output value before dark correction when the illuminations is off.

4.2 Maximum white output (DVpmax)

(dark correction:OFF, white correction :OFF, illuminations :ON)

DVpmax is a maximum output value when scanning white-reference document, before black and white correction. DVpmax is defined by a maximum value among R,G,B output.

4.3 White output uniformity (UEp)

(dark correction:ON, white correction :OFF, illuminations :ON)

The symbols are defined as follows to calculate the White output uniformity.

$$DVEp(n) = DVp(n) - DVd(n)$$

DVEp(n) : nth pixel valid output

DVp(n) : nth pixel output value scanning white-reference document before white correction when the illuminations are on. (Original data of white output)

DVd(n) : nth pixel output value before white correction when the illuminations are off.

$$UEp = \frac{DVEp \text{ max} - DVEp \text{ min}}{DVEp \text{ max}} \times 100 \%$$

DVEpmax : the maximum values of DVEp(n) respectively.

DVEpmin : the minimum values of DVEp(n) respectively.

4.4 M T F (MTF) (dark correction:ON, white correction :ON, illuminations :ON)

$$MTF = \frac{IE \text{ max} - IE \text{ min}}{IE \text{ max} + IE \text{ min}} \times 100 \%$$

IEmax : The maximum values of DVEp, respectively, obtained every sensor ICs when scanning the MTF test document.

IEmin : The minimum values of DVEp, respectively, obtained every sensor ICs when scanning the MTF test document.

4.5 Pixel gap between Rod Lends Arrays (Only applied for L5/L6)

Pixel gap between Rod Lends Arrays within 3pixels.

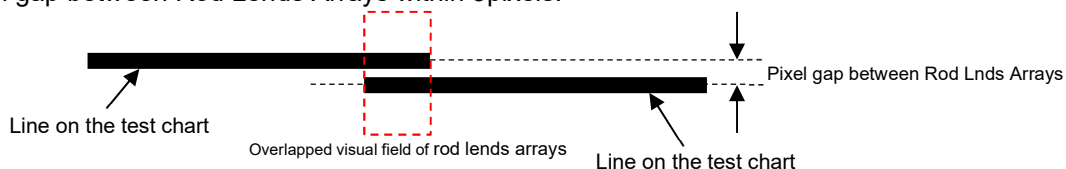


Fig.1 Example of pixel gap between Rod Lends Arrays

Table. 4 Measurement conditions (Standard condition of outgoing inspection)

Item	Symbol	Specifications	Unit	Remarks
Supply voltage for sensor unit	VDD	+5.0±0.1	V	
Illumination intensity (for 4.1~4.4)	—	109,400 (L4/L5) 57,680 (L6)	lx	This is controlled by the measurement value at the focal position with a T-10 which is illuminometer manufactured by Konica Minolta. Refer Fig 11. To attachment position.
Illumination intensity (for 4.5)	—	11,480 (L5/L6)		
White Chart	—	0.05~0.09	O.D.	Mitsubishi Electric standard white-basis-chart
MTF Chart	—	5.68	LP/mm	Mitsubishi Electric standard MTF-chart
Chart for checking Rod Lends connection	—	84	μm	Mitsubishi Electric standard Chart for Checking Rod Lends Connection
Position of document	—	62.5±0.2	mm	Distance from datum hole (3 places, refer to Fig.8 and 9) (nominal focal position)
Storing time (for 4.1~4.4)	tref	50.0 (L4/L5) 100 (L6)	μsec	@600dpi
Storing time (for 4.5)		500 (L5/L6)		
LED lighting period	—	Continuous-wave mode	—	
Temperature	Ta	23±4	°C	
Resolution	—	600	dpi	

5. Absolute maximum ratings

Table. 5 Absolute Maximum Ratings

Item	Symbol	Model	Specifications	Unit	Remarks
Supply voltage	VDD	All	-0.3 ~ 6.5	V	
Input voltage	Vi	All	GND-0.3 ~ VDD+0.3	V	
Output voltage	Vo	All	GND-0.3 ~ VDD	V	
Environmental temperature	Ta	All	+5 ~ +50	°C	In Operating Temperature.
		All	-5 ~ +55	°C	In Storage temperature.
Frame temperature	Tw	L4	+5 ~ +70	°C	In Operation Refer to Fig.10.
		L5,L6	+5 ~ +60		
Environmental humidity	Rh	All	10~90	%(RH)	No dew condensation.

※L4=KD6R1064DXL-NL ,L5=KD6R1247DXL-NL,L6=KD6R1688DXL-NL

6. Operating conditions (Ta=25°C)

6.1 Standard operating conditions (Recommended operating conditions)

Table. 6 Standard operating conditions (Recommended operating conditions)

Item	Symbol	Conditions	Specification			Unit	Remarks
			MIN.	TYP.	MAX.		
Supply voltage	VDD	GND basis	4.75	5.0	5.25	V	
Current consumption	IDD	VDD=5V	KD6R1064 DXL-NL	—	16.2	20.0	A
			KD6R1247 DXL-NL	—	18.4	24.0	
			KD6R1688 DXL-NL	—	25.2	31.0	
Output voltage	VCM	LVDS	ANSI/TIA/EIA-644Standard			V	
	VOD					V	
Storage time	tref	150dpi	6.5	50.0	1872	μsec	

6.2 Timing conditions

Table. 7 Timing conditions

項目	記号	MIN	TYP	MAX	単位	備考
Scanning cycle	Trep	6.5			μsec	Standard value : 84MHz on maximum output rate
TyCLK / TxCLK frequency	fc(Tx/y/zCLK)	48		84	MHz	Standard value : 84MHz
LVDS-data setup time(bit0)	Tp0 (SDCLK-SD)	-0.2	0	0.2	ns	fc=84MHz
LVDS-data setup time (bit1)	Tp1 (SDCLK-SD)	1.5	1.7	1.9	ns	fc=84MHz
LVDS-data setup time (bit2)	Tp2 (SDCLK-SD)	3.2	3.4	3.6	ns	fc=84MHz
LVDS-data setup time (bit3)	Tp3 (SDCLK-SD)	4.9	5.1	5.3	ns	fc=84MHz
LVDS-data setup time (bit4)	Tp4 (SDCLK-SD)	6.6	6.8	7.0	ns	fc=84MHz
LVDS-data setup time (bit5)	Tp5 (SDCLK-SD)	8.2	8.4	8.6	ns	fc=84MHz
LVDS-data setup time (bit6)	Tp6 (SDCLK-SD)	19.9	10.1	10.3	ns	fc=84MHz

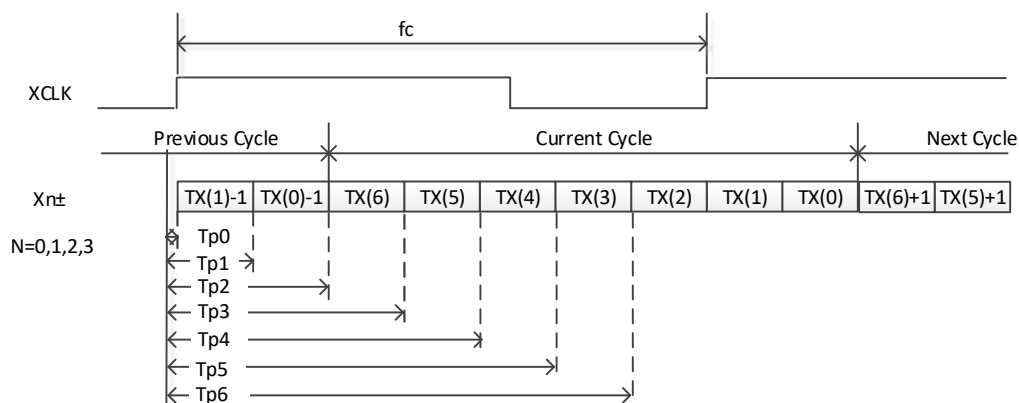


Fig.2 Timing Chart of LVDS Output

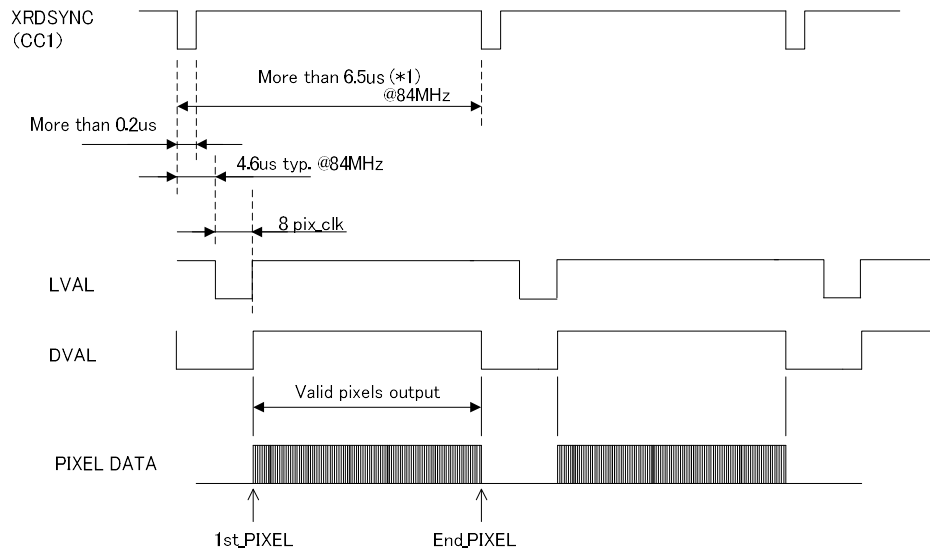


Fig.3 Timing Chart of Horizontal Data Output

*1 6.5us is the minimum scanning time in all models. Scanning time is differed by output mode.

OUT_PULSE1/OUT_PULSE2 is outputted from KD6R1064/1247/1688DX-NL as trigger signal to control outer (external) illumination. Outer (External) illumination can be controlled illumination by outer (external) pulse signal. Please use under the condition shown in below.

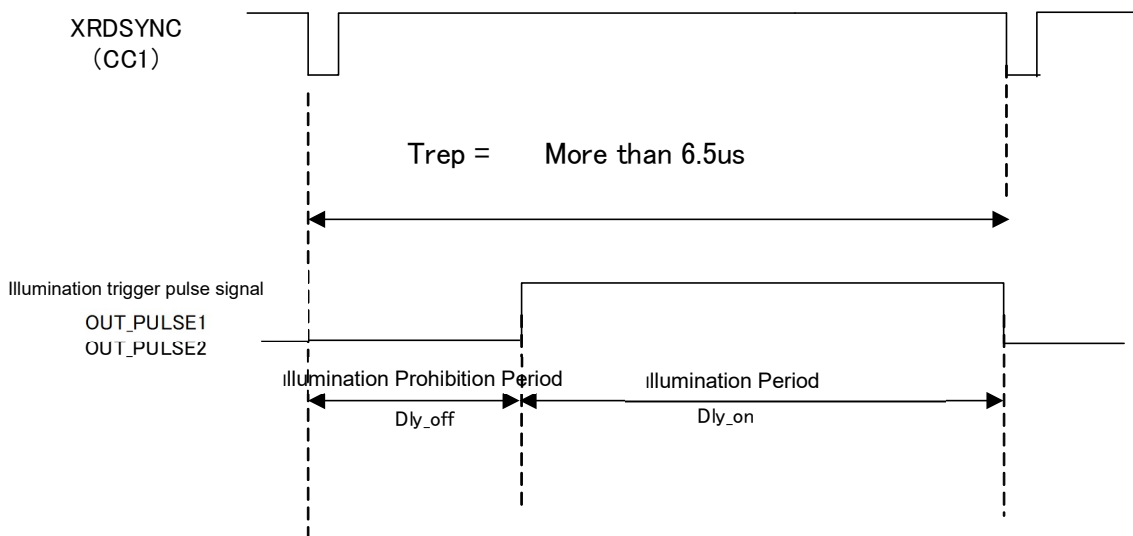


Fig.4 Illumination control timing

Table. 8 Illumination Turn On / Off Timing

Item	Symbol	MIN	TYP	MAX	Unit	Remarks
Scan period	Trep	6.5*			μsec	84MHz On Minimum scan mode
Illumination prohibition period	Dly_off	3.6			μsec	
Illumination period	Dly_on	0		Trep-3.6	μsec	

* Minimum scanning period varies depending on the output format and the output CLK setting.

6.3 Data configurations

6.3.1 Relation between output connector and Camera Link™ Configuration

For KD6R1064/1247DXL-NL, picture data can be outputted from 8 connectors (D1-D8) when using Medium/Full/Deca. Configuration. When using Base configuration, picture data can be outputted from 4 connectors (D1,D3,D5,D7).

For KD6R1688DXL-NL, picture data can be outputted from 12 connectors (D1-D12) when using Medium/Full/Deca. Configuration. When using Base configuration, picture data can be outputted from 6 connectors (D1,D3,D5,D7,D9,D11).

Hereinafter above output method is called “2ch output”.

Relation between each connector and output pixel is shown in Table12.

Picture data is outputted by adjacent format only. (Other picture data format is not available.)

Also, output mode is switchable.

For KD6R1064/1247DXL-NL, picture data can be outputted from 4 connectors (D1,D2,D5,D6) when using Medium/Full/Deca. Configuration. When using Base configuration, picture data can be outputted from 2 connectors (D1,D5).

For KD6R1688DXL-NL, picture data can be outputted from 6 connectors (D1,D2,D5,D6,D9,D10) when using Medium/Full/Deca. Configuration. When using Base configuration, picture data can be outputted from 3 connectors (D1,D5,D9).

Hereinafter above output method is called “1ch output”. This method is the standard output mode in ordinary operation.

Relation between each connector and output pixel is shown in Table13.

Picture data is outputted by adjacent format only. (Other picture data format is not available.)

Connector positions on the CIS are shown in Fig.5-Fig.7. Output number of ch. (1ch output or 2ch output) can be switched by resister settings. For detail, please refer to User's Manual (TM-XJ959) .

Table.9 List of Camera Link™ Configuration

Legends : ○ : Available、- : Not Available

	Monochrome		RGB Color	
	8bit	10bit	24bit	30bit
Base	○(2tap)	○(2tap)	○(1tap)	-
Medium	○(4tap)	○(4tap)	○(2tap)	○(1tap)
Full	-	○(6tap)	○(3tap)	○(2tap)
Deca	○(10tap)	○(8tap)	-	-

Table.10 List of Picture Data Output Connector by Output Ch. and Configurations (for KD6R1064/1247DXL-NL)

Camera Link™ Configuration		Output Ch.	Picture data output connector
Base	24bit RGB Color, 8bit Monochrome, 10bit Monochrome	2ch Output	D1,D3,D5,D7
		1ch Output	D1,D5
Medium	24bit RGB Color, 30bit RGB Color 8bit Monochrome, 10bit Monochrome	2ch Output	(D1,D2),(D3,D4),(D5,D6),(D7,D8)*
		1ch Output	(D1,D2),(D5,D6)*
Full	24bit RGB Color, 30bit RGB Color, 10bit Monochrome	2ch Output	(D1,D2),(D3,D4),(D5,D6),(D7,D8)*
		1ch Output	(D1,D2),(D5,D6)*
Deca	8bit Monochrome, 10bit Monochrome	2ch Output	(D1,D2),(D3,D4),(D5,D6),(D7,D8)*
		1ch Output	(D1,D2),(D5,D6)*

※When using CIS under the output condition shown in page12-30, above connectors marked by “()” becomes output interface of Camera Link™ and outputs the picture data. Serial commutation is available from D1 connector. (Master port is D1 connector.)

Table.11 List of Picture Data Output Connector by Output Ch and Configurations (for KD6R1688DXL-NL)

Camera Link™ Configuration		Output Ch.	Picture data output connector
Base	24bit RGB Color, 8bit Monochrome 10bit Monochrome	2ch Output	D1,D3,D5,D7,D9,D11
		1ch Output	D1,D5,D9
Medium	24bit RGB Color, 30bit RGB Color 8bit Monochrome, 10bit Monochrome	2ch Output	(D1,D2),(D3,D4),(D5,D6),(D7,D8),(D9,D10),(D11,D12)*
		1ch Output	(D1,D2),(D5,D6),(D9,D10)*
Full	24bit RGB Color, 30bit RGB Color, 10bit Monochrome	2ch Output	(D1,D2),(D3,D4),(D5,D6),(D7,D8),(D9,D10),(D11,D12)*
		1ch Output	(D1,D2),(D5,D6),(D9,D10)*
Deca	8bit Monochrome, 10bit Monochrome	2ch Output	(D1,D2),(D3,D4),(D5,D6),(D7,D8),(D9,D10),(D11,D12)*
		1ch Output	(D1,D2),(D5,D6),(D9,D10)*

※When using CIS under the output condition shown in page12-30, above connectors marked by “()” becomes output interface of Camera Link™ and outputs the picture data. Serial commutation is available from D5 connector. (Master port is D5 connector.)

