Inovalley

WATERPROOF
SPORTS CAMCORDER

Ref.: CAM20

- USER MANUAL -

FUNCTIONS

Thank you for purchasing this camera. In virtue of high performance chip applied, this product features high definition video with strong continuous dynamic images. The images support AVI video format, and thus clear pictures can be achieved. This device adopts a unique and super portable design, which benefits a convenient, safe and colorful daily life for you in various fields. Please make sure to carefully read this manual and keep it properly for future reference.

This manual is worked out based on updated information. Screen display and diagrams used in this manual are for detailed and visualized introduction for this digital camera. Because of technical R&D and product lots, the displays and diagrams may vary with the actual digital camera, and that is subject to the actual function of the camera.

PRECAUTIONS

Before using the camera, please carefully read the precautions to ensure a correct and safe use of the camera, and to achieve the best performance and a prolonged lifespan of it.

◆ Keep the camera away from direct sunlight, and keep lens of the camera away from directing sunshine. Otherwise, image sensor of the camera may be damaged;
◆ Please be careful with the camera to avoid water or sand entering the camera while using it on sand beach or by water. Water, sand, dust or particles containing salt may damage the camera;
◆ Keep the camera away from contacting dust and chemical materials. It is a must to keep the camera at a cool and dry place with god ventilation. Do not place the camera at a place with high temperature, humidity or with much dusts to prevent abnormal operation caused to the camera;
◆ During long-term storage, regular use of the camera is required. Before using it, please check if it can normally operate;

◆ In case of dirt or dust accumulated on the camera or lens, clean them with a piece of soft, clean and dry cloth. In case of sand on the camera or lens, it is to gently blow the sands off. Do remember not to clean it a piece of cloth. Otherwise, surface of the camera or lens may be damaged;
◆ To clean surface of the camera lens, it is firstly to blow off the sands on it, and then clean it with a piece of mop or paper suitable for optical instruments. If needed, please clean camera with cleanser. It is strictly prohibited to clean the camera or organic solution;
◆ Touching surface of the lens with finger is strictly prohibited;
◆ In case of the first time of using memory card of the camera, please firstly make a back-up of the data, and then format the memory card in a one-off way;
◆ External TF card is a precise electronic component. The followings may cause loss or damage of the data:
    1. Improper use of the memory card;
    2. Bended card, fallen cards or impact against the memory card
    3. High temperature and humidity or direct sunlight;
    4. Static field or electromagnetic field nearby;
    5. Taking out the memory card or interference with the camera power supply during visiting the memory card with the camera or computer (meaning reading, writing or formatting);
    6. Contact metal surface of the memory card with finger or metal article;
    7. Beyond lifespan of the memory card (Please regularly purchase the new memory card).
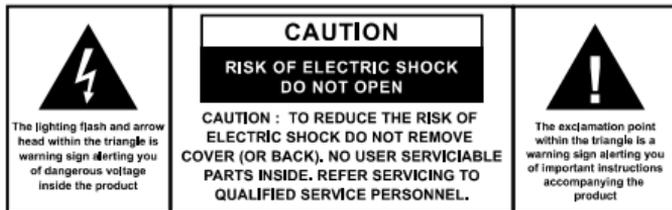
WARNING

Please read and understand the safety measures here down described before using the device.
• Please read all instructions and guidelines before starting to use the device.
• Keep this manual close at hand for future reference if needed.
• The safety and operating instructions should be applied.

