



VIVAX
METROTECH

vCamLSR User Handbook (English Edition)

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1. General Safety Instructions

1.1 Before using for the first time, please read the following carefully:

- In general, the vCamLSR can be used indoors and outdoors. (**Do not** operate with a mains input in wet conditions.)
- To ensure safety and reliable operation – **do not** subject this unit to extreme temperatures, shock or impact.
- Avoid getting moisture/water inside the enclosure.
- To avoid the risk of electric shock, **do not** open the sealed enclosure.
- Nickel metal hydride (Ni-MH) rechargeable batteries pack.
 - **Do not** remove or attempt to access the rechargeable batteries.
 - Use only specified charger for the rechargeable batteries. Use of an incorrect charger could result in damage to the vCamLSR control module or excessive over-heating.
 - **Do not** damage, crush or puncture batteries or subject to extreme heat or fire.
 - Dispose of these batteries in accordance with your company's or organization's procedures.
- Storage temperature: -20°C to +70°C (-4°F to 158°F).
- Operating temperature: -10°C to +50°C (14°F to 122°F).

1.2 Care of Equipment

- Use the camera system to inspect pipes and not to clear obstructions. If the camera head is underwater or its view obstructed by debris, stop and clean out the pipe first.
- Use equipment only as directed in this user handbook.
- **Do not** immerse any part of this equipment in water.
- Store in a dry place.
- Keep equipment in the case provided when not in use.
- If left for prolonged period of time – remove alkaline batteries.
- Keep unit clean and free of dust and dirt.
- Protect against excessive heat.
- Protect the pushrod, camera head and termination parts by cleaning often and not letting dirt and debris dry on it.
- Keep the control module or viewer a safe distance from the point of entry to avoid splash back.
- Use the provided "insertion sleeve" to prevent chafing and scraping of the pushrod jacket when deploying the pushrod in pipes and ducts.
- Use caution when cleaning the LCD cover to avoid scratching it.
- Use low-pressure water to rinse off the termination parts after use and use air to blow off excess water.
- **Do not** let dirt dry on the pushrod, termination parts or camera head.
- Use only the correct size and voltage fuse.
- **Do not** use power washers to clean the equipment. Use low-pressure water on the pushrod or termination parts.
- If the pushrod conductors are exposed, stop using the pushrod immediately.
- When the control module is mounted on top of the reel, **do not** use the control module as a handle to move the reel.

1.3 Health and Safety

This equipment is primarily used for the inspection of sewer pipes, by professionals operating in the sewer and plumbing industry, and maintained by professionals familiar with the health risks of maintaining equipment that has been in a sewer.

Such professionals will be protected by their own 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 sales@vxmt.com for a copy of the Health and Safety Document used by Vivax-Metrotech for employees involved in the demonstration, maintenance and handing of sewer camera systems.

1 General Safety & Care Information

- Keep all electrical connections dry and off the ground,
- Be aware of your surroundings at all times. Cone off open manholes and follow traffic control regulations.
- Use personal protection such as eyewear, rubber gloves and non-skid safety shoes.
- **Do not** use the control module as a handle to move the reel. Remove the control module or use the steel handle that is part of the reel's frame.
- **Do not** wear loose clothing or jewelry. Keep your hair, jewelry and clothing away from moving parts.

2. Service & Support

2.1 Distributors and Service Centers Closest to You:

World Headquarters, United State of America	China
Vivax-Metrotech Corporation 3251 Olcott Street, Santa Clara, CA 95054, USA Website : www.vivax-metrotech.com Sales & Sales Support: T/Free : 800-446-3392 Tel : +1-408-734-1400 Fax : +1-408-734-1415 Email : sales@vxmt.com Service & Repairs: T/Free : 800-638-7682 Tel : +1-408-962-9990 Fax : +1-408-734-1799 Email : service@vxmt.com	Leidi Utility Supply (Shanghai) Ltd. No. 780, Tianshan Rd, Shanghai, China 200051 T/Free : 4008-206-719 Tel : +86-21-5235-3001 Fax : +86-21-5235-8365 Website : www.leidi.cn Email : info@leidi.cn
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3. Introduction

3.1 Description

The vCamLSR camera system can be used for visual inspection of small pipes, ducts, cabling systems, process plants, machinery, behind dry walls, in ceilings and any other similar structures.

