



VIVAX
METROTECH

indepth™
UTILITY SOLUTIONS
281-969-8530



vCamDrain Wireless Reel

User Manual

Vivax-Metrotech Corporation

4.04.000241 02/11/2024 V1.1

General Safety & Care Information

◆ Health and Safety

This equipment is primarily used by professionals in the sewer and plumbing industry to inspect sewer pipes. It is maintained by professionals familiar with the health risks of maintaining equipment in a sewer.

Such professionals will be protected by their company's recommendations and work practices. If, for any reason, they are not or are not familiar with such practices, please check our website or email SalesUSA@vxmt.com for a copy of the Health and Safety Document used by Vivax-Metrotech for employees involved in the demonstration, maintenance, and handling of sewer camera systems.

- Keep all electrical connections dry and off the ground.
- Be aware of your surroundings at all times. Cone off open utility holes and follow traffic control regulations.
- Use personal protection such as eyewear, rubber gloves, and non-skid safety shoes.

◆ Worksite Safety

- Use your company's or other applicable safety codes and rules when using this equipment.
- **Do not** use this equipment in explosive areas – such as in the presence of flammable liquids, gases, and heavy dust.

◆ Equipment Safety

- **Do not** open the enclosures (housings) of the reel or camera heads.
- Opening the housings or camera head will void any warranty.
- Use only the leads supplied with the control module for AC or DC operation and charging.

◆ Batteries and the Environment

This Vivax-Metrotech product uses a rechargeable Lithium-Ion battery and a Lithium metal watch battery.

◆ Heat from camera head LEDs



The camera head may become hot when left on while not performing an inspection. Handle the camera head with care when it is sitting outside

of the pipe for extended periods. We recommend using the camera skid and turning down the LEDs. The camera LEDs will automatically turn off after 5 minutes of no activity. No activity is triggered by the pushrod drum not spinning after 5 minutes.

◆ Scratching of porcelain finishes



Using the vCamDrain in toilets or like appliances will scratch the porcelain finish. Use a flexible hose or tube shoved into the toilet or like an appliance to prevent direct contact with the spring and pushrod in the porcelain appliance.

◆ High-Pressure Water or Pressure Washers



Do not use pressure washers to clean the reel or other camera system parts.

◆ Bleach and chemicals - Do not soak the termination parts or camera heads



Do not soak the spring termination parts or the camera heads in bleach or other chemicals.

◆ Intended Use

This product is designed to inspect sewer laterals and basic indoor and outdoor plumbing. This product is not designed for and should not be used to inspect oil or other petrochemical pipes.

◆ FCC & IC Statement

Please note that changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

- (1) This device may not cause harmful interference, and
- (2) This device must accept any interference received, including interference that may cause undesired operation.

This device complies with Industry Canada license-exempt RSS standard(s). Operation is subject to the following two conditions:

- (1) This device may not cause interference, and
- (2) This device must accept any interference, including interference that may cause undesired operation.

Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radioexempts de licence. L'exploitation est autorisée aux deux conditions suivantes:

- (1) l'appareil ne doit pas produire de brouillage, et
- (2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

Under Industry Canada regulations, this radio transmitter may only operate using an antenna of a type and maximum (or lesser) gain approved for the transmitter by Industry Canada. To reduce potential radio interference to other users, the antenna type and its gain should be chosen so that the equivalent isotropically radiated power (e.i.r.p.) is not more than necessary for successful communication.

Conformément à la réglementation d'Industrie Canada, le présent émetteur radio peut fonctionner avec une antenne d'un type et d'un gain maximal (ou inférieur) approuvé pour l'émetteur par Industrie Canada. Dans le but de réduire les risques de brouillage radioélectrique à l'intention des autres utilisateurs, il faut choisir le type d'antenne et son gain de sorte que la puissance isotrope rayonnée équivalente (p.i.r.e.) ne dépasse pas l'intensité nécessaire à l'établissement d'une communication satisfaisante.

◆ **5G WiFi IC Statement**

(i) the device for operation in the band 5150-5250 MHz is only for indoor use to reduce the potential for harmful interference to co-channel mobile satellite systems;

(ii) the maximum antenna gain permitted for devices in the bands 5250-5350 MHz and 5470-5725 MHz shall comply with the e.i.r.p. limit; and

(iii) the maximum antenna gain permitted for devices in the band 5725-5825 MHz shall comply with the e.i.r.p. limits specified for point-to-point and non point-to-point operation as appropriate.

(i) Les dispositifs fonctionnant dans la bande 5150-5250 MHz sont réservés uniquement pour une utilisation à l'intérieur afin de réduire les risques de brouillage préjudiciable aux systèmes de satellites mobiles utilisant les mêmes canaux.

(ii) le gain d'antenne maximal autorisé pour les appareils dans les bandes 5250-5350 MHz et 5470-5725 MHz doivent respecter le pire limiter; et

(iii) le gain d'antenne maximal autorisé pour les appareils dans la bande 5725-5825 MHz doivent respecter le pire limites spécifiées pour le point-à-point et l'exploitation non point à point, le cas échéant.

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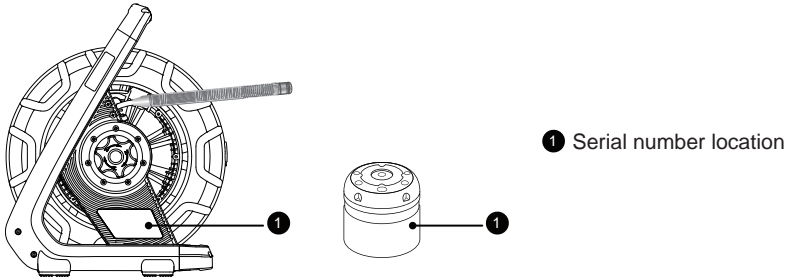
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1. Service & Support

1.1 Model and Serial Number Location

When requesting product support, always quote your camera system's model, serial number, and software revision number. The location of serial numbers is shown below.



1.2 Firmware Revision Location

The firmware version of the reel can be found by connecting the vCam Mobile Controller (VMC) app to the reel and going to the **ABOUT** section in the app.

The vCamDrain firmware updates are pushed through the VMC app. When a new firmware update is available, users will be notified when they connect to the VMC app. A hard copy of the updated file can also be obtained by contacting an authorized service center, distributor, or a Vivax-Metrotech office.

1.3 Request for Service

If any system components need servicing, the more concise information provided will result in a quicker turnaround time. You can fill out a "Service Center Request" form on our website, print it and include it with the unit when shipping. If the unit must be returned, package it well and ship it by a traceable method.

1.4 Distributors and Service Centers

Worldwide Sales Offices and Service Centers

World Headquarters, United States of America

Vivax-Metrotech Corporation

3251 Olcott Street, Santa Clara,
CA 95054, USA
T/Free: 1-800-446-3392
Tel: +1-408-734-3880
Fax: +1-408-734-1415
Website: www.vivax-metrotech.com
Email: SalesUSA@vxmt.com

Central/South America and the Caribbean

Ventas para América Latina

3251 Olcott Street,
Santa Clara, CA 95054, USA
T/Free: 1-800-446-3392
Tel: +1-408-734-3880
Fax: +1-408-743-5597
Website: www.vivax-metrotech.com
Email: LatinSales@vxmt.com

Canada

Vivax Canada Inc.

41 Courtland Ave Unit 8,
Vaughan, ON L4K 3T3, Canada
Tel: +1-289-846-3010
Fax: +1-905-752-0214
Website: www.vivax-metrotech.ca
Email: SalesCA@vxmt.com

France

Vivax-Metrotech SAS

Technoparc - 1 allée du Moulin Berger,
69130 Ecully, France
Tel: +33(0)4 72 53 03 03
Fax: +33(0)4 72 53 03 13
Website: www.vivax-metrotech.fr
Email: SalesFR@vxmt.com

Germany

Metrotech Vertriebs GmbH

Am steinernen Kreuz 10a,
96110 Schesslitz, Germany
Tel: +49 9542 77227-43
Website: www.vivax-metrotech.de
Email: SalesEU@vxmt.com

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Bristol Road, Bridgwater, Somerset,
TA6 4WA, UK
Tel: +44(0)1793 822679
Website: www.vivax-metrotech.co.uk
Email: SalesUK@vxmt.com

China

Vivax-Metrotech (Shanghai) Ltd.

Building 10, Lane 1158 Zhongxin Rd.,
Songjiang District, Shanghai, China, 201615
Tel: +86-21-5109-9980
Website: www.vivax-metrotech.com
Email: SalesCN@vxmt.com.cn

2. Introduction

Please read this section!