- Do not use the device near water or let it come into contact with moisture.
- The device must not be exposed to dripping or splashing water, and no object containing liquid should be placed on the device.
- Make sure that no liquid can be spilled in the device openings.
- Move the machine with care, and avoid shocks.
- Do not obstruct the ventilation with items, such as newspapers, tablecloths, curtains, etc.
- Do not install the device near a heat source (e.g. a radiator) and do not expose it to the sun.
- Do not put on the device any naked flame source, such as lighted candles.
- To avoid static electricity, do not use the machine in a very dry atmosphere.
- Connect the device cables as shown in this manual.
- Turn off the power before inserting or removing a memory card.
- Charge the internal battery when the battery icon is empty and flashes, or if the device powers itself off.
- Never try to open the device or modify it by yourself. Maintenance and repairs must be performed by qualified technicians.
- Use only properly recommended accessories. Use of power sources other than those specifically recommended can cause overheating, deformation of materials, fire, electric shock and other hazards.
- Do not unplug the device during a format or data transfer operation in order to avoid damaging programs.
- When this device is used in USB mode, operating instructions relative to data transfer must be strictly observed. Incorrect operations can cause data loss, in which case the manufacturer responsibility shall not be engaged.
- Clean regularly the camera lens.
- This product contains a sealed rechargeable lithium battery, not accessible to the user and therefore not replaceable.

Note: There is a risk of explosion if battery is incorrectly replaced: the battery must be replaced by an equivalent type.

• If any replacement is necessary, please contact a qualified technician or the manufacturer for service.
• Do not expose the battery to excessive heat such as sunshine, fire, a radiator or similar sources.
• The user should not manipulate the device beyond what is described in this manual. Otherwise, the warranty shall be void.

	CAUTION	
	RISK OF ELECTRIC SHOCK DO NOT OPEN	
The lighting flash and arrow head within the triangle is warning sign alerting you of dangerous voltage inside the product	CAUTION : TO REDUCE THE RISK OF ELECTRIC SHOCK DO NOT REMOVE COVER (OR BACK). NO USER SERVICIABLE PARTS INSIDE. REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.	The exclamation point within the triangle is a warning sign alerting you of important instructions accompanying the product

ABOUT THE PRODUCT

◆ This product features compact size and easy installation;
◆ In virtue of high performance chip applied, the product features high definition video and strong continuous and dynamic images. Even under low illumination, video can be recorded, and it also supports AVI video format;
◆ Support VGA (640x480) and HD (1280x720) capturing;
◆ 2 sizes (including 5M, 3M) of image are for option;
◆ This product supports time and date watermark function, and time and date can be synchronously displayed while recording;
◆ Support high-speed USB2.0;

- ◆ Support max. 32GB TF card; No internal memory;
- ◆ This product adopts loop coverage recording method and the new recording can automatically cover the former images achieving an endless rolling recording;
- ◆ This product is equipped with on-site replay function. You may check the video recorded on-site with the display. It also supports replay with computer.

SYSTEM REQUIREMENTS

System Requirements	
Operation system	Microsoft Windows2000, XP, Vista, 7
CPU	Above Intel Pentium III 800MHz or equivalent CPU
Memory	Minimum 512MB
Sound card, video card	Sound card and video card should support DirectX8 or higher version
CD driver	4 times of speed of faster
Hard disk	Over 500MB free space
Others	1 standard USB1.1 or USB2.0 interface

APPEARANCE AND KEY INTRODUCTION

Mode switch:
-Photograph
-Video
-Replay

Lens

Power On/Off

Shutter

Operation indicator

Charging indicator

Up key

LCD TFT

OK key

Down key

Key/Indicator	Function	
Power On/Off	Power the camera on or off. When opening the menu, switch over between normal (effect parameters and replay of image, video) and setup menu.	
Shutter	In recording video mode, it is used to start/stop recording; in capture mode, it is used as a shutter; it is used to play the video (in replay mode); confirmation (when operating the menu).	
Up key	Digital zoom in (capture/video mode); menu selection (after opening the menu); pause, continue playing (when playing and recording video in replay mode)	
OK key	Open/exit from menu. Stop playing (when replaying video)	
Down key	Digital zoom out (capture/video mode); menu selection (after opening the menu);	
Mode switch	Switch over among modes of capture, video, replay	
Operation indicator	The upper one is a charging indicator.	In power-off state, it keeps constant lighting when the charger is connected for charging.
	The lower one is an operation indicator.	It flashes once during capturing, and it keeps constant lighting when connected with computer portable disk.

