KLT-USB-0409-0410 V1

2MP OmniVision OV2710 M12 Fixed Focus LED Dual Lens Stereo USB 2.0 Camera Module

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KLT-USB-0409-0410 V1 is a Dual Lens Stereo Type 2MP Fixed Focus USB camera module based on 1/2.7” OV2710 image sensor. It delivers high-speed, 2K resolution ultra sharp image in RGB (Color) and IR (Black and White).

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The S-mount (M12) lens holder enables customers to choose different lens as per varies applications. This camera module is ideal solution for face recognition, identity detection, access control.

Key Features

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- 2K resolution (1920 x 1080) OmniVision OV2710 sensor
- Dual lens stereo cameras (Color and Black/White)
- High speed USB 2.0 Plug and Play
- MJPG and YUV2 output format
- Low power consumption
- Compact size
- UVC compliant to Windows, Linux, OS with UVC driver
- USB OTG (On-The-Go) support

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KLT-USB-0409-0410 V1

2MP OV2710 M12 Fixed Focus LED Dual Lens Stereo USB 2.0 Camera Module

Camera Module No.	KLT-USB-0409-0410 V1
Resolution	2MP
Image Sensor	OV2710 (Color) / OV2710 (IR)
Sensor Type	1/2.7"
Pixel Size	3.0 um x 3.0 um
EFL	3.00 mm
F.NO	2.40
Pixel	1920 x 1080
View Angle	80°(DFOV)
Lens Dimensions	30.00 x 15.00 x 20.00 mm
Module Type	Fixed Focus
Lens Model	KLT-LENS-0409-0410 V1
Interface	USB 2.0
Output Format	MJPG / YUV2
Auto Control	Saturation, Contrast, Acutance White Balance, Exposure
Audio	None
Input Voltage	DC 5V
Working Current	Max 500mA
PCB Size	57 x 30 mm
System Compatibility	Windows XP (SP2, SP3), Vista, 7, 8, 10, 11 Android, Mac OS, Linux or OS with UVC Driver Raspberry Pi by USB Port
Software for USB Camera	AMCAP, Webcam Viewer, V4L2 Controls Contacam, VLC Player, MotionEye OS iSpy, ZoneMider, Yawcam
Lens Type	650nm IR Cut / 850nm IR Pass
Operating Temperature	-30°C to +85°C
USB Cable	KLT-Cable-U015

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Wide Compatibility with Windows, Android, Mac OS, Linux, or Raspberry Pi

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KLT-USB-0409-0410 V1

2MP OmniVision OV2710 M12 Fixed Focus LED Dual Lens Stereo USB 2.0 Camera Module

Top View

Side View

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Bottom View

Mating Connector

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KLT-USB-0409-0410 V1

2MP OmniVision OV2710 M12 Fixed Focus LED Dual Lens Stereo USB 2.0 Camera Module

FORMAT	RESOLUTION	FRAME RATE
		USB 2.0
MJPG	640 x 480 (VGA)	30 FPS
	1280 x 720 (720P)	30 FPS
	1920 x 1080 (1080P)	30 FPS
YUY2	640 x 480 (VGA)	30 FPS
	1280 x 720 (720P)	10 FPS
	1920 x 1080 (1080P)	5 FPS

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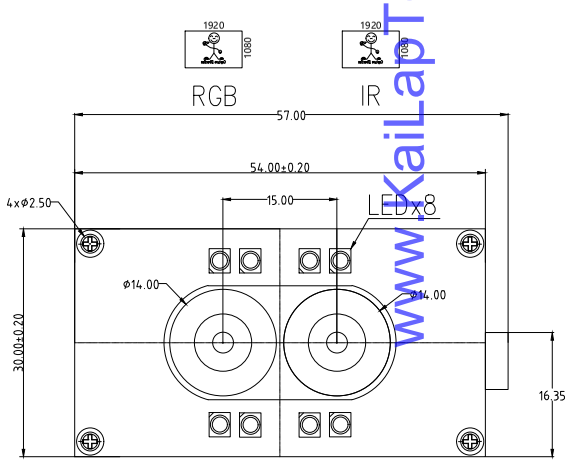
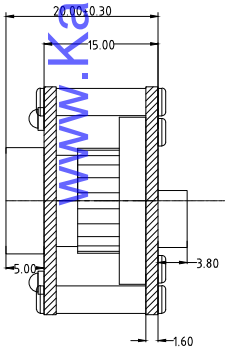
NO.	SYMBOL
1	VDD 5V
2	D-
3	D+
4	GND

