

ThermCAM-384

Long Wavelength
Ultra Compact Infrared
Camera for Non Contact
Temperature Measurement



ThermCAM-384 is a versatile thermal camera which can be used for a wide range of temperature measurement application . ThermCAM-384 caters the best balance between image clarity and data transfer rate with its optimum resolution of 384 x 288 pixels. It provides ultimate inspection tools and unprecedented easy-to use designs to fit your needs. Whether in quality control, process monitoring or process automation – the infrared camera ThermCAM-384 measures temperatures without contact exactly and reliably

Product Highlights

- ThermCAM-384 works at a long wavelength range from 8 - 14 μm .
- Configurable storage and temperature video recording.
- Provide continuous thermal video in InfraView Software in PC as well as in I/O Module.
- High shock and vibration tolerance for maintenance-free operation.
- Multiple ThermCam can be (upto 3) connected to single InfraView Software presently.

Typical Applications



Process Automation



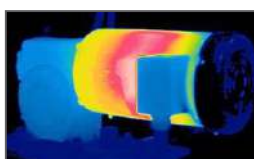
Electric Equipment Inspection



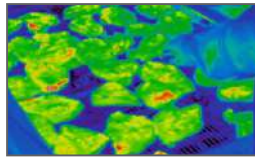
Process Control in Metallurgy



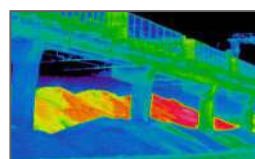
Ladle Monitoring



Critical Assets



Quality Management



Early Fire Detection



Building Thermography

Temperature Ranges

- -20°C - 120°C
 - 100°C - 1000°C
- } Switchable via Software

Detector

Uncooled FPA detector with 384 x 288 pixels resolution

Measurement Accuracy

$\pm 2\%$ of reading in $^{\circ}\text{C}$ or $^{\circ}\text{K}$

Software Features

- Different Types of ROI for localized temperature monitoring
- Histogram and Trend Chart of ROI
- Configurable Audio/Visual Alarm.

Output Interface

- Fast thermal data acquisition in real time via 100M-bit Ethernet
- Digital and analog input/output modules

ThermCAM-384

Overview

The compact design of the ThermCAM-384 enables the integration of the camera into compact process applications, while the durable and robust housing guarantees reliability even in harshest industrial environments. The ThermCAM-384 can be installed with an optional IP65 enclosure with air purge unit for additional protection in harsh industrial environments where ambient temperatures exceed $\sim 50^{\circ}\text{C}$.

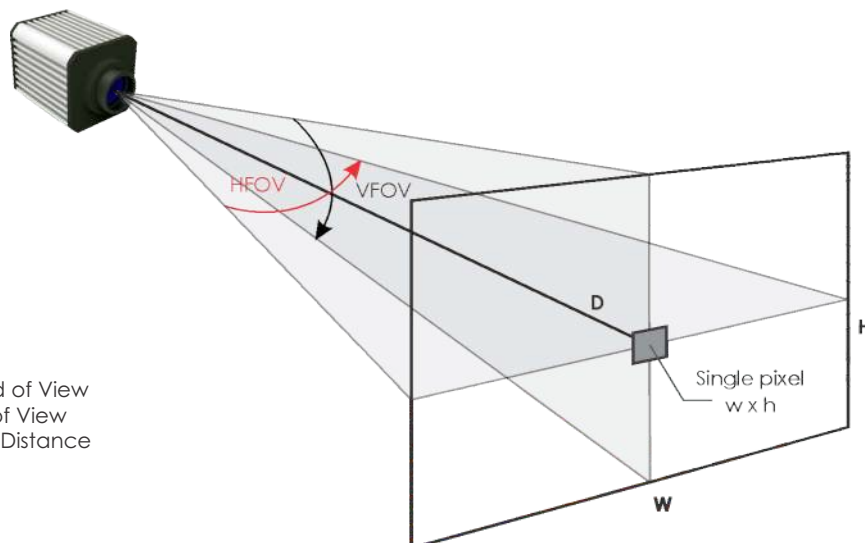
The built-in 100M-bit allows the camera to be connected to the network for high speed data transmission to InfraView™ software for further analysis.

Optics Variants

A wide range of lenses are available for the ThermCAM-384, making it suitable for most industrial applications. The table and picture show the correlation between the measurement distance, different optics, and the size of the measurement fields.

