GHOST N2 QUICK GUIDE

Thank you for purchasing the Drift GHOST N2

CUSTOMER SUPPORT
Download the full manual and check our official website for firmware updates, customer support, and info on all of our products.
https://driftinnovation.com/

If you have any suggestions, comments or concerns; please contact our customer support team at:
sales@driftinnovation.com

WARRANTY
Warranty does not apply if the product is damaged due to physical abuse, mishandling, accident, fire, frostbite, water damage, negligence or failure to follow the supplied operating instructions. For more information on warranty, see:
https://driftinnovation.com/warranty

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1.   Product Specification:

Recording Resolution
4K(4096*2160   17:9) :   24/25FPS
4KUHD(3840*2160, 16:9): 24/25/30FPS
2.7K(2704*1520, 16:9):   25/30/50FPS
1080P(1920*1080,16:9):   24/25/30/50/60/100/120FPS
720P(1280*720, 16:9):   25/30/50/60/200/240FPS
WVGA(854*480, 16:9)   25/30FPS

Livestream Resolution
1080P(1920*1080,16:9):   30/60FPS
720P(1280*720, 16:9):   30/60FPS
WVGA(854*480, 16:9):   30FPS

Livestream bitrate：adjustable，8Mbps maximum

Livestream protocol：   RTSP, RTMP, H.264
Mic：   Internal and External
USB ：   Mini USB
Size：   43（W）* 82.2（L）* 31.4（H）mm
Weight：140g

2.   Package Contents

Ghost 4K+ Camera
Image Transmission Module

Accessories bag
Antenna
Power/Audio 2-in-1 Cable
Mini USB Cable

3.   Installing the Image Transmission Module

1. Remove the original battery module from your Ghost 4K+ camera.
2. Place the Image Transmission Module on the camera body, ensuring that the module's 30pin connector is above the camera's female connector, press down on both ends simultaneously till the module clicks into place.
3. Install the Antenna on the module, now your Ghost N2 is ready for use.

Reminder: when using the Ghost N2, please supply power on the USB port through the Power/Audio 2-in-1 Cable, since the camera could consume 1.5A current in peak period, camera may not work properly if the 2-in-1 cable (with external power) not applied.

4.   About your camera

Power On/Off

Connect your Ghost N2 with External Power through the Power/Audio 2-in-1 cable, the camera will be automatically powered on, remove the external power from camera, it will automatically power off.

Mode Navigation

Press ◄🔊 button to toggle between Video mode and Settings mode.

Settings mode:

(Blue LED)   In this mode you can setup your livestreaming or HD record parameters. Press ⬍ to scroll down through the menu options, or press and hold ⬍ to navigate up. Use ◄🔊 to change options for the highlighted setting. At any time, press the ⏻▶ button to return to Video mode.

HD Record	On/Off
Field Of View	140/115/90
Exposure	0/1/2/-1/-2
Bitrate	High/Middle/Low
Filters	Normal/Vivid/Low Light
ISO Sensitivity	Auto/100/200/400/800
Video Stabilization	On/Off
Microphone	Front/Rear
Microphone Sensitivity	0/1/2/3/4/5
Speaker Volume	Off/Low/Med/High
LED Indicator	On/Off
Indicator Timer	Off/5s/10s/20s/1m
Date	YY-MM-DD
Date Stamp	On/Off
Camera off	Never/2m/5m/10m/20m
Language	EN/CN/FR/GE/IT/SP
Reset Settings	Yes/No
Format SD Card	Yes/No
Serial Number	xxxxxx
Firmware Version	x.x.x.x

5.   Features Overview

HD Record mode

In the menu, set HD video as On from your camera's settings menu, your camera is mainly for recording, while the stream video will only be used for preview (resolution fixed as 480P), you can control the camera to record by the physical Record button on cam, or through Drift Link App remotely, in this settings, camera can record up to 4K resolution.

Live stream mode

In the menu, set HD video as Off from your camera's settings menu, your camera will be in Livestream mode, by setting to this mode, you can remotely setup various livestream resolution, however, you can not to do local recording in this mode.

