
To: **Worldwide Partners**
cc: Teledyne Imaging - Digital Imaging offices
From: Manny Romero
Date: July 20, 2021
RE: Lt XL Series Camera: Sony Pregius large format - Product Roll-out Package

Lt XL Series Camera: Sony Pregius 17M / 20M / 31M Format Models Roll-out Package

Versatile High Resolution USB3 Cameras targeted at Machine Vision systems

Description

Teledyne Lumenera is pleased to introduce our next six Lt Series USB3 models spearheaded by the latest sensors from the Sony® Pregius™ Gen2 CMOS family, starting with the IMX342 – APS-C 31.5 megapixel 6480 (H) x 4860 (V), 3.45 µm pixel size, and with a 12-bit output.

Other Sony Pregius sensors available with different resolution are the IMX367 (19.7M), 4432(H) x 4436 (V) and IMX387 (16.9M), 5472 (H) x 3084 (V). These sensors all offer a very good dynamic range.

Lt Series Camera uses the industry's latest leading sensors such as the Sony Starvis™ rolling shutter and Pregius Gen2 and Pregius Gen3 series of global shutter active pixel-type CMOS image sensors. Additional leading sensors are targeted like Teledyne e2v Emerald series.



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Compact and versatile with USB3 capability

The next six models based on the Sony Pregius are presented in this roll-out package.

Lt-M6480

6480 (H) x 4860 (V) @ 17 fps In Burst mode
3.45 x 3.45 μm pixel
Using the Sony IMX342 Monochrome (31M)

Lt-C6480

6480 (H) x 4860 (V) @ 17 fps In Burst mode
3.45 x 3.45 μm pixel
Using the Sony IMX342 Color (31M)



Lt-M4430

4432 (H) x 4436 (V) @ 28 fps In Burst mode
3.45 x 3.45 μm pixel
Using the Sony IMX367 Monochrome (19.7M)

Lt-C4430

4432 (H) x 4436 (V) @ 28 fps In Burst mode
3.45 x 3.45 μm pixel
Using the Sony IMX367 Color (19.7M)

Lt-M5470

5472 (H) x 3084 (V) @ 32 fps In Burst mode
3.45 x 3.45 μm pixel
Using the Sony IMX387 Monochrome (16.9M)

Lt-C5470

5472 (H) x 3084 (V) @ 32 fps In Burst mode
3.45 x 3.45 μm pixel
Using the Sony IMX387 Color (16.9M)

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Markets and Applications

It is expected that the Lt Camera Series will do exceedingly well in the following applications due to their wide range of resolutions, relatively fast frame rates for USB3 Vision cameras, and competitive pricing.



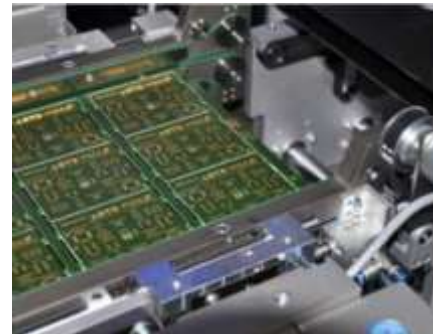
Aerial Imaging



Automatic Quality Control



ITS / Traffic Enforcement



Electronics Manufacturing

Example of Applications for USB3 Cameras

Aerial Imaging

The fundamental concerns for imaging systems for aerial imaging is size, weight, and power restrictions (also known as SWaP). These limit the choice of cameras for vision system applications such as precision agriculture, aerial surveillance, photogrammetry, geospatial imaging, and aerial inspection.

ITS Imaging

The Lt Camera Series models have high dynamic range without losing the detail required for outdoor applications like toll management, speed and red-light enforcement, HOT lane enforcement, and parking validation access control.

Life Science Imaging

Teledyne Lumenera designed the cameras with feedback from the medical industry. One of the biggest challenges with implementing an imaging component to a medical device is that there are often limiting size requirements. Many medical companies need to choose the dimensions of their product in the planning phase which eliminates any camera that does not fit that criteria.

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Software Support




The Teledyne Lumenera Lt Series cameras are compatible with the following software packages.

