

# UNDERWATER VIEWING SYSTEM



**USER MANUAL** **VS460**

**MarCum**  
Technologies

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## INTRODUCTION

Thank you for purchasing the VS460 underwater viewing system from MarCum Technologies.

Welcome to the world of underwater viewing. MarCum Technologies has incorporated the latest technology in producing the most compact and technologically advanced underwater viewing system available. Hunt for underwater treasure or locate the “spot on the spot” for great fishing.

There are hundreds of uses for your new VS460 underwater viewing system. Now you’ll actually be able to see what’s below the surface of your favorite lake.

## FEATURES

The VS460 viewing system incorporates an integrated motorized camera rotation system that allows for 360 degree viewing. The 460 also features a break through in underwater lighting incorporating “Darkwater Technology” which greatly reduces the reflection of particulates in the water, therefore increasing viewing clarity and distance. Even in the most dimly lit conditions you can identify fish, structure, or objects with ease. The VS460 is the first underwater viewing system that is as usable and functional for open water as it is on the ice.

A specially designed accessory is included with the VS460 for down viewing. The molded strap incorporates a cable cleat that can be attached to the bottom of the camera with the enclosed screws. The cable can then be looped back and secured in the cable cleat and the angle for down viewing can be adjusted.

The VS460 is available with a choice of either 60 or 120 feet of Kevlar reinforced underwater camera cable. Your VS460 system comes with a detachable camera that plugs and unplugs at the rear of the monitor. A handy cable reel for

convenient cable storage is provided with the system. The 5.5 inch black and white CRT monitor has excellent resolution allowing viewing with great clarity and detail. Controls for adjusting vertical hold, contrast, and brightness are located at the rear of the monitor behind the rubber plug. Adjustments can be made by removing the plug and rotating the knob either clockwise or counter clockwise to obtain the desired picture. The rubber plug should remain in place in the recessed area at all times to prevent moisture from entering the monitor housing.

The VS460 has a video-out jack located at the rear of the housing under the rubber plug in the same recessed area as the monitor adjustment controls. The video-out jack can be utilized by purchasing a cable of desired length with male RCA jacks from a local retailer of video or audio equipment. The cable can be plugged into either a larger monitor or T.V. for a larger viewing image or can be used to record onto a VCR or camcorder. To record onto a camcorder you must have a camcorder with a video-in port.

A high quality padded soft-pack carrying case incorporates a built in collapsible viewing shroud to enhance viewing in bright light conditions. The front of the soft-pack can be opened to allow for viewing when not exposed to harsh light (i.e. when viewing in an enclosed ice house). The versatile soft-pack system provides protection from the elements as well as allows for the easy storage of all camera accessories. A draw string pouch on the back of the soft-pack holds the camera cable. An additional zippered camera pouch with a quick release clip is located on the right side of the soft-pack for camera storage. A cable cleat for setting camera depth is located at the left rear corner of the soft-pack. This eliminates the need for an additional ice arm and clip to hold the cable.

The battery included with the system is a 12 volt, 7amp hour sealed lead acid electrolyte battery that will provide approximately 8.5 hours of viewing time when fully charged.

Viewing time will vary depending on the condition of the battery as well as the amount of time the underwater viewing lights are on and how frequently the camera is being rotated. A 500 mA DC wall charger is supplied to recharge the battery to full capacity. Recharging the battery to full capacity after every use is recommended. For further battery charging information, please see the "Battery Charging" section of this manual.

## **GETTING STARTED**

Remove your VS460 monitor from the soft-pack by first opening the front of the case. This is accomplished by pulling the flap at the top and sides of the soft-pack until the Velcro strips separate. Reach into the soft-pack on top of the monitor and grab the molded inset handle about halfway back. Pull the monitor forward tilting the top towards you until it comes out of the soft-pack case. Place the monitor on a flat surface and open the battery compartment door located on the front lower section of the monitor case. This is done by gently applying downward pressure on the grooved finger inset at the top of the battery door and pulling forward. Connect the battery leads to the battery terminals i.e. - red fused lead to battery positive and black lead to battery negative. Replace battery door and place monitor back into padded soft-pack case. Close front of case by re-attaching Velcro strips. Turn the soft-pack to the backside and remove the cable reel from the back pouch. Reach into the lower left corner of the rear pouch and undo the Velcro door. This allows access to the plug-in port for the camera. Plug the camera cable into the upper plug-in port. Take notice that the plug-in is not round but has a flat side. This is designed to assist in lining up the pins with the sockets in the plug and help eliminate the bending of connector pins. Do not force the plug into the receptacle, you may have it mis-aligned. There will be some resistance when plugging in the camera due to the molded seal rings located on the plug, however, if lined up properly, this should go together quite easily. Please take note that the lower plug-in port marked ACC is not relevant

