

**TROGLO • CAM**

EP0739 Rev 00

Push Camera

---

## SAFETY WARNINGS / PRECAUTIONS

### **KEEP THIS MANUAL – DO NOT LOSE**

THIS MANUAL IS PART OF THE **TROGLO** SYSTEM AND MUST BE RETAINED FOR THE LIFE OF THE PRODUCT. PASS ON TO SUBSEQUENT OWNERS.

Ensure any amendments are incorporated with this document.



**CAUTION!** The **TROGLO** is designed for a specific use. Using the **TROGLO** outside of its intended use is dangerous. Failure to comply with the warnings, instructions, and specifications in this manual could result in **PERSONAL INJURY** or **EQUIPMENT DAMAGE**. Read and understand this manual before using.



**DANGER!** The **TROGLO • CAM** is a battery-operated system, never operate the **TROGLO • CAM** when connected to a mains supply. The mains charger must never be operated on-site and is for indoor use only. Failure to comply to this warning may endanger lives



**WARNING! ELECTRICAL CORDS CAN BE HAZARDOUS.**

Misuse can result in **FIRE** or **DEATH** by **ELECTRICAL SHOCK**. Inspect thoroughly before each use. Do **NOT** use if damaged. Do **NOT** use when wet. Keep away from water. Do **NOT** drive, drag or place objects over cord.



**WARNING!** Do **NOT** operate scanner in an explosive environment. Do **NOT** operate scanner in the presence of volatile substances.



**WARNING! DO NOT DISASSEMBLE.** No user-serviceable parts. Disassembling any of the components in this product, beyond the instructions in this user manual, could void the regulatory certifications and/or effect the safety of the product.



**CAUTION!** **DO NOT DISCONNECT UNDER LOAD.** Shut off power before connecting or disconnecting. Permanent damage to electronics could occur.



**CAUTION!** Pinch points exist with this product. Keep fingers and hands clear of pinch points.



The **WEEE** symbol indicates that the product must not be disposed of as unsorted municipal waste, but should be collected separately.

*(see “Disposal” on page 24 for additional details)*

---

# TABLE OF CONTENTS

<b>1</b>	<b>Identification</b> .....	<b>1</b>
	1.1. Product Brand .....	1
	1.2. Manufacturer .....	1
	1.3. Compliance Declarations .....	1
	1.3.1. ISED Emissions Compliance (Canada).....	1
	1.3.2. FCC Suppliers Declaration of Conformity (United States).....	1
<b>2</b>	<b>Product Specifications</b> .....	<b>3</b>
	2.1. Base TROGLO • CAM System.....	3
	2.2. Safety symbols .....	4
	2.3. Safety Signal Words .....	4
<b>3</b>	<b>Operation</b> .....	<b>5</b>
	3.1. Quick Start Guide .....	5
	3.2. Quick Start - Textwriter + DVR .....	7
	3.3. Brushed Skid .....	9
	3.4. End Of Day Procedure .....	10
	3.5. Side Operations .....	12
	3.6. Using the Rod Counter .....	13
	3.7. Using the Textwriter .....	14
	3.7.1. Basic Functions .....	14
	3.7.2. Viewing Text .....	15
	3.7.3. Editing Text .....	15
	3.8. TROGLO • CAM DVR .....	16
	3.8.1. Quick Start .....	16

3.8.2.	Snapshots.....	17
3.8.3.	Take a Snapshot while Recording:.....	17
3.8.4.	Playing Recordings.....	17
3.8.5.	Check SD Card Space.....	18
3.8.6.	Time and Date.....	18
3.8.7.	Formatting SD Cards.....	18
3.8.8.	Voice Recording.....	19
3.8.9.	TROGLO • CAM SD-Card DVR Specifications.....	19
3.8.10.	Playing Video/Snapshots on a Computer.....	20
3.9.	Accessories.....	20
3.9.1.	Roller Skid.....	20
3.9.2.	61 mm Pan and Tilt Camera.....	21
3.9.3.	DC Lead.....	21
3.9.4.	Sondes.....	22
3.9.5.	Tight Bend Attachment.....	22

<b>4</b>	<b>Maintenance.....</b>	<b>23</b>
4.1.	TROGLO • CAM System Maintenance.....	23
4.2.	Push Camera Maintenance.....	23
4.3.	61 mm Pan and Tilt Camera Maintenance.....	23
4.4.	Repairs/Service.....	23

<b>5</b>	<b>Disposal.....</b>	<b>24</b>
----------	----------------------	-----------

<b>6</b>	<b>Limited Warranty.....</b>	<b>25</b>
----------	------------------------------	-----------

# IDENTIFICATION

## 1.1. Product Brand

This user manual describes the proper safety precautions, setup and use of the TROGLO • CAM system.

