

**One of the most compact and lightest VGA 12  $\mu$ m thermal imaging camera core in the world**

**Ready to integrate Shutterless-capable OEM Camera**



**IrLugX640E™** is an affordable compact and a featherweight thermal imaging camera core embedding the new generation of the 640 x 480 micro-bolometer **with 12  $\mu$ m pixel** pitch in a ceramic package.

This module is especially designed for simple integration into customer sub-system, enabling low-power consumption, providing an agility of configurations and addressing the medium and high volumes OEMs for **low-end markets**

**IrLugX640E™** is the plug and play perfect engine core, thanks to **easy to use video digital standard from BT656** with 8 bits streaming video up to SDI. This thermal imaging camera includes the software that performs image processing and control

Plug, Sense&Play the Heat

**IrLugX640E™** is ready to integrate in your application thanks to the SDK providing high level services (Configuration and Control)

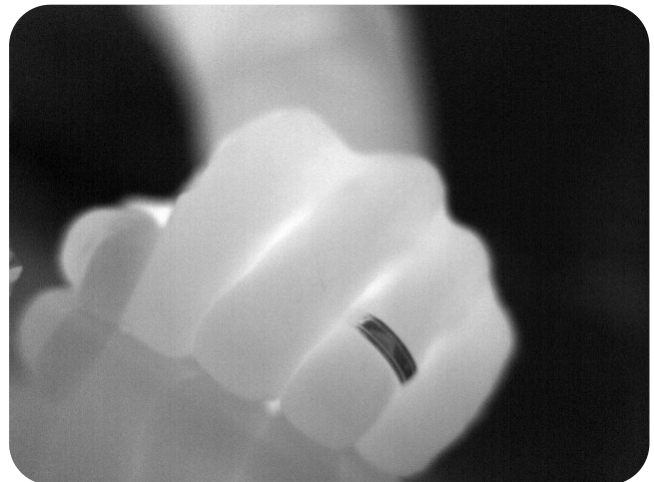
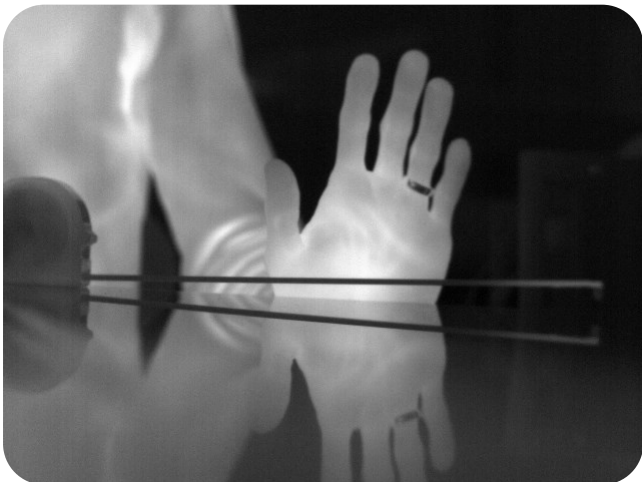
## TYPICAL APPLICATIONS

### SCOPE OF USE

- UAVs, UGVs and Robotics
- Handheld Thermal Imaging Devices
- Temperature Measurement
- Surveillance, Security and Maritime Cameras
- Night Vision Goggles and Sights
- Automotive and Aircraft Safety Vision
- Machine Vision Inspection
- Medical Imaging