1. Charge built-in lithium battery

Charger indicator lights

In power-off state, when the camera is connected with computer, charging begins. At this time, the charger indicator lights and it turns off when charged full. Generally, it costs 2-4 hours to charge full.

2. Use memory card

1. Following the instructions carved by slot of the memory card, it is to insert FT card into the card slot till entirely inserted;
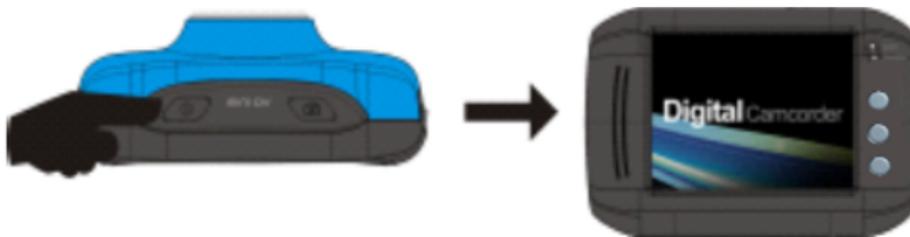
2. To take the FT card out, after gently pressing the end of the memory card inwards, the card will reject out;

Note: The camera is not equipped with a built-in memory, and thus a memory card is required.

3. Power On/Off:
   3.1 Power-on: If to press and hold POWER key for 3 seconds, the screen starts up and the camera enters startup state;

3.2. Power-off: In idle state of the camera, if to click POWER key, the camera turns off;

Automatic power-off: When idle time set for the camera reaches, it automatically turns off to save power. The default time of the system automatic power-off is 5 minutes;

3.3. Power-off due to low battery: In case of extremely low battery, an icon " " shown on the LCD screen. Please timely charge the battery. When the icon turns red and flashes, the camera will automatically power off.

4. Functional mode switchover

The camera is equipped with three modes: capture, video and replay mode. After power-on, the modes can be switched over with MODE switch.

Capture mode: Take pictures;
Video mode: Record video and driving (5min, 3min and 1min for one phase are for option.);
Playback mode: Picture and video file playback
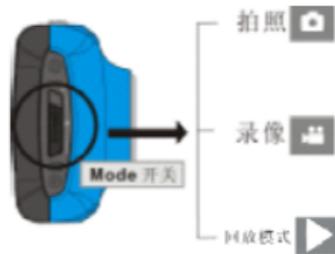
5. Indicators

Operation indicator: When the camera works (e.g. recording video, capturing or automatic screen turn-off), the operation indicator lights;

Charger indicator: Constant lighting is to remind user that the camera is being charged.

6. Video mode

When pushing Mode switch to video mode, click shutter in preview state to start recording video; to stop video recording, it is to click it again. It will also automatically stop recording in case that no free room left in the memory card or the battery is over low:

1 **00:00:01**: time-meter, indicating 1 second left for recording (indicating 1 second recorded during recording);
2 ▨ : mode icon: indicates the current mode is video recording;
3 ▨ ：loop recording video time icon: indicates the current loop video recording time is 3 minutes;
4 ▨ : movie size: indicates the current movie size is 720P;
5 ▨ : indicates currently a memory card is inserted;
6 🔍 1.84 : magnification of digital zoom: press Up and down key to adjust zoom among 1x-4x;
7 ▨ : battery icon: indicates current battery level;
8 AUTO : white balance icon: indicates the current white balance mode is automatic;
9 ▣ ：metering icon: indicates it is currently the pan overall perspective metering.

Video menu setup

In video mode, press OK key to open menu, and then press Up and Down key to select menu. When selecting menu, background of the selected item will be highlighted. Press <u>OK</u> to enter sub-menu. In sub-menu, press Up and Down key for selection, press <u>OK</u> for confirmation and back to main menu.

