ZedCam waterproof battery-powered camera and recorder with PIR sensor

This product is ideal to catch any form of theft, fly-tipping, vandalism etc on public and private land such as lay-bys, building sites, farms, factories, gardens etc.

Introduction

The ZC-DVR65-01 has been developed from the well-established ZedCam™ Digital Video Recorder and long-life battery-powered technology.

The enclosure is protected to IP65 (an Ingress Protection rating, which means it will withstand violent rain storms and water hoses).

CONTENTS

ITEMS SUPPLIED

- The DVR65 itself
- A mains battery charger
- Handbooks and software on a USB memory stick:
    - This full user manual
    - User manual for the supplied software and remote control
    - Software to allow the recorded video to be read and stored on a PC/laptop

OPERATION

Removing the lid of the DVR65 (four cross-head screws) allows access to the controls, connectors and SD card. We ship the unit with a 2GB (or larger) SD card, and before usage, please ensure there is an SD card in the slot.

- Note that the unit **WILL NOT** operate without an SD card
- The card must **NOT** be write protected

The unit has an internal 12V 2Ah battery, which should be charged before first usage – this takes circa 8 to 10 hours from empty. The battery has a life of a year in standby and sufficient capacity to fill a 4GB card when recording. To charge the DVR65, the lid must be removed, the battery disconnected from the main board and the charger plugged into the battery socket.

ON/OFF

The DVR65 is switched on and off with a single internal push button situated in the centre of the green PCB. To arm the DVR65 the button is pressed for 3 or 4 seconds. The buzzer will sound a low tone followed by a high tone to show that it is activating.

To disarm the system, press the button briefly – the buzzer will sound a high tone followed by a low tone to show that it is de-activating.

Once armed, the recorder will be triggered whenever a human, large animal or vehicle approaches within the 10m range. ZedCam can supply a 5m range device as an option.

Once triggered, the video is saved onto the SD card (with a time/date stamp) until a selectable time after there has been no activity. This delay can be set to either 10 seconds (default) or 1 minute using an internal setting (see below). Video clips will be a minimum of 15 seconds plus this delay.

The DVR65 is then automatically re-armed and waits for a further triggering event to occur.

This sequence will continue until the SD card is full, when either the old video clips will be overwritten or video recording will stop. This choice can be set using the DVR65 remote control (see below).

Note that an internal light sensor (optional) prevents the DVR65 being triggered and recording if there is not enough light for sensible video, unless the Infrared option is fitted.

INSTALLATION

The unit (which is circa 220mm by 120mm by 100mm) may be mounted on a wall, post or in a tree etc. Once the lid is removed (four stainless steel screws), there are four 6mm holes for fixing to a solid surface, which are outside the sealed area of the enclosure.

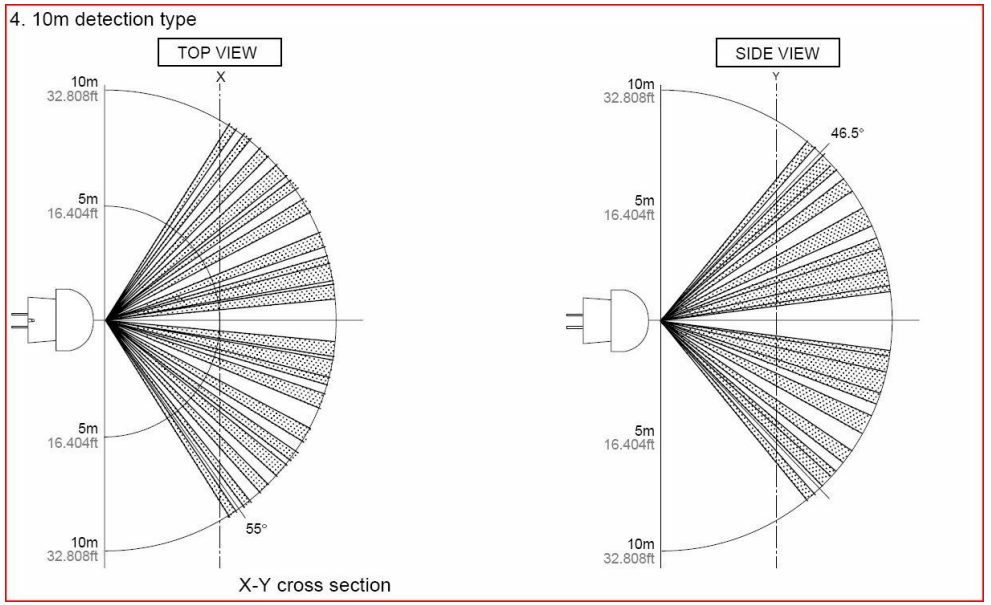
The enclosure is made from GRP polyester and is black. For use in a tree, we recommend use of camouflage netting, which can be bought by the metre, such as:

