LX-9

Digital Sonar / Underwater
Viewing system, with DVR

User Manual

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LX-9 USER'S GUIDE

You talk, we listen. For years we have been getting requests of a combined sonar/video unit. Not two displays stacked on each other, mind you, but an all-encompassing unit that will locate, track, and ultimately help you catch more fish.

The LX-9 is not for everyone. There are plenty of anglers out there that prefer the mobility of one of our lean and mean sonars. Some people only fish in environs where an underwater viewing system is the way to go. And believe it or not, there are even some anglers in a few remote corners of the ice belt who fish with no electronics at all. If you are an angler that wants the best, a combination of all features that anglers have been asking for, you've found it.

Fishing with "sonar only" requires the angler to use a bit of imagination to envision what is really going on below, but using the video features of the LX-9 alongside the sonar will give anglers a chance to really see what the sonar signals represent, increasing your knowledge and making you a better angler. The LX-9 features the cutting edge sonar of the LX-7 fused with the living color imagery of our VS825sd underwater viewing system, and with its built-in DVR, you will be able to preserve and share every minute of the action.

FEATURES

- 8" LCD Monitor—No Fishfinder/Viewing System is easier to see

- Dual Beam Transducer—Quickly switch between 20 degree and 8 degree

- Rugged transport shuttle with extendable transducer arm

- Padded soft pack offers the ultimate in protection

- Auxiliary clip-on camera soft pack

- Protective clear shield

- 12 volt 9 amp battery with automatic 3-stage charger

- 2 year warranty

- Adjustable zoom

- Dashboard Display keeps the angler updated with critical information

- Five different sonar windows to choose from, display up to three at once

    Display Sonar signals on top of video for an unbelievable "Heads –Up" display

- Sony Super HAD II CCD underwater camera with 75' of cable

- Built-in DVR recording system w/mini SD card

- Camera Panner

- Transducer offset setting

GETTING STARTED

Sonar, Camera, or Both? That is the big question, and we hope that you utilize all that the LX-9 has to offer. We strongly recommend that you put the LX-9 through its paces while at home, just to learn the "flow" of the menu and the various functions. While one of the best features of the LX-9 is the ability to display a sonar overlay on top of your video, or play video and sonar side by side, let's start out by learning how to use the sonar.

Anglers that are new to using digital sonars sometimes struggle with learning how to use it. A "fear" of pressing buttons can really slow down the learning curve. When learning how to use your LX-9, press away! You can't hurt or break your system by pressing buttons, and if at any point you feel that you want to start over, go to System Settings in your menu and select "Restore Factory " to go back to the screen configuration that came from the factory.

Remove the LX-9 from the packaging and place on a level surface with the MarCum Technologies logo facing towards you and right side up. Open the top cover of the soft pack by lifting up on the Velcro closures on each side and front of the soft pack. Once opened, loosen the knobs on the either side of the gimbal bracket (at the base of the monitor) by turning each one counter-clockwise. Make sure to loosen the knobs a considerable distance. The monitor can now be positioned how you want it. Once the monitor is positioned how you want it, tighten the knobs again to hold the monitor in place. The front panel of the soft pack can be folded up and secured behind the monitor with the hook and loop fasteners.

Your LX-9 is delivered with a 9 amp battery that is charged, so you can take it fishing right away. Start by connecting the leads of the power cord to the terminals on the battery, red to red, black to black. Even though the battery comes charged, if you are not going fishing immediately, you should hook up the charger anyway to make sure the battery has a full charge. To charge the battery, see below. The LX-9 will operate for 8 hours or more on a fully charged battery. If you are going to be in situation where you will want to use your system for more than one day without recharging, having a second, fully charged battery with you is cheap insurance that guarantees you will be able to get full use out of your system for the duration of your trip.

Inside the LX-9 deluxe softcase is an electronics shuttle that has compartments for the battery and the dual beam transducer, as well as the transducer arm. The adjustable transducer arm allows for maximum flexibility in positioning the LX-9 around the ice hole, and can even be moved to the other side of the shuttle.

Be sure to explore all of the options available to customize your Dashboard Display. With four view modes, five different sonar portals, four color palettes, 2 cones angles, and a myriad of other settings, there are many possibilities. It is easy to explore these options, and changing your settings is easily done on the fly. Experimenting while using the simulator at home will help you learn the "flow" of the menu and settings.

OPERATION

The LX-9 has many functions and settings that are selected or changed by buttons on the Control Panel.   Learning what each of the buttons (POWER, SENS, RANGE, ZOOM, IR, CONE ANGLE, TARGET ADJUST, MENU/ENTER, UP, DOWN) does will enable you to get the most out of your LX-9.   Note that you can experiment with different settings and dashboard arrangements in SIMULATOR mode. Many of the selections will activate just by highlighting your desired setting.

CONTROL PANEL

The following is an explanation of each button on the control panel and what it does. Some of the button functions can also be accessed in the main menu. Pressing any of the Control Panel buttons will cause a window to open, enabling the user to make the desired adjustments. All button function windows will time out after about 10 seconds. Any changes made to the settings will activate when the MENU button is pressed, or after a few seconds without activity.

POWER - Press and hold this button for about 2 seconds to turn your unit on or off.

