

KANDA 
3D Virtual Reality Camera



CES 2017 Best of Innovation

CES Best of Innovation Honoree in the
Digital Imaging product category.

KanDao Obsidian

360° 3D Virtual Reality Camera

Designed for content creators, Obsidian combines state-of-the-art hardware and software to free users from confusing technical operation, allowing them to focus solely on creating immersive 3D VR video experiences.

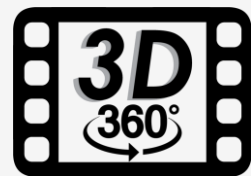


Recipients of the CES Best of Innovation Award are viewed as trendsetters in the global technology industry. The digital imaging category has previously been dominated by top international brands such as Sony and Nikon. The KanDao Obsidian 3D VR Camera beat out fierce international competition and became **the first Chinese brand product to win this award.**



Obsidian **R** High Resolution

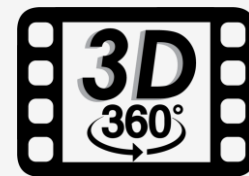
360° 3D Virtual Reality Camera



- 8k x 8k /30 fps
- 4k x 4k /60 fps

Obsidian **S** High Speed

360° 3D Virtual Reality Camera



- 4k x 4k /120 fps
- 6k x 6k /60 fps

Ultra High Resolution 3D Video Recording

The **Obsidian R** produces 8k*8k 3D VR videos and 8k*8k 3D VR photos. This is 8x the resolution of monoscopic 4k*2k 360 videos/photos. Crisp and vivid details are captured to reproduce 3D experiences.

The **Obsidian S** produces 4k*4k/120 fps 3D VR videos and 8k*8k 3D VR photos. It is a high-speed camera providing exceptional flexibility with its high frame rate capabilities and ideal for slow-motion shots.

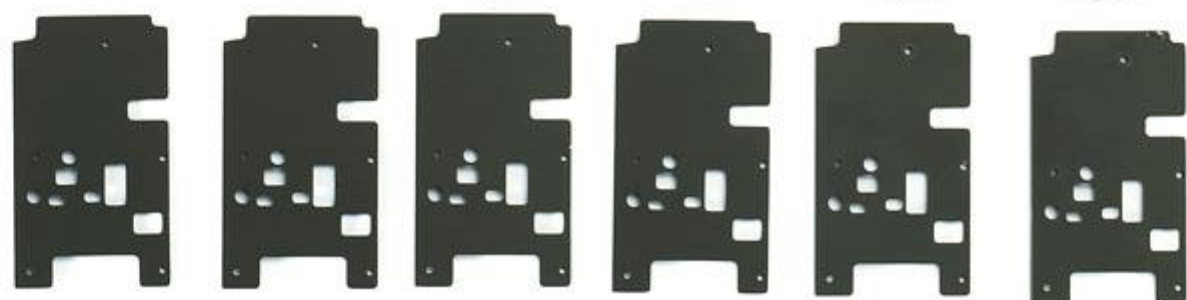
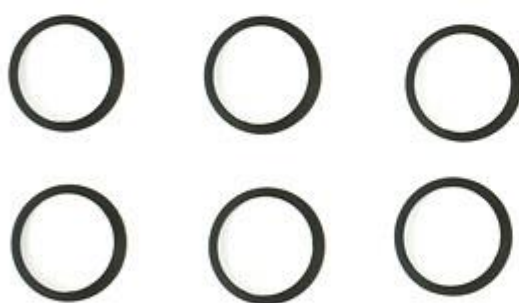
Both support DNG and LOG formats to maximize the information type diversity and ensure creators getting the most out of their image.



The Perfect Synergy of Art and Technology

Ergonomic design between its six lenses allows for easy transport and a clean interface. A special combination of magnesium and aluminum ensures durability and impact resistance.







One Symphony of the Six

The Obsidian camera runs **6 imaging modules** in perfect harmony, achieving pixel-level synchronization, coordinated **auto-exposure**, and **white balance**. This frees the content creators from tedious post-capture processes while still preserving the details and dynamic ranges of the scene. Arranged in an optimized and meticulously calibrated configuration, each module has a high quality fisheye lens with a bright f/2.2 (f/2.8) aperture. It captures the reality on a 12M back-illuminated CMOS sensor. The precise image quality enables our advanced algorithms to reproduce an immersive, detailed and natural 3D virtual reality experience.



One Cable to Rule Them All

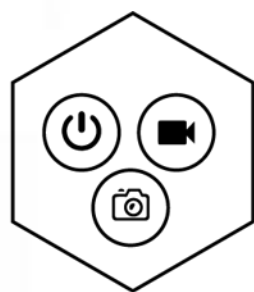
Say goodbye to the confusion of multiple SD cards and tangle of USB cables to simply extract a file. Farewell to the bulky and expensive HDMI capture cards and nightmarish HDMI cables needed to view a playback. Even the power cord is gone. This one ethernet cable does it all from image setting control and file transfers for previewing and live streaming.



