



**OPERATION
MANUAL**



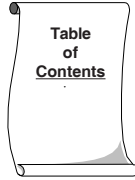
Corporate Profile

Trilithic, Inc. was founded in 1986 as an engineering and assembly company providing customized communications and routing systems for business and government applications. As business expanded, Trilithic broadened its offerings by acquiring components manufacturer Cir-Q-tel and instruments manufacturer Texscan, adding broadband solutions to the product line.

Today, Trilithic is comprised of three major divisions, Broadband/CATV Instruments & Systems, RF Microwave Components, and Emergency Alert Systems. The Instruments Division offers Test, analysis and quality management solutions for the major cable television systems worldwide. The Division specializes in the design and manufacturing of portable RF test equipment and integrated test systems performing in a wide range of HFC and LAN applications. The Wireless division provides components and custom solutions for companies specializing in cellular, military and other wireless applications. The EAS Division is a leading supplier of government-mandated Emergency Alert Systems used by HFC service providers.

An industry leader providing telecommunications solutions for major broadband and wireless markets around the world, Trilithic is dedicated to providing quality products, services and communications solutions meeting or exceeding our customers' expectations. Today, from our worldwide headquarters in Indianapolis Indiana, we provide over 1500 measurement products and communications components to thousands of customers around the world.

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GENERAL INFORMATION

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Introduction

Congratulations! You now own Trilithic's **Search Lite**. This instrument is designed specifically to detect video carrier signal leakage. The Search Lite can detect the presence of leakage signals as low as 5 $\mu\text{V}/\text{m}$. As you move closer to the leakage source, the unit's alarm tone rises in pitch with the received signal strength.

The Search Lite auto ranges strong received signals for up-close leakage detection. When you use it with Trilithic's **CT-2** or **CT-3** Channel Tag device, the Search Lite detects only the carrier that has been "tagged". This ensures that you are detecting **ONLY** signals from your system. This eliminates the costly time that you spend chasing down false alarms.

The Search Lite is available tuned to CATV channels A (14), B (15), C (16), D (17) or E (18) with standard NCTA, HRC, IRC or offset frequencies.

NOTE: Other frequencies are available from 108 to 152 MHz).

The Search Lite is designed to be worn on your belt, slipped into your shirt pocket or held in your hand. It has three function buttons on the front panel and three colored LED indicators on the top of the unit.

The Search Lite comes with the following features:

- Flexible antenna
- Belt clip
- Internal NiMH battery
- Rugged, moisture-resistant, high-impact case



SEARCH LITE WALKTHROUGH

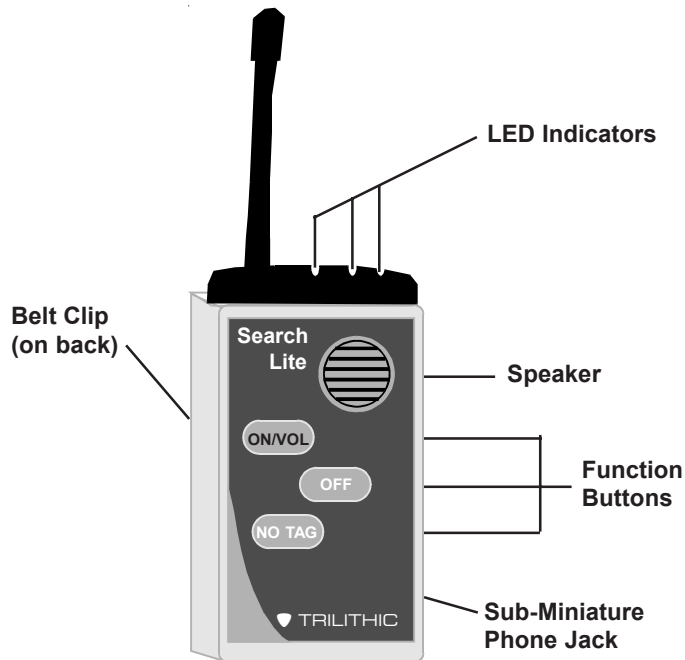
2

Introduction

Now that you have your Search Lite out of its box, take a few moments to look it over so that you become familiar with its controls.

Identify Components

The Search Lite's function buttons are on the front panel. The unit's indicator LEDs are located on the top. A sub-miniature phone jack for the charge cube is located on the side of the unit. The belt clip is located on the back of the unit.



- **ON/VOL** button – powers unit ON and toggles volume between HI and LO.
- **OFF** button – powers down unit.
- **NO TAG** button – press this button to disable the Super Leak detector momentarily.
- **RED LED** – indicates HIGH RANGE.
- **YELLOW LED** – indicates battery is low.
- **GREEN LED** – indicates that unit is on or charging.
- **Sub-Miniature Phone Jack** – connects the unit to it's battery charge cube.
- **Speaker** – provides audible tone that varies in frequency with the signal intensity.
- **Belt Clip** – enables user to attach unit to belt.