SENS - The SENS (sensitivity) button controls the amount of sensitivity required by the unit to pick up objects like bottom, weeds, fish, smaller bait-fish, or small lures and jigs. To adjust your sensitivity, first press the SENS button and a bar will appear at the bottom of your display. Pressing the UP/DOWN will adjust your sensitivity, and the sensitivity setting will now be digitally displayed on the SENS gauge. The best SENS setting is achieved by turning up your sensitivity from 0 until you receive a clear and steady bottom reading, as well as a steady reading of your jig. The sensitivity will go up to 25, but setting the sensitivity between 8 and 12 in three color or 4 and 8 in six color and grey scale is likely to give optimal performance in most conditions. Too much sensitivity will only display with unnecessary information, showing clutter and making it more difficult to interpret the return signals. Clutter can be caused by any number of suspended items, including algae, zooplankton, tiny bubbles, and other particles.

RANGE— The LX-9 is equipped with "Auto Range" and "Dynamic Depth". The LX-9 will automatically lock onto the proper range with either of these settings. There are also 9 manually adjustable depth ranges—10, 20, 40, 60, 80, 120, 180, 240 and 300-feet. If you manually select a range, select a range that is deeper than the actual depth and when in doubt, error on the "deep" side. To change your range setting, press RANGE and scroll up or down using the UP/DOWN Buttons. When the desired range is highlighted, press MENU to instantly change, or just wait for a moment and the LX-9 will lock into the selected range automatically.

The LX-9 has an Auto Range feature that allows you to simply turn on the unit and begin fishing. To enter Auto Range, press RANGE. This will open a window with 11 range options. Now use the UP button to highlight "Auto". Now press MENU, and the LX-9 will automatically lock into the appropriate depth range. For instance, in 32 feet of water, the LX-9 will lock into the 40 foot range. In 45 feet of water the LX-9 will automatically lock into the 60 foot range. Your Range gauge will show an "A", and the needle will be all the way to the left.

Dynamic Depth is another exclusive feature that functions similarly to the "Auto Range", but fine tunes your range even farther. The Dynamic Depth will maximize the space on your display by utilizing a constantly variable range that will always be just slightly deeper than the actual depth. For example, if you were fishing in 23 feet of water, the Dynamic Depth range will be 25 feet, if you were in 29 feet of water, the Dynamic Depth range will be 32 feet. The Dynamic Depth range will not go shallower than 10 feet.

To manually adjust the LX-9's depth range, press RANGE. This will open a window with 9 range options. Now use the UP or DOWN button to highlight whichever range you would like to be in. Your selected range will lock in as soon as the selected range has been highlighted.

IR (INTERFERENCE REJECTION) -- The Interference Rejection system is designed to suppress competing return signals from other sonar units being used within close proximity. When other sonar units are causing interference to the display of the LX-9, activate the IR feature by depressing the IR button located on the control panel of the LX-9. Interference is indicated by unusual signals flashing or scrolling across your display.

There are 12 levels, or channels, of interference rejection. Press the IR button once to open the IR window, now use the UP/DOWN buttons to select the desired level of IR. The correct level of IR will be achieved when the display is clear of display clutter. In some extreme cases, clutter will be greatly reduced but not totally eliminated.

Anytime two or more sonars are being operated in proximity to each other, there is the potential for interference. Deep water and hard bottom will increase the likelihood that one or more of the competing sonars will experience interference. Besides experimenting with different levels of IR, the anglers experiencing interference can also try having their transducers set at different levels, going to narrow cone angles, and reducing gain or sensitivity settings.

ZOOM—The ZOOM button allows you to select the upper range of the portion of the water column you would like to zoom in on. The actual size of the Zoom window can be adjusted in the Main Menu.

The Zoom feature allows you to focus the display on a specific depth within the water column, and can be a great benefit in a variety of fishing situations. See the separate ZOOM section below for more info on the ZOOM. Whenever you are utilizing the zoom menu, keep in mind that the menu will "time-out" after 10 seconds.

CONE ANGLE - All transducers send down a signal that is shaped somewhat like a cone. Your LX-9 easily switches from a 20 degree cone angle (good for general use) to a narrow 8 degree cone angle (good for water over 40', or any time you need a more precise view of what is below you) . A feature unique to the MarCum Digital Sonars is the "Sonar Footprint" that displays the actual extent of coverage by your transducer while you are fishing. See the special section on Cone Angles below for more info.

TARGET ADJUST – This feature allows the angler to change the size of the signals being displayed without increasing the sensitivity. Depending on the angler's preference, the signal size can be easily changed from a razor thin line to a thicker band. The TARGET ADJUST feature will give you the thinnest, smallest, signal size at "0", and the signals displayed will get thicker as you increase the TARGET ADJUST. This feature should be used in conjunction with the SENS to fine-tune your display. Anglers who have a hard time seeing, as well as those who fish from a standing position, will really appreciate the "TARGET ADJUST" feature.

MENU/ENTER – This button enables you to access other functions of the
LX-9. Some of these functions are also accessible through the use of the other buttons on the
Control Panel. When you press the MENU button, five sub-menus will be revealed. They are:

View Mode

Display Options

Play/Record

Sonar Settings

System Settings

To access the sub-menus, use the UP/DOWN buttons to highlight the desired sub-menu, and then
press MENU.

VIEW MODE is the first sub-menu. It is here where you may select to view in Sonar Mode,
Camera Mode, Heads-Up Mode, or Split Screen Mode

Sonar Mode should be used whenever you do not desire to have any video displayed. The
background and color palette may be adjusted in "Display Options".

