



CT-2 CHANNEL TAG

**OPERATION
MANUAL**



TRILITHIC

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.

 **TRILITHIC**
9710 Park Davis Drive
Indianapolis, IN 46235

Phone: (317) 895-3600
Toll Free in North America: (800)344-2412
Fax: (317) 895-3613

www.trilithic.com



TRILITHIC

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.

INDEX

General Information	2
Specifications	2
Operation	3
Installation	3
Set Up	4
Analyzer Method	4
Analog Meter Method	5

GENERAL INFORMATION

Congratulations! You now own the most versatile member of TRILITHIC's *channel tag* family, the **CT-2**. This device is a state-of-the-art instrument that enables you to do your job more effectively! Your CT-2:

- *Tags* carrier used for leakage measurement for easy identification.
- Provides dual frequency *tags* (3 Hz or 10 Hz).
- Is compatible with Trilithic's SEARCHER, SEARCHER PLUS, and SUPER PLUS leakage receivers.
- Is non interfering because CT-2's low frequency modulation is removed easily by the customer's TV automatic gain control.
- Is simple to install and operate.

As you know, when several CATV systems operate in the same area, it is often difficult to determine which system is the source of a detected leak. Your CT-2 is designed to deal with the problem of leakage identification in dual cable or overbuild situations.

Your CT-2 solves the problem of determining which cable is leaking by attaching a low frequency *tag* to the leakage carrier on one of the cables. This *tag* causes a distinctive audible response in Trilithic's SEARCHER, SEARCHER PLUS and SUPER PLUS leakage receivers or any other leakage receiver with level controlled tone.

Trilithic's leakage receivers generate an audible tone which varies in pitch, depending on the leakage strength. When CT-2 *tags* a leak, it causes this audible tone to rise and fall in pitch at a rate of 3 or 20 oscillations per second.

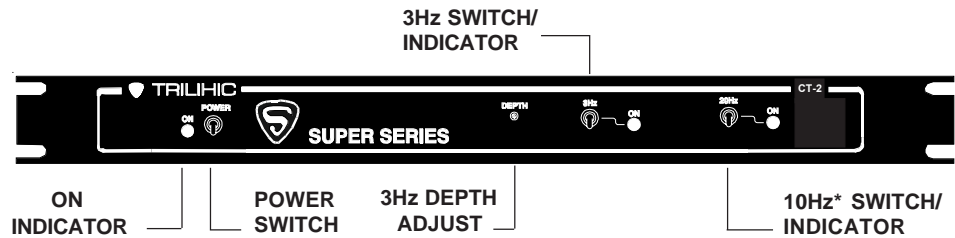
If you do not hear this fluctuating tone, you know that the leak did not originate in your system.

SPECIFICATIONS

Modulation	Sine wave
Modulation Rate	Selectable 3 Hz or 10 Hz
Depth of Modulation	Settable, 0.5 to 5dB (3 Hz only) 10 Hz fixed at 2dB
Input/Output Impedance	75 Ohms, nominal
Power	115 VAC
Mechanical Packaging	1U (1.75") rack enclosure

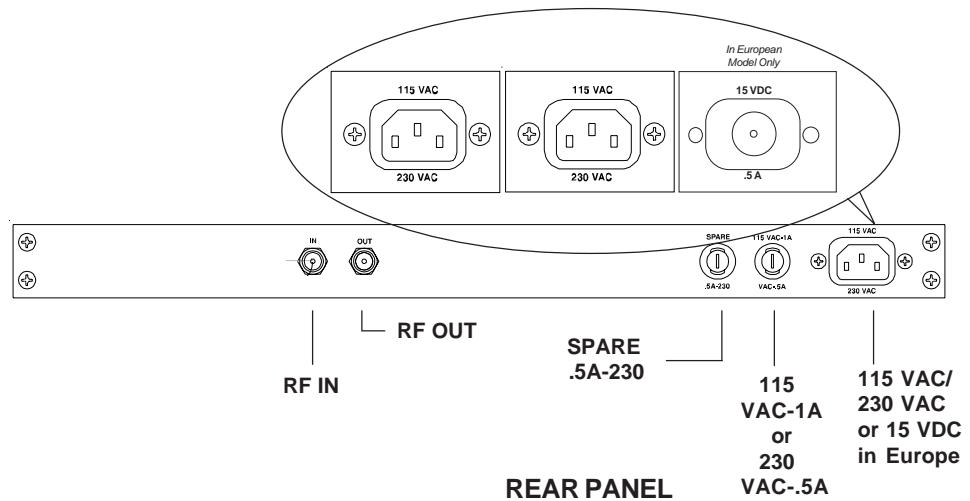
OPERATION

Figure 1 below shows the front and rear panels of your CT-2.



