

Advanced testing &
monitoring solutions

ALTANOVA: ADVANCED TESTING & MONITORING SOLUTIONS

ALTANOVA is a leading company in the field of **condition based monitoring and diagnostics** of electrical apparatus. **ALTANOVA** has its roots in the two strong and long experienced companies well set in the market of testing and monitoring: **ISA** and **TECHIMP**.

The merger of the two companies provides synergies for the benefit of our customers in terms of giving access to new solutions and technologies.

ALTANOVA: ISA & TECHIMP HERITAGE

ISA is a renowned company in the field of design and manufacturing of **portable test equipment for electrical assets** with more than 80 years experience. ISA equipment is studied and designed for testing protective relays, power transformers, instrument transformers, circuit breakers, batteries and many other high voltage apparatus.

With a capillary network of specialized distributors and service centers, ISA exports its devices in **more than 100 countries to electrical utilities, power**

equipment manufacturers, general contractors and service companies.

Today **TECHIMP** is the **major player in condition assessment and permanent monitoring of electrical assets.**

Located in Bologna, **TECHIMP** owns subsidiaries in **US** and **Germany** and serves customers in **more than 100 countries.**

TECHIMP develops, manufactures and distributes products, systems and provides services for several applications like, quality control in factory, commissioning tests, on-line/off-line measurements, permanent monitoring.

RESEARCH & DEVELOPMENT

Research and development play a major role in a company's ability to stay ahead of its competitors.

ALTANOVA spends many efforts and resources in research and development in order to give customers the best **advanced equipment and innovative solutions for their assets.**

COMMITMENT TO QUALITY

ALTANOVA operates to the latest quality standards. Altanova has set up a quality-oriented development process from the early research stage to the final industrialization of our products, to comply with the **IEC, CE and all the major international standards. ISA and TECHIMP are an ISO 9001: 2008 certified companies.**

OUR VALUES

ALTANOVA is **committed to listen to customers' needs** and provide the **best solutions** for their electrical assets. Long experience in Diagnostic Condition Assessment combined with research of cutting edge technology will provide access to the best and most reliable solution.

OUR MISSION

With **more than 100 employees** working in Italy, Germany, India, US and Singapore and globally present in more than **100 countries**, **ALTANOVA** represents a true global player, moving closer to its customers and helping asset managers, with customized condition assessments, to fulfill their tasks of maintaining highest the availability of MV/HV networks within budget limitations.



OFFLINE & ONLINE TESTING SOLUTIONS



ALTANOVA GROUP provides solutions covering the full diagnostic tooling needed for any practical application in electrical systems.

Our **OFFLINE TESTING EQUIPMENT** is designed to perform maintenance and commissioning tests on primary and secondary injection systems. A large number of tests can be executed by the

support of external devices and modules. That allows us to provide a solution suitable for any type of requirement.

For the real time condition control of electrical assets, we provide **ONLINE MONITORING** systems allowing high performance asset management solutions, tailored on customer needs.

OFFLINE TESTING

- POWER TRANSFORMER
- CIRCUIT BREAKER
- GIS
- MOTORS & GENERATORS
- CT, VT, & INSTRUMENT TRANSFORMER
- PROTECTIVE RELAY
- GROUND GRID
- SURGE ARRESTER
- METERS & TRANSDUCERS
- BATTERY

ONLINE MONITORING

- POWER TRANSFORMER
- CIRCUIT BREAKER
- GIS
- MOTORS & GENERATORS
- HV CABLES
- MV CABLES
- SPEED DRIVE
- MV SWITCHGEAR
- OVERHEAD LINES
- SF6

INDUSTRY SEGMENTS

ALTANOVA offers a **wide range of test and monitoring equipment** suitable for any type of electrical measurement on electrical energy systems, power plants and electrical substations.

We supply a complete range of test sets for testing relays, power transformers, instrument

transformers, circuit breakers, batteries and many other high voltage apparatus.

