



Technical Data Sheet

Insu 5Dx⁺



ST Insu 10Dx⁺ is a Digital Insulation Tester with selectable test voltage upto 5kV and Insulation Resistance measurement upto 10 TΩ. Ideal for testing insulation in live switchyards. It comes with PI, DAR, DD & conduct Step Voltage, Ramp test, Burn/Breakdown test.

Special Features

- Selectable short circuit current 1.2mA, 3mA and 6mA
- User selectable digital filters
- Noise Rejection 8 mA
- Operates on rechargeable Li-ion battery and Mains as well
- Bluetooth connectivity for data logging
- Touch screen TFT colour display
- Audio Read-out
- Test voltage can be selected in steps of 10V from 100V to 1000V & in steps of 25V from 1000V to 5000V
- Measurement of DC and AC voltages from 20V ~ 600V
- Three programmable timers
- Insulation leakage current measurement
- PI, DAR, DD, Step voltage & Ramp Test

Application

Digital Insulation tester STI INSU 5Dx+ is designed to perform at power utilities where induction field is very high. Its high noise immunity and user selectable digital filters makes it most robust and reliable instrument with user selectable test voltages.

Also it is used for testing the electrical insulation of cables, motors, generators, transformers, etc. at power generation plants, utilities, distribution.

Its advance features like Bluetooth connectivity, audio read out, touch screen TFT color display makes it never before user friendly. It can store the data on its inbuilt memory with real time stamp. Data can be transferred to computer for future analysis purpose. It performs tests like Polarization Index, Dielectric Absorption Ratio, Dielectric Discharge, Ramp Diagnostic Test, Step voltage test.

Product Features

Selectable Test Voltage up to 5000 V	• Test voltages can be set to any desired value from 100V to 5000V	Software and Mobile Application	• It has data logging and monitoring software for window system and an interactive mobile application for android
High Insulation resistance measurement	• Insulation resistance measurement from 50 KΩ to 10TΩ for 5kV test voltage	Burn & Breakdown Mode	• Burn Mode for uninterrupted insulation testing to find the breakdown region and Breakdown mode will stop generation of voltage on detection of high current
Noise rejection - 8mA	• High Noise immunity allows accurate measurement under HT lines	Internal Datalogging	• It has internal datalogging feature. It can log upto 2000 reading with customer information and time stamp
Polarization Index	• Polarization index (PI) testing is an extension of the insulation resistance test and is designed to check specific issues in a motor such as moisture and insulation deterioration	File Explorer	• It has file explorer to view the datalog file on TFT display
Dielectric Absorption Ratio	• DAR measurement is a diagnostic test similar to the Polarization Index (PI), but DAR takes the ratio of the Insulation Resistance usually measured at 30 sec and 1 min (other time settings are possible)	Audio Read-Out	• Audible test result on completion of test for awkward locations
Dielectric Discharge	• Dielectric Discharge (DD) Test is a diagnostic insulation test that allows aging and deterioration of insulation to be assessed	Rechargeable Battery	• Li-Ion 3 Cell Battery with charging current of 1A
Step Voltage Test	• Step Voltage Test is designed as a controlled over-voltage or proof test to provide an additional evaluation of the insulation system integrity	Selectable test time	• We can set the test time to any desired test time from 45sec to 99 min 59 sec
Ramp Diagnostic Test	• The Ramp Test is performed with a slowly rising voltage	Specification	
Software Selectable Filter	• User selectable software filter can be used depending on noise levels. This help in accurate reading in noisy environment	Nominal Voltage	Maximum Resistance
Capacitance Measurement	• Capacitance can be measured from 1nF to 50uF	100V	2GΩ 5% ± 1D 10GΩ 20% ± 1D
Insulation Resistance Graph Display	• Insulation Resistance can be displayed over the time in graphical form	250V	50GΩ 5% ± 1D 500GΩ 20% ± 1D
Communication Interface	• Bluetooth 2.0 & 4.0 Class II and electrically isolated USB 2.0 communication	500V	100GΩ 20% ± 1D 1TΩ 5% ± 1D
		1000V	200GΩ 5% ± 1D 2TΩ 20% ± 1D
		2500V	500GΩ 5% ± 1D 5TΩ 20% ± 1D
		5000V	1TΩ 5% ± 1D 10TΩ 20% ± 1D

