

# NanoGen 3

## Smart HV Pulses Generator



### Technical Presentation

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**Version 3.0**



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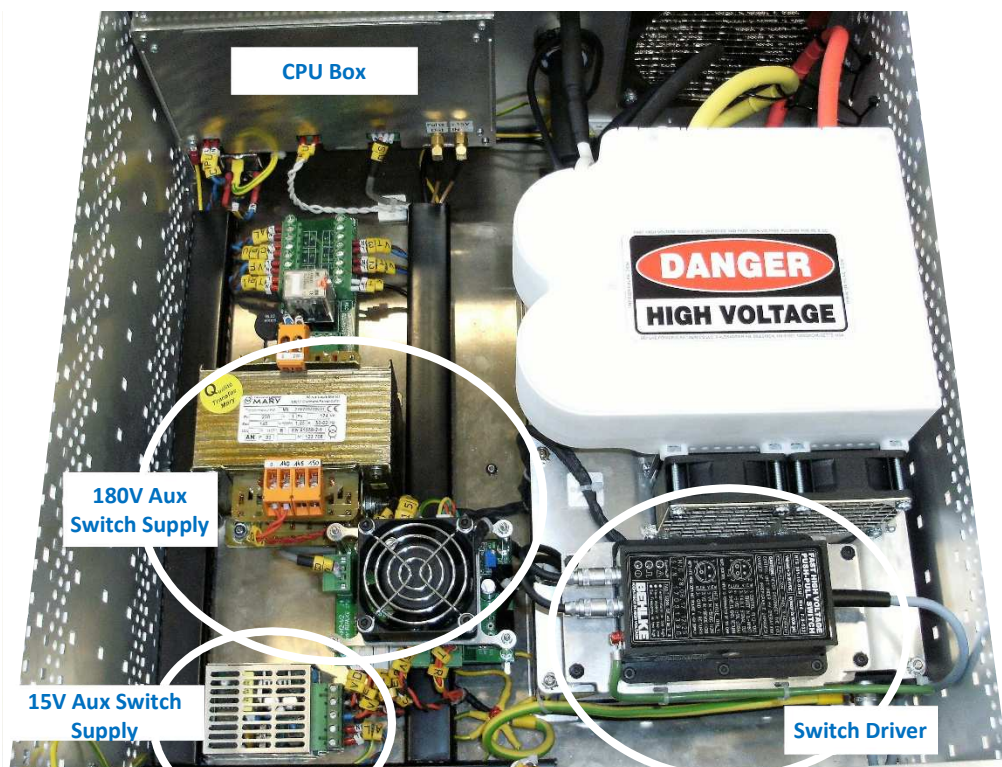
## II. NanoGen 3 Presentation

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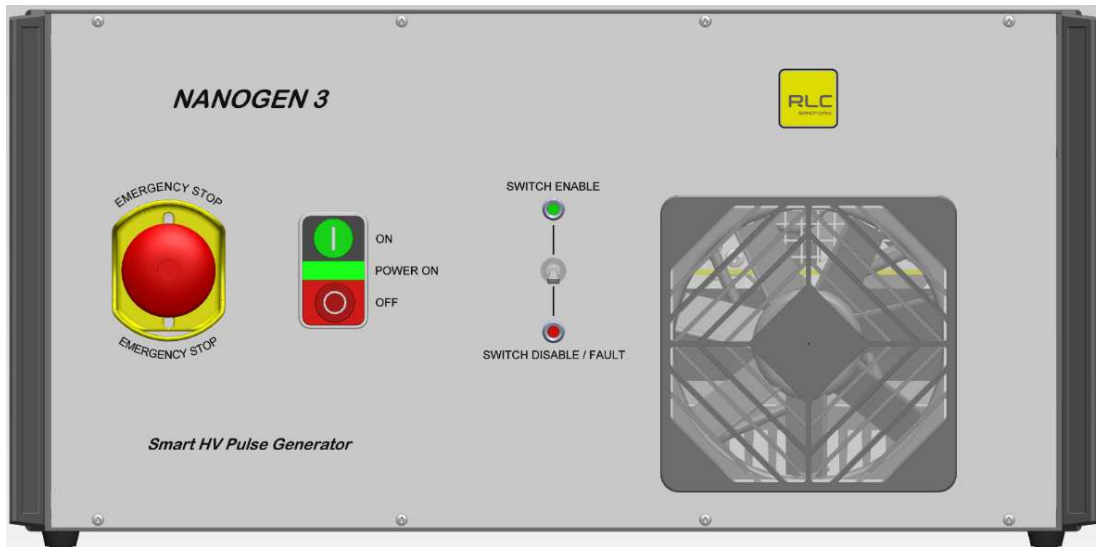
### II.1. Main Features

