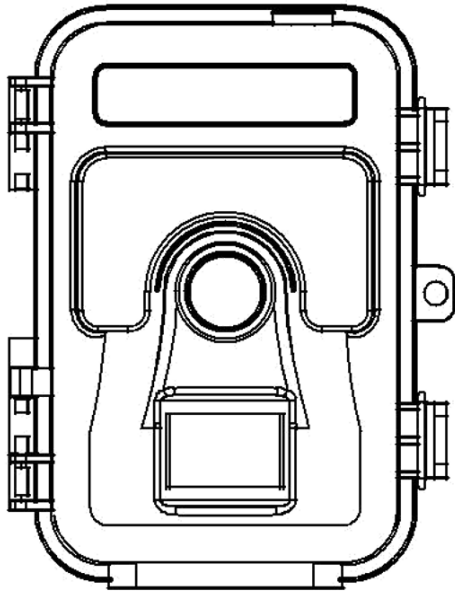




Defender® Covert Trail Cam



User Manual

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1. GENERAL INFORMATION

1.1 Introduction

The Defender Covert HD Trail Camera is used to capture still images or video of a person (or an animal) in a certain region of interest (ROI). The camera is triggered by a fast Passive Infra-Red (PIR) sensor and it records directly onto a Micro SD card.

The camera can also be used for other applications through the optional use of the built-in timer and time lapse settings. Figures 1-1 – 1-4 on pages 4-5 show the full makeup of the camera.

1.2. Main Features

- 90 degree camera lens
- 1/3/5/8/12/16 Mega-pixel high-quality resolution images.
- Fast detection / trigger time up to 0.6 second.
- Easy setup using the built-in 60mm TFT colour screen and large buttons.
- Quick review of images or video to ensure the location choice is correct.
- Supports Micro SD card up to 32GB.
- Waterproof to IP66. The case is lockable using an optional padlock.
- Operates in an extreme operating temperatures range of between -30°C and 70°C
- Invisible night vision using 38pcs of black light 940nm Infra-Red LEDs.
- Date, time, temperature and moon phase can be watermarked onto the picture.
- In Camera + Video mode, the camera will take still images and then a video recording of the trigger event.
- In Time Lapse mode, the camera automatically takes pictures or videos at the user selected interval. This feature can be used together with Timer feature for extra versatility.
- Auto power off after 10 minutes in setup mode if no key is pressed.
- Extremely long in-field battery life (up to 6 months using 8 x AA alkaline batteries when in standby mode).
- A Serial Number can be assigned to the camera to assist multi-camera users identify the camera / location when reviewing the photos.
- Set up can be password protected – user activated.
- Colour pictures are recorded during daytime, monochrome pictures are recorded at night, these are switched automatically at dusk/dawn.

1.3. Typical Applications

- As a wildlife camera to detect and record pictures and/or videos of animals and birds.
- As a nature camera to record plant grow or season change.
- As a security camera for Home, Office or the general outside community.
- As a law enforcement camera for environmental crime, fly tipping, vandalism, theft, anti-social behaviour.
- As a general time lapse camera to monitor traffic flow, construction sites, weather patterns, season changes

1.4. User Interfaces

- USB port
- Micro SD card slot
- DC power input jack.
- The 3-way Power/Mode Switch is used to select the main operation mode which are OFF, ON and SET.