In the main menu, press shutter key to exit from the menu.
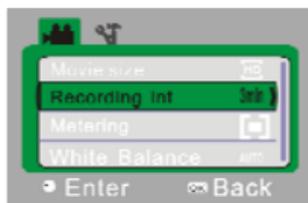

▲Video menu

Video menu options

Main menu	Sub-menu	Description
Video format	1280x720	High resolution format
	640X480	Medium resolution format
Recording int	Off	Power-off driving record
	1min	Set driving record to 1 minute as a repeating phase.
	3min	Set driving record to 3 minutes as a repeating phase.
	5min	Set driving record to 5 minutes as a repeating phase.
Metering mode	Central metering	Metering subject to the central area

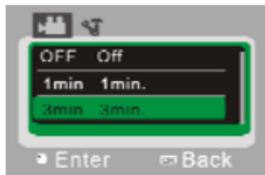|		
	Multi-point metering	Metering subject to multi-points
	Spot metering	Metering subject to one point
White balance	Automatic	Using automatic white balance, suitable for most cases;
	Daylight	Suitable for daylight environment
	Cloudy	Suitable for cloudy environment
	Fluorescent light	Suitable for fluorescent light source environment
	Tungsten light	Suitable for tungsten light source environment
Special effect	Normal	Normal effect
	White and black	White and black effect
	Sepia	Retro effect
	Negative film	Negative film effect
	Red	Reddish effect
	Green	Greenish effect
	Blue	Bluish effect
Date stamp	Off	Turn off printing date/time on the file
	Date	During capturing/recording video, print date on right bottom corner of the file

	Date and time	During capturing/recording video, print date and time on right bottom corner of the file

7. Driving video recording:

Push Mode switch to Video mode, open the menu, press Down key to select "Recording Int" menu, press <u>OK</u> key to enter sub-menu, "1min, 3min, 5min" recording loop mode are for free selection. After pressing OK key for confirmation, press shutter key again to exit from the menu. When Shutter is pressed, it starts video recording. During video recording, the camera will automatically stop recording video based on 1min, 3min, 5min selected, and immediately starts next section of video recording (e.g. when 5min is selected in the menu, the camera will automatically stop when 5min recording reached, and starts next section of video recording). When the memory card is full, the earliest recoded section of file will be deleted for corresponding room for further recording, and it repeats in such a method.
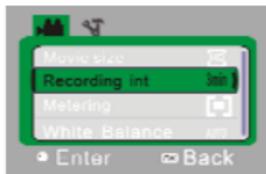
▲ Open video recording menu   ▲ Select loop recording time   ▲ Exit from menu and press

and press OK to confirm.   Shutter to start loop video recording

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Note: After selecting OFF in "Recording Int" menu, when existed from the menu, the camera turns to normal video recording. Normal recording is beyond the limit of time, and it will not stop until the memory card is full.

8. **Capture mode:**

   Push Mode switch to Capture mode. Press Shutter once in preview state or click center of LCD for a picture taken:

   1. **9999**: Counter: indicates quantity of pictures taken or available to be taken;
   2. : mode icon: indicates it is currently the mode of capture;
   3. : movie size: click this icon to select among 1M/3M/5M;
   4. : indicates currently a memory card is inserted;
   5. : magnification of digital zoom: press Up and down key to adjust zoom among 1x-4x;
   6. : battery icon: indicates current battery level;
   7. **:** Self-timer icon: indicates the current self-timer mode is set to 10 seconds;
   8. : white balance icon: indicates the current white balance mode is automatic;
   9. **:** metering icon: indicates it is currently the pan overall perspective metering.

