

Product Overview 2012

EMC TEST EQUIPMENT



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AXOS⁵ Compact Tester

The AXOS⁵ is an ultra-compact immunity tester that performs all the most commonly used transient immunity tests, including Surge, EFT, Dips/Interrupts and AC/Surge Magnetic Field.



Full Compliance and Pre-compliance tests are performed to meet the requirements of a wide variety of transient immunity standards, including IEC 61000-4-x “CE Mark” Basic standards, IEC 60601 for Medical equipment, and many other IEC, ANSI, ITU, UL and specific product standards

For further details please also visit www.axos.haefely.com

Features

Simplicity

The simplified user interface can be fully operated via touchscreen and provides a quick selection of tests and test levels, and even lets you change test parameters “on the fly” while running a test, making this type of tester one of the most user friendly testers.

Expandability

A large number of additional accessories enable users to extend their testing even further, by adding capacitive coupling clamps, data and control line CDNs, three phase power line CDNs, and impulse transformers for performing insulation tests, making the AXOS⁵ tester your one stop test station for everything from pre-compliance to full compliance and product development testing.

Options and accessories



	AXOS ⁵	ONYX 16	MFS100	VTM15000	FP-COMB 32	FP-SURGE100M2	FP-EFT100M2	PCD121	PCD126A	DEC5	DEC 6	DEC7	IP4A	EFT Ver. Set	ESD Ver. Set
Surge 1.2/50 & 8/20, 5.0kV	x														
EFT / Burst 5.0kV	x														
Dips & Interrupts	x														
ESD 16kV		x													
AC magnetic field 61000-4-8			x												
Surge magnetic field 61000-4-9			x												
Insulation testing 1.2/50, 8kV				x											
3-phase surge 16A															
3-phase surge 100A					x	x									
3-phase EFT/Burst 16A					x										
3-phase EFT/Burst 32A					x										
3-phase EFT/Burst 100A							x								
CDNs symmetrical data & control lines								x		x					
CDNs asymmetrical data & control lines									x		x	x			
Capacitive coupling clamps													x		
EFT/Burst Verification set														x	
ESD verification set															x

Electrostatic Discharge (ESD)

The brand new ONYX ESD simulators by HAEFELY EMC have been specially designed to meet all latest international standards, including IEC61000-4-2 edition 2, and are the most agronomical battery and AC power operated 30kV guns on the market. 16kV and 30kV models available, along with a complete range of accessories that ensure a complete ESD test setup (verification equipment, test tables, coupling planes etc).

Have a closer look at the features of the latest ESD gun on the market at: www.onyx.haefely.com

ONYX ESD Simulators



Features:

- 16kV and 30kV models
- Touch screen operation
- Modular
- Automatic polarity switching
- Remote control software
- Remote trigger
- Bleed-off functionality
- Battery and AC operation
- Environmental monitoring
- Onboard LED EUT light
- Smart key functions
- Contact discharge current flow detection
- Self-test function

Standards:

- IEC 61000-4-2 edition 2
- IEC613402-1/-2
- IEC 801-2
- IEC 60571
- EN 50155
- ANSI C63.16
- ISO 10605
- ISO 14304
- ITU-T K20
- MIL-STD-1512/-1514/-750D/-883
- RTCA/DO-160
- JEDEC 22-A114A
- GR-78/1089-CORE

Distinctive features

Ergonomic design

The core advantage of the ONYX ESD simulators is the ergonomic design and operation. Never has 30kV ESD testing been carried out with such comfort and simplicity.

Smart Key operation

The smart key button is integrated at the upper part of the discharge trigger and has various functions which are defined by the user, enabling you to run a sequence of events according to your testing requirements, and simplify test procedures to the minimum.

The functions include user defined discharge voltages steps, sweep voltage, On/Off LED light, Polarity Switching, camera & report function.

Compliance and modularity

The design is based on the requirements of all latest international standards, including the latest IEC 61000-4-2 edition 2. R/C module values are available from 50-5000 Ohms and 50-1000pF, which enables users to fully test according to many international standards.

Contact discharge current flow detection & Self test

The unique NO CONTACT detection circuit function continuously monitors whether ESD pulses are discharged to the EUT, ensures users the test was *successful* and prevents incorrect test results.

The self test function is a built-in self test routine which checks the HV supply, the impulse capacitor, the HV discharge relays, and the insulation of the entire HV circuitry.

Bleed-off functionality

The so called bleed-off functionality of the ONYX simulator ensures via an integrated relay that the EUT is completely discharged before the next ESD pulse is initiated. This functionality ensures a maximum of test accuracy to the user.