All Teledyne Lumenera Lt Series cameras with part numbers starting with LT-**U**xxx-xxxxx5 are compatible to both with a USB3 Vision compliant SDK & Teledyne Lumenera SDK

Sapera LT | **Teledyne** DALSA for Windows

<https://www.teledynedalsa.com/en/products/imaging/vision-software/sapera-lt/>



Operating System	Teledyne LUMENERA SDK
	 <p>Lumenera Camera Software Development Kit (LINUX) v2.4.4</p>
	 <p>LuCam Software and Software Development Kit V6.9.0</p>

A download link can be found below:

<https://www.lumenera.com/support/industrial-usb-ethernet/drivers-downloads.html>

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Features and Details

Models Specific Details

Supported Features	Camera Models		
	LT-M/C6480	LT-M/C4430	LT-M/C5470
Resolution	6480 x 4860 (31M)	4432 x 4436 (19.7M)	5472 x 3084 (16.9M)
Maximum Internal Frame Rate (full resolution)	17.5 fps in 8-Bit 11.9 fps in 12-Bit	28 fps in 8-Bit 19 fps in 12-Bit	32 fps in 8-Bit 21 fps in 12-Bit
Maximum Sustain Frame Rate	14.3 fps in 8-Bit 9.5 fps in 12-Bit	22.9 fps in 8-Bit 15.3 fps in 12-Bit	26.2 fps in 8-Bit 17.5 fps in 12-Bit
Sensor	IMX342	IMX367	IMX387
Pixel Size	3.45 μm x 3.45 μm		
Full Well charge	10k e- (max)		
Shutter	Full frame electronic global shutter function		
Exposure Control	Internal - Programmable via the camera API External – based on trigger width		
Pixel Data Formats	Monochrome 8-bit / 12-bit (for Mono models) Bayer 8-bit / 12-bit (for Color models)		
Gain Control	In-Sensor Gain: 48dB range up to 24dB as analog gain in 0.1 dB steps (1x to 15x) from 24dB to 48dB as digital gain in 0.1 dB steps (from 16x to 250x)		
Black Offset Control	Yes (0 to 511 dn)		
Synchronization	Via External Trigger Signal		
Output Dynamic Range	73 dB		
Responsivity	see graphic below		

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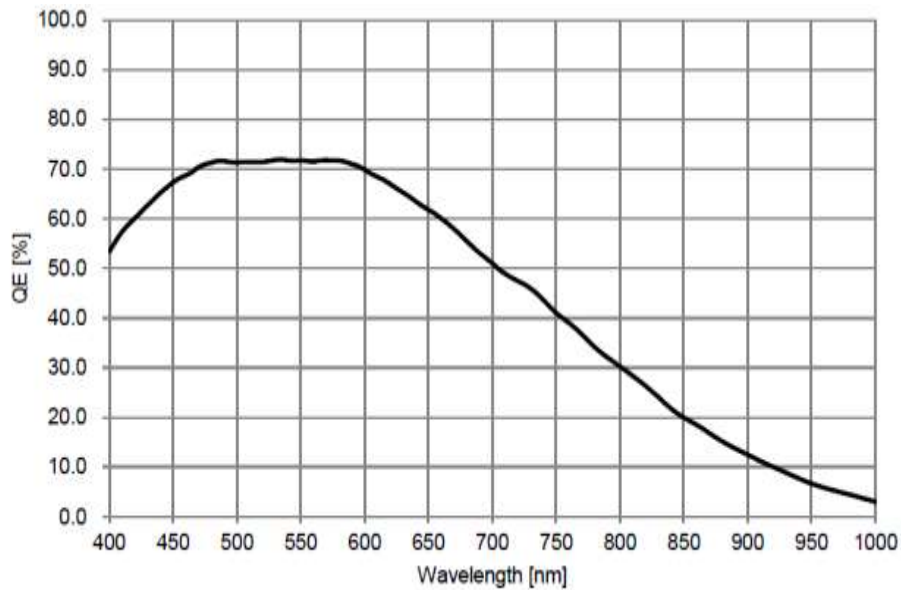
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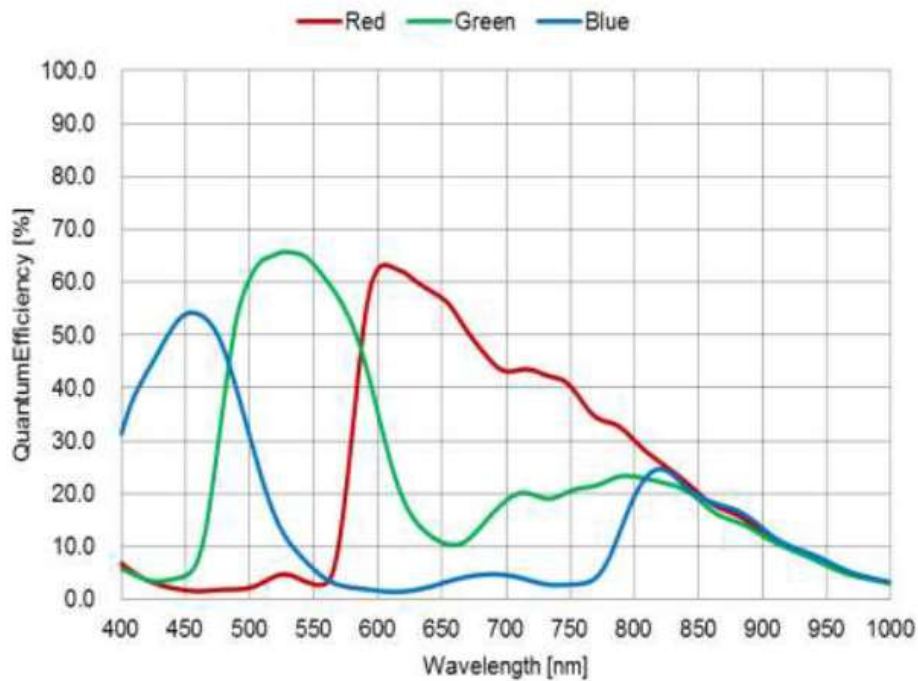
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Spectral Response

