

TDX 120

TRAX high voltage accessory for measuring capacitance and tan delta/power factor

Megger[®]



- Easy to use with automatic and manual operation
- Maximum 12 kV and 500 mA output enables measurement on high capacitance objects without the use of an inductor
- Wide frequency test voltage (1-505 Hz) for DFR measurements as well as 1 Hz assessment
- Accurate measurement results under high noise conditions as tested to 765 kV substations
- Lightweight, rugged design
- Patented built-in individual temperature correction (ITC) eliminates the need for temperature correction tables

DESCRIPTION AND APPLICATION

The TRAX accessory TDX 120 is a fully automatic 12 kV insulation dissipation factor (tan delta / power factor) test set designed for condition assessment of electrical insulation in high voltage apparatus. When connected to the TRAX, a special app is activated that enables the most advanced tan delta / power factor testing on the market.

TDX 120 together with TRAX is suitable for measurement of:

- Tan delta/power factor
- Capacitance
- Excitation current
- Automatic tan delta / power factor tip-up
- Watts loss
- Inductance
- Voltage
- Current

Test objects with ready-made test plans and connection diagrams include:

- Power transformers
- Instrument transformers
- Rotating machines
- Oil insulation
- Bushings
- Cables
- Capacitors
- Circuit breakers
- Surge arresters

Apart from the fully automatic mode a manual mode is available for testing on even more test objects or tailored troubleshooting. Balancing (voltage or frequency) of an external inductor when

testing high capacitive objects and HV turns-ratio testing (an optional TTR capacitor is available) is also possible in manual mode. On top of this, the TDX 120 can also be used as a PD-free high voltage source.

FEATURES AND BENEFITS

- The test set uses an internally generated test signal resulting in accurate and clean measurements even in the most severe conditions and in the event power is required from a portable generator.
- TDX 120 utilizes the groundbreaking Megger innovation ITC (Individual Temperature Correction) to accurately translate tan delta /power factor test results in warm/cold test objects to the reference temperature 20°C.
- With a maximum output of 500mA @ 12kV the TDX 120 is powerful enough to be able to handle high capacitance tests without the use of an external inductor.
- Voltage dependence detection (VDD - Megger innovation) to automatically warn if test object shows signs of power factor voltage dependence and a tip-up test should be performed
- Wide frequency range test output (1-505 Hz) for narrow band DFR measurements as well as 1 Hz assessment.
- TDX 120 is fitted with a resistive voltage divider for unparalleled stability and flexibility. Unlike other tan delta tests sets, TDX 120 does not use any internal components with compressed gas meaning that it can be shipped and stored without restrictions and also does not change over time.

TDX 120 TRAX high voltage accessory

INCLUDED ACCESSORIES



GC-31201



GC-30060



GA-00725



GA-01005



30012H-1



25572H-1 / 25572H-2



2012-180



GD-30200

OPTIONAL ACCESSORIES



Hand switch interlock, 1001-851



Interlock foot switch, 1001-852



TIB 225, indicator box, AJ-90030



TIB extension cable, GC-31055



Trolley/cart, AJ-90045



Accessory kit, AG-90100



HV TTR capacitor
10 nF 10 kV, 36610



HV reference standard,
670500-1



Resonating inductor, 670600-1

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Oil test cell, field model with case, 670511



Oil test cell, 670511



Capacitor kit, 36610-KIT2

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SPECIFICATIONS TDX120

Specifications are valid at nominal input voltage and an ambient temperature of +23°C ±5°, (74°F)
Specifications are subject to change without notice.

Environment

Application field The instrument is intended for use in medium and high-voltage substations and industrial environments.

