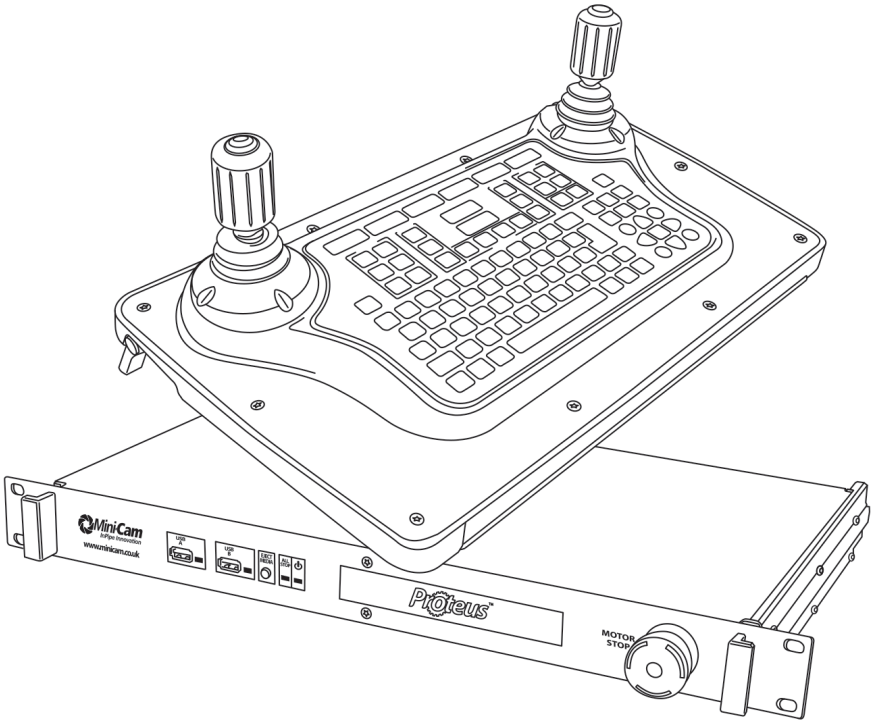

PROTEUS

Van Control Unit and Desktop Keyboard VCU500 / VKU500

Original Instruction Manual

Version A

minicam

PLEASE NOTE

For the purpose of this Original Instruction Manual

Proteus™ VCU500 (Van Control Unit) will be referred to using the abbreviation VCU

Proteus™ VKU500 (Desktop Keyboard) will be referred to using the abbreviation VKU

This original instruction manual is applicable to the Proteus™ VCU500 (Van Control Unit) and VKU500 (Desktop Keyboard).

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.

Mini-Cam Ltd 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 Mini-Cam product. This is applicable even if Mini-Cam has been advised of the damage risk. Under any circumstances, Mini-Cam's entire liability shall be limited to replace such defective software or hardware that was originally purchased from Mini-Cam.

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

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Warranty

Limited Warranty

Congratulations on the purchase of your Proteus™ VCU500/VKU500 (Van Control Unit and Desktop Keyboard). 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 correct handling and maintenance.

Extent of the Limited Warranty

Mini-Cam warrants that your equipment will be in good working condition and free of defects in material and/or workmanship 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 van control unit or desktop keyboard, 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. If you require warranty service please return the system with the original invoice to your dealer or the nearest Mini-Cam Service Centre. Equipment returned must be consigned carriage paid. We will not be liable for carriage costs.

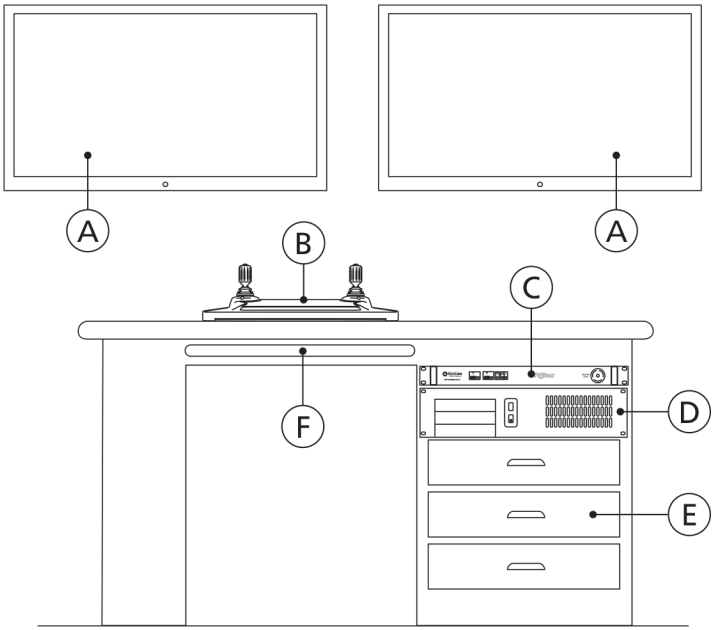
Warranty Limitations

Our responsibility under this warranty is limited to repair, replacement or refund, as set forth above. Mini-Cam 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.

System Overview

The Van Control Unit and Desktop Keyboard has been designed and developed specially for the van-fit market. Ergonomically designed and manufactured to Mini-Cam's rigorously high standards, the free-standing keyboard and under-shelf control unit replaces the traditional CCU to offer more flexibility for the user. The large twin, three axis joysticks control all the features and functions of the conventional Proteus CCU208, with the addition of camera zoom and home functions. The keyboard sports neat retractable rear legs, to tilt and raise the keyboard for an alternative ergonomic position.

Typical System Setup



A Monitor (wall mounted)
B VKU500 Desktop keyboard
C VCU500 Van control unit
D Industrial rack-mount PC
E Storage draws
F Pull-out keyboard shelf

EC Declaration of Conformity

CE Declaration

We Mini-Cam Ltd. Unit 4 Yew Tree Way, Stonecross Park, Golborne, Warrington, WA3 3JD hereby declare that the product Proteus™ VCU/ VKU500 to which this declaration refers is in compliance with the following standards or standardizing documents:

EN61000-6-4: 2007 + A1: 2011	Electromagnetic compatibility (EMC) Part 6-4: Generic standards - Emissions for industrial environment.
EN61000-6-2: 2005	Electromagnetic compatibility (EMC) Part 6-2 Generic standards: Immunity for industrial environment.
EN61010-1:2010	Safety requirements for electrical equipment for measurement, control, and laboratory use.

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.

Maintenance

To ensure the Proteus™ VCU500 and VKU500 system operates reliably and efficient, the individual modules have to be maintained and kept clean.

Take notice of the following comments on general maintenance:

- After regular use, keep the desktop keyboard clean by wiping with a lightly moistened cloth, use only clean water for cleaning. **Never** use cleaning agents or solvents. Wipe thoroughly dry using a clean dry cloth.

- Ensure the joysticks are protected from potential damage of falling objects.

- To prevent damage by movement during transit, always ensure the desktop keyboard is secured in the van before driving off.

- Ensure the under shelf control unit is kept clean and free of debris. Ensure no foreign objects enter the USB ports, and regularly check the operation of the motor stop button to ensure it is fully operational.

Checking Plug and Socket Connections

To ensure reliable operation of the VCU and VKU, it is important that the electrical connections are not damaged and are kept clean and dry. It is **important to regularly check the** contacts on the van control unit and desktop keyboard.

NOTE!
Both the Van Control Unit and the Desktop Keyboard have no user serviceable parts inside. Have the individual modules serviced and repaired by a Mini-Cam Authorised Service Centre.

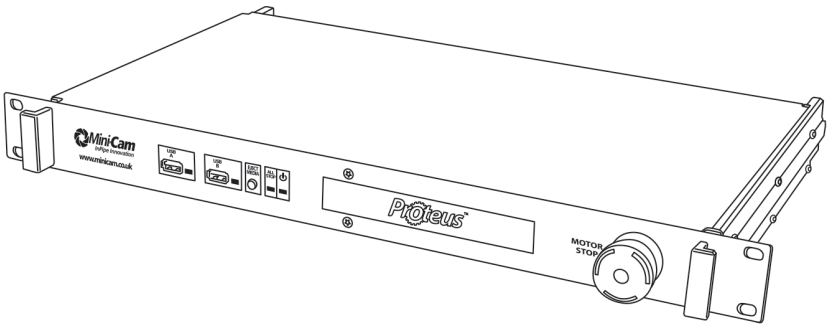
IMPORTANT!
Keep all electrical connections and contacts free of dirt, grease and moisture at all times

VCU500
Van Control Unit

Product Overview

The Proteus™ VCU is a development of Mini-Cam's best selling CCU208 Crawler Control Unit. It is a screen-less control unit housed in a 1U high (44mm) rack mount enclosure so that it can be integrated into a 19" rack enclosure, in a typical van installation, with an industrial PC mounted in the van studio.

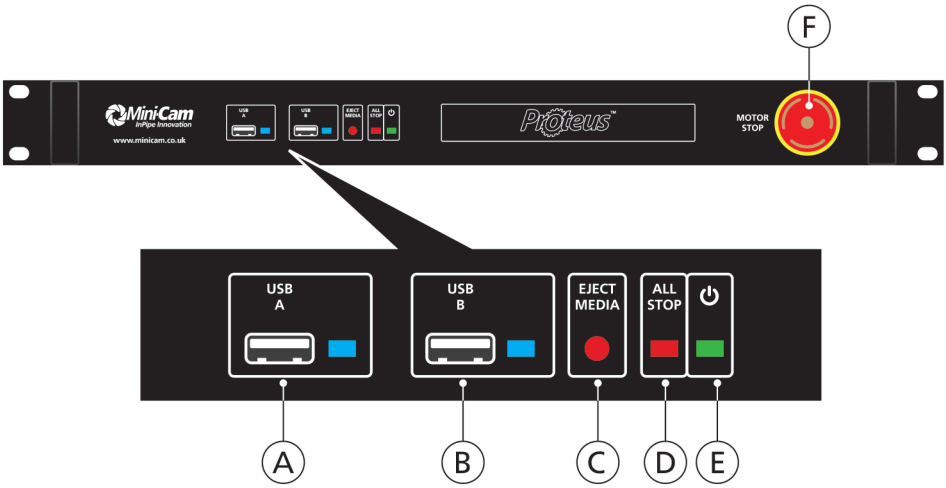
The VCU500 has been designed to support all of the existing Proteus features so it can be used with any combination of the Mini-Cam *Proteus* and *Proteus Lite* cable reels and crawlers. The front panel of the VCU500 includes two USB ports for connection of memory devices or communication devices such as WiFi dongles.



