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MarCum LX-7 Lithium Shuttle and Digital Sonar User Manual

LX-6s/LX-7
Digital Sonar
User Manual

Items sold separately
www.MarCumtech.com

Contents

INTRODUCTION

Congratulations on purchasing the MarCum Digital Sonar—the most advanced ice sonar system available. When MarCum was founded over a decade ago, we all knew that our original flashers were just the beginning. Every step of the way, we have been designing, improving, building momentum. This momentum keeps us in nearly perpetual motion, on the Vanguard of innovation, with our competition forever in our rear-view mirror. We're glad you've joined us in the front seat. While our existing product lines have always beat the competition in every category, up until now there has always been room for lively discussion as to the merits of various systems. These discussions will now come to a stop as we usher in a new era in ice fishing electronics: The MarCum Digital Sonar. These units are the most advanced ice fishing sonars ever designed, and now that you own one you're about to see why.

With a customizable dashboard display, superior target separation, 12-level interference rejection, dual-beam transducer, adjustable zoom, and much more, the MarCum Digital Sonar is the perfect combination of macro features and micro precision.

FEATURES

LCD monitor
Dual-Beam Transducer—Quickly switch between 20-degrees and 8-degrees Rugged transport shuttle with extendable transducer arm Padded nylon soft pack offers the ultimate in protection Protective clear shield
12- volt 9-amp battery with 3-stage charger
2-year warranty
User-friendly fully adjustable zoom
Dashboard display keeps the angler updated with critical information
Five different sonar windows to choose from, display up to three at once
Silent operation

GETTING STARTED

Ice System Set-Up
Your Digital Sonar comes virtually ready to fish. Open the top cover of the soft pack, loosen the knobs and the

monitor can now be positioned how you want it. Once the monitor is positioned, tighten the knobs again to hold the monitor in place.

Look behind the monitor and hook up the Digital Sonar'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 or transducer.

Your Digital Sonar is delivered with a 9-amp battery that is charged, so you can take it fishing right away. Even though the battery comes with a charge on it, due to storage time or other factors it may not be fully charged when you get it, so 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. The MarCum Digital Sonar will operate for 10 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. Inside the MarCum Digital Sonar's soft case is an electronics shuttle that has compartments for the battery and the dual beam transducer, as well as a transducer arm. The adjustable transducer arm allows for maximum flexibility in positioning the Digital Sonar around the ice hole, and can even be moved to the other side of the shuttle.

Using the MarCum Digital Sonar can be as simple as turning it on—the factory settings will come on automatically and allow you to use the Digital Sonar in the most popular configuration. Be sure to explore all the options available to customize your Dashboard Display. With five different sonar portals, four color palettes, two cone angles, and a myriad of other settings, there are many possibilities. 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 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.

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 8-12 hours. Likewise, on the night before an ice fishing trip, put it on the charger again to ensure a charge. 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 always, as well as having the wiring harness with receptacle for your charger attached always. 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 now 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 "Sealed Lead Acid" variety, they are 12 volts, and range from 7 to 9 amps. The more amps the battery has, the longer it will run on a full charge. Your Marcum can be powered off 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.

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 Digital Sonar'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 MarCum Digital Sonar 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 ducer below the ice—this can lead to the ducer 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 ducer cable, do not try to use that ducer again.

MOVING THE DUCER 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 seen anglers in a panic 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.

READING THROUGH ICE

The MarCum Digital Sonar 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.

OPERATION

The MarCum Digital Sonar 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, CONEANGLE, TARGET ADJUST, MENU/ENTER, UP, DOWN) does will enable you to get the most out of your Digital Sonar. 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.

POWER – Press and hold this button for 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, or 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 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 you are likely to have it set considerably lower.

RANGE – The MarCum Digital Sonar has nine different fixed ranges, as well as the ability to create custom ranges using the Dynamic Depth feature. Pressing the RANGE button on your Digital Sonar will open a sub-menu with four different range options.

AUTO RANGE – Selecting AUTO will put the Digital Sonar into a sort of "search mode" where it will detect the bottom and automatically lock into one of the nine ranges [10, 20, 40, 60, 80, 120, 180, 240, and 300]. This is a feature that allows you to simply turn on the unit and begin fishing.

To enter Auto Range, press RANGE, and use the UP button to highlight "Auto", and the Digital Sonar will automatically lock into the appropriate depth range. For instance, in 32 feet of water, the Digital Sonar will lock into the 40-foot range. In 45 feet of water the Digital Sonar will automatically lock into the 60-foot range.

MANUAL RANGE – Selecting MANUAL will allow the user to decide which fixed range they would like to have displayed. Highlight MANUAL, and arrow up or down to the desired depth range.

