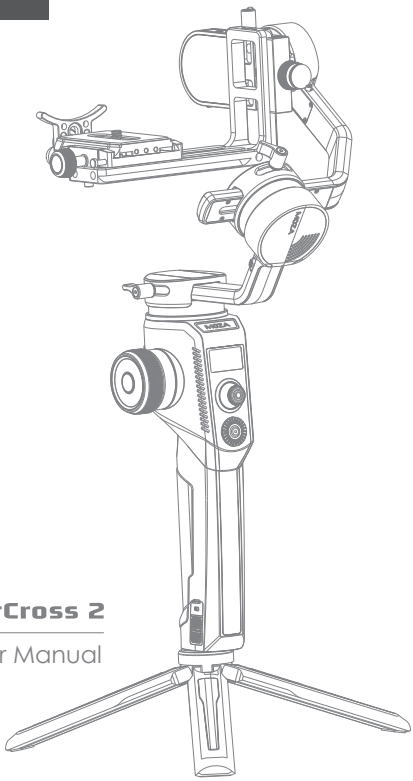
MOZA



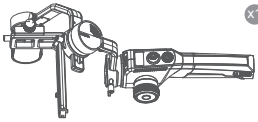
AirCross 2

User Manual

Contents

Packing List

Check that all of the following items are in your package. If any item is missing ,please contact MOZA or your local dealer.



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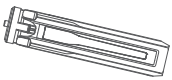
Gimbal



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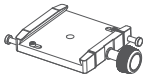
Tripod

x1

Battery



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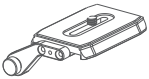
Quick Release Baseplate



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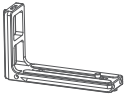
Quick Release Plate



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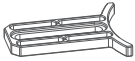
L-Bracket



x1

Lens Support

x1

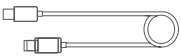
Lens Support Screw

x1

3/8"Camera Mount Screw

x1

MCSC-C1



x1

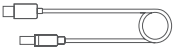
M3C-Mini

x1

MCSC-Remote

x1

M3C-C



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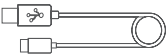
MCSC-Multi/C



x1

USB-C Cable

x1

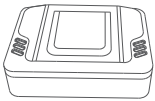
M3C-Micro

x1

Follow Focus Support Rod

x1

Tool Box

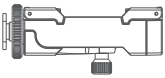


x1

EPP Case

x1

Warning Card
User Manual



x1

Phone holder (Optional)

x1

Arca quick release plate (Optional)

Disclaimer and Warning

Thank you for purchasing the MOZA AirCross 2!
● This document is related to the safety use and legal rights of your equipment. Please read it carefully before the first use.
● By using this product, you are deemed to have read, understood, endorsed and accepted all the terms and content of this statement. You are solely responsible for the use of this product and the consequences thereof. You undertake to use this product for legitimate purposes and agree to the terms and any relevant regulations, policies and guidelines formulated by Shenzhen Gudsen Technology Co., Ltd. (hereinafter referred to as Gudsen). Gudsen is not responsible for damage, injury or any legal problems caused by the direct or indirect use of this product. Users should follow all safety guidelines including but not limited to this document.
● MOZA AirCross 2 is professional videography equipment. Users need to have professional videography and safety knowledge, and need to be careful. Please read the user manual carefully before the first use.
● This product is not a toy and not suitable for use by minors. Do not allow children to operate this product.
● Do not use MOZA AirCross 2 with products or accessories that are not provided or recommended by Gudsen, and please strictly follow the safety guidelines in the product manual.
● The final interpretation of this document belongs to Shenzhen Gudsen Technology Co., Ltd. Updates are subject to change without notice. Please visit the official website www.gudsen.com for the latest product information.

Safety Guidelines

1. Battery Safety Instructions

The AirCross 2 is equipped with an M2S30QB smart battery. Do not use an unofficial battery to prevent the gimbal from working properly and causing unnecessary damage. When a backup battery is needed, please purchase the official battery. Please fully charge the new battery to activate it before the first use.
● Do not put the batteries into the water or get it wet!
● Do not charge the batteries under fire or extremely hot conditions!
● Do not use or store the batteries near heat sources such as fire or heaters! If the batteries leak or give off an odor, remove the batteries from the open fire immediately!
● Do not use the unqualified adapter to charge the batteries!
● Do not reverse the positive and negative poles!
● Do not put the batteries into fire or heat the batteries!

● Do not short the positive or negative pole with wires or other metal objects. Do not transport or store batteries with necklaces, hair clips or other metal objects!
● Do not pierce the battery case with nails or other sharp objects. Do not hammer or pedal the batteries!
● Do not hit, throw or shake the batteries!
● Do not solder the battery poles directly!
● Do not disassemble the batteries in any way!
● Do not put the batteries into microwave or pressure vessel!
● Do not use in combination with primary batteries(such as dry batteries) or batteries of different capacities, models or varieties!
● Do not use if the batteries emit odor, heat, deformation, discoloration, or any other abnormality; If the batteries are in use or charging, unplug the power adapter from the device and stop using it immediately!
● The batteries are only available for MOZA AirCross 2. Do not attempt to connect it to other products to avoid damage to the batteries or other equipment.

Battery Charging

M2S30QB smart battery is equipped with a Type-C interface, supporting 5V2A low-speed charging and 9V2A high-speed charging, users can select the matched charger according to actual needs.
Please use the TYPE-C interface to charge the batteries and do not use external power sources such as wall outlet or car cigarette lighter to charge the batteries.

