NanoGen 3

Smart HV Pulses Generator

Technical Presentation

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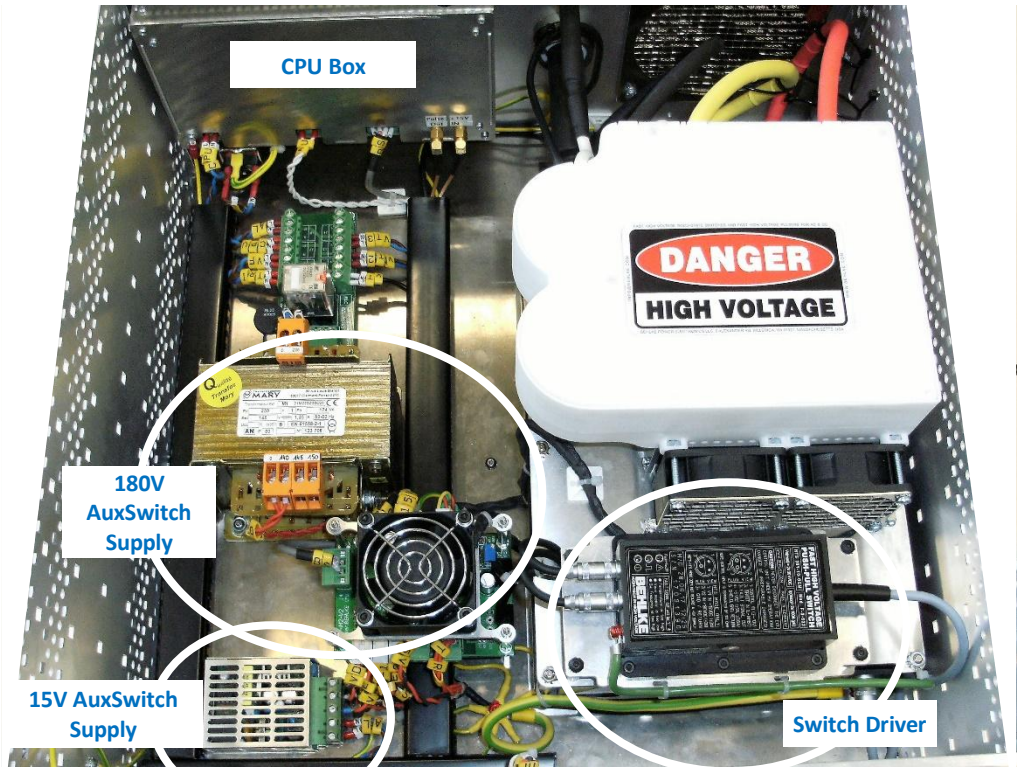
I. Table of Contents

II. NanoGen3 Presentation

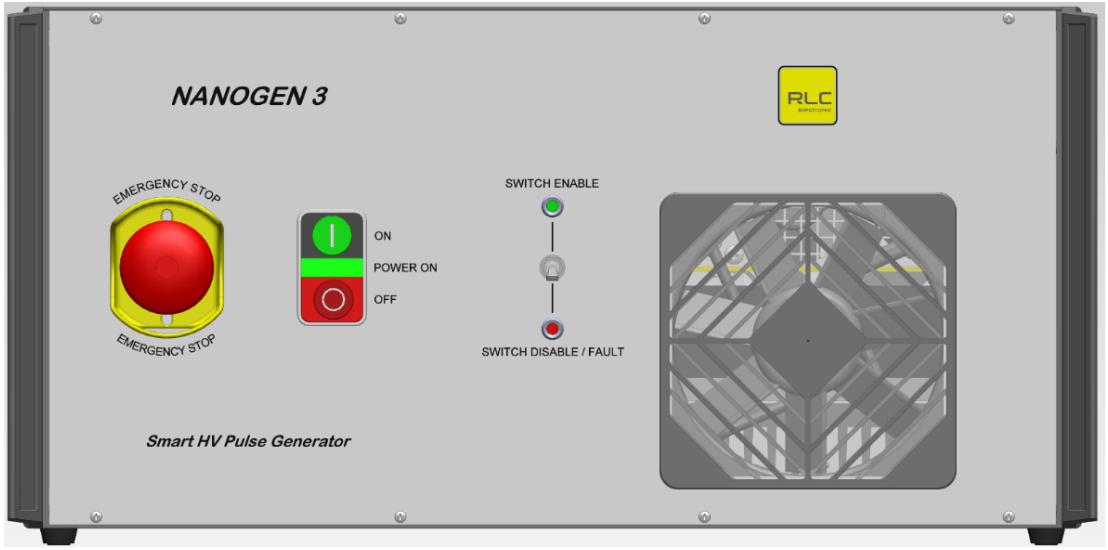
II.1. Main Features

Voltage Adjust	0-30 kV
Pulse Frequency	1Hz - 100 kHz
Pulse Width	250 ns - 25µs
Duty cycle	0.1% - 50%
Output Current max	50A at Fmax = 1 kHz, pulse width max = 10µs or duty cycle max = 1 %

