AIR One® Specifications

Z CAM E2 M4 Camera Module	
Sensor Type	4/3" WDR CMOS Sensor
Sensor Size	19.0 x 13.0 mm
Effective Pixel	10.28M
Dynamic Range	13~15 Stops / 16 Stops (with WDR)
Lens Mount	Locking MFT Optional Mount: Locking EF *(future PL)*
Audio	Built-in Stereo Microphones Aux inputs: lemo stereo/3.5mm stereo 24-bit 48 kHz - AAC or PCM(*MOV only*) Gain -10 to +12 Noise reduction on/off Phantom power on/off (lemo inputs only) External input - Mic level only
Recording Resolution	4096 x 2160 (C4K) / **3840 x 2160 (4K) / 1920 x 1080** 4096 x 1728 (C4K 2.4:1) / 3840 x 1620 (4K 2.4:1) 3696 x 2772 / 3312 x 2760 2704 x 1600 /
Frame Rate	59.94 / 50 / 29.97 / 25 / 24 / 23.98 fps
Max Variable Frame Rate	120 fps for 4096 x 2160 (H.265) 120 fps for 3840 x 2160 (H.265) 240 fps for 1920 x 1080 (H.265) 150 fps for 4096 x 1728 (H.265) 160 fps for 3840 x 1620 (H.265) 160 fps for 2704 x 1600 (H.265) 59.94 fps for 3696 x 2772 59.94 fps for 3312 x 2760
Max Bit Rate	H.265 / H.264 300 Mbps: 4096x2160 / 3840x2160 / 4096x1728 / 3840x1620 / 3696x2772 / 3312x2760 / 2704x1600 200 Mbps: 1920x1080
Color Bit Depth	10-bit (H.265) & 8-bit (H.264)
Video Encoder	12-bit ProRes Raw / 12-bit ZRAW (partial debayer) / Proxy / H.265 main 10 profile / H.264 high profile
File Format	MOV / MP4
Internal Recording	C-Fast 2.0 exFAT
ISO	Auto, Manual (500 ~ 102400 / 250 ~ 51200 with WDR) Native ISO: 500 / 2500 (250 / 1250 with WDR)
Shutter Speed: Shutter Angle:	Auto, Manual (up to 1/8000) Auto, Manual (1° ~ 360°)
White Balance	Auto, Preset, Manual (2300K ~ 7500K)
Focus Mode	MF / AF / CAF
Image Control	Brightness / Contrast / Saturation / Sharpness
Image Profile	Rec.709 / Z-Log2 / FLAT / HLG
Time Code	Time of Day / Manual Input
Streaming	SRT (end-to-end 128/256 bit AES encryption)

	RTMP Bitrate 500kbs to 300Mbs h.264/h.265 1080p HD or 4K - fps: 24/25/30/60 Frame size/rate must be ≤ internal record format.
Camera Material	Aluminum Alloy
Operation Temperature	0ºC ~ 40ºC
Storage Temperature	-20ºC ~ 60ºC
Optional Camera Modules	
S6 Model:	S35 sensor – 23.4x15.67 mm - 26M pixels - 14 stop DR Locking EF lens mount standard. <u>Resolutions and frame rates</u> 6244x4168 @30fps max (Open Gate) 6144x3240 @48fps max (6K DCI) 6144x2592 @60fps max (6K 2.4:1) 5760x3240 @48fps max (6K UHD) 5552x4164 @30fps max (5K 4:3) 4992x4160 @30fps max (5K 6:5) 4096x2160 @30fps max (4K DCI Low Noise) * 4096x2160 @75fps max (4K DCI) * 4096x1728 @100fps max (4K 2.4:1) 3840x2160 @30fps max (4K UHD Low Noise) * 3840x2160 @75fps max (4K UHD) * 1920x1080 @120fps max (FHD) ISO: 400~125000 *Other specs same as M4*
F6:	Full Frame 6K sensor – 37x24.75mm - 26M pixels - 15 stop DR Locking EF lens mount standard. <u>Resolutions and frame rates</u> 6064x4040 @30fps max (Open Gate) 6064x3196 @48fps max (6K DCI) 6064x2560 @60fps max (6K 2.4:1) 5760x3240 @48fps max (6K UHD) 5376x4032 @30fps max (5K 4:3) 4848x4040 @30fps max (5K 6:5) 4096x2160 @72fps max (4K DCI) * 4096x1728 @120fps max (4K 2.4:1) 3840x2160 @72fps max (4K UHD) * 1920x1080 @120fps max (FHD) ISO: 400~125000 *Other specs same as M4*
F8:	Full Frame 8K sensor - 36x24mm - 61M pixels - 14 stop DR Locking EF lens mount standard. <u>Resolutions and frame rates</u> 8192x3456 @30fps (8K 2.4:1) 7680x4320 @30fps (8K UHD) 6144x3240 @30fps max (6K DCI)* 5760x3240 @30fps max (6K UHD)* 3840x2160 @60fps max (4K UHD)*

