Timespace Technology

K210 / K220

Digital Video Recorder
Instruction Manual

K210 / K220 Configuration Utility V1.0.0
PCLink Suite V 7.0

K210 / K220

Digital Video Recorder
Instruction Manual

CONTENTS

SAFETY

WARNING: Designed for use in the temperature range 0° to 45°C, 20% to 80% RH (non-condensing).

WARNING: Do not wet the product when cleaning.

WARNING: Do not open the K210/K220 series case - no user serviceable parts inside.

WARNING: The maximum rating for a camera connected to a K210/K220 unit is 2W. Connecting a higher power camera will result in permanent damage to the unit.

WARNING: Ensure camera voltage setting in Advanced Menu is the same as the voltage of the camera actually being used; for example: if the menu voltage is set to 12V and a 5V camera is connected, the camera can be damaged.

WARNING: K210/K220 should be safely removed from Windows operating system environment prior to removing usb cable. Data loss or corruption may occur if this is not followed.

ENVIRONMENTAL

Temperature

The K210/K220 is designed for indoor use in the temperature range 0° to 45°C, 20% to 80% RH (non-condensing).

Shock and Vibration

Although the K210/K220 is constructed from a robust extrusion, every care should be taken to avoid extremes of shock and vibration.

Conformity

EMC Conformity (CE Mark)

Meets the European Council Directive 89/336/EEC (EMC Directive) relating to EMC Emissions - EN61000-6-3(2001) and EMC Immunity – EN61000-6-1(2001).

EC Declaration of Conformity (CE)

We Timespace Technology Ltd.
Blackstone Rd
Huntingdon
PE29 6TT
United Kingdom

declare that the

K210/K220 Digital Video Recorder

Meets the intent of the European Council Directive 89/336/EEC referred to as the Electromagnetic Compatibility (EMC) Directive. The product conforms to the following standards which have been listed in the *Official Journal of the European Union*.

EMC
Emissions: EN61000-6-3(2001) EMC Generic Emission Standard for residential, commercial and light industrial. Referring to:

a) EN55022(2006) Conducted, Class B
b) EN55022(2006) Radiated, Class B

Immunity: EN61000-6-1(2001) EMC Generic Immunity Standard for residential, commercial and light industrial. Referring to:

a) EN55024(1998) Information Technology Equipment – Immunity Characteristics
b) IEC 61000-4-6(2006) RF Field
c) IEC 61000-4-2(2001) Electrostatic Discharge
d) IEC 61000-4-4(2004) Fast Transient
e) IEC 61000-4-3(2006) Radiated Field Immunity
f) IEC 61000-4-5(2005) Surge
g) IEC 61000-4-8(2001) Power Frequency Magnetic Field
h) IEC 61000-4-11(2004) Voltage Dips and Interruptions

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Dr ROBERT HEYLEN
TECHNICAL DIRECTOR – 2nd October 2008

Certificate of Registration

The Waste Electrical and Electronic Equipment Regulations

This is to certify that

Timespace Technology Ltd

is a registered member of the

Transform WEEE Compliance Scheme
for the compliance period

1 January 2008 to 31 December 2008

EA Producer Registration Number: **WEE/CA0066TW**

Transform is approved by the Environment Agency : WEE/MP3238PG/SCH
It is part of **Biffa Waste Services Limited**
Head Office: Coronation Road, Cressex, High Wycombe, Bucks. HP12 3TZ
Telephone: 01494 521221

SYSTEM OVERVIEW

Overview

The K210/K220 is a stand-alone digital video recorder only requiring the addition of power, a suitable camera and/or microphones to record both video and audio.

The K210/K220 is powered externally (6-18V regulated mains/battery supply).

The K210/K220 is connected to a PC via the supplied USB2 cable. This allows access to stored recordings and configuration of the K210/K220.

Recording with the K210/K220

Simply attach a suitable camera and/or microphone(s) to the K210/K220 'Input' connector which is detailed in the Connections and Controls section of this manual.

Recording is activated either by moving the K210/K220 toggle switch to the 'On' position or by using an external trigger (as detailed in the Connections and Controls section of this manual).

When the K210/K220 is recording the 'Record' LED will be lit. The amount of disk capacity used is displayed by the '25, 50, 75 and 100%' LED indicators.

Reviewing recorded footage

The K210/K220 toggle switch must first be moved to the 'Off – USB2' position. The supplied USB2 cable can then be used to connect the K210/K220 to a PC with PCLink Suite software installed.

Recorded files can then be viewed and archived using PCLink200 software. Please refer to the PCLink200 section of this manual for further details.

For the K220, recorded files can be played back on the integral LCD screen by moving the toggle switch to the 'play' position and pressing the blue play button.

Configuring the K210/K220

The K210/K220 toggle switch must first be moved to the 'Off – USB2' position. The supplied USB2 cable can then be used to connect the K210/K220 to a PC.

Once connected, the K210/K220 contents window should automatically appear within the Windows environment. If it does not, double click 'My Computer' or use Windows Explorer to locate the newly attached Removable Disk. Double clicking the new Removable Disk icon will open the K210/K220 contents window.

This window displays the contents of the K210/K220 including any recorded .xba files and the K210/K220 Configuration Utility.

In order to set up the K210/K220 double click on the K210/K220 Configuration Utility. This will then start in a new window. The K210/K220 Configuration Utility is covered in more detail in the Configuring the K210/K220 section of this manual.

CONNECTIONS AND CONTROLS

Input / Output Connectors

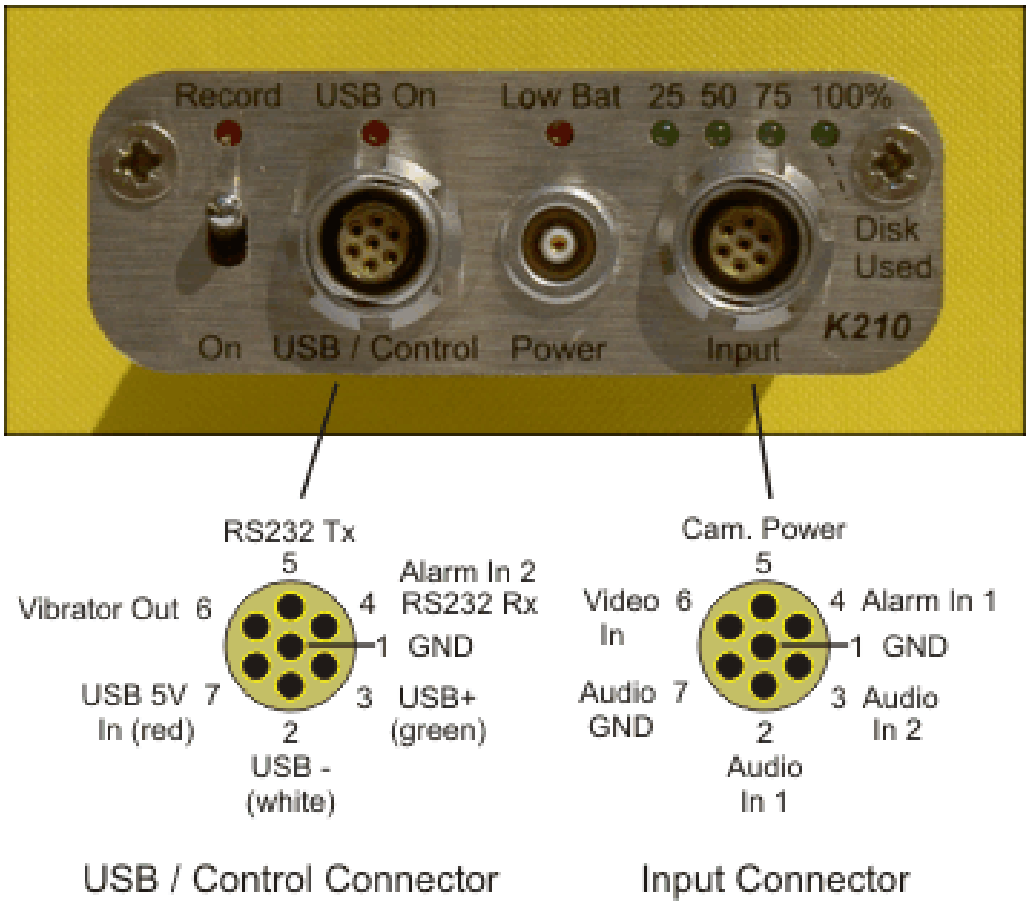
The K210/K220 has three connectors one for power, one for USB2 and control and the other for camera and microphone inputs.

A USB2 cable is supplied with the K210/K220 allowing it to be connected to a USB2 port on a PC. This is used to allow configuration of the K210/K220 and access to any stored recording files.

The input and power connector is supplied with the K210/K220, but appropriate cable connections will have to be made in order to attach cameras and/or microphones.

The pin assignments for each of the connectors are shown in the following diagram.

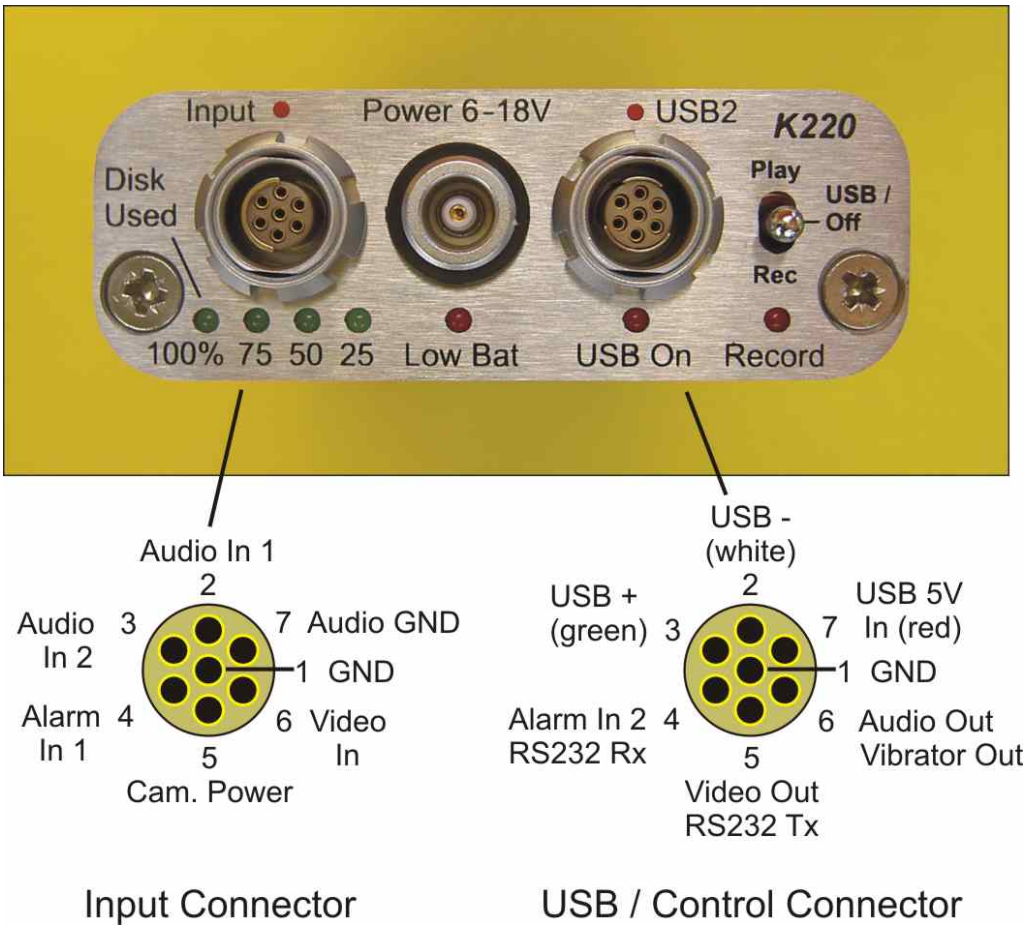
K210



USB / Control Connector

Input Connector

K220



Record/USB2 Switch

The K210/K220 toggle switch controls whether the K210/K220 is recording (switch in the 'On' position) or whether it is connected to the PC (switch in the 'Off' position).

LED Indicators

The K210/K220 has a number of LED's to indicate certain conditions.

Record – Indicates that the K210/K220 is currently recording.

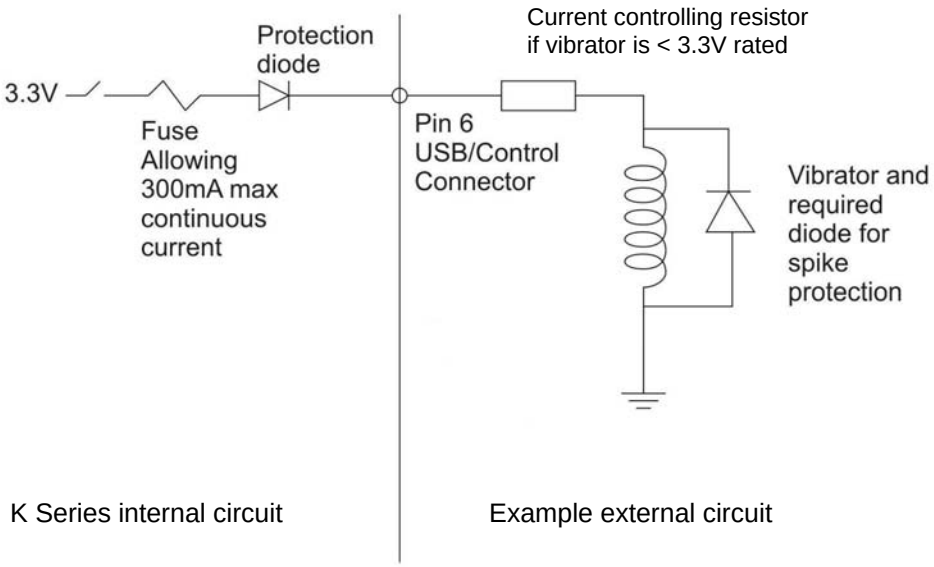
Low Bat – Indicates that the K210/K220 attached battery is low and will need charging soon to avoid power down.