Vivax-Metrotech provides technical support for the vCam Mobile Controller (VMC) app, our vCam series camera systems and our locators.

Vivax-Metrotech cannot supply technical support or training for smartphones, tablets or file-sharing apps on your phones and tablets.



Please refer to the help screens and documentation included with your file-sharing apps and the operating system on your phone or tablet (Android and iOS Apple).

User Manual Conventions



Read this section – This section is important and should be carefully read.



Stop – Read this section before proceeding.



Safety – Obey all safety messages that follow this symbol to avoid possible injury or death.



Note – Important information that will affect the performance of the product.



Tip – This tip may save you time or provide a better response.

2.1 Icon Gallery

This section lists the icons shown in the vCam Mobile Controller (VMC) app.

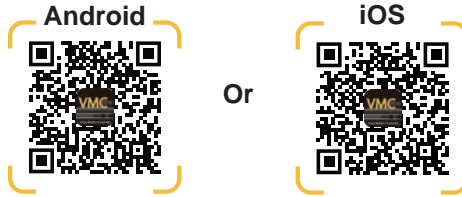
Icon	Name	Description
Main Screen		
	Gallery	Access to the Projects video and picture files.
	Record	Tap to Start and Stop a video recording. While recording, this icon flashes red.
	Pause / Resume	Tap to pause the recording video. Tap the red Play icon to resume the recording.
	Microphone	Tap to activate the microphone to add audio comments to the recording video.
	JPEG Capture	Captures the JPEG picture for the project in the gallery.
	Step Back/Exit	Tapping this icon will move back one step. Continue tapping to disconnect and exit the app.
	Help	Tap this icon to bring up an on-screen version of the instruction manual.
	Sonde	Tap this icon to activate the Sonde. Tap again to turn off the sonde.
	Camera Lights	Tapping this icon will bring up a slider bar to lower and raise the camera's lights.
	Distance Reset	Tapping this icon will reset the distance counter to zero.
	Observations	Add and remove text observations (comments) to the control module and app screen.
	Connection Status	This shows the connected Reel or Control Module and its battery status.
	Settings	Set the user preferences such as language, the unit of measure and sonde frequency.
	Select All	Select All files or projects
	Share	Share files or projects
	Delete	Delete files or projects
	USB Drive	Files can be saved to the USB drive
	Local Drive	By default, files are saved to the local drive and can be copied to the USB drive.

2.2 Download and Install the vCam Mobile Controller App

Follow the QR codes below to download and install the app.

Use the below links or perform a search for “vCam Mobile Controller”.

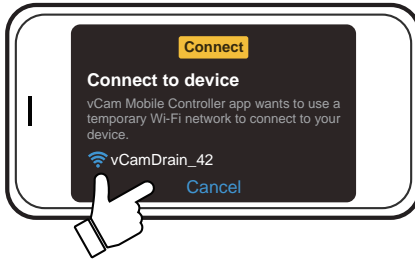
Step 1



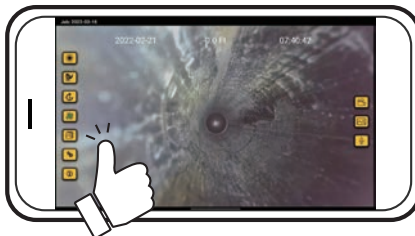
Step 2



Step 3



Step 4



2.3 The vCamDrain Wireless Reel

The vCam Drain Wireless Reel connects to a tablet or smartphone by Wi-Fi and streams the video from the reel into the app. The video stream can be viewed and recorded to the app and plugged in USB thumb drive. Audio and text commentary can be added to the videos and text commentary can be added to the captured pictures. The time stamping of the current time, date, and distance of the pushrod deployed is added to both video and pictures. The captured video and pictures can be reviewed in the VMC app and exported or shared.

Control Panel Buttons



On/Off Button - Press and release to turn the unit on. When on this button will glow green. Press and hold to turn the unit off.

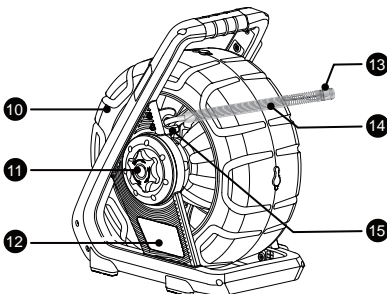
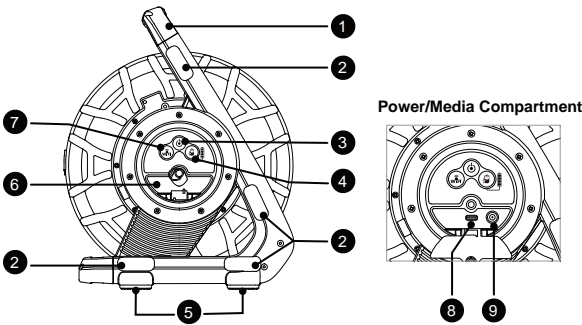


Wi-Fi - The Wi-Fi button shows the connection status of the vCamDrain. When the LED is solid, the vCamDrain is ready to connect. The Wi-Fi button is also used for USB firmware updates.



Battery Status - Press this button to see the reel's internal battery status. The indicator is shown in four segments, representing 25% of the reel's battery life.

2.4 vCamDrain Wireless Reel Features



- 1 Handle
- 2 Horizontal position feet
- 3 Power button and indicator
- 4 Battery status indicator
- 5 Rubber feet
- 6 Power/Media Compartment
- 7 Wi-Fi status LED
- 8 USB Port
- 9 AC/DC Charging socket
- 10 Cable drum
- 11 Brake
- 12 Serial number/model label
- 13 Camera head
- 14 Spring/Sonde assembly
- 15 Cable guide

3. vCamDrain Setup

3.1 Charging the Internal Battery

Plug the supplied battery charger into the reel's AC/DC charging socket. The charging icon on the battery status indicator will glow red while charging and green when fully charged. The typical time to fully charge a completely discharged battery will be approximately six hours, providing approximately 12 hours of intermittent use.

3.1.1 Power Save Modes

The vCamDrain has power save modes to conserve battery life. Power save modes are triggered by a set amount of time or inactivity. Inactivity is defined by the drum not turning after a set time.

Camera Head Lights – After 5 minutes of inactivity, the camera head LEDs will automatically turn off. This saves battery life and helps prevent the LEDs from becoming hot. The LEDs can be turned back on through the VMC app.

Reel Power Save – The vCamDrain reel will power down if not connected to the VMC app after five minutes.

3.2 Check for a Firmware Update

Please see section 4.3 of this manual.

4. Wi-Fi Connection for App

The vCam Mobile Controller app must be installed to view the camera's images and control all functions of the vCamDrain Wireless Reel.

Platform	Apple	Android
Minimum operating system	14.0 or greater	10 or greater

For optimal app performance, give the below permissions.

Access and permissions:	
Location	Allow for Wi-Fi scanning.
Bluetooth	Allow to search for control modules or reels.
Microphone	Allow to add audio to recording videos.
Gallery	Allow for the exporting of pictures and videos.
Storage	Allow to modify or delete files.

4.1 Wi-Fi Connection for App

The vCam Drain Wireless reel has built-in Wi-Fi that broadcasts an SSID (secure network name) and uses DHCP (the protocol that assigns an IP address needed to connect to the control module) to assign IP addresses to a tablet or smartphone running the VMC app.

When connected to the **VMC** app, the video stream from the reel will be transmitted. The video stream will include any text on the app's screen and the on-screen display showing the system time, distance count and date.

Visit our website at www.vivax-metrotech.com for more information and download links.



VMC Start Screen

4.2 Connect to the VMC App



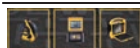
Press and release to turn the unit on. When on, this button will glow green.



Wait approximately 30 seconds for the green light in the center of the Wi-Fi button to glow. This shows that the unit is now ready to connect to the app.

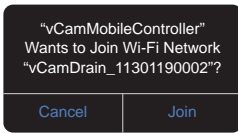


Launch the vCam Mobile Controller App.

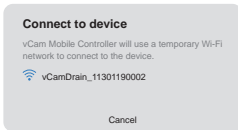


Tap on the **vCamDrain** icon at the Start Screen.

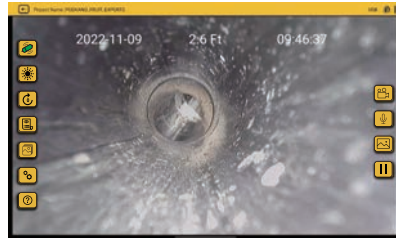
The app will show any Vivax-Metrotech reels or control modules available for connection. In iOS: tap on **Join**, for Android: tap on the vCamDrain **Serial Number**.



iOS



Android



You are now connected to the vCamDrain Wireless Reel.

