

Product Catalogue



ADVANCED TEST AND DIAGNOSTIC SYSTEMS



Doble is the leading global energy industry provider of advanced testing solutions, innovative diagnostic systems, and premier engineering expertise to support a safe and sustainable future. Companies can benefit from a diversified offer of professional services according to the electrical asset lifecycle like, installation and commissioning, diagnostic testing, data analysis, consultancy, and training. Our product lines include ISA, Manta Test Systems, Morgan Schaffer, Phenix Technologies, TECHIMP, and Vanguard Instruments.

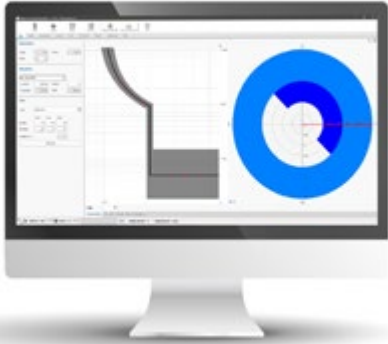


Located in the north of Italy, ISA has been designing and manufacturing portable devices for electrical assets testing, for more than 80 years. Isa advanced testing equipment is designed to perform tests on protective relays, power transformers, instrument transformers, circuit breakers, batteries and many other high & medium voltage systems. All products are developed in close cooperation with our customers to insure best results for standard conformity, ease of testing, handling of equipment and health and safety aspects.





PROTECTIVE RELAY TESTING



TDMS PRO SOFTWARE SOFTWARE FOR PROTECTIVE RELAY TESTING

- Automatic Import of relay settings
- Large library of relays from the major relay producers
- Easy configuration of DRTS Test Set
- Simplified creation of complex test sequences thanks to Test Plan Editor
- IEC 61850 Substation protocol testing facility
- Creation of professional test reports through the Report Manager

RELTEST THREE PHASE RELAY TEST SET

- Advanced multifunctional relay test set, specially designed for distribution, smart grid and renewable energy plants.
- Local control, via keyboard and colored display. Remote control with TDMS Software.
- Three independent AC voltage outputs adjustable from 0 to 400 V.
- Fourth independent AC voltage output adjustable from 0 to 130 V.
- One current output, from 0 to 15 A, switchable on 3 phase sockets.
- One independent current output, adjustable from 0 to 1 A.
- Frequency generator: 40 - 400 Hz.
- IEC 61850-8 communication interface.



T 1000 PLUS - TD 1000 PLUS SECONDARY INJECTION RELAY TEST SET

- Multi-tasking test set designed for testing relays and transducers.
- Max current output: 250 A.
- Max AC voltage output: 250 V. Max DC voltage output: 300 V.
- Two current outputs to test the differential relay.
- TD 1000 PLUS 15 Hz model with higher power at 15 Hz.
- Frequency generator: 15 ÷ 550 Hz.
- Phase angle shifter.
- Oscilloscope function for current and voltage.
- USB port - Microprocessor controlled.

T 3000 - T 2000 SUBSTATION MAINTENANCE AND COMMISSIONING TEST EQUIPMENT

- Multi function system for testing current, voltage and power transformers, all type of protection relays (T 3000 only) energy meters and transducers
- Primary injection testing capabilities
- 3000 V AC high-pot test
- Generates up to 800 A (option up to 4000 A)
- Microhmmeter function (option): up to 400 A DC
- RS232 interface for PC connection
- Test results and settings are saved into local memory





STS 5000 MULTIFUNCTION SUBSTATION MAINTENANCE & COMMISSIONING TEST SYSTEM FOR CURRENT, VOLTAGE AND POWER TRANSFORMERS*

- Fully automatic
- Primary injection testing capabilities: up to 800 A or up to 5000 A / 7000 A, with the optional module BUX 5000
- Variable output frequency: 15 - 500 Hz
- 2000 V AC high-pot test
- IEC 61850-9-2 communication protocol
- PADS software for the remote control of STS family test equipment

STS 4000 MULTIFUNCTION SUBSTATION MAINTENANCE & COMMISSIONING TEST SYSTEM FOR CURRENT, VOLTAGE AND POWER TRANSFORMERS*

- Fully automatic
- Primary injection testing capabilities: up to 5000 A / 7000 A, with the optional module BUX 5000
- Variable output frequency: 15 - 500 Hz
- 2000 V AC high-pot test
- IEC 61850-9-2 communication protocol
- PADS software for the remote control of STS family test equipment