Memory Used – Gives an indication as to how much of the K210/K220 hard disk is full of recording, LED's will light at 25, 50, 75 and 100% full.

The K210/K220 LED's can be software disabled by selecting 'LEDs Disabled' in the Advanced Menu of the K210/K220 Configuration Utility. If this is selected then none of the K210/K220 LED's will light at any time which may be of use in covert applications.

RS232 Tx/Rx – For future use. Currently no functionality in K210/K220.

Vibrator Output Diagram



K210/K220 Camera Wiring Recommendations

Introduction

The K210/K220 is supplied with a Fischer plug + 4.7mm collet, for connecting your choice of camera to the K210/K220 unit. This plug mates with the Input connector of the K210/K220 and is the only plug suitable for use. This document provides some hints for preparing this connector.

****Caution****

A high level of wiring and soldering skill is required to successfully connect to the plug supplied. The contacts are very small and therefore there it is easy to short connections together, possibly damaging your K210/K220. Please ensure you have sufficient skills before attempting this task.

Parts Supplied

The Fischer connector is supplied in 2 parts: The plug and the collet set. You need both parts to complete the task successfully. If you fail to fit the collet set, the pins will withdraw when the connector is inserted.

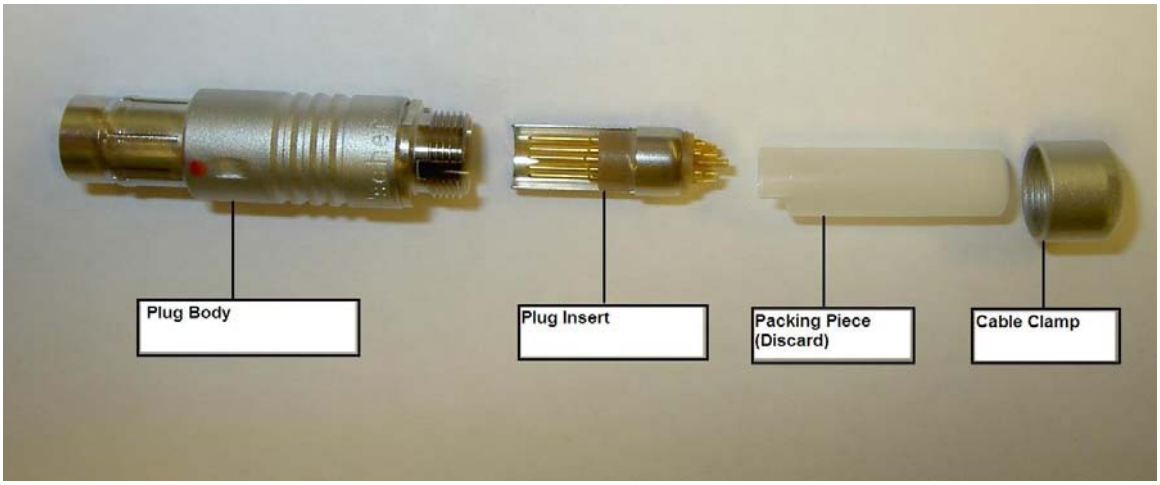


Fig 1. Connector parts.

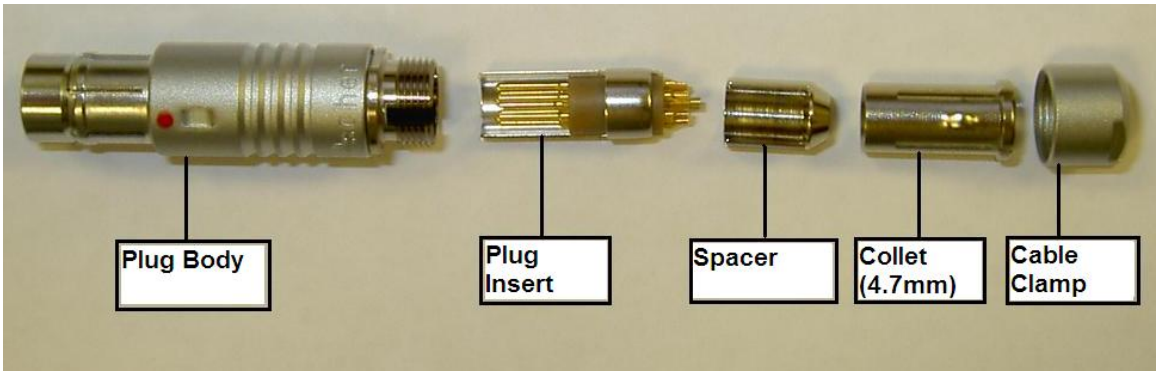


Fig 2. Complete connector

Assembly Sequence

1. Determine the diameter of the cable you are using. The maximum size for the connector is 4.7mm overall diameter. The maximum wire size to fit the solder buckets is 28AWG.
2. If the cable you are using is less than 4.3mm, you will need to either source an alternative collet, or build up the diameter of the cable by using heatshrink tubing. It is recommended that the adhesive-lined type is used if using heatshrink tubing as it provides greater cable strain relief. You should use a minimum of 30mm of heatshrink tubing.
3. Working from the end to be connected, slide the cable clamp onto the cable.
4. Slide the Collet onto the cable.
5. Strip the insulation from your cable exposing any screening present. You should strip back approximately 40mm but this will be trimmed back later.
6. Splay out any screening. Once the screening has been splayed out, slide the spacer over the wire cores.
7. Trim the cores to 15mm.
8. Strip the ends approximately 1mm and tin the exposed wires with a minimum amount of solder. If you use too much, you will struggle to fit the wires into the solder buckets of the insert.

9. Slide the spacer over the cores.
10. Solder the cores into the solder buckets of the insert. *This is Tricky!*. Start from pin 1 (the centre connector) and use a minimal amount of solder in order to minimise the risk of short circuits. A 'helping hands' tool is very useful here.
11. Wire the connector up as per the diagram below.

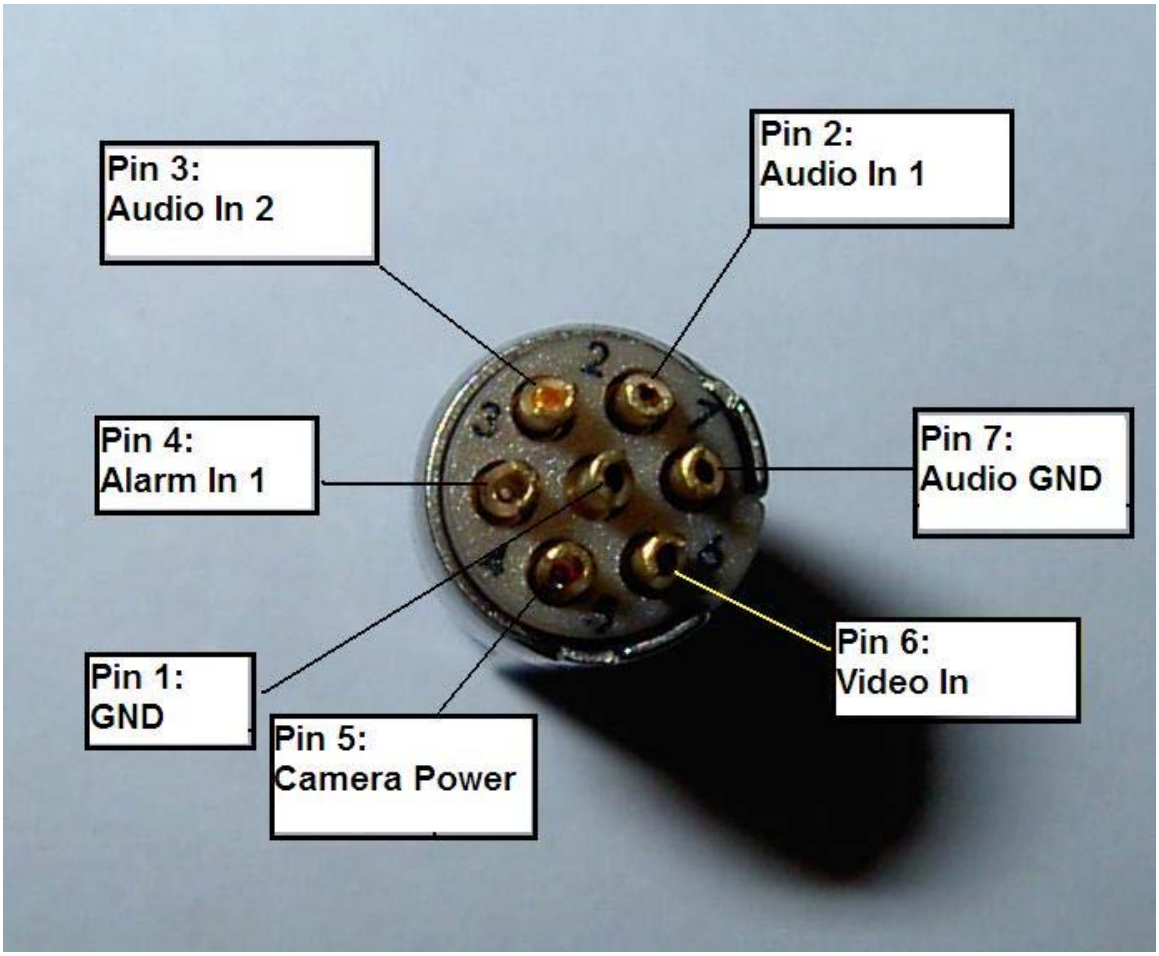


Fig 4. Connections

12. Once all the connections have been made, trim back any unused cores as close to the stripped end as possible.
13. Slide the space up towards the insert. If you rotate the space around the cable, you will find that it 'keys' into the insert in one position only.
14. Slide the collet into the space, trapping the splayed out screen (if present) between the collet and the spacer. Trim the screen that protrudes from this gap.
15. Slide the plug body over the insert and onto the cable

NOTE - The insert will only go into the plug in one way. It is keyed to align with the keying in the body. Some pressure is needed once these align, but no more than gentle pressure is needed once it has aligned.

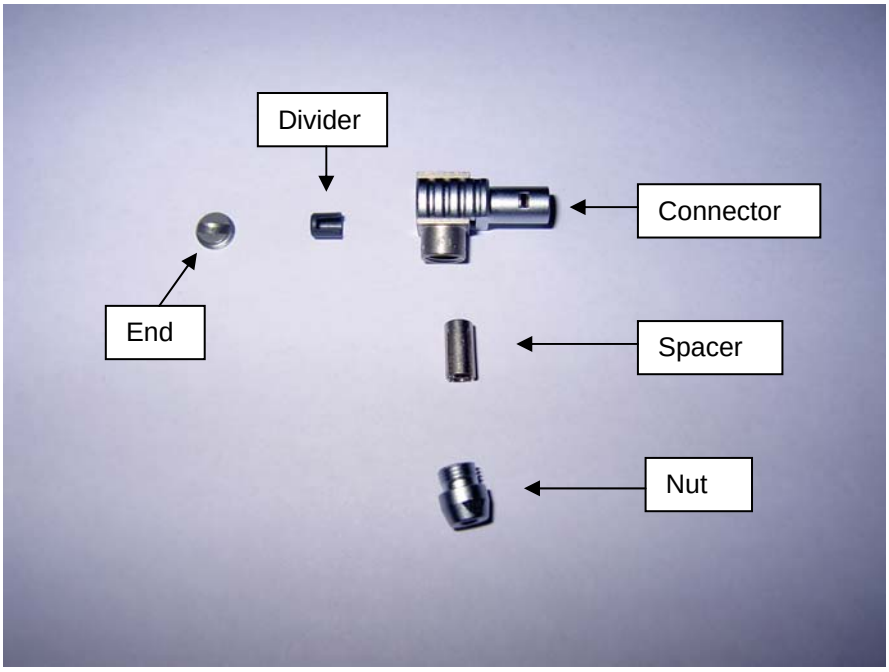
16. When the insert is nearly fully home, rotate the collet around the cable so the small bump on the collet aligns with the slot in the body. Once these align, the insert and cable can be pushed fully home.
17. Push the collet up into the body as far as you can.
18. Tighten the cable clamp onto the body. Your connector is now complete and ready for use.

Fischer Information

Fischer part no	Description
S102A056-130+	K210/K220 input plug
S102A056-230+	K210/K220 control plug
102.248 + A	4.7mm collet (4.3 – 4.7 cable)
E32 102.1/2.1+A	2.1mm collet (1.5 – 2.1 cable)
E32 102.1/2.6+A	2.6mm collet (2.1 – 2.6 cable)
E32 102.1/3.1+A	3.1mm collet (2.6 – 3.1 cable)
E32 102.1/3.6+A	3.6mm collet (3.1 – 3.6 cable)
E32 102.1/4.1+A	4.1mm collet (3.6 – 4.1 cable)
E32 102.1/4.3+A	4.3mm collet (4.1 – 4.3 cable)

Distributor list available on: www.fischerconnectors.com

K210/K220 Power Connector



1. Lemo connector is supplied complete, take apart as shown in above picture.
2. Put the nut and spacer on the power cable and push the positive wire up into the connecter.
3. Solder the positive wire onto the pin, ensure the wire does not touch anywhere else inside the connector.
4. The ground wire should be clamped between the spacer and the connector, screwing the nut in pace will secure the ground cable against the inside of the connector.
5. Place the divider inside the connector, this ensures the positive wire doesn't touch any other part of the connector.
6. Screw the end piece in place over the divider.

