

# HV-PULSE GENERATOR

PG 10-200 /  
PG 12-360

**Impulse voltage tests of  
Solar Modules**

**0.5 - 10 kV**

**1.0 - 12 kV**

**1.2 / 50  $\mu$ s**

**10 nF - 183 nF**

**IEC / EN 61730-1/2**



The HV-Pulse generator PG10-200 / PG12-360 is used for impulse voltage tests of solar modules (photovoltaic panels) with the standard surge voltage waveform 1.2/50  $\mu$ s according to IEC 60060-1/2 up to 10 kV acc. to. IEC 61730-1/2 / EN 61730-1.

For the surge voltage tests of solar modules, these are enveloped with a copper foil as described in the relative above standard. After that the connections of the solar modules are tested with surge voltage against the copper foils. The tight copper foil envelope required by the standard results in comparatively high capacitances of approx. 10 - 183 nF, which is switched in parallel to the output of the impulse generator.

Therefore, a special impulse voltage generator is required for this standard specified test, which can generate the specified impulse wave shapes for the different EUT-capacitances, which are a result of the varying dimension of the solar modules to be tested.

The high voltage Pulse Generator comprises 7 different pulse forming networks, which allow to generate the requested wave shapes fully complying with the tolerances specified in the standard for the different EUT capacitances.

PG 10-200 / 12-360 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. 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 touch screen.

A standard USB port provides the ability to print a summary of the test parameters to a USB stick.

Moreover, all generator functions may be computer controlled.

The software program PG-REMOTE allows full remote control of the test generator via fiber optic Ethernet interface 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)

The PG10-200 / PG12-360 excels by its compact design, simple handling and precise reproducibility of the test impulses. The pulse forming Networks are equipped with maintenance-free semiconductor switches.

TECHNICAL SPECIFICATIONS			PG 10-200	PG 12-360
<b>Mainframe:</b>				
Microprocessor controlled touch panel			5", 800X480, 24 bit	
Interface for saving reports			USB	
Optical Ethernet Interface for remote control of the generator			optional	
External Trigger input			Switch	
External Trigger output			10 V at 1 k $\Omega$	
Mains power:			230 V , 50/60 Hz	
Dimensions: desk top case W * H * D			453*320*520 mm	
Weight: approx.			22 kg	
<b>High- Voltage Pulse Generator:</b>				
Impulse output voltage, adjustable $\pm 5\%$			0.5 - 10 kV	1.0 -12 KV
Waveform of Impulse output voltage				
risetime			1.2 $\mu\text{s} \pm 30\%$	
backtime			50 $\mu\text{s} \pm 20\%$	
Polarity, selectable			pos./neg.	
Maximum stored energy Cs			250 J	360J
Charging time for max. charging voltage			approx. 10sec	
Interior load capacitance Cp			4100 pF $\pm 10\%$	
<b>Pulse forming networks to test solar modules:</b>			<b>Cp = 10 - 183nF</b>	
			selectable	
Area	EUT capacitances nominal	range of EUT capacitances		
0	15 nF	10 - 16 nF		
1	22 nF	16 - 27 nF		
2	33 nF	27 - 40 nF		
3	47 nF	40 - 57 nF		
4	68 nF	57 - 83 nF		
5	100 nF	84 - 122 nF		
6	150 nF	123 - 183 nF		
Spark-over detection:			PASS / FAIL	
Impulse current output: on the generator's rear panel			HV female conector	
Impulse high voltage dividers to observe the impulse wave shape built-in				
ratio			1000 : 1 $\pm 2\%$	
<b>Accessories:</b> mains cable, key, HV-connection cable, operation instructions				
<b>Option:</b> PC Software for remote control of the generator, PC Interface USB/RS232, optically isolated and light guide, 5 m lon				
<b>Option:</b> CAPACITOR-CALIBRATION-KIT 27nF,45nF,68nF,113nF $\pm 3\%$				