# 300K 640x512 Uncooled Thermal Camera Module

## Key Properties

Uncooled VOx infrared detector 640x512 pixels
Spectral Band: 8μm ~14μm
Thermal Sensitivity(NETD): ≤50mK @25°C
Frame Rate: 50fps for 300K(640(W)x512(H))
Data Interface: USB YUY2 format
Lens Mount: Q1-M25 / Q2-M17
Fixed Focus Lenses Option: FL9.1/FL13/FL19/FL25/FL35/FL50/FL75mm

| FL | 9.1mm | 13mm | 19mm | 25mm | 35mm | 50mm | 75mm |
|---|---|---|---|---|---|---|---|
| FOV(H) | 47° | 31° | 22° | 17° | 12° | 9° | 6° |

## Application

Thermography / Outdoor Night Vision / ADAS / Smart Building
Security / Machine Vision / Bioenergy Detection / Thermal Inspection

## Feature

- **Resolution:** A 640x512 pixel sensor array offers high thermal image clarity and detail for precise analysis.
- **Thermal Sensitivity:** NETD ≤50mK, high sensitivity ensures accurate detection of temperature differences.
- **Compact and Lightweight:** Designed for easy integration into various systems, such as drones, surveillance cameras, and industrial inspection tools.
- **Uncooled Technology:** Utilizes a microbolometer or other similar uncooled infrared detector, making it more energy-efficient and cost-effective compared to cooled counterparts.
- **No Cooling System Required:** Reduces operational complexity and cost.
- **Rugged and Reliable:** Suitable for harsh environments.
- **Cost-Effective:** Lower initial and maintenance costs compared to cooled thermal cameras.

## Introduction

TCM300K50SQ Uncooled Thermal Camera Module is a specialized imaging device that captures infrared radiation, enabling thermal imaging without requiring cryogenic cooling. This is suitable for use in various industries due to its compact design, reliability, and ability to operate in diverse environmental conditions.

Applications commonly used in surveillance and security include night vision and all-weather monitoring. In industrial inspection, they are utilized for identifying thermal anomalies in machinery or electrical systems. In the medical and research fields, they are employed for temperature measurements. In aerospace and defense, they serve purposes such as targeting, navigation, and situational awareness.

## Specifications

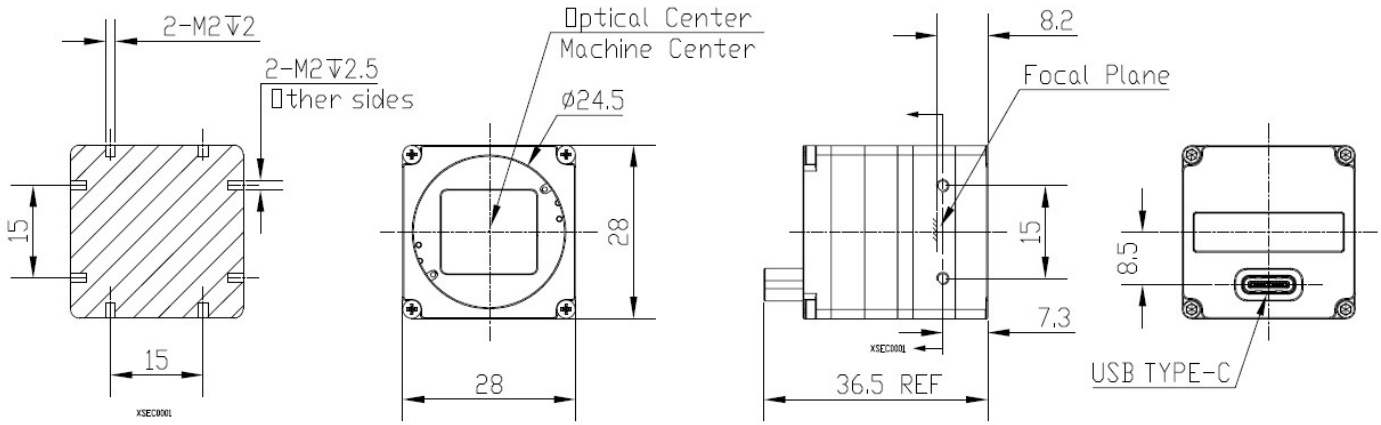
| | |
|---|---|
| Model | TCM300K50SQ1/Q2 |
| Sensor | Uncooled VOx infrared detector, ceramic package |
| Spectral Band | 8μm ~14μm |
| Image Pixels & Resolution | 640(W) x 512(H) |
| Pixel Size | 12μm |
| Sensor Area | 7680 μm x 6144 μm |
| Thermal Sensitivity (NETD) | ≤50mK @25°C |
| Thermal Time Constant | <12ms |
| Image Transfer Rate | 50fps @640x512 |
| Read Mode | Rolling shutter mode |
| Special Function | Non-uniformity correction, X and Y directions mirroring |
| Data Interface | USB |
| Connecting Port | USB Type C |
| Communcation | UART |
| Plug & Play | UVC(USB Video Class) Compliant support |
| Lens Parameters | Default: FL9.1mm<br>Optional: FL9.1/FL13/FL19/FL25/FL35/FL50/FL75mm |
| Lens Holder | Q1:M25 / Q2: M17 lens holder |
| Operating Voltage | DC 5V (4V~5.5V DC) |
| Power Consumption | ≤1.2W |
| Operating Temperature | -40°C ~ 55°C |
| Storage Temperature | -45°C ~ 70°C |
| PCBA Dimensions (exclude lens) | Q1: 28x28x36.5mm / Q2: 20x20x38.2mm |
| Weight (exclude lens) | Q1: ≤60g / Q2: ≤50g |
| Operating System Request | WinXP/Vista/Win7/Win8/Win10<br>Linux with UVC(above 2.6.26)<br>MAC-OS X 10.4.8 or later<br>Android 4.0 or above with UVC |