* For USA and Germany, only STS 3000 light with TD 5000 and TDX 5000 models are available.



eKAM ELECTRONIC AND AUTOMATIC PRIMARY INJECTION TEST SYSTEM UP TO 2000 A, 3000 A AND 5000 A

- Fully automatic test set. Two portable units: control and current units
- High current output: up to 2000 A, 3000 A and 5000 A
- Variable output frequency: 15 - 500 Hz
- CT ratio, burden and polarity test
- IEC 61850-9-2 sample values protocol interface
- Large graphic display
- Step & touch plus ground resistance tests with STLG option
- Advanced Test & Data Management Software for test set control, results storage and analysis

STS 5000 / STS 4000 WITH TD 5000 MULTIFUNCTION TEST SYSTEM FOR CURRENT, VOLTAGE AND POWER TRANSFORMERS. CAPACITANCE AND TAN DELTA DIAGNOSTIC SYSTEM WITH THE OPTIONAL MODULE TD 5000*

- Tan Delta, capacitance, dissipation factor measurements and for excitation current test
- Output voltage up to 12 k
- Variable output frequency: 15 - 500 Hz
- Compact and lightweight
- TDMS software for test set control, results storage and analysis
- PADS software for the remote control of STS family test equipment





INSTRUMENT TRANSFORMER TESTING

TDX 5000 TAN DELTA AND CAPACITANCE DIAGNOSTIC SYSTEM FOR POWER APPARATUS*

- Designed to perform Tan Delta, capacitance, dissipation factor measurements a excitation current test on current, voltage, power transformer and circuit breaker.
- Output voltage up to 12 k
- Variable output frequency: 15 - 500 Hz
- Compact and lightweight
- TDMS software for test set control, results storage and analysis
- PADS software for the remote control of STS family test equipment

* For USA and Germany, only STS 3000 light with TD 5000 and TDX 5000 models are available.



ACCESSORIES FOR POWER TRANSFORMER TESTING

ACCESSORIES FOR STS 5000 AND STS 4000

- CAP-CAL calibrator module to check the correctness of Tan Delta and Capacitance TD 5000 measurement
- RCTD compensating reactor module to increase the test current and getting the maximum test voltage with high capacitive burdens
- STOIL 12kV OIL CELL to test the isolation oil characteristics
- STCS or STCS PLUS with 20A DC BOOSTER to perform the test of ratio per tap, winding resistance and OLTC dynamic test with a current up to 20 A DC
- STLG line and grid module and STSG safety grounding module to perform the measurement of soil resistivity, ground grid resistance, step and touch tests and of overhead lines zero sequence and mutual coupling coefficients

ICT1 CURRENT AND VOLTAGE TRANSFORMER TEST SET

- Designed to test Current, Voltage and Combined Transformers
- Main tests performed: Ratio & Phase Error, Excitation, Resistance, Accuracy, Burden
- 5-TAP integrated switchbox describing the behavior of the CT
- Able to test CT with saturation voltage up to 2kV and till 30kV applying DC indirect method
- Integrated Demagnetizer
- CT Explorer function: able to find the nameplate data of the CT
- Compact and lightweight
- Patented technology





CBA 3000 ALL IN ONE CIRCUIT BREAKER ANALYZER AND MICROOHMMETER

- Faster: one single connection set up to perform automatically all possible Circuit Breaker tests
- Safer: Both Side Grounded facility without any additional external boxes/modules
- 3/6/9 static and dynamic contact resistance measurement – 200A DC output each
- First trip measurement three phase
- 16 or 24 fully user configurable Main/PIR and auxiliary input contacts
- 4 or 6 Open / Close coil commands
- 8 analog input measurements
- 3 analog linear/rotary transducers and 3 digital transducers inputs for travel/ speed analysis
- Minimum voltage trip coil test fully automatic
- On-screen control and test results evaluation
- PC Software suite TDMS for analysis, archiving and test report creation

CBA 2000 HV CIRCUIT BREAKER ANALYZER AND MICROOHMMETER

- Designed for the complete test of all circuit breakers
- Up to 18 main and 18 resistive contact inputs
- Built-in 200 A microOhmmeter - static and dynamic contact resistance measurement
- Motion and speed analyzer. Digital transducer for motion analysis
- Up to 4 trip/close coil controls
- 10 analog inputs
- 12 auxiliary timing inputs
- Circuit Breaker test with both sides connected to ground (BSG option)
- Minimum Trip Coil Test
- Analysis and result evaluation directly on the display
- USB and RS232 port