Battery Indicator

The M2S30QB smart battery has 4 LED indicators. When it is in charging, 4 indicators will light up in turn; when it is removed and not charged, users can slightly shake it to check the battery level. Indicators will light up for 5 seconds and then automatically go off.

Indicator Status	Battery Level
● ● ● ●	75%-100%
○ ● ● ●	50%-75%
○ ○ ● ●	25%-50%
○ ○ ○ ●	0%-25%
○ ○ ○ ○	Out of power

Battery Protection

The M2S30QB smart battery has under-voltage, overcurrent and overheat protection state. Battery protection state will be triggered by abnormal conditions such as overuse and short circuit. When the battery enters the protection state, it stops output and cannot be shaken to view the battery level. The battery can be unprotected by charging. Insert the charging cable, when indicators light up in sequence, users can use it again.

Battery Storage

● IThe storage temperature for battery must be in the range of -20 ° C ~ 45 ° C.

● For long-term storage(more than 3 months), batteries must be placed in an environment with a temperature of -20 ~ 25 ° C and a humidity of 65 ± 20% RH.

● For long-term storage, batteries should be fully charged and should be recharged once a month.

2. Motor Lock Use Instructions

The AirCross 2 is equipped with 3 motor locks that are used to secure the gimbal axes. After receiving the product, please check if the motor locks are in the locked position. Please unlock the gimbal axes first before using it. Motor locks are used for:

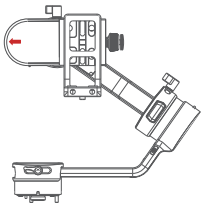
a. Locking all three axes for easy carry.
b. Securing certain axes when mounting the camera and adjusting the balance.
c. Fixing the body to prevent collision and friction.
d. Keeping good posture when placed statically.

> ⚠ Note:
> Violent rotation of each arm in the locked state may cause motor locks to malfunction; It is strictly forbidden to turn on the AirCross 2 in the locked state, otherwise it will cause motors to heat up and enter the protection state.

3. Notes for Abnormal Situation

Wrong Camera Mounting Direction

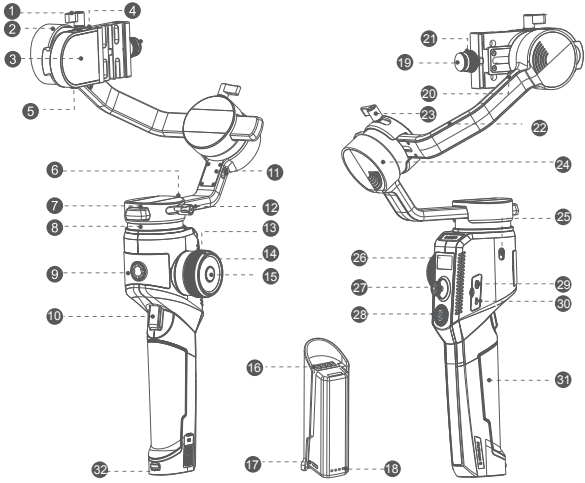
The tilt axis of the MOZA AirCross 2 can be rotated 360°. When mounting the camera, please follow the red arrow indication to keep the elliptical end of the tilt axis aligned with the lens direction.



Transportation Safety

The AirCross 2 contains sensitive accelerometers and gyro sensors that may experience sensor drift after severe vibrations. After receiving the product, please follow instructions in the manual to mount the camera. If the camera cannot keep level after turning it on, please calibrate the gyroscope and accelerometer to ensure normal use.

AirCross 2 overview

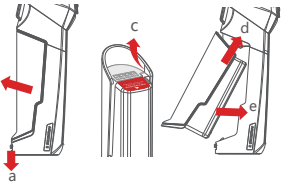


1 Tilt Knob	9 3/8"Screw	17 USB Type-C Charging Port	25 Pan Motor Lock
2 Tilt Motor	10 Smart Trigger	18 Battery Level Indicator	26 OLED Screen
3 Tilt Arm	11 Roll Motor Lock	19 Safety Lock	27 Joystick
4 Camera Control Port	12 Pan Knob	20 Roll Motor Lock	28 Dial Wheel
5 Baseplate Knob	13 Smart Wheel	21 Multi-CAN Port	29 USB Port
6 Pan Arm	14 Indicator Light Ring	22 Roll Arm	30 Multi-CAN Port
7 Crash Pad	15 Power Button	23 Roll Knob	31 Battery
8 Pan Motor	16 Power Supply Electrode	24 Roll Motor	32 Battery Lock

Installation and Balance Adjustment

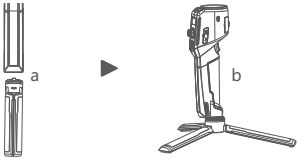
Installing the Battery

a. Press the battery lock downwards;
b. Take out the battery;
c. Remove the insulating film at the electrode;
d. Attach the battery electrode to the gimbal.
e. Press the battery into the hatch



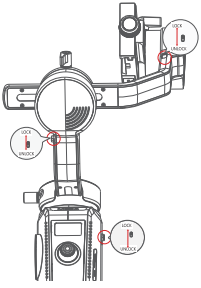
Attaching the Tripod

Attach the tripod to stand the gimbal.
a. Screw the tripod tightly into the 1/4" hole at the bottom of the gimbal.
b. Expand mini tripod, place the gimbal on a flat surface

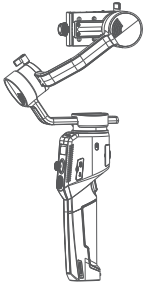


Unlocking Motors

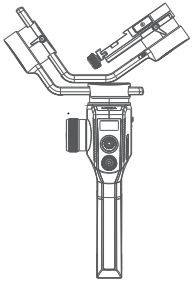
The AirCross 2 gimbal has 3 locks which are used to lock motors to prevent rotation.