We export our test equipment and monitoring systems worldwide to electrical utilities, power equipment manufacturers, general contractors and service companies.

- TRANSMISSION & DISTRIBUTION
- OIL & GAS
- POWER GENERATION
- RENEWABLES
- SERVICE PROVIDERS
- PROCESS INDUSTRY
- OEMs
- MARINE & TRANSPORTATION



OFFLINE TESTING & ONLINE MONITORING SOLUTIONS MATRIX

	POWER TRANSFORMER	CIRCUIT BREAKER	GIS	MOTORS & GENERATORS	CT, VT & INSTRUMENT TRANSFORMER	PROTECTIVE RELAY	GROUND GRID	METER & TRANSDUCER	SURGE ARRESTER	BATTERY
DRTS Family										
CBA Family		•	•							
STS Family	•		•	•	•		•			
TDX 5000	•	•	•	•	•					
e-KAM				•	•	•				
KAM				•						
T 1000 / TD 1000 PLUS					•					
T 2000				•						
T 3000	•			•	•					
SFRA 5000	•									
GECC		•								
RELTEST					•					
STLG						•				
RTCD				•						
BTS 200										•
ELU 200										•
SCAR 10								•		

OFFLINE TESTING EQUIPMENT

	POWER TRANSFORMER	CIRCUIT BREAKER	GIS	MOTORS & GENERATORS	HV CABLE	MV CABLE	SPEED DRIVE	MV SWITCHGEAR	OVERHEAD LINES	SF6
ACQUISITION UNITS										
AQUILA	•		•	•	•			•		
ALFA	•		•	•	•			•		
PD HUB™	•		•	•	•	•	•	•		
TD guard	•									
TFS									•	
EDS	•	•								•
LABORATORY EQUIPMENT										
PD BASE II	•			•	•	•	•	•		
TECH SQUARE	•				•	•	•			
PEA					•	•				
HV TEST bench	•				•	•	•			
SENSORS AND ACCESSORIES										
HFCT	•		•	•	•	•	•	•		
UHF SENSORS	•		•							
COUPLING CAPACITORS	•			•						
TAP ADAPTER	•									
TEV ANTENNA	•		•		•	•		•		
PD CALIBRATOR	•		•	•	•	•	•	•		
FMC				•						
PPS CLAMP				•						

OFFLINE & ONLINE TESTING & MONITORING SOLUTIONS

OFFLINE TESTING EQUIPMENT

PROTECTIVE RELAY TEST SET

DRTS FAMILY

This advanced **secondary injection relay test system** and power system simulator is designed to satisfy all the needs related to commissioning and maintaining substations and to testing protection relays, energy meters, transducers and power quality meters.

- DRTS 66
- DRTS 64
- DRTS 34
- DRTS 33



HIGH CURRENT PRIMARY INJECTION

e KAM

Fully automatic electronic primary injection test equipment. e KAM allows to perform accurate tests on current transformer like, CT ratio, polarity and burden, together with circuit breaker tests and primary and secondary relay tests.



T 3000, T 2000

Multi function primary test system for testing substation equipment such as: current, voltage and power transformers, all type of protection relays, energy meters and transducers.



CIRCUIT BREAKER TEST SET

CBA FAMILY

It allows any timing test, motion and speed analysis, multiple contemporary static and dynamic contact resistance measurements, Both Sides Grounded (BSG) tests, Undervoltage condition test and more.

- CBA 3000
- CBA 2000
- CBA 1000

POWER TRANSFORMER TEST SET

STS FAMILY

Multifunction machine for substation maintenance and commissioning for current transformer, voltage transformer and power transformer.

- STS 5000
- STS 4000
- STS 3000 light
- TD 5000
- TDX 5000



BATTERY

BTS 200, ELU 200

This testing and maintaining battery system allows to perform measurement of battery voltage, discharging current test and testing of battery capacity. BTS 200 can be connected with external load unit ELU 200.