Technical Specifications

Test voltage accuracy

+7% ± 10V

Direct and Alternating Voltage Measurement

Measuring range	Frequency	Intrinsic error
20V-600V AC DC	45 Hz-500Hz	3%+10D

Capacitance Measurement

1nF to 50uF; Accuracy +10% + 5 nF

Insulation Leakage Current Measurement

0.01nA to 6mA; Accuracy +5% +0.2 nA

Guard terminal

2% error guarding 500 kΩ leakage, 100 MΩ load

Timer Range for IR test

Time: 45s ~ 99 min 59 sec with three programmable timers

Tests: IR(t),DAR,DD,PI,Step Voltage, Ramp voltage

Ambient Conditions

Operating Temperature	-20 °C ... +50 °C
Storage Temperature	-20 °C ... +70 °C
Relative Humidity	max. 90% (condensation must be avoided)
Elevation	up to 2000m
Protection	IP 67 with closed case IP 52 with open case

Applicable Standards

Standard	Norms
IEC 61010-1	Safety regulations for electrical measurement, control, regulation and lab devices
IEC 61557	Measuring and monitoring facilities for testing the electrical safety in lines with nominal voltages up to AC1000V and DC1500V
PART-1	General
PART-2	Insulation resistance measuring devices

Reference Conditions

Ambient Temperature	+ 23 °C + 2K
Relative Humidity	45 ... 55%
Measured Quantity	50Hz + 10Hz
Frequency	(for voltage measurements)
Line Voltage Waveform	Sine wave
Battery Voltage	11.1V + 1%
Operating position	Horizontal
Power Supply Voltage (Mains)	230V + 15%, 50/60 Hz

Power Supply (Battery)

Battery	11.1V ,7.8Ah Li-ion Battery
Battery service life	6 Hrs continuous testing at 5kV 100MΩ
Battery charging time	7 Hrs

Power Supply (Mains)

Nominal Power (Mains)	230V AC + 15%, 50/60 Hz
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Electromagnetic Compatibility (EMC)

IEC61326 - 1

Immunity

IEC 61000-4-2 : 8 KV atmosphere discharge
4 KV contact discharge
IEC 61000-4-3 : 3 V/m

Electrical Safety

Overvoltage Category	600V CAT IV
Test Voltage	7.4kV~
Pollution degree	2

Mechanical Design

Dimensions (L x W x H)	360mm x 310mm x 195mm
Weight	approx 5kg

Standard Scope of Supply

- 1 In built Li-ion rechargeable battery
- 1 Operating instructions
- 1 Power cord
- 1 USB cable for communication and software CD (with USB and bluetooth communication interface)

Test lead options(one to be selected)

- Test lead set with 3m test leads(+ve, -ve & Guard lead) with 3 clamps with 50mm jaw opening
- Test lead set with 10m test leads(+ve, -ve & Guard lead) with 3 clamps with 50mm jaw opening
- Test lead set with 15m test leads(+ve, -ve & Guard lead) with 3 clamps with 50mm jaw opening

Ordering information

DT28-1N00000000ST : STI 5Dx+ 5kV Digital Insulation Tester (standard set w/o leads)

Accessories Code :

- SPAR-SD00-0774: 3m Test leads set (+ve, -ve & Gaurd) with 50mm jaw clamps
- SPAR-SD00-0775: 10m Test leads set (+ve, -ve & Gaurd) with 50mm jaw clamps
- SPAR-SD00-0776: 15m Test leads set (+ve, -ve & Gaurd) with 50mm jaw clamps



Sifam Tinsley Instrumentation Inc.
3105, Creekside Village Drive,
Suite No. 801, Kennesaw,
GA 30144 (USA)
E-mail Id : psk@sifamtinsley.com
Web : www.sifamtinsley.com
Contact No. : +1 404 736 4903

Sifam Tinsley Instrumentation Ltd
Unit 1 Warner Drive,
Springwood Industrial Estate
Braintree, Essex, UK, CM72YW
E-mail: sales@sifamtinsley.com
Web: www.sifamtinsley.com/uk
Contact: +44(0)1803615139