3 Motor Locks



Unfolding



Storage

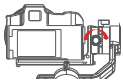
Notes: Please unlock all motor locks before starting on the gimbal, otherwise motors will get overheated or enter the protection mode.

Mounting the Camera

Horizontal Mounting

a. Place the longer side of the L-Bracket under the camera, and lock the camera with a 1/4"screw.

b. Loosen the quick release knob screw, Pull out the safety lock at the end of the quick-release knob, insert the shorter end of the L-Bracket into the quick release baseplate, and then lock the knob.



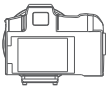
Vertical Mounting

a. Place the longer side of the L-Bracket under the camera, and lock the camera with a 1/4"screw.

b. Loosen the quick release knob screw, pull out the safety lock, insert the longer end of the L-Bracket into the quick release baseplate, and then lock the knob.

Use the Arca-Swiss quick release plate for vertical shot:

a. Place the Arca-Swiss quick release plate horizontally under the camera and use a 1/4" screw to lock the camera;

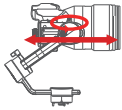


b. Loosen the quick-release knob and pull out the safety lock at the end of the quick-release knob. Install the Arca-Swiss quick-release plate into the quick-release base. Then lock the knob.

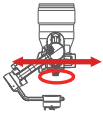
⚠ Note: The camera can only be installed vertically using the Arca-Swiss quick release plate. It does not block the camera's battery port and memory card slot.

Balancing

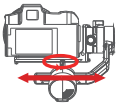
a. Loosen the knob of the tilt arm, adjust the tilt arm back and forth until the lens moves horizontally forward, and then lock the knob.



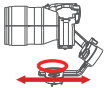
b. Rotate the camera to make its lens face upward, loosen knob on the release plate, adjust the release plate back and forth until the lens faces straight upward, and then lock the knob.



c. Loosen the knob of the roll arm, adjust roll arm leftwards and rightwards until it remains horizontal, and then lock the knob.



d. Hold the gimbal horizontally to make the pan arm level with the ground, then loosen the knob on the pan arm, adjust the pan arm leftwards and rightwards until it remains level, and then lock the knob.



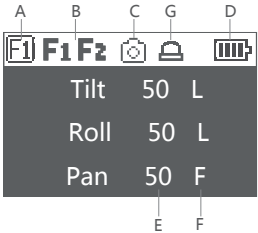
⚠ Note: Please release the motor lock of the axes before balance adjustment, otherwise it can't be adjusted accurately. Please ensure that the MOZA AirCross 2 is balanced well before use.

Buttons and OLED Display

Button Functions

Button	Operation	Function	Customizable Function						Menu
Trigger	1X click	——	——	Focus	Photo	——	——	——	The same
	2X click	Re-center	——	Re-center	Selfie	——	——	——	The same
	3X click	Selfie	——	Re-center	Selfie	——	——	——	The same
	Hold	Pan-tilt follow	——	Pan-tilt follow	All lock	Sport gear mode	FPV	——	The same
	Click and hold	All lock	——	——	——	——	——	——	The same
Power Button	1X click	Switch wheel modes	——	——	——	——	——	——	The same
	2X click	Sleep/wake up	——	——	——	——	——	——	The same
	3X click	Switch Grouping of Wheel Modes	——	——	——	——	——	——	The same
	Long press	ON/OFF	——	——	——	——	——	——	The same
Smart Wheel	Turn	Focus motor 1	Focus motor 1	Focus motor 2	E-focus	Tilt axis	Roll axis	Pan axis	The same
Joystick	Push up/down	Move the tilt axis	Tilt axis	Roll axis	Pan axis	——	——	——	The same
	Push left/right	Move the pan axis	Tilt axis	Roll axis	Pan axis	——	——	——	The same
Top Button	1X click	Tilt follow	——	——	——	——	——	——	Option-up
	Long press	Lock/Unlock the dial	——	——	——	——	——	——	——
Down Button	1X click	Pan follow	——	——	——	——	——	——	Option-down
Left Button	1X click	Roll follow	——	——	——	——	——	——	Return
	3X click	FPV mode	——	——	——	——	——	——	——
Right Button	1X click	Sport gear mode	——	——	——	——	——	——	Confirm/Next menu
	3X click	Inception mode	——	——	——	——	——	——	——
Center Button	1X click	Video recording	——	——	——	——	——	——	Video recording
	2X click	Take photo	——	——	——	——	——	——	Take photo
	Long press	Enter menu	——	——	——	——	——	——	Exit menu
Dial Wheel	Turn	Adjust the follow speed	——	——	——	——	——	——	Adjust relevant parameter
Combo	Center button +Power	Firmware upgrade	——	——	——	——	——	——	——

OLED Display



A: Smart wheel working modes
- Controlling external follow focus motor 1
- Controlling external follow focus motor 2
- Electronic follow focus
- Controlling the tilt axis
- Controlling the roll axis
- Controlling the pan axis

B: Focus motor connection status. Icon will be displayed after connection,otherwise it won't be displayed. Up to two focus motors can be connected at the same time.