**Note:**

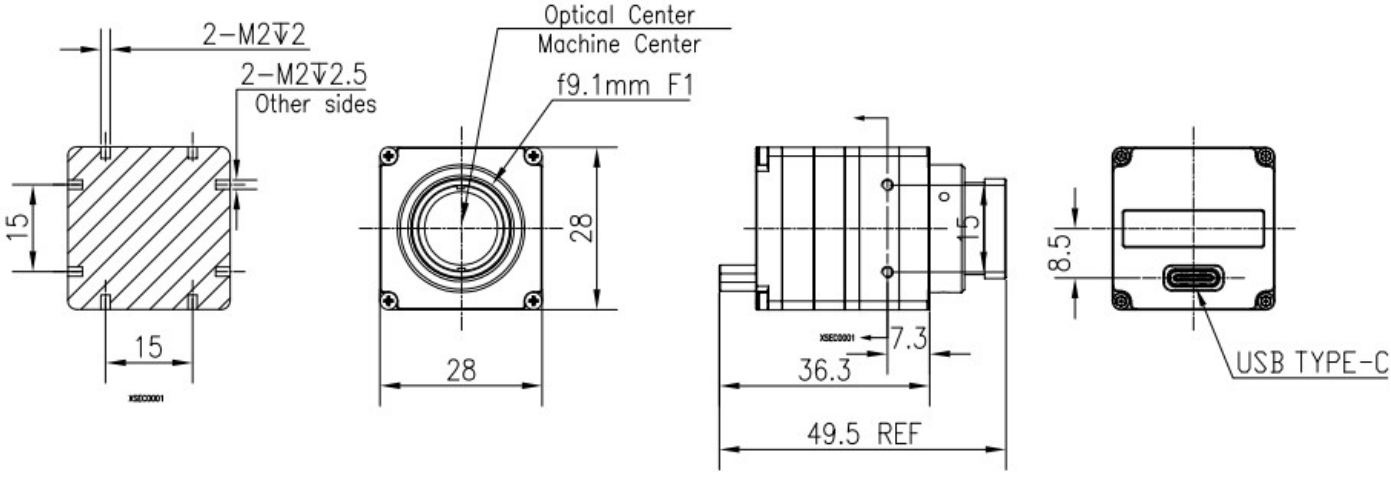
Product images are for reference only. Specifications are subject to change without notice due to continuous product improvement. For the latest information, please contact us.