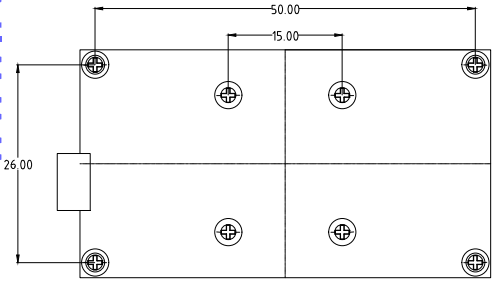
Version	Information	Date
V1.0	First Version	5-27-2022



TOP VIEW



SIDE VIEW



BOTTOM VIEW

Parameters:

1、Sensor specification:

Image Sensor: OV2710+OV2710
Pixel: 3um×3um
Lens Type: 1/2.7
Important Voltage Description: USB 5V (external power supply);

2、Lens specification:

FOV: *80°(D)*
F/NO.: 2.4
TV distortion: <1%
Focal length: 3.0mm
Composition: 2G2P+IR FILTER
IR Cut Coating: 650nm±10nm@50%

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Designed By	Kevin	Model Name:	KLT-USB-003-0409-0410
Checked By	Jacky	Projection Type: Third Angle	Unit: mm / Material: ---------- / Scale: 1:1 / Sheet: 1 of 1 / Version: 1/0

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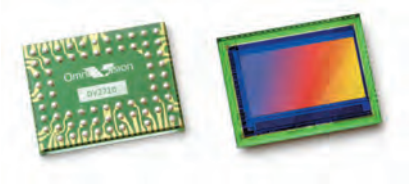

OV2710-1E full HD (1080p) product brief

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OmniVision's True 1080p High Definition (HD) Video Image Sensor

lead free
available in a lead-free package

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The OV2710-1E is a true full HD (1080p) CMOS image sensor designed specifically to deliver high-end HD video to digital video camcorders, notebooks, PC webcam, security and other mobile applications. The 1/2.7-inch OV2710-1E addresses the fast growing demand for affordable, HD-quality digital video solutions for video conferencing and recording.

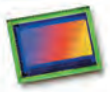
The OV2710-1E is among the very first no-compromise full HD (1080p) sensors available on the market, meaning it offers HD video format with a display resolution of 1920 x 1080 pixels, operating at 30 frames per second. Built with OmniVision's proprietary 3 µm OmniPixel3-HS™ high sensitivity pixel technology, the OV2710-1E delivers low-light sensitivity of 3700 mV/lux-sec, S/N ratio of 40 dB, and a peak dynamic range of 69 dB, enabling cameras to operate in virtually every lighting condition from bright daylight to nearly complete darkness below 15 lux.

The OV2710-1E supports multiple platform architectures and controllers with both parallel and MIPI interfaces. By allowing system designers to leverage the same opto-electrical design across various products and multiple market segments, the OV2710-1E significantly reduces product development time. OmniVision's OmniPixel3-HS pixel technology has already been proven in high quality webcam/video applications and is now available in 1080p full HD in the OV2710-1E.

Find out more at www.ovt.com.