4.3 Check for Firmware Updates

There are two methods to update the firmware in the vCam Drain reel. The first is an over-the-air update, and the second is the USB System Update. Both are performed through the VMC app.

4.3.1 Over-the-Air Update

Over-the-air updates are performed via the vCam Mobile Controller app.

1. Connect to the vCam Drain Reel via Wi-Fi.
2. If the vCamDrain Reels firmware is outdated or a new update is available, a pop-up dialog box will appear advising so.
3. Select OK to proceed with the firmware update.
4. If OK is selected a progress bar indicator will appear, and the reel's Wi-Fi light will blink during the update.
5. When the update is complete the Wi-Fi light will stop blinking, and the unit will reboot and return to the connection screen. The pop-up message will show a countdown to the reconnect screen.
6. After the unit has rebooted and the Wi-Fi light is solid again, you are ready to reconnect to the reel and use it for your next inspection.

A new update is now available. Go to Settings -> Over The Air System Update to update the software

OK

Firmware Update - Installing: 55 %



Firmware Update

The Unit was successfully updated and it will be restarted. 48s auto reconnect.

Connect to device?

vCam Mobile Controller will use a temporary Wi-Fi network to connect to the device.

Wi-Fi icon vCamDrain_11301190290

Cancel

4.3.2 USB System Update

This update method requires the use of a USB thumb drive.

1. Go to the vCamDrain webpage from the Vivax-Metrotech website.
2. Go to the Download section and download the update.
3. Extract the zipped file and copy the .bin extension file onto the root drive of the USB thumb drive.


- Turn on the vCamDrain reel and **insert the USB drive containing the update.**
- Launch the VMC app and connect to the vCamDrain reel.

- If the vCamDrain Reels firmware is outdated or a new update is available, a pop-up dialog box will appear advising so.

A new update is now available. Go to Settings -> Over The Air System Update to update the software OK

- Go to **SETTINGS**, then **USB System Update**. If the USB drive with the update is detected, the description of the USB System Update will be available. If the drive is not detected* the description will be grayed out.

USB System Update 

USB System Update 

- Tap on the description to continue.

USB System Update

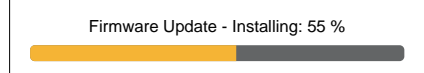
The screen will now show the updated file on the USB drive. Tap on the description of the file to continue.



- The update confirmation dialog box will appear. Select OK to proceed with the firmware update.

A new update is now available. Go to Settings -> Over The Air System Update to update the software OK

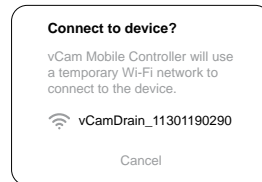
- If OK is selected a progress bar indicator will appear, and the reel's Wi-Fi light will blink during the update.



- When the update is complete the Wi-Fi light will stop blinking, and the unit will reboot and return to the connection screen. The pop-up message will show a countdown to the reconnect screen.

Firmware Update
The Unit was successfully updated and it will be restarted. 48s auto reconnect.

- After the unit has rebooted and the Wi-Fi light is solid again, you are ready to reconnect to the reel and use it for your next inspection.



* Troubleshooting the USB drive

If the app does not recognize the USB drive with the firmware update file, check the below items.

- Check the type of USB drive being used is the correct specification. The vCamDrain can recognize USB removable drives up to 128GB in size.
- Check that the firmware update file is correctly copied to the USB drive. The update file with the .bin extension must be on the root drive of the USB drive. That means the file cannot be a zip file or in another folder on the USB drive.

5. The vCam Mobile Controller App

The vCam Mobile Controller (VMC) controls all the functions of the vCamDrain Wireless Reel. This manual covers the operation of the vCam Mobile Controller app when used with the vCamDrain Wireless Reel.



5.1 Introduction

Technical Support

When requesting technical support, quote your camera system's model number, tablet/phone model, tablet/phone operating system, and vCam Mobile Controller (VMC) app version number.



Note that the product firmware version will only show if the app is connected to the product.

The below information can be found by entering **Settings** and then **About**.



The Android and iOS About screen

App Icons



An **available** action or feature will have a yellow background.

An action or **feature in use (active)** will show the same icon but with a **black** background.



Certain **actions or features in use (active)** will show part of the icon in **red** and will be **flashing**.



All features may **not be available for certain products** or may still be in development. In this case, the icon will be **greyed out**.

The example on the left shows the **Picture icon as available** while the **Microphone icon is not** and is greyed out.

5.2 The Selection Screen



Before launching the app turn on the vCamDrain Reel and wait for the Wi-Fi indicator light to turn green.

The vCam Mobile Controller app starts at the **Selection Screen**; select the vCamDrain.




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VMC Selection Screen

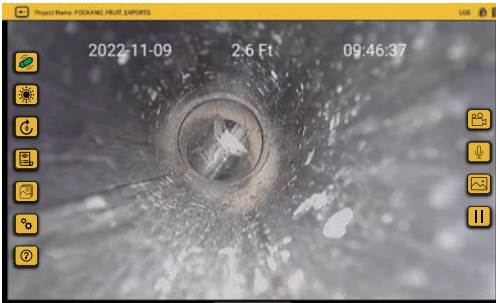
5.3 Offline Access to Files (access files without being connected to the vCamDrain Reel)

All files are stored in the apps Gallery and can be accessed without being connected to a control module.

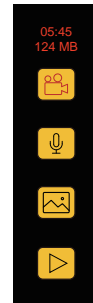
1. At the **Selection** screen select the **control module** used to create the files.
2. Tap on **Cancel** when the Connect to dialog box appears.
3. Tap on the **Gallery**  icon to enter the Gallery.

5.4 The Main Screen

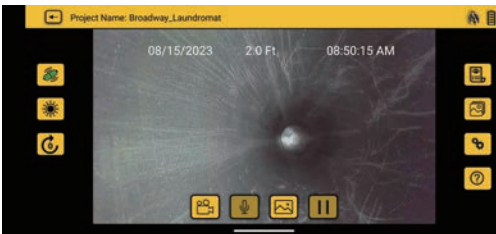
The icon arrangement in the Main Viewing Screen will differ between a tablet or smartphone.



VMC Main Screen - Tablet View



While a recording is in progress



VMC Main Screen - Smartphone View





While a recording is in progress


 **Step Back/Exit** – Tapping this icon will move back one step. Continue tapping to disconnect and exit the app.


Project Name: PODKANO_FRUIT_EXPORTS


Active Project – This shows the project name in which the files are being saved.


 **Sonde** – Tap this icon to activate the Sonde. Tap again to turn off the sonde.


 **Help** – Tap this icon to bring up an on-screen version of the instruction manual.


 **Elapsed Time/Size** – This shows the elapsed time and size of the recording video.


 **Record** – Tap to Start and Stop a video recording. While recording, this icon flashes red.

 **Camera Lights** – Tapping this icon will bring up a slider bar to lower and raise the camera's lights. Note that the camera lights will turn off after five minutes of the drum not turning.


 **Distance Reset** – Tapping this icon will reset the distance counter to zero.


 **Observations** – Add and remove text observations (comments) to the control module and app screen.


 **Gallery** – Access to the Projects video and picture files.

 **Settings** – Set the user preferences such as language, the unit of measure and sonde frequency.

 **Microphone** – Tap to activate the microphone to add audio comments to the recording video.

 **JPEG Capture** – Captures the JPEG picture to the Project in the Gallery.

 **Connection Status** – This shows the connected Reel or Control Module and its battery status.

 **Pause / Resume** – Tap to pause the recording video. Tap the red Play icon to resume the recording.

Recording in progress icons – When a recording is in progress:

1. The inside top portion of the recording icon will blink red.
2. The video elapsed time and size will appear in red above the recording icon.

Pause and resume a video recording – While recording a video:

1. Press the **Pause** icon, and a **Recording Paused** message will splash on the screen. The pause icon will change from **Pause** to a flashing **Red Play** icon. When the recording is paused the elapsed length and video size will freeze.
2. Press the flashing red **Play** icon to resume the video recording.



Pressing the Record icon while a video is paused will end the video recording.

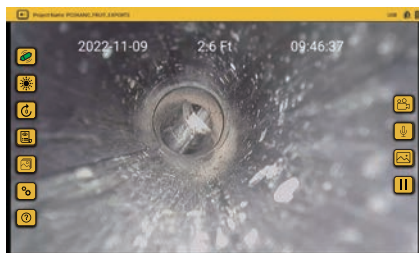


Icons that appear greyed out are not available for the control module.



