

## Jelly4 Series USB3.0 Line Scan Industrial Cameras



### Introduction

Jelly4 series USB 3.0 Line scan industrial cameras are especially well suited for applications that need both high speeds and high image quality. We offer high-performance line scan cameras with resolutions of 2048 (2K) and 4096 (4K) pixels. Monochrome for 2K and 4K, color versions for 2K are available.

### Features

1. Micro USB3.0 High-speed interface, Bandwidth is 5Gb/s, plug and play, no need external power supply;
2. Adopt Awaiba CMOS line scan camera sensor;
3. With FPGA 32MB built-in hardware frame buffer, make sure no frame lost, support more cameras work together;
4. Support GPIO opto-isolated external trigger, line frequency capture, external trigger delay setting does not affect the acquisition frame rate;
5. Provide completed API for users' secondary development, support VC, VB and other development language;
6. Precision aluminum alloy shell, small size 29×44×30mm, weight 63g.
7. Support C-mount interface and customize lens interface.

### Applications

The line scan cameras are frequently used in printing machinery to inspect printed images. Surface and web inspection; Regardless of whether working with semi-conductors, paper, plastics or raw leather, line scan cameras are helpful tools for identifying flaws directly within the production process.

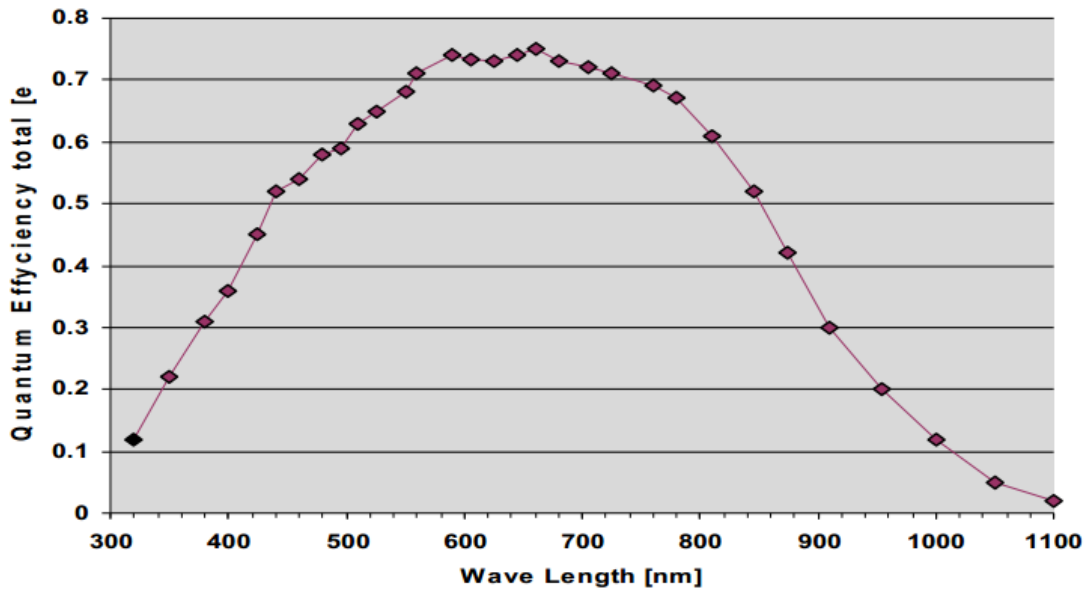
Another common use is for postal sorting or reading out barcodes, QR codes, lines of text (OCR) and other codes. This ensures that packages and letters will reach the right recipient in a timely manner.