Table.12 List of output pixels by connector sets when using “2ch Output”
(Color / Monochrome)

KD6R1064DXL-NL

(In case of "Disable" overlap between output connectors (For example, 144pixel@600dpi))

Resolutions	Interpolation	Output Pixels by Connector Sets when using “2ch Output”(pixel)			
		D1,D2 (D1 for Base Configuration Only)	D3,D4 (D3 for Base Configuration Only)	D5,D6 (D5 for Base Configuration Only)	D7,D8 (D7 for Base Configuration Only)
600dpi	Disable	1～6048	6049～12096	12097～18576	18577～25056
	Enable	1～6073	6074～12145	12146～18644	18645～25143
300dpi	Disable	1～3024	3025～6048	6049～9288	9289～12528
200dpi	Disable	1～2016	2017～4032	4033～6192	6193～8352
150dpi	Disable	1～1512	1513～3024	3025～4644	4645～6264

(In case of "Enable" overlap between output connectors (For example, 144pixel@600dpi))

Resolutions	Interpolation	Output pixels by connector sets when using “2ch Output”(pixel)			
		D1,D2 (D1 for Base Configuration Only)	D3,D4 (D3 for Base Configuration Only)	D5,D6 (D5 for Base Configuration Only)	D7,D8 (D7 for Base Configuration Only)
600dpi	Disable	1～6192 (6048+Overlap 144 pixel)	6049～12240 (12096+ Overlap 144 pixel)	12097～18716 (18504+ Overlap 144 pixel)	18505～25056 (No overlapped)
	Enable	1～6217 (6073+ Overlap 144 pixel)	6074～12289 (12145+ Overlap 144 pixel)	12146～18716 (18572+ Overlap 144 pixel)	18573～25143 (No overlapped)
300dpi	Disable	1～3096 (3024+ Overlap 72 pixel)	3025～6120 (6048+ Overlap 72 pixel)	6049～9324 (9252+ Overlap 72 pixel)	9253～12528 (No overlapped)
200dpi	Disable	1～2064 (2016+ Overlap 48pixel)	2017～4080 (4032+ Overlap 48pixel)	4033～6216 (6168+ Overlap 48pixel)	6169～8352 (No overlapped)
150dpi	Disable	1～1548 (1512+ Overlap 36pixel)	1513～3060 (3024+ Overlap 36pixel)	3024～4662 (4626+ Overlap 36pixel)	4627～6264 (No overlapped)

KD6R1247DXL-NL**(In case of "Disable" overlap between output connectors (For example, 144pixel@600dpi))**

Resolutions	Interpolation	Output pixels by connector sets when using "2ch Output"(pixel)			
		D1,D2 (D1 for Base Configuration Only)	D3,D4 (D3 for Base Configuration Only)	D5,D6 (D5 for Base Configuration Only)	D7,D8 (D7 for Base Configuration Only)
600dpi	Disable	1 ~ 6912	6913 ~ 13824	13825 ~ 21600	21601 ~ 29376
	Enable	1 ~ 6936	6937 ~ 13872	13873 ~ 21675	21676 ~ 29478
300dpi	Disable	1 ~ 3456	3457 ~ 6912	6913 ~ 10800	10801 ~ 14688
200dpi	Disable	1 ~ 2304	2305 ~ 4608	4609 ~ 7200	7201 ~ 9792
150dpi	Disable	1 ~ 1728	1729 ~ 3456	3457 ~ 5400	5401 ~ 7344

(In case of "Enable" overlap between output connectors (For example, 144pixel@600dpi))

Resolutions	Interpolation	Output pixels by connector sets when using "2ch Output"(pixel)			
		D1,D2 (D1 for Base Configuration Only)	D3,D4 (D3 for Base Configuration Only)	D5,D6 (D5 for Base Configuration Only)	D7,D8 (D7 for Base Configuration Only)
600dpi	Disable	1 ~ 7058 (6912+ Overlap 144 pixel)	6913 ~ 13968 (13824+ Overlap 144 pixel)	13825 ~ 21672 (21528+ Overlap 144 pixel)	21529 ~ 29376 (No overlapped)
	Enable	1 ~ 7080 (6936+ Overlap 144 pixel)	6937 ~ 14016 (13872+ Overlap 144 pixel)	13873 ~ 21747 (21603+ Overlap 144 pixel)	21604 ~ 29478 (No overlapped)
300dpi	Disable	1 ~ 3528 (3456+ Overlap 72 pixel)	3457 ~ 6984 (6912+ Overlap 72 pixel)	6913 ~ 10836 (10764+ Overlap 72 pixel)	10765 ~ 14688 (No overlapped)
200dpi	Disable	1 ~ 2352 (2304+ Overlap 48pixel)	2305 ~ 4656 (4608+ Overlap 48pixel)	4609 ~ 7224 (7176+ Overlap 48pixel)	7177 ~ 9792 (No overlapped)
150dpi	Disable	1 ~ 1764 (1728+ Overlap 36pixel)	1729 ~ 3492 (3456+ Overlap 36pixel)	3457 ~ 5418 (5382+ Overlap 36pixel)	5383 ~ 7344 (No overlapped)

KD6R1688DXL-NL

((In case of "Disable" overlap between output connectors (For example, 144pixel@600dpi))

Resolution	Interpolation	Output pixels by connector sets when using "2ch Output"(pixel)					
		D1,D2 (D1 for Base Configuration Only)	D3,D4 (D3 for Base Configuration Only)	D5,D6 (D5 for Base Configuration Only)	D7,D8 (D7 for Base Configuration Only)	D9,D10 (D9 for Base Configuration Only)	D11,D12 (D11 for Base Configuration Only)
600dpi	Disable	1～6912	6913～13824	13825～20304	20305～26784	26785～33264	33265～39744
	Enable	1～6936	6937～13872	13873～20378	20379～26884	26885～33383	33384～39882
300dpi	Disable	1～3456	3457～6912	6913～10152	10153～13392	13393～16632	16633～19872
200dpi	Disable	1～2304	2305～4608	4609～6768	6769～8928	8929～11088	11089～13248
150dpi	Disable	1～1728	1729～3456	3457～5076	5077～6696	6697～8316	8317～9936

(In case of "Enable" overlap between output connectors (For example, 144pixel@600dpi))

Resolution	Interpolation	Output pixels by connector sets when using "2ch Output"(pixel)					
		D1,D2 (D1 for Base Configuration Only)	D3,D4 (D3 for Base Configuration Only)	D5,D6 (D5 for Base Configuration Only)	D7,D8 (D7 for Base Configuration Only)	D9,D10 (D9 for Base Configuration Only)	D11,D12 (D11 for Base Configuration Only)
600dpi	Disable	1～7056 (6912+ Overlap 144 pixel)	6913～13968 (13824+Overlap 144 pixel)	13825～20448 (20304+Overlap 144 pixel)	20449～26928 (26784+ Overlap 144 pixel)	26785～33336 (33192+Overlap 144 pixel)	33193～39744 (No overlapped)
	Enable	1～7080 (6936+ Overlap 144 pixel)	6937～14016 (13872+ Overlap 144 pixel)	13873～20522 (20378+ Overlap 144 pixel)	20379～27028 (26884+ Overlap 144 pixel)	26885～33455 (33311+ Overlap 144 pixel)	33312～39882 (No overlapped)
300dpi	Disable	1～3528 (3456+ Overlap 72 pixel)	3457～6984 (6912+ Overlap 72 pixel)	6913～10224 (10152+ Overlap 72 pixel)	10153～13464 (13392+ Overlap 72 pixel)	13393～16668 (16596+ Overlap 72 pixel)	16597～19872 (No overlapped)
200dpi	Disable	1～2352 (2304+ Overlap 48 pixel)	2305～4656 (4608+ Overlap 48 pixel)	4609～6816 (6768+ Overlap 48 pixel)	6769～8976 (8928+ Overlap 48 pixel)	8929～11112 (11064+ Overlap 48 pixel)	11065～13248 (No overlapped)
150dpi	Disable	1～1764 (1728+ Overlap 36 pixel)	1729～3492 (3456+ Overlap 36 pixel)	3457～5112 (5076+ Overlap 36 pixel)	5077～6632 (6696+ Overlap 36 pixel)	6697～8334 (8298+ Overlap 36 pixel)	8299～9936 (No overlapped)

Table.13 List of output pixels by connector sets when using “1ch Output”
(Color / Monochrome)

KD6R1064DXL-NL

(In case of "Disable" overlap between output connectors (For example, 144pixel@600dpi))

Resolution	Interpolation	Output pixels by connector sets when using “1ch Output”(pixel)	
		D1,D2 (D1 for Base Configuration Only)	D5,D6 (D5 for Base Configuration Only)
600dpi	Disable	1 ~ 12096	12097 ~ 25056
	Enable	1 ~ 12145	12146 ~ 25143
300dpi	Disable	1 ~ 6048	6049 ~ 12528
200dpi	Disable	1 ~ 4032	4033 ~ 8352
150dpi	Disable	1 ~ 3024	3025 ~ 6264

In case of "Enable" overlap between output connectors (For example, 144pixel@600dpi)

Resolution	Interpolation	Output pixels by connector sets when using “1ch Output”(pixel)	
		D1,D2 (D1 for Base Configuration Only)	D5,D6 (D5 for Base Configuration Only)
600dpi	Disable	1 ~ 12240 (12096+ Overlap 144 pixel)	12097 ~ 25056 (No overlapped)
	Enable	1 ~ 12289 (12145+ Overlap 144 pixel)	12146 ~ 25143 (No overlapped)
300dpi	Disable	1 ~ 6120 (6048+ Overlap 72 pixel)	6049 ~ 12600 (No overlapped)
200dpi	Disable	1 ~ 4080 (4032+ Overlap 48 pixel)	4033 ~ 8352 (No overlapped)
150dpi	Disable	1 ~ 3060 (3024+ Overlap 36 pixel)	3025 ~ 6264 (No overlapped)

KD6R1247DXL-NL**(In case of "Disable" overlap between output connectors (For example, 144pixel@600dpi))**

Resolution	Interpolation	Output pixels by connector sets when using "1ch Output"(pixel)	
		D1,D2 (D1 for Base Configuration Only)	D5,D6 (D5 for Base Configuration Only)
600dpi	Disable	1 ~ 13824	13825 ~ 29376
	Enable	1 ~ 13872	13873 ~ 29478
300dpi	Disable	1 ~ 6912	6913 ~ 14688
200dpi	Disable	1 ~ 4608	4609 ~ 9792
150dpi	Disable	1 ~ 3456	3457 ~ 7344

(In case of "Enable" overlap between output connectors (For example, 144pixel@600dpi))

Resolution	Interpolation	Output pixels by connector sets when using "1ch Output"(pixel)	
		D1,D2 (D1 for Base Configuration Only)	D5,D6 (D5 for Base Configuration Only)
600dpi	Disable	1 ~ 13968 (13824+ Overlap 144 pixel)	13825 ~ 29376 (No overlapped)
	Enable	1 ~ 14016 (13872+ Overlap 144 pixel)	13873 ~ 29478 (No overlapped)
300dpi	Disable	1 ~ 6984 (6912+ Overlap 72 pixel)	6913 ~ 14688 (No overlapped)
200dpi	Disable	1 ~ 4656 (4608+ Overlap 48 pixel)	4609 ~ 9792 (No overlapped)
150dpi	Disable	1 ~ 3492 (3456+ Overlap 36pixel)	3457 ~ 7344 (No overlapped)

KD6R1688DXL-NL**(In case of "Disable" overlap between output connectors (For example, 144pixel@600dpi))**

Resolution	Interpolation	Output pixels by connector sets when using "1ch Output"(pixel)		
		D1,D2 (D1 for Base Configuration Only)	D5,D6 (D5 for Base Configuration Only)	D9,D10 (D9 for Base Configuration Only)
600dpi	Disable	1 ~ 13824	13825 ~ 26784	26785 ~ 39744
	Enable	1 ~ 13872	13873 ~ 26884	26885 ~ 39882
300dpi	Disable	1 ~ 6912	6913 ~ 13392	13393 ~ 19872
200dpi	Disable	1 ~ 4608	4609 ~ 8928	8929 ~ 13248
150dpi	Disable	1 ~ 3456	3457 ~ 6696	6697 ~ 9936

(In case of "Enable" overlap between output connectors (For example, 144pixel@600dpi))

Resolution	Interpolation	Output pixels by connector sets when using "1ch Output"(pixel)		
		D1,D2 (D1 for Base Configuration Only)	D5,D6 (D5 for Base Configuration Only)	D9,D10 (D9 for Base Configuration Only)
600dpi	Disable	1 ~ 13968 (13824+ Overlap 144 pixel)	13825 ~ 26928 (26784+ Overlap 144 pixel)	26785 ~ 39744 (No overlapped)
	Enable	1 ~ 14016 (13872+ Overlap 144 pixel)	13873 ~ 27028 (26884+ Overlap 144 pixel)	26885 ~ 39882 (No overlapped)
300dpi	Disable	1 ~ 6984 (6912+ Overlap 72 pixel)	6913 ~ 13464 (13392+ Overlap 72 pixel)	13393 ~ 19872 (No overlapped)
200dpi	Disable	1 ~ 4656 (4608+ Overlap 48 pixel)	4609 ~ 8976 (8928+ Overlap 48 pixel)	8929 ~ 13248 (No overlapped)
150dpi	Disable	1 ~ 3492 (3456+ Overlap 36 pixel)	3457 ~ 6732 (6696+ Overlap 36 pixel)	6697 ~ 9936 (No overlapped)

6.3.2 Precautions of Camera Link™ Configurations bit assignments

Port and Camera pin name in each configurations are conformed to Camera Link™ Specification v2.1 and shown in Table.14.

Table.14 Camera Link™ port and camera Pin-Name in each configurations

	8bit/10bit Base,Medium,Full		Deca-8bit		Deca-10bit	
	Port	Camera (Pin-Name)	Port	Camera (Pin-Name)	Port	Camera (Pin-Name)
X-chip	Port A0	Tx0	Port A0'	TxiN0	Port A0''	TxiN0
	Port A1	Tx1	Port A1'	TxiN1	Port A1''	TxiN1
	Port A2	Tx2	Port A2'	TxiN2	Port A2''	TxiN2
	Port A3	Tx3	Port A3'	TxiN3	Port A3''	TxiN3
	Port A4	Tx4	Port A4'	TxiN4	Port A4''	TxiN4
	Port A5	Tx6	Port A5'	TxiN5	Port A5''	TxiN6
	Port A6	Tx27	Port A6'	TxiN6	Port A6''	TxiN27
	Port A7	Tx5	Port A7'	TxiN7	Port A7''	TxiN5
	Port B0	Tx7	Port B0'	TxiN8	Port B0''	TxiN7
	Port B1	Tx8	Port B1'	TxiN9	Port B1''	TxiN8
	Port B2	Tx9	Port B2'	TxiN10	Port B2''	TxiN9
	Port B3	Tx12	Port B3'	TxiN11	Port B3''	TxiN12
	Port B4	Tx13	Port B4'	TxiN12	Port B4''	TxiN13
	Port B5	Tx14	Port B5'	TxiN13	Port B5''	TxiN14
	Port B6	Tx10	Port B6'	TxiN14	Port B6''	TxiN10
	Port B7	Tx11	Port B7'	TxiN15	Port B7''	TxiN11
	Port C0	Tx15	Port C0'	TxiN16	Port C0''	TxiN15
	Port C1	Tx18	Port C1'	TxiN17	Port C1''	TxiN18
	Port C2	Tx19	Port C2'	TxiN18	Port C2''	TxiN19
	Port C3	Tx20	Port C3'	TxiN19	Port C3''	TxiN20
	Port C4	Tx21	Port C4'	TxiN20	Port C4''	TxiN21
	Port C5	Tx22	Port C5'	TxiN21	Port C5''	TxiN22
	Port C6	Tx16	Port C6'	TxiN22	Port C6''	TxiN16
	Port C7	Tx17	Port C7'	TxiN23	Port C7''	TxiN17
Y-chip	LVAL	Tx24	LVAL'	TxiN24	LVAL''	TxiN24
	FVAL	Tx25	FVAL'	TxiN25	FVAL''	TxiN25
	DVAL	Tx26	Port D0'	TxiN26	Port D0''	TxiN26
	(Spare)	Tx23	Port D1'	TxiN27	Port D1''	TxiN23
	Port D0	Tx0	Port D2'	TxiN0	Port D0''	TxiN0
	Port D1	Tx1	Port D3'	TxiN1	Port D1''	TxiN1
	Port D2	Tx2	Port D4'	TxiN2	Port D2''	TxiN2
	Port D3	Tx3	Port D5'	TxiN3	Port D3''	TxiN3
	Port D4	Tx4	Port D6'	TxiN4	Port D4''	TxiN4
	Port D5	Tx6	Port D7'	TxiN5	Port D5''	TxiN6
	Port D6	Tx27	Port E0'	TxiN6	Port D6''	TxiN27
	Port D7	Tx5	Port E1'	TxiN7	Port D7''	TxiN5
	Port E0	Tx7	Port E2'	TxiN8	Port E0''	TxiN7
	Port E1	Tx8	Port E3'	TxiN9	Port E1''	TxiN8
	Port E2	Tx9	Port E4'	TxiN10	Port E2''	TxiN9
	Port E3	Tx12	Port E5'	TxiN11	Port E3''	TxiN12
	Port E4	Tx13	Port E6'	TxiN12	Port E4''	TxiN13
	Port E5	Tx14	Port E7'	TxiN13	Port E5''	TxiN14
	Port E6	Tx10	Port F0'	TxiN14	Port E6''	TxiN10
	Port E7	Tx11	Port F1'	TxiN15	Port E7''	TxiN11
	Port F0	Tx15	Port F2'	TxiN16	Port F0''	TxiN15
	Port F1	Tx18	Port F3'	TxiN17	Port F1''	TxiN18
	Port F2	Tx19	Port F4'	TxiN18	Port F2''	TxiN19
Z-chip	Port F3	Tx20	Port F5'	TxiN19	Port F3''	TxiN20
	Port F4	Tx21	Port F6'	TxiN20	Port F4''	TxiN21
	Port F5	Tx22	Port F7'	TxiN21	Port F5''	TxiN22
	Port F6	Tx16	Port G0'	TxiN22	Port F6''	TxiN16
	Port F7	Tx17	Port G1'	TxiN23	Port F7''	TxiN17
	LVAL	Tx24	Port G2'	TxiN24	LVAL''	TxiN24
	FVAL	Tx25	Port G3'	TxiN25	Port I2''	TxiN25
	DVAL	Tx26	Port G4'	TxiN26	Port I3''	TxiN26
	(Spare)	Tx23	LVAL'	TxiN27	Port I4''	TxiN23
	Port G0	Tx0	Port G5'	TxiN0	Port G0''	TxiN0
	Port G1	Tx1	Port G6'	TxiN1	Port G1''	TxiN1
	Port G2	Tx2	Port G7'	TxiN2	Port G2''	TxiN2
	Port G3	Tx3	Port H0'	TxiN3	Port G3''	TxiN3
	Port G4	Tx4	Port H1'	TxiN4	Port G4''	TxiN4
	Port G5	Tx6	Port H2'	TxiN5	Port G5''	TxiN6
	Port G6	Tx27	Port H3'	TxiN6	Port G6''	TxiN27
	Port G7	Tx5	Port H4'	TxiN7	Port G7''	TxiN5
	Port H0	Tx7	Port H5'	TxiN8	Port H0''	TxiN7
	Port H1	Tx8	Port H6'	TxiN9	Port H1''	TxiN8
	Port H2	Tx9	Port H7'	TxiN10	Port H2''	TxiN9
	Port H3	Tx12	Port I0'	TxiN11	Port H3''	TxiN12
	Port H4	Tx13	Port I1'	TxiN12	Port H4''	TxiN13
	Port H5	Tx14	Port I2'	TxiN13	Port H5''	TxiN14
	Port H6	Tx10	Port I3'	TxiN14	Port H6''	TxiN10
	Port H7	Tx11	Port I4'	TxiN15	Port H7''	TxiN11
	Port I0	Tx15	Port I5'	TxiN16	Port I5''	TxiN15
	Port I1	Tx18	Port I6'	TxiN17	Port I6''	TxiN18
	Port I2	Tx19	Port I7'	TxiN18	Port I7''	TxiN19
	Port I3	Tx20	Port J0'	TxiN19	Port K0''	TxiN20
	Port I4	Tx21	Port J1'	TxiN20	Port K1''	TxiN21
	Port I5	Tx22	Port J2'	TxiN21	Port K2''	TxiN22
	Port I6	Tx16	Port J3'	TxiN22	Port K3''	TxiN16
	Port I7	Tx17	Port J4'	TxiN23	Port K4''	TxiN17
	LVAL	Tx24	Port J5'	TxiN24	LVAL''	TxiN24
	FVAL	Tx25	Port J6'	TxiN25	Port K5''	TxiN25
	DVAL	Tx26	Port J7'	TxiN26	Port K6''	TxiN26
	(Spare)	Tx23	LVAL'	TxiN27	Port K7''	TxiN23

