

altek 3D UVC Camera Spec

Version: 1.0

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1. Description

altek 3D UVC Camera is an active camera module with 720p depth map output by USB3.1 interface with large FOV suitable for long range detection applications.

2. Features

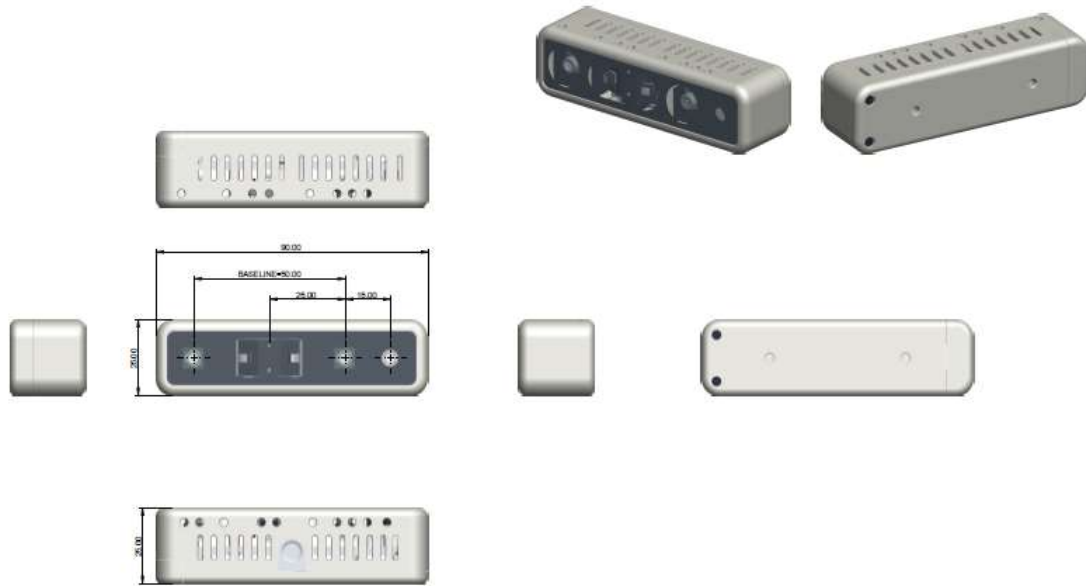
- Hardware
 - Baseline: 50mm
 - USB3.1 output
- Left/Right IR Camera: OV9282
 - FOV: 97° (Horizontal), 67° (Vertical), 117° (Diagonal)
 - High sensitivity global shutter IR CMOS camera (1.3Mpix)
- IR Projector
 - altek Albatross 850nm Projector
 - FOV: 120° (Horizontal), 80° (Vertical)
- Color Sensor: OV2740
 - FOV: 77° (Horizontal), 49° (Vertical), 85° (Diagonal)
- Depth
 - Onboard depth processor (altek AL6100)
 - Depth Stream: 720p @ 30fps
 - Detection range: 30cm to 10m
- Software
 - altek 3D UVC Camera SDK 1.0
 - Calibrated RGB camera aligned to depth data.

3. Target Applications

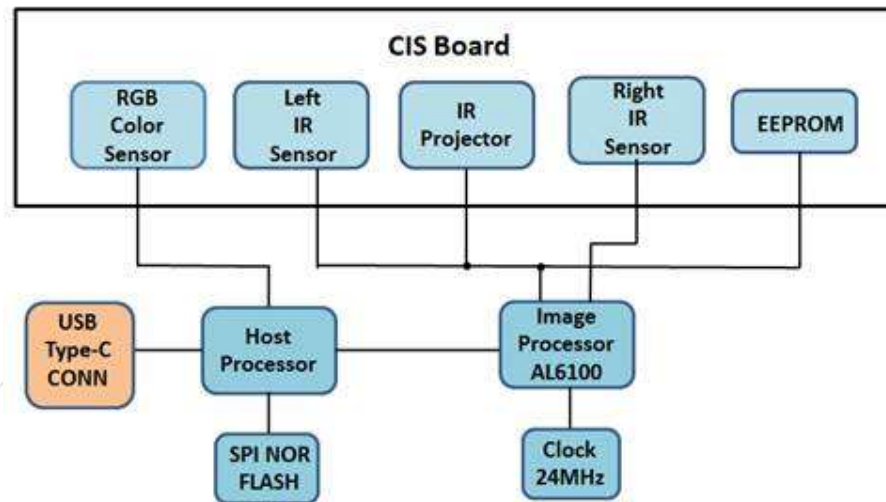
- Augmented Reality, Virtual Reality
- AMR (Autonomous Mobile Robot) and AGV (Automated Guided Vehicle)
- VSLAM
- Objection detection
- Gesture detection
- Skeleton detection

4. Camera

- Camera dimension: 90mm x 25mm x 25mm



5. Camera Block Diagram



6. Power Requirement

- Power by USB VBUS
- VCC: 5V +/- 5%
- ICC: Max <3A

7. Depth Format

Format	Resolution	Frame Rate	Comment
Z [16 bits]	1280 x 720	5, 15, 30	Depth Only Mode
	640 x 360	5, 15, 30	
Y8 [8 bits] RY8_LY8 [16 bits]	1280 x 720	5, 15, 30	Illumination Mode Only
	640 x 360	5, 15, 30	
YUY2 [16 bits]	1280x720	5, 15, 30	Color channel
	640 x 360	5, 15, 30	

8. Calibration Support

- The altek 3D UVC Camera Depth Camera can be connected to an end user computer to retrieve and overwrite the camera calibration parameters via the support system.
- The camera parameter updating tools are two types of calibrations that are supported.
 - Self-Alignment (For Epipolar Alignment / Image Rectification)
 - Click (For Depth Scale Correction)

9. Software Development Kit (SDK)

- altek 3D UVC Camera Software Development Kit (SDK) is cross-platform and open source. The altek 3D UVC Camera SDK contains tools, code examples and multiple languages wrappers to extract data from the altek 3D UVC Camera depth cameras.
- altek 3D UVC Camera SDK supports the altek 3D UVC Camera.
- The altek 3D UVC Camera SDK is comprised of the following main SW components:
 - **altek 3D UVC Camera Viewer** – A GUI based application for a quick evaluation of the altek 3D UVC Camera.
 - Debug tools: please use these tools for getting logs or further information for debugging your application.
 - Examples directory: **Simple** applications that demonstrate how to easily use the altek 3D UVC Camera SDK APIs to build applications.
 - Wrapper's directory: Wrappers supporting common programming languages and environments.

[altek 3D UVC Camera SDK is available on GitHub: https://www.altek.com.tw/~TBD](https://www.altek.com.tw/~TBD)

10. Camera Firmware

- The firmware contains the operation instructions. Upon runtime, altek 3D UVC Camera Depth Camera loads the firmware and programs the component registers.
- Firmware Update
 - ◆ During a firmware update, the Device Firmware Update tool for altek 3D UVC Camera technology will issue a device firmware update command to the altek 3D UVC Camera Depth Camera.
 - ◆ The Depth Camera will then reset into firmware update mode.
 - ◆ The Device Firmware Update tool for altek 3D UVC Camera technology uses a single binary file to maintain the firmware image.
 - ◆ The Device Firmware Update tool for altek 3D UVC Camera technology compares the firmware version installed on the camera to the firmware version file to be updated.
 - ◆ Based on the comparison, the Device Firmware Update tool for altek 3D UVC Camera technology will downgrade, upgrade, or skip if the versions match.

Firmware update tool and firmware binary are available on <https://www.altek.com.tw/~TBD>