ONLINE MONITORING SOLUTIONS

ACQUISITION UNITS

ALTANOVA offer a variety of devices and sensors whose combination allows the diagnostic of all the type of HV/MV electrical systems such as, Power Transformer, GIS, HV/MV Cables, Motors & Generators, etc..

AQUILA

Portable PD Tester. A practical system integrating TECHIMP innovative PD detection technology with multiple connectivity (Wi-Fi, Fiber Optics, USB, Bluetooth) and power supply.

ALFA

Portable PD Tester. Economic solution for service provider joining the TECHIMP license program.

PDHUB™

Permanent PD monitoring system. IP65, IP 68 and ATEX compliant. Available for 3/6/12 channels applications and fully customizable for PD monitoring systems.

TD GUARD

Ultimate solution for transformer monitoring. TD Guard Intelligent Sensor is the first and only instrument on the market providing absolute Tan-D measurement in on-line permanent monitoring of transformer bushings, granting the best level of diagnostic leverage and reliability.

TFS 2100E

TFS 2100E system is the most accurate and easy to install **travelling wave fault locator system**. The all-in-one solution for overhead lines fault location.

SENSORS & ACCESSORIES

HFCT

High performance inductive sensor for partial discharge measurements on MV/HV-cable, transformer and motors. (30-39-50-140 mm) (fixed or clamp)

UHF SENSORS

Broadband antenna with an optimal response for GIS/TF PD monitoring. As Horn- or Spiral or internal antenna.

COUPLING CAPACITORS

TECHIMP capacitive PD couplers offer both the PD and sync signals references. 1nF - 7/12/24/36kV



TAP ADAPTER

Sensor suitable for PD and tan-d signal using measuring tap of transformer-bushing.

TEV ANTENNA

TEV ANTENNA is based on a direct capacitive coupling with a switchgears earthed metal case.

PD CALIBRATOR

Reliable / portable source for reference PD measurement. 10-100 pC and 100-800 pC

FMC

Flexible Magnetic Coupler based on a direct magnetic coupling with the cable conductor and shield.

PPS

The PPS is a unique device, developed to provide permanent auxiliary power for an continuous monitoring system at HV cable joints.



LABORATORY EQUIPMENT

PDBase II

The ultimate solution for industrial monitoring & quality control. PDBase II® has been expressly designed as a system able to collect a large number of PD pulses and separate them according to their waveform.

TECH SQUARE

Qualification and quality control tests. Compliant with the new IEC standards: IEC 60034-18-41 and IEC 60034-18-42

PEA

Space charge measuring equipment. TECHIMP is the only company offering testing devices for space charge measurements for both cables and flat specimens to understand insulation material behavior under DC voltage.

HV TEST BENCH

It is a deeply customizable test bench which is suitable to generate frequency and amplitude controlled voltage.



GLOBAL MONITORING SYSTEMS

ALTANOVA supplies complete monitoring solutions using not only own sensors and acquisition units, but also third party devices. One single HMI and the ability to correlate data provides latest state-of-the-art monitoring technology. Our highly skilled technical specialists and experienced project managers ensure on-time delivery and completion of the most complex projects.



GLOBAL MONITORING FOR TRANSFORMER

Continuous Monitoring of Partial Discharge, tan-d, DGA and other parameters of the HV Power Transformer.



GLOBAL MONITORING FOR GENERATORS

Continuous Monitoring of Partial Discharge and other parameters like Flux and vibration for Generators, Motors and VSD and GMD.



GLOBAL MONITORING FOR GIS

Continuous Monitoring of Partial Discharge, SF6-density, Circuit Breakers and other parameters of the HV-GIS.



