

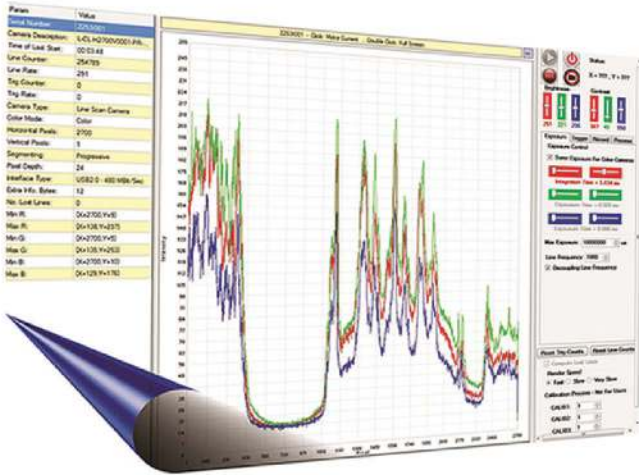
RasaAndishan Moj Pardaz

رسا اندیشان موج پرداز (دانش بنیان)



طراح و سازنده انواع آشکارسازهای خطی و دوربین های تصویربرداری

- Robust & Reliable Hardware & Software Architecture
- Multi Interface Connectivity (USB2.0,USB3.0,Ethernet)
- Cross Platform - Linux & windows Application Support
- Plugin Based API and Sophisticated FlowGraph Structure
- Various SDK (C#,C++,MATLAB,VB.Net,Python,LabVIEW) Included



S - A - K Suffix Cameras are Board Level !
I - P Suffix Cameras are Boxed !



Overview

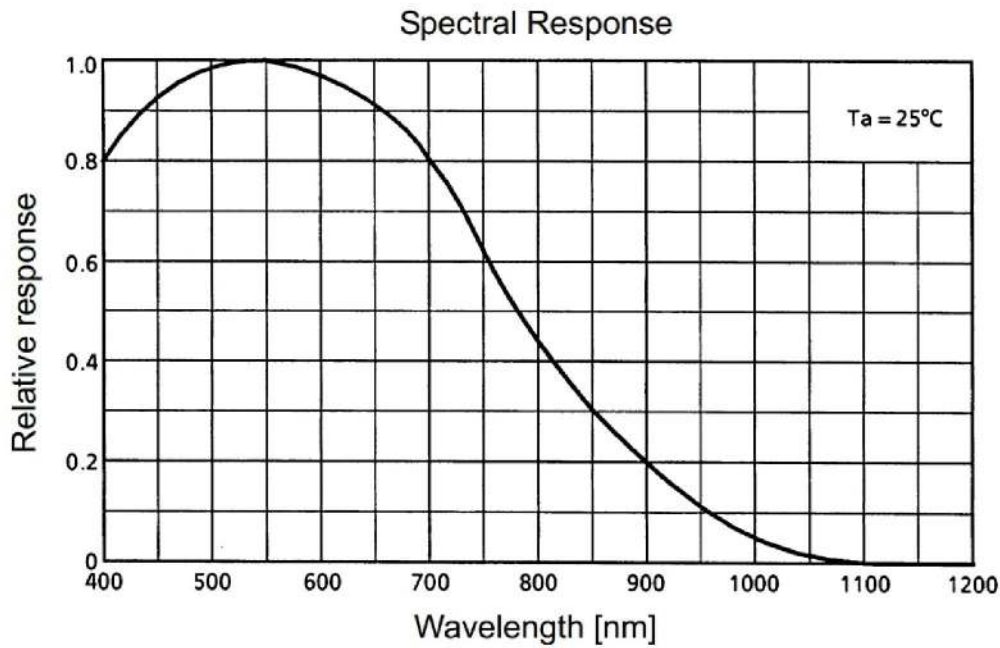
TCD1304 Driver is a USB2.0 Bus Powered Line Scan Camera that incorporates a 3648 Pixels CCD array with Pixel Size of 8 μ m by 200 μ m on 8 μ m center. It is capable of detecting light in the 350 - 1100 nm range. The Line rate of This cost effective monochrome line scan camera is up to 50 Hz.

