

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 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, and permanent monitoring.

### RESEARCH & DEVELOPMENT

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

**ALTANOVA** invests 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, in order 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 listening to customers' needs** and providing 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 GROUP** represents a true global player. We continue to deepen relationships with our customers while **helping asset managers with customized condition assessments to maintain the highest availability of MV/HV networks within budget limitations.**



## OFFLINE & ONLINE TESTING SOLUTIONS



**ALTANOVA GROUP** provides solutions covering the full range of diagnostic tools 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 technicians 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 types of protection relays, energy meters and transducers.



### CIRCUIT BREAKER TEST SET

#### CBA FAMILY

It allows any timing tests, motion and speed analysis, multiple contemporary static and dynamic contact resistance measurements, Both Sides Grounded (BSG) tests, Undervoltage condition tests 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 customers 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 types 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/TFX 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 a 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 its 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 GIS

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



#### GLOBAL MONITORING FOR TRANSFORMER

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



#### GLOBAL MONITORING FOR HV CABLE

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



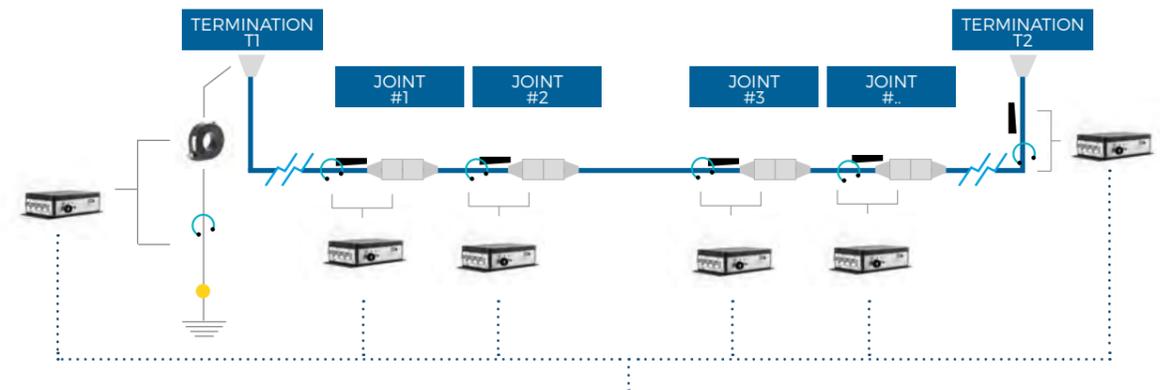
#### GLOBAL MONITORING FOR GENERATORS

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



#### GLOBAL MONITORING FOR 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.



#### SUPERVISION & CONTROL SYSTEM

-  Acquisition Unit
-  Sensors



### 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 the 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](http://WWW.TECHIMP.COM) OR WRITE AN EMAIL AT [SALES@TECHIMP.COM](mailto: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 kinds of electrical apparatus thanks to our variety of sensors



## CONDITION ASSESSMENT FOR ELECTRICAL ASSETS

What **ALTANOVA** means for you is a **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 benefit 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



**ALTANOVA**  
GROUP

**ISA - ALTANOVA GROUP**

Via Prati Bassi 22,  
21020 Taino (Va) - ITALY  
**T** +39 0331 95 60 81  
**Email** isa@isatest.com

**TECHIMP HQ - ALTANOVA GROUP**

Via Toscana 11,  
40069 Zola Predosa (Bo) - ITALY  
**T** +39 051 199 86 050  
**Email** sales@techimp.com



## REGIONAL OFFICES

**ISA ADVANCE INSTRUMENTS (I) Pvt. Ltd.**

C-33, Ground Floor, Sector-2, NOIDA-201  
301, Uttar Pradesh, INDIA  
**T** +91120 4543853 / 54 / 4222712  
**F** +91120 4574772  
**Email** info.asia@isatest.com

**ISA PACIFIC PTE Ltd**

61, Ubi Road 1, #03-29A,  
Oxley Bizhub,  
408727 Singapore  
**T** +65 6278 3280  
**Email:** isatest@singnet.com.sg

**TECHIMP US CORPORATION**

3050 Royal Blvd S #170,  
Alpharetta, GA 30022  
United States of America  
**T:** 480-398-6401  
**Email:** sales@techimp.com

**TECHIMP BRASIL**

Monitoramento Global de Sistemas de Energia Ltda  
Rua Manoel Coelho, 676 - cj. 1501 Edifício Helbor Office  
São Caetano do Sul - São Paulo 09510-101, Brasil  
**T:** +71 33550399  
**Email:** sales@techimp.com

**ISA LATIN AMERICA**

Belo Horizonte, BRASIL  
**T** +55 31 9 9232 3536  
**Email** nivalda.martins@isatest.com

**ISA GCC**

Office no 713, Business Avenue Building Port  
Saeed Road , Dubai - UNITED ARAB EMIRATES  
**T** +971 4 2956664 +971 565044668  
**F** +971 42956099  
**Email** imteyaz.siddiqui.GCC@isatest.com

**TECHIMP GERMANY GMBH**

Feldstraße 23,31691 Helpsen  
Germany  
**T:** +49(0)1702364735  
**Email:** mhesse@techimp.com

**ALTANOVA**  
GROUP

[www.altanova-group.com](http://www.altanova-group.com)