Monochrome Models



Color Models



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Common Details

Camera Controls	
Exposure Modes	Programmable in increments of 1µs minimum (in µs) is 14 µs maximum is 76 Minutes Pulse controlled via Trigger pulse width.
Trigger Inputs	Opto-isolated, 3.3V to 24V typical, 20mA. Trigger delay supported
Strobe Outputs	Output opto-isolated
Features	
Image Buffer	256 MB of on-board memory
Color Enhancement support	Brightness, Contrast and Gamma features on Color models
Defective pixel replacement	Yes
I/O signals	2 Input Opto-isolated, 3 Output Opto-isolated
Software Interface	
Software Compatibility	Lt-U2xx-xxxx P/N for both the UBS3 Vision v1.0 compliant & for the Lumenera SDK compliant
Mechanical Interface	
Camera (L x H x W)	44 mm x 59 mm x 59 mm
Mass	263 g (with no lens)
Input Power	Require I /O connector
Data connector	USB3 Micro-B
I/O connector	10-pin connector (Samtec TFM-105-02-L-D-WT)
Electrical Interface	
Input Voltage	+12 to +24 Volts DC (+/-10%)
Power Dissipation	8W
USB Speed	USB 3.1 Gen 1 (5 Gbps)
Data and Control	USB 3.1 Gen 1
Environmental Conditions	
Operating Temperature	-20°C to 50°C (Housing Temperature)
Operating Relative Humidity	10% to 80% non-condensing
Storage Temperature	-40°C to +80°C
Storage Relative Humidity	20% to 80% non-condensing

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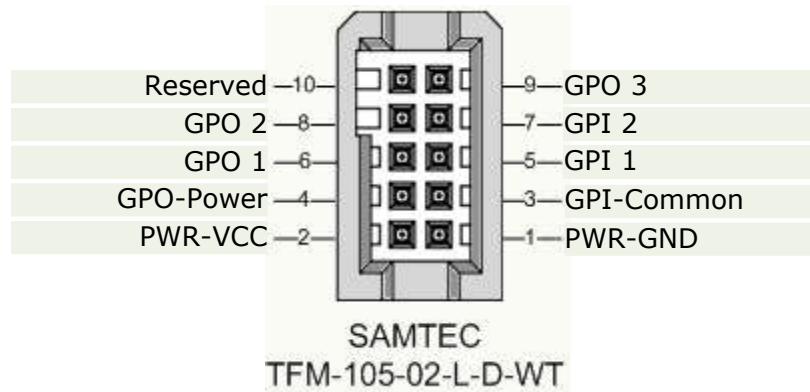
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10-pin I/O Connector Pinout Details (Standard Models)

Teledyne Imaging makes available optional I/O cables as described in **Error! Reference source not found.**

Pin Number	Genie Nano-5G	Direction	Definition
1	PWR-GND	—	Camera Power – Ground
2	PWR-VCC	—	Camera Power – DC +10 to +36 Volts
3	GPI-Common	—	General Input/Output Common Ground
4	GPO-Power	—	General Output Common Power
5	GPI 1	In	General External Input 1
6	GPO 1	Out	General External Output 1
7	GPI 2	In	General External Input 2
8	GPO 2	Out	General External Output 2
9	GPO 3	Out	General External Output 3 / Fast Switching Output
10	Reserved		Do not use.