## 1.2. Manufacturer

Distributor:

Manufacturer:

Jireh Industries Ltd.  
53158 Range Road 224  
Ardrossan, Alberta, Canada  
T8E 2K  
Phone: 780.922.4534  
jireh.com

## 1.3. Compliance Declarations

### 1.3.1. ISED Emissions Compliance (Canada)

CAN ICES-003(A) / NMB-003(A)

This Class A digital apparatus complies with Canadian ICES-003.

*Cet appareil numérique de la classe A est conforme à la norme NMB-003 du Canada.*

### 1.3.2. FCC Suppliers Declaration of Conformity (United States)

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 equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

RESPONSIBLE PARTY NAME:	Jireh Industries
ADDRESS:	2955 S Sam Houston Pkwy E Suite 300 Houston, Texas United States 77047
TELEPHONE:	832-564-0626

# PRODUCT SPECIFICATIONS

## 2.1. Base TROGLO • CAM System

This section outlines the product specifications of the base **TROGLO • CAM** system. When the base system is used together with compatible components or child products, the product specifications of the base system may be superseded.

System input voltage	10.8V – 14.6V
Frame construction	Powder coated Steel
Enclosure construction	Machined-from-solid Aluminium, Hard Anodized
Dimensions	540 mm x 643 mm x 302 mm
Push rod	5-Conductor Epoxy Glass core
Temperature	-20°C to +85°C (storage) 0°C to 50°C (operating)
System weight	17 kg (37.5 lb)
Standard rod length	60 m (196.8 ft)
LCD	14.2 cm (5.6 ft)
Battery capacity	9600mAH
Power consumption	1.3A @12V (15.6W)
Mission time	6-8 hours
Video output	Buffered, 1V p-p into 75 Ohms

## 2.2. Safety symbols

The following safety symbols might appear on the product and in this document. Read and understand their meaning below:



General warning symbol

This symbol is used to alert the user to potential hazards. All safety messages that follow this symbol shall be obeyed to avoid possible harm or material damage.



Shock hazard caution symbol

This symbol is used to alert the user to potential electric shock hazards. All safety messages that follow this symbol shall be obeyed to avoid possible harm.

## 2.3. Safety Signal Words

The following safety signal words might appear in this document. Read and understand their meaning below:

**DANGER!**

The DANGER signal word indicates an imminently hazardous situation. It calls attention to a procedure, practice, or the like that if not correctly performed or adhered to will result in death or serious personal injury. Do not proceed beyond a DANGER signal word until the indicated conditions are fully understood and met.

**WARNING!**

The WARNING signal word indicates a potentially hazardous situation. It calls attention to a procedure, practice, or the like that if not correctly performed or adhered to could result in death or serious personal injury. Do not proceed beyond a WARNING signal word until the indicated conditions are fully understood and met.

**CAUTION!**

The CAUTION signal word indicates a potentially hazardous situation. It calls attention to a procedure, practice, or the like that if not correctly performed or adhered to may result in minor or moderate personal injury, material damage, particularly to the product, destruction of part or all of the product, or loss of data. Do not proceed beyond a CAUTION signal word until the indicated conditions are fully understood and met.