Connect to the network

    To connect your camera into a network for livestream or remote control, you need to manually put a script file on the root directory of Micro SD card.

    Create a file named as **fmcom.conf** on your computer, using Notepad to open it and write in below contents, please change the value of router_ssid, router_password according to yours, once finished, save it and copy to the root directory of camera's memory card, please note you can setup the stream resolution/bitrate according to your network quality, options of resolutions include 1080P,720P, bitrate is recommended between 1000000 – 8000000.

Reminder: please make sure the suffix of the script file is kept as original .conf, if you saved it as .txt file, it wouldn't work as expected.

Example contents in the script file for local network connection (using RTSP protocol)
```
router_ssid=RD-TEST_5G
router_password=foream123
stream_resolution=1080P
stream_bitrate=4000000
stream_framerate=30
stream_type=rtsp
```

Example contents in the script file for livestreaming to cloud (using RTMP protocol), in order to stream to your platform, you need to acquire the RTMP URL and setup in the line of "rtmp_url=".

```
router_ssid= RD-TEST_5G
router_password= foream123
stream_resolution=1080P
```

```
stream_gop=30
stream_bitrate=4000000
stream_framerate=30
stream_audio=1
rtmp_url=rtmp://xxxxxxx
rtmp_cbr=0
```

once the script file is saved on the memory card, remove the camera from computer, plug in the external power on the USB port through the 2-in-1 Power/Audio cable, the camera will be powered on, and connect to the router automatically. once it's connected, the Wi-Fi LED (above real screen) will be solid green, and you can see the IP address (the fourth 8-bit field) on the rear screen as the following.
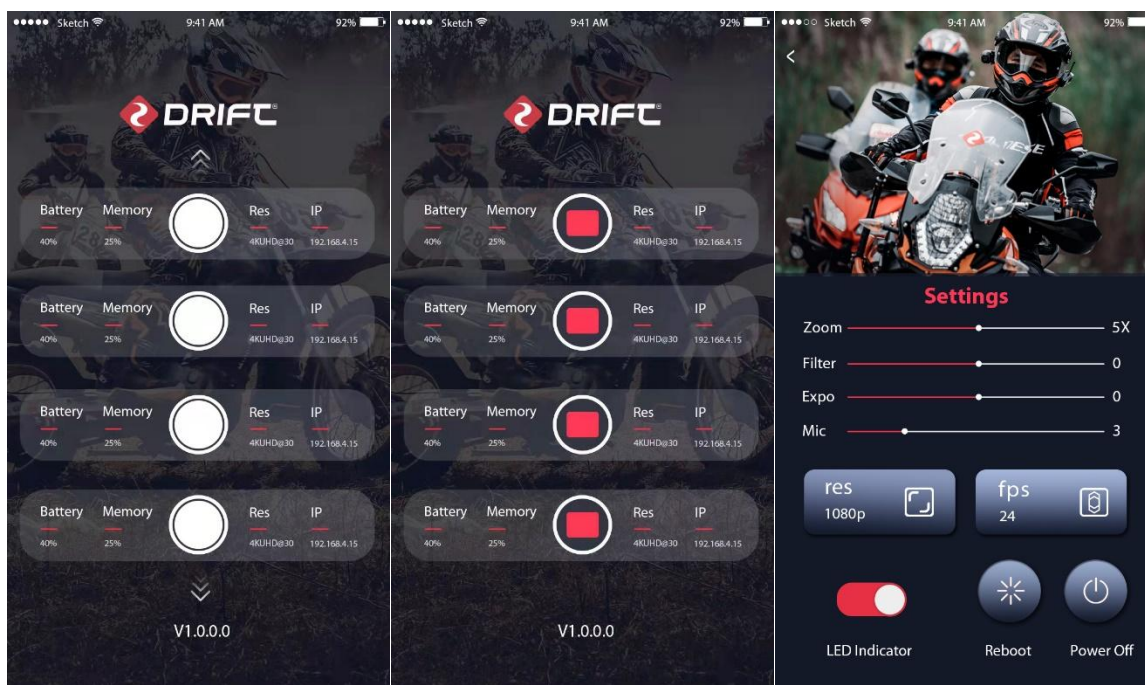
6. Drift Link App

