



RINNOVISION

A VISION WITHOUT LIMITS

RV-MAX 360

USER MANUAL

Version 1.0

PRECAUTIONS AND SAFETY

General Precautions

Do not operate equipment in hazardous or explosive atmospheres, such as in the presence of flammable liquids, gases or dust. Equipment can create sparks which may ignite the dust or fumes.



Warning! Risk Group 2 product according to IEC 62471. The RV-MAX 360 generates intense lighting. Possible hazardous optical radiation emitted from this product. Do not stare at operating lamp. May be harmful to the eye.

The RV-MAX 360 is not intended for continuous use. Allow unit to cool between uses. The product enclosure is designed to be used as a radiator to dissipate the heat generated by the powerful LED lighting. It is normal that the enclosure becomes warm. If after prolonged use, the enclosure becomes hot and unbearable to hold with bare hands, stop using the product and let it cool until the enclosure temperature drops. Read and understand the supplied instructions before operating equipment.

Do not overreach over the manhole. Keep proper footing and balance at all times. Keep children and by-standers away while operating equipment.

If used with a telescopic pole, disconnect the RV-MAX 360 from the pole before storage or transportation. Store in supplied protective case or inside tripod foam lined legs.

Do not leave under the sun for a long time. If warm, let cool down. It will cool faster under shade.

Use the appropriate safety equipment and clothing - goggles, gloves, boots, masks/respirators, traffic signs, and cones - when working in confined spaces. Follow all appropriate laws, regulations and guidelines for working in confined spaces.

Do not drop, disassemble, open, crush, bend, deform, puncture, shred, microwave, incinerate, or paint the RV-MAX 360. Do not insert foreign objects into any opening on the RV-MAX 360.

Battery Maintenance

Only charge indoors in a dry environment at ambient temperature between 0°C and 35°C.

- Charge product for 8 hours before first use
- To prevent personal injury or damage to equipment, disconnect all power cables when operating and always cover the charge connector with the provided rubber cap.
- Contains Li-ion batteries. Do not put in the garbage disposal. Dispose of the product in an electronic waste recycling facility accordingly to local laws
- Do not store more than 1 year without recharge
- Do not store more than 1 month with battery completely discharged.
- Optimal storage environment are temperature between 0 and 20 deg.C, low humidity, no corrosive gas atmosphere, and state of charge between 40-60%
- Discharge batteries to less than 30% before shipping product

Equipment Maintenance

Keep equipment and camera lenses clean and free of grease. Do not use ammoniac based cleaners like Windex. Use lukewarm water and mild soap only.

Check for missing parts, breakage of parts, traces of humidity inside the transparent housing, and any other condition that may affect the equipment's operation. Do not use the RV-MAX 360 if it has been damaged—for example, if cracked, punctured, or harmed by water. If damaged, have the equipment repaired before use. Disassembling or puncturing the integrated battery can cause an explosion or fire.

Use only accessories and charger that are recommended by the manufacturer.

Have your equipment serviced by a manufacturer authorized service provider using only identical replacement parts.

Do not submerge in water for prolonged periods.

The RV-MAX 360 has a Ingress Protection Rating of IP68 (maximum water immersion depth of 2 meters (6 feet) up to 60 minutes).

- Water resistance are not permanent conditions and resistance might decrease as a result of normal wear.
- Do not immerse in water warmer than 45 °C (115 F)
- Make sure the charge connector interior surfaces are completely dry before connecting charging cable

SPECIFICATIONS

GENERAL SPECIFICATIONS

- High-Resolution 360° virtual reality camera
- Generates 4K MP4 video files
- 6600 lumens light
- 6 Light modes
- Extra spotlight for side pipe inspection
- Ruggedized design
- IP68 water and dust ingress protection
- Universal threaded adapter to attach to extendable pole or tripod
- Integrated GPS, Wifi, and LTE networking

DETAILED SPECIFICATIONS

- Model Number: RVMAX360
- Charge Input Rating: Maximum 12.6VDC / 4A / 51W
- Power consumption: Maximum 50W
- Overall Dimensions: 390mm (Length) x 143mm (Diameter)
- Mass: 3.18 kg
- Operating Temperature: -20°C to +40°C
- Storage Temperature: -20°C to +50°C
- Ingress Protection rating: IP68 at 2 meter (6 feet) depth for 1 minute
- Brightness: 6600 lumens
- Camera resolution: 4K with the 2 lenses combined over 360 Degree
- Video File format: 360° MP4 file
- Audio: Dual microphones
- Battery operating time: Up to 6 hours depending on lighting mode
- Battery charging time: 4 hours
- Wi-Fi: 2.4G/5GHz, 802.11 a/b/g/n/ac
- Positioning: GPS, GNSS
- Mobile Telecommunication: 4G LTE
- Data Storage: 256 Gb
- RoHS Compliant
- Warranty: 1 year