ONYX 16

16kV Electro Static Discharge Simulator

- 16kV Air & Contact discharge
- 150pF/330Ω standard discharge network
- Exchangeable RC modules to meet various standard requirements (IEC, ISO, ANSI, MIL...)
- Ergonomic design and operation (touch screen)
- Rechargeable battery or mains operated
- Smart key functions
- Automatic polarity switching
- Remote trigger
- Self test function
- Includes: Light rigid carrying case, contact and air discharge tips, mains supply, 2xrechargeable battery pack with charger



ONYX 30

30kV Electro Static Discharge Simulator

- 30kV Air & Contact discharge
- 150pF/330Ω standard discharge network
- Exchangeable R/C modules to meet various standard requirements (IEC, ISO, ANSI, MIL...)
- Ergonomic design and operation (touch screen)
- Rechargeable battery or mains operated
- Smart key functions
- Automatic polarity switching
- Remote trigger
- Self test function
- Includes: Light rigid carrying case, contact and air discharge tips, mains supply, 2xrechargeable battery pack with charger



ESD Verification Set

- Built according to IEC/EN 61000-4-2
- Verification/calibration of ESD generators up to 30 kV
- 2 Ω fully compliant Pellegrini target
- 6 dB and 20 dB attenuators
- Required cables included
- Supplied with detailed application note
- Optional 4GHz version available acc. IEC 61000-4-2 edition 2

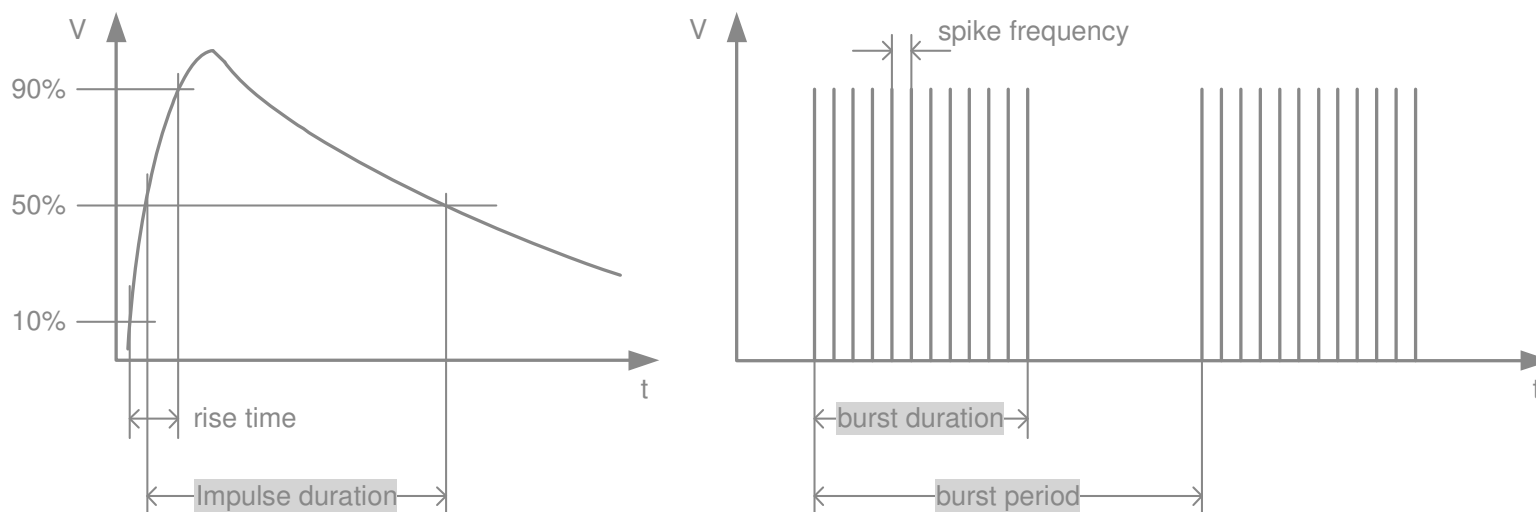


Accessories

- ESD Verification set
- Vertical and Horizontal coupling planes
- 30kV air discharge tips
- Fast rise time tips
- R/C networks R:50-5000 Ohm, C:50-1000 pF
- Test tables
- Remote control package including optical fibre optic link cable and software package.

EFT / Burst

Bursts or EFTs (electrical fast transients) are caused by operation of electro-mechanical switches, motors and distribution switch-gear connected to the power distribution network. A typical burst consists of a large number of recurring impulses at high frequency for a short time period.



All our EFT/Burst generators are 100% compliant to the latest standards, including IEC/EN 61000-4-4 edition 2, which is mandatory from October 2007.

Distinctive features

Flexibility

Depending on the actual testing requirements, we offer our customers the choice between stand alone and compact testing equipment.

Stand alone equipment allow users to test at levels higher than what is usually required within the standards, making such testers ideal for over-testing purposes.

Compact solutions allow users to not only cover the latest eft/burst requirements, but also to carry out surge, dips & interrupts, magnetic field, and insulation tests.



Stand alone

- independent test station.
- high end components.
- very high result accuracy and precision.
- higher voltage levels, 4.8 and 7.4kV.
- Spike frequency up to 2MHz & 5 burst modes.
- 12'000 impulses/second.
- IEC/EN61000-4-4 ed.2.
- unique windows based control and reporting software.
- distinctive safety features.
- ideal for over testing.

Compact

- multi-test station.
- Covers eft/burst, surge, dips&interrupts, magnetic field, and insulation tests.
- 5.0kV EFT/burst.
- fully meets all latest standards including IEC/EN61000-4-4 ed.2.
- ideal for pre-compliance testing and CE marking.

NOTE: Please refer to the COMPACT section on page 3 for details.

