

Smart thermal imaging camera module The smallest 80x80 infrared camera in the World - Best mobile solution for proof of concept makers and OEM -



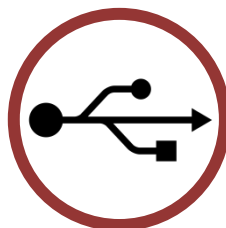
SmartIR80L is an affordable compact thermal imaging camera module especially designed for proof of concept makers and High volumes application makers.

SmartIR80L is the perfect learning tool to help you to discover thermal imaging technology and for fast project development, due to **easy to use USB 2.0 interface** with 14 bits streaming video. This thermal imaging camera includes the software that performs in real time recording sequence, single image capture and display.

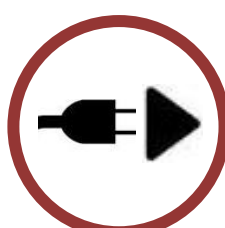
SmartIR80L is ready to integrate in your application thanks to its open DLL configuration.



80x80 pixels



USB2.0



Plug&Play



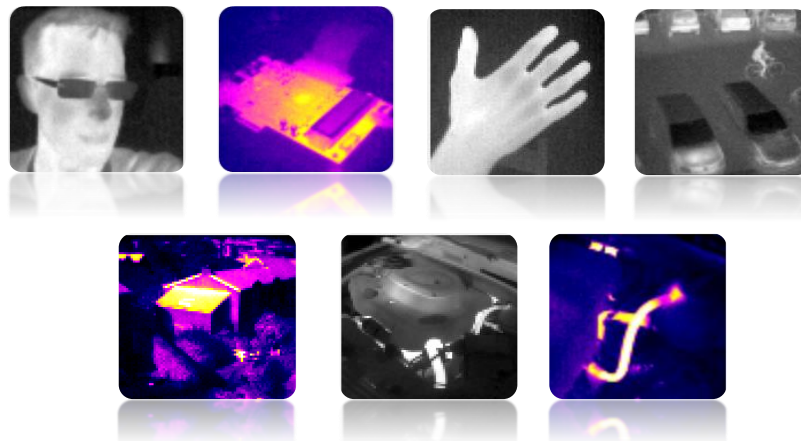
Low Power



Free SDK

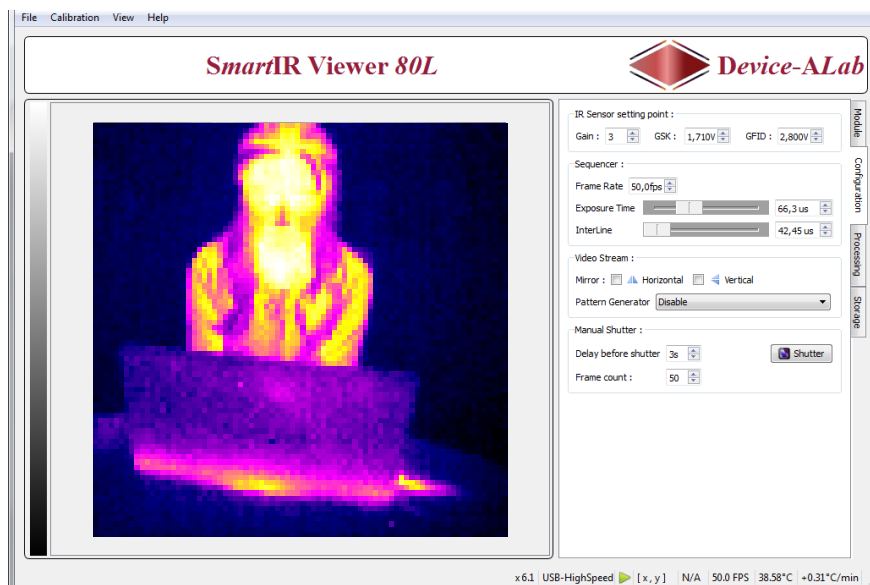
SCOPE OF USE

Low resolution thermal imaging
Temperature measurement
People detection; people counting; smart occupancy sensing; home automation management
Thermal imaging technology learning / proof of concept



SMARTIR VIEWER (GUI)

SmartIR Viewer is an incredible powerful tool to manage and optimize **SmartIR80L** settings.



Calibration wizard (up to 8 maps: gain and/or offset tables)

Easy and fast Import/export gain, offset & data to Matlab; ImageJ, Excel, ...