GUI Features

Operates up to 20 Cameras Simultaneously without loss of any data
Cross Platform Software with Auto-Detection of Compatible Cameras
Smoothing, FPN Correction, PRNU Correction, Shading Correction, Background Subtract
Best Responsiveness by Separate Threads of Data Acquisition, Processing and Monitoring
Zooming, Panning, Cursor Definition and OverLayer Mode in Line Scope

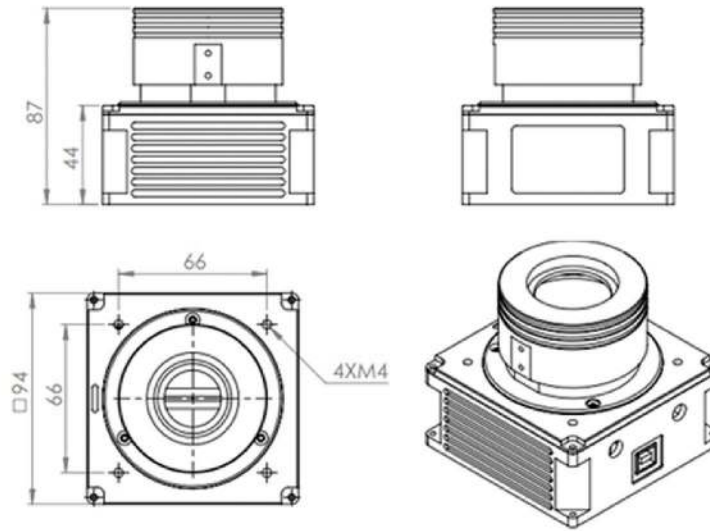
Application

TCD1304 Driver is Designed for Applications in Optics, Imaging, Biology, Industrial Process Control and General Laboratory Use.



Specification

Sensor Spec	
Sensor Type	Monochrome CCD Linear Image Sensor
Spectral Response	350-1100 nm
CCD Pixel Size	8 μ m x 200 μ m
Pixel Height	200 μ m
Pixel Width	8 μ m
Effective Pixels	3648
Effective Length	3648 x 8 μ m = 29.184 mm
Max Pixel Frequency	100 KHz
Max Line Rate	50 Hz @ Free Running Mode
Min Exposure Time	20 ms
Max Exposure Time	3 Sec
Exposure Resolution	10 μ s
Pixel Color Depth	16 bit - 65536 Counts
Brightness Coefficient	-/+ 300 mV - 512 Analog Steps
Contrast Coefficient	64V/V - 64 Analog Steps
Triggering Spec	
Trigger Signal	TTL 5 V and 3.3 V
Trigger Mode	Free Running, Hardware Trigger
Hardware Trig Polarity	High Level, Low Level
Trigger Factor	0 To 65535
Exposure Mode in Trig	Up to 4 Different Modes
Max Trigger Rate	—
Min Trigger Pulse Length	33 ns
Trigger Delay	0 to 16 Min - in 1 μ s Steps
General Spec	
Interface	High Speed USB 2.0 (480 Mbit/s)
Weight PCB Dimension	42 gr 80 mm x 87 mm x 25 mm
Temperature Range	- 25 to + 65 ($^{\circ}$ C)



Case is available only in I suffix Versions!

Graphical User Interface

Software Features

- Line Scope and Image Scope for Scanning/Sorting/Spectroscopy Applications
- Recording is Controlled by Cache Size | Capture Size | Time or Frame Counts
- Separate Thread of Data Acquisition for Better Responsiveness to User Input
- Extremely Powerful DLL, easy to use on any platform
- Saving Frames in RAW and Jpeg Formats or any formats you tell us!

Adjustable Parameters / Supported Command

- Capture Start/Stop
- Trigger Modes: Free Running, External Trigger, Software Trigger
- Exposure Control, Exposure Mode
- Trigger Factor, Trigger Delay, Trigger Polarity, Software Triggering
- Brightness, Contrast
- Mirroring and Flipping Image only in CMOS Area Cameras
- Area of interest(AOI), Skipping and Binning only in CMOS Area Cameras
- Processing, Corrections and Filters
- Digital Output control