PEFT 4010

4kV Burst Test System

- Built according to IEC/EN 61000-4-4 edition 1 and 2 as well as to ANSI/IEEE C62.41/45 and C37.90.1
- Impulse voltage up to 4.8kV
- Frequency range from 1Hz to 2MHz
- IEC, random, continuous and real burst mode
- Ramp functions
- Integrated automated single-phase CDN for AC and DC up to 16A EUT mains current
- Burst parameters editable during testing



PEFT 8010

7.3kV Burst Test System

- Built according to IEC/EN 61000-4-4 edition 1 and 2 as well as to ANSI/IEEE C62.41/45 and C37.90.1
- Impulse voltage up to 7.3kV
- Frequency range from 1Hz to 100kHz
- IEC, random, continuous and real burst mode
- Ramp functions
- Integrated automated single-phase CDN for AC and DC up to 16A EUT mains current
- Burst parameters editable during testing



FP-EFT 32M

Manual 32A Three-Phase Coupling-Decoupling Network for EFT Testing

- Built according to IEC/EN 61000-4-4 ed. 1 and 2 as well as to ANSI C62.41/45
- Superposition of EFT impulses onto three-phase power lines and DC power lines
- 8kV maximum impulse voltage
- EUT mains voltage up to 690V/400V AC, 110V DC
- EUT mains current up to 32A per phase
- Synchronization with power supply possible
- EUT over-current protection



FP-EFT 100M

100A Three-Phase Coupling/Decoupling Network for EFT Testing

- Built according to IEC/EN 61000-4-4 ed. 1 and 2 and ANSI C62.41/45
- Superposition of EFT impulses onto three-phase power lines and DC power lines
- 8kV maximum impulse voltage
- EUT voltage up to 690V/400V AC
- EUT mains current up to 100A per phase
- Manual coupling path switching
- Synchronization with power supply possible



IP4A

Capacitive Coupling Clamp for superposition of Bursts on Data Lines

- Built according to IEC/EN 61000-4-4 Edition 1 & 2 and ANSI C37.90.1
- 40mm maximum cable size
- Up to 8kV impulse voltage
- Handy carrying handle



EFT Verification Set

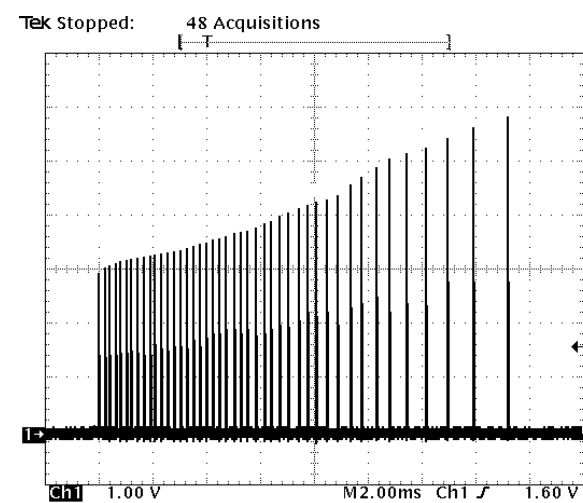
Waveform verification set

- Built according to IEC/EN 61000-4-4 edition 1 and edition 2
- For verification/calibration of EFT generators (PEFT.1, PEFT JUNIOR, PEFT 4010, ECOMPACT4)
- Combined 50 Ω load, 54 dB attenuator
- Combined 1 k Ω load, 60 dB attenuator
- Required cables included
- Supplied with detailed application note



Options

- IEEE 488 interface option
- Three phase verification adapters
- Warning lamps and emergency switches
- Fibre optic links (EUT fail)
- Test tables
- Dedicated software WinFEAT&R
- Upgrade kits for older models
- Real burst functional extension
- Optical decoupling fibre optic links (RS232)
- AC and DC adapters
- Near field test probes (E&H)
- Vertical operation stands VOS



Surge - transient / lightning

Stand alone, compact, and modular Surge impulse generators are available up to 30kV, which cover a range of EMC surge tests including the classical IEC defined "Combination Wave" 1.2/50 & 8/20, "Hybrid waves" defined for telecommunications testing, 10/700, ring wave, damped oscillating wave, magnetic field, and many more.

Typical standard applications include IEC, EN and ANSI for power line testing, FCC, Bellcore, ITU and ETSI for telecom testing.

Our famous modular Surge Platform can also be used for product safety testing to UL standards and also ITE requirements. A wide range of accessories from single and three phase CDNs up to 100A and telecoms coupling units, make these systems the most modular and flexible test equipment on the market.



Products and applications



	AXOS ⁵	PSURGE8000	PIM100	PIM110	PIM120	PIM130	PIM150	PIM155	PIM200	PIM210	PIM400	PIM800	PIM900	VTM15000	PSURGE30.2	PS1500
Combination Wave 1.2/50 & 8/20																
4kV		x	x													
5kV	x															
8kV		x	x								x					
30kV																x
Impulse Current																
1.2kA		x								x						
12kA									x							
30kA																x
Ring Wave																
7.8kV 100kHz		x		x												
Damped Oscillatory Wave																
100kHz & 1MHz		x					x									
100kHz & 1MHz Magnetic Field								x								
Insulation testing 1.2/50																
8kV	x	x	x			x									x	
15kV		x	x												x	
Standards																
IEC	x	x	x	x	x	x	x	x	x	x				x	x	x
UL		x			x				x	x	x					x
FCC Part 68		x										x				
Telcordia GR-1089-CORE		x											x			
ITU	x	x	x		x	x			x	x						x
ANSI		x	x	x	x	x	x		x	x	x					x