to the VS460. This is a dead port and you should not attempt to plug the camera into this location. Once the camera is plugged into the monitor, you can replace the camera cable into the rear storage pouch and pull the drawstring for a snug fit. You are now ready to head to the lake. Once you reach your destination, remove the cable reel from the rear storage pouch and remove the required length of cable. Open the front of the soft-pack so that the monitor and keypad are fully exposed. Turn the camera power on by depressing the ON button on the keypad. The orange light to the right of the ON button will light up and within seconds the monitor will come on. NOTE: When you turn the system ON the camera will automatically rotate to the center forward position and the LED's will blink three times and then turn off. Lower the camera into the water to the desired depth and secure the cable in the notch of the cable cleat located at the rear left corner of the soft-pack case as you face the monitor. As with all CRT displays, bright light can washout the display making viewing difficult. If this occurs, rotate the system so that the light source is not directly on the monitor screen. In extreme bright light conditions it may be necessary to use the viewing shroud to shield the monitor from the light source. To use the viewing shroud, remove the protective cap from the face of the shroud located on the front of the padded soft-pack. Grab the face of the view shroud and pull towards you until all three collapsible parts are fully extended. The shroud is not fully extended until you hear the telltale click of each part as it locks into place. This clicking locks the shroud into position so it won't collapse on its own. To collapse the shroud to its original position, push on the face of the shroud until all three parts collapse inside each other and then the replace the protective cover.

The depth of field, the distance the camera can see underwater, depends on the clarity of the water and available light at the depth the camera is used. In extremely clear water the depth of field will be significantly greater than in cloudy or muddy water. The VS460 utilizes ultra high intensity LED's to maximize viewing distance. The combination of these

high output LED's and the incorporation of our "Darkwater Technology" result in a state of the art system that maximizes clarity & viewing distance. The lighting system can be activated by depressing the key labeled "LIGHT". When the underwater lighting system is turned ON, an orange LED will be lit next to the "LIGHT" key.

## **ICE FISHING APPLICATION**

A suggestion on how best to utilize your viewing system while ice fishing. Drill two holes 3 to 4 feet apart. Lower your bait into one hole while placing the camera in the other hole pointing in the direction of your fishing lure. Set the depth and angle of viewing so that your lure appears in the middle of the viewing screen. If the bait drifts from the center of the viewing screen, depress the direction arrow keys located on the monitor to rotate the camera. A down viewing strap (included) can be attached to the bottom of the camera for the purpose of viewing from above. Create a loop in the cable and insert the cable into the slot in the strap. Slide the cable all the way back into the slot until the cable is seated at the end of the slot. You can adjust the viewing angle by the size of the loop in the cable.

## **OPEN WATER APPLICATION**

The VS460 camera features an integrated fin for use in open water. The built in fin helps stabilize as well as steer the camera in the correct direction. An additional weight must be attached to the camera for use in open water. The camera can be used at slow speeds while drifting or while under propulsion from a trolling motor or outboard motor. The camera can be rotated within the housing for viewing forward or rotated to view out the sides or back. The camera can be attached to a down rigger cable (additional ballast weight not required) by attaching the down viewing strap facing to the front or forward of the camera housing. This is pointing the opposite direction from the fin or opposite of how the strap is utilized for down viewing. By using the down viewing strap

facing forward you're now able to clip the camera onto the downrigger cable swivel just above the ball. Rotate the camera to the back side (location of fin) and view out the back as you're pulling the camera forward. This allows the fin to act as the rudder and stabilize the camera while tracking through the water. Stainless screws are provided to attach the strap or additional ballast weight. When using the additional ballast weight, be careful to keep the camera out of heavy weeds, brush, or large rocks. If the camera becomes hung up, back up from the direction you were traveling and slowly try to back the camera out of the snag. Do NOT pull upward with force unless all other avenues have been pursued.

