



# Service & Calibration

## Factory Based Services

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# Our Service Philosophy



## Calibration Certificate

	Product Number	Serial Number
ESD3000 EMC PARTNER AG	103605	1676
ESD3000DM1 EMC PARTNER AG	103606	1631

**Certificate Number** 4-2723  
**Tested at** EMC PARTNER AG  
 Laufen / Switzerland  
**Date** 17.04.2015  
**Result** ✓ PASS

## Committed to Quality.

20 years of commitment to our customers is now backed up by an ISO9001 based quality management system and a calibration laboratory accredited to ISO17025 by the Swiss Calibration Service (SCS).

Swiss Calibration service is backed by the Swiss Accreditation Service (SAS) which provides a transparent and qualified infrastructure to establish a background for the international acceptance of reports and certificates.

## Local but Globally recognised

SCS is a member of the International Laboratory Accreditation Cooperation (ILAC). This multilateral agreement means our accredited calibrations are recognised worldwide.

81 organisations from around the globe are signatories to the ILAC agreement. An EMC PARTNER SCS accredited calibration is accepted in 64 countries from Argentina to Vietnam.

SCS accredited calibration is equivalent to a DKD, UKAS or an A2LA calibration.

## Your Quality Assurance

An ISO17025 accredited calibration is your assurance that all parameters meet the specification as defined in the relevant basic standards.

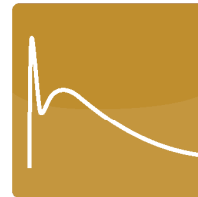
COMPETENCE		
Personnel	Infrastructure	Organisation

# Accredited Calibration Services

## Electrostatic Discharge (ESD)

IEC / EN 61000-4-2

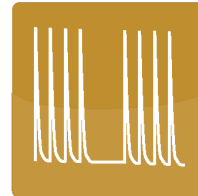
Contact Discharge current: 120A  
 DC Voltage : 30kV  
 Risetime: 500ps to 1000ps



## Electric Fast Transient (EFT)

IEC / EN 61000-4-4

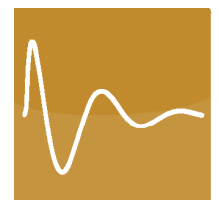
Impulse Voltage: 6kV  
 Risetime : 1ns to 1µs  
 Pulse Width: 10ns to 1µs



## Surge Impulses (CWG,RING,10/700)

IEC / EN 61000-4-5, 4-12, ITU-T K44

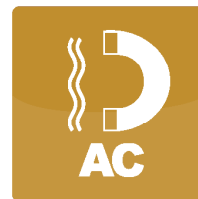
Impulse Voltage: 25kV  
 Impulse Current 100kA  
 Risetime : 0.8µs to 13µs  
 Pulse Width: 5µs to 840µs