While on the Main Screen tapping on the screen will hide the icons in the left column and the top status bar. Tap the screen again to bring them back.

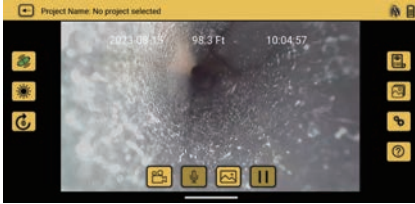
Android = double tap, iOS = single tap.



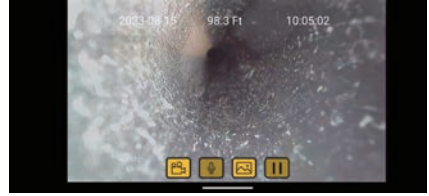
Default view with all icons - Tablet



With icons & status bar hidden - Tablet



Default view with all icons - Smartphone



With icons & status bar hidden - Smartphone

← Step Back/Exit




Use the **Step Back/Exit** icon to return to the **Start/Selection** screen before exiting the app. Returning to the Start/Selection screen will automatically disconnect the control module and free up the Wi-Fi to connect to the internet.



Exiting the app in other ways may leave the tablet showing that it is still connected to the control module by Wi-Fi and produce an error message that there is no internet connection while trying to share files.

6. VMC App Settings

Enter the VMC app settings by tapping the **Settings**  icon. To return to the Main Screen tap the Settings icon again or tap on the Step Back/Exit icon.

At the time of publishing this manual the **Settings** menu consists of the following:

- **Manage Projects**
- **Units**
- **USB System Update**
- **Video & Image Settings**
- **Sonde Frequency**
- **Language**
- **Regulatory Labels**
- **Date & Time**
- **Over The Air System Update**
- **About**

6.1 Manage Projects

Projects are folders where videos and images are stored. The current Project will show in the upper left corner of the Main Screen. All files created in the VMC app are stored in the Gallery under the Project Name.

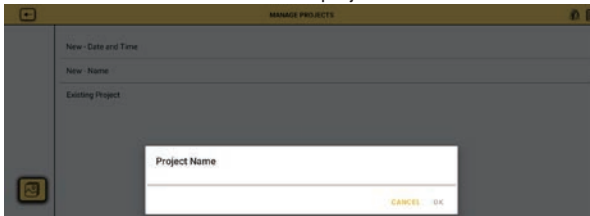


The current Project name appears in the upper left of the status bar.

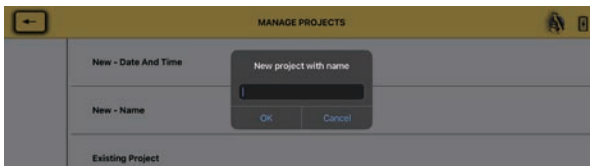
Tap on the **Manage Projects** line and the Manage Projects sub-menu will appear.

New – Date and Time: This option will create a project based on the tablet's current date and time. An example of a project name created on 30 August 2022 at 12:26 PM will be "2022_08_30_12_26"

New – Name: This option will create a project you can name using alpha and numeric characters. Up to 40 alphanumeric characters can be used for a project name.

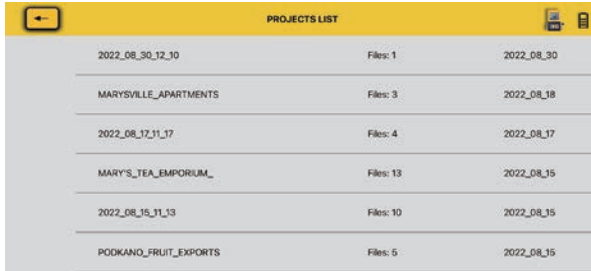


Android "New-Name" dialog box



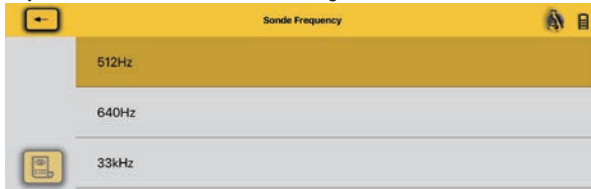
iOS New-Name Project

Existing Project – All projects remain in the app until deleted by the user. Select Existing Project to add new files to an existing project. When this option is selected a list of projects will appear. Tap on the project name to use the Project.



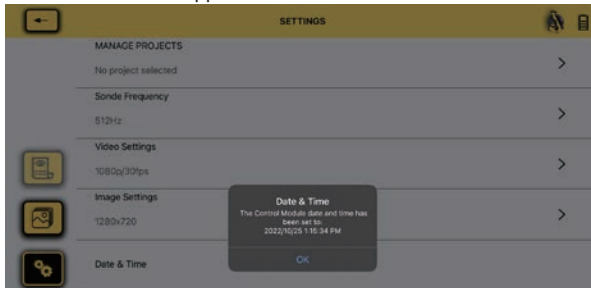
6.2 Sonde Frequency

Set the sonde frequency to use when the sonde icon is selected. Select from **512Hz**, **640Hz** or **33kHz**. Tap the **Step Back** icon to return to the Settings menu.



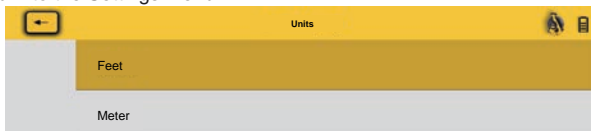
6.3 Date and Time

The date and time used in the app are from the tablet or phone. This option will update the control module's date and time to match the app's.



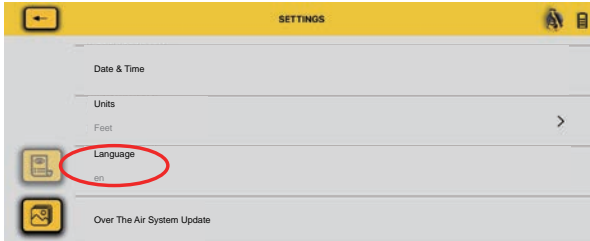
6.4 Units

Select the distance counter unit of measure. Choose between metric or imperial units. Tap the **Step Back** icon to return to the Settings menu.



6.5 Language

This setting shows which language the tablet or phone is using.



6.6 Video and Image settings

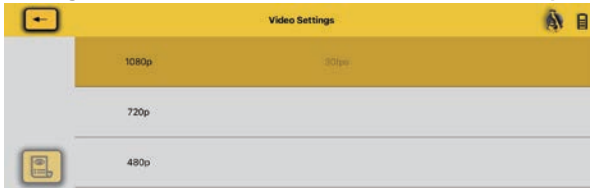
Video Settings

These settings adjust the video and picture quality, which directly influences the video and picture size.

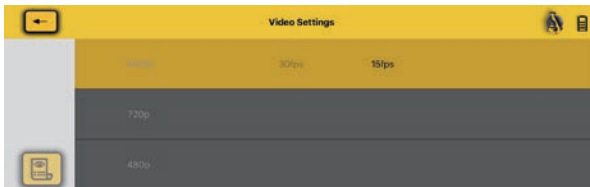
Video Setting options

- 1080p with 30 frames per second or 15 frames per second
- 720p with 30 frames per second or 15 frames per second or
- 480p with 30 frames per second or 15 frames per second.

1. Tap the **Settings** icon to enter the sub-menu.
2. Tap on **Video Settings**, select the video resolution, then select the **frames per second**.



First, select the video resolution.



Then select the FPS (frames per second)

3. Tap on the Settings icon again to exit the setup menu.

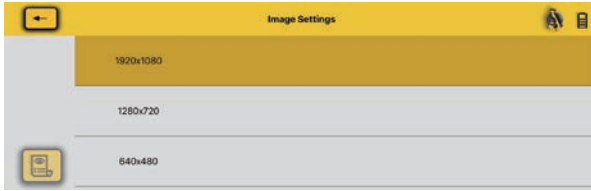
Image Settings

This setting allows for the selection of the picture image dimensions. These dimensions will affect the picture quality, affecting the size of the picture file.

Image Setting options

1280 x 720 or 640 x 480

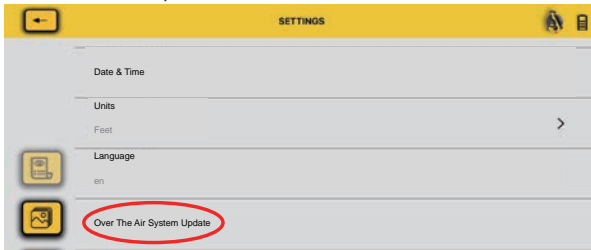
1. Tap the **Settings** icon to enter the sub-menu.
2. Tap on Image **Settings** and select the image resolution.