6.3.3 Base Configuration①(24bit RGB Color)

(Connector) D1/D3/D5/D7 KD6R1064DXL-NL KD6R1247DXL-NL	/D9/D11
KD6R1688DXL-NL	

Table.15 Camera Link™ Base Configuration bit assignment (a)
24bit RGB Color
(Conformed to Camera Link™ v2.1 Specification)
(Same bit assignment as KDAX3 Specification)

1ch Output			2ch Output		
Port	Connector D1, D5, D9	Connector D3, D7, D11	Port	Connector D1, D5, D9	Connector D3, D7, D11
Port A0	R1[0](LSB)	nc	Port A0	R1[0](LSB)	R2[0](LSB)
Port A1	R1[1]	nc	Port A1	R1[1]	R2[1]
Port A2	R1[2]	nc	Port A2	R1[2]	R2[2]
Port A3	R1[3]	nc	Port A3	R1[3]	R2[3]
Port A4	R1[4]	nc	Port A4	R1[4]	R2[4]
Port A5	R1[5]	nc	Port A5	R1[5]	R2[5]
Port A6	R1[6]	nc	Port A6	R1[6]	R2[6]
Port A7	R1[7](MSB)	nc	Port A7	R1[7](MSB)	R2[7](MSB)
Port B0	G1[0](LSB)	nc	Port B0	G1[0](LSB)	G2[0](LSB)
Port B1	G1[1]	nc	Port B1	G1[1]	G2[1]
Port B2	G1[2]	nc	Port B2	G1[2]	G2[2]
Port B3	G1[3]	nc	Port B3	G1[3]	G2[3]
Port B4	G1[4]	nc	Port B4	G1[4]	G2[4]
Port B5	G1[5]	nc	Port B5	G1[5]	G2[5]
Port B6	G1[6]	nc	Port B6	G1[6]	G2[6]
Port B7	G1[7](MSB)	nc	Port B7	G1[7](MSB)	G2[7](MSB)
Port C0	B1[0](LSB)	nc	Port C0	B1[0](LSB)	B2[0](LSB)
Port C1	B1[1]	nc	Port C1	B1[1]	B2[1]
Port C2	B1[2]	nc	Port C2	B1[2]	B2[2]
Port C3	B1[3]	nc	Port C3	B1[3]	B2[3]
Port C4	B1[4]	nc	Port C4	B1[4]	B2[4]
Port C5	B1[5]	nc	Port C5	B1[5]	B2[5]
Port C6	B1[6]	nc	Port C6	B1[6]	B2[6]
Port C7	B1[7](MSB)	nc	Port C7	B1[7](MSB)	B2[7](MSB)
LVAL	LVAL	nc	LVAL	LVAL	LVAL
FVAL	FVAL	nc	FVAL	FVAL	FVAL
DVAL	DVAL	nc	DVAL	DVAL	DVAL

Table.16 Definition of symbols - Base Configuration bit assignment (a)

Signal Name	Logical	IN/OUT	Function
R1,2[7:0]	Positive	OUT	Red Output Data (R1,2[0]:LSB、R1,2[7]:MSB)、8bit
G1,2[7:0]	Positive	OUT	Green Output Data (G1,2[0]:LSB、G1,2[7]:MSB)、8bit
B1,2[7:0]	Positive	OUT	Blue Output Data (B1,2[0]:LSB、B1,2[7]:MSB)、8bit
LVAL	Positive	OUT	Line Valid Signal (Valid Line)
FVAL	Positive	OUT	Frame Valid Signal (Valid Frame)
DVAL	Positive	OUT	Data Valid Signal

6.3.4 Base Configuration②(8bit Monochrome)

(Connector) D1/D3/D5/D7 KD6R1064DXL-NL KD6R1247DXL-NL	/D9/D11
KD6R1688DXL-NL	

Table.17 Camera Link™ Base Configuration bit assignment (b)
8bit Monochrome
(Conformed to Camera Link™ v2.1 Specification)
(Same bit assignment as KDMX Specification)

1ch Output			2ch Output		
Port	Connector D1, D5, D9	Connector D3, D7, D11	Port	Connector D1, D5, D9	Connector D3, D7, D11
Port A0	M1[0](LSB)	nc	Port A0	M1[0](LSB)	M3[0](LSB)
Port A1	M1[1]	nc	Port A1	M1[1]	M3[1]
Port A2	M1[2]	nc	Port A2	M1[2]	M3[2]
Port A3	M1[3]	nc	Port A3	M1[3]	M3[3]
Port A4	M1[4]	nc	Port A4	M1[4]	M3[4]
Port A5	M1[5]	nc	Port A5	M1[5]	M3[5]
Port A6	M1[6]	nc	Port A6	M1[6]	M3[6]
Port A7	M1[7](MSB)	nc	Port A7	M1[7](MSB)	M3[7](MSB)
Port B0	M2[0](LSB)	nc	Port B0	M2[0](LSB)	M4[0](LSB)
Port B1	M2[1]	nc	Port B1	M2[1]	M4[1]
Port B2	M2[2]	nc	Port B2	M2[2]	M4[2]
Port B3	M2[3]	nc	Port B3	M2[3]	M4[3]
Port B4	M2[4]	nc	Port B4	M2[4]	M4[4]
Port B5	M2[5]	nc	Port B5	M2[5]	M4[5]
Port B6	M2[6]	nc	Port B6	M2[6]	M4[6]
Port B7	M2[7](MSB)	nc	Port B7	M2[7](MSB)	M4[7](MSB)
Port C0	nc	nc	Port C0	nc	nc
Port C1	nc	nc	Port C1	nc	nc
Port C2	nc	nc	Port C2	nc	nc
Port C3	nc	nc	Port C3	nc	nc
Port C4	nc	nc	Port C4	nc	nc
Port C5	nc	nc	Port C5	nc	nc
Port C6	nc	nc	Port C6	nc	nc
Port C7	nc	nc	Port C7	nc	nc
LVAL	LVAL	nc	LVAL	LVAL	LVAL
FVAL	FVAL	nc	FVAL	FVAL	FVAL
DVAL	DVAL	nc	DVAL	DVAL	DVAL

Table.18 Definition of symbols- Base Configuration bit assignment (b)

Signal Name	Logical	IN/OUT	Function
M1-4[7:0]	Positive	OUT	Monochrome Output Data (M1-4[0]:LSB、M1-4[7]:MSB)、8bit
LVAL	Positive	OUT	Line Valid Signal (Valid Line)
FVAL	Positive	OUT	Frame Valid Signal (Valid Frame)
DVAL	Positive	OUT	Data Valid Signal

6.3.5 Base Configuration③(10bit Monochrome)

(Connector) D1/D3/D5/D7 /D9/D11 KD6R1064DXL-NL KD6R1247DXL-NL KD6R1688DXL-NL
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Table.19 Camera Link™ Base Configuration bit assignment (c)
10bit Monochrome
(Conformed to Camera Link™ v2.1 Specification)
(Same bit assignment as KDMX Specification)

1ch Output			2ch Output		
Port	Connector D1, D5, D9	Connector D3, D7, D11	Port	Connector D1, D5, D9	Connector D3, D7, D11
Port A0	M1[0](LSB)	nc	Port A0	M1[0](LSB)	M3[0](LSB)
Port A1	M1[1]	nc	Port A1	M1[1]	M3[1]
Port A2	M1[2]	nc	Port A2	M1[2]	M3[2]
Port A3	M1[3]	nc	Port A3	M1[3]	M3[3]
Port A4	M1[4]	nc	Port A4	M1[4]	M3[4]
Port A5	M1[5]	nc	Port A5	M1[5]	M3[5]
Port A6	M1[6]	nc	Port A6	M1[6]	M3[6]
Port A7	M1[7]	nc	Port A7	M1[7]	M3[7]
Port B0	M1[8]	nc	Port B0	M1[8]	M3[8]
Port B1	M1[9](MSB)	nc	Port B1	M1[9](MSB)	M3[9](MSB)
Port B2	nc	nc	Port B2	nc	nc
Port B3	nc	nc	Port B3	nc	nc
Port B4	M2[8]	nc	Port B4	M2[8]	M4[8]
Port B5	M2[9](MSB)	nc	Port B5	M2[9](MSB)	M4[9](MSB)
Port B6	nc	nc	Port B6	nc	nc
Port B7	nc	nc	Port B7	nc	nc
Port C0	M2[0](LSB)	nc	Port C0	M2[0](LSB)	M4[0](LSB)
Port C1	M2[1]	nc	Port C1	M2[1]	M4[1]
Port C2	M2[2]	nc	Port C2	M2[2]	M4[2]
Port C3	M2[3]	nc	Port C3	M2[3]	M4[3]
Port C4	M2[4]	nc	Port C4	M2[4]	M4[4]
Port C5	M2[5]	nc	Port C5	M2[5]	M4[5]
Port C6	M2[6]	nc	Port C6	M2[6]	M4[6]
Port C7	M2[7]	nc	Port C7	M2[7]	M4[7]
LVAL	LVAL	nc	LVAL	LVAL	LVAL
FVAL	FVAL	nc	FVAL	FVAL	FVAL
DVAL	DVAL	nc	DVAL	DVAL	DVAL

Table.20 Definition of symbols-Base Configuration bit assignment (c)

Signal Name	Logical	IN/OUT	Function
M1-4[7:0]	Positive	OUT	Monochrome Output Data (M1-4[0]:LSB、 M1-4[9]:MSB)、 10bit
LVAL	Positive	OUT	Line Valid Signal (Valid Line)
FVAL	Positive	OUT	Frame Valid Signal (Valid Frame)
DVAL	Positive	OUT	Data Valid Signal

6.3.6 Medium Configuration①(24bit RGB Color)

(Connector)	
D1/D2/D3/D4/D5/D6/D7/D8	/D9/D10/D11/D12
KD6R1064DXL-NL	
KD6R1247DXL-NL	
KD6R1688DXL-NL	

Table.21 Camera Link™ Medium Configuration bit assignment (a)
24bit RGB Color
(Conformed to Camera Link™ v2.1 Specification)
(Same bit assignment as KDAX3 Specification)

1ch Output					
Port	Connector D1, D5, D9	Connector D3, D7, D11	Port	Connector D2, D6, D10	Connector D4, D8, D12
Port A0	R1[0](LSB)	nc	Port D0	R2[0](LSB)	nc
Port A1	R1[1]	nc	Port D1	R2[1]	nc
Port A2	R1[2]	nc	Port D2	R2[2]	nc
Port A3	R1[3]	nc	Port D3	R2[3]	nc
Port A4	R1[4]	nc	Port D4	R2[4]	nc
Port A5	R1[5]	nc	Port D5	R2[5]	nc
Port A6	R1[6]	nc	Port D6	R2[6]	nc
Port A7	R1[7](MSB)	nc	Port D7	R2[7](MSB)	nc
Port B0	G1[0](LSB)	nc	Port E0	G2[0](LSB)	nc
Port B1	G1[1]	nc	Port E1	G2[1]	nc
Port B2	G1[2]	nc	Port E2	G2[2]	nc
Port B3	G1[3]	nc	Port E3	G2[3]	nc
Port B4	G1[4]	nc	Port E4	G2[4]	nc
Port B5	G1[5]	nc	Port E5	G2[5]	nc
Port B6	G1[6]	nc	Port E6	G2[6]	nc
Port B7	G1[7](MSB)	nc	Port E7	G2[7](MSB)	nc
Port C0	B1[0](LSB)	nc	Port F0	B2[0](LSB)	nc
Port C1	B1[1]	nc	Port F1	B2[1]	nc
Port C2	B1[2]	nc	Port F2	B2[2]	nc
Port C3	B1[3]	nc	Port F3	B2[3]	nc
Port C4	B1[4]	nc	Port F4	B2[4]	nc
Port C5	B1[5]	nc	Port F5	B2[5]	nc
Port C6	B1[6]	nc	Port F6	B2[6]	nc
Port C7	B1[7](MSB)	nc	Port F7	B2[7](MSB)	nc
LVAL	LVAL	nc	LVAL	LVAL	nc
FVAL	FVAL	nc	FVAL	FVAL	nc
DVAL	DVAL	nc	DVAL	DVAL	nc

2ch Output					
Port	Connector D1, D5, D9	Connector D3, D7, D11	Port	Connector D2, D6, D10	Connector D4, D8, D12
Port A0	R1[0](LSB)	R3[0](LSB)	Port D0	R2[0](LSB)	R4[0](LSB)
Port A1	R1[1]	R3[1]	Port D1	R2[1]	R4[1]
Port A2	R1[2]	R3[2]	Port D2	R2[2]	R4[2]
Port A3	R1[3]	R3[3]	Port D3	R2[3]	R4[3]
Port A4	R1[4]	R3[4]	Port D4	R2[4]	R4[4]
Port A5	R1[5]	R3[5]	Port D5	R2[5]	R4[5]
Port A6	R1[6]	R3[6]	Port D6	R2[6]	R4[6]
Port A7	R1[7](MSB)	R3[7](MSB)	Port D7	R2[7](MSB)	R4[7](MSB)
Port B0	G1[0](LSB)	G3[0](LSB)	Port E0	G2[0](LSB)	G4[0](LSB)
Port B1	G1[1]	G3[1]	Port E1	G2[1]	G4[1]
Port B2	G1[2]	G3[2]	Port E2	G2[2]	G4[2]
Port B3	G1[3]	G3[3]	Port E3	G2[3]	G4[3]
Port B4	G1[4]	G3[4]	Port E4	G2[4]	G4[4]
Port B5	G1[5]	G3[5]	Port E5	G2[5]	G4[5]
Port B6	G1[6]	G3[6]	Port E6	G2[6]	G4[6]
Port B7	G1[7](MSB)	G3[7](MSB)	Port E7	G2[7](MSB)	G4[7](MSB)
Port C0	B1[0](LSB)	B3[0](LSB)	Port F0	B2[0](LSB)	B4[0](LSB)
Port C1	B1[1]	B3[1]	Port F1	B2[1]	B4[1]
Port C2	B1[2]	B3[2]	Port F2	B2[2]	B4[2]
Port C3	B1[3]	B3[3]	Port F3	B2[3]	B4[3]
Port C4	B1[4]	B3[4]	Port F4	B2[4]	B4[4]
Port C5	B1[5]	B3[5]	Port F5	B2[5]	B4[5]
Port C6	B1[6]	B3[6]	Port F6	B2[6]	B4[6]
Port C7	B1[7](MSB)	B3[7](MSB)	Port F7	B2[7](MSB)	B4[7](MSB)
LVAL	LVAL	LVAL	LVAL	LVAL	LVAL
FVAL	FVAL	FVAL	FVAL	FVAL	FVAL
DVAL	DVAL	DVAL	DVAL	DVAL	DVAL

Table.22 Definition of symbols-Medium Configuration bit assignment (a)

Signal Name	Logical	IN/OUT	Function
R1-4[7:0]	Positive	OUT	Red Output Data (R1-4[0]:LSB、R1-4[7]:MSB)、8bit
G1-4[7:0]	Positive	OUT	Green Output Data (G1-4[0]:LSB、G1-4[7]:MSB)、8bit
B1-4[7:0]	Positive	OUT	Blue Output Data (B1-4[0]:LSB、B1-4[7]:MSB)、8bit
LVAL	Positive	OUT	Line Valid Signal (Valid Line)
FVAL	Positive	OUT	Frame Valid Signal (Valid Frame)
DVAL	Positive	OUT	Data Valid Signal