RasaAndishan Cameras Comparison Table

MODEL	RA-LSC-1402I	RA-LSC-1103I	RA-LSC-1209I	RA-LSC-0511I
Resolution (HxV)	256 x 1	1500 x 1	2048 x 1	2048 x 1
Color mode	B & W	B & W	B & W	B & W
Pixel size	8 x 63.5 (μm)	5.5 x 64 (μm)	14 x 14 (μm)	14 x 200 (μm)
Pixel Distance	8 μm	5.5 μm	14 μm	14 μm
Line Width Space	63.5 μm	64 μm	14 μm	200 μm
Active Length	16.248mm	8.25 mm	28.672 mm	28.672 mm
Max Pixel Frequency	7.5 MHz	2 MHz	16.6 MHz	2 MHz
Max Line Frequency	27625 Hz	641 Hz	7945 Hz	950 Hz
Max Trig Frequency	13812 Hz	320 Hz	3973 Hz	475 Hz
CCD Dynamic Range	4000	200	2000	267
Electronic Shutter	X	✓	X	X
Exposure Control	✓	✓	✓	✓
Exposure Min	36 μs	10 μs	125 μs	1056 μs
Exposure Max	14.5 Min	14 Min	8.5 Min	35.5 Min
ADC Resolution	16 Bit	16 Bit	16 Bit	16 Bit
Contrast Adjust	✓	✓	✓	✓
Brightness Adjust	✓	✓	✓	✓
Adaptor Mount	M42	M42	M42 / EF	M42
Interface	USB2	USB2	USB2 / USB3	USB2
Temperature Range	0 to +70 (°C)	-25 to +60 (°C)	-25 to +65 (°C)	-10 to +60 (°C)

RasaAndishan Cameras Comparison Table

MODEL	RA-LSC-2113I	RA-LSC-1254I	RA-LSC-2253I	RA-LSC-0526I
Resolution (HxV)	2098 x 3	2500 x 1	2700 x 3	3000 x 1
Color mode	RGB	B & W	RGB	B & W
Pixel size	14 x 14 (μm)	5.25 x 64 (μm)	10.5 x 10.5 (μm)	7 x 200 (μm)
Pixel Distance	14 μm	5.25 μm	10.5 μm	7 μm
Line Width Space	14 μm 112 μm	64 μm	10.5 μm 42 μm	200 μm
Active Length	29.372 mm	13.125 mm	28.35 mm	21 mm
Max Pixel Frequency	5 MHz	2 MHz	16.6 MHz	1 MHz
Max Line Frequency	2326 Hz	385 Hz	2989 Hz	325 Hz
Max Trig Frequency	1163 Hz	192 Hz	1494 Hz	162 Hz
CCD Dynamic Range	6300	400	300	320
Electronic Shutter	✓	✓	X	✓
Exposure Control	✓	✓	✓	✓
Exposure Min	1 μs	10 μs	334 μs	1 μs
Exposure Max	14 Min	35.5 Min	14 Min	35.5 Min
ADC Resolution	8 Bit	16 Bit	8 Bit	16 Bit
Contrast Adjust	✓	✓	✓	✓
Brightness Adjust	✓	✓	✓	✓
Adaptor Mount	M42	M42	M42 / EF	M42
Interface	USB2	USB2	USB2 / USB3	USB2
Temperature Range	-10 to +60 (°C)	-25 to +60 (°C)	0 to +60 (°C)	-10 to +60 (°C)

RasaAndishan Cameras Comparison Table

MODEL	RA-LSC-1304I	RA-LSC-0553I	RA-LSC-0718I	RA-LSC-1707I
Resolution (HxV)	3648 x 1	5150 x 1	5363 x 3	3725 x 2
Color mode	B & W	B & W	RGB	B & W
Pixel size	8 x 200 (μm)	7 x 7 (μm)	8 x 8 (μm)	4.7 x 4.7 (μm)
Pixel Distance	8 μm	7 μm	8 μm	4.7 μm
Line Width Space	200 μm	7 μm	8 μm 64 μm	4.7 μm
Active Length	29.184 mm	36.05 mm	42.904 mm	35.015 mm
Max Pixel Frequency	1 MHz	5 MHz	5.5 MHz	7.5 MHz
Max Line Frequency	270 Hz	951 Hz	1020 Hz	1968 Hz
Max Trig Frequency	135 Hz	475 Hz	510 Hz	984 Hz
CCD Dynamic Range	300	6666	10670	1800
Electronic Shutter	✓	X	✓	X
Exposure Control	✓	✓	✓	✓
Exposure Min	1 μs	1051 μs	2 μs	508 μs
Exposure Max	71 Min	14.5 Min	14 Min	35.5 Min
ADC Resolution	16 Bit	16 Bit	16 Bit	16 Bit
Contrast Adjust	✓	✓	✓	✓
Brightness Adjust	✓	✓	✓	✓
Adaptor Mount	M42	M42	M42 / EF	M42 / EF
Interface	USB2	USB2	USB2 / USB3	USB2 / USB3
Temperature Range	-25 to +65 (°C)	-10 to +55 (°C)	-10 to +60 (°C)	0 to +60 (°C)