C: Camera connection status. Icon will be displayed after USB connection, otherwise it won't be displayed.

D: Battery level. Each grid represents 25% battery level. When the battery is empty, please charge the battery in time.

E: Follow speed value: 0-100. Turn the dial to adjust the value

F: Follow status
- L: Lock. The axis locks and doesn't follow.
- F: Follow. The axis follows.
- Q: Sport Gear Mode

G: the dial is locked, please long press 'TF' button to unlock

LED Indicators

Power on: automatic color changing
Sport gear mode: solid blue
Inception mode: solid blue
Sleep mode: slowly flashing green
Warning alarm: quickly flashing red
Firmware upgraded: breathing yellow

> ⚠ Note: The button functions and light colors above are the factory default settings. You can customize some button functions and light effects in the menu.

Menu Description

L1	L2	L3	L4	L5	Value	Function
camera	select	Shutter Cable			*	set the connection type to universal shutter cable
		MCSC-Multi			*	set the connection type to Sony-Multi port
		MCSC-Multi/C			*	set the connection type to Sony-Multi port and power supply
		MCSC-Remote			*	set the connection type to Panasonic-Remote port
		M3C-USB			*	set the connection type to USB port
	parameter	ISO			32–106400	Set the camera ISO
		TV			30–1/8000	Set the camera shutter
		AV			F1–F22	Set the camera aperture
gimbal	motor	switch			? /ok	turn on/off motor
		power	autotune		? /ok	tuning/tuned
			level	ultra light	*	set motor level to the minimum
				light	*	set motor level to light
				medium	*	set motor level to medium
				heavy	*	set motor level to heavy
				ultra hea	*	set motor level to ultra heavy
			custom	tilt	0-100	set tilt motor power
				roll	0-100	set roll motor power
				pan	0-100	set pan motor power
		filter	tilt		0-100	set tilt motor filter
			roll		0-100	set roll motor filter
			pan		0-100	set pan motor filter
	follow	switch	tilt		on/off	enter/exit tilt follow mode
			roll		on/off	enter/exit roll follow mode
			pan		on/off	enter/exit pan follow mode
		speed	tilt		0-100	set the following speed of tilt motor
			roll		0-100	set the following speed of roll motor
			pan		0-100	set the following speed of pan motor
		deadband	tilt		0-100	set the following initiation angle of tilt motor
			roll		0-100	set the following initiation angle of roll motor
			pan		0-100	set the following initiation angle of pan motor
	operation	joystick	function	left-right	tilt/rol/pan	move the joystick left/right to control the tilt/roll/pan rotation
				up-down	tilt/rol/pan	move the joystick up/down to control the tilt/roll/pan rotation
			sensitivity	left-right	0-100	set sensitivity level of left-right movement
				up-down	0-100	set sensitivity level of up-down movement
			habits	left-right	+/-	set the control habit of joystick left/right movement
				up-down	+/-	set the control habit of joystick up/down movement
		wheel	function	focus-1	*	control the external focus motor 1
				focus-2	*	control the external focus motor 2
				focus-e	*	control the electronic focus
				tilt	*	control the pan axis
				roll	*	control the tilt axis
				pan	*	control the roll axis
			sensitivity		0-100	wheel sensitivity
			habits		+/-	set the control direction of wheel rotation
		trigger	hold	none	*	none
				follow	*	enter pan-tilt follow mode
				lock	*	enter all lock mode
				quick	*	enter sport gear mode
				FPV	*	enter FPV mode
			click	none	*	none
				shutter	*	take photo
				focus	*	auto focus
			double-click	none	*	none
				re-center	*	re-center
				selfie	*	rotate the gimbal 180° for selfie
			triple-click	none	*	none
				re-center	*	re-center
				selfie	*	rotate the gimbal 180° for selfie

L1	L2	L3	L4	L5	Value	Function
gimbal	operation	dial	habits		+/-	rotate the dial clockwise to increase/decrease value
		LED	switch		on/off	turn on/off LED light on the wheel
			brightness		0-100	adjust the brightness
advanced	autotune				? /ok	auto tune
	balance chk					check the balance state of camera
	iFocus	F1	switch		? /ok/err	turn on/off the focus motor 1
			set A		? /ok/err	set the point A of focus motor 1
			set B		? /ok/err	set the point B of focus motor 1
			Clear AB		? /ok/err	Clear the calibration information
			Guidance		>	Enter the guidance mode
		F2	switch		? /ok/err	turn on/off the focus motor 1
			set A		? /ok/err	set the point A of focus motor 1
			set B		? /ok/err	set the point B of focus motor 1
			Clear AB		? /ok/err	Clear the calibration information
			Guidance		>	Enter the guidance mode
		dolly zoom			>	Enter the dolly zoom mode
	inception	speed			0--100	set the rotation speed of inception mode
	motion sensing	switch	tilt		? /on/off	turn on/off the motion control of tilt axis
			roll		? /on/off	turn on/off the motion control of roll axis
			pan		? /on/off	turn on/off the motion control of pan axis
		speed			0-100	set the rotation speed of motion control
	tracking	speed			0-100	set the max speed of tracking
	manual pos	tilt			on/off	turn on/off the manual positioning of tilt axis
		roll			on/off	turn on/off the manual positioning of roll axis
		pan			on/off	turn on/off the manual positioning of pan axis
	calibration	gyro			? /ok	calibrating/calibrated the gyroscope
		acc			? /ok	calibrating/calibrated the accelerometer
		angle offset	tilt		0-100	set the offset value of tilt axis
			roll		0-100	set the offset value of roll axis
			pan		0-100	set the offset value of pan axis
general	language	English			*	switch display language to English
		中文			*	switch display language to Chinese
	config	config1	save		? /ok	save to configuration 1
			load		? /ok	load configuration 1
		config2	save		? /ok	save to configuration 2
			load		? /ok	load configuration 2
		config3	save		? /ok	save to configuration 3
			load		? /ok	load configuration 3
		reset			? /ok	restore default parameter settings
	about					device name and firmware information