## OPERATION

### 3.1. Quick Start Guide

1. Press the battery into the frame and it push upwards to lock it in place.



Fig. 1 - Battery installation

2. Attach the camera to the rod termination.



Fig. 2 - Attach camera

3. Attach brushed skid.



Fig. 3 - Attach brushed skid

4. Remove the SD card cover by pulling the lanyard upwards and then away from the unit.



Fig. 4 - Remove SD card cover

5. Insert the SD Card with the label facing upwards—it will click into place. Refit the cover.

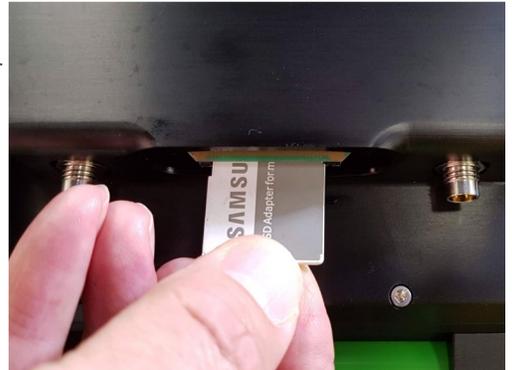


Fig. 5 - Insert SD card

6. Switch unit ON - It is now ready for surveying.



Fig. 6 - Switch unit on

## 3.2. Quick Start - Textwriter + DVR

1. The Textwriter starts with the rod counter, time, and date and then displays the Text from Page 1.



Fig. 7 - Textwriter

2. Use the keys shown here to hide or display the rod counter, time, date and text.

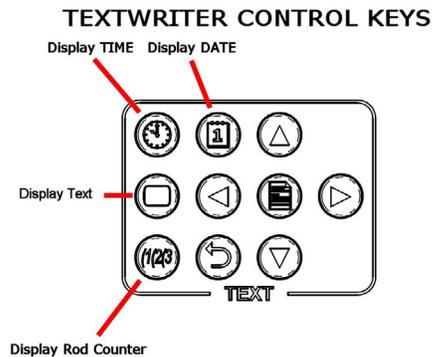


Fig. 8 - Textwriter keys

3. After 15 seconds from switch-on, the 'DVR READY' message shows.



Fig. 9 - DVR ready

4. Press RECORD (YES) to start a recording.



Fig. 10 - Record

5. Ensure the LED is flashing to show a successful recording.

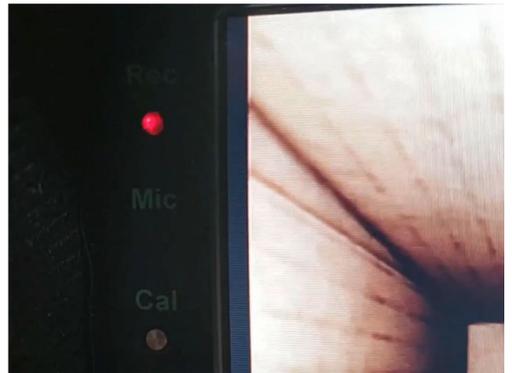


Fig. 11 - Flashing light

6. Press STOP (NO) to stop the recording when finished.



Fig. 12 - Stop button

### 3.3. Brushed Skid EPG014-36/EPG014-29/EPG014-48

The 61 mm Pan and Tilt camera must always be used with the brushed skid, regardless of whether nylon brushes are used. Using the system without a skid may damage the camera. The **TROGLO • CAM** skids can be adjusted from 7.6 cm (3 in) (with no brushes installed) to 10.1 cm (4 in) or 15.2 cm (6 in) by selecting from the two available brush sizes.