A complete list of standards covered by HAEFELY EMC products is available on www.haefelyemc.com

AXOS⁵

5kV Compact Immunity Test System

- Built according to IEC/EN 61000-4-5 Ed. 1 & 2
- Impulse voltage up to 5.0kV, 1.2/50 μ s
- Impulse current up to 2.5kA, 8/20 μ s
- Positive, negative and alternating polarity
- Phase angle synchronisation
- Impulse voltage & current monitors
- Ramp functions
- 7" 24 bit touch-screen
- Integrated 16 A single-phase CDN for AC and DC



FP-COMP 32

32A Three-Phase Coupling/Decoupling Network for SURGE Testing

- Built according to IEC/EN 61000-4-5 Ed. 1 & 2
- EUT voltage up to 690V/400V AC
- EUT current up to 32A per phase
- Test level max. 7.0kV / 3.5kA
- Fully automatic test routines
- Automatic synch source switching
- Test object power line bypass mode
- Test object overcurrent protection

PS 1500

15kV Voltage Surge Generator

- Built according to IEC/EN 60065, IEC/EN 60950-1 and UL 1414
- Impulse voltage up to 15kV
- Up to 24 discharges per minute
- Positive and Negative Polarity
- External trigger input
- automatic selection of 4M Ω /100 M Ω parallel resistor
- Impulse voltage monitor
- Including test pistol
- Flash measurement
- Insulation/safety testing
- Component testing
- Small and compact design



PSURGE 30.2

30kV Surge Test System

- Built according to IEC/EN61000-4-5, IEC/EN 61010, IEC/EN 61643-1 and ANSI C62.41/45
- Impulse voltage up to 30kV (combination wave)
- Impulse current up to 30kA (8/20 μ s)
- Combination wave (1.2/50 μ s & 8/20 μ s)
- 8/20 μ s, 10/350 μ s, 10/1000 μ s current pulse
- Impulse voltage & current measurement
- Automatic polarity switching
- Integrated test cabinet



FP-SURGE 3010

Single-Phase Coupling/Decoupling Network for Surge Testing up to 30kV / 15kA

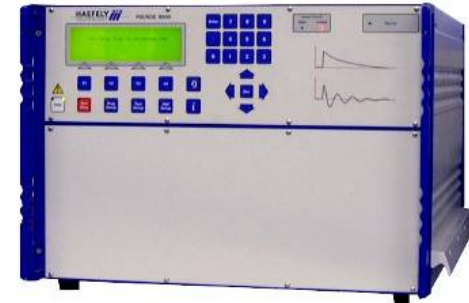
- Built according to ANSI C62.41/45
- Single-phase EUT powering
- EUT mains voltage up to 480V
- EUT mains current up to 10A
- Manual selection of coupling path and coupling capacitor
- Test level up to 30kV / 15kA
- EUT overcurrent protection
- Large integrated test cabinet



PSURGE 8000

Controller for SURGE Platform Modules

- Controls up to 99 PIM and PCD modules
- Supplies up to 8kV DC power to all connected PIM impulse modules
- PIM and PCD modules connected to PSURGE 8000 via daisy-chain-bus
- No additional extension-equipment required to connect additional PIM or PCD modules
- Large memory for complex and fully automatic test routines
- Contains all required interfaces to printer, PC, EUT, etc.



PIM 100

Combination Wave Impulse Module

- Built according to IEC/EN 61000-4-5 Ed. 1 & 2 and ANSI C62.41/45
- 1.2/50 μ s open circuit up to 7.4kV
- 8/20 μ s short circuit up to 3.7kA
- Impulse voltage and current monitors
- $\pm 1^\circ$ Phase synchronization
- Reliable semiconductor HV-switch
- Positive, negative and alternating polarity
- Up to 12 pulses per minute



PIM 110

Ring Wave Impulse Module

- Built according to IEC/EN 61000-4-12 and ANSI C62.41/45
- 100 kHz frequency, 0.5 μ s rise time
- Imp. voltage up to 7.8kV/ 12 Ω , 30 Ω and 200 Ω
- Impulse voltage and current monitors
- $\pm 1^\circ$ phase synchronization
- Positive, negative and alternating polarity
- Up to 12 pulses per minute
- Reliable semiconductor HV-switch



PIM 120/PCD 120

Telecom Test System

PIM 120:

- Built according to IEC/EN 61000-4-5 Ed. 1 & 2, ITU K-series and IEC 60950
- 10/700 μ s open circuit voltage
- 5/320 μ s short circuit current
- Imp. voltage up to 7.4 kV / 15 Ω and 40 Ω
- Impulse voltage & current monitors
- Reliable semiconductor HV-switch
- Positive, negative and alternating polarity
- Up to 12 pulses per minute

PCD 120:

- 4 wire coupling unit for unshielded symmetrical operated lines
- Compliant to IEC 61000-4-5 (10/700 μ s impulse only), ITU K.20/K.21/K.44/K.45
- Fully automated operation



PIM 130

Voltage Impulse Surge Module

- Built according to IEC/EN 60950, IEC/EN 60065 UL 1950
- 1.2/50 μ s open circuit
- 8kV U_c / 7.4kV peak / 15 Ω and 40 Ω
- IEC/UL charging voltage mode
- ITU impulse mode
- Impulse voltage & current monitors
- Positive, negative and alternating polarity
- Up to 12 pulses per minute