Menu type introduction:
If there is a " > "mark at the right side of the selected item, press the dial right button for the next menu.
If the selected item has a "[ ]"and contains a number, rotate the dial to adjust its value.
If the selected item has a "()"and contains an option, press the right button to switch among options

Notes:
1. If there is a "*" at the right side of one item, the current list is the final option, press the dial right button to launch it.
2. If the selected item and other items in the menu list don't have any marks, press the dial right button to launch the option once. ">" is displayed during the process. "ok" is displayed after the process is completed, and "err" is displayed if the option fails.

3. Filtering parameters: When the motor vibrates with highfrequency, the value should be turned down. When the motor vibrates with low-frequency, the value should be increased.
4. The manual positioning function has lower priority than the following function. When using manual positioning functionnormally, following function of the axis should be turned off.

Features Description

Camera Control

The AirCross 2 can support camera video recording, photo taking and electronic focus control. Please refer to the compatibility list for more details (* Please set the lens to "MF"mode)

Camera Brand	Camera Model	Connection Type	Cable	Control Protocol	Shutter	Recording	ISO	TV	AV	Auto Focus	Electronic Focus	Power Supply
CANON	EOS R	M3C-USB	M3C-C	USB	√	√	√	√	√	√	√	—
	EOS RP				√	√	√	√	√	√	√	—
	EOS 6D Mark II		M3C-Mini		*	√	√	√	√	√	√	—
	EOS 6D				*	√	√	√	√	√	√	—
	EOS 60D				*	√	√	√	√	√	√	—
	EOS 77D				*	√	√	√	√	√	√	—
	EOS 80D				*	√	√	√	√	√	√	—
	EOS 5D2				*	√	√	√	√	√	√	—
	EOS 5D3				*	√	√	√	√	√	√	—
	EOS 800D				*	√	—	√	√	√	√	—
	EOS 5D Mark IV		M3C-Micro		*	√	√	√	√	√	√	—
	EOS 200D II				*	√	√	√	√	√	√	—
	EOS M50				√	√	√	√	√	√	√	—
	EOS M5	MCSC-C1	MCSC-C1	shutter Protocol	√	—	—	—	—	—	—	—
	EOS 750D				√	—	—	—	—	—	—	—
SONY	Alpha 7S	M3C-USB	M3C-Micro	USB	—	√	√	√	√	√	—	√
	Alpha 7R				—	√	√	√	√	√	—	√
	Alpha 6300				—	√	√	√	√	√	—	√
	Alpha 6400				—	√	√	√	√	√	√	√
	Alpha 6500				—	√	√	√	√	√	—	√
	Alpha 7S II				—	√	√	√	√	√	—	√
	Alpha 7R II				—	√	√	√	√	√	—	√
	Alpha 7 II				—	√	√	√	√	√	—	√
	Alpha 7 III				—	√	√	√	√	√	√	√
	Alpha 7R III				—	√	√	√	√	√	√	√
	DSC-RX100M3				—	√	√	√	√	√	—	√
	DSC-RX100M4				—	√	√	√	√	√	—	√
	DSC-RX100M5				—	√	√	√	√	√	—	√
SONY	Alpha 7S	MCSC-Multi	MCSC-Multi	Multi	√	√	—	—	—	√	—	—
	Alpha 7R				√	√	—	—	—	√	—	—
	Alpha 6300	MCSC-Multi/C	MCSC-Multi/C		√	√	—	—	—	√	—	√
	Alpha 6400				√	√	—	—	—	√	—	√
	Alpha 6500				√	√	—	—	—	√	—	√
	Alpha 7S II				√	√	—	—	—	√	—	√
	Alpha 7R II				√	√	—	—	—	√	—	√
	Alpha 7 II				√	√	—	—	—	√	—	√
	Alpha 7 III				√	√	—	—	—	√	—	√
	Alpha 7R III				√	√	—	—	—	√	—	√
	DSC-RX100M3				√	√	—	—	—	√	—	√
	DSC-RX100M4				√	√	—	—	—	√	—	√
	DSC-RX100M5				√	√	—	—	—	√	—	√
Panasonic	DMC-G7KGK	MCSC-Remote	MCSC-Remote	MCSC-Remote	√	√	—	—	—	√	—	—
	DMC-G85GK				√	√	—	—	—	√	—	—
	DMC-GH3				√	√	—	—	—	√	—	—
	Lumix GH4				√	√	—	—	—	√	—	—
	DC-S1GK-K				√	√	—	—	—	—	—	—
	Lumix GH5	M3C-USB	M3C-C	USB	√	√	√	√	√	√	√	√
	Lumix GH5s				√	√	√	√	√	√	√	—
Nikon	Z6	M3C-USB	M3C-C	USB	√	√	√	√	√	√	√	—
	Z7				√	√	√	√	√	√	√	—
	D850		M3C-Micro		√	√	√	√	√	√	√	—
FUJIFILM	X-T2	MCSC-C1	MCSC-C1	Fuji shutter	√	√	—	—	—	√	—	—
	X-T3				√	√	—	—	—	√	—	—
	X-T20				√	√	—	—	—	√	—	—
	X-T30				√	√	—	—	—	√	—	—
BMD	BMPCC 4K	M3C-USB	M3C-CP ①	USB	√	√	—	—	—	—	—	—
ZCAM	E2	M3C-LANC	M3C-LANC ①	LANC	—	√	—	—	—	√	—	—

