

PG 10-200 / PG 12-360

Impulse voltage tests of Solar Modules

Generator	PG 10-200	PG 12-360
Surge voltage 1.2 / 50 μ s	0.5 – 10 kV	1.0 – 12 kV
Capacitors	0 nF – 183 nF	



**According to
IEC 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 μ s according to IEC 60060-1/2 up to 10 kV acc. to. IEC 61730-1/2.

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. 0 - 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 8 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.

The PG10-200 / 12-360 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.

The generator features a microprocessor controlled user interface and a 7" 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 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)

Options	PG 10-200	PG 12-360
PC software for remote control	PG-REMOTE	
PG Remote software test package, running under Microsoft Windows, for the external control of the device (XP, WIN7, WIN10) includes 5 m long fibre optic cable and Ethernet PC Interface		
CAPACITOR-CALIBRATION-KIT	CCK	
27nF,45nF,68nF,113nF ± 3%		

TECHNICAL SPECIFICATIONS		PG 10-200	PG 12-360
Mainframe			
Microprocessor controlled touch panel		7", capacitive	
Optical Ethernet Interface for remote control of the generator		optional	
Interface for saving reports		USB	
External Trigger input / output		Switch / 10 V	
Connector for external safety interlock loop		24 V =	
and external red and green warning lamps acc. to VDE 0104		24 V=, 40 mA	
Mains power		230V, 50/60 Hz	
Dimensions: desk top case W * H * D		450 * 330 * 500 mm ³	
Weight		22 kg	
High- Voltage Pulse Generator:			
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		10 nF $\pm 10\%$	
Pulse forming networks to test solar modules:		Cp = 0 - 183nF selectable	
Area	EUT capacitances nominal	range of EUT capacitances	
1	5nF	0-10 nF	
2	15 nF	10 - 16 nF	
3	22 nF	16 - 27 nF	
4	33 nF	27 - 40 nF	
5	47 nF	40 - 57 nF	
6	68 nF	57 - 83 nF	
7	100 nF	84 - 122 nF	
8	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 $\pm 2\%$	
Accessories			
Mains cable, key, HV-connection cable, operation instructions			