

# CONTRASTECH

## LEO Series

Area Scan & Line Scan Cameras

**CoaXPress**™ **CAMERA Link**

- Excellent cost performance ratio
- CameraLink / CoaXPress
- Resolution from 5MP to 150MP
- Advanced I / O Control

# LEO Series

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Area Scan Cameras / Line Scan Cameras

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## Brief Introduction

With the wide application and popularization of machine vision technology, more and more higher requirements proposed by industrial applications, like high precision measurements and high speed inspection. Depend on decade technology accumulation efforts from former cameras, Contrastech has developed a new series cameras - LEO Series which available in the market to answer different challenges.

LEO series area scan cameras, equipped with the advanced high-end image sensor and covering a range of resolution from 0.3MP to 150MP, can meet various machine vision application requirements.

With the LEO series, you can choose from the most popular data interfaces in the Vision Market . All of these interfaces are standardized and offer the option to provide power and data to the camera via one single cable. The cameras also offer separate input/output ports for triggering or flash control.

LEO Series industrial cameras compatible with Camera Link and CoaXPress data bus standards, support GenICam,

## Applications

VR/AR;  
Defect Inspection;  
Vision Localization;  
Dimension Measurement;  
Barcode Reading;  
Logistic Industry.

can smoothly connect with third-party software, without secondary development. LEO Series cameras with excellent cost performance and fully suitable for various inspection, measurements and high-speed imaging applications. This series cameras won customers high praise because its perfect performance in cellphone and tablet PC screen inspection, LED automatic packing, defect inspection, electronic components manufacturing, wafer positioning and other applications.

With this variety of sensors and interfaces, combined with the extensive features offered, LEO series is fit for a wide range of vision applications.

## Main Feature

### Wide Range of Resolution

Resolution from 5MP to 150MP for Various Applications.

### 128 MB RAM

Internal memory up to 128 MB guarantees no image loss.

### Excellent Cost Performance.



CAMERA  
**Link**



**CoaXPress**

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## Area Scan Cameras-Camera Link

Model	Resolution	Fps	Sensor Size	Pixel Size	Sensor	Sensor Technology	Color	No.
LEO 5000S-140cm/cc	2432 × 2048	140	2/3"	3.45	Sony IMX250	Global CMOS	Mono / Color	<a href="#">4</a>
LEO 1200S-70cm	4096 × 3000 3840 × 3000	50.9 69.8	1.1"	3.45	Sony IMX253	Global CMOS	Mono	<a href="#">4</a>
LEO 25MP-31cm	5120 × 5120	31.3	23 × 23 mm	4.5	PYTHON25K	Global CMOS	Mono	<a href="#">4</a>
LEO 29MK-5cm/cc	6576 × 4384	4.5	36 × 24 mm	5.5	KAI-29050	Global CCD	Mono / Color	<a href="#">5</a>
LEO 29MK1-5cm	6576 × 4384	4.5	36 × 24 mm	5.5	KAI-29050	Global CCD	Mono	<a href="#">5</a>
LEO 43MK-4cm	8032 × 5360	3.64	36 × 24 mm	4.5	KAI-43140	Global CCD	Mono	<a href="#">5</a>
LEO 50MK-4cm	10440 × 4800	4	46.98 × 21.60 mm	4.5	KAI-50140	Global CCD	Mono	<a href="#">6</a>
LEO 100MS-8cm	11648 × 8740 11520 × 8740	8	55 mm	3.76	Sony IMX461	Rolling CMOS	Mono	<a href="#">6</a>

## Line Scan Cameras-Camera Link

Model	Resolution	Line Rate	Pixel Size	Dynamic Range	Sensor Technology	Color	No.
LEO 4K-40CC	4096 × 2	20/40 kHz	5	>56 dB	CMOS	Color	<a href="#">7</a>
LEO 4K-100CM/CC	4096 × 2	20/40 kHz	5	>56 dB	CMOS	Mono / Color	<a href="#">7</a>
LEO 8K-40CM	8192 × 2	40 kHz	5	>67.6 dB	CMOS	Mono	<a href="#">8</a>
LEO 8K-80CM	8192 × 4	20/40/80 kHz	5	>62 dB	CMOS	Mono	<a href="#">8</a>
LEO 8K-34CC	8192 × 6	10/20/34 kHz	5	>62 dB	CMOS	Color	<a href="#">8</a>