The rear panel of the VCU500 has two video ports, one HDMI and one VGA, capable of supporting two external monitors simultaneous, it also has two BNC Composite Video outputs for connection to a *WinCan* installation and/or another external video monitor. The USB port allows connection to a PC for external control functions and there's a connection for the matching Mini-cam desktop keyboard (see page 19).

An array of displays can be mounted in the studio, with one being driven from the HDMI output of the VCU500 and other being driven by the *WinCan* PC. A further VGA or composite video monitor my then be mounted in the vehicle workspace to display the operation of the crawler.

Parts and Descriptions (Front)



A USB (A) port and LED
B USB (B) port and LED
C Eject USB Button
D All Stop LED
E Power ON/OFF LED
F Motor Stop Button

External media – USB ports

External media status LED's.

- Blue – Media is plugged in but is not in use.
- Orange blinking – Media is currently selected and in use.
- Green – Media is safe to remove from the control unit.

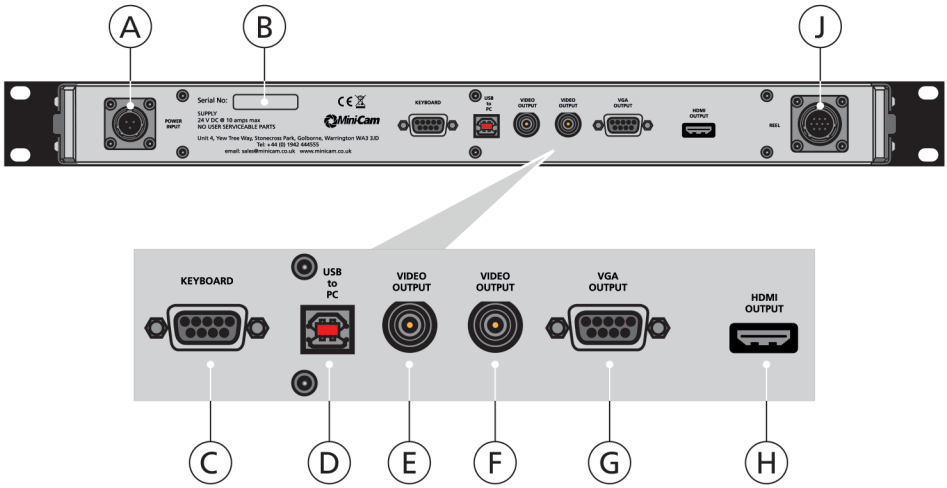
External media eject button

Press this button for 1 second and release. This will instruct the control unit that you wish to remove the external storage media. When the LED status indicators are green it is safe to remove the media.

Motor Stop Button

Only operates with the ACR350/500 connected to the system.

Parts and Descriptions (Rear)



A External Power Input (24VDC). This provides power for the system.
B Serial number
C Keyboard
D USB to PC
E Video output
F Video output
G VGA monitor output*
H HDMI monitor output*
J Connection to cable reel

NOTE! *For optimum viewing on a PC screen, we recomend that the chosen monitor can support 4:3 format.

Powering the Van Control Unit

The VCU may be powered from a vehicle 24 volt DC supply or from 240 volt AC via the standard Mini-Cam PSP24 power supply unit.

Technical Specifications

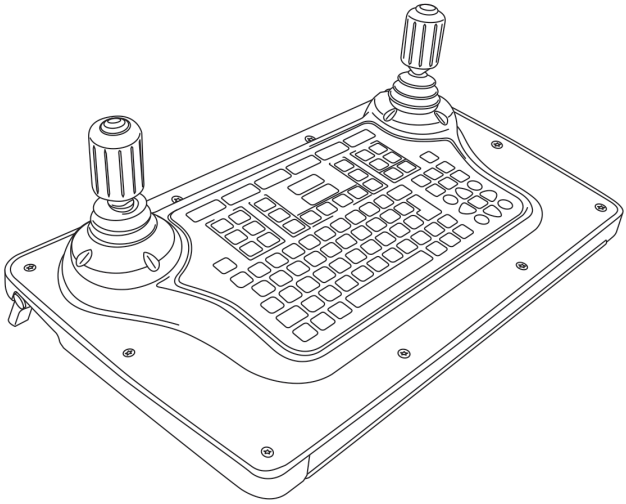
VCU500 - Van Control Unit	
Product Code	VCU500
Frame Dimensions	483 x 271 x 43.6mm (W x D x H)
Internal Width	433mm
Weight	2.5kg (5.5lb)
Construction	Aluminium
Finish	Anodised Aluminium

VKU500
Desktop Keyboard

Product Overview

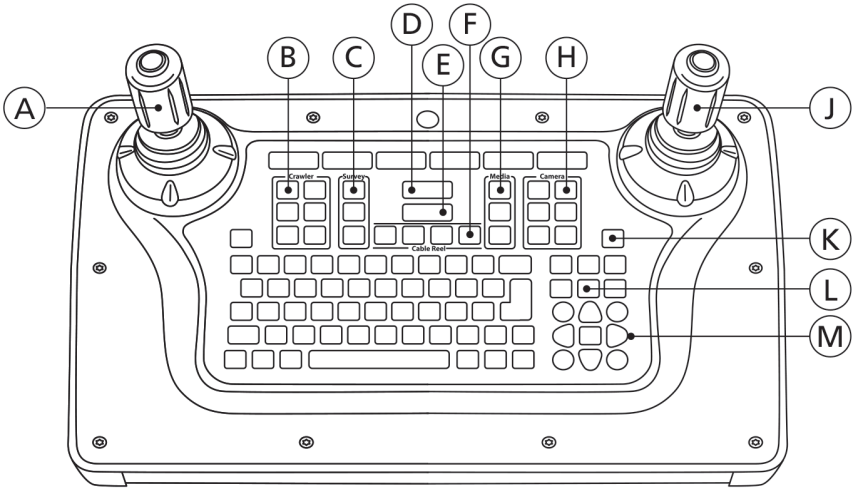
The control unit VKU is a robust and portable control unit for the PROTEUS™
system. It controls the functions and reports the status of the attached modules. It has the following features:

- Scalable internal solid state storage (32GB minimum)
- Data transfer via USB stick
- Video recording in MPEG-4 AVC/H.264 formats
- Pictures saved in JPG format
- Customisable colour on screen text overlay
- Video output of live video with on-screen text
- Ergonomic design
- IP54 rated



The VKU enables the operator to record video and photographic surveys, generate survey reports, and export the data via USB. The control unit can generate on
screen text that is overlaid onto the recorded video in various colours and positions, allowing easy customisation.

Parts and Descriptions



A Left joystick - for crawler control

B Crawler function keys

C Survey function keys

D ON/OFF button

E ALL STOP button

F Cable reel function keys

G Media function keys

H Camera function keys

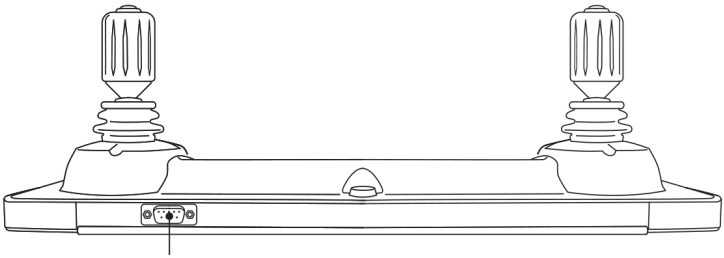
J Right joystick - for camera control

K Snapshot key

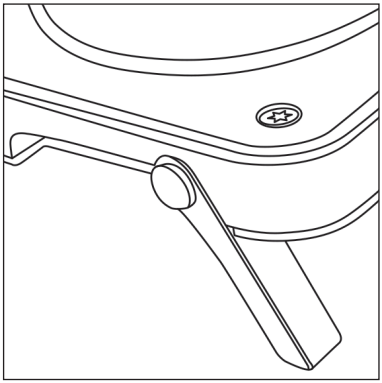
L Recording and playback keys

M Arrow keys

Parts and Descriptions (Rear)



M Connection to VCU



The desktop keyboard sports two neat retractable rear legs, to tilt and raise the keyboard for an alternative ergonomic position.

ON/OFF button

Used to turn the VCU ON and OFF. This button **does not** enable power to the crawler. By design, the VCU will power on but power is not automatically applied to the crawler. A green light next to this button indicates that the VCU is powered on.

ALL STOP button

Used to enable / disable power to the crawler. When power to the crawler is disabled a red light next to this button is illuminated.

- When the VCU is powered ON this key must be pressed to enable power to the crawler.
- When the crawler is powered ON, pressing this key will disable power to the crawler.
- The ALL STOP button can be used in case of emergency, to stop the crawler and disable the power

NOTE! The ALL STOP button **must** be pressed to disable the power to the crawler before disconnecting any part of the system.

Power ON sequence

1 With the system power OFF, connect all system components: Cable reel, crawler, camera

2 Press ON/OFF button to power the control unit ON.

3 Read and acknowledge the on-screen prompt.

4 Press the ALL STOP button.

5 If the control unit detects a crawler connected, the system will fully power up. The red light next to the ALL STOP button will turn off. Video will be displayed and crawler/camera status information will be displayed on the right hand side of the screen.

NOTE!
If the control unit does not detect a crawler connected, the system will not fully power up. The control unit will sound an audible beep several times and the red light next to the ALL STOP button will be illuminated. If this should happen, first check all connections on the system are made correctly. If the problem persists then contact the Mini-Cam Service Centre or Accredited Mini-Cam Partner in your country.