Temperature

Operating -20°C to +55°C (-4°F to +131°F)
Storage & transport -40°C to +70°C (-40°F to +158°F)

Humidity 0% – 95% RH, non-condensing

CE-marking

LVD 2014/35/EU
EMC 2014/30/EU
RoHS 2011/65/EU

Classifications and standards

Vibration IEC 60 068-2-6
Shock IEC 60 068-2-27
Transport ISTA 2A
IP-rating IEC 60529
Instrument only IP 20
Instrument in hard case IP 21

General

Dimensions

Instrument only 480x310x250 mm
(18.9" x 12.2" x 9.8") excluding handles
Soft case 690x450x390 mm
(27 x 18 x 15")
Hard case 690x410x450 mm
(27 x 16 x 18")

Weight

Instrument only 23 kg (51 lbs)
in soft case 27 kg (59 lbs)
in hard case 35 kg (77 lbs)

Input

AUX power input From TRAX (AUX Power) 0-240 V AC, 1-500 Hz

AUX Control input Power over Ethernet for power supply and communication

Output

0-250 V AC 1-505 Hz¹⁾
0-2 kV AC 10-505 Hz
0-4 kV AC 15-505 Hz
0-12 kV AC 45-70 Hz
500 mA 30 seconds
300 mA 4 minutes
200 mA 30 minutes
100 mA continuous

The power supply capacity can be expanded to 4 A at 12 kV using the optional Resonating Inductor, (Cat. No. 670600-1).

Measurements

Voltage 0 – 12 kV, 0.1 V maximum resolution

Current 0 – 5 A, 0.1 µA maximum resolution
The measurement can be corrected to 10 kV equivalents.

Capacitance 0 – 100 µF, 0.01 pF maximum resolution

Inductance 6 H – 10 MH, 0.1 mH maximum resolution

Measured parameters / methods Capacitance, power factor / tan delta, dissipation factor, narrowband DFR, 1 Hz assessment

Power 0 – 1 MW, 0.1 mW maximum resolution
Power factor 0-100% (0-1), 0.001% maximum resolution
Dissipation factor 0-100 (0-10,000%), 0.001% maximum resolution
Test templates Manual test, power transformer, bushing C, C2 and hot collar, current transformer, voltage transformer, capacitor voltage transformer, rotating machines

Accuracy

Internal generator

Capacitance < 0,2% of reading +0.1 pF
Inductance < 0.2% of reading
Power/Dissipation factor: < 0.05% of reading + 0.02%, I_x < 10 mA, U_{test} > 300 V
< 0.2% of reading + 0.02%
Watt loss < 0.3% of reading + 1 mW
Frequency +- 0.005% of reading

Noise immunity

Electrostatic 15 mA induced noise into any test lead with no loss of measurement accuracy at maximum interference to specimen current of 20:1

1) Signals below 45 Hz or above 200 Hz with derating

ORDERING INFORMATION

Item	Part. No.
TDX 120	AJ-69090

Included accessories:

Aux Power cable, 1 m (3 ft)	GC-31201
Ground cable, 1 m (3 ft)	GC-30060
Ethernet cable, 1 m (3 ft)	GA-00725
Extension cable 10 m (33 ft)	GA-01005
High voltage cable, 21 m (66 ft)	30012H-11
Measuring cable, 18 m (60 ft), red	25572H-1
Measuring cable, 18 m (60 ft), blue	25572H-2
TDX transport case	GD-90080
Soft backpack for leads/accessories	2012-180

Optional accessories

Hand switch interlock, 2.4 m (8 ft)	1001-851
Interlock foot switch, 3 m (10 ft)	1001-852
TIB 225, indicator box (green/red warning beacon), cable 2 m (6ft)	AJ-90030
TIB extension cable 10 m (33 ft)	GC-31055
Trolley/cart for TRAX and TDX	AJ-90045
Accessory kit:	AG-90100

Hot collar straps [set of 3]	670505
Thermometer - hygrometer - clock [1]	670504
0.75" bushing tap adapter [1]	30918-000
"1" bushing tap adapter [1]	30918-100
"J" probe bushing tap adapter [1]	30917
Bushing tap adapter - ABB (older style bushings)	2006-375
Bushing tap adapter, female-to-female	90014-353
Bushing tap adapter, female-to-female	90021-216
Bushing adapter, male to female	90021-216
3 m (10 ft) non-insulating shorting lead	2014-136-10
6 m (20 ft) non-insulating shorting lead	2014-136-20

HV reference standard	670500-1
HV TTR capacitor, 10 nF, 10 kV	36610
Capacitor kit (TTR cap, 2 ref caps + case)	36610-KIT2
Resonating inductor	670600-1

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