From your mobile's browser, scan below QR code to download and install Drift Link App
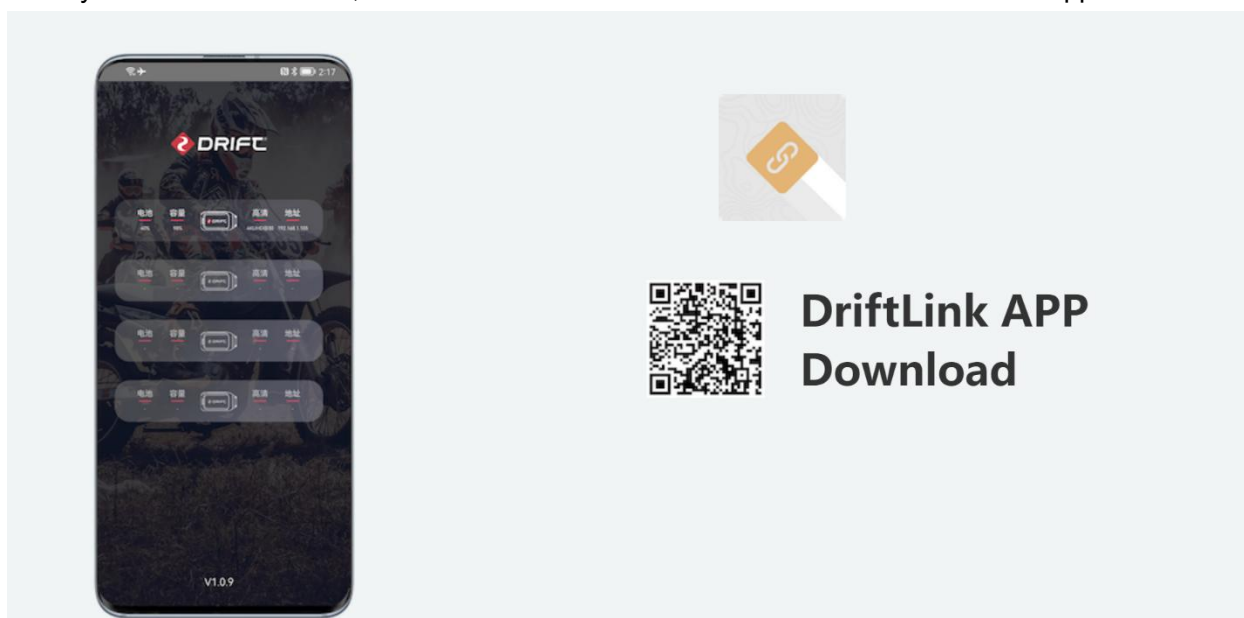
Once installed, conenct your mobile to the same network as what Ghost N2 connected, turn on the App, you should see the camera appeared on the list, marked with a Red block, you can also see the basic info of the camera including IP address, resolution, battery, and remaining space on the memory card, tap on the camera box, you will be brought to to the preview page, from where you can control the camera remotely, e.g. zoom in/out, adjust Filter, Exposure and Mic sensitivity.

Drift Link is a tool in order to manipulate the camera remotely, if you need to do livestream, you can use your computer to access the network stream by input the URL as : rtsp://**IP address**/live, where IP address is your cam's IP, for example, if your camera is with this address:192.168.5.22, you can access the camera live feed by : rtsp://192.168.5.22/live.

Once the live feed is on your computer, you can broadcast it to the Internet through your PC tool.

Connecting to a PC

1. Connect the camera using the USB cable (provided); the camera screen will show a USB icon.
2. The camera's folder may open automatically; if not, open using My Computer.
3. The camera should be recognised as a removable disk; double-click to open.
4. Open the DCIM folder to access your files.

Connecting to a Mac

1. Connect the camera using the USB cable (provided); the camera screen will show a USB icon.
2. The camera's folder may open automatically; if not, open using Finder.
3. The camera should be recognised as an external device; double-click to open.
4. Open the DCIM folder to access your files.