Voltage Adjust	0 -30 kV
Pulse Frequency	1Hz - 100 kHz
Pulse Width	200 ns - 250µs
Duty cycle	0.1% - 30%
Output Current max	50A at Fmax = 1 kHz, pulse width max = 10µs or duty cycle max = 1 %

### II.2. Internal Wiring

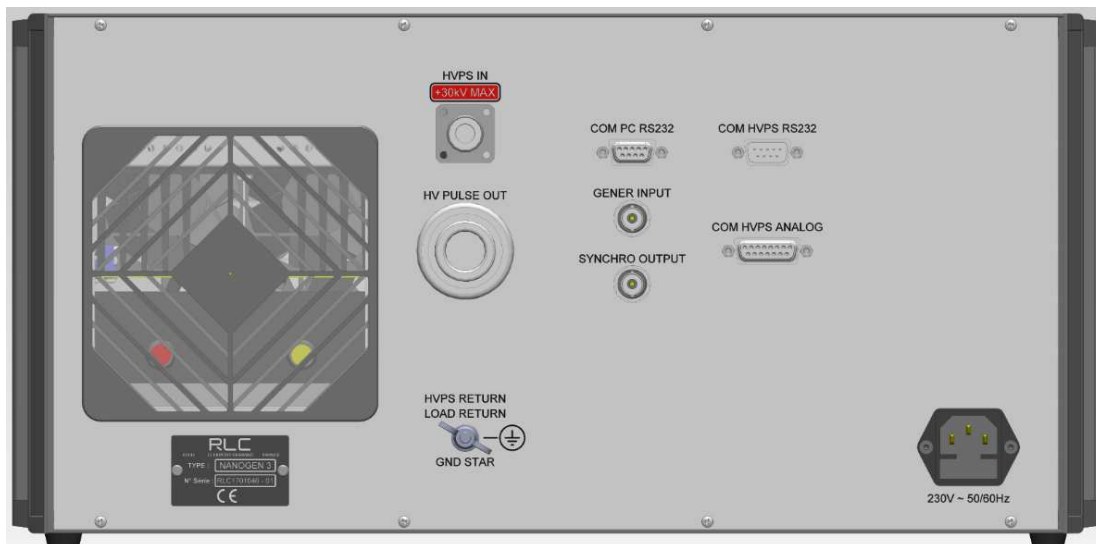


### II.3. Description of Front Panel



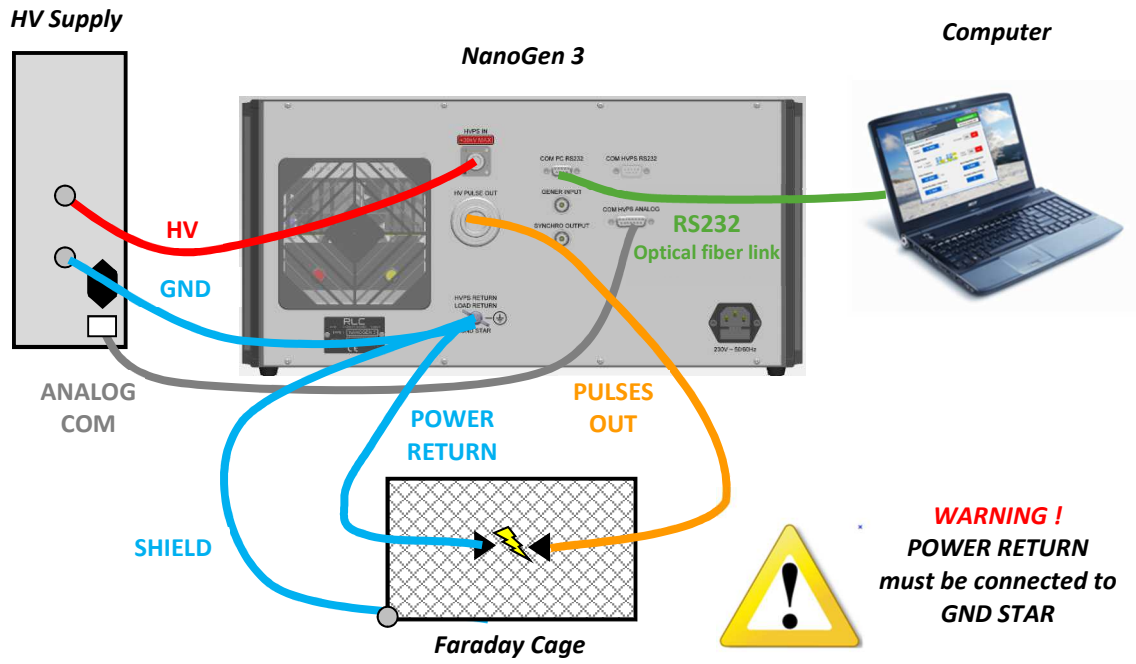
- Switch « **EMERGENCY STOP** »
- Switch « **POWER ON / OFF** » and LED « **POWER ON** »
- Switch « **SWITCH ENABLE** » : this switch enables or disables the HV Pulses Output
- Green LED « **SWITCH ENABLE** » : LED is on if the HV Pulses Output is enabled
- Red LED « **SWITCH DISABLE / FAULT** » : LED is on if the HV switch is disabled or in fault state

### II.4. Description of Rear Panel



- Input Connector « **HVPS IN** » : HV Supply Input (30kV max)
- Output Connector « **HV PULSE OUT** » : HV Pulse Outputs
- GND Connector « **GND STAR** » : HV Ground
- SUBD9 Connector « **COM PC RS232** » : RS232 Communication with Optical Fiber adaptor
- SUBD15 Connector « **COM HVPS ANALOG** » : HV Power Supply Analog Control Interface
- BNC Connector « **GENER INPUT** » : Input from External Generator
- BNC Connector « **SYNCHRO OUTPUT** » : Synchronization Output