SEARCH LITE OPERATION

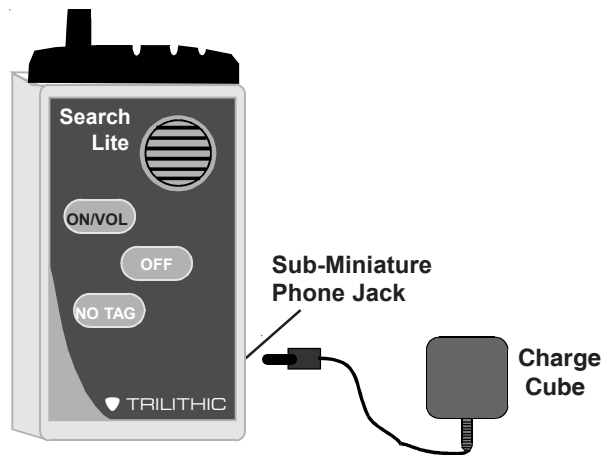


Introduction

The Search Lite is easy to use and almost elegant in its straightforward solution to the problem of detecting video carrier signal leakage in your cabling system.

Charge Unit

When you first take your Search Lite out of its box, we recommend that you charge it overnight or for 14 hours before using. Simply plug the connector of the charge cube into the sub-miniature phone jack on the side of the Search Lite.



Then plug the charge cube into an outlet.

NOTE: The Search Lite must be OFF when connected to the charge cube or its battery will NOT charge. Newer units (S/N 143711 or higher) are equipped with automatic shut off so it is not necessary to turn them off manually.

While the Search Lite's battery is charging, the GREEN LED will be lit with a steady glow.

The Search Lite's NiMH battery allows continuous operation for up to 8 hours. When the battery is getting low, the YELLOW LED starts *flashing*.

Operation

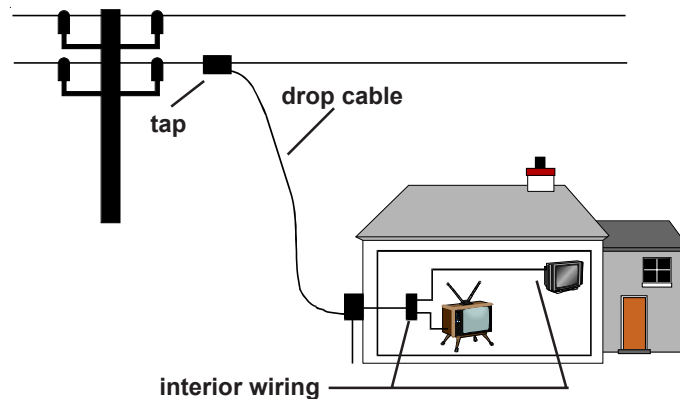
You can use the Search Lite to check for leakage outside, primarily around the tap and drop cable, and inside the subscriber's home.

PRESS the **ON/VOL** button on the IsoMeter to turn the unit ON.



The GREEN LED *blinks* to indicate that the Search Lite is ON. The unit comes on in low volume. If you prefer to use the high volume, PRESS the **ON/VOL** button to *toggle* the unit to HI. You can *toggle* back to LO by pressing the **ON/VOL** button again. A *beep* indicates the changes in volume.

Once the Search Lite is ON, you use it to track down any points in the cabling where the leakage is detectable.

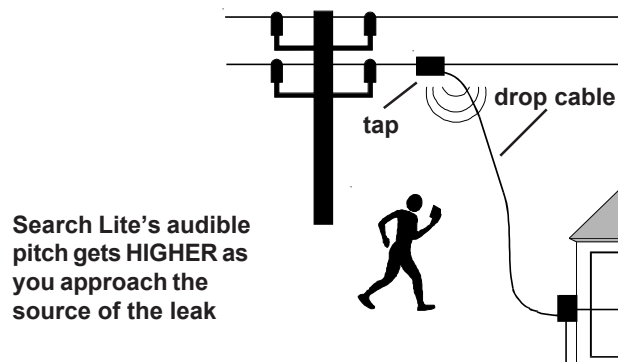


OUTSIDE LEAKAGE DETECTION

When checking for video carrier signal leakage outside, you will be interested primarily in the tap and drop cable.

If you use the Search Lite with Trilithic's channel tag device (CT-2 or CT-3), you reduce the false triggers from spurious RF signals. The channel tag device *tags* a video carrier with a low frequency tag (10 Hz) which is audible to your Search Lite. When the tone is sensed, the unit is triggered; alerting you to the presence of a potential leak. If you are not using a CT-2 or CT-3, you must either press the **NO TAG** button or remove the super leak jumper (see page 11).

NOTE: This tag is important since it enables you to spot problems in YOUR system in overbuilt CATV system areas.



Your Search Lite will pick up leakage signals as you conduct your leakage tests around the tap and drop cable. Should this happen, the unit's audible pitch increases as you get closer to the source of the leak. You can then use the tone to pinpoint the leak in either the tap or the drop cable.

INSIDE LEAKAGE DETECTION

Once you have checked the tap and drop cable outside the subscriber's home, you can check the inside for leakage as well.

The best way to proceed is to terminate all outlets and use your Search Lite to determine that all of the wiring and connections are good. Then, reconnect your customer's cable devices one by one and use the Search Lite to check for leakage as each one comes on line.