### OUTSTANDING IMAGE QUALITY



## POSSIBLE MODULARITY OF ENGINE CORE

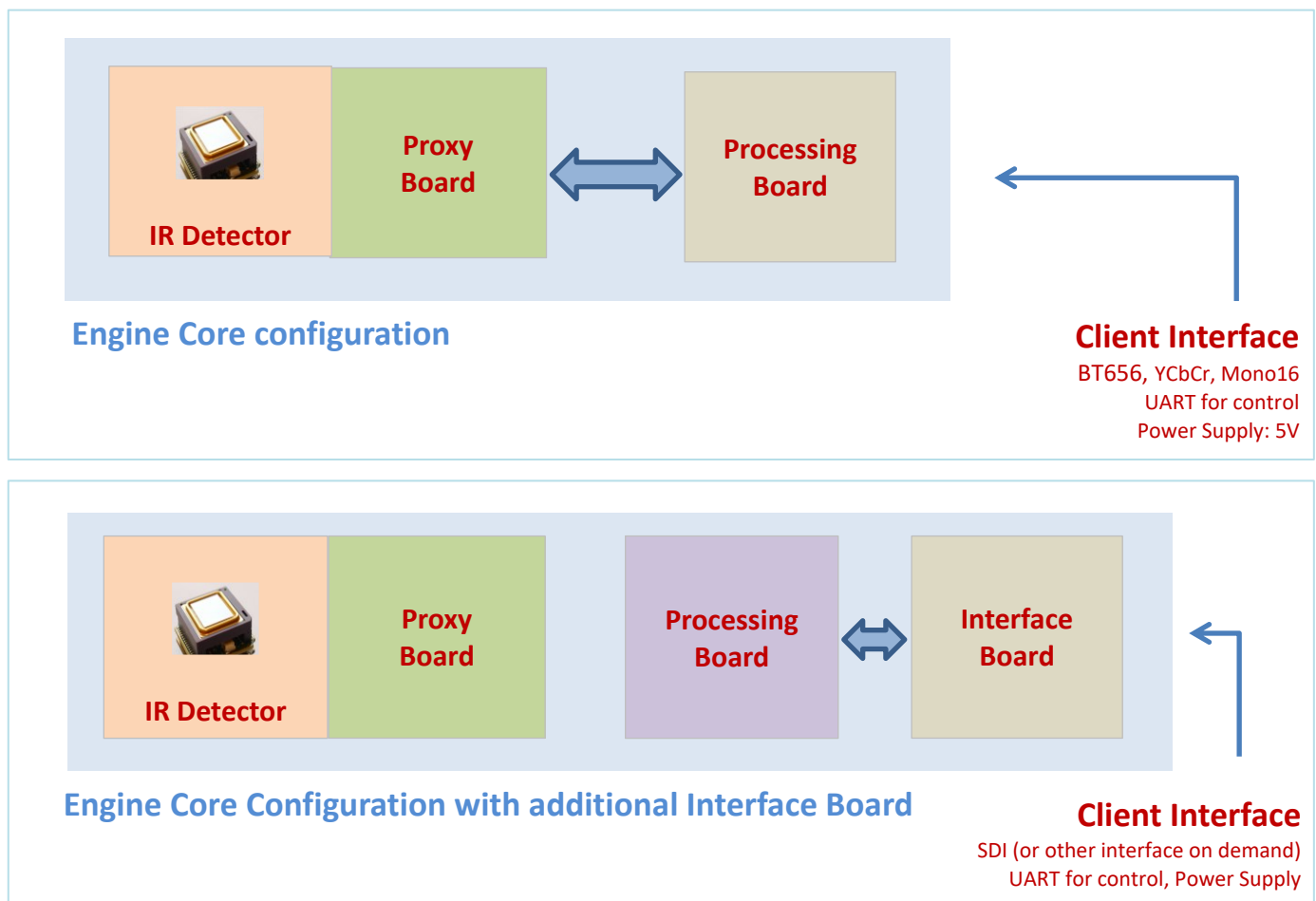
**IrLugX640E™** is developed using a modular concept and architecture, enabling to embed the optimized and just needed interface to the aimed application.

A Processing Board embeds the image processing into the module.

An Interface Board can be added to the previous stack (see figure below).

Different standard outputs are available, natively or on demand: BT656, YCbCr, SDI as well as Camera-Link, MIPI-CSI or Analog Video output (PAL-NTSC) interface with specific Power Supply. Such a wide choice of variants perfectly serves the designers of electrooptical systems in Surveillance and Security, UAVs, UGVs and Machine Vision applications.

As for handheld and portable devices, **IrLugX640E™** also fits as the fundamental Infrared stack. However, the “Platform” is an alternative to be seriously considered: it natively features a microcontroller, power management and video stack, which secures and smoothens device integration.



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.  
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## KEY TECHNICAL SPECIFICATIONS OF ENGINE CORE MODEL

FEATURES	PARAMETERS	DESCRIPTION
Camera resolution	640x480 pixels	Micro-bolometer technology with <b>12µm pixel pitch</b> : Camera fits to <b>ATTO640 detector</b> Without optics
Spectral response (LWIR)	8 - 14 µm	
<b>NETD (F/1; 300K; 30 Hz)</b> Maximum Typical	< 50 mK (high grade) / < 40 mK (on demand) 40 mK / 35 mK	Refer to Performance Grade section for more details on Operability and NETD
<b>Power consumption</b> Maximum Typical	< 1.2 W 1.0 W	@ 30 Fps engine core with Shutter-Less mode set OFF
<b>Interface connector:</b> <b>Video:</b> Format	DF40C-60DP (Header)  BT656 (8 bits) YCbCr (10 bits) Mono16 (16bits)	NUC and BPC treatment available in this mode
External Pixel Clock Synchronization	Yes	
<b>Digital output/input:</b> Control Upgrade	UART UART	
<b>Electrical digital output/Input:</b> <b>Power Supply:</b> Voltage	3.3V (Standard) or 1.8V (optional) 5.0V +-10%	Optional on demand
<b>External Frame trigger</b>	Yes	Free run software frame trigger; External hardware frame trigger Frame trigger replication
<b>No Shutter</b>	Standard	
<b>Mechanical Shutter management</b> <b>Shutter-Less</b>	Yes Optional	Trigger of external shutter Two points Shutter-less (optional on demand)
<b>User Configuration Storage</b> <b>Storage Calibration Table</b>	1 Up to 8	On module On module
<b>Time to image</b> <b>Image Processing:</b> <b>Calibration</b>	< 6 s  Yes	Time from power on at power supply Configuration dependence Two point calibration (software triggered) One point calibration (software and hardware triggered)
<b>Image Optimization</b> <b>Rescale</b> <b>Color Rendering</b> <b>Symbology (OSD)</b> <b>Image Flip</b> <b>Full Frame Rate</b> <b>Nominal Frame Rate</b> <b>Exportable Frame rate</b>	NUC; BPC; AGC (Brightness, Contrast) x1 to x4 Yes 16 areas Yes 60 Hz 30 Hz (standard) 9 Hz	Tunable local AGC: Linear 1%; Smooth Continuous zoom, depending on configuration White Hot; Black Hot; Glow; Fire; Iron; Rainbow; Custom Configurable Position, Size, Alpha, Color, Content
<b>Qualification grade</b>	Industrial (Standard grade) Extended or Military (MIL-STD-810E)	For Military grade only with selective sorting test concerning climatic stress screening based on MIL-HDBK-2164A
<b>Mechanical Shock (TWS)</b>	1000g, 0.4ms, ½ sine X & Y axis 700g, 0.3ms, ½ sine Z axis	For only configuration of module without shutter
<b>Operating temperature range</b>	-20°C; +60°C (Standard grade) -40°C; +70°C (Extended or Military grade)	
<b>Size: Length x Width x Height</b>	30.0 x 30.0 x 23 mm <sup>3</sup>	With mechanical encased, excluding optic and mechanical Shutter
<b>Weight</b>	< 38 g	With mechanical encased, excluding optic and mechanical Shutter
<b>Storage Data Retention</b>	> 20 years	
<b>Customer configurations available on demand for following interfaces:</b> MIPI-CSI, Camera-Link; Analog video output (PAL-NTSC) with specific power supply		