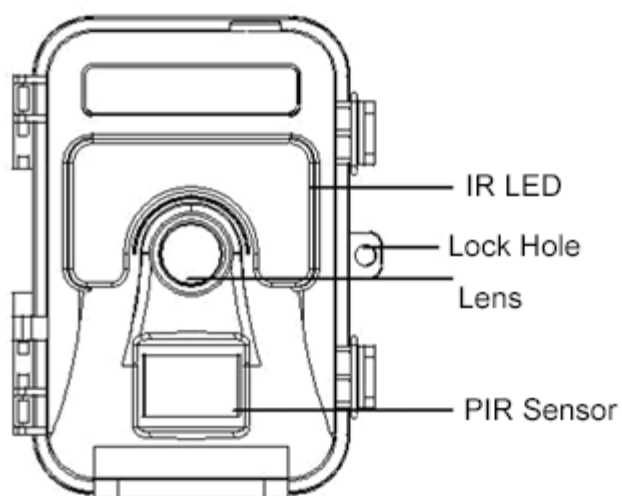


Figure 1-1: Front View

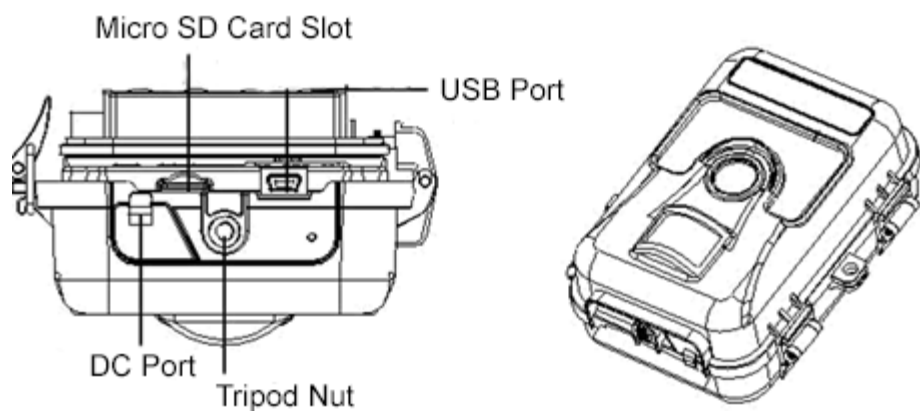


Figure 1-2: Bottom and Side View

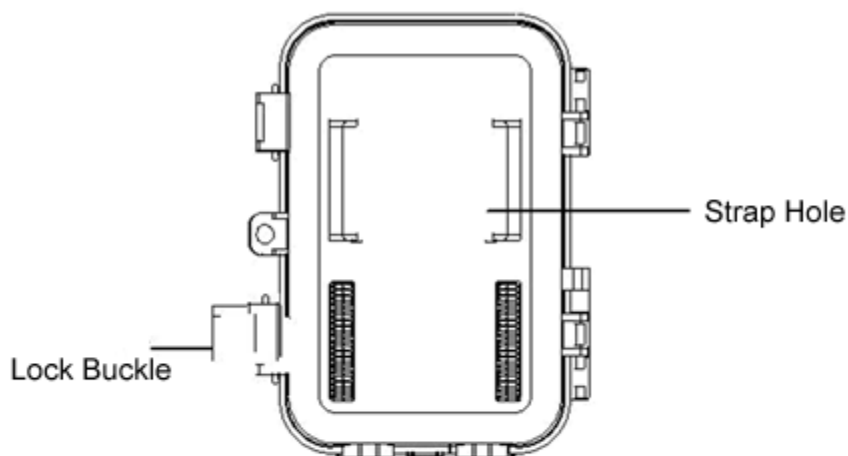


Figure 1-3: Back View

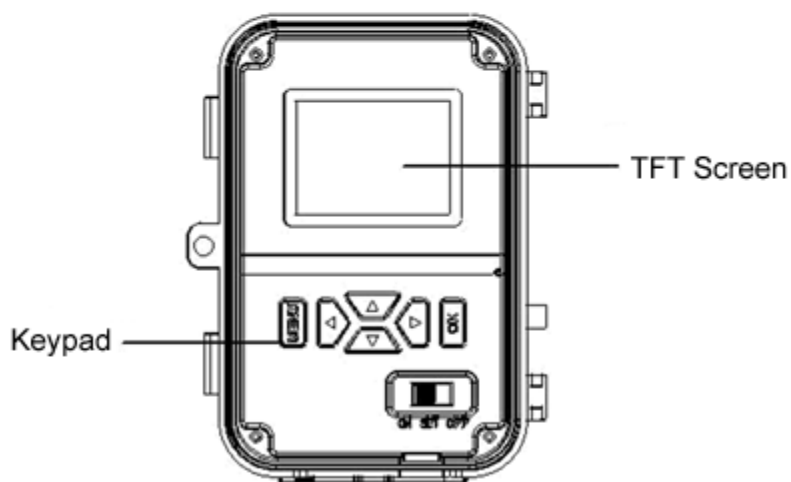


Figure 1-4: Inside View

2. QUICK START

Position the camera and fix it in position.