3.2 System Components

The basic system is supplied with:



1	Choice of the D18-D or D25-D Camera Heads	8	Four x AA Alkaline Batteries with Holder
2	LS Hand-Held Viewer	9	Video Out Cable
3	Viewer Carry Bag	10	Control Module Interconnect Cable*
4	Pipe Insert Sleeve	11	User Handbook
5	Type-S Reel with 60ft / 30m of Pushrod	12	Vehicle Power Cable
6	Reel Carry Bag	13	AC Power Cable
7	Quick Guide		



Note:

* The LSR Reel can also be used with the vCam-5 Control Module.

3.3 Model and Serial Numbers

For service and support purposes, each vCamLSR system has its own model and serial numbers at the back of the hand-held and also one on the cable reel assembly.



1	Model & Serial Number
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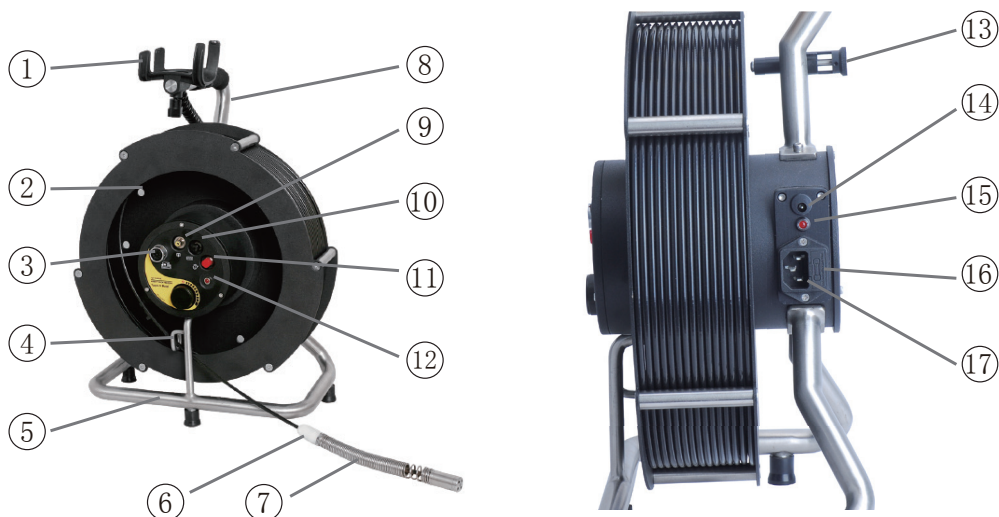
3.4 Hand-Held Viewer Overview

The features, functions and controls of the hand-held viewer:



1	Power - Press and hold to turn on or off
2	Lower viewer's LCD settings
3	Raise viewer's LCD settings
4	LCD
5	Enter the viewer's LCD settings
6	Aftermarket flexible camera mount
7	Video out socket
8	Handle

3.5 Reel Overview



1	Viewer Mount	10	Distance Counter Reset
2	Cable Drum with Pushrod	11	Sonde Control
3	Control Module Interconnect Socket	12	Power On Indicator
4	Cable Guide	13	Drum Brake
5	Base	14	DC Power In Socket
6	Sonde Cup	15	Charging Indicator
7	Termination Spring	16	Fuse Compartment
8	Handle	17	AC Power Socket
9	Video Out Jack		

4. Setup

4.1 Installing Batteries in the Viewer

The hand-held viewer has an auxiliary alkaline battery pack that is used to power the unit when it is not connected to the cable reel. It is not necessary to install batteries in the viewer, the viewer will draw its power from the reel when connected.

To install the batteries:

1. Turn the thumb-screw counter-clockwise to open the battery compartment lid.
2. Insert the battery holder loaded with four AA alkaline batteries into the battery compartment.
3. Close the lid and tighten the thumb-screw by turning it clockwise until tight.



4.2 Connecting the Viewer to the Reel

To bring the video to the hand-held viewer's screen it must be connected to the reel. The hand-held viewer can rest in the provided adjustable cradle during use. A black coiled cable from the reel will attach to the hand-held viewer.

- Line up the pin on the coiled cables plug to the keyway on the socket.



- Insert the plug into the socket and secure it by turning clock-wise until tightened.



- Insert the viewer into the cradle.



- Adjust the coiled cable so that it cannot be tangled in the moving reel.

4.3 *Installing and Removing the Pushrod Camera Heads*

There are two camera heads that can be used with the Type-S reel. Both camera heads can be changed by the user in the field. Both camera heads are screw on types so no tools are needed.

To remove a camera head:

- Hold the spring assembly firmly just behind the camera head
- Screw the camera head counter-clockwise until off
- To install the camera repeat the above in reverse



NOTE

The camera heads should be hand tightened only. Do not use any tools to install a camera head

5. Using the System

5.1 Charging the Reel

The reel contains Ni-MH rechargeable batteries. To charge the batteries:




- Connect a 100-240V AC power source. The charge cycle for discharged batteries is three hours;
- Alternatively the unit can be powered from an optional 12V DC source.