INCLUDED ACCESSORIES

MICROSOFT SURFACE PRO TABLET

- 13" touch screen
- Preconfigured, "ready to go" with the RinnoView software
- Powerful enough to run most NASSCO software platforms.

MAINTENANCE ACCESSORIES

- Microfiber cleaning cloth
- Wet cleaning wipes
- USB key

POWER CHARGERS

- RV-MAX 360 charger
- Tablet charger

POWER INVERTER

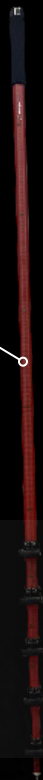
- Allows charging using your vehicle's standard 12V outlet
- 300W



EXTENDABLE POLE

- Maximum length: 29.5 ft. (extensions available)
- 3/8-16 threaded end
- Fiberglass material
- Electrically and thermally insulated
- Anti-rotation oval shape

WARNING: While the latches are closed, pull on both ends of the pole to confirm that the sections are not slipping. If any section slips, open the latch and tighten the thumbscrew.



TRIPOD

- Maximum length: 30 m / 100 ft.
- Compatible with 3/8-16 threaded end
- Aluminum

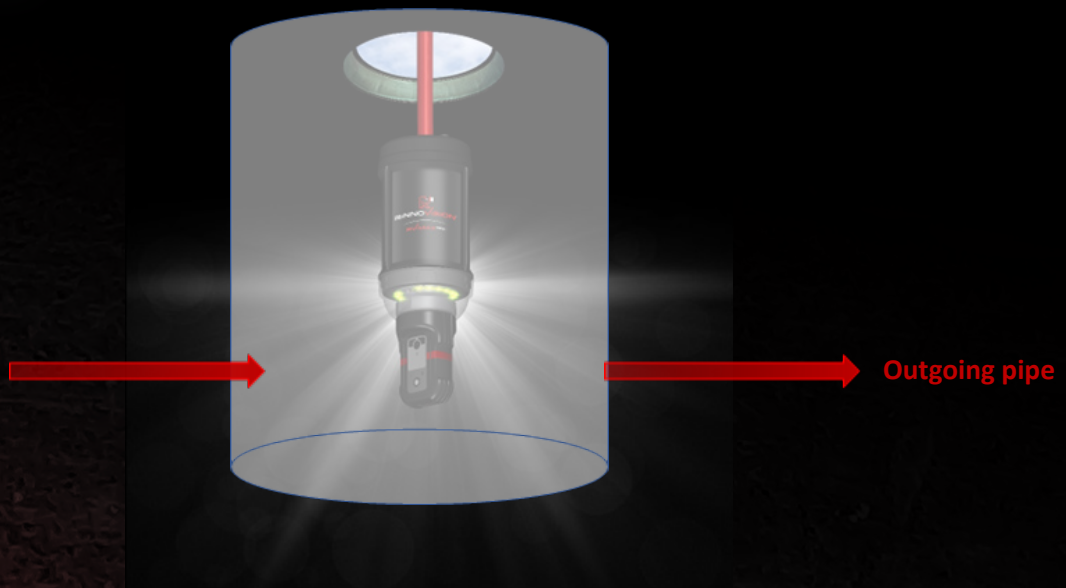


WARNING: Hold the reel knob handle before deactivating the brake.

RV-MAX 360 HOW TO USE

INITIAL SETUP

After checking and securing the job site, open the manhole cover and note the outgoing pipe direction. The outgoing pipe should ideally be aligned with the direction of the RV-MAX 360's sidepipe spotlight.