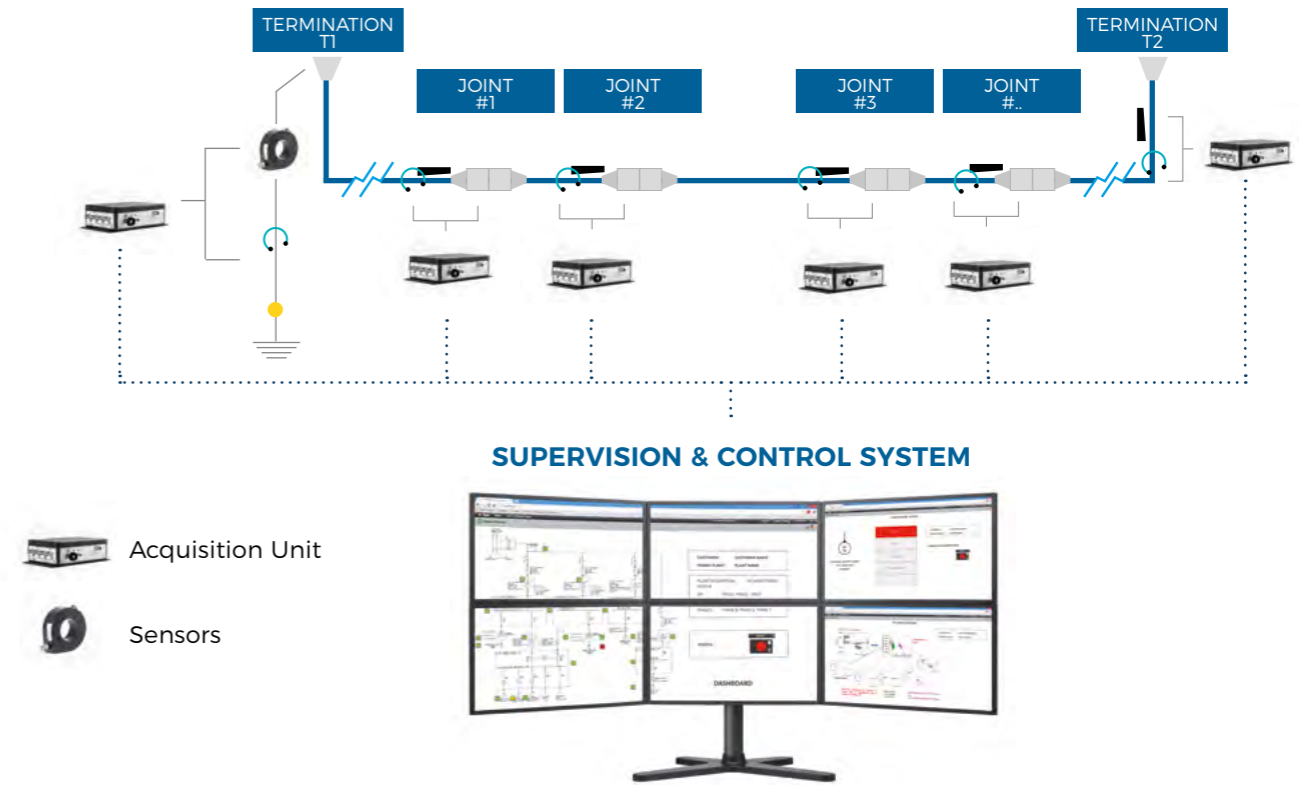
GLOBAL MONITORING FOR HV CABLE

Continuous Monitoring of Partial Discharge and other parameters of the HV Cable.



GLOBAL MONITORING FOR HV OVERHEAD LINES

The Travelling Wave Fault Locator is a system which allows to detect faults on electrical networks by measuring the time for the surge to travel from the fault to the substation bus.



TiSCADA

Complete Network Monitoring, one user interface for all condition data

TiSCADA is a powerful tool to monitor all condition data on an asset level, plant/substation level or network level. The system is fully scalable and expandable.