Note: please refer to the official website for the latest camera control list.
The M3C-DP and M3C-LANC control cables are optional, you can purchase those cables from www.gudsen.com

Operation Steps:

a. Long press the center button to enter the menu, refer to the compatibility list to select the correct camera type.

b. Refer to the list to choose and connect the camera control cable. Connect the Mini-USB end of the control cable to the control port of AirCross 2. Connect the other end to the corresponding control port of the camera.
c. You can achieve recording by clicking the menu button one time and taking photos by clicking menu button twice after selecting the camera type and connecting the camera control cable.

Note:
1. Cameras equipped with Micro USB 3.0 interface, such as the Nikon D850, can be normally controlled by half plugging the M3C-Micro cable.

2. After plugging the camera control cable, please operate the camera according to the prompts on the camera screen, otherwise the camera control function may not work properly.

Motor Output

The payload of AirCross 2 is from 300g to 3200g. Different payload requires different motor power to achieve the best stability. There are three methods for adjusting the output of the motor:

Auto-tuning operation method:

a. Install the camera and adjust the balance
b. Unlock all motor locks
c. Turn on the stabilizer, long press the center button to enter the menu, select 'Gimbal' > 'Motor' > 'Power' > 'Auto-tune'
d. During the auto-tuning, the stabilizer will vibrate automatically to match the most suitable output value. Wait for about 5 seconds, the stabilizer stops shaking, and the auto-tuning completes.

camera >	motor >	switch	autotune
gimbal >	follow >	power >	level >
advanced >	operation >	filter >	custom >
general >			

Set the output gear:

Factory default presets 5 groups of motor output values, which are suitable for cameras of different weight levels.

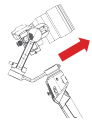
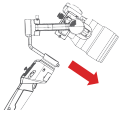
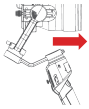
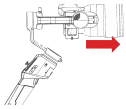
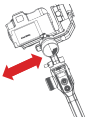
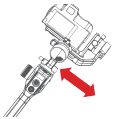
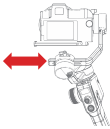
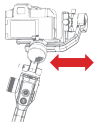
Customize the output value of each motor:

The users can customize the output value of each motor to reach more precise control of the motor output. The adjustment range is 0 to 100.

Note:
1. Under the camera lens combination of the limit, the auto-tuning function may not accurately calculate the appropriate output value. Please manually adjust the motor output according to the situation.
2. If the motor output is too low, the video is not stable enough; if the motor output is too high, it will cause high-frequency vibration of the stabilizer.
3. When the motor output is at the critical value, the stabilizer will not vibrate in the upright state, but it will vibrate in the forward or inverted state. Please reduce the motor output moderately.

FPV, Sport Gear Mode

When the follow function is enabled, the camera will follow the movement of the gimbal.
Users can enable the follow mode of each axis through dial buttons and turn the dial to adjust the following speed, which can be also enabled in the menu.

Follow Mode Switch	Example 1	Example 2
Enter the tilt follow		
Exit the tilt follow		
Enter the roll follow		
Exit the roll follow		

Note:

1. The AirCross 2 is in pan follow mode by default.
2. In addition to controlling the follow mode by the switches of each axis independently, follow modes can be also enabled by the trigger, please refer to Page9 'Button Functions' for more details.
3. The angle of the roll follow is 60°. For a larger following angle, please triple click the left button to enter the FPV mode to achieve 360° follow of three axes.
4. If faster following speed is required, please click the right button to enter the sport gear mode. (Currently only supports the pan axis)

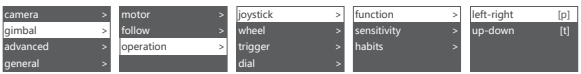
Manual Positioning

Manual positioning is used to quickly adjust the direction of the camera. When the function of manual positioning is enabled, the camera orientation can be adjusted by hand which will not automatically return to the initial position. The adjustment speed is faster than using the joystick or the following mode.
The manual positioning of the tilt and pan axis are enabled by default on the AirCross 2. Manual positioning of the roll axes can be enabled in the menu.

> ⚠ Note: The follow function has higher priority than manual positioning. When the follow function of any axis is on, the manual positioning function cannot be used. Only after the follow function is off, the manual positioning can be used normally.