DYNAMIC – This MarCum exclusive feature functions similarly to the "Auto Range", but fine tunes your range setting even farther. The Dynamic Depth will maximize the space on your display by utilizing a 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 feature will automatically create a custom range of 0 – 25 feet. Similarly, 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 functions similarly to the DYNAMIC DEPTH, but allows the user to select the depth range. For instance, say you start out in AUTO range and you quickly learn that the water is 21 feet deep. The AUTO range will have selected the 0-40 foot range. To fine tune your display, press the RANGE button, and highlight MANUAL DYNAMIC. Now start pressing the UP/DOWN buttons to get to the desired DYNAMIC DEPTH range. If the water is 21 feet deep, you would select 22 feet. Now the DYNAMIC DEPTH has created a 0 – 22 foot range, utilizing virtually 100% of your display.

We offer the manual range functions because in some circumstances the AUTO range functions can behave erratically. In situations where there is heavy weed growth, uneven bottom contours, or very shallow water, it is suggested that the user manually selects a fixed depth range.

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 it "times-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 proximity. When other sonar units are causing interference to the display of the Digital Sonar, activate the IR feature by depressing the IR button located on the control panel of the Digital Sonar. 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 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.

CONE ANGLE – All transducers send down a signal that is shaped somewhat like a cone. Your Digital Sonar 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). See the special section on Cone Angles below for more info. A feature unique to the Marcum Digital Sonar is the "Sonar Footprint" that displays the actual extent of coverage 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 Digital Sonar, and will help you decide which transducer angle best suits the

conditions.

When the MarCum Digital Sonar 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 use the UP/DOWN buttons to highlight the desired selection. The cone angle changes as soon as you highlight a selection and the Sonar Footprint will change with it.

TARGET ADJUST – This feature allows the angler to change the size of the signals being displayed without increasing the sensitivity. The TARGET ADJUST feature will give you the 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. Those who have a hard time seeing, as well as those who fish from a standing position will really appreciate the "TARGET ADJUST" feature.

BATTERY METER — This gauge indicates the voltage currently being produced by your battery. The Marcum Digital Sonar needs at least 11 volts and preferably over 12 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 Digital Sonar will run strong all day.

MENU/ENTER— This button enables you to access other functions of the Digital Sonar. Some of these functions are also accessible using the other buttons on the Control Panel. When you press the MENU button, three sub-menus will be revealed—SONAR SETTINGS, DISPLAY OPTIONS, and SYSTEM SETTINGS.

Use the arrow buttons to highlight the desired sub-menu, and press MENU again to access to the sub-menu

SONAR SETTINGS is the first 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 ZoomWindow. 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 "Gain 1" and "Gain2" mode here. NOTE— when ice fishing in shallow water [10′ or less], you may have better performance if you select "Gain 2"
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.
TRANSDUCER OFFSET	This will allow you to have true a depth measurement, no matter how far below the water line you have your transducer. If you have your transducer 8 inches below the water line, but want a true depth reading, select "Transducer Offset", and use the DOWN button to highlight 8 inches. You will notice your sonar signals will shift to reflect this offset. This function is particularly useful if using your Digital Sonar on a boat, where you will have your ducer [open water "Universal Ducer" sold separately] mounted well below the waterline somewhere on your boat.

DISPLAY OPTIONS is the second sub-menu, and it has the following features that may be adjusted

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, as well as your Sonar footprint may be turned on or off here
TEMPERATURE	Your water temperature display may be turned on or off here. You may also select between Fahrenheit and Celsius 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; you choose which one you prefer here. See the section below on Color Palettes below for more info.
BACKGROUND	There are three different backgrounds; you choose which one you prefer here. The "Night" option is great for low light periods or when in a darkened shack.

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

LANGUAGE	Choose between English or French
UNITS	Choose between feet or meters
SIMULATOR	The Digital Sonar 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 or ice fishing experience, so the depths and signals will change as it goes through the simulation.
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.
RESTORE SAVED	If you find a screen configuration that you like, you can easily return to that saved screen by highlighting this selection

COLOR PALETTES — The default setting is the 6-color palette. This setting has RED representing the strongest signal, often signifying a hard bottom or a larger fish that is in the center of the transmit signal (cone). As signal strengths diminish, the colors will fade accordingly.

Again, red represents the strongest signal, followed by orange, yellow, light green, green, and blue. When using the other color palettes, the colors displayed and the signal strengths represented will change accordingly. It is impossible to always associate a particular type of signal from a target with a particular color, as water depth, sensitivity setting, and the target's proximity to your location can all affect how the signals show on your display.

SIMULATOR — The MarCum Digital Sonar 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 being on the water. This simulator represents an open water or ice fishing experience, so the depths and signals will change as it goes through the simulation.

When using your Digital Sonar in open water [in a moving boat] it is typical to mark fish as a "hook" or "arch"

shape. When stationary, as in ice fishing, your signals of both your jig and the fish will show as lines of varying thicknesses.