OmniVision

OV2710-1E



Applications

- Notebooks
- PC Webcams
- Camcorders
- Security
- Digital Still Cameras
- Telepresence
- Portable Media Players

Ordering Information

- **OV02710-A68A-1E**
  (color, lead-free, 68-pin CSP3)

Product Features

- programmable controls: gain, exposure, frame rate, image size, horizontal mirror, vertical flip, cropping, windowing, and panning
- automatic image control functions:
  - automatic exposure (AEC)
  - automatic gain control (AGC)
  - automatic white balance (AWB)
  - automatic black level calibration (ABLC)
- serial camera control bus (SCCB)
- lens correction (LENC)
- defect pixel correction (DPC)
- support for digital video port (DVP) parallel output interface
- integrated auto focus filter
- support for one lane MIPI interface (up to 800 Mbps)
- support for 8-/10-bit RAW RGB output format
- support for image sizes:
  - 1080p at 30 fps
  - cropped 720p at 60 fps
  - VGA at 120 fps
- support for black sun cancellation
- embedded one-time programmable (OTP) memory
- on-chip phase lock loop (PLL)
- built-in 1.5V regulator for core

Product Specifications

- **active array size:** 1920 x 1080
- **power supply:**
  - **analog:** 3.0 - 3.6V (3.3V typical)
  - **core:** 1.425 - 1.575V (1.5V typical)
  - **I/O:** 1.7 - 3.6V (1.8V typical)
- **power requirements:**
  - **active:** 350 mW
  - **power down:** 70 µA
- **temperature range:**
  - **operating:** -30°C to +85°C junction temperature
  - **stable image:** 0°C to +65°C junction temperature
- **output interfaces:** 10-bit parallel/ one lane MIPI
- **output formats:** 10-bit RAW RGB
- **lens size:** 1/2.7"
- **lens chief ray angle:** 23.6°
- **input clock frequency:** 6 - 27 MHz
- **scan mode:** progressive
- **maximum image transfer rate:**
  - **1080p:** 30 fps
  - **cropped 720p:** 60 fps
  - **VGA:** 120 fps
  - **QVGA:** 240 fps
- **sensitivity:** 3700 mV/lux-sec
- **shutter:** rolling
- **max S/N ratio:** 40 dB
- **dynamic range:** 69 dB @ 8x gain
- **maximum exposure interval:** 1096 tline
- **pixel size:** 3 µm x 3 µm
- **dark current:** 20 mV/sec @ 60°C junction temperature
- **image area:** 5856 µm x 3276 µm
- **package dimensions:** 7465 µm x 5865 µm

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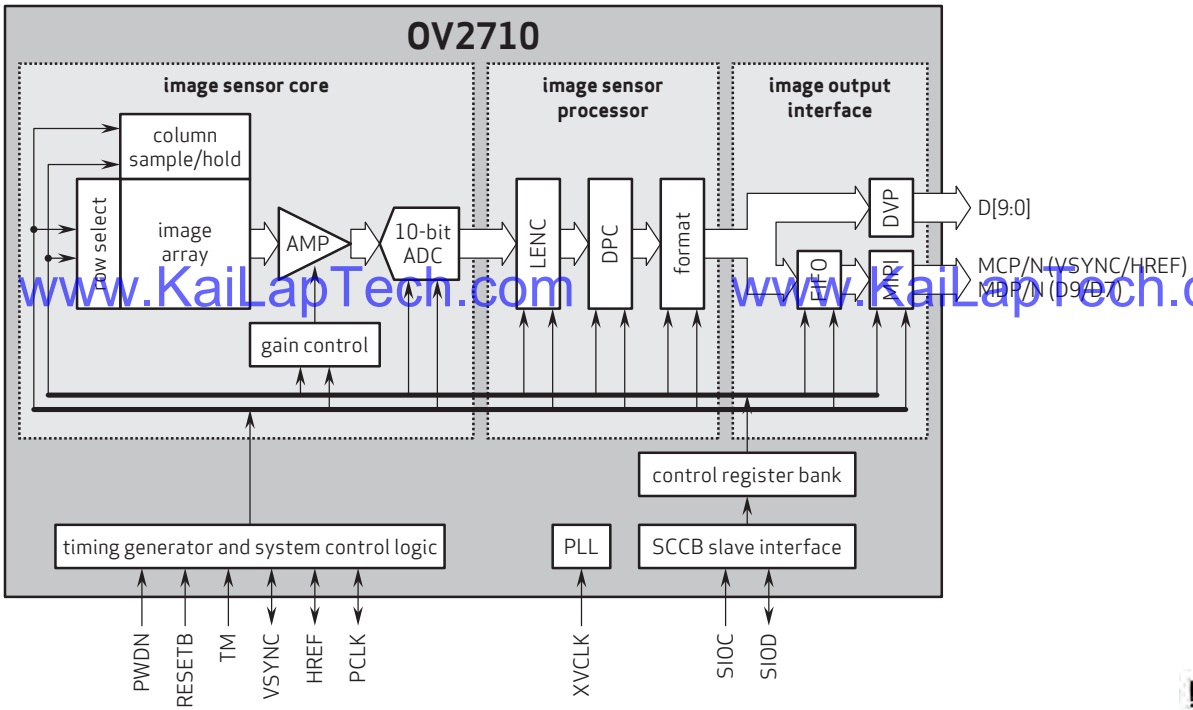
Functional Block Diagram