Fig. 13 - Unscrew skid and install nylon brushes

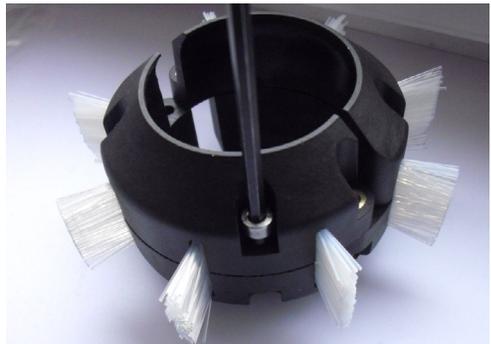


Fig. 14 - Tighten screws



Fig. 15 - Place pushrod adapter inside skid



Fig. 16 - Brushed skid reducer



Fig. 17 - Brushed skid reducer



Fig. 18 - Brushed skid reducer goes inside the brushed skid

### 3.4. End Of Day Procedure

1. Ensure the system is not recording video. Press the power button to turn the unit off.



Fig. 19 - Stop button

2. Fold the sunshade flat and swivel the control unit flat against the keyboard.



Fig. 20 - Fold flat

3. Fully apply the brake. The coiler is ready for transportation.



Fig. 21 - Apply brake

4. Remove the battery by pressing both buttons and lowering the battery.

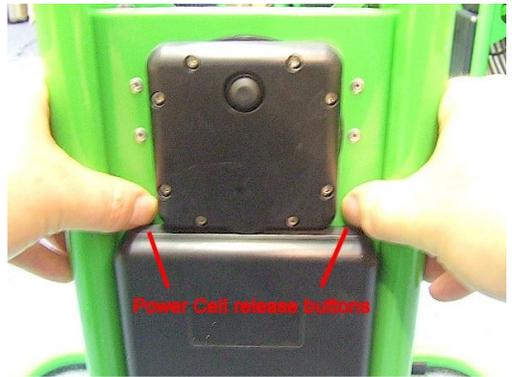


Fig. 22 - Remove battery

5. Connect the mains charger. Charging will take 4—6 Hours.



Fig. 23 - Connect charger

6. The battery can be charged while it is fitted to the frame if preferred.

**NOTE:** Do **NOT** operate while charging.



Fig. 24 - Battery charging while attached to the frame

## 3.5. Side Operations

1. Disconnect both cables and remove the control unit from the frame.



Fig. 25 - Disconnect cables

2. Remove the keyboard from the frame.



Fig. 26 - Remove keyboard

3. Lay the system on its side, attach the keyboard, and then control the unit above the hub.



Fig. 27 - Lay sideways

4. Connect the keyboard cable and link cable, and use the clips to secure the link cable in place. Ready for operation.



Fig. 28 - Connect keyboard

### 3.6. Using the Rod Counter

The rod counter can be operated in imperial mode (*feet and 10<sup>th</sup> of a foot*) or metric mode (*metres and 10<sup>th</sup> of a metre*). To switch between the two modes, press the **C** key when the Textwriter is in **View mode**; the display will change from imperial to metric.

If a relative measurement needs to be made between two points during a survey, press the **Cal** button to the left of the screen, which will zero the **Rod Counter**. The rod counter will now count up or down from the point where the button was pressed, providing a relative measurement.

As the rod counter relies on the rotation of the coiler, the coiler brake must be set correctly. When letting the rod out, the coiler may not rotate freely if the brake is set too tightly. Ensure that the brake is set so that the coiler allows the rod to be removed smoothly but does not allow the coiler to freewheel. Layering the rod neatly on the coiler increases the accuracy and is always good practice.



Fig. 29 - Rod counter



Fig. 30 - Coiler brake

## 3.7. Using the Textwriter

### 3.7.1. Basic Functions

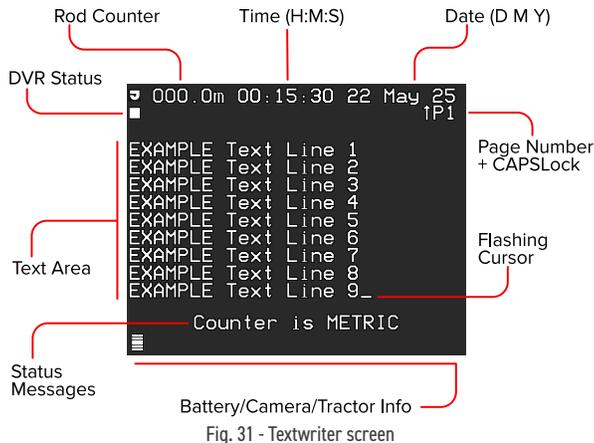


Fig. 31 - Textwriter screen

The Textwriter starts with the rod counter, time, date and text displayed. The **Status line messages area** is used to provide the operator information, such as **DVR Ready** and **Counter Is Set To Zero**. This area is also used to send messages to the operator when using the Textwriter. The rod counter, time and date can be displayed or hidden using the keys shown below. The position of these displays is fixed on the top line, and they always appear in the same order.