Measurement Field (HFOV x VFOV)	Distance of object	Width (m)	Height (m)	Pixel WxH (mm)
28.2° x 21.3° (FL = 13 mm fixed)	1 M	0.50	0.37	1.31
	5 M	2.51	1.88	6.54
	10 M	5.02	3.76	13.08
24.6° x 18.5° (FL = 15 mm fixed)	1 M	0.43	0.32	1.13
	5 M	2.18	1.62	5.67
	10 M	4.36	3.25	11.33
19.5° x 14.7° (FL = 19 mm fixed)	1 M	0.34	0.25	0.90
	5 M	1.72	1.29	4.49
	10 M	3.45	2.58	8.98
7.5° x 5.6° (FL = 50 mm fixed)	1 M	0.13	0.09	0.34
	10 M	1.31	0.97	3.41
	50 M	6.55	4.89	17.03
5.0° x 3.7° (FL = 75 mm fixed)	1 M	0.08	0.06	0.22
	10 M	0.85	0.64	2.24
	50 M	4.27	3.23	11.18
3.7° x 2.8° (FL = 100 mm fixed)	1 M	0.06	0.04	0.17
	10 M	0.64	0.48	1.69
	50 M	3.23	2.44	8.45

Note : Other lens options are also available as per application requirements.



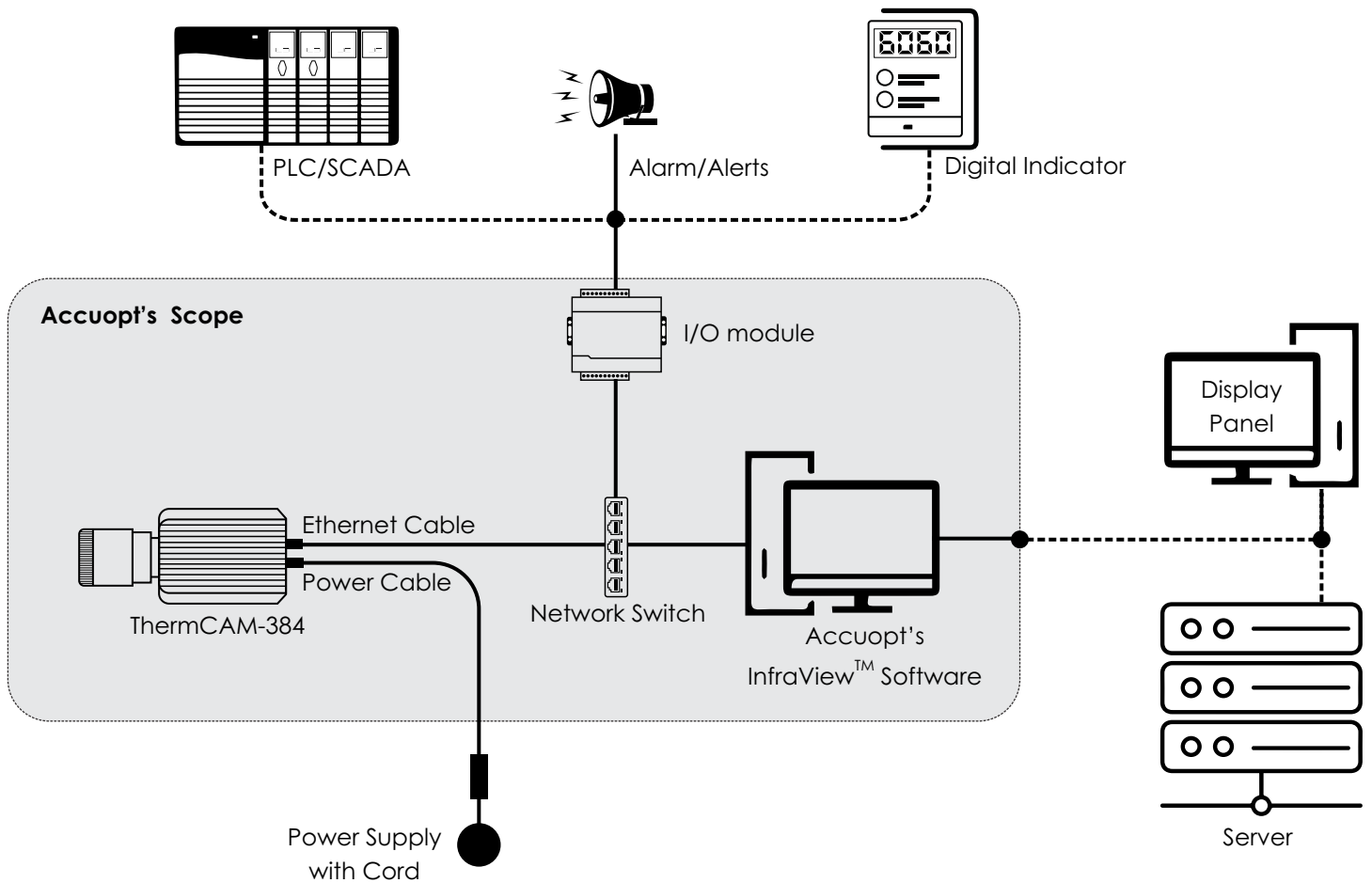
- HFOV** = Horizontal Field of View
- VFOV** = Vertical Field of View
- D** = Measurement Distance
- W** = Image Width
- H** = Image Height