II.2. Internal Wiring

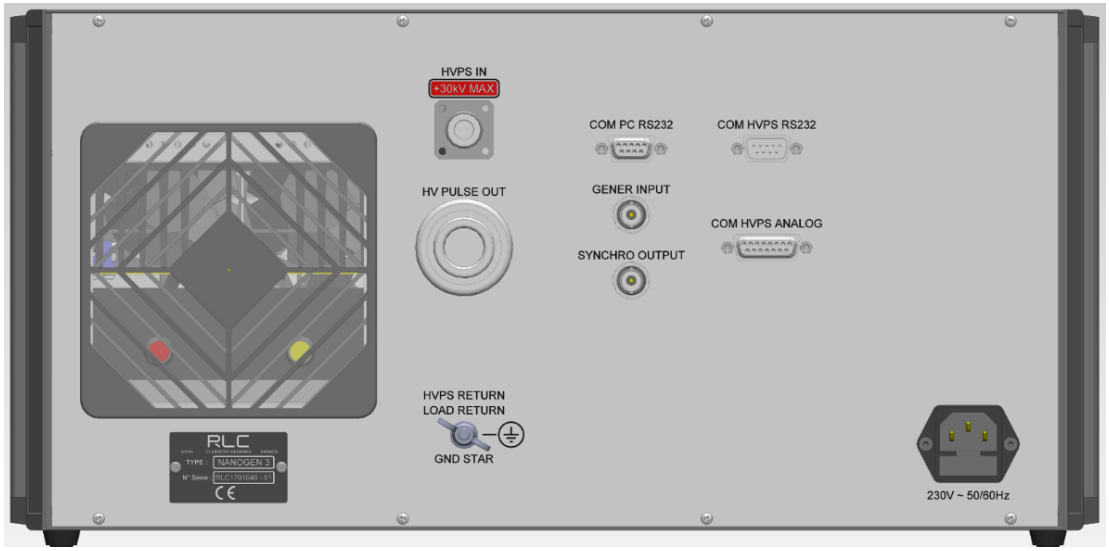


II.3. Description of Front Panel



- 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

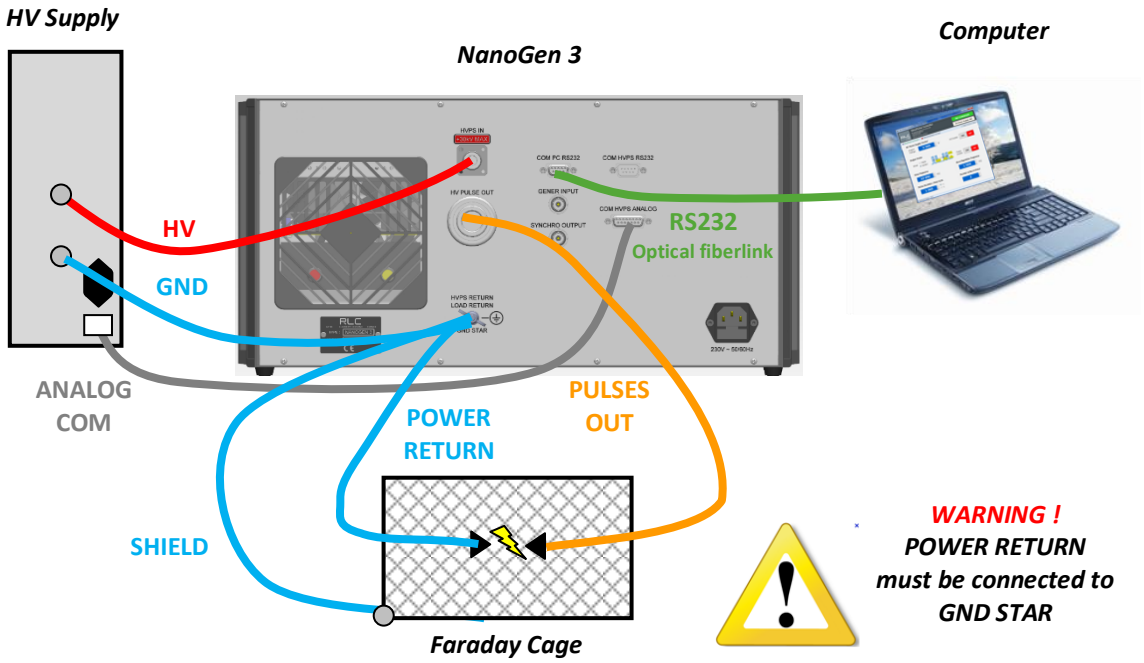
II.4. Description of Rear Panel



- 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 « **COMPC RS232** » :RS232 Communication with Optical Fiber adaptator
- 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