Camera Mode will display the video feed and on-screen camera displays [camera direction,
camera depth, camera temperature]

Heads-Up Mode will display the video feed with the sonar signal and Dashboard Gauges laid
on top of the video.

Split Screen Mode will display the video feed on the left, and a default dual vertical sonar
display with gauges on the right side. The sonar windows are not changeable in "Split Screen
Mode"

DISPLAY OPTIONS

Sub-menu where the following features may be adjusted:

FLASHER DISPLAY   The Flasher Display can be turned on or off

VERTICAL DISPLAY   The Vertical Display can be turned on or off

VERTICAL ZOOM DISPLAY   The Vertical Zoom Display can be turned on or off

CHART DISPLAY   The Chart, or Scrolling graph, can be turned on or off

CHART ZOOM   This enables you to use the scrolling graph in zoom mode

GAUGE DISPLAY   Your 5 gauges, on-screen displays for the camera, and
                                 Sonar footprint may be turned on or off here

TEMPERATURE   Water temperature display may be turned on or off here.
                                 This feature will only work if you are using your unit with
                                 the optional "Universal Transducer", designed for open
                                 water use.

BACKLIGHT   You can adjust the overall brightness level of the display
                                 here. When using outside during bright conditions, you
                                 will want to have it set fairly high, at 50 or more. In low
                                 light or when using inside an ice shack, a setting of 50 or
                                 less is desirable.

COLOR PALETTE   There are four different color palettes to choose from.
                                 See the section below on Color Palettes

BACKGROUND   There are three different backgrounds to choose from.
                                 The "Night" option is great for low light periods or when in
                                 a darkened shack.

PLAY/RECORD is the next sub-menu; this is where all recording and playback functions are done.

LIVE is the first option, this gives you a real-time video and sonar feed of what's going on below you.

SIMULATOR The LX-9 has a simulator mode that will portray a variety of different depths and signal returns. Activating this feature enables the user to experiment with the various settings without actually being on the water. To activate, highlight SIMULATOR and press MENU/ENTER. To turn off the SIMULATOR, you must go back to the PLAY/RECORD menu, highlight and select LIVE. This simulator represents an open water experience, so the depths and signals will change as it goes through the simulation.

PLAYBACK is to review video recordings you have made. The recordings will display as boxes identified numerically. Use the UP and DOWN arrows to highlight the desired clip, then select MENU/ENTER. A small white triangle will appear in the lower right corner during playback, and will change to a white square at the end of the clip. After a video clip has been played, the last frame of the video will remain on the display until you press any button. You will then be returned to whichever "View Mode" you were in. If you don't watch a recording to its end, make sure to stop the recording before moving on to other clips or going back to LIVE mode. To do this, first press MENU, choose Playback/Record, highlight "STOP", and finally press Menu/Enter.

To playback a video, make sure that you are not in "Sonar Mode", but have selected "Camera Mode", "Heads Up Mode" or "Split Screen Mode". If you recorded Sonar signals, they will playback on whichever Sonar Windows you have open.

RECORD is to begin a recording. A red circle will appear in the lower right corner of the display while a recording is being made.

STOP (Playback/Record) is to stop a recording or to stop a Playback clip.

DELETE will bring up a page similar to the playback page. To delete a clip, you must first select DELETE, then scroll to the desired recording you want deleted. The highlighted video will be deleted when you press MENU/ENTER.

EJECT SD CARD should be set to "on" before you remove your SD card.

SONAR SETTINGS is the next sub-menu, and it has the following features that may be adjusted:

SENSITIVITY -This adjusts the sensitivity. This is described in the Control Panel section above

RANGE   Select range in the same manner as described above

ZOOM DEPTH- Here is where you set the upper range of the zoom window. This can also be done by using the ZOOM button as described above. The actual size of the zoom window is adjusted in the "Zoom Window" field.

ZOOM WINDOW- Here is where you determine the size of the Zoom Window. Go to the "Zoom" section of the manual for more specific information.

IR - Interference Rejection can be adjusted here, as well as by using the Control Panel button. See above for more info.

TARGET ADJUST -Target Adjust can be adjusted here, as well as by using the Control Panel button. See above for more info.

CONE ANGLE -Cone Angle [and Sonar Footprint] can be adjusted here, as well as by using the Control Panel button. See above for more info.

SONAR MODE -Choose between "ice fishing" and "open water" mode here

MAX PING RATE -Adjusting this setting will increase the response time of signals from your transducer to the screen. If fishing shallow water (less than 20 feet) use the lower settings. Likewise, you will see better performance with the higher settings in deeper water.

CHART ENHANCE –This feature is unique to the LX-9, and open water anglers in particular will find it very helpful for locating bottom-hugging fish. While in Chart Display or Chart Zoom only, the Chart Enhance draws a fine line on the bottom, this makes it easier to differentiate between a fish tight to the bottom and a high spot on the bottom. Increasing the setting will "pull" the line farther off the bottom. The Chart Enhance settings go up to ten, best results will likely be had with a setting of 3 or less.