6.3.7 Medium Configuration②(30bit RGB Color)

(Connector) D1/D2/D3/D4/D5/D6/D7/D8 KD6R1064DXL-NL KD6R1247DXL-NL	/D9/D10/D11/D12
KD6R1688DXL-NL	

Table.23 Camera Link™ Medium Configuration bit assignment (b)
30bit RGB Color
(Conformed to Camera Link™ v2.1 Specification)
(Same bit assignment as KDAX3 Specification)

1ch Output					
Port	Connector D1, D5, D9	Connector D3, D7, D11	Port	Connector D2, D6, D10	Connector D4, D8, D12
Port A0	R1[0](LSB)	nc	Port D0	nc	nc
Port A1	R1[1]	nc	Port D1	nc	nc
Port A2	R1[2]	nc	Port D2	nc	nc
Port A3	R1[3]	nc	Port D3	nc	nc
Port A4	R1[4]	nc	Port D4	nc	nc
Port A5	R1[5]	nc	Port D5	nc	nc
Port A6	R1[6]	nc	Port D6	nc	nc
Port A7	R1[7]	nc	Port D7	nc	nc
Port B0	R1[8]	nc	Port E0	G1[0](LSB)	nc
Port B1	R1[9](MSB)	nc	Port E1	G1[1]	nc
Port B2	nc	nc	Port E2	G1[2]	nc
Port B3	nc	nc	Port E3	G1[3]	nc
Port B4	B1[8]	nc	Port E4	G1[4]	nc
Port B5	B1[9](MSB)	nc	Port E5	G1[5]	nc
Port B6	nc	nc	Port E6	G1[6]	nc
Port B7	nc	nc	Port E7	G1[7]	nc
Port C0	B1[0](LSB)	nc	Port F0	G1[8]	nc
Port C1	B1[1]	nc	Port F1	G1[9](MSB)	nc
Port C2	B1[2]	nc	Port F2	nc	nc
Port C3	B1[3]	nc	Port F3	nc	nc
Port C4	B1[4]	nc	Port F4	nc	nc
Port C5	B1[5]	nc	Port F5	nc	nc
Port C6	B1[6]	nc	Port F6	nc	nc
Port C7	B1[7]	nc	Port F7	nc	nc
LVAL	LVAL	nc	LVAL	LVAL	nc
FVAL	FVAL	nc	FVAL	FVAL	nc
DVAL	DVAL	nc	DVAL	DVAL	nc

2ch Output					
Port	Connector D1, D5, D9	Connector D3, D7, D11	Port	Connector D2, D6, D10	Connector D4, D8, D12
Port A0	R1[0](LSB)	R2[0](LSB)	Port D0	nc	nc
Port A1	R1[1]	R2[1]	Port D1	nc	nc
Port A2	R1[2]	R2[2]	Port D2	nc	nc
Port A3	R1[3]	R2[3]	Port D3	nc	nc
Port A4	R1[4]	R2[4]	Port D4	nc	nc
Port A5	R1[5]	R2[5]	Port D5	nc	nc
Port A6	R1[6]	R2[6]	Port D6	nc	nc
Port A7	R1[7]	R2[7]	Port D7	nc	nc
Port B0	R1[8]	R2[8]	Port E0	G1[0](LSB)	G2[0](LSB)
Port B1	R1[9](MSB)	R2[9](MSB)	Port E1	G1[1]	G2[1]
Port B2	nc	nc	Port E2	G1[2]	G2[2]
Port B3	nc	nc	Port E3	G1[3]	G2[3]
Port B4	B1[8]	B2[8]	Port E4	G1[4]	G2[4]
Port B5	B1[9](MSB)	B2[9](MSB)	Port E5	G1[5]	G2[5]
Port B6	nc	nc	Port E6	G1[6]	G2[6]
Port B7	nc	nc	Port E7	G1[7]	G2[7]
Port C0	B1[0](LSB)	B2[0](LSB)	Port F0	G1[8]	G2[8]
Port C1	B1[1]	B2[1]	Port F1	G1[9](MSB)	G2[9](MSB)
Port C2	B1[2]	B2[2]	Port F2	nc	nc
Port C3	B1[3]	B2[3]	Port F3	nc	nc
Port C4	B1[4]	B2[4]	Port F4	nc	nc
Port C5	B1[5]	B2[5]	Port F5	nc	nc
Port C6	B1[6]	B2[6]	Port F6	nc	nc
Port C7	B1[7]	B2[7]	Port F7	nc	nc
LVAL	LVAL	LVAL	LVAL	LVAL	LVAL
FVAL	FVAL	FVAL	FVAL	FVAL	FVAL
DVAL	DVAL	DVAL	DVAL	DVAL	DVAL

Table.24 Definition of symbols-Medium Configuration bit assignment (b)

Signal Name	Logical	IN/OUT	Function
R1,2[9:0]	Positive	OUT	Red Output Data (R1,2[0]:LSB、R1,2[9]:MSB)、10bit
G1,2[9:0]	Positive	OUT	Green Output Data (G1,2[0]:LSB、G1,2[9]:MSB)、10bit
B1,2[9:0]	Positive	OUT	Blue Output Data (B1,2[0]:LSB、B1,2[9]:MSB)、10bit
LVAL	Positive	OUT	Line Valid Signal (Valid Line)
FVAL	Positive	OUT	Frame Valid Signal (Valid Frame)
DVAL	Positive	OUT	Data Valid Signal

6.3.8 Medium Configuration③(8bit Monochrome)

(Connector) D1/D2/D3/D4/D5/D6/D7/D8 KD6R1064DXL-NL KD6R1247DXL-NL	/D9/D10/D11/D12
KD6R1688DXL-NL	

Table.25 Camera Link™ Medium Configuration bit assignment (c)
8bit Monochrome
(Conformed to Camera Link™ v2.1 Specification)
(Same bit assignment as KDMX Specification)

1ch Output					
Port	Connector D1, D5, D9	Connector D3, D7, D11	Port	Connector D2, D6, D10	Connector D4, D8, D12
Port A0	M1[0](LSB)	nc	Port D0	M4[0](LSB)	nc
Port A1	M1[1]	nc	Port D1	M4[1]	nc
Port A2	M1[2]	nc	Port D2	M4[2]	nc
Port A3	M1[3]	nc	Port D3	M4[3]	nc
Port A4	M1[4]	nc	Port D4	M4[4]	nc
Port A5	M1[5]	nc	Port D5	M4[5]	nc
Port A6	M1[6]	nc	Port D6	M4[6]	nc
Port A7	M1[7](MSB)	nc	Port D7	M4[7](MSB)	nc
Port B0	M2[0](LSB)	nc	Port E0	nc	nc
Port B1	M2[1]	nc	Port E1	nc	nc
Port B2	M2[2]	nc	Port E2	nc	nc
Port B3	M2[3]	nc	Port E3	nc	nc
Port B4	M2[4]	nc	Port E4	nc	nc
Port B5	M2[5]	nc	Port E5	nc	nc
Port B6	M2[6]	nc	Port E6	nc	nc
Port B7	M2[7](MSB)	nc	Port E7	nc	nc
Port C0	M3[0](LSB)	nc	Port F0	nc	nc
Port C1	M3[1]	nc	Port F1	nc	nc
Port C2	M3[2]	nc	Port F2	nc	nc
Port C3	M3[3]	nc	Port F3	nc	nc
Port C4	M3[4]	nc	Port F4	nc	nc
Port C5	M3[5]	nc	Port F5	nc	nc
Port C6	M3[6]	nc	Port F6	nc	nc
Port C7	M3[7](MSB)	nc	Port F7	nc	nc
LVAL	LVAL	nc	LVAL	LVAL	nc
FVAL	FVAL	nc	FVAL	FVAL	nc
DVAL	DVAL	nc	DVAL	DVAL	nc

2ch Output					
Port	Connector D1, D5, D9	Connector D3, D7, D11	Port	Connector D2, D6, D10	Connector D4, D8, D12
Port A0	M1[0](LSB)	M5[0](LSB)	Port D0	M4[0](LSB)	M8[0](LSB)
Port A1	M1[1]	M5[1]	Port D1	M4[1]	M8[1]
Port A2	M1[2]	M5[2]	Port D2	M4[2]	M8[2]
Port A3	M1[3]	M5[3]	Port D3	M4[3]	M8[3]
Port A4	M1[4]	M5[4]	Port D4	M4[4]	M8[4]
Port A5	M1[5]	M5[5]	Port D5	M4[5]	M8[5]
Port A6	M1[6]	M5[6]	Port D6	M4[6]	M8[6]
Port A7	M1[7](MSB)	M5[7](MSB)	Port D7	M4[7](MSB)	M8[7](MSB)
Port B0	M2[0](LSB)	M6[0](LSB)	Port E0	nc	nc
Port B1	M2[1]	M6[1]	Port E1	nc	nc
Port B2	M2[2]	M6[2]	Port E2	nc	nc
Port B3	M2[3]	M6[3]	Port E3	nc	nc
Port B4	M2[4]	M6[4]	Port E4	nc	nc
Port B5	M2[5]	M6[5]	Port E5	nc	nc
Port B6	M2[6]	M6[6]	Port E6	nc	nc
Port B7	M2[7](MSB)	M6[7](MSB)	Port E7	nc	nc
Port C0	M3[0](LSB)	M7[0](LSB)	Port F0	nc	nc
Port C1	M3[1]	M7[1]	Port F1	nc	nc
Port C2	M3[2]	M7[2]	Port F2	nc	nc
Port C3	M3[3]	M7[3]	Port F3	nc	nc
Port C4	M3[4]	M7[4]	Port F4	nc	nc
Port C5	M3[5]	M7[5]	Port F5	nc	nc
Port C6	M3[6]	M7[6]	Port F6	nc	nc
Port C7	M3[7](MSB)	M7[7](MSB)	Port F7	nc	nc
LVAL	LVAL	LVAL	LVAL	LVAL	LVAL
FVAL	FVAL	FVAL	FVAL	FVAL	FVAL
DVAL	DVAL	DVAL	DVAL	DVAL	DVAL

※Camera Link™ is a registered trademark of AIA (Automated Imaging Association).

Table.26 Definition of symbols-Medium Configuration bit assignment (c)

Signal Name	Logical	IN/OUT	Function
M1-8[7:0]	Positive	OUT	Monochrome Output Data (M1-8[0]:LSB、M1-8[7]:MSB)、8bit
LVAL	Positive	OUT	Line Valid Signal (Valid Line)
FVAL	Positive	OUT	Frame Valid Signal (Valid Frame)
DVAL	Positive	OUT	Data Valid Signal

6.3.9 Medium Configuration④(10bit Monochrome)

(Connector) D1/D2/D3/D4/D5/D6/D7/D8 KD6R1064DXL-NL KD6R1247DXL-NL	/D9/D10/D11/D12 KD6R1688DXL-NL
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Table.27 Camera Link™ Medium Configuration bit assignment (d)
10bit Monochrome
(Conformed to Camera Link™ v2.1 Specification)
(Same bit assignment as KDMX Specification)

1ch Output					
Port	Connector D1, D5, D9	Connector D3, D7, D11	Port	Connector D2, D6, D10	Connector D4, D8, D12
Port A0	M1[0](LSB)	nc	Port D0	M4[0](LSB)	nc
Port A1	M1[1]	nc	Port D1	M4[1]	nc
Port A2	M1[2]	nc	Port D2	M4[2]	nc
Port A3	M1[3]	nc	Port D3	M4[3]	nc
Port A4	M1[4]	nc	Port D4	M4[4]	nc
Port A5	M1[5]	nc	Port D5	M4[5]	nc
Port A6	M1[6]	nc	Port D6	M4[6]	nc
Port A7	M1[7]	nc	Port D7	M4[7](MSB)	nc
Port B0	M1[8]	nc	Port E0	M3[0](LSB)	nc
Port B1	M1[9](MSB)	nc	Port E1	M3[1]	nc
Port B2	nc	nc	Port E2	M3[2]	nc
Port B3	nc	nc	Port E3	M3[3]	nc
Port B4	M2[8]	nc	Port E4	M3[4]	nc
Port B5	M2[9](MSB)	nc	Port E5	M3[5]	nc
Port B6	nc	nc	Port E6	M3[6]	nc
Port B7	nc	nc	Port E7	M3[7]	nc
Port C0	M2[0](LSB)	nc	Port F0	M3[8]	nc
Port C1	M2[1]	nc	Port F1	M3[9](MSB)	nc
Port C2	M2[2]	nc	Port F2	nc	nc
Port C3	M2[3]	nc	Port F3	nc	nc
Port C4	M2[4]	nc	Port F4	M4[8]	nc
Port C5	M2[5]	nc	Port F5	M4[9](MSB)	nc
Port C6	M2[6]	nc	Port F6	nc	nc
Port C7	M2[7]	nc	Port F7	nc	nc
LVAL	LVAL	nc	LVAL	LVAL	nc
FVAL	FVAL	nc	FVAL	FVAL	nc
DVAL	DVAL	nc	DVAL	DVAL	nc

2ch Output					
Port	Connector D1, D5, D9	Connector D3, D7, D11	Port	Connector D2, D6, D10	Connector D4, D8, D12
Port A0	M1[0](LSB)	M5[0](LSB)	Port D0	M4[0](LSB)	M8[0](LSB)
Port A1	M1[1]	M5[1]	Port D1	M4[1]	M8[1]
Port A2	M1[2]	M5[2]	Port D2	M4[2]	M8[2]
Port A3	M1[3]	M5[3]	Port D3	M4[3]	M8[3]
Port A4	M1[4]	M5[4]	Port D4	M4[4]	M8[4]
Port A5	M1[5]	M5[5]	Port D5	M4[5]	M8[5]
Port A6	M1[6]	M5[6]	Port D6	M4[6]	M8[6]
Port A7	M1[7]	M5[7]	Port D7	M4[7](MSB)	M8[7](MSB)
Port B0	M1[8]	M5[8]	Port E0	M3[0](LSB)	M7[0](LSB)
Port B1	M1[9](MSB)	M5[9](MSB)	Port E1	M3[1]	M7[1]
Port B2	nc	nc	Port E2	M3[2]	M7[2]
Port B3	nc	nc	Port E3	M3[3]	M7[3]
Port B4	M2[8]	M6[8]	Port E4	M3[4]	M7[4]
Port B5	M2[9](MSB)	M6[9](MSB)	Port E5	M3[5]	M7[5]
Port B6	nc	nc	Port E6	M3[6]	M7[6]
Port B7	nc	nc	Port E7	M3[7]	M7[7]
Port C0	M2[0](LSB)	M6[0](LSB)	Port F0	M3[8]	M7[8]
Port C1	M2[1]	M6[1]	Port F1	M3[9](MSB)	M7[9](MSB)
Port C2	M2[2]	M6[2]	Port F2	nc	nc
Port C3	M2[3]	M6[3]	Port F3	nc	nc
Port C4	M2[4]	M6[4]	Port F4	M4[8]	M8[8]
Port C5	M2[5]	M6[5]	Port F5	M4[9](MSB)	M8[9](MSB)
Port C6	M2[6]	M6[6]	Port F6	nc	nc
Port C7	M2[7]	M6[7]	Port F7	nc	nc
LVAL	LVAL	LVAL	LVAL	LVAL	LVAL
FVAL	FVAL	FVAL	FVAL	FVAL	FVAL
DVAL	DVAL	DVAL	DVAL	DVAL	DVAL

※Camera Link™ is a registered trademark of AIA (Automated Imaging Association).