I/O Mating Connector Specifications & Sources

For users wishing to build their own custom I/O cabling, the following product information is provided to expedite your cable solutions. Samtec web information for the discrete connector and a cable assembly with retention clips follows the table.

MFG	Part #	Description	Data Sheet
Samtec	ISDF-05-D ISDF-05-D-M (see image below)	Discrete Connector (see example below)	https://www.samtec.com/products/isdf
Samtec	SFSD-05-[WG]-G-[AL]-DR-[E2O] WG : Wire Gauge AL : Assembled Length E2O : End 2 Option	Discrete Cable Assembly (see example below)	https://www.samtec.com/products/sfsd
ISDF-05-D-M Connector Availability On-Line			
North-America (specific country can be selected)		http://www.newark.com/samtec/isdf-05-d-m/connector-housing-receptacle-10/dp/06R6184	
Europe (specific country can be selected)		http://uk.farnell.com/samtec/isdf-05-d-m/receptacle-1-27mm-crimp-10way/dp/2308547?ost=ISDF-05-D-M	

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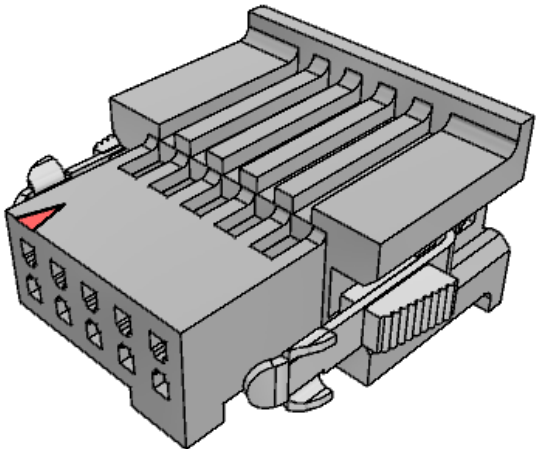
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Asia-Pacific (specific country can be selected)	http://sg.element14.com/samtec/isdf-05-d-m/receptacle-1-27mm-crimp-10way/dp/2308547?ost=ISDF-05-D-M
Important: <i>Samtec ISDF-05-D-S is not compatible with Lt XL</i>	

Samtec ISDF-05-D-M mating connector for customer built cables w/retention clips
".050" Tiger Eye™ Discrete Wire Socket Housing"

ISDF-05-D-M		3D Preview 2D View Download Help			
Description	Value				
Series	ISDF				
No. of Positions	-05				
Row	-D - Double Row				
End Options	-M - Metal Retention L				
Part Number	ISDF-05-D-M				

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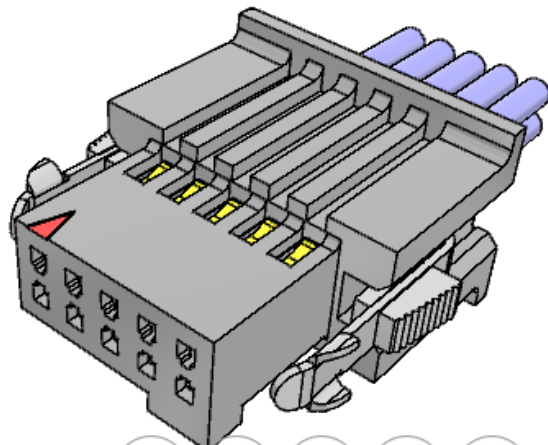
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**Samtec connector-cable assembly SFSD-05-28-H-03.00-SR w/retention clips
".050" Tiger Eye™ Double Row Discrete Wire Cable Assembly, Socket"**

SFSD-05-28-H-03.00-SR	
Description	Value
Series	SFSD
No. of Positions	-05
Wire Gauge	-28 AWG
Wire Color Code	All Black Wire
Plating Options	-H - 30µ" Heavy Gold
Assembly Length	3.00 INCH
End Option	-SR - Single Ended wit
Notch Option	Not Available
Part Number	SFSD-05-28-H-03.00-SR
Cable Type Option	PVC Cable