Open the camera to install batteries, Micro SD card and to perform a quick start.

2.1. Power

- Batteries: Always use high-performance alkaline batteries. Make sure the polarity matches the polarity symbols in the battery compartment. The camera can operate with only 4 batteries but it is recommended that the camera is always powered by 8 batteries. If using only 4 batteries, then they should all be inserted in either the top battery compartment or the bottom battery compartment.
- During Setup when the camera is in "SET" mode "Low Battery" will be displayed on the TFT screen if the batteries need changing.
- Storage: Remove all batteries from the camera when not in use to avoid possible damage from battery leakage.

2.2. Insert a formatted Micro SD card

- The camera does not have an internal memory. As a user precaution "Memory card missing" will be displayed when in SET mode or when the camera is switched to "On" if the Micro SD card is not detected.
- The camera is designed to support Micro SD cards up to 32GB capacity. If a larger capacity Micro SD card is inserted it might work but we strongly recommend you conduct thorough testing before installing the camera.

2.3. Position the Camera

- Make sure the camera is fixed in a suitable position.

Recommendations:

Position the camera between 1 and 2 meters above the ground.

To avoid false triggers due to temperature and motion disturbances do not aim the camera at a heat source.

If located outdoors the ideal direction is to point the camera towards either North or South.

Do not locate the camera close to tree branches and limbs. Cut back any foliage close to the front of the camera.

If located indoors position the camera so it does not face towards a direct heat source such as a radiator or fire.

2.4. Enter Recording Mode – Test the camera to make sure the location/position is correct

- Open the camera and switch the 3-position slide switch to "ON" to enter the live recording mode. The top centre white LED on the front of the camera will flash white for about 15 seconds and the camera will start working. Figure 2-1 on page 7 shows the keypad view.
- Close the camera and make sure it is fixed in a suitable position.
- The factory default setting is 1 still image with a 1-minute interval.
- Perform multiple walk past events to test the camera.
- Open the camera to review the recorded images.
- Switch the 3-position slide switch to "SET". The camera double beeps and displays live video.
- Press "OK" to enter playback mode. The last still image recorded will be displayed first.
- Use the "UP/DOWN" arrows to scroll through the still images to make sure they have captured the walk past events
- If the recordings are acceptable Switch the 3-position slide switch to "ON". The camera counts down from 15 and the live display switches off.
- If the recordings are not acceptable switch the camera "OFF". Reposition the camera and then repeat from 2.4.

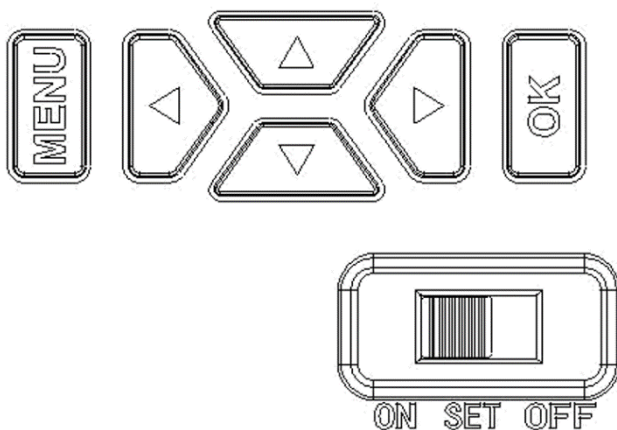


Figure 2-1: Keypad View

3.

ADVANCED SETTINGS

The Defender HD trail camera is supplied with pre-set manufacturers default parameter settings – these are shown in bold on the table below. Users can easily change these settings to meet their specific requirements

3.1. Parameter settings - Navigating the menu

- Open the camera.
- Slide the 3-position slide switch to SET. The camera double beeps and displays live video.
- Press "MENU" to display the parameter menu.
- Press "UP or DOWN" to navigate the menu setting.
- Highlight the required setting.
- Press "OK" to select the menu setting – the current parameter setting is highlighted
- Press "UP or DOWN" to highlight a new setting
- Press "OK" to confirm this change OR press "MENU" to exit the parameter setting with no change.
- Press "MENU" to return to live video.

