



ThermaCore

OEM Uncooled LWIR Thermal Imaging Core

The ThermaCore longwave infrared (LWIR) thermal core is based on an a-Si uncooled microbolometer detector. Its shutterless design makes it optimized for a wide range of SWaP applications. ThermaCore uses a new infrared video processing architecture to enable advanced image processing, video analytics and several industry-standard communication interfaces while keeping power consumption low. The core is ready for simple integration with various types of OLED microdisplays.

The ThermaCore DSP-based design allows embedding additional image processing functions such as autofocus, optical distortion correction for wide field of view and panoramic systems, electronic image stabilization, detection of moving objects, object recognition, ... without the need for additional processing boards. The user can integrate its own algorithms inside the core, thus reducing further size, weight and power consumption of the overall system.

Optimal Performance Cores For Easy OEM Integration

640x480 or 384x288 resolution
17µm pixel pitch a-Si microbolometer
Multiple sensitivity options, starting at 40mK
Shutterless operation gives silent performance
Micro size core body: cylindrical Ø 40mm x 30mm
Digital Output options: BT.656, 8bitDV, 16bitDV, LVDS
Direct interface to various microdisplays
Multiple high-performance lens options

Key Features

Versatile, Reliable, Ruggedized Cores
Made in Europe, ITAR-free
Shock / Vibration tested versus MIL-STD
Customization of Hardware and Software possible:
Flex – Rigid solutions, square housing, ...

Key Applications

Firefighting
Process Control
Security/Surveillance
Law Enforcement
Night Vision & Hunter's Scopes
Driver Vision Enhancement & ADAS
Aircraft Enhanced Vision Systems
UAV and Drone applications
Integration into gimbals or
Airborne multi sensor systems
Border security
Maritime reconnaissance





ThermaCore Specifications

Imaging	
Sensor Technology	a-Si Uncooled Microbolometer
Array Format	384 x 288 640 x 480
Pixel Pitch	17 μ m
Spectral Range	Longwave Infrared : 8 - 14 μ m
Thermal Sensitivity (NETD)	60mK 50mK (40mK optional)
Frame Rate	25Hz (50Hz optional) 25Hz (120Hz optional)
Shutter	Shutterless operation
Temperature Stabilization	TEC-less operation
ADC	14-bit
Electronic Zoom	2X, 4X
Processing Features (Factory Calibrated)	Non-Uniformity Correction (NUC) Bad Pixel Replacement & Bad Pixel Detection Algorithm High Dynamic Range Compression Thermal Artifact Suppression Spatial Filtering Temporal Filtering Histogram Equalization Digital Detail Enhancement Polarity Invert Image Flip Horizontal & Vertical Advanced Driver Assistance Systems Features (Optional)
Graphical interface	Multilayer Color Graphics Text Overlay
Optical	
Optional Lenses	A wide range of lenses from Micro lenses over Standard lenses to Zoom lenses
Electrical	
Input Voltage	5 V
Power Consumption	1.25 W min - 1.5 W max
Video Output formats	PAL 8-bit or 16-bit parallel bus, compatible with various micro-displays BT.656 (Optional) LVDS (Optional)
Control interface	UART (RS-232 or 3.3V levels)
Mechanical	
Dimensions	\varnothing 40mm x 33mm
Weight	50 Gram
Environmental	
Operating Temperature Range	-40 °C - 60 °C
Storage Temperature Range	-45 °C - 85 °C
Shock	510 g @ 1 msec

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Specifications subject to change

TC-640-001