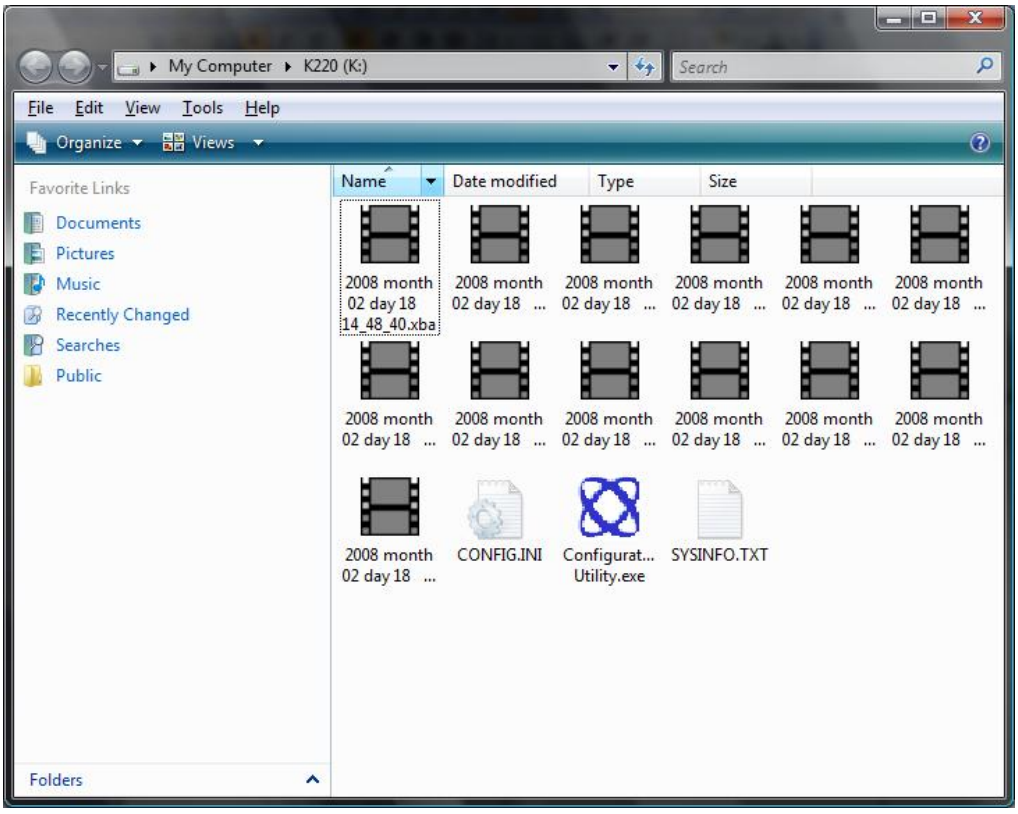
Lemo Uk Ltd part no
FLA.00.250.CTAC29
http://www.lemo.co.uk/

CONFIGURATION – K210

The K210 is configured by connecting it to a PC via the supplied USB2 cable.

The ‘Record’ toggle switch must be in the ‘Off – USB2’ position.

The K210 contents window should then automatically appear on the Windows Desktop. If it does not, double click ‘My Computer’ or use Windows Explorer to locate a new Removable Disk. Double clicking the new Removable Disk icon will open the K210 contents window which is shown below.



This window displays the contents of the K210 including any recorded .xba files and the K210 Configuration Utility.

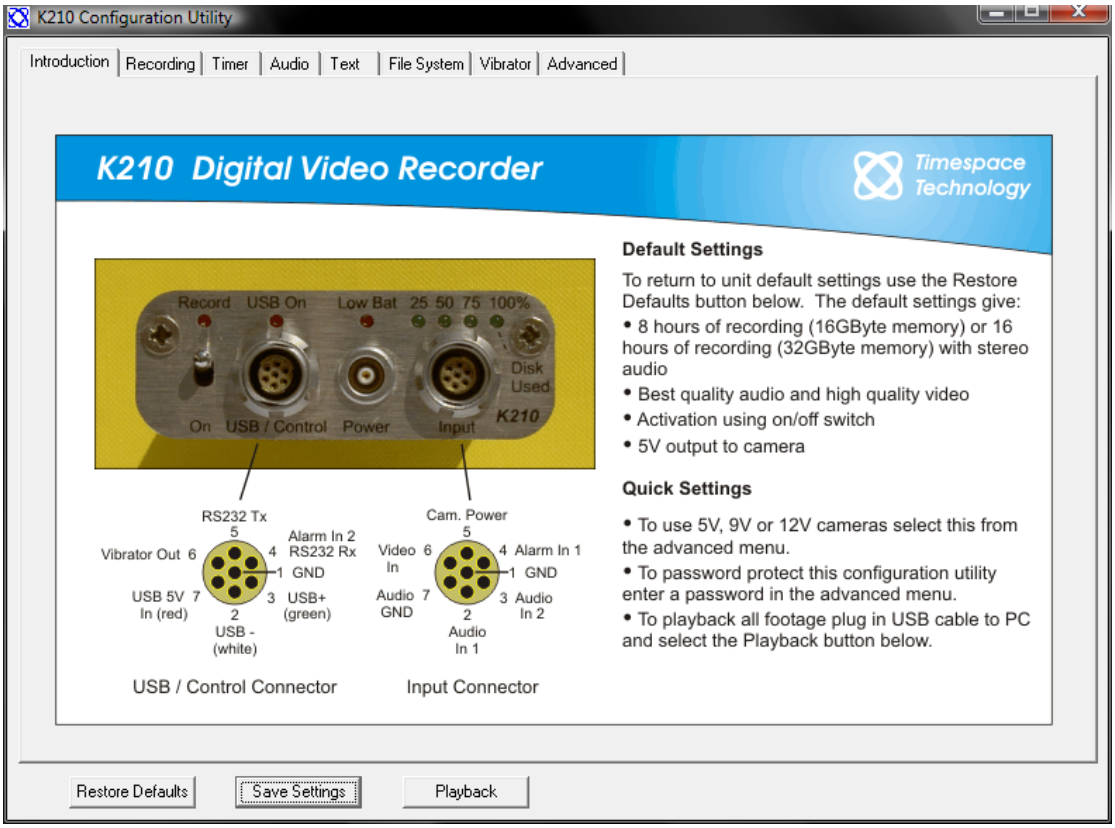
In order to set up the K210 double click on the K210 Configuration Utility. This will then start in a new window.

WARNING – System files CONFIG.INI and SYSINFO.TXT must not be deleted or modified. Doing so may cause the unit to be unusable and require a software reload.

K210 PC Configuration Utility

The K210 Configuration Utility allows the user to change any of the K210 settings and then save them in its internal flash memory.

When the K210 Configuration Utility starts the user will see the following window.



This is an introductory screen showing the K210 connectors and controls and the main default settings.

The configuration Utility is organised into a series of menu pages which can be accessed via the tabs at the top of the utility window.

The three buttons at the bottom left of the window allow the user to restore the default K210 settings, save the new settings to the K210 internal memory or playback any .xba files currently stored on the K210 by launching PCLink200***** reviewing and archiving software. These three buttons appear in the same location on every page of the utility.

The pages themselves are laid out so that the settings are on the left hand side of the utility and a section of help text is on the right hand side.

NOTE ***PCLink200 is part of PCLink Suite and must be installed on the connected PC in order for it to be launched from the K210 Configuration Utility.**

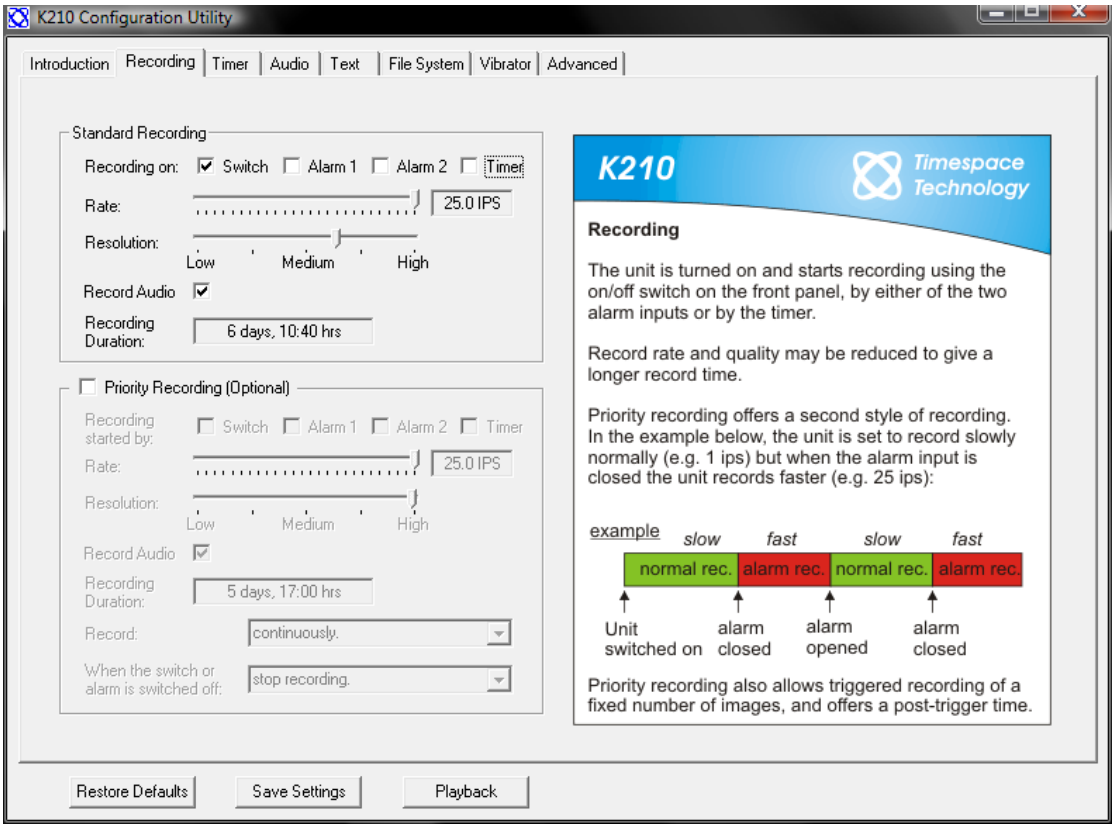
NOTE **'Save Settings' button must be pressed in order to change the settings on the K210.**

WARNING **'Restore Defaults' will take approx 30 seconds to implement the next time the unit is set to record. The storage capacity lights will cycle whilst this is in progress. Recording will then commence.**

Recording

Recording can be started by moving the K210 toggle switch to the 'ON' position. Moving the switch to the 'Off – USB2' position will stop recording.

Recording can also be controlled by external switches which are used to connect pins 4 and 1 on the 'Input' connector (Alarm In 1) or pins 4 and 1 on the 'USB2/Control' connector (Alarm In 2).



Recording on - Defines which controls will start/stop recording. If 'Timer' is selected then the switch and alarm inputs will be disabled.

Rate - Selects how many images per second the K210 will record at.

Resolution – Selects the resolution that the K210 will record at.

Record Audio - Selects whether audio recording is turned on/off.

Recording Duration – Shows the amount of time the unit K210 will record for on its current settings.

Priority Recording – The K210 can have a second style of recording. For example to record for X images after the alarm, or for X seconds after the alarm. These are configured using the pull down menus at the bottom. Another example described in the Configuration Utility text is for normal recording to be at a lower ips, then record faster once the alarm is triggered.

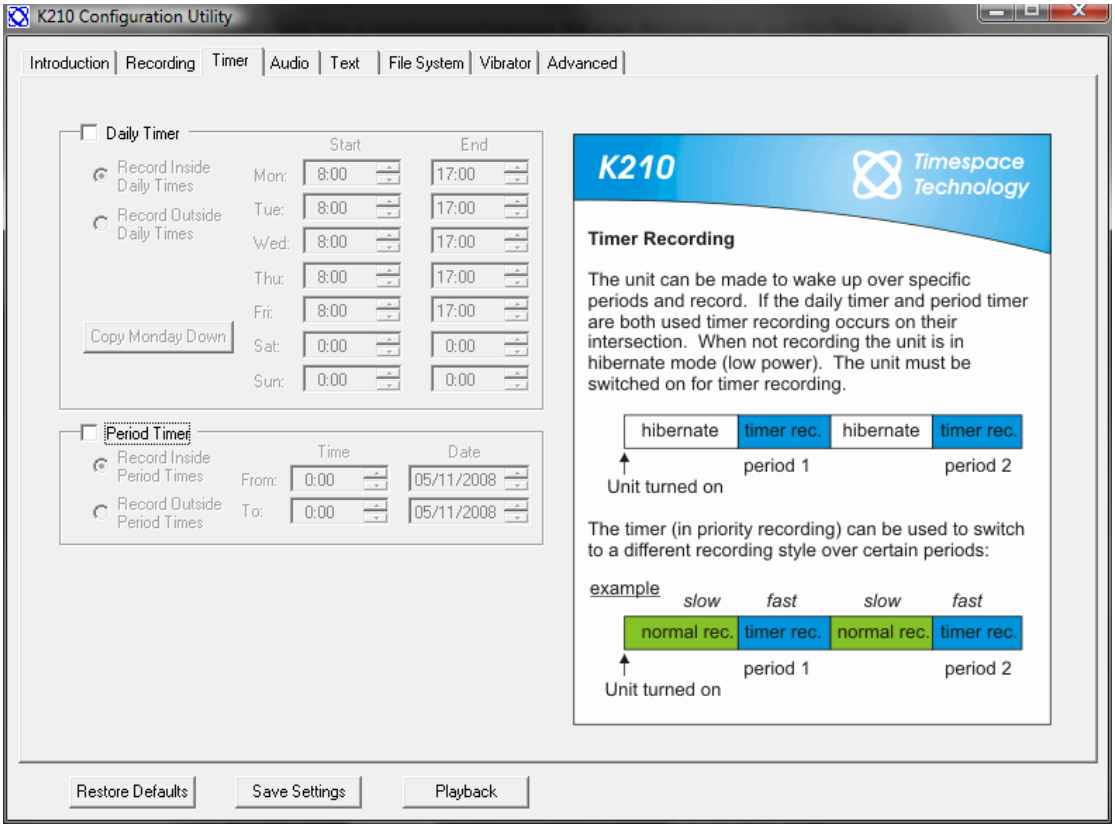
Priority Recording always takes precedence over standard recording. Priority Recording is more fully featured than Standard Recording, offering a Post Trigger time and also a Single/Multiple Shot capability.

NOTE Rate and Resolution will alter the **Recording Duration**.