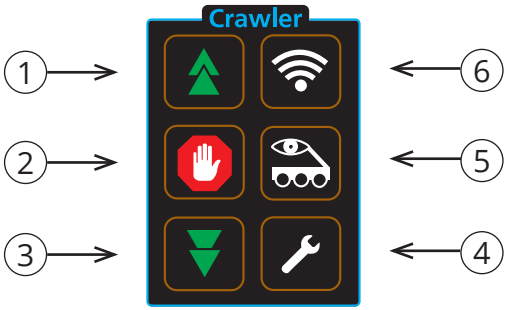
NOTE!
Details of the nearest Mini-Cam Service Centre and Accredited Mini-Cam Partners world-wide are made available on the website www.minicam.co.uk

Power OFF sequence

1 Press the ALL STOP button. The red light next to this button will illuminate.
2 Press the ON/OFF button and press OK to confirm.
3 The control unit will now power down.
4 The system can now be disconnected.

NOTE!
Always fit the protective caps when the crawler, camera or auxiliary module is not in use to protect from ingress of dirt and moisture.

Crawler function keys



① Cruise control - Forward

- Each press increases speed until maximum speed is reached.
- When the crawler is reversing, each press slows the crawler speed.

② Stop

- Crawler stops moving. Power is still enabled.

③ Cruise control - Reverse

- Each press increases speed in reverse until maximum speed is reached.
- When the crawler is travelling forward each press slows the crawler speed.

④ Crawler settings

- Select the correct wheel size attached to the crawler for accurate speed display.
- CRP300, CRP140, CRP90 Elevator options.
- Inclination.
- CRP300 Clutch Control (Manual).

⑤ Backeye

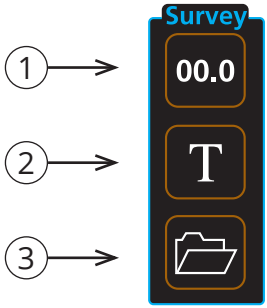
- Switch between forward and rear view cameras.

⑥ Sonde

- Enable or disable sonde function.
- Choose transmission frequency.

NOTE!
Moving the crawler joystick during *Cruise Mode* will cancel the cruise control function. The operator will now have manua control.

Survey function keys

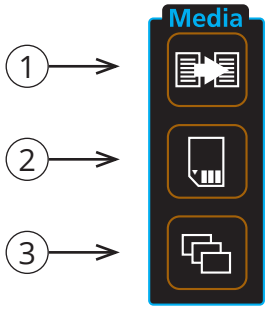


① Meterage
- Change meterage manually.
- Change position of meterage on the screen.

② Text
- Change text colour.
- Display meterage and/or time and date on-screen.

③ Survey Folder
- Start *ProPIPE+* or *WinCan* survey.

Media function keys

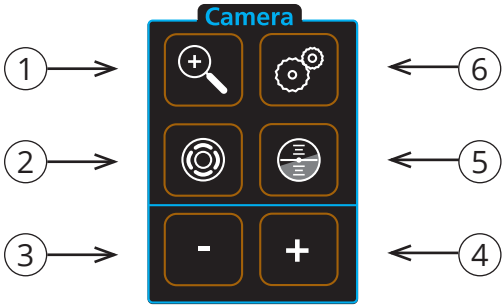


① Copy
- Not used.

② Storage media
- Choose storage media – Internal or USB.

③ Gallery
- Browse surveys, videos and pictures.

Camera function keys



① Zoom

② Camera Illumination

③ Focus-

④ Focus+

⑤ Camera Home
- Automatically move camera to home position (*CAM026, CAM026L and CAM028L*).

⑥ Camera Settings

Snapshot key

Press this key to take a JPG image of the live video or video during playback

Recording and Playback keys

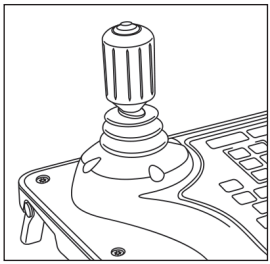
These keys control the recording and playback of video files

QWERTY keys

These keys allow the user to enter text for on-screen text or survey comments.

Joystick Control

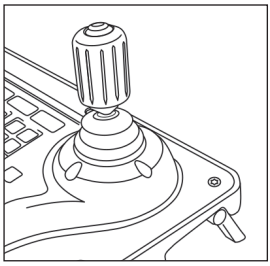
The LEFT HAND joystick is used to control crawler movement.



Left Hand Joystick

Up Position	Crawler moves Forward.
Right Position	Crawler moves Right.
Down Position	Crawler Reverses.
Left Position	Crawler moves Left.

The RIGHT HAND joystick is used to control the camera.



Right Hand Joystick

Up Position	Camera tilts Up.
Right Position	Camera rotates Right.
Down Position	Camera tilts Down.
Left Position	Camera pans Left.

CAM026

Button Press	Automatically returns camera to home position.

CAM028L

Joystick Turn	Turn clockwise to Zoom In Turn Anti-Clockwise to Zoom Out
Button Press	Automatically returns camera to home position. If the camera is zoomed in prior to pressing the button, the camera will zoom out when the button is pressed.

Pressurising Operation Mode

The pressurisation operations of the VCU500 and the inspection equipment are only active when the inspection equipment is powered on.

During Pressurising Operation Mode the VCU500 monitors and displays an indication of the inspection equipment pressure, allowing the user to pressurise the inspection equipment.

To access the Pressurisation Operation Mode press the HELP key and select the module you want to pressurise.

Image shows an example screen-shot for the camera

Technical Specifications

Technical Details - VKU500

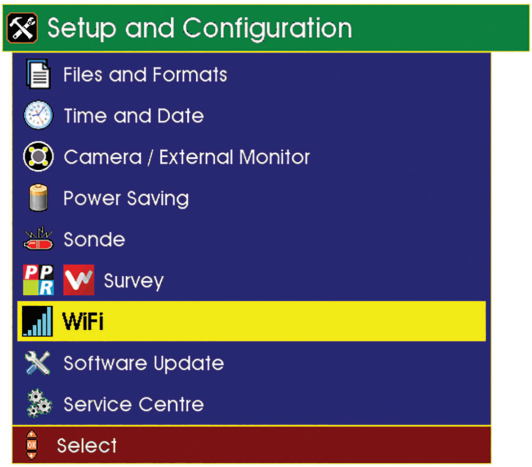
Product ID	VKU500
Dimensions	432 x 257 x 137mm (W x D x H)
Height with Leg Raised	160mm
Weight	4.45kg (9.81lb)
Construction	Stainless Steel / Aluminium

WiFi Module (Optional) CONTACT MINI-CAM FOR DETAILS

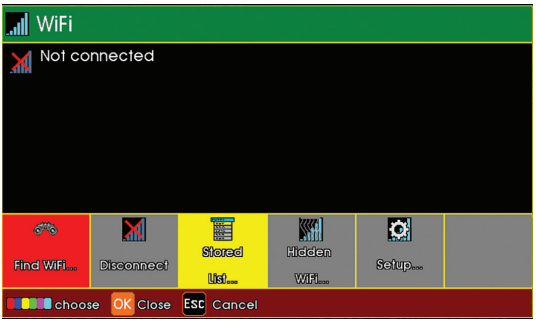
Your Proteus system is enabled with a WiFi module to connect your VCU500 to a local, company network to allow an easy file transfer between the system and your office or local computer. It improves the speed of reporting without the need of exchanging USB sticks.

This feature allows the user to connect the VCU500 to WiFi.

1 Select WiFi from the Setup and Configuration drop-down menu.



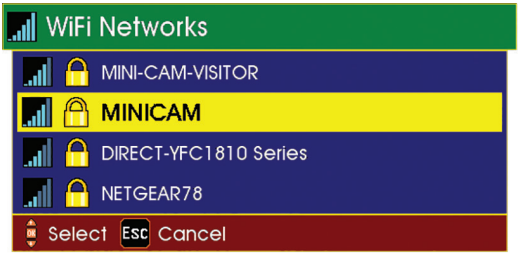
2 A menu will be displayed giving options to connect to WiFi.



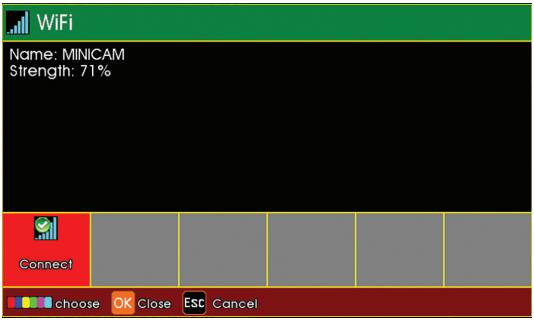
3 Select **Stored** F3 (Yellow Key) to view stored network names.

4 Select Find WiFi... F1 (Red Key) to search for available networks.

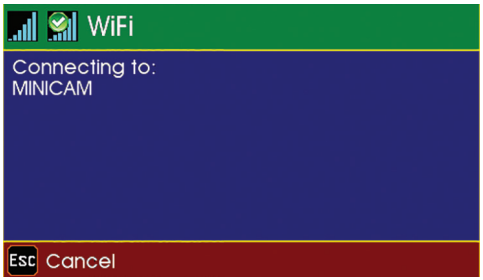
5 Select the required network from the menu.

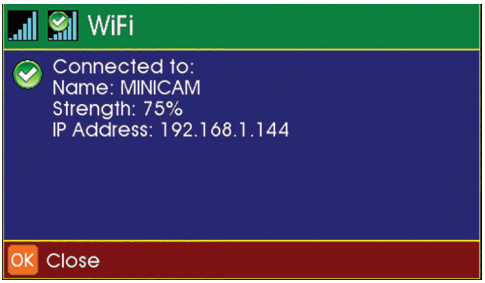


6 Select Connect F1 (Red Key) to connect to the selected network (you will have to type a WiFi password in if required).



7 Status screens will display the connection progress, followed by connection
confirmation, signal strength and IP Address.