3. Tap on the Settings icon again to exit the setup menu.

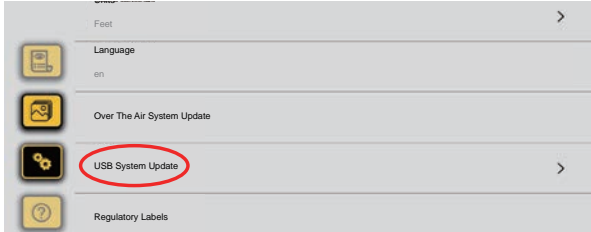
6.7 Over The Air Update

See section 4.3.1 for over-the-air update instructions.




6.8 USB System Update

See section 4.3.2 for USB system update instructions.



6.9 Regulatory Labels

This section shows the required FCC and IC information. To access this information do the following:

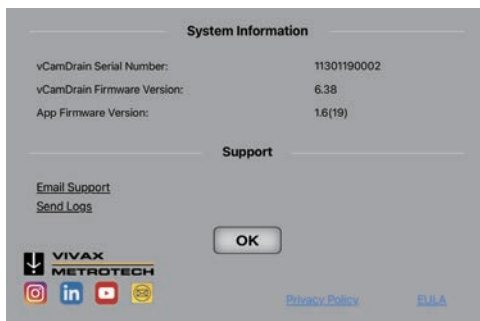
1. At the Main screen select the Setting  icon.
2. Tap on the **Regulatory Labels** to find the FCC and IC information.



6.10 About

The About screen contains important information needed when calling for technical support. This screen shows the connected units firmware version, VMC app version and serial number.

This area also has email support and general email options which will work if you have an email account setup in the iOS or Android default email client.



The About Screen Information Box

6.11 Logs

Logs are recorded for troubleshooting problems with the app. If you should call for technical support, we may ask that you email us a copy of your app's logs using the Log feature.



7. Using the vCam Mobile Controller App



Before launching the app, ensure the control module is turned on and the Wi-Fi option is activated.

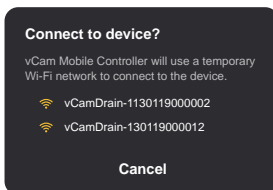
7.1 Connect to the Control Module

1. From the **Selection** screen select the **Control Module** or **Reel** to connect.

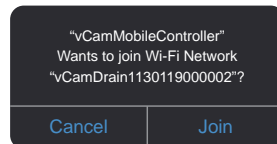


The Selection Screen

2. **Android** – Tap on the serial number of the control module to connect.
iOS – Tap on the Join icon of the control module to connect.



Android connection dialog box




iOS connection dialog box

After a few seconds the Main Viewing Screen will appear with an icon of the control module and its battery status in the upper right corner.

7.2 Making a video recording

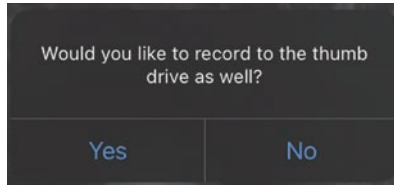
By default, recordings are saved on the tablet or smartphone inside of the VMC app. When recording to USB (thumb drive) is selected, the videos are saved on the USB drive and the tablet or smartphone.

Video saved in the app can be transferred to the USB drive or exported elsewhere. Videos on the USB drive can be viewed but not exported.

1. Tap the **Record**  icon to start the video recording.

If no project is selected the **Manage Project** dialog will appear. See section 6.1 Manage Projects. Create a new project or select an existing project to continue.

If a USB drive is inserted in the reel the user will be asked, “**Would you like to record to the thumb drive as well?**” Selecting **YES** will copy the recorded videos and pictures to the USB drive and the app gallery.



Selecting Yes will place a copy of the recording on the USB drive.

The Project selected and USB recording settings will remain until the app is restarted or the reel is disconnected.

05:45

124 MB



When a recording is started the record icon flashes red and the elapsed recording time and file size will be displayed above the icon.



To Pause the recording video tap on the **Pause** icon.

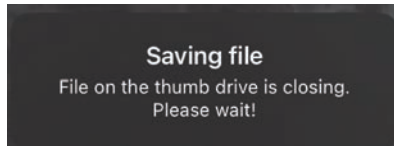


To resume recording tap on the flashing red **Play** icon.

2. To end the recording video tap on the red flashing **Record**  icon again.



If recording to the USB thumb drive, the Saving File dialog box will appear when the video is ended. Wait for the dialog box to clear before proceeding.




Wait for the dialog box to clear before proceeding.

7.2.1 Video Length

The maximum length of a recording is 15 minutes. If left unattended, the recording will close after 15 minutes and a new video recording will automatically start.

7.3 Capturing JPEG images (taking pictures)

Tap the JPEG button  to capture a JPEG image. The screen will momentarily flash yellow confirming a captured image.

7.4 Adding an observation to the screen

Observations are text comments added to the screen that appear in videos and pictures.



Tap on the **Observation** icon to open the Text Box.



The icon will fill with a black background when the text box opens.

OK or
Enter

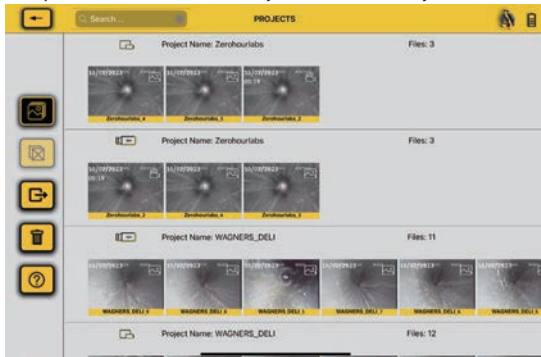
Enter text in the text box, up to 100 characters, and tap **OK** or **Enter** on the keyboard.



Remove the text from the screen by tapping on the black background **Observation** icon.

7.5 The Gallery

All recorded videos and pictures are stored in Projects in the Gallery.



The Gallery Main Screen



Return to the previous screen



Share files or projects



Search the gallery



Delete files or projects



Exit the gallery



Select All files or projects



Local Drive is where all files are stored by default



USB Drive is an alternate location to save files. Files can also be copied from the local USB drive.

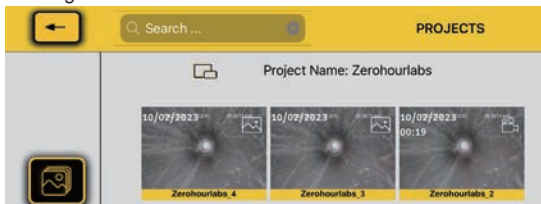


Help opens the manual to the help topic.

7.6 Searching the Gallery


Use the Search feature to find files in the Gallery.

1. Start typing in the search bar to find files and projects in the gallery.
2. Press the X to the far right to clear the search box.





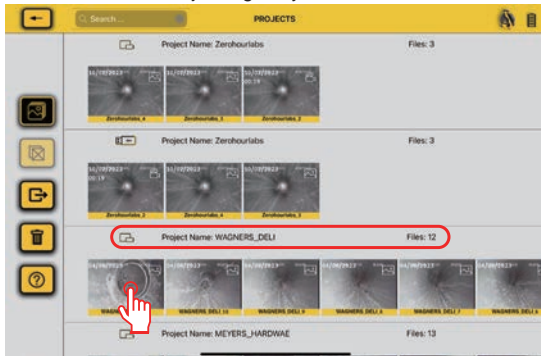
The app does not need to be connected to the vCamDrain reel to view the files in the Gallery.

1. After selecting the reel type, select **Cancel** and do not connect to the reel.
2. Tap on the Gallery icon  to enter the Gallery to view the Project files.

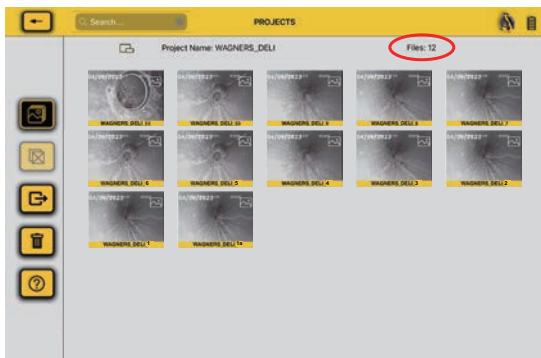
7.7 Reviewing Files in the Gallery

In the Gallery files can be reviewed, shared, or deleted. This section will cover reviewing the files.