Parameter	Settings (Bold=Factory Setting)	Description
Mode	Camera Video Cam+Video	Camera is for still image(s) Video is for video clip recording. Cam + Video – is for still image(s) and then video clip recording.
Language	English/Chinese/Francais/Norwegian /Deutsch/Espanol/Portugues/ Japanese/Russian/Finnish/Italian /Romanian/Czech/Svenska/Slovak	Select the language that the menu setting will be displayed in
Photo Size	16MP 12MP 8MP 5MP 3MP 1MP	Sets the still image resolution from 1 to 16 mega pixels. (Note: The higher the resolution produces better quality photos but this in turn creates larger files that take up more room on the Micro SD card, larger files can also take a longer time to save to the Micro SD card, this can slow down the shutter speed.)
Video Size	1920x1080 1280x720 720x480 640x480 320x240	Sets the video resolution (pixels per frame) when Video or Cam + Video is selected. (Note: Higher resolution produces better quality videos, but this creates larger files that take up more room on the Micro SD card.
Photo No.	01 Photo 02 Photo 03 Photo	Sets the number of still images taken in sequence when Camera mode or Cam + Video mode is selected. Please also refer to the Interval parameter setting below.
Video Length	05 seconds, Optional video lengths from 3s to 30s in 1s increments	Sets the video length in seconds (from 3s to 30s) when Video or Cam + Video is selected.
Interval	01 minute Optional interval settings from 5s to 60min	Sets the minimum interval between active triggers. During the selected interval, the camera will not be activated to record pictures or videos. This helps to prevent the Micro SD card from filling up with too many duplicate / redundant images.
Sense Level	Normal High Low	Sets the sensitivity of the PIR sensor for trigger activations. Normal or Low suits the outdoors and environments with more interference. High suits indoors and environments with little interference. It is also better suited to higher ambient temperature. Low is better suited to cold weather.
Set Date/Time	YYYY/MM/DD HH:MM	Use UP/DOWN and RIGHT/LEFT to set the correct date and time in the format shown. HH is in 24 hour format.
Date Stamp	Off Date Date/Time	Sets if Date or Date/Time information will be imprinted on all recordings along with the fixed Lunar Phase and Temperature information.

Timer	On Off Start HH:MM Stop HH:MM	Sets the operating times that the Camera will be active between. Select On. Use UP/DOWN and RIGHT/LEFT to set the Start and Stop times. HH is 24-hour format. The Camera will be active between these times.
Time Lapse	On Off Hr : Min : Sec HH MM SS	Sets the camera for Time Lapse applications. The time entered is the duration between recordings of still image or video.
Password Set	On Off NNNN	Sets a 4 password to protect the camera from unauthorized users. N = 0-9 If activated the user will need to enter the password to access the SET menu.
Serial No.	On Off NNNN	Sets a serial number to identify the camera that was used to take a still image or video for evidence traceability. N=0-9 The serial number will be imprinted on all recordings along with the fixed Lunar Phase and Temperature information and any time/date information selected.
Audio	On Off	Sets the microphone to be On or Off. The default is for sound to be recorded with video.
Micro SD card Storage	Stop saving when full Cycle storage	Sets how the camera will behave once it the capacity has all been used. Stop saving when full will protect earlier recordings so there is no loss of information. Cycle storage causes the oldest files to be overwritten with new recordings when the Micro SD card is full.
Format	Yes No	Used to format the Micro SD card. It is highly recommended that any new Micro SD card is formatted in the camera before use.
Default Setting	Yes No	Select Yes to reset the camera back to the factory default settings.
Version	***** MCU.V**	Identifies the Firmware version in the camera for debugging purposes

3.2. File format

The camera stores still images and videos directly onto the Micro SD card in the folder \DCIM\100MEDIA. Still images are saved with filenames like DSCF0001.JPG and videos are saved with filenames like DSCF0001.AVI. In the ON mode, you can use the provided USB cable to download the files to a computer. Or you can put the Micro SD card into a Micro SD card reader and plug it into a computer to browse the files without downloading.