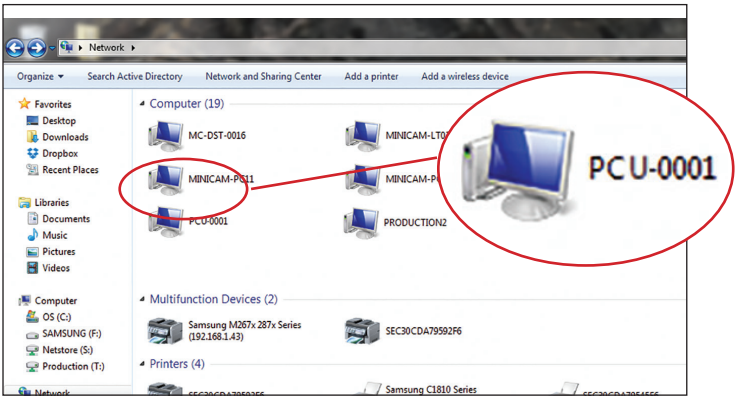
8 The main display screen shows the WiFi status icon at the bottom right-hand side of the sidebar.

WiFi NOT CONNECTED
Red cross indicates no signal

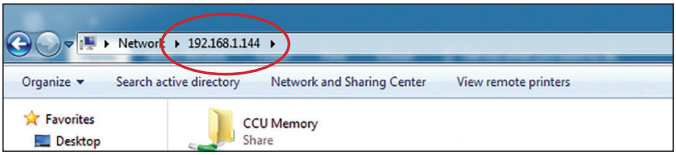
WiFi CONNECTED
Vertical blue coloured bars indicate signal strength

Connecting to your PC

Using *Explorer* in *Windows*® OS, the VCU500 may appear under the **Network Neighbourhood**. You can access your files directly.

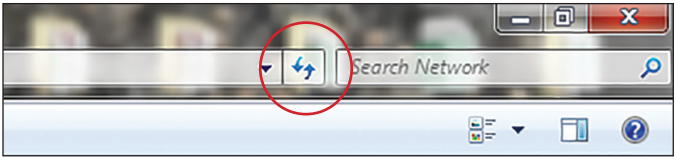


Alternatively, use the search bar in *Explorer* by typing \\ followed by the IP Address shown on your Proteus (Example - \\192.168.1.144)



This will then connect you to your Proteus control unit which will display a folder named CCU Memory. Double click on this folder to access all files currently on that control unit. You then can open any file to view video footage or still images and ProPIPE Reports or alternatively you can save them onto your PC.

NOTE: If the VCU500 is not displayed after the first search, try searching again by hitting the **Refresh** button on the menu bar



File Sharing

NOTE: To share the files over email or WinCanWeb, internet access is needed. Please connect to a WiFi with an internet connection before sharing files.

Email

1 Use the Gallery Browser  to select a file to be sent.

2 Navigate to the desired file, press OK and select the Share  option.
The Email option is only available for a single file, directories cannot be sent by email.

3 From the menu select the Email option. A text box with all the necessary data inputs fields will be displayed.

4 Enter Address, CC Address, Subject and Body text then press OK. The VCU500 will start the sending process. A message will be displayed with the sending progress, which will display Sent when the email has been dispatched.

NOTE: The most recent Address, CC Address and Subject are stored over the power cycle.

NOTE: The file to be shared over the email cannot exceed 10MB

WinCanWeb

If the user has a *WinCanWeb* account he can use it to upload *Wincan* Embedded projects.

1 Use the Gallery Browser  to select a WinCan project to be sent.

2 Navigate to a WinCan project, press OK.

3 Select the Share  option.

4 From the menu select the WinCanWeb option. A text box with all the necessary data inputs fields will be displayed.

5 Enter Login and Password, then press OK. The WinCanWeb will start

the sending process. A message will be displayed with the sending progress, which will display Sent when the upload has finished.

NOTE: To share using WinCanWeb, WinCan catalogues must be installed on the VCU500.

NOTE: Login and password are stored over the power down.

Share Status

The user can clear the status window displayed after the share process has been started and an appropriate form filled, without interrupting file sharing.

The share icon will be visible in the right bottom corner until the Email or WinCanWeb has finished sending. The progress can be also seen in the Share Status which can be accessed after pressing Gallery Browser. It will also inform the user in the case of a sending failure, which may happen if the internet connection has been interrupted or services are temporarily unavailable.

NOTE: To successfully share files, the VCU500 needs to remain powered on and connected to the internet until the sharing has finished.

WinCan Embedded and ProPIPE+

Reporting Software

for Proteus™ and SOLOPro+ Systems

Version A

Principle

WinCan Embedded and *ProPIPE*+ on the *Proteus*™ and *SOLOPro*+ CCUs allows you to create and maintain your surveys collected together as "Projects".

Within a Project you can have many separate "Sections". For example, a "Project" might be a housing estate, and each street within that housing estate could be a "Section".

Each Project is stored in it's own Folder in memory. The Folder contains all the information about that Project's Sections, and their videos, photos, and report documents.

You can:

- Have as many Projects as you want.
- Add Sections to Projects whenever you want.
- Create, close, save, reopen, and edit previously created Projects.
- Reopen and edit Section Surveys, even after you've finished the Survey.
- Create PDF and RTF report documents in a choice of graphical or textual styles.
- Export your Projects Folder onto a USB memory device for later viewing on a PC.
- Import and merge together Sections from Projects made on other CCUs.
- Import *WinCan* Projects into *WinCan VX* on the PC.
- Upload files from *WinCan* Projects directly from the CCU to the *WinCanWeb* cloud.

Basic Usage

The structure is:

- You can have multiple Projects, each has it's own storage folder.
- A Project can contain multiple Sections.
- Each Section has Header Information and a Survey.
- A Survey can have multiple Observations and Photos, and a Video recording.

The basic operating sequence is:

- Select *WinCan* or *ProPIPE*+ as your Project type.
- Create a New Project or open an Existing Project.
- Create a New Section in that Project, or open an existing Section.
- Perform the Survey, first filling in the Header Information, then making Observations.
- End the Survey.
- Review and edit the Survey if you want to.
- Create a report from a choice of different styles. You get an RTF report document and a PDF report document.
- Export the Project to a USB memory device so you can view on the PC.
- **For *WinCan* Projects, these can be imported into *WinCan VX* on the PC.**

Quick User Guide

Refer to this Quick User Guide when the CCU is directly available. The Quick Guide does not explain every screen, or key, or scenario, and relies on you physically seeing it operating on the CCU as you work though the guide. In a separate section later in this document is a Detailed User Guide containing screenshots and more information.

Create a New Project

- Press  then choos  o 
- Press  to create a New Project.
- Use  and  to select the survey standard.
- Enter the Project Name and comments (use  to navigate between fields).
- Press  to create the Project, then this New Project will be listed as available.

Choose Which Project to use

- Use  and  to highlight the Project Name you require and then press  . This then opens the Project for you to create your Sections.

Create a Section in the Project

- Press Section then New to create a New Section.
- Enter the Section Name and comments then press Create to create the Section.
- Your newly created Section will then appear in your Project.

Select the Project Section to use

- Use ↑↓ and OK to highlight the Section name you require and press OK. This will then open the Section for you to enter the Section Header details.

Enter the Section Header Information

- Enter all relevant Section Header information. Anything marked with a ! is required information which needs to be entered to be able to proceed to next page. There may be several pages of Header Information.
- If you would like to display any of the Header Information on the live video 'project bar text', press More.... This then displays the On video and On project bar keys for you to select the information you would like to display by highlighting the desired Header Information line

and pressing the relevant On video and/or On project bar key.

- When all Header Information pages have been completed press OK.
- Now you can enter some Text Comments which will appear in the final report document along with the observations.
- After entering your comments press Begin Survey to prepare for starting the Survey.
- The screen will say "Ready for Survey" and informs you to press the 'Record' key when you want to begin. Press OK now and this information box will disappear.
- The screen will now display a live picture with your chosen Header Information showing on-screen.

Start Your Survey

- Get your inspection equipment into position.
- Start your recording by pressing the key. A red recording symbol will appear in the Status Box on the right of the screen which indicates your video recording and survey has begun. After a few seconds the on-screen video text will automatically disappear so that you can proceed with survey.

Create a New Observation

n When you come to a point in your survey where you need to create a New Observation press  which will automatically pause the recording and show a Control Menu. Now you can either enter the Defect Code if you know it, or press to  select Survey Code Lookup which will give you a selection of Defect Category Folders to explore, then highlight the relevant Defect Code and press OK. Once you have entered or selected your Defect Code you fill in the information it asks for. Then press OK to store the New Observation with *no photo* or press Store (with photo) to store *with a photo*.

n Now you can continue your Survey. The system will automatically resume recording, and after a couple of seconds the observational text will disappear from the live picture.

NOTE!
If you move the camera before auto recording resumes you may notice a slight jump in the video playback!

n Repeat these steps each time you wish to capture a new observation.

Review Your Survey

n At any time, you can review the Observations in your survey. Press  and select Review Survey. This will show you each observation you have created with the meterage displayed along with the captured image.

End Your Survey

n To end the survey press  then in the control menu that appears select End Survey and press  . You will be prompted to Confirm End Survey by pressing  .

n A summary of the Section which has just been completed is then shown.

n If multiple surveys are being performed immediately within the same Project, press  and then press  to create a New Section, then repeat everything, starting from that New Section's creation.

n Otherwise you can just create a report for that section if you wish to.

Create Your Report Documents

n To create an instant PDF report press 

. Then choose the style

of report that you want. The report is saved into the Project's folder along with the video and photos. You can copy the report onto a USB memory device using the Gallery Browser for later printing on a PC, or you can copy it to USB using the Project Export feature.

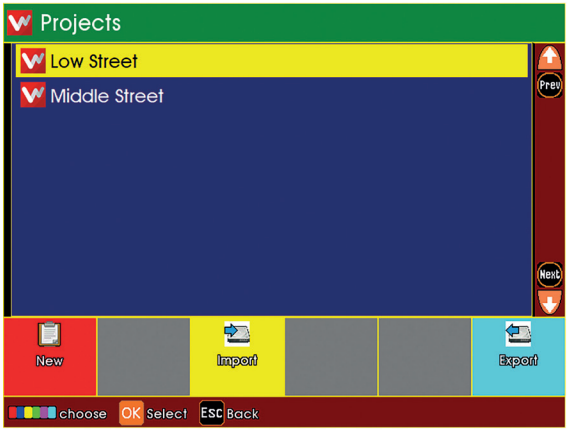
Using Projects

Each Project is stored in it's own Folder in memory. The Folder contains all the information about that Project's Sections, and their videos, photos, and report documents.

