MarCum TECHNOLOGIES

LX-9L

Digital Sonar &
Under Water Viewing System

User Manual

www.MarCumTech.com

LX-9L 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 all-encompassing unit that will locate, track, and ultimately help you catch more fish.

The LX-9L 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 environments 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. But if you want the best, a combination of all features that anglers have been asking for, you've found it.

Fishing with sonar requires the angler to use a bit of imagination to envision what is going on below. Using the video features of the LX-9L alongside the sonar will give anglers a chance to really see what the sonar signals represent, ultimately making you a better angler. The LX-9L 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—there isn't a Fish-finder/Viewing System that is easier to see!
Dual Beam Transducer—Quickly switch between 20 degree and 8 degree
Rugged transport shuttle with extendable transducer arm
Padded nylon soft pack offers the ultimate in protection
Auxiliary clip-on camera soft pack
Protective clear snow shield
Rechargeable 12-volt 10-amp Lithium LiFePO4 Battery
3-amp Hour Rapid-charge Battery 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/ SD card
Camera Panner
Transducer offset setting
Sun Shield

GETTING STARTED

Sonar, Camera, or Both? That is the big question, and we hope that you utilize all that the LX-9L has to offer. We strongly recommend that you put the LX-9L 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-9L 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-9L, 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.

To get started, remove the LX-9L from the packaging, 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 either side of the gimbal bracket, and 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.

Look behind the monitor and hook up the LX-9L's power cord to the battery. While you are at it, remove the entire unit from the soft pack so you can see exactly how everything connects—this makes it easier down the road if you ever need to change a battery, transducer, or camera. Your LX-9L with a Rechargeable 12-volt 10-amp Lithium LiFePO4 Battery that is charged 70%, so you can take it fishing right away. If you are not going fishing immediately you should hook up the charger to make sure the battery has a full charge. To charge the battery, see below (pg. 3). The MarCum LX-9L will operate for 13 hours or more on a fully charged battery. If you are going to be in a 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 will allow you to get full use out of your system for the duration of your trip.

The LX-9L comes with a camera that is stored in the removable camera bag. The camera easily connects to the monitor by plugging the camera cable into the camera adapter cable coming off the monitor. If you are going to be in a situation where you will not be using the camera, you can easily detach the camera and the camera bag from the main unit.

Be sure to explore all of the options available to customize your Dashboard Display. With 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 you can set the LX-9L so that it defaults to your preferred arrangement. Changing your settings is easily done on the fly, but experimenting while using the simulator at home will help you learn the "flow" of the menu and settings.

BATTERY CHARGING

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. Because this is a 3-stage charger, there is no danger of overcharging your battery. When properly cared for, a LiFePO4 battery will last for 2000 charge cycles. 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.

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.

When you get home from a trip, put your battery on charge right away and leave it there overnight, or for around 4-6 hours. Likewise, on the night before an ice fishing trip put it on the charger again, just to make sure. Again, there is no danger of overcharging your battery. 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 no 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.

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 if the charger is plugged into the battery only. It is also normal for the light on the charger to be green if it is just plugged into the wall. When it is plugged into the wall and battery, you will see a red LED light appear on the charger. If the light is red, the battery is being charged. When your battery is fully charged, this red light should change to green. If it is time to go fishing and the light has not turned green, go fish and try to allow a longer charging period next time.

Batteries are an expendable item, and must be replaced periodically. The batteries that we use are the “LiFePO4” variety, they are 12 volts 10 amps and have a life span of approximately 2000 charge cycles. The more amps the battery has, the longer it will run on a full charge. Your MarCum can be powered off of any battery that is 12 volts, even a large automotive or deep cycle battery.

If you are having difficulty with the charging process, please see the Charger Troubleshooting section at end of the manual (pg. 20). Also, you can watch a video tutorial on charging your battery on our support site: www.MarCumTech.com/support under the helpful video section.