The AVI video files can be played back on most popular media players, such as Windows Media Player, Quick Time, etc.

4. WARRANTY

We guarantee this product to be free of defects in materials and workmanship for a limited warranty of 12 months from the original purchase date. This warranty does not cover user caused damage through misuse, abuse, improper handling or installation, or repairs attempted by someone other than our authorized technicians.

We will, at our option during the warranty period, repair your camera or replace it with the same or comparable model free of charge. This warranty only extends to the original buyer. Proof of purchase is required to receive warranty benefits. The warranty on any replacement product provided under the original warranty shall be for the remaining portion of the warranty period applicable to the original product.

This warranty extends solely to failures due to defects in materials or workmanship under normal use. It does not cover normal wear of the product.

If you need to return a product under this warranty, please contact us for a returns number prior to sending it back.

5. Appendix I: TECHNICAL SPECIFICATION

Feature	Parameters
Image Sensor	3 Mega Pixels Colour CMOS
Max.Pixel Size	4608 x 3456
Lens	F=1.8; FOV=90°; Auto IR-Cut
IR Flash	940nm Blacklight IR LED
LCD Screen	60mm TFT color screen
Keypad	6 Push Buttons, 1 Slide Switch
Memory	Micro SD card (8MB~32GB)
Picture Size	16MP; 12MP; 8MP; 5MP; 3MP; 1MP
Video Size	1920x 1080: 30fps; 1280 x720: 30fps; 720 x 480: 30fps; 640 x 480: 30fps; 320 x 240: 30fps;
PIR Sensitivity	High/Normal/Low
PIR Sensing Distance	20m at 25°C – Set to Normal 65ft at 77°F – Set to Normal
PIR Sensing Angle	60°
Operation Mode	Day and/or Night
Trigger Time	0.6 Second (When using a 32GB Micro SD card)
Trigger Interval	Selectable between 5sec - 60 min
Shooting Numbers	1-3
Video Length	3-30sec
Camera+ Video	First take Still Image(s) and then Video
Playback Zoom In	1 to 8 Times on built in LCD Display
Time Stamp	On / Off
Timer	ON/Off; Allows user to select when the camera will be active by setting a start time and a stop time.

Password	4-Digit Number
Camera Serial No.	4-Digit Number
Time Lapse Recording	Between 1 Second and 24 Hours
Audio	Records audio during video recordings. Can be switched off in Settings.
Language	English/ Chinese/ French/ Norwegian/ Deutsch/ Spanish/ Portuguese/ Japanese/ Russian/ Finnish/ Italian/ Czech/ Romanian/ Svenska/Slovak
Power Supply	4XAA; Expandable to 8xAA Long Life Alkaline recommended
Stand-by current	< 0.1mA
Stand-by Time	4-8 Months when using 8xAA long life alkaline batteries
Auto Power Off	Auto power off in 10 minutes if no keys pressed whilst in SET mode
Power Consumption Low Battery Alert	150mA (+800mA when IR LED lights up); at 6V DC 4.5V
Interface Interface Mounting	USB; Micro SD card Slot; 6V DC External (optional) Strap (included); Tripod (optional); Tree Spike (optional).
Operation Temperature	-30 ~ +70°C
Operation Humidity	-5% ~ 95%

6. Appendix II: PACKAGE CONTENTS

Part Name	Quantity
Digital camera	1
USB cable	1
Camera belt	1
User manual	1

7. Appendix III: FAQ

Questions	Answers
Forgot Password /Factory Reset	<p>Turn the camera OFF</p> <p>Press and hold "MENU" + "OK", then</p> <p>Slide the 3-position slide switch to SET</p> <p>Wait for self-test to finish.</p> <p>Slide the 3 position slide switch to OFF.</p> <p>The camera is restored to the factory default settings.</p> <p>All of the settings made including any password will be cleared. Please use with caution.</p>
Night video is unavailable in low voltage – prompt on display	<p>When the camera is turned on, there is "Night video is unavailable in low voltage" prompt, indicating that the voltage has been low.</p> <p>When the battery voltage is less than 4.5V, the infrared</p> <p>light cannot switch on so at night, the camera cannot take pictures or video.</p>