H12+ CONTROLLER

User manual

minicam
HATHORN

Contents

User manual for H12+ Camera System

*For Wi-Fi Versions only

This document is applicable to the Minicam Hathorn H12+

A standard system and available options are covered by this document. Depending on your system configuration you may lack some of the features mentioned in this document.

Disclaimer

Hardware and software mentioned in this document are subject to continuous development and improvement. Consequently, there may be minor difference between the information in the document and the performance or design of the product. Specifications, dimensions and other statements in this document are subject to change without prior notice.

Minicam and its suppliers shall not be liable for any damages related to this software or hardware, or for any other damages whatsoever caused by the use of or inability to use any Minicam product. This is applicable even if Minicam has been advised of the damage risk. Under any circumstances, Minicam's entire liability shall be limited to replace such defective software or hardware that was originally purchased from Minicam.

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Company Registered in England & Wales • Company Registration No: 3728693

Limited Warranty

Congratulations on the purchase of your new Hathorn Inspection System. Our products are the result of many years experience and continuous developments. Conscientious manufacturing and checking are essential objectives in our company. Nevertheless failures cannot be excluded totally. If this occurs, you are covered by our generous warranty. Please consider that even the best products can only be durable and work properly with the correcthandling and maintenance.

Extent of the Limited Warranty

Minicam warrants that your equipment will be in good working condition and free of defects in material and/or workman-ship for a period of one year. If failure occurs, which is provable due to a defect in material and/or workmanship, we will remedy it free of charge during the warranty period. We reserve the right, at our option, to repair the equipment or to replace the whole unit or the faulty parts, or to refund the then current value of the equipment, if we are unable to repair or replace the unit. The warranty is a return to base warranty and we are not liable for any shipping costs.

Conditions of the Limited Warranty

Disassembling the camera, coiler, control unit or any part of the system, without approval of the manufacturer, is forbidden! Non-compliance of this direction will result in the loss of the warranty. The beginning of the warranty period is the date of delivery. This limited warranty does not cover damage due to improper treatment of the system, inadequate maintenance, alteration, repair, normal wear and tear or external causes like lightning, fire or frost. The warranty does not cover wear and tear parts like front camera lenses, O-rings, cable, push rod, rod rollers etc. If you require warranty service please return the system with the original invoice to your dealer or the nearest Minicam Service Centre.
Equipment returned **must** be consigned carriage paid. We will **not** be liable for carriage costs.

Warranty Limitations

Our responsibility under this warranty is limited to repair, replacement or refund, as set forth above. Minicam is not responsible for direct, special, incidental or consequential damages resulting from any breach of warranty including lost profits, downtime, goodwill, damage to or replacement of equipment and/or property.

TEXT CONVENTIONS

Danger, Caution and Note

In this user manual the following symbols are used:

DANGER!
Danger means a potentially dangerous situation that can cause death or severe bodily injury.
The icon identifies the type of risk.

CAUTION!
Caution means that the system or equipment can be damaged or data lost.
The icon identifies the type of risk.

NOTE!
Notes are used to convey throughout this manual important information or guidance for system use.

Bold Font
Bold font is used for important words (For example: This **must not** be done in reverse order).

Lists
Lists are marked as follows:
  - Item 1
  - Item 2

Procedures that must be performed in a specific order appear in numbered lists like this:
  1 Perform this step first.
  2 Perform this step second.

Menu Selections
When describing control unit operation, sequential menu selections are described in the following format:

Tools > Power Saving > Automatic Shutdown > OK

This example describes pressing the Tools 🔧 key and selecting the Power Saving option, then Automatic Shutdown, and finally pressing the OK key.

EU DECLARATION OF CONFORMITY

CE Declaration

We Minicam Ltd, Raven Locks, Unit 33-35 Ravenscraig Road, Little hulton, United Kingdom, M38 9PU hereby declare that the product Minicam Hathorn H12+ to which this declaration refers is in compliance with the following standards or standardizing documents:

EN61326-1: 2021 Electrical equipment for measurement, control and laboratory use – EMC requirements - Part 1: General requirements
ETSI EN 300 328

The following are the stipulated operating and environmental conditions for said compliance:
Residential, business, commercial, small-company and light industrial environments.

This declaration is based on test report(s) of the relevant EMC testing laboratory.