## Magnetic Fields (AC, Impulse)

IEC / EN 61000-4-8, 4-9

Impulse Current: 1.6kA  
 AC Current : 2kA



## Voltage Dips & Interrupts

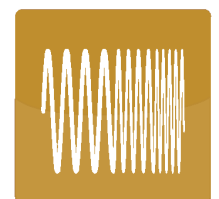
IEC / EN 61000-4-11, 4-34

Impulse Voltage: 1000V  
 Risetime : 1ns to 1µs  
 Pulse Width: 10ns to 1µs



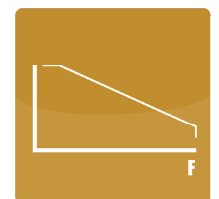
## DC Voltage & Current

DC Voltage: 30kV  
 DC Current : 30A



## AC Voltage & Current

AC Voltage: 750V  
 AC Current: 2kA



## Electrical Parameters

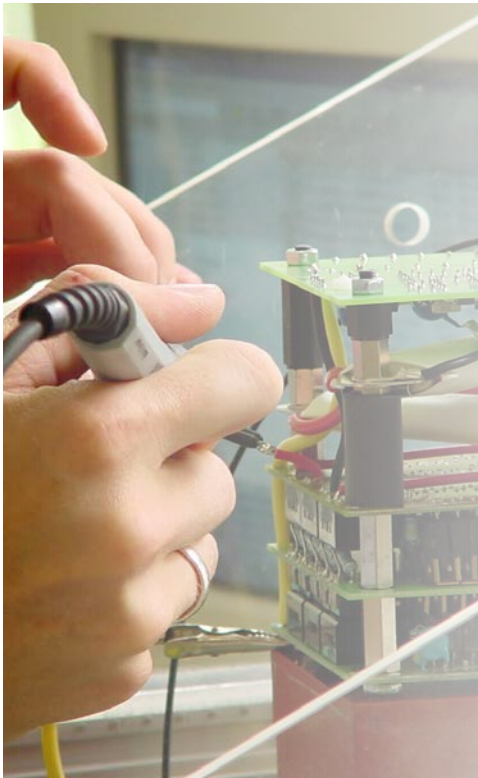
Resitance, Capacitance, Inductance, Frequency

Resistance: 0.1 to 100MΩ  
 Capacitance: 100pF to 100µF  
 Inductance: 10µH to 1H  
 Frequency: 10Hz to 300kHz

## S-Parameters

S21: 300kHz to 3GHz  
 Measurement Range: 0dB to -80dB

# IN-HOUSE SERVICES



## REPAIRS

- Expert knowledge, service and calibration from one source
- Access to original spare parts
- Access to manufacturers documentation
- Cost effective

## UPGRADES

- Keep up to date with latest standards
- Include product improvements
- Add new capability
- Be ready for the future, latest firmware included with calibrations



LARGE



The Swiss  
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## CALIBRATION

- ISO17025 accredited calibration
- Certificate with measurement results and oscillograms
- Procedures defined in Quality Management Handbook (QMH)
- Accepted worldwide

### Calibration Certificate

**ESD3000**  
EMC PARTNER AG

**ESD3000DM1**  
EMC PARTNER AG

**Certificate Number** 4-2723  
**Tested at** EMC PARTNER  
Laufen / Switzerland  
**Date** 17.04.2015  
**Result** ✓ PASS

## COST EFFECTIVE

- Function check before calibration
- Reduce downtime
- Reduce rework cost
- Get the most from your instrument

# ON-SITE SERVICES

## SYSTEM INSTALLATIONS

- Advice for site services
- Help with lab layout
- Installation of system and system components
- Initial operation and testing

## UPGRADES

- TRA3000 circuit modules added by customer
- IMU3000/IMU4000 circuit modules added by customer
- No special tools required
- Full written instructions, easy to understand

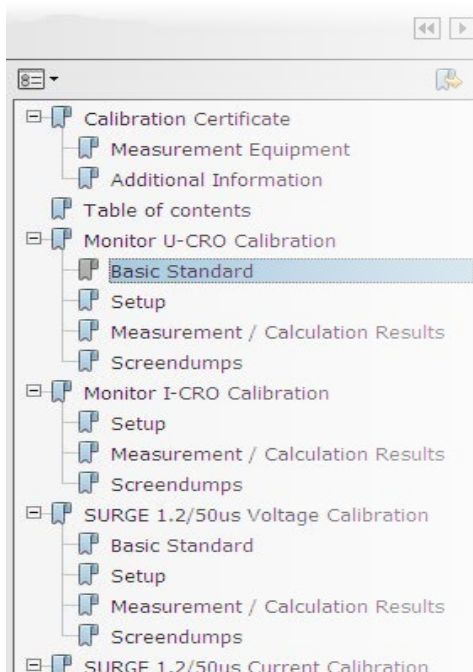
## TRAINING

- For new employees in the test lab.
- To apply IEC basic and product standards
- In use of EMC PARTNER test equipment
- Customized training courses

## WEB BASED SERVICES

- Service ticket system for fastest response
- Video Service instructions
- RMA request for instrument return
- Webinars for service and training





Calibration Certificate Contents

## Service instruction for TRA3000

Revised: 24.11.2011

### 1 CTRL3000: Connection check

Needed tools: Screwdriver for recessed head screws

#### 1. Remove the lid.

- Disconnect the supply voltage and any EUT power connection.
- Disconnect all external extensions.
- Unscrew the 4 recessed head screws of the lid.