If you need to remove the battery, slide the power cord leads from the battery. Remove the 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 Velcro strap and re-connect the positive and negative terminals.

SETTING THE TRANSDUCER FOR ICE FISHING

When used in conjunction with the retractable pivoting transducer arm and rubber stopper, the LX-9L’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 the 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-9L 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 somewhat 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. Under no circumstances should you ever have the transducer below the ice—this can lead to the transducer becoming damaged.

It is also important that you keep the cable near the center of the ice hole. We frequently hear from anglers who allowed their cable to freeze into the side of the ice hole. If this should happen to you, make sure the unit is turned off before attempting to chisel it out. If you accidentally cut the transducer cable, do not try to use that transducer again.

MOVING THE TRANSDUCER 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. This is likely to lead to failure of the transducer arm, and can cause damage to the transducer itself. Always stow the transducer inside the pack when you are moving. Keeping the amount of transducer cord you have out at a minimum will make transporting your Digital Sonar easier. Similarly, you may need to quickly remove your transducer from the hole when about to land a fish. We have actually seen anglers in a panic actually grab the shuttle itself and toss the entire unit to the side. This is no way to treat any piece of electronics; a much better approach is to simply lift the transducer out of your way by the cord, and the shuttle itself can be gently pushed aside. Whenever you are moving via sled or vehicle, always fold up your transducer arm, stow the transducer inside, and close the protective soft pack.

FISHING IN SHALLOW WATER

The LX-9L is designed to be an effective fishing tool in a wide variety of environments. Most of the time, simply turning on the unit at factory default settings is all that is necessary. Shallow water [10 feet or less] can be problematic without making a few adjustments. If you are having trouble getting optimal performance out of your Digital Sonar in shallow water, here are some adjustments to experiment with. Depending on the actual circumstances, one or more of these adjustments may be necessary. First thing, when in shallow water, keep your transducer near the surface of the water [at the TOP of the ice, almost in the air] no matter how thick the ice is. This gives the transducer a little more room to “work”. Be sure that you manually select the 10 foot range. Next, press the MENU button, select SONAR SETTINGS, and then scroll to SONAR MODE. Highlight it and select Gain 2. Also, try lowering the MAX PING RATE to 1. Finally, you should also consider changing the color palette from the default “SIX- COLOR” to one of the three-color palettes.

READING THROUGH ICE

The MarCum LX-9L 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 wet 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.

OPERATION

The LX-9L 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-9L. 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 6 seconds. Any changes made to the settings will activate when the MENU button is pressed, or after a few seconds without activity.

You may experiment with settings by getting your Digital Sonar to get a bottom reading off the floor in your house or garage. It must be a bare tile or cement floor. Position your Digital Sonar with the transducer hanging motionless about 2 feet above the tile or cement floor and then turn the sensitivity up to the maximum [25] setting. If the transducer is 2 feet above the floor, you should get a bottom reading at about 8.5 feet [the unit is calibrated to be accurate in water, not air!]. If you now raise and lower the transducer, the bottom signal should move in a corresponding manner. You may find it is easier to learn the zoom and other functions while experimenting in this way with the "manual simulator".

POWER — Press and hold this button for about 2 seconds to turn your unit on or off. When you first turn the unit on, it may take 30 seconds or slightly more for the screen to fully illuminate.

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. The lower the number, the less sensitivity, conversely higher numbers mean more sensitivity. 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. To see your lure or bait, turn up the SENS some more until you just begin to display your bait without it fading or flickering on the screen. The sensitivity will go up to 25, but a setting between 5 and 10 is likely to be where you want it set in most instances. 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-9L is equipped with 4 range options--"Auto ", "Manual ", "Dynamic ", and "Manual Dynamic". Regardless of the depth range setting, your LX-9L will always display digital depth, even if the bottom is deeper than the bottom limit of the RANGE setting (down to 300').