## BATTERY CHARGING

Recharging the battery after every use is recommended. As a general rule of thumb, charge the battery for twice the amount of time as it was used. The VS460 underwater viewing system has a DC charging port located just above the battery door on the right side of the monitor face. The charger that was supplied with the VS460 system is a 500 mA DC charger with a male jack. To charge your system, simply plug the male jack of the charger into the plug in port in the face of the monitor and then plug the charger into a 110 volt AC wall outlet. The 7 amp, 12 volt battery that was supplied with the VS460 system should take about 15 hours to charge from a completely discharged state. The charger incorporates a Charge Alert feature to alert the user to when the battery reaches full capacity. This is accomplished when the green LED light shuts off on the face of the charger. The charger does not shut off automatically but will output a trickle charge indefinitely. It is recommended, however, that the charger be disconnected from the monitor when the Charge Alert green LED is no longer on. It's recommended that you remove the battery door while charging to allow for increased air ventilation through out the battery compartment.

If your viewing image appears cloudy or fuzzy, 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 a charge, replace it with a new one of the same specification. If you need to remove the battery, unplug the two battery terminals from the battery. Unscrew both the screws located in the upper right and left corner of the battery compartment. This will allow you to remove the battery strap from the battery. After removing the strap, lift the battery up slightly with a finger on either side of the battery and slide the battery towards you. This should allow for easy removal of the battery. To replace the battery, lift the battery up and slide into the battery compartment until the front of the battery drops down into the compartment.

## Product Performance Specifications

<b>Battery</b> . . . . .	12 volt DC, 7 Amp hr.
<b>Charger</b> . . . . .	12 volt DC, 500 mA
<b>Camera</b> . . . . .	
Image Sensor . . . . .	1/3" Sony SUPER HAD CCD (B/W)
Resolution . . . . .	400 horizontal lines
Light Sensitivity . . . . .	0 lux with lights on
Field of View . . . . .	90 degrees
<b>Monitor</b> . . . . .	
CRT . . . . .	5.5" (diag.) flat screen high resolution
<b>Current Draw</b> . . . . .	
On (no lumination) . . . . .	700 mA
Lights On . . . . .	800 mA

## One-Year Warranty

To activate your warranty, you must send the original sales receipt or photo copy with the warranty card. The warranty will be void without the accompanying sales receipt. For a period of one year from date of purchase MarCum Technologies will provide free parts and labor on any defects in materials or workmanship, with exception of the following conditions: damaged or cut cables, lost components, damage due to unauthorized modifications, repairs, or misuse.

The manufacture must perform all warranty work or repairs. If you are under water viewing system requires service, call us at the number listed below to receive a **Return Authorization Number (RMA)** and return shipping address or go online to **www.marcumtech.com** to process your service need. **DO NOT** return the unit to our PO Box. This return procedure has been implemented because we may be able to save you the inconvenience of returning the unit.

For your convenience save the original box and packing materials for use if factory return is required. For warranty repair and/or service call (763) 512-3987

## Service Information

MarCum Technologies is dedicated to providing you with the best customer service possible. We have designed a Web site dedicated to providing you, our customer, with answers to your questions, access to product accessories, repair information, online owners manuals, etc. These services can be obtained by going on line at **www.marcumcustomerservice.com**. We highly recommend that you take advantage of this service and utilize it as your first line of contact. For those of you that don't have access to a computer, you can call our customer service department at 763-493-3748, Monday through Friday from 9:00am to 5:00pm CST.

When returning product for repair, please obtain a return authorization (RA) number by going online at **www.marcumtech.com** or by calling 763-512-3987. This number must be displayed on the outside of the box and will be used as a reference number when checking on the repair status. Always include a note with your return stating the problem, RA# and return shipping address (No P.O. boxes, must be UPS shippable address).

Please ship in original factory carton, please carefully package adding adequate internal protection as required. We make every attempt to complete our repairs within 48 hours of receipt. It is our goal to have you back on the water fishing as quickly as possible. Thank you in advance for your patience.

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