PIM 150

Oscillating Wave Surge Module

- Built according to IEC/EN 61000-4-12 Ed.1, IEC 61000-4-18 Ed.1, IEC 60255-22-1 and ANSI C37.90
- 100 kHz and 1 MHz burst frequencies
- 75 ns rise time
- Impulse voltage up to 3.3kV / 200 Ω
- Integrated, fully automatic CDN for three-phase AC and DC power lines
- EUT mains voltage up to 480V/277V 16A
- Impulse voltage monitor
- Capacitive coupling clamp available (IP 4A)
- Data line CDN available (PCD 150)



PIM 200

Current Impulse Module

- Built according to IEC/EN 61008, 61009, 61051, 61643, ANSI C62.31, C62.33, C62.35, ITU K.20, K21, K.44, K.45 and UL 943
- 8/20 μ s current impulses from 800A up to 12kA
- 10/1000 μ s current impulses from 8A up to 110A
- Test components with clamping voltage up to 3kV
- Integrated test cabinet
- Clamping voltage and peak current display
- Generator terminals visible short-circuited when test cabinet is open (for safety reasons)



PIM 210

Current Impulse Module

- Built according to IEC/EN 61051, 61643, ANSI C62.33, C62.35 and ITU K.20, K21, K.44, K.45
- 8/20 μ s current impulses from 1A up to 1.2kA
- 10/1000 μ s current impulses from 1A up to 11A
- Integrated test cabinet
- Clamping voltage and peak current display
- Generator terminals visible short-circuited when test cabinet is open (for safety reasons)



PIM 400/PIM 410/PCD 430

UL 1449 Surge Test System

- Built according to UL 1449 standard
- 1.2/50 μ s open circuit
- 8/20 μ s short circuit
- Imp. voltage up to 7kV/ 2 Ω and 12 Ω
- Impulse voltage & current monitors
- >200A AC fault current at 120V mains
- Synchronization with coupling phase
- EUT voltage up to 690V/400V 32A AC
- Up to 12 pulses per minute
- Fully automated test system
- System prepared to add Ringwave-module (PIM 110)



PIM 800/PIM 810/PCD 800/PCD 100 or PCD 130

TIA-968A (FCC Part 68) Surge Test System

- Built according to TIA-968A (FCC part 68/47 CFR)
- 10/560 μ s combination wave impulse
- 10/160 μ s combination wave impulse
- 9/720 μ s voltage impulse
- 2/10 μ s combination wave impulse
- Tip and ring telecom coupler for 2 and 4 wire
- Single- or three-phase power line CDN up to 690V/400V AC
- EUT current up to 32A
- RJ 11, 12 and 45 adapters
- Impulse voltage and current monitors



PIM 900/PIM910/PIM930/PCD900

Telcordia (Bellcore) 1089 Surge Test System

- Built according to Telcordia (Bellcore) GR-1089-CORE
- 10/360 μ s combination wave impulse
- 10/1000 μ s combination wave impulse
- 2/10 μ s combination wave impulse up to 5.5kV
- 3 way multiplex tip and ring telecom coupler 4 wire
- Fully automated test routines
- Tests up to 3 EUTs simultaneous, no rewiring required
- Fully automated test report generation
- 12 pair surges
- True 3, 5 and 24 terminal surges
- Single- or three-phase power line CDN up to 690V/400V 32A
- Fully automated test system
- System prepared to add combination wave (PIM 100) with single-phase CDN (PCD 100) or three-phase (PCD 130) CDN



PCD 100

Single-Phase Coupling/Decoupling Network for SURGE Platform

- Built according to IEC/EN 61000-4-5 Edition 1 & 2, ANSI C62.41/45, TIA-968A (FCC part 68/47 CFR), Telcordia (Bellcore) GR-1089-CORE
- Fully automated test routines
- Coupling of up to two different wave-shapes without any rewiring
- For combination wave, Ringwave and others
- Up to 8kV impulse voltage
- EUT mains up to 264V / 16A



PCD 130

Three-Phase Coupling/Decoupling Network for SURGE Platform

- Built according to IEC/EN 61000-4-5 Edition 1 & 2, ANSI C62.41/45, TIA-968A (FCC part 68/47 CFR), Telcordia (Bellcore) GR-1089-CORE
- Fully automated test routines
- Coupling of up to three different wave-shapes without any rewiring
- For combination wave, Ringwave and others
- Up to 8kV impulse voltage
- EUT mains voltage up to 690V/400V
- EUT mains current up to 32A per phase
- Correct phase angle synchronization for each coupling path



FP-SURGE 100M2

100A Three-Phase Coupling/Decoupling Network for SURGE Testing

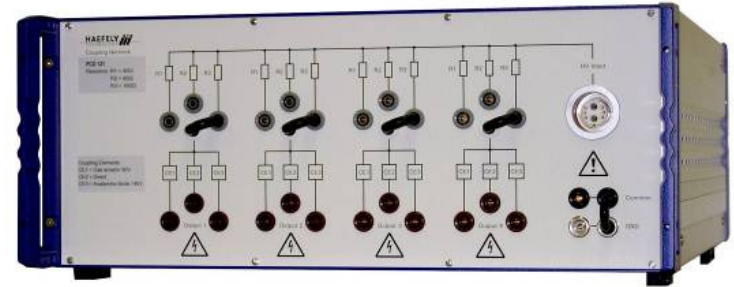
- Built according to IEC/EN 61000-4-5 Edition 1 & 2 and ANSI C62.41/45
- Superposition of surge impulses onto three-phase AC power lines & DC power lines
- Up to 8kV impulse voltage
- EUT mains voltage up to 690V/400VAC & 110V DC
- EUT mains current up to 100A per phase
- Manual coupling path switching
- Synchronization with power supply



