EMC PARTNER

COMPLETE TEST SOLUTIONS FOR

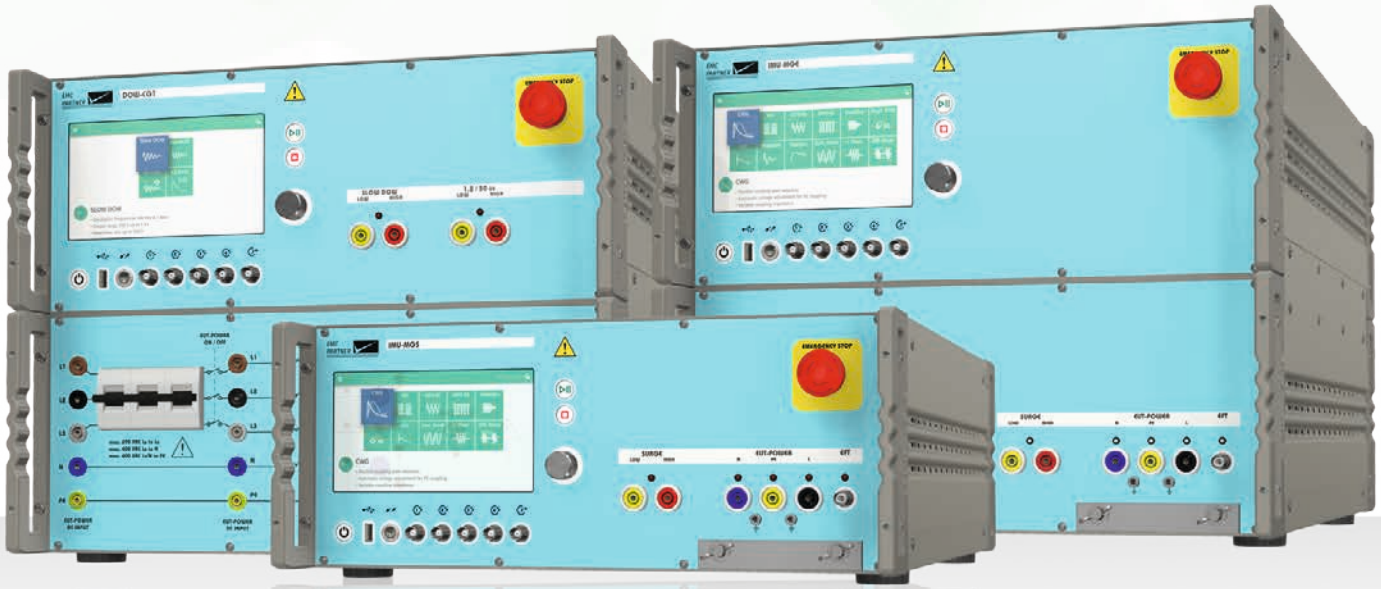
Conducted Immunity Testing

This document has been
optimized for electronic media

Smart navigation through technical
specifications. Click the green links.

Accredited Calibration

Quality at EMC PARTNER is based on an ISO 9001 management system. This is the foundation for an ISO 17025 accreditation verified by the Swiss Calibration Service (SCS). SCS No. 146 is the accreditation number of EMC PARTNER AG. Locally accredited but recognized worldwide through affiliation with the ILAC organisation



THE CONDUCTED IMMUNITY TEST SYSTEM

MANY CHOICES ONE SOLUTION

Basic and product standards require a mix of conducted immunity EMC tests.

Required test types can include:

- Electric Fast Transient (EFT)
- Surge (CWG, Ring wave, Telecom)
- Damped Oscillatory Wave (DOW)
- AC / DC Dips & Interrupts
- AC / Impulse / DOW magnetic field
- Common Mode
- Differential Mode

The ideal is a flexible test equipment that combines any or all of these requirements into one single solution.

CUSTOM IS STANDARD

IMU and DOW generators are designed with the user in mind. A modular architecture allows configuration of test circuits to meet any requirement. A solution that can easily be extended with more modules when additional tests are needed.

DOW-CG1

DOW series

- DOW Mainframe Unit

Available Modules

- SLOW 100kHz & 1MHz / 4.4kV
- FAST 3MHz, 10MHz & 30MHz / 4 kV
- CDN 690Vac & 500Vdc / 32A
- Insulation 1.2/50us 500Ω / 0.5J 8kV

IMU-MGE

IMU-MGS

IMU series

- IMU Mainframe Unit

Available Modules

- Surge / CWG 4kV / 5 kV / 6kV / 8kV
- Ring Wave 6kV / 8kV
- Telecom 6kV / 8kV
- EFT 4kV / 5kV / 6kV / 7kV / 8kV
- Common Mode 35V / 330V
- AC & DC Interrupts 16A / 32A / 75A
- AC DIPS & Variation 16A
- Differential Mode voltage / current
- ESD 16kV

WHY MODULARITY ?

You get a cost-effective solution that fits your test requirements. Also, you can extend your system for other tests after initial purchase and on-site whenever you have new test requirements.

AVAILABLE TESTS

IMU Series

ESD Electrostatic Discharges — **up to 16kV**

According to IEC/EN 61000-4-2

Electric Fast Transient / Burst (EFT) — **up to 8kV**

According to IEC/EN 61000-4-4

Combination Wave /Surge (CWG) — **up to 8kV**

According to IEC/EN 61000-4-5, ANSI C62.41

Telecom Impulse (10/700) — **up to 8kV**

According to IEC/EN 61000-4-5, ITU-T K.44

Ring Wave 100kHz (Ring) — **up to 8kV**

According to IEC/EN 61000-4-12, ANSI C62.41

Common Mode (CM) — **up to 35V continuous / 330V short**

According to IEC/EN 61000-4-16

Differential Mode (DM) — **4.4A / 25V**

According to IEC/EN 61000-4-19

AC & DC Dips, Variations and Interruptions

According to IEC/EN 61000-4-11 /-29 /-34

Magnetic Field / Pulse

According to IEC/EN 61000-4-8 / -9

DOW Series

SLOW Damped Oscillatory Waves — **100kHz & 1 MHz**

According to IEC/EN 61000-4-18, -10, ANSI C37.90

FAST Damped Oscillatory Waves — **3MHz, 10MHz, 30MHz**

According to IEC/EN 61000-4-18

Insulation 0.5J / 500 Ω — **up to 8kV**

According to IEC/EN 60255-27

Magnetic Field / DOW

According to IEC/EN 61000-4-10

Enhanced safety is standard

Red/Yellow Emergency Stop button on front panel of generator can be complemented with remote option.

Add warning lamps and a test cabinet for enhanced test place safety.

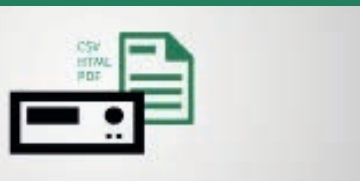
UNIQUE FEATURES

Leading technology - New designs take advantage of latest innovations.

Test routines

Link together many different test types into one sequence.

Test reporting



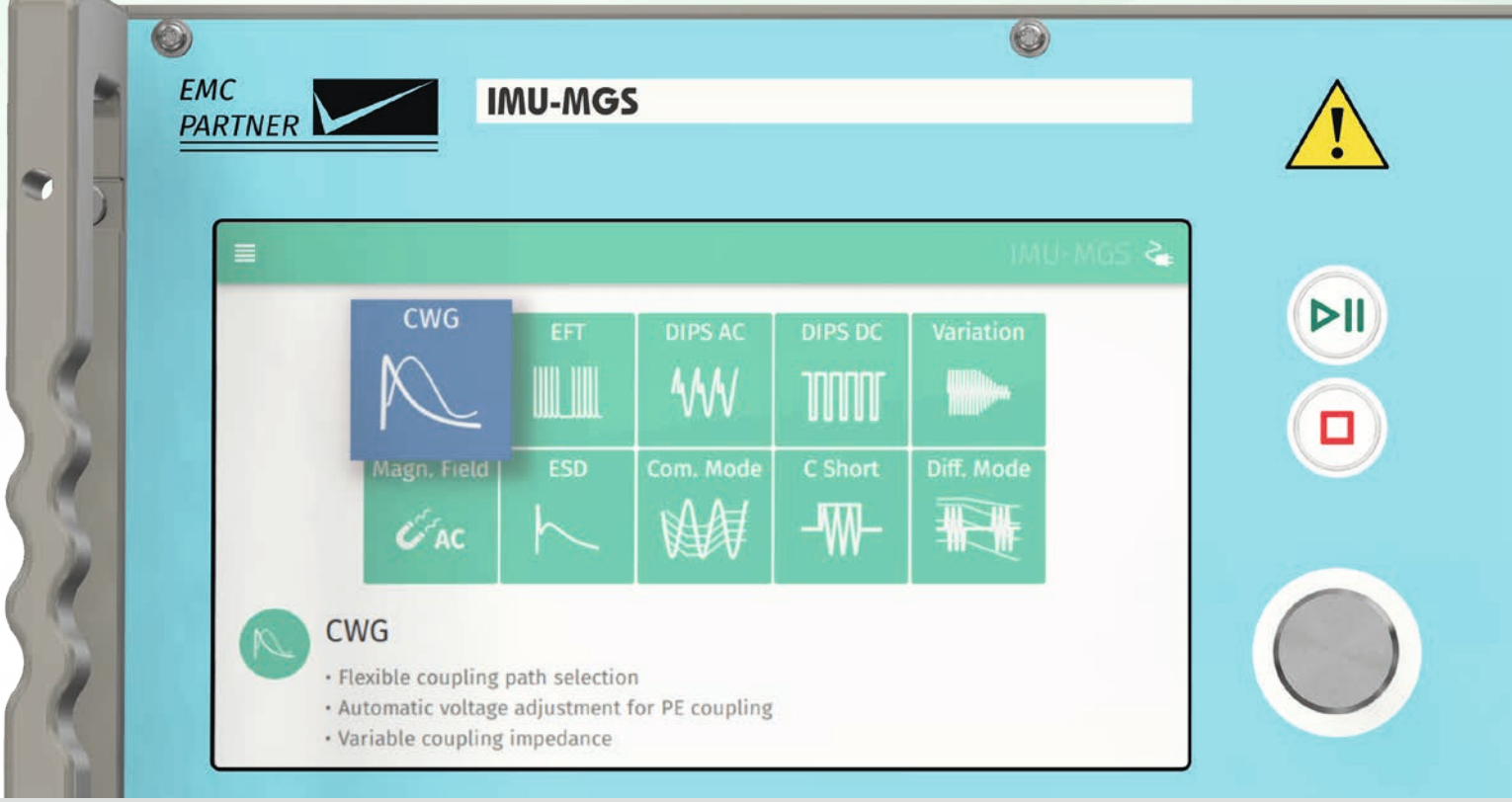
Generate test reports via USB interface or built in webserver as csv, html and pdf formats.

Online updates free of charge

Software download from internet directly into the instrument.

Extend testing capability

Hardware upgrades maintain the system value.



EPOS – BEYOND BETTER

EMC PARTNER Operating System (EPOS) is an independent software with free-of-charge updates for lifetime. EPOS is based on a full colour graphic interface and easy to follow on-screen graphics. Pop-up help gives information when needed, directly during the setting process. EPOS is full of features found only in top of the range instrumentation.

Test setup libraries

Pre-programmed tests for all basic and generic standards included.

Simple touch screen navigation

Save time with the latest in intuitive menu structures.

Power management

Active monitor and control of EUT power. EUT current limit to prevent damage.

We speak your language

Select between English, German, French, Italian, Spanish, Russian, Chinese (traditional and simplified).

TEMA3000 SOFTWARE SUITE

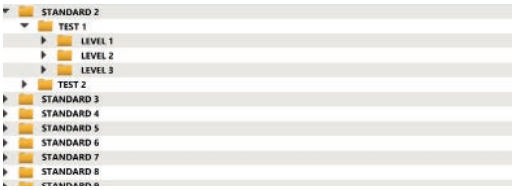
The best solution for professional EMC Test Labs enables comfortable test setups, easy parameter changes, customizable test reports and DSO integration.

Want to know more? **Further information and demo version available on the website**

Customizable test reports

- Customize & edit your protocols
- Export to multiple file formats
- Integrate DSO measurements

Manage tests and sequences



- Predefined test setups
- Save and load own tests and sequences

Productive workflow

- Minimum learning time
- Integrated assistant function

Smart connectivity

- Transfer tests / reports to PC
- Integrated web server
- Remote control from computer

Technical Specifications

GENERATORS

- IMU-MGS
- IMU-MGE
- DOW-CG1

CDNs

IEC 61000-4	-2	-4	-5	-8	-9	-11	-12	-16	-18	-19	-29	-34
Supply Lines												
CDNs for burst, Surge and Ring wave												
4 kV / 6 kV line												
CDN-M-6-32		✓	✓				✓					
CDN-A-6-32		✓	✓				✓					
CDN-A-6-63		✓	✓				✓					
CDN-A-6-125		✓	✓				✓					
CDN-A-6-200		✓	✓				✓					
7.6 kV line												
CDN-M-8-32		✓	✓				✓					
CDN-A-8-32		✓	✓				✓					
CDN-A-8-63		✓	✓				✓					
CDN-A-8-125		✓	✓				✓					
CDN-A-8-200		✓	✓				✓					
7 kV burst												
CDN-F-125		✓										
CN/DNs for -16												
CN16, CN16-300								✓				
CN16DC								✓				
DN16-1P6								✓				
DN16-1P16								✓				
I/O Lines												
CDN-KIT1000 ED3			✓									
CDN-DATA-4L			✓				✓					
CDN-DATA-8L			✓				✓					
CDN-UTP ED3			✓				✓					
CDN-UTP8 ED3			✓				✓					
CN16T, CN16T4, CN16T8								✓				
CN-R40C05			other									
CN-R40C05 8			other									
CDN-DOW-DATA-LF									✓			
CDN-DOW-DATA-HF18									✓			