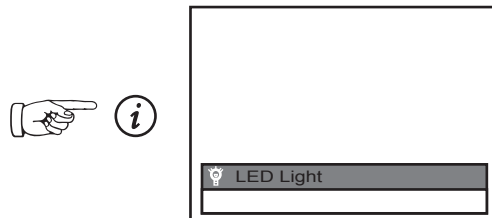


5.2 Adjusting the Hand Held Viewer Display




The viewer's display can be adjusted for use in different lighting situations.

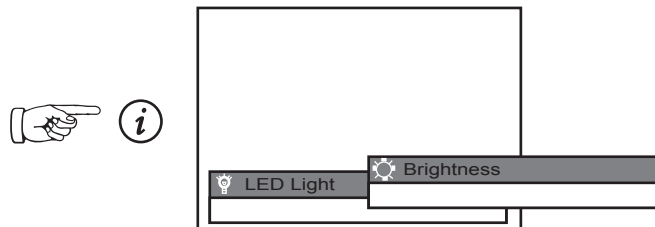
Camera LED Light Setting (Aftermarket Flexible Rod Camera Only)

Press  pushbutton once to bring up the "Video Light" setting menu. Press the left/right buttons  -  as needed to raise and lower the flexible rod camera lights on a scale of 0 to 10.



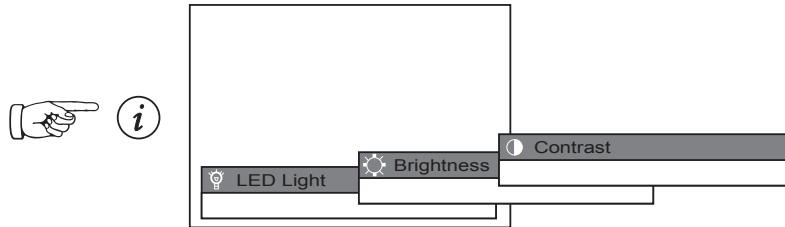
Screen Brightness Setting

Press  pushbutton twice to go to the "Screen Brightness" setting menu. Press the left/right buttons  -  as needed to raise and lower the screen brightness on a scale of 0 to 100.



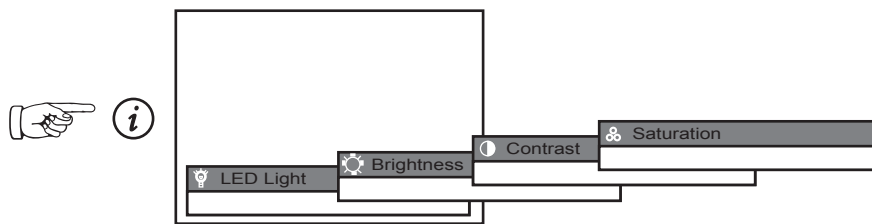
Screen Contrast Setting

Press **i** pushbutton three times to enter the "Contrast" setting menu. Press the left/right buttons ◀ - ▶ as needed to raise and lower the screen contrast on a scale of 0 to 100.



Screen Saturation Setting

Press **i** pushbutton four times to enter "Saturation" setting menu. Press the left/right buttons ◀ - ▶ as needed to raise and lower the screen saturation on a scale of 0 to 100.



5.3 Focus the Camera

The D25-D camera is a manual focusing camera. The D25-D camera will come with a protecting skid and a manual focus tool.

1. Line the four points of the focus tool up to the four adjustment holes surrounding the glass lens.



2. Rotate the tool counter and clockwise to obtain the desired focus.



5.4 Deploying the Camera

1. Unlock the cable drum and feed the pushrod through the cable guide.



2. Insert the camera head into pipe to be inspected and adjust lighting as needed.
3. Push the camera in the pipe until level. Now press the distance reset to reset the distance counter at "0".
4. Continue to push the rod into the pipe until the point of interest is reached. If pushing around elbows or p-traps, be sure to ease the camera around the bends by using a gentle forward/reverse, pulling/pushing action.

5.4.1 Retrieving the Camera

1. Push the rod back onto the drum.
2. When all of the pushrod is back in the drum remove the rod from the cable guide.
3. Position the camera and spring assembly back into the drum.
4. Return the drum brake to the locked position.



CAUTION

Using an overly aggressive pushing action may result in damage to the camera head or termination spring assembly.