Service Instruction Detail

## Our Philosophy

What we believe as a company

Our service philosophy is to involve customers and local representatives as much as possible in the repair process. This keeps down-time and costs to a minimum. Our competent service team are available to answer questions or provide assistance using all modern media. Over 20 years experience has shown that a lot of questions can easily be answered by the customer or local representative under instruction from the service department at EMC PARTNER AG.

## Repairs at source

Nobody does it better than the manufacturer.

After many years in service, instruments sent for repair, update or calibration are competently and expeditiously handled by a team of experienced engineers. We guarantee the quality of our work and the components used. After rework, instruments are given a thorough health check and factory calibration.

## Maintenance Contracts

To ensure the continued availability of an instrument or system, we can offer extended warranty periods of up to 5 years. The customer can choose between an on-site calibration or sending the equipment to the factory. In either case, our aim is to reduce down-time and help increase productivity. All equipment included in an extended warranty will be automatically updated to the latest build standard.

## Service Instructions

Helping to maintain serviceability on-site.

Simple step-by-step instructions have been prepared to assist in problem solving at the customer site.

Although EMC PARTNER strive to make a highest quality product, inevitably there will be breakdowns. Our team of qualified service engineers are ready to assist with repair of your EMC PARTNER instrument. Our expert knowledge as the manufacturer puts us in a unique position. Access to all the production documentation ensures that all instruments are repaired in the most cost effective and efficient manner.

Our team of qualified service engineers assess an instruments function before starting the calibration process. This reduces time and costs for our customers. A calibration at EMC PARTNER is the most cost effective method of maintaining EMC PARTNER instrumentation.

## Problem Check in Advance with our Online Form

We have created a Support Form on our Website ([www.emc-partner.com](http://www.emc-partner.com)). Many problems can be solved much faster by completing the form with essential details about the application and Test Equipment. With the correct information we can give more concrete advise and support to the customer.

# Calibrations

## Autocal Reminder

Register with our service department to receive a handy reminder when the next calibration is due. Scheduling a calibration in advance will reduce down time and help increase productivity. Use this facility as part of your own quality system.

## Calibration Services

EMC PARTNER offer a two level calibration service. Customers can choose between a manufacturers calibration without accreditation or a full ISO17025 accredited calibration. Our environmentally controlled laboratory is fully equipped to perform calibration of all EMC PARTNER AG instruments. We support the continuation of our users own quality procedures, increasing confidence on a worldwide scale.