Table.28 Definition of symbols-Medium Configuration bit assignment (d)

Signal Name	Logical	IN/OUT	Function
M1-8[9:0]	Positive	OUT	Monochrome Output Data (M1-8[0]:LSB、M1-8[9]:MSB)、10bit
LVAL	Positive	OUT	Line Valid Signal (Valid Line)
FVAL	Positive	OUT	Frame Valid Signal (Valid Frame)
DVAL	Positive	OUT	Data Valid Signal

6.3.10 Full Configuration①(24bit RGB Color)

(Connector) D1/D2/D3/D4/D5/D6/D7/D8 KD6R1064DXL-NL KD6R1247DXL-NL	/D9/D10/D11/D12
KD6R1688DXL-NL	

Table.29 Camera Link™ Full Configuration bit assignment (a)
24bit RGB Color
(Conformed to Camera Link™ v2.1 Specification)

1ch Output								
Port	Connector D1, D5, D9	Connector D3, D7, D11	Port	Connector D2, D6, D10	Connector D4, D8, D12	Port	Connector D2, D6, D10	Connector D4, D8, D12
Port A0	R1[0](LSB)	nc	Port D0	R2[0](LSB)	nc	Port G0	R3[0](LSB)	nc
Port A1	R1[1]	nc	Port D1	R2[1]	nc	Port G1	R3[1]	nc
Port A2	R1[2]	nc	Port D2	R2[2]	nc	Port G2	R3[2]	nc
Port A3	R1[3]	nc	Port D3	R2[3]	nc	Port G3	R3[3]	nc
Port A4	R1[4]	nc	Port D4	R2[4]	nc	Port G4	R3[4]	nc
Port A5	R1[5]	nc	Port D5	R2[5]	nc	Port G5	R3[5]	nc
Port A6	R1[6]	nc	Port D6	R2[6]	nc	Port G6	R3[6]	nc
Port A7	R1[7](MSB)	nc	Port D7	R2[7](MSB)	nc	Port G7	R3[7](MSB)	nc
Port B0	G1[0](LSB)	nc	Port E0	G2[0](LSB)	nc	Port H0	G3[0](LSB)	nc
Port B1	G1[1]	nc	Port E1	G2[1]	nc	Port H1	G3[1]	nc
Port B2	G1[2]	nc	Port E2	G2[2]	nc	Port H2	G3[2]	nc
Port B3	G1[3]	nc	Port E3	G2[3]	nc	Port H3	G3[3]	nc
Port B4	G1[4]	nc	Port E4	G2[4]	nc	Port H4	G3[4]	nc
Port B5	G1[5]	nc	Port E5	G2[5]	nc	Port H5	G3[5]	nc
Port B6	G1[6]	nc	Port E6	G2[6]	nc	Port H6	G3[6]	nc
Port B7	G1[7](MSB)	nc	Port E7	G2[7](MSB)	nc	Port H7	G3[7](MSB)	nc
Port C0	B1[0](LSB)	nc	Port F0	B2[0](LSB)	nc	Port I0	B3[0](LSB)	nc
Port C1	B1[1]	nc	Port F1	B2[1]	nc	Port I1	B3[1]	nc
Port C2	B1[2]	nc	Port F2	B2[2]	nc	Port I2	B3[2]	nc
Port C3	B1[3]	nc	Port F3	B2[3]	nc	Port I3	B3[3]	nc
Port C4	B1[4]	nc	Port F4	B2[4]	nc	Port I4	B3[4]	nc
Port C5	B1[5]	nc	Port F5	B2[5]	nc	Port I5	B3[5]	nc
Port C6	B1[6]	nc	Port F6	B2[6]	nc	Port I6	B3[6]	nc
Port C7	B1[7](MSB)	nc	Port F7	B2[7](MSB)	nc	Port I7	B3[7](MSB)	nc
LVAL	LVAL	nc	LVAL	LVAL	nc	LVAL	LVAL	nc
FVAL	FVAL	nc	FVAL	FVAL	nc	FVAL	FVAL	nc
DVAL	DVAL	nc	DVAL	DVAL	nc	DVAL	DVAL	nc

2ch Output								
Port	Connector D1, D5, D9	Connector D3, D7, D11	Port	Connector D2, D6, D10	Connector D4, D8, D12	Port	Connector D2, D6, D10	Connector D4, D8, D12
Port A0	R1[0](LSB)	R4[0](LSB)	Port D0	R2[0](LSB)	R5[0](LSB)	Port G0	R3[0](LSB)	R6[0](LSB)
Port A1	R1[1]	R4[1]	Port D1	R2[1]	R5[1]	Port G1	R3[1]	R6[1]
Port A2	R1[2]	R4[2]	Port D2	R2[2]	R5[2]	Port G2	R3[2]	R6[2]
Port A3	R1[3]	R4[3]	Port D3	R2[3]	R5[3]	Port G3	R3[3]	R6[3]
Port A4	R1[4]	R4[4]	Port D4	R2[4]	R5[4]	Port G4	R3[4]	R6[4]
Port A5	R1[5]	R4[5]	Port D5	R2[5]	R5[5]	Port G5	R3[5]	R6[5]
Port A6	R1[6]	R4[6]	Port D6	R2[6]	R5[6]	Port G6	R3[6]	R6[6]
Port A7	R1[7](MSB)	R4[7](MSB)	Port D7	R2[7](MSB)	R5[7](MSB)	Port G7	R3[7](MSB)	R6[7](MSB)
Port B0	G1[0](LSB)	G4[0](LSB)	Port E0	G2[0](LSB)	G5[0](LSB)	Port H0	G3[0](LSB)	G6[0](LSB)
Port B1	G1[1]	G4[1]	Port E1	G2[1]	G5[1]	Port H1	G3[1]	G6[1]
Port B2	G1[2]	G4[2]	Port E2	G2[2]	G5[2]	Port H2	G3[2]	G6[2]
Port B3	G1[3]	G4[3]	Port E3	G2[3]	G5[3]	Port H3	G3[3]	G6[3]
Port B4	G1[4]	G4[4]	Port E4	G2[4]	G5[4]	Port H4	G3[4]	G6[4]
Port B5	G1[5]	G4[5]	Port E5	G2[5]	G5[5]	Port H5	G3[5]	G6[5]
Port B6	G1[6]	G4[6]	Port E6	G2[6]	G5[6]	Port H6	G3[6]	G6[6]
Port B7	G1[7](MSB)	G4[7](MSB)	Port E7	G2[7](MSB)	G5[7](MSB)	Port H7	G3[7](MSB)	G6[7](MSB)
Port C0	B1[0](LSB)	B4[0](LSB)	Port F0	B2[0](LSB)	B5[0](LSB)	Port I0	B3[0](LSB)	B6[0](LSB)
Port C1	B1[1]	B4[1]	Port F1	B2[1]	B5[1]	Port I1	B3[1]	B6[1]
Port C2	B1[2]	B4[2]	Port F2	B2[2]	B5[2]	Port I2	B3[2]	B6[2]
Port C3	B1[3]	B4[3]	Port F3	B2[3]	B5[3]	Port I3	B3[3]	B6[3]
Port C4	B1[4]	B4[4]	Port F4	B2[4]	B5[4]	Port I4	B3[4]	B6[4]
Port C5	B1[5]	B4[5]	Port F5	B2[5]	B5[5]	Port I5	B3[5]	B6[5]
Port C6	B1[6]	B4[6]	Port F6	B2[6]	B5[6]	Port I6	B3[6]	B6[6]
Port C7	B1[7](MSB)	B4[7](MSB)	Port F7	B2[7](MSB)	B5[7](MSB)	Port I7	B3[7](MSB)	B6[7](MSB)
LVAL	LVAL	LVAL	LVAL	LVAL	LVAL	LVAL	LVAL	LVAL
FVAL	FVAL	FVAL	FVAL	FVAL	FVAL	FVAL	FVAL	FVAL
DVAL	DVAL	DVAL	DVAL	DVAL	DVAL	DVAL	DVAL	DVAL

Table.30 Definition of symbols-Full Configuration bit assignment (a)

Signal Name	Logical	IN/OUT	Function
R1-6[7:0]	Positive	OUT	Red Output Data (R1-6[0]:LSB、R1-6[7]:MSB)、8bit
G1-6[7:0]	Positive	OUT	Green Output Data (G1-6[0]:LSB、G1-6[7]:MSB)、8bit
B1-6[7:0]	Positive	OUT	Blue Output Data (B1-6[0]:LSB、B1-6[7]:MSB)、8bit
LVAL	Positive	OUT	Line Valid Signal (Valid Line)
FVAL	Positive	OUT	Frame Valid Signal (Valid Frame)
DVAL	Positive	OUT	Data Valid Signal

6.3.11 Full Configuration②(30bit RGB Color)

(Connector) D1/D2/D3/D4/D5/D6/D7/D8 KD6R1064DXL-NL KD6R1247DXL-NL	/D9/D10/D11/D12
KD6R1688DXL-NL	

Table.31 Camera Link™ Full Configuration bit assignment (b)
30bit RGB Color
(Unique Specification)

1ch Output								
Port	Connector D1, D5, D9	Connector D3, D7, D11	Port	Connector D2, D6, D10	Connector D4, D8, D12	Port	Connector D2, D6, D10	Connector D4, D8, D12
Port A0	R1[0](LSB)	nc	Port D0	B1[0](LSB)	nc	Port G0	G2[4]	nc
Port A1	R1[1]	nc	Port D1	B1[1]	nc	Port G1	G2[5]	nc
Port A2	R1[2]	nc	Port D2	B1[2]	nc	Port G2	G2[6]	nc
Port A3	R1[3]	nc	Port D3	B1[3]	nc	Port G3	G2[7]	nc
Port A4	R1[4]	nc	Port D4	B1[4]	nc	Port G4	G2[8]	nc
Port A5	R1[5]	nc	Port D5	B1[5]	nc	Port G5	G2[9](MSB)	nc
Port A6	R1[6]	nc	Port D6	B1[6]	nc	Port G6	B2[0](LSB)	nc
Port A7	R1[7]	nc	Port D7	B1[7]	nc	Port G7	B2[1]	nc
Port B0	R1[8]	nc	Port E0	B1[8]	nc	Port H0	B2[2]	nc
Port B1	R1[9](MSB)	nc	Port E1	B1[9](MSB)	nc	Port H1	B2[3]	nc
Port B2	nc	nc	Port E2	R2[0](LSB)	nc	Port H2	B2[4]	nc
Port B3	nc	nc	Port E3	R2[1]	nc	Port H3	B2[5]	nc
Port B4	G1[8]	nc	Port E4	R2[2]	nc	Port H4	B2[6]	nc
Port B5	G1[9](MSB)	nc	Port E5	R2[3]	nc	Port H5	B2[7]	nc
Port B6	nc	nc	Port E6	R2[4]	nc	Port H6	B2[8]	nc
Port B7	nc	nc	Port E7	R2[5]	nc	Port H7	B2[9](MSB)	nc
Port C0	G1[0](LSB)	nc	Port F0	R2[6]	nc	Port I0	nc	nc
Port C1	G1[1]	nc	Port F1	R2[7]	nc	Port I1	nc	nc
Port C2	G1[2]	nc	Port F2	R2[8]	nc	Port I2	nc	nc
Port C3	G1[3]	nc	Port F3	R2[9](MSB)	nc	Port I3	nc	nc
Port C4	G1[4]	nc	Port F4	G2[0](LSB)	nc	Port I4	nc	nc
Port C5	G1[5]	nc	Port F5	G2[1]	nc	Port I5	nc	nc
Port C6	G1[6]	nc	Port F6	G2[2]	nc	Port I6	nc	nc
Port C7	G1[7]	nc	Port F7	G2[3]	nc	Port I7	nc	nc
LVAL	LVAL	nc	LVAL	LVAL	nc	LVAL	LVAL	nc
FVAL	FVAL	nc	FVAL	FVAL	nc	FVAL	FVAL	nc
DVAL	DVAL	nc	DVAL	DVAL	nc	DVAL	DVAL	nc

2ch Output								
Port	Connector D1, D5, D9	Connector D3, D7, D11	Port	Connector D2, D6, D10	Connector D4, D8, D12	Port	Connector D2, D6, D10	Connector D4, D8, D12
Port A0	R1[0](LSB)	R3[0](LSB)	Port D0	B1[0](LSB)	B3[0](LSB)	Port G0	G2[4]	G4[4]
Port A1	R1[1]	R3[1]	Port D1	B1[1]	B3[1]	Port G1	G2[5]	G4[5]
Port A2	R1[2]	R3[2]	Port D2	B1[2]	B3[2]	Port G2	G2[6]	G4[6]
Port A3	R1[3]	R3[3]	Port D3	B1[3]	B3[3]	Port G3	G2[7]	G4[7]
Port A4	R1[4]	R3[4]	Port D4	B1[4]	B3[4]	Port G4	G2[8]	G4[8]
Port A5	R1[5]	R3[5]	Port D5	B1[5]	B3[5]	Port G5	G2[9](MSB)	G4[9](MSB)
Port A6	R1[6]	R3[6]	Port D6	B1[6]	B3[6]	Port G6	B2[0](LSB)	B4[0](LSB)
Port A7	R1[7]	R3[7]	Port D7	B1[7]	B3[7]	Port G7	B2[1]	B4[1]
Port B0	R1[8]	R3[8]	Port E0	B1[8]	B3[8]	Port H0	B2[2]	B4[2]
Port B1	R1[9](MSB)	R3[9](MSB)	Port E1	B1[9](MSB)	B3[9](MSB)	Port H1	B2[3]	B4[3]
Port B2	nc	nc	Port E2	R2[0](LSB)	R4[0](LSB)	Port H2	B2[4]	B4[4]
Port B3	nc	nc	Port E3	R2[1]	R4[1]	Port H3	B2[5]	B4[5]
Port B4	G1[8]	G3[8]	Port E4	R2[2]	R4[2]	Port H4	B2[6]	B4[6]
Port B5	G1[9](MSB)	G3[9](MSB)	Port E5	R2[3]	R4[3]	Port H5	B2[7]	B4[7]
Port B6	nc	nc	Port E6	R2[4]	R4[4]	Port H6	B2[8]	B4[8]
Port B7	nc	nc	Port E7	R2[5]	R4[5]	Port H7	B2[9](MSB)	B4[9](MSB)
Port C0	G1[0](LSB)	G3[0](LSB)	Port F0	R2[6]	R4[6]	Port I0	nc	nc
Port C1	G1[1]	G3[1]	Port F1	R2[7]	R4[7]	Port I1	nc	nc
Port C2	G1[2]	G3[2]	Port F2	R2[8]	R4[8]	Port I2	nc	nc
Port C3	G1[3]	G3[3]	Port F3	R2[9](MSB)	R4[9](MSB)	Port I3	nc	nc
Port C4	G1[4]	G3[4]	Port F4	G2[0](LSB)	G4[0](LSB)	Port I4	nc	nc
Port C5	G1[5]	G3[5]	Port F5	G2[1]	G4[1]	Port I5	nc	nc
Port C6	G1[6]	G3[6]	Port F6	G2[2]	G4[2]	Port I6	nc	nc
Port C7	G1[7]	G3[7]	Port F7	G2[3]	G4[3]	Port I7	nc	nc
LVAL	LVAL	LVAL	LVAL	LVAL	LVAL	LVAL	LVAL	LVAL
FVAL	FVAL	FVAL	FVAL	FVAL	FVAL	FVAL	FVAL	FVAL
DVAL	DVAL	DVAL	DVAL	DVAL	DVAL	DVAL	DVAL	DVAL

Table.32 Definition of symbols-Full Configuration bit assignment (a)

Signal Name	Logical	IN/OUT	Function
R1-4[9:0]	Positive	OUT	Red Output Data (R1-4[0]:LSB、R1-4[9]:MSB)、10bit
G1-4[9:0]	Positive	OUT	Green Output Data (G1-4[0]:LSB、G1-4[9]:MSB)、10bit
B1-4[9:0]	Positive	OUT	Blue Output Data (B1-4[0]:LSB、B1-4[9]:MSB)、10bit
LVAL	Positive	OUT	Line Valid Signal (Valid Line)
FVAL	Positive	OUT	Frame Valid Signal (Valid Frame)
DVAL	Positive	OUT	Data Valid Signal

6.3.12 Full Configuration③(10bit Monochrome)

(Connector)	
D1/D2/D3/D4/D5/D6/D7/D8	/D9/D10/D11/D12
KD6R1064DXL-NL	
KD6R1247DXL-NL	
KD6R1688DXL-NL	

Table.33 Camera Link™ Full Configuration bit assignment (c)
10bit Monochrome
(Unique Specification)

1ch Output								
Port	Connector D1, D5, D9	Connector D3, D7, D11	Port	Connector D2, D6, D10	Connector D4, D8, D12	Port	Connector D2, D6, D10	Connector D4, D8, D12
Port A0	M1[0](LSB)	nc	Port D0	M3[0](LSB)	nc	Port G0	M5[4]	nc
Port A1	M1[1]	nc	Port D1	M3[1]	nc	Port G1	M5[5]	nc
Port A2	M1[2]	nc	Port D2	M3[2]	nc	Port G2	M5[6]	nc
Port A3	M1[3]	nc	Port D3	M3[3]	nc	Port G3	M5[7]	nc
Port A4	M1[4]	nc	Port D4	M3[4]	nc	Port G4	M5[8]	nc
Port A5	M1[5]	nc	Port D5	M3[5]	nc	Port G5	M5[9](MSB)	nc
Port A6	M1[6]	nc	Port D6	M3[6]	nc	Port G6	M6[0](LSB)	nc
Port A7	M1[7]	nc	Port D7	M3[7]	nc	Port G7	M6[1]	nc
Port B0	M1[8]	nc	Port E0	M3[8]	nc	Port H0	M6[2]	nc
Port B1	M1[9](MSB)	nc	Port E1	M3[9](MSB)	nc	Port H1	M6[3]	nc
Port B2	nc	nc	Port E2	M4[0](LSB)	nc	Port H2	M6[4]	nc
Port B3	nc	nc	Port E3	M4[1]	nc	Port H3	M6[5]	nc
Port B4	M2[8]	nc	Port E4	M4[2]	nc	Port H4	M6[6]	nc
Port B5	M2[9](MSB)	nc	Port E5	M4[3]	nc	Port H5	M6[7]	nc
Port B6	nc	nc	Port E6	M4[4]	nc	Port H6	M6[8]	nc
Port B7	nc	nc	Port E7	M4[5]	nc	Port H7	M6[9](MSB)	nc
Port C0	M2[0](LSB)	nc	Port F0	M4[6]	nc	Port I0	nc	nc
Port C1	M2[1]	nc	Port F1	M4[7]	nc	Port I1	nc	nc
Port C2	M2[2]	nc	Port F2	M4[8]	nc	Port I2	nc	nc
Port C3	M2[3]	nc	Port F3	M4[9](MSB)	nc	Port I3	nc	nc
Port C4	M2[4]	nc	Port F4	M5[0](LSB)	nc	Port I4	nc	nc
Port C5	M2[5]	nc	Port F5	M5[1]	nc	Port I5	nc	nc
Port C6	M2[6]	nc	Port F6	M5[2]	nc	Port I6	nc	nc
Port C7	M2[7]	nc	Port F7	M5[3]	nc	Port I7	nc	nc
LVAL	LVAL	nc	LVAL	LVAL	nc	LVAL	LVAL	nc
FVAL	FVAL	nc	FVAL	FVAL	nc	FVAL	FVAL	nc
DVAL	DVAL	nc	DVAL	DVAL	nc	DVAL	DVAL	nc

