

PARALLEL

WARNING

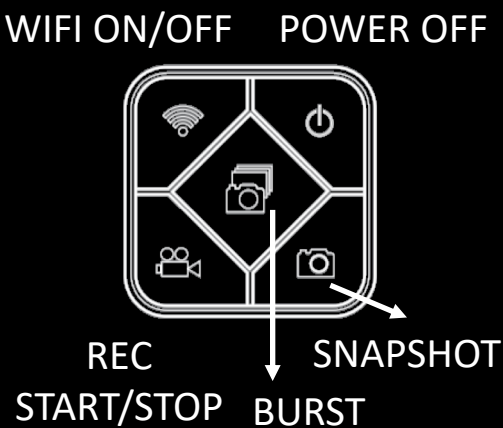
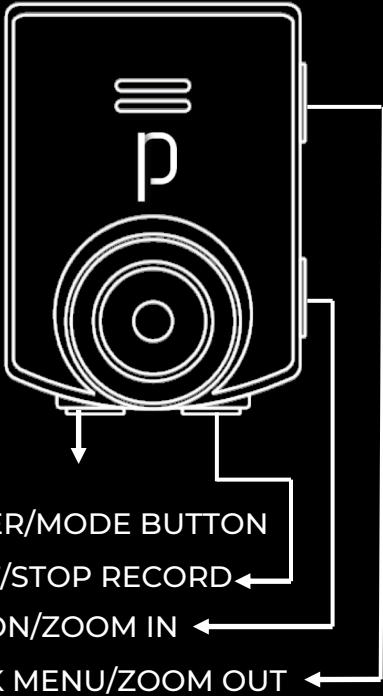


- This is a high-precision product. Do not drop.
- Do not expose the unit to strong magnetic fields, such as magnets, electrical motors, and machinery that use strong radio waves.
- Never leave the unit in high temperature areas or direct sunlight. Electronics and optics can be damaged under prolonged exposure to heat.
- Abide by all local laws when using your camera and related mounts and accessories, including all privacy laws, which may restrict recording in certain settings.
- Only use chargers marked: Output 5V 1A. If you do not know the voltage and current of your charger, use the included USB cable to charge the camera from your computer or laptop.

CONTENTS

1. QUICK START GUIDE
2. REMOTE AND APPLICATION
3. ABOUT YOUR CAMERA
4. VIDEO/PHOTO MODES
 1. CAMERA MODES
 2. SETTINGS
 3. CAMERA SPECIFICATIONS
5. POWERBANK OPERATING INSTRUCTIONS
6. FILE MANAGEMENT

QUICK START GUIDE



- Insert the MicroSD card with the label facing the LCD screen, until it clicks into place. To remove, just push it in gently and the card will eject. NOTE: To make sure you do not lose any data, only remove or insert your card while the camera is off.
- Press the Power/Mode button to turn your camera on. Indicator LEDs will light up, and the screen will display the PARALLEL logo. Default Mode is Video.
- Plug the camera (and surgical headlight, if included) into the USB ports on top of the POWERBANK and turn the POWERBANK ON. The battery indicator will flash (and the headlight can be powered on and the desired brightness setting selected using the headlight switch)
- Download the PARALLEL app (see instructions below)
- Press the WIFI button on the remote. The screen will display a blue WIFI logo, followed by the SSID and Password
- Connect your mobile device to the WIFI SSID. The blue light on the front of the camera will flash rapidly until connected and turn solid blue once connected
- Enter the App and centre the camera on your forehead using the streamed view, ensuring you focus accurately on your working area at your working distance. If using surgical loupes, this step should be performed sighting through the loupes.
- Once positioned accurately, press the WIFI button to turn OFF WIFI- turning WIFI OFF, will improve functionality, prolong battery life and reduce interference
- Recording can be stopped/started via the mobile application or using the remote as required

TIP

Format your memory card inside the camera before first use



REMOTE PAIRING



1. Turn the camera ON
2. Press the power button twice to enter the MENU
3. Select 'Remote Control'
4. Select 'On'
5. Follow the on-screen instructions
 - Press the Video and Photo buttons simultaneously to initiate pairing

NOTE: The remote can be used to turn the camera off, however, it will not turn the camera back on. It will remain paired when the camera is turned back on.

PARALLEL MOBILE APP

For detailed instructions on using the Parallel mobile application, open the Mobile App IFU, or scan the QR code below

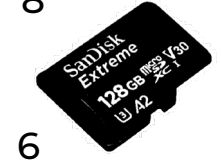


WHAT IS INCLUDED?