1. Tap on a **Thumbnail** to enter that Project's gallery.

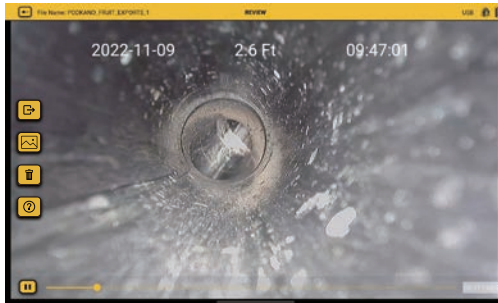


Gallery Main Screen




Gallery Review Screen


2. Tap on a **Video Thumbnail** to enter the video review screen.




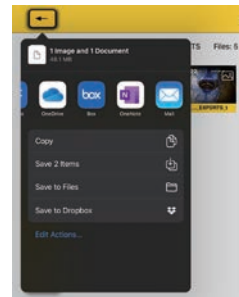
The video review screen




While in the Review screens, swiping right to left  and back will scroll through all the files in that Project folder.

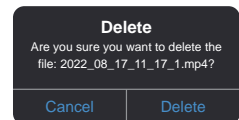
3. Tap on the **Play**  icon to watch the video. While playing the video tap the **Pause** icon to pause, and un pause the video. Use your finger on the progress line to move forward and backward through the video.
4. While in the Video Review screen, the Share, JPEG Capture, Delete and Help options are available.

- a. Tap on the **Share**  icon to open the dialog box to share the file or add it to another location on the tablet.



- b. Tap the **JPEG Capture**  icon while the video is playing or paused to capture a picture.

- c. Tap the **Delete**  icon to delete the video.



Use the same steps to view pictures; the picture view will have the same Delete and Share options.



Deleted files cannot be recovered!

7.8 Sharing (Export) Files and Projects

Files created in the VMC app can be shared (exported) in several ways.

- Use the share features native to the iOS and Android platforms.
- Export files into file-sharing apps such as BOX™, DropBox™ or OneDrive™.
- Export files to a USB drive.

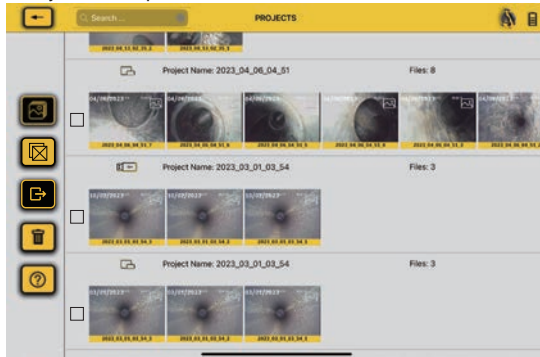
Individual files can be selected from Projects and exported, or the entire Project can be exported.



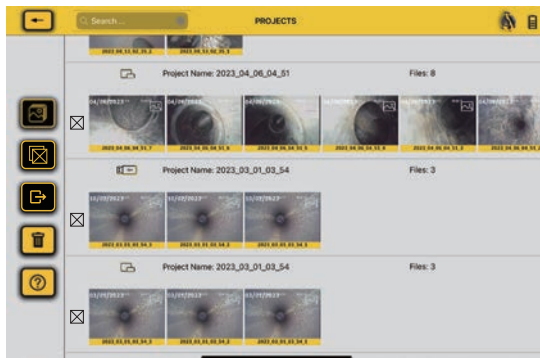
It is better to share files when the app is not connected to a control module. When the app is connected to a control module, files cannot be shared because there is no internet or cellular connection. Disconnect from the control module, then use the internet or cellular connection.

7.9 Sharing an Entire Project

1. From the Main Gallery screen tap on the Share icon.

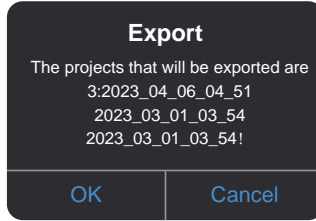


Main Gallery Screen



Main Gallery screen with selection boxes

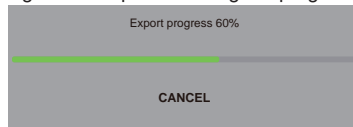
2. Tap on the **Selection Boxes** of each Project to export then tap the Share icon again.
3. The Export dialog box will appear confirming the file(s) to be exported. Tap on **OK** to proceed.



4. The **EXPORT** destination screen will appear. Select Tablet (Local) or USB.

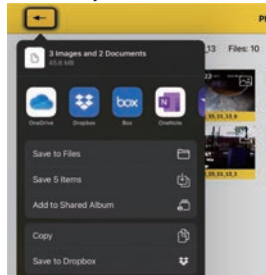


If **USB was selected** a dialog box will appear showing the progress of the file export.



If **Tablet (Local) was selected**, continue with step 5 below.

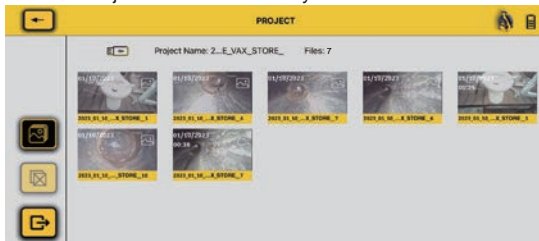
5. The sharing dialog box will appear. Make your selections and continue.



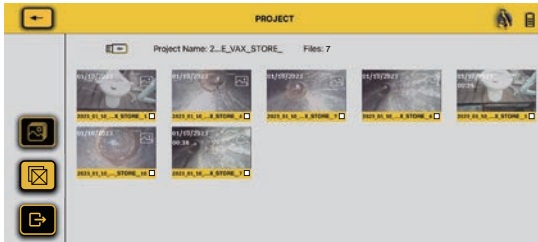
File sharing dialog box


7.10 Sharing Single Files

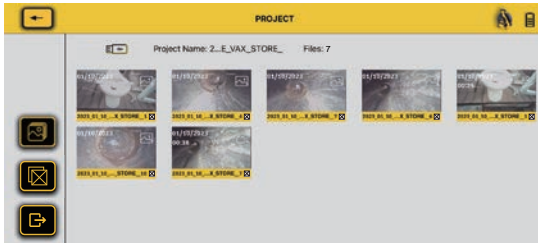
1. Tap any thumbnail in the Project to enter its Gallery.




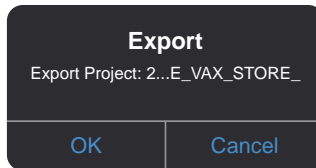
2. Tap the **Share**  icon and checkboxes will appear in the bottom right corner of each thumbnail.



3. Tap on each thumbnail to apply the checkmark to mark them for export.
- or -
Use the **Multi-File Select**  icon to apply checkmarks against all the thumbnails.



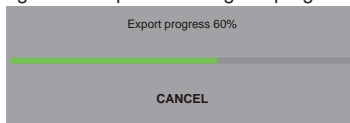
4. Tap on the **Share**  icon again to start the export process. The Export dialog box will appear confirming the files to be exported. Tap on OK to continue.



5. The **EXPORT** destination screen will appear. Select Tablet (Local) or USB.

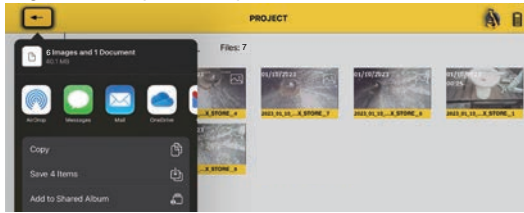


If **USB** was selected a dialog box will appear showing the progress of the file export.



If **Tablet (Local)** was selected, continue with step 6 below.

6. Use the Share dialog box to complete the operation.



7.11 Deleting Files

Delete files or projects from the Gallery by following the steps in section 7.7 except choose **Delete** rather than Share.

Please read this section!



Vivax-Metrotech provides technical support for the vCam Mobile Controller (VMC) app, our vCam series camera systems and our locators.



Vivax-Metrotech does not supply technical support or training for smartphones, tablets or file-sharing apps on your phones and tablets.

Please refer to the help screens and documentation included with your file-sharing apps and the operating system on your phone or tablet (Android and iOS (Apple)).

8. Using the Reel

8.1 Pushrod Cable

The Pushrod Cable is comprised of a fiberglass rod surrounded by wire conductors and a Kevlar braid coated with a thick polypropylene jacket. Because of the harsh environment in which the pushrod is used, care should be taken to keep it in good operating condition.

Check Pushrod for Wear – Inspect the pushrod for cuts, kinks, and abrasions as it is retrieved back into the cable cage. If the jacket is cut or worn to the point that the yellow or white Kevlar braid can be seen, it is time to replace the pushrod. Using the pushrod with open cuts will result in water and moisture entering the pushrod and eventually traveling through it, causing a degraded camera image or total image failure.