## KEY SPECIFICATIONS OF ANALOG CAMERA MODEL (PAL/NTSC)

FEATURES	PARAMETERS	DESCRIPTION
Sensor resolution & performance	Refer to Engine Core table above (page4)	
Video Standard	PAL/NTSC	Switch able via RS232 Control
Image Resolution of Video Standard	576i/480i	
Standard Frame rate	25.00Hz/29.97Hz	
Exportable Frame rate	8.33Hz/7.49Hz	
No Shutter	Standard	
Mechanical Shutter Management	Yes	Trigger of external shutter Activated Input
Shutter-Less	Optional	Two points Shutter-less (optional on demand)
User Configuration Storage	1	On module
Storage Calibration Table	Up to 8	On module
Time to image	< 6 s	Time from power on at power supply pin
Image Processing and calibration	Yes	Refer to Key Specification sheet of Engine Core Model
Video output 1 Connector	HD-BNC (Micro-BNC female)	
Video output 2 Connector	Samtec TEM-110-02-03.0-G-D-L1	20 pin Connector, mating part: Samtec ISDE-10-D-L
Video Output Impedance	75 Ohm	
Video Output Signal Level	1V p/p	CCIR Rec. 569 for PAL/ FCC for NTSC
Video Differential Gain and Phase	+3% / +3° max.	CCIR Rec. 569 for PAL/ FCC for NTSC
Video Signal to Noise ratio (Unweighted, 5 MHz activated Low Pass filter)	62 dB max. 59 dB max.	On one quiet line per CCIR Rec. 569 for PAL and @ Video output 1 On one quiet line per NTC-7 for NTSC and @ Video output 1
Video Group Delay and Gain	+0.05 μs/+1.0dB +0.1 μs/+1.0dB	Ref. at 0.24 MHz to 4.3 MHz for PAL and @ Video output 1 Ref. at 0.20 MHz to 4.0 MHz for NTSC and @ Video output 1
Power supply and digital signal Connector	Samtec (TEM-110-02-03.0-G-D-L1)	20 pin Connector
Positive Power Supply Voltage	4V to 14V max. DC	Polarity Reverse, Over and Under Supply protection and limitation
Power Consumption	< 1.6 W	@ 30 Hz Frame rate with Shutter-Less mode set OFF
Camera Communication and Control	RS232	Compliance with EIA/TIA-232E, IUT-T V.28, up to 460 kbps
External Trigger Input	3V3 or 5V0	Digital logic, 5 K Ohm pull-down internal resistor
Data CLK Output: PAL/NTSC	BT656, 3V3 CMOS	Digital BT656, 29.5 MHz/24.54 MHz
Video data Output (Data_0 to Data_7)	BT656, 8 bits, 3V3 CMOS	Digital BT656
Shutter Requested Output	Yes, 3V3 CMOS	Digital logic
Shutter Activated Input	Yes, 3V3 or 5V0	Digital logic
Qualification grade	Industrial (Standard grade) Extended or Military (MIL-STD-810E)	For Military grade only with selective sorting test concerning climatic stress screening based on MIL-HDBK-2164A
Mechanical Shock (TWS)	1000g, 0.4ms, ½ sine X & Y axis 700g, 0.3ms, ½ sine Z axis	only for product variant without mechanical shutter
Size: Length x Width x Height	30.0 x 30.0 x 39 mm <sup>3</sup>	With mechanical encased & HD-BNC connector, excluding optic and mechanical Shutter
Weight	< 50g	With mechanical encased & HD-BNC connector, excluding optic and mechanical Shutter
Storage Data Retention	> 20 years	
<b>Accessory for Evaluation:</b> Camera Interface Cable with Unterminated leads (Samtec SESDT-10-32-G-20.0-L) HD-BNC to BNC 75 Ohm Cable		