5.5 Locating the Position of the Camera Head

The locatable Sonde transmitter is positioned behind the camera head in the white plastic housing where the pushrod connects to the spring. Allowances should be made for the distance between the Sonde and camera head when pinpointing the position of the camera head.



NOTE

*The distance counter will provide you with an estimate. You should always use a Sonde locator or pipe and cable locator to pinpoint the exact location and depth of the camera before excavating.

5 Using the System

Turn on the Sonde transmitter by pressing the red Sonde button on the side of the rod assembly. Note that when the Sonde is active the LCD screen on the viewer will not show the video feed from the camera. When the Sonde is active the viewer will display a blue screen with the active Sonde frequency being used and the distance counter.

The Sonde frequency can be set to either 512Hz or 640Hz. To change the Sonde frequency:

1. Press the Sonde button to activate the Sonde and the active Sonde frequency will be displayed on the viewer screen.
2. Press and hold the Sonde button while watching the screen and the Sonde frequency will change. The Sonde frequency is now set and will not change when the Sonde or unit is turned off. Press and hold the Sonde button while in Sonde mode to change the frequency again.

The best practice for locating the camera Sonde is to push the camera into the pipe and when it is level stop and do the locate. From this point on work in 10-20 foot increments stopping every 10-20 feet and locate the Sonde. It is not a good practice to just push the camera into the pipe a great distance away and set out to locate it. The distance counter in the control module gives an estimate as to how far the camera has been deployed but this is just for reference.

For further information regarding locating the Sonde, refer to the manual of the locator or view other information on our website at www.vivax-metrotech.com



IMPORTANT

Always "Call Before You Dig" and follow your own company's safety practices as well as local, state and national regulations.

6. Using a vCam-5 Control Module

6.1 Using a Control Module

The Type-S Cable Reel can be used with the vCam-5 Control Module. When used with the vCam-5 Control Module additional features include; JPEG picture capture, video recording in avi format and text and audio commenting on videos and pictures.

6.1.1 Connect the Control Module and Reel

To bring the video onto the screen, plug the reel's interconnect cable into the control module. This is a keyed plug and socket so be sure to line up the red dot on the interconnect cable plug to the same red dot on the interconnect socket on the control module.

Line up the red dot on the plug to the red dot on the socket.

- Pull back the knurled ring on the connector.



- Insert the plug into the control module socket and release the knurled ring.

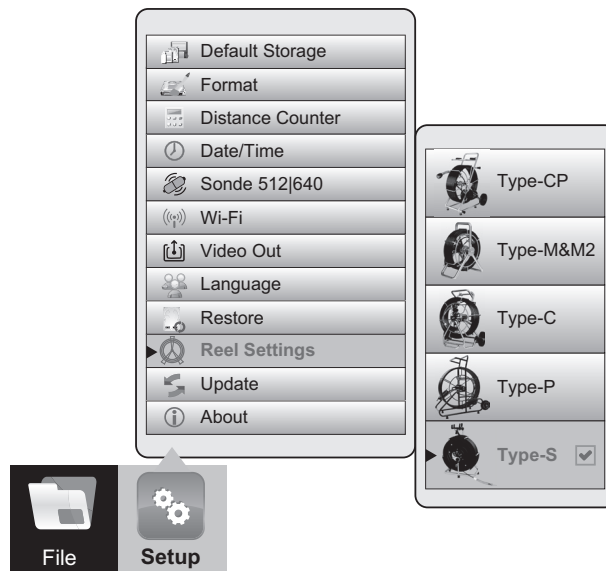


- Check that the connection is secure by giving a slight wiggle and tug.
- To remove the interconnect cable pull back the knurled ring and pull the plug out.

6.1.2 Setting the Reel Type on the Control Module

The vCam-5 control module can be used with several types of Vivax-Metrotech pushrod reels. Selecting the correct reel type helps the control module calculate the distance of the pushrod deployed into a pipe. Know beforehand which model reel and length of pushrod will be used.

1. Press the **F10 Menu** twice to bring up the **Setup** menu.
2. Use the **down ↓** arrow key to scroll to the **Reel Settings** selection.
3. Press **Enter** or use the **right →** arrow key to enter the reel choices sub-menu.
4. Use the **up ↑** and **down ↓** arrow keys to highlight the Type-S Reel.
5. Press the **Enter** key to save the changes.
6. Press the **ESC** key to return to the main setup menu, press **ESC** twice to return to the main screen.



NOTE:

The distance counter is for reference only. It is important that you verify the actual position and depth with a Sonde Locator or Pipe & Cable Locator before excavating.

Refer to the vCam-5 user handbook for complete operating instructions of the control module.

[illegible]