TRANSDUCER OFFSET—By setting this at the same distance your transducer is below the water line, you will have the most accurate depth measurement possible

SHALLOW ALARM—For open water use, this will indicate if your boat goes shallower than a designated depth. For instance, you may not want your boat to be in water less than 5 feet deep. Set the Shallow Alarm for 5 feet, and an alarm will go off if you get into water 5 feet or less. This should not be used as an aid to navigation, pay attention to your surroundings at all times! The alarm will stop once the boat has moved to deeper water, or the settings have been adjusted to a shallower depth.

SYSTEMS SETTINGS -is the last sub-menu, and it has the following features that may be adjusted

UNITS -Depth can be displayed in feet or meters

LCD COMPASS CALIBRATION/CAMERA COMPASS CALIBRATION— If the directional arrow for your camera becomes inaccurate, it may be necessary to recalibrate the compass. These two features are used together to accomplish recalibration. More info on Calibration is found below.

CAMERA LIGHTS -Camera lights are turned on and off here.

RESTORE FACTORY - This is where you can restore factory settings. The factory settings are the most popular configuration, and if at any time of changing your selections you want to revert back to this screen, you may easily do so here.

VIDEO OUT - Be sure to select this option if you are hooking your LX-9 up to a larger monitor. When selecting back and forth between Large Screen viewing and LCD viewing allow 15 – 30 seconds for the machine to properly "reformat" the screen size.

COLOR PALETTE Use this feature to choose which of the 4 color palettes you prefer. Option 1, Option 2, Option 3, Option 4

The default setting has RED as representing the strongest signal, often signifying a hard bottom or a larger fish that is in the center of the transmit signal (cone). GREEN represents a softer bottom or smaller fish in the middle of the transmit signal or a larger fish on the outside of the transmit signal. YELLOW represents weaker signals and often signifies weeds, small bait-fish, medium-sized fish on the outside of the transmit signal. When using the other color palettes, the colors displayed and the signal strengths represented will change accordingly.   One important note, the 6–color and Gray Scale palettes will often give more detail than the three color options due to the fact that these palettes have three more colors or shades to "paint" with.

GAUGES—A feature unique to all MarCum Digital Sonars is the ability to be able to constantly see where your most critical settings are at.   At a glance, you will be able to tell what your Sensitivity is at, what level of IR you are operating at, how high your Target Adjust is, your range, and battery status displayed in volts. If you have the camera operating, you will also see camera depth and temperature. The gauges can be turned on or off by pressing MENU, highlighting "Gauge Display", and making your selection. Where the gauges display will depend on which screen configuration you have selected. Gauges cannot be displayed if you are only operating one or both of the scrolling graphs.

One of the most critical gauges is the BATTERY METER—This gauge indicates the voltage currently being produced by your battery. The LX-9 needs between 11 and 13 volts to properly operate. If the voltage drops below 11 volts, you may see a decrease in performance. Recharging your battery after each use will maximize the life of your battery, and will ensure that your LX-9 will run strong all day.

ZOOM

One of the best features to have in an ice fishing Sonar is a "Zoom", and there is none better than that of the MarCum Digital Sonars. A Zoom feature enables you to have a magnified view of a selected portion of the water column. Note that when the ZOOM window is open, you can still view the entire water column on one of the other windows. Imagine that you are fishing for walleyes in 30 feet of water, and you are zoomed in on the bottom 5 feet. If a school of crappies comes through at 20 feet, you will be able to easily see them on one of the other windows, and quickly raise your bait to their level. The position of the ZOOM window is adjustable in one-foot increments. The ZOOM can focus on bottom (for detecting bottom-hugging fish), or at any level above bottom.

The LX-9 also offers Auto Bottom Track Zoom that automatically zooms and locks onto the bottom, even when you change locations. This is especially useful for if you are hole-hopping for bottom hugging fish like walleyes and perch. To access the Auto Zoom, press ZOOM, and then press the UP button until "A" (Auto) appears. It will appear after you pass "0" on the Zoom Window.

The ZOOM feature on the LX-9 can be accessed in several ways depending on which sonar windows you have displayed on your dashboard. Having your LX-9 set at the factory default setting for a screen configuration will make it easiest to learn how to use the Zoom. It is highly recommended that you learn how the Zoom works while in simulator mode. Operating the Zoom is quite simple, and only requires the pressing of a few buttons to select the size and position of your Zoom Window.

So, start by having the factory default screen (Flasher in center, Vertical Display on left, Vertical Zoom on right) open. The area that is featured on the Zoom Display is indicated by the "Zoom Indicator Bar", a light blue bar on the right side of the Vertical Display. When you press the ZOOM button, a "Zoom Depth" window will appear at the bottom of the screen. This is where you set the uppermost limit of the Zoom Display by pressing the UP/DOWN buttons. When you have the desired depth highlighted, pressing ZOOM again will establish that depth as the top of your Zoom display. You will notice that the Zoom Indicator Bar will move up or down as you make these adjustments. To set the size of what is shown in the Zoom Display, press MENU, and then highlight "Zoom Window". You can now select which size zoom window you want.

Another tip: on the left side of your "Zoom Window" are depth indicators. These indicate the portion of the water column you are looking at in the Zoom window. You need to make sure that your water depth is in-between the top and bottom depth indicators. If you are in 30 feet of water and want to use a 10 foot zoom window on the bottom, a good place to have your zoom window would be about 21' at the top and 31' at the bottom. That will ensure that the bottom of the water column is completely covered.

Going through this process several times before you go fishing is a great idea, as that will allow you to easily and quickly make adjustments right away once on the water.