ACCESSORIES

IEC 61000-4	-2	-4	-5	-8	-9	-10	-11	-12	-16	-18	-19	-29	-34
EXT-IMU-E	✓												
ESD-TARGET2	✓												
ESD-VERI-V	✓												
ESD-STAND Ed2	✓												
EARTH CABLE	✓												
ESD-VCP50	✓												
CN-EFT1000		✓								✓			
VERI50 EFT		✓								✓			
VERI50-8KV		✓								✓			
VERI1K EFT		✓								✓			
VERI-CP-EFT		✓								✓			
ADAPTER EFT-CDN		✓											
CN-BALUN AC		ANSI											
EFT-INSULATION		✓											
V-PROBE-SI			✓					✓					
I-PROBE-P101			✓										
MF1000-1				✓	✓	✓							
MF1STAND				✓	✓	✓							
MF1000-2				✓	✓	✓							
MF1000-3				✓									
MF3STAND				✓									
VAR-EXT1000				✓			✓						
SRC16-1P							✓						
VERI-DIPS							✓					✓	✓
DIPS100E							✓					✓	✓
PFS32							✓						✓
SRC32-18UH							✓						✓
SRC32-AMD1-18 UH							✓						✓
PFS75							✓						✓
PFS75-690V							✓						✓
SRC75-18UH							✓						✓
SRC75-690V-18UH							✓						✓
PS3									✓			✓	
RS485-RS232 ADAPT.									✓			✓	
EXT-IMU C-SHORT									✓				
VERI01 OSI										✓			
IMU SLAVE SMART V1											✓		
IMU SLAVE SMART I1											✓		
IMU SLAVE SMART I1V1											✓		
VERI10/50											✓		
EXT-IMU D-29D												✓	
EXT-IMU D-29I												✓	
EMERGENCY STOP	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
WARNING LAMP	✓	✓	✓	✓	✓ ✓	✓	✓	✓	✓	✓	✓	✓	✓
TC-ST			✓					✓					
TEMA3000 SOFTWARE	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓

GENERATORS

IMU-MGS

IMU-MGS Mainframe

EUT power input 1 (CDN)	max. AC/DC 300V, 16A (fused 16A) with P module
EUT power input 2 (CDN)	max. AC/DC 300V, 16A (not fused) with P module
Internal CDN freq. range	DC, 50 Hz, 60 Hz
Power freq. synchr.	50/60 Hz
Coupling Burst	L, N, PE, L+N, L+PE, N+PE, L+N+PE, direct out
Coupling Surge	2 Ω: L-N, direct out, 12 Ω: L-PE, N-PE

IMU-MGS Control Features

Operating system	EPOS propietary firmware
Languages	8 menu languages, selectable
User interface	7“ capacitive touch display
Connectivity	gigabit ethernet, USB, RS485
Environment meas.	built-in temperature and humidity sensor
EUT power monitor	supply voltage, current and freq. on screen
EUT supply voltage waveform	monitoring BNC output connector max. 15 V
EUT supply current waveform	monitoring BNC output connector max. 15 V
Surge monitoring	peak voltage and current on screen, waveform available at BNC outputs
Surge voltage waveform	monitoring BNC output connector max. 15 V
Surge current waveform	monitoring BNC output connector max. 15 V
Trigger out	BNC connector, max. 6 V
Trigger in	auto, manual or via programmable BNC
Programmable connectors	2 BNC connectors (inputs/outputs) as follows
Programmable input functions	Trigger Input, Start Test, Stop Test, EUT Fail, EUT Mark, Emergency Stop
Programmable input max. voltage	low range: 0 – 1.5 V, high range: 2.3 – 24 V
Programmable output functions	Running State, Safety Circuit State
Programmable output max. U, I	max. 24 V, max. 300 mA
Synchronization source	EUT power, direct out, external
Synchronization angle	0 – 359° ± 5°, 1° step
Input EUT power selection	PWR1 and PWR2 selectable on the screen

Power ON/OFF process	sophisticated functions allow to switch EUT
	power ON/OFF at selectable voltage angle
	(0 – 359°, 1° step)
Impulse polarity	positive, negative, alternating
Automatic ramps	test level, sync. angle, coupling path
EUT overcurrent protection	automatic programmable fuse up to 16 A
PS3 control	DC, 16.7 Hz, 50 Hz, 60 Hz supply power
Safety features (standard)	Emergency stop button on front panel
	red/yellow as per IEC 60947-5-5, IEC 60204-1,
	ISO 13850, Safety circuit
Safety accessories	WARNING LAMP (24 V, max. 2.4 W),
(optional)	TC-ST test cabinet
	Remote EMERGENCY STOP button

IMU-MGS module: EXT-IMU P

Application	enhances CDN DC capability from 90 V to 300 V
	required when the D module is not included
EUT power	0 V - 300 V max. 16 A
EUT frequency	DC - 60 Hz

IMU-MGS module: EXT-IMU-E, ESD extension 16 kV

See section Accessories for IMU Series: IEC 61000-4-2

IMU-MGS module: EXT-IMU4000 F4, EFT / Burst extension 4.4 kV

Standard	IEC 61000-4-4 latest edition
Output impedance	50 Ω
Voltage OC	0.2 kV – 4.4 kV
Voltage into 50 Ω	0.1 kV – 2.2 kV ± 10 %
Waveform into 50 Ω	5 ± 1.5 ns / 50 ± 15 ns
Voltage into 1 kΩ	0.191 kV - 4.18 kV ± 20%
Waveform into 1 kΩ	5 ± 1.5 ns / 50 ns (-15/+100 ns)
Spike frequency	1 kHz - 1 MHz
Maximum spikes / second	8000 @ 1 kV
Burst duration	0.01 ms - 30 ms, continuous up to 8 kHz
Burst repetition	1 - 1000 ms
Polarity	positive, negative, alternating
Synchronization	0 – 359°, step 1°
Ramps	voltage, spike frequency, burst duration
Optional accessories	CDNs, Accessories

IMU-MGS module: EXT-IMU4000 F5, EFT / Burst extension 5.1 kV

Standard	IEC 61000-4-4 latest edition
Output impedance	50 Ω
Voltage OC	0.2 kV – 5.1 kV
Voltage into 50 Ω	0.1 kV – 2.55 kV ± 10 %
Waveform into 50 Ω	5 ± 1.5 ns / 50 ± 15 ns
Voltage into 1 kΩ	0.191 kV – 4.85 kV ± 20 %
Waveform into 1 kΩ	5 ± 1.5 ns / 50 ns (-15/+100 ns)
Spike frequency	1 kHz - 1 MHz
Maximum spikes / second	8000 @ 1 kV
Burst duration	0.01 ms - 30 ms, continuous up to 8 kHz
Burst repetition	1 - 1000 ms
Polarity	positive, negative, alternating
Synchronization	0 – 359°, step 1°
Ramps	voltage, spike frequency, burst duration
Optional accessories	CDNs, Accessories

IMU-MGS module: EXT-IMU4000 S4, CWG / Surge extension 4.1 kV

Standard	IEC 61000-4-5 latest edition
Output impedance	2 Ω
Voltage OC	0.25 kV - 4.1 kV ± 10 %
Voltage waveform	1.2 µs ± 30 % / 50 µs ± 20 %
Current SC	0.125 kA - 2.05 kA ± 10 %
Current waveform	8 µs ± 20 % / 20 µs ± 20 %
Pulse repetition	up to 1 / s @ 0.8 kV, 1 / 5 s @ 4.1 kV
Polarity	positive, negative, alternating
Synchronization	0 – 359°, step 1°
Ramps	voltage, synchronisation angle
Magnetic pulse test	IEC 61000-4-9, see MF1000-x coils
Optional accessories	CDNs, CDNs for I/O Lines, Accessories

IMU-MGS module: EXT-IMU4000 S5, CWG / Surge extension 5.1 kV

Standard	IEC 61000-4-5 latest edition
Output impedance	2 Ω
Voltage OC	0.25 kV - 5.1 kV ± 10 %
Voltage waveform	1.2 µs ± 30 % / 50 µs ± 20 %
Current SC	0.125 kA - 2.55 kA ± 10 %
Current waveform	8 µs ± 20 % / 20 µs ± 20 %
Pulse repetition	up to 1 / s @ 0.8 kV, 1 / 5.5 s @ 5.1 kV
Polarity	positive, negative, alternating
Synchronization	0 – 359°, step 1°
Ramps	voltage, synchronisation angle
Magnetic pulse test	IEC 61000-4-9, see MF1000-x coils
Optional accessories	CDNs, CDNs for I/O Lines, Accessories

IMU-MGS module: EXT-IMU D, AC/DC dips, interruptions extension

Standard	IEC 61000-4-11 latest edition
EUT AC power	0 V – 300 V, max. 16 A
EUT frequency with variac	48 Hz – 60 Hz
Switch time into 100 Ω	1 µs – 5 µs
Interruption time	50 µs – 60 s
Inrush current	> 500 A peak
Dips internal variac	voltage 0 – 110 %, max. 5 A
Dips extern. variac	voltage 0 – 110 %, max. 16 A
EUT turn ON/OFF phase	selectable, 0° – 359°
Variation mode	adjust, abrupt
Variation internal variac	voltage 0 – 100 %, max. 5A
Variation external variac	voltage 0 – 100 %, max 16A
Interruption < one period	input as phase angle
Interruption > one period	input in ms
Ramps	voltage, synchronisation angle, time
Requires	EXT-IMU V, SRC16-1P or VAR-EXT1000 for AC dips
Optional accessories	Accessories

Standard	IEC 61000-4-29 latest edition
EUT DC power	24 – 300 V, 0 – 16 A @ 300V
Switch time into 100 Ω	1 µs – 50 µs
Interruption time	0.1 ms – 60000 ms
Requires	1 x PS3 for DC interrupt., 2 x PS3 for DC dips

IMU-MGS module: EXT-IMU V, dips and variations extension

Standard	IEC 61000-4-11 latest edition
Construction	internal variac
Power input AC	20 – 250 V, 5 A, 50/60 Hz
Power output dips	max. 275 V (110 %), max. 5 A continuous
Power output variations	max. 250 V (100 %), max. 5 A continuous
Current capability dips	10 A for 5 sec., 16 A for 300 ms
Variation mode	adjust, abrupt
Voltage slew rate	< 1.2 s from 0 to 100 %
Switching time abrupt	1 – 5 µs
Ramp transition time	25 – 999 periods @ 50/60 Hz
Magnetic field test	IEC 61000-4-8, see MF1000-x coils

IMU-MGS module: EXT-IMU C, Common mode extension

Standard	IEC 61000-4-16 latest edition
Test voltage continuous	0.1 – 35 Vrms
Power harmonic test	15 Hz – 150 kHz up to 35 V
Sweep time	adjustable, decade time: 10 s – 1000 s
Test voltage short duration	0.1 – 330 Vrms: requires PS3, EXT-IMU C-SHORT
Power frequency test	DC, 16.7 Hz, 50 Hz, 60 Hz
Source impedance	50 Ω ± 10 %
Sync. turn on/off for AC	0° ± 5°
DC switching time	1 - 5 µs
Residual ripple DC	< 5%
THD 15 Hz – 150 kHz	< 1%
THD power frequency	< 10%
Optional accessories	CNs for I/O Lines, Accessories

IMU-MGS module: IMU SLAVE SMART external module

See section Accessories for IMU Series: IEC 61000-4-19

POWER, WEIGHT, DIMENSIONS, CLIMATIC CONDITIONS

IMU-MGS mainframe

Operating voltage	100 – 240 V (50/60 Hz) ± 10 %
Power consumption	ON < 150 VA, standby < 15 VA
Weight	16 kg (weight of modules not included)
W x d x h	520 x 433 x 180 mm
Version	19“ unit, 4 UH

Temperature range	10 – 35 °C
Humidity	< 80 % non-condensing
Air pressure	86 – 106 kPa

Included articles	
Power cord	with country plug
Supply connection	3 cables x 2 m, banana plugs
User manual	digital format (PDF)
Calibration certificate	factory calibration
Ethernet cable	1 piece
USB stick	1 piece
CDN burst cal. adapter	1 piece

IMU-MGE

IMU-MGE Mainframe

EUT power input 1 (CDN)	max. AC/DC 300V, 16A (fused 16A) with P module
EUT power input 2 (CDN)	max. AC/DC 300V, 16A (not fused) with P module
Internal CDN freq. range	DC, 50 Hz, 60 Hz
Power freq. synchr.	50/60 Hz
Coupling Burst	L, N, PE, L+N, L+PE, N+PE, L+N+PE, direct out
Coupling Surge	2 Ω: L-N, direct out, 12 Ω: L-PE, N-PE, direct out
Coupling Ring wave	12 Ω and 30 Ω: L-N, N-PE, L-PE, direct out

IMU-MGE Control Features

Operating system	EPOS propietary firmware
Languages	8 menu languages, selectable
User interface	7“ capacitive touch display
Connectivity	gigabit ethernet, USB, RS485
Environment meas.	built-in temperature and humidity sensor
EUT power monitor	supply voltage, current and freq. on screen
EUT supply voltage waveform	monitoring BNC output connector max. 15 V
EUT supply current waveform	monitoring BNC output connector max. 15 V
Surge monitoring	peak voltage and current on screen, waveform available at BNC outputs
Surge voltage waveform	monitoring BNC output connector max. 15 V
Surge current waveform	monitoring BNC output connector max. 15 V
Trigger out	BNC connector, max. 6 V
Trigger in	auto, manual or via programmable BNC
Programmable connectors	2 BNC connectors (inputs/outputs) as follows
Programmable input functions	Trigger Input, Start Test, Stop Test, EUT Fail, EUT Mark, Emergency Stop
Programmable input max. voltage	low range: 0 – 1.5 V, high range: 2.3 – 24 V
Programmable output functions	Running State, Safety Circuit State
Programmable output max. U, I	max. 24 V, max. 300 mA
Synchronization source	EUT power, direct out, external
Synchronization angle	0 – 359° ± 5°, 1° step
Input EUT power selection	PWR1 and PWR2 selectable on the screen
Power ON/OFF process	sophisticated functions allow to switch EUT
	power ON/OFF at selectable voltage angle
	(0 – 359°, 1° step)

Impulse polarity	positive, negative, alternating
Automatic ramps	test level, sync. angle, coupling path
EUT overcurrent protection	automatic programmable fuse up to 16 A
PS3 control	DC, 16.7 Hz, 50 Hz, 60 Hz supply power
Safety features	Emergency stop button on front panel
(standard)	red/yellow as per IEC 60947-5-5, IEC 60204-1,
	ISO 13850, Safety circuit
Safety accessories	WARNING LAMP (24 V, max. 2.4 W),
(optional)	TC-ST test cabinet
	Remote EMERGENCY STOP button

IMU-MGE module: EXT-IMU P

Application	enhances CDN DC capability from 90 V to 300 V
	required when the D module is not included
EUT power	0 V - 300 V max. 16 A
EUT frequency	DC - 60 Hz

IMU-MGE module: EXT-IMU E, ESD extension 16 kV

See section Accessories for IMU Series: IEC 61000-4-2

IMU-MGE module: EXT-IMU3000 F5, EFT / Burst extension 5.3 kV

Standard	IEC 61000-4-4 latest edition
Output impedance	50 Ω
Voltage OC	0.2 kV – 5.3 kV ± 10 %
Voltage into 50 Ω	0.1 kV – 2.65 kV ± 10 %
Waveform into 50 Ω	5 ± 1.5 ns / 50 ± 15 ns
Voltage into 1 kΩ	0.191 kV – 5.04 kV ± 20 %
Waveform into 1 kΩ	5 ± 1.5 ns / 50 ns (-15/+100 ns)
Spike frequency	1 kHz - 1 MHz
Maximum spikes / second	8000 @ 1 kV
Burst duration	0.01 ms - 30 ms, continuous up to 8 kHz
Burst repetition	1 - 1000 ms
Polarity	positive, negative, alternating
Synchronization	0 – 359°, step 1°
Ramps	voltage, spike frequency, burst duration
Optional accessories	CDNs, Accessories