Press the Projects key, and the Project Type choice appears.

n Choose Wincan or ProPipe

The Projects List appears

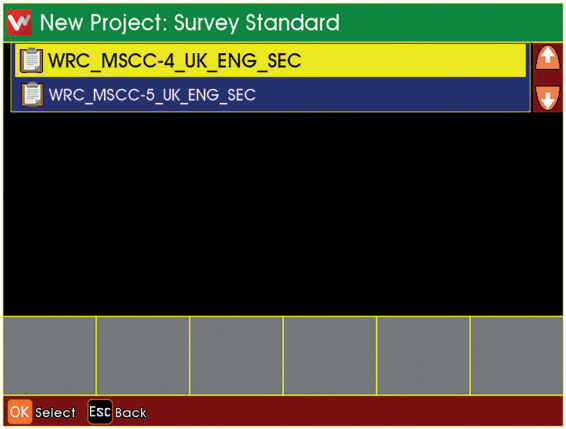


n If you have any existing Projects, they will appear in the list.
n If you have no existing Projects, the list will be empty

Choose New Project or an Existing Project

- To create a New Project, press New .
- *Or* to open an existing Project, highlight it using the arrows and then press OK.

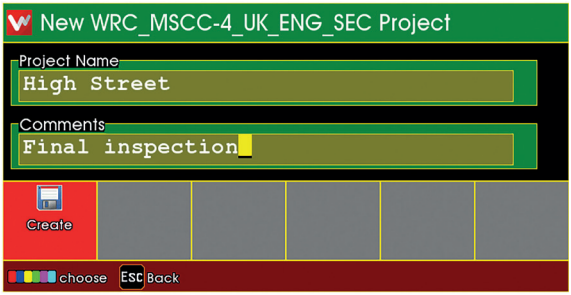
If you chose to create a New Project



n Use the arrows to select which Inspection Standard you wish to use, then press OK .

n Enter a Name for the Project.

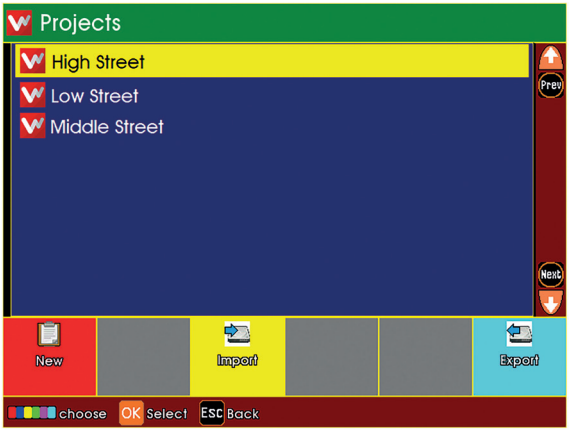
n You may also enter Comments for the Project of you wish.



n Press  to create the Project.

The Projects List appears

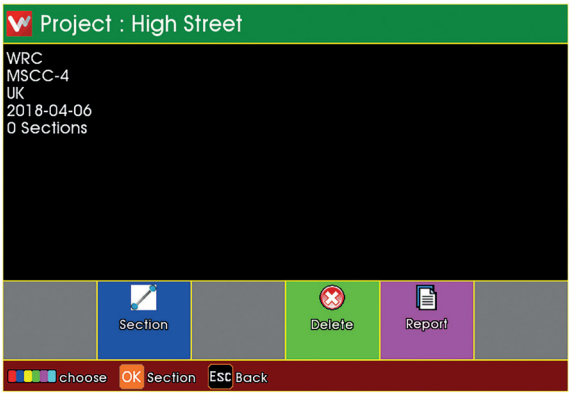
n If you just created a New Project, it will appear in this list



n Choose a Project to open

n Highlight the Project using the arrows and press OK .

The project is now opened



- A summary of the Project is shown.
- A New Project will not yet have any Sections.
- An existing Project may already have Sections.

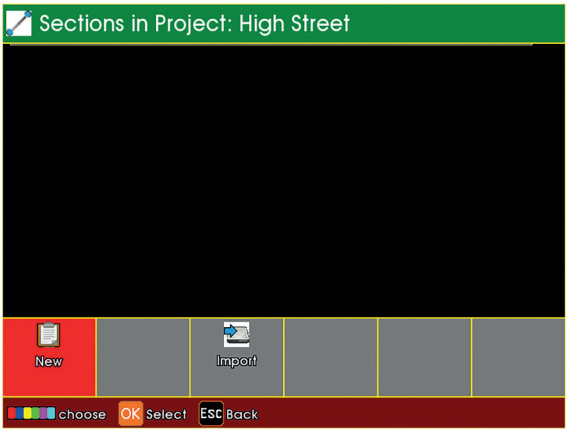
  Press 

to see existing Sections or create New Sections in the Project.

Using Project Sections

Each Project can contain either just one, or multiple Sections.

The list of Existing Sections is shown



- If the Project has any existing Sections, they will appear in the list.
- If the Project has no existing Sections, the list will be empty.

You can choose to create a New Section in the Project, or open an Existing Section

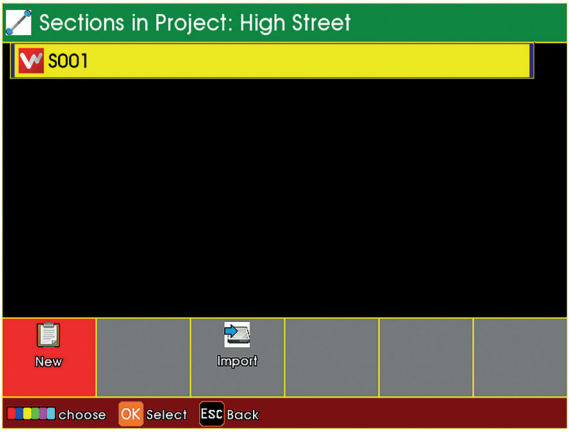
- To create a New Section, press 

.
- *Or* to open an existing Section, highlight it using the arrows  and then press **OK**.

If you chose to create a new section

- Enter a name for the Section.
- You may also enter comments for the Section of you wish.
- Press Create to create the Section.

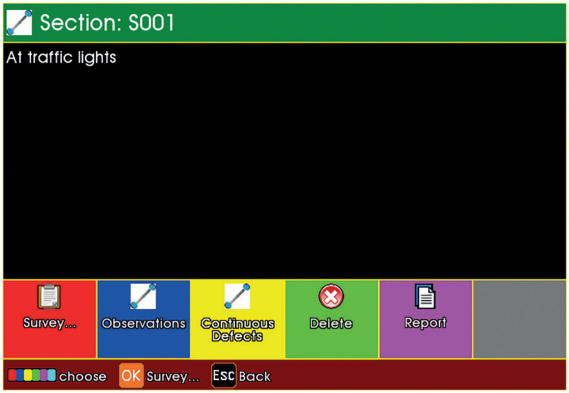
The Sections List appears



- If you just created a New Section, it will appear in this list.
- Choose a Section to open.
- Highlight the Section using the arrows and then press OK.

The Section is now opened

- A summary of the Section is shown.



If this is a New Section, you will need to perform the survey for the Section, so that you can create Survey Observations.

- Press 

to begin performing the survey and create Observations.

If this is an Existing Section, it may already have had a survey performed for it, and will have existing Observations.

- Press 

to review the existing Observations for this Section.

You can generate a Report Document for the survey Observations in this Section

- Press 

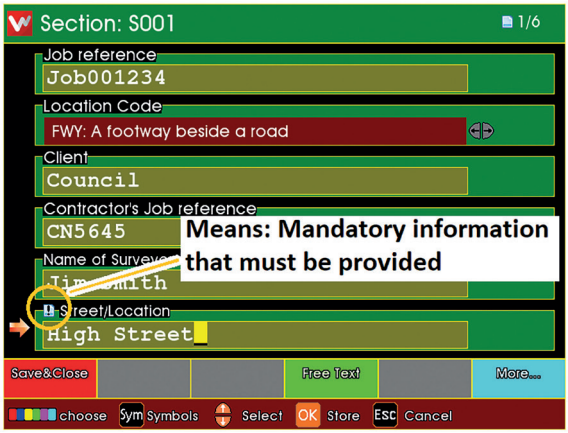
to generate a Report Document

Preparing for the Survey

Entering Survey Header Information

If you chose to perform a survey for the Section:

The Survey Header Information appears



- Type in, or select, the appropriate information for the survey.

- Anything marked with a is mandatory information that must be provided.

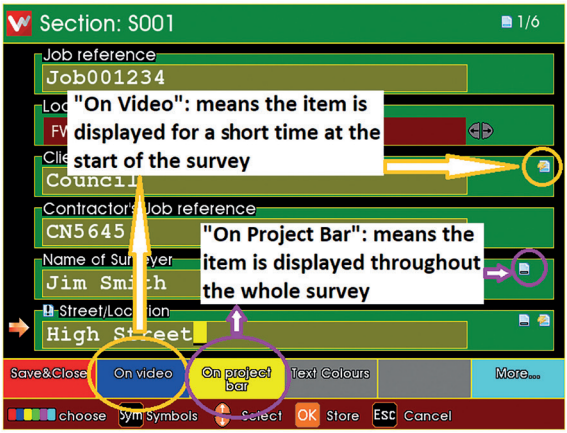
- There may be several pages of Header Information.

For each Header Information item, you can choose whether

n it is displayed briefly onto the camera picture “On Video” at the start of the survey.

n you would like it displayed constantly “On Project Bar” throughout the whole survey.

Press the More... key, and the choices of the coloured keys change.