### Specification

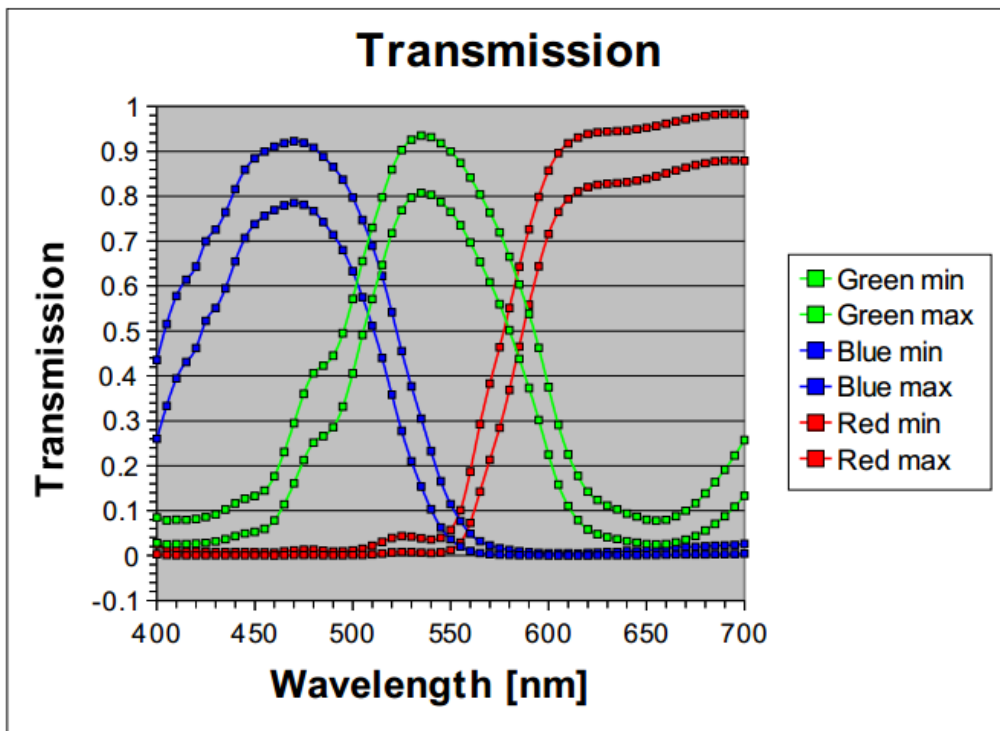
Model	MU3L2K7M(AGYYO)	MU3L2K7C(AGYYO)	MU3L4K3M(AGYYO)
Color/Mono	Mono	Color	Mono
Sensor Type	CMOS	CMOS	CMOS
Sensor Model	DR-2K-7	DR-2K-7	DR-4K-3.5

Shutter	Global	Global	Global
Sensor Size	14.3mm	14.3mm	14.3mm
Pixel Size	7.0×7.0μm	7.0×7.0μm	3.5×3.5μm
Resolution	2K	2K	4K
Resolution	2048x1	2048x2	4096x1
Horizontal Frequency	80MHz	80MHz	40MHz
Pixel Depth	8 bit	8 bit	8 bit
Min Exp time	2μs	2μs	1μs
Frame Buffer Joint Capacity	7398 lines	7398 lines	3699 lines
Interface	USB3.0	USB3.0	USB3.0
Image Output Format	Raw8/Mono8	Raw8/Bayer24/32	Raw8/Mono8
Synchronous Control	Internal trigger/soft trigger/external trigger/fix frame rate trigger		
Exposure	Auto / Manual		
Working Temperature	0°C~60°C		
Storage Temperature	-30°C~70°C		
Lens port	C-mount		
Image Output	Micro USB3.0, Bandwidth 5Gb/s		
Power Supply	USB3.0 Power Supply, 900mA@5V		
Frame Buffer	32M Bit		
Input/Output	Opto-isolated GPIO, 1 channel external trigger input, 1 channel flash output, 1 channel 5V power supply input / output		
Main Function	Image display, image capture (bmp,jpg,tiff), video capture(compressor is optional)		
Operation System	Support Windows XP/7/8/10 32&64 bit Operation System (Linux and Android Operation System custom development)		
SDK	Support VC, VB, C#, DELPHI developing language, support LABVIEW, OPENCV, HALCON, MIL Software		
Camera Dimension	29mm(height)×44mm( width)×30mm(length)		
Camera Weight	63g(High-precision CNC aluminum alloy shell)		
Accessories	Color cameras come with IR cut filter(mono camera does not have filter), 3m-5m USB cable with fix screws, 6-pin Hirose GPIO connector, 1 CD with software and SDK.		