## KEY SPECIFICATIONS OF SDI CAMERA MODEL

FEATURES	PARAMETERS	DESCRIPTION
Sensor resolution & performance	Refer to Engine Core table above (page4)	
Video Format	SD (PAL-NTSC) /	Switchable via RS422/RS485 Control
<u>Image Resolution</u>	HD-3G	HD-3G on demand only, with dedicated P/N
<u>Standard/Standard Frame rate</u>	576i50-480i59.94	ANSI/SMPTE-294/SMPTE (SD-SDI)
<u>Interleaving mode (SD)</u>	720p25, 720p29.97, 720p30, 720p50, 720p59.94,	ANSI/SMPTE-292 (HD-SDI; 1.485Gbit/s)
<u>Progressive mode (HD-3G)</u>	720p60/ 1080p25, 1080p29.97, 1080p30	ANSI/SMPTE-424M (3G-SDI; 2.97Gbits/s)
	1080p50, 1080p59.94, 1080p60	
Exportable Frame rate	8.33Hz-7.49Hz	
No Shutter	Standard	
Mechanical Shutter Management	Yes	Trigger of external shutter Activated Input/Shutter Requested output
Shutter-Less	Optional	Two points Shutter-less (optional on demand)
User Configuration Storage	1	On module
Storage Calibration Table	Up to 8	On module
Time to image	< 6 s	Time from power on at power supply pin
Image Processing and calibration	Yes	Refer to Key Specification sheet of Engine Core Model with image processing for human vision
Video output Connector	HD-BNC (Micro-BNC female)	
Video Output Impedance	75 Ohm	ANSI/SMPTE (Compliance of 3G-SDI Standard)
Video Output Signal Level	Compliance of 3G-SDI Standard	ANSI/SMPTE
Error bit with CRC	Compliance of 3G-SDI Standard	ANSI/SMPTE including 100m max. length cable
Latency time	<1/4 of frame	
HR25 Hirose – 16 pin Connector	HR25-9TR-16PA	Mating part: HR25-9TP-6S
Camera Communication and Control	RS422/RS485	<b>Full duplex mode</b> , compliance with ANSI/TIA/EIA-422/EIA485, up to 500Kps
Positive Power Supply Voltage	8V to 32V max. DC	Polarity Reverse Supply protection
Power Supply status LED	Yes	Green color Led for Power on, possible disable
Power Supply Over Coax	12V to 14V @ <3.0W	@ 480i29.97 video format with Shutter-Less mode set OFF
	12V to 14V @ <3.3W	@ 720p30 video format with Shutter-Less mode set OFF
Power Consumption		
Maximum	< 2.8 W	@ 480i29.97 video format with Shutter-Less mode set OFF
Typical	2.7 W	@ 480i29.97 video format with Shutter-Less mode set OFF
Maximum	< 3.1 W	@ 720p30 video format with Shutter-Less mode set OFF
Typical	2.9 W	@ 720p30 video format with Shutter-Less mode set OFF
Output External		
GenLock (Synchronization)	CMOS 2V5	
Horizontal Synchronization/	LVDS (+/-350 mV c/c) ECL logic	Differential signal (100 Ohm impedance matching)
Input External GenLock		
Vertical Synchronization	LVDS (+/-350 mV c/c) ECL logic	Differential signal (100 Ohm impedance matching)
Shutter Requested Output	CMOS 2V5	
Shutter Activated Input	CMOS 2V5, 3V3 or TLL 5V0	
Qualification grade	Industrial (Standard grade)	
	Military (MIL-STD-810E)	
Operating temperature range	-20°C ; +60°C (Standard grade)	
	-40°C ; +70°C (Extended or Military grade)	
Size: Length x Width x Height	30.0 x 30.0 x 36 mm <sup>3</sup>	With mechanical encased & HD-BNC connector,
Weight	< 50g	Excluding optic and mechanical Shutter
Storage Data Retention	> 20 years	
<b>Accessory for Evaluation:</b>		
Camera Interface cable for camera control, power supply, other signals, PCIe SDI Video Capture board, HD-BNC to BNC 75 Ohm Cable		