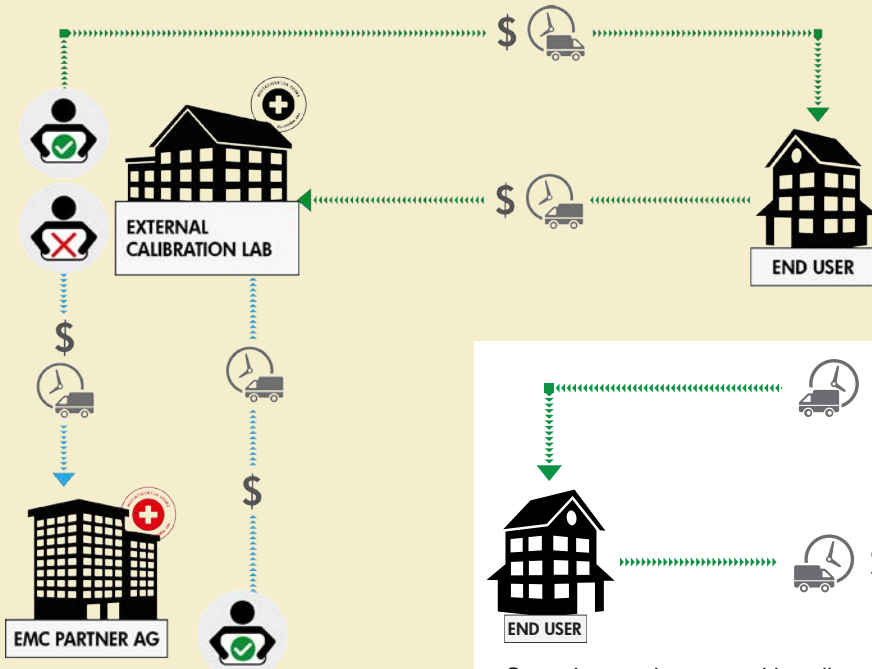
## SCS

1. ISO 17025 Accredited
2. Includes Measurement Uncertainty
3. Lists Measurement Equipment Traceability
4. Multiple Samples to Evaluate Result
5. Table of Measurement Results
6. DSO Screenshots
7. Overall System Test
8. Guarantee of Compliance



## MANUFACTURERS

1. Unit Test of ALL Functions
2. Single Sample to Evaluate Result
3. Table of Measurement Results
4. DSO Screenshots
5. Manufacturers Quality Assurance



Save time and money with a direct calibration, including any necessary repairs

EMC PARTNER  LARGEST RANGE OF IMPULSE TESTERS UP TO 100KV/100KA



### Calibration Certificate

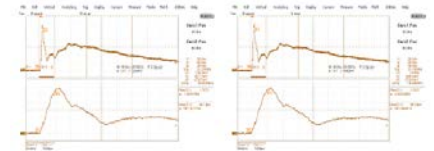
	Product Number	Serial Number	Firmware
ESD3000	103605	1676	3.38
ESD3000DM1	103606	1631	

#### 3.3 Measurement / Calculation Results

##### 3.3.1 Contact Discharge: Polarity pos: Level 2kV

Shot	Name	Value	Deviation	Uncertainty	
		Num. Value	Tolerance		
1	Peak reading	1.384 V			✓
	I@30ns reading	720 mV			✓
	I@60ns reading	441.6 mV			✓
	Risetime	861.073 ps	+7.634 %	+32 ps	✓
		800 ps	+25% / -25%		
	Peak calculation	7.283 A	-2.891 %	±5 %	✓
	I@30ns calculation	3.789 A	-5.263 %	±5.1 %	✓
	I@60ns calculation	2.324 A	+16.21 %	±5.1 %	✓
		2 A	+30% / -30%		

#### 3.4 Screenshotdumps



Accredited Calibration Certificate

EMC PARTNER  LARGEST RANGE OF IMPULSE TESTERS UP TO 100KV/100KA



### Calibration Certificate

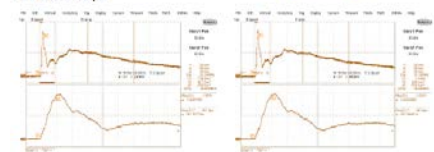
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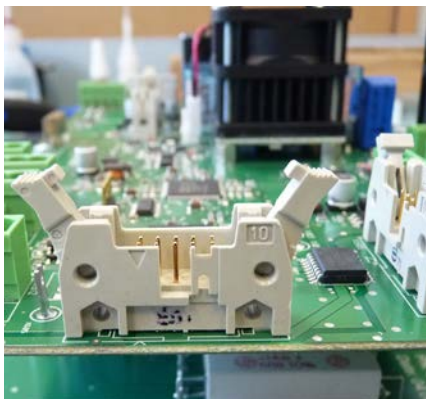
#### 3.4 Screenshotdumps