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Version 1.1, October, 2015

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Cameras Applications

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Camera Reliability Test

Reliability Inspection Item			Testing Method	Acceptance Criteria
Category		Item		
Environmental	Storage Temperature	High 60°C 96 Hours	Temperature Chamber	No Abnormal Situation
		Low -20°C 96 Hours	Temperature Chamber	No Abnormal Situation
	Operation Temperature	High 60°C 24 Hours	Temperature Chamber	No Abnormal Situation
		Low -20°C 24 Hours	Temperature Chamber	No Abnormal Situation
	Humidity	60°C 80% 24 Hours	Temperature Chamber	No Abnormal Situation
	Thermal Shock	High 60°C 0.5 Hours Low -20°C 0.5 Hours Cycling in 24 Hours	Temperature Chamber	No Abnormal Situation
Physical	Drop Test (Free Falling)	Without Package 60cm	10 Times on Wood Floor	Electrically Functional
		With Package 60cm	10 Times on Wood Floor	Electrically Functional
	Vibration Test	50Hz X-Axis 2mm 30min	Vibration Table	Electrically Functional
		50Hz Y-Axis 2mm 30min	Vibration Table	Electrically Functional
		50Hz Z-Axis 2mm 30min	Vibration Table	Electrically Functional
	Cable Tensile Strength Test	Loading Weight 4 kg 60 Seconds Cycling in 24 Hours	Tensile Testing Machine	Electrically Functional
Electrical	ESD Test	Contact Discharge 2 KV	ESD Testing Machine	Electrically Functional
		Air Discharge 4 KV	ESD Testing Machine	Electrically Functional
	Aging Test	On/Off 30 Seconds Cycling in 24 Hours	Power Switch	Electrically Functional
	USB Connector	On/Off 250 Times	Plug and Unplug	Electrically Functional

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Camera Inspection Standard

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Inspection Item			Inspection Method	Standard of Inspection
Category		Item		
Appearance	FPC/ PCB	Color	The Naked Eye	Major Difference is Not Allowed.
		Be Torn/Chopped	The Naked Eye	Copper Crack Exposure is Not Allowed.
		Marking	The Naked Eye	Clear, Recognizable (Within 30cm Distance)
	Holder	Scratches	The Naked Eye	The Inside Crack Exposure is Not Allowed
		Gap	The Naked Eye	Meet the Height Standard
		Screw	The Naked Eye	Make Sure Screws Are Presented (If Any)
		Damage	The Naked Eye	The Inside Crack Exposure is Not Allowed
	Lens	Scratch	The Naked Eye	No Effect On Resolution Standard
		Contamination	The Naked Eye	No Effect On Resolution Standard
		Oil Film	The Naked Eye	No Effect On Resolution Standard
		Cover Tape	The Naked Eye	No Issue On Appearance.
Function	Image	No Communication	Test Board	Not Allowed
		Bright Pixel	Black Board	Not Allowed In the Image Center
		Dark Pixel	White board	Not Allowed In the Image Center
		Blurry	The Naked Eye	Not Allowed
		No Image	The Naked Eye	Not Allowed
		Vertical Line	The Naked Eye	Not Allowed
		Horizontal Line	The Naked Eye	Not Allowed
		Light Leakage	The Naked Eye	Not Allowed
		Blinking Image	The Naked Eye	Not Allowed
		Bruise	Inspection Jig	Not Allowed
		Resolution	Chart	Follows Outgoing Inspection Chart Standard
		Color	The Naked Eye	No Issue
		Noise	The Naked Eye	Not Allowed
		Corner Dark	The Naked Eye	Less Than 100px By 100px
		Color Resolution	The Naked Eye	No Issue
Dimension		Height	The Naked Eye	Follows Approval Data Sheet
		Width	The Naked Eye	Follows Approval Data Sheet
		Length	The Naked Eye	Follows Approval Data Sheet
		Overall	The Naked Eye	Follows Approval Data Sheet