## ORDER YOUR OWN AND GET IT! (1/2)

Engine Core VGA MODEL (With housing and Industrial qualification grade and High performance grade)	VIDEO SPEED	LENS	DIMENSION/WEIGHT	PART NUMBER
IrLugX640E™ No Shutter	30 Hz	60 mm; HFOV: 7.3°; F/1.25	38 x 38 x 83 mm <sup>3</sup> / 280 g	E640-1401ABEHI-CAHB1-10M
IrLugX640E™ No Shutter	30 Hz	35 mm; HFOV: 12.2°; F/1.14	38 x 38 x 57 mm <sup>3</sup> / 86 g	E640-1401AVHI-CAHB1-10M
IrLugX640E™ No Shutter	30 Hz	25 mm; HFOV: 17.5°; F/1.20	30 x 30 x 57 mm <sup>3</sup> / 96 g	E640-1401AIHI-CAHB1-10M
IrLugX640E™ No Shutter	30 Hz	19 mm; HFOV: 23.0°; F/1.03	30 x 30 x 45 mm <sup>3</sup> / 72 g	E640-1401AQHI-CAHB1-10M
IrLugX640E™ No Shutter	30 Hz	16.7 mm; HFOV: 26.4°; F/1.25	35 x 35 x 45 mm <sup>3</sup> / 70 g	E640-1401AHHI-CAHB1-10M
IrLugX640E™ No Shutter	30 Hz	13.6 mm; HFOV: 32°; F/1.0	32 x 32 x 47 mm <sup>3</sup> / 69 g	E640-1401ABOHI-CAHB1-10M
IrLugX640E™ No Shutter	30 Hz	9.2 mm; HFOV: 50°; F/1.0	30 x 30 x 48 mm <sup>3</sup> / 56 g	E640-1401ABTHI-CAHB1-10M
IrLugX640E™ No Shutter	30 Hz	7.5 mm; HFOV: 60.6°; F/1.40	30 x 30 x 46 mm <sup>3</sup> / 64 g	E640-1401AGHI-CAHB1-10M
IrLugX640E™ No Shutter	30 Hz	5.5 mm; HFOV: 86°; F/1.2	32 x 32 x 48 mm <sup>3</sup> / 57 g	E640-1401ABNHI-CAHB1-10M
IrLugX640E™ No Shutter	30 Hz	4.9 mm; HFOV: 95°; F/1.10	32 x 32 x 58 mm <sup>3</sup> / 80 g	E640-1401ABLHI-CAHB1-10M
IrLugX640E™ No Shutter	9 Hz	60 mm; HFOV: 7.3°; F/1.25	38 x 38 x 83 mm <sup>3</sup> / 280 g	E640-1401EBEHI-CAHB1-10M
IrLugX640E™ No Shutter	9 Hz	35 mm; HFOV: 16.9°; F/1.14	38 x 38 x 57 mm <sup>3</sup> / 86 g	E640-1401EVHI-CAHB1-10M
IrLugX640E™ No Shutter	9 Hz	25 mm; HFOV: 17.5°; F/1.20	30 x 30 x 57 mm <sup>3</sup> / 96 g	E640-1401EIH-CAHB1-10M
IrLugX640E™ No Shutter	9 Hz	19 mm; HFOV: 23.0°; F/1.03	30x 30 x 45 mm <sup>3</sup> / 72 g	E640-1401EQHI-CAHB1-10M
IrLugX640E™ No Shutter	9 Hz	16.7 mm; HFOV: 26.4°; F/1.25	35 x 35 x 45 mm <sup>3</sup> / 70 g	E640-1401EHHI-CAHB1-10M
IrLugX640E™ No Shutter	9 Hz	13.6 mm; HFOV: 32°; F/1.0	32 x 32 x 47 mm <sup>3</sup> / 69 g	E640-1401EBOHI-CAHB1-10M
IrLugX640E™ No Shutter	9 Hz	9.2 mm; HFOV: 50°; F/1.0	30 x 30 x 48 mm <sup>3</sup> / 56 g	E640-1401EBLHI-CAHB1-10M
IrLugX640E™ No Shutter	9 Hz	7.5 mm; HFOV: 90°; F/1.40	30 x 30 x 46 mm <sup>3</sup> / 64 g	E640-1401EGHI-CAHB1-10M
IrLugX640E™ No Shutter	9 Hz	5.5 mm; HFOV: 86°; F/1.2	32 x 32 x 48 mm <sup>3</sup> / 57 g	E640-1401EBNHI-CAHB1-10M
IrLugX640E™ No Shutter	9 Hz	4.9 mm; HFOV: 95°; F/1.10	32 x 32 x 58 mm <sup>3</sup> / 80 g	E640-1401EBLHI-CAHB1-10M
IrLugX640E™ No Shutter	30 Hz	No	30 x 30 x 23 mm <sup>3</sup> / 38 g	E640-1401AXHI-CAHB1-10M
IrLugX640E™ No Shutter	9 Hz	No	30 x 30 x 23 mm <sup>3</sup> / 38 g	E640-1401EXHI-CAHB1-10M

