

# UNDERWATER VIEWING SYSTEM

## USER MANUAL



Read this manual carefully before operating  
Please recharge the battery before your first time use

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## Introduction

Thank you for choosing the underwater viewing system with 360° rotating camera, a high resolution color video camera and monitor system that offers multi-purpose application in aquatic environment. It may be best use for sport fishing, search and rescue, treasure hunting, and marine biology research. Or just for plain fun, it can offer you a viewing pleasure by showing underwater activities. It will help bring ones aquaticfantasies and imaginations to true life on thescreen. This underwater viewing system includes high resolution Sony CCD with 360° rotating camera,with 7" digital LCD screen monitor, 12V 7AH rechargeable battery, charger, sun shield screen and waterproof carrying case: a complete set for your application.

## Features

- 7 inch digital LCD screen monitor for enhanced viewing
- Collapsible visor with reinforced sides for easier viewing
- Waterproof camera equipped by Sony CCD module
- Super strong waterproof ABS material carrying case
- High strength cable
- Cable storage spool serves as a carry handle when use
- 360° viewing rotating camera
- Wired control FOB and wireless hand remote control
- 10pcs IR LED & 8pcs white LED lights for low light viewing (the smaller one is with 12pcs white LED light)
- 12V7AH rechargeable Lead Acid Battery and charger

The digital LCD screen monitor on the viewing system provides an extraordinary sharp and clear picture under most viewing conditions. The collapsible visor make the monitor more versatile for summer use or while viewing outside on the open ice. Its recommended when viewing outdoors, that the backlight (brightness) be increased to enhance your viewing experience. Although classified as daylight viewable because of the sunshield, still it is recommended that you turn the monitor away from direct sunlight. To clean the LCD screen, use a cleaner recommended for plastic and a soft cloth towel.

In order to create a clear picture, the underwater camera use Sony CCD module.

The cable storage spool is convenient for allowing the right amount of cable out for viewing. Also it serves as a carry handle for convenient use.

The 360° viewing means the camera offers a 360° angle of view, press the left rotation or the right rotation button to turn the camera left or right for the desired coverage area. And on screen display the real-time camera direction when the camera is circumrotating.

The wireless hand remote control offers a 1-3 meter distance control so the user can operate the camera very easy and more convenient.

The LED lights can greatly reduce particulate reflection and increase viewing distance in dark water when power on.

The super strong ABS material waterproof carrying case with handle is the best choice to you when used outdoors. It can protect the monitor LCD screen, the camera and so on during transportation.

The sealed 7.0 amp hr rechargeable lead-acid battery can provide up at least 7 hours of continuous use during ideal conditions. Battery run time will vary depending on the condition of the battery, use of underwater LED lighting, level of screen backlight (brightness), use of camera circumrotation. The 0.5 amp charger can quickly charge the battery back to full capacity. Once charged, a small green LED light will be illuminated to indicate the charger has switched to a trickle charge mode.

## Getting started

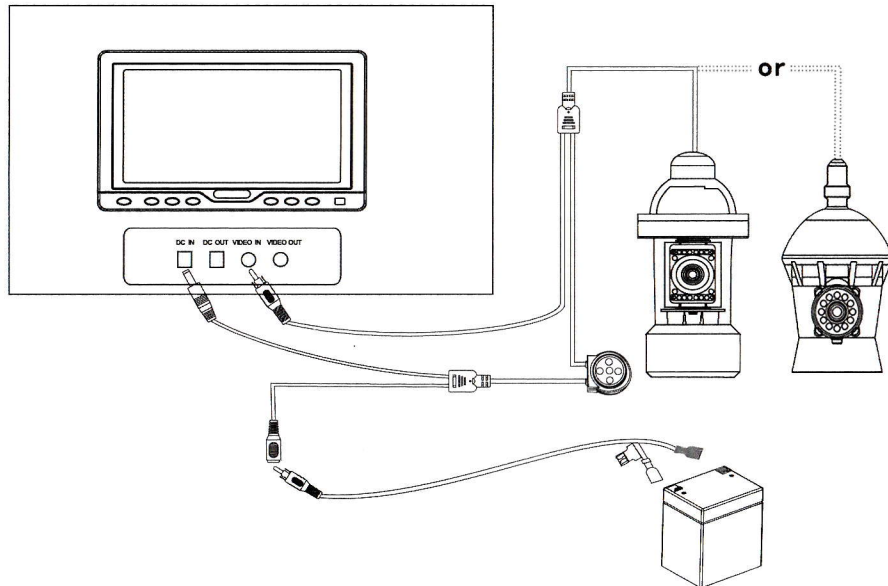
The underwater panning camera has been set-up and tested at the factory before being placed into its retail packaging.