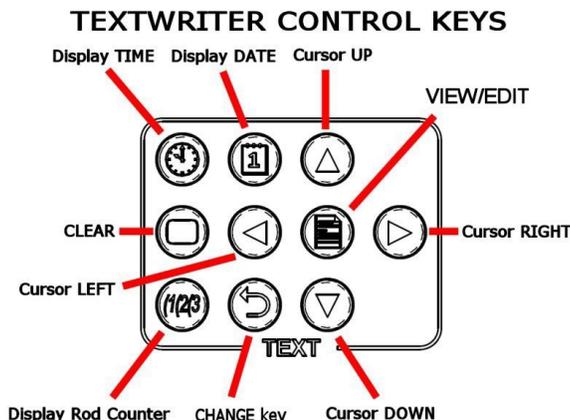


Fig. 32 - Textwriter buttons

To set the time and date, press the **Change** key once. The **Hours** display will turn black to indicate the value can now be changed. Use the **Up** and **Down** buttons to increase or decrease the hour's value (*or hold the key down to increase or decrease the value quickly*). Once the hours are correct, press the **Change** key once; this locks the new value. The minute's value can now be changed. Use the

same procedure for minutes, days, months, and years. Press **Change** once more to finish editing time and date.

The text mode is selected by pressing the **View/Edit** button. The following sections describe the options for viewing and editing text.

### 3.7.2. Viewing Text

While in **View mode**, the text area can be hidden by using the **Clear** button, which toggles between **Hide/Show modes**. The text is not deleted using the **Clear** button.

The Textwriter can display the text area in two different styles. While in **View mode**, use the **Left/Right** keys to cycle between plain and block styles.

There are nine pages available to display text. These can be used to store commonly displayed information, such as your company's name and address. Pressing keys **1** through **9** will display that page of text, or you can cycle through one page at a time by pressing the **Up** or **Down** buttons. When advancing through pages using the **Up/Down** buttons, the page will wrap around from the last to the first and vice versa.

An entire page of text can be deleted by pressing the **Del** key while in **View mode**. Once pressed, the status line will read **Delete Page? Y** or **N**, prompting the user to confirm by pressing the **Y** key for yes or any other key for no. When a page is deleted, the text cannot be recovered.

### 3.7.3. Editing Text

The current page of text can be edited by entering **Edit mode** using the **View/Edit** button. The status line will indicate **Textwriter Edit mode** or **Textwriter View mode** when switching between modes. While in **Edit mode**, the caps lock symbol (up/down arrow) will appear next to the page number, and the flashing cursor will appear at the current text entry position. While editing text, changes are saved automatically, ensuring that data is preserved even in the event of power loss.

- ▶ Use alpha-numeric keys or **Space** to add text.
- ▶ Use **Del** to backspace over previous characters.
- ▶ Use the arrow keys to move the cursor position. The cursor will wrap around from the edge of the screen to the next/previous line.
- ▶ Use **Enter** to move down to the start of the next line. **Enter** will jump to the top line if the cursor is already on the bottom line.
- ▶ Use the **CAP** button to toggle caps lock, switching between all uppercase and lowercase.

When finished editing, press the **View/Edit** button again to exit **Edit mode**.

## 3.8. TROGLO • CAM DVR

### 3.8.1. Quick Start

Lift the display to the upright position and press the power button. Wait for the **DVR READY** message (15 seconds after power-on).



Fig. 33 - DVR ready



Fig. 34 - Record button

Press the **Record** button on the keyboard (marked **Yes**) to record. The DVR will start to record immediately, the status LED will flash red, and after 12 seconds, the screen will display the message **DVR RECORDING OK**. Press the **Stop** button (marked **No**) to stop recording.

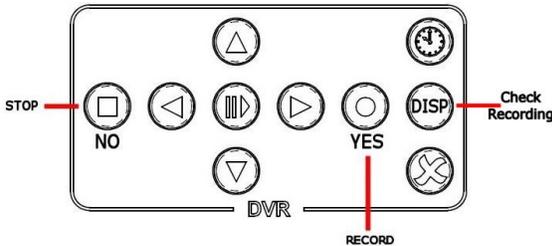


Fig. 35 - DVR keypad



Fig. 36 - Recording light

While recording, you can press the **Disp** button to show the recording progress. Press **Disp** again to return to the live picture. The picture above shows the status LED - this should rapidly flash red when recording. Only change the SD card when the system is off.

If the SD card is faulty, not fitted correctly or damaged, when a recording is started, the red recording light will not flash. After 12 seconds, messages at the bottom of the screen will show **DVR FLASH CARD ERROR - CARD FULL OR MISSING - PRESS DISP TO CHECK**. Pressing the **DISP** key will show the error as reported by the DVR. Turn the system off, replace the SD card and power on the system.