## Large Area Scan Cameras-CoaXPress

Model	Resolution	Fps	Sensor Size	Pixel Size	Sensor	Sensor Technology	Color	No.
LEO 25MG-150xm	5120 × 5120	150	1.1	2.5	GMAX0505	Global CMOS	Mono	<a href="#">9</a>
LEO 31MS-18xm	6464 × 4852	17.9	22.3 × 16.7 mm	3.45	IMX342	Global CMOS	Mono	<a href="#">9</a>
LEO 43MG-17xm	7904 × 5432	16.4	22.16 × 15.22 mm	2.8	GMAX0806	Global CMOS	Mono	<a href="#">9</a>
LEO 65MG-32xm	9216 × 7000	31.5	29.9 × 22.4 mm	3.2	GMAX3265	Global CMOS	Mono	<a href="#">10</a>
LEO 150MS-6xm/xc	14208 × 10640	6.2	66.7 mm	3.76	Sony IMX411	Rolling CMOS	Mono	<a href="#">10</a>

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Area Scan Cameras

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## Specifications

Model	LEO 5000S-140cm/cc	LEO 1200S-70cm	LEO 25MP-31cm
<b>Camera</b>			
Resolution (H*V)	2432 × 2048	4096 × 3000 / 3840 × 3000	5120 × 5120
Sensor	SONY IMX250	Sony IMX253	ON Semiconductor PYTHON25K
Sensor Size (optical)	2/3"	1.1"	23mm × 23mm
Sensor Technology	CMOS, Global	CMOS, Global	CMOS, Global
Pixel Size [μm]	3.45 × 3.45	3.45 × 3.45	4.5 × 4.5
Frame Rate [fps]	140	50.9 / 69.8	31
Data Bits	8bit / 10bit / 12bit	8bit / 10bit / 12bit	8bit
Exposure Time	15μs ~ 10s	1μs ~ 1s	45μs ~ 10s
Dynamic Range	>75.4dB	>71.6dB	>59dB
Color	Mono / Color	Mono	Mono
Image Format	Mono: Mono 8/10/12 Color: Bayer RG 8/10/12, RGB8	Mono: Mono 8/10/12	Mono: Mono8
Interface	CameraLink ( SDR )		
Synchronization	Via hardware trigger, via software trigger or free run		
Programmable Control [ISP]	Image Resolution, RGB gain, Exposure Time, Contrast, Gamma Chart, Image Rollover, Raw, LUT, Black Level Correction.		
<b>Electrical</b>			
Housing Size[L*W*H]	44.0×29.0×59.0 mm (100g)	44.0×29.0×59.0 mm (100g)	-
Operating Temperature	-30~80 ° C (Storage), 0~50° C (Working)		
Lens Mount	C-Mount	C-Mount	M58 / F-mount
Digital I/O	1 opto-isolated input, 1 opto-isolated output, 1 bidirectional custom non-isolation I/O		
Power Input	DC 9-24V	DC 9-24V	DC 9-24V
Power Consumption	12V @3.25W	12V @3.25W	24V @9W
Driver	LEO series camera software suite or third-party CameraLink protocol software		
Operating System	Windows		
Conformity	Cameralink, GenICam		