7. How to access real-time video from your camera (for developers)

1. Find the default router gateway of your network: From a computer in the same network, click "Start", type "cmd" and press "Enter" to open the Command Prompt window. Type "ipconfig" and press "Enter" and you should find the Default Gateway, for example   192.168.4.1.
2. Look at your camera's rear screen, you should see something like rtsp xxx. The 3 digits following "rtsp" are the last 8 bits of your IP address, for example, 148. Now you have your camera's IP address as 192.168.4.148.

Lots of PC software can play live video through an RTSP address, such as VLC or Blue Iris. Take VLC as example.

1) Open VLC on your PC, navigate to media / open network streaming, input below texts "rtsp://192.168.4.148/live" in the URL dialog , where "192.168.4.148" is your camera's IP address.
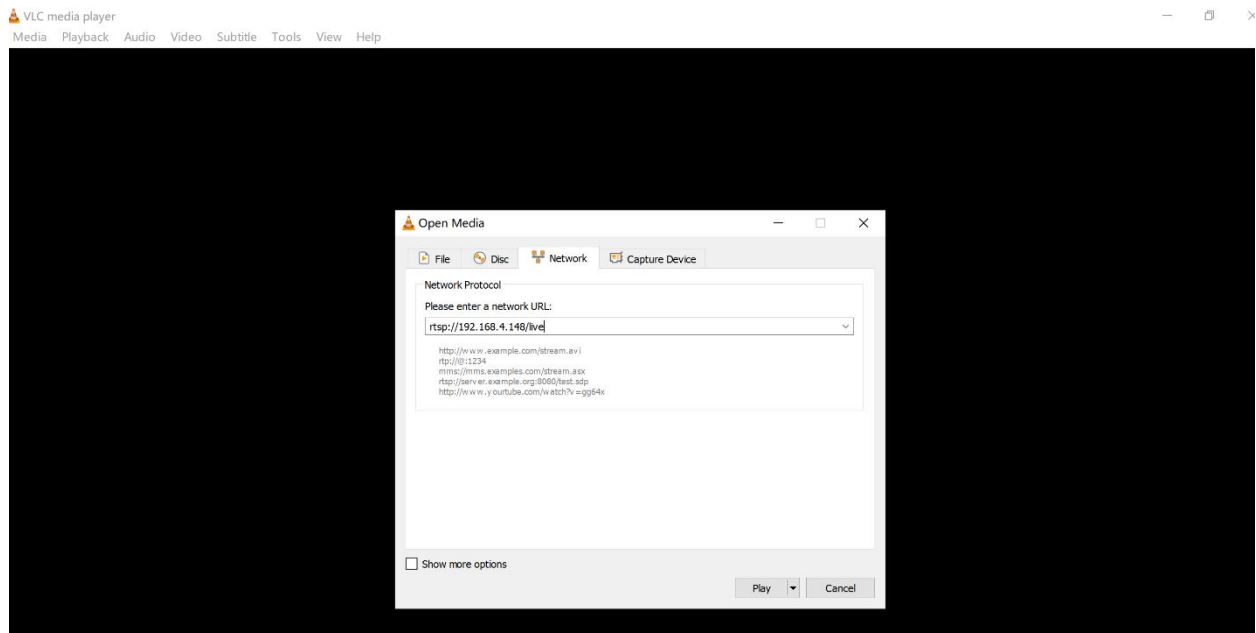
2) Click on the "Play" button, you should see the live video from your camera instantly.

8. Remote Control & Setup (for developers)

With camera's IP address, you can use HTTP commands to configure or manipulate your camera remotely from either a computer or mobile device.

Command list:

1. Zoom in/out

http://192.168.4.148/cgi-bin/foream_remote_control?dzoom=1

where the value set to dzoom can be from 1 to 10.

2. Setup RTMP live streaming

http://192.168.4.148/cgi-bin/foream_remote_control?start_rtmp_with_param=192.168.3.133:1935/live/5&stream_res=720P&stream_bitrate=2000000

where 192.168.3.133:1935/live/5 stands for the URL of your RTMP server, here rtmp:// is omitted. You can also setup the livestream resolution & bitrate with this command.