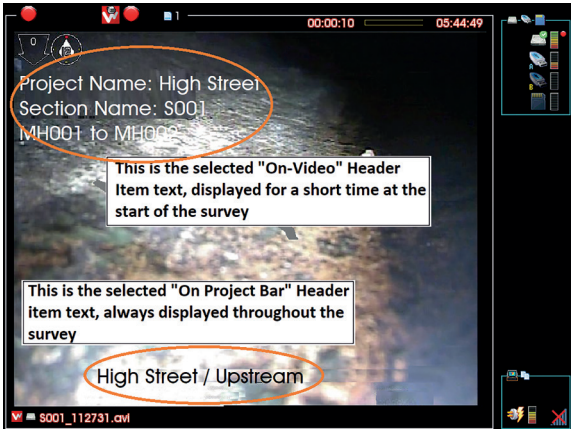


n Press On video to toggle whether the Header Item is shown briefly at the start of the survey.

n Press On project bar to toggle whether the Header Item is shown constantly throughout the survey.

n Header Items can be both “On Video” and also “On Project Bar”.

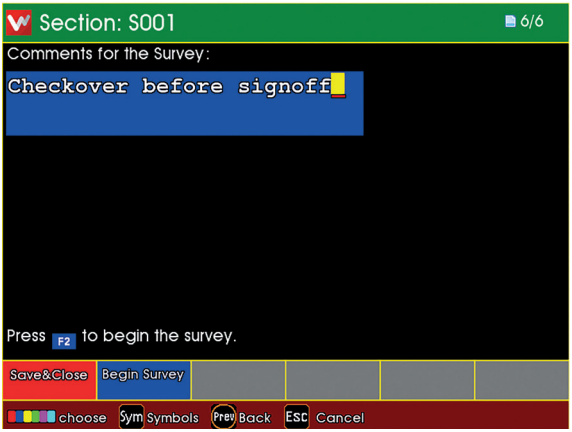
n There is a limit to the number of Header Items that can be selected simultaneously.



After entering all the Header Information, you can enter some comments for the Survey

- Type in some Survey Comments if you wish

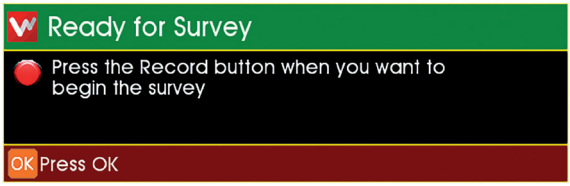
- Then press Begin Survey to prepare for performing the survey.



The system is now in Survey Standby, waiting for you to begin the survey.

- Video recording is ready, but is paused.

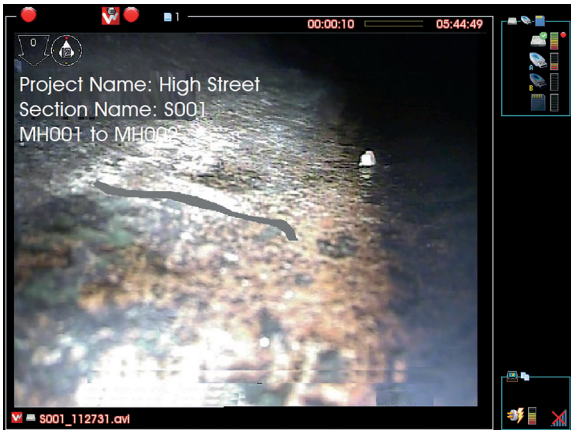
- Press the OK key, and position the inspection equipment ready for the survey.



Beginning the Survey

When you are ready to start video recording, press the Record key.

n Video recording starts.



n Your selected “On Video” Header Information text about the survey appears on the camera screen, and is recorded onto video.

n After a short time, this information is removed.

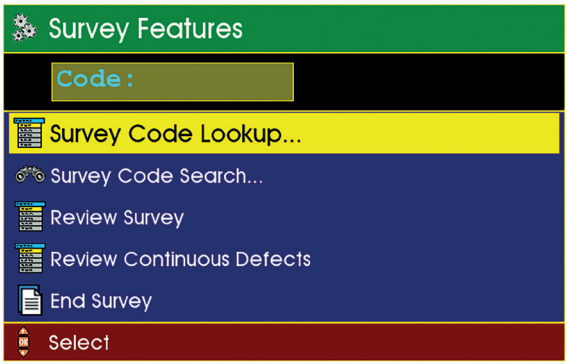
n You can now perform the inspection Survey.

Performing the Survey

Creating Defect Observations

When you see a Defect, you can create an Observation for it.

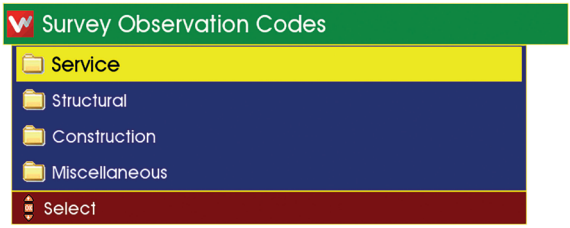
Press the Projects key, and the Survey Features menu appears.

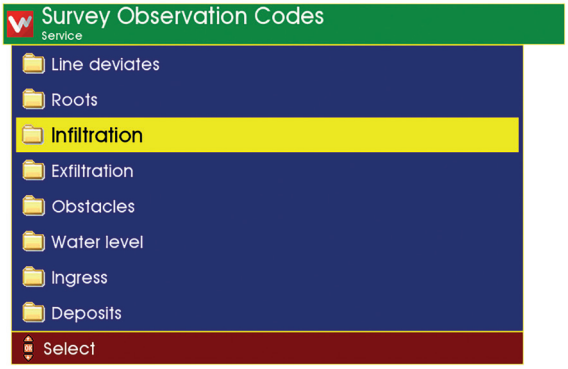


n If you know the Defect Code, you can simply type it in.

n If you don't know the code, you can search, or you can use the Lookup to find it.

If you chose to Lookup the Defect Code:
You see a list of the Defect Code categories

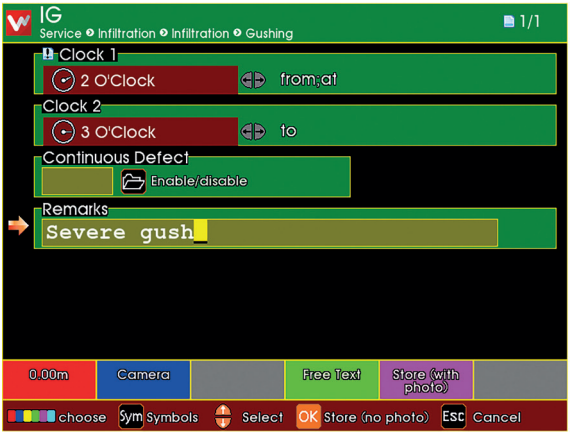




n Use the arrows , Esc, and OK to browse the Defect Code categories to find the Defect Code that you require.

n When you have found the Defect Code, press OK .

Enter the information for the Observation



n Type in, or select, the appropriate information for the Observation.

n Anything marked with a ! is mandatory information that must be provided.

n There may be more than one page of Observation Information.

n When you have entered the information, you can store the Observation.

n Press OK to store without taking a photo.

n Press Store (with photo) to take a photo then store.

If you chose to take a photo:

n Your entered Observation Text information is shown on the camera screen

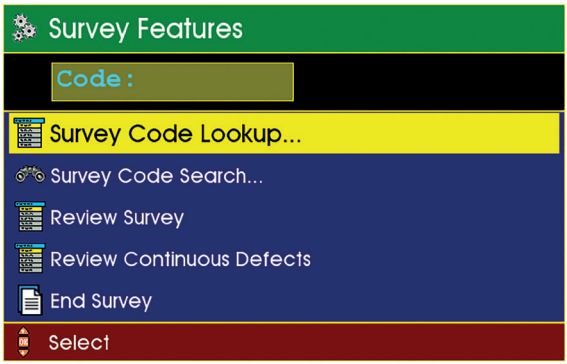
n The system takes a photo, with this information on it.

n After a short time, the information is removed.

Video recording then restarts automatically and you can now move on to find the next Defect.

Ending the Survey

Press the Projects key, and the Survey Features menu appears.



n Select End Survey and press OK.

You are asked to confirm you do want to end the survey.

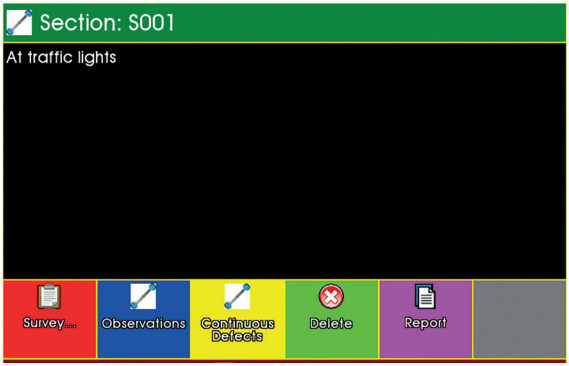
n Press Y to confirm.

n Any other key cancels ending the survey.

Reviewing the Survey

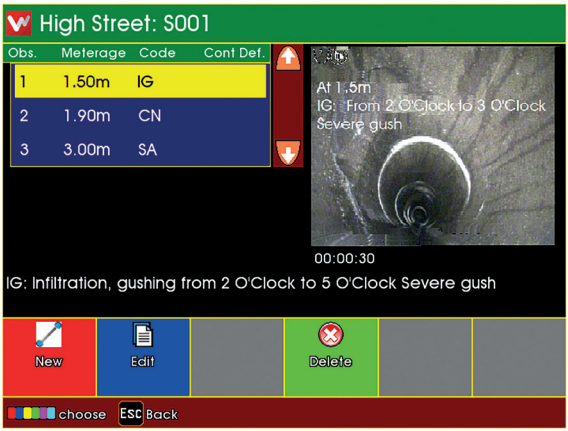
Viewing the Observations

When you have selected a Section, the Section Information is shown.



n Press 

to Review the existing Observations for this Section.



The Section Observations are shown.

n Use the arrow keys to select the Observation you are interested in.

The screen shows the Observation information and the photo (if there is one).

n Press Edit if you want to Edit and change the selected Observation.