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## Specifications



Model	LEO 29MK-5cm/cc	LEO 29MK1-5cm	LEO 43MK-4cm
<b>Camera</b>			
Resolution (H*V)	6576 × 4384	6576 × 4384	8032 × 5360
Sensor	KAI-29050	KAI-29050	KAI-43140
Sensor Size (optical)	36mm × 24mm	36mm × 24mm	36mm × 24mm
Sensor Technology	CCD, Global	CCD, Global	CCD, Global
Pixel Size [μm]	5.5 × 5.5	5.5 × 5.5	4.5 × 4.5
Frame Rate [fps]	4.5	4.5	3.64
Data Bits	8bit / 10bit / 12bit	8bit / 10bit / 12bit	8bit / 10bit / 12bit
Exposure Time	103μs~2s	103μs~2s	100μs~2s
Dynamic Range	>64dB	>64dB	>60dB
Color	Mono / Color	Mono	Mono
Image Format	Mono: Mono8/10/12 Color: Bayer GR 8/10/12	Mono: Mono8/10/12	Mono8/10/12
Interface	CameraLink (SDR )		
Synchronization	Via hardware trigger, via software trigger or free run		
Programmable Control [ISP]	Image Resolution, RGB gain, Exposure Time, Contrast, Gamma Chart, Image Rollover, Raw, LUT, Black Level Correction.		
<b>Electrical</b>			
Housing Size[L*W*H]	M58 : (With Fan) 74.0×74.0×74.1 mm F : (With Fan) 74.0×74.0×80.5 mm		86.0×86.0×87.3 mm
Operating Temperature	-30~80 ° C (Storage), 0~50° C (Working)		
Lens Mount	M58 / F-Mount		F-Mount
Digital I/O	1 opto-isolated input, 1 opto-isolated output, 1 bidirectional custom non-isolation I/O, 1 RS232		
Power Input	DC 12V		DC 22-26V
Power Consumption	< 12V @11W		24V @ 60W (Cooling) 24V @ 16W (Non-Cooling)
Driver	LEO series camera software suite or third-party CameraLink protocol software		
Operating System	Windows		
Conformity	Cameralink, GenICam		

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## Specifications



Model	LEO 50MK-4cm	LEO 100MS-8cm
Camera		
Resolution (H*V)	10440 × 4800	11648 × 8740 / 11520 × 8740
Sensor	OnSemi KAI-50140	Sony IMX461
Sensor Size (optical)	46.98mm × 21.60mm	55 mm
Sensor Technology	CCD, Global	CMOS , Rolling
Pixel Size [μm]	4.5 × 4.5	3.76 × 3.76
Frame Rate [fps]	4	8 fps @11520 × 8740
Data Bits	8bit / 10bit / 12bit	8bit / 10bit / 12bit
Exposure Time	102μs~10s	14μs ~ 10s
Dynamic Range	>60dB	>78dB
Color	Mono	Mono
Image Format	Mono8/10/12	ADC 12bit : Mono 8/10/12 ADC 16bit : Mono 8/10/12/16
Interface	CameraLink (SDR )	
Synchronization	Via hardware trigger, via software trigger or free run	
Programmable Control [ISP]	Image Resolution, RGB gain, Exposure Time, Contrast, Gamma Chart, Image Rollover, Raw, LUT, Black Level Correction.	
Electrical		
Housing Size[L*W*H]	86.0 × 86.0 × 87.2 mm (1300g)	90.0 × 90.0 × 71.5 mm (790g)
Operating Temperature	-30~70 ° C (Storage), 0~50° C (Working)	
Lens Mount	M58, BFL 28 mm	M72*0.75, BFL 19.55 mm
Digital I/O	1 opto-isolated input, 1 opto-isolated output, 1 bidirectional custom non-isolation I/O, 1 RS232	
Power Input	DC 22-26V	DC 9-24V
Power Consumption	24V @70W (Cooling) 24V @18W (Non-Cooling)	24V @14W
Driver	LEO series camera software suite or third-party CameraLink protocol software	
Operating System	Windows	
Conformity	Cameralink, GenICam	