3D Preview | 2D View | Download | Help



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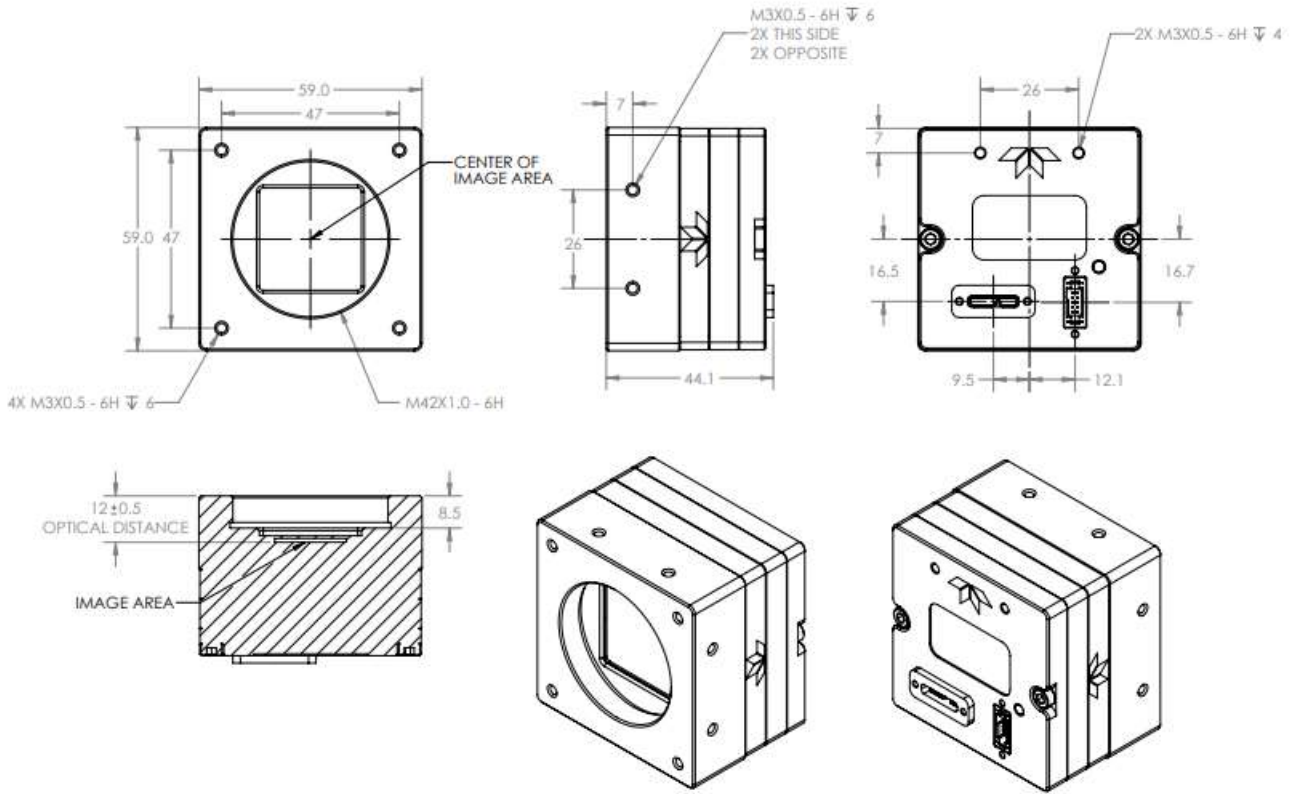
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Camera Mechanical Drawing



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Website Product page

Teledyne Lumenera's website (www.lumenera.com) is your best resource for product information on the Lt Camera Series. The newer models will be added by July 22, 2021. Please direct your customers to the website as well. Feedback on the website should be forwarded to lumenera.postmaster@teledyne.com.

Electronic Images

Images of Lt Camera Series can be found at the following link on the Teledyne Lumenera website on launch date: www.lumenera.com/media/wysiwyg/images/products/industrial/products/Lt_Series-XL.png

Family Datasheet

Here is a direct link to the family datasheet for the Lt Camera Series without going through the product web page. The links will remain valid even if we must update / change the files.

https://www.lumenera.com/media/wysiwyg/resources/documents/datasheets/industrial/Lt_Series_USB3_Cameras_1.pdf



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