HIGHVOLT Prüftechnik Dresden GmbH
Marie-Curie-Straße 10
01139 Dresden, Germany
Phone +49 351 8425-700
Fax +49 351 8425-679
E-mail sales@highvolt.de
Website www.highvolt.de

Data Sheet 5.85-23/1

Insulation Diagnostic Test Equipment, Types DELTA4110 and CP-TD1

Application

Insulation diagnostic test equipment is designed for the condition assessment of electrical insulation in high voltage apparatus such as transformers, bushings, circuit-breakers, cables, lightning arresters and rotating machinery. Measurements include voltage, current, power (loss), dissipation factor (tan δ), power factor and capacitance.

Description

DELTA4110 test set is to be used with an external computer. The DELTA4110 operates with PowerDB software for automatic testing and reporting or with Delta Control software for real-time manual testing. So the test results are automatically stored in the computer and can also be downloaded directly to an USB storage device or a printer.

CP-TD1 is to be used with CPC100, which is the central device of a multi-function primary test system.
While CPC100 operates as main control unit the CP-TD1 extends power and measurement signals to high voltage level. Data can be stored in the main control unit or to an external USB storage device.

Advantages

The high power variable frequency design generates its own test signal independent of line frequency quality. The hardware design uses the latest technology available for digital filtering of the response signal. As a result, the test equipment produces reliable results and stable readings in the shortest time with the highest accuracy, even in high interference substations.

Table 1: Technical Data

Technical Data	**unit**	Type **DELTA4110**	Type **CP-TD1 (with CPC100)**
Output			
Voltage	kV	0 to 12	0 to 12
Test Frequency Range	Hz	45 to 70 (12kV)	15 to 400 (12kV)
	Hz	15 to 100 (4kV)	-
	Hz	1 to 505 (250V)	-
max. Power	kVA	3.6	3.6
Current (continous)	mA	100	100
Performance			
Voltage Measurement			
Measurement Range	V	25 to 12000	12000
Accuracy	%rdg.	±1 ±1digit	±0.3 ±1V
Resolution	V	1	
Current Measurement			
Measurement Range	A	0 to 5	5
Accuracy	%rdg.	±1 ±1digit	±0.5 (in 5A range)
Resolution	digit		5
max. Resolution	µA	0.1	
Capacitance Measurement			
Measurement Range	F	0 to 100E-6	1E-12 to 3E-6
Accuracy	%rdg.	±0.5 ±1pF	±0.2 (@ > 8mA)
Resolution	digit	-	6
max. Resolution	pF	0.01	-
Inductance Measurement			
Measurement Range	H	6 to 10M	1 to 1M
Accuracy	%rdg.	±0.5 ±1 mH	±0.3
Resolution	digit	-	6
max. Resolution	mH	0.1	-
Power Factor Measurement			
Measurement Range		0 to 1 (0 to 100%)	0 to 1
Accuracy	%rdg.	±0.5 ±0.02%	±0.5 ±0.02%
Resolution	digit		5
max. Resolution	%	0.001	-
Dissipation Factor (DF) Measurement			
Measurement Range		0 to 100 (0 to 10000%)	0 to 100
Accuracy	%rdg.	±0.5 ±0.02%	±0.5 ±0.02%
Resolution	digit		5
max. Resolution	%	0.001	-
Watt Loss Measurement			
Measurement Range	W	0 to 2000	0 to 3600
Accuracy	%rdg.	±1 ±1mW	±0.5 ±1mW
Resolution	digit	-	6
max. Resolution	mW	0.1	-

Technical Data	**unit**	Type **DELTA4110**	Type **CP-TD1 (with CPC100)**
Ungrounded specimen testing			
Measure Red, Ground Blue		UST-R	UST-A
Measure Blue, Ground Red		UST-B	UST-B
Measure Red and Blue		UST-RB	UST-A+B
Grounded specimen testing			
Ground Red and Blue		GST-GND	GST
Guard Red, Ground Blue		GSTg-R	GSTg-A
Guard Blue, Ground Red		GSTg-B	GSTg-B
Guard Red and Blue		GSTg-RB	GSTg-A+B
Features			
Intended Use		Mobile	Mobile
Display		No	Yes
Memory		No	Yes
Interface		USB	ETHERNET
Test signal generation		Yes	Yes
Noise suppression		Yes	Yes
Temperature correction		Yes	-
Voltage dependency detection		Yes	-
Internal printer		No	No
External PC required		Yes	No
Rugged case		Yes	Yes
Dimension and weights			
Control unit			
Length	mm	460	450
Width	mm	290	330
Height	mm	290	220
Weight	kg	14	29
High voltage unit			
Length	mm	460	450
Width	mm	290	330
Height	mm	290	220
Weight	kg	23	25
Normal operating conditions			
Rated power supply voltage	V(AC)	100 to 240	100 to 240
Power supply frequency	Hz	50 to 60	50 to 60
Maximum required input current	A	16	16
Environmental conditions			
Temperature	°C	-20 to 55	-10 to 55
Humidity	%r.H.	10 to 95, non condensing	5 to 95, non condensing
Altitude	m	-	-
Accessories			
High voltage lead		Yes	Yes
Guardment leads		Yes	Yes
Ground lead		Yes	Yes
Input power cable		Yes	Yes
Safety hand switch,		Yes	--

Technical Data	**unit**	Type **DELTA4110**	Type **CP-TD1 (with CPC100)**
Interlock #1: 18m			
Safety hand switch, Interlock #2: 2.5m		Yes	--
HV unit power cable, 1m		Yes	Yes
HV unit control cable, 1m		Yes	Yes
Ground lead cable, 1m		Yes	--
GSB cable, 2m		Yes	--
Ethernet cable, CAT 5, 2 m (7 ft)		Yes	Yes
Carrying case/bag for control unit		Yes	Yes
Carrying case/bag for HV unit		Yes	Yes
Carrying case/bag for HV cable		Yes	Yes
Carrying case/bag other cables/ accessories		Yes	Yes
Trolley		--	Yes
DB software		Yes	Yes
Optional Accessories			
Safety foot switch		Yes	--
HV reference capacitor 100pF		Yes	Yes
Calibration box set		Yes	Yes
Calibration standard		Yes	Yes
Resonating inductor		Yes	Yes
Oil test cell		Yes	Yes
External temperature and humidity probes		Yes	Yes
Digital temperature and humidity meter		Yes	Yes
Transport cart / trolley		Yes	--