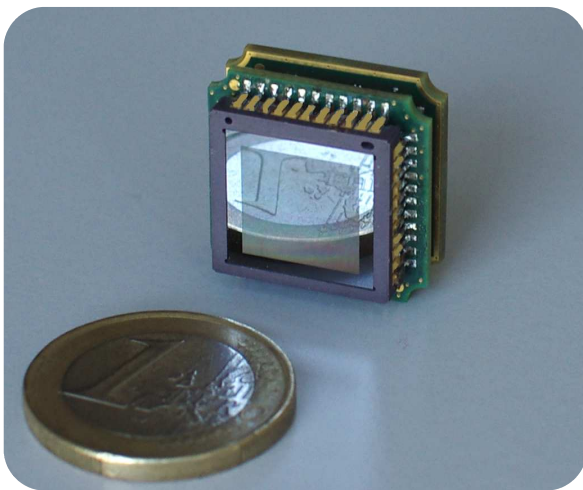


The QQVGA of Smart Thermal Imaging Camera Modules for Commercial and Professional Markets One of the Most Compact and Lightest Low Resolution of InfraRed Camera OEM in the World

- **Best Embedded Solution for Core Engine Camera Integrator** -



SmartIR160 is an affordable compact and a featherweight thermal imaging camera. This module is especially designed for simply being integrated into the customer sub-system, enabling a high image quality with low-power consumption, providing an agility of configurations and addressing the medium and high volumes OEMs for **low-end markets**

SmartIR160 is the plug and play perfect core engine, thanks to **easy to use USB 2.0 interface** with 16 bits streaming video. This thermal imaging camera includes the software that performs in real time recording sequence, single image capture and display

SmartIR160 is ready to integrate in your application thanks to a DLL providing high level services (Configuration, Acquisition, Processing)

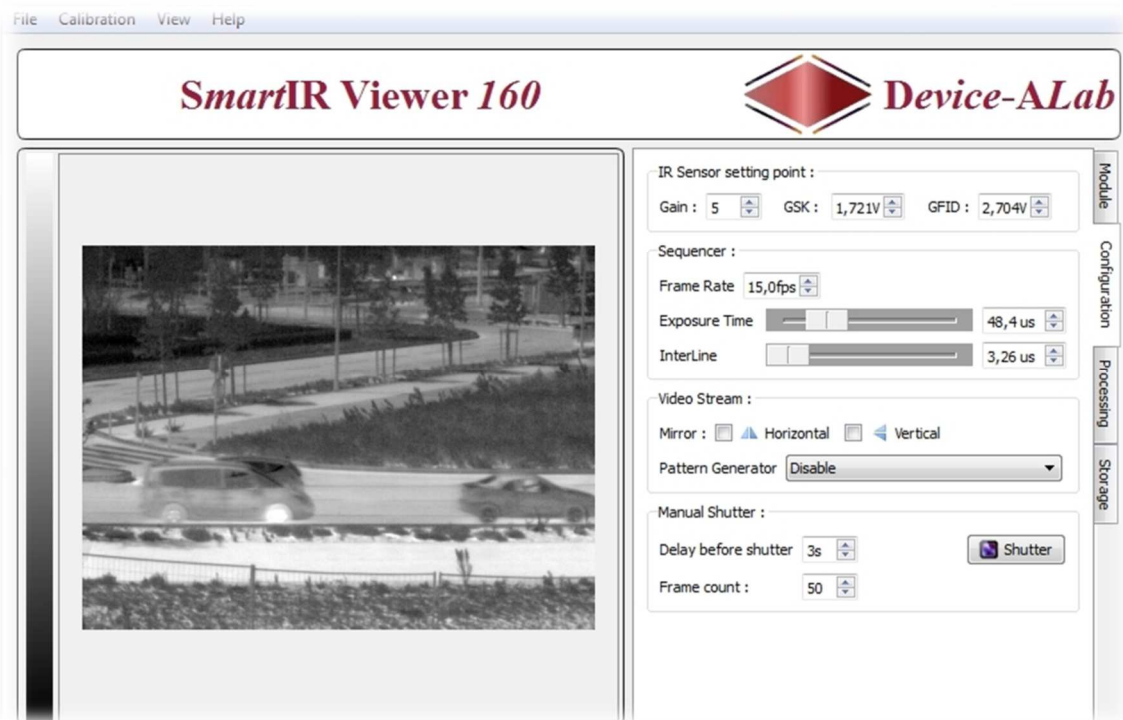
SCOPE OF USE

Robotics
Handheld Thermal Imaging
Temperature Measurement
Surveillance, Security and Maritime Cameras
Building Management and Quality Inspection
Hunting goggles and Nature Viewing