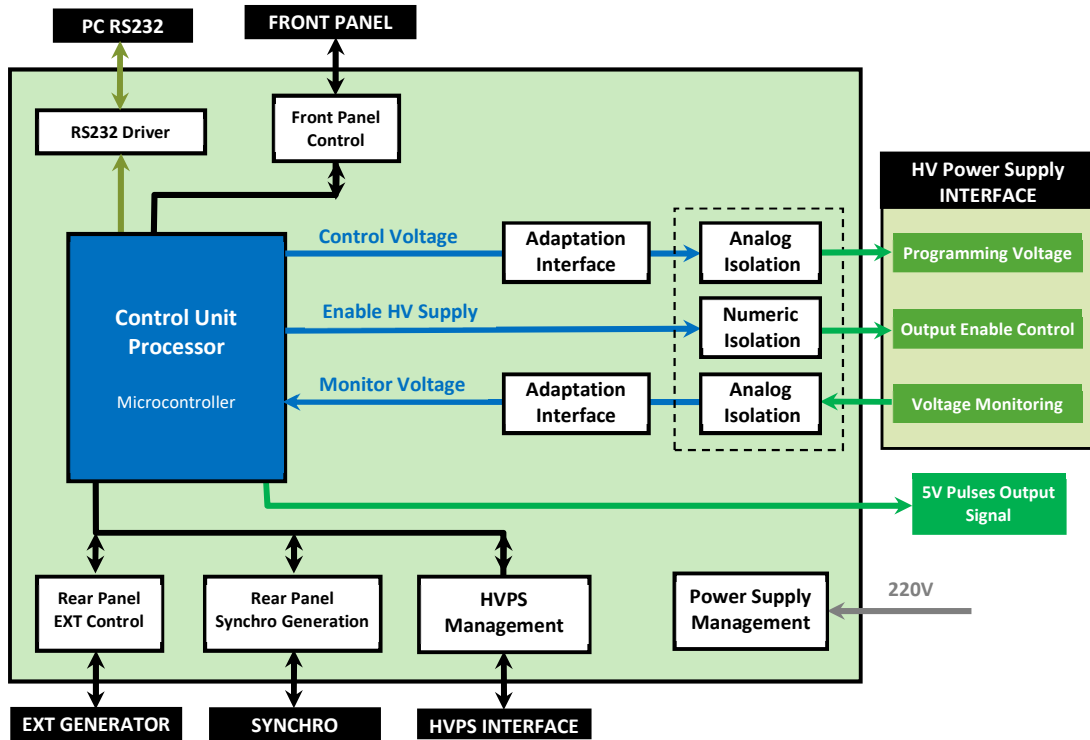
## II.5. Global Wiring



### III. CPU Board

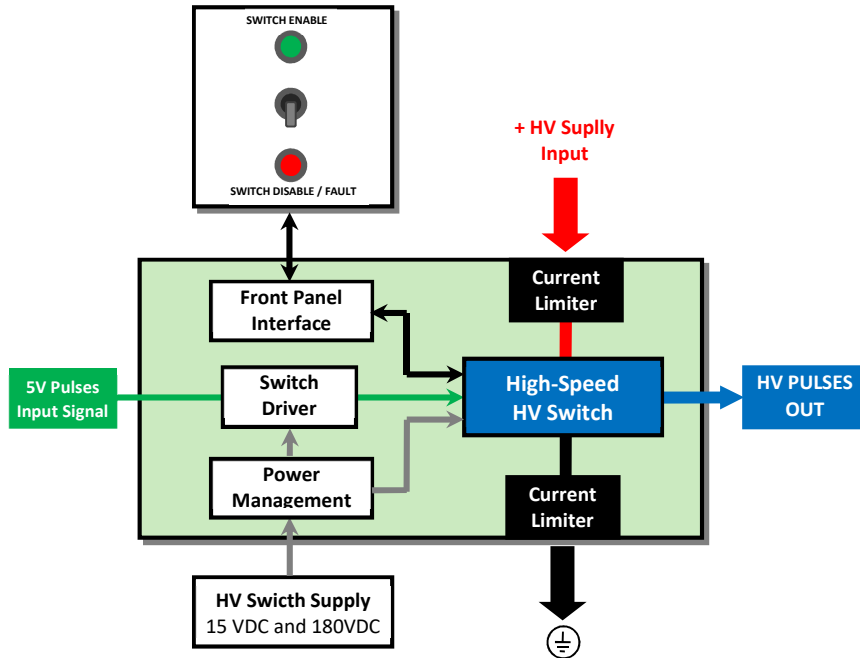
The CPU Board:

- manages the RS232 communication with the PC
- controls the external HV Power supply
- generates the PWM or BURST signal to control the HV Power Switch