## Spectral Response Curve



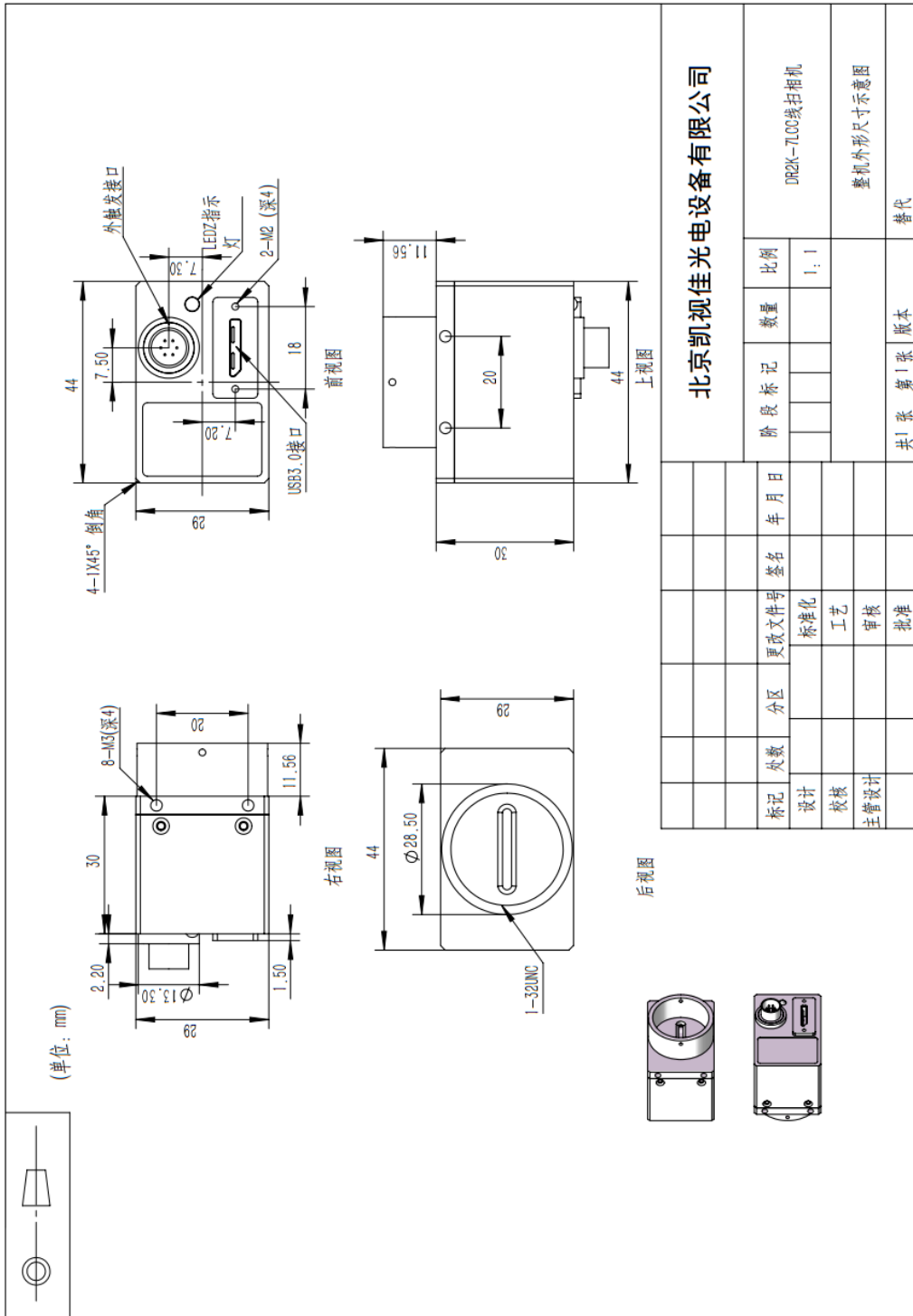
Mono Line Scan Camera (for 2K & 4K)