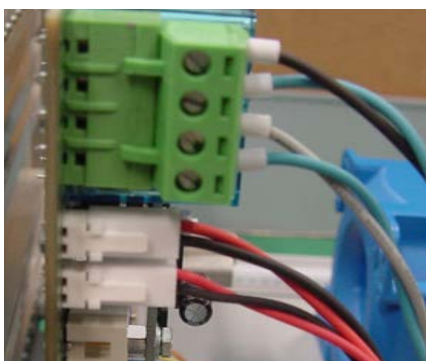
Manufacturers Calibration Certificate

Icons designed by freepik

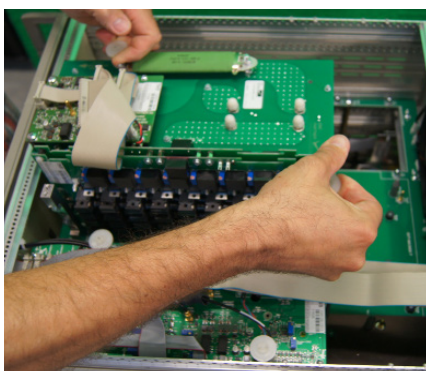
# Upgrades



Add System Capability



Continuous Product Enhancements



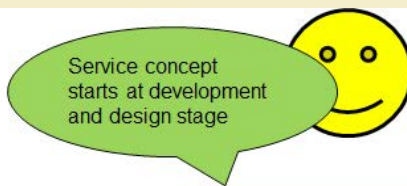
On Site Module Exchange

Continuous improvements made to our instrumentation during the normal product life cycle, can be added to existing EMC PARTNER instruments, making sure that your instrument is always to the latest build standard and complies with all current IEC standards. Updates are usually offered in conjunction with a repair or calibration.

Enhancing an existing product by adding more test capability is also a service we offer to our customers. Many upgrades, for the newer instrumentation, can be performed by our customers on site. However upgrade of some older generation instruments, can only be performed with the specialist knowledge in our workshop.

The IMU generators are built using modular technology. Upgrades can be performed on site by our customers. Apart from offering an instant enhancement of capability, customers have no down-time. The instrument can continue in use without interruption.

Instruction videos guide, even the most inexperienced, users through the module insertion process.



Assemble to order

**Modular Concept**  
Mainframe and extensions verified and on stock with verification certificate



**Repair by interchanging modules at:**

- customer site
- EMCP service centre.



# Training

## Facilities

Sales and service training is conducted in our custom built facility or using our high-definition video conference system. The EMC PARTNER building fulfills Minergie standards and is a further indication of our commitment to the environment.

All EMC PARTNER products comply with RoHS standards for environmental safety.

## Sales Training

Either at our facility in Laufen or directly at the customer location, EMC PARTNER customer service engineers are available to assist with instruction on use of the instrumentation and application assistance. The installation of larger systems at the customer site can also be combined with a local training for customer engineers. This includes help with site services and placement of the equipment to make optimum use of the space available.

## Service Training

EMC PARTNER organise regular service training courses for recognised service centres. Mostly conducted at our facility in Laufen, it is also possible (provided sufficient participants are available) to organise a training session in specific geographic regions. The EMC PARTNER customer service personnel undergo continuous training courses to ensure we offer the best service to our customers.

## Webinars

Everybody with access to an internet enabled PC can take part in EMC PARTNER webinars. Webinars will be announced on the EMC PARTNER portal [www.emc-partner.com](http://www.emc-partner.com). Using this simple method, customers can receive assistance and information about products, applications and operation of EMC PARTNER generators and systems.

## On-Line Video Tutorials

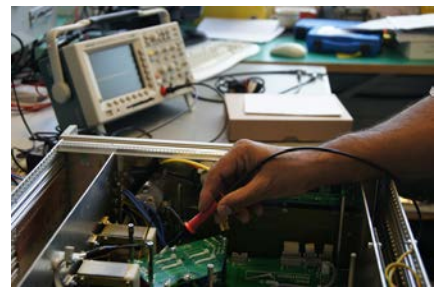
Service videos are aimed at helping our customers to understand and operate EMC PARTNER instruments in a safe and efficient manner. They are available on the EMC PARTNER portal or via YouTube.



Custom Built Facility in Switzerland



Modern Video Conference Facility



Service Training from Professionals



Web Based Video Tutorials

# Software Updates

## EPOS 2.7.4 (03.03.2015)

Download Details System Requirements

Firmware to update all IMU and COMP generators and modules includes the webserver and library.