1



8



6

3



4



5



7



1. PARALLEL Clinical Camera
2. POWERBANK
3. Camera remote control
4. Magic arm and housing
5. 90degree Micro-USB cable
6. 128gb Micro SD
7. PARALLEL Camera headband
8. USB Charging Cable

ABOUT YOUR CAMERA

The PARALLEL Clinical Camera is a lightweight, head mounted camera that has been purposefully designed to capture point of view footage of your operative field during your surgical procedures. Upon purchase, its focal depth will be customised to your working distance (it is best to quote your surgical loupe focal depth, or alternatively physically measure your working distance) and it can be provided with or without an integrated headlight.

With adjustable recording resolution, built in image stabilisation, wireless remote control, 90 minutes of native battery life (extended to 6-8hours when coupled with the external USB powerbank) and at only 55g in weight, the PARALLEL Clinical Camera is the perfect way to capture crisp, clear, POV footage of your procedures.

The camera is mounted to a lightweight, durable, comfortable and sturdy headband with rear ratchet and adjustable head strap.

The 'magic arm' mounting allows for precise positioning across multiple axis with only a single point of adjustment.

Connection to the USB power bank allows for up to 8 hours of continuous FULL HD recording and complete mobility and freedom of movement with no tether cables.

Its focal depth has been optimized to your working distance to maintain focus throughout. For the purpose of surgical video capture, the following settings are recommended:

RESOLUTION

- 1080P 60fps

GYRO SENSOR

- ON

BITRATE

- HIGH

EV

- Dependent on surgical lighting. For more information see the IFU section on settings.

Should your working distance change or you find that your footage is not focused throughout your operative field, please contact PARALLEL TECHNOLOGIES at:
contact@paralleltechnologies.com.au

CAMERA MODES



VIDEO MODE: This is the standard video recording mode and default setting when the camera is turned on
PHOTO MODE: For capturing still images

CHANGING MODES AND ACCESSING THE MENU

1. With the camera turned on, press the Power/Mode button to cycle through the following: Video Mode - Photo Mode - Main Menu.
2. When in the Main Menu, cycle through the menu options using the Scrolling Keys on the side of the camera. To select an option, press the Shutter button.
3. Access the Setup Menu to view the full range of adjustable settings

SETTINGS RELEVANT IN VIDEO MODE

RESOLUTION

Changing to a higher resolution will have more detail in your video at the expense of file size. A lower resolution has a smaller file size but will have less details in your video. Conversely, a higher resolution will contain more detail. Applicable only in Video modes.



RECOMMENDED SETTING: 1080P/60FPS

LOOP RECORDING

Auto-saves your video in small sections, depending on selected length. It will record over your oldest video once there is no more space on your memory card.



RECOMMENDED SETTING: OFF

GYRO SENSOR

Enables active video-stabilization to eliminate shake.



RECOMMENDED SETTING: ON

SETTINGS RELEVANT - VIDEO MODE

AUDIO

Enable or disable audio recording with your video

VOLUME

Adjusts the microphone sensitivity for audio recording

TIME STAMP

When enabled, will display the date and time of your recording.

TV MODE

Options are NTSC or PAL. The color encoding and frame rate for video recording. Users in the US and Asia use NTSC (60Hz), most other countries is PAL (50Hz) and is the cameras default. Please check what you use in your country.

OSD MODE

On-Screen Display. When enabled, information and icons will be displayed on the screen indicating what features are activated, current mode, recording, elapsed time, number of photos left, battery status, etc.

VIDEO FILE FORMAT

Choose between .MOV or .MP4. If you are unsure which to use, choose MP4, as it is more commonly used.

BITRATE

Changes how much information is included in each frame of video. Higher bitrates give more definition to your video at the expense of file size.



RECOMMENDED SETTING: HIGH

EV

Exposure Value - Changing EV compensates for the amount of light that is allowed in. You can change this value to a lower setting if the scene is too bright, to compensate. Or higher, if it is too dark. A higher EV will take longer for a photo to be taken, and will add blur to videos as each frame takes longer to expose.



LIGHT VARIES IN DIFFERENT SURGICAL SETTINGS AND THE OPTIMAL EV WILL BE DEPENDENT ON YOUR SETTING. UNDER CONVENTIONAL SURGICAL LIGHTING WITH A SURGICAL HEADLIGHT ACCOMPANIED, AN EV OF +0.0 TO -1.0 IS RECOMMENDED

WHITE BALANCE

Adjusts the colour temperature of the snapshot/ recording to compensate for ambient lighting. OPTIONS: Auto, Daylight, Cloudy, Tungsten, Fluorescent

SETTINGS RELEVANT - PHOTO MODE

IMAGE SIZE

Changes the size of still photos that will be recorded. Of course, the bigger the size the more detailed your pictures are, at the expense of file size.