   Capture menu setup

   In capture mode, press OK key to open menu, and then press Up and Down key to select menu. When selecting menu, background of the selected item will be highlighted. Press <u>OK</u> to enter

sub-menu. In sub-menu, press Up and Down key for selection, press <u>OK</u> for confirmation and back to main menu. In the main menu, press shutter key to exit from the menu.
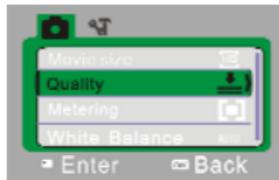
Capture menu options

| Main menu	Sub-menu	Description
Image size	2592x1944	5 megapixel resolution (extrapolation)
	2048X1536	3 megapixel resolution
Image quality	Super fine	Best quality image
	Fine	Good image quality
	Normal	General quality image
Metering mode	Central metering	Metering subject to the central area
	Megapixel resolution	Metering subject to multi-points
	spot metering	Metering subject to one point
White balance	Automatic	Using automatic white balance, suitable for most cases;
	Daylight	Suitable for daylight environment

	Cloudy	Suitable for cloudy environment
	Fluorescent light	Suitable for fluorescent light source environment
	Tungsten light	Suitable for tungsten light source environment
Exposure	/	Use Left and Right key to adjust exposure compensation
Capture mode	Off	Use general single shot mode
	2s	Use 2sec. delay self-timer mode
	10s	Use 10sec. delay self-timer mode
	burst	Use continuous shooting
Special effect	Normal	Normal effect
	White and black	White and black effect
	sepia	Retro effect
	Negative film	Negative film effect
	Red	Reddish effect
	Green	Greenish effect
	Blue	Bluish effect
Date stamp	Off	Turn off printing date/time on the file

|	Date	During capturing/recording video, print date on right bottom corner of the file
	Date and time	During capturing/recording video, print date and time on right bottom corner of the file

9. Playback mode:

    9.1 After power-on, push Mode switch back to Playback mode:

1. ▶ **:** mode icon: indicates it is currently the mode of playback;
2. 1/1 : Indicates that there is one file in current folder/totally one folder;
3. 🔒 : indicates that the current folder is locked;
4. 📹 **: indicates the current file is an** AVI video file.
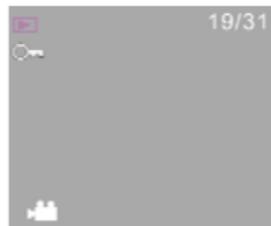
    9.2 Playback menu setup

  In playback mode, press OK key to open menu, and then press Up and Down key to select menu. When selecting menu, background of the selected item will be highlighted. Press <u>OK</u> to enter sub-menu. In sub-menu, press Up and Down key for selection, press <u>OK</u> for confirmation and back to main menu. In the main menu, press shutter key to exit from the menu.
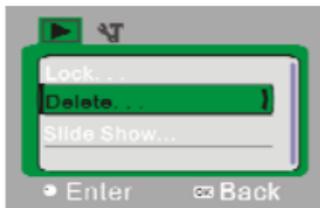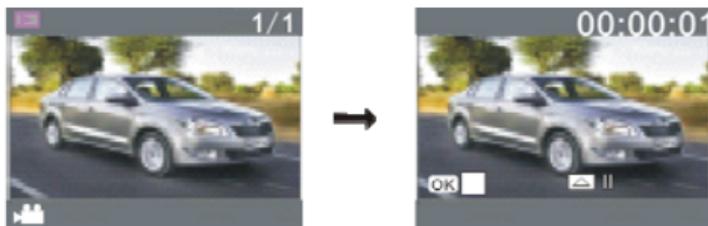
▲ **Playback menu**

Playback menu options

| Main menu	Sub-menu	Description
File lockup	Lock/unlock this file	Lock/unlock this file
	Lock all	Lock all files
	Unlock all	Unlock al files
File deletion	Delete this file	Delete the current file
	Delete all	Delete all files
Slide show	Start	Start playing slide show
	Interval	1sec.~10sec.
	Repeat	Yes/No

9.3 Play movie clips:

During playing, press Shutter key to play, press Up key for pause, press OK key to stop playing.