Timer

A timer is also included to start recording at a specified time. If 'Timer' has been selected as the trigger to start recording the K210 toggle switch should still be set to the 'On – Record' position once disconnected from the PC. If it is left in the 'Off - USB2' position the timer will not activate recording.

The Timer check box is synchronised between the main Recording tab and the Timer tab.



Daily Timer – Enables the Timer function.

Record inside Daily Times – Records inside the times specified.

Record outside Daily Times – Records outside the times specified.

Copy Monday Down – Copies the start/end times in Monday to all other days.

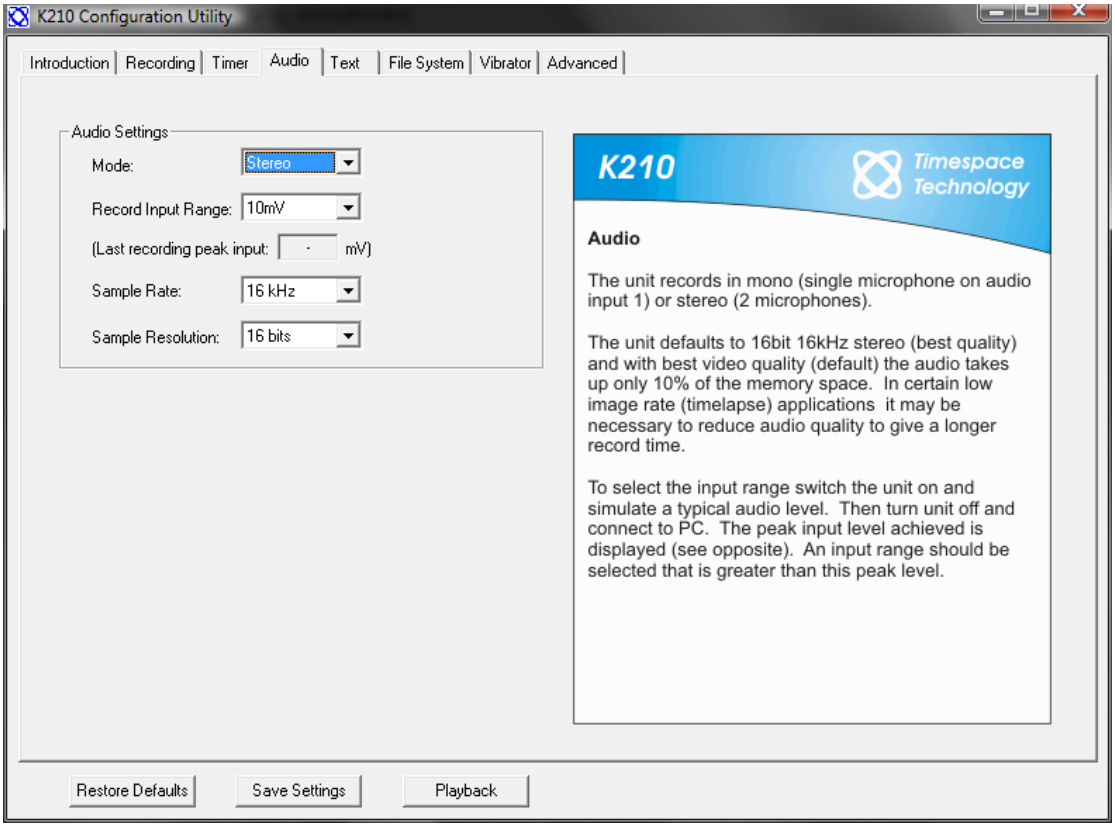
Period Timer – Can be used to include/exclude a period that may otherwise be configured by another mode of recording.

If the Daily timer and the Period timer are both used, time recording will occur on their intersection.

NOTE When using Timer record, the **Timer** check box must also be selected on the **Recording** tab.

Audio

The K210 has an internal pre-amp and can record in mono (single microphone on audio input 1) or stereo (2 microphones).



Mode – Selects the mode of audio recording - Stereo/Mono.

Record Input Range - Selects the input range of the K210 audio inputs. An appropriate range should be chosen depending on the specification of the microphones being used.

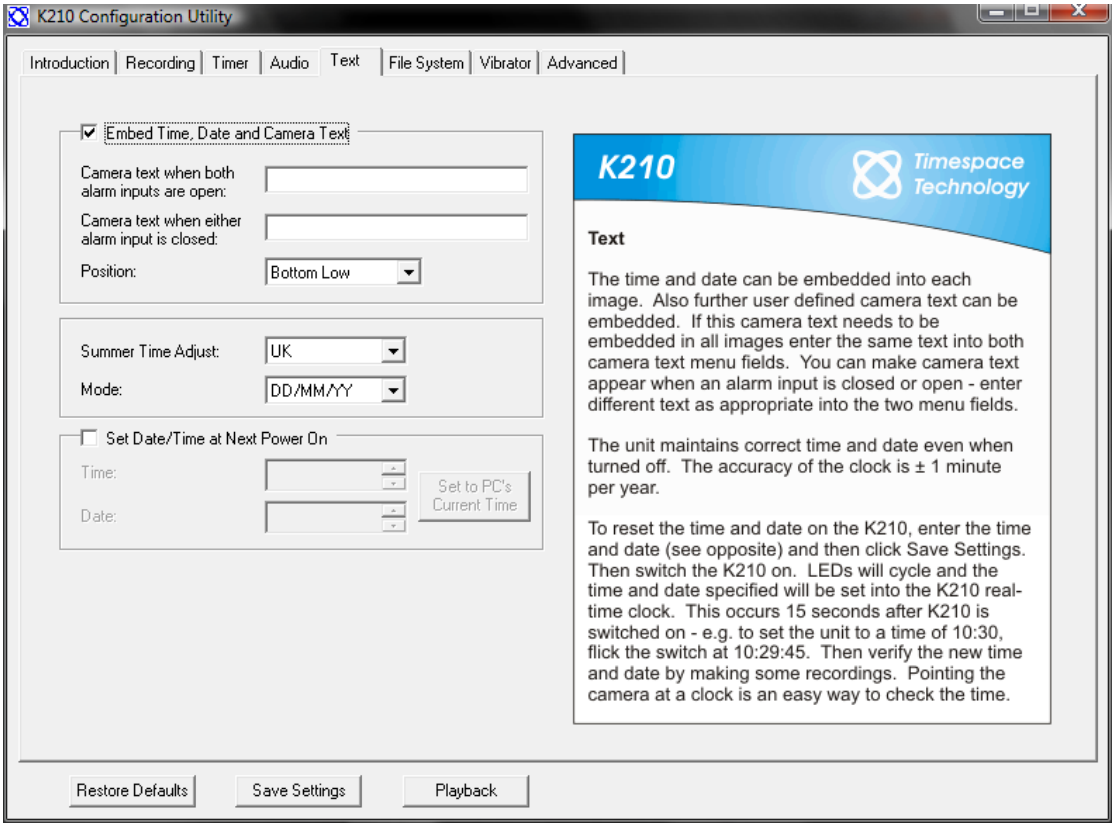
Last recording peak input - Shows the peak input voltage from the microphones during the last recording. This can be used as a guide when setting a value for the record input range.

Sample Rate – Selects the sampling frequency. The 16kHz setting will record higher frequencies (have a wider frequency range) than the 8kHz setting

Sample Resolution – 16 bit sample resolution is recommended if there are both very quiet and very loud audio events. 8bit resolution offers ½ recording space at the expense of higher noise.

Text

The K210 internal clock can be set to a specific date and time. User definable text fields allow text to be embedded in the recorded images when the Alarm Inputs are either open or closed.



Embed Time, Date and Camera Text – When this box is checked the time and date will be embedded in all recorded images along with any user defined Alarm Input text.

Camera Text When Alarm Input is Open (default) – The user can enter text in this field to be embedded into the recorded images whilst the Alarm Inputs are open.

Camera Text When Alarm Input is Closed – The user can enter text in this field to be embedded into the recorded images whilst the Alarm Inputs are closed.

Position – Determines the position of text within the recorded images.

Summer Time Adjust – Determines whether the K210 internal clock will automatically adjust for UK/USA/EUROPE summertime or not if set to 'OFF'.

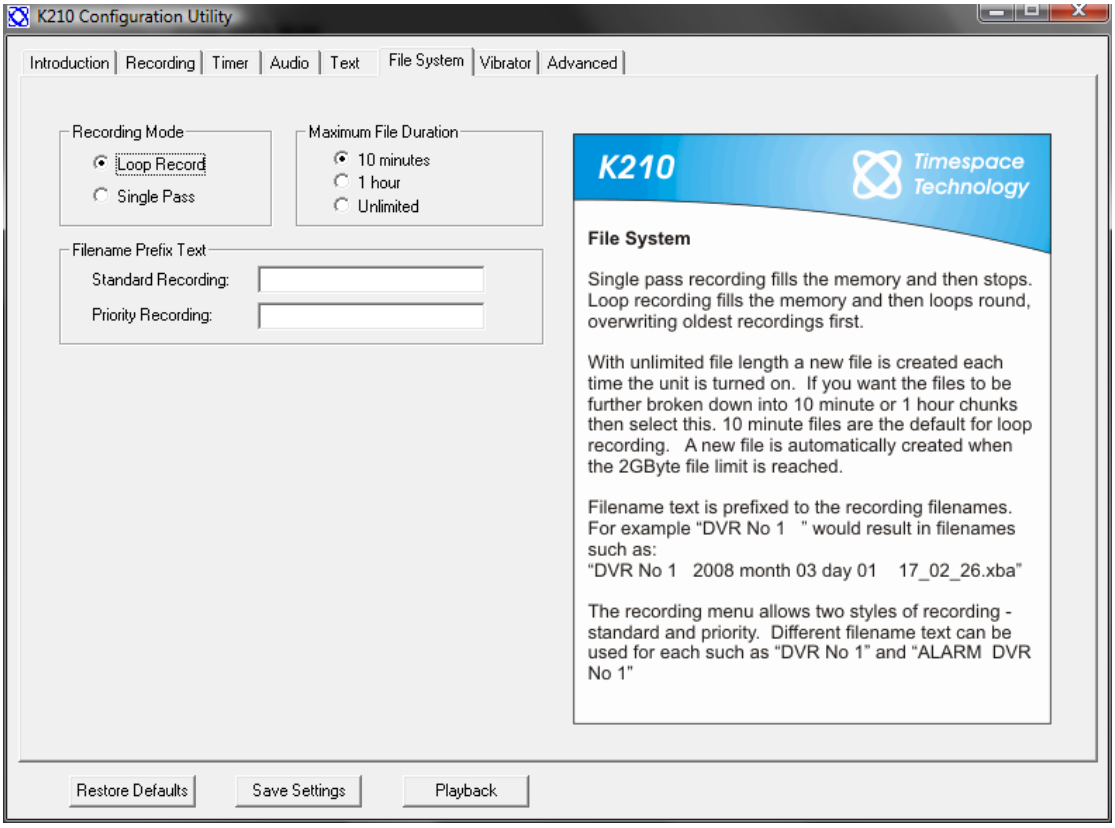
Mode – Determines whether the date is in the format DD/MM/YYYY or MM/DD/YYYY.

Set Date/Time at Next Power On – Allows the user to adjust the K210 internal clock. The new settings will only become active once the 'Save Settings' button has been pressed (all new settings saved to the K210) and the K210 has been powered up by moving the toggle switch to the 'On' position. The time in 24 hour format.

All embedded text is protected by the fragile watermarking system used in the K210 and PCLink200. This gives a positive indication as to whether recorded images are original or whether they may have been tampered with after recording.

File System

The File System settings determine how the K210 stores recordings and whether it stops recording when the memory is full, or loops around and starts to overwrite oldest recordings first.



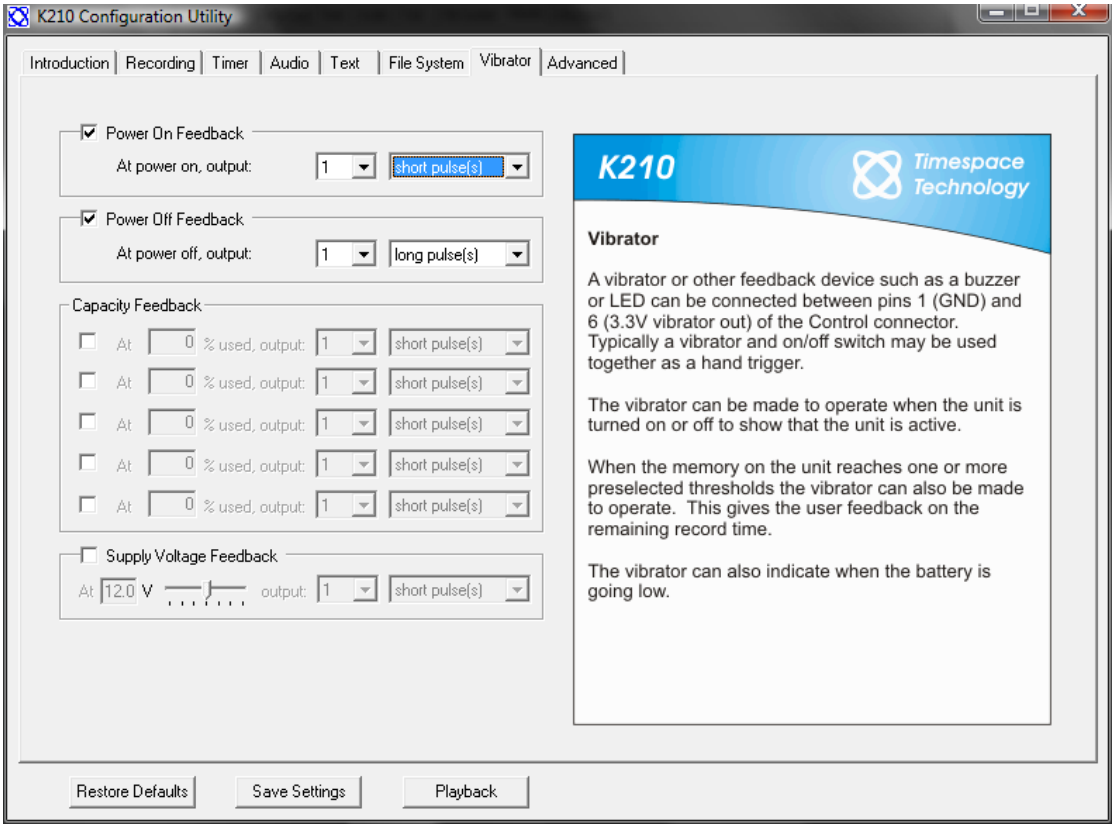
Recording Mode – This K210 can be set to either stop recording when the memory is full (Single Pass) or start to overwrite oldest (non write-protected) recordings first (Loop Record).