QUALITY

Refers to how much compression the output image will have. The higher the setting the bigger the file is, and will contain more detail.

SHARPNESS

Changing the sharpness setting will make your images either crisper or smoother, adjust according to your preference.

ISO

The image sensor's sensitivity to light. Choose Auto on your camera if you are not familiar with this setting. Depending on the lighting conditions, use the lowest ISO whenever possible, as higher settings will introduce more noise while pixel sensitivity also goes up. Adjust depending on your preference.

OTHER SETTINGS

DATE/TIME Make adjustments to the camera's system date and time.

KEYPAD TONE Beep sound when navigating and selecting items on camera.

LIGHTSET To change the number of LED status-indicator lights that are active.

OPTIONS: 3 is to activate ALL LIGHTS (Front, Top, and Back indicators), 2 is for Top and Back, 1 is for Back indicator only. 0 turns off all status-indicator lights.

SCREENSAVERS Options for how long the LCD display stays on.

FREQUENCY For adjusting the framerate frequency (50Hz or 60Hz). May be used to counter Flicker-effects of fluorescent lamps or jello-effect of fast moving objects.

ROTATE Flips the recording 180-degrees. Turn this on if mounting the camera in an upside-down position.

LOGO WATERMARK Adds the logo at the bottom of your recording.

LANGUAGE Options for system language.

WIFI SSID For changing the WiFi name of your camera.

WIFI PASSWORD For changing your camera's WiFi password.

DELETE Erases currently selected item, or all photos and videos.

FORMAT Completely erases everything on the memory card then sets it up as a new drive (in FAT32 File system).

DEFAULT SETTING Restores the camera unit to its factory setting including WiFi Password. Does not erase any data on the memory card.

VERSION Firmware update version.

SPECIFICATIONS

PHOTO RESOLUTIONS

16MP 4608*3456
14MP 4320*3240
12 MP 4032*3024
10MP 3648*2736
8MP 3264*2448
5MP 2592*1944
3MP 2048*1536
2MP HD 1920*1080
VGA 640*480
1.3MP 1280*960

SENSOR

NATIVE RESOLUTION IMAGE STABILISATION

MAX STORAGE

NATIVE BATTERY LIFE

MAX BITRATE

CHIPSET

SENSOR RESOLUTION

SCREEN TYPE

WIFI

WIRELESS REMOTE

BATTERY SIZE

WEIGHT

VIDEO FILE FORMAT

COMPRESSED VIDEO

VIDEO RESOLUTIONS

4K @ 24fps (2880*2160) interpolated
2K @ 20fps (2560*1440)
1080 FHD 1920*1080 @ 60fps
720P1280*720 60fps
720P1280*720 30fps
WVGA 848*480
VGA 640*480 VGA 848*480
VGA 640*480

Sony IMX206

16 MP

Yes

128gb

90 min

30mbps

Novatek 96660

16mp

LCD

Yes

Yes

900mAh detachable

55g

MOV/MP4

H.264

Language: English, French, German, Spanish, Italian, Portuguese, Simplified Chinese, Japanese, Russian, Korean, Romanian, Polish, Czech, Slovak, Hungarian, Danish

OPERATING INSTRUCTIONS: POWERBANK

1. Charging from external power

To charge the power bank, plug it into a power source such as an AC power adapter or any other USB power source (eg. computer) using the charging cable included. It can also be charged via the USB-C port (cable not included)

To turn the POWERBANK ON, press the power button once.

To turn the POWERBANK OFF, double press the power button

2. Powering your camera and headlight

Camera:

- Turn camera on using the power button
- Turn on the power bank by pressing the power button once
- THEN plug your camera in to the POWERBANK via the included micro-USB cable.

Alternatively:

- Plug the camera into the POWERBANK
- The POWERBANK will turn on automatically and the camera will enter 'charging mode' and will display a green charging symbol. To enter 'Camera' mode, press the power button once.

Battery Life

Under normal operation and recording Full HD 1080p @ 60fps, the PARALLEL Clinical Camera will operate for 10+ hours of continuous recording. Please note, if paired with a surgical headlight, this time will vary (dependent on light brightness setting).

Battery Status

| LED Indicator | 0-25% | 25-50% | 50-75% | 75-99% | 100% |
|---------------|----------|----------|----------|----------|------|
| 1st | Flashing | ON | ON | ON | ON |
| 2nd | OFF | Flashing | ON | ON | ON |
| 3rd | OFF | OFF | Flashing | ON | ON |
| 4th | OFF | OFF | OFF | Flashing | ON |



← POWER

BATTERY CAPACITY: 10 000mAh, 37WH—3.7V
INPUT: DC5V=2.1A
OUTPUT: DC5V=2.1A