IMU-MGE module: EXT-IMU3000 F6, EFT / Burst extension 6.3 kV

Standard	IEC 61000-4-4 latest edition
Output impedance	50 Ω
Voltage OC	0.2 kV – 6.3 kV ± 10 %
Voltage into 50 Ω	0.1 kV – 3.15 kV ± 10 %
Waveform into 50 Ω	5 ± 1.5 ns / 50 ± 15 ns

Voltage into 1 kΩ	0.191 kV – 5.99 kV ± 20 %
Waveform into 1 kΩ	5 ± 1.5 ns / 50 ns (-15/+100 ns)
Spike frequency	1 kHz - 1 MHz
Maximum spikes / second	8000 @ 1 kV
Burst duration	0.01 ms - 30 ms, continuous up to 8 kHz
Burst repetition	1 - 1000 ms
Polarity	positive, negative, alternating
Synchronization	0 – 359°, step 1°
Ramps	voltage, spike frequency, burst duration
Optional accessories	CDNs, Accessories

IMU-MGE module: EXT-IMU3000 F7, EFT / Burst extension 7.1 kV

Standard	IEC 61000-4-4 latest edition
Output impedance	50 Ω
Voltage OC	0.2 kV – 7.1 kV ± 10 %
Voltage into 50 Ω	0.1 kV – 3.5 kV ± 10 %
Waveform into 50 Ω	5 ± 1.5 ns / 50 ± 15 ns
Voltage into 1 kΩ	0.191 kV – 6.75 kV ± 20 %
Waveform into 1 kΩ	5 ± 1.5 ns / 50 ns (-15/+100 ns)
Spike frequency	1 kHz - 1 MHz
Maximum spikes / second	8000 @ 1 kV
Burst duration	0.01 ms - 30 ms, continuous up to 8 kHz
Burst repetition	1 - 1000 ms
Polarity	positive, negative, alternating
Synchronization	0 – 359°, step 1°
Ramps	voltage, spike frequency, burst duration
Optional accessories	CDNs, Accessories

IMU-MGE module: EXT-IMU3000 F8, EFT / Burst extension 8kV

Standard	IEC 61000-4-4, latest edition
Output impedance	50 Ω
Voltage OC	0.2 kV – 8.0 kV ± 10 %
Voltage into 50 Ω	0.1 kV – 4 kV ± 10 %
Waveform into 50 Ω	5 ± 1.5 ns / 50 ± 15 ns
Voltage into 1 kΩ	0.191 kV – 7.61 kV ± 20 %
Waveform into 1 kΩ	5 ± 1.5 ns / 50 ns (-15/+100 ns)
Spike frequency	1 kHz – 1 MHz
Maximum spikes / second	8000 @ 1 kV
Burst duration	0.01 ms - 30 ms, continuous up to 8 kHz
Burst repetition	1 - 1000 ms
Polarity	positive, negative, alternating
Synchronization	0 – 359°, step 1°
Ramps	voltage, spike frequency, burst duration
Optional accessories	CDNs, Accessories

IMU-MGE module: EXT-IMU3000 S6, CWG / Surge extension 6.6 kV

Standard	IEC 61000-4-5 latest edition
Output impedance	2 Ω
Voltage OC	0.25 kV - 6.6 kV ± 10 %
Voltage waveform	1.2 µs ± 30 % / 50 µs ± 20 %
Current SC	0.125 kA – 3.3 kA ± 10 %
Current waveform	8 µs ± 20 % / 20 µs ± 20 %
Pulse repetition	up to 1 / s @ 0.6 kV, 1 / 10 s @ 6.6 kV
Polarity	positive, negative, alternating
Synchronization	0 – 359°, step 1°
Ramps	voltage, synchronisation angle
Magnetic pulse test	IEC 61000-4-9, see MF1000-x coils
Optional accessories	CDNs, CDNs for I/O Lines, Accessories

IMU-MGE module: EXT-IMU3000 S8, CWG / Surge extension 8 kV

Standard	IEC 61000-4-5 latest edition
Output impedance	2 Ω
Voltage OC	0.25 kV – 8 kV ± 10 %
Voltage waveform	1.2 µs ± 30 % / 50 µs ± 20 %
Current SC	0.125 kA – 4 kA ± 10 %
Current waveform	8 µs ± 20 % / 20 µs ± 20 %
Pulse repetition	up to 1 / s @ 0.6 kV, 1 / 12 s @ 8 kV
Polarity	positive, negative, alternating
Synchronization	0 – 359°, step 1°
Ramps	voltage, synchronisation angle
Magnetic pulse test	IEC 61000-4-9, see MF1000-x coils
Optional accessories	CDNs, CDNs for I/O Lines, Accessories

IMU-MGE module: EXT-IMU3000 T6, Telecom Surge extension 6.6 kV

Standard	IEC 61000-4-5 latest edition
Output impedance	15 Ω, 40 Ω
Voltage OC	0.25 kV - 6.6 kV ± 10 %
Voltage waveform	10 µs ± 30 % / 700 µs ± 20 %
Current SC into 40 Ω	6.25 A – 165 A ± 10 %
Current waveform	5 µs ± 20 % / 320 µs ± 20 %
Pulse repetition	up to 1 / s @ 0.3 kV, 1 / 20 s @ 6.6 kV
Polarity	positive, negative, alternating
Ramps	voltage
Optional accessories	CDNs for I/O Lines, Accessories

IMU-MGE module: EXT-IMU3000 T8, Telecom Surge extension 8 kV

Standard	IEC 61000-4-5 latest edition
Output impedance	15 Ω, 40 Ω
Voltage OC	0.25 kV - 8 kV ± 10 %
Voltage waveform	10 µs ± 30 % / 700 µs ± 20 %

Current SC into 40 Ω	6.25 A – 200 A ± 10 %
Current waveform	5 µs ± 20 % / 320 µs ± 20 %
Pulse repetition	up to 1 / s @ 0.3 kV, 1 / 24 s @ 8 kV
Polarity	positive, negative, alternating
Ramps	voltage
Optional accessories	CDNs for I/O Lines, Accessories

IMU-MGE module: EXT-IMU D, AC/DC Dips, Interruptions extension

Standard	IEC 61000-4-11 latest edition
EUT AC power	0 V – 300V @ 50 / 60 Hz, max. 16 A
EUT frequency with variac	48 Hz – 60 Hz
Switch time into 100 Ω	1 µs – 5 µs
Interruption time	50 µs – 30 s
Inrush current	> 500 A peak
Dips internal variac	voltage 0 – 110 %, max. 5 A
Dips extern. variac	voltage 0 – 110 %, max. 16 A
EUT turn ON/OFF phase	selectable, 0° – 359°
Variation mode	adjust, abrupt
Variation internal variac	voltage 0 – 100 %, max. 5A
Variation external variac	voltage 0 – 100 %, max 16A
Interruption < one period	input as phase angle
Interruption > one period	input in ms
Ramps	voltage, synchronisation angle, time
Requires	EXT-IMU V, SRC16-1P or VAR-EXT1000 for AC dips
Optional accessories	Accessories

Standard	IEC 61000-4-29 latest edition
EUT DC power	24 – 300 V, 0 – 16 A @ 300V
Switch time into 100 Ω	1 µs – 50 µs
Interruption time	0.1 ms – 60000 ms
Requires	1 x PS3 for DC interrupt., 2 x PS3 for DC dips

IMU-MGE module: EXT-IMU V, Variations extension

Standard	IEC 61000-4-11 latest edition
Construction	internal variac
Power input AC	20 – 250 V, 5 A, 50/60 Hz
Power output dips	max. 275 V (110 %), max. 5 A continuous
Power output variations	max. 250 V (100 %), max. 5 A continuous
Current capability dips	10 A for 5 sec., 16 A for 300 ms
Variation mode	adjust, abrupt
Voltage slew rate	< 1.2 s from 0 to 100 %
Switching time abrupt	1 – 5 µs
Ramp transition time	25 – 999 periods
Magnetic field test	IEC 61000-4-8, see MF1000-x coils

IMU-MGE module: EXT-IMU3000 R6, 100 kHz Ring wave extension 6.6 kV

Standard	IEC 61000-4-12 latest edition
Output impedance	12 Ω, 30 Ω
Voltage OC	0.25 kV - 6.6 kV ± 10 %, decay as in IEC, ANSI
Voltage rise time/ osc. freq.	0.5 µs ± 30 % / 100 kHz ± 10 %
Current SC into 12 Ω	20.833 A – 550 A ± 10 %
Current SC into 30 Ω	8.3 A – 220 A ± 10 %
Current rise time	0.2 - 1 µs
Pulse repetition	up to 1 / s @ 1 kV, 1 / s @ 6.6 kV
Polarity	positive, negative, alternating
Synchronization	0 – 359°, step 1°
Ramps	voltage, synchronisation angle
Optional accessories	CDNs, CDNs for I/O Lines, Accessories

IMU-MGE module: EXT-IMU3000 R8, 100 kHz Ring wave extension 8 kV

Standard	IEC 61000-4-12 latest edition
Output impedance	12 Ω , 30 Ω
Voltage OC	0.25 kV - 8 kV ± 10 %, decay as in IEC, ANSI
Voltage rise time/ osc. freq.	0.5 µs ± 30 % / 100 kHz ± 10 %
Current SC into 12 Ω	20.83 A – 667 A ± 10 %
Current SC into 30 Ω	8.3 A – 267 A ± 10 %
Current rise time	0.2 - 1 µs
Pulse repetition	up to 1 / s @ 1 kV, 1 / s @ 8 kV
Polarity	positive, negative, alternating
Synchronization	0 – 359°, step 1°
Ramps	voltage, synchronisation angle
Optional accessories	CDNs, CDNs for I/O Lines, Accessories

IMU-MGE module: EXT-IMU C, Common mode extension

Standard	IEC 61000-4-16 latest edition
Test voltage continuous	0.1 – 35 Vrms
Power harmonic test	15 Hz – 150 kHz
Sweep time	adjustable, decade time: 10 s – 1000 s
Test voltage short duration	0.1 – 330 Vrms: PS3, EXT-IMU C-SHORT
Power frequency test	DC, 16.7 Hz, 50 Hz, 60 Hz
Source impedance	50 Ω ± 10 %
Sync. turn on/off for AC	0° ± 5°
DC switching time	1 - 5 µs
Residual ripple DC	< 5%
THD 15 Hz – 150 kHz	< 1%
THD power frequency	< 10%
Optional accessories	CNs, CNs for I/O Lines, Accessories

IMU-MGE module: IMU SLAVE SMART external module

See section Accessories for IMU Series: IEC 61000-4-19

POWER, WEIGHT, DIMENSIONS, CLIMATIC CONDITIONS

IMU-MGE mainframe

Operating voltage	100 – 240 V (50/60 Hz) ± 10 %
Power consumption	ON < 150 VA, standby < 15 VA

Weight	30 kg (weight of modules not included)
W x d x h	600 x 450 x 370 mm
Version	19“ unit, 8 UH
Temperature range	10 – 35 °C
Humidity	< 80 % non-condensing
Air pressure	86 – 106 kPa

Included articles	
Power cord	with country plug
Supply connection	3 cables x 2 m, banana plugs
User manual	digital format (PDF)
Calibration certificate	factory calibration
Ethernet cable	1 piece
USB stick	1 piece
CDN burst cal. adapter	1 piece

DOW-CG1

DOW-CG1 Mainframe

Built-in CDN	three phase CDN integrated
EUT voltage AC	max. 3 x 690 V L-L (400 V L-N), 50 / 60 Hz
EUT current AC	max. 3 x 32 A
EUT protection AC	over-current automatic prot., Type C charact.
EUT power DC	max. 500 V, 32 A L-L or L-PE
EUT power switch	ON / OFF switch on the touch screen
Internal CDN freq. range	DC, 50 Hz, 60 Hz
Power freq. synchr.	50 / 60 Hz for both slow and fast
Coupling slow DOW	L1-L2, L1-L3, L2-L3, L1-N, L2-N, L3-N, L1-PE, L2-PE, L3-PE, N-PE, L1+N to PE, L1+L2+L3+N to PE
Coupling fast DOW	L1-PE, L2-PE, L3-PE, N-PE, L1+N to PE, L1+L2+L3+N to PE

DOW-CG1 Control Features

Operating system	EPOS propietary firmware
Languages	8 menu languages, selectable
User interface	7“ capacitive touch display
Connectivity	gigabit ethernet, USB, RS485
EUT power monitor	supply voltage, current and freq. on screen
0.5 J surge monitoring	peak voltage on screen, waveform available at
	BNC output
Surge voltage waveform	monitoring BNC output connector max. 15 V
Trigger out	BNC connector, max. 6 V
Trigger in	auto, manual or via programmable BNC
Programmable connectors	5 BNC connectors (inputs/outputs) as follows
Programmable input functions	Trigger Input, Start Test, Stop Test, EUT Fail, EUT
	Mark, Emergency Stop
Programmable input max. voltage	low range: 0 – 1.5 V, high range: 2.3 – 24 V
Programmable output functions	Running State, Safety Circuit State
Programmable output max. U, I	max. 24 V, max. 300 mA
Impulse polarity	positive, negative, alternating
Automatic ramps	test level, coupling path
EUT overcurrent protection	automatic programmable fuse up to 32 A/ph.
Safety features	Emergency stop button on front panel
(standard)	red/yellow as per IEC 60947-5-5, IEC 60204-1, ISO
	13850, Safety circuit
Safety accessories	WARNING LAMP (24 V, max. 2.4 W),
(optional)	TC-ST test cabinet
	Remote EMERGENCY STOP button

DOW-CG1 module: DOW-CG1 S Slow damped oscillatory wave 5 kV

Standards	IEC 61000-4-18, ANSI C37.90, other
	IEC 61000-4-12:1995, IEC60255-26, latest editions
Oscillation frequencies	100 kHz, 1 MHz ± 10 %
Voltage OC direct out	0.2 kV – 5 kV ± 10 %
Voltage OC CDN out	0.2 kV – 4.4 kV ± 10 %
Current SC direct out	1 A – 25 A ± 20 %
Current SC CDN out	1 A – 22 A ± 20 %
Output impedance	200 Ω
Rise time OC	75 ns ± 20 %
Decay voltage waveform	Pk5 > ½ · Pk1, Pk10 < ½ · Pk1
Pulse repetition @ 100 kHz	max. 50 / s
Pulse repetition @ 1 MHz	max. 500 / s
Burst duration	1 ms – 20 s @ 100 kHz, @ 1 MHz
Burst repetition	100 ms – 200 s @ 100 kHz, @ 1 MHz
Polarity	positive, negative, alternating
Synchronization	0 – 359° ± 10°, 1° step
Ramp	test voltage
Optional accessories	CDNs for I/O Lines, Accessories