PCD 121

Manual Surge Coupling Unit for Symmetrical Data and Control Lines

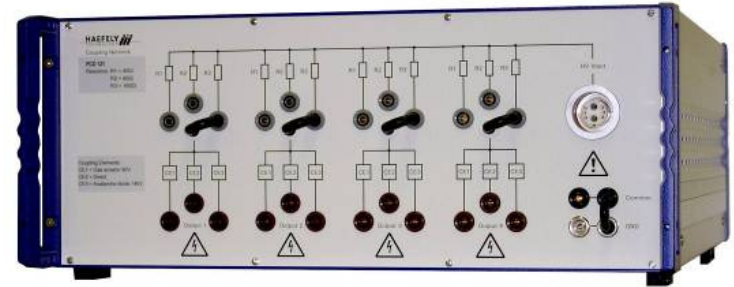
- Built according to IEC/EN 61000-4-5 Edition 2 Figure 14 (Ed. 1 Figure 12)
- Coupling of combination wave impulses
- Up to 2 pairs / 4 wires can be tested
- Serial resistors included, 4 x 40/80/160 Ohm
- Gas arrestors and Avalanche Breakdown Diodes coupling elements included
- Can be used with any surge generator
- Impulse voltage up to 6.6kV
- Signal Bandwidth up to > 10 MHz.



PCD 122

Manual Surge Coupling Unit for Symmetrical Data and Control Lines

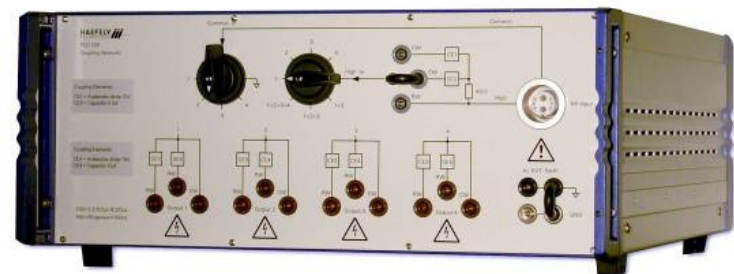
- Built according to IEC/EN 61000-4-5 Edition 2 Figure 14 (Ed. 1 Figure 12)
- Coupling of 10/700 µs impulses
- Up to 2 pairs / 4 wires can be tested
- Serial resistors included, 4 x 25/50/100 Ohm
- Gas arrestors and Avalanche Breakdown Diodes coupling elements included
- Can be used with any surge generator
- Impulse voltage up to 6.6kV
- Signal Bandwidth up to > 10 MHz.



PCD 126A

Manual Surge Coupling Unit for Asymmetrical Data and Control Lines

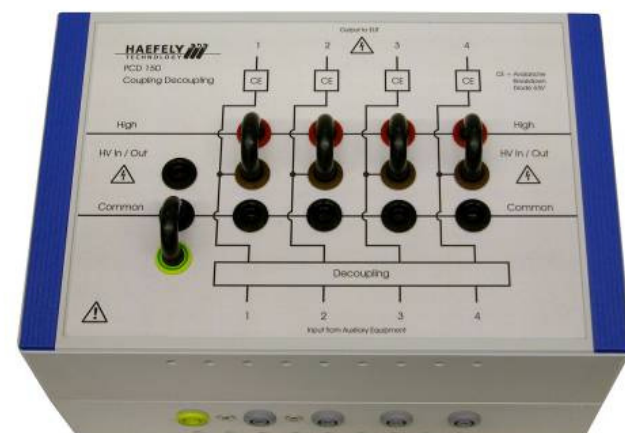
- Built according to:
 - IEC/EN 61000-4-5 Ed. 1 Figure 10 & 11 for CWG
 - IEC/EN 61000-4-5 Ed. 2 Figure 11,12&13 for CWG
 - IEC/EN 61000-4-12 1995 Ed. 1 Figure 9, 10, 13 & 14 for Ring Wave 100kHz
 - IEC/EN 61000-4-12 2006 Ed. 2 Figure 9, 10, 11 & 12 for Ring Wave 100kHz
- Coupling of Combination Wave impulses and Ring Wave 100kHz impulses
- Up to 4 wires can be tested simultaneous
- 40 Ohm Serial resistor included
- Capacitors and Avalanche Breakdown Diodes coupling elements included
- Impulse voltage up to 6.6kV
- Signal Bandwidth up to some 100 kHz.



PCD 150

Manual Surge Coupling/Decoupling Unit for Data and Control Lines

- Built according to IEC/EN 61000-4-12:1995 Figure 9, 10, 13 & 14
- For Damped oscillatory wave 100 kHz & 1MHz
- For Ring Wave 100 kHz with Z = 200 Ohm
- Up to 4 wires can be tested with one unit
- Up to 8 wires can be tested with two units
- Default coupling elements are Avalanche Breakdown Diodes
- Impulse voltage up to 4.4kV
- Signal Bandwidth up to some 10 kHz.



