

CE - TESTER

Compact EMC-tester
acc. to the standards:

BURST 5kV:

IEC 61000-4-4 : 2012

SURGE 5kV, 2.5kA:

IEC 61000-4-5 : 2014

Magnetic field 50/60 Hz:

IEC 61000-4-8 : 2010

Magnetic field 8/20 μ s:

IEC 61000-4-9 : 2001

Voltage dips/variation:

IEC 61000-4-11 : 2004



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 IEC 61000-4-4, delivers fast transient pulses with waveform 5/50 ns and a maximum burst frequency of 1 MHz. It is used for immunity testing of electronic systems and devices. The four standard IEC 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 μ s and a standard impulse current with waveform 8/20 μ s. It is a combined impulse-current-/impulse-voltage generator for high-impedance loads $RL > 100\Omega$ 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.

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 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 61000-4-8 and IEC 61000-4-9.

Optionally the CE-TESTER can include a trigger able power supply switch which allows the simulation of the voltage dips as specified in the standard IEC 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 61000-4-9. Combined with the external power source, the Induction Coil can be used to simulate power frequency magnetic fields according to IEC 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.

| TECHNICAL SPECIFICATIONS | CE-TESTER |
|---|--|
| Mainframe | |
| Microprocessor controlled touch panel | 5", 800X480, 24 bit |
| Optical Ethernet Interface for remote control of the generator | optional |
| Interface for saving reports | USB |
| External trigger input /output | 10 V at 1 k Ω |
| Coupling-/decoupling network for power supply lines | L1, N, PE |
| Nominal voltage, nominal current | 250 V, 16 A \approx / 10 A = |
| Coupling impedance (depending on the generator) | 33 nF / 18 μ F / 9 μ F+10 Ω |
| Connector for external safety interlock loop | 24 V = |
| External red and green warning lamps | 230 V, 60W |
| Mains power | 230 V, 50/60 Hz |
| Dimensions of desk top case W * H * D | 450*185*500 mm ³ |
| Weight | 25 kg |
| BURST acc. to IEC 61000-4-4: 2012 | |
| Pulse output voltage, adjustable | 0.2 - 5.0 KV \pm 10 % |
| Waveform | 5/50 ns |
| Source impedance | 50 Ω |
| Polarity, selectable | pos/neg/alt |
| Burst frequency, adjustable | 1.0 kHz - 1.0 MHz |
| Burst duration, adjustable | 0,01 ms - 25 ms |
| Burst period, adjustable | 10 ms - 1000 ms |
| HV output for external coupling devices | coaxial |
| Monitor output for pulse output voltage | ratio = 100:1 \pm 5%, 50 Ω |
| SURGE acc. to IEC 61000-4-5: 2014 | |
| Test voltage (open circuit condition) | 0.2 - 5.0 kV \pm 10 % |
| Waveform acc. to IEC 60060 | 1.2 / 50 μ s \pm 20 % |
| Test current (short circuit condition) | 0.1 - 2.5 kA \pm 10 % |
| Waveform acc. to IEC 60060 | 8 / 20 μ s \pm 20% |
| Polarity of output voltage/current, selectable | pos/neg/alt |
| Maximum stored energy | 120 Joule |
| 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 \pm 5% |
| Monitor output for pulse output current | 10 V \equiv 5 kA \pm 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 | |
| POWER FAIL acc. to IEC 61000-4-11: 2004 | |
| Rated current / Inrush current, max. | 16 A / 500A |
| Monitor output for mains voltage and mains current | built-in |
| Display of mains voltage, mains current and inrush current | |
| Interface for control of an external power source | |
| Option: External power source VPS 250-16 | |
| Output voltage, adjustable | 0 - 250 V |
| Rated current | 16 A |
| Control via interface of CE-TESTER | |
| Option: Induction Coil HI 100 acc. to IEC 61000-4-8/9: 2010/2001 | |
| Dimensions | 1000*1000*600 mm ³ |
| Coil factor | 1.5 / m |
| Option: All outputs on the front site = CE TESTER Front | |

System configuration

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 | Stand alone BURST generator |
| CE-SURGE | Stand alone SURGE generator |
| PFS 2516 | Stand alone POWER FAIL SIMULATOR |
| CE-Tester x Front | Including a power fail switch and a variable power source |
| CE-Tester x Front | All test relevant in- and outputs on the front site |

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.



CE-TESTER Front:

All test relevant in- and outputs
are on the front site accessible:

- Burst,
- Surge,
- Power Fail
- and CDN output connectors

Dimensions of desk top case:
W * H * D 450 * 320 * 500 mm³