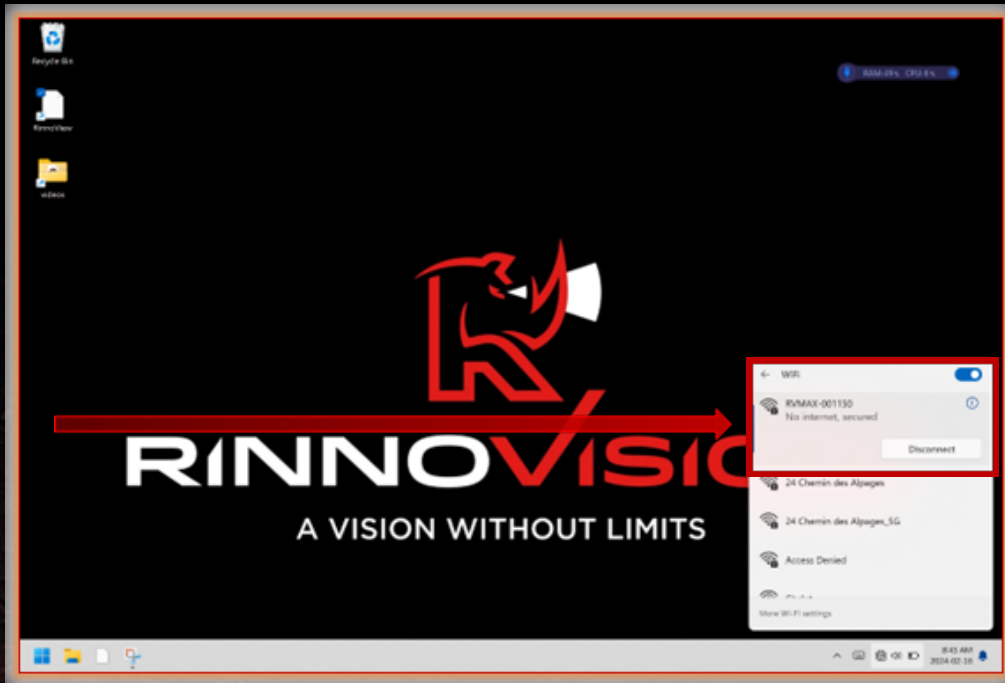
POWER UP

Power up the RV-MAX 360 by **pressing the power button on the top cap for 3 seconds**. This is usually a good time to screw the RV-MAX 360 on the extendable pole or tripod if this wasn't done already.

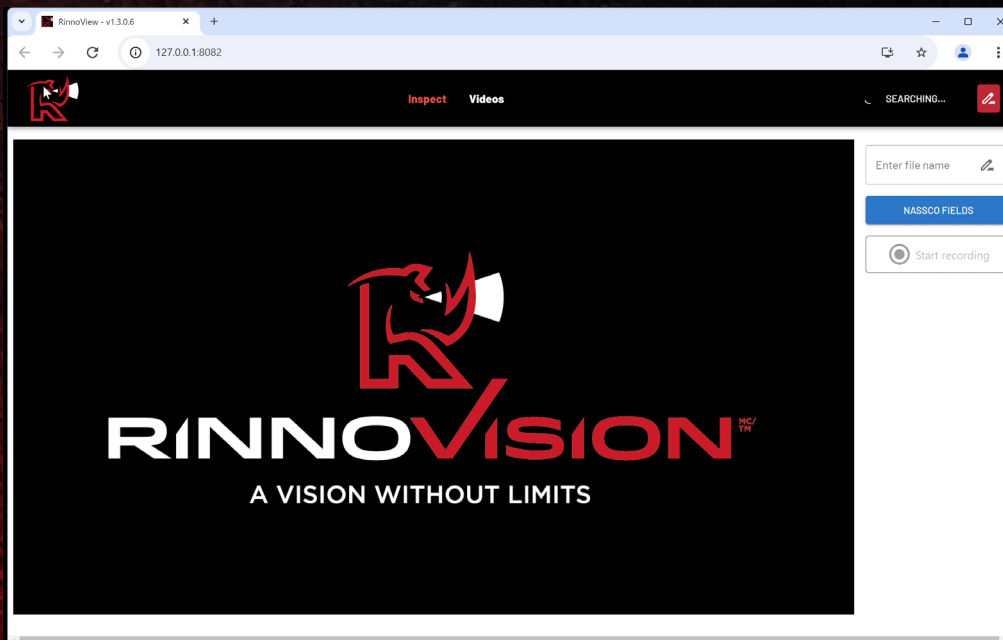


CONNECTING THE TABLET TO THE RV-MAX 360

(Use password "3600" to unlock the tablet) Make sure that the tablet is correctly **connected to the RV-MAX 360's WiFi hotspot** (it will have the same name as the unit's serial number).