BPR (bad Pixel Replacement); **NUC** (Non Uniformity Correction); **AGC** management can be done by just clicking

Binning ; frame averaging

Free SDK: for easy integration into your applications, **compatible with Windows & Linux**

KEY TECHNICAL SPECIFICATIONS

SYSTEM FEATURES	SmartIR80L	DESCRIPTION
Camera resolution	80x80 pixels	Based on Micro-bolometer technology with 34 μm pixel pitch : M80-044 (Micro80 GEN2 sensor from ULIS)
Spectral response (LWIR)	8 – 14 μm	
NETD (F/1 ; 300K ; 50 Hz)	< 100 mK	
Power consumption	< 500mW	@ 30 Fps
Interfaces: USB 2.0 (micro-USB type B female)	RAW 16 bits digital output Camera control	Plug & Play to any host controller system (PC or Computer Board) USB 2.0 compliant up to 50 Fps
Shutter	No	Standard model
Camera control	Free run	Exposure mode
	Adjustable IR setting point (Exposure time, Gain, ...)	
	Power consumption management: Standby power mode Deep standby power mode	Video disable and wakeup for fast time to image Video disable, detector powered off
User Configuration Storage	Up to 8	On module
Storage Calibration Table	Up to 8	On module
Time to image	< 3 s	Time from power on at USB power supply
Image Optimization	BPR, NUC, AGC	Configuration dependant Processing inside SmartIR80L's SDK on Host controller (PC or Computer Board)
Video Speed: Full Frame Rates Standard Frame Rates Exportable Frame Rates	50 Hz 30 Hz <9 Hz	Using digital mode for video output from sensor
Image Flip	Yes	On module
Qualification grade	Commercial (Standard grade) Industrial (option)	
Operating temperature range	-10°C ; +50°C (Standard grade) -20°C ; +60°C (industrial grade)	
Size :		
Length x Width x Height	24 x 24 x 22 mm ³	Including mechanical casing (plastic)
Weight	< 7 g	Excluding mechanical casing and optic
	< 13 g	Including mechanical casing and optic
Demo Graphical User Interface	Windows	SmartIR Viewer adjusts all image parameters in GUI. GUI compatible Windows only
SDK (for USB)	Windows & Linux	SDK compatible with Windows, Linux of Operating System

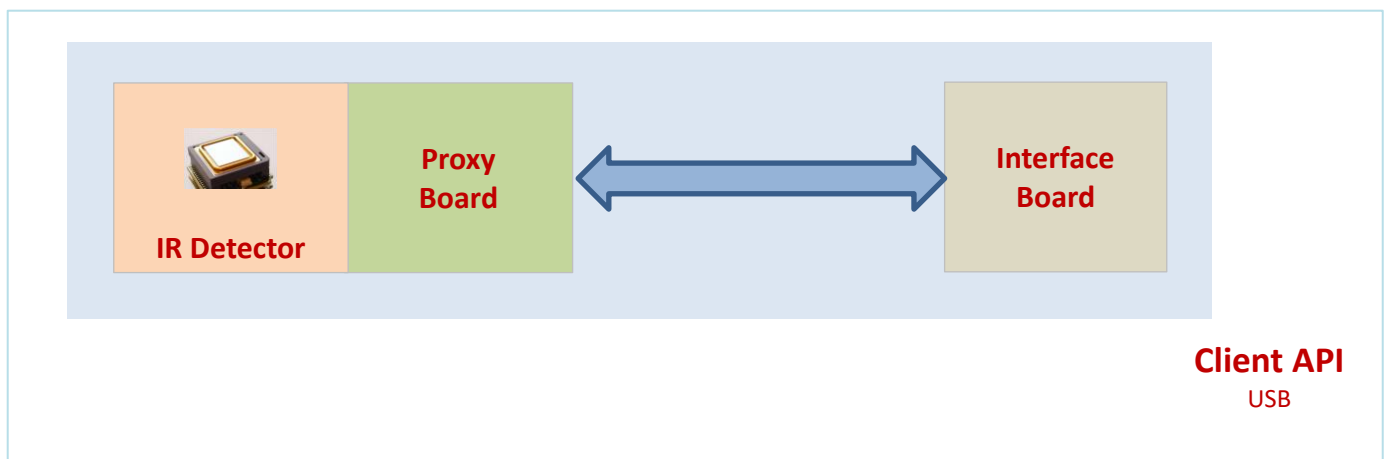
The products described herein are subject to French Government Export Controls except the products of lower than or equal to 9 Hz frame rates.