You should familiarize yourself with how the different range settings work. If you ever experience jumpiness or erratic behavior on your display, it could be caused by environmental conditions like irregularities on the bottom, weeds, steep drop offs, big schools of fish, etc. causing the Auto Range function difficulty in discerning what the actual depth is. If you encounter this, change into one of the manual range selections.

AUTO RANGE — The Auto Range feature allows you to simply turn on the unit and begin fishing. To enter Auto Range, press RANGE. Now use the UP button to highlight "Auto". Now press MENU, and the LX-9L will automatically lock into the appropriate depth range. For instance, in 32 feet of water, the LX-9L will lock into the 40 foot range. In 45 feet of water the LX-9L will automatically lock into the 60 foot range.

MANUAL RANGE— There are 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 manually adjust the LX-9L's depth range, press RANGE, and then select MANUAL. This will open a window with 9 range options. Your selected range will lock in as soon as the selected range has been highlighted.

DYNAMIC DEPTH — This MarCum exclusive feature 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.

MANUAL DYNAMIC — This takes the Dynamic Depth feature even farther, you are able to manually select the max range in one-foot increments. Press RANGE, then use the UP/DOWN keys to select what you want to be the max depth, probably one foot deeper than the actual depth. The Manual Dynamic Depth range will not go shallower than 10 feet. This is probably the range option you will use the most.

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 6 seconds.

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-9L, activate the IR feature by depressing the IR button located on the control panel of the LX-9L. Interference is indicated by unusual signals flashing or scrolling across your display.

There are 12 levels 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.

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.

UP/DOWN — These buttons will scroll through various sub-menu options. The DOWN button also functions as a “Hot Key” for making recordings. If you press the down button before opening the Menu, you will start a recording. This “Hot Key” exists to make it easy for the user to start and stop a recording with the pressing of one button.

MENU/ENTER — This button enables you to access other functions of the LX-9L. 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, and System Settings.

VIEW MODE — The following features may be adjusted here:

SONAR	For when you want to use the SONAR functions only
CAMERA	For when you only want only video from the camera displayed
HEADS UP	This configuration has each of the vertical displays on top of the video
SPLIT SCREEN	This configuration is a split screen, with video on the left and the two vertical displays on the right

DISPLAY OPTIONS — The following functions can be adjusted here:
FLASHER DISPLAY— The Flasher Display can be turned on or off here
VERTICAL DISPLAY— The Vertical Display can be turned on or off here
VERTICAL ZOOM DISPLAY— The Vertical Zoom Display can be turned on or off here
CHART DISPLAY— The Chart, or Scrolling graph, can be turned on or off here
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 Sonar”, 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 below for more info.

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— This is where all recording and playback functions are done.

LIVE— This gives you a live video feed. You can start and stop a recording anytime you are in “LIVE” mode by pressing the “HOT KEY” which is the down arrow

SIMULATOR— The LX-9L 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. This simulator represents an open water experience, so the depths and signals will change as it goes through the simulation. To turn the simulator off you must go back to “LIVE” mode.

PLAYBACK— This is to review video recordings you have made. The recordings will display as thumbnails, with your most recent video at the bottom. Use the UP and DOWN arrows to highlight the desired clip, then select PLAY

RECORD— This is to begin a recording. A red dot will appear in the lower right corner of the screen when the unit is recording.

STOP— This is to stop a recording; the red dot will disappear when the recording function is stopped

DELETE— When this is selected, your thumbnails will appear, and one will be highlighted. Pressing MENU at this time will delete the unwanted file. If you do not want to delete a file, wait for this screen to time out.

CAMERA ADJUST— Various camera/video functions can be adjusted here. They are as follows:

Brightness	Lightens up the video
Contrast	Makes the light things lighter and the dark things darker
Saturation	Makes the colors more vivid
Color Kill	Turns off the color, allows for Black and White viewing.

NOTE: The Color-kill feature will turn on automatically when the camera's light sensor doesn't detect enough light for optimal color viewing. This can happen in low light conditions, in deep water, or when the ice is very thick and/or covered with snow.