Keeping test instrumentation up to date is an important part of the product life cycle. EMC PARTNER make continuous improvements to all products. this can be in the form of hardware changes or software changes. Software updates for all EMC PARTNER instruments are provided free of charge through [www.emc-partner.com](http://www.emc-partner.com).

### Instrument Firmware

The latest range of EMC PARTNER instrumentation is designed so that customers can obtain newest software from the EMC PARTNER web site [www.emc-partner.com](http://www.emc-partner.com) and load it directly into their instrument using either the USB or Ethernet interfaces. This service is free of charge and independent of our customer service department.

Updates are available for the following EMC PARTNER generators:

#### HARCS

HAR1000 (1 Phase and 3 Phase)

#### TRA UPLOAD Package

TRA3000

#### EPOS upload Package

IMU4000

IMU3000

COMP0804CAP

MIL3000

Instruments using older design controllers require a software package compiled by the EMC PARTNER customer service team who supply the software by e-mail or as part of a hardware upgrade package or calibration at EMC PARTNER. This applies to the following generators:

TRA2000

All MIG Generators

Please consult the customer service team for further information at:

[service@emc-partner.ch](mailto:service@emc-partner.ch)

### Computer Software

All EMC PARTNER remote control software packages are regularly updated and the latest versions placed on the EMC PARTNER web site [www.emc-partner.com](http://www.emc-partner.com)

- TEMA software for remote control of MIG2000 and TRA2000 generators
- GENECS-MIG software, front panel emulator for MIG2000 and TRA2000
- GENECS-TRA software, front panel emulator for TRA3000 only.
- E3LOADER software for ESD3000 control and calibration.
- HARCS software for Harmonics & Flicker tests and reporting
- PS3SOFT-EXT software for testing to IEC61000-4-28 using PS3 generator
- TEMA3000 package for IMU series generators

Updates are provided FREE OF CHARGE to EMC PARTNER AG customers

[www.emc-partner.com/software-downloads](http://www.emc-partner.com/software-downloads)

Software Support Documents

### Software

EMC PARTNER offer software packages which are t saved in the software can be downloaded to the instr made available in a universal format that makes com

## TEMA3000 2.6 (18.03.15)

Download Details System Requirements

Control of generators with EPOS operating system. For example IMU / COMP Generators Remote control and single test programming



# EMC PARTNER's Product Range

The Largest Range of Impulse Test Equipment up to 100kA and 100kV.

## Immunity Tests

Transient Test Systems for all EMC tests on electronic equipment. ESD, EFT, surge, AC dips, AC magnetic field, surge magnetic field, common mode, damped oscillatory and DC dips. According to IEC and EN 61000-4-2, -4, -5, -8, -9, -10, -11, -12, -13, -14, -16, -18, -19, -29.

## Lightning Tests

Impulse test equipment and accessories for aircraft, military and telecom applications. Complete solutions for RTCA / DO-160 and EUROCAE / ED-14 for indirect lightning on aircraft systems, MIL-STD-461 tests CS106, CS115, CS116 and Telecom, ITU-T .K44 basic and enhanced tests for impulse, power contact and power induction.

## Component Tests

Impulse generators for testing; varistors, gas discharge tubes (GDT), surge protective devices (SPDs), X / Y capacitors, circuit breakers, watt-hour meters, protection relays, insulation material, suppressor diodes, connectors, chokes, fuses, resistors, emc-gaskets, cables, etc.

## Emission Measurements

Measurement of Harmonics and Flicker in 1-phase and 3-phase electrical and electronic products according to IEC /EN 61000-3-2 and 61000-3-3 . HARCS Immunity software adds interharmonic tests, voltage variation and ripple on DC tests according to IEC/EN 61000-4-13, -4-14.