Button Customization

Button Customization is used to specify the function, sensitivity and operation direction of each button according to the user's habits.
For Example:
By default, moving the joystick up and down controls the tilt axis rotation. It can be changed to control the roll or pan axis rotation by customizing;
By default, moving the joystick left and right controls the pan axis rotation. It can be changed to control the tilt or roll axis rotation by customizing.



The higher the sensitivity of the button, the more sensitive and faster the control is. If you change the 'custom' to -, the direction of operation will be opposite. For more button customization, please refer to Page11 Menu Description.

Inception Mode

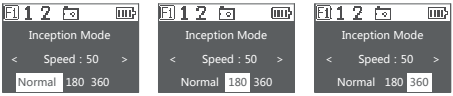
The Inception Mode is used to control the camera to rotate in the roll direction for shooting upside down and rotating footages. In the main interface, triple click the right button to enter the Inception Mode. After entering the Inception Mode, the camera lens is vertically up and each axis automatically follows.

Button Definition for Inception Mode:

- Turn the joystick left or right: the gimbal turns to left or right, when

release or turn to a specified angle, the gimbal stops.

- Turn the dial: adjust the rotation speed
- Press the left button on the dial once: the gimbal rotates to the left automatically.If the gimbal is rotating, press once to stop.
- Press right button on the dial once: the gimbal rotates to the right automatically.If the gimbal is rotating, press once to stop.
- Press up/down button on the dial: select rotationangle
- Normal: gimbal rotatesand does not stop automatically
- 180: the gimbal rotates 180° and stops automatically.
- 360: the gimbal rotates 360° and stops automatically.



Triple click the right button again to exit the Inception Mode.

Balance Check

The gimbal can check the balance status of the tilt and roll axis automatically and instruct users to make the correct adjustment.

a. Attach a tripod to the gimbal, turn on the gimbal and place it on a horizontal tabletop.

b. Enter the menu, select advanced>balance chk, the gimbal begins to check the balance adjustment.

c. When balance check is completed, the balance status of each axis will be displayed on the screen, direction guide will be also displayed if the adjustment is needed.

d. C means quick release plate, T means tilt axis, R means roll axis, the direction can be viewed at the corresponding position of the gimbal, then start the adjustment according to the screen prompts.

e. When adjustment is completed, press the right button and check it again until the gimbal is well balanced.

Note: Balance check can be only used with the tilt and roll axis, the pan axis balance can't be checked. When exit balance check, a notice that user need to check and balance pan axis manually will appear on the screen. Be sure that the motor lock has been released when using balance check.

Sensor Calibration

Gyroscope Calibration

Turn on the gimbal and leave it quietly for about 5 minutes, the gyroscope calibration is required when the gimbal drifts obviously. The steps are as follows:

a. Turn on the gimbal（long press the power button）
b. Turn off the motors（double press the power button/enter the menu, select gimbal>motor>switch, set 'off'）
c. Leave the AirCross 2 on the table and don't shake it or the desktop.
d. Enter the menu, select advanced>calibrate>Gyro cali and press the dial right button, wait about 5 seconds, when the '？' changes to 'OK', the calibration is completed.

Accelerometer Calibration

Turn on the gimbal and there is no obvious drift, the accelerometer calibration is required when the camera doesn't keep level. The steps are as follows:

a. Turn on the gimbal（long press the power button）
b. Turn off the motors（double press the power button/enter the menu, select gimbal>motor>switch, set 'off'）
c. Leave the L-shaped quick release plate on the horizontal table. Avoid the bottom screw and keep the AirCross 2 at static position. Do not shake the it or tilt it. (or mount the camera to refer to its level)
d. Enter the menu, select advanced>calibrate>Acc cali, and press the dial right button to enter calibration. Wait about 5 seconds, when the '？' changes to 'OK', the calibration is completed.

Note:
1.Please keep the gimbal stationary during the calibration, any shaking will cause the calibration to deviate. 2.Any drastic shaking might cause 'err' shown on the screen, please calibrate again. 3.Do not arbitrarily perform calibration operations while it is not necessary.

Offset

In case of emergency shooting, the camera cannot be leveled and there is no time for sensor calibration, the camera can be adjusted to a horizontal state by offset.

a. Turn on the gimbal and the camera level, check the offset of the tilt and yaw axis.
b. Enter the menu, select advanced>calibrate>offset, select an axis that is not horizontal, and then turn the dial to adjust the fine adjustment value of the axis until the camera completely keeps level.

Notes:
1.The offset can only adjust the angle of each axis within the range of about ±5°, if there is too much offset, the camera cannot be completely leveled. 2.Offset is only a temporary solution, after shooting, accelerometer calibration is still needed. 3.The parameters of the offset will not be saved and will become invalid after restart.

Language Switch

The AirCross 2 supports both Chinese and English. After turning on the gimbal, users can switch language in the menu.

User Configuration Management

The AirCross 2 can save 3 groups of user data like camera type, motor output, button operations and other parameters, so users can retrieve relevant parameters previously used and avoid trouble of setting parameters each time when changing the camera.

When configuration data is confusing, users can select "restore configuration" to clear all previous configuration data.

Extension

Extensible electronic accessories

AirCross 2 can assemble 2 iFocus M motors to control focus ring and zoom ring of the lens, please connect the CAN port of AirCross 2 and iFocus M via Multi-CAN cable, and set the smart wheel to 'F1' or 'F2' mode, then you can control iFocus M motor with the smart wheel AirCross 2 and slypod can be assembled together to form a 4-axis linkage photography system.

