

ToneRanger® Specifications

Transmitter Specifications			Rev. 08/04/03
Locate Tone Frequencies (user selectable), with maximum pair lengths			
Key	Power Environment		Max Pair Length
	60Hz	50Hz	
LO	145Hz	185Hz	16,000ft [5,000m]
MED	335Hz	320Hz	7,000ft [2,000m]
MED (hold)	577Hz	577Hz	Pair Identify Mode, Identify Crossed Pairs.
HI	985Hz	880Hz	2,000ft [700m]
Max Pair Length above is a limit for locating maximum resistance faults. Lower-ohm faults can be located at longer lengths.			
Locate Tone Output			
Termination	Transformer winding with grounding center tap.		
Metallic Output	Black (A, Tip) and Red (B, Ring) - access pair.		
Ground	Green (center tap) - connect to cable shield.		
Waveform	Sinewave		
Output voltage - A to B A or B to ground	Adjustable 0 to 200Vrms Adjustable 0 to 100Vrms		
Power into pair	4 watts max.		
Tone Strobes	2 /sec, alternating polarity; interrupt each 5th sec.		
Output Protection:	Short circuit current limited.		
DC Bias Supply -	Reduces the AC resistance down into the locatable range.		
Bias voltage	DC Voltage equal to output AC tone voltage.		
Current	2mA max		
Power	0.5 watt max. will not burn or weld the fault.		
Pilot Tone Generator -	Sent Transmitter to Receiver.		
Application	Simplex on the pair.		
Carrier	8/10 kHz FSK		
Pilot Voltage	30 Vrms max., 0.5 Watts max.		
Pretest			
Test Excitation Source	35 Hz Sinewave, 15 Vrms A or B to Ground		
AC Ohms	1 ohm to 3 Megohms		
Accuracy	±7% of reading ±10 ohms		
Conductor Length	6ft to 150,000ft [2m to 50,000m]		
Accuracy	±7% or reading ±20m		
Battery	(10) Alkaline D-Cells		
Battery Life	50 hours typical – normal use		
Power time-out	5 hours		

ToneRanger Specifications

Receiver Specifications	
Locate Tone Amplifier	
Gain	130dB - user adjustable
Sensitivity	100nV
Bandwidth	1Hz
Capacitance current	30 to 1 rejection
Meter scale	LCD Bargraph display
Audio output tones	Dual frequency tones indicate polarity. Loudness proportional to received signal strength.
Pilot Tone Amplifier	
Sensitivity	3 uV
General Receiver Specifications	
Aural	Loudspeaker, plus Pneumatic Headset for high noise locations
Coil / Wand	1/4" phone jack Additional 1/8" jack for buried wand
Buried Wand (optional)	Custom Telefonix
Aerial Coil (optional)	Humbucker layup stick, or lollipop cable maintenance pole
Handcoil	Humbucker noise canceling coil
Receiver Battery	(8) Alkaline A-cells
Battery Life	50 Hours typical - normal usage
Power timeout	2 hours with coil plugged in. 5 min with coil out.
Receiver Case	ABS plastic instrument case.
Dimensions	52 H x 152 W x 180 D mm (2.1 6.0 x 7.1 in)
Weight	0.9 kg (2.0 lbs) including batteries

ToneRanger Overall	
Instrument Case	Molded Polypropylene, with external ballistic nylon pouch for accessories.
Dimensions	203 H x 340 W x 298 D mm (8 x 13.4 x 11.7 in)
Weight (complete kit)	7.7 kg (17 lbs) including Receiver, batteries, Handcoil, leads, strap, headset.
Temperature –	Operating: -25°C to +60°C Storage: -50°C to +70°C

Maximum Locatable Fault Resistance				
<p>The ToneRanger® will give at least a 2 to 1 locate tone level⁽¹⁾ change at the fault for the maximum fault resistances listed below. Faults up to these resistances can be located in aerial cables and in buried cables up to the depths shown below, and frequently deeper.</p> <p>Using DC Bias, faults up to one megohm can frequently be located by bringing them down within the locatable fault resistance range indicated in the table below.</p>				
Fault	Description	Maximum Locatable Ohms		Depth Max.
		Aerial	Buried	
Short	Tip to Ring [A to B] Conductance (Metallic Short; Short Circuit).	50k Ohms	20k Ohms	1½ ft. [.5m]
Cross	Short to conductor of another pair (Side Cross; Cross Fault).	100k Ohms	20k Ohms	2½ ft. [.8m]
Ground	Conductor grounded to shield (Ground Fault; Short to Ground).	100k Ohms	50k Ohms	5 ft. [1.5m]
Split	Sides of 2 pairs interchanged at Splice (Splicing Error).	Strapped	Strapped	3 ft. [1m]
Wet Splice	Water in a splice causing crosses and open Tip [A] conductors.	100k Ohms	100k Ohms	5 ft. [1.5m]
<p>(1) Locate tone level is defined as the level of the strongest peak observable by moving the coil along a 6 ft. [2m] section of cable immediately before or after the fault. The tone will normally rise and fall with the twist and lay of the cable conductors and drop to a low value or background noise beyond the fault.</p>				

Copyright Telefonix 2006 • 7098 Miratech Drive, Suite 130, San Diego, CA 92121 • 888-801-3080