### 3.8.2. Snapshots

A snapshot can be taken by pressing the **Right Arrow** key, as shown below.



Fig. 37 - Right arrow

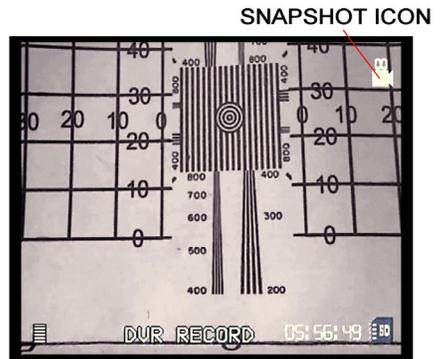


Fig. 38 - Snapshot icon

The screen will momentarily show a **RECORD** message. After 1 second, the screen will return to the live picture, and **READY** will be momentarily displayed. The snapshot will be saved on the SD card in a JPEG format.

### 3.8.3. Take a Snapshot while Recording:

A snapshot can be taken when making a recording using exactly the same process. Pressing the **Right Arrow** key as shown above.

### 3.8.4. Playing Recordings

After recording, the video or snapshot can be checked by pressing the **Play** button. The screen will momentarily show **DVR PLAY MODE**, and the last video or snapshot will be shown. Use the **Fast Forward** and **Fast Rewind** buttons if required (*these have no function when a snapshot is shown*).



Fig. 39 - Play button

### 3.8.5. Check SD Card Space

When the DVR is idle, the remaining space on the card can be checked by pressing the **Disp** button. The screen will show a **DVR EDIT MODE** message while the DVR calculates the remaining space - after a few seconds, the screen below will be shown, indicating the remaining space on the card.

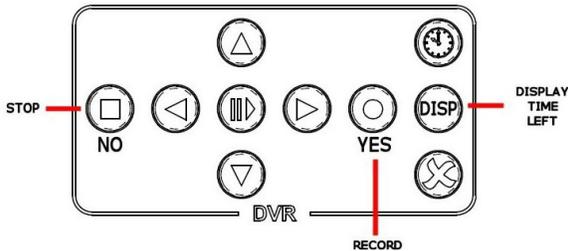


Fig. 40 - Check SD card space



Fig. 41 - SD card information

### 3.8.6. Time and Date

When the DVR is idle, the time and date can be set by pressing the **Set Time** button. The screen will show a **DVR EDIT MODE** for a few seconds and then will show the time and date as shown below. Use the cursor keys (shown in red) to adjust the time and date, and then press the **EDIT TIME, Yes or No** buttons to save the new settings and return to the **Ready** screen.

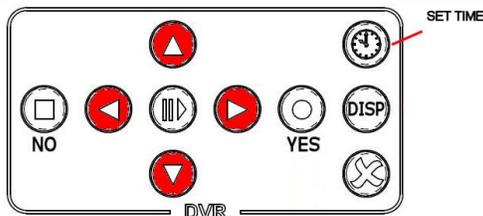


Fig. 42 - Keys to edit time and date



Fig. 43 - Time and date

### 3.8.7. Formatting SD Cards

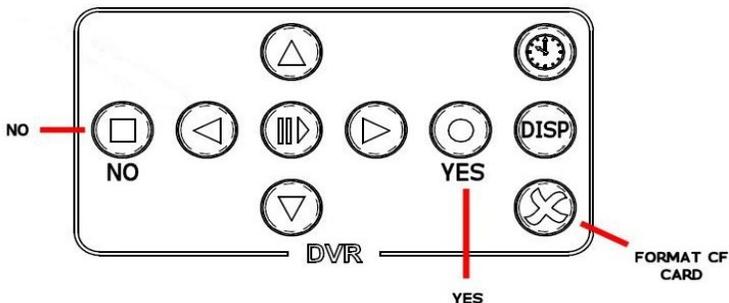


Fig. 44 - Formatting SD card

Formatting the SD card will delete all your recordings and snapshots, so use this function with caution.

Press the **Format Card** button once. The screen will show **DVR EDIT MODE** at the bottom of the screen. After a few seconds, the screen will change to that shown below: You now have the option of pressing **Yes** to format the card or **No** to return to normal operation. If **Yes** is pressed, the card will be formatted.