If you have only the Flasher Display, the Vertical Display, or the Scrolling Graph Display open, and go into zoom mode, pressing the "ZOOM" will cause the vertical zoom window to appear, and a "Zoom Depth" window will open at the bottom of the screen. You will still set the uppermost limit of your zoom window here, but you won't have the advantage of having the Zoom Indicator Bar to show you exactly what area is being highlighted. With a little bit of experience, you'll find this to be quite easy to do. Just set the zoom depth for 5, 10, 20, or 40 feet above the bottom, and then set the Zoom Window to the size that is appropriate.

For example, if you were fishing in 30 feet of water, and wanted to zoom in on the bottom 10 feet, press ZOOM, and then set the zoom depth for 20 feet (10 feet off bottom). Now press MENU, highlight "Zoom Window", and select 10 feet. The 20 to 30 foot portion of the water column is now displayed on the Zoom display, and the entire water column is viewable on the flasher window.

The LX-9 also features "Chart Zoom" which enables you use a scrolling graph in Zoom mode. Activate the Chart Zoom in the Display Options of the menu. You set the zoom just as you would when using the other sonar options. When you press the ZOOM button to make a change, the Vertical Zoom window will automatically open. After adjustments have been made, you may turn the Vertical Zoom window off again in the Display Options of the menu. It is not possible to display your gauges if you only have the Chart Zoom display open.

CONE ANGLE INFO

A feature unique to the MarCum LX Digital Sonars is the "Sonar Footprint" that displays the actual area being covered by your transducer while you are fishing. This data is displayed below the Cone Angle Icon, and represents the diameter of the base of the transducer cone. This will keep you constantly updated how much area is being covered by your LX-9, and will help you decide which transducer angle best suits the conditions. To switch from 20 degree to 8 degree, simply press the CONE ANGLE button once, and the CONE ANGLE icon will change from 20 degree to 8 degree, and the Sonar Footprint will change with it.

Conditions where the narrow beam will benefit you are:

1---Fishing in deep water (over 40') for walleyes, perch, or lake trout

2---Fishing along very steep drop-offs for bottom-hugging walleyes

3---Fishing in big schools of fish, like suspended crappies or tullibees

4---Fishing in and around heavy weeds for panfish, like bluegills and crappies

5---Fishing in a crowd, the narrow beam will reduce interference from your neighbor

INTERPRETING SIGNALS

DIGITAL DEPTH

The digital depth display on the LX-9 provides a quick and easy way to determine depth. Digital Depth is always displayed in the center of the circular display, and on the bottom of the vertical displays. It will also show in the upper left corner of the graph in some configurations. This display can be used as a quick reference when setting your zoom or checking depths through the ice.

READING BOTTOM - When interpreting your bottom signal, always read the leading edge (shallowest side) of the signal return. If you have a strong signal return (wide band) and it starts at 13 feet and ends at 16 feet, the correct depth is 13 feet or the shallowest leading edge of the return signal. Anything beyond the shallowest leading edge indicates the strength of the return signal.

Your LX-9 can also be used to determine bottom composition. The thicker and bolder your bottom shows, the harder the bottom is. In some cases, hard bottom can be indicated by a "double" or second echo that will show on your display at approximately twice the water depth. Soft bottom (silt, mud, muck) will only register one bottom reading. Using your Sonar in conjunction with the underwater viewing system is a great way to learn how to interpret your sonar signals.

READING FISH - Fish will generally appear as separate targets from the bottom. Using the factory default color palette, a fish target can be displayed as RED, GREEN, or YELLOW, depending on the size of the fish and the location within the transmit beam. Larger fish located in the center of the beam (cone) can appear RED and will be displayed as a wider band on the display. Smaller fish or fish on the outside of the cone may appear green or even yellow. Fish moving through the transmit beam may change color as the return signal strengthens or weakens reflecting their location.

Some fish, like walleyes, are notorious for cruising right on the bottom. The LX-9 has target separation fine enough that it will generally show bottom hugging fish as a separate signal. However, fish that are right on the bottom can appear as part of the bottom. The best indication of a fish sitting right on the bottom is that the leading edge of the bottom return signal is either GREEN or possibly a dithering or flickering RED segment. If you are experiencing a lot of fish tight to the bottom, be sure to try using the "Chart Enhance" in the Scrolling Graph mode-this helps separate signals from bottom hugging fish from the bottom. Utilizing the ZOOM feature can give you a magnified look at the bottom when this is happening, and help you better learn what is going on below you.

Schooling fish, like crappies or white bass, will sometimes group in large numbers suspended off the bottom. A big school of fish concentrated in one portion of the water column can show on your sonar as one large "blob", and it can be difficult to pick out individual targets. Zooming in on the zone with the most fish will give you better definition, and switching to the 8 degree cone will eliminate signals from fish on the periphery of your area, improving your definition even more.

READING LURES AND JIGS- The LX-9 will pick up and display the smallest of lures and jigs. When tuning the unit to display your lure, lower the object to the desired depth and turn up the SENS until you see the lure on the display. It is important that the SENS be set so it displays the lure or bait as you raise or lower it. Once you have the SENS set where you want it, you can fine-tune your signals by using the TARGET ADJUST button.