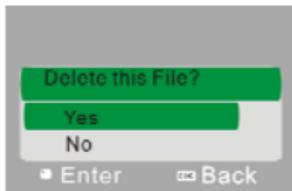**9.4 Delete file:**
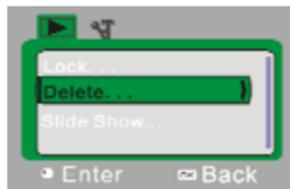
1) After selecting the file to be deleted, open the menu, press Up and Down key to select "Delete…".
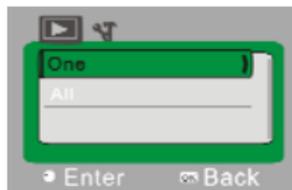
2）Press OK key to enter, after selecting "One", press OK key for confirmation). "All" means to delete all files.)

3) After selecting "Yes", press OK key to delete the file. When the file is deleted, press shutter key to exit from the menu.

10. System setup menu:

In capture, video recording or playback mode, press OK key to open menu, and then press Power key to switch over to setup menu. In setup menu, press Up and Down key for selecting menu. When selecting menu, background of the selected item will be highlighted. Press OK to enter sub-menu. In sub-menu, press Up and Down key for selection, press OK for confirmation and back to main menu. In the main menu, press shutter key to exit from the menu.

▲System setup menu

System setup menu options

Main menu	Sub-menu	Description
Automatic playback	Off	No playback performed after capture
	1 second	Playback performed 1 second later after capture
	3 seconds	Playback performed 3 seconds later after capture
Power frequency	50Hz	Se to 50Hz light source frequency
	60Hz	Set to 60Hz Playback performed 1 second later after capture
Power save	1 minute	Automatic shutdown performed in case of 1 minute idle
	3 minutes	Playback performed 3 seconds later after capture
	5 minutes	Playback performed 5 seconds later after capture
	OFF	Cancel automatic shutdown

Date and time	/	Set up date and time format
Language		Set up the menu language as English/French/Spanish/ Italian/Portuguese/German/Russian/Japan/Simplified Chinese / **Default to French**
Format	Yes/No	Format memory card
Reset all	Yes/No	Back to default value

Setting date and time:

Press OK key to open the menu, and then press Power key to enter setup menu. Press Down key to select "Date&Time" item, and press OK key to enter setup window.
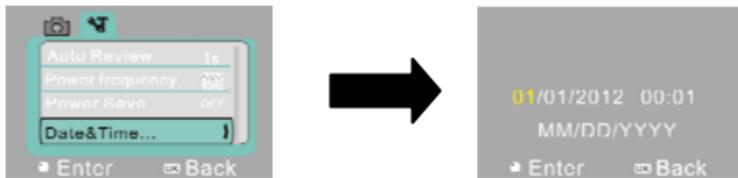
In setup window, press Power key to elect the item to be adjusted (Date, time). The selected item will be highlighted in yellow. Then press Up key or Down key for adjustment. At completion of adjustment, press OK key to confirm the adjustment, or press shutter key to cancel the setup and return.

Finally press OK key to exit from setup mode.

APPLICATION IN PC

1. Connect with PC

The camera is equipped with function of plug and play. In power-in state, after connecting this device to the computer with USB cable, it can be switched over to portable hard disk mode.

Portable hard disk icon will be shown in the window of "My Computer". Images/video shot by you are stored in portable hard disk folder I:\DCIM\100MEDIA ("I" indicates equipment portable hard disk)

Note: If to use portable hard disk function in Windows 2000 operation system or higher version, it is not needed to install driver.

2. Use computer camera function

In power-in state ,after connecting the camera with the computer, press OK key to enter camera mode. Before using camera function, it is a must to make sure that driver has already been installed on the computer. After installing the driver, "SPCA1628 PC Driver" is added in "Start→All procedures" menu, and there is a shortcut icon of 📷 Amcap in it. When the camera is connected with the computer and entering camera mode, if to click this shortcut icon (📷 Amcap), AMCAP window will be opened. In the window of AMCAP, the image corresponding to the camera lens will be displayed.

