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Tonax™ Coax Tone Generator

www.jdsu.com/hbn

User's Guide

ALLIGATOR CLIP LEADS

-POTS Line Simulator:

TIP = Blk = F-con PIN

RNG = Red = F-con SHLD

-Tone Generator Signal:

Black = F-con PIN

Red = F-con SHLD

MODE SLIDE SWITCH

Selects operating mode.

Press ON/OFF to begin test.

Modes are:

POTS SIM

Provides CO-like voltage, current and dial tone for 1 Low Power POTS line.

TONE GEN

-Low power probe mode

-High power probe mode or coil mode

LOW POWER

On when in low power tone mode

TONE GEN LEDS

Probe or coil LED will be flashing when generating tone. Also indicate tone pattern selected when in tone selection mode.

F-CONNECTOR TONE

DIAL TONE LED

On when POTS sim mode is on. Flashes when on with dial tone off (talk battery)

DIAL TONE BUTTON

On when POTS Sim mode, toggles dial tone between enabled and disabled with each press.

LINE STATUS LEDS

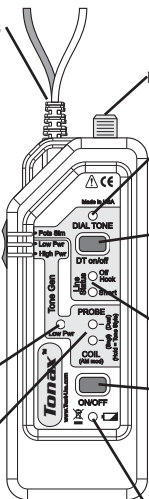
Indicates when line is off-hook or shorted.

ON/OFF BUTTON

Press to turn on in the mode set by the slide switch. In tone gen mode, hold button down to enter tone pattern selection mode and release when desired tone is selected.

BATTERY LOW LED

Replace battery soon. Outputs will soon go out of regulation



Warning!

Do not attach to live 115 VAC power circuits. This could cause an extreme shock hazard for the user and damage the Tonax™.

Features

- **POTS Simulator**
 - **Line voltage, line current and dial tone**
 - **Talk Battery** performance is better than common tone generators
 - **Status Indicators** for off-hook and shorted
- **Low Power Tone Generator**
 - Tone voltage and current comparable to common tone generators
- **High Power Tone Generator**
 - Probe mode for conventional tone tracing
 - Coil mode for terminated coax tracing
- **Three Tone Outputs** selected from the front panel
- **Constant Output** in all modes over the life of battery for 100% output all the time
- **Auto-off** in any mode - no dead battery if left on

Description

The Tonax™ is a version of the original Resi-Toner™ with the tone generator section optimized for use with coaxial cabling systems and the coil-tracing mode of Resi-Tracer™. The telephone CO line simulator feature has been retained. An F-connector has replaced the RJ-12 to facilitate use with coax.

The high power coil mode tone generator signal provides several benefits for coaxial cable tracing. Cables terminated to equipment or splitters can be traced by plugging the cable into the F-connector on the Tonax™. The high current (relative to standard tone generators) makes it possible to trace the terminated or even shorted coaxial cables. The Resi-Tracer's™ coil tracing mode is required for optimum tracing of these signals.

The Probe mode is provided for compatibility with conventional voltage tracing probes and ground loop tracing.

Instructions for Use

To test plain old telephone service (POTS) lines

- 1) Connect black lead of alligator clip to TIP terminal and red lead to RING terminal at service entrance. On the F-connector, Ring is the center pin and Tip is the Shield. Disconnect any outside service.

Application Hints: TIP and RING polarity is not critical on modern phones although installers generally observe the defined standards.

- 2) Move slide switch on left side of Tonax™ to the POTS SIM (upper most) position. Press ON/OFF to turn on POTS simulator mode. DIAL TONE LED will turn on. The status of the line is indicated on the Tonax™ by the Off-Hook and Short LEDs. Both LEDs being off indicates the line is on-hook.
- 3) Connect test device, such as telephone test set, to jack to be tested. On a Lil'Buttie™ PRO or Ranger™ test set in monitor mode, the on-hook voltage should read about 20 volts.