Authorised representative in the EU:
InPipe GmbH
Jägerwinkel 1a,
6991 Riezlern,
Austria

Authorised representative in the United States:
Minicam Inc
12600 Newburgh Road,
Livonia,
MI 48150
United States

FCC

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.

ISED

This digital apparatus complies with Canadian ICES-003. 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.

ACMA

This multimedia equipment complies with AS/NZS CISPR 32:2015 AMD1:2020. 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.

WEEE Statement

Under the European Union (EU) Directive on Waste Electrical and Electronic Equipment, Directive 2002/96/EC, products of electrical and electronic equipment cannot be discarded as municipal waste anymore and manufacturers of covered electronic equipment are obligated to take back such products at the end of their useful life. Minicam will comply with the product take back requirements at the end of life of Minicam products that are sold into the EU.

For disposal contact Minicam or the Minicam Partner in your country.

Information on Disposal for Business Users

Your Hathorn CCU is marked with the symbol shown above. It means that usedelectrical and electronic products should not be disposed of in with general household waste. Contact your Local Council who will advise on the correct recycling procedure to follow.

In the European Union

Please contact Minicam or you nearest Minicam Service Centre who will inform you about the take-back of the product. You may be charged for the cost arising from take-back and recycling. Small products (and small amounts) might be taken back by your local collection facilities.

For Spain:

Please contact the established collection system of your local authority for take-back of your used product.

Countries outside the EU:

If you wish to dispose of your Hathorn CCU, please contact your local authorities and ask for the correct method of disposal.

CONTROLLER

Product Specifications

Weight	4.3 Kg (9.5 lbs)
Length × Width × Depth	38 cm × 30 cm × 14 cm (15" × 12" × 5.5")

Power

AC/DC Adapter	12V - 4.1A
Battery	Only Milwaukee® M18 18V or equivalent
Battery Life	~4 hrs using 3.0Ah (not recording & sonde off)
Battery Extender	Yes with on-screen battery display

Display

Type	Impact-resistant LCD
Size	30.4 cm (12")
Resolution	XGA 1024 × 768 pixels
Brightness	1,300 cd/m^2
Zoom	1X, 2X, 4X, 8X with digital pan feature

Footage Counter

Feet or Meters with reset function

Sonde Frequencies

High power 512 Hz or 640 Hz

Keyboard

Full-sized QWERTY with silicone cover

Text Overlay

8 pages - save, recall, hide, delete

Information Bar

74 characters over two lines

Media

Video	MPEG4 (H.264)
Screenshot	JPEG
Audio	Integrated Microphone and speaker
Languages	English, Spanish, French

Storage Options

USB, HDD or USB & HDD

Storage Remaining

USB and HDD in Kb

HDD

128 Gb SSD (512 Gb SSD optional) allowing   user >100 hours (400 hours) of video capture

USB

USB 2.0 up 32 Gb formatted in FAT format allowing user >25 hours of video capture

Environmental

Operating Temperature	-10°C to 50°C (14°F to 122°F)
Storage Temperature	-20°C to 60°C (-4°F to 140°F)