SMARTIR VIEWER (GUI)

SmartIR Viewer 160 is an incredible powerful tool to manage and optimize the module settings



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

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

BPR (Bad Pixel Replacement); NUC (Non Uniformity Correction); AGC (Automatic Gain Correction) management can be done by just clicking

Free SDK (Software Design Kit): for easy integration into your applications

Compatible with **Windows & Linux**

KEY TECHNICAL SPECIFICATIONS

SYSTEM FEATURES	SmartIR160	DESCRIPTION
Camera resolution	160x120 pixels	Micro-bolometer technology with 17 μm pixel pitch SmartIR160 fits to PICO160-054 detector
Spectral response (LWIR)	8 – 14 μm	
NETD (f/1 ; 300K ; 30 Hz)	< 60 mK	
Power consumption	< 700mW	@ 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 60 Fps
Shutter	No	
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	< 5 s	Standard
Image Optimization	BPR, NUC, AGC	Configuration dependant Processing inside SmartIR384L's SDK on Host controller (PC or Computer Board)
Video Speed: Full Frame Rates Standard Frame Rates Exportable Frame Rates	60 Hz 30 Hz 9 Hz	Adjustable frame rate on the fly
Image Flip	Yes	On module
Qualification grade	Industrial	
Operating temperature range	-20°C ; +60°C (industrial grade)	
Size : Length x Width x Height	24 x 24 x 18 mm ³	Housing excluding Optics
Weight	< 7 g < 22 g	Excluding optic and mechanical casing With mechanical casing excluding optic
Demo Graphical User Interface	Windows	SmartIR Viewer adjusts all image parameters in GUI. GUI compatible Windows only SDK compatible with Windows, Linux of Operating System
SDK (for USB)	Windows & Linux	

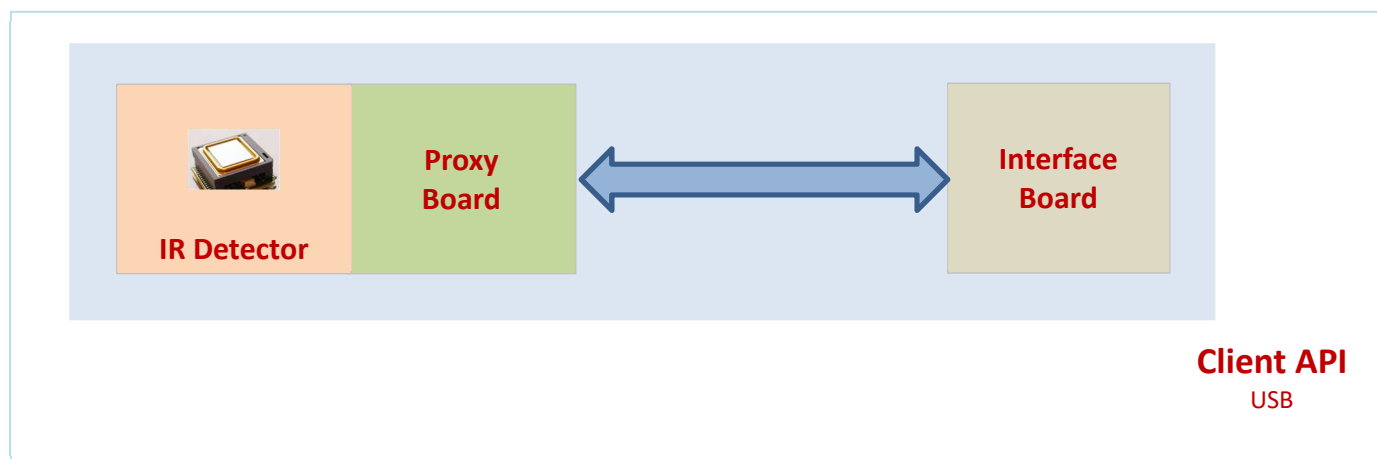
The products described herein are subject to French Government Export Controls except the products of lower than or equal to 9 Hz frame rates.