- 4) Take the test set off-hook and you should hear a clear, steady dial tone. On a Lil'Buttie™ PRO or Ranger™ test set, the off-hook current should read approximately 24 mA.
- 5) Move slide switch to another position or press the ON/OFF button to turn off the Tonax™. The Tonax™ will power off automatically in about 1 hour.

To check continuity of a circuit - Use only on non-energized circuits that can tolerate up to 20 volts and 30mA of current flow. Any significant external energy present on a circuit may damage the Tonax™ or cause erroneous results.

- 1) Move slide switch on left side of Tonax™ to the POTS SIM position and press ON/OFF button.
- 2) Connect one lead of Tonax™ to each end of the circuit to be tested. If the DC resistance of the path is approximately 690 ohms or less, but greater than 90 ohms, the off-hook LED will light. If the resistance is less than about 90 ohms, the Short LED will light.
- 3) Move slide switch to another position or press the ON/OFF button to turn off the Tonax™. The Tonax™ will power off automatically in about 1 hour.

To supply talk battery power

- 1) Move slide switch on left side of Tonax™ to the POTS SIM position. Press ON/OFF to turn on function. Press DIAL TONE button to turn off dial tone. DIAL TONE LED indicator will flash to show dial tone is off.
- 2) Connect Tonax™ in series with a phone set at one end of an unused pair. To connect the Tonax™ in series with a phone set, connect one lead from the Tonax™ to one lead of the phone set and connect the two remaining leads to an unused wire pair.
- 3) Connect second phone set to other end of the wire pair.
- 4) Take both phone sets off hook and communications will be established.
- 5) Move slide switch to another position or press the ON/OFF button to turn off the Tonax™. The Tonax™ will power off automatically in about 1 hour.

To send a tone for tracing (Probe Mode) - Use Probe mode of Resi-Tracer™ for conventional tone tracing.

- 1) Move slide switch on left side of Tonax™ to either the HI PWR or the LO POWER TONE position.
- 2) Connect one lead to a wire of the cable to be traced and leave the other lead open. See Application Hints below for other configurations.
- 3) Press the ON/OFF button briefly to turn on the signal. If the Probe indicator is not blinking, press the button again until the correct mode is selected. The Tonax™ rotates through a PROBE-COIL-OFF sequence.
- 4) Select a different tone cadance if desired as described in “Selecting a signal type” section.
- 5) To turn off the signal, press the ON/OFF button briefly. If it has been more than 15 seconds since the last press, the Tonax™ will go directly to OFF. If not, a second press may be necessary if the unit was set to PROBE. The Tonax™ will power off automatically in about 2 hours.

Application Hints:

When tracing wires terminated to a terminal block such as a “66 block” or a patch panel, attaching both Tonax™ leads to the cable or pair tends to contain the signal within the cable. The tracer must nearly touch the end of the cable to detect the signal, which is helpful when the wires are close together as when terminated. The LO amplitude setting may be used if the signal is bleeding to other cables to reduce the energy, improving discrimination between cables.

To maximize radiated signal while tracing along a cable run, connect one lead of the Tonax™ to a wire or cable and the other end to ground (such as the case of an electrical box, electrical conduit, metallic water pipe or ground rod). If no ground is available or the signal is excessive, do not connect the other lead to anything; let it dangle as near to the earth as possible. Connect the Tonax™ to the ungrounded shield of a coax cable. The shield will do its job if connected to the center lead and block the tone. The LO amplitude setting is useful if there is too much bleeding of the signal or the tracer being used has fixed volume and is overloading.

Active Coax System runs thru Splitters

– Use Coil mode of Resi-Tracer™

- 1) Move slide switch on left side of Tonax™ to the HIGH PWR TONE position, all the way down.
- 2) Connect F-coax plug to F-coax jack on Tonax™ if cable has a plug or use clip leads to connect to the cable's center pin and shield. See Application Hints below for more detail.
- 3) Press the ON/OFF button briefly to turn on the signal. If the Coil indicator is not blinking, press the button again until the correct mode is selected. The Tonax™ rotates through a PROBE-COIL-OFF sequence.
- 4) Select a different tone cadence if desired as described in “Selecting a signal type” section.
- 5) To turn off the signal, press the ON/OFF button briefly. If it has been more than 15 seconds since the last press, the Tonax™ will go directly to OFF. If not, a second press may be necessary if the unit was set to PROBE. The Tonax™ will power off automatically in about 2 hours.