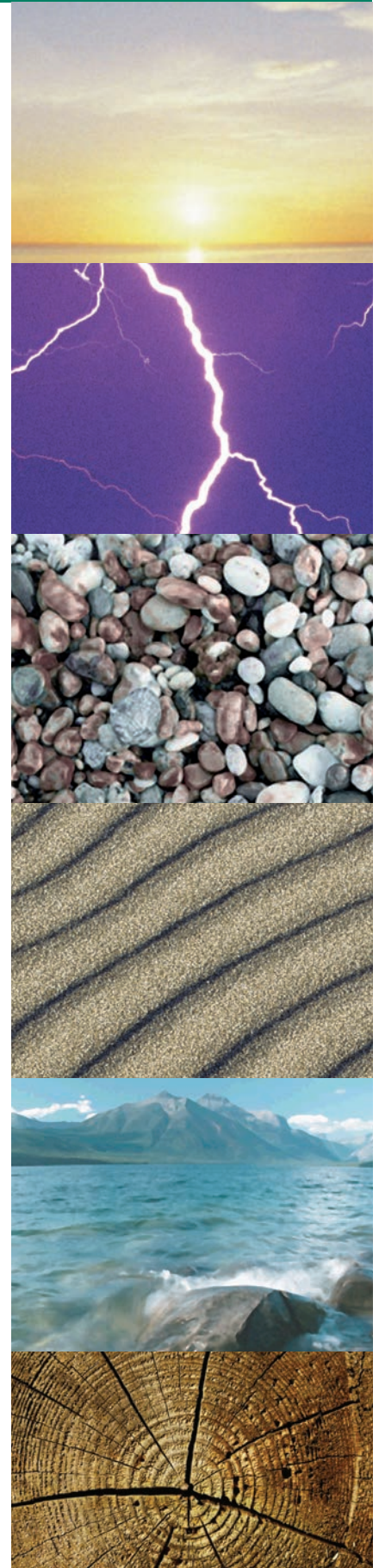
## System Automation

A full range of accessories enhance the test systems. Test cabinets, test pistols, adapters and remote control software, simplify interfacing with the EUT.

Programmable PSU, EMC hardened for frequencies from 16.7Hz to 400Hz. Frequency PS3-SOFT-EXT complies with IEC / EN 61000-4-14 and -4-28.

## Service

Our commitment starts with a quality management system backing up our ISO 17025 accreditation. With the SCS number 146, EMC PARTNER provide accredited calibration and repairs. Our customer support team are at your service!



For further information please do not hesitate to contact EMC PARTNER's representative in your region. You will find a complete list of our representatives and a lot of other useful information on our website:

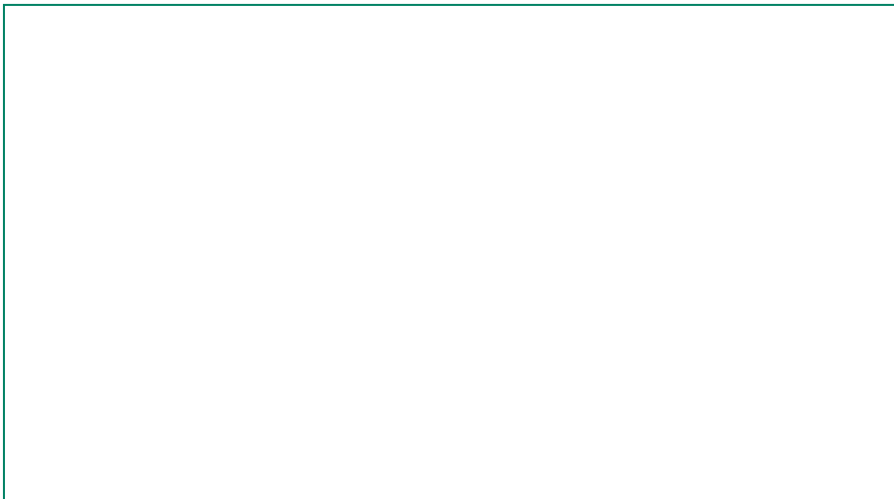
[www.emc-partner.com](http://www.emc-partner.com)

### The Headquarters in Switzerland

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### Your local representative



Information and specifications in this document are an indication of capability only. Technical performance is given in the EMC PARTNER AG Technical specification for the corresponding instruments. Version 11.2016. Subject to change without notice.