More brilliant features



Camera remote
App for smartphone



3 button design:
simple and intuitive



LED indicators for
real-time
monitoring
of cameras



3A control
algorithms



Sync control of
extended spatial
sound microphone



Camera Specification

Camera Name	KanDao Obsidian	
Model Number	S	R
Dimension	Ø 14.5cm (5.7 inch) * 9.3 cm (3.65 inch)	
Weight	1.1 Kgs (2.4 lbs)	
Housing material	Aluminum magnesium alloy	
Power Consumption	Max 26W	
Power Supply	Battery / External 12V supply / Power over Ethernet	
Number of Cameras	6	
Lens Specs	Fish Eye f/2.2	Fish Eye f/2.8
Image Sensor	Sony 12M Back-illuminated CMOS image sensor	
ISP	HiSilicon Ultra HD H.264/H.265 SoC	
Video Format	Monoscopic/Stereoscopic Equirectangular/Cubemap projection	
Stitched Output Resolution	5760 x 5760 (Maximum)	7680 x 7680 (Maximum)
ISO	50-6400	
Dynamic Range	10 stops (video) 12 stops (picture)	
Frame Rate Supported	80/120fps @ 4K*4K 30/60fps@ 6K*6K	60fps @4K*4K 30fps@8K*8K
Camera IO	1Gbps Ethernet	
Audio/Microphone Specs	Internal 6 channel External Stereo Line In Spatial Audio support (Zoom H2n synchronization)	
Output compression	H.264/H.265	



KanDao Studio

Effective Post-production Solution

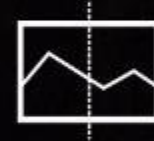
KanDao Studio provides a simple and elegant solution to help content creators produce 3D VR xperiences with just one click, speeding up the post-production workflow. Complex manual parameter tuning is no longer needed since this is already taken care of through careful hardware design, meticulous calibration, and advanced algorithms. The output footage file formats are compatible with international standards and can be seamlessly integrated in any post-production tools that consumers may use.



Effortless One-Click
Processing



Immersive 3D depth



Seamless experience



Ambisonic surround
sound support



GPU acceleration
to speed up
creative workflow

True 3D vision in every perspective

Obsidian produces 3D vision from every perspective, giving audiences a true sense of immersion. Besides generating stereoscopic vision true to human vision, our algorithms can capture thousands of viewpoints in addition to the left/right eye views. By providing the depth map of a scene, adding visual effects at any distance is quick and simple.



Stabilization

Obsidian has a **9-DoF motion sensor** inside and the hardware with specifically designed algorithm that could greatly improve the smoothness of the video. By **combining software that estimates motion parameters** and hardware sensor outputs, Obsidian creates a **more accurate and stabilized** image than its competitors.



Others: **Without stabilization**



KanDao Studio: **Reduces shaking associated with motion**

Seamless Experiences

Our **unique 3D approach** enables us to solve the stitching seam problem from its root and create a seamless experience. Not only do we use depth-aware alignment and advanced blending techniques, but our algorithms also **detect prominent features** such as human figures, architectural structures and motions. This allows the technology to **improve image quality** and ensure **temporal coherence**.



Others: **Obviously Seamed**



KanDao Studio: **Seamless**

KanDao Live

One Cable One Laptop to Live Stream

For the first time, thanks to a **highly efficient software implementation** and elimination of bulky HDMI capture cards, event organizers can provide audiences a true **sense of presence** through **live broadcasting** experiences in 3D 4K*4K at 30 fps on any laptop connected to the Obsidian camera by our **ONE Powered Ethernet cable**. Furthermore, the **6 original video streams** can be recorded, using our advanced offline processing system, during live streaming for **higher quality footage** after the event.

4K LIVE
3D
360°

Bitrate **3Mbps ~ 4Mbps**

I/O interface **Micro USB**

Streaming protocol **RTMP/HLS**



Shenzhen Innovation and Development Institute Conference



Lamborghini Product Announcement



National Basketball Team vs Australia



Shanghai Symphony Orchestra Musical Performance



GMIC Conference



Popular TV Show "Crime Scene"

KanDao App

Best 3D VR app for Smartphone

KanDao App aims to provide **the best VR experience** for its users. With its **user-friendly interface**, it enables users to view **high resolution 3D 360** videos and photos **online and offline** with minimal discomfort.





KanDao's **patented projection software** gives users a **wider field of view** (more than 120 degree) with little to **no distortion**.