Manfrotto Quick Release System

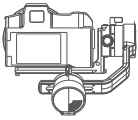
The AirCross 2 is equipped with a Manfrotto quick release baseplate and a plate which make it facile for users to change shooting equipment. When using the Manfrotto quick release system, please install the baseplate onto the longer end of the L-Bracket, so that the knob screw onto the baseplate is exposed. Then fix the camera onto the release plate.

Two Camera Mounting Directions

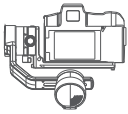
By default, the camera handle side is located near the tilt motor to allow an unobstructed access to the camera control ports; however under some special circumstances, the camera control ports side should be located near the tilt motor.

Rightward installation is required under the following situations:

a. The camera size is too wide like BMPCC.
b. A specialized camera cage is used.
c. The camera lens is too heavy to adjust the balance



Regular installation



Rightward installation

Rightward Installation steps:

a. Mount the L-Bracket at the bottom of the camera with the short end near the side of the lens;
b. Rotate the roll arm 180° until the tilt motor is located at the left side of the roll motor;
c. Mount the shorter end of the L-Bracket on the release baseplate.

⚠ Notes:

1. Some camera cages are equipped with ARCA standard release plate. These special cages can be mounted directly on the AirCross 2. gimbal without using the L-Bracket. 2.Some special cages have no Arca-Swiss standard quick release plate on the side ,The Arca-Swiss quick release plate can be mounted on the side of the camera rabbit cage with a 1/4" screw and then mounted to AirCross 2. 3.When camera is mounted in this way, the camera control port or HDMI port will be blocked.

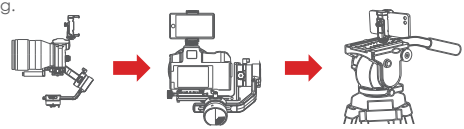
Smartphone and PC Connection

The AirCross 2 is equipped with BLUETOOTH 4.0 and can be connected with smartphones. Users can set parameters, shot time-lapse video, upgrade firmware and make other operations via the MOZA Master App. With a Type-C USB interface, the AirCross 2 is able to be connected to a computer. Users can set parameter, upgrade firmware and make other operations via the MOZA Master software.
Download Link: https://www.gudsen.com/moza-aircross-2

> ⚠ Note:
> 1. The MOZA Master supports iOS, Android, Windows and MacOS
> 2. Before using the MOZA Master on computer, please install the driver first, otherwise the computer cannot recognize the AirCross 2
> 3. Smart phones cannot directly pair with the AirCross 2 via Bluetooth, MOZA Master App must be used to connect your phone with the AirCross 2

Install the Phone Holder

Install the phone on top of the camera.Operate object tracking through App.
a. Fix the phone holder to the hot shoe connector on the top of the camera
b. Place the phone horizontally in the phone holder
c. Open the App.Enter the object tracking feature. Adjust the phone angle. Make the phone framing as consistent as possible with the camera framing.



In addition to being mounted on the top of the camera for object tracking, the phone holder can also be used to fasten the phone to tripod head for mimic motion control.

Firmware Upgrade

Upgrade via computer:
a.Turn off the gimbal.
b.Long press the center button, then press the power button with the other hand until the prompt 'BOOT MODE' appears on the screen.
c.Connect the gimbal to the computer with a USB Type-C cable.
d.The software will automatically identify the device and load the firmware. Press the 'Upgrade' button and wait for about 30s.
e.Restart the gimbal after the upgrade.

Upgrade via App:

a.Turn off the gimbal.

b.Long press the center button, then press the power button with the other hand until the prompt 'BOOT MODE' appears on the screen.

c.Start App, press Bluetooth to search for AirCross 2 device and connect.

d.The App will automatically enter the firmware upgrade interface, please wait for the firmware download to complete, press the 'upgrade' button and wait for about 5 minutes.

e.Restart the gimbal after the upgrade.

> ⚠ Note:
> Make sure the gimbal is fully charged and the computer or mobile phone network connection is normal during the upgrade.
> Do not disconnect the gimbal from power, USB cable or Bluetooth during the upgrade, otherwise the upgrade will fail.
> Please re-install the batteries and try to upgrade again until the upgrade is completed.

Specs

Specs		
Body weight (g)	Battery excluded	950
Payload (g)	Minimum	300
	Maximum	3200
Dimension (mm)	Storage dimension	335*225*90
Camera Tray Dimension (mm)	Release center to roll axis	105
	Release center to tilt axis	120
	Release center to the peak of tilt	80
Mechanical Endpoint Range(°)	Pan	360°continuous
	Roll	360°continuous
	Tilt	360°continuous
Operation Temperature (℃)	Lowest	0
	Highest	50
Operation Voltage	Standard	7.2
Operation Current	Dynamic (mA)	200
Battery	Model	M2S30QB
	Type	Li-ion
	Standard capacity (mAh)	3000
	Standard voltage (V)	7.2
	Charging time (H)	1.5
	Battery life (H)	12
Connections	Bluetooth	4.0 BLE
	2.4G	50m
	USB in	USB -C
	Camera control port	Mini USB 10PIN
	Accessory extension ports	Multi-CAN*3

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Note: The users manual is suitable for AirCross 2 V1.0.3 firmware.