SYSTEM CONFIGURATION

Accuopt thermal imagers offer several configuration options.

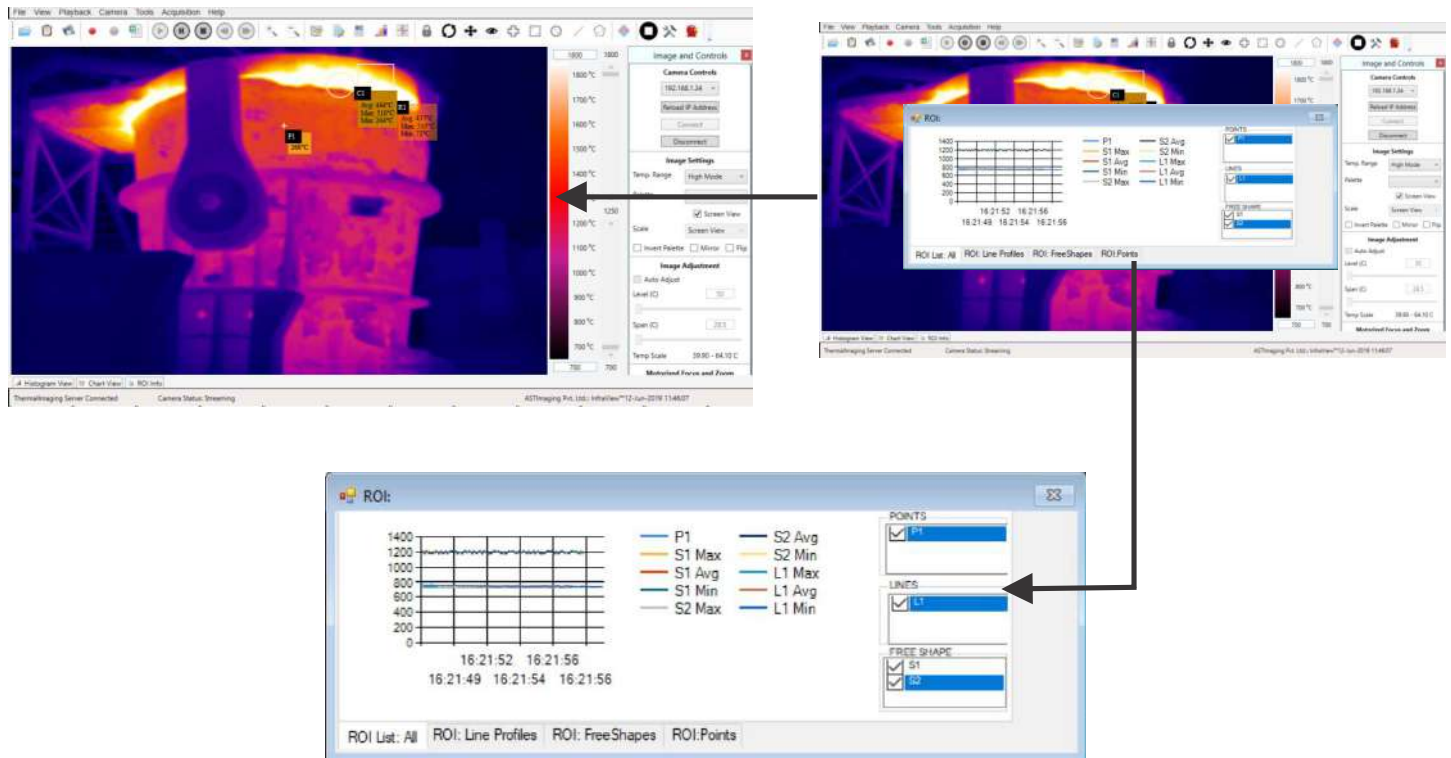
ThermCAM-384 Over Network

The system can be set up by connecting the camera directly to a dedicated computer using Ethernet connection which can be extended for remote access/intranet. Also camera can be paired with a network device (switch) which can be further connected with I/O module to get alarm/alerts, analog/digital output for digital indicator and PLC/SCADA systems.