VGA MODEL with Analog Video (PAL/NTSC) (With housing and Industrial qualification grade and High performance grade)	VIDEO SPEED	LENS	DIMENSION/WEIGHT	PART NUMBER
IrLugX640E™ PAL/NTSC No Shutter	25/30 Hz	60 mm; HFOV: 7.3°; F/1.25	38 x 38 x 96 mm <sup>3</sup> / 292 g	E640-1101ABEHI-CASM1-10M
IrLugX640E™ PAL/NTSC No Shutter	25/30 Hz	35 mm; HFOV: 12.2°; F/1.14	38 x 38 x 70 mm <sup>3</sup> / 98 g	E640-1101AVHI-CASM1-10M
IrLugX640E™ PAL/NTSC No Shutter	25/30 Hz	25 mm; HFOV: 17.5°; F/1.20	30 x 30 x 70 mm <sup>3</sup> / 108 g	E640-1101AIHI-CASM1-10M
IrLugX640E™ PAL/NTSC No Shutter	25/30 Hz	19 mm; HFOV: 23.0°; F/1.03	30 x 30 x 58 mm <sup>3</sup> / 84 g	E640-1101AQHI-CASM1-10M
IrLugX640E™ PAL/NTSC No Shutter	25/30 Hz	16.7 mm; HFOV: 26.4°; F/1.25	35 x 35 x 57 mm <sup>3</sup> / 82 g	E640-1101AHHI-CASM1-10M
IrLugX640E™ PAL/NTSC No Shutter	25/30 Hz	13.6 mm; HFOV: 32°; F/1.0	32 x 32 x 60 mm <sup>3</sup> / 87 g	E640-1101ABOHI-CASM1-10M
IrLugX640E™ PAL/NTSC No Shutter	25/30 Hz	9.2 mm; HFOV: 50°; F/1.0	30 x 30 x 61 mm <sup>3</sup> / 69 g	E640-1101ABTHI-CASM1-10M
IrLugX640E™ PAL/NTSC No Shutter	25/30 Hz	7.5 mm; HFOV: 60.6°; F/1.40	30 x 30 x 59 mm <sup>3</sup> / 82 g	E640-1101AGHI-CASM1-10M
IrLugX640E™ PAL/NTSC No Shutter	25/30 Hz	5.5 mm; HFOV: 86°; F/1.2	32 x 32 x 61 mm <sup>3</sup> / 70 g	E640-1101ABNHI-CASM1-10M
IrLugX640E™ PAL/NTSC No Shutter	25/30 Hz	4.9 mm; HFOV: 95°; F/1.10	32 x 32 x 71 mm <sup>3</sup> / 92 g	E640-1101ABLHI-CASM1-10M
IrLugX640E™ PAL/NTSC No Shutter	8.33/7.49 Hz	60 mm; HFOV: 7.3°; F/1.25	38 x 38 x 96 mm <sup>3</sup> / 292 g	E640-1101EBEHI-CASM1-10M
IrLugX640E™ PAL/NTSC No Shutter	8.33/7.49 Hz	35 mm; HFOV: 16.9°; F/1.14	38 x 38 x 70 mm <sup>3</sup> / 98 g	E640-1101EVHI-CASM1-10M
IrLugX640E™ PAL/NTSC No Shutter	8.33/7.49 Hz	25 mm; HFOV: 17.5°; F/1.20	30 x 30 x 70 mm <sup>3</sup> / 108 g	E640-1101EIH-CASM1-10M
IrLugX640E™ PAL/NTSC No Shutter	8.33/7.49 Hz	19 mm; HFOV: 23.0°; F/1.03	30 x 30 x 58 mm <sup>3</sup> / 84 g	E640-1101EQHI-CASM1-10M
IrLugX640E™ PAL/NTSC No Shutter	8.33/7.49 Hz	16.7 mm; HFOV: 26.4°; F/1.25	35 x 35 x 57 mm <sup>3</sup> / 82 g	E640-1101EHHI-CASM1-10M
IrLugX640E™ PAL/NTSC No Shutter	8.33/7.49 Hz	13.6 mm; HFOV: 32°; F/1.0	32 x 32 x 60 mm <sup>3</sup> / 87 g	E640-1101EBOHI-CASM1-10M
IrLugX640E™ PAL/NTSC No Shutter	8.33/7.49 Hz	9.2 mm; HFOV: 50°; F/1.0	30 x 30 x 61 mm <sup>3</sup> / 69 g	E640-1101EBLHI-CASM1-10M
IrLugX640E™ PAL/NTSC No Shutter	8.33/7.49 Hz	7.5 mm; HFOV: 90°; F/1.40	30 x 30 x 59 mm <sup>3</sup> / 82 g	E640-1101EGHI-CASM1-10M
IrLugX640E™ PAL/NTSC No Shutter	8.33/7.49 Hz	5.5 mm; HFOV: 86°; F/1.2	32 x 32 x 61 mm <sup>3</sup> / 70 g	E640-1101EBNHI-CASM1-10M
IrLugX640E™ PAL/NTSC No Shutter	8.33/7.49 Hz	4.9 mm; HFOV: 95°; F/1.10	32 x 32 x 71 mm <sup>3</sup> / 92 g	E640-1101EBLHI-CASM1-10M
IrLugX640E™ PAL/NTSC No Shutter	25/30 Hz	No	30 x 30 x 36 mm <sup>3</sup> / 50 g	E640-1101AXHI-CASM1-10M
IrLugX640E™ PAL/NTSC No Shutter	8.33/7.49 Hz	No	30 x 30 x 36 mm <sup>3</sup> / 50 g	E640-1101EXHI-CASM1-10M

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## ORDER YOUR OWN AND GET IT! (2/2)

