

IMU 4000

Touch the Future

The newest **full compliance** CE mark test generator



July 2014

EMC PARTNER - Largest range of impulse test equipment up to 100kV and 100kA





Largest range of impulse test equipment up to 100kV and 100kA

EMC PARTNER AG

- Founded in 1994
- Swiss private company, headquarters in Laufen (CH)
- Largest choice of impulse generators
- Market leader, reputed worldwide
- Development, production and testing in house
- Global representative network



Full compliance plus benefits



- Introduction
- Application range
- Technical specification according to norms
- Technology used in IMU 4000
- Unique advantages for IMU 4000 users

Introduction

EMC Partner provides conducted immunity test solutions for a broad range of sectors:



Industry
Household



Avionics



Components



Military



Renewable
energy



Telecom





Concise approach: **only useful information is presented**

Your time will be used successfully to learn about:

- Precise technical specification of IMU 4000 generators
- Benefits of newest technology from the market
- Unique advantages of IMU 4000 users



Application range of IMU 4000

The power of innovation:

9 basic standards to be tested with only one generator

Application	Norm	Compliance
ESD	IEC 61000-4-2	full compliant
Burst	IEC 61000-4-4	full compliant
Surge 1.2/50 μ s	IEC 61000-4-5	full compliant
Magnetic Field	IEC 61000-4-8	full compliant
Magnetic Pulse	IEC 61000-4-9	full compliant
AC dips, drops, interruptions	IEC 61000-4-11	full compliant
Common mode disturbances	IEC 61000-4-16	full compliant
Differential mode disturbances	IEC 61000-4-19	full compliant
DC dips, drops, interruptions	IEC 61000-4-29	full compliant



Equipment to be tested

EUT Type	Parameters
AC supplied equipment	1 phase, 250V 50Hz, up to 16A
	1 phase, 250V 60Hz, up to 16A
	1 phase, 115V 400Hz, up to 16A
	3 phase, 400V, up to 100A
	3 phase, 480V, up to 200A
	3 phase, 690V, up to 200A
DC supplied equipment	1000V DC, up to 100A
I/O lines	Sym. low speed data lines
	Unsym. low speed data lines
	High speed telecom lines
	Bus systems
	Gigabit Ethernet lines



ESD - Electrostatic discharge

according to IEC 61000-4-2 Ed. 2

Norm requirement

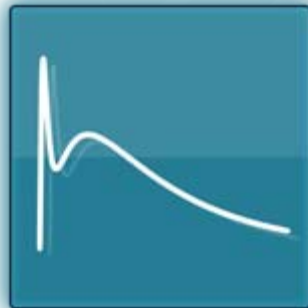
Air discharge up to **15 kV**

Contact discharge up to **8 kV**

IMU 4000 with ESD

Air discharge up to **16 kV**

Contact discharge up to **10 kV**



Repetition rate up to 20 Hz

Positive and negative polarity

Pulse or discharge count



ESD - Electrostatic discharge

according to IEC 61000-4-2 Ed. 2

Customer advantages

- Easy programming through large touch screen
- Test report integrated with other norms
- Unbeatable cost of the entire test system.



Burst – Electrical fast transients

according to IEC 61000-4-4 Ed. 3

Norm requirement

EFT voltage up to **4 kV**

IMU 4000 with EFT

EFT voltage up to **4.4 kV** or **5.1 kV**



50 Ω output

1 MHz burst frequency

Positive and negative polarity



Surge – 1,2/50 μ s and 8/20 μ s waves

according IEC 61000-4-5 Ed. 3

Norm requirement

Surge voltage up to **4 kV**

Surge current up to **2000 A**

IMU 4000 with CWG

Surge voltage up to **4.1kV**

Surge current up to **2050 A**



2 Ω and 12 Ω output

Up to 60 pulses/minute

Positive and negative polarity



Surge – 1,2/50 μ s and 8/20 μ s waves

according IEC 61000-4-5 Ed. 3

Customer advantages

- IMU series allows choosing between 4.1 kV, 6.6 kV and 8.1 kV solutions
- Unbeatable repetition rate reduces test time and costs.
- Optimal range of external CDNs covers newest test requirements.