CBA 1000 CIRCUIT BREAKER ANALYZER AND MICROOHMMETER

- Designed for the complete test of all circuit breakers
- 6 main and 6 resistive contact inputs
- Up to 4 trip/close coil controls
- Built-in 200 A microOhmmeter - static and dynamic contact resistance measurement
- Motion and speed analyzer. Digital transducer for motion analysis
- 7 analog inputs
- 4 auxiliary timing inputs
- Circuit Breaker test with two ends connected to ground (BSG option)
- Minimum Trip Coil Test
- Analysis and result evaluation directly on the display
- USB and RS232 port

GECC 3000 / GECC 1500 DC VOLTAGE POWER SUPPLY UNIT

- Powerful output up to 3.3 KW (GECC 3000)
- Powerful output up to 1.65 KW (GECC 1500)
- Lightweight: only 11.5 kg
- Ripple free power supply
- For testing circuit breaker, DC motors and protection system





BATTERY TESTING



BTS 200MKII BATTERY TEST SYSTEM

- High power battery capacity test system
- Designed to perform discharging cycle combining efficiency with portability
- Discharging current up to 1300A with external loads
- Graphical display showing test parameters, curves and results
- Internal memory
- Suitable for all battery types
- Shunt and clamp connection to external current
- Possibility to use the BTS 200 in connection with up to 9 external loads ELU 200
- Light and easy to carry, with handle and wheels

ELU 200 MKII EXTERNAL LOAD FOR BTS 200MKII

- Resistive extra load for BTS 200
- Different configurations allowed to set the discharging current at different voltage levels
- Up to 9 external loads ELU 200 can be connected to BTS 200
- Interface: USB



SURGE ARRESTER TESTING



SCAR 10 METAL OXIDE SURGE ARRESTER TEST SET

- On-line diagnostic of metal oxide surge arresters
- According to IEC 60099-5 A1 "Diagnostic indicators of metal-oxide surge arresters in service"
- Third harmonic analysis of leakage current with compensation
- Extensive field experience
- Easy, fast and reliable diagnostic method
- Safe lightweight equipment
- Supplied with C 47-IS clip-on transformer specifically designed to measure leakage current losses in the presence of high electric and magnetic fields



CONDITION MONITORING AND FAULT LOCATOR SYSTEM



TFS 2100E TRAVELING WAVE FAULT LOCATOR SYSTEM

- The most accurate overhead transmission and distribution line fault locator
- Accuracy: 50m typical, regardless the line length
- The GPS synchronization is embedded into TDU 100E and the fault location is performed directly on the network map
- Unaffected by fault resistance and suitable for all kind of power lines AC and DC
- Automatic distance to fault calculation
- Unlimited number of monitored lines
- Non intrusive installation and easy to set up
- Master Station software for distance to fault calculation and analysis
- Internet, Modem and Point to Point connections available

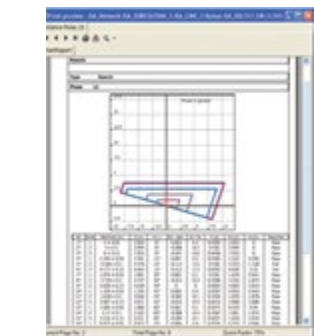
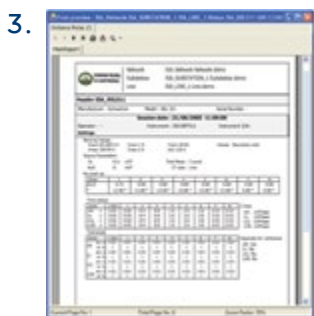
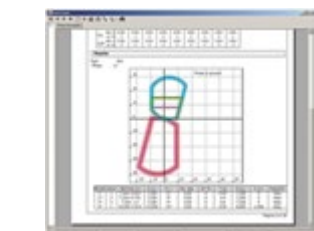




TDMS - TEST & DATA MANAGEMENT SOFTWARE

TDMS is a powerful software package providing data management for acceptance and maintenance testing activities. Electrical apparatus data and test results are saved in the TDMS database for historical results analysis. TDMS software organizes test data and results for the majority of electrical apparatus tested with ISA test sets and related software. TDMS software controls and provides data acquisition from all ISA test sets:

- DRTS 66, DRTS 64, DRTS 34, DRTS 33, DRTS 6, DRTS 3 Plus - Relay and Energy meters test sets
- STS 5000, STS 4000, STS 3000 light and TD 5000 - CT, VT, PT and Tan Delta measurement test sets
- T 3000 and T 2000, T 1000 Plus and TD 1000 Plus - Primary and Secondary injection test sets
- CBA 2000 and CBA 1000 - Circuit Breaker analyzers
- BTS 200 - Battery load unit



TDMS CONTROL PLATFORM

TDMS is the control platform to run all ISA test software. Test programs, calibration, firmware, software upgrade and languages are all managed by TDMS.