Clearly it is important to direct the camera and PIR detector so that they are covering the area to be observed. The camera has a wide angle lens, so that a wide an area as possible is recorded. From observations, it is possible to recognise a human face or read a number plate easily at 5 metres from the camera and with less accuracy at 10 metres.

There is a telephoto lens option for use in daylight or at night with the separate external Infrared option.

Using our Remote control and PVR it is possible to record a video clip once the DVR65 is in place and then play it back immediately to check the positioning. Otherwise the DVR65 will need to be taken down and the video played back either plugging in a TV/monitor or plugging the SD card into a laptop.

The standard PIR range is pictorially:



VIEWING THE RECORDED VIDEO

VIA A PC/LAPTOP

The supplied USB memory stick includes the AKR software in a Zipped folder. Note that this software works on a PC environment running XP or Vista and not on a Mac or Unix system.

After putting the USB stick into the PC and waiting for it to be recognised, double click on the setup file in the Zipped folder and the software will self

install on your PC/laptop. Note that it needs administrator privileges to run under Vista.

Use of this software is self explanatory and further details are in supplied the “PC Software User Manual” document.

The SD card needs removing from the DVR65 and plugging into the PC/laptop either directly or via an adaptor.

VIA A HAND-HELD PVR (OPTIONAL)

The DVR65 contains a 2.4GHz transmitter to relay the video from the DVR65 to a nearby handheld Personal Video Recorder to save having to remove the DVR65 from its covert location (hence disturbing the mounting/camouflage and bringing attention to its position). This can be done within a distance of over 10+ metres in open air.

The requirements are a ZedCam Remote Control and a ZedCam (or similar) PVR:

ZC-PVR-01

ZC-Remote-01

The charged PVR should be set to R (receiver) mode and switched on (hold in the button at the top of the left side of the device). Set to channel 4 by pressing the ↻ key 3 times (the default video channel). There will be just static and no picture on the screen yet. The ZedCam remote control is then used to playback video files from the DVR65.

The top MODE button is used to select one of 4 modes (which are cycled through):

a) GREEN – pressing ON will arm the DVR65, pressing OFF will disarm it (no indication on the PVR screen)
b) AMBER – pressing ON will switch the DVR65 into MONITOR mode where you can see the camera image; OFF will switch this off. This mode is useful to ensure the camera view is not obstructed, before arming. This mode is also used to set up the DVR time/date etc – see a later section
c) RED – pressing ON will start recording video, pressing OFF will stop recording (this overrides the PIR sensor) (no indication)
d) RED/GREEN flashing alternately – will playback recorded video. Note in this mode, the first video clip is the most recent recorded and pressing ON will move back to an earlier recent clip etc, until the first clip on the SD card. Pressing OFF resets the DVR65 so that the next ON will return to the most recent clip. Clips can be deleted only by plugging the SD card into a PC/laptop.

Note that the DVR can take 1 or 2 seconds to react to changes, so please have a little patience.

Note that after a period of inactivity, to save the battery, the DVR65 switches itself off and the time taken is:

- AMBER mode – Monitor switches off after 2 minutes
- RED mode – Record switches off after about 15 seconds
- RED/GREEN mode – Playback does not switch off – please make sure you switch this mode off using the OFF button. Otherwise the current clip will be played repeatedly

More information on the PVR (and how to re-record video onto its SD card) is available in a separate handbook.