3 phase CDN for EUTs up
to 3 x 690V / 3 x 200A



Magnetic field – 50/60 Hz magnetic field

according to IEC 61000-4-8

Norm requirement

Continuous m. field up to **100 A/m**

Short term m. field up to **1000 A/m**

IMU 4000

Continuous m. field up to **100 A/m**

Short term m. field up to **1000 A/m**



Health and safety first:

no high currents from
generator to the antenna



Magnetic field – 50/60 Hz magnetic field

according to IEC 61000-4-8

Customer advantages

- Norm levels achievable with the internal 5A variac
- No high current cables from external transformer to the antenna
- Improved safety
- Limitation of human body exposure to magnetic fields during test.



Impulse Magnetic field

according IEC 61000-4-9

Norm requirement

Pulse magnetic field **1000 A/m**

IMU 4000

Pulse magnetic field up to **~2000 A/m**



Same antenna as for
IEC 61000-4-8



AC dips, interruptions and variations

according IEC 61000-4-11

Norm requirement

Dips 40, 70 and 80%

Interruptions 0%

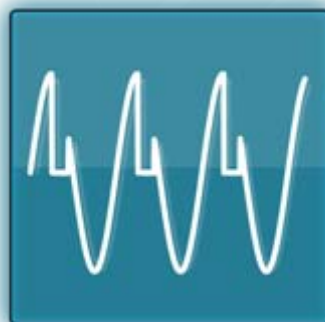
Variations 40, 70% (optional)

IMU 4000

Dips 40, 70 and 80%

Interruptions 0%

Variations 40, 70% (optional)



AC dips, interruptions and variations

according IEC 61000-4-11

Customer advantages

- Unique internal variac for equipment with consumption ≤ 5 A.
- 5 A variac integrated in generator's case
- 16 A available if required.