Note：in case the RTMP URL contains 【&】 character, please replace it with 【***】 .

3. Stop live stream

http://192.168.4.148/cgi-bin/foream_remote_control?stop_rtmp

4. Setup Livestream Resolution

http://192.168.4.148/cgi-bin/foream_remote_control?stream_res=0

where the value of stream_res can be:
3(1080P), 4(720P), 5(WVGA).

5. Setup Livestream Bitrate

http://192.168.4.148/cgi-bin/foream_remote_control?stream_bitrate=1000000

where stream bitrate value is in Byte, 1000000 means 1Mbyte, 8Mbps.

6. Setup Livestream Framerate

http://192.168.4.148/cgi-bin/foream_remote_control?stream_framerate=30

1080P（1920 * 1080,16：9）：	30 / 60FPS
720P（1280 * 720，16：9）：	30 / 60FPS
WVGA（854 * 480，16：9）	30 / 60FPS

7. Start Recording

http://192.168.4.148/cgi-bin/foream_remote_control?start_record

8. Stop Recording
http://192.168.4.148/cgi-bin/foream_remote_control?stop_record

9. Reset Setting
http://192.168.4.148/cgi-bin/foream_remote_control?reset_setting

10. Reboot your Camera
http://192.168.4.148/cgi-bin/foream_remote_control?reboot

11. Power off your camera
http://192.168.4.148/cgi-bin/foream_remote_control?power_off

12. Setup Camera LED Indicator
http://192.168.4.148/cgi-bin/foream_remote_control?led=1
where the value: 1 stands for On, 0 stands for Off

13. Setup Camera Exposure Value
http://192.168.4.148/cgi-bin/foream_remote_control?exposure=1
where the value: 0 stands for 0, 1 stands for 1, 2 stands for 2, 3 stands for -1, 4 stands for -2.

14. Set Camera Filter
http://192.168.4.148/cgi-bin/foream_remote_control?filter=1
where the value: 0 stands for Normal, 1 stands for Vivid and 2 stands for Low Light

15. Setup Camera Mic Sensitivity
http://192.168.4.148/cgi-bin/foream_remote_control?mic_sensitivity=1
where the value should be 0 to 5, 0 stands for Mic Off, 1 to 5 stands for each Mic level, from low to high.

16. Setup camera time
http://192.168.4.148/cgi-bin/foream_remote_control?set_time=2021-03-01_09:35:00
setup the camera time to : 2021/3/1 9：35.

17. Setup Video Recording Resolution
http://192.168.4.148/cgi-bin/foream_remote_control?video_res=0
   where the value of video_res can be:
   0(4K), 1(4KUHD), 2(27K), 3(1080P), 4(720P),5(WVGA).

18. Setup Video Bitrate
http://192.168.4.148/cgi-bin/foream_remote_control?video_bitrate=1000000

where video bitrate value is in Byte, 1000000 means 1Mbyte, 8Mbps.

19. Setup Video Recording Framerate

 http://192.168.4.148/cgi-bin/foream_remote_control?video_framerate=30

4K（4096 * 2160 17：9）：	24 / 25FPS
4KUHD（3840 * 2160，16：9）：	24 / 25 / 30FPS
2.7K（2704 * 1520，16：9）：	24 / 25 / 30 /50 FPS
1080P（1920 * 1080,16：9）：	24 / 25 / 30 / 50 / 60 / 100 / 120FPS
720P（1280 * 720，16：9）：	25 / 30 / 50 / 60FPS
WVGA（854 * 480，16：9）	25 / 30FPS .

20 Setup Video Bitrate Quality

 http://192.168.4.148/cgi-bin/foream_remote_control?video_quality=0

where video_quality means the bitrate level of video file. N1/N2 doesn't support this API.

where the value: 0 stands for SFine (High bitrate) , 1 stands for Fine (Medium bitrate) and 2 stands for Normal (Low bitrate).