You may also 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 ducer 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 ducer, 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".

GAUGES — A feature unique to the MarCum Digital Sonar is the ability to be able to constantly see where your most critical settings are at. At a glance, you will be able to see what your sensitivity level is, what level of IR you are operating at, how high your Target Adjust is, your range, and battery status displayed in volts. 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.

ZOOM INFO

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 Sonar. 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, and can be moved to focus on the bottom (for detecting bottom-hugging fish), or at any level above bottom for suspended fish.

The MarCum Digital Sonar also offers Auto Bottom Lock 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 Bottom Lock 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 MarCum Digital Sonar can be accessed in several ways depending on which sonar windows you have displayed on your dashboard. Having your Digital Sonar 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.

Begin from the factory default screen open (Flasher in center, Vertical Display on left, Vertical Zoom on right). 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. 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 MarCum Digital Sonar also features "Chart Zoom" which enables you to 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.

CONE ANGLE INFO

A feature unique to the Digital Sonar 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 Digital Sonar, and will help you decide which transducer angle best suits the conditions. When the Digital Sonar is first turned on, it will be transmitting utilizing the 20-degree setting. To switch from 20 degrees to 8 degrees, 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')

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

3. Fishing in big schools of fish, like suspended crappies

4. Fishing in and around heavy weeds or standing timber

5. When fishing in a crowd, the narrow beam will reduce interference.

INTERPRETING SIGNALS

DIGITAL DEPTH **—** The digital depth display on the MarCum Digital Sonar 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 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.
The MarCum Digital Sonar 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 an 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 they can show as any of the colors in the palette you are using. RED indicates the strongest signal on all the color palettes, and this generally indicates a fish directly below the transducer. Smaller fish or fish on the outside of the cone may appear orange, yellow, or even green or blue. 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 Marcum Digital Sonar 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 a thin band of a color other than red, possibly dithering or flickering. It is important that the sensitivity be kept to a minimum when displaying a strong bottom return. Having your sensitivity too high will flood out the ability to differentiate targets and clutter the display. 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 panfish, 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 MarCum Digital Sonar will pick up and display the smallest of lures and jigs. When tuning the unit to display your lure, lower it to the desired depth and turn up the SENS until you see the lure

or bait 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.

NOTE: When tuning the unit to display lures or bait, make sure that the objects are in the center of the hole and therefore in the center of the transmit beam. If there is current (some lakes and all rivers have under water current or movement) and the lure doesn't weigh much, it may move to the outer edge of the signal or out of the transmit beam altogether.

This will make it difficult or impossible to pick it up on the display. You may find it difficult to mark your jig in shallow water, or when it is just below the ice. See the section on shallow water fishing for more info.

The MarCum Digital Sonar has sensitivity that will enable it to display the smallest ice jigs, as well as sinkers and swivels. The target separation of the Digital Sonar is down to 3/4″. This means that two objects that are more than 3/4″ apart can show as two separate signals on your display. If you have a strike and fail to hook the fish, you can even determine if you still have bait on your jig, or if you have to reel up and re-bait based upon how the signal appears. 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 transducer option on the Digital Sonar will greatly reduce this effect.

HOW TO DECIDE WHICH CONFIGURATION TO USE

With 5 different sonar windows, along with a plethora of other settings, 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 Digital Sonar's flasher display. The flasher displayed with one or more of the vertical display is likely to be how most anglers use the Digital Sonar, 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. You can have up to three windows displayed at once.

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 windows 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 windows 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 Marcum Digital Sonar 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 the signal appears on the LCD screen. Other graphs experience a much longer response time. 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".

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. Always remember that the thicker the band, the stronger the signal. 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.

The Marcum Digital Sonar has the option of displaying a full water column graph, as well as an adjustable zoom graph. The interpretation of these signals improves with experience and use in the field.

SOFTWARE UPDATES

Your MarCum Digital Sonar 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 **www.marcumtech.com/support**. Compare the software version on your system with what we have available online, and ensure your system has the highest numbered version.

It is quite simple to do; you only need a PC, a USB 2.0 cable (sold separately), and about 10 minutes. For more information, be sure to go to our website, click on the support tab, then firmware updates for step-by-step instructions and tutorial video.

OPEN WATER APPLICATION

The MarCum Digital Sonar 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 Digital Sonar for high speed scouting work, or for breaking down structure one piece at a time. You will be able to identify the presence of fish or weeds, and be able to determine the bottom makeup. 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 Digital Sonar 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 find that being double anchored is necessary to maintain a stationary position.

WARRANTY – SONAR

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.marcumtech.com/support** .

MarCum Technologies will repair or replace any components that fail in normal use. Failures due to abuse, misuse, 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. An original sales receipt dated within the warranty period is required for all warranty claims.