TiSCADA offers one platform to monitor the condition of all assets in a network like transformers, cables, switchgears and rotating machines using not only TECHIMP's sensors and data acquisition systems for Partial Discharge, Dissolved Gas Analysis, Tan-D but also third party devices. TiSCADA is able to extract, manage, combine and derive data from a wide set of sources. From detection and analysis of the properties associated with most harmful failure processes of MV/HV assets (like partial discharges, flux sensors, vibration sensors, analog and digital sensors) and many other according to the customer requirements. Including real-time acquisition of the main plant parameters (environmental data, third party diagnostic systems).

Single projects can be created, managed and modified by means of the in-built WEB designer module, based on customizable graphical objects. Projects can then be run in simulation or as 24/7 monitoring system.

Multi Standard Protocols (OPC/IEC61850/DNP3/MODBUS) are implemented in order to guarantee high reliability data exchange needs.



GET MORE INFORMATION ABOUT OUR MONITORING SYSTEMS ON WWW.TECHIMP.COM OR WRITE AN EMAIL AT SALES@TECHIMP.COM

THE BENEFITS OF PARTIAL DISCHARGE MONITORING

Partial Discharge (PD) is a localized electrical discharge that only partially bridges the insulation between conductors.

The measurements of Partial Discharge allows:

- A fastest insulation degradation location
- Online insulation assessment
- Test can be performed to all kind of electrical apparatus thanks to our variety of sensors



CONDITION ASSESSMENT FOR ELECTRICAL ASSETS

ALTANOVA means also **Diagnostic Condition Assessment for all electrical MV/HV assets.**

From **On/Off-line spot testing to complex data analysis and temporary monitoring stations services solutions**, our engineers perform condition assessment with the aim of define the current insulation condition on MV/HV networks and the preventive and corrective actions to minimize, eliminate possible incipient and critical failures.

Customers around the globe benefits from the broad experience of the an internal high qualified service team and **the International Associated Network of Experts, with more than 30 years of experience on all assets.** Service engineers are located in Southern and Central Europe & North and South America. Our flexible and dynamic service models helps to cover all regions and continents bringing you the benefits of a world leader technology and expertise.



WHAT ?

We carry out a comprehensive **CONDITION MONITORING** of:

- MV/HV assets
- Substations
- Power Plants
- Power transformer
- MV transformers
- HV/MV Cables
- Switchgears
- GIS
- Capacitors
- Motors & Generators

HOW ?

- By defining current condition of the equipment, insulation, performance in order to determine the probability of failure
- Starting an asset condition database approach
- Identifying the equipment which needs corrective and preventive actions
- Suggesting corrective action to eliminate possible failures
- Delivering the condition assessment data in order to maximize the work performance

TESTS PERFORMED

TEST	HV CABLES	MV CABLES	GIS	MV SWITCHGEARS	POWER TRANSFORMER	MOTORS & GENERATORS	MV TRANSFORMER	CT/PT
PD Commissioning test	•	•	•	•	•	•	•	•
PD Spot measurement (On/Off line)	•	•	•	•	•	•	•	•
HV AC test	•	•	•	•	•	•	•	•
HV AC VLF test		•			•			
HV DC test		•			•			
Tan delta		•		•	•	•	•	•
Sheat test & continuity	•	•						
Insulation resistance & Capacitance	•	•			•	•	•	•
Polarization Index, Dielectric Discharge and Discharge Absorbation Ration	•	•			•	•	•	•
Sheath Potential test (cross bonding test)	•							
Impedence test	•	•						
Time domain reflectometry	•	•						
Frequency response analysis					•		•	
Recovery voltage meter					•		•	
Infrared inspection	•	•		•	•	•	•	•
DGA				•	•			
Currents unbalanced winding deformation						•		
Capacitance and PF tip up tests						•		
Endoscopy test						•		
Acoustic PD measurement			•	•	•		•	

WORLDWIDE LOCATIONS



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