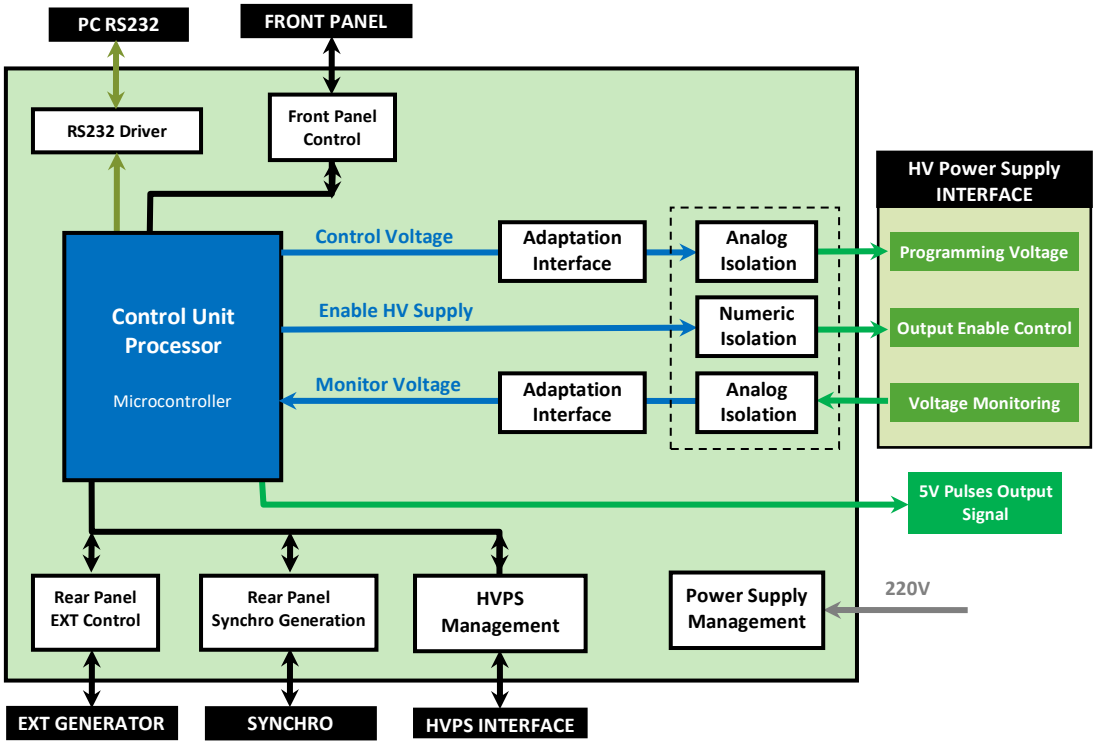
II.5. Global Wiring



III. CPU Board

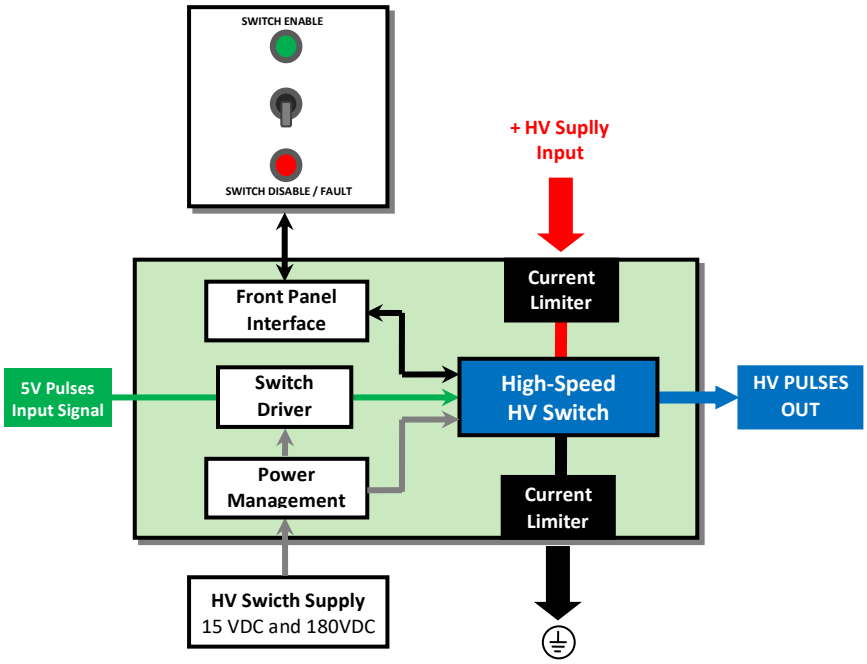
The **CPU Board**:

- 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