Keep the Pushrod and Termination Spring Assembly dry and clean – When retrieving the pushrod, keep a dry rag in one hand and wipe down the pushrod as it moves through it. Use low-pressure water to rinse off the camera head and rinse away accumulated dirt and debris that may be caught in the spring. Shake dry or use low-pressure air to blow the excess water away and dry the parts. The Camera Head, Pushrod and Termination Parts are exposed to harsh chemicals in day-to-day use, and keeping a clean system will help prolong the life of these parts.

Maintain proper control of the pushrod – Attempting to pull the pushrod out of the reel while the reel is locked will result in the pushrod collapsing and stressing the pushrod. Pushing the pushrod back into the reel while locked may cause the reel to tip over or kink the cable.

Rinse off the termination parts before the end of the day – The camera and pushrod are subjected to a very harsh environment with possibly very caustic chemicals. If the parts are not cleaned off and are allowed to dry dirty, the chemicals may wear these parts prematurely. Use low-pressure water to rinse out the termination spring parts. Wipe dry or use air to blow off the water before storing it for the night or long periods. Removing the skid when storing it is good to prevent water from drying between the skid and the camera head.

8.2 Deployment of the Pushrod Cable

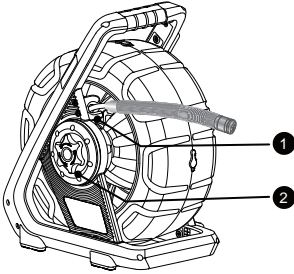


WARNING

The friction brake should always be partially applied to slow down cable deployment. Care should be taken to prevent the cable from unwinding uncontrolled to avoid injury.

Do not wear loose clothing that can become caught in a spinning reel. Keep hands away from a spinning reel.

Position the reel on a flat surface approximately 3 to 4 feet or 1 to 1-1/2 meters from the entry point. This will provide enough space to work with the pushrod without much slack dragging on the ground. Use the friction brake to slow down the movement of the cable cage if needed. Using the reel in a horizontal position increases the width between the feet, giving the reel more stability on uneven surfaces and lowering the height in confined spaces.



vCamDrain Wireless Reel

- ① Cable Guide
- ② Locking and Friction Brake



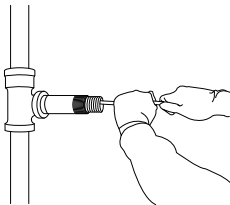
TIP

Before deploying the pushrod, you should:

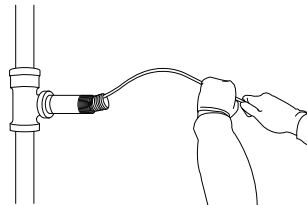
- a) Remove any standing water from the pipe. The images will be much better if the camera head is not underwater.
- b) Remove debris and objects from the pipe first. The camera is made to inspect the insides of pipes and not to clean or unblock them.

Use "grip" type rubber gloves to better grasp and protect your hands from sludge during retrieval. The gripping action of the gloves will help keep a good hold on the pushrod while deploying.

Apply the push force to the pushrod as close to the entry point as possible. Excess pushrod between the point of entry and while pushing could kick the pushrod. Never stand to use your weight to push on the pushrod which may cause the pushrod to kink.



Proper placement and pushing force

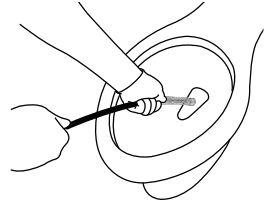


Improper placement and pushing may result in kinking the pushrod

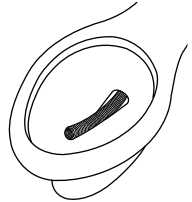
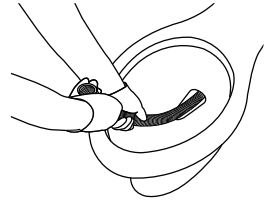
Use finesse and not force when needed. The camera and pushrod are made to travel through multiple bends within reason. If you are having trouble navigating through the pipe try pulling the camera back four to six inches and giving it a quick push-through. Sometimes the quick pushing motion will push the camera and termination through a tight area. Never pull the camera head back and repeatedly ram it into the pipe to get through.

Toilets - The vCamDrain pushrod will navigate most toilet traps. To avoid damaging the porcelain finish of the toilet, we recommend using a small-diameter flexible hose to act as a guide for the spring and pushrod.

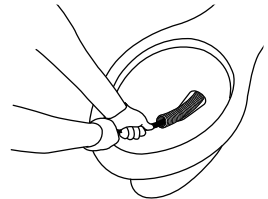
Do not push the camera through an unprotected toilet as it will scratch the porcelain finish.



Measure a length of the flexible hose and shove it through the toilet trap. Push the flexible hose as far into the toilet as possible without kinking the hose.



The spring and pushrod will not directly contact the toilet's porcelain finish.



9. Camera Heads and Terminations

9.1 Camera Head

The vCamDrain is supplied with the D18-HD camera head. Check with your local distributor or Vivax-Metrotech office for optional camera heads that may be used with the vCamDrain system. A 2.5mm flat blade screwdriver is included in the kit for the standard skid removal and installation.

D18-HD Camera for the vCamDrain Reel



1
2

- 1 Polycarbonate LED cover
- 2 Sapphire glass lens

Camera Head Face



1
2

- 1 Groove for skid setscrews
- 2 Camera Housing


Camera Head Body



1
2

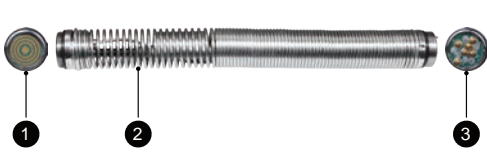
- 1 Gold contact pins
- 2 Circuit board

Camera Head Rear

Camera Head	Fits Reels	Pipe Size Range
 <p>D18-HD Non-Leveling 18mm / 0.76" diameter</p>	<p>vCamDrain vCamMX-2</p>	<p>1.5 to 3 inches 30 to 75mm</p>
<p>Contact a local Vivax-Metrotech distributor or local office for ordering information, applications, compatibility, and pricing.</p>		

9.2 Spring Sonde Assembly



The Spring Sonde Assembly comprises parts that connect the camera head on one end and the reel base on the other. The termination spring assembly for the vCam Drain consists of a preassembled spring, coiled cable, sonde, and lanyard.



- 1 Camera connection end with circular circuit board
- 2 Spring assembly with coiled cable, sonde and lanyard
- 3 Pushrod connection end with push pins

Drain Termination Spring Assembly

9.2.1 Termination Parts List

Picture	Description	Comments
	Spring assembly O-Ring, 14mm x 1.5mm, NBR	Two are required, one at each end.
	Drain Spring Sonde Assembly	An all-in-one assembly consisting of spring, coiled cable, sonde and lanyard preassembled.
Contact a local distributor or local Vivax-Metrotech office for ordering information, applications, compatibility, and pricing.		

9.3 Removing and Installing the Camera Head

Do not touch the green circuit board or gold pins on the spring assembly or camera head with bare hands. Touching these will transfer oils from the fingers to these components, leading to premature corrosion. Wear clean rubber gloves if possible.

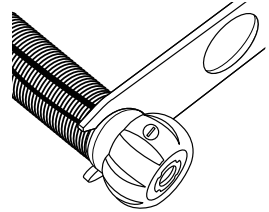
The vCamDrain is supplied with tools for camera and spring removal and installation.



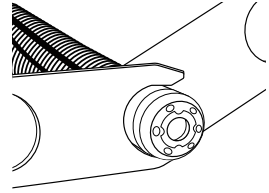
- 1 3-Point tool for spring removal/installation
- 2 Wrench flats for camera and spring removal/installation

Camera head removal

1. Use one camera tool to hold the flats on the spring.



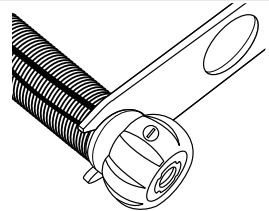
2. Place the flats of the other tool on the camera head flats and turn counterclockwise until the camera is loosened.
3. Proceed to unscrew the camera head by hand until it is removed.



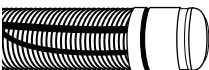
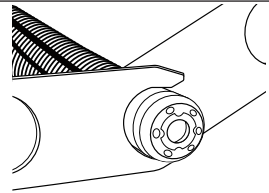
Camera head installation

Remove any excess dirt that might contact the gold pins or green circuit board. Check that the O-ring is in good condition. Wipe the circuit board in the spring and camera contact pins with an alcohol wipe or swab.