Standard	IEC 61000-4-10
Magnetic pulse generator	as per IEC 61000-4 18 Slow DOW
Magnetic field 100 kHz	5 – 220 A/m with MF1000-1 ± 20 %
	5 – 160 A/m with MF1000-2 ± 20 %
Magnetic field 1 MHz	2.5 – 110 A/m with MF1000-1 ± 20 %
	2.5 – 60 A/m with MF1000-2 ± 20 %
Requires	MF1000-1 or MF1000-2 depend. on EUT size

DOW-CG1 module: DOW-CG1 F Fast damped oscillatory wave 4.4 kV

Standard	IEC 61000-4-18 latest edition
Oscillation frequencies	3 MHz, 10 MHz, 30 MHz ± 10 %
Voltage OC direct and CDN out	0.4 kV – 4.4 kV
Voltage calibrated	0.5 kV – 4 kV ± 10 %
Voltage waveform decay	Pk5 > ½ · Pk1, Pk10 < ½ · Pk1
Output impedance	50 Ω
Voltage rise time	5 ns ± 30 %
Pulse repetition	max. 6666 / s
Burst duration	1 ms – 20 s
Burst repetition	10 ms – 200 s
Current SC direct & CDN	8 A – 88 A @ all frequencies
Current SC calibrated	10 A – 80 A ± 20 %
Current rise time	< 330 ns @ 3 MHz
	< 100 ns @ 10 MHz
	< 33 ns @ 30 MHz
Current waveform decay	Pk5 > ¼ · Pk1, Pk10 < ¼ · Pk1
Polarity	positive, negative, alternating
Synchronization	0 – 359° ± 10°, 1° step
Ramp	test voltage
Optional accessories	CN-EFT1000, VERI01 OSI, VERI1K EFT, VERI50-EFT

DOW-CG1 module: DOW-CG1 I Insulation test 500 Ω / 0.5 J up to 8 kV

Standards	IEC 61180-1/2, IEC 62052-11, IEC 60255-27,
	IEC 60834-1/2, EN 50470-1
Voltage test levels	0.5 kV, 1 kV, 1.5 kV, 2 kV, 2.5 kV, 3 kV, 4 kV,
	5 kV, 6 kV, 8 kV + 0 % / - 10 %
Output impedance	500 Ω ± 10 %
Impulse rise time	1.2 µs ± 30 %
Impulse duration	50 µs ± 20 %
Pulse energy at test levels	0.5 J ± 10 %
Repetition rate	1 s – 655 s
Included articles	cables and test clips

POWER, WEIGHT, DIMENSIONS, CLIMATIC CONDITIONS

DOW-CG1 mainframe

Operating voltage	100 – 240 V (50/60 Hz) ± 10 %
Power consumption	ON < 400 VA, standby < 15 VA

Weight	43.3 kg full version
W x d x h	600 x 450 x 370 mm
Version	19“ unit, 8 UH

Temperature range	10 – 35 °C
Humidity	< 80 % non-condensing
Air pressure	86 – 106 kPa

Included articles	
Power cord	with country plug
Supply connection	5 cables x 2 m, banana plugs
User manual	digital format (pdf)
Calibration certificate	factory calibration
CDN Calibration adapter	1 piece
Ethernet cable	1 piece
USB stick	1 piece

CDNs FOR BURST, SURGE, RING WAVE ON POWER LINES

max. 4/6 kV surge
CDN-M-6-32
OPT-M-6-32 1000V DC
OPT-M-6-32 RWG
PROT32-AC690
PROT32-DC500
PROT32-DC1000
DC-DC32
CN-R40C05
CDN-A-6-32
OPT-A-6-32 1000V DC
OPT-A-6-32 1500V DC
OPT-A-6-32 RWG
PROT32-AC690
PROT32-DC500
PROT32-DC1000
PROT32-DC1500
OPT-A-6-32 ANSI
DC-DC32
CN-R40C05
CDN-A-6-63
OPT-A-6-63 1000V DC
OPT-A-6-63 1500V DC
OPT-A-6-63 RWG
PROT63-AC690
PROT63-DC500
PROT63-DC1000
PROT63-DC1500
OPT-A-6-63 ANSI
OPT-A-6-63 FULL RANGE
DC-DC63
CDN-A-6-125
OPT-A-6-125 1000V DC
OPT-A-6-125 1500V DC
OPT-A-6-125 RWG
PROT125-AC690
PROT125-DC500
PROT125-DC1000
PROT125-DC1500
OPT-A-6-125 ANSI
OPT-A-6-125 FULL RANGE
DC-DC125
CDN-A-6-200
OPT-A-6-200 1000V DC
OPT-A-6-200 1500V DC
OPT-A-6-200 RWG
PROT200-AC690
PROT200-DC500
OPT-A-6-200 ANSI
OPT-A-6-200 FULL RANGE
DC-DC200

max. 7.6 kV surge / 8kV EFT
CDN-M-8-32
OPT-M-8-32 1000V DC
OPT-M-8-32 RWG
PROT32-AC690
PROT32-DC500
PROT32-DC1000
DC-DC32
CN-R40C05 8
CDN-A-8-32
OPT-A-8-32 1000V DC
OPT-A-8-32 1500V DC
OPT-A-8-32 RWG
PROT32-AC690
PROT32-DC500
PROT32-DC1000
PROT32-DC1500
OPT-A-8-32 ANSI
DC-DC32
CN-R40C05 8
CDN-A-8-63
OPT-A-8-63 1000V DC
OPT-A-8-63 1500V DC
OPT-A-8-63 RWG
PROT63-AC690
PROT63-DC500
PROT63-DC1000
PROT63-DC1500
OPT-A-8-63 ANSI
OPT-A-8-63 FULL RANGE
DC-DC63
CDN-A-8-125
OPT-A-8-125 1000V DC
OPT-A-8-125 1500V DC
OPT-A-8-125 RWG
PROT125-AC690
PROT125-DC500
PROT125-DC1000
PROT125-DC1500
OPT-A-8-125 ANSI
OPT-A-8-125 FULL RANGE
DC-DC125
CDN-A-8-200
OPT-A-8-200 1000V DC
OPT-A-8-200 1500V DC
OPT-A-8-200 RWG
PROT200-AC690
PROT200-DC500
OPT-A-8-200 ANSI
OPT-A-8-200 FULL RANGE
DC-DC200

8 kV manual burst CDN
CDN-F-125

Latest technology CDNs

MANY OPTIONS ONE CHOICE

Solutions for professionals

- Unique capabilities
- Excellent decoupling
- Highest EUT voltage supported
- Truly flexible, subsequently upgradable
- EUT and supply connectors included
- Fully compliant with a single CDN
- Ready for railway testing
- Ready for EV charging station testing
- Multicolour coupling path indication
- Higher EUT current CDNs on demand

4/6 KV CDNS

MANUAL CDNS AND OPTIONS (4/6 KV)

CDN-M-6-32

Standards	IEC61000-4-4, IEC61000-4-5, other
Can be upgraded for	IEC61000-4-12 (for ANSI see automatic version)
Type	3-ph., manual
EUT voltage AC	max. 3 x 690V L-L, 50 / 60 Hz
EUT current AC	max. 3 x 32A (covers 0 – 32 A as per standard)
EUT voltage DC	max. 500V (can be upgraded, see options)
EUT current DC	max. 32A (covers 0 – 32 A as per standard)
Current flow	bi-directional (source to EUT and EUT to source)
Test level burst (as per IEC)	max. 6 kV
Test level surge (as per IEC)	max. 6 kV
Surge waveform	as required for current EUT range 0 – 32A
Residual voltage	typically < 5 % for burst and < 12 % for surge
Dimensions	19” unit, basic 4 UH
Weight	depending on options
Included in delivery	10 connectors (power, EUT), 5 EUT cables
	adapter for burst calibration
Generators	IMU-MGS, IMU-MGE
Options	to be ordered additionally when required
OPT-M-6-32 1000V DC	extends DC voltage capability of CDN from
	500V DC to 1000V DC
OPT-M-6-32 RWG	extends capability of CDN for Ring Wave test
	up to 6 kV as per IEC61000-4-12
PROT32-AC690	3-ph. AC 690V/32A automatic overcurrent
	circuit breaker (for tests on AC lines)
PROT32-DC500	DC 500V/32A automatic overcurrent
	circuit breaker (for tests on DC lines)
PROT32-DC1000	DC 1000V/32A automatic overcurrent circuit
(requires voltage option)	breaker (for tests on DC lines)
	all overcurrent protections can be ordered
	only one protection to be used at a time
DC-DC32	DC 1500V/32A diode-resistor network as per
	IEC61000-4-5 ed. 3, Amendment 1
CN-R40C05	Coupling module for railway apparatus, 6 kV,
	according to EN50121 (to be used with a CDN)

AUTOMATIC CDNS AND OPTIONS (4/6 KV)

CDN-A-6-32

Standards	IEC61000-4-4, IEC61000-4-5, other, latest editions
Can be upgraded for	IEC61000-4-12, ANSI C62.45 (see options)
Type	3-ph., automatic
EUT voltage AC	max. 3 x 690V L-L, 50 / 60 Hz
EUT current AC	max. 3 x 32A (covers 0 – 32 A as per standard)
EUT voltage DC	max. 500V (can be upgraded, see options)
EUT current DC	max. 32A (covers 0 – 32 A as per standard)
Current flow	bi-directional (source to EUT and EUT to source)
Test level burst (as per IEC)	max. 6 kV
Test level surge (as per IEC)	max. 6 kV
Surge waveform	as required for EUT current range 0 – 32A
Residual voltage	typically < 5 % for burst and < 12 % for surge
Dimensions	19" unit, basic 4 UH (with options max. 8 UH)
Weight	depending on options
Included in delivery	EUT connection cables (5 pieces), additionally
	10 connectors (power, EUT), 5 EUT cables
	adapter for burst calibration
Generators	IMU-MGS, IMU-MGE
Options	to be ordered additionally when required
OPT-A-6-32 1000V DC	extends DC voltage capability of CDN from
	500V DC to 1000V DC
OPT-A-6-32 1500V DC	extends DC voltage capability of CDN from
	500V DC to 1500V DC
OPT-A-6-32 RWG	extends capability of CDN for Ring Wave test
	up to 6 kV as per IEC61000-4-12
PROT32-AC690	3-ph. AC 690V/32A automatic overcurrent
	circuit breaker (for tests on AC lines)
PROT32-DC500	DC 500V/32A automatic overcurrent
	circuit breaker (for tests on DC lines)
PROT32-DC1000	DC 1000V/32A automatic overcurrent circuit
(requires voltage option)	breaker (for tests on DC lines)
PROT32-DC1500	DC 1500V/32A automatic overcurrent circuit
(requires voltage option)	breaker (for tests on DC lines)
	all overcurrent protections can be ordered
	only one protection to be used at a time
OPT-A-6-32 ANSI	extends capability of CDN to perform additional
(for Surge & if selected Ring)	couplings as per ANSI C62.45
DC-DC32	DC 1500V/32A diode-resistor network as per
	IEC61000-4-5 ed. 3, Amendment 1
CN-R40C05	Coupling module for railway apparatus, 6 kV,
	according to EN50121 (to be used with a CDN)

CDN-A-6-63

Standards	IEC61000-4-4, IEC61000-4-5, other, latest editions
Can be upgraded for	IEC61000-4-12, ANSI C62.45 (see options)
Type	3-ph., automatic
EUT voltage AC	max. 3 x 690V L-L, 50 / 60 Hz
EUT current AC	max. 3 x 63A
EUT voltage DC	max. 500V (can be upgraded, see options)
EUT current DC	max. 63A
Current flow	bi-directional (source to EUT and EUT to source)
Test level burst (as per IEC)	max. 6 kV
Test level surge (as per IEC)	max. 6 kV
Surge waveform	as required for EUT current range 32 – 63A
	see FULL RANGE OPTION below
Residual voltage	typically < 5 % for burst and < 12 % for surge
Dimensions	19" unit, 8 UH
Weight	depending on options
Included in delivery	connectors for EUT and supply (10 pcs.)
	adapter for burst calibration
Generators	IMU-MGS, IMU-MGE

Options	to be ordered additionally when required
OPT-A-6-63 1000V DC	extends DC voltage capability of CDN from
	500V DC to 1000V DC
OPT-A-6-63 1500V DC	extends DC voltage capability of CDN from
	500V DC to 1500V DC
OPT-A-6-63 RWG	extends capability of CDN for Ring Wave test
	up to 6 kV as per IEC61000-4-12
PROT63-AC690	3-ph. AC 690V/63A automatic overcurrent
	circuit breaker (for tests on AC lines)
PROT63-DC500	DC 500V/63A automatic overcurrent
	circuit breaker (for tests on DC lines)
PROT63-DC1000	DC 1000V/63A automatic overcurrent circuit
(requires voltage option)	breaker (for tests on DC lines)
PROT63-DC1500	DC 1500V/63A automatic overcurrent circuit
(requires voltage option)	breaker (for tests on DC lines)
	all overcurrent protections can be ordered
	only one protection to be used at a time

OPT-A-6-63 ANSI	extends capability of CDN to perform additional
(for Surge & if selected Ring)	couplings as per ANSI C62.45
OPT-A-6-63 FULL RANGE	ensures that surge waveform can be applied also
	when testing EUTs in current range 0-32A/phase
	as per IEC61000-4-5 ed. 3
DC-DC63	DC 1500V/63A diode-resistor network as per
	IEC61000-4-5 ed. 3, Amendment 1

