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 µs:
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 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.

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 a 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 kΩ
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 µF / 9µF+10Ω
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 ± 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 ± 5%, 50 Ω
SURGE acc. to IEC 61000-4-5: 2014	
Test voltage (open circuit condition)	0.2 - 5.0 kV ± 10 %
Waveform acc. to IEC 60060	1.2 / 50 µs ± 20 %
Test current (short circuit condition)	0.1 - 2.5 kA ± 10 %
Waveform acc. to IEC 60060	8 / 20 µs ± 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 ± 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	
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 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 mm^3