ThermCAM-384 has a thermal image processing software INFRAVIEW™ at the core of a thermal imaging system which is MS Windows based standard Image Processing Software that comes with many useful features.

Accuopt's INFRAVIEW™ software allows you to control the camera record thermal video, stream video nearly real time, It allows computed temperatures to be sent out via I/O card which in turn can be connected to PLCs



SALIENT FEATURE LIST FOR INFRAVIEW™ SOFTWARE

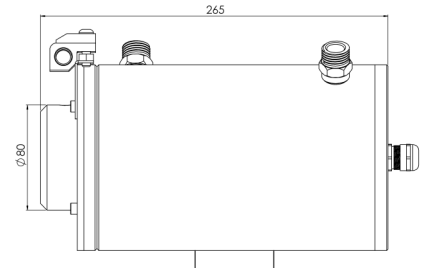
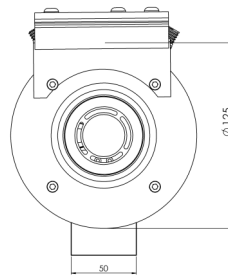
- Configurable emissivity, Transmissivity Settings
- Real-time display of thermal images
- Includes 9 different color palates
- Multiple types of ROI including point, line, and area with min./max./avg. temperature display
- Includes analysis tools like histogram and temperature trend chart for multiple ROI's.
- Alarm generation for entire or ROI based on minimum, maximum or average temperature
- Analog and digital output module
- Triggered capture based on alarm conditions
- Password controlled user access
- Data export to text or Microsoft Excel (includes thermal image, ROI table summary/data, image data) or to text
- Analyze previously recorded images using RAW data
- Saving Thermal Video in MP4 format
- Optional SDK
- Additional software for Real Time Temperature dashboard, analysis and report generation.

STANDARD ACCESSORIES

- 12VDC Power Cord
- Ethernet Cable 10Mtr.
- Standard Infraview™ Software
- Lens

OPTIONAL ACCESSORIES

Water Cooling Jacket with Air Knife



I/O Module



DIN RAIL Mounted I/O Module

The I/O module consist of digital input/digital output(relay output) and analog 4 - 20mA. It provides analog and relay outputs with respect to temperature. These outputs can be customized for temperature indication, alarm generation or error reporting.

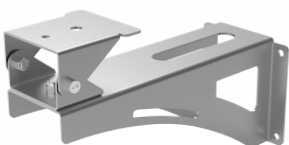
- All I/O are user settable for range and ROI selection
- I/O can be customized according to user requirement
- I/O works on Ethernet and provide with Din rail Mounting for Easy Installation

Workstation/Laptop



- Processor : Intel i7 10th Generation or Higher
- RAM : 8 GB
- HDD : 1 TB or Higher
- SSD : 256GB
- 2 Gigabit Ethernet port
- Operating System : Windows 10Pro

Wall Mounting



Power Supply



Tripod



Network Devices



TECHNICAL DATA

Performance Specifications	
Temperature Range	-20°C to 120°C 100°C to 1000°C Switchable via Software
Optional Resolution	384 x 288 pixels
Detector	Uncooled FPA Detector
Spectral Range	8 to 14 μ m
Pixel Pitch	17 μ m
Frequency	<9Hz maximum upto 30Hz
Sensitivity / NETD	<60mK@f1.0, 30Hz 300 K
Accuracy	\pm 2°C or \pm 2% of reading in °C or °K
Emissivity	0.01 - 1.0 adjustable