Dead Zone - All sonar units will have a dead zone in certain circumstances. This occurs on sharp drop-offs where the transmit beam (cone) hits the shallower edge of the drop-off and returns before the deeper edge returns. This in effect creates an undisplayed area between the shallower and deeper water within the transmit beam. The 8 degree transmit option on the LX-9 will greatly reduce this effect.

HOW TO DECIDE WHICH CONFIGURATION TO USE

With 5 different sonar windows and a plethora of other settings [as well as underwater viewing capabilities] it can be hard to decide on which one to display. If you have used traditional mechanical flashers in the past, you may like the familiarity of the LX-9's flasher display. The flasher displayed with one or more of the vertical displays is likely to be how most anglers use the LX-9, at least for starters. We get endless feedback on how well the scrolling graph display works for ice fishing, so be sure to give it a try. Be sure to experiment with different color palettes and backgrounds, too.

CIRCULAR [FLASHER] DISPLAY
This Sonar window will read much like a traditional flasher-style display. You can set the range manually, or allow the Auto Range or Dynamic Depth Interface to automatically lock into a RANGE that will optimize the use of the circular display. Signals are displayed as various colored lines on the dial, and the different colors represent different signal strengths.

VERTICAL DISPLAYS
These Sonar Portals are very easy to interpret—top is the top, bottom is the bottom. Anything in between the top and bottom is weeds, fish, or your lure. There are two different Vertical displays —one shows the entire water column, one shows your ZOOM window. On each one, signals are displayed as various colored lines on the column, and the different colors represent different signal strengths.

SCROLLING GRAPH (CHART) DISPLAYS
These displays will show not only what is happening below you in real time, but will also enable the user to have a "history" of what has happened. While most commonly used for open water, many anglers are discovering the benefits of using a graph on the ice. The LX-9 stands apart from other graphs in that it displays with ultra-fast "True-Time" sonar response – less than .02 seconds between the echo reaching the transducer and when signal appears on LCD screen. When used from a boat in open water, the user will see signals displayed in classic "Graph" fashion; the bottom will be a solid band, and fish or other objects display as "arches". The "Chart Enhance" feature makes this display that much better.

When used from a stationary position, such as ice fishing, the bottom will display as a solid band, but other signals, like fish or your jig, will display as lines of varying thickness. A large fish is likely to display as a fairly thick band, while a small ice jig will show as a very fine line. The best way to learn how to interpret signals on the graph is to have it displayed along with the circular or vertical display. After using the graph along with one of the more familiar displays, you may find that you like fishing with the graph best of all. It is fascinating to watch the "trail" of your jigging motion, and fine tuning your presentation to exactly what the fish want has never been easier. Using any of the sonar functions in "Heads Up" mode allows you to see real time sonar along with real time video-now you can really learn how to interpret those signals!

Setting up the transducer for ice fishing:

When used in conjunction with the retractable pivoting transducer arm and rubber stopper, the LX-9's transducer will automatically level itself in your ice hole. To begin operation, take the transducer out of the recessed holder, and rotate the adjustable ice arm out from inside the shuttle. Extend transducer arm, (the cable should already be threaded through it with stopper in place) and deploy the transducer into the water. We recommend setting your stopper to have the transducer down the least amount possible. The LX-9 puts out enough power that in most cases it is not necessary to have your transducer down more than a few inches below the water line to get a good reading. When the ice thickness is over two feet, it may be necessary to have your transducer set farther down. Remember--the less transducer cable you have out, the easier it is to pull it out of the water when bringing in a fish, or to move to a new location.

READING THROUGH ICE - The LX-9 will provide accurate information reading through ice providing the ice is reasonably clear. Wet the ice with at least a cup of water to improve the coupling of the transducer to the ice. Place the face of the transducer firmly on the wetted ice, and you will now be able to see the depth displayed digitally, and a signal showing the bottom (and fish) on whichever sonar windows you have open. Drilling into the ice 1-2" before taking a reading may be necessary if the surface of the ice is very rough, or if the ice is filled with air bubbles.

USING THE UNDERWATER CAMERA

The camera of your LX-9 can be used to search for that perfect weed line or locate the crib or rock pile where fish will generally school, entertain the kids, or as the perfect tool to enhance your ice fishing experience. To use as a search tool, drill a series of holes through the ice in the location you're interested in fishing. The LX-9 is small enough to hold in your arms while walking from hole to hole. Drop the camera down each hole in search for the best spot or until you locate fish. Keep your eye on the directional and depth indicators to pinpoint the fish's hideout. Once you have decided on an area to fish, you will be best served to drill a separate hole for the camera cable. How far away from your angling hole this should be can depend on a few factors, like water depth, water clarity, and light penetration. Around 4 feet is a good starting point. Deploy your camera to the desired depth and lock it into place in the provided camera panner. You can now use the remote control on the panner to get the camera pointing in the right direction. Pay attention to the camera's "heading", indicated by the arrow that rotates around the screen. You should have a jig down your angling hole for a reference.

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 view can be reduced to only a few inches due to particles suspended in the water. Dirty or muddy water and/or low light penetration can detract from the quality of the color picture. Optimum color quality will result from clear water and adequate light penetration. Please realize that there are some bodies of water where viewing underwater is just not possible. If your camera provides a perfect picture out of the water, but loses all images when deployed, it is safe to say that the conditions on that lake are not conducive to underwater viewing.