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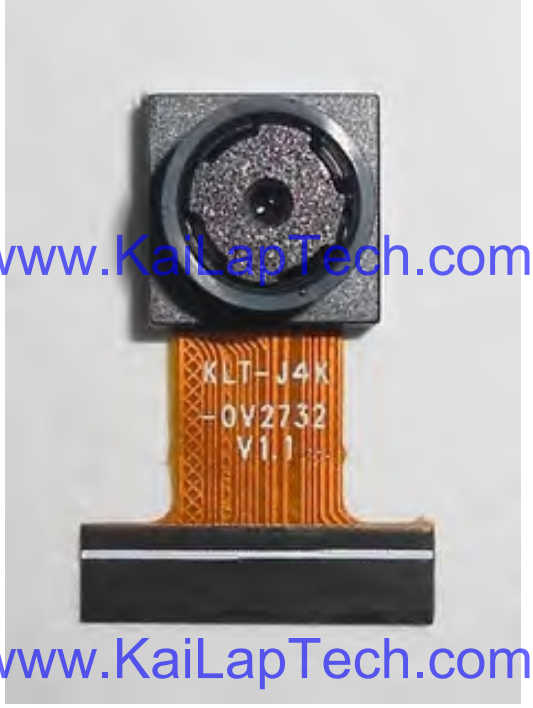
KLT Package Solutions

KLT Camera Module



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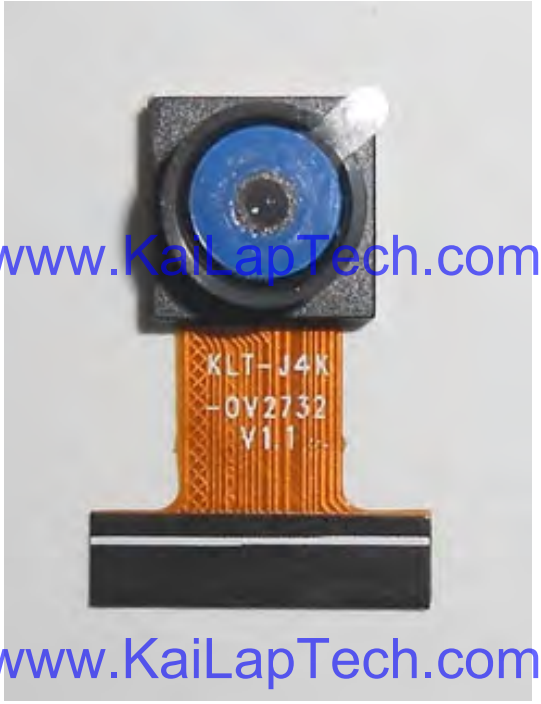
Complete with Lens Protection Film