KEYPAD ICONS

Keypad Icons

POWER ON/OFF

CAMERA LEDS UP

SONDE ON/OFF

CAMERA LEDS DOWN

FOOTAGE COUNTER RESET

HATHORN INFO BAR

MIC/SPEAKER ON/OFF

ZOOM 1X, 2X, 4X, 8X

MENU ENTER/EXIT

NAVIGATION BUTTONS

ENTER/CONFIRM SELECTION

STOP RECORDING &
PLAYBACK

PAUSE RECORDING &
PLAYBACK

RECORD VIDEO

TAKE SCREEN SHOT

Main Menu Options

REEL SIZE
OPTIONS

CONTROLLER
SETTINGS
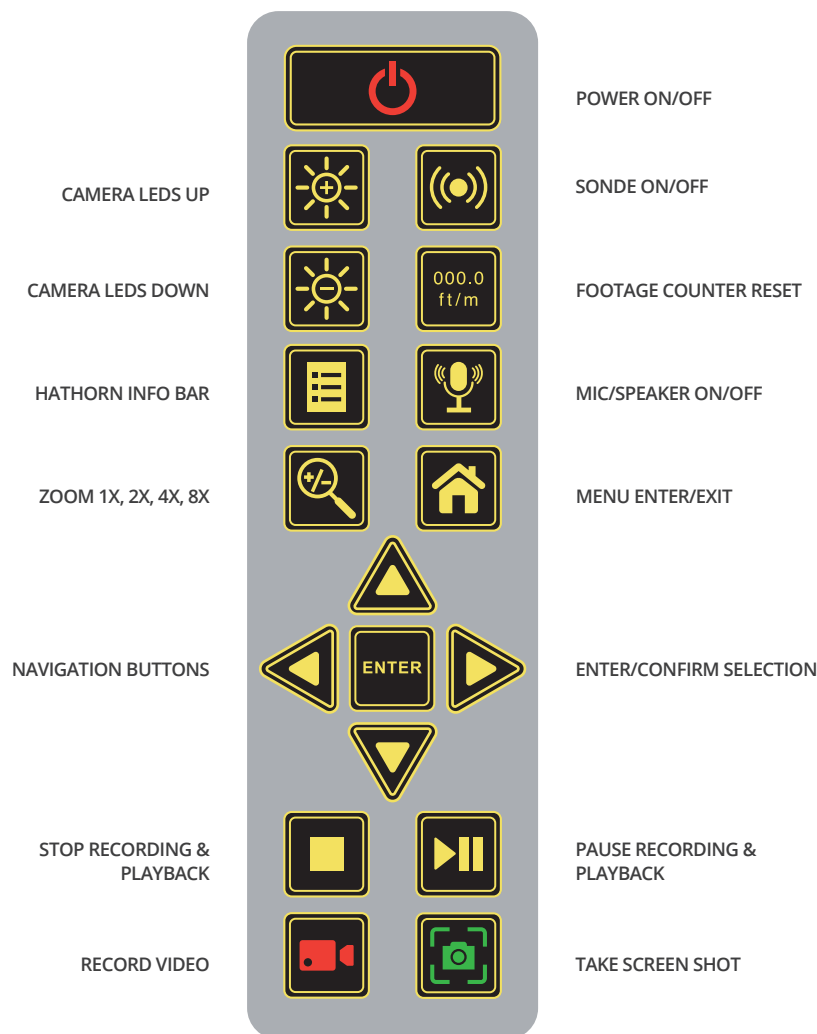
FILE STORAGE
OPTIONS
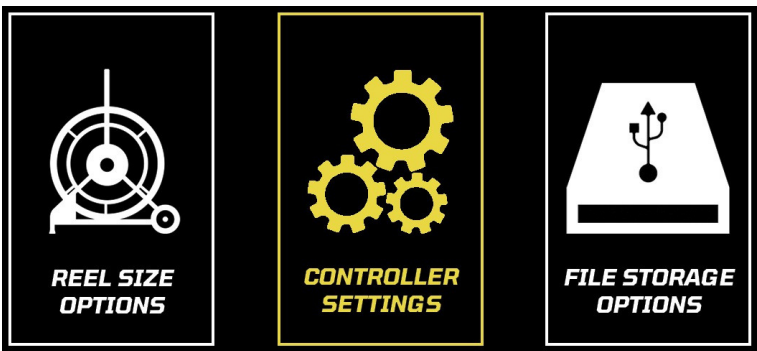
Information Bar Icons

BATTERY MONITOR

Hathorn Inspection Cameras Information Bar

MICROPHONE

512 Hz ON — SONDE ON/OFF & FREQUENCY

REC USB — **RECORDING MEDIA**

+0.0' — FOOTAGE (FT. OR M)

11/22/2022 2:35 pm — DATE & TIME

Zoom 1x — ZOOM

Setting up Your System for First Use

Your controller comes from the factory set for us using factory default settings. Should you wish to change any functions or options, press the MENU key, then select Controller Options.

In the Controller Settings menu, you can change:

- Which Minicam Hathorn reel you want to use
- Monitor brightness and contrast. For optimal picture, leave brightness at 10 and contrast at 5
- Menu language (English, Spanish and French)
- Sonde frequency of 512Hz or 640Hz
- Footage measurement in Feet or Meters
- File recording location - HDD, USB, or both USB & HDD
- System Time & Date
- Battery extender On/Off, which automatically dims the screen when the battery is getting low
- Odometer - Note: This cannot be reset. Permanently records the footage that the monitor has recorded since new

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NOTE:
You must select the correct reel and push rod size to ensure correct footage counter calibration. See page 12.