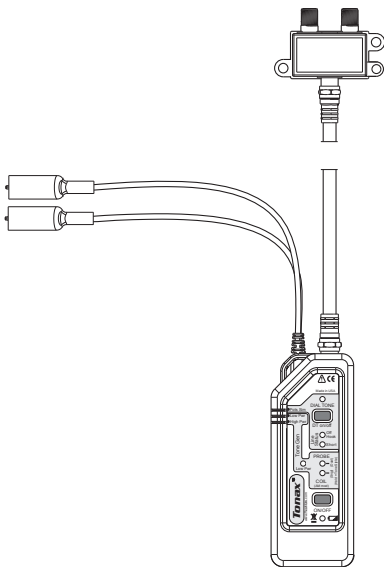


Figure 1.1
Tracing of cable terminated to a
splitter or equipment

Application Hints:

The Coil mode is tracing the tone generator current flow along the cable. The further apart the signal current and the return paths are, the stronger the field for tracing. Connecting the F-connector directly to the generator yields a usable signal with the Tonax™ in High Power, Coil mode (Figure 1.1). It will not travel through splitters but the current will be coupled to the shield and traceable to the splitter or device such as a TV or set top box.

A better way to connect the generator for maximum signal strength and to couple past inline splitters is to use the electrical safety ground system or the shield lead of another known coax run that terminates to the coax system ground (Figure 1.2). Most coax systems are terminated at the head end to safety ground. If not a temporary ground can be added to the splitter or amplifier to provide a return path. Connect one generator lead to the shield of the cable to be traced and the other to safety ground, which can be accessed on the third pin of any AC outlet, a metal water pipe or other devices with an accessible earth ground. Using the LO POWER mode of the Tonax™ will usually yield better results. With the

current loop separation of this configuration, the HI POWER mode will radiate too much energy making identification of a specific cable difficult. Do not connect to center pin of cable to traced. Using the TG31 (Optional) adapter in line with the cable will allow the cable to be traced. The red lead is connected to safety ground. The TG32 (Optional) facilitates connecting to safety ground using the safety ground pin of a electrical outlet.

To Select or Verify Signal Type

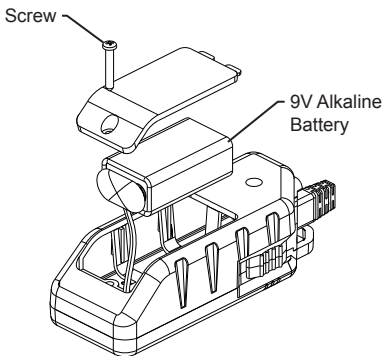
The Tonax™ has three distinctly different tone types available - one steady and two dual (or warble) tones.

- 1) Press and hold the ON/OFF button until all the LEDs turn on (lamp test); this indicates entry into the tone style selection function.
- 2) Continue holding the button down, one of the two tone LEDs will turn on steady or flash to indicate the currently selected type. The *Sngl* LED will turn on steady to indicate the single type is selected. The *Dual* LED will either flash for one of the dual tones or be on steady for the other. Releasing the button before two seconds have passed will leave the signal type unchanged.
- 3) To select another signal type, continue holding the button down until the desired type is displayed. The Tonax™ will continue to cycle through the three types until the button is released or the unit times out and turns off (10 to 12 seconds).