CDN-A-6-125

Standards	IEC61000-4-4, IEC61000-4-5, latest editions
Can be upgraded for	IEC61000-4-12, ANSI C62.45 (see options)
Type	3-ph., automatic
EUT voltage AC	max. 3 x 690V L-L, 50 / 60 Hz
EUT current AC	max. 3 x 125A
EUT voltage DC	max. 500V (can be upgraded, see options)
EUT current DC	max. 125A
Current flow	bi-directional (source to EUT and EUT to source)
Test level burst (as per IEC)	max. 6 kV
Test level surge (as per IEC)	max. 6 kV
Surge waveform	as required for EUT current range 63 – 125A
	see FULL RANGE OPTION below
Residual voltage	typically < 5 % for burst and < 12 % for surge
Dimensions	19" rack with wheels, 18 UH
Weight	depending on options
Included in delivery	connectors for EUT and supply (10 pcs.)
	adapter for burst calibration
Generators	IMU-MGS, IMU-MGE
Options	to be ordered additionally when required
OPT-A-6-125 1000V DC	extends DC voltage capability of CDN from
	500V DC to 1000V DC
OPT-A-6-125 1500V DC	extends DC voltage capability of CDN from
	500V DC to 1500V DC
OPT-A-6-125 RWG	extends capability of CDN for Ring Wave test
	up to 6 kV as per IEC61000-4-12
PROT125-AC690	3-ph. AC 690V/125A automatic overcurrent
	circuit breaker (for tests on AC lines)
PROT125-DC500	DC 500V/125A automatic overcurrent
	circuit breaker (for tests on DC lines)
PROT125-DC1000	DC 1000V/125A automatic overcurrent circuit
(requires voltage option)	breaker (for tests on DC lines)
PROT125-DC1500	DC 1500V/125A automatic overcurrent circuit
(requires voltage option)	breaker (for tests on DC lines)
	all overcurrent protections can be ordered
	only one protection to be used at a time
OPT-A-6-125 ANSI	extends capability of CDN to perform additional
(for Surge & if selected Ring)	couplings as per ANSI C62.45
OPT-A-6-125 FULL RANGE	ensures that surge waveform can be applied also
	when testing EUTs in current range 0-63A/phase
	as per IEC61000-4-5 ed. 3
DC-DC125	DC 1500V/125A diode-resistor network as per
	IEC61000-4-5 ed. 3, Amendment 1

CDN-A-6-200

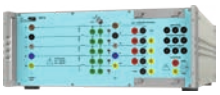
Standards	IEC61000-4-4, IEC61000-4-5, latest editions
Can be upgraded for	IEC61000-4-12, ANSI C62.45 (see options)
Type	3-ph., automatic
EUT voltage AC	max. 3 x 690V L-L, 50 / 60 Hz
EUT current AC	max. 3 x 200A
EUT voltage DC	max. 500V (can be upgraded, see options)
EUT current DC	max. 200A
Current flow	bi-directional (source to EUT and EUT to source)
Test level burst (as per IEC)	max. 6 kV
Test level surge (as per IEC)	max. 6 kV
Surge waveform	as required for EUT current range 125 – 200A
	see FULL RANGE OPTION below
Residual voltage	typically < 5 % for burst and < 12 % for surge
Dimensions	19" rack with wheels, 18 UH
Weight	depending on options
Included in delivery	connectors for EUT and supply (10 pcs.)
	adapter for burst calibration
Generators	IMU-MGS, IMU-MGE

Options	to be ordered additionally when required
OPT-A-6-200 1000V DC	extends DC voltage capability of CDN from
	500V DC to 1000V DC
OPT-A-6-200 1500V DC	extends DC voltage capability of CDN from
	500V DC to 1500V DC
OPT-A-6-200 RWG	extends capability of CDN for Ring Wave test
	up to 6 kV as per IEC61000-4-12
PROT200-AC690	3-ph. AC 690V/200A automatic overcurrent
	circuit breaker (for tests on AC lines)
PROT200-DC500	DC 500V/200A automatic overcurrent
	circuit breaker (for tests on DC lines)
OPT-A-6-200 ANSI	extends capability of CDN to perform additional
(for Surge & if selected Ring)	couplings as per ANSI C62.45
OPT-A-6-200 FULL RANGE	ensures that surge waveform can be applied also
	when testing EUTs in current range 0-125A/phase
	as per IEC61000-4-5 ed. 3
DC-DC200	DC 1500V/200A diode-resistor network as per
	IEC61000-4-5 ed. 3, Amendment 1

8KV EFT / 7.6 KV SURGE CDNS

MANUAL CDNS AND OPTIONS 8KV EFT / 7.6 KV SURGE

CDN-M-8-32



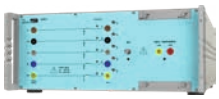
Standards	IEC61000-4-4, IEC61000-4-5, other, latest editions
Can be upgraded for	IEC61000-4-12 (for ANSI see automatic version)
Type	3-ph., manual
EUT voltage AC	max. 3 x 690V L-L, 50 / 60 Hz
EUT current AC	max. 3 x 32A (covers 0 – 32 A as per standard)
EUT voltage DC	max. 500V (can be upgraded, see options)
EUT current DC	max. 32A (covers 0 – 32 A as per standard)
Current flow	bi-directional (source to EUT and EUT to source)
Test level burst (as per IEC)	max. 8 kV with IMU-MGE
Test level surge (as per IEC)	max. 8 kV supported (with IMU-MGE max. 7.6 kV)
Surge waveform	as required for current EUT range 0 – 32A
Residual voltage	typically < 5 % for burst and < 12 % for surge
Dimensions	19” unit, basic 4 UH
Weight	depending on options
Included in delivery	10 connectors (power, EUT), 5 EUT cables
	adapter for burst calibration
Generators	IMU-MGE

Options	to be ordered additionally when required
OPT-M-8-32 1000V DC	extends DC voltage capability of CDN from
	500V DC to 1000V DC
OPT-M-8-32 RWG	extends capability of CDN for Ring Wave test
	up to 7.6 kV (with IMU-MGE) as per IEC61000-4-12
PROT32-AC690	3-ph. AC 690V/32A automatic overcurrent
	circuit breaker (for tests on AC lines)
PROT32-DC500	DC 500V/32A automatic overcurrent
	circuit breaker (for tests on DC lines)
PROT32-DC1000	DC 1000V/32A automatic overcurrent circuit
(requires voltage option)	breaker (for tests on DC lines)
	all overcurrent protections can be ordered
	only one protection to be used at a time

DC-DC32	DC 1500V/32A diode-resistor network as per
	IEC61000-4-5 ed. 3, Amendment 1
CN-R40C05 8	Coupling module for railway apparatus, 8 kV,
	according to EN50121 (to be used with a CDN)

AUTOMATIC CDNS AND OPTIONS 8KV EFT / 7.6 KV SURGE

CDN-A-8-32



Standards	IEC61000-4-4, IEC61000-4-5, latest editions
Can be upgraded for	IEC61000-4-12, ANSI C62.45 (see options)
Type	3-ph., automatic
EUT voltage AC	max. 3 x 690V L-L, 50 / 60 Hz
EUT current AC	max. 3 x 32A (covers 0 – 32 A as per standard)
EUT voltage DC	max. 500V (can be upgraded, see options)
EUT current DC	max. 32A (covers 0 – 32 A as per standard)
Current flow	bi-directional (source to EUT and EUT to source)
Test level burst	max. 8 kV with IMU-MGE
Test level surge	max. 8 kV supported (with IMU-MGE max. 7.6 kV)
Surge waveform	as required for EUT current range 0 – 32A
Residual voltage	typically < 5 % for burst and < 12 % for surge
Dimensions	19" unit, basic 4 UH (with options max. 8 UH)
Weight	depending on options
Included in delivery	10 connectors (power, EUT), 5 EUT cables
	adapter for burst calibration
Generators	IMU-MGE

Options	to be ordered additionally when required
OPT-A-8-32 1000V DC	extends DC voltage capability of CDN from
	500V DC to 1000V DC
OPT-A-8-32 1500V DC	extends DC voltage capability of CDN from
	500V DC to 1500V DC
OPT-A-8-32 RWG	extends capability of CDN for Ring Wave test
	up to 7.6 kV (with IMU-MGE) as per IEC61000-4-12
PROT32-AC690	3-ph. AC 690V/32A automatic overcurrent
	circuit breaker (for tests on AC lines)
PROT32-DC500	DC 500V/32A automatic overcurrent
	circuit breaker (for tests on DC lines)
PROT32-DC1000	DC 1000V/32A automatic overcurrent circuit
(requires voltage option)	breaker (for tests on DC lines)
PROT32-DC1500	DC 1500V/32A automatic overcurrent circuit
(requires voltage option)	breaker (for tests on DC lines)
	all overcurrent protections can be ordered
	only one protection to be used at a time

OPT-A-8-32 ANSI	extends capability of CDN to perform additional
(for Surge & if selected Ring)	couplings as per ANSI C62.45
DC-DC32	DC 1500V/32A diode-resistor network as per
	IEC61000-4-5 ed. 3, Amendment 1
CN-R40C05 8	Coupling module for railway apparatus, 8 kV,
	according to EN50121 (to be used with a CDN)

CDN-A-8-63

Standards	IEC61000-4-4, IEC61000-4-5, latest editions
Can be upgraded for	IEC61000-4-12, ANSI C62.45 (see options)
Type	3-ph., automatic
EUT voltage AC	max. 3 x 690V L-L, 50 / 60 Hz
EUT current AC	max. 3 x 63A
EUT voltage DC	max. 500V (can be upgraded, see options)
EUT current DC	max. 63A
Current flow	bi-directional (source to EUT and EUT to source)
Test level burst (as per IEC)	max. 8 kV with IMU-MGE
Test level surge (as per IEC)	max. 8 kV supported (with IMU-MGE max. 7.6 kV)
Surge waveform	as required for EUT current range 32 – 63A
	see FULL RANGE OPTION below
Residual voltage	typically < 5 % for burst and < 12 % for surge
Dimensions	19" unit, 8 UH
Weight	depending on options
Included in delivery	connectors for EUT and supply (10 pcs.)
	adapter for burst calibration
Generators	IMU-MGE

Options	to be ordered additionally when required
OPT-A-8-63 1000V DC	extends DC voltage capability of CDN from
	500V DC to 1000V DC
OPT-A-8-63 1500V DC	extends DC voltage capability of CDN from
	500V DC to 1500V DC
OPT-A-8-63 RWG	extends capability of CDN for Ring Wave test
	up to 7.6 kV (with IMU-MGE) as per IEC61000-4-12
PROT63-AC690	3-ph. AC 690V/63A automatic overcurrent
	circuit breaker (for tests on AC lines)
PROT63-DC500	DC 500V/63A automatic overcurrent
	circuit breaker (for tests on DC lines)
PROT63-DC1000	DC 1000V/63A automatic overcurrent circuit
(requires voltage option)	breaker (for tests on DC lines)
PROT63-DC1500	DC 1500V/63A automatic overcurrent circuit
(requires voltage option)	breaker (for tests on DC lines)
	all overcurrent protections can be ordered
	only one protection to be used at a time

OPT-A-8-63 ANSI	extends capability of CDN to perform additional
(for Surge & if selected Ring)	couplings as per ANSI C62.45
OPT-A-8-63 FULL RANGE	ensures that surge waveform can be applied also
	when testing EUTs in current range 0-32A/phase
	as per IEC61000-4-5 ed. 3
DC-DC63	DC 1500V/63A diode-resistor network as per
	IEC61000-4-5 ed. 3, Amendment 1

CDN-A-8-125

Standards	IEC61000-4-4, IEC61000-4-5, latest editions
Can be upgraded for	IEC61000-4-12, ANSI C62.45 (see options)
Type	3-ph., automatic
EUT voltage AC	max. 3 x 690V L-L, 50 / 60 Hz
EUT current AC	max. 3 x 125A
EUT voltage DC	max. 500V (can be upgraded, see options)
EUT current DC	max. 125A
Current flow	bi-directional (source to EUT and EUT to source)
Test level burst (as per IEC)	max. 8 kV with IMU-MGE
Test level surge (as per IEC)	max. 8 kV supported (with IMU-MGEmax. 7.6 kV)
Surge waveform	as required for EUT current range 63 – 125A
	see FULL RANGE OPTION below
Residual voltage	typically < 5 % for burst and < 12 % for surge
Dimensions	19" rack with wheels, 18 UH
Weight	depending on options
Included in delivery	connectors for EUT and supply (10 pcs.)
	adapter for burst calibration
Generators	IMU-MGE

Options	to be ordered additionally when required
OPT-A-8-125 1000V DC	extends DC voltage capability of CDN from
	500V DC to 1000V DC
OPT-A-8-125 1500V DC	extends DC voltage capability of CDN from
	500V DC to 1500V DC
OPT-A-8-125 RWG	extends capability of CDN for Ring Wave test
	up to 7.6 kV (with IMU-MGE) as per IEC61000-4-12
PROT125-AC690	3-ph. AC 690V/125A automatic overcurrent
	circuit breaker (for tests on AC lines)
PROT125-DC500	DC 500V/125A automatic overcurrent
	circuit breaker (for tests on DC lines)
PROT125-DC1000	DC 1000V/125A automatic overcurrent circuit
(requires voltage option)	breaker (for tests on DC lines)
PROT125-DC1500	DC 1500V/125A automatic overcurrent circuit
(requires voltage option)	breaker (for tests on DC lines)
	all overcurrent protections can be ordered
	only one protection to be used at a time

OPT-A-8-125 ANSI	extends capability of CDN to perform additional
(for Surge & if selected Ring)	couplings as per ANSI C62.45
OPT-A-8-125 FULL RANGE	ensures that surge waveform can be applied also
	when testing EUTs in current range 0-63A/phase
	as per IEC61000-4-5 ed. 3
DC-DC125	DC 1500V/125A diode-resistor network as per
	IEC61000-4-5 ed. 3, Amendment 1

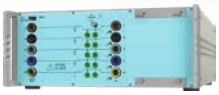
CDN-A-8-200

Standards	IEC61000-4-4, IEC61000-4-5, latest editions
Can be upgraded for	IEC61000-4-12, ANSI C62.45 (see options)
Type	3-ph., automatic
EUT voltage AC	max. 3 x 690V L-L, 50 / 60 Hz
EUT current AC	max. 3 x 200A
EUT voltage DC	max. 500V (can be upgraded, see options)
EUT current DC	max. 200A
Current flow	bi-directional (source to EUT and EUT to source)
Test level burst (as per IEC)	max. 8 kV with IMU-MGE
Test level surge (as per IEC)	max. 8 kV supported (with IMU-MGEmax. 7.6 kV)
Surge waveform	as required for EUT current range 125 – 200A
	see FULL RANGE OPTION below
Residual voltage	typically < 5 % for burst and < 12 % for surge
Dimensions	19” rack with wheels, 18 UH
Weight	depending on options
Included in delivery	connectors for EUT and supply (10 pcs.)
	adapter for burst calibration
Generators	IMU-MGE

Options	to be ordered additionally when required
OPT-A-8-200 1000V DC	extends DC voltage capability of CDN from
	500V DC to 1000V DC
OPT-A-8-200 1500V DC	extends DC voltage capability of CDN from
	500V DC to 1500V DC
OPT-A-8-200 RWG	extends capability of CDN for Ring Wave test
	up to 7.6 kV (with IMU-MGE) as per IEC61000-4-12
PROT200-AC690	3-ph. AC 690V/200A automatic overcurrent
	circuit breaker (for tests on AC lines)
PROT200-DC500	DC 500V/200A automatic overcurrent
	circuit breaker (for tests on DC lines)