KEYBOARD FUNCTIONS

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The keyboard can be used to type information onto the screen overlay. Anything shown on the screen while recording will show up on the recording.

Page 1 to Page 8	**Hide Page**	**Save Page**
Brings up the corresponding background page for typing in inspection details.	Hides the selected page. Please not that anything typed in will remain in the background until it is deleted or the system is restarted.	Saves what is visible on the displayed screen into the page memory. Saving ensures your text will survive a system restart.

Escape Key	**Escape Key**	**Arrow Keys**
Functions the same as the MENU key on the keypad.	Functions the same as the MENU key on the keypad.	Moves cursor on text overlay and allows user to make menu selections.

Return
Functions as a line return key when typing. Doubles as the ENTER key within menus.

Information Bar

The Hathorn INFO BAR allows the user to type in a company or client name for overlay onto videos and screenshots. Press the INFO BAR keypad button and use the keyboard to enter up to 74 characters of text. Text will remain until deleter or system is shut down.

CONTROLLER

User Instructions

Turning Your Monitor On

Press the POWER button to turn on the controller. At this point you should see the Hathorn logo on the screen while the system boots up. Boot up takes ~12 seconds.

NOTE:
It is good practice to remove batteries from electronic equipment after use. Failure to do so may result in the batteries being drained over extended periods.

Entering the Main Menu

To bring up the Main Menu, press the MENU/HOME key on your controller.

Reel Selection

Your controller will work with all Hathorn reels, but **you must select the correct reel size to ensure correct footage counter caliberation**. To select the correct reel, press the MENU button, then press enter on the REEL SIZE OPTIONS icon. You can then confirm which reel you are using.
The controllerwill remember the last reel you selected on restart.

Entering the Controller Options Menu

Highlight the CONTROLLER SETTINGS icon and press enter. The options menu will come up.

Brightness	5
Contrast	5
Launguage	English 🇬🇧
Sonde selection	512Hz
Footage counter units	Feet
Storage type	USB & HDD
Date/Time set	09:58 11/24/2022
Battery Extender	On
Odometer	525'

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CONTROLLER

User Instructions

Selecting a Menu Language

In the main menu, you can select the language you prefer to read menuinformation. Your choices are English, French, or Spanish. To select thepreferred language, press the MENU button, then press enter again on theCONTROLLER SETTINGS icon. Press the enter key to highlight thelanguage selection. Choose your language and press enter to confirm.

Selecting a Sonde Frequency

In the main menu, you can select the frequency you wish to use - 512Hz or 640Hz. On the main screen, push the SONDE button to turn the sonde on oroff. The Hathorn Info Bar will indicate which frequency is selected and if thesonde is active in green text.

Turning the Sonde On /OffCamera

On the main screen, push the SONDE button to turn the sonde onor off. Sondes are locatable up to ~15ft in depth, dependent uponthe type of pipe (concrete/steel/cast iron) and the presence of thick-concrete, sand, or other utilities.

Footage Counter Reset

Pushing the COUNTER RESET button will reset the footage counter to zero.

Camera Head LED Light Control

Camera head LED light brightness can be controlled using the LED UP/DOWN buttons on the front of the monitor. This feature may come in handy should you find yourself in brand new white pipes, glass pipes, or commercial food/pharmaceutical grade stainless steel pipework.

NOTE:
It is good practice to remove batteries from electronic equipment after use. Failure to do so may result in the batteries being drained over extended periods.

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Wi-fi User Instructions*

Download the Wi-Fi App

- Turn on the mobile device and enter App Store for either Apple or Android
- Search for the Minicam Viewer app) latest version Install the app software
- Note: You must be running iOS 13 or later for Apple

Setting Up the System

Connect DC power plug to the jack on the reel hub using AC/DC adapter or 18V external battery.
At this point, you should have lights on the camera.

Access Wi-Fi connections on your device and select the one named "Hathorn #####". Enter password 12345678.
Exit then open the "Minicam Viewer" app and click "**CONNECT**". At this point you should have video on your screen.

NOTE:
That this network connection will block all data to the device until the connection is forgotten or another network selected.

00:00:00	BACK
	RECORD / STOP
	SCREEN SHOT
+002.5f	PHOTO FOLDER
+000.6m	CHANGE SCREEN RATIO

*For Wi-Fi Versions only

Wi-fi User Instructions*

Video viewing and recording

Open the app and click "**CONNECT**". If the connection between the camera and the mobile device was successful, the video will begin playing automatically. If it does not, then repeat the Wi-Fi pairing steps. No option exists to pause during recording. If you wish to pause simply stop the recording and start a new one.