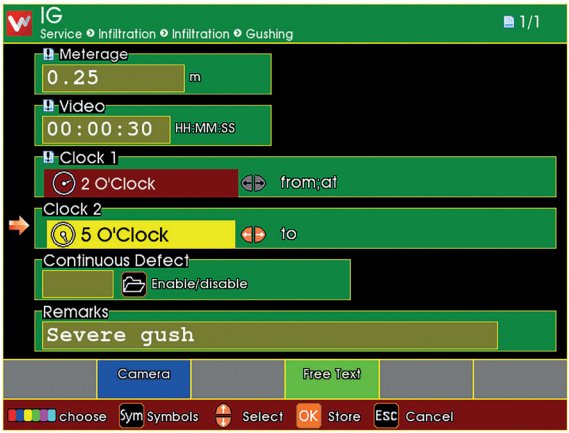
n Press Delete if you want to Delete the Observation (you will be asked to confirm the delete).

You can also create a New Observation, if one was missed when the Survey was being performed.

n Press New to create a New Observation.

Editing an Existing Observation

When you have selected the Observation to be edited, the Observation Information is shown.

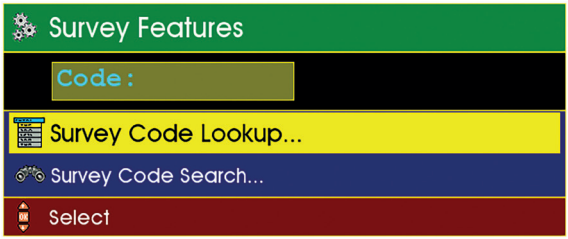


n Make any changes as you desire.

n Press OK to store your changes to that Observation.

Creating a New Observation

When you have chosen to create a New Observation

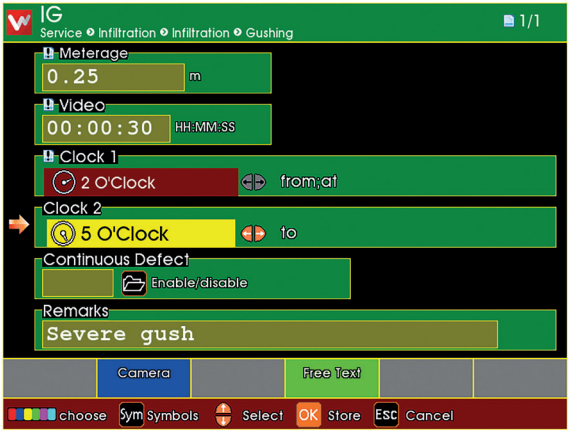


n First select the Defect Code for that New Observation.

n This is done in the same way as when the Survey was originally performed.

n Either enter the Defect Code directly, or use Search, or use the Lookup.

When you have selected the Defect Code for the new Observation, the Observation Information is shown.



n Enter the information as desired.

n Press OK to store this as a New Observation.

Your New Observation now appears added into in the Review List of Observations.

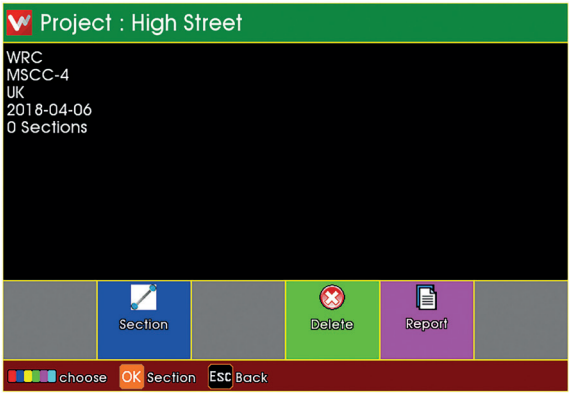
- New created Observations don't have photos.

- The Observations are sorted into ascending distance order.

Creating Reports

Creating Reports for the Whole Project

When you have selected and opened a Project, the Project Information is shown.

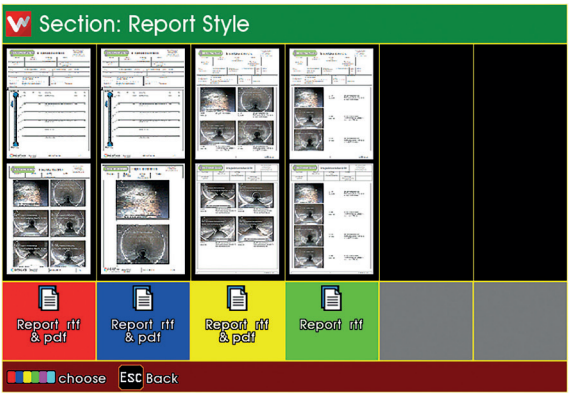


n Press 

to generate Report Documents for the whole Project.

n Depending upon Project and Section complexity, this could take some minutes.

Previews of the various Report Styles are displayed.



n Press the relevant coloured key to generate a report document of your chosen style.

n Most reports are generated as both RTF and PDF documents.

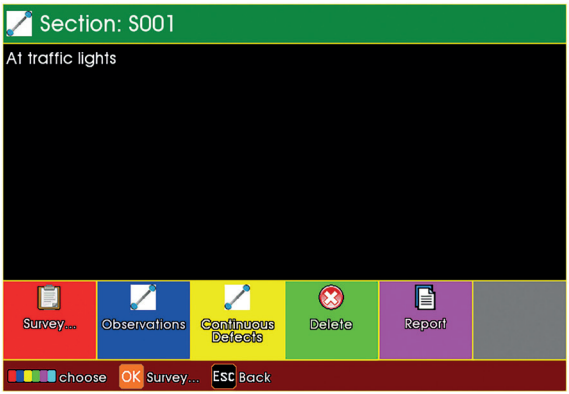
n The 

style generates only RTF.

n The report documents are stored into the Project's memory Folder, along with the Project's video and photo files.

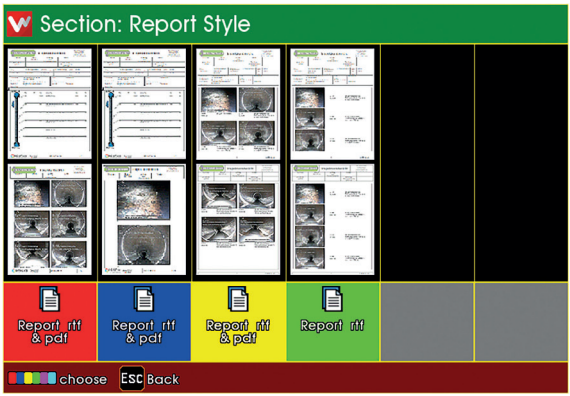
Creating Reports for a Selected Section

When you have selected a Section, the Section Information is shown.



n Press  to generate Report Documents of this Section.

Previews of the various Report Styles are displayed.



n Press the relevant coloured key to generate a report document of your chosen style

n Most reports are generated as both RTF and PDF documents.

- The  style generates only RTF.

- The report documents are stored into the Project's memory Folder, along with the Project's video and photo files.

Inclination Logging & Reporting

For Proteus Crawlers

IMPORTANT - PLEASE NOTE

The inclination feature is for use only to show the estimated general trend of the pipe slope. Due to varying conditions such as pipe type, environments, vibration, sensor technologies, etc. Mini-Cam cannot be held responsible for any inaccuracies or consequences arising from the use of the inclination feature, logged inclination data, or generated inclination reports.

Before commencing the Inclination Logging

NOTE!
Before commencing the inclination logging, follow the on screen calibration instructions, ensuring this is done on a reasonably level, flat surface.

NOTE!
Inclination surveys are always best carried out **in reverse**, **after** completing your survey.

Inclination Sensing

Some Proteus crawlers are fitted with a sensor for inclination. The inclination measures the "slope" of the pipe as the crawler is driving along.
The CCU, or a PC running suitable software applications (such as *WinCan*), can log the values of the crawler inclination during the survey. From the logged
value, the CCU (or PC) can produce a graph showing the inclination slopes that the crawler experienced while driving along.

What inclination is for

Inclination is used to show the general trend in slopes within a pipe. It is not for accurate measurement, and can't accurately detect bumps such as pipe joints.
Mainly it is used to look for signs of where there might be dips or peaks in the pipe which could become water or silt traps.

Recommended Conditions for Inclination Logging

The quality of the inclination log depends upon many influences. When logging inclination, Mini-Cam recommends the inclination is logged:

- in a clean pipe, so that the crawler does not lose traction
- when the crawler is reversing out of the pipe (to minimise shaking due to the crawler pulling on the cable)
- at a medium speed, without stopping the crawler, after the observation survey has been completed

It is possible to perform inclination logging when driving the crawler forwards, though if the crawler is regularly stopped and restarted, this will affect the inclination log quality.

Inclination Logging on the CCU

(If logging inclination using a PC application, please see the instruction manual for that application.)

Setting up the Crawler

Setting the Inclination Polarity

Some Proteus crawlers produce an inclination signal which works up-side-down ('reversed'). For these crawlers you can tell the CCU to swap the signal around.

- When you lift the front of the crawler, the inclination values shown on the CCU screen should show POSITIVE values.
- When you lift the rear of the crawler, the inclination values shown on the CCU screen should show NEGATIVE values.

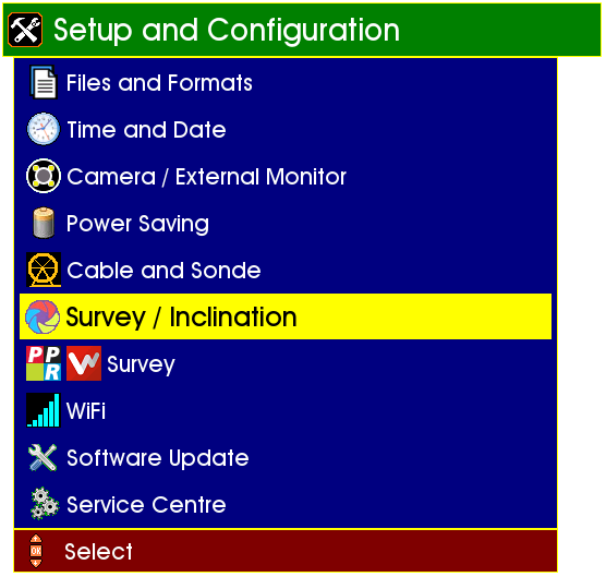
If you find that this is not true for your crawler, you may need to change the "Inclination Polarity".

- To change the Inclination Polarity, pr  for Setup.
- Then select the menu item Survey / Inclination.
- Then the menu item Inclination Polarity.
- From there you can select Standard or Reversed, then pres OK .