	* supersampling / cropping selectable, 4K supersampling is supported at the same frame rates as 6K DCI resolution mode ISO: 400~125000 Bitrate 500 Mbps max for H.265 & H.264 *Other specs same as M4*
Internal Record Time *(approximate)*	1T Cfast Card h.265 30fps at high bitrate @1080p = 74+ hrs @ 4K = 11+ hrs
LENSES	
Lens mount	Locking MFT mount (interchangeable) Optional Mounts: locking EF, *(future PL),* LPL, E-Mount via Viltrox E-T10 II (*currently undergoing compatibility testing*)
Lens types, focal lengths	MFT, EF, EF-S, SONY *(see website for approved lens list)* Wide angle zooms (starting at 7mm) Standard zoom (14mm+/- to 140mm+/-) Telephoto zoom (up to 300mm*) Primes *Note: EF lenses are not compatible with absolute position manual focus commands*
Lens max weight	1.0kg
Lens max length	300mm
Approved lens list	Lenses
Crop factor *(Field of view varies by mount, lens type, and sensor size.)*	M4 camera + MFT mount + MFT lens = 1.9x crop *e.g. 14mm MFT lens provides a 35mm-equivalent field of view of a 27mm Full Frame lens (approx. 67º horizontal field of view).* M4 camera + EF mount + EF lens = 1.75x crop *e.g. 14mm EF lens provides a 35mm-equivalent field of view of a 25mm Full Frame lens (approx.71º horizontal field of view).* M4 camera + Sony mount + Sony lens = 1.75x crop *e.g. 14mm EF lens provides a 35mm-equivalent field of view of a 25mm Full Frame lens (approx.71º horizontal field of view).* S6 camera + EF mount + EF lens = 1.5x crop *e.g. 14mm EF lens provides a 35mm-equivalent field of view of a 21mm Full Frame lens (approx. 81º horizontal field of view)* F6 + FF mount + FF lens = 1x crop F8 + FF mount + FF lens = 1.2x crop
Sensor subsampling	S6/F6/F8 also feature a “crop sensor” mode for subsampling from a smaller area of the sensor when recording/streaming in a 4k/1080HD (vs standard mode which downsamples the full frame from 6K/8K to 4k/HD). Crop mode effectively gives a narrower optical field of view with zero loss in video quality

	for scenarios where increased focal length on the long end of the zoom is desirable. S6 4K supersample mode = 2.1x S6 HD supersample mode = 4.2x F6 4K supersample mode = 1.5x F6 HD supersample mode = 3x F8 6K supersample mode = 1.6x F8 4K supersample mode = 2.4x
Lens requirements	Electronic focus required for remote control Electronic aperture required for remote control Fitted 0.8 MOD lens gear adapter required for ungeared lenses (0.8 MOD ring for 14-140mm Panasonic included in base AIR One™ package)
Zoom servo (included)	Dynamic variable speed AIR servo Up to 45º of rotation per second. (End-to-end zoom travel time dependent on lens. Typical travel time from full wide to full tight is 1 sec at highest speed, 20 secs at slowest speed)
ROBOT - 3 axis stabilization	Dual IMU, triple encoder. Full time automatic stabilization.
Frame materials	Aluminum Alloy
Payload capacity	3kg
Mount orientation	Inverted or vertical
Rotation Horizontal	710º (-355º~+355º, 0º from center)
Rotation Vertical	180º (-60º to +120º, 0º from level horizon)
Rotation Roll	180º+90º of stabilization (-270º to +270º, 0º from level horizon)
Speed	90º per second standard (135º/sec in turbo mode)
Gimbal accuracy	<0.5º
AIRstation	On board CPU
CPU	Quad core Cortex-A72 64-bit @ 1.5GHz 4GB RAM LPDDR4-3200 SDRAM Gigabit ethernet
Operation Temperature	0ºC ~ 50ºC
Storage	4GB RAM, eMMC 32GB
API library	AIR API
AIRstation Base Connections	External connections
Ethernet	RJ-45 – Gigabit
Video/Audio	HDMI - 4k 25/30/50/60. 1080p25/30/50/60. 720p60. Frame size/rate must be ≤ internal record format.
Audio Input	Stereo lemo 5-pin *(5 pin lemo to dual XLR breakout cable required)*