Camera Light—The LED camera light is turned on and off here

PRE-RECORD— This MarCum exclusive feature allows you to capture video AFTER the event has happened. You can wait until after you catch or see a fish to hit record. You will then have saved a "Loop" of video. You first select the length of loop you want. Immediately after you catch a fish, save the loop by pressing the "HOT KEY", which is the down arrow.

SD ACCESS— Selecting this allows access to the following settings:
LX-9L— When you want to use the LX-9L without an external monitor
External— This allows the video feed to be sent out to an external monitor. Video and sonar will only be visible on the external monitor and the screen on the LX-9L will go dark when this function is selected.
Eject SD— Be sure to select this option before removing the SD card
Format SD— This will format a new SD card, or erase all videos that are on the card

Whenever you select the PLAY/RECORD menu, a white rectangle will appear that shows how many recordings you have, and how much space is left.

SONAR SETTINGS— the following features may be adjusted here:

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 below for more info.
SONAR MODE— Choose between "Gain 1" and "Gain 2" mode here.
An example: If you are ice fishing in water that is 10 feet deep or less, you may find that the unit works better in Gain 2 then Gain 1.
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— Open water anglers in particular will find it very helpful for locating bottom-hugging fish. The chart enhance draws a fine yellow line on the bottom, this makes it easier to differentiate between a fish and a high spot on the bottom. Increasing the setting will "pull" the yellow line farther off the bottom. The Chart Enhance settings go up to ten, we recommend if you use it to go no higher than 2 or 3.
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. Remember that you should always have your transducer down as little as possible; often just a couple of inches below the waterline is adequate. This reduces tangles with fish and makes is easier to move from hole to hole
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—the following features may be adjusted here:

LANGUAGE— Choose between English and French
UNITS— Change between Standard and Metric measuring units
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. First, have your monitor on a level surface like a counter-top, 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.
Your directional arrow should now be accurate.

RESTORE FACTORY— This is where you can restore factory settings. If at any time of changing your selections you want to revert back to this screen, you may easily do so here.
VIDEO OUT— This allows the video feed to be sent out to an external monitor. The screen on the LX-9L will go dark when this function is selected, all displays will now be on your external monitor. If you select this when there is no external monitor hooked up, you will have to turn the unit off and then back on again, as you will not be able to view the monitor.

OTHER LX-9L FEATURES

COLOR PALETTES—Use this feature to choose which of the 4 color palettes you prefer.
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). This is followed by ORANGE, YELLOW, LIGHT GREEN, GREEN, and BLUE. These represent a softer bottom or smaller fish in the middle of the transmit signal or a larger 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.

GAUGES—A feature unique to the LX-9L 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, and in “Heads Up” and “Split Screen” view mode some of the graphics will not be visible. None of the gauges will display in “Camera Mode” other than camera head temp, camera head direction, and camera head depth.
SENS— The SENS (sensitivity) gauge shows the sensitivity level you have selected.
IR— The Interference Rejection system is designed to suppress competing return signals from other sonar units.
TARGET ADJUST— This feature allows the angler to change the size of the signals being displayed without increasing the sensitivity.
VOLTAGE— This gauge indicates the voltage currently being produced by your battery. The LX-9L needs at least 11 volts to properly operate. If the voltage drops below 11 volts, you may see a decrease in performance
SONAR FOOTPRINT— Displays the actual extent of coverage by your transducer while you are fishing.

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-9L 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-9L can be accessed in several ways depending on which sonar windows you have displayed on your dashboard. Having your LX-9L 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 upper-most 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-9L 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 LX-9L 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-9L, and will help you decide which transducer angle best suits the conditions.
When the LX-9L is first turned on, it will be transmitting utilizing the 20-degree setting. 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-9L provides a quick and easy way to determine depth. Digital Depth is 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-9L can 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. Depending on the size of the fish and the location within the transmit beam, fish can show up as any of the colors in the palette you are using. Larger fish located in the center of the beam (cone) will probably 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 as any of the other colors. 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-9L 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 a dithering or flickering segment right at the bottom. 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 tullibees, 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-9L 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 SENSITIVITY until you see the lure on the display. It is important that the SENSITIVITY be set so it displays the lure or bait as you raise or lower it. Once you have the SENSITIVITY 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-9L 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-9L's flasher display. The flasher displayed with one or more of the vertical displays is likely to be how most anglers use the LX-9L, 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.