Hint: *The currently selected tone type is generated on the test leads once the signal selection function is entered. Holding a tone tracer near the leads will allow the user to hear each tone type as it is selected.*

Battery Replacement

- 1) Remove screw on the rear of the Tonax™ with a #1 Phillips screwdriver and remove battery door.
- 2) Remove old battery and disconnect from battery leads.
- 3) Snap the battery leads onto a new battery (9V, alkaline). Place battery in case.
- 4) Close tester and replace screw. Do not over tighten.



Optional Accessories



TG30
1ft Coaxial Cable



TG31
Shield Connection
Only F-Connector
Adapter



TG32
10ft Safety Ground
Lead Set



TT300
Resi-Tracer
(Recommended to be used with Tonax)

Specifications

Power Requirements

One 9 volt alkaline battery

Battery Life (Alkaline, 540mA-hr) Times for exclusive use in (Typical):

Standby – 2 years

Pots Sim, on-hook – 40 hours

Pots Simulator, off-hook – 8 hours

Tone Mode, Probe Mode - 27 hours

Tone Mode, Coil Mode - 13 hours

Mechanical

Dimensions – 4.5 x 1.75 x 1.3 inches

Weight – 5.0 oz. with battery

Pots Simulator

On hook voltage: 20VDC nominal

Off-hook current (standard 430 ohm load):

21mA nominal

Dial Tone (into 600 ohms): -21dBm

Output Terminals Withstanding Voltage

Tone Modes: 250 volts peak AC or DC

Pots Sim: 25volts peak AC or DC

POTS line, protection device will operate

Tone Generator (Constant output from new battery to 5.4V)

Tone frequencies (+/-1%): Dual – 977 and 814Hz, Single – 977Hz

High Power:

Probe mode -

Tone voltage, Typical (open circuit):
20Vp-p

Tone power, Typical (into 600 ohms):
18dBm

Coil mode -

Tone current, Typical (into 75 ohms):
400mA_{p-p}

Tone power, Typical (into 75 ohms):
280mW

Low Power:

Probe mode -

Tone voltage, Typical (open circuit): 5Vp-p

Tone power, Typical (into 600 ohms):
6dBm

Warranty

JDSU guarantees that its products will be free of all defects in material and workmanship. This warranty extends for the period of 12 months for test instruments and 3 months for cables from date of manufacture or purchase (proof of purchase required).

All product deemed defective under this warranty will be repaired or replaced at JDSU's discretion. No further warranties either implied or expressed will apply, nor will responsibility for operation of this device be assumed by JDSU.



WEEE Directive Compliance: JDSU has established processes in compliance with the Waste Electrical and Electronic Equipment (WEEE) Directive, 2002/96/EC. This product should not be disposed of as unsorted municipal waste and should be collected separately and disposed of according to your national regulations. In the European Union, all equipment purchased from JDSU after 2005-08-13 can be returned for disposal at the end of its useful life. JDSU will ensure that all waste equipment returned is reused, recycled, or disposed of in an environmentally friendly manner, and

in compliance with all applicable national and international waste legislation. It is the responsibility of the equipment owner to return the equipment to JDSU for appropriate disposal. If the equipment was imported by a reseller whose name or logo is marked on the equipment, then the owner should return the equipment directly to the reseller. Instructions for returning waste equipment to JDSU can be found in the Environmental section of JDSU's web site at www.jdsu.com. If you have questions concerning disposal of your equipment, contact JDSU's WEEE Program Management team at WEEE. EMEA@jdsu.com.

Shipping

Before returning any product to JDSU, you must first request a Return Merchandise Authorization Number by contacting our Customer Service Dept. at (805) 383-1500.

1) No shipments will be accepted without this number, which must be clearly marked on the shipping label.

2) Ship the equipment with a copy of the sales receipt, if available.

3) Attach a description of the operational problem.

4) Include a contact name, phone number and E-mail address.

5) Pack securely to prevent damage during shipping.

6) Ship prepaid to: JDSU, 808 Calle Plano, Camarillo, CA 93012

Support Service

For technical information and support, please visit www.jdsu.com/hbn.

Notes:

Notes:

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