Power Input	DC 12v~17v DC 16V 4A power supply provided – 2 pin lemo
AIR iOS control APP	iOS 18.7.1+ Apple iPad 10th+ gen, iPad Pro, iPad Air 10.2"+ 64GB WiFi only
iPad ethernet connection	RJ45 to lightning hardwire connector highly recommended. Ethernet + power adapter (included in base AIR One™ package) *(When used with a PoE+ network or a Apple lightning USB power supply allows for unlimited iPad runtime and simultaneous hardwire ethernet connectivity).* *Wifi connection to LAN for control possible but not recommended.*
Remote control	Pan/Tilt/Zoom/Focus/Exposure/Camera settings Over standard gigabit LAN for on-site control <150ms latency Off-site control via internet connection *(AIR cloud subscription required for offsite control)*
LAN connection for remote control app	>1,000Mbs ethernet recommended <50ms ping recommended
Internet connection for remote control iOS app	>10Mbs down, >3Mbs up required. (single camera) >100Mbs up/down recommended. >1,000Mbs up/down optimal. <50ms ping recommended. Increased latency affects control performance.
Internet connection for streaming and offset control.	***Recommended streaming bandwidth up at least X2 video data rate per camera.*** e.g. 4 cameras @ 20Mbs X2 = 160Mbs upload. >20Mbs up required per camera >100Mbs up minimum recommended. >1,000Mbs up optimal. <50ms ping recommended. Increased latency affects performance.
Tablet Pan Tilt	Manual P/T - Touchscreen in picture area Manual P/T - iPad accelerometer/gyroscopic mimic Automated P/T – via recall buttons Horizontal/Vertical position (max rotation - horz:-179º~+179º / vert:-60º~+120º)
Control slider	○ Lens: zoom (dynamic variable speed) ○ Lens: focus (absolute position) ○ Lens: aperture (absolute position) ○ Camera: ISO (absolute position)

Recall presets	~40 presets. Recall of Pan/Tilt/Zoom/Focus. Settings for speed of recall 1~4. Toggle automatic easing on/off. Toggle focus on recall on/off.
Recall activation	WYSIWYG - save current camera position & settings Slide button upward to set Double-tap button to recall – triggers smooth automated camera movement.
Preset button available parameters	○ Horizontal/Vertical position ○ (-179º~+179º horz/ -60º to +120º vert. 0º x 0º = level horizon/centered) ○ Lens zoom focal length (parameters lens dependent) ○ Focus position (parameters lens dependent) ○ Aperture (parameters lens dependent) ○ ISO (500 ~ 102400 / 250 ~ 51200 with WDR) Speed of movement settings for each parameter (1~10) Ease in/out of movement parameters (1~10) *Button can set/recall either an individual parameter or multiple parameters collectively.*
Camera settings	All camera configuration settings (frame rate, resolution, codec, etc.) available via the AIR app submenu.
Audio settings	○ Display levels ○ Gain -10 to +12 ○ Audio codec ○ Internal/External L/R source selection ○ Noise reduction on/off ○ Phantom power on/off
Playback	Select clip/Play clip/Delete clip Upload clip to AIRcloud storage
SYSTEM	
System weight Includes: M4 camera, 14-140mm lens, complete robot, zoom motor.	4.750kg (10.5 lbs) Height: 35cm (14 in) Yoke Width: 25cm (10 in) Rotational clearance: >35cm (with bundled lens) (16 in) Thickness:10cm (when folded flat) (4 in) Case: (H) 46cm x (W) 30.5cm x (L) 21cm (18 x 12 x 20)