OPT-A-8-200 ANSI	extends capability of CDN to perform additional
(for Surge & if selected Ring)	couplings as per ANSI C62.45
OPT-A-8-200 FULL RANGE	ensures that surge waveform can be applied also
	when testing EUTs in current range 0-125A/phase
	as per IEC61000-4-5 ed. 3
DC-DC200	DC 1500V/200A diode-resistor network as per
	IEC61000-4-5 ed. 3, Amendment 1

CDN-F-125

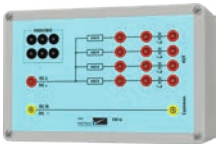


Standard	IEC61000-4-4 latest edition
Type	3-ph., manual
Coupling paths	L1, L2, L3, N, PE, all → ground, any combination
EUT voltage AC	max. 3 x 690V L-L, 50 / 60 Hz
EUT current AC	max. 3 x 125A
EUT voltage DC	max. 1000V
EUT current DC	max. 125A @ 1000 V
Current flow	bi-directional (source to EUT and EUT to source)
Test level burst (as per IEC)	max. 8 kV with IMU-MGE
Residual voltage	typically < 5 %
Dimensions	19” unit, 4 UH
Weight	14 kg.
Included in delivery	10 connectors (power, EUT)
	adapter for burst calibration
Generators	IMU-MGS, IMU-MGE

COMMON MODE COUPLING NETWORKS AND DECOUPLING NETWORKS

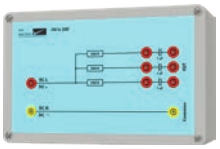
Test type	CN 16	CN16 DC	DN16-1P6 EUT	DN16-1P16 EUT
AC test on AC lines	415 V	-	230 V / 6 A	230 V / 16 A
AC test on DC lines	415 V	-	-	-
DC test on AC lines	115 V(115 V test level)	250 V / 16 A	230 V / 6 A	230 V / 16 A
DC test on DC lines	115 V(115 V test level)	250 V / 16 A	-	-
Sweep test on AC lines	415 V	-	230 V / 6 A	230 V / 16 A
Sweep test on DC lines	415 V	-	-	-

CN16



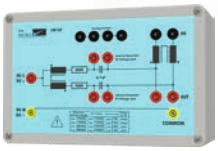
Standard	IEC 61000-4-16 latest edition
Type	manual, for 1, 2 or 4 power lines
EUT voltage AC (see table)	max. 3 x 415 V L-L (240 V L-N), 50 / 60 Hz
EUT current AC	limited only by decoupling
EUT power DC (see table)	max. 300 V (AC/RF disturbance) no current limit
Coupling paths	1 x 100 Ω, 2 x 200 Ω, 4 x 400 Ω, 1 µF per line
Test level power tests	330 V @ 16.67 Hz, 50 Hz, 60 Hz, 115 V @ DC
Test level sweep test	35 V
Dimensions	28 x 18 x 11 cm
Weight	3 kg
Optional	PS3, EXT-IMU C-SHORT
	DN16-1P6 or DN16-1P16 decoupling transformer
Generators	IMU-MGS, IMU-MGE

CN16-300



Standard	IEC 61000-4-16 latest edition
Type	manual, for 3 power lines
EUT voltage AC	max. 3 x 480 V L-L (280 V L-N), 50 / 60 Hz
EUT current AC	limited only by decoupling
EUT power DC	max. 115 V (AC/RF disturbance) no current limit
Coupling paths	3 x 300 Ω, 1 µF per line
Test level power tests	330 V @ 16.67 Hz, 50 Hz, 60 Hz, 115 V @ DC
Test level sweep test	35 V
Dimensions	28 x 18 x 11 cm
Weight	3 kg
Optional	PS3, EXT-IMU C-SHORT
	DN16-1P6 or DN16-1P16 decoupling transformer
Generators	IMU-MGS, IMU-MGE

CN16DC

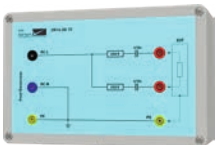


Standard	IEC 61000-4-16 latest edition
Type	manual, for 2 power lines
EUT power AC (see table)	250 V, 50 / 60 Hz, 16 A
EUT power DC (see table)	250 V, 16 A
Coupling paths	2 x 200 Ω
Test level power tests	330 V DC on AC and DC lines
Dimensions	28 x 19 x 11 cm
Weight	3 kg
Requires	PS3, EXT-IMU C-SHORT
Optional	DN16-1P6 or DN16-1P16 decoupling transformer
Generators	IMU-MGS, IMU-MGE

CN16T

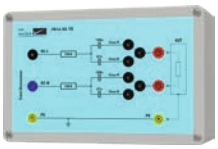
See section “Other CDNs for I/O Lines”

CN16-22-7C



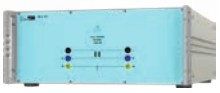
Standard	IEC60255-26 latest edition
Type	manual, for 2 power lines, common mode test
EUT power AC	415 V, 50 / 60 Hz, 16 A
EUT power DC	300 V, 16 A
Coupling path	2 x 220 Ω ± 5 %, 0.47 µF ± 5 % per line
Test level	max. 300 V
Dimensions	28 x 18 x 11 cm
Weight	3.3 kg
Requires	PS3, EXT-IMU C-SHORT
Generators	IMU-MGS, IMU-MGE

CN16-22-7D



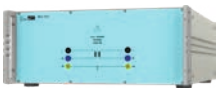
Standard	IEC60255-26 latest edition
Type	manual, for 2 power lines, diff. mode test
EUT power AC	415 V, 50 / 60 Hz, 16 A
EUT power DC	300 V, 16 A
Coupling path 1 (class A)	2 x 100 Ω ± 5 %, 0.1 µF ± 5 % per line
Coupling path 2 (class B)	2 x 100 Ω ± 5 %, 0.047 µF ± 5 % per line
Test level	max. 300 V
Dimensions	28 x 18 x 11 cm
Weight	3.5 kg
Requires	PS3, EXT-IMU C-SHORT
Generators	IMU-MGS, IMU-MGE

DN16-1P6



Standard	IEC 61000-4-16c
Type	1P decoupling transformer for power lines
EUT power AC (see table)	230 V, 50 / 60 Hz, 6 A
EUT power DC	not suitable for DC applications
Test level	max. 330 V
Insulation	≥1 kV
CM decoupling	> 60 dB in the range 15 Hz – 150 kHz
Dimensions	19 " unit, 4 UH
Weight	30 kg
Requires	CN16 or CN16DC
Generators	IMU-MGS, IMU-MGE

DN16-1P16



Standard	IEC 61000-4-1 latest edition
Type	1P decoupling transformer for power lines
EUT power AC (see table)	230 V, 50 / 60 Hz, 16 A
EUT power DC	not suitable for DC applications
Test level	max. 330 V
Insulation	≥1 kV
CM decoupling	> 60 dB in the range 15 Hz – 150 kHz
Dimensions	19 " unit, 4 UH
Weight	50 kg
Requires	CN16 or CN16DC
Generators	IMU-MGS, IMU-MGE

CDNs FOR SURGE & RING WAVE I/O (DATA) LINES

Type of lines	Line	CDN-KIT1000 ED3	CDN-DATA-4L	CDN-DATA-8L	CDN-UTP ED3	CDN-UTP8 ED3
Unsymmetrical, unshielded		Yes, max 2 lines	Yes, max 4 lines	Yes, max 8 lines	Yes, max 2 lines	Yes, max 4 lines
Symmetrical, unshielded		-	-	-	Yes, max 4 lines	Yes, max 8 lines
Unsymmetrical, shielded		No CDN required, surge and ring wave are applied on the shield directly from generator				
Symmetrical, shielded						

CDN-KIT1000 ED3

Standard	IEC 61000-4-5 latest edition
Application	surge on 2 unsymmetrical lines, figure 9
Test level surge	max. 6 kV
Low speed I/O	unsymmetrical, coupling with capacitor
EUT voltage per line	max. 200 V DC or 240 V peak
EUT current per line	max. 4 A cont. or 5 A for 5 min.
Coupling path 1	40 Ω + 0.5 µF capacitor
Decoupling 1	20 mH per line (protected 275 V max.)
Higher speed I/O	unsymmetrical, coupling with diode
EUT voltage per line	max. 24 V DC or peak
EUT current per line	max. 3 A cont. or 5 A for 5 min.
Coupling path 2	40 Ω + 27 V diode
Decoupling 2	560 Ω per line (protected 18 V max.)
Dimensions	4 modules in carrying case: 33 x 27 x 17 cm
Weight	7 kg (all modules and carrying case)
Generators	IMU-MGS, IMU-MGE, other EMCP models

CDN-DATA-4L

Standards	IEC 61000-4-5, -4-12 latest editions
Application	surge (fig. 9), ring wave on 4 asym. lines
EUT voltage per line	max. 200 V DC or 240 V peak
EUT current per line	max. 4 A cont. or 5 A for 5 min.
Line speed	max. 100 kHz as per IEC 61000-4-5
Coupling path surge 1	40 Ω + 0.5 µF capacitor
Coupling path surge 2	40 Ω + 33 V bipolar diode
Coupling path surge 3	40 Ω + GDT 90 V, or any external element
Coupling path ring wave 1	33 V bipolar diode
Coupling path ring wave 2	any external element
Decoupling	20 mH per line, as per IEC 61000-4-5, -4-12
Test level surge	max. 6 kV, coupling L-L, L-PE
Test level ring wave	max. 6 kV, coupling L-L, L-PE (only IMU-MGE)

Dimensions	19“ unit, 4 UH
Weight	17 kg
Generators	IMU-MGS, IMU-MGE, other EMCP models

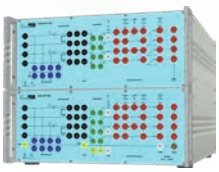
CDN-DATA-8L

Standards	IEC 61000-4-5, -4-12 latest editions
Application	surge (fig. 9), ring wave on 8 asym. lines
EUT voltage per line	max. 200 V DC or 240 V peak
EUT current per line	max. 4 A cont. or 5 A for 5 min.
Line speed	max. 100 kHz as per IEC 61000-4-5
Coupling path surge 1	40 Ω + 0.5 µF capacitor
Coupling path surge 2	40 Ω + 33 V bipolar diode
Coupling path surge 3	40 Ω + GDT 90 V, or any external element
Coupling path ring wave 1	33 V bipolar diode
Coupling path ring wave 2	any external element
Decoupling	20 mH per line, as per IEC 61000-4-5, -4-12
Test level surge	max. 6 kV, coupling L-L, L-PE
Test level ring wave	max. 6 kV, coupling L-L, L-PE (only IMU-MGE)
Dimensions	19“ unit, 4 UH
Weight	25 kg
Generators	IMU-MGS, IMU-MGE, other EMCP models

CDN-UTP ED3

Standards	IEC 61000-4-5, IEC 61000-4-12 latest editions
Application 1 (1.2 / 50 µs)	surge (fig. 10) on up to 4 sym. lines
Application 2 (1.2 / 50 µs)	surge (fig. 9) on up to 2 asym. lines
Application 3 (10 / 700 µs)	telecom surge (fig. A.4) on up to 4 asym. lines
Aplication 4 (0.5 µs /100kHz)	ring wave as per fig. 8, 9 and 10
EUT voltage per line	max. 300 V DC or peak
EUT current per line	max. 1 A cont., total for all lines max. 2A
EUT line(s) characteristics	high speed, over 100 Mbps on 4 wires (2pairs)
Example of EUT I/O lines	RS485, USB, Ethernet 4 wires, CAN bus, etc.
Coupling path surge 1	2 x 80 Ω for 2 lines or 4 x 160 Ω for 4 lines
Coupling path surge 2	1 x 40 Ω + 0.5 µF
Coupling path tel. surge 3	2 x 25 Ω for 2 lines or 4 x 25 Ω for 4 lines
Coupling path ring wave	2 x GDT 90 V or 4 x GDT 90 V or 1 x 0.5 µF
Coupling elements	2 x GDT 90 V or 4 x GDT 90 V or 1 x 0.5 µF
Decoupling	up to 4 x 20 mH per line, current compensated
AE protection	4 x GDT 90 V or customer defined
Test level surge, ring wave	max. 6 kV, coupling CM and DM
Test level telecom surge	max. 5 kV, coupling CM (only IMU-MGE)
Dimensions	19“ unit, 4 UH
Weight	40 kg
Included	Mentioned coupling elements, AE protection
Optional	ADAPTER BOX RJ45 (ask for details)
Other relevant standards	ITU-T K20, K21, K44, FCC part 68 / D
Generators	IMU-MGS, IMU-MGE, other EMCP models

CDN-UTP8 ED3



Standards	IEC 61000-4-5, IEC 61000-4-12 latest editions
Application 1 (1.2 / 50 µs)	surge (fig. 10) on up to 8 sym. lines
Application 2 (1.2 / 50 µs)	surge (fig. 9) on up to 4 asym. lines
Application 3 (10 / 700 µs)	telecom surge (fig. A.4) on up to 8 asym. lines
Aplication 4 (0.5 µs /100kHz)	ring wave as per fig. 8, 9 and 10
EUT voltage per line	max. 300 V DC or peak
EUT current per line	max. 1 A cont., total for all lines max. 2A
EUT line(s) characteristics	high speed, up to 1 Gbps
Example of EUT I/O lines	RS485, USB, Ethernet 1Gbps, CAN bus, etc.
Coupling path surge 1	2 x 80 Ω, 4 x 160 Ω, 8 x 320 Ω
Coupling path surge 2	1 x 40 Ω + 0.5 µF
Coupling path tel. surge 3	2 x 25 Ω or 4 x 25 Ω or 8 x 25 Ω
Coupling path ring wave	2 or 4 or 8 x GDT 90 V or 1 x 0.5 µF
Coupling elements	2 or 4 or 8 x GDT 90 V or 1 x 0.5 µF
Decoupling	up to 8 x 20 mH per line, current compensated
AE protection	8 x GDT 90 V or customer defined
Test level surge, ring wave	max. 6 kV, coupling CM and DM
Test level telecom surge	max. 5 kV, coupling CM (only IMU-MGE)
Dimensions	19“ unit, 8 UH
Weight	78 kg
Included	mentioned coupling elements, AE protection
Optional	ADAPTER BOX RJ45 (ask for details)
Other relevant standards	ITU-T K20, K21, K44, FCC part 68 / D
Generators	IMU-MGS, IMU-MGE, other EMCP models

CN-R40C05

Standard	EN50121-4 latest edition
Application	surge on 2 unsymmetrical lines
Test level surge	max. 6 kV
Low speed I/O + Railway	unsymmetrical, coupling with capacitor
Coupling path 1	40 Ω + 0.5 µF capacitor or simply 40 Ω
EUT current	determined by CDN used for decoupling
EUT voltage	440V AC/DC
Dimensions	1 module
Weight	1 kg
Requires	IMU internal CDN or external CDN
Generators	IMU-MGS, IMU-MGE, other EMCP models