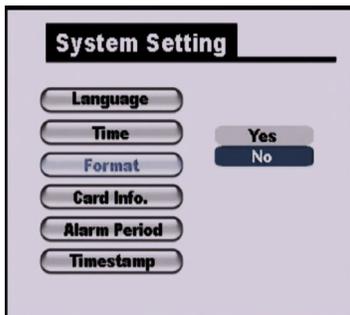


Fig. 45 - Settings



Fig. 46 - Formatting

When formatting is complete, the screen will return to the **Live View** after a few seconds, and the DVR will restart. Wait for the **DVR Ready** status message to indicate when the DVR is once again ready for recording.

### 3.8.8. Voice Recording

You can record voice messages while recording. By default, the microphone is switched off. To switch the microphone on, press the **M** button on the Textwriter (*in View mode, no cursor on screen*). To switch it off, press the **M** button again. When the **M** button is pressed, the status line will show the off symbol or the on symbol.

### 3.8.9. TROGLO · CAM SD-Card DVR Specifications

Recording Resolution	D1 High Definition
Recording Type	MPEG4 (ASF)
Snapshot	JPEG (VGA)
Maximum Card Size	32 GB
Card Usage	1 GB - 1.5 GB per Hour
Bitrate	Variable
SD Card Type	HDS
Environmental	Watertight ( <i>submersible</i> ), Contact JIREH for details

### 3.8.10. Playing Video/Snapshots on a Computer

Many Laptop computers are supplied with an SD card slot. In this situation, the SD card can be simply copied to a new folder on your machine. The card is usually seen as a removable drive and will contain a number of folders. The video files are contained in the folder: **Drive:\MFG\00000xxx**, where Drive is the letter allocated to the SD card by your computer, and **xxx** reflects the latest folder that has been created. The video files all have the extension **.ASF**, the snapshots will have the extension **.JPG**. A new folder is created for each recording session. See example folder contents below: The video and snapshot files that are created are compatible with all modern computers (*PC and MAC*) and don't require any special video players to be downloaded.

## 3.9. Accessories

### 3.9.1. Roller Skid EPA015-125/EPA015-200

This roller skid extends the ability to push the **TROGLO • CAM** in adverse conditions. The skid is 120 mm (4.7 in) in diameter and fits over the 61 mm Pan & Tilt camera. It is designed for use in any diameter pipe above 120 mm (4.7 in) but is especially useful for re-lined 15.2 cm (6 in) pipe.



Fig. 47 - Roller skid

### 3.9.2. 61 mm Pan and Tilt Camera EPG006



Fig. 48 - Pan and tilt camera

The 61 mm Pan and Tilt camera is watertight and designed to operate on the **TROGLO • CAM** push rod system. The camera does not need to be pressurized to attain its watertight status; the camera is sealed at the factory and will retain sealing integrity throughout its life. The camera can also measure defects in pipes without the need for grids or lasers; the measurement can be made and saved during the live survey, taking just a few seconds. This capability can be added at any time to the system when required.

### 3.9.3. DC Lead EPG021

To extend the operation time of the system, the DC Lead can be used to both charge the battery and operate the **TROGLO • CAM** at the same time. The DC Lead is 3 m (9.8 ft) in length and has a plug to connect to a vehicle with a 12V battery system. Each hour of charge while travelling can provide up to three hours of operation time without the need for any generator or external power supply.



Fig. 49 - DC lead

### 3.9.4. Sondes EPG010-A/EPG010-B

Sondes are available with the following frequencies:

- ▶ 512Hz
- ▶ 32.768KHz

Our powerful sondes allow you to accurately and reliably locate your push camera at depth. They are crystal-controlled and always give a powerful and precise signal to your requirements. They are compatible with most locators.



Fig. 50 - Sonde

### 3.9.5. Tight Bend Attachment EPG011

The Tight Bend Attachment allows the camera to negotiate multiple tight bends. It can be used with the 61 mm Pan & Tilt camera. The attachment is simply attached to the **TROGLO • CAM** termination, and the camera is attached to the other end.