Open the RinnoView software and wait for the RV-MAX 360 to connect to it.

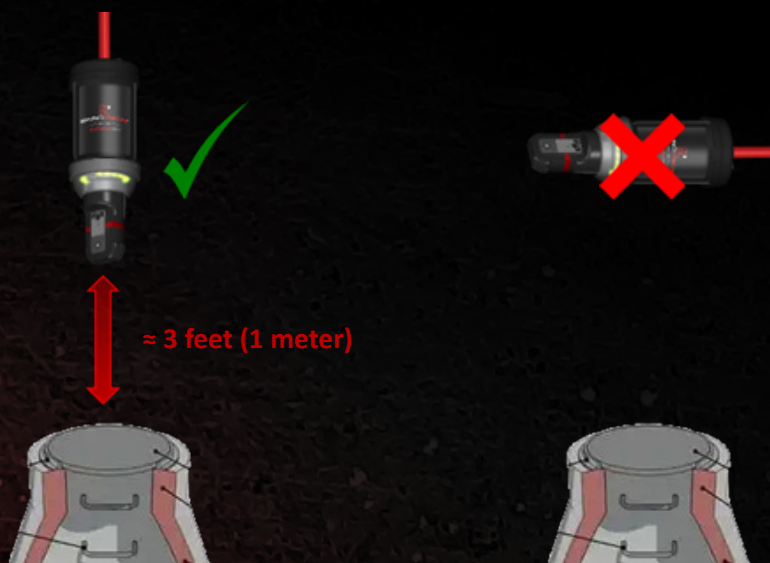


MANHOLE INSPECTION

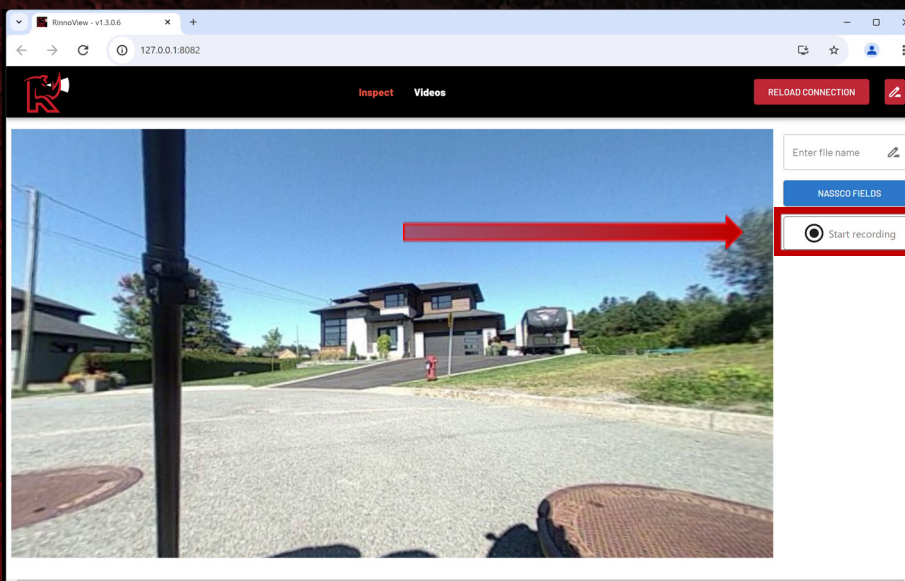
Clean up the RV-MAX 360 lenses using the dry microfiber cloth or the wet wipes provided with the RV-MAX 360.



Position the RV-MAX 360 so that its axis is parallel to the manhole AND hold it about 3 feet (1 meter) above the manhole rim.



(optional) In the RinnoView application, type in a name for the video to be generated & (optional) click on the NASSCO Fields button and enter your NASSCO fields.



RV-MAX 360

USER MANUAL

Turn on the RV-MAX 360 light and select the optimal light mode.