Open the carrying case, take out & remove the underwater camera from the packaging. Once opened, you can see there are 4 female jacks on the screen board. Firstly connect the power out male connector from camera to the DC 12V IN jack on the screen board, and then connect the video out male connector from camera to the video in on the screen board also. Then connect the power output connector of the battery cable to the power in female connector from the camera. The battery cable connectors can now be connected to the battery by attaching the corresponding color connectors to the correct terminal. The positive (red) connector only can



be connected to the positive (red) terminal on the battery. The negative (black) connector only can be connected to the negative (black) terminal on the battery. Once all the connectors are connected correctly, you can see the image directly on the LCD screen that comes from the camera (this will happen only when the system already being power on), or press the button of LED on the wired control FOB to power on the system. The underwater camera is ready for use, and can now be unwrapped from the cable spool and deployed into the water to the desired depth.

#### Connection diagram:



The depth of field (distance the camera can see underwater) depends on the clarity of the water and available light at the depth the camera is used. In clear water, the depth of field can be many feet but in cloudy or muddy water the depth of field can be reduced to only a few inches due to particles suspended in the water.

### Adjusting the Monitor

#### Monitor diagram, function instruction of the buttons



1. Window to receive the infrared signal from the remote control. Also the red LED will be on when the system is power on;
2. Mirror: To change the direction of the image shows on the LCD screen, totally there are 4 directions, to have the correct display on it;
3. To change the mode between 16:9 and 4:3 on screen display;
4. Menu: To access the settings menu (BRIGHT, CONTRAST AND COLOR);
5. V-: Decrease the numerical value of BRIGHTNESS, CONTRAST and COLOR;
6. V+: Increase the numerical value of BRIGHTNESS, CONTRAST and COLOR;
7. POWER: Power on & off the monitor LCD screen.

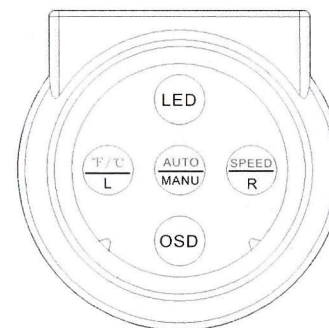
### ● Monitor screen adjustments:

The monitor has three different adjustments that can be made to enhance the image on the monitor to the users preference. (Note: The unit has been pre-set with factory defaults for normal viewing). To access the settings menu, press the menu key on the monitor panel with different times. Press the menu key one time access BRIGHT setting, press the menu key two times access CONTRAST setting and three times access COLOR setting. (Note: If you wait too long time before adjustment, the menu screen will time out and disappear). After pressing your selected menu option and it will appear on the bottom of the screen, you can now be able to easily adjust and see the screen adjustments that you are making. As you select "+" or "-" to make your adjustments, you

will see the numbers of the selected adjustment increase or decrease depending on the "+" or "-" key you are pressing. To accept the changes, release the "+" or "-" butt or on and settings will be saved. Once the settings are adjusted properly, the onscreen menu will disappear automatically.

## Wired control FOB and remote control

### ● Wired control FOB



Ⓛⓔⓓ : Once all the connectors are connected correctly, press it to power on the system. When the system is working, press this button to lighten the LED or close it (including the infrared LED & white LED both), the letters of WIR will be show and disappear on the screen.

Ⓣ/Ⓒ Ⓛ & Ⓢⓔⓔⓓ Ⓡ : Press these two buttons at the same time to close the system.


ⓐⓊⓉⓞ ⓂⓐⓃⓊ : To change between the mode of Automatic and Manual control


Ⓣ/Ⓒ Ⓛ : In Manual control mode, press it to rotate to the left side, press it again, the camera stop. In Automatic mode, press it to set the starting point that will be indicated as A, and press it again to set another







point as B, then the camera will rotating between the A & B two points repeatedly. And then press it again to cancel the settings. The letter of A and B will be show and disappear on the screen

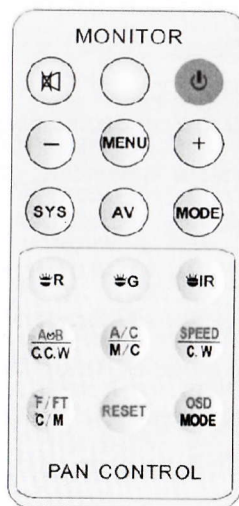
When the unit has the functions of Depth and Temperature, press this button to show the depth and temperature where the camera locates

 : In Manual control mode, press it to rotate to the right side, press it again, the camera stop. In Automatic mode, press it to adjust the rotating speed of the camera from S1 to S7, S1 is the quickest, and S7 is the slowest


 : To cancel or to show the on screen display words on the screen


## ● Remote control

Note: The buttons of , , , and  are not available in the current version





## PAN Control


 : When the system is working, press this button to lighten the white color LED or close it. The letter of W will be show and disappear on the screen


 : When the system is working, press this button to lighten the infrared LED or close it. The letter of IR will be show and disappear on the screen


 : To change between the mode of Automatic and Manual control

 : In Manual control mode, press it to rotate to the left side, press it again, the camera stop. In Automatic mode, press it to set the starting point that will be indicated as A, and press it again to set another point as B, then the camera will rotating between the A & B two points repeatedly. And then press it again to cancel the settings.