NOTE: One piece of bad coax or faulty connection can cause leakage to appear on all of the wiring. It may be necessary to disconnect parts of the wiring to find a fault.

Ideally, you don't want to hear anything until you are right next to the cable. However, if video carrier signal leaks are being emitted, you can locate them by listening to the Search Lite's audible tone. Move the unit along the wiring. As you approach a leak, the tone increases in pitch. If the leak is very strong, the Search Lite goes into high range and the RED LED starts *flashing*. The audible tone will also be interrupted in sync with the HI range LED.

CAUTION: The Search Lite may overload even in HI range when it is in the presence of extremely large signals (in excess of 3,000 $\mu\text{V}/\text{m}$).

If this occurs, a tagged signal in HI range will suddenly lose audio while the signal intensity and audio frequency are increasing. To hear the audio under these conditions, PRESS the **NO TAG** button.

NOTE: In the presence of an interfering RF signal with extremely high field strength (such as the leakage detector antenna in very close proximity to a mobile radio antenna), the unit's RF circuitry may become overloaded.

In the case of the Search Lite, this may indicate a false alarm in the "No Tag" mode or cause the unit to fail to alarm regardless of the test frequency field strength.

That's all there is to it.

NO TAG

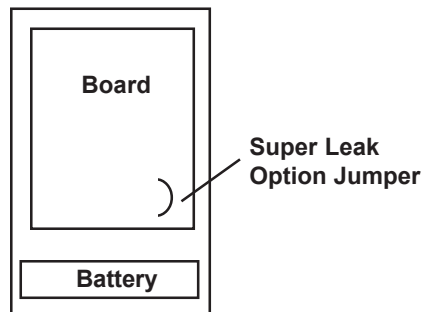
Normally, you will use the Search Lite in its "tagged" default setting. If you wish to disable the "tag" function temporarily so that you can check for the presence of strong interference, just PRESS the **NO TAG** button.



DISABLE THE SUPER LEAK TAG

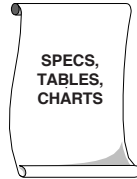
Depending on your cable system, you may not be using the Search Lite in conjunction with Trilithic's Channel Tag Device (**CT-2/CT-3**). In that event, having to constantly press the **NO TAG** button could become annoying. Alternatively, you can disable the super leak option by clipping its jumper.

To disable the jumper, simply open the Search Lite's case. First, unscrew the screw on either side of the back of the unit's case. Lift off the back cover. Try to leave the board in the front of the case. Once you have access to the board, you can clip the super leak option jumper located in the lower right corner of the board.



SQUELCH

The Search Lite squelch sensitivity may be reduced by adjusting the internal squelch control. This control is accessed through the opening in the back of the unit; just below the belt clip. To make the Search Lite require more signal to break squelch and enable the audio tone, turn the internal squelch control *Counter-Clockwise*.



ADDITIONAL INFORMATION

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Specifications

The specifications for your Search Lite are as follows:

Frequency Range	Single Channel, 108 to 152 MHz
Frequency Stability	0.001% over operating temperature
Receiver Bandwidth	± 3.0 kHz at operating frequency
Operating Temperature	0° – 50°C operating frequency
Alarm Indication	Audio Tone with pitch proportional to received signal strength and RED LED for high range
LED Indicators	Red – High Range Yellow – Low Battery Green – Power On (<i>flashing</i>) Charging (steady)
Power	Internal rechargeable NiMH battery with external charger. 110 VAC/60 Hz or 220 VAC/50 Hz
Battery Life	Up to 8 hours of operation on a single charge
Weight	4.2 oz. (0.116 kg)
Dimensions	4.15”H x 2.43”W x 0.91”D excluding antenna (1.22”D with speaker grill and belt clip)

TWO YEAR WARRANTY

Trilithic, Inc. warrants that each part of this product will be free from defects in materials and workmanship, under normal use, operating conditions and service for a period of two (2) years from date of delivery. Trilithic, Inc.'s obligation under this Warranty shall be limited, at Trilithic, Inc.'s sole option, to replacing the product, or to replacing or reporting any defective part, F.O.B. Indianapolis, Indiana; provided that the Buyer shall give Trilithic, Inc. written notice.

Batteries are not included or covered by this Warranty.

The remedy set forth herein shall be the only remedy available to the Buyer under this Warranty and in no event shall Trilithic, Inc. be liable for incidental or consequential damages for any alleged breach of this Warranty. This Warranty shall not apply to any part of the product which, without fault of Trilithic, Inc., has been subject to alteration, failure caused by a part not supplied by Trilithic, Inc., accident, fire or other casualty, negligence or misuse, or to any cause whatsoever other than as a result of a defect.

Except for the warranty and exclusions set forth above, and the warranties, if any, available to the Buyer from those who supply Trilithic, Inc., there are no warranties, expressed or implied (including without limitation, any implied warranties of merchantability of fitness), with respect to the condition of the product or its suitability for any use intended for it by the Buyer or by the purchaser from the Buyer.

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