CN-R40C05 8

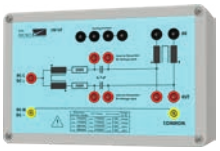
Standard	EN50121-4 latest edition
Application	surge on 2 unsymmetrical lines
Test level surge	max. 8 kV
Low speed I/O + Railway	unsymmetrical, coupling with capacitor
Coupling path 1	40 Ω + 0.5 µF capacitor
EUT current	determined by CDN used for decoupling

EUT voltage	440V AC/DC
Dimensions	1 module
Weight	1 kg
Requires	IMU internal CDN or external CDN
Generators	IMU-MGS, IMU-MGE, other EMCP models

OTHER CDNs FOR I/O LINES

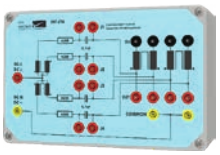
CN16T

Standard	IEC 61000-4-16 latest edition
Type	manual, for 2 symmetrical I/O lines
EUT voltage	max. 250 V (AC test), max. 110 V (DC test)
EUT current	max. 0.5 A
Coupling path	2 x 200 Ω, + 4.7 µF per line
Decoupling	as per IEC 61000-4-16 (38 mH per line)
Test level continuous	35 V
Test level short duration	330 V (bridge open), 115 V (bridge closed)
Dimensions	28 x 18 x 11 cm
Weight	3 kg
Generators	IMU-MGS, IMU-MGE



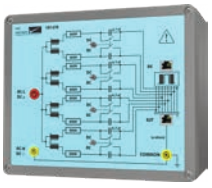
CN16T4

Standard	IEC 61000-4-16 latest edition
Type	manual, for 4 symmetrical I/O lines
EUT voltage	max. 63 V (AC), max. 100 V (DC)
EUT current	max. 0.5 A
Coupling path	4 x 400 Ω, + 4.7 µF per line
Decoupling	as per IEC 61000-4-16 (38 mH per line)
Test level continuous	35 V
Test level short duration	330 V (bridge open), 115 V (bridge closed)
Dimensions	30.5 x 23 x 11 cm
Weight	approx 5 kg
Generators	IMU-MGS, IMU-MGE



CN16T8

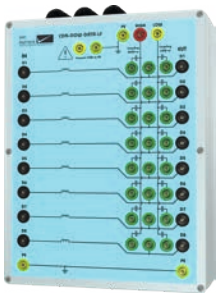
Standard	IEC 61000-4-16 latest edition
Type	manual, for 8 symmetrical I/O lines
EUT voltage	max. 63 V (AC), max. 100 V (DC)
EUT current	max. 0.5 A
EUT / AE connector	RJ45
Line speed	1Gbps
Coupling path	8 x 800 Ω, + 4.7 µF per line
Decoupling	as per IEC 61000-4-16 (38 mH per line)
Test level continuous	35 V
Test level short duration	330 V (bridge open), 115 V (bridge closed)



Dimensions	30.5 x 23 x 11 cm
Weight	approx 6 kg
Generators	IMU-MGS, IMU-MGE

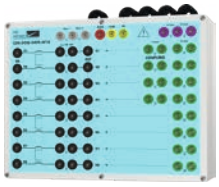
CDN-DOW-DATA-LF

Standard	IEC61000-4-18, IEC60255-26, ANSI C37.90
	latest editions
Application	manual CDN for applying SLOW DOW
	on max. 8 lines
Frequency DOW	100 kHz, 1 MHz ± 10 %
Rise time	75 ns ± 20 %
Source impedance	200 Ω
Decaying	Pk5 to Pk1 > 50 %, Pk10 to Pk1 < 50 %
EUT voltage per line	max. 250 V DC or AC 50/60 Hz
EUT current per line	max. 4 A
Coupling	differential mode (line to line)
IEC 61000-4-18, IEC 60255-26 (latest)	common mode and differential mode
IEC 60255-26 (1.0, 2.0) @ 1 MHz	single line or pair to all other lines grounded (0.5 µF) or floating
Decoupling	> 1.5 mH per line
Voltage test level	200 V - 4400 V ± 10 %
Short circuit current	1 A – 22 A ± 20 %
Dimensions	30.5 x 23 x 11 cm
Weight	5 kg
Generators	DOW-CG1, all models with SLOW module



CDN-DOW-DATA-HF18

Standard	IEC61000-4-18 SLOW DOW latest edition
Application	manual CDN for applying SLOW DOW
	on max. 8 sym. high speed lines (1 Gbps)
Frequency DOW	100 kHz, 1 MHz ± 10 %
Rise time	75 ns ± 20 %
Source impedance	200 Ω
Decaying	Pk5 to Pk1 > 50 %, Pk10 to Pk1 < 50 %
Number of data lines	4 lines / 2 pairs, 8 lines / 4 pairs
EUT voltage per line	max. 60 V DC (PoE) or signal voltage
EUT current per line	max. 1 A (PoE all versions)
Coupling	as per IEC61000-4-18
Decoupling	> 1.5 mH per line
Voltage test level	200 V - 4000 V ± 10 %
Short circuit current	1 A – 20 A ± 20 %
Dimensions	30.5 x 23 x 11 cm
Weight	3.7 kg
Generators	DOW-CG1, all models with SLOW module
Optional accessories	ADAPTER BOX RJ45-8L (2 pieces needed)



ACCESSORIES

ACCESSORIES AS PER IEC 61000-4-2

EXT-IMU E, ESD add-on 16 kV

Discharge network	150 pF, 330 Ω
Rise time	0.8 ns ± 25 %
Current waveform	as per IEC 61000-4-2
Discharge modes	air (AD) and contact (CD)
Voltage range AD / CD	2 – 16 kV ± 5 % / 2 – 10 kV ± 5 %
Continuous firing mode	2 – 16kV ± 5 %
Voltage increment	1 V step
Discharge repetition CD	0.05 s – 30 s (max. 20 Hz)
Discharge Polarity	positive, negative, alternating
Counter	pre-selectable 1-29999, discharge detection
Ramp	Voltage
Temparature range	15 - 35 °C
Humidity	30 - 60% non condensing
Generators	IMU-MGS, IMU-MGE

ESD-TARGET2

Application	current target for calibration of ESD generator
Input impedance	2 Ω
Input voltage	max. 10 kV CD
Frequency range	± 0.5 dB up to 1 GHz, ± 1.2 dB up to 4 GHz
Current range	0 – 50 A standard, could be extended
Transfer function	0.2 V / 1 A with 20 dB
Diameter	70 mm
Thickness	40 mm
Weight	1 kg
Fixing	8 x M3 screws, not included in delivery
Included	20 dB att., 50 Ω coax. cable (1 m) with BNC out

ESD-VERI-V

Application	adapter for ESD DC voltage measurement
Input impedance	20 GΩ || 3 pF
Input voltage range	0 – 32 kV
Output voltage range	0 – 1.6 V
Output connector	BNC
Dimensions	17 cm height, 5.5 cm diameter
Weight	0.5 kg
Included	earth conductor

ESD-STAND Ed2

Application	stand for supporting ESD gun, fixed point test
Height	50 – 180 cm, adjustable
Position	360° adjustable
Dimensions	64 x 17 x 12 cm (packed)
Weight	4 kg
Included	cable holder for calibration

EARTH CABLE

Application	connection of HCP or VCP to ground plane
Impedance	2 x 470 kΩ
Length	2 m
Connectors	2 x banana plugs

ESD-VCP50

Application	indirect ESD application as per standard
Spacer in between	10 cm plastic spacer
Coupling plane	50 x 50 cm
Application points	one on each side
Dimensions	50 x 50 x 10 cm
Weight	8 kg
Included	2 m earth cable (with 2 x 470 kΩ)

ACCESSORIES AS PER IEC 61000-4-4

CN-EFT1000

Application	capacitive coupling clamp for burst on I/O lines
Coupling plate dimensions	as per IEC 61000-4-4 latest edition
Waveform into 50 Ω	5 ± 1.5 ns / 50 ± 15 ns
Test level 5/50 ns	up to 8 kV
Insulation DOW	up to 5kV 3 MHz - 30 MHz
Insulation 1.2/50 µs	up to 5 kV
Usable cable diameter	up to 70 mm
Coupling capacitance	typically 100 pF – 1000 pF
Dimensions	114 x 15 x 10 cm
Weight	4 kg
Included	high voltage cable for connection to IMU
Other applications	IEC 61000-4-18, ANSI C37.90

CN-BALUN-AC

Application	differential mode burst test adapter
Standards applicable	ANSI C37.90, fig. 6
Input	8 kV Burst signal, common mode
Output	8 kV signal, differential mode, line to line
EUT voltage	max. 480 V L-L @ 50, 60 Hz
Decoupling	2 x 66 nF built-in
Dimensions	18 x 10 x 8 cm
Weight	2 kg including accessories
Included	2 x test tips and cables, cable to generator

VERI50 EFT

Application	50 Ω calibration load for burst
Input impedance	50 Ω ± 2 %
Input voltage	max. 7.1 kV, max. 350 pulses/s @ 7.1 kV
Tolerance up to 100 MHz	± 1 dB, as per standard
Tolerance up to 400 MHz	± 3 dB in the range 100 MHz – 400 MHz
Power dissipation	max. 3 W, no EUT power during calibration
Ratio 50 Ω DSO input	1 :1000, 60 dB
Ratio 1MΩ DSO input	1:500, 54 dB
Dimensions	15.5 x 2.5 x 2.5 cm
Weight	0.2 kg
Other applications	IEC 61000-4-18

VERI50-8KV

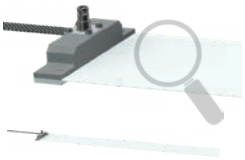
Application	50 Ω high precision calibration load for burst
Input impedance	50 Ω ± 2 %
Input voltage	max. 8 kV, max. 350 pulses/s @ 8 kV

Tolerance up to 100 MHz	± 0.5 dB
Tolerance 100 - 400 MHz	± 1 dB
Tolerance 400MHz - 1 GHz	± 3 dB
Power dissipation	max. 3 W, no EUT power during calibration
Ratio 50 Ω DSO input	1 :1000, 60 dB
Ratio 1 MΩ DSO input	1:500, 54 dB
Dimensions	14 x 2.5 x 2.5 cm
Weight	0.1 kg
Other applications	IEC 61000-4-18

VERI1K EFT

Application	1 kΩ calibration load for burst
Input impedance	1 kΩ ± 2 %
Input voltage	max. 8 kV, max. 350 pulses/s @ 8 kV
Tolerance up to 100 MHz	± 1 dB, as per standard
Tolerance up to 400 MHz	± 3 dB in the range 100 MHz – 400 MHz
Power dissipation	max. 3 W, no EUT power during calibration
Ratio 50 Ω DSO input	1 :2000, 66 dB
Ratio 1MΩ DSO input	1:1000, 60 dB
Dimensions	13.5 x 2.5 x 2.5 cm
Weight	0.1 kg
Other applications	IEC 61000-4-18, OC calibration for fast DOW

VERI-CP-EFT



Application	calibration transducer plate for CN-EFT1000
Plate width	120 ± 1 mm, as per norm
Plate length	1050 ± 5 mm, as per norm
Insulation 5/50 ns	up to 8 kV
Insulation 1.2/50 µs	minimum 2.5 kV
Dimensions	113 x 7 x 5 cm
Weight	1 kg
Requires	VERI50 EFT or VERI50-8kV
Other applications	IEC 61000-4-18

EFT-INSULATION

Application	EUT support for burst test
Number of plates	2 pieces
Height of plates	10 cm
Surface of both plates	100 x 40 cm
Maximum EUT weight	50 kg
Dimensions	100 x 40 x 10 cm (both plates)
Weight	16 kg (both plates)
Other applications	IEC 61000-4-9, IEC 61000-4-10

ACCESSORIES AS PER IEC 61000-4-5

V-PROBE-SI VOLTAGE PROBE

Application	measurement of surge U waveform up to 7 kV
Type of probe	differential (can measure CM as well)
Waveforms	1.2/50 µs, 10/700 µs, 0.5 µs/100 kHz ring wave
	slow DOW
Bandwidth	DC – 70 MHz (-3 dB)
Accuracy	± 2 %
Input impedance	10 MΩ || 10 pF
Input voltage	max. 7 kV DC + peak, max. 2.5 kV r.m.s.
Attenuation ratio	1:100 or 1:1000
Power supply	4 x AA batteries and/or mains adapter
Probe dimensions	20.2 x 8.3 x 3.8 cm
Weight	0.5 kg
Included	carrying case, mains adapter, AA batteries

I-PROBE-P101 CURRENT PROBE

Application	measurement of surge I waveform up to 5 kA
Output impedance	50 Ω
Waveforms	8/20 µs (surge), 5/320 µs (telecom surge)
Current rating	5 kA peak or 200 A r.m.s.
Bandwidth	0.25 Hz - 4 MHz (-3 dB)
Sensitivity	0.01 V / A into 1 MΩ
Accuracy	+1 % / -0 %
Current time product	2.5 As
I/f	12 A / Hz
Probe dimensions	12 x 10 x 3 cm, inner diameter 5 cm
Weight	1 kg
Included	carrying case

WARNING-LAMP

Cable length	5 m
Dimensions	diameter 7x cm x 25 cm
Weight	0.5 kg

EMERGENCY-STOP

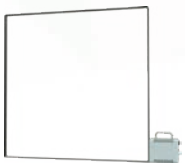
Cable length	5 m
Dimensions	8 cm x 8 cm x 10cm
Weight	0.3 kg

TC-ST

Insulation withstand	36 kV 1.2/50 µs impulse
max. EUT dimension	20 cm x 20 cm x 30 cm
Material	7 mm acrylic glass
Safety Features	locked cover during test
External Warning Lamp	M12 / 5-pol connector
Dimension	47 cm x 43.5 cm x 25.4 cm
Weight	8.5 kg

ACCESSORIES AS PER IEC 61000-4-8

MF1000-1



Application	coil for AC magnetic field, magnetic pulses
Coil type	1 x 1 m, one turn, as per standard
Coil factor	0.87
Magnetic field 50, 60 Hz	1 – 160 A / m, continuous (IEC 61000-4-8)
Duration continuous MF	29999 s
Magnetic pulse 8/20 µs	93 – 1521 A / m or 1855 A / m (IEC 61000-4-9)
	with 2 coils up to 1000 A / m (≥ 5kV surge)
Magnetic pulse DOW	up to 220 A / m (IEC 61000-4-10)
Dimensions	120 x 100 x 10.5 cm
Weight	6 kg

MF1STAND

Application	stand for MF1000-1
Height	0.2 - 1.8 m
Adjustable	on all 3 directions, 360°
Dimensions	60 x 50 cm stand
Weight	16 kg