When AMCAP software is not opened, video can be transmited through network by using camera function.

Make sure that Preview is selected in Option menu.
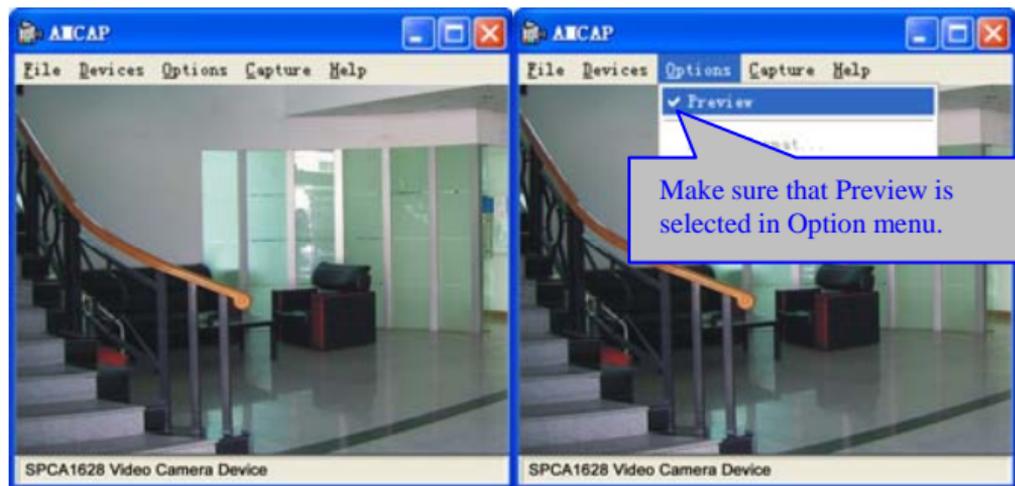
INSTALL DRIVER AND SOFTWARE

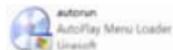The accessory CD contains camera driver and User Manual.

Installation interface

Insert the accessory CD into CD-ROM of the computer. The system will automatically run the installation procedure in the CD. The screen will show installation guide as shown in the figure below:
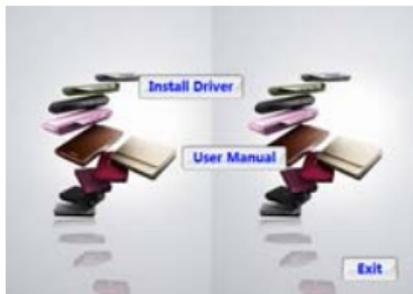
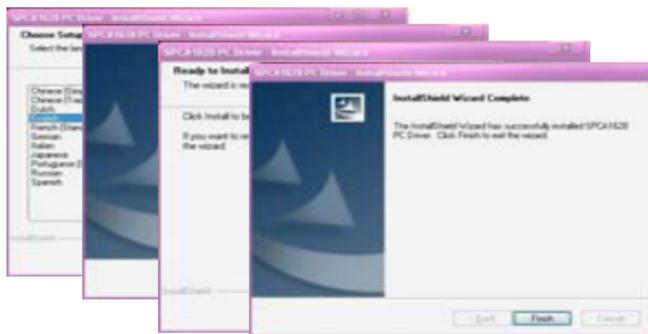(It may cost several seconds to run the installation driver depending on performance of the computer. If the installation window is not shown, please open "My Computer" to run in the CD.

Install driver

In the installation guide window, click "Install Driver" key, and complete installation following the instructions step by step.

After completion of driver installation, restart the computer
Please click "User Manual" key in the installation guide window for using method.