CONFIGURATION OF ENGINE CORE

SmartIR80L is developed using a modular concept and architecture.

Thanks to its SDK, SmartIR80L-USB consists in embedding the processing into the Host Controller mainly for UAVs, UGVs and Machine Vision applications.

For handheld and portable application, a Processing Board can be added to the previous stack (see figure below), allowing to embed the optimized and just needed processing to the aimed application.



WHAT'S IN THE BOX

Thermal imaging camera

USB cable included 80cm or 1m length for the demonstration (DEMO model) device only

SmartIR viewer (GUI)

ICD (mechanical drawings)

SDK for developers

Documentation (user's guide)

Downloadable on Device-ALab website through customer access

ORDER YOUR OWN AND GET IT!

MODEL	VIDEO SPEED	LENS	DIMENSION/WEIGHT	PART NUMBER
SmartIR80L-USB DEMO	30 Hz	13.0 mm; HFOV: 12°; F/1.1	24 x 24 x 34 mm ³ / 30 g	M80L-0001AOAC-CAUB2- XXS
SmartIR80L-USB DEMO	30 Hz	6.8 mm; HFOV: 23°; F/1.3	24 x 24 x 27 mm ³ / 25 g	M80L-0001APAC-CAUB2- XXS
SmartIR80L-USB DEMO	30 Hz	1.9 mm; HFOV: 90°; F/1.3	24 x 24 x 22 mm ³ / 12 g	M80L-0001ARAC-CAUB2- XXS
SmartIR80L-USB DEMO	30 Hz	1.5 mm; HFOV: 120°; F/1.3	24 x 24 x 22 mm ³ / 12 g	M80L-0001AYAC-CAUB2- XXS
SmartIR80L-USB DEMO	9 Hz	13.0 mm; HFOV: 12°; F/1.1	24 x 24 x 34 mm ³ / 30 g	M80L-0001EOAC-CAUB2- XXS
SmartIR80L-USB DEMO	9 Hz	6.8 mm; HFOV: 23°; F/1.3	24 x 24 x 27 mm ³ / 25 g	M80L-0001EPAC-CAUB2- XXS
SmartIR80L-USB DEMO	9 Hz	1.9 mm; HFOV: 90°; F/1.3	24 x 24 x 22 mm ³ / 12 g	M80L-0001ERAC-CAUB2- XXS
SmartIR80L-USB DEMO	9 Hz	1.5 mm; HFOV: 120°; F/1.3	24 x 24 x 22 mm ³ / 12 g	M80L-0001EYAC-CAUB2- XXS
SmartIR80L-USB DEMO	30 Hz	No	24 x 24 x 22 mm ³ / 7 g	M80L-0001AXAC-CAUB2- XXS
SmartIR80L-USB DEMO	9 Hz	No	24 x 24 x 22 mm ³ / 7 g	M80L-0001EXAC-CAUB2- XXS
SmartIR80L-USB OEM	30 Hz	13.0 mm; HFOV: 12°; F/1.1	24 x 24 x 34 mm ³ / 30 g	M80L-0001AOAC-CAUB2- XXS
SmartIR80L-USB OEM	30 Hz	6.8 mm; HFOV: 23°; F/1.3	24 x 24 x 27 mm ³ / 25 g	M80L-0001APAC-CAUB2- XXS
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Note of Part numbering:

XX are summarized below in table of **compatibility version**.

The last digit means the maturity level of the device. Example: **S** is meaning an engineering sample device. **M** is meaning the mass production device.

DEMO model is intended to a demonstration use.

OEM model is intended to an original equipment manufacturer use (for volume of mass production upper than 20 units per year).

COMPATIBILITY VERSION

RELEASE VERSION	RELEASE DATE	NEW FEATURES
A0	July 2019	Operating System : Windows & Linux (1)

Note (1): Windows (x86; x64) or Linux on Embedded Platform ARM9, Libc 2.x with x>=13 or Linux_x86, Linux_x64 on Platform (Intel and AMD)

General Notice: This module is intended only for product evaluation, development or incorporation into other product or sub-system. It is not a finished end-product fit for general consumer use. As such, this module is without the scope of the European Union (EU) directives concerning electromagnetic compatibility (EMC).

Technical characteristics described in this data sheet are for information only and are not contractual. Because of ongoing product enhancements, specifications are subject to change without notice. SmartIR80L-Specsheetrev4 © July 2019 - All rights reserved.