Maximum File Duration – If set to unlimited the K210 will create a new file each time recoding starts, then every 2GB thereafter. If it is desirable to further break down recorded footage into smaller pieces the 10 minute option can be chosen limiting the maximum individual file duration to this period. Similarly a hour option is available.

Filename Prefix Text – The user definable text in this field will prefix the file name of any recording files which by default are named by the time and date of creation.

Vibrator

The K210 has an output (pin 5 on the USB2 / Control Connector) which can be connected to a suitable actuator such as a buzzer/vibrator or LED (see page 10 for wiring diagram). This is intended to give a discreet covert indication of various user defined conditions.



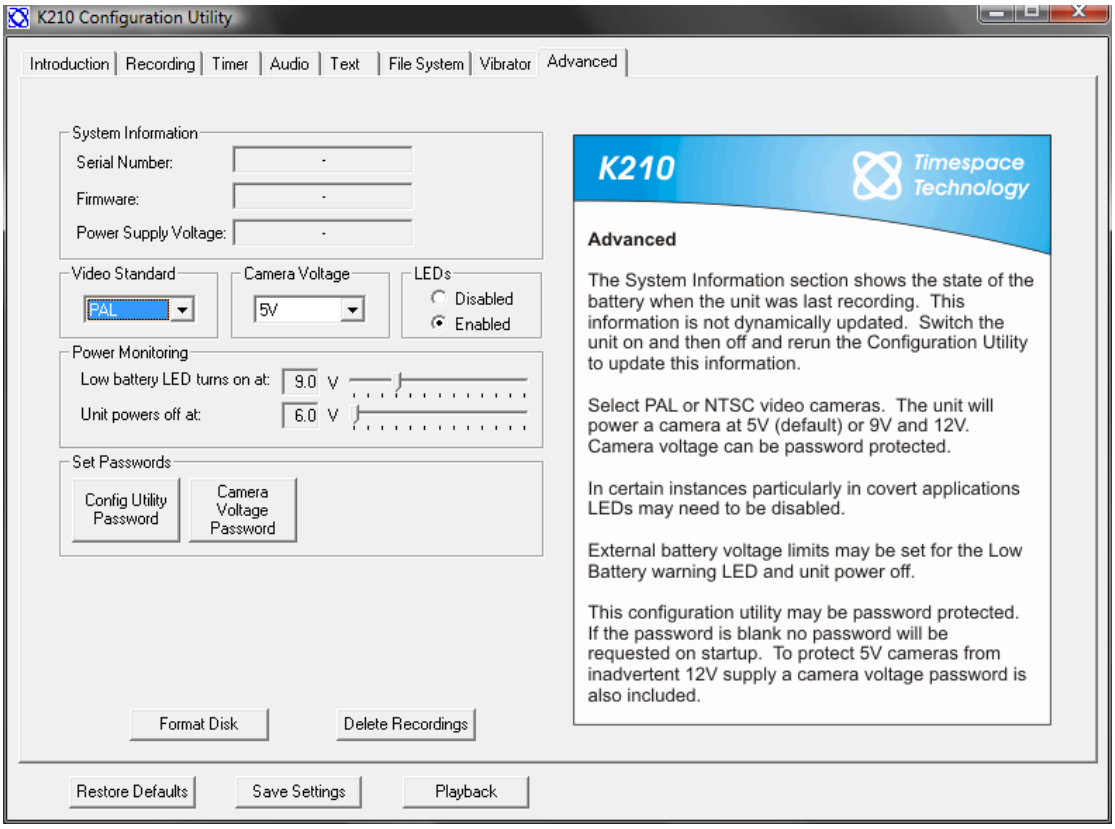
Power On Feedback – The vibrator output will produce 1-5 short or long pulses when the K210 is turned on and recording commences.

Power Off Feedback – The vibrator output will produce 1-5 short or long pulses when the K210 is turned off and recording ceases.

Capacity Feedback – The vibrator output will produce 1-5 short or long pulses when the K210 disk space is a user defined percentage used from 1-100%. There are 5 independent settings allowing the user to set various patterns of pulses for different percentages used.

Advanced

This section of the K210 Configuration Utility allows the user to set a number of preferences.



System Information – Shows the Serial number of the K210 and the Operating Firmware version. Also indicated is the last known Voltage of power supplied to the unit.

Video Standard – Selects whether the K210 is to be used with PAL or NTSC cameras.

Camera Voltage – Selects the appropriate camera voltage supplied by the K210; OFF, 5V, 9V, 12V.

WARNING - Be careful not to exceed the connected camera's voltage rating as this can cause permanent damage to the camera.

LEDs – Disables or enables the K210 LED indicators.

Power Monitoring – Set a Voltage level where the K210 will turn the low battery LED on and when the unit should power off.

Set Passwords – A password can be entered in order to prevent unauthorized changes to the supplied camera voltage and/or to access the Configuration Utility.

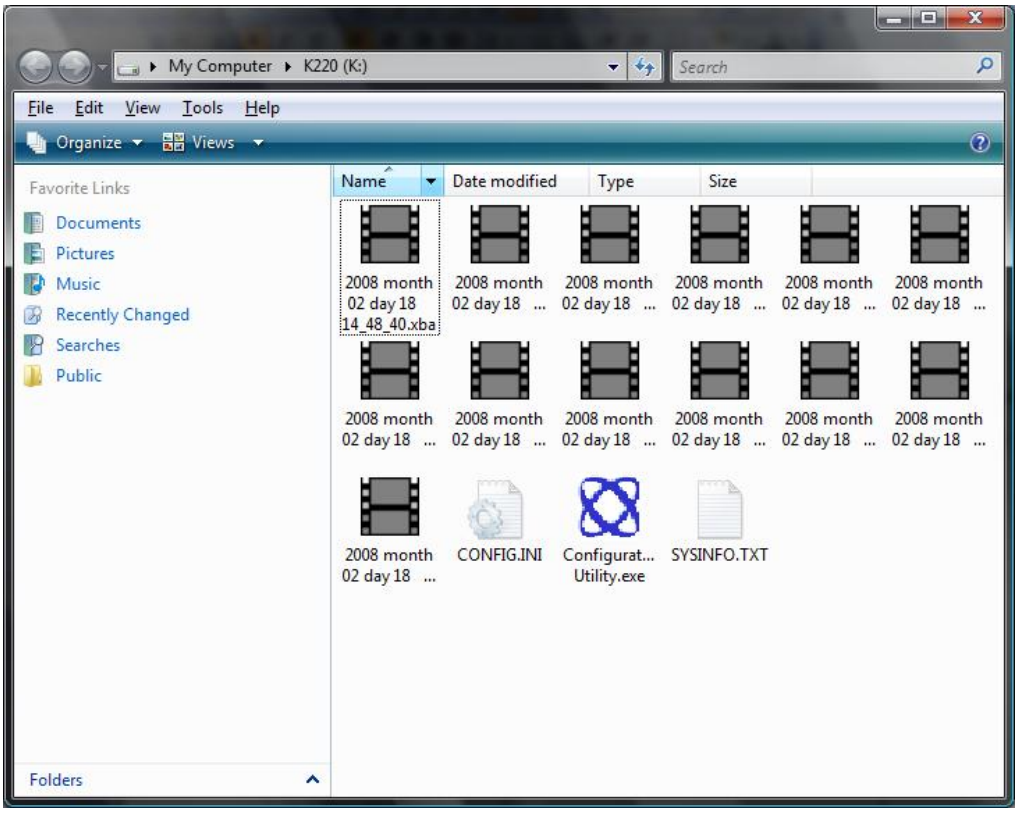
In addition there are two buttons at the bottom of the Advanced Menu. **Format Disk** will completely clear all recordings and menu settings from the K210 the next time it is turned on (by moving the toggle switch to the 'On – Recording' position). The **Delete Recordings** button will remove all recording files from memory but leave the menu settings unchanged.

CONFIGURATION – K220

The K220 is configured by connecting it to a PC via the supplied USB2 cable.

The ‘Record’ toggle switch must be in the ‘Off – USB2’ position.

The K220 contents window should then automatically appear on the Windows Desktop. If it does not, double click ‘My Computer’ or use Windows Explorer to locate a new Removable Disk. Double clicking the new Removable Disk icon will open the K220 contents window which is shown below.



This window displays the contents of the K220 including any recorded .xba files and the K220 Configuration Utility.

In order to set up the K220 double click on the K220 Configuration Utility. This will then start in a new window.

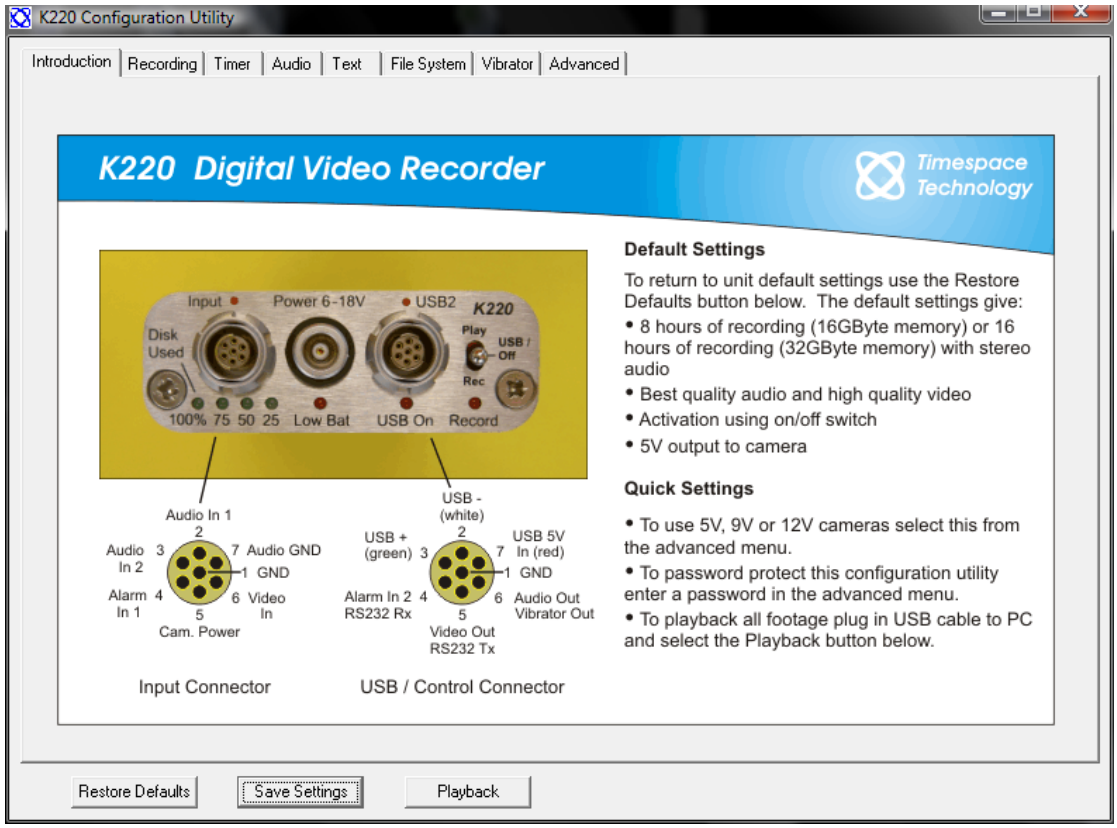
In addition to the PC Utility, the K220 has some user preferences that can be set on the unit via the integral touch. See **Configuration – K220 Touch Screen Controls** for details.

WARNING – System files CONFIG.INI and SYSINFO.TXT must not be deleted or modified. Doing so may cause the unit to be unusable and require a software reload.

K220 PC Configuration Utility

The K220 Configuration Utility allows the user to change any of the K220 settings and then save them in its internal flash memory.

When the K220 Configuration Utility starts the user will see the following window.



This is an introductory screen showing the K220 connectors and controls and the main default settings.

The configuration Utility is organised into a series of menu pages which can be accessed via the tabs at the top of the utility window.

The three buttons at the bottom left of the window allow the user to restore the default K220 settings, save the new settings to the K220 internal memory or playback any .xba files currently stored on the K220 by launching PCLink200***** reviewing and archiving software. These three buttons appear in the same location on every page of the utility.

The pages themselves are laid out so that the settings are on the left hand side of the utility and a section of help text is on the right hand side.

*****PCLink200 is part of PCLink Suite and must be installed on the connected PC in order for it to be launched from the K210/K220 Configuration Utility.