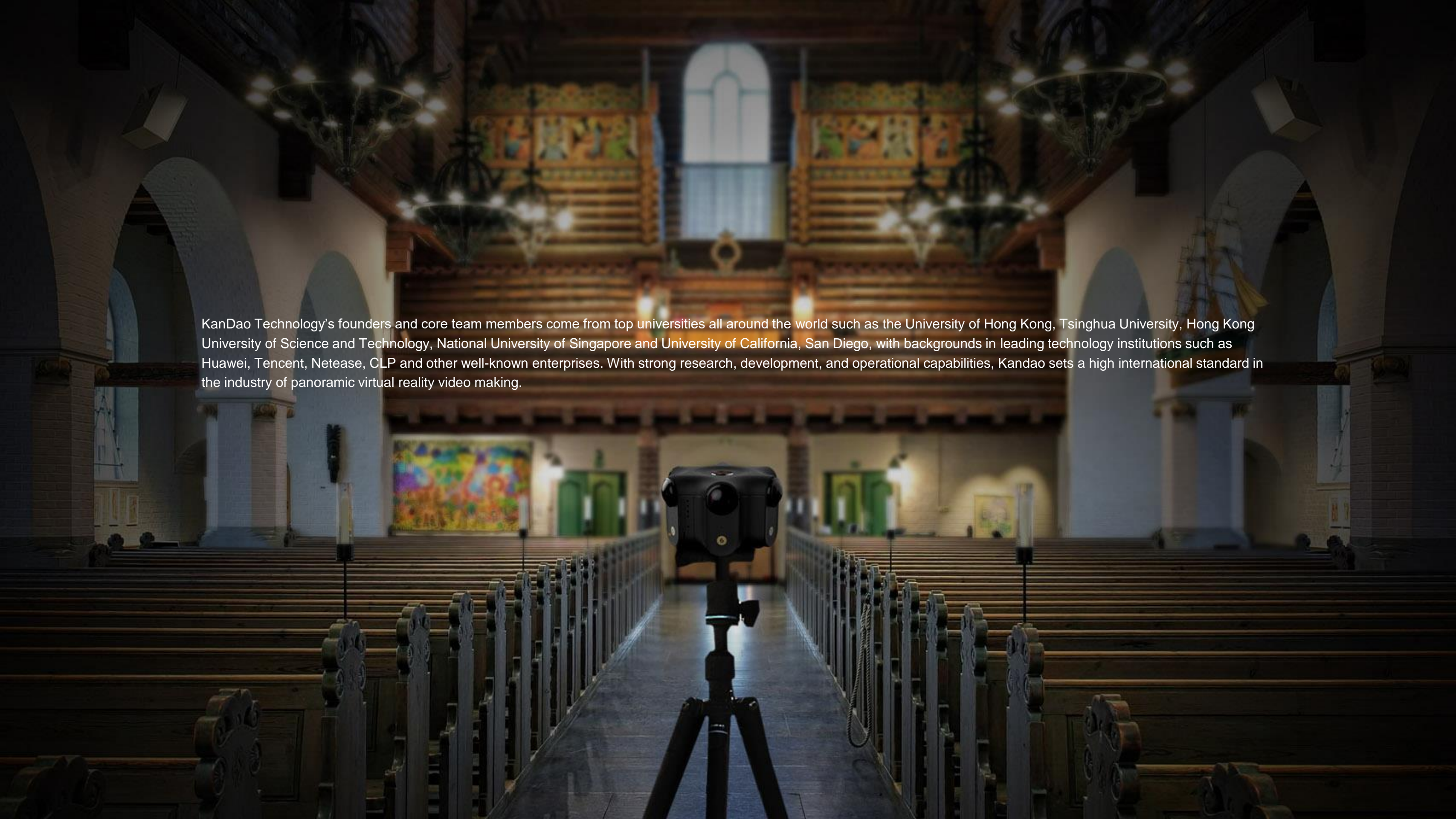
Others : **distorted**



KanDao App : **no distortion**



Comparison of 3D VR player apps	General 360 apps	Facebook	Youtube	KanDao app
4K x 4K 3D effect	X	✓	✓	✓
Ambisonic Surround Sound	X	✓	✓	✓
Wide FOV with no distortion	X	X	X	✓
TV and Projector Support	X	X	X	✓

A 360-degree camera is mounted on a tripod in the center of a church aisle. The church has high ceilings with ornate wooden beams and chandeliers. The pews are arranged in rows on either side of the aisle. In the background, there is a colorful stained glass window and a large arched window. The lighting is warm and focused on the camera.

KanDao Technology's founders and core team members come from top universities all around the world such as the University of Hong Kong, Tsinghua University, Hong Kong University of Science and Technology, National University of Singapore and University of California, San Diego, with backgrounds in leading technology institutions such as Huawei, Tencent, Netease, CLP and other well-known enterprises. With strong research, development, and operational capabilities, Kandao sets a high international standard in the industry of panoramic virtual reality video making.



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www.kandaovr.com