DEC 5

Surge Decoupling Unit for Symmetrical Data and Control Lines

- Built according to:
 - IEC/EN 61000-4-5 Edition 1 Figure 12
 - IEC/EN 61000-4-5 Edition 2 Figure 14
 - ITU K.44:2003 Figures A.5-1, A6.1-1 to A6.1-5
- Up to four wire can be tested simultaneous
- Decoupling of combination wave impulses
- Decoupling of 10/700 μ s telecom impulses
- Decoupling: Inductors 20mH compensated
- Protection elements are Gas arrestors and Breakdown avalanche diodes
- Can be used with any surge generator
- Impulse voltage up to 6.6kV
- Signal Bandwidth up to some 100 kHz.



DEC 6

Surge Decoupling Unit for Symmetrical Data and Control Lines

- Build according to ITU K.44:2003 Figures A.5-1 and A6.1-1 to A6.1-5
- Decoupling of 10/700 μ s telecom impulses
- Decoupling of combination wave impulses
- Up to four wire can be tested simultaneous
- Decoupling: Resistors 200 Ohm
- Protection elements are Gas arrestors and Breakdown avalanche diodes
- Can be used with any surge generator
- Impulse voltage up to 6.6kV
- Signal Bandwidth up to some 10 MHz.



DEC 7

Surge Decoupling Unit for Asymmetrical Data and Control Lines

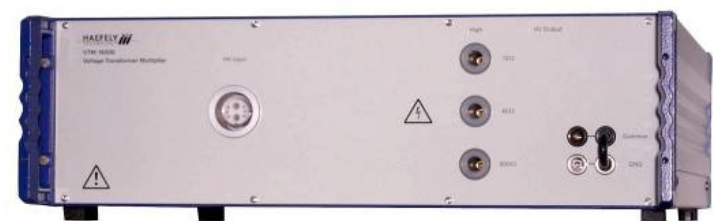
- Built according to:
 - IEC/EN 61000-4-5 Edition 1 Figure 10 & 11
 - IEC/EN 61000-4-5 Edition 2 Figure 11, 12 & 13
 - IEC 61000-4-12:1995 Figure 9, 10, 13 & 14
- Decoupling of Combination wave impulses
- Decoupling of Ringwave 100 kHz impulses
- Up to four wire can be tested simultaneous
- Decoupling: Inductors 20mH not compensated
- Protection elements are Varistors and Breakdown avalanche diodes
- Can be used with any surge generator
- Impulse voltage up to 6.6kV
- Signal Bandwidth up to some 100 Hz.



VTM 15000

Impulse transformer for Insulation Testing

- Built according to IEC 60060-1, IEC 60335-1, IEC 61010-1, IEC 61180-1, IEC61008-1 & 61009-1
- Voltage doubler for combination wave generators, up to 15.0 kV (current wave shape not defined)
- Selectable source impedance: 12, 40 & 500 Ohm
- Separate output for each source impedance
- Floating output



Magnetic Field

PIM 155

Oscillating Wave Surge Module

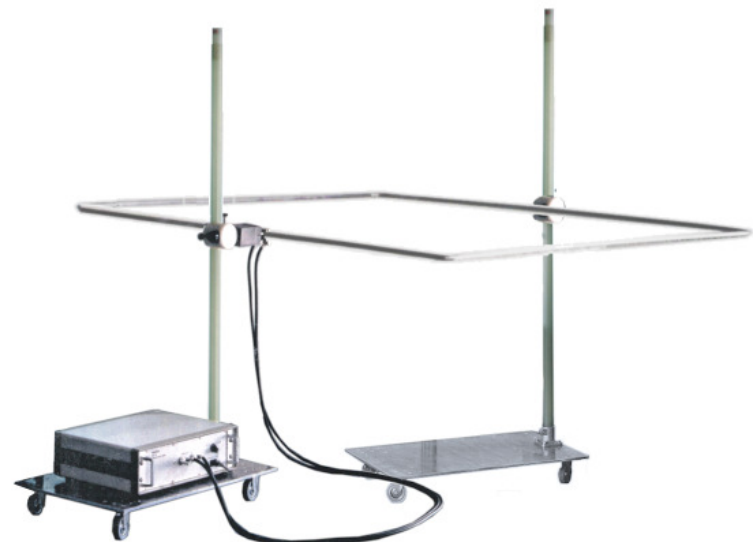
- Built according to IEC/EN 61000-4-10
- 100 kHz and 1 MHz burst frequencies
- Impulse current up to 120A
- Magnetic field strength up to 100 A/m
- Impulse voltage monitor
- Stand optionally available



MAG 100

Power Frequency Magnetic Field Test Equipment

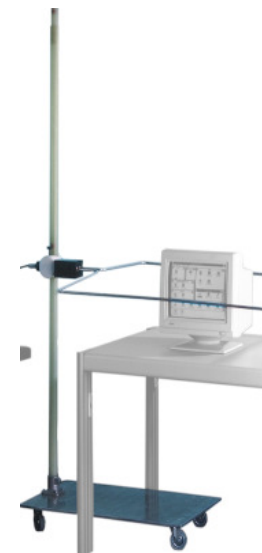
- Built according to IEC/EN 61000-4-8
- 1m x 1m antenna included, optional 2m x 2.6m antenna available (see picture)
- Up to 110A/m field strength
- Horizontal and Vertical testing
- Different coil sizes available
- Software control (when used together with HAEFELY EMC power sources)