Select light mode

6" (150mm) - 2' (600mm) diameter: 50%/50%+ modes

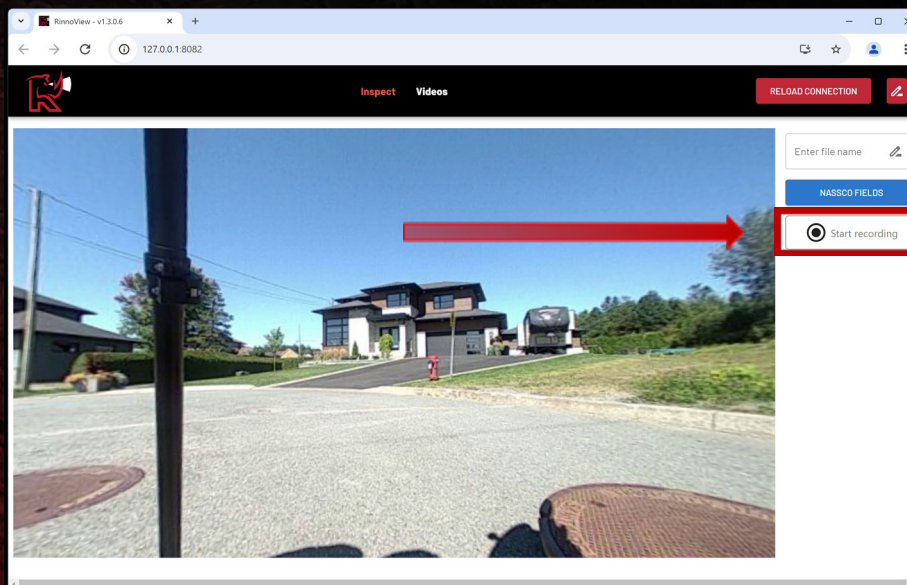
2' (600mm)-15' (4500mm) diameter: 100%/100%+ modes

15' (4500mm) + diameter: 200%/200%+ modes

The « + » modes have the extra spotlight which is useful if you want to inspect the side pipes and/or mainlines



Click on the **Start Recording** button.



ONCE THE VIDEO HAS BEEN STARTED

(only if using the RV-MAX 360 with the tripod) Ensure that you are holding the reel handle before releasing the tripod brake-lever to ensure the RV-MAX 360 does not fall inside the manhole.



Firmly hold the handle...

...before releasing the brake lever.

Place the RV-MAX 360's spotlight facing the 12:00 (opposing the outgoing pipe) position and begin lowering it into the manhole by extending each section of the extendable pole, taking care to center it as much as possible in the manhole.

Lower the RV-MAX 360 to the bottom of the manhole at a maximum speed of 10 feet (3 meters) per minute.

(only if using the RV-MAX 360 with the extendable pole) Once the RV-MAX 360 is at the height of the side pipes at the bottom of the manhole (camera height can be identified by the stronger light spot on the manhole wall), rotate it by 360° to have the extra light spot going down each side pipe.

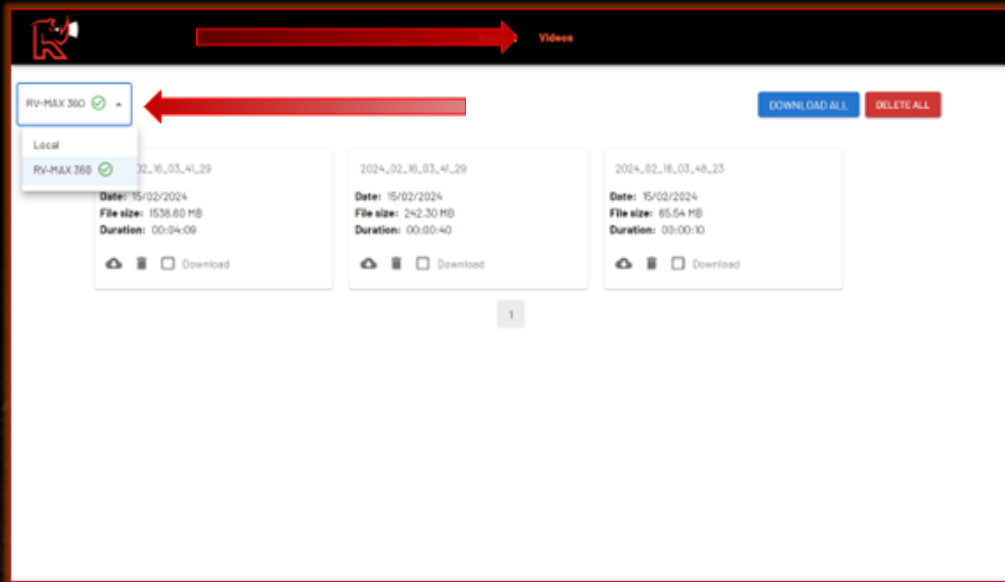
(only if using the RV-MAX 360 with the extendable pole) Position the RV-MAX 360 about ¼ turn (90°) from the alignment it was positioned in on the way down.