Your camera also includes a down viewing/trolling fin that snaps into the back of the Manta camera. Once the fin is attached, the camera cable can be inserted through the cutout at the rear of the fin and locked into place. It is recommended that you leave about six inches of excess cable, forming a loop, before locking the cable into place. The camera can now be lowered into the hole to view what is directly below you. This can be very helpful while fishing in shallow water.

When you are using the camera and sonar together, it is possible that the camera head will show up on your Sonar. To minimize this, raising your camera to above the level of your jig along with using the down-viewing fin may be an option in some scenarios. Using your "Sonar Footprint" can help determine how far away from your angling hole to drill your camera hole.

If you are going to be in a situation where underwater viewing is not practical, you can easily detach the camera and the special pouch for the camera and cable. Simply unscrew the connection between the base and the camera pouch.

ON-SCREEN DISPLAY (OSD) CAMERA FUNCTIONS

The Manta camera contains a digital temperature sensor, a pressure sensor for measuring camera depth, and an electronic compass sensor used to determine the heading of the camera. The monitor base includes an additional compass sensor used to determine the heading of the monitor. The OSD circuit receives data from the camera, calculates the direction the camera is facing relative to the monitor, and displays temperature, depth, voltage, and heading. The heading is displayed as an arrow which rotates around a small compass-like display with your gauges. For this indication to be accurate, the camera must be suspended by the cable, and the monitor must be on a level surface. If either the camera or the monitor rotates, so will the arrow. An arrow at the top center of the screen indicates that the camera and monitor are facing in the same direction. An arrow at the left indicates the camera is pointing to the left relative to the direction the monitor is facing. Down indicates behind, and right indicates to the right. When enabled, the temperature, voltage, and depth are also displayed along the top.

Compass Calibration: First, have your monitor on a level surface like a countertop, and have the camera hanging freely about two feet below.

To re-calibrate, go to SYSTEMS SETTINGS, and then highlight CAM COMP CAL. Select ON, and press MENU/ENTER.

Now rotate the camera two full revolutions and back while keeping it level. Go back to CAM COMP CAL in the menu, and select OFF.

Next, go to SYSTEM SETTINGS, and then highlight LCD COMP CAL. Select ON, and press MENU/ENTER.

Now slowly rotate the monitor on a level surface two full revolutions. Go back to LCD COMP CAL in the menu and select off.

You directional arrow should now be accurate.

A/V PORT

On the back of the monitor there is a rectangular rubber cap that protects the SD recording mechanism, the RCA video out jack, and the USB port.

Utilizing the RCA Jack: There are many anglers with large ice fishing shacks that with a big screen TV inside. You can easily send the video and sonar signals from your LX-9 to your big TV by simply running an RCA cable from the LX-9 to your TV. Be sure to activate the "Video Out" option in the "System Settings" sub-menu, and allow 15-30 seconds for the LX9 to format to your screen.

When you have a signal displayed on an external monitor, there will not be any image on the LX-9 monitor. All menu settings and adjustments can still be made; you just have to watch your external monitor.

NOTE: If you have a shack that is powered by a generator, you may be interested in using the optional AC adapter available at Marcumtech.com. You can power your LX-9 [or any other MarCum unit] right off your generator with it, eliminating the need for your battery.

Mini-SD card slot: Mini SD cards used for recording or downloading new software are inserted here. Use extreme caution not to drop your mini-SD card and it is recommended that you only insert or remove the mini-SD card when in a stable environment. If you are going to use a mini-SD card other than the one provided, make sure that it is Class 6 or higher, and no greater than 16g. Before removing your mini-SD card, be sure to select "EJECT SD CARD" in the VIEW/ PLAYBACK menu before removing. Selecting this will not actually cause the card to pop out: the card is removed by carefully pressing in on it until a release "click" is heard and/or felt.

The mini-SD card may be removed to download your recordings to a different device. To do this, you will need an SD card reader/and or a mini SD card adapter.

Moving the LX-9 to a new location

Being mobile is one of the keys to being successful on the ice. Whenever you move from one spot to another, it is tempting to leave your transducer hanging on the transducer arm, and to leave the camera hanging.   This is likely to lead to failure of the transducer arm, and can cause damage to the transducer or camera head if it is allowed to drag on the ice.   Always stow the transducer inside the pack when you are moving, and wind up the camera cable on the spool and stow the cable and camera in the special pouch. When moving from hole to hole, your LX-9 can be easily carried by the nylon handle. Whenever you are moving via sled or vehicle, always fold up your transducer arm, stow the transducer inside, and close the protective soft pack.

Open Water Application

The LX-9 is just at home on a boat as it is in your ice shack. The Universal Transducer [sold separately] is designed to be mounted right to your boat's transom, or to the lower unit of a bow-mounted trolling motor. This design makes it easy for you to use your LX-9 for high speed scouting work, or for breaking down a structure one piece at a time. The Universal Transducer can transmit an 8 or 20 degree cone, and it also has a temperature sensor.
From an anchored or otherwise stationary position, you can use your LX-9 from a boat much like you would on the ice—you can see the fish and how they react to your jig on the screen.

