HV-PULSE GENERATOR

PG 20-100

Impulse voltage tests of Solar Modules

2.0 - 20 kV

1.2 / 50 µs
10 nF - 183 nF

IEC / EN 61730-1/2

The HV-Pulse generator PG20-100 is used for impulse voltage tests of solar modules (photovoltaic panels) with the standard surge voltage waveform 1.2/50 µs according to IEC 60060-1/2 up to 20 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 5 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 PG20-100 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.

The generator 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 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)

TECHNICAL SPECIFICATIONS			PG 20-100
Mainframe:			
Microprocessor controlled touch panel			5”, 800X480, 24 bit
Optical Ethernet Interface for remote control of the generator			optional
Interface for saving reports			USB
Optical-interface for remote control of external CDN´s			Built-in
External Trigger input / output			10 V an 1 kΩ
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			453*320*520 mm^3
Weight			30 kg
High- Voltage Pulse Generator:			
Impulse output voltage, adjustable ± 5%			2.0 -20 KV
Waveform of Impulse output voltage			
rise time			1.2 µs ± 30%
back time			50 µs ± 20%
Polarity, selectable			pos./neg.
Maximum stored energy Cs			100J
Charging time for max. charging voltage			approx. 10sec
Interior load capacitance Cp			10 nF ± 10%
Pulse forming networks to test solar modules:			**Cp = 10 - 183nF**
			selectable
Area	EUT capacitances nominal	range of EUT capacitances	
1	12 nF	10 - 16 nF	
2	22 nF	16 - 27 nF	
3	33 nF	27 - 40 nF	
4	47 nF	40 - 57 nF	
5	68 nF	57 - 83 nF	
6	100 nF	83 - 122 nF	
7	150 nF	122 - 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 ±2%
Accessories:			
mains cable, key, HV-connection cable, operation instructions			
Option:			
PC Software for remote control of the generator, PC Interface LAN, optically isolated and light guide, 5 m long			
Option:			
CAPACITOR-CALIBRATION-KIT Calibration capacities: 23nF, 33nF, 50nF, 73nF,100nF, 156nF ± 3%			CCK 20