RasaAndishan Cameras Comparison Table

MODEL	RA-LSC-0532I	RA-LSC-2717I	RA-LSC-2950I	RA-LSC-2950P
Resolution (HxV)	3750 x 2	7500 x 3	10680 x 3	21360 x 1
Color mode	B & W	RGB B & W	RGB	B & W
Pixel size	7 x 7 (µm)	4.7 x 4.7 (µm)	2.8 x 4 (µm)	2.8 x 4 (µm)
Pixel Distance	7 µm	4.7 µm	4 µm	4 µm
Line Width Space	7 µm	4.7 µm 9.4 µm	2.8 µm 64 µm	2.8 µm
Active Length	52.5 mm	35.250 mm	42.720 mm	42.720 mm
Max Pixel Frequency	4 MHz	16.6 MHz	16.6 MHz	16.6 MHz
Max Line Frequency	1050 Hz	2170 Hz	760 Hz	760 Hz
Max Trig Frequency	525 Hz	1085 Hz	380 Hz	380 Hz
CCD Dynamic Range	8333	2000	7000	7000
Electronic Shutter	X	X	X	X
Exposure Control	✓	✓	✓	✓
Exposure Min	952 µs	460 µs	1315 µs	1315 µs
Exposure Max	17.5 Min	14.5 Min	14.5 Min	14.5 Min
ADC Resolution	16 Bit	16 Bit	16 Bit	16 Bit
Contrast Adjust	✓	✓	✓	✓
Brightness Adjust	✓	✓	✓	✓
Adaptor Mount	M42	M42 / EF	M42 / EF	M42 / EF
Interface	USB2	USB2 / USB3	USB2 / USB3	USB2 / USB3
Temperature Range	-25 to +65 (°C)	0 to +60 (°C)	0 to +60 (°C)	0 to +60 (°C)

RasaAndishan Cameras Comparison Table

MODEL	RA-ASC-0134I	RA-ASC-0234I	RA-ASC-9031I	RA-ASC-5000I
Sensor Type	CMOS	CMOS	CMOS	CMOS
Resolution (HxV)	1280 x 960	1920 x 1280	2592 x 1944	2592 x 2048
Resolution	1.2MP	2.3 MP	5 MP	5 MP
Color mode	BW/Color	BW/Color	BW/Color	BW/Color
Pixel size (HxV)	3.75 x 3.75 (µm)	3 x 3 (µm)	2.2 x 2.2 (µm)	4.8 x 4.8 (µm)
Sensor Size (HxV)	4.8 x 3.6 (mm)	5.76 x 3.6 (mm)	5.7 x 4.28 (mm)	12.44 x 9.8 (mm)
Max Pixel Frequency	90 MHz	150 MHz	95 MHz	320 MHz
Shutter Type	Global Shutter	Global Shutter	Rolling Shutter	Global Shutter
Interface	USB3.0	USB3.0	USB3.0	USB3.0
Frame Rate @ ResM	72 Hz	50 Hz	20 Hz	60 Hz
Light Spectrum	Visible	Visible	Visible	Visible
Exposure Control	✓	✓	✓	✓
AOI Support	✓	✓	✓	✓
Frame Rate @ AOI	up to 457 Hz	up to 488 Hz	up to 1000 Hz	up to 1200 Hz
ADC Resolution	8 Bit	8 Bit	8 Bit	8 Bit
Contrast Adjust	✓	✓	✓	✓
Brightness Adjust	✓	✓	✓	✓
Adaptor Mount	C / CS-Mount	C / CS-Mount	C / CS-Mount	C / CS-Mount
External Power	X	X	X	X
Temperature Range	-30 to +70 (°C)	-40 to +85 (°C)	-30 to +70 (C)	-30 to +70 (°C)

رسا اندیشان موج پرداز (دانش بنیان)



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