VIA A TV/MONITOR (this facility will not be available until the second generation product)

You may now either remove the SD card and play it on a PC/laptop (see section below) or play it back from the DVR65 to a TV/monitor. In order to play back locally, please:

- Remove the lid
- Connect a monitor/TV to the phono sockets on the side of the DVR65
- Switch on the TV/monitor and select AV input
- Press MODE on the ZedCam remote control – see section above
- Pressing MODE on the DVR65 remote control will play the last recorded video in a continuous loop
- Pressing SEARCH on the remote control will allow selection of any video file on the SD card. Pressing the UP arrow moves forward in time and the DOWN arrow backwards in time (shown by the clock at the top of the screen). Pressing ENT plays that file in a continuous loop
- Pressing MENU allows the DVR65 to be setup – see below

SETTING UP THE DVR65

In order to set up the time/date etc (Time set on dispatch)

- Connect a monitor/TV to the phono sockets inside the DVR65 (or use the external PVR)
- Switch on the TV/monitor and select AV input
- Press “Arm” button briefly (1 sec, no longer!) Situated in the centre of the green PCB
- There is a 2 min time window for set up. After which, you will need to press “Arm” button again to renew 2 min set up time window.
- Using the supplied remote and pointing it at the sensor marked “IR” on the PCB:
- Pressing MENU allows the DVR65 to be setup. First the password needs entering which defaults to 4 zeroes (0000), so press the ENT key 4 times.
- The SETUP MODE menu can be navigated with the up and down arrows. ENT selects an item and MENU moves back one level in the menu.
- The important items are:
  - Time/Date: Choose SUB MENU, choose TIME SET, press ENT, then navigate through the time and date using the arrows to select and set the Year. Month, Date, Hour, Minute, Second. Press ENT to save and exit
  - The Audio should be ON; Video should be PAL in the UK; Memory Sync is used if the file structure on the SD card becomes corrupted.
  - In Record Mode, Overwrite OFF will stop the DVR65 recording if the SD card is full. If ON then old files will be deleted
  - Video Quality should be HIGH, Frame rate should normally be 30 frames per second for real time video
  - The remaining SD storage capacity can be displayed
  - Alarm, Event and Motion setup menus are not used on this DVR65

THE SMS TEXTING FACILITY (OPTIONAL)

This option adds electronics similar to a mobile phone within the DVR65 enclosure. A user supplied SIM card means that the DVR65 can send and receive SMS text messages, providing it is mounted within an area of mobile phone coverage. Be careful within buildings or in valleys in mountainous areas.

ZedCam can optionally supply a SIM card with credit.

Clearly it is important that the DVR65 sends text messages only to the correct recipient, hence by sending a text message to the DVR65 in the correct format, the DVR65 will then associate itself with that mobile number, and **NO** other mobile.

To set up the DVR65 for texting, please see the section below:
The device will monitor for text messages for two minutes after it is armed (the two minute receive window), so in order to set up the DVR65 ensure a command is sent within this time period.

1) Arm the DVR 65 by pressing and holding (3 to 4 secs) the small black arming button marked “Arm” in the centre of the Green PCB.

2) Wait 30 secs for DVR65 to find phone network.

3) Text the message: ***Dvr65*** to the DVR65 SIM card phone number

Note the upper and lower case of the letters.

4) You should receive a return text saying: DVR65 OK.

The DVR65 is now linked to that number and will send alerts and respond to commands from that phone number only.

Text messages are sent from the DVR65 under the following circumstances:

- As soon as the unit has been triggered and video is being recorded. Subject to any delays in the mobile phone network, this will allow someone to return to the DVR65 quickly, should they want to confront the person behaving inappropriately. In other cases, this will allow someone to return to the unit at any time in the future, to collect video evidence.
- The format of this received message is:
  - *DVR65 Alarm*
- When an error occurs. The received text is:
  - *DVR65 Error.* (this usually only occurs if the SD card is absent)

To disassociate a mobile phone send:

Dvr65 X where X can be lower or upper case

The DVR 65 will now no longer linked to any number. (This could be used to stop a particular mobile user being disturbed by trigger events.)