1. Use one camera tool to hold the flats on the spring.
2. Screw on the camera head by hand until the O-ring is engaged.



3. Place the flats of the second tool on the camera head flats and turn clockwise **until the O-ring is no longer visible**.



Visible O-Ring



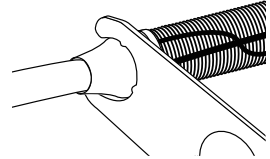
O-Ring is no longer visible

9.4 Removing and Installing the Spring Sonde Assembly

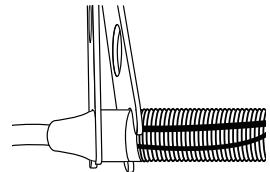
Don't touch the green circuit board, gold pins on the spring sonde assembly, or camera head with bare hands. Touching these will transfer oils from the fingers to these components, leading to premature corrosion. Wear clean rubber gloves if possible.

1. Remove the camera head following the instructions shown in section 9.3

2. Use the 3-point section of the camera tool to hold the termination base.

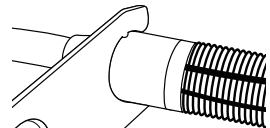


3. Use the second camera tool to loosen the spring sonde by the wrench flats by turning it in the counterclockwise direction.
4. After the spring sonde is loosened unscrew it and remove it.

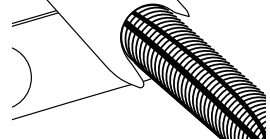


Installing: Remove any excess dirt that might get onto the gold pins or green circuit board. Check that the O-rings are in good condition.

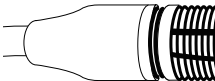
1. Hold the termination base with the 3-point section of the camera tool while screwing on the spring sonde in the clockwise direction.



2. Use the camera tool and continue to screw on the spring while holding the base with the 3-point tool section.



3. Tighten with the tools until the O-Ring is no longer visible.



Visible O-Ring



O-Ring is no longer visible

9.5 Camera and Spring Skids, Installing and Removing

The vCamDrain system uses various types of skids.



Standard Skid



Guide Skid



Clip together Skid



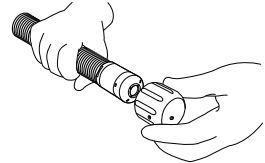
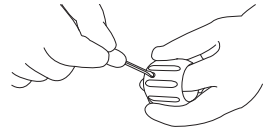
Spring Skid

9.5.1 Standard Skids, screw in setscrews, D18 series, D26-MX, D34 and D46 series

The standard skids ship installed on the camera head.

Tools Needed: 3mm / 1/8-inch flat screwdriver.

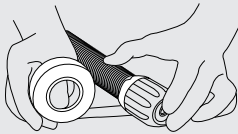
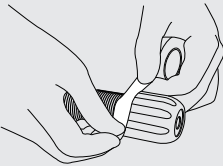
1. Use the screwdriver to back out the three set screws so the camera head will slide unobstructed into the standard skid.
2. Slide the camera head into the standard skid until the head is flush with the front.
3. Use the screwdriver to secure the standard skid to the camera head.



Do not overtighten the set screws. This may result in stripping the set screw, the skid threads or damage to the camera housing.



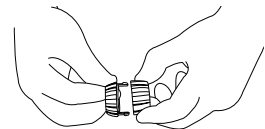
Apply a layer of electrical tape over the screw holes on the installed skid. This will help keep debris from filling the screw slot, making removing them easier.



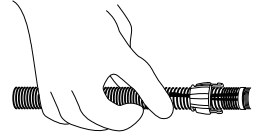
9.5.2 Standard Skids, Two-part clip together, D20-HD, D26-HD

Tools Needed: No tools are needed.

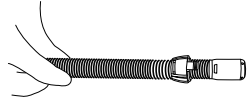
1. Press in on the locking tabs while pulling the two parts apart.



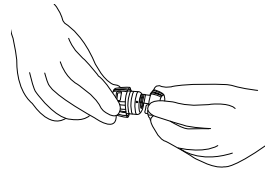
2. Remove the camera from the spring and slide the rear of the skid onto the spring with the tabs facing forward.



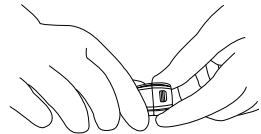
3. Install the camera head onto the spring. Ensure that the camera head is installed correctly by using the camera tools and tightening it until the O-ring is no longer visible.



4. Slide the front of the skid over the camera head aligning the locking tabs with the receptacles.



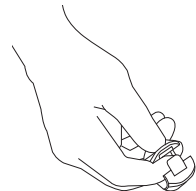
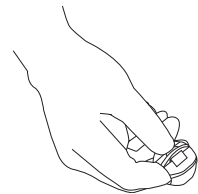
5. Press the two skid halves together until the tabs lock into the receptacles.



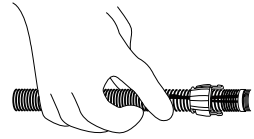
9.5.3 Spring Skids, Clamp around camera spring, D18-HD, D20-HD on vCamDrain Spring

Tools Needed: No tools are needed.

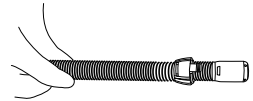
1. Press the locking tab to open the spring skid.



2. Present the open skid to the spring.



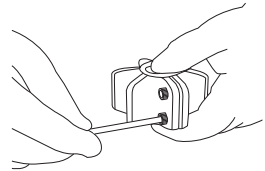
3. Close the skid and press until the locking tab clicks and locks into the mating part.



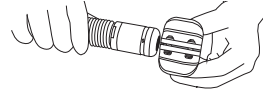
9.5.4 Guide Skids, Clamp around the camera head, D18 series, D26 series, D34 series and D46 series

Tools Needed: 5mm Hex wrench.

1. Use a hex key and loosen the screws so the skid will slide unobstructed onto the camera head.



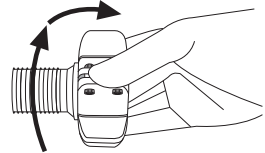
2. Slide the camera head into the skid until the head is flush with the front.



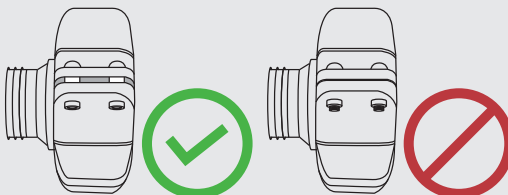
3. Use a hex key to secure the skid to the camera head.



4. Check that the skid is secure by turning and pulling it simultaneously.



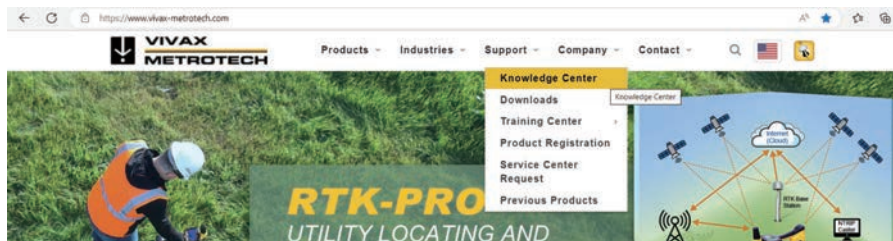
Refrain from attempting to close the guide skid fins together completely. Doing so can result in damage to the camera head or the skid.



10. Troubleshooting

Please check the Knowledge Center on the Vivax-Metrotech website for the latest support information.

Go to www.vivax-metrotech.com and then click **Support, Knowledge Center**.



Problem: No control modules are seen in the range to connect.

Check:

1. Check that the Wi-Fi on the control module or vCamDrain reel is turned on.
2. Check the control module or vCamDrain reel to see if the latest software has been installed.
3. Check that the SSID on the control module or vCamDrain reel starts with "vCam." If the SSID was changed the app might be unable to find the control module.
4. Try restarting the app.
5. Try restarting the control module or vCamDrain reel.

Problem: The control module will not connect.

Check:

1. Ensure the Wi-Fi is turned on in the control module or the Wi-Fi LED is glowing on the vCamDrain reel.
2. Make sure that the SSID has not been changed. The SSID must start with "vCam" for the app to see the reel.
3. Check that the battery life of the control module or vCamDrain reel is greater than 15% charged.

Problem: The picture is freezing

Check:

1. Ensure no source of interference is between the app and the reel or control module.
2. Restart the app.
3. Restart the reel or control module.

Problem: The Share File dialog box does not show up

Check: This is probably an Access Permission setting in the iOS settings.

1. Go to **Settings**.
2. Find the VMC app.
3. Under **ALLOW VMC TO ACCESS**, ensure that **Photos** or **Add Photos Only** is selected.

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