All pictures and videos are stored in the photos folder of your device.

<u>**NOTE:**</u>
You must allow the app to access your photos folder when installing the app. If you do not, then videos will not be saved.

*For Wi-Fi Versions only

RECORDING VIDEO

Recording Video

Select the media location you wish to record to in the Controller Menu. You can choose USB, HDD or both USB & HDD.

Insert the USB stick into the USB port if you wish to record to USB. All videos are stored in MPEG4 format.

Press the **VIDEO RECORDING** key on the control pad. You will be notified recording has begun and where files are being saved. Another note will appear in the **INFO BAR**.

For audio recording, press the **MICROPHONE** key on the keypad. Press again to mute.
The green symbol means the mic is on, red means the mic is off.

To stop recording, press the **STOP** key.
You will be notified that your file has been saved to media.

To access your recording, press the **MENU** key and toggle over one space to File Storage Options.
Press enter and you will now have access to the HDD and USB.

NOTE:
A new file is created each day recordings/screen shots are made, and that file will have the date of the recordings as its name.
All files will be saved in the appropriate dated folder.

NOTE:
Files and folders are always created with the newest on top. The most recent file saved will always be the first file in the first folder.

Taking a Screenshot

Follow the same instructions as above for video recording, but instead of pressing the **VIDEO RECORDING** key, press the **SCREENSHOT** key.

All screenshots are taken in JPEG format and capture whatever is on the screen when the picture is taken.
To view photo files, follow the same instructions as above.

Playing Media Files

Press the MENU key, then enter the FILE STORAGE OPTIONS menu.

Select the date on which files were recorded, then highlight the file you wish to play and
press the RIGHT ARROW or ENTER key on the keypad or
enter key on the keyboard. Your selected file will now be playing (video) or be shown (screen shot).

The screen shot will be shown and the video re-loop until you stop or exit. To exit press the MENU key
on the keypad or escape key on the keyboard.

Fast forward / Rewind / Pause Media Play

When playing a video file, use the LEFT and RIGHT arrow keys on the keypad to fast forward or rewind.
Each jump will equal ~5% of the recorded video length.

Pressing the PLAY/PAUSE key on the keypad will allow the user to stop and start the
recording for visual inspection.

Deleting / Renaming Files

Highlight the file you wish to delete and press the RIGHT ARROW or ENTER key on the keypad.
A menu will appear with several options.

You can now DELETE the file in question. Press the MENU key to return to the file.

Copying Files to / from USB & HDD

Highlight the file you wish to change and press the RIGHT ARROW key on the keypad.
A menu will appear with several options.

You can now DELETE the file in question. Press the MENU key to return to the file.

Deleting Folders

Rather than deleting individual files at a time to free up space, the user can delete entire daily
folders by highlighting the specific folder and pressing the STOP button.
The user will be prompted to confirm deletion. The user must press the ENTER key to confirm.

NOTE:
Remaining storage space (Kb) on the inserted USB is available at the top of the page while in this menu.

Locating the Sonde Signal (512 Hz or 640 Hz)

Skids or sleeves should ALWAYS be used to protect the camera head. Depending on the size of the pipe you are inspecting, you may need to use a skid, so the camera is centered or off the floor of the line. Care should be taken so the skids do not snag in the line.

Under normal operating situations, the camera is used with a smaller protective sleeve in lines under 100 mm (4") in diameter, or a larger grooved skid in 100 mm (4") lines or larger.

1. Slowly push the camera into the pipe and maneuver the camera into position to feed down the pipe, making sure the flex neck does not kink or double back on itself.

2. Push the camera slowly and carefully during the inspection, taking note of the conditions of the pipe for possible hazards that may entangle or damage the camera on entry or retrieval.

3. When maneuvering a corner, care should be taken not to butt the nose of the camera against the sidewall with any force. It would be better to let the camera "work" its way around the corner. If resistance is encountered when turning the corner and there are no visible signs of blockage, turning the push rod or pulling the camera back and forth sometimes helps.

4. Should resistance become extreme, or the camera gets entangled or stuck, slowly push it back and forth to free it. Sometimes, turning the push rod may also help. If the camera is visible, you may be able to free it with your hand or by some other means.