MF1000-2

Application	coil for AC magnetic field, magnetic pulses
Coil type	1 x 2.6 m, one turn, as per standard
Coil factor	0.66
Magnetic field 50, 60 Hz	1 – 110 A / m, continuous (IEC 61000-4-8)
Duration continuous MF	29999 s
Magnetic pulse 8/20 µs	67 – 1103 A / m or 1345 A / m (IEC 61000-4-9)
Magnetic pulse DOW	up to 110 A / m (IEC 61000-4-10)
Dimensions	260 x 120 x 10.5 cm
Weight	24 kg

MF1000-3

Application	coil for short duration magnetic field
Coil type	1 x 1 m, one turn, as per standard
Coil factor	0.87
Magnetic field 50, 60 Hz	150 – 500 A / m, continuous (IEC 61000-4-8)
Duration continuous MF	29999 s
Magnetic field 50, 60 Hz	150 – 1100 A / m, short term (IEC 61000-4-8)
Duration short term MF	3 s
Dimensions	100 x 100 x 13 cm
Weight	18 kg

MF3STAND

Application	stand for MF1000-3
Height	0.2 - 1.8 m
Adjustable	360°, easy to move
Dimensions	2 x (60 x 50 cm) stands
Weight	32 kg

ACCESSORIES AS PER IEC 61000-4-9

See IMU-MGS EXT-IMU S4 | EXT-IMU S5
See IMU-MGE EXT-IMU S6 | EXT-IMU S8
See MF1000-1
See MF1000-2

ACCESSORIES AS PER IEC 61000-4-10

See DOW-CG1
See MF1000-1
See MF1000-2

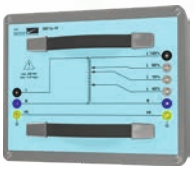
ACCESSORIES AS PER IEC 61000-4-11, -4-34

VAR-EXT1000

Application	1P variac for dips and variations, IEC61000-4-11 latest edition
Input voltage AC	50 – 250 V, 50/60 Hz
Output voltage 1	input voltage
Output voltage 2 dips	0 – 110 % from input voltage, max. 275 V
Output voltage 2 variations	0 – 100 % from input voltage, max. 250 V
EUT current	max. 16 A continuous
Voltage slew rate	< 1.7 s from 0 to 100 %
Dimensions	19“ unit, 4 UH
Weight	29 kg

SRC16-1P

Application	1P step transformer for dips test, IEC61000-4-11
Input voltage AC	max. 300 V, 50/60 Hz
Output voltage AC	40 %, 70 %, 80 %, 100 % ± 5 % from input volt.
EUT continuous current	max. 16 A continuous
Short time output current	80 %: 20 A for 5 s
	70 %: 23.6 A for 5 s
	40 %: 40 A for 3 s
Voltage change with load	< 5 % of input (when input V ≥ 100 V)
Dimensions	28 x 23 x 10 cm
Weight	17.5 kg



VERI-DIPS

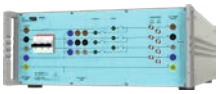
Application	calibration of inrush current before dips test
Current range	1 A – 1 kA
Capacitance	1700 µF ± 20 %
Discharge resistor	4.7 kΩ ± 10 %
DSO output	50Ω BNC connector
Application time	max. 30 seconds
Dimensions	20 x 10 x 11 cm
Weight	1 kg

DIPS100E

Application	calibration of dips switch time
Resistor	100 Ω ± 5 %, non-inductive
Power	max. 1 kW
Impulse insulation	3 kV
Dimensions	65 x 12 x 8 cm
Weight	3.8 kg

PFS32

Application	3P AC dips generator, IEC 61000-4-34
EUT AC voltage L-L	3 x 200 V – 3 x 480 V, 50 or 60 Hz
EUT AC current	max. 3 x 32 A
Output connection	star or delta connection possible
Overcurrent protection	50 A per phase continuous, 220 A short term
Rise & fall time into 100 Ω	1 – 5 µs for AC
Inrush current capability	> 500 A
Dip / interruption duration	50 µs – 60 s
Synchronization	0 – 359°, resolution 1°
Output monitor BNC	3 x I (1 V : 100 A), 3 x U (1 V : 100 V)
Dimensions	19“ unit, 4 UH
Weight	26 kg
Controlled by	IMU-MGS D, IMU-MGE D
Requires	SRC32-18UH, SRC32-AMD1/AMD1-36UH



SRC32-18UH

Application	3P tapped transformer for PFS32
Construction type	automatic switch between dip levels
EUT AC voltage L-L	3 x 200 V – 3 x 480 V, 50 or 60 Hz, Y or Δ
EUT AC current	max. 3 x 32 A at nominal voltage
Overcurrent protection	50 A per phase continuous, 220 A short term
Dip levels	0 %, 40 %, 70 %, 80 %, selectable
Dimensions	19" rack (wheels), 18 UH
Weight	307 kg
Alternative rack	36 UH rack available (ask for details)
Controlled by	PFS32

SRC32-AMD1-18UH / 36UH

Application	3P tapped transformer for PFS32
Construction type	automatic switch between dip levels
EUT AC voltage L-L	3 x 200 V – 3 x 480 V, 50 or 60 Hz, Y or Δ
EUT AC current	max. 3 x 32 A at nominal voltage
Overcurrent protection	50 A per phase continuous, 220 A short term
Dip levels	0 %, 40 %, 50 %, 70 %, 80 %, selectable
Dimensions	19" rack (wheels), 18 UH
Weight	317 kg
Alternative rack	36 UH rack available (ask for details)
Controlled by	PFS32

PFS75

Application	3P AC dips generator, IEC 61000-4-34
EUT AC voltage L-L	3 x 200 V – 3 x 480 V, 50 or 60 Hz
EUT AC current	max. 3 x 75 A
Output connection	star or delta connection possible
Overcurrent protection	220 A short term (< 2 s)
Rise & fall time into 100 Ω	1 – 5 µs for AC
Inrush current capability	> 1000 A
Dip / interruption duration	50 µs – 60 s
Synchronization	0 – 359°, resolution 1°
Output monitor BNC	3 x I (1 V : 100 A), 3 x U (1 V : 100 V)
Dimensions	19" unit, 8 UH
Weight	40 kg
Controlled by	IMU-MGS D, IMU-MGE D
Requires	SRC75-18 UH

SRC75-18UH

Application	3P tapped transformer for PFS75
Construction type	automatic switch between dip levels
EUT AC voltage L-L	3 x 200 V – 3 x 480 V, 50 or 60 Hz, Y or Δ
EUT AC current	max. 3 x 75 A at nominal voltage
Overcurrent protection	220 A short term (< 2 s)
Dip levels	0 %, 40 %, 70 %, 80 %, selectable
Inrush current	> 1000 A
Dimensions	19" rack (wheels), 18 UH
Weight	332 kg
Alternative rack	36 UH rack available (ask for details)
Controlled by	PFS75

PFS75-690V

Application	3P AC dips generator, IEC 61000-4-34
EUT AC voltage L-L	3 x 200 V – 3 x 690 V, 50 or 60 Hz
EUT AC current	max. 3 x 75 A
Output connection	star or delta connection possible
Overcurrent protection	220 A short term (< 2 s)
Rise & fall time into 100 Ω	1 – 5 µs for AC
Inrush current capability	> 1000 A
Dip / interruption duration	50 µs – 60 s
Synchronization	0 – 359°, resolution 1°
Output monitor BNC	3 x I (1 V : 100 A), 3 x U (1 V : 100 V)
Dimensions	19" unit, 8 UH
Weight	54 kg
Controlled by	IMU-MGS D, IMU-MGE D
Requires	SRC75-690V

SRC75-690V-18UH

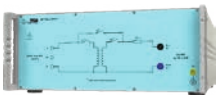
Application	3P tapped transformer for PFS75-690V
Construction type	automatic switch between dip levels
EUT AC voltage L-L	3 x 200 V – 3 x 690 V, 50 or 60 Hz, Y or Δ
EUT AC current	max. 3 x 75 A at nominal voltage
Overcurrent protection	220 A short term (< 2 s)
Dip levels	0 %, 40 %, 70 %, 80 %, selectable
Inrush current	> 1000 A
Dimensions	19" rack (wheels), 36 UH
Weight	332 kg
Controlled by	PFS75-690V

ACCESSORIES AS PER IEC 61000-4-12

See voltage probe from Surge.

ACCESSORIES AS PER IEC 61000-4-16

EXT-IMU C-SHORT



Application	extension for IMU -C module, power tests
Output impedance	50 Ω ± 10 %
Output voltage	30 V – 330 V for 1000 seconds
Power frequencies	DC, 16.67 Hz, 50 Hz, 60 Hz
Disturbance duration	1 s – 1000 s to full test level
Dimensions	19“ unit, 4 UH
Weight	54 kg
Controlled by	IMU-MGS C, IMU-MGE C
Requires	PS3, CN16 or CN16DC or CN16T

PS3

Application	1P power source for IEC 61000-4-16, 300V test
Type	programmable, pre-programmed buttons
Input	AC 100V - 230V +/- 10%, 47 – 63 Hz
Output voltage	AC 50 – 250 V, DC 24 – 350 V
Output frequency	DC – 400 Hz
Output current	max. 16A @ 115V / 60Hz, 10 A @ 230V / 50Hz
Output power	max. 3 kW or 3 kVA
Dimensions	19“ unit, 2 UH
Weight	18 kg
Controlled by	IMU-MGS C or IMU-MGE C for power test
Requires	EXT-IMU C-SHORT, RS485-RS232 ADAPT.
Other applications	IEC 61000-4-19, IEC 61000-4-29

ACCESSORIES AS PER IEC 61000-4-18

VERI50 EFT

See VERI50 EFT or VERI50-8KV technical specification.

VERI1K EFT

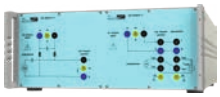
See VERI1K EFT technical specification.

VERI01 OSI

Application	0.1 Ω shunt for 3, 10, 30 MHz DOW SC current
Input impedance	0.1 Ω ± 2 %
Input voltage	max. 6.3 kV
3 dB bandwidth	> 400 MHz
Power dissipation	max. 3 W, max. 1000 spikes/s @ 4.4 kV
Measurement ratio	1 V @ 10 A in 1 MΩ ± 2 %
Dimensions	8.5 x 2.5 x 2.5 cm
Weight	0.1 kg
At CDN output	Calibration adapter delivered with DOW-CG1

ACCESSORIES AS PER IEC 61000-4-19 LATEST

IMU SLAVE SMART I1V1*



Application	voltage & current test generator IEC 61000-4-19
Voltage test module	
EUT voltage input	80 – 500 V, L-L or L-N, 50 Hz and 60 Hz
EUT current input	0 – 16 A L-L or L-N
Voltage waveform	sinusoidal, THD < 5%
Test voltage	0.1 V – 25 V, tolerance ±5%
Output frequency range	2 kHz – 150 kHz
CDN output impedance	10 Ω ±30%, 2 kHz – 150 kHz
CDN decoupling better than	-10dB@10kHz, -50dB@50 kHz, -50dB@150kHz
Frequency step	2 % standard, adjustable 1 % - 100 %
Dwell time	3s standard, adjustable 1 s – 300 s
Pause time	300 ms ± 200 ms, adjustable 0.1 s – 30 s
Signal type	continuous / pause, 50% rect. modulation
Modulation frequency	for 50 Hz: 3 Hz, 101 Hz, 301 Hz, 601 Hz
	for 60 Hz: 4 Hz, 121 Hz, 361 Hz, 721 Hz
Modulation frequency	3 Hz – 1 kHz, adjustable
Calibration load	10 Ω load built-in, automatically switched

Measurement and control	internal, automatic
Current test module	
EUT voltage input	80 – 500 V, L-L or L-N, 50 Hz, 60 Hz, 400 Hz
EUT current input	0 – 25 A L-L or L-N (0 – 15 A at 400 Hz)
Current waveform	sinusoidal, THD < 5%
Test current	0.01 A – 4.4 A , tolerance ±5%
Output frequency range	2 kHz – 150 kHz
Output impedance	1 Ω ±30%, 2 kHz – 150 kHz
Decoupling impedance	>1 Ω ±30%, 2 kHz – 150 kHz
Frequency step	2 % standard, adjustable 1 % - 100 %
Dwell time	3s standard, adjustable 1 s – 300 s
Pause time	300 ms ± 200 ms, adjustable 0.1 s – 30 s
Signal type	continuous with pause, 50% rectangular modulation
Modulation frequency	for 50 Hz: 3 Hz, 101 Hz, 301 Hz, 601 Hz
	for 60 Hz: 4 Hz, 121 Hz, 361 Hz, 721 Hz
Modulation frequency	3 Hz – 1 kHz, adjustable
Built-in reference load current source	1 – 25 A @50/60 Hz (15A @400 Hz), synchr. to voltage input
Measurement, synch.	internal, automatic
Dimensions	19“ unit, 4 UH (both modules)
Weight	22 kg
Controlled by	IMU-MGS, IMU-MGE, any configuration

* Voltage or current modules can also be ordered separately, contact sales.

VERI10-50

Application	10 / 50 Ω calibration balun for SLAVE SMART
Input impedance	2 x 10 Ω ± 10 %
Output impedance	2 x 50 Ω ± 10 %
Frequency response	2 kHz – 200 kHz ± 0.5 dB
Damping limit	10 dB @ 2 kHz to 50 dB@ 150 kHz, linear var.
Dimensions	24 x 9 x 8 cm
Weight	1.2 kg

ACCESSORIES AS PER IEC 61000-4-29

PS3

See PS3 technical specification. 1 x PS3 power source needed for DC interruptions, 2 x PS3 power sources needed for DC dips.

EXT-IMU D-29D

Package including adjustment and calibration of IMU-MGS D, IMU-MGE D together with 2 x PS3 and 2 x RS485-RS232 ADAPTER in order to ensure compliance of the test system with IEC 61000-4-29 requirements for DC dips. Requires 2x Resistor 50Ohm.

EXT-IMU D-29I

Package including adjustment and calibration of IMU-MGS D, IMU-MGE D together with 1 x PS3 and 1 x RS485-RS232 ADAPTER in order to ensure compliance of the test system with IEC 61000-4-29 requirements for DC interruptions.

SOFTWARE

TEMA3000

Application	modular control software for IMU / DOW system
License	1 license for 1 generator
TEMA3000 basic	remote control of generator, single tests
TEMA3000-SEQUENCE	more single tests linked in a sequence
TEMA3000-REPORT	generation of customized test reports
TEMA3000-DSO	control of DSOs via Ethernet, data in report
TEMA3000-LIBRARY	collection of norm pre-programmed tests
Compatibility	Windows XP, 7, 8, 10
For generators	DOW, IMU Series, other

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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 lighting on aircraft systems, MIL-STD-461 tests CS106, CS115, CS116, CS117, CS118 and Telecom, ITU-T K.44 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, electricity 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.

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

SERVICE

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