 : In Manual control mode, press it to rotate to the right side, press it again, the camera stop. In Automatic mode, press it to adjust the rotating speed of the camera from S1 to S7, S1 is the quickest, and S7 is the slowest

 : When the unit has the functions of Depth and Temperature, press this button to show the depth and temperature where the camera locates

 : To cancel or to show the on screen display words on the screen

 : The unit will be in default mode after pressing this button

## Monitor Control

-  : Power on & off the monitor LCD screen
-  : To access the settings menu (BRIGHT, CONTRAST AND COLOR)
-  : Increase the numerical value of BRIGHTNESS, CONTRAST and COLOR
-  : Decrease the numerical value of BRIGHTNESS, CONTRAST and COLOR
-  : To change the direction of the image shows on the LCD screen, totally there are 4 directions

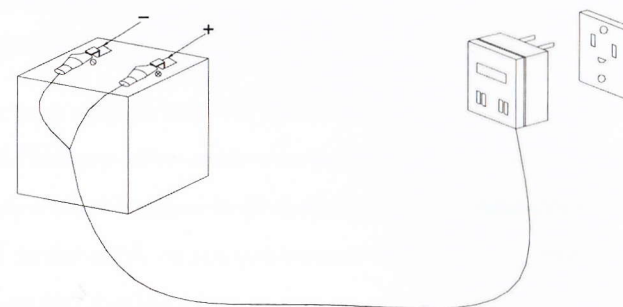
Note: The camera lens rotation and the LED lights would work for several seconds when you first turn on the camera. This phenomenon is the camera self-testing and preparation and after that you can use the camera normally.

## Battery Charging

Recharge the battery after every use is recommended. The charger that was supplied with the camera is a 0.5-amp two-stage DC charger. To charge your system, simply connect the positive (red) and negative (black) female connector from the charger to the positive (red) and negative (black) terminal at the battery. Once connected, plug the charger into a 110-240 volt AC wall outlet. The LED indicator light on the charger will be red when the charger is in a charging mode. The LED indicator light on the charger will turn green when the charger switches to a

trickle charge. The 7-amp hour, 12-volt battery that was supplied with the system should take about 8 to 10 hours to charge from a completely discharged state.

### Charging connection diagram



When the green LED light is on, disconnect the charger from the battery terminal and the wall outlet. If the green LED light does not come on after 10 to 12 hours of charging time or the green LED light comes on relatively soon after the charger is plugged in, this may indicate that the battery will not accept a full charge. If this occurs and also your camera run time is greatly diminished, you may need to replace with a new battery of equal specification.

If your viewing image appears cloudy, fuzzy or the screen begins to shrink, check your battery charge. One of the major symptoms of a dead or near-dead battery is the degradation of your viewing image. Try charging your battery or if the battery is unable to hold the charge, replace it with a new one of similar specification.

Tip: To preserve battery run time, please disconnect the battery cable when the system is not in use.

## Product Performance Specifications

Battery -----	12 volt DC, 7 amp hr
Charger -----	12 volt DC, 0.5 amp
Battery cable -----	65cm length cable with 3A fuse
Carrying case -----	100% ABS material

### Camera

Image sensor -----	1/3" SONY CCD
Power consumption -----	≤3W
Night visibility -----	8pcs white LED light & 10pcs infrared LED light (the smaller one is with 12pcs white LED light)
Focus -----	4.0mm
TV lines -----	600 TVL
Viewing angle -----	360°
Camera cable -----	from 20m to 300m optional

**Note:** the specs of the image sensor, TV line and camera cable vary according to the real unit

### Monitor

Monitor -----	7" Digital LCD
LCD Color system -----	PAL/NTSC
Power supply -----	12 volt DC
Power consumption -----	≤14W
Operating temperature -----	-20°C ~ +50°C
Storage temperature -----	-30°C ~ +60°C

## Care and Maintenance

- Make sure NOT to reverse the polarity. It may cause permanent damage to both of the monitor and camera. The red power cable and black ground cable should connect to red terminal and black terminal of the battery respectively.
- Please make sure to turn off the monitor and disconnect power cable from the battery after each use. Also wipe off any moisture at both terminals on the battery to prevent from corrosion. This will ensure a clean connection between cables and terminals for future use. After using in the sea or reservoir, monitor and camera may have dirt like sand, mud and salty water. Please clean the camera/monitor according to the following method.

### CLEANING CAMERA

Put the camera in clean water and clean the dirt. Be careful not to put the connector in the water.

Do not use benzene, thinner, hot water or detergent.

### CLEANING MONITOR

Disconnect the cable from monitor, clean the monitor with slightly damp towel.

Do not use benzene, thinner, hot water or detergent

Do not put the monitor in the water

Be careful: do not let the connector get wet while it is being exposed.



- System cable has shielded wires and should not be cut. If the outer jacking of the cable is cut, moisture is allowed to enter into the camera by means of suction or capillary action.
- Do not disassemble the water-resistant housing of the camera. There is a risk of electrical shock if you touch the internal parts.
- Should any liquid or solid object fall into the monitor cabinet,unplug the unit and have it checked by qualified personnel beforeoperating it further.