## MAINTENANCE

### 4.1. TROGLO • CAM System Maintenance

When the rod is returned to the coiler, ensure that most debris is removed, although the **TROGLO • CAM** is watertight, the use of pressure washers is strictly prohibited as the pressure can exceed acceptable limits. Keeping the rod clean as it is returned to the coiler is the preferable method of keeping the **TROGLO • CAM** in good condition. After each week's operation, ensure that the rod guide is clear of debris and clean if necessary, using warm water and a paintbrush to get into the inaccessible parts. Wipe down the enclosures with warm water and a mild detergent using a cloth. Perform cleaning operations with the camera and accessories connected.

### 4.2. Push Camera Maintenance

It is best practice to leave the camera and skids fitted to the **TROGLO • CAM** system. If you need to remove the camera, ensure that the termination is clean before removal. When replacing the camera, ensure that the threads are clean and that the O-rings are well-lubricated with silicone grease. Never use solvents (*such as Ambersil*) to clean the termination, as this will damage the O-rings. Keep the windows clean with a damp cloth and a small brush to remove debris from the front guard.

The lens window is the only user-replaceable part on the 48 mm push camera, although the surface is extremely hard, it may become scratched over a period of time, and this will affect the picture quality. The replacement requires the purchase of a lens window kit, which includes the quartz window and the sealing O-ring. Before attempting the replacement, ensure that the camera is perfectly clean and there is no debris in the window aperture.

### 4.3. 61 mm Pan and Tilt Camera Maintenance

It is best practice to leave the camera and skids fitted to the **TROGLO • CAM** system. If you need to remove the camera, ensure that the termination is clean before removal. When replacing the camera, ensure that the threads are clean and that the O-rings are well-lubricated with silicone grease. Never use solvents (*such as Ambersil*) to clean the termination, as this will damage the O-rings. Keep the windows clean with a damp cloth (*microfibre cloths are recommended*).

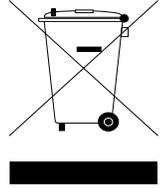
### 4.4. Repairs/Service

The **TROGLO • CAM** has no user serviceable parts. Please refer to your distributor for repairs and service.

## DISPOSAL

### WEEE Directive

In accordance with European Directive on Waste Electrical and Electronic Equipment (WEEE), this symbol indicated that the product must not be disposed of as unsorted municipal waste, but should be collected separately. Refer to Jireh Industries for return and/or collection systems available in your country



# LIMITED WARRANTY

## **WARRANTY COVERAGE**

Jireh Industries warranty obligations are limited to the terms set forth below: Jireh Industries Ltd. (“Jireh”) warrants this hardware product against defects in materials and workmanship for a period of THREE (3) YEARS from the original date of purchase. If a defect exists, at its option Jireh will (1) repair the product at no charge, using new or refurbished replacement parts, (2) exchange the product with a product that is new or which has been manufactured from new or serviceable used parts and is at least functionally equivalent to the original product, or (3) refund the purchase price of the product. A replacement product/part assumes the remaining warranty of the original product or ninety (90) days from the date of replacement or repair, whichever provides longer coverage for you. When a product or part is exchanged, any replacement item becomes your property and the replaced item becomes Jireh’s property. When a refund is given, your product becomes Jireh’s property.

## **OBTAINING WARRANTY SERVICE**

To utilize Jireh’s warranty service you must ship the product, at your expense, to and from Jireh Industries. Before you deliver your product for warranty service you must phone Jireh and obtain an RMA number. This number will be used to process and track your product. Jireh is not responsible for any damage incurred during transit.

## **EXCLUSIONS AND LIMITATIONS**

This Limited Warranty applies only to hardware products manufactured by or for Jireh Industries. This warranty does not apply: (a) to damage caused by accident, abuse, misuse, misapplication, or non-Jireh products; (b) to damage caused by service (including upgrades and expansions) performed by anyone who is not a Jireh Authorized Service Provider; (c) to a product or a part that has been modified without the written permission of Jireh.

Jireh Industries Ltd.  
53158 Range Road 224  
Ardrossan AB T8E 2K4  
Canada

Phone: 780-922-4534

[jireh.com](http://jireh.com)

All brands are trademarks or registered trademarks of their respective owners and third-party entities.

Changes or modifications to this unit or accessories not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

All specifications are subject to change without notice.

© 2025 Jireh Industries Ltd.



Jireh Industries Ltd.  
53158 Range Road 224  
Ardrossan, Alberta  
Canada  
T8E 2K4

780-922-4534

[jireh.com](http://jireh.com)