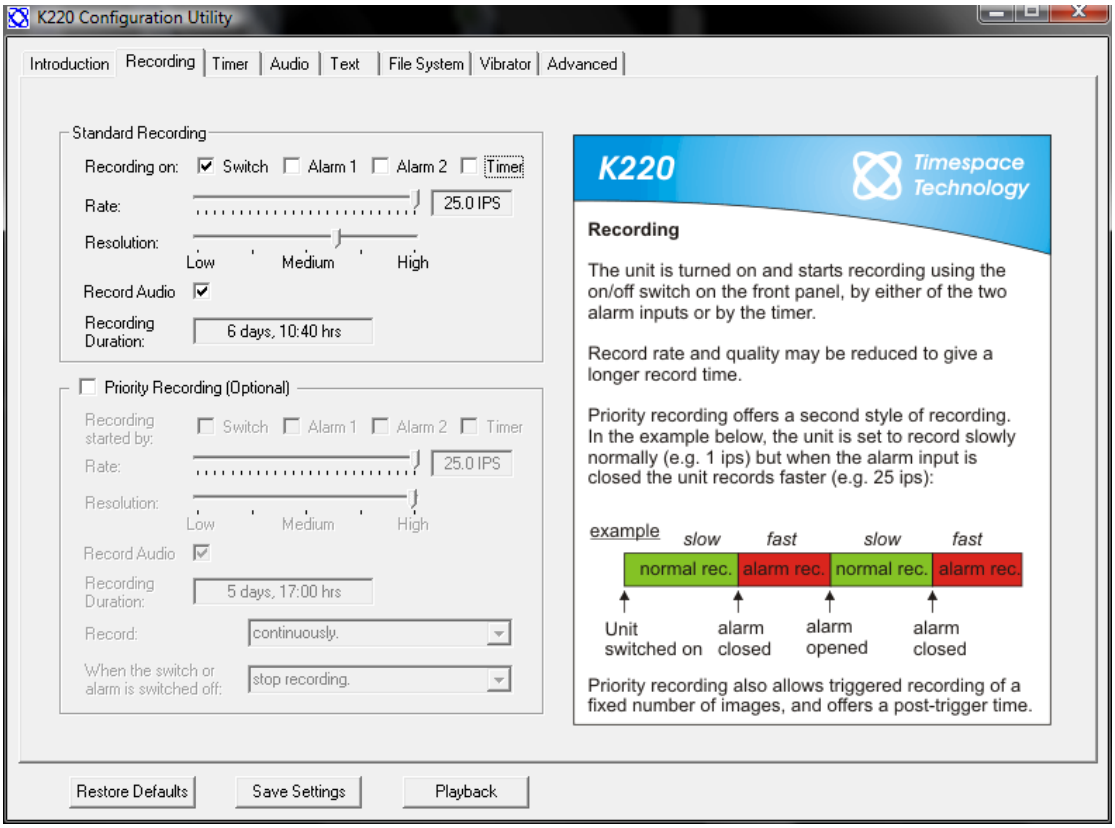
NOTE **‘Save Settings’ button must be pressed in order to change the settings on the K220.**

WARNING **‘Restore Defaults’ will take approx 30 seconds to implement the next time the unit is set to record. The storage capacity lights will cycle whilst this is in progress. Recording will then commence.**

Recording

Recording can be started by moving the K220 toggle switch to the 'ON' position. Moving the switch to the 'Off – USB2' position will stop recording.

Recording can also be controlled by external switches which are used to connect pins 4 and 1 on the 'Input' connector (Alarm In 1) or pins 4 and 1 on the 'USB2/Control' connector (Alarm In 2).



Recording on - Defines which controls will start/stop recording. If 'Timer' is selected then the switch and alarm inputs will be disabled.

Rate - Selects how many images per second the K220 will record at.

Resolution – Selects the resolution that the K220 will record at.

Record Audio - Selects whether audio recording is turned on/off.

Recording Duration – Shows the amount of time the unit K220 will record for on its current settings.

Priority Recording – The K220 can have a second style of recording. For example to record for X images after the alarm, or for X seconds after the alarm. These are configured using the pull down menus at the bottom. Another example described in the Configuration Utility text is for normal recording to be at a lower ips, then record faster once the alarm is triggered.

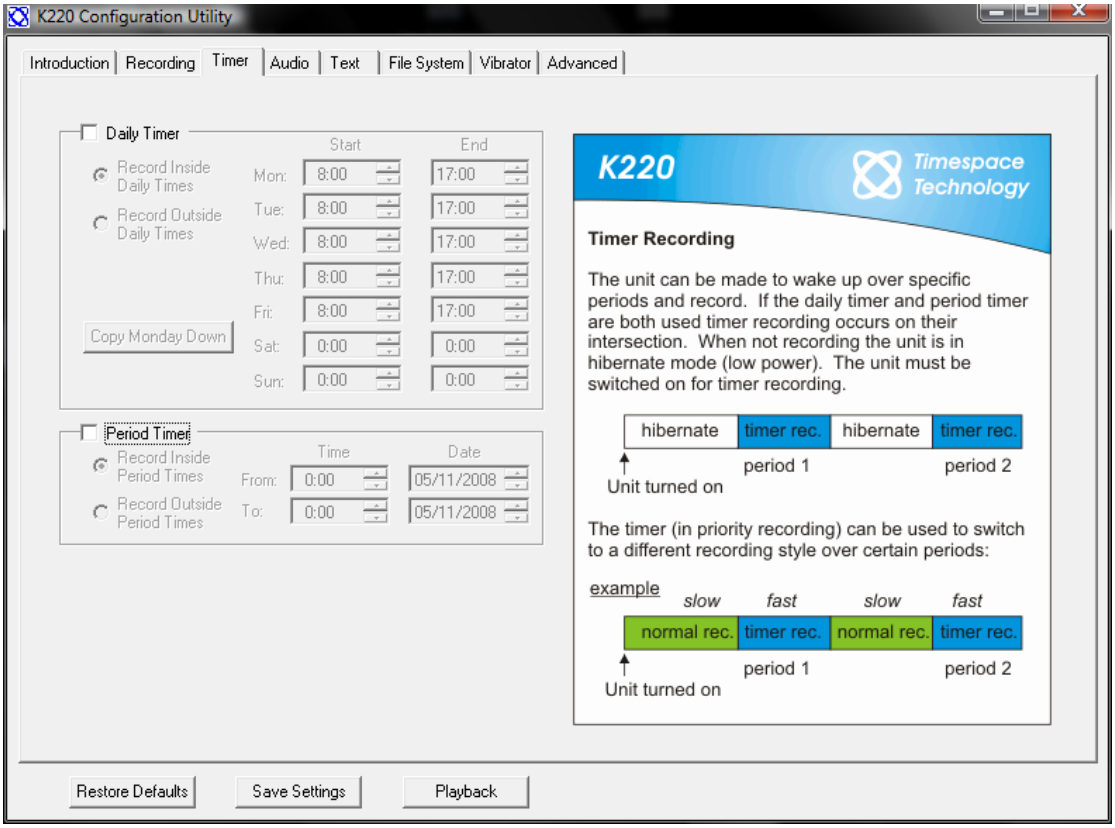
Priority Recording always takes precedence over standard recording. Priority Recording is more fully featured than Standard Recording, offering a Post Trigger time and also a Single/Multiple Shot capability.

NOTE Rate and Resolution will alter the **Recording Duration**.

Timer

A timer is also included to start recording at a specified time. If 'Timer' has been selected as the trigger to start recording the K220 toggle switch should still be set to the 'On – Record' position once disconnected from the PC. If it is left in the 'Off - USB2' position the timer will not activate recording.

The Timer check box is synchronised between the main Recording tab and the Timer tab.



Daily Timer – Enables the Timer function.

Record inside Daily Times – Records inside the times specified.

Record outside Daily Times – Records outside the times specified.

Copy Monday Down – Copies the start/end times in Monday to all other days.

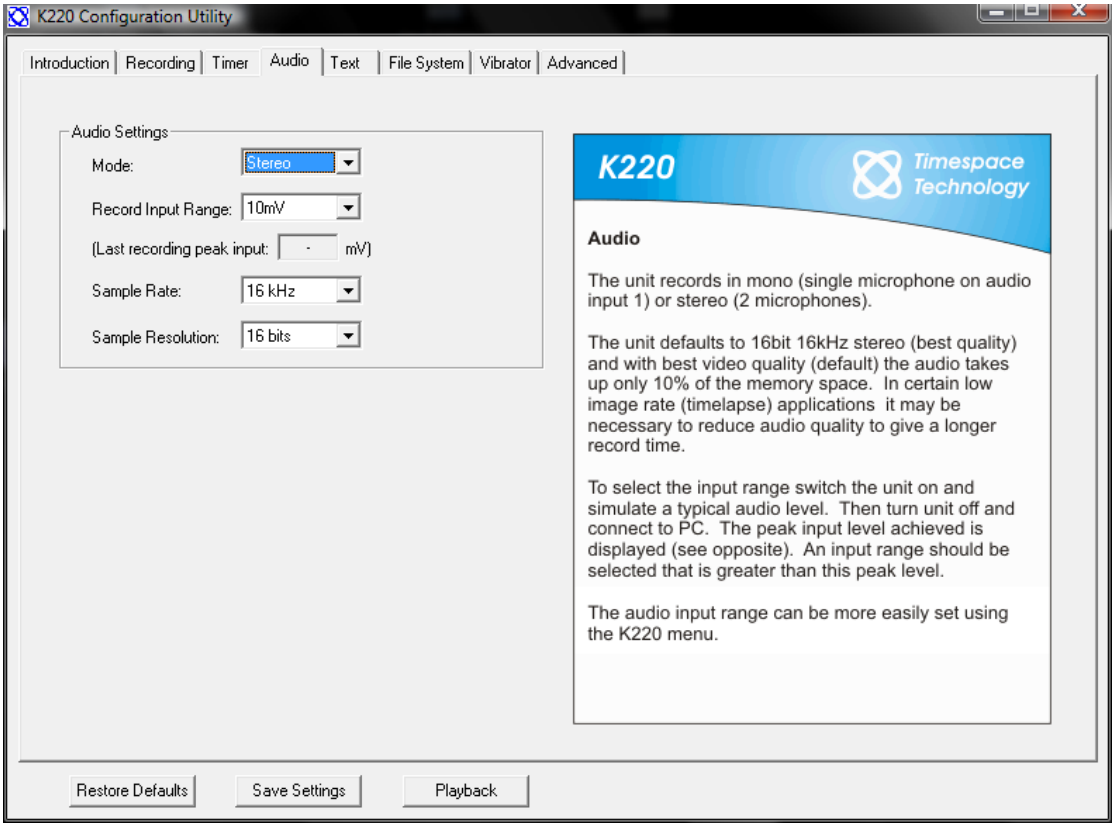
Period Timer – Can be used to include/exclude a period that may otherwise be configured by another recording mode.

If the Daily timer and the Period timer are both used, time recording will occur on their intersection.

NOTE When using Timer record, the **Timer** check box must also be selected on the **Recording** tab.

Audio

The K220 has an internal pre-amp and can record in mono (single microphone on audio input 1) or stereo (2 microphones).



Mode – Selects the mode of audio recording - Stereo/Mono.

Record Input Range - Selects the input range of the K220 audio inputs. An appropriate range should be chosen depending on the specification of the microphones being used.

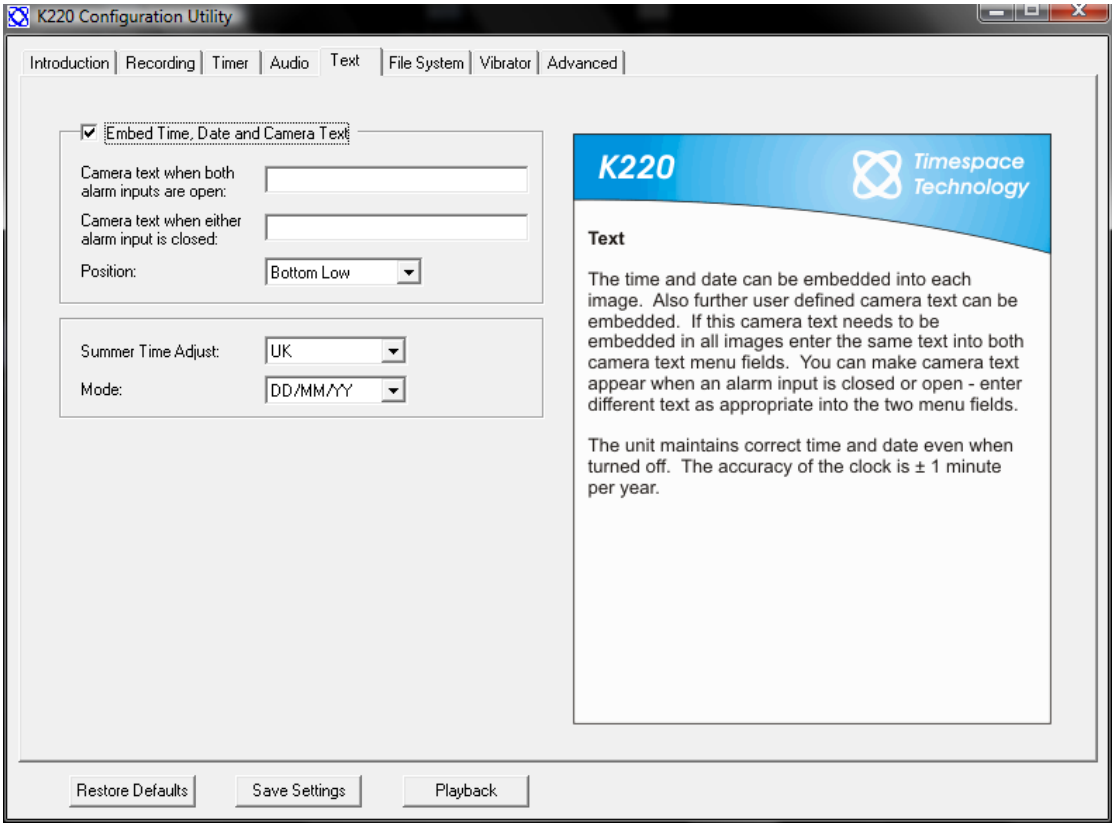
Last recording peak input - Shows the peak input voltage from the microphones during the last recording. This can be used as a guide when setting a value for the record input range. The peak input level is also shown on the on screen display on the K220 and setting the audio level is far easier on the K220 unit itself than on this page.

Sample Rate – Selects the sampling frequency. The 16kHz setting will record higher frequencies (have a wider frequency range) than the 8kHz setting

Sample Resolution – 16 bit sample resolution is recommended if there are both very quiet and very loud audio events. 8bit resolution offers ½ recording space at the expense of higher noise.

Text

The K220 internal clock can be set to a specific date and time. User definable text fields allow text to be embedded in the recorded images when the Alarm Inputs are either open or closed.



Embed Time, Date and Camera Text – When this box is checked the time and date will be embedded in all recorded images along with any user defined Alarm Input text.