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-9L 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!

(This chart view shows a depth of 40 ft. and fish scattered throughout the water column. Note: This example is in an open water simulator mode so the fish are showing as arches.)

USING THE MANTA CAMERA

Make sure the camera cable is attached to the pigtail video plug coming out of the back of your monitor. Press the MENU button and highlight "View Mode". Selecting "Camera", "Heads Up", or "Split Screen" will allow video from your Manta camera to be displayed in various configurations.

"Camera"	Will display video only.
"Heads Up"	Will have your sonar functions displayed on top of video.
"Split Screen"	Will put the two Vertical Sonar Displays the edges of your display, on top of video.

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. NOTE: The Color-kill feature will turn on automatically when the camera's light sensor doesn't detect enough light for optimal color viewing. This can happen in low light conditions, in deep water, or when the ice is very thick and/or covered with snow.

ON-SCREEN DISPLAY (OSD) 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 "relative" heading of the camera, and displays temperature, depth, voltage, and heading. The heading is displayed as an arrow which rotates on an axis like the needle on a compass. It points in the direction that the camera lens is facing relative to the position of the monitor.

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 pointing to the top of the monitor indicates the camera is looking straight ahead. An arrow pointing 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:

If the direction of the Camera Compass has become inaccurate, it may be necessary to recalibrate.
First, have your monitor on a level surface like a counter-top, 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. Slowly rotate the monitor on a level surface two full revolutions. Go back to LCD COMP CAL in the menu and select off. Your directional arrow should now be accurate.

Camera Lights:

Camera lights can be turned on or off in the System Settings sub-menu.

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-9L to your big TV by simply running an RCA cable from the LX-9L to your TV. Be sure to select "Video Out" in the System Settings part of the menu first.
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-9L [or any other MarCum unit] right off your generator with it, eliminating the need for your battery.

Ice Fishing Application

The camera of your LX-9L 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-9L 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.

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.

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. This will make your system a little lighter.

Open Water Application

The LX-9L is just at home on a boat as it is in your ice shack. The Universal Open Water 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-9L for high speed scouting work, or for breaking down a piece of structure one piece at a time. The Universal Open Water 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-9L 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 opt to use the camera functions in open water. 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 hot spots for future reference. This is a great way to learn new ice fishing hot spots. 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.

SOFTWARE UPDATES

Your MarCum LX-9L has the ability to have the software updated. We may come out with new software versions to add features or to improve performance. To see which version you have, press the MENU button, then select SYSTEM SETTINGS. The version will be displayed at the top of the menu window as a number with a “v” in front of it.

To see if there are new versions available, check our website or stay in touch through various social media outlets. Compare the software version on your system with what we have available Online, and ensure your system has the highest numbered version.

New software updates and instructions can be found on our support page: www.MarCum-Tech.com/support

TWO YEAR WARRANTY

MarCum warranties this product to be free from defects in materials and workmanship for two years from the date of purchase. This warranty applies to customers who properly complete the Online product registration form found on the MarCum Technologies Website: www.MarCum-Tech.com/support .

HOW TO OBTAIN SERVICE

If your system is malfunctioning, check the support section of our website. You may find that the solution to your problem is something you can resolve yourself. If you need to send it in, there is no need to contact our office. Getting repairs made is as simple as going to our website, MarCumTech.com clicking the support tab and then filling out the MarCum Warranty Claim.

If your system is under warranty, be sure to attach a picture/scan of your proof of purchase with date included. If your system is out of warranty, we have a flat rate fee that will cover the cost of repairs, including parts and labor. You will find the non-warranty claim on our support site.