TECHNICAL PARAMETERS

Image resolution	3 Mega Pixels (2048×1536) and 5 Mega pixels (2592×1944) by extrapolation
Video resolution	VGA: 640x480 (60 frame/second); 720P:1280x720 (30 frame/second)
LCD display	1.8" TFT screen
Digital zoom	X 4
Lens	F3.1 f=6.5mm
Shutter	Electronic shutter
White balance	Automatic /Sunny / Cloudy / Fluorescent light / Tungsten light
Exposure	-2.0 ~ +2.0
Function mode	Video, capture, car mode, portable disk (insert TF card), PC camera
File format	Video	AVI
	Image	JPEG
Storage medium	TF card (Max. support 32GB). No internal memory
USB interface	High-speed USB2.0 interface
Power supply	Built-in 3.7V chargeable lithium battery
Menu language	English, French, German, Spanish, Portuguese, Italian, Russian, Japanese, Simplified Chinese
Dimensions (LxWxH)	67x48x29mm
Weight	46.5g

STANDARD PACKAGE

Camcorder	**User Manual**	**USB cable**	**Installation CD**

Waterproof Case	Shield	Helmet Belt

Suction Cup Mount	Handlebar Seatpost Mount	Helmet Mount

DETAILS AND PRECAUTIONS ON THE USE OF BATTERIES

- Discard a used battery in nature or garbage pollutes and prevents the recovery of recyclable materials.

It is therefore important to limit consumption of batteries and follow these guidelines:

• Focus on alkaline batteries (that last longer than the saline batteries) and when possible, rechargeable batteries deposit batteries and accumulators in specific containers arranged among traders.

• For example, metals will be valued and polluted the environment because they contain heavy metals hazardous to health and the environment primarily (cadmium and nickel)

- The piles must installation by respecting the polarity indicated on the apparatus and the pile.

An incorrect positioning can is to damage the apparatus, is to cause escapes on the level of the pile, is to the extreme to cause a fire or the explosion of the pile.

- To ensure proper operation, the batteries must be in good condition. In case of abnormality in the functioning of the device, put fresh batteries

- Never attempt to recharge non-rechargeable batteries. They could run, warm up, causing a fire or explosion.

- Replace all batteries at the same time. Never mix zinc batteries with alkaline batteries or rechargeable batteries

- The batteries must be removed from the device

- Also, remove the batteries from your device if you do not use it for a long time, if the batteries may

leak and cause damage.

  - Never try to short-circuit the battery terminals

  - Never dispose of batteries in fire, they might explode

  - Charging of batteries is to be performed by an adult.

  - Remove batteries from the device before reloading.

   - We recommend an adult to supervise children when they change the batteries so that these instructions are complied with or to make himself the replacement of batteries.

  - If a battery is swallowed, immediately consult a doctor or poison control center nearest you. Do not forget to carry the product with you.

The symbol opposite indicates that the electric and electronic components are the subject of a selective collection, it represents a dustbin on wheels barred of a cross. The electric and electronic products can contain substances having negative effects on the environment and health.   Worn, they should not be thrown with domestic waste but to be imperatively recovered in the selective collections: dump, associations of social economy and interdependent. The selection of waste decreases the potential effects on the environment and human health due to the substances dangerous which can compose certain components electric and electronic.
Take an active part: to remove you not from the apparatuses with domestic waste!

$C \in$

Déclaration de Conformité (DoC) EMC

Nous, Société Inovalley, Z.A La Chapelle Saint-Antoine, 37 rue Ampère, 95300 Ennery, France, déclarons sous notre seule responsabilité que le produit:

Marque : INOVALLEY
Nom commercial : Appareil photo numérique
Type: CAM20 - Modèle: DV123S

auquel se réfère cette déclaration est conforme aux exigences essentielles et aux autres dispositions de la directive pour la Compatibilité Electro-Magnétique EMC 2004/108/CE qui lui sont applicables.
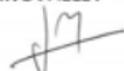Le produit est en conformité avec les normes et/ou autres documents normatifs suivants :

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