# Contrastech LEO Series

Line Scan Cameras

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## Specifications



Model	LEO 4K-40CC	LEO 4K-100CM
Camera		
Resolution (H*V)	4096 × 2	4096 × 1
Sensor Technology	CMOS	CMOS
Configuration mode	Base / Medium	Base / Medium / Full
Line Rate	20kHz@Base / 40kHz@Medium	40kHz@Base / 80kHz@Medium / 100kHz@Full
Pixel Size [µm]	5	5
SNR	39.5 dB	-
Data Bits	8bit / 10bit / 12bit	8bit / 10bit / 12bit
Exposure Time	2 µs ~ 10 ms	2 µs ~ 10 ms
Dynamic Range	>56 dB	>56dB
Color/Mono	Color	Mono
Image Format	RGB8	Mono8 @ Full Mono8/10/10p/12/12p @ Base & Medium
Interface	Camera Link , Support USB port for firmware upgrade	
Synchronization	Via hardware trigger, via software trigger or free run	
Programmable Control [ISP]	Image Resolution, RGB gain, Exposure Time, Contrast, Gamma Chart, Image Rollover, Raw, LUT, Black Level Correction.	
Electrical		
Housing Size[L*W*H]	62 x 62 x 32 mm (150g)	62 x 62 x 32 mm (150g)
Operating Temperature	-30~80 ° C (Storage), 0~50° C (Working)	
Lens Mount	M42*1.0, BTL 12mm	M42*1.0, BTL 12mm
Digital I/O	1 opto-isolated input, 1 opto-isolated output, 1 bidirectional custom non-isolation I/O, 1 RS232	1 opto-isolated input, 1 opto-isolated output, 1 bidirectional custom non-isolation I/O, 1 RS232
Power Input	DC 12-24V	DC 12-24V
Power Consumption	< 4.0 W@12 VDC	< 4.0 W@12 VDC
Driver	LEO series camera software suite or third-party CameraLink protocol software	
Operating System	Windows	
Conformity	Cameralink, GenICam	

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## Specifications



Model	LEO 8K-40CM	LEO 8K-80CM	LEO 8K-34CC
Camera			
Resolution (H*V)	8192 × 2	8192 × 4	8192 × 6
Sensor Technology	CMOS	CMOS	CMOS
Configuration mode	Base / Medium	Base / Medium / Full	Base / Medium / 80-bit
Line Rate	40 kHz @8192 × 2	20 kHz / 40 kHz / 80 kHz @8192×4	10 kHz / 20 kHz / 34 kHz @8192×6
Pixel Size [μm]	5	5	5
SNR	40 dB	42 dB	42 dB
Data Bits	8bit / 10bit / 12bit	8bit / 10bit / 12bit	8bit
Exposure Time	1.5 μs ~ 6.6 ms	3 μs ~ 10 ms	3 μs ~ 10 ms
Dynamic Range	>67.6 dB	>62 dB	>62 dB
Color/Mono	Mono	Mono	Color
Image Format	Mono8/10/12	Mono8/10/12	RGB 8 / Mono8
Interface	Camera Link , Support USB port for firmware upgrade		
Synchronization	Via hardware trigger, via software trigger or free run		
Programmable Control [ISP]	Image Resolution, RGB gain, Exposure Time, Contrast, Gamma Chart, Image Rollover, Raw, LUT, Black Level Correction.		
Electrical			
Housing Size[L*W*H]	125 x 60 x 28.5mm (360g)	150 x80 x23.8 mm (400g)	150 x80 x23.8 mm (400g)
Operating Temperature	-30~70 ° C (Storage), 0~50° C (Working)		
Lens Mount	Φ42, M2.5*3, Screw fixed, BFL10.3 mm	M72*0.75, BTL 10.1 mm	M72*0.75, BTL 10.1 mm
Digital I/O	6-pin Hirose connector provides power supply, CameraLink provides IO	1 opto-isolated input, 1 opto-isolated output, 1 bidirectional custom non-isolation I/O, 1 RS232	12-pin Hirose connector provides power supply and I/O, 2 opto-isolated input, 2 opto-isolated output, CameraLink provides IO
Power Input	DC 12-24V	DC 12-24V	DC 12V
Power Consumption	< 7.5 W@12 VDC	< 8.0 W@12 VDC	< 10.8 W@12 VDC
Driver	LEO series camera software suite or third-party CameraLink protocol software		
Operating System	Windows		
Conformity	Cameralink, GenICam		