FRONT PANEL

The CT-2's line voltage is set at the factory. Each CT-2 is labelled for either 115 VAC, 230 VAC operations or with a European universal power supply 15 VDC. The Universal European Model may be used with AC MAINS of 220 to 240 VAC 10% 50/60 Hz without needing to make any adjustments.



REAR PANEL

Figure 1. CT-2 Panels.

INSTALLATION

Your CT-2 is a broadband device and can *tag* any carrier in the aircraft band by placing it between the carrier source and the headend combiner.

Select a suitable rack panel location near the modulator for the desired leakage channel.

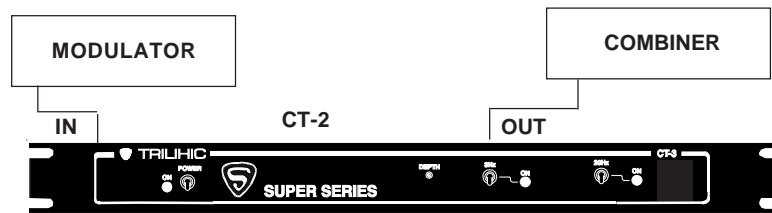
The CT-2 should come from the factory with the proper setting for the 3Hz Modulation depth.

If you are using the SUPER PLUS leakage receiver, you can use the 10Hz Mode to do special detection procedures. The 10Hz internal adjustment has been set specifically for use with the SUPER PLUS. If you are using a SEARCHER, SEARCHER PLUS or other device, use the 3Hz setting. You can NOT use the 3 Hz and 10 Hz tones together when you are using a mix of leakage receivers.

Connect the Unit to Power (check to see whether it is set at 115 VAC, 230 VAC or 15 VDC).

INSTALLATION (Continued)

Connect the CT-2 between to the combiner.



SET UP

Your Unit comes ready to go. All you need to do is decide whether you want to use 3 Hz or 10 Hz.

- If you are using the SEARCHER or SEARCHER PLUS, select 3 Hz. Do not use this setting with SUPER PLUS.
- If you are using the SUPER PLUS only, use 10 Hz.

NOTE: Typically, you won't use the SUPER PLUS with the 3 Hz tone. The 10 Hz tone is the mode which activates the SUPER PLUS' features.

- If you are using SUPER PLUS with other types of leakage receivers, use 10 Hz.

Select the proper modulation by *tooggling* the 3 Hz or 10 Hz switches on the front panel. The green LEDs should be lighted, indicating that the modulation is ON.



In some cases, you may desire more or less 3 Hz modulation. You can use one of the following to achieve this:

- Spectrum analyzer and a leakage receiver or,
- Signal Level Meter with and analog meter movement.

Analyzer Method

If you are using the Analyzer Method, follow this procedure.

1. Connect the analyzer to a system test point after the combiner.

Analyzer Method (Continued)

2. Tune to the leakage carrier and set the analyzer to zero span.

Use an IF bandwidth setting between 200 and 300kHz.

3. As you observe carrier amplitude, slowly adjust the CT-2's **3 Hz DEPTH** Control. Start at the control's *counter-clockwise* stop and adjust to a modulation depth of approximately 2dB.

If necessary, you can enhance the audibility of the tag by increasing the modulation depth with CT-2's **3 Hz DEPTH** Control.

NOTE: When the CT-2 is used with a video carrier, we recommend that you limit the maximum setting to a depth of 3dB.

Analog Meter Method

If you are using the Meter Method, follow this procedure.

1. Connect the meter to a system test point after the combiner.
2. Tune to the leakage carrier.
3. As you observe carrier amplitude, slowly adjust the CT-2's **DEPTH** Control. Start at the control's *counter-clockwise* stop and adjust to a modulation depth of approximately 2dB (which is indicated by the meter needle slowly varying by 2dB).

If necessary, you can enhance the audibility of the tag by increasing the modulation depth with CT-2's **3 Hz DEPTH** Control.

NOTE: When the CT-2 is used with a video carrier, we recommend that you limit the maximum setting to a depth of 3dB.



9710 Park Davis Drive
Indianapolis, IN 46236