VGA MODEL with SD SDI (With housing and Industrial qualification grade and High performance grade)	VIDEO SPEED	LENS	DIMENSION/WEIGHT	PART NUMBER
IrLugX640E™ SDI (SD) No Shutter	50/59.94 Hz	60 mm; HFOV: 7.3°; F/1.25	38 x 38 x 96 mm <sup>3</sup> / 292 g	E640-1801ABEHI-CASD4-12M
IrLugX640E™ SDI (SD) No Shutter	50/59.94 Hz	35 mm; HFOV: 12.2°; F/1.14	38 x 38 x 70 mm <sup>3</sup> / 98 g	E640-1801AVHI-CASD4-12M
IrLugX640E™ SDI (SD) No Shutter	50/59.94 Hz	25 mm; HFOV: 17.5°; F/1.20	30 x 30 x 70 mm <sup>3</sup> / 108 g	E640-1801AIHI-CASD4-12M
IrLugX640E™ SDI (SD) No Shutter	50/59.94 Hz	19 mm; HFOV: 23.0°; F/1.03	30 x 30 x 58 mm <sup>3</sup> / 84 g	E640-1801AQHI-CASD4-12M
IrLugX640E™ SDI (SD) No Shutter	50/59.94 Hz	16.7 mm; HFOV: 26.4°; F/1.25	35 x 35 x 57 mm <sup>3</sup> / 82 g	E640-1801AHHI-CASD4-12M
IrLugX640E™ SDI (SD) No Shutter	50/59.94 Hz	13.6 mm; HFOV: 32°; F/1.0	32 x 32 x 60 mm <sup>3</sup> / 87 g	E640-1801ABOHI-CASD4-12M
IrLugX640E™ SDI (SD) No Shutter	50/59.94 Hz	9.2 mm; HFOV: 50°; F/1.0	30 x 30 x 61 mm <sup>3</sup> / 69 g	E640-1801ABTHI-CASD4-12M
IrLugX640E™ SDI (SD) No Shutter	50/59.94 Hz	7.5 mm; HFOV: 60.6°; F/1.40	30 x 30 x 59 mm <sup>3</sup> / 82 g	E640-1801AGHI-CASD4-12M
IrLugX640E™ SDI (SD) No Shutter	50/59.94 Hz	5.5 mm; HFOV: 86°; F/1.2	32 x 32 x 61 mm <sup>3</sup> / 70 g	E640-1801ABNHI-CASD4-12M
IrLugX640E™ SDI (SD) No Shutter	50/59.94 Hz	4.9 mm; HFOV: 95°; F/1.10	32 x 32 x 71 mm <sup>3</sup> / 92 g	E640-1801ABLHI-CASD4-12M
IrLugX640E™ SDI (SD) No Shutter	8.33/7.49 Hz	60 mm; HFOV: 7.3°; F/1.25	38 x 38 x 96 mm <sup>3</sup> / 292 g	E640-1801EBEHI-CASD4-12M
IrLugX640E™ SDI (SD) No Shutter	8.33/7.49 Hz	35 mm; HFOV: 16.9°; F/1.14	38 x 38 x 70 mm <sup>3</sup> / 98 g	E640-1801EVHI-CASD4-12M
IrLugX640E™ SDI (SD) No Shutter	8.33/7.49 Hz	25 mm; HFOV: 17.5°; F/1.20	30 x 30 x 70 mm <sup>3</sup> / 108 g	E640-1801EIHICASD4-12M
IrLugX640E™ SDI (SD) No Shutter	8.33/7.49 Hz	19 mm; HFOV: 23.0°; F/1.03	30 x 30 x 58 mm <sup>3</sup> / 84 g	E640-1801EQHI-CASD4-12M
IrLugX640E™ SDI (SD) No Shutter	8.33/7.49 Hz	16.7 mm; HFOV: 26.4°; F/1.25	35 x 35 x 57 mm <sup>3</sup> / 82 g	E640-1801EHHI-CASD4-12M
IrLugX640E™ SDI (SD) No Shutter	8.33/7.49 Hz	13.6 mm; HFOV: 32°; F/1.0	32 x 32 x 60 mm <sup>3</sup> / 87 g	E640-1801EBOHI-CASD4-12M
IrLugX640E™ SDI (SD) No Shutter	8.33/7.49 Hz	9.2 mm; HFOV: 50°; F/1.0	30 x 30 x 61 mm <sup>3</sup> / 69 g	E640-1801EBTHI-CASD4-12M
IrLugX640E™ SDI (SD) No Shutter	8.33/7.49 Hz	7.5 mm; HFOV: 90°; F/1.40	30 x 30 x 59 mm <sup>3</sup> / 82 g	E640-1801EGHI-CASD4-12M
IrLugX640E™ SDI (SD) No Shutter	8.33/7.49 Hz	5.5 mm; HFOV: 86°; F/1.2	32 x 32 x 61 mm <sup>3</sup> / 70 g	E640-1801EBNHI-CASD4-12M
IrLugX640E™ SDI (SD) No Shutter	8.33/7.49 Hz	4.9 mm; HFOV: 95°; F/1.10	32 x 32 x 71 mm <sup>3</sup> / 92 g	E640-1801EBLHI-CASD4-12M
IrLugX640E™ SDI (SD) No Shutter	50/59.94 Hz	No	30 x 30 x 36 mm <sup>3</sup> / 50 g	E640-1801AXHI-CASD4-12M
IrLugX640E™ SDI (SD) No Shutter	8.33/7.49 Hz	No	30 x 30 x 36 mm <sup>3</sup> / 50 g	E640-1801EXHI-CASD4-12M