Common mode disturbances up to 150 kHz

according IEC 61000-4-16

Norm requirement

Frequencies **DC, 16.7, 50, 60 Hz**

Test levels **30V cont.** and **300V short**

Sweep **15 Hz - 150 kHz** with **30 V**

IMU 4000

Frequencies DC, 16.7, 50, 60 Hz

Levels **35V cont.** and **330V short**

Sweep **15 Hz - 150 kHz** with **35 V**



Differential mode disturbances 2 - 150 kHz

according IEC 61000-4-19

Norm requirement

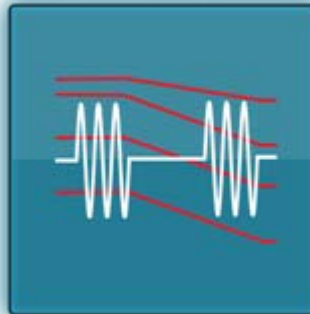
Diff. voltage up to **20 V**

Diff. current up to **4 A**

IMU 4000 SMART

Diff. voltage up to **22 V**

Diff. current up to **5 A**



Automatised test setup, all accessories built in

Reference current source available

Modulation frequencies selectable

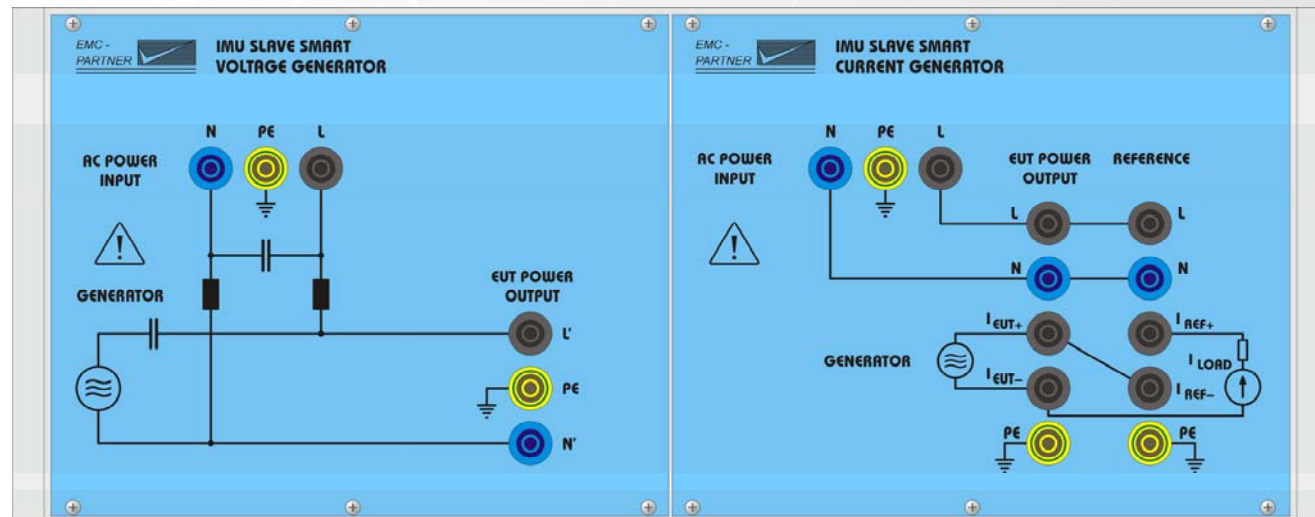


Differential mode disturbances 2 - 150 kHz

according IEC 61000-4-19

Customer advantages

- The first and only full compliance solution available on the market (since May 2014)
- Solution optimized and tested with electricity meters from worldwide reputed companies.



