Technical Data

Technical Data		
Type	**TD30**	**TD60**
Part number	SH0207	SH0206
Input voltage	2 type “C” alkaline cells	2 type “C” alkaline cells
	Sinusoidal: 1– 23 kV RMS Frequency: 0.1Hz	1 - 44 kV RMS 0.1 Hz
Voltage measurement	Resolution: 0.1 kV RMS Accuracy: 0.5% of reading	0.1 kV RMS 0.5% of reading
Current measurement	Resolution: 1 uA RMS Accuracy: 0.5% of reading	1 uA RMS 0.5% of reading
	0.01 Hz	0.01 Hz
	Resolution: 0.1×10^{-3} Accuracy: $\pm 0.3 \times 10^{-3}$ (load > 15nF) $\pm 0.5 \times 10^{-3}$ (load < 15nF)	0.1×10^{-3} $\pm 0.3 \times 10^{-3}$ (load > 15nF) $\pm 0.5 \times 10^{-3}$ (load < 15nF)
	3kgs (7lbs)	5 kgs (11lbs)
	240mm long x 80mm in diameter (9.5” long x 3.2” in diameter)	450mm long x 120mm in diameter (18” long x 5” in diameter)
Computer interface	Bluetooth™. Results download via software which is included	As for TD30
Accessories supplied	HV connection cable, transit case Bluetooth™ Dongle Earth cable, operating software Operating manual	As for TD30
Standards	Shock: IEC68-2-27 (15g/11ms half sinus) Vibration: IEC68-2-6 (10…150Hz : 2g) EMC: IEC6100-4-2, IEC6100-4-4, EN55011 Safety: EN60950, EN50191, EN61010-1	As for TD30
	Storage: -25° C to +70° C Operating: -5° C to +45° C Humidity Max 80% RH now condensing	As for TD30

Figure 4 Visual indication of TD levels

Figure 5 TD 60

Figure 6 TD 30

HV Diagnostics

High Voltage Diagnostics S á.r.l
4, Rue du Lac, Le Bouvert,
CH-1897, Switzerland

Contact Details:
Tel: +41 24 481 4733
Fax: +41 24 481 4740
Email: sales@hvdsa.com
Website: www.hvdsa.com

TD30 / TD60

Tan Delta Test System
High Voltage Cable Diagnostics System

- Tan Delta / Capacitance
- Automatic Report Writer
- Light Weight
- Wireless Connection
- Simple and Easy to Hookup

HV Diagnostics

Find your cable faults before they occur

Software

Applications

Tan Delta (also referred to as “Power Factor”) is the ratio of the Resistive Power versus the Capacitor Power of the dielectric material. It is the measure of the quality of the insulation medium.The TD30/60 provides the testing and commissioning engineer with a versatile high voltage tan delta measuring system suitable for testing cables: XLPE, PE, EPR, PILC and other electrical equipment: capacitors, switchgear, transformers and rotating machines.

Description

Tan Delta testing enables the cable test engineer to detect insulation defects before the cable fails in service. The TD30/60 is a versatile tan delta measuring system that is directly connected to the H.V. Diagnostics and HVA series of VLF test systems. The tan delta of the test object can be measured quickly and the results stored, thus providing a “signature” of the cable being tested. This enables the cable engineer to make tan delta a routine test and combine this diagnostic test with the normal over voltage pressure “testing” to provide a smart VLF test.

Product design

H.V. Diagnostic SARL produce two models TD30 for the TD measurements up to max voltage of 23kVrms (33 KV peak), and the TD60 for TD measurements up to a max voltage of 44kVrms (or 62 KV peak). The TD30/60 is a battery powered system that is directly connected to the HVA30 series of VLF test systems. The TD30/TD60 uses standard C Type alkaline batteries which last for 10 hours thus providing the capacity for many tests. The TD30/60 is supplied with 10 metres of output cable which is terminated to suit the HVA30/60 test system. The TD30/60 is supplied complete with operating software which gives a complete picture of the tan delta measurement together with a real time wave form of the output voltage and current. The data transmission to a laptop PC or PDA is via Bluetooth™ wireless communication thus eliminating hardwires or fibre optic cables to minimise the hookup time and operator errors.