2ch Output								
Port	Connector D1, D5, D9	Connector D3, D7, D11	Port	Connector D2, D6, D10	Connector D4, D8, D12	Port	Connector D2, D6, D10	Connector D4, D8, D12
Port A0	M1[0](LSB)	M7[0](LSB)	Port D0	M3[0](LSB)	M9[0](LSB)	Port G0	M5[4]	M11[4]
Port A1	M1[1]	M7[1]	Port D1	M3[1]	M9[1]	Port G1	M5[5]	M11[5]
Port A2	M1[2]	M7[2]	Port D2	M3[2]	M9[2]	Port G2	M5[6]	M11[6]
Port A3	M1[3]	M7[3]	Port D3	M3[3]	M9[3]	Port G3	M5[7]	M11[7]
Port A4	M1[4]	M7[4]	Port D4	M3[4]	M9[4]	Port G4	M5[8]	M11[8]
Port A5	M1[5]	M7[5]	Port D5	M3[5]	M9[5]	Port G5	M5[9](MSB)	M11[9](MSB)
Port A6	M1[6]	M7[6]	Port D6	M3[6]	M9[6]	Port G6	M6[0](LSB)	M12[0](LSB)
Port A7	M1[7]	M7[7]	Port D7	M3[7]	M9[7]	Port G7	M6[1]	M12[1]
Port B0	M1[8]	M7[8]	Port E0	M3[8]	M9[8]	Port H0	M6[2]	M12[2]
Port B1	M1[9](MSB)	M7[9](MSB)	Port E1	M3[9](MSB)	M9[9](MSB)	Port H1	M6[3]	M12[3]
Port B2	nc	nc	Port E2	M4[0](LSB)	M10[0](LSB)	Port H2	M6[4]	M12[4]
Port B3	nc	nc	Port E3	M4[1]	M10[1]	Port H3	M6[5]	M12[5]
Port B4	M2[8]	M8[8]	Port E4	M4[2]	M10[2]	Port H4	M6[6]	M12[6]
Port B5	M2[9](MSB)	M8[9](MSB)	Port E5	M4[3]	M10[3]	Port H5	M6[7]	M12[7]
Port B6	nc	nc	Port E6	M4[4]	M10[4]	Port H6	M6[8]	M12[8]
Port B7	nc	nc	Port E7	M4[5]	M10[5]	Port H7	M6[9](MSB)	M12[9](MSB)
Port C0	M2[0](LSB)	M8[0](LSB)	Port F0	M4[6]	M10[6]	Port I0	nc	nc
Port C1	M2[1]	M8[1]	Port F1	M4[7]	M10[7]	Port I1	nc	nc
Port C2	M2[2]	M8[2]	Port F2	M4[8]	M10[8]	Port I2	nc	nc
Port C3	M2[3]	M8[3]	Port F3	M4[9](MSB)	M10[9](MSB)	Port I3	nc	nc
Port C4	M2[4]	M8[4]	Port F4	M5[0](LSB)	M11[0](LSB)	Port I4	nc	nc
Port C5	M2[5]	M8[5]	Port F5	M5[1]	M11[1]	Port I5	nc	nc
Port C6	M2[6]	M8[6]	Port F6	M5[2]	M11[2]	Port I6	nc	nc
Port C7	M2[7]	M8[7]	Port F7	M5[3]	M11[3]	Port I7	nc	nc
LVAL	LVAL	LVAL	LVAL	LVAL	LVAL	LVAL	LVAL	LVAL
FVAL	FVAL	FVAL	FVAL	FVAL	FVAL	FVAL	FVAL	FVAL
DVAL	DVAL	DVAL	DVAL	DVAL	DVAL	DVAL	DVAL	DVAL

Table.34 Definition of symbols- Full Configuration bit assignment (b)

Signal Name	Logical	IN/OUT	Function
M1-12[9:0]	Positive	OUT	Monochrome Output Data (M1-12[0]:LSB、M1-12[9]:MSB)、10bit
LVAL	Positive	OUT	Line Valid Signal (Valid Line)
FVAL	Positive	OUT	Frame Valid Signal (Valid Frame)
DVAL	Positive	OUT	Data Valid Signal

6.3.13 Deca Configuration①(8bit Monochrome)

(Connector) D1/D2/D3/D4/D5/D6/D7/D8 KD6R1064DXL-NL KD6R1247DXL-NL	/D9/D10/D11/D12
KD6R1688DXL-NL	

Table.35 Camera Link™ Deca Configuration bit assignment (a)
8bit Monochrome
(Conformed to Camera Link™ v2.1 Specification)

1ch Output								
Port	Connector D1, D5, D9	Connector D3, D7, D11	Port	Connector D2, D6, D10	Connector D4, D8, D12	Port	Connector D2, D6, D10	Connector D4, D8, D12
Port A0'	M1[0]	nc	Port D2'	M4[2]	nc	Port G5'	M7[5]	nc
Port A1'	M1[1]	nc	Port D3'	M4[3]	nc	Port G6'	M7[6]	nc
Port A2'	M1[2]	nc	Port D4'	M4[4]	nc	Port G7'	M7[7](MSB)	nc
Port A3'	M1[3]	nc	Port D5'	M4[5]	nc	Port H0'	M8[0]	nc
Port A4'	M1[4]	nc	Port D6'	M4[6]	nc	Port H1'	M8[1]	nc
Port A5'	M1[5]	nc	Port D7'	M4[7](MSB)	nc	Port H2'	M8[2]	nc
Port A6'	M1[6]	nc	Port E0'	M5[0]	nc	Port H3'	M8[3]	nc
Port A7'	M1[7](MSB)	nc	Port E1'	M5[1]	nc	Port H4'	M8[4]	nc
Port B0'	M2[0]	nc	Port E2'	M5[2]	nc	Port H5'	M8[5]	nc
Port B1'	M2[1]	nc	Port E3'	M5[3]	nc	Port H6'	M8[6]	nc
Port B2'	M2[2]	nc	Port E4'	M5[4]	nc	Port H7'	M8[7](MSB)	nc
Port B3'	M2[3]	nc	Port E5'	M5[5]	nc	Port I0'	M9[0]	nc
Port B4'	M2[4]	nc	Port E6'	M5[6]	nc	Port I1'	M9[1]	nc
Port B5'	M2[5]	nc	Port E7'	M5[7](MSB)	nc	Port I2'	M9[2]	nc
Port B6'	M2[6]	nc	Port F0'	M6[0]	nc	Port I3'	M9[3]	nc
Port B7'	M2[7](MSB)	nc	Port F1'	M6[1]	nc	Port I4'	M9[4]	nc
Port C0'	M3[0]	nc	Port F2'	M6[2]	nc	Port I5'	M9[5]	nc
Port C1'	M3[1]	nc	Port F3'	M6[3]	nc	Port I6'	M9[6]	nc
Port C2'	M3[2]	nc	Port F4'	M6[4]	nc	Port I7'	M9[7](MSB)	nc
Port C3'	M3[3]	nc	Port F5'	M6[5]	nc	Port J0'	M10[0]	nc
Port C4'	M3[4]	nc	Port F6'	M6[6]	nc	Port J1'	M10[1]	nc
Port C5'	M3[5]	nc	Port F7'	M6[7](MSB)	nc	Port J2'	M10[2]	nc
Port C6'	M3[6]	nc	Port G0'	M7[0]	nc	Port J3'	M10[3]	nc
Port C7'	M3[7](MSB)	nc	Port G1'	M7[1]	nc	Port J4'	M10[4]	nc
LVAL'	LVAL	nc	Port G2'	M7[2]	nc	Port J5'	M10[5]	nc
FVAL'	FVAL	nc	Port G3'	M7[3]	nc	Port J6'	M10[6]	nc
Port D0'	M4[0]	nc	Port G4'	M7[4]	nc	Port J7'	M10[7](MSB)	nc
Port D1'	M4[1]	nc	LVAL'	LVAL	nc	LVAL'	LVAL	nc

2ch Output								
Port	Connector D1, D5, D9	Connector D3, D7, D11	Port	Connector D2, D6, D10	Connector D4, D8, D12	Port	Connector D2, D6, D10	Connector D4, D8, D12
Port A0'	M1[0]	M11[0]	Port D2'	M4[2]	M14[2]	Port G5'	M7[5]	M17[5]
Port A1'	M1[1]	M11[1]	Port D3'	M4[3]	M14[3]	Port G6'	M7[6]	M17[6]
Port A2'	M1[2]	M11[2]	Port D4'	M4[4]	M14[4]	Port G7'	M7[7](MSB)	M17[7](MSB)
Port A3'	M1[3]	M11[3]	Port D5'	M4[5]	M14[5]	Port H0'	M8[0]	M18[0]
Port A4'	M1[4]	M11[4]	Port D6'	M4[6]	M14[6]	Port H1'	M8[1]	M18[1]
Port A5'	M1[5]	M11[5]	Port D7'	M4[7](MSB)	M14[7](MSB)	Port H2'	M8[2]	M18[2]
Port A6'	M1[6]	M11[6]	Port E0'	M5[0]	M15[0]	Port H3'	M8[3]	M18[3]
Port A7'	M1[7](MSB)	M11[7](MSB)	Port E1'	M5[1]	M15[1]	Port H4'	M8[4]	M18[4]
Port B0'	M2[0]	M12[0]	Port E2'	M5[2]	M15[2]	Port H5'	M8[5]	M18[5]
Port B1'	M2[1]	M12[1]	Port E3'	M5[3]	M15[3]	Port H6'	M8[6]	M18[6]
Port B2'	M2[2]	M12[2]	Port E4'	M5[4]	M15[4]	Port H7'	M8[7](MSB)	M18[7](MSB)
Port B3'	M2[3]	M12[3]	Port E5'	M5[5]	M15[5]	Port I0'	M9[0]	M19[0]
Port B4'	M2[4]	M12[4]	Port E6'	M5[6]	M15[6]	Port I1'	M9[1]	M19[1]
Port B5'	M2[5]	M12[5]	Port E7'	M5[7](MSB)	M15[7](MSB)	Port I2'	M9[2]	M19[2]
Port B6'	M2[6]	M12[6]	Port F0'	M6[0]	M16[0]	Port I3'	M9[3]	M19[3]
Port B7'	M2[7](MSB)	M12[7](MSB)	Port F1'	M6[1]	M16[1]	Port I4'	M9[4]	M19[4]
Port C0'	M3[0]	M13[0]	Port F2'	M6[2]	M16[2]	Port I5'	M9[5]	M19[5]
Port C1'	M3[1]	M13[1]	Port F3'	M6[3]	M16[3]	Port I6'	M9[6]	M19[6]
Port C2'	M3[2]	M13[2]	Port F4'	M6[4]	M16[4]	Port I7'	M9[7](MSB)	M19[7](MSB)
Port C3'	M3[3]	M13[3]	Port F5'	M6[5]	M16[5]	Port J0'	M10[0]	M20[0]
Port C4'	M3[4]	M13[4]	Port F6'	M6[6]	M16[6]	Port J1'	M10[1]	M20[1]
Port C5'	M3[5]	M13[5]	Port F7'	M6[7](MSB)	M16[7](MSB)	Port J2'	M10[2]	M20[2]
Port C6'	M3[6]	M13[6]	Port G0'	M7[0]	M17[0]	Port J3'	M10[3]	M20[3]
Port C7'	M3[7](MSB)	M13[7](MSB)	Port G1'	M7[1]	M17[1]	Port J4'	M10[4]	M20[4]
LVAL'	LVAL	LVAL	Port G2'	M7[2]	M17[2]	Port J5'	M10[5]	M20[5]
FVAL'	FVAL	FVAL	Port G3'	M7[3]	M17[3]	Port J6'	M10[6]	M20[6]
Port D0'	M4[0]	M14[0]	Port G4'	M7[4]	M17[4]	Port J7'	M10[7](MSB)	M20[7](MSB)
Port D1'	M4[1]	M14[1]	LVAL'	LVAL	LVAL	LVAL'	LVAL	LVAL

Table.36 Definition of symbols- Deca Configuration bit assignment (c)

Signal Name	Logical	IN/OUT	Function
M1-20[7:0]	Positive	OUT	Monochrome Output Data (M1-20[0]:LSB、M1-20[7]:MSB)、8bit
LVAL	Positive	OUT	Line Valid Signal (Valid Line)
FVAL	Positive	OUT	Frame Valid Signal (Valid Frame)

6.3.14 Deca Configuration②(10bit Monochrome)

(Connector) D1/D2/D3/D4/D5/D6/D7/D8 KD6R1064DXL-NL KD6R1247DXL-NL	/D9/D10/D11/D12
KD6R1688DXL-NL	

Table.37 Camera Link™ Deca Configuration bit assignment (b)
10bit Monochrome
(Conformed to Camera Link™ v2.1 Specification)

1ch Output								
Port	Connector D1, D5, D9	Connector D3, D7, D11	Port	Connector D2, D6, D10	Connector D4, D8, D12	Port	Connector D2, D6, D10	Connector D4, D8, D12
Port A0"	M1[2]	nc	Port D0"	M4[2]	nc	Port G0"	M7[2]	nc
Port A1"	M1[3]	nc	Port D1"	M4[3]	nc	Port G1"	M7[3]	nc
Port A2"	M1[4]	nc	Port D2"	M4[4]	nc	Port G2"	M7[4]	nc
Port A3"	M1[5]	nc	Port D3"	M4[5]	nc	Port G3"	M7[5]	nc
Port A4"	M1[6]	nc	Port D4"	M4[6]	nc	Port G4"	M7[6]	nc
Port A5"	M1[7]	nc	Port D5"	M4[7]	nc	Port G5"	M7[7]	nc
Port A6"	M1[8]	nc	Port D6"	M4[8]	nc	Port G6"	M7[8]	nc
Port A7"	M1[9](MSB)	nc	Port D7"	M4[9](MSB)	nc	Port G7"	M7[9](MSB)	nc
Port B0"	M2[2]	nc	Port E0"	M5[2]	nc	Port H0"	M8[2]	nc
Port B1"	M2[3]	nc	Port E1"	M5[3]	nc	Port H1"	M8[3]	nc
Port B2"	M2[4]	nc	Port E2"	M5[4]	nc	Port H2"	M8[4]	nc
Port B3"	M2[5]	nc	Port E3"	M5[5]	nc	Port H3"	M8[5]	nc
Port B4"	M2[6]	nc	Port E4"	M5[6]	nc	Port H4"	M8[6]	nc
Port B5"	M2[7]	nc	Port E5"	M5[7]	nc	Port H5"	M8[7]	nc
Port B6"	M2[8]	nc	Port E6"	M5[8]	nc	Port H6"	M8[8]	nc
Port B7"	M2[9](MSB)	nc	Port E7"	M5[9](MSB)	nc	Port H7"	M8[9](MSB)	nc
Port C0"	M3[2]	nc	Port F0"	M6[2]	nc	Port I5"	M3[1]	nc
Port C1"	M3[3]	nc	Port F1"	M6[3]	nc	Port I6"	M4[0]	nc
Port C2"	M3[4]	nc	Port F2"	M6[4]	nc	Port I7"	M4[1]	nc
Port C3"	M3[5]	nc	Port F3"	M6[5]	nc	Port K0"	M5[0]	nc
Port C4"	M3[6]	nc	Port F4"	M6[6]	nc	Port K1"	M5[1]	nc
Port C5"	M3[7]	nc	Port F5"	M6[7]	nc	Port K2"	M6[0]	nc
Port C6"	M3[8]	nc	Port F6"	M6[8]	nc	Port K3"	M6[1]	nc
Port C7"	M3[9](MSB)	nc	Port F7"	M6[9](MSB)	nc	Port K4"	M7[0]	nc
LVAL"	LVAL	nc	LVAL"	LVAL	nc	LVAL"	LVAL	nc
FVAL"	FVAL	nc	Port I2"	M2[0]	nc	Port K5"	M7[1]	nc
Port I0"	M1[1]	nc	Port I3"	M2[1]	nc	Port K6"	M8[0]	nc
Port I1"	M1[2]	nc	Port I4"	M3[0]	nc	Port K7"	M8[1]	nc