## Dimension – TCM300K50SQ1

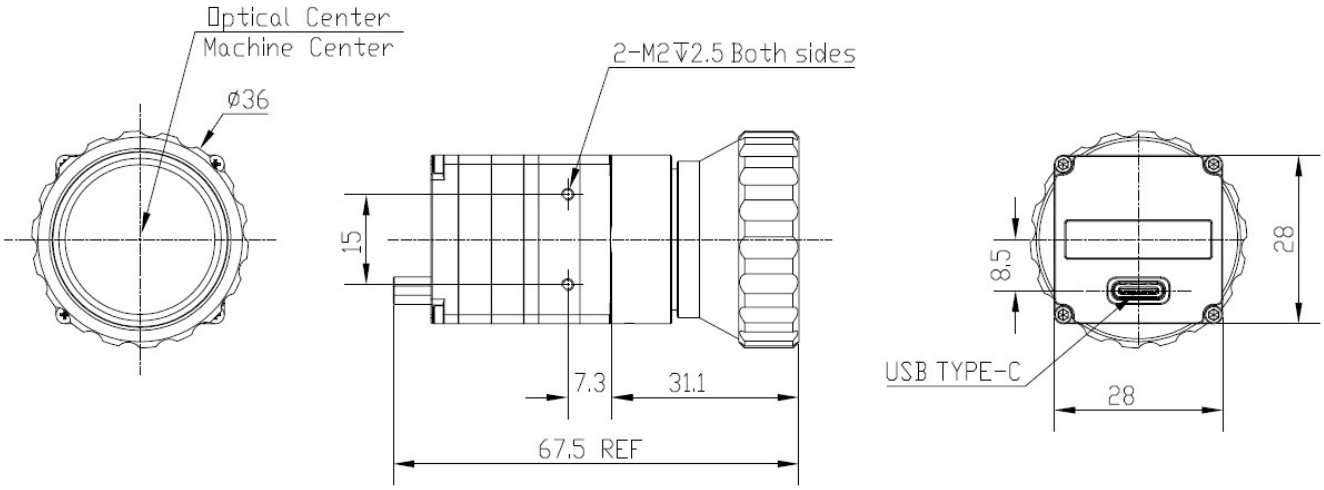
without FL




with FL9.1mm(default)

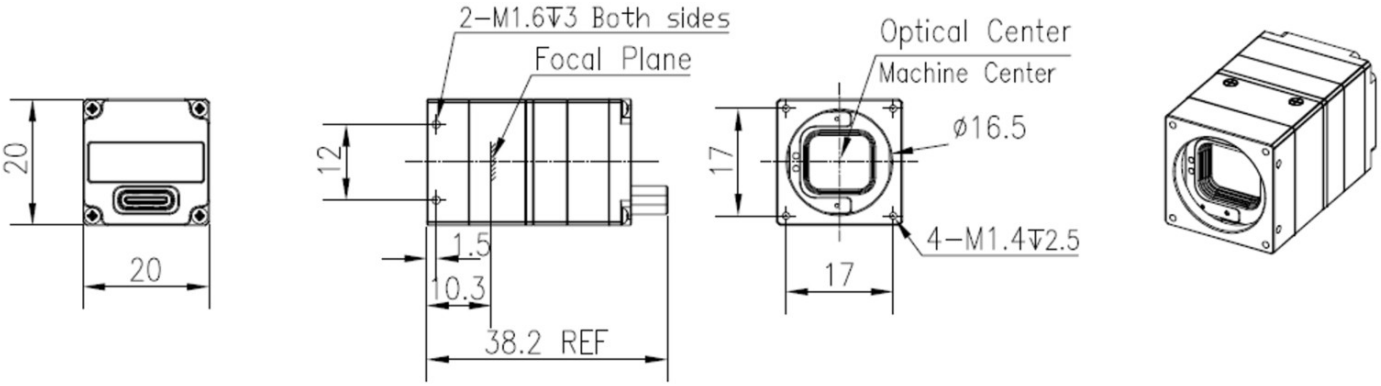



with FL25mm(optional)



## Dimension – TCM300K50SQ2

without FL




with FL9.1mm(default)