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Tray with Grid and Space

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Place Cameras on the Tray

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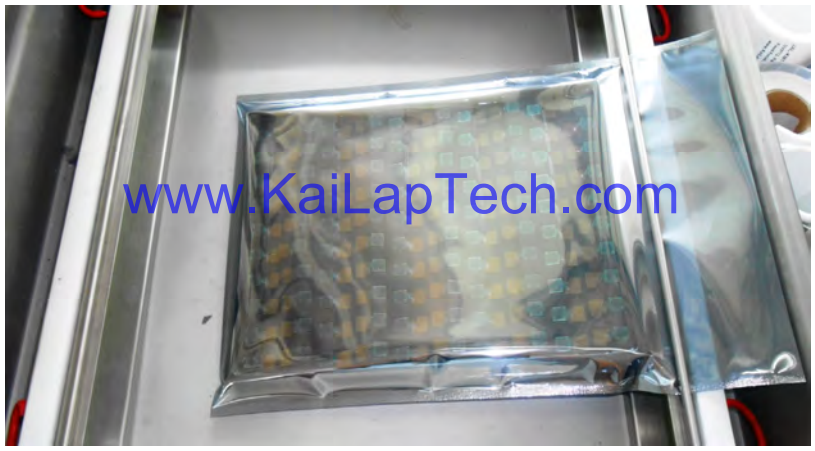
Camera Modules Package Solution

Full Tray of Cameras

Cover Tray with Lid

Put Tray into Anti-Static Bag

Vacuum the Anti-Static Bag



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Camera Modules Package Solution

Sealed Vacuum Bag with Labels
1. Model and Description 2. Quantity 3. Shipping Date 4. Caution

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Large Order Package Solution

Place Foam Sheets Between Trays

Foam Sheets are Slightly Larger than Trays

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Place Foam Sheets and Trays into Box

Foam Sheets are Tightly Fitting Box

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Small Order Package Solution

Place Foam Sheets and Trays into Small Box

Foam Sheets are Nicely Fitting the Small Box

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Package in Small Box for Shipment

Place Small Boxes into Larger Box

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Carbon Box Package Solution

Seal the Carbon Box

Final Package Labelled Box

Carbon Box Ready for Shipment

1. Delivery Address and Phone No. 2. Box No. and Ship Date 3. Fragile Caution

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Sample Order Package Solution

Place Sample into Small Anti-Static Bag

Place Connectors into Small Ant-Static Bag

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Sample Labels on the Small Bag
1. Camera Module or Connector Model 2. Shipping Date and Quantity 3. Caution

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Connectors Large Order Package Solution

Connectors in a Wheel

Label Connectors in the Wheel

The Wheel is Perfectly Fitting the Box

Connectors Box Ready for Shipment

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Company Kai Lap Technologies (KLT)

Kai Lap Technologies Group Limited. (KLT) was established in 2009, a next-generation technology driven manufacturer specialized in research, design, and produce of audio and video products. KLT is occupying 20,000 square feet automated plants with 100 employees of annual throughput 30,000,000 units cameras.

KLT provides OEM, ODM design, contract manufacturing, and builds the camera products. You may provide the requirements to us, even with a hand draft, our sales and engineering work together to meet your needs. We consider ourselves your last-term partner in developing practical and innovative solutions.

Our team covers everything from initial concept development to mass produced product. KLT specializes in customized camera design, raw material, electronic engineering, firmware/software development, product testing, and packing design. Our experienced strategic supply systems offer a robust and dependable manufacturing capacity for orders of various sizes.

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Limited Warranty

KLT provides the following limited warranty if you purchased the Product(s) directly from KLT company or from KLT's website, www.KaiLapTech.com. Product(s) purchased from other sellers or sources are not covered by this Limited Warranty. KLT guarantees that the Product(s) will be free from defects in materials and workmanship under normal use for a period of one (1) year from the date you receive the product ("Warranty Period").

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For all Product(s) that contain or develop material defects in materials or workmanship during the Warranty Period, KLT will, at its sole option, either: (i) repair the Product(s); (ii) replace the Product(s) with a new or refurbished Product(s) (replacement Product(s) being of identical model or functional equivalent); or (iii) provide you a refund of the price you paid for the Product(s).

This Limited Warranty of KLT is solely limited to repair and/or replacement on the terms set forth above. KLT is not reliable or responsible for any subsequential events.

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KLT Strength

Powerful Factory

Professional Service

Promised Delivery

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