

# Combination Wave Generator

## PG 6 - 204

**Surge Voltage****1.2 / 50  $\mu$ s****0.5 - 6 kV****Surge Current****8 / 20  $\mu$ s****0.25 - 3 kA****acc. to IEC 1000-4-5,  
EN 61000-4-5, IEEE 587**

The Combination Wave Generator PG 6-204 is a combined impulse-current-/impulse-voltage generator which, for high-impedance loads,  $R_L > 100\Omega$ , delivers a standard impulse voltage with waveform 1.2/50 $\mu$ s and, for short-circuited output, a standard impulse current with waveform 8/20 $\mu$ s.

The generator allows surge testing of components and devices, galvanic coupling of surges to cable shields, shielded enclosures and cabinets as well as testing electromagnetic compatibility, EMC, of electronic devices and systems against pulsed and conducted interference.

Using the built-in single-phase Coupling-/Decoupling Network allows superimposition of the combination wave generator's output to the mains voltage of the device under test. Moreover the generator can be used with external CDN's for 3-phase power supply or signal lines. The test set-up is suitable for surge immunity testing of electronic systems and devices according to IEC 1000-4-5, EN 61000-4-5 and IEEE 587. Demonstrating such immunity is generally a requirement for compliance with the requirements of the European EMC directive, a necessary step leading to the final attachment of the CE Mark.

PG 6-204 features a microprocessor controlled user interface and display unit for ease of use. The microprocessor allows the user to execute either standard test routines, or a 'user defined' test sequence. The test parameters and even the settings of an external CDN, which are shown on the built in display, are easily adjusted by means of the rotary encoder. A standard parallel interface provides the ability to print a summary of the test parameters whilst testing is being carried out.

Executing surge immunity tests at power supply a line triggering of high-voltage pulses is accomplished synchronous with mains. The precise trigger point can be shifted between 0 to 360 ° after the zero crossing of the mains voltage. The polarity of the output voltage is selectable. Positive, negative or alternating polarity of the output voltage can be preselected.

The PG 6-204 excels by its compact design, simple handling and precise reproducibility of test impulses. The output current- and voltage waveforms, due to built-in sensors, can be recorded via separate signal outputs for current and voltage.

Moreover, all generator functions may be computer controlled via the isolated optical interface. The software program PG 6\_204 allows full remote control of the test generator and documentation and evaluation of test results.

## Technical specification: Combination Wave Generator

## PG 6-204

### Mainframe:

Microprocessor controlled LCD module	8*40 characters
Parallel printer interface for on-line documentation	25-way 'D' connector
Optical-interface for remote control of the generator	built-in
External Trigger input / output	10 V at 1 k $\Omega$
Coupling-/Decoupling Network for power supply lines, built-in	L1, N, PE
nominal voltage, nominal current ac/dc	250 V, 16 A $\approx$ / 10 A =
coupling impedance (generator dependent)	33 nF / 18 $\mu$ F / 9 $\mu$ F+10 $\Omega$
Optical-interface for remote control of external CDN's	built-in
Diagnostic input for monitoring of the test device	4 channels, 5 V - Level
Connector for external safety interlock loop	24 V =
and external red and green warning lamps acc. to VDE 0104	230 V, 60W
Mains power	230 V, 50/60 Hz
Dimensions:           desk top case           W * H * D	471*160*520 mm <sup>3</sup>
Weight	25 kg

### Combination Wave Generator acc. to IEC 1000-4-5, EN 61000-4-5, VDE 0847-4-5

Test voltage, (open circuit condition)	0.5 - 6.0 kV $\pm$ 10 %
Waveform acc. to IEC 60	1.2 / 50 $\mu$ s $\pm$ 20 %
Test current, (short circuit condition)	0.25 -3.0 kA $\pm$ 10 %
Waveform acc. to IEC 60	8 / 20 $\mu$ s $\pm$ 20%
Polarity of output voltage/current, selectable	pos/neg
maximum stored energy	200 Joule
charging time for max. charging voltage	< 20s
HV-output:   isolated from ground	HV-OUT/COM
Mains synchronous triggering:	
Phase shifting, digitally selectable	0 - 360 °
Display of peak values of pulse voltage and current	built-in
Monitor output for pulse output voltage	ratio = 1000 : 1 $\pm$ 5%
Monitor output for pulse output current	6V $\equiv$ 3 kA $\pm$ 5%

**Option 1 :** PG6\_204 software test package, running under Microsoft Windows, for the external control of the device, includes 5 m long fibre optic cable and PC Interface.

Additional accessories available:

Test cabinet	PA 502
Coupling/decoupling networks for immunity test CDN	6416, CDN 2402/2410