Raise the RV-MAX 360 up at a maximum speed of 10 feet (3 meters) per minute.

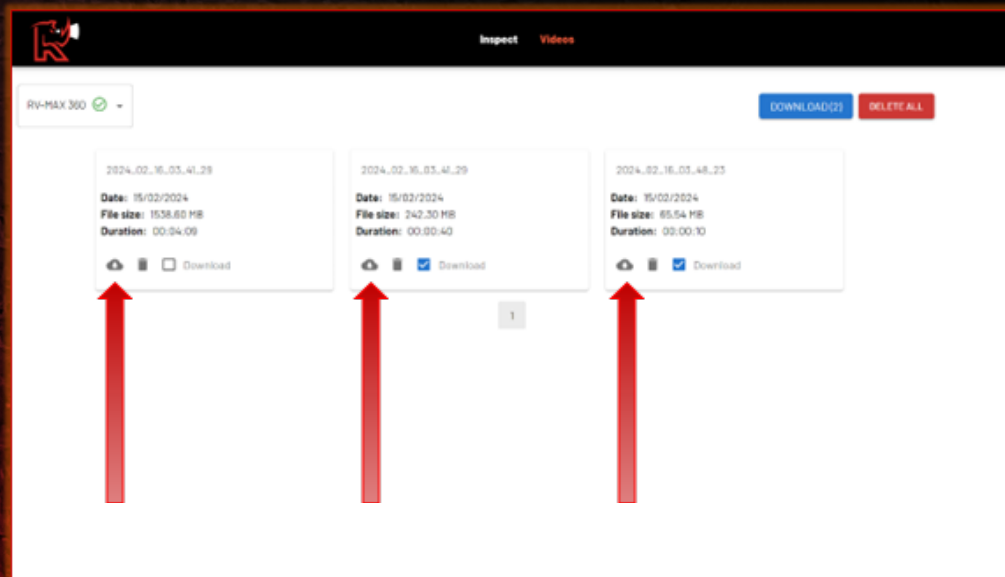
When it returns to the start position above the manhole, stop the video.

DOWNLOADING THE VIDEO

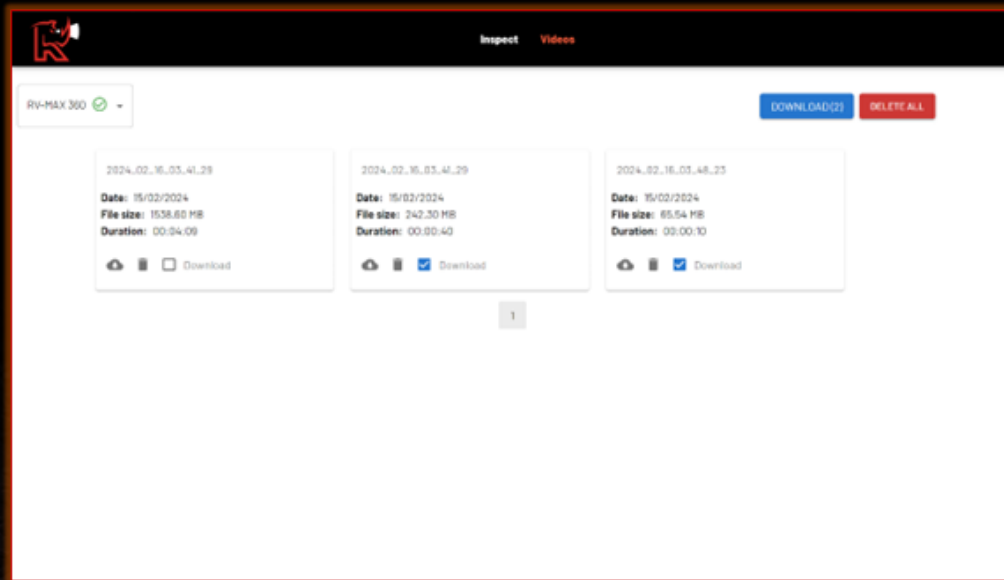
In the RinnoView software, **go to the Videos tab and select RV-MAX 360 in the left drop-down menu.**