Remember that in order to associate another mobile number, or re-associate with the same mobile number, the DVR65 needs to be manually armed (to start the two minute receive window) and another “Dvr65” text sent to it.

There are two other command options that can be sent to the DVR65 from an associated phone.

Dvr65 Hnumber

This sets the hold off time between sending texts, to prevent excessive usage of the SIM credit. The H can be lower or upper case, and there should be no space between the 'H' and the 'number'. The default is 15 minutes. The minimum value is 2 minutes and the maximum value is 255 minutes (circa 4.25 hours).

An example would be:

Dvr65 H60

which would ensure that at least one hour elapses between texts.

The other option is the length of activity required to initiate sending a text message. Every time the PIR triggers the DVR65, the camera is switched on and recording starts. However, it may not be appropriate to send a text message until the detected activity lasts more than a certain time, for instance to avoid a text being sent when an animal walks past or strong wind moves tree branches.

The format is:

Dvr65 Tnumber

This sets the activity threshold time in seconds. The T can be lower or upper case and there should be no spaces between the 'T' and the 'number'. The default is 5 seconds. The maximum value is 255 seconds (circa 4.25 minutes).

An example would be:

Dvr65 T30

which would ensure that a text is not sent until there has been at least 30 seconds of activity.

Lastly, remember to always ensure that the SIM card has sufficient credit. The supplied card (Pay as you go) is registered with O2 with £10 credit supplied. and texts cost 10p. Credit balance can be checked and replenished by inserting SIM card in any unlocked phone, or by using E top up, cash machine top up or online services with O2.

OTHER OPTIONS (please contact us to discuss these)

a) Solar panel – external and probably mounted some distance from the DVR65 as it is not covert. This will ensure that the battery is never discharged

b) Camera, choices of:
   a. Standard
   b. Telephoto

c) PIR, choices of:
   a. 10 metres (standard)
   b. 5 metres
   c. Remote trigger device

d) Infra-red illumination:
   a. Internal for wide angle lens
   b. External on 10 metre tethered lead for telephoto lens

TECHNICAL SPECIFICATION

- A rugged light weight plastic enclosure, with mountings for a wall, post, tree etc
- An integrated CCD colour camera (which can be internally swivelled). 352 by 288 pixel recording format at up to 25 frames/second. Two options are available:
  - Standard 0.5 Lux colour
  - Telephoto
- Internal slot for a 4GB SD card recording up to circa 7 hours of video/audio at 25 frames/second
- Integral ZedCam™ DVR board
- Passive Infra Red (PIR) detector which is always active. When a person, vehicle or large animal is detected, then the camera, the illumination (if dark) and the recorder are switched on
- The recording stops on an event such as the person etc moving out of range or after a selectable time. Hence the video/audio that is recorded is all relevant – you do not need to trawl through many hours of uninteresting playback. The video is time stamped for use as evidence
- PC software to play/search video/audio from the SD card and to translate to .AVI format files. Memory overwrite option, so oldest recordings are discarded so memory space never filled
- Size: circa 220mm by 120mm by 100mm, weight 2kg
- Internal rechargeable battery – giving at least 7 hours recording (daytime) and 3.5 hours (night). This can be split into hundreds of events.
- Standby time of at least 1 year with PIR enabled
- Optional internal SIM card, which will send an SMS text message as soon as the camera/DVR65 has been triggered, to both inform that a recording has been made and allow someone to attend to the incident immediately.
- Optional external solar panel to trickle charge the battery.
- Optional Infra red illumination – this has two brightness settings (for near and far viewing) and switches on only when dark, to extend the battery life. Note that this is external if the telephoto lens option is chosen.

CAUTION:

- Risk of electric shock – do not open any ZedCam equipment or related product.
- Always refer servicing or maintenance to a qualified Engineer.
- Always read all instructions carefully before using the