DC dips, interruptions and variations

according IEC 61000-4-29

Norm requirement

Dips 40 and 70%

Interruptions 0%

Variations 80, 120%

IMU 4000

Dips 40 and 70%

Interruptions 0%

Variations 80, 120%

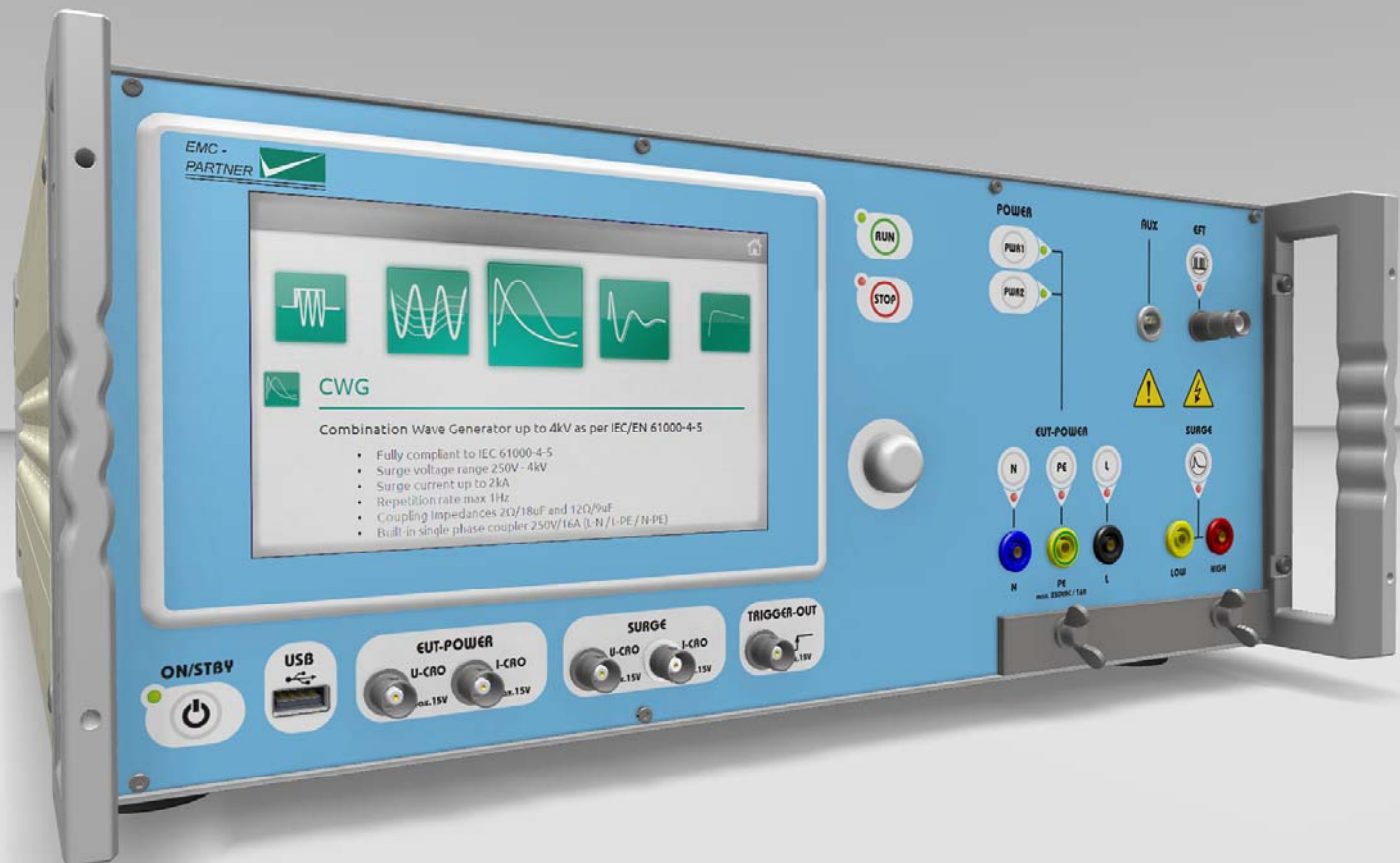


EMC Partner is able to deliver a calibrated test system together with EMC Partner DC source(s)



Benefits overview

Have you ever seen a test generator capable to meet all these basic standards?



Benefits overview

We did, the IMU 3000. Otherwise,
no generator in the world meets so many basic standards.



IMU 4000

market leading technology

Leading technology means:

Proprietary OS:

EMC PARTNER Operating System developed in house

Benefits:

- rapid implementation of new features and requirements
- advanced support capability
- strong feedback response possibility



IMU 4000

market leading technology

Leading technology means:

Modern GUI optimized for touch screen

Benefits:

- intuitive operation (assisted)
- quick learning and accommodation process
- comfortable and comprehensive operation



IMU 4000

market leading technology

Leading technology means:

Fully modular: **single purpose generators are history**

Benefits:

- up to 9 basic norms can be tested with IMU 4000 and up to 10 with IMU 3000 -> price advantage.

There is no other generator on the market to achieve this performance.

- Hardware upgrades on site, modules are not screwed.
- Modules can be sent separately for calibration.
- Firmware updates can be downloaded directly from the web and installed on site: no unscrewing, no memory cards.

IMU 4000

market leading technology

Leading technology means:

Latest innovations are now accessible

- Pulse synchronisation is performed without an additional wire for 1 phase or 3 phase systems (old generators need an additional input)
- Environment parameters (temperature, humidity, *air pressure*) are measured and included in the test report.
- Up to 7 languages are available for generator's GUI



Unique advantages for IMU 4000 users

- Up to 9 basic norms with one generator, newest versions always.
- EUT **power/voltage** monitoring in the menu
- True on site hardware, firmware and software update
- Built-in or external environment parameters' measurement
- ESD module as per IEC 61000-4-2
- Common Mode module as per IEC 61000-4-16
- Differential Mode module as per IEC 61000-4-19
- Internal variac for voltage variations up to 5 A and magnetic field up to 1000 A/m
- Magnetic field antennas with current transformer attached.
Advantages: safe operation and reduction of user's exposure to magnetic fields.





Thank you for Attention

EMC PARTNER AG

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