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## Specifications



Model	LEO 25MG-150xm	LEO 31MS-18xm	LEO 43MS-17xm
Camera			
Resolution (H*V)	5120 × 5120	6464 × 4852	7904 × 5432
Sensor	GMAX0505	SONY IMX342	GMAX0806
Sensor Size (optical)	1.1"	22.3 × 16.7 mm	22.16mm × 15.22mm
Sensor Technology	CMOS, Global	CMOS, Global	CMOS, Global
Pixel Size [μm]	2.5 × 2.5	3.45 × 3.45	2.8 × 2.8
Frame Rate [fps]	150	ADC 8bit : 17.9 fps ADC 12bit : 12.1 fps	17
Data Bits	8bit / 10bit / 12bit	8bit / 10bit / 12bit	8bit / 10bit / 12bit
Exposure Time	12μs~10s	Ultra Small Exposure : 3 μs~33 μs ADC 8bit : 47 μs~2 sec ADC 12bit : 36 μs~2 sec	12μs~2s
Dynamic Range	>63dB	>73dB	>69dB
Color	Mono	ADC 8bit : Mono 8 ADC 12bit : Mono 8/10/12	Mono
Image Format	Mono: Mono8/10/12		
Interface	CoaXPRESS		
Synchronization	Via hardware trigger, via software trigger or free run		
Programmable Control [ISP]	Image Resolution, RGB gain, Exposure Time, Contrast, Gamma Chart, Image Rollover, Raw, LUT, Black Level Correction.		
Electrical			
Housing Size[L*W*H]	C: (With fan) 80 × 80 × 80 mm M58: (With fan) 80 × 80 × 80 mm	M58: (With fan) 74 × 74 × 70.4 mm F: (With fan) 74 × 74 × 76.4 mm	M58: (With fan) 74.0×74.0×70.8mm F: (With fan) 74.0 × 74.0 × 76.8mm
Operating Temperature	-30~80 ° C (Storage), 0~50° C (Working)		
Lens Mount	M58 / C-Mount	M58 / F-Mount	M58 / F-Mount
Digital I/O	1 opto-isolated input, 1 opto-isolated output, 1 bidirectional custom non-isolation I/O, 1 RS232		
Power Input	DC 12-24V	DC 9-24V	DC 9-24V
Power Consumption	12V @13.7W	< 12 V@12 W	12V @7.2W
Driver	Frame grabber software compliant with CoaXPRESS protocol		
Operating System	Windows		
Conformity	CoaXPRESS, GenICam		

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## Specifications



Model	LEO 65MG-32xm	LEO 150MS-6xm/xc
<b>Camera</b>		
Resolution (H*V)	9216 × 7000	14208 × 10640
Sensor	GMAX3265	Sony IMX411
Sensor Size (optical)	29.9 × 22.4 mm	66.7 mm
Sensor Technology	CMOS, Global	CMOS, Rolling
Pixel Size [μm]	3.2 × 3.2	3.76 × 3.76
Frame Rate [fps]	31.5	6.2
Data Bits	8bit / 10bit / 12bit	8bit / 10bit / 12bit / 16bit
Exposure Time	14μs ~ 10s	15μs ~ 10s
Dynamic Range	>66 dB	>78dB
Color	Mono	Mono / Color
Image Format	Mono 8/10/12/16	Mono: Mono 8/10/12/16 Color: Mono 8/10/12/16, Bayer RG 8/10/12/16, RGB 8
Interface	CoaXPRESS	
Synchronization	Via hardware trigger, via software trigger or free run	
Programmable Control [ISP]	Image Resolution, RGB gain, Exposure Time, Contrast, Gamma Chart, Image Rollover, Raw, LUT, Black Level Correction.	
<b>Electrical</b>		
Housing Size[L*W*H]	M58: (With fan) 74 × 74 × 70.4 mm F: (With fan) 74 × 74 × 76.4 mm	Fan: 100 × 100 × 74.3 mm TEC: 120 × 120 × 84.6 mm
Operating Temperature	-30~80 ° C (Storage), 0~50° C (Working)	
Lens Mount	M58 / F-Mount	M72
Digital I/O	1 opto-isolated input, 1 opto-isolated output, 1 bidirectional custom non-isolation I/O, 1 RS232	
Power Input	DC 9-24 V	Fan: DC 24 V / TEC: DC 24 V
Power Consumption	< 12 V@12 W	Mono
		Color
		Mono with fan: 24V@18W TEC , Uncooled: 24V@21W TEC , Cooling: 24V@55W
		Color with fan: 24V@21W TEC , Uncooled:24V@22W TEC , Cooling: 24V@60W
Driver	Frame grabber software compliant with CoaXPRESS protocol	
Operating System	Windows	
Conformity	CoaXPRESS, GenICam	

# Vision And More Available !

让工业更智能，让视觉更简单！



SWIR Camera  
Industrial Camera



Macro Lens  
Industrial Lens



Microscope



System Solution  
No-programming Software

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