MSURGE

Magnetic Impulse Field Test System

- Built according to IEC/EN 61000-4-9
- 8/20 μ s magnetic field wave shape
- Up to 3000A/m field strength
- Sturdy construction
- Horizontal and vertical testing
- Control from HAEFELY surge generators
- Single turn coil with 1m x 1m square area



MFS 100

Power Frequency Magnetic Field & Magnetic Impulse Field Test System

- Built according to IEC/EN 61000-4-8
- Up to 110A/m field strength
- Built according to IEC/EN 61000-4-9
- 8/20 μ s magnetic field wave shape
- Up to 1000A/m field strength
- Sturdy construction
- Horizontal and vertical testing
- Single turn coil with 1m x 1m square area

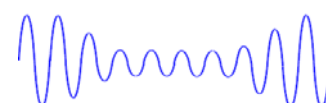


Dips, Interrupts, Variations

Such tests can be carried out with our stand alone PLINE system or the ECOMPACT4 tester which also enables users to carry out DC dips tests according to IEC 61000-4-29 (see Compact tester section).

 ← Dip: decrease of the mains Voltage

 ← Interruption: breakdown of the mains Voltage

 ← Variation: continuous change of the mains Voltage



PLINE distinctive features

Flexibility

Test parameters can be selected in wide range, exceeding the basic standard requirements by far, and enabling users to also fulfil special requirements.

Turnkey system

External transformers and variacs, external power sources and time consuming wiring is something you don't have to worry about, as our systems are complete turnkey systems and no additional external parts and modifications are necessary.

AXOS⁵

16A Dips, Interruptions and Variations Simulator

- Built according to IEC/EN 61000-4-11
- Voltage variation testing
- High & Low impedance interrupts
- Inrush current capability more than 500A
- Integrated variacs for U_{nom} and U_{dip}
- Adjustment of U_{dip} between 0 ... 99%* at any level
- 40A capability at 40% nominal voltage
- Fully integrated solution, no additional equipment required

*external voltage source required



Accessories

We offer a complete range of and accessories for a complete test setup.

Verification and calibration equipment are specially designed to meet exact standard recommendations, and our safety accessories such as warning lamps and emergency switches, ensure your tests are performed under the highest safety conditions.

State of the art software and compete automation accessories are available for all our products.

More detailed information on our product accessories can be found on our website.



WinFEAT&R[®] Software

The WinFEAT&R software is the latest generation of control and reporting software, based on a modern Drag and Drop concept, which offers such simplicity of use, that even users with minimum technical experience, will by carrying out tests in no time.

This unique software allows users to run user specified or pre-defined tests according to the latest standards, and monitors and displays real time output current and voltage values. Communication between software and oscilloscope monitoring allows screendumps to be added to the test report.

The software runs under all latest Microsoft Windows versions and is compatible with all stand alone HAEFELY EMC test generators.

Features

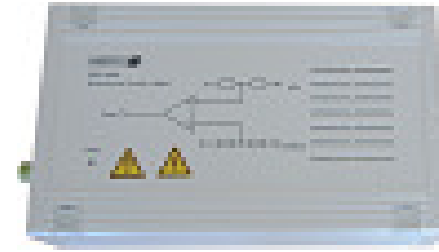
- Control and reporting for stand-alone Burst/EFT, Surge, Dips & Interrupts generators.
- Drag and Drop application
- User defined tests can be added and pre-defined tests are already included (according to the standards).
- Output Current/Voltage monitoring during test.
- EUT supervision (max/min V/I levels).
- User friendly, designed for use by users with minimum technical experience.
- Automatic synchronization between software and PC.
- Test setup uploaded to Oscilloscope.
- User defined test report with oscilloscope screen dump option.
- Fully compatible with Windows 7 (32-bit/64-bit)



PDP 8000

Differential HV Probe

- Replaces two P6015 probes
- Calibration of surge impulse generators up to 8kV 10/700us
- Divider Ratio 1000:1
- ± 2% accuracy
- No adjustment/calibration required



Rackmounting Set

- Mounts modules in racks for greater mechanical stability and mobility
- Available for all sizes



Test Tables

- Built according to IEC/EN 61000-4-2 and IEC/EN 61000-4-4
- Made of wood without any metallic parts
- Use with ESD, EFT
- Optional vertical coupling plane and ground plane available



Warning Lamp & Emergency Switch

- Used with SURGE, EFT and Interrupts tester
- Rugged and reliable design
- Switches cuts high voltage and mains power to EUT



WinFEAT&R

Control and Reporting Software

- **F**ast, **E**asy, **A**ccurate **T**esting & **R**eporting (FEAT&R)
- Fully compatible with Windows 7 (32-bit/64-bit)
- Control and automatic reporting of:
 - Surge Test System
 - EFT Test System
 - Dips & Interrupts Test System
 - Oscilloscopes
 - Power and Telecom Couplers
- Network compatible
- Pre-programmed tests

WinFEAT&R



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