You may also want to use the camera feature of the LX-9 to locate fish, look for treasure or find that perfect spot, simply turn the camera power ON and drop the Manta camera into the water. If you're drifting with the wind or using a trolling motor with your camera, attach the supplied down viewing/trolling fin to the rear of the Manta Camera for added stability. The internal weight is enough to keep the camera down while the fin assists in keeping the Manta camera tracking straight through the water. The direction, temp and depth indicators combined with the solar intelligent H2D display makes this is ultimate search tool. Learn in minutes what would normally take a lifetime to reveal through traditional sonar. . Moving along at speeds of 1 mph or less will give the best viewing opportunities. It is a good idea to have a GPS and/or a marker buoy at hand to quickly mark any hotspots for future reference. This is a great way to learn new ice fishing hotspots. Imagine finding a rock pile that no one else on your lake knows about! Always use extra caution when viewing around underwater obstructions, like boulders, cribs, or wrecks. If the camera becomes hung up, back up from the direction you were traveling from and slowly try to back the camera out of the snag. DO NOT pull directly upward with force unless all other avenues have been pursued.

CHARGING THE BATTERY

Your MarCum system comes with a 3-stage battery charger. This style of charger has proven to be the most effective and easiest to use of all charging systems available. While the rate of charge is low, a completely discharged battery can be brought back to a full charge in as little as 12 hours. Because this is a 3-stage charger, there is no danger of overcharging your battery. When properly cared for, a sealed lead acid battery will last for at least a couple of years. Batteries are made to be used, and they need to be used to make the most of them. The most important thing you can do is to promptly recharge your battery after each use. Not charging your battery immediately after use is the number one thing that leads to battery failure. When you get home from a trip, put your battery on charge right away, and leave it there overnight, or for around 8-12 hours. We often talk to people who hesitate to charge their battery after each use for fear that the battery will develop a "memory" and this will lead to a shortened run time— THIS IS FALSE!!! ALWAYS CHARGE YOUR BATTERY AFTER EVERY USE!!! Be sure to use the charger that came with your system, or a similar one that is between .5 amp and 1 amp. Using a larger charger, like you would use on a car, truck, RV, or boat is likely to cause damage to the battery. There is really very little danger of overcharging your battery with a low amp charger, and most chargers automatically go into "maintenance mode" once a full charge has been achieved.

3-Stage charger works like this—

Stage 1 (Bulk Stage): Constant current charging at a high voltage level at maximum amperage to minimize charge time.

Stage 2 (Absorption Stage): Current tapers off for final 10% of charge.

Stage 3 (Maintenance Stage): Lower voltage mode to prevent electrolyte loss, keeping your battery at full charge indefinitely.

SOME COMMON SENSE SAFETY TIPS:
For safety reasons, it is recommended that you place your system on a flat, hard surface like cement or tile when charging it, away from any flammable materials. Be sure to disconnect the charger from the wall when not in use, and avoid leaving your battery hooked up to the charger for extended periods of time.

TO CHARGE YOUR BATTERY:
Your battery has a wiring harness attached to it that has "piggyback" terminals on it, enabling you to keep the power cord from the unit attached to the battery at all times, as well as having the wiring harness with receptacle for your charger attached at all times. To charge, simply couple the end of the charger with the end of the wiring harness. It is normal for a green light to appear on the charger at this time. Once connected, plug the transformer end of the charger into a 110 volt AC wall outlet. You will see a red LED light appear on the charger at this time. When your battery is fully charged, this red light will change to green. Depending on the condition of your battery, this process can take up to 20 hours to complete. At this time, you can disconnect the charger from the battery and wall outlet. However, no harm will come to your battery if you leave it attached to the charger.

If you need to remove the battery, unplug the two battery terminals from the battery. Remove the hook and loop strap that is holding the battery in place and lift the battery out. To replace the battery, place a new battery of similar specifications into the battery compartment and secure it with the hook and loop strap and re-connect the positive and negative terminals.

Two Year Warranty

Versa Electronics warrants this product to be free from defects in materials and workmanship for one year from the date of purchase. This warranty applies to customers who properly fill out and return the warranty card included with this manual. Failure to complete and return the warranty card voids the warranty. Versa Electronics will, at its sole discretion and without charging the customer, repair or replace any components that fail in normal use. Failures due to abuse, misuse, or unauthorized alteration, modification or repair are not covered. The warranty is valid only for the original owner who purchases the unit from an authorized dealer. Products purchased from on-line auction sites are not considered under warranty.

How to Obtain Service

We want our products to provide you with a pleasant on-the-water experience. That means maximum customer satisfaction. If you have a problem with your unit please contact Versa Electronics toll free number at (888) 778-1208 for a Return Authorization Number (RA#) or e-mail us at service@versae.com. No service returns will be accepted without this return authorization number, which must be clearly marked on the outside of the package. Versa Electronics retains the exclusive right to repair or replace the unit at its discretion.

The customer is responsible for shipping costs associated with returning the unit to Versa Electronics. Versa Electronics will pay for shipping the repaired unit back to the customer while it is still under two-year warranty. All out of warranty services will be charged a fee for service and shipping which must be paid in advance. After obtaining a Return Authorization number, the unit should be securely packed and shipped "pre-paid freight" and insured to Versa Electronics. It is the consumers' full responsibility to track their products sent out in the mail or other forms of delivery service. Versa Electronics will not be liable for lost packages sent to us. Unless specified otherwise, do not include batteries or other accessories when returning the product for repair. Versa Electronics will not be responsible for lost or damaged accessories.

Versa Electronics

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RA#_____

Note: The RA number must be clearly marked on the outside of the package