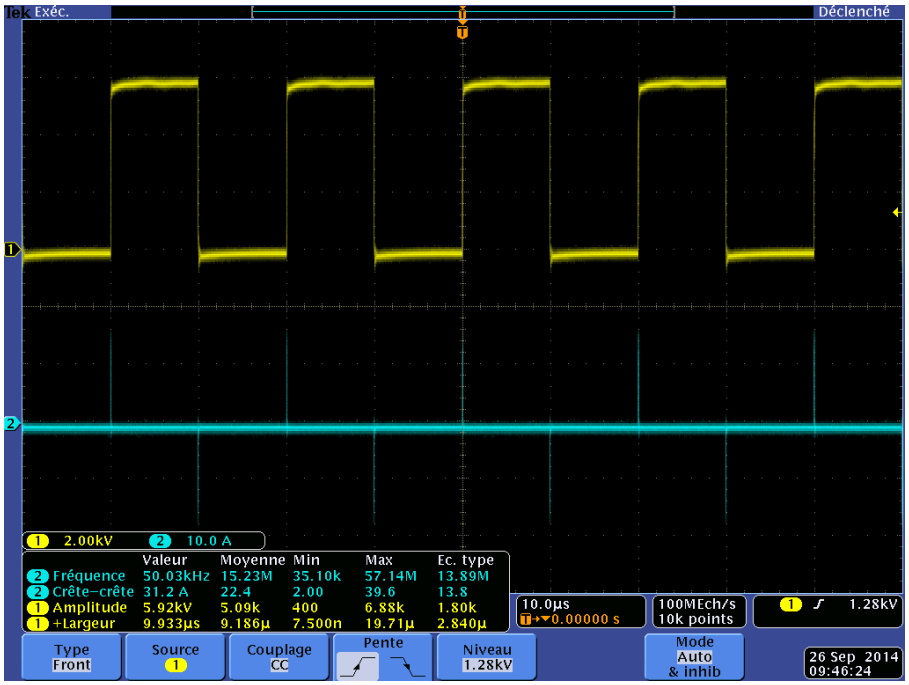
IV. HV Power Switch Board

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



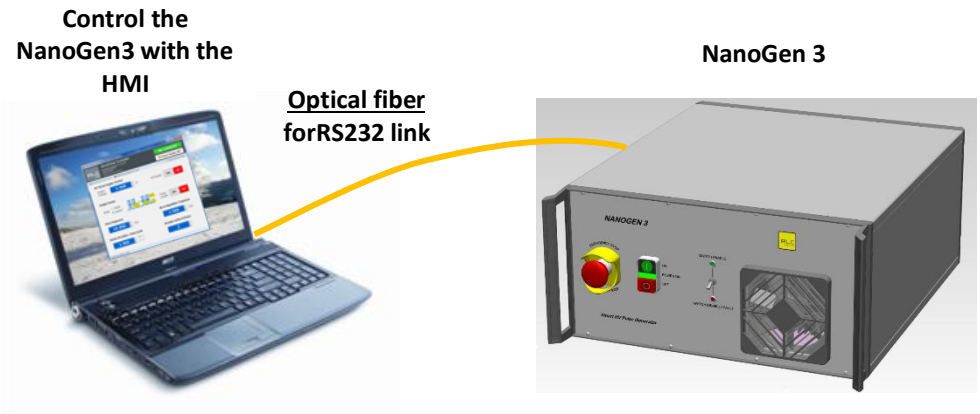
V. Oscillograms

HV Output Pulses