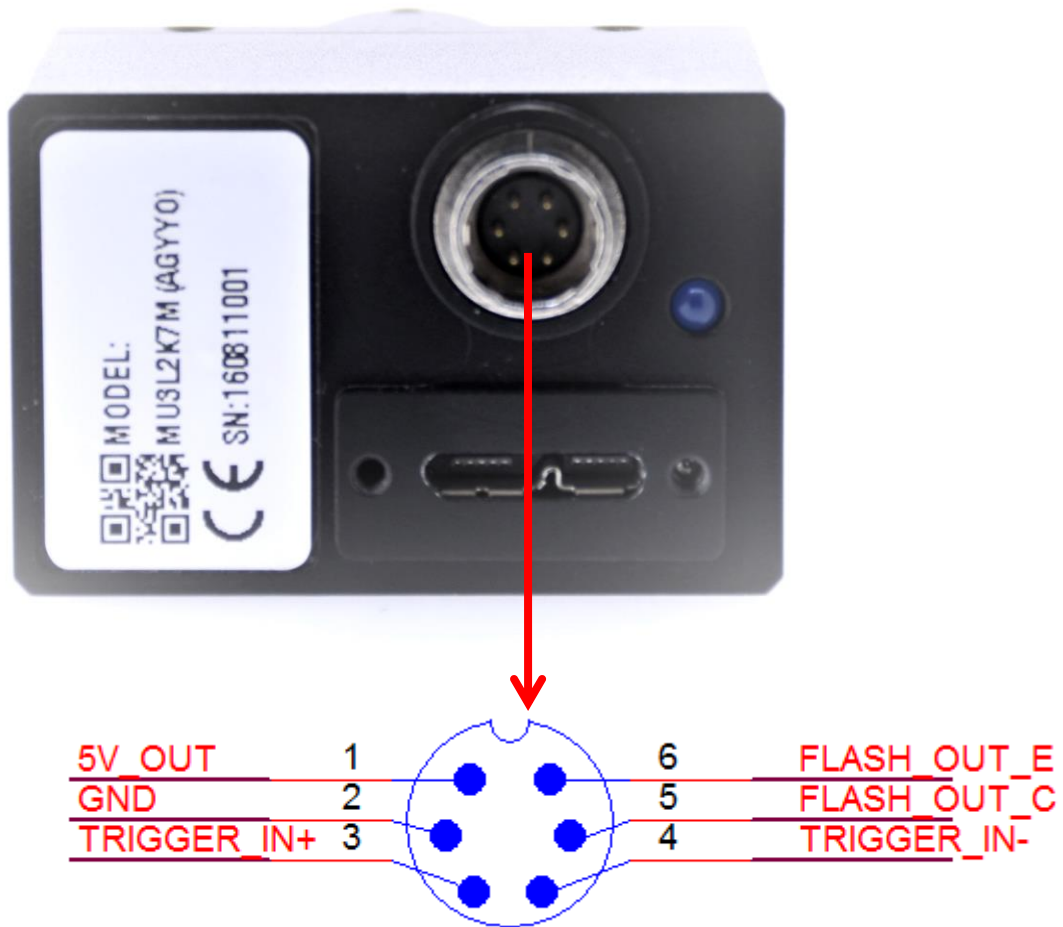
Color Line Scan Camera (for 2K)

Dimension

Unit: mm



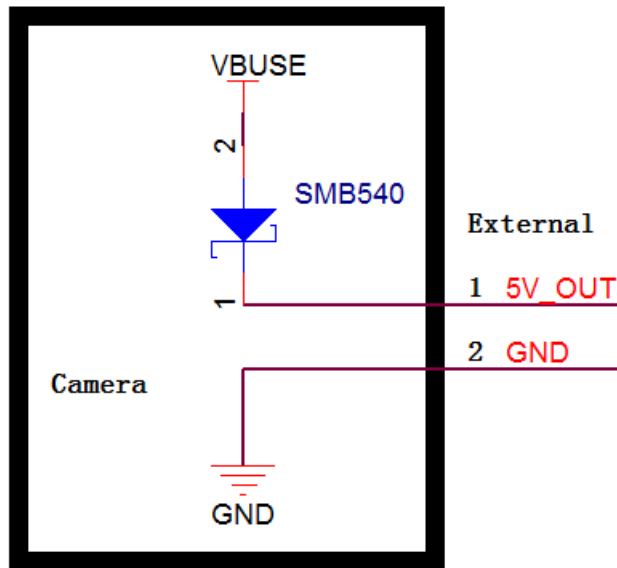
GPIO External Trigger interface introduction



Trigger Serial No	1	2	3	4	5	6
Cable Color	Red	Black	Yellow	White	Gray	Brown
Function Symbol	5V_IN	GND	TRIGGER_IN+	TRIGGER_IN-	FLASH_OUT_C	FLASH_OUT_E
Function Definition	Power Supply Input Interface		GPIO Input Interface		GPIO Output Interface	

## Power Supply Input Interface

The camera is powered by USB3.0 Bus Power, the power supply of USB3.0 standard should be 5V@900mA. In actual applications, sometimes the host is not insufficient for power supply, or because the USB cable is too long, or because of anti-interference requirements, users can use “5V\_IN” interface of GPIO to provide power supply for the camera. To ensure stable work of the camera, power requires DC + 5V, Min. = + 4.5V, Max. = + 5.5V; the drive current > 1A.



## GPIO Input Interface

Regarding the TLP 281 parameters, please refer to instructions manual.

When using “TRIGGER\_IN +” as trigger source, the trigger electrical level range is +0V- + 5V. If the trigger source electrical level is out of this range, an external current limiting resistor should be connected to make the optocoupler works around the typical current 10mA, otherwise the optocoupler will have risk of burning.

Limiting resistor is calculated as follows:

$$R = 100 \times (V_{in} - 0.7) - R_0$$

$V_{in}$  is Trigger source electrical level

$R_0$  is The camera's internal series resistor 200 Ohm

$R$  is the required external series resistor.