



# Very Low Frequency–Tan Delta ( $\delta$ ) Loss Angle Measuring Instrument for Cable Diagnostics



## Description

The **Tan Delta** can be used to help determine the insulation quality of cables and other capacitive loads. It is used in conjunction with a Very Low Frequency (VLF) AC Power Supply to measure the loss angle or Tan Delta of the insulation. These measurements can be used to track the deterioration of service aged cable and establish baseline readings on new cable installations. Changes in Tan Delta measurements can indicate degradation of the insulation, which can be used to make engineering decisions about the service life of the cables.

## How It Works

The **Tan Delta** is a bridge for use with a sinusoidal high voltage VLF power supply. High voltage is applied to the test specimen through the measuring unit. The control unit compares the phase angles of the voltage and current waveforms to give a loss angle of the insulation.

## Applications

- Field testing HV service aged cables for degradation
- Aged cable replacement programs for HV cable networks
- Cable manufacturing for quality assurance
- Research on high voltage cable systems
- Commission / proof testing for new and repaired cables

## Features

- Frequency range of 0.01 to 0.2Hz
- In line measurement of current and voltage
- Automatic readout of frequency and loss angle
- Automatically adjusts to VLF generator frequency
- Real time readout of loss angle
- Readout of high voltage, frequency and current in real time
- Connection to HV measurement module is via fiber optics, eliminating high voltage safety hazards from the controller
- Audible indication when new reading is available
- Easy and quick set-up for field testing applications
- RS232 port for data storage

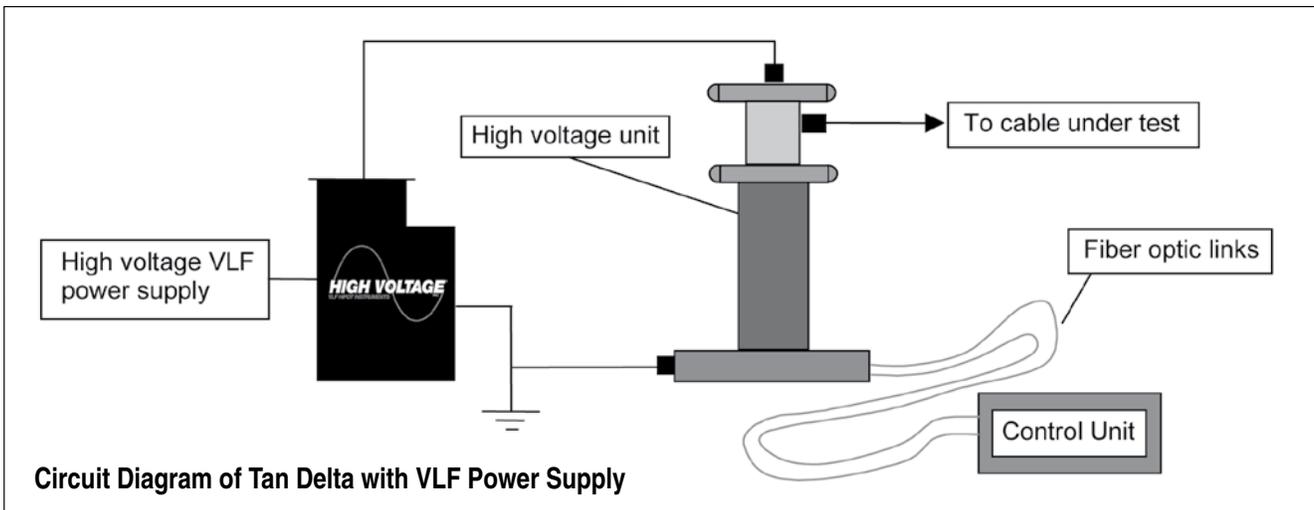


**HIGH VOLTAGE, INC.**

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High Voltage, Inc. designs and manufactures high voltage test equipment for utility and industrial applications. Also available are Very Low Frequency (VLF) high voltage AC test sets, DC power packs, AC and DC instrumented test sets, cable fault locators and other products.

Description	
<b>Current Range</b>	0 – 50 mA
<b>Frequency Range</b>	0.01 Hz – 0.2 Hz
<b>Working Voltage</b>	1 kV – 60 kV Peak
<b>Resolution of Measurement</b>	0.0005
<b>Accuracy</b>	2% + 0.005 Zero error
<b>Display</b>	128 x 64 Backlit Liquid Crystal
<b>Displayed Data</b>	Loss angle (radians) System voltage (kV Peak) and frequency (Hz) Current at HV (mA RMS) Low Battery and No Data indicators
<b>Controls</b>	Averaging Mode – Normal, Medium, Extended
<b>Input Power</b>	120/230 V, 50/60 Hz, 70 W
<b>Dimensions and Weights</b>	
Control Box	13.5" w x 11" d x 5" h, 14 lbs. 343 mm w x 279 mm d x 127 mm h, 6.4 kg
High Voltage Stack	10" w x 10" d x 32" h, 23 lbs. 254mm w x 254 mm d x 813 mm h, 10.4 kg



## VLF Power Supply

In order to use the Tan Delta, a sinusoidal VLF Power Supply is required. High Voltage, Inc. manufactures several VLF AC Hipot / Burners up to 200 kV. Please contact the sales office for more information.

## Our Company and Our Products

High Voltage, Inc. manufactures the most advanced test equipment available for high voltage proof and preventive maintenance testing of electrical apparatus. All of our products are newly designed to meet the present day needs of utilities, industrials, and testing services. Our products offer features and specifications not found elsewhere. Our products include unique, sine-wave output **Very Low Frequency (VLF) AC Hipots, DC Insulation/HV Megohmmeter Test Sets, Aerial Lift Testers, AC Hipots, Cable Thumpers & Radars and AC Oil Dielectric Testers.**



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