To best serve our customers, MarCum Technologies has set a standardized battery warranty policy. Battery warranty coverage requires a proof of purchase. Please see our website, **www.MarCumtech.com/support** for full details on warranty coverage.

HOW TO OBTAIN SERVICE

If your unit 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 Form.

If your unit 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 form 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.

If you do not have the ability to use the Internet, you may also fill out the warranty service form included in the box with your unit. If you enclose this form in the box with your unit there is no need to contact our office, just include the filled-out form in the shipping box and a copy of the receipt.

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** .

OUR ADDRESS:
MARCUM TECHNOLOGIES
ATTN: SERVICE DEPT.
3943 QUEBEC AVE NORTH
MINNEAPOLIS, MN 55427
Please send your email inquiries to **service@versae.com**
If you are unable to use email or internet, you may call us at 763-512-3987.

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 "pre-paid 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.

Recon 5

Small in size, but big with features, the Recon 5 is packed with all the technology that keep MarCum® electronics the angler's first choice. Lithium battery-powered underwater viewing system complete with a powerful camera and a screen about the size of a smartphone with up to six hours of continuous run-time. The underwater camera features a 1/3" CMOS sensor, darkwater LED or infrared lighting, a 110-degree field of view and a 50-foot cord. The camera offers three angle settings: straight down, horizontal and looking up. 5-inch flat panel, high-resolution color LCD monitor displays in a 16:9 aspect ratio. Recon 5's on-screen display (OSD) shows battery status. Color-kill technology aids anglers fishing in stained water or in low light. In these conditions, switching from a color picture to black-and-white provides an amazingly crisp and clear image. Additional features of the Recon 5 are a charger cable, soft pack and camera sack and one-year warranty.

M-5

The most advanced flasher-sonars ever built, the MarCum® "M" Series offers brushless, dead-quiet operation with dazzling bright and crisp color definition of bottom, fish, baitfish and your lure, all illuminated on the highest resolution display available in a commercial grade flasher. Acute .75-inch target separation distinctly identifies each individual object on the screen, so you can clearly discern the minuscule separation of a bluegill about to kiss your ice jig. Lithium Shuttle Add the long-life power of Lithium ION to your MarCum® sonar units. Compact, lightweight and long-lasting, the Lithium Shuttle, powered by a 12-volt 12-amp hour Lithium ION polymer battery, can extend your unit's continuous run time up to 40 hours. Designed for the new MarCum® M-Series and the LX-6s & LX-7 sonar systems. Compatible with other ice electronics with optional Lithium Shuttle power adapter (available at **MarCumTech.com**).

RT-9

Experience fishing electronics the way they were meant to be. The RT-9 Combo combines sonar and GPS in one package, all bundled in a rugged tablet packed with MarCum features. The revolutionary RT-9 expandable platform allows anglers to unite ice sonar, open water sonar and underwater camera viewing for ultimate versatility and portability. Modular data ports connect MarCum's Legendary High Power Sonar & Underwater Camera, and for the first time allow anglers to simulcast real-time intel from three locations on one screen. The RT-9 Sonar GPS Combo includes the RT-9 Unit (9″ Ruggedized Android Tablet w/ GPS capability), Sonar Module and RT-PP docking cradle. A modular concept allows users to build their own system with three data ports. The user can start with MarCum's Ice Sonar, then add Open Water Sonar or a Camera Module later. The user can mix and match any combination of sonar and cameras (maximum of 2 per module type).

The RT-9 Sonar GPS Combo comes with the RT-9 Sonar Module Ice Ducer.
Additional modules sold separately:

RT-9 Sonar Module Ice Ducer
RT-9 Camera Module Kit
RT-9 Sonar Module Open Water Transducer
Dual Beam 8/20 Degree Ice Ducer and Sonar Sony Super HAD II, 1/3″ CCD Sensor Color Camera with OSD (on screen displays), of relative direction, depth and temperature Dual Beam 8/20 Degree Open Water Transducer (with temperature sensor) and Sonar

Documents / Resources

LX-6s/LX-7 Digital Sonar User Manual *Items sold separately* www.MarCumtech.com	**[MarCum LX-7 Lithium Shuttle and Digital Sonar](#)** [pdf] User Manual LX-7 Lithium Shuttle and Digital Sonar, LX-7, Lithium Shuttle and Digital Sonar, Shuttle and Digital Sonar, Digital Sonar, Sonar

References

- **[MarCum® Ice Fishing Sonar & Underwater Cameras](#)**
- **[MarCum® Ice Fishing Sonar & Underwater Cameras](#)**
- **[MarCum® Ice Fishing Sonar & Underwater Cameras](#)**
- **[Support - Marcum Tech](#)**
- **[Manual-Hub.com - Free PDF manuals!](#)**
- **[User Manual](#)**