Figure 1

TD 30/60
Analysis software

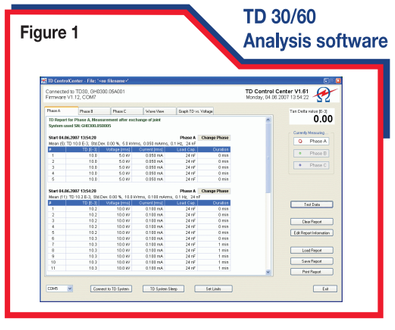
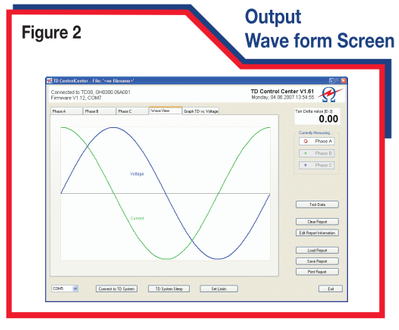


Figure 2

Output
Wave form Screen



TD 30/60 Analysis software

The test report screen gives all the details of the measurements taken during a test sequence. The results are based on individual measurements per cycle of voltage and current. From these results the Tan Delta is calculated and displayed.

Output wave form screen

In the Wave form screen both the output voltage and output current are displayed simultaneously in real time. In addition to the status of the voltage and current wave forms, the Tan Delta value is also displayed.

HV Diagnostics

Report

Automatic Report Writer

At the click of your mouse the full Tan Delta report is printed.

HVA TD Report Summary:

Report Information

Cable / Line ID: Ring Main 932
System Used: TD30
Test Start: 3 April 2005

Station / Location: Jordaan Sub
From: Feeder 1 **To:** Feeder 3 **End Device:** Termination
Comment:

Device Under Test: Cable
DUT Voltage Rating: 15 KV
Length: 1595 m **Size:** 95 mm²
Insulation Type: PILC
Measurement Type: Maintenance
Manufacturer: Aberdare Cables

Company: Western Grid
Operator: Peter White
Region: Pyramid
Work Order: 1536

Phase A Summary: 0.1Hz, 54.8 nF

Voltage (kVrms)	6.0	9.0	12.0	
TD Value (E-3)	43.3	44.0	48.5	
Std. Dev. (E-3)	0.3	0.1	0.1	

Phase B Summary: 0.1Hz, 55.1 nF

Voltage (kVrms)	6.0	9.0	12.0	
TD Value (E-3)	41.2	41.5	46	
Std. Dev. (E-3)	0.2	0.1	0.1	

Phase C Summary: 0.1Hz, 54.9 nF

Voltage (kVrms)	6.0	9.0	12.0	
TD Value (E-3)	45.6	46.3	51.8	
Std. Dev. (E-3)	0.2	0.1	0.2	

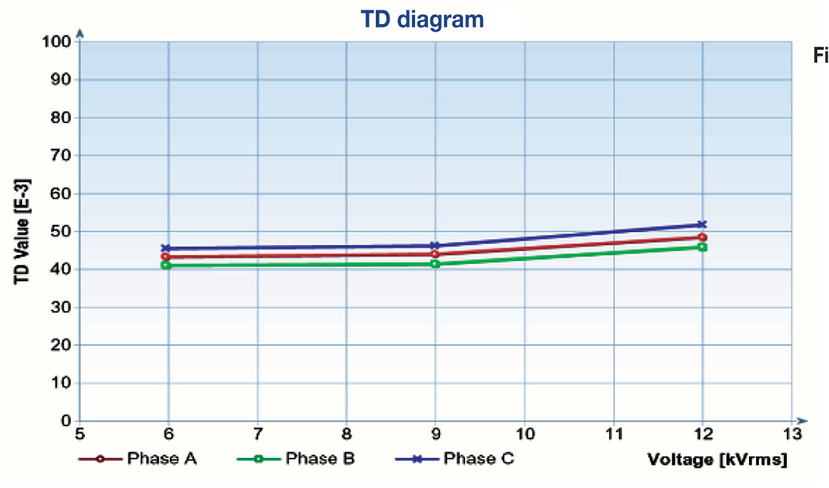


Figure 3

Find your cable faults before they occur