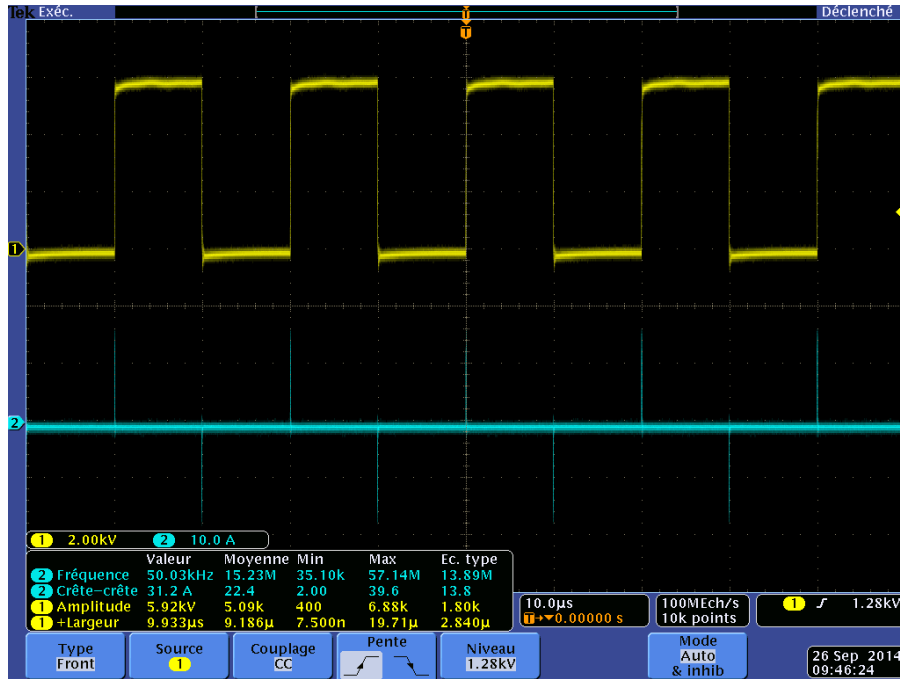
## IV. HV Power Switch Board

The **HV Power Switch Board** is based on the BELHKE fast high voltage transistor switch HTS 301-10-GSM.



# V. Oscillograms

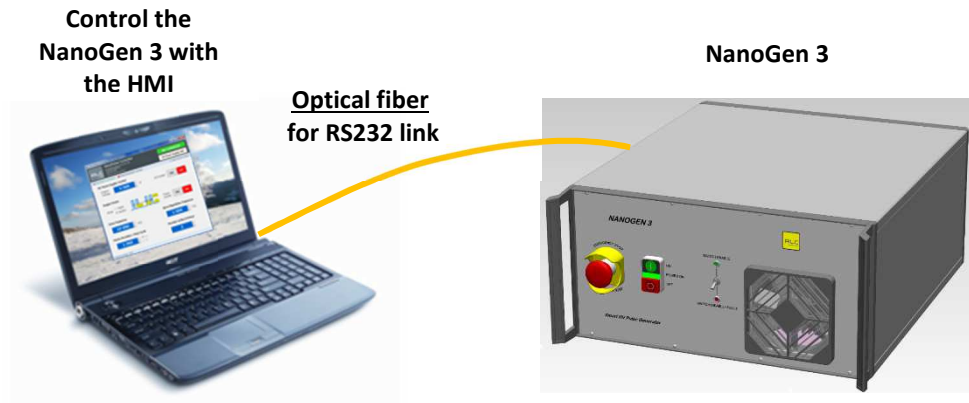
## HV Output Pulses





## VI. NanoGen 3 HMI

The **NanoGen 3** is controlled by a « Human-Machine Interface », developed by RLC, that can be installed on any PC or on a laptop.



The **NanoGen 3 HMI** controls :

- The external HV Power Supply      Output Voltage / ON / OFF
- The PWM or BURST Output Pulses parameters      Pulse Frequency / Pulse duration...