5. Upon completion of the inspection and retrieval of the camera, it may be necessary to 'manipulate' the camera around the initial bend (clean out) in the pipe with a pole or other device if required.

6. **NEVER** use the camera to unclog a drain or clear debris in the pipe.
   Doing so can cause damage to the camera head or lens.

7. **NEVER** force the camera down a pipe as this may cause a kinked cable, which will require expensive repairs.

8. **NEVER** use a pressure washer to clean any part of the system. High pressure water can cause degradation of the electronic parts, causing damage.

9. **NEVER** unspool all of the rod from a reel. Always leave a few turns of rod on the reel to aid with respooling.

Locating the Sonde Signal (512 Hz or 640 Hz)

Insert the sonde into the drain and locate it while it is still just in view at the drain or duct entrance. Hold the locator vertically - directly over the sonde with the antenna in line with the sonde. Adjust the locator sensitivity so the bar graph reads between 60% and 80%. Push the sonde along the pipe to the desired area.

1. Approach the peak of the signal, working perpendicular to the pipe. Move the locator backwards and forwards and stop when the bar graph indicates a Peak.

2. Push the camera 1-2 meters (4-6 ft) further, pinpoint, and mark the position. Repeat this pinpointing procedure at similar intervals along the line of the drain or duct until the survey is completed.

3. Most locators will automatically display the depth of a located sonde, provided the locator is correctly oriented and positioned above the sonde