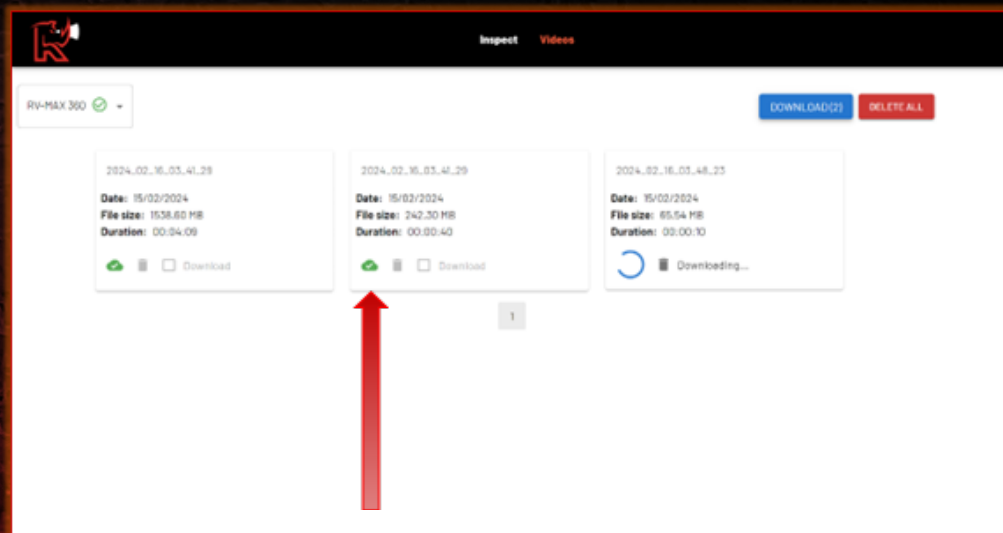
(if you want to download a single video) Click on the video's associated "📄" icon or



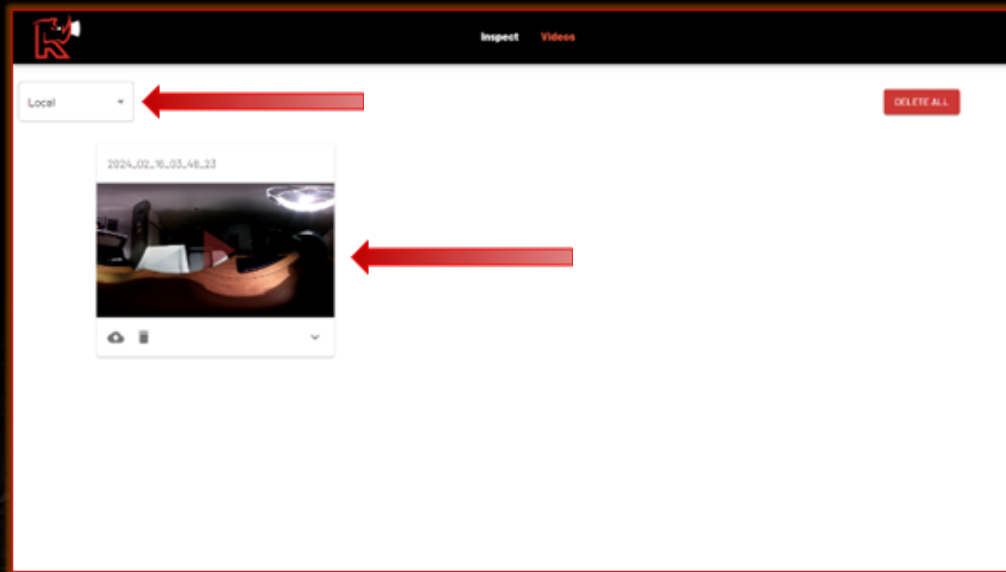
(if you want to download multiple videos) Check each video's checkbox and click on the "DOWNLOAD" button.



Once the video(s) are done downloading the associated "📁" icon(s) will turn to "✅"



Select Local in the left drop-down menu and click on the video that you want to play. Note that a copy of this video has also been saved in the "C:\RinnoVision\videos" folder.



Use the dual-ended USB that was provided with your RV-MAX 360 to transfer the videos from the tablet to your work computer. Note also that RinnoVision can be installed to any other computer if you'd like to improve the workflow by avoiding this step. Contact RinnoVision or your local distributor's technical support if you're interested and we'll gladly help you set this up.



The .MP4 video can then be played in VLC Media Player or the compatible NASSCO MACP-certified software of your choice.





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