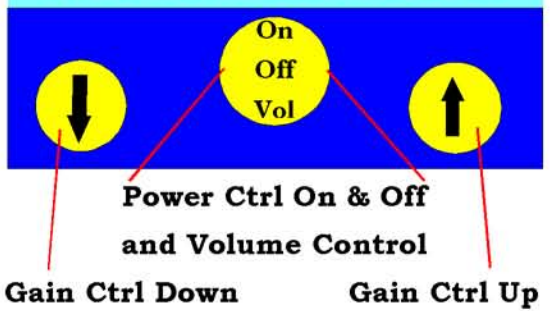


The
ML-1
ML-1M
 Magnetic Locator
 Instruction
 Manual



SubSurface
 Instruments
 Inc.

Operator Control Keypad



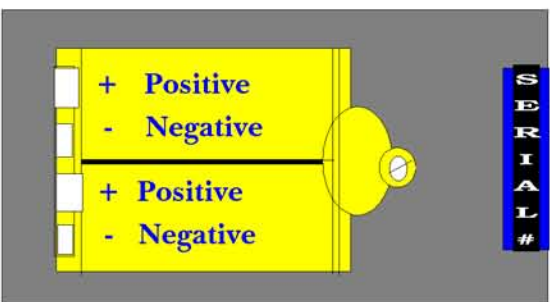
Power On/Off: Press this button to turn the unit on and off. Speaker Volume is also controlled by pressing and holding down this button. It will cycle from low or the current setting through high and repeat. Release the button at the desired volume.

Gain Down and Gain UP: Depress the button with the "down arrow" to decrease sensitivity, and depress the "up arrow" to increase sensitivity; one click at a time.

These units are micro-processor controlled
 The Gain & Volume settings are set in memory whenever you turn the unit off. So, the next time you turn the unit on, it will already be adjusted to your previous settings.

Battery Compartment

(Loosen the Captive Screw located on the bottom of the electronics box. There are 2 each, 9-volt batteries inside. Replace if unit doesn't work, or "screams"... be sure to check for correct polarity.



ML-1M LCD Meter



Signal Strength and Polarity (-) or (+) is indicated by the two opposite-facing bar graphs. The signal indications start in the center-most short bars and fill outwardly in increasingly larger bars, as the signal increases until maximum strength is reached.
Polarity is indicated by which set of bars are being filled, ("- or "+" side).

The GAIN setting which has been selected by pressing the "up" or "down" arrows on the control key pad, is shown by the "GAIN" indicator which fills from left to right one segment at a time until full gain is reached.

The BATTERY Indicator only appears when the Batteries are getting low: **The Shape of a Battery** appears in the lower right corner of the LCD and begins flashing when batteries are very close to needing replacement: About 5% Battery Life Remains when Icon flashes- so be sure you have spare batteries with you then... No need to change batteries until the locator emits an uncontrolled screaming or won't come on.
 (Extensive use of high volume settings will of course, use more battery power than lower settings.)

Limited LIFETIME Warranty
-Effective May 1, 2003-

The ML-1 & ML-1M are guaranteed to be free of defects in materials and workmanship for an unlimited period of time to the original end user purchaser.

Abuse, battery acid, and water damage are explicitly excluded from warranty.

SubSurface Instruments, it's owners, employees, and assigns, shall not be liable for any action, inaction, injury, property or consequential damage sustained or expenses incurred from the use or misuse of this or any product designed, manufactured, and/or distributed by SubSurface Instr..

Liability under this warranty is absolutely limited to repair, service, or replacement of the instrument, at the sole discretion of SubSurface Instruments Inc.

No other warranty is expressed or implied.

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Locator Operation

1. Turn the locator on by pressing the ON/OFF button on the keypad.
2. To change volume press and hold down the ON/OFF button. The unit will repeat cycles from low to high volume settings. Release the button at the desired setting.
3. To change the GAIN (or sensitivity) setting, press the UP arrow button to increase, or the DOWN arrow button to decrease. (Each press of the button changes the setting up or down by one increment.)

NOTES:

Both the ML-1 and the ML-1M are exactly alike in every respect. The ONLY difference is that the ML-1M has a Liquid Crystal Display meter.

The keypad buttons have a positive "click" so you can "feel" the button being actuated.

The MICRO-PROCESSOR remembers your last used Volume and GAIN settings, and sets the unit at those settings the next time you turn it on. (See BATTERY REPLACEMENT.)

There are EIGHT GAIN positions, and most searches should probably begin in the mid-ranges. (Three clicks up.)

Search or Survey

When searching for a target, walk slowly sweeping the locator back and forth in front of you. If your target is small or very deep, use a higher GAIN setting and walk slower. Normally, a medium setting and a little less than a normal walking speed will do fine.

BE AWARE that watches, large belt buckles, and steel-toe shoes will interfere if the locator is brought too close to them, or is operated on the higher settings.

Pin-Pointing the Target

Upon locating the target using the "Search/Survey" method, you can detect the exact location of a target such as surveyor's "PK Nail" or "Mag Nail", so precise, that if buried, it could be hit with a 1/2" star drill.

To do so:

1. Change the GAIN setting to the lowest setting that still defines the target.
2. Bring the locator to a vertical position by simply allowing the locator to swing to vertical while you hold the handle.
3. Move the locator back and forth in a "X" pattern over the target.
4. Move the "X" pattern directly over the target by crossing the "X" at the position of the peak of the signal.

Battery Replacement

See the "Battery Compartment" section.

The ML-1 does not have a meter and accompanying battery indicator, so it will either "have uncontrollable screaming" or simply will not work if batteries are bad.

The ML-1M has a battery condition indicator which displays on the meter when batteries are low. See "Battery Indicator".

Battery Replacement (Cont.)

Always remove **both** 9-volt batteries BEFORE you put any new batteries in.

1. Remove both old batteries and discard properly.
2. Put one new battery in at a time, MAKING SURE you have the Positive (+) and Negative (-) battery terminals on the batteries positioned over the "+" and "-" signs embossed in the battery compartment floor.

Replacing the batteries will reset the micro-processor, so the first use after replacing the batteries you will need to re-adjust the volume & gain settings.