MAINTENANCE
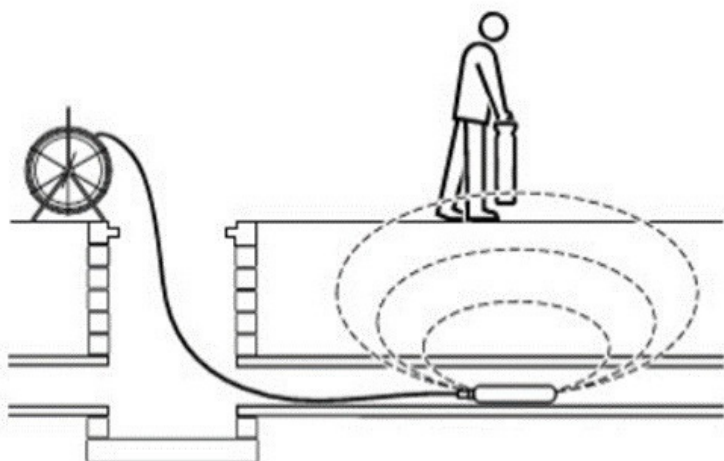
Inspection Camera

After every use, the camera should be cleaned and checked for possible damage. External scuffing of the camera case is normal and should be of no concern. The camera view port is made of sapphire and should be cleaned with a soft, damp cloth. Grease, dirt or scratches will affect the quality of the video and if the lens is badly scratched it should be replaced.
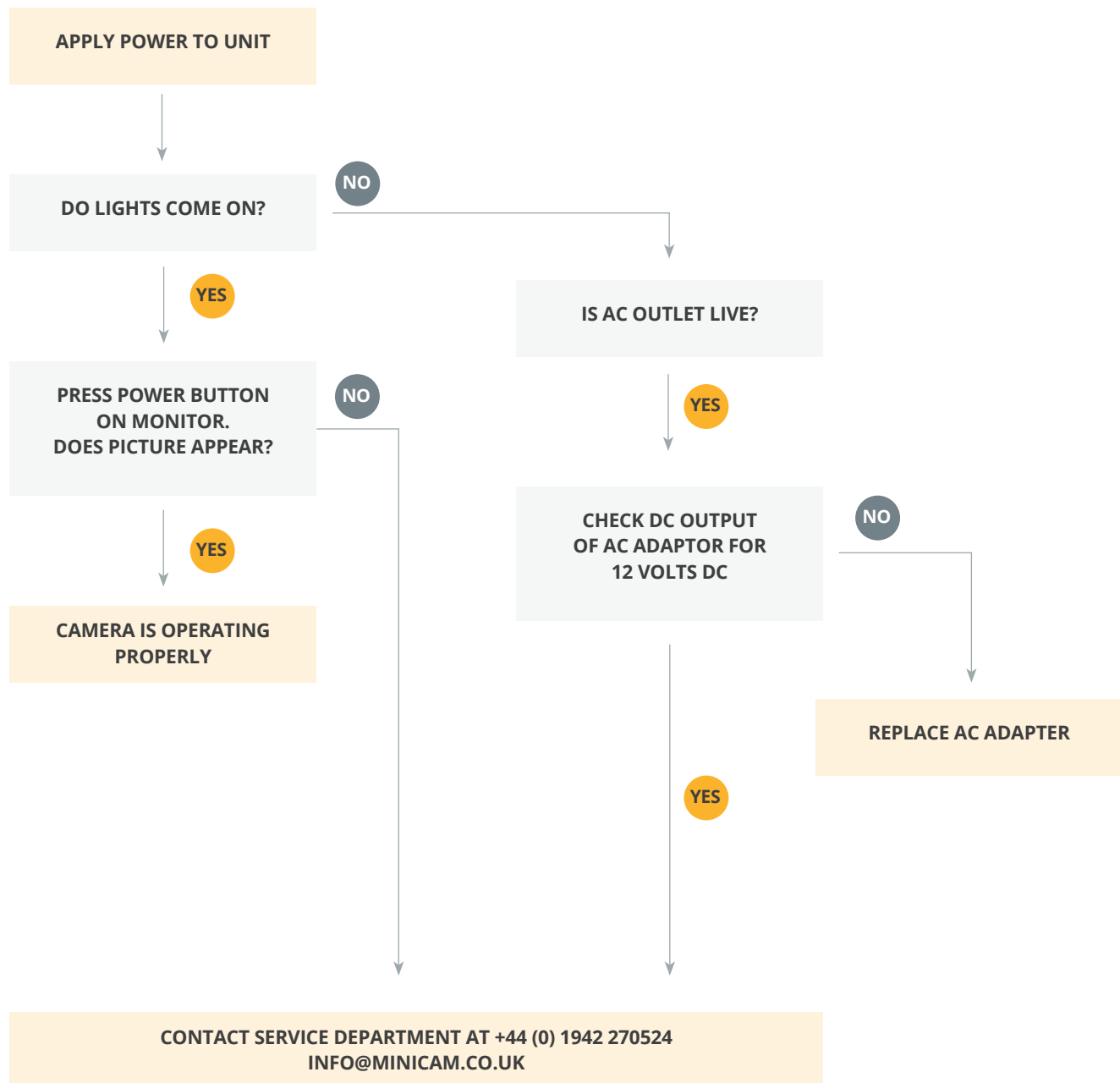
LED Light Replacement

The camera heads use LED lighting and cannot be replaced by the operator. These lights use very little power and unless physically damaged or extreme voltage is applied to them, should last indefinitely. If replacement is necessary, the camera should be returned to the factory.

Reel and Cable Assembly Maintenance

The reel and cable assembly should be kept clean from dirt, slime, grit, etc. When winding the cable back onto the reel after an inspection, it is good practice to use a cloth to wipe off any debris.

<div style="border:1px solid">

WARNING:
Never use a power washer to clean your inspection equipment. Pressurized water may get into unsealed areas such as the usb block, reel hub assembly and slip ring housing causing damage. Water damage to electronic equipment is not covered by your warranty.

</div>

TROUBLESHOOTING

APPLY POWER TO UNIT

DO LIGHTS COME ON? — **NO**

YES

PRESS POWER BUTTON
ON MONITOR.
DOES PICTURE APPEAR? — **NO**

YES

CAMERA IS OPERATING
PROPERLY

IS AC OUTLET LIVE?

YES

CHECK DC OUTPUT
OF AC ADAPTOR FOR
12 VOLTS DC — **NO**

YES

REPLACE AC ADAPTER

CONTACT SERVICE DEPARTMENT AT +44 (0) 1942 270524
INFO@MINICAM.CO.UK

If a problem not shown on this chart is found, please contact a Minicam service center.

REPAIR FACILITIES

North Service Centre

Minicam Ltd,
Unit 33-35 Ravenscraig Road,
Little Hulton,
Salford,
M38 9PU

Email: info@minicam.co.uk
Phone: +44 (0) 1942 270524

South Service Centre

Minicam Ltd,
Unit 41, Acorn Industrial Park
Dartford
Kent
DA1 4AL

Email: info@minicam.co.uk
Phone: +44 (0) 1942 270524

A **Halma** company