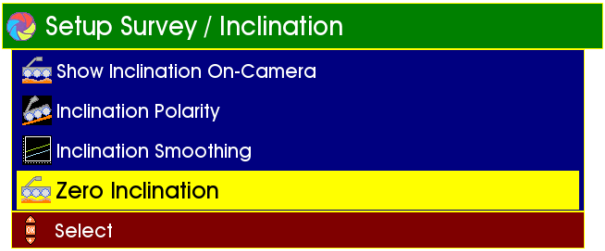
Inclination Zero Calibration

The inclination sensor on some Proteus crawlers should be 'calibrated', Mini-Cam recommends that this is done before every inclination survey.

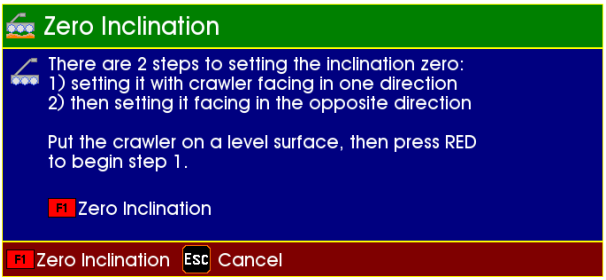
Power on your crawler, and press the Tools key, then select "Survey / Inclination".



If your crawler supports inclination zero calibration, you will see a menu item "Zero Inclination". If it does not support inclination zero calibration, you can ignore the rest of this setup.

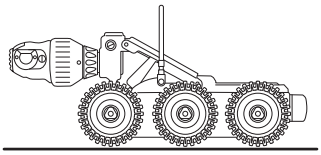


Select "Zero Inclination" and the first stage of the zero calibration begins:



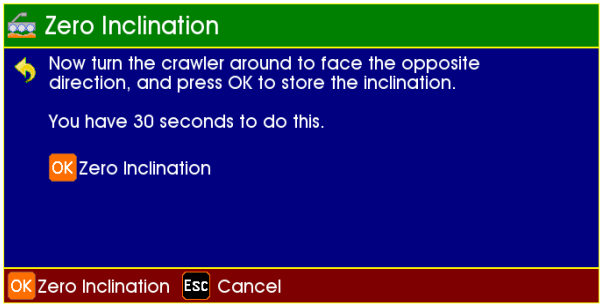
There are two stages to performing the inclination zero calibration.

Stage 1
Place the crawler on a reasonably flat level surface (it does not need to be completely level).

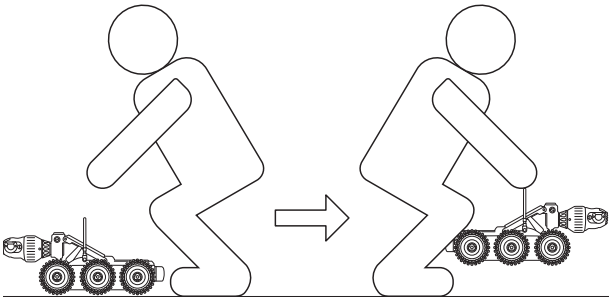


Now press the Red F1 F1 key to perform the first stage of the calibration, and the CCU then moves on to Stage 2.

Stage 2
The CCU shows:



Pick up the crawler and turn it around to face the opposite direction, and place it on a level surface. **You have**



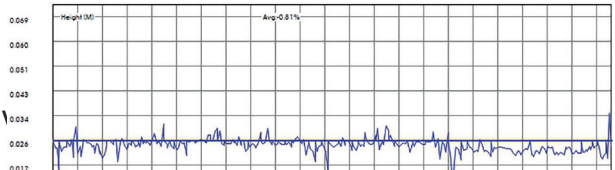
Press **OK** to complete the calibration.

The inclination zero has then been calibrated, and the crawler is then ready for use.

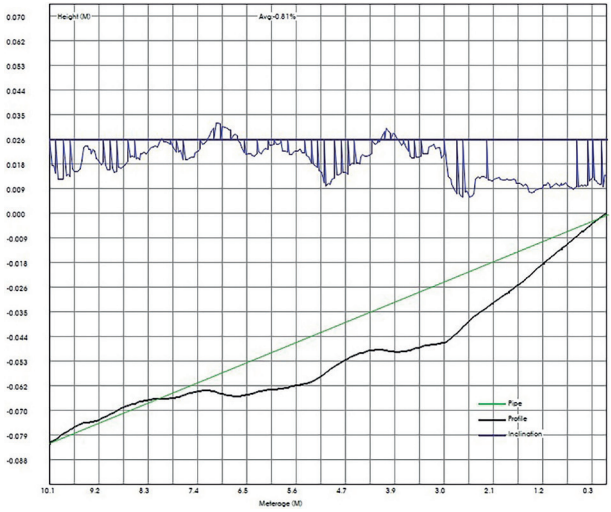
Setting the Inclination Smoothing

As the crawler drives along the pipe it encounters bumps, unevenness and
vibrations which can affect the sensor readings that are logged. When this is subsequently plotted onto a graph, those inaccuracies can show as spikes and bumps on the graph lines.
You can choose whether to have the CCU apply a “smoothing” to the sensor readings, to help to flatten out the bumps, unevenness and vibrations. Then the plotted graphs will have much smoother lines. Normally you may wish to have smoothing enabled.

- To enable or disable Inclination Smoothing, press for Setup.
- Then select the menu item Survey / Inclination.
- Then the menu item Inclination Smoothing.
- From there you can select Disable or Enable, then press **OK**

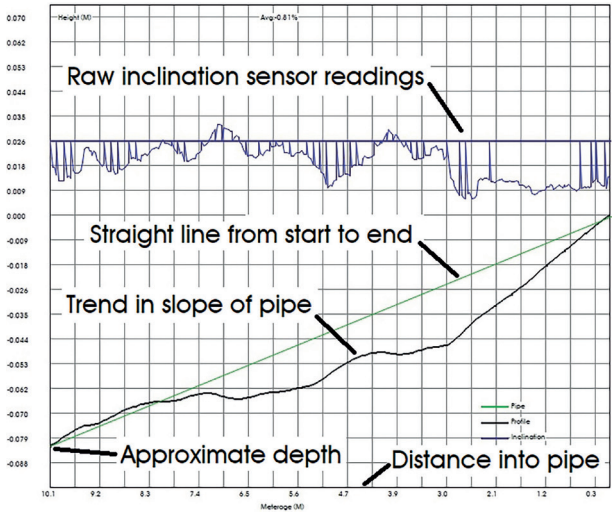


This graph was produced WITHOUT *smoothing.*



This graph was produced WITH *smoothing.*

Interpreting the Inclination Graph

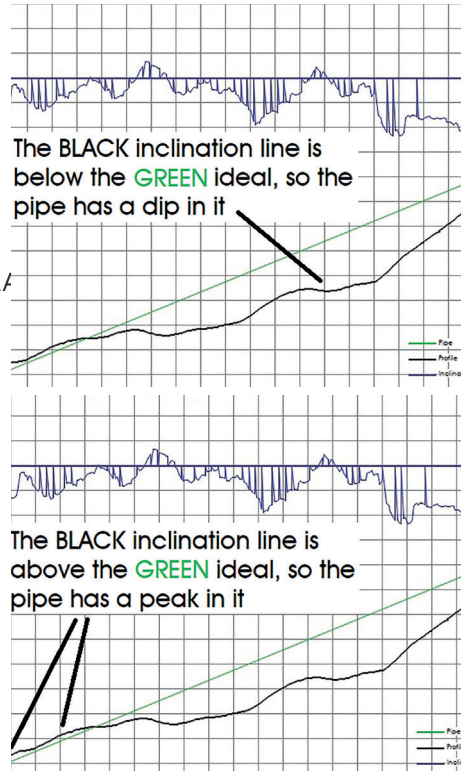


The **BLUE** line indicates raw sensor readings, normally you can ignore this line.

The **GREEN** line indicates an ideal straight line from the start depth to the end depth. A perfect pipe would be completely straight and flat and have no dips or bumps – in which case the **GREEN** line would represent the actual bottom of the perfect pipe.

The **BLACK** line is the slope of the pipe measured by the inclination. When the **BLACK** line goes below the **GREEN** line, it means the pipe has a **dip** in it. When the **BLACK** line goes above the **GREEN** line, it means the pipe has a peak in it.

A perfect pipe that had no dips or peaks would draw a **BLACK** inclination line directly over the top of the **GREEN** ideal straight line.



Here the BLACK *line goes above the* GREEN *line, so it means the pipe has a peak in it.*

Product Serial Numbers

Enter your product serial numbers below, for future reference.

VAN CONTROL UNIT	**VCU500-**				
DESKTOP KEYBOARD	**VKU500-**				

Service and Repair

Useful Information

UK Customers:
For service and repair contact Mini-Cam
Tel: 01942 270524
Email: service@minicam.co.uk

International Customers:
For service and repair contact your local Mini-Cam Approved Dealer

View Mini-Cam “How To” videos on our YouTube Channel

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. Mini-Cam will comply with the product take back requirements at the end of life of Mini-Cam products that are sold into the EU.

Information on Disposal for Business Users
The ACR is marked with the symbol shown above. It means that used electrical 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 Mini-Cam Ltd or you nearest Mini-Cam 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 ACR, please contact your local authorities and ask for the correct method of disposal.

For disposal contact Mini-Cam or the Mini-Cam Partner in your country.

Batteries

As a producer of industrial batteries under the Waste Batteries and Accumulators Regulations 2009, we Mini-Cam supply Lithium Ion batteries. We are obliged to take back free of charge, waste industrial batteries supplied to an end user for treatment and recycling. We are required to do this in any calendar year we place new industrial batteries on the market. If any of our customers or in certain cases other end users, require us to take back industrial batteries, they should contact us at:

Mini-Cam
Unit 4, Yew Tree Way,
Golborne,
Warrington,
Cheshire,
WA3 3JD
United Kingdom

email: info@minicam.co.uk

Telephone +44 (0) 1942 270524

We will agree the necessary arrangements for the return, proper treatment and recycling of the waste industrial batteries.

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