CONFIGURATION OF ENGINE CORE

SmartIR160 is developed using a modular concept and architecture.

Thanks to its SDK, SmartIR160-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.



ORDER YOUR OWN AND GET IT!

MODEL (with housing and standard grade)	VIDEO SPEED	LENS	DIMENSION/WEIGHT	PART NUMBER
SmartIR160-USB	30 Hz	16.7 mm; HFOV: 9.3°; F/1.25	24 x 24 x 40 mm ³ / 56 g	M160-0001AHAI-CAUB2- XXS
SmartIR160-USB	30 Hz	10.0 mm; HFOV: 15.0°; F/1.20	24 x 24 x 40 mm ³ / 51 g	M160-0001ANAI-CAUB2- XXS
SmartIR160-USB	30 Hz	7.5 mm; HFOV: 20.8°; F/1.40	24 x 24 x 34 mm ³ / 48 g	M160-0001AGAI-CAUB2- XXS
SmartIR160-USB	30 Hz	6.8 mm; HFOV: 23.1°; F/1.40	24 x 24 x 34 mm ³ / 44 g	M160-0001AMAI-CAUB2- XXS
SmartIR160-USB	30 Hz	5.0 mm; HFOV: 30.5°; F/1.05	24 x 24 x 30 mm ³ / 30 g	M160-0001ACAI-CAUB2- XXS
SmartIR160-USB	30 Hz	3.7 mm; HFOV: 42.7°; F/1.33	24 x 24 x 30 mm ³ / 39 g	M160-0001AFAI-CAUB2- XXS
SmartIR160-USB	30 Hz	2.2 mm; HFOV: 63.5°; F/1.40	24 x 24 x 28 mm ³ / 28 g	M160-0001ABAI-CAUB2- XXS
SmartIR160-USB	30 Hz	2.2 mm; HFOV: 63.5°; F/1.20	24 x 24 x 28 mm ³ / 28 g	M160-0001ALAI-CAUB2- XXS
SmartIR160-USB	9 Hz	16.7 mm; HFOV: 9.3°; F/1.25	24 x 24 x 40 mm ³ / 56 g	M160-0001EHAI-CAUB2- XXS
SmartIR160-USB	9 Hz	10.0 mm; HFOV: 15.0°; F/1.20	24 x 24 x 40 mm ³ / 51 g	M160-0001ENAI-CAUB2- XXS
SmartIR160-USB	9 Hz	7.5 mm; HFOV: 20.8°; F/1.40	24 x 24 x 34 mm ³ / 48 g	M160-0001EGAI-CAUB2- XXS
SmartIR160-USB	9 Hz	6.8 mm; HFOV: 23.1°; F/1.40	24 x 24 x 34 mm ³ / 44 g	M160-0001EMAI-CAUB2- XXS
SmartIR160-USB	9 Hz	5.0 mm; HFOV: 30.5°; F/1.05	24 x 24 x 30 mm ³ / 30 g	M160-0001ECAI-CAUB2- XXS
SmartIR160-USB	9 Hz	3.7 mm; HFOV: 42.7°; F/1.33	24 x 24 x 30 mm ³ / 39 g	M160-0001EFAI-CAUB2- XXS
SmartIR160-USB	9 Hz	2.2 mm; HFOV: 63.5°; F/1.40	24 x 24 x 28 mm ³ / 28 g	M160-0001EBAI-CAUB2- XXS
SmartIR160-USB	9 Hz	2.2 mm; HFOV: 63.5°; F/1.20	24 x 24 x 28 mm ³ / 28 g	M160-0001ELAI-CAUB2- XXS
SmartIR160-USB	30 Hz	No	24 x 24 x 18 mm ³ / 22 g	M160-0001AXAI-CAUB2- XXS
SmartIR160-USB	9 Hz	No	24 x 24 x 18 mm ³ / 22 g	M160-0001EXAI-CAUB2- XXS

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.

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)

WHAT'S IN THE BOX

Module of Thermal Imaging Camera

IrLugX Viewer (GUI)

ICD (mechanical drawings)

SDK for developers

Documentation (user's guide)

Downloadable on Device-ALab website through customer access

General Notices:

This OEM 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).