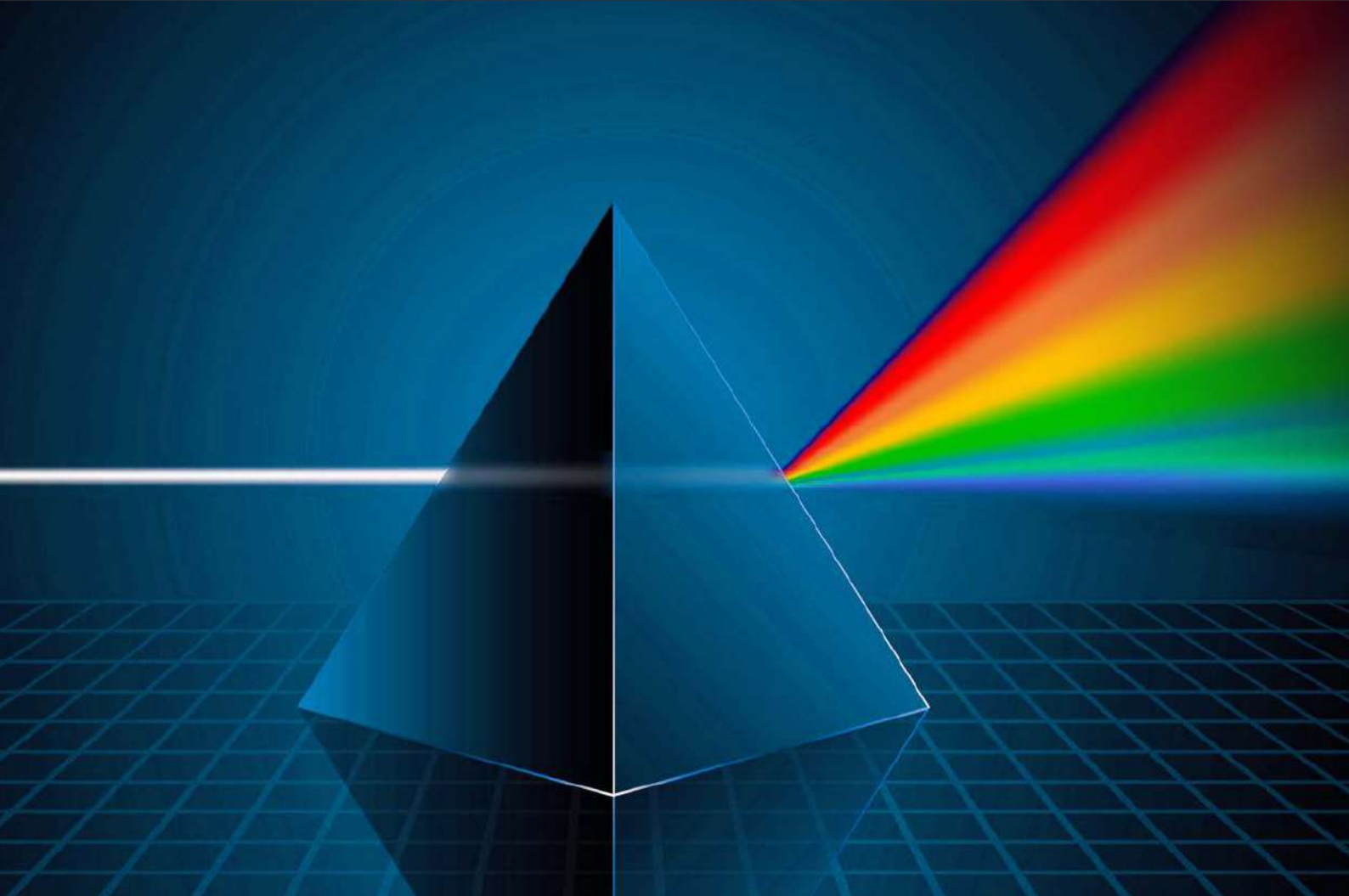
Interface Specifications	
Digital	100MBit/s
Connection	Power Connector, RJ-45 Ethernet Connector
Video Format for Saving	MPEG-4
Image Format for Saving	BMP/JPEG

Electrical Specifications	
Power Supply	12 V DC
Power Consumption	4 Watt

Environmental / Mechanical Specifications	
Ambient Temperature	0°C - 50°C
Storage Temperature	-40°C - 70°C
Relative Humidity	\leq 95% non-condensing
Shock Resilience	25G
Vibration Resilience	2G
Weight	~550g
Protection Class	IP65
EMC	CE
Size	92 x 70 x 60 mm without lens
Mounting	UNC 1/4"-20 Standard Mount, M3 Thread

I/O Module Specifications	
Analog Output	4 Channel Analog Current Output (4 - 20mA)
Digital Input	2 Isolated Inputs
Digital Output	2 Relay Outputs
Power Supply	5 V DC

Cooling Jacket Specifications	
Inlet/Outlet (Cooling)	1/2" NPT Thread
Inlet For Air Purging	PU Pipe suitable for 6mm nozzle
Water Flow Rate	6-8 L/min
Air Pressure	Min. 3 bar (Moist Free)
Mounting	1/4" UNC, 3/8" UNC



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