Camera Text When Alarm Input is Open (default) – The user can enter text in this field to be embedded into the recorded images whilst the Alarm Inputs are open.

Camera Text When Alarm Input is Closed – The user can enter text in this field to be embedded into the recorded images whilst the Alarm Inputs are closed.

Position – Determines the position of text within the recorded images.

Summer Time Adjust – Determines whether the K220 internal clock will automatically adjust for UK/USA/EUROPE summertime or not if set to 'OFF'.

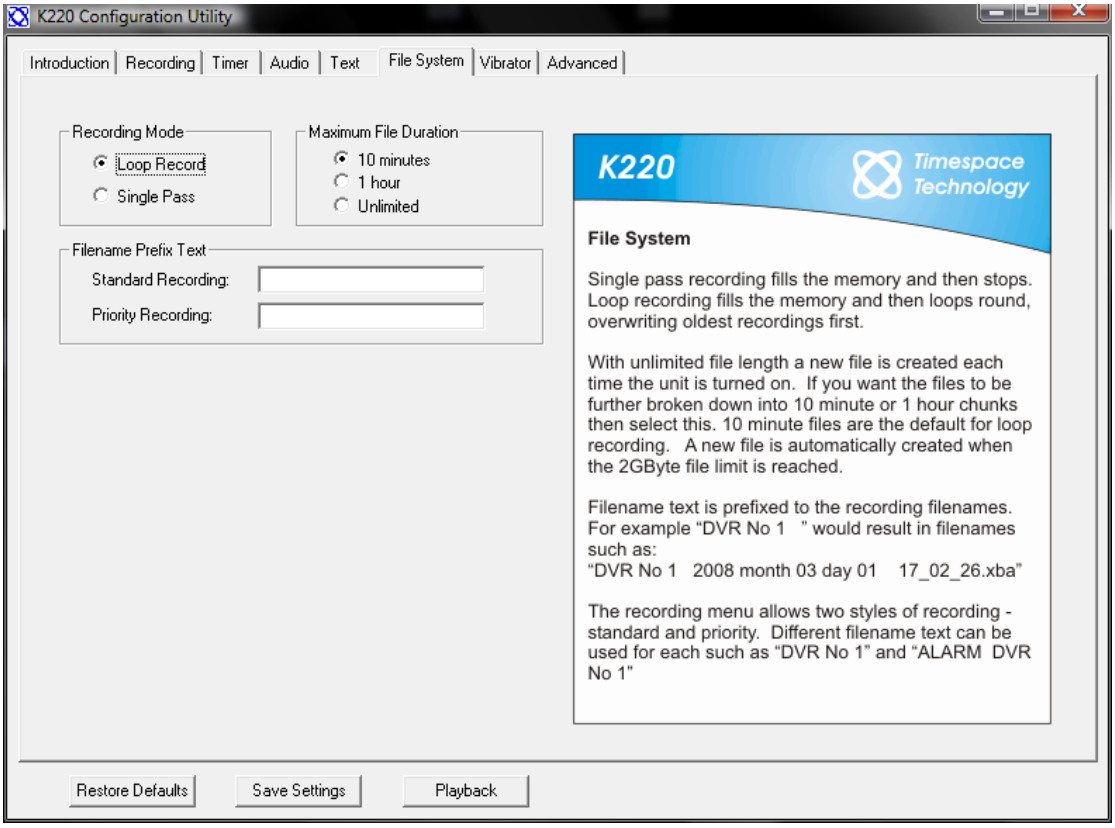
Mode – Determines whether the date is in the format DD/MM/YYYY or MM/DD/YYYY.

Set Date/Time at Next Power On – Allows the user to adjust the K220 internal clock. The new settings will only become active once the 'Save Settings' button has been pressed (all new settings saved to the K220) and the K220 has been powered up by moving the toggle switch to the 'On' position. The time in 24 hour format. The clock is easier to adjust on the K220 on screen display.

All embedded text is protected by the fragile watermarking system used in the K220 and PCLink200. This gives a positive indication as to whether recorded images are original or whether they may have been tampered with after recording.

File System

The File System settings determine how the K220 stores recordings and whether it stops recording when the memory is full, or loops around and starts to overwrite oldest recordings first.



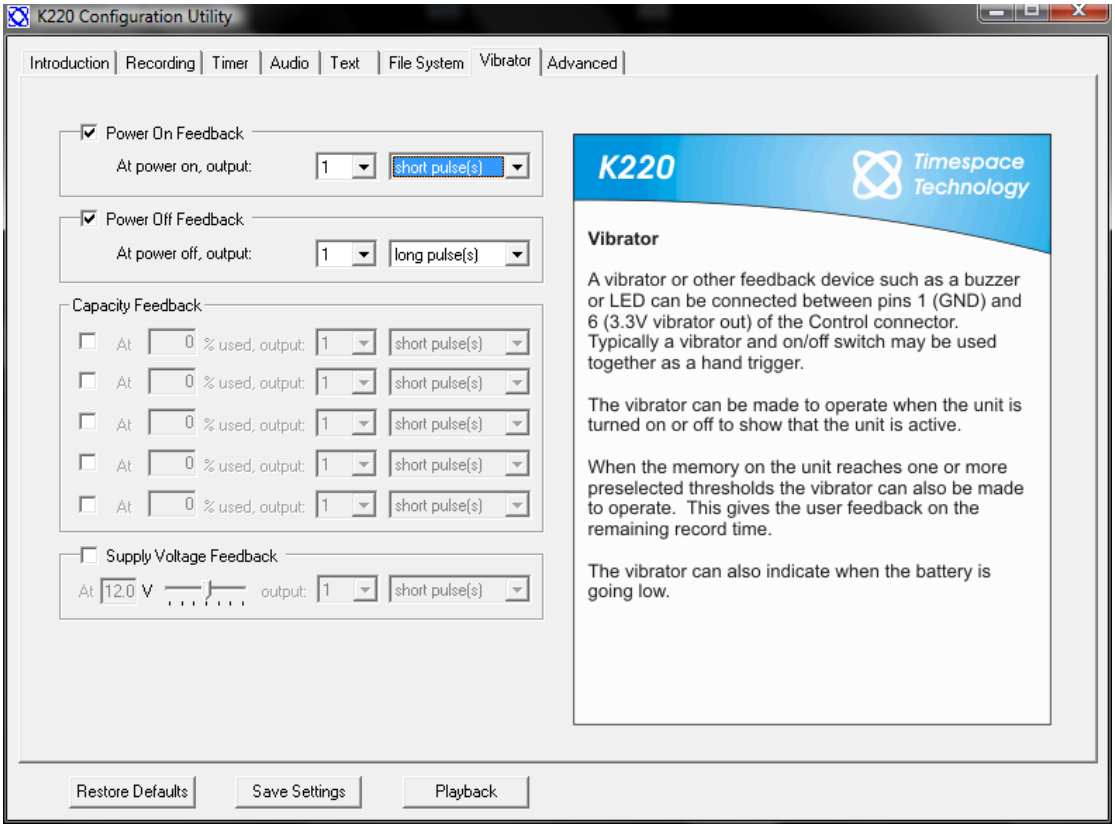
Recording Mode – This K220 can be set to either stop recording when the memory is full (Single Pass) or start to overwrite oldest (non write-protected) recordings first (Loop Record).

Maximum File Duration – If set to unlimited the K220 will create a new file each time recoding starts, then every 2GB thereafter. If it is desirable to further break down recorded footage into smaller pieces the 10 minute option can be chosen limiting the maximum individual file duration to this period. Similarly a hour option is available.

Filename Prefix Text – The user definable text in this field will prefix the file name of any recording files which by default are named by the time and date of creation.

Vibrator

The K220 has an output (pin 5 on the USB2 / Control Connector) which can be connected to a suitable actuator such as a buzzer/vibrator or LED (see page 10 for wiring diagram). This is intended to give a discreet covert indication of various user defined conditions.



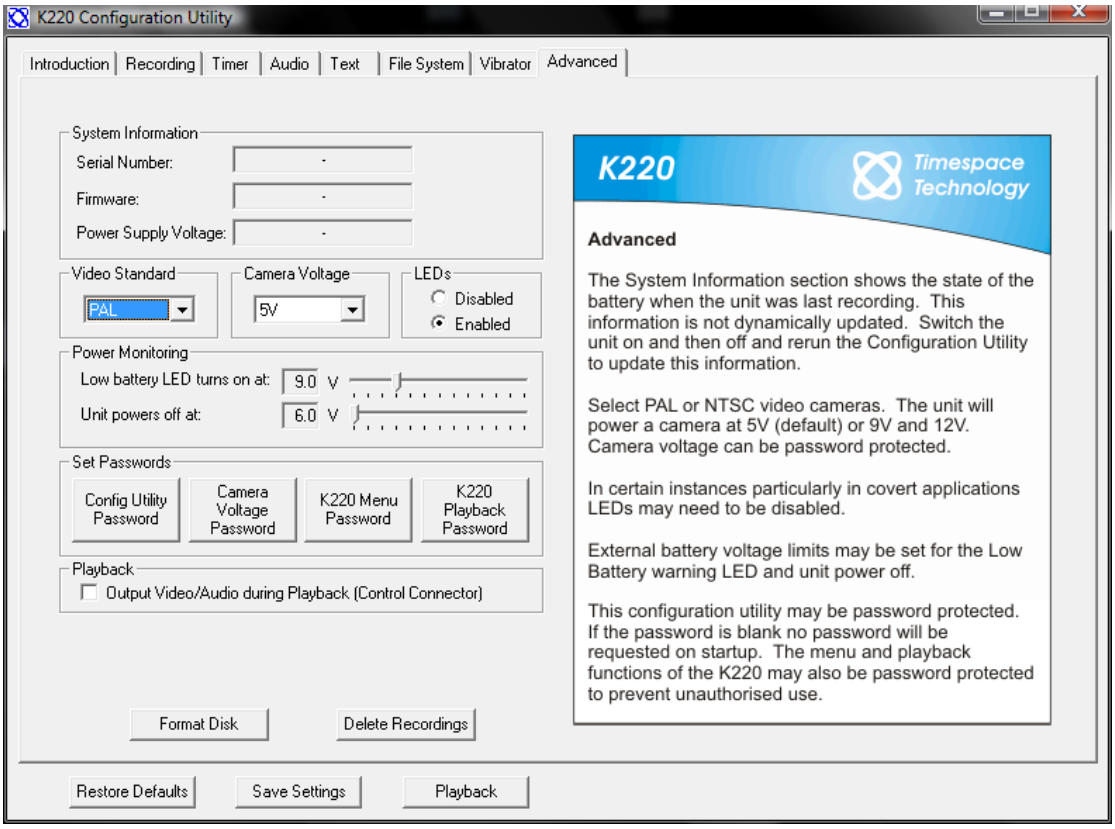
Power On Feedback – The vibrator output will produce 1-5 short or long pulses when the K220 is turned on and recording commences.

Power Off Feedback – The vibrator output will produce 1-5 short or long pulses when the K220 is turned off and recording ceases.

Capacity Feedback – The vibrator output will produce 1-5 short or long pulses when the K220 disk space is a user defined percentage used from 1-100%. There are 5 independent settings allowing the user to set various patterns of pulses for different percentages used.

Advanced

This section of the K220 Configuration Utility allows the user to set a number of preferences.



System Information – Shows the Serial number of the K220 and the Operating Firmware version. Also indicated is the last known Voltage of power supplied to the unit.

Video Standard – Selects whether the K220 is to be used with PAL or NTSC cameras.

Camera Voltage – Selects the appropriate camera voltage supplied by the K220; OFF, 5V, 9V, 12V.

WARNING - Be careful not to exceed the connected camera's voltage rating as this can cause permanent damage to the camera.

LEDs – Disables or enables the K220 LED indicators.

Power Monitoring – Set a Voltage level where the K220 will turn the low battery LED on and when the unit should power off.

Set Password – A password can be entered in order to prevent unauthorized changes to the supplied **Camera Voltage**, **Configuration Utility**, **K220 Menu** and **K220 Playback** (playback here refers to the integral LCD on the K220).

Playback – The K220 can output audio and video through the control connecter e.g. for playing on an external screen when reviewing footage using the K220.

In addition there are two buttons at the bottom of the Advanced Menu. **Format Disk** will completely clear all recordings and menu settings from the K210 the next time it is turned on (by moving the toggle switch to the 'On – Recording' position). The **Delete Recordings** button will remove all recording files from memory but leave the menu settings unchanged.

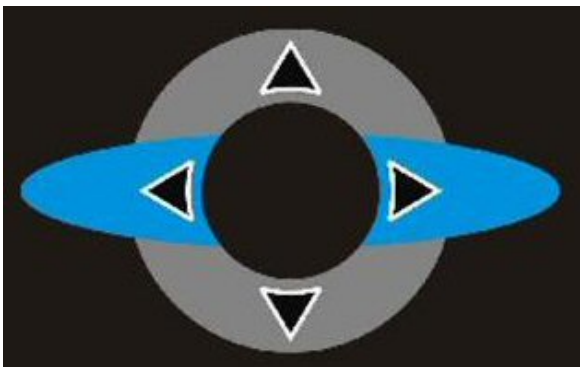
TOUCH SCREEN CONTROLS (K220)

Configuration

In addition to the PC Utility, the K220 has some user preferences that can be set on the unit via the integral touch screen controls.

Move the toggle switch to the 'Play' position. Once the information splash screen is displayed, press the **Up** or **Down Arrow** to display the menu system.

The menu system is navigated using the arrow control keys;



To change the configuration;

- Use Up/Down to select the item to change
- Use the Left key to scroll across to the item property
- Use Up/Down to change its value

NOTE **If no keys are pressed for 300 seconds (5 minutes), the K220 will power off. Move the toggle switch to 'Off', then back to 'Play' again to resume configuration.**

Playback

Recorded footage can be played back, with audio, on the K220 using the integral touch screen controls and LCD.

Move the toggle switch to the 'Play' position. Once the information splash screen is displayed, press the **Left** Arrow or the **Play >** button.