2ch Output								
Port	Connector D1, D5, D9	Connector D3, D7, D11	Port	Connector D2, D6, D10	Connector D4, D8, D12	Port	Connector D2, D6, D10	Connector D4, D8, D12
Port A0"	M1[2]	M9[2]	Port D0"	M4[2]	M12[2]	Port G0"	M7[2]	M15[2]
Port A1"	M1[3]	M9[3]	Port D1"	M4[3]	M12[3]	Port G1"	M7[3]	M15[3]
Port A2"	M1[4]	M9[4]	Port D2"	M4[4]	M12[4]	Port G2"	M7[4]	M15[4]
Port A3"	M1[5]	M9[5]	Port D3"	M4[5]	M12[5]	Port G3"	M7[5]	M15[5]
Port A4"	M1[6]	M9[6]	Port D4"	M4[6]	M12[6]	Port G4"	M7[6]	M15[6]
Port A5"	M1[7]	M9[7]	Port D5"	M4[7]	M12[7]	Port G5"	M7[7]	M15[7]
Port A6"	M1[8]	M9[8]	Port D6"	M4[8]	M12[8]	Port G6"	M7[8]	M15[8]
Port A7"	M1[9](MSB)	M9[9](MSB)	Port D7"	M4[9](MSB)	M12[9](MSB)	Port G7"	M7[9](MSB)	M15[9](MSB)
Port B0"	M2[2]	M10[2]	Port E0"	M5[2]	M13[2]	Port H0"	M8[2]	M16[2]
Port B1"	M2[3]	M10[3]	Port E1"	M5[3]	M13[3]	Port H1"	M8[3]	M16[3]
Port B2"	M2[4]	M10[4]	Port E2"	M5[4]	M13[4]	Port H2"	M8[4]	M16[4]
Port B3"	M2[5]	M10[5]	Port E3"	M5[5]	M13[5]	Port H3"	M8[5]	M16[5]
Port B4"	M2[6]	M10[6]	Port E4"	M5[6]	M13[6]	Port H4"	M8[6]	M16[6]
Port B5"	M2[7]	M10[7]	Port E5"	M5[7]	M13[7]	Port H5"	M8[7]	M16[7]
Port B6"	M2[8]	M10[8]	Port E6"	M5[8]	M13[8]	Port H6"	M8[8]	M16[8]
Port B7"	M2[9](MSB)	M10[9](MSB)	Port E7"	M5[9](MSB)	M13[9](MSB)	Port H7"	M8[9](MSB)	M16[9](MSB)
Port C0"	M3[2]	M11[2]	Port F0"	M6[2]	M14[2]	Port I5"	M3[1]	M11[1]
Port C1"	M3[3]	M11[3]	Port F1"	M6[3]	M14[3]	Port I6"	M4[0]	M12[0]
Port C2"	M3[4]	M11[4]	Port F2"	M6[4]	M14[4]	Port I7"	M4[1]	M12[1]
Port C3"	M3[5]	M11[5]	Port F3"	M6[5]	M14[5]	Port K0"	M5[0]	M13[0]
Port C4"	M3[6]	M11[6]	Port F4"	M6[6]	M14[6]	Port K1"	M5[1]	M13[1]
Port C5"	M3[7]	M11[7]	Port F5"	M6[7]	M14[7]	Port K2"	M6[0]	M14[0]
Port C6"	M3[8]	M11[8]	Port F6"	M6[8]	M14[8]	Port K3"	M6[1]	M14[1]
Port C7"	M3[9](MSB)	M11[9](MSB)	Port F7"	M6[9](MSB)	M14[9](MSB)	Port K4"	M7[0]	M15[0]
LVAL"	LVAL	LVAL	LVAL"	LVAL	LVAL	LVAL"	LVAL	LVAL
FVAL"	FVAL	FVAL	Port I2"	M2[0]	M10[0]	Port K5"	M7[1]	M15[1]
Port I0"	M1[1]	M9[1]	Port I3"	M2[1]	M10[1]	Port K6"	M8[0]	M16[0]
Port I1"	M1[2]	M9[2]	Port I4"	M3[0]	M11[0]	Port K7"	M8[1]	M16[1]

Table.38 Definition of symbols- Deca Configuration bit assignment (d)

Signal Name	Logical	IN/OUT	Function
M1-16[9:0]	Positive	OUT	Monochrome Output Data (M1-16[0]:LSB、M1-16[9]:MSB)、10bit
LVAL	Positive	OUT	Line Valid Signal (Valid Line)
FVAL	Positive	OUT	Frame Valid Signal (Valid Frame)

7. Serial communication

This product has a serial communication (UART). Users can access to this Product from their PCs through the serial interface of the Camera Link™ connector.

Master port which is able to access CIS from PC is D1 connector for KD6R1064/1247DXL-NL, D5 connector for KD6R1688DXL-NL only.

8. Connector pin assignments

Refer to Table 39 for the each connector.

Table.39 Connector list

Product	Power Connector	Camera Link™ connector			Illumination Control Connector
		Base	Medium	Full, Deca	
KD6R1064DXL-NL	V1 V3	D1	D1, D2	D1, D2	L1
		D3	D3, D4	D3, D4	
		D5	D5, D6	D5, D6	
		D7	D7, D8	D7, D8	
KD6R1247DXL-NL	V1 V2 V3	D1	D1, D2	D1, D2	L1
		D3	D3, D4	D3, D4	
		D5	D5, D6	D5, D6	
		D7	D7, D8	D7, D8	
KD6R1688DXL-NL	V1 V2 V3	D1	D1, D2	D1, D2	L1
		D3	D3, D4	D3, D4	
		D5	D5, D6	D5, D6	
		D7	D7, D8	D7, D8	
		D9	D9, D10	D9, D10	
		D11	D11, D12	D11, D12	

8.1 Power cable connectors (for sensor) V1,V2,V3

V1,V2,V3: DAU-15P-F0R [JAE]

Contact Pin : 030-50634 [JAE]

Table. 40 Pin assignment of power cable connectors

No	Name								Symbol
	KD6R1064DXL-NL		KD6R1247DXL-NL			KD6R1688DXL-NL			
	V1	V3	V1	V2	V3	V1	V2	V3	
1	+5VPower Supply	+5VPower Supply	+5VPower Supply	NC	+5VPower Supply	+5VPower Supply	+5VPower Supply	+5VPower Supply	VDD
2	+5VPower Supply	+5VPower Supply	+5VPower Supply	NC	+5VPower Supply	+5VPower Supply	+5VPower Supply	+5VPower Supply	VDD
3	+5VPower Supply	+5VPower Supply	+5VPower Supply	+5VPower Supply	+5VPower Supply	+5VPower Supply	+5VPower Supply	+5VPower Supply	VDD
4	+5VPower Supply	+5VPower Supply	+5VPower Supply	+5VPower Supply	+5VPower Supply	+5VPower Supply	+5VPower Supply	+5VPower Supply	VDD
5	+5VPower Supply	+5VPower Supply	+5VPower Supply	NC	+5VPower Supply	+5VPower Supply	+5VPower Supply	+5VPower Supply	VDD
6	+5VPower Supply	+5VPower Supply	+5VPower Supply	NC	+5VPower Supply	+5VPower Supply	+5VPower Supply	+5VPower Supply	VDD
7	+5VPower Supply	NC	+5VPower Supply	NC	NC	+5VPower Supply	NC	+5VPower Supply	VDD
8	NC	NC	NC	NC	NC	NC	NC	NC	
9	GND	GND	GND	NC	GND	GND	GND	GND	GND
10	GND	GND	GND	NC	GND	GND	GND	GND	GND
11	GND	GND	GND	GND	GND	GND	GND	GND	GND
12	GND	GND	GND	GND	GND	GND	GND	GND	GND
13	GND	GND	GND	NC	GND	GND	GND	GND	GND
14	GND	GND	GND	NC	GND	GND	GND	GND	GND
15	GND	NC	GND	NC	NC	GND	NC	GND	GND

8.2 Outer (External) illumination control connector L1

L1: DEU-9S-F0R [JAE]

Table.41 Pin assignment

No	Name	Symbol	I/O
1	NC		-
2	NC		-
3	NC		-
4	OUT_PULSE1		O
5	NC		-
6	NC		-
7	NC		-
8	OUT_PULSE2		O
9	GND	GND	-

8.3 Camera Link™ connector 1

D1、D3、D5、D7、D9、D11: 12226-1150-00PL [3M] ※Camera Link™ I/F

Table.42 Pin assignment (D1、D3、D5、D7、D9、D11)

No	Name	Symbol	I/O	Signal
1	GND	GND	—	
2	Data Signal	X0-	O	
3	Data Signal	X1-	O	
4	Data Signal	X2-	O	
5	Clock for Data	XCLK-	O	
6	Data Signal	X3-	O	
7	Control Signal	SERTC+	I	Serial Communication (Master Port Only)
8	Control Signal	SERTFG-	O	Serial Communication (Master Port Only)
9	Data Signal	CC1-	I	XRDSYNC : for sync signal
10	Data Signal	CC2+	I	Non-Connected
11	Data Signal	CC3-	I	Non-Connected
12	Data Signal	CC4+	I	Non-Connected
13	GND	GND	—	
14	GND	GND	—	
15	Data Signal	X0+	O	
16	Data Signal	X1+	O	
17	Data Signal	X2+	O	
18	Clock for Data	XCLK+	O	
19	Data Signal	X3	O	
20	Control Signal	SERTC-	I	Serial Communication (Master Port Only)
21	Control Signal	SERTFG+	O	Serial Communication (Master Port Only)
22	Data Signal	CC1+	I	XRDSYNC : for sync signal
23	Data Signal	CC2-	I	Non-Connected
24	Data Signal	CC3+	I	Non-Connected
25	Data Signal	CC4-	I	Non-Connected
26	GND	GND	—	

8.4 Camera Link™ connector 2

D2、D4、D6、D8、D10、D12: 12226-1150-00PL [3M] ※Camera Link™ I/F

Table.43 Pin assignment (D2、D4、D6、D8、D10、D12)

No	Name	Symbol	I/O	Signal
1	GND	GND	—	
2	Data Signal	Y0-	O	
3	Data Signal	Y1-	O	
4	Data Signal	Y2-	O	
5	Clock for Data	YCLK-	O	
6	Data Signal	Y3-	O	
7	100ohm Terminated	TERM	O	Inside a board, 100Ω resister is connected between No.7 and No.20pin.
8	Data Signal	Z0-	O	
9	Data Signal	Z1-	O	
10	Data Signal	Z2-	O	
11	Clock for Data	ZCLK-	O	
12	Data Signal	Z3-	O	
13	GND	GND	—	
14	GND	GND	—	
15	Data Signal	Y0+	O	
16	Data Signal	Y1+	O	
17	Data Signal	Y2+	O	
18	Clock for Data	YCLK+	O	
19	Data Signal	Y3+	O	
20	100ohm Terminated	TERM	O	Inside a board, 100Ω resister is connected between No.7 and No.20pin.
21	Data Signal	Z0+	O	
22	Data Signal	Z1+	O	
23	Data Signal	Z2+	O	
24	Clock for Data	ZCLK+	O	
25	Data Signal	Z3+	O	
26	GND	GND	—	

9. Precautions

This Product is designed for the purpose of being used in general industries. If you plan to use it for special applications (aerospace applications, combustion equipment, transportation equipment, life-support systems, safety devices, etc.) where specially high quality and reliability are required and failure or malfunction could directly threaten people's lives, or do harm to the human body, or if you plan to use it for applications other than the standard application intended by Mitsubishi Electric (the "Company"), please consult our sales department personnel before doing so.

If you have used it for applications other than the general industries intended by the Company without consulting our sales department personnel, the Company SHALL HAVE NO RESPONSIBILITY OR LIABILITY (INCLUDING, BUT NOT LIMITED TO ANY AND ALL RESPONSIBILITY OR LIABILITY BASED ON CONTRACT, WARRANTY, TORT, PRODUCT LIABILITY) FOR ANY INJURY OR DEATH TO PERSONS OR LOSS OR DAMAGE TO PROPERTY CAUSED BY the PRODUCT.

The Company will analyze a defective Product on your request. And if the defect is attributable to the Company and within 1 year from the Product shipment, we will repair the Product itself at free of charge or replace with the alternative Product.

The Company's quality assurance responsibility is limited to the above and the Company does not assume responsibility for any indirect damages, etc.

- (1) Be careful with the glass of the Product in case of carrying the product, or when replacing the glass.
- (2) Keep the glass surface (made by hard plastic) always clean. Do not touch the surface directly with fingers or use it in a dusty environment. When it is contaminated, wipe it lightly with a cloth soaked with alcohol. Upon doing so, handle with care not to form any streak on the glass. Do not blow off dust with air guns.
- (3) To prevent foreign objects from entering the Product, do not remove the side plates (bracket), etc.
- (4) The Product can be damaged by ESD. Handle the Product with care as shown below.
 - 1) Do not handle the Product on the insulating sheet or wooden desk.
 - 2) In case of touching the Product, do not use gloves made of chemical fiber (example: nylon). Use gloves and fingerstalls preventing from static electricity.
 - 3) Do not wrap the Product with paper or polyethylene or other electrical chargeable sheet.
 - 4) To prevent an electrostatic breakdown occurring in the IC etc., take great care not to touch the terminal, other electrical parts and board directly by fingers or keep it away from electrical chargeable objects.
 - 5) When the equipment, which the Product will be installed, tends to generate static electricity, take the great care on static electricity, which it may not cause negative impact to the Product, when operating the equipment.
- (5) To realize the stable behavior of IC, take care on handling the Product as follows:
 - 1) Applying a voltage exceeding the absolute maximum rating of IC, even if it is a surge, will cause a latch-up, resulting damage to the sensor. Take the great care not to allow the voltage to each terminal to exceed the absolute maximum rating at rapid changes in the current passing through the external circuits or at power-ON/OFF. If the same power supply is used for this product and your equipment, or if the cable wiring of this product and the wiring of your equipment with a large current flow are connected in parallel, the coupling may cause a surge that exceeds the rating. Please be careful about surges caused by the operation of your equipment.
 - 2) To scan the stable image, it is recommended to refresh the dark and white correction data (shading correction) before each scan.
- (6) Precautions for installing the Product.
 - 1) Keep this Product's boards away from sources of electrical noise, such as boards, cables, and so on. (For information on boards' position, refer to Fig.5 to 7.)
 - 2) Do not seal near the air outlet of the FAN by any obstructions.
- (7) Refer the User's Manual (TM-XJ959) about handling details of this product.
- (8) The frame of this product is made by Aluminum. When designing the equipment which installs this product, please be careful of the difference of the thermal expansion coefficient between this product and the equipment which installs this product. For detail, please refer to the User's Manual (TM-XJ959).

10. Product Outline

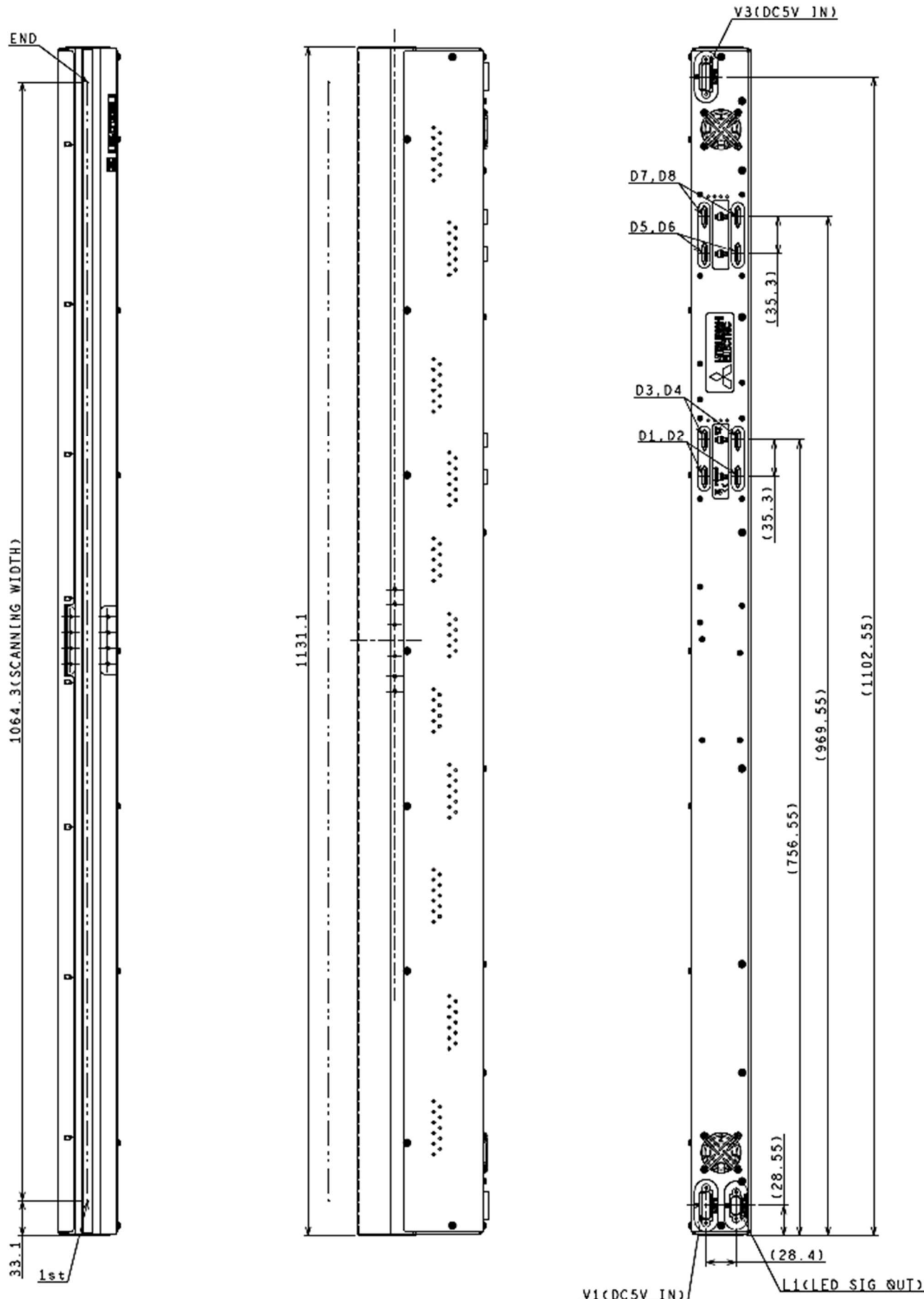


Fig.5 KD6R1064DXL-NL Outline drawing (at 24°C)