21 Get camera current status

http://192.168.4.148/cgi-bin/foream_remote_control?get_camera_status

return camera status in XML, for example:

```xml
<?xml version="1.0" encoding="utf-8"?>
<Response>
<Status>1</Status>
<Cam_Status>
<camera_status>
<capture_mode>0</capture_mode>
<battery>1</battery>
<sd_free>31150080</sd_free>
<sd_total>31154688</sd_total>
<rec_time>0</rec_time>
<fw_ver>8022</fw_ver>
<model_name>N1</model_name>
</camera_status>
<video_setting>
<res>2</res>
<framerate>30</framerate>
<bitrate>2000000</bitrate>
<quality>2</quality>
```

```
</video_setting>
<stream_setting>
<stream_res>2</stream_res>
<stream_framerate>30</stream_framerate>
<stream_bitrate>2000000</stream_bitrate>
</stream_setting>
<camera_setting>
<dzoom>0</dzoom>
<filter>0</filter>
<exposure>0</exposure>
<mic>3</mic>
<led>1</led>
<hd_record>0</hd_record>
</camera_setting>
</Cam_Status>
</Response>
```

Where the item :

<capture_mode>: 0 stands for video mode , 1 stands for photo mode, 2 stands for timelapse mode, 3 stands for burst mode;

N1/N2 only support video and photo mode.

<battery> means the remaining battery in percentage

<sd_free> means the free size of TF card capacity in KB, if the free size is less than 400Mbps, it will prompt card full and the recording is not allowed.

<sd_total> means the total size of TF card capacity in KB.

<rec_time>: 0 means camera is in idle mode, otherwise it stands for current recording time.

<fw_ver> the FW verson.

<model_name> the model name of camera

<hd_record>: 0 means it's now in live streaming mode， 1 means it's now in HD recording mode.

22 list SD media folders

http://192.168.4.148/cgi-bin/foream_remote_control?list_folders=/tmp/SD0/DCIM

list all the media folders (DCIM) in the camera SD card

```
<?xml version="1.0" encoding="utf-8"?>
<Response>
<Folders>
{"Path":"100MEDIA"},
{"Path":"101MEDIA"},
{"Path":"102MEDIA"},
</Folders>
<Amount>3</Amount>
```

</Response>

23 list SD media files

http://192.168.4.148/cgi-bin/foream_remote_control?list_files=/tmp/SD0/DCIM

list all the media files on SD card.

```
<?xml version="1.0" encoding="utf-8"?>
<Response>
<Files>
{"Path":"100MEDIA/VID00001.MP4","CreateTime":"Nov         03         11:38:00
2021","Size":112767067,"Thumb":0},
{"Path":"100MEDIA/VID00002.MP4","CreateTime":"Nov         03         13:32:08
2021","Size":1686118,"Thumb":0},
{"Path":"100MEDIA/VID00003.MP4","CreateTime":"Nov         03         13:35:52
2021","Size":146324100,"Thumb":0},
</Files>
<Amount>3</Amount>
</Response>
```

Note:

If you want to preview or download the media file, please use the following URL:

http://192.168.4.148/DCIM/100MEDIA/VID00001.MP4

http://192.168.4.148/DCIM/100MEDIA/VID00002.MP4

9.   Auto detection in a network (for developers)

Once a Ghost N2 connects into a network, it will broadcast a UDP package to present itself to devices (mobile or PC) in the same network. The package contains the necessary info for the device

to establish the connection. Once connected, the device can issue http command to Drift camera for further actions, the following are the details of how the connection can be established.

1. Broadcast package (UDP) format

   The broadcast package (from camera) is in this format
   5|cam_serial|cam_model||cam_status

   Definition:
   1）5 - fixed value to specify the broadcast type
   2）cam_Serial － Camera Serial Number
   3）cam_Model － Camera Model
   4）cam_Status - Camera Status, the default is n, indicating normal status.

   Note: camera's IP address is embedded in the header of the UDP package which can be extracted by the receiver.

2. Acquire real-time video feed from camera
   once the connection is established, an application can use a media player (such as VLC, ijk or vitamio player) to acquire real-time video feed. The command format is the following
   RTSP:
   rtsp://Camera IP/live
   TCP:
   tcp://Camera IP:8001

3. Camera control
   Once the connection is established, the application can manipulate camera with the commands described in above section.