# Pulse Generator
# type CE – TESTER

*The relating standards:*
*IEC/EN 61000-4-4*
*IEC/EN 61000-4-5*

EMC-Test Equipment for
testing the immunity against :

BURST:
IEC/EN 61000-4-4

and

SURGE:
IEC/EN 61000-4-5

*The CE-TESTER and its sub-units are available in different configurations:*
*CE-TESTER 1*
*including SURGE and BURST*

*CE-TESTER 2*
*including SURGE, BURST and POWER FAIL SWITCH*

*EFTG 4510 Standalone BURST generator*

*CE-SURGE Standalone SURGE generator*

*Typical configurations:*
*CE-TESTER 1 +CDN 4416 for 3-phase testing*
*CE-TESTER 2 +VPS 250-16 for testing surge, burst, power fail, voltage dips and variation*

*It is possible to build all devices in a 19" rack cabinet.*

The CE-TESTER is a compact EMC test unit designed for testing electromagnetic immunity against pulsed and conducted interference. Demonstrating such immunity is generally a requirement for compliance with the European EMC directive, a necessary step leading to the CE mark.

In its basic configuration, the CE-TESTER includes an Electrical Fast Transient Generator (EFTG), a Combination Wave Generator (CWG) and a Coupling-/Decoupling Network (CDN) for single-phase power supply lines.

The Electrical Fast Transient Generator fully compliant to the IEC/EN 61000-4-4, delivers fast transient pulses with waveform 5/50 ns and a maximum burst frequency of 1MHz. It is used for immunity testing of electronic systems and devices. The four standard IEC/EN 61000-4-4 test levels may be easily selected by push button or all parameters may be adjusted individually.

The Combination Wave Generator fully compliant to IEC 61000-4-5 and IEEE 587 delivers a standard impulse voltage with waveform 1.2/50 µs and a standard impulse current with waveform 8/20 µs. It is a combined impulse-current-/impulse-voltage generator for high impedance loads RL > 100Ω and may be used for surge testing of components and devices, as well as for galvanic coupling of surges to cable shields, shielded enclosures and cabinets.


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The built-in capacitive Coupling-/Decoupling Network allows superimposition of the combination wave generator output to the mains voltage of the device under test.

The simulation of voltage dips and voltage variations acc. to IEC/EN 61000-4-11 can be included as an option. Additional accessories allow the testing of immunity against both pulsed and power frequency magnetic fields according to IEC/EN 61000-4-8 and IEC/EN 61000-4-9.

Optionally the CE-TESTER can include a triggerable power supply switch which allows the simulation of the voltage dips as specified in the standard IEC/EN 61000-4-11. The variation of power supply voltage is controlled by use of an external motor driven variac. The control of the external power source is included in the mainframe.

An Induction Coil in conjunction with the Combination Wave Generator output, is used to simulate pulsed magnetic fields according to IEC/EN 61000-4-9. Combined with the external power source, the Induction Coil can be used to simulate power frequency magnetic fields according to IEC/EN 61000-4-8.

Additional Coupling-/Decoupling Networks covering three-phase power supply lines, DC supply lines and signal lines are also available, as well as a Capacitive Coupling Clamp for coupling to shielded interconnection lines.

The CE-TESTER excels by its compact design, simple handling and precise reproducibility of test impulses. It features a microprocessor controlled user interface and a 5” touch screen unit for ease of use. The microprocessor allows the user to execute either standard test routines or a “user defined” test sequence. A standard USB port provides the ability to print a summary of the test parameters to a USB stick.

The software program CE-REMOTE allows full remote control of the test generator via Ethernet light guide as well as documentation and evaluation of test results, accordingly to the IEC 17025. To record definite impulses, it is equipped with an Impulse Recording Function (IRF)

Moreover all generator functions including the built-in Coupling-/Decoupling Network, may be computer controlled via the isolated optical interface.


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TECHNICAL DATA CE-TESTER

| | | |
|---|---|---|
| **Control:** | Microprocessor control, touch panel 5”, | 800X480, 24 bit |
| | Optical Ethernet interface for generator remote control | optional |
| | Interface for saving reports | USB |
| | External trigger input / output | 10V at 1kΩ |
| | Connector for external safety interlock loop | $24V_{DC}$ |
| | Connector for external red and green warning lamps according to VDE 0104 | 230V, 60W |
| | Coupling-/decoupling network for power supply lines | L1, N, PE |
| | Nominal voltage, nominal current | 250 V, 16 A ≈ / 10 A = |
| | Coupling impedance (depending on the generator) | 33 nF / 18 @F / 9@F+10 |
| | Mains power | 230V, 50Hz/60Hz |
| **Housing:** | Plug in unit, 7U | |
| | Dimensions (mm): W * H * D | 450*185*500 |
| | Weight | 25kg |
| **Burst:** | acc. to IEC/EN 61000-4-4: 2011 | |
| | Pulse output voltage, adjustable | 0.2 - 5.0 KV ± 10 % |
| | Waveform | 5/50 ns |
| | Source impedance | 50Ω |
| | Polarity, selectable | pos/neg/alt |
| | Burst frequency, adjustable | 1.0 kHz - 1.0 MHz |
| | Burst duration, adjustable | 0,01 ms - 25 ms |
| | Burst repetition rate, adjustable | 10 ms - 1000 ms |
| | HV output for external coupling devices coaxial | |
| | Monitor output for pulse output voltage ratio | 100:1 ± 5%, 50Ω |
| **Surge:** | acc. to IEC/EN 61000-4-5: 2007 | |
| | Test voltage (open circuit condition) | 0.2 – 5.0 kV ± 10 % |
| | Waveform acc. to IEC 60060 1.2 / 50 @s ± 20 % | |
| | Test current (short circuit condition) | 0.1 - 2.25 kA ± 10 % |
| | Waveform acc. to IEC 60060 8 / 20 @s ± 20% | |
| | Polarity of output voltage/current, selectable | pos/neg/alt |
| | Maximum stored energy | 120 J |
| | Charging time for max. charging voltage | < 10 s |
| | HV output isolated from ground HV-OUT | 4mm |
| | Mains synchronous triggering, phase shifting, digitally selectable | 0 - 359°, step 1° |
| | Monitor output for pulse output voltage ratio | 1000 : 1 ± 5% |
| | Monitor output for pulse output current 10 V | 5 kA ± 5% |
| | Option: Software CE-REMOTE Test, for remote control With Impulse Recording Function (IRF) ( XP, WIN7 ) incl. 5 m fibre optic cable and PC Ethernet interface | |


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