VGA MODEL with HD SDI (With housing and Industrial qualification grade and High performance grade)	VIDEO SPEED	LENS	DIMENSION/WEIGHT	PART NUMBER
IrLugX640E™ SDI (HD) No Shutter	50/59.94 Hz	60 mm; HFOV: 7.3°; F/1.25	38 x 38 x 96 mm <sup>3</sup> / 292 g	E640-1801ABEHI-CASD2-12M
IrLugX640E™ SDI (HD) No Shutter	50/59.94 Hz	35 mm; HFOV: 12.2°; F/1.14	38 x 38 x 70 mm <sup>3</sup> / 98 g	E640-1801AVHI-CASD2-12M
IrLugX640E™ SDI (HD) No Shutter	50/59.94 Hz	25 mm; HFOV: 17.5°; F/1.20	30 x 30 x 70 mm <sup>3</sup> / 108 g	E640-1801AIHI-CASD2-12M
IrLugX640E™ SDI (HD) No Shutter	50/59.94 Hz	19 mm; HFOV: 23.0°; F/1.03	30 x 30 x 58 mm <sup>3</sup> / 84 g	E640-1801AQHI-CASD2-12M
IrLugX640E™ SDI (HD) No Shutter	50/59.94 Hz	16.7 mm; HFOV: 26.4°; F/1.25	35 x 35 x 57 mm <sup>3</sup> / 82 g	E640-1801AHHI-CASD2-12M
IrLugX640E™ SDI (HD) No Shutter	50/59.94 Hz	13.6 mm; HFOV: 32°; F/1.0	32 x 32 x 60 mm <sup>3</sup> / 87 g	E640-1801ABOHI-CASD2-12M
IrLugX640E™ SDI (HD) No Shutter	50/59.94 Hz	9.2 mm; HFOV: 50°; F/1.0	30 x 30 x 61 mm <sup>3</sup> / 69 g	E640-1801ABTHI-CASD2-12M
IrLugX640E™ SDI (HD) No Shutter	50/59.94 Hz	7.5 mm; HFOV: 60.6°; F/1.40	30 x 30 x 59 mm <sup>3</sup> / 82 g	E640-1801AGHI-CASD2-12M
IrLugX640E™ SDI (HD) No Shutter	50/59.94 Hz	5.5 mm; HFOV: 86°; F/1.2	32 x 32 x 61 mm <sup>3</sup> / 70 g	E640-1801ABNHI-CASD2-12M
IrLugX640E™ SDI (HD) No Shutter	50/59.94 Hz	4.9 mm; HFOV: 95°; F/1.10	32 x 32 x 71 mm <sup>3</sup> / 92 g	E640-1801ABLHI-CASD2-12M
IrLugX640E™ SDI (HD) No Shutter	8.33/7.49 Hz	60 mm; HFOV: 7.3°; F/1.25	38 x 38 x 96 mm <sup>3</sup> / 292 g	E640-1801EBEHI-CASD2-12M
IrLugX640E™ SDI (HD) No Shutter	8.33/7.49 Hz	35 mm; HFOV: 16.9°; F/1.14	38 x 38 x 70 mm <sup>3</sup> / 98 g	E640-1801EVHI-CASD2-12M
IrLugX640E™ SDI (HD) No Shutter	8.33/7.49 Hz	25 mm; HFOV: 17.5°; F/1.20	30 x 30 x 70 mm <sup>3</sup> / 108 g	E640-1801EIHICASD2-12M
IrLugX640E™ SDI (HD) No Shutter	8.33/7.49 Hz	19 mm; HFOV: 23.0°; F/1.03	30 x 30 x 58 mm <sup>3</sup> / 84 g	E640-1801EQHI-CASD2-12M
IrLugX640E™ SDI (HD) No Shutter	8.33/7.49 Hz	16.7 mm; HFOV: 26.4°; F/1.25	35 x 35 x 57 mm <sup>3</sup> / 82 g	E640-1801EHHI-CASD2-12M
IrLugX640E™ SDI (HD) No Shutter	8.33/7.49 Hz	13.6 mm; HFOV: 32°; F/1.0	32 x 32 x 60 mm <sup>3</sup> / 87 g	E640-1801EBOHI-CASD2-12M
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IrLugX640E™ SDI (HD) No Shutter	8.33/7.49 Hz	7.5 mm; HFOV: 90°; F/1.40	30 x 30 x 59 mm <sup>3</sup> / 82 g	E640-1801EGHI-CASD2-12M
IrLugX640E™ SDI (HD) No Shutter	8.33/7.49 Hz	5.5 mm; HFOV: 86°; F/1.2	32 x 32 x 61 mm <sup>3</sup> / 70 g	E640-1801EBNHI-CASD2-12M
IrLugX640E™ SDI (HD) No Shutter	8.33/7.49 Hz	4.9 mm; HFOV: 95°; F/1.10	32 x 32 x 71 mm <sup>3</sup> / 92 g	E640-1801EBLHI-CASD2-12M
IrLugX640E™ SDI (HD) No Shutter	50/59.94 Hz	No	30 x 30 x 36 mm <sup>3</sup> / 50 g	E640-1801AXHI-CASD2-12M
IrLugX640E™ SDI (HD) No Shutter	8.33/7.49 Hz	No	30 x 30 x 36 mm <sup>3</sup> / 50 g	E640-1801EXHI-CASD2-12M

### Note of Part numbering:

The two of three last digits refer to different product versions. These are summarized in table of **compatibility version**. The last digit means the maturity level of the device. For example: **S** is meaning an engineering sample device. **M** refers to Mass production unit which is **MIL-STD-810G** qualified.



## PERFORMANCE GRADE

IrLugX640E™ offers two performance grades:

FEATURES	High Grade	Ultra High Grade
NETD	<50mK	<40mK
Operability	>99.8%	>99.8%
Bad line	0	0
Bad column	0	0

Operability is the number of valid pixels, including defective line or column.

These defects are corrected by the core but can appear during operation depending on conditions.

## COMPATIBILITY VERSION OF CAMERA MODEL VERSUS THE HOST CONTROLLER INTERFACE

RELEASE VERSION	RELEASE DATE	NEW FEATURES
<u>10</u>	May 2021	Engine Core independent of customer operating system
<u>12</u>	May 2021	SDI Frame Grabber <sup>(1)</sup>

- (1) Compatible with the frame grabber boards:
- Grabber DeckLink Duo 2 of BlackMagic

## WHAT'S IN THE BOX

Module of Thermal Imaging Camera

ICD (mechanical drawings)

GUI

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).*

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