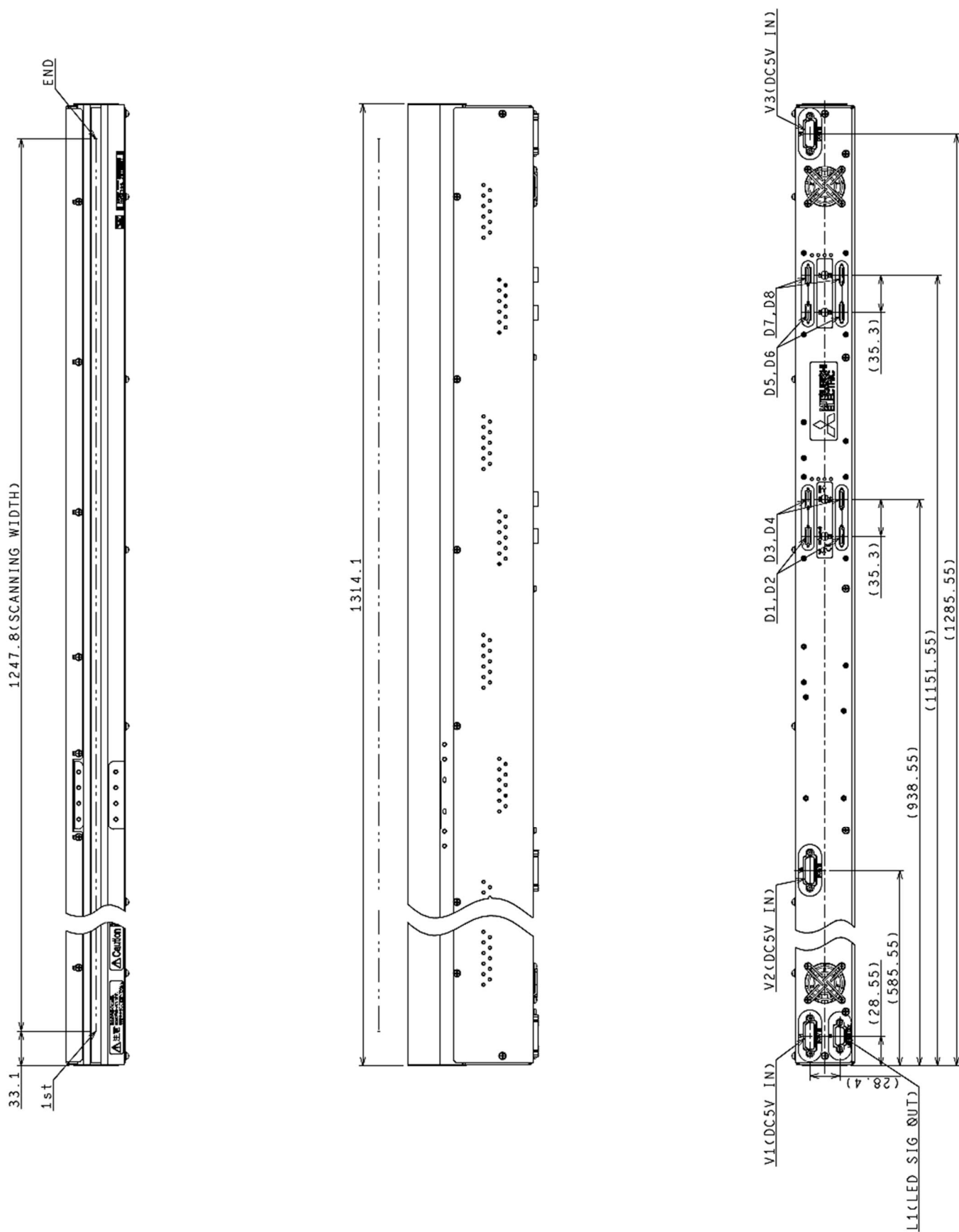


Fig.6 KD6R1247DXL-NL Outline drawing (at 24°C)

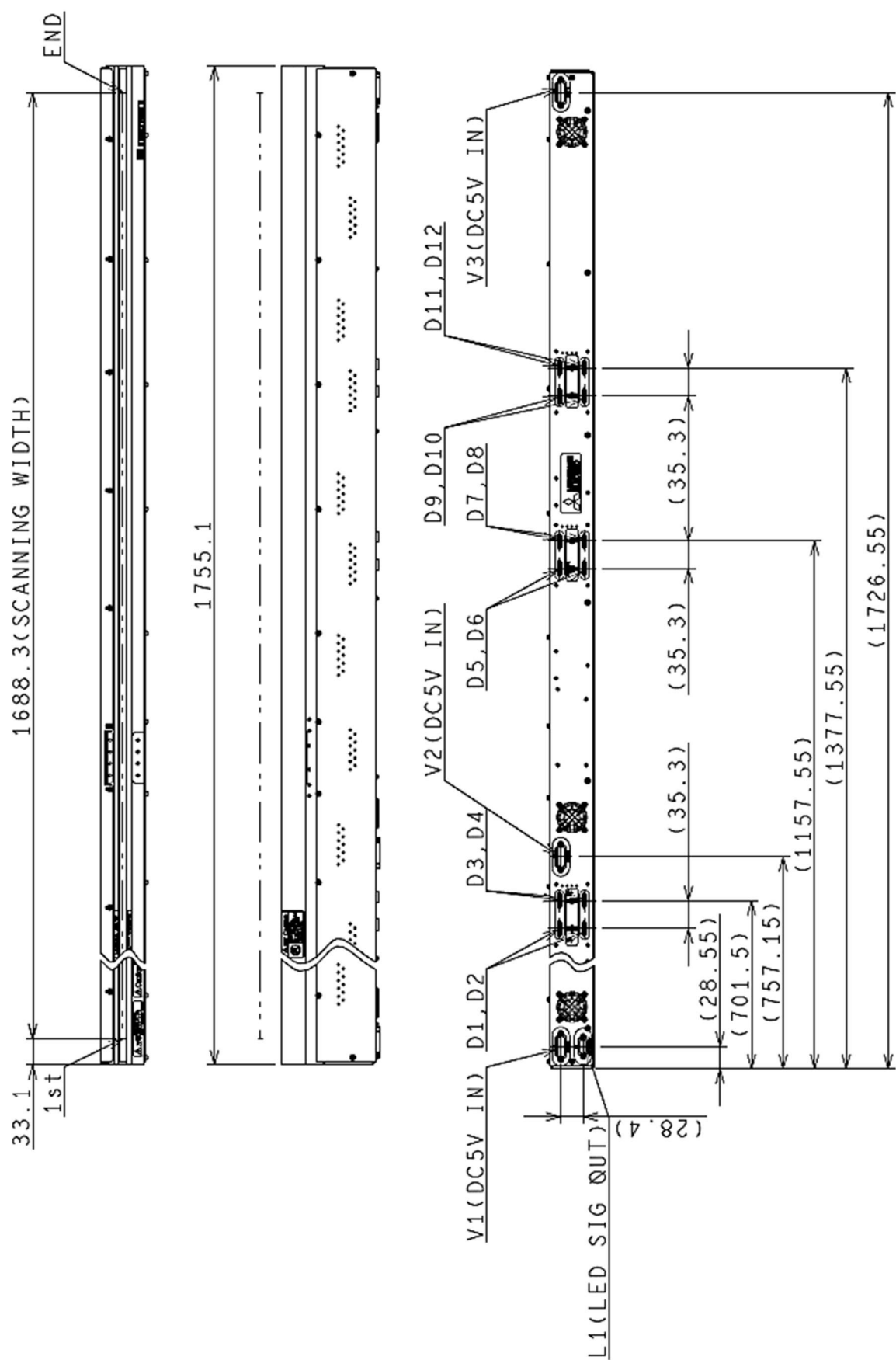


Fig.7 KD6R1688DXL-NL Outline drawing (at 24°C)

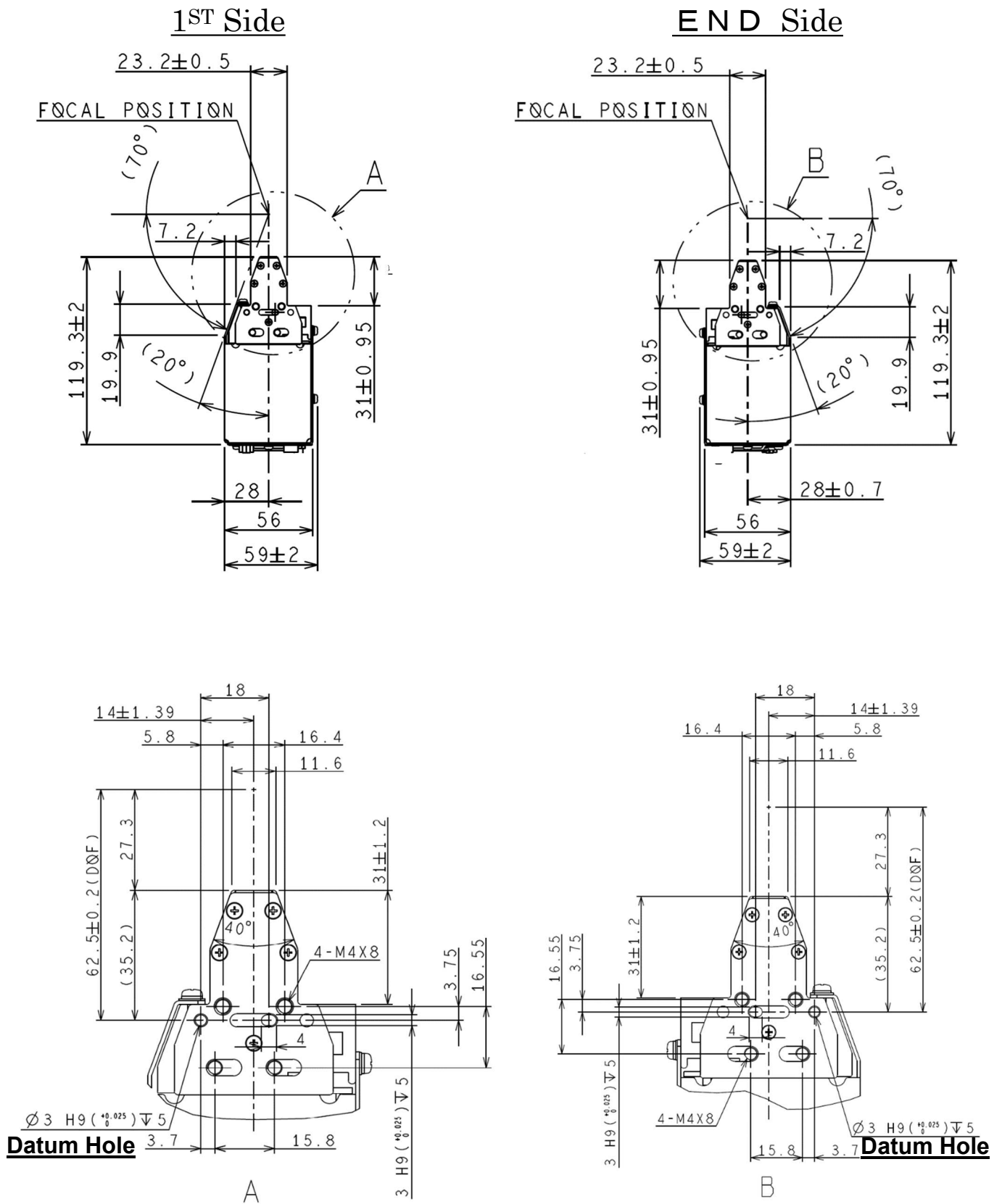
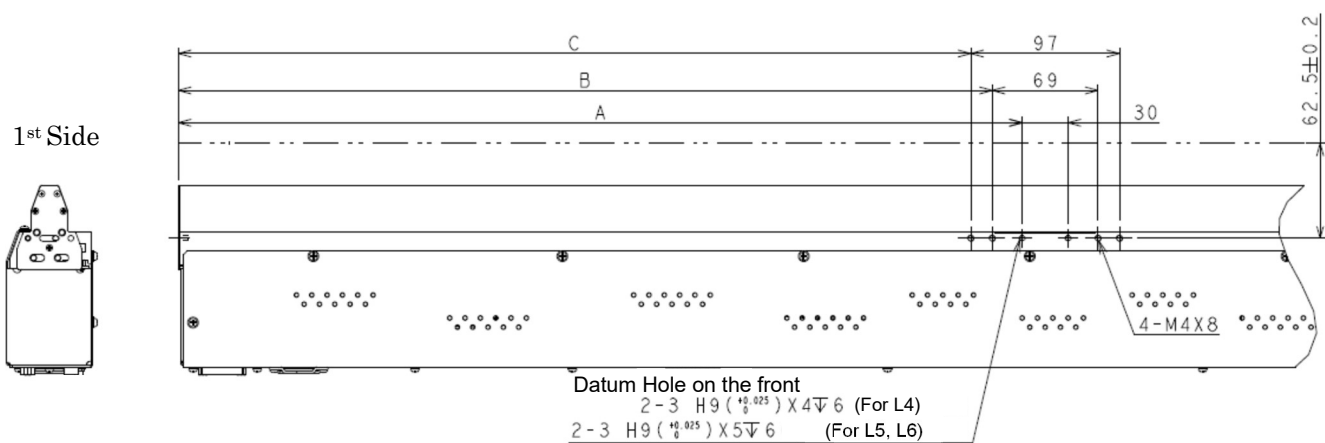


Fig.8 Side view (Common mechanism (Applied for all products)) (at 24°C)

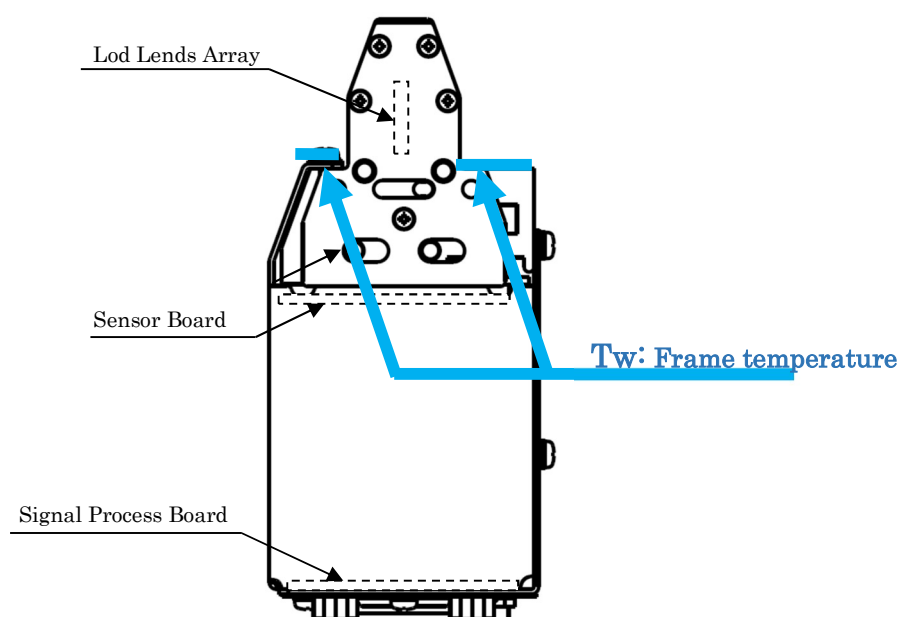


※L4=KD6R1064DXL-NL, L5=KD6R1247DXL-NL, L6=KD6R1688DXL-NL

Correspondence table of dimension A, B and C

Model	Dimension A[mm]	Dimension B[mm]	Dimension C[mm]
KD6R1064DXL-NL	550.55±0.4	531.05±0.4	517.05±0.4
KD6R1247DXL-NL	642.05±0.43	622.55±0.43	608.55±0.43
KD6R1688DXL-NL	862.55±0.47	843.05±0.47	829.05±0.47

Fig.9 Front View (Applied for all models) (at 24°C)



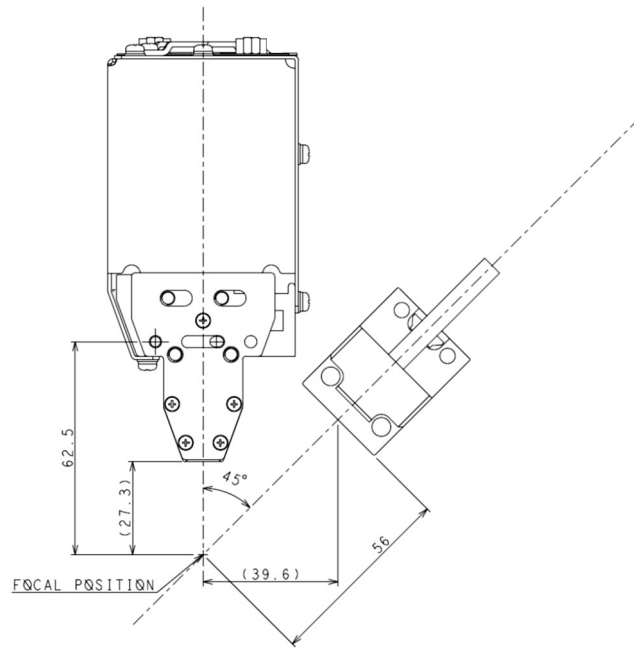
< Definition of Tw (Frame temperature) >

A temperature of the case is described as Tw in the Fig 10. The guaranteed temperature of it is $T_w < 70^\circ\text{C}$ (343.15K) for L4 only or $T_w < 60^\circ\text{C}$ (333.15K) for L5/L6.

A temperature gradient might occur due to a position of the cooling fan. Please check the highest temperature of longitudinal direction of the case and be aware of not using KD CIS out of guaranteed condition.

※L4=KD6R1064DXL-NL, L5=KD6R1247DXL-NL, L6=KD6R1688DXL-NL

Fig.10 Sectional view (Common mechanism (Applied for all products))



<Outgoing inspection>

LED Illumination IDBB-LSRC1900, made by IMAC Co. Ltd is installed as shown above. The product is measured the characteristics specified in the Table 3 "Specifications / Configuration" on the page 5 and passed one is shipped. Intensity of illumination is measured on the focal position which is shown in above figure.

Fig.11 Illumination position (Common mechanism (Applied for all products))

11. Product Serial

The product serial consists of a 10-digit number.

Example of Serial No : 24 02 36 5001

24 : Production year (2024)

02 : Producton mouth (02:February)

36 : Model No

36(KD6R1064DXL-NL)

37(KD6R1247DXL-NL)

38(KD6R1247DXL-NL),

5001 : Manufacturing No

0001~4999(Conventional products)

5001~9999(Products with updated Power supply IC)