

CT-3 CHANNEL TAG

Operation Manual



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TRILITHIC

TRILITHIC, Inc., one of the fastest growing privately held companies in the U.S. (Inc. 500, #10), is a leading supplier of test equipment to the CATV industry. Through the years, we have introduced a range of products to make CATV maintenance simpler, faster and more precise. Our contributions include the first PRACTICAL CATV sweep system (1976), the first CATV return adjustment system (1981), the SEARCHER PLUS for leakage measurement (1989) and the SUPER PLUS for overbuilt leakage and ingress measurement (1994).

Among our most popular products are the TRICORDER series of CATV analyzers (led by the new TRICORDER III, the most versatile member of the popular TRICORDER family).

TRILITHIC is especially well known for its leakage products. More than 15,000 SEARCHER PLUSES are in daily use as well as the SUPER PLUS and SUPER CT measurement devices (which take leakage measurement into the new era of overbuilds and digital services).

In addition to developing instrumentation for the CATV industry, TRILITHIC produces RF and microwave components and equipment for aerospace and wireless communications, as well as computer controlled assemblies for automated test systems, headend automation and communications signal routing.

TRILITHIC products are designed and manufactured at our facility in Indianapolis, Indiana. These products are distributed by sales agents in over 40 countries.

Should you have any questions or need our service, please contact us at the address or telephone numbers below:

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GENERAL INFORMATION

Congratulations! You now own the most versatile member of TRILITHIC's *channel tag* family, the **CT-3**. This device is a state-of-the-art instrument that enables you to do your job more effectively! Your CT-3:

- *Tags* carrier used for leakage measurement for easy identification.
- Provides dual frequency *tags* (3 Hz or 20 Hz).
- Is compatible with Trilithic's SEARCHER, SEARCHER PLUS, SUPER PLUS and TRICORDER leakage receivers.
- Provides a built-in leakage carrier source.
- 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-3 is designed to deal with the problem of leakage identification in dual cable or overbuild situations.

Your CT-3 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 and TRICORDER 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-3 *tags* a leak, it causes this audible tone to rise and fall in pitch at a rate of 3 or 20 oscillations per second.

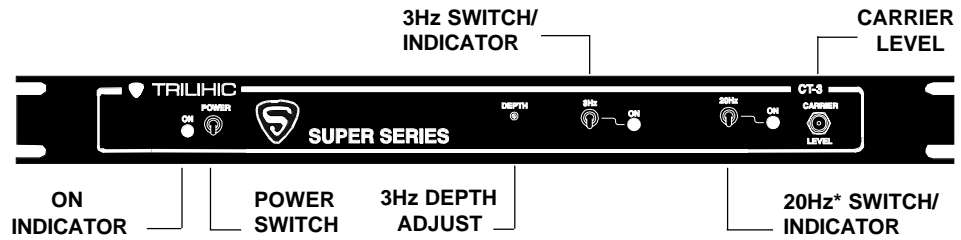
If you do not hear this fluctuating tone, you know that the leak did not originate in your system.

SPECIFICATIONS

Modulation	Sine wave
Modulation Rate	Selectable 3 Hz or 20 Hz (other frequencies available as an option)
Depth of Modulation	Settable, 0.5 to 5dB (3 Hz only) 10 Hz fixed at 2dB
Input/Output Impedance	75 Ohms, nominal
Carrier Frequency	107 – 157.25 MHz; crystal controlled
Carrier Output	+47 to +60dBmV
Spurious	– 60dBc
Power	115 VAC
Mechanical Packaging	1U (1.75") rack enclosure

OPERATION

Figure 1 below shows the front and rear panels of your CT-3.



*20Hz frequency is standard. Other frequencies are available. Contact factory for more information.

FRONT PANEL

The CT-3's line voltage is set at the factory. Each CT-3 is labelled for either 115 VAC or 230 VAC operations.