TDMS is a powerful software package providing the following functions:

- TDMS controls all ISA Microprocessor based test equipment.
- TDMS allows to create test plans.
- TDMS Data Base organizes test data generated by ISA test sets.
- TDMS generates integrated test reports.
- TDMS performs statistics and trending.

TDMS DATABASE

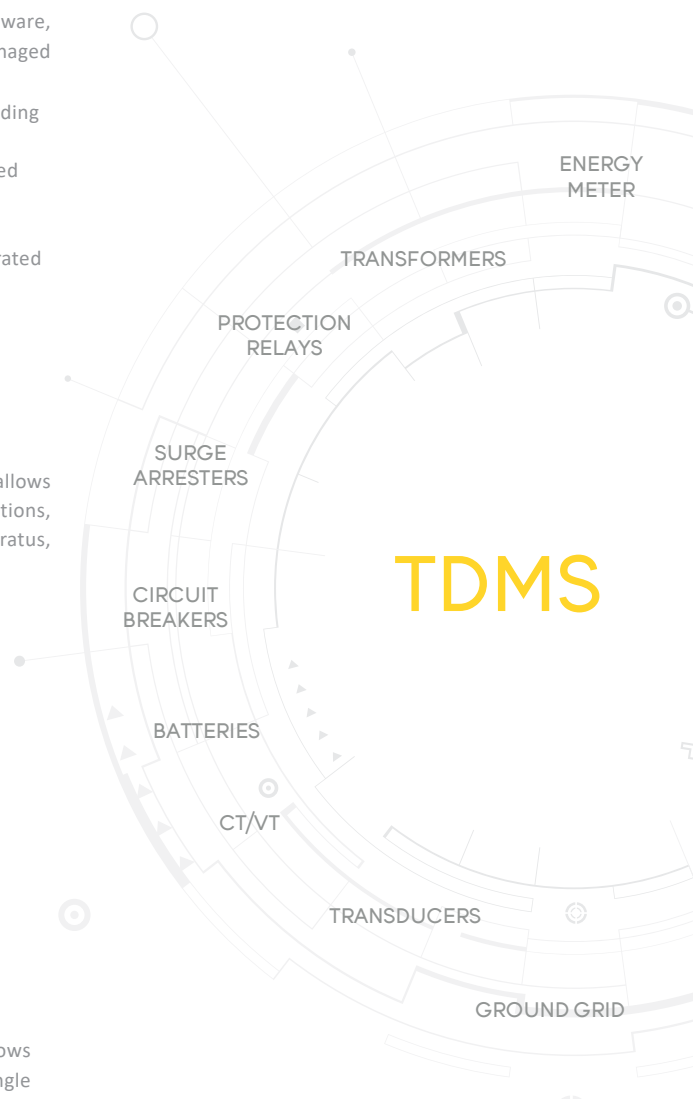
TDMS software is a powerful database. It allows to create an electrical network with substations, feeders and the majority of electrical apparatus, such as:

- Relays
- Instrument transformers
- Power transformers
- Circuit Breakers
- Energy Meters
- Transducers
- Power Quality Meters
- Ground Grids

TDMS REPORT EDITOR

TDMS has a built-in Report Editor that allows to generate professional test report for a single test object, for a group of tested devices or for an entire substation.

It can create customized report or use standard forms. TDMS Tests report can be exported in MS Office (Word and Excel), PDF or RTF formats.



Get empowered with the Doble knowledge community!



TRAINING & EDUCATION

- Power Transformers
- Protection theory & testing
- Lab diagnostics
- Substation equipment
- Asset management
- Rotating machinery
- Power cables
- Scientific advancements
- Scholarships, grants
- Continuing education



KNOWLEDGE

- Renowned Doble experts
- Knowledgebase



WEBINARS

Learn more on the best solutions of testing and monitoring of medium and high voltage assets



EVENTS

Acclaimed industry events for over eight decades



Life of a TransformerSM Seminar



Circuit Breaker Seminar
Test & Maintenance Training



2021
Client Committee
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Protection Seminar
Training for Engineers & Technicians

2021
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