Once you have completed and submitted a claim form, package the unit as described on the website and ship it to us.

Some people are more comfortable calling for shipping instructions. During peak ice season, we sometimes receive a high volume of calls, making it impossible to get to all customers who phone in. For this reason, strongly consider using the on-line forms at www.MarCumTech.com/-support or using the "Live Chat" option.

OUR ADDRESS:

MARCUM TECHNOLOGIES
ATTN: SERVICE DEPT.
3943 QUEBEC AVE NORTH
MINNEAPOLIS, MN 55427

Please send your email inquiries to service@MarCumTech.com

If you are unable to use email or Internet, you may call us at 763-512-3987.
Our office hours are Monday – Friday, 8 – 4 Central Time.
International callers may use 888-778-1208.

The customer is responsible for shipping costs associated with returning the unit to MarCum Technologies. MarCum will pay for shipping the repaired unit back to the customer while it is still under warranty. All out of warranty services will be charged a fee for service and shipping which must be paid in advance. The unit should be securely packed and shipped “prepaid freight” and insured to MarCum Technologies. It is the customer’s full responsibility to track their products sent out in the mail or other forms of delivery service. MarCum Technologies will not be liable for packages lost in route to us. Unless specified otherwise, do not include batteries or other accessories when returning the product for repair. MarCum Technologies will not be responsible for lost or damaged accessories. Turnaround time can vary, on average it is about 1 week.

These are some other great systems from Marcum.

Pursuit HD

MarCum's Pursuit HD Camera sets the new standard in mobility, while adhering to technological innovations our cameras have always led with. A FULL HD Image Sensor (1920X1080p) offers industry-leading display precision, packing a punch in a pocket-sized 5” LCD display. Included are all of the on-screen reconnaissance details like temp, depth, and absolute direction, along with new DVR features like MP4 capability, multiple image output sizes, and cyclical recording. The image itself is so precise, it can support digital zoom, allowing anglers to gather more information on weeds or cover, fish behavior, and jigs on the far end of the wheelhouse. We’ve packaged the technology complete with a built-in cable reel and a convenient ¼”-20 port at the bottom of the unit for endless mounting options. Whether you’re mobile on ice or stationary in a fish-house, the Pursuit’s rich feature set offers best-in-class tools with the functionality to benefit all anglers.

MX-7gps

Now introducing the leader in sonar and mapping technology, Marcum Technologies brings you the MX-7gps. As a Lithium-powered sonar/GPS combination unit, we’ve taken GPS mapping and fused it to MarCum's legendary sonar platform. For decades, we’ve built the best ice-specific sonar platform in the world. One that was built on power, Interference Rejection (IR) so advanced it’s patented, zoom that was adjustable anywhere in the water column, and a veritable laundry-list of industry “firsts.” We gave birth to the modern movement of ice fishing’s information age, by taking a stationary circular display and breathing life into it. We invented on-screen scenarios that involved dynamic movement which more closely matches what’s happening below ice, all while staying true to the number one aspect that makes ice fishing sonar specific to our sport – real-time. In a stationary, vertical game of cat and mouse, where latency and sonar lag are unacceptable, Marcum’s response time is completely unrivaled. That lighting fast sonar reaction has been a hallmark of the Marcum brand, and has made it the most sought after ice sonar platform to this day. Not all sonar is created equal, and that’s especially true when talking ice fishing. The best ice anglers in the world require electronics with a full-time dedication to the sport. Take the MX-7gps out of the box and it’s automatically locked in ice mode; equipped with a Lithium LiFePO4 battery, soft pack, and ready to fish. Long story short, we’ve added more features, making them longer lasting, lighter, and technologically superior, all while staying true to our real-time roots – a defining characteristic in any quality ice sonar.

www.MarCumTech.com

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Minneapolis, MN 55427

MarCum User Manuals are available for downloads from
www.MarCumTech.com.