Playback controls include **Play**, **Stop**, **Forward** and **Rewind**.

Press the **Play** button to start playing the *latest file*.

Press the fast **Forward** button to increase the playback speed. +1, +2, +5, +10, +30 & +60 second interval skipping is supported by pressing multiple times.

Press the **Stop** button to stop playback.

Pressing stop twice selects 'jog mode'. **JOG** will appear in the top left of the LCD. Once in jog mode, images can be selected one at a time for finer reviewing (by using the Forward/Rewind buttons).

Press the **Rewind** button to increase the playback speed. -1, -2, -5, -10, -30 & -60 second interval skipping is supported by pressing multiple times.

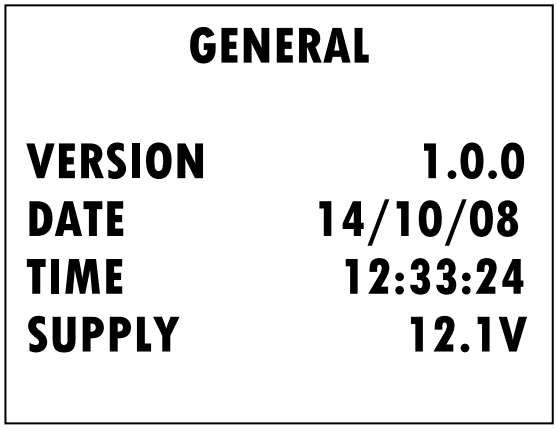
During playback of each file, a green progress line will be visible at the bottom of the LCD screen. This shows the playing position of the current file and will move from left to right until the end of the file is reached.

The number of recorded files will be displayed at the bottom of the playback screen, accompanied by its date/time. In this example there are 12 files and the 6th file is currently being viewed.

Use the **Left/Right** arrow buttons to navigate between recorded files i.e. next/previous:

THE MENU SYSTEM (K220)

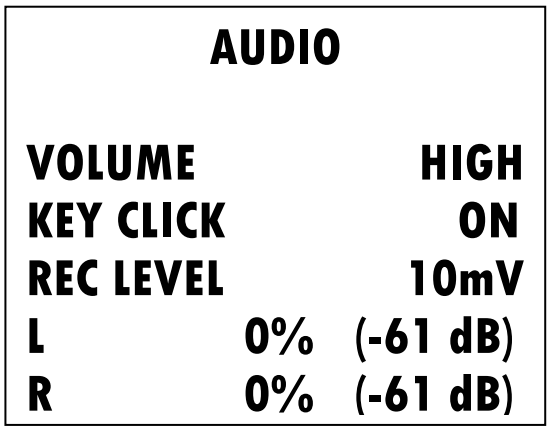
General



VERSION Shows the operating software version of the K220.
DATE Shows the current date in DD/MM/YY format.
TIME Shows the current time in HH/MM/SS format.
SUPPLY Shows the current power Voltage being supplied to the unit.

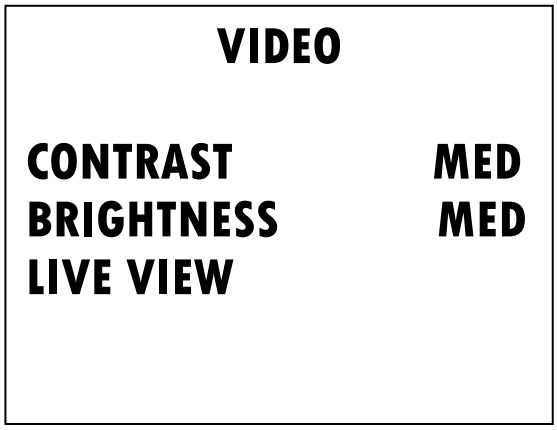
NOTE The **DATE** format can be changed to MM/DD/YY on the **TEXT** tab of the K220 Configuration Utility.

Audio



VOLUME Shows the current volume level, **LOW, MED** or **HIGH** can be selected.
KEY CLICK Each time one of the touch controls is pressed, a clicking notification sound is played. This can be toggle **ON** or **OFF** as required.
REC LEVEL Set the record input range for connected microphone(s): **2.5**, **5**, **10**, **20mV** pk to pk input.
L / R Shows the % level of input being detected. Adjust the REC LEVEL according to the environment/application that the K220 is being used in. 100% indicates max level. The loudest events should be set to peak just less than 100%.

Video

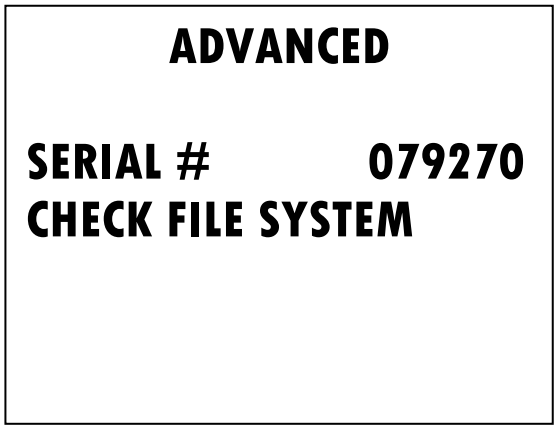


CONTRAST Shows the current integral LCD screen contrast. **LOW, MED** or **HIGH** can be selected.

BRIGHTNESS Shows the current integral LCD screen brightness. **LOW, MED** or **HIGH** can be selected.

LIVE VIEW Show the live view of the connected camera. If no camera is connected, a black screen will be displayed. Press the Up/Down arrow to return back to the menu system. To enter Live View, press the **LEFT** menu arrow button

Advanced



SERIAL Shows the K220 unit serial number.

CHECK FILE SYSTEM To run the file check, press the left arrow on this item. The file system will be checked and any errors reported/fixed.

UPDATING THE K210/K220 OPERATING SOFTWARE

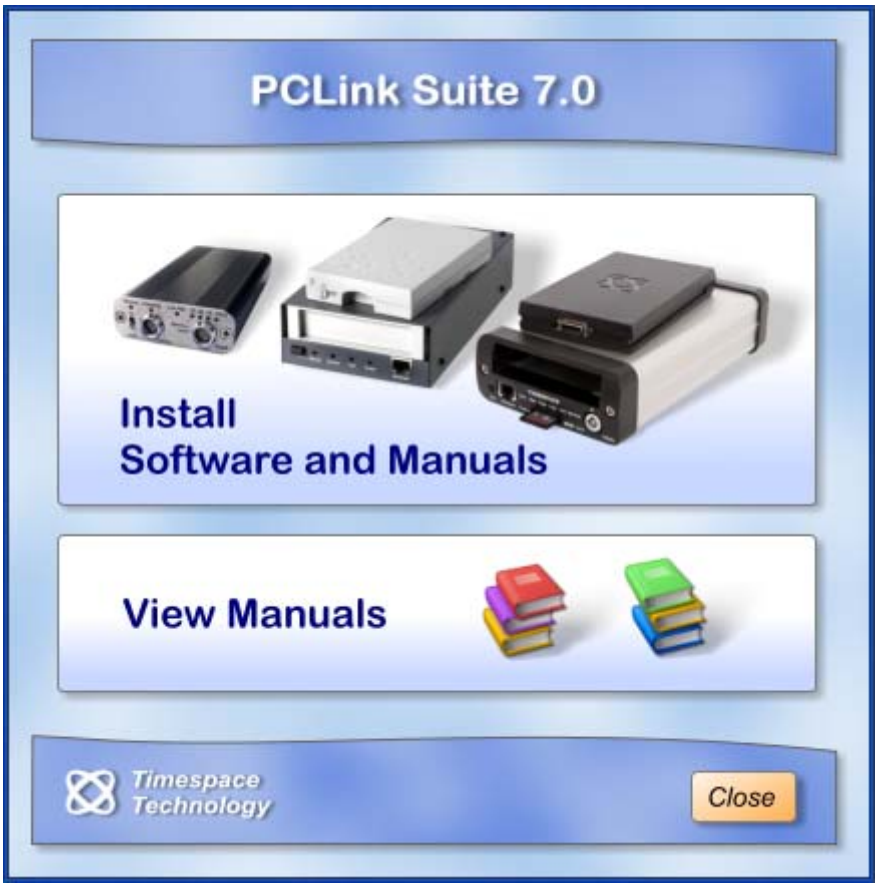
To update the K210/K220 operating software to a later version the K210/K220 must be connected to a PC with the toggle switch in the ‘Off – USB2’ position.

The new software takes the form of a **.xos** file which should be copied into the K210/K220 root directory so that it is stored on the K210/K220.

The toggle switch should then be moved to the ‘Record – On’ position. The K210/K220 ‘Memory Used’ LED’s will then cycle a number of times to indicate that the new software is being stored. Wait until this process stops completely (**approx 30 seconds**) and then the K210/K220 can be used as normal.

When new operating software is loaded onto the K210/K220 the menu setting in the Configuration Utility will be set back to the latest factory default settings. If the desired settings differ from these then the Configuration Utility should be started and the new settings entered and saved before use.

PCLINK SUITE



Timespace PCLink Suite consists of applications that allow Playback, Live View, Configuration and Download of recorded files from the X and K series range of digital video recorders.

Detailed instructions of each application within PCLink Suite can be found in the PCLink Suite manual, available on our website www.tspace.co.uk

Application overview;

PCLink200 - Review recorded footage via USB cable connected to removable cartridge.
- Review recorded footage over IP connection to the X300.

RemoteLink - Live view of cameras.
- Configuration of X300 menu settings.

LANLink - Automatic X300 Health checking over IP connection.
- Automatic and scheduled downloading of footage.

ImageLink - X300 can send a snapshot image to a PC using a connected GSM modem.

SafetyLink - Review G-Sensor events that have exceeded the configured threshold.

K210/K220 SPECIFICATION

RECORDING

Activation	Manual switch, external triggers (Alarm 1 or 2) or Timer.
Media	16GB hard drive, supplied installed
Recording modes	Single Pass or Loop recording (typical duration for Single Pass is 8 hours @ max rate)
Power On Until Recording	<5 seconds

VIDEO RECORDING

Rate	Up to 25ips PAL, 30ips NTSC (lower record rates configurable).
TVL	540
Pixels	720 x 288 PAL; 720 x 240 NTSC
Format	MPEG - Full Update
Input Signal	1 input; composite video 1V p-p; colour/mono; PAL/NTSC
Embedded Text	Date/time and up to 26 user-defined characters (triggered by alarm input)

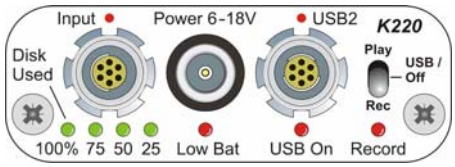
AUDIO RECORDING

Type	Mono or stereo
Inputs	2 Mic level inputs 3V phantom powered (compatible with most condenser mics)
Sampling Rate	16 kHz or 8 kHz
Sampling Res.	16 bits or 8 bits

MONITOR (K220 only)

Screen	Colour LCD
Size	2.5" (50 x 38mm)
Pixels	720 x 288 PAL; 720 x 240 NTSC
Controls	Rewind, Stop, Play, Fast Forward, File Select and Menu keys.

CONNECTORS/CONTROLS/INDICATORS



Actual Size

Toggle Switch	Play (display on K220 monitor) Off (USB2 to PC) Rec (record audio/video to disk)
USB/Control Socket	Fischer 102 series 7 way (keyed No2) USB2 on 4 pins; control signals on 3 pins; video/audio out (USB lead-plug supplied complete)
Power Socket	Lemo 00.250 coax Series 6-18V regulated (plug supplied)
Input Socket	Fischer 102 series 7 way (keyed No1) 1 video input, 2 audio inputs, plus camera power output and on/off signal (plug supplied)
Camera Power Output	5V, 9V or 12V (menu selectable) supplied by K210/K220. NB input voltage must be at least 1V higher than camera voltage.

CONFIGURATION

Entry	PC menus via USB2 or on-screen menu via integral monitor (K220)
Security	Password protection
Date Options	dd/mm/yy; mm/dd/yy
Summertime Correction	UK; Europe; USA; Off

FILE SYSTEM

File Type	Proprietary ".xba", convertible to AVI
File Name	Optional file text plus date & time
File Size	10 min, 1 hour or continuous

GENERAL

Security	Proprietary files; password protection; fragile watermark every image [MD5+DES]; embedded camera text
Power consumption Typ	2.5W Review 3.0W Record (excluding camera)
LED Indicators	Software enable/disable
Clock	TCXO +/- 4 minutes per year
Case	Aluminium body, stainless steel end plates
Dimensions [mm]	117 x 58 x 21 mm (case)
Dimensions [mm]	121 x 58 x 21 mm (including controls)
Weight	212g
Operating Temp Range	0°C to 45°C
Supplied Accessories	USB2 cable 1.5m; PCLink Suite software CD (including manual); input and power plug
Warranty	2 years (Monitor 1 year)

PLAYBACK

File access	Via USB2 connection, using PCLink200 software (K210/K220). Video and Audio playback via integral monitor/speaker (K220 only)

FUTURE SOFTWARE UPDATES

Frame Resolution	720 x 576 PAL; 720 x 480 NTSC
GPS Input	Embedded GPS Data

PCLINK200 REVIEWING/ARCHIVING SOFTWARE (supplied)

Compatibility	Recordings made on K210/K220
Access	Via USB2 connection from K210/K220 to PC
Operating Systems	Windows 2000, XP, Vista
Hardware Requirements	2GHz Pentium, 256MByte RAM, USB2
Security	Optional password on PCLink software and on export video to AVI function
Playback Controls	Rewind, Jog back, Stop, Play and Fast Forward, Jump to time, Rapid Shuttle via timeline.
Playback Speed	Variable x0.1, x0.2, x0.5, x1, x2, x3, x4, x6, x8, x10 for rapid playback.
Features	Real time playback with audio Review archive files Copy files from K210/K220 to PC Copy images into Microsoft Word etc. Activate and verify watermarks Export video in multiple CD/DVD sized files Stand-alone playback software (PCPlayer) Export video to AVI file Motion graphing Full screen video playback Mapping display