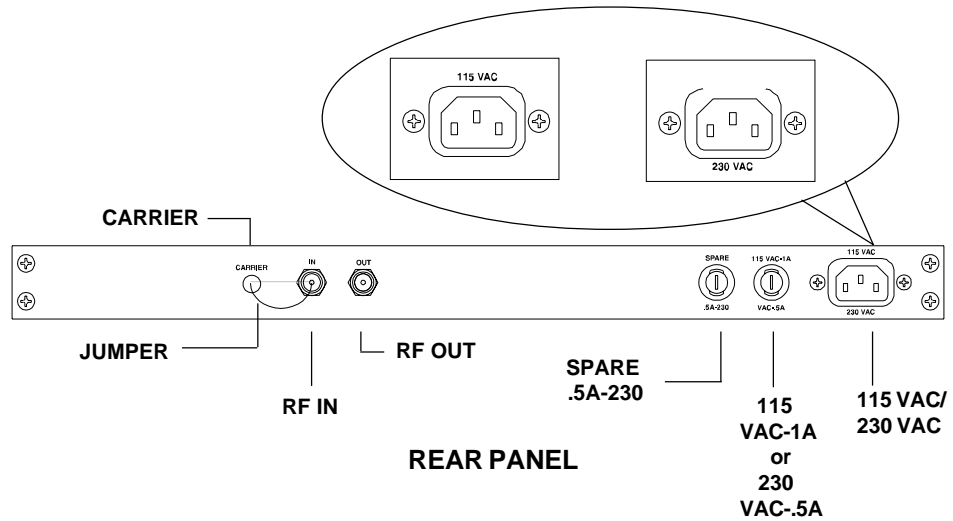


Figure 1. CT-3 Panels.

INSTALLATION

Your CT-3 is a broadband device and can tag any carrier in the aircraft band by placing it between the carrier source and the headend combiner.

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

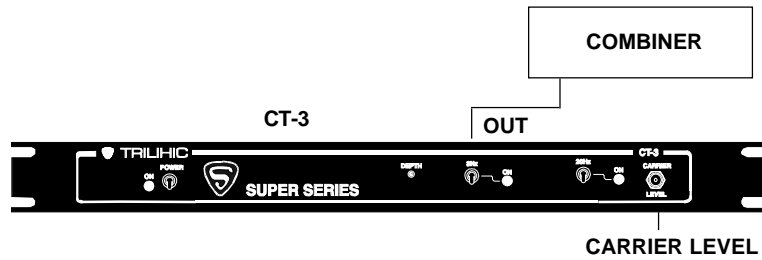
If you are using the SUPER PLUS leakage receiver, you can use the 3Hz Mode to do special detection procedures. The 20Hz internal adjustment has been set specifically for use with the SUPER PLUS. If you are using a SEARCHER, SEARCHER PLUS or other device, use the 3Hz setting. You can NOT use the 3 Hz and 20 Hz tones together when you are using a mix of leakage receivers.

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



INSTALLATION (Continued)

Connect the CT-3 between to the combiner.



Adjust the CARRIER LEVEL to be +1.5dB below the adjacent video carriers.

NOTE: This 1.5dB compensates for SEARCHER PLUS' and SUPER PLUS' video/cw peak detector efficiency.

SET UP

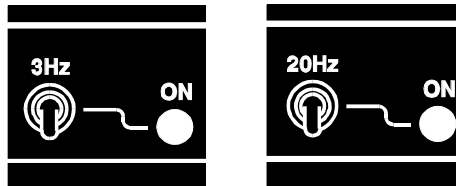
Your Unit comes ready to go. All you need to do is decide whether you want to use 3 Hz or 20 Hz.

- 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 20 Hz.

NOTE: Typically, you won't use the SUPER PLUS with the 3 Hz tone. The 20 Hz tone is the mode which activates the SUPER PLUS' features.

- If you are using SUPER PLUS with other types of leakage receivers, use 20 Hz.

Select the proper modulation by *tooggling* the 3 Hz or 20 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-3's **3 Hz DEPTH** Control. Start at the control's *counter-clockwise* stop and adjust to a modulation depth of approximately 3dB.

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

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-3's **DEPTH** Control. Start at the control's *counter-clockwise* stop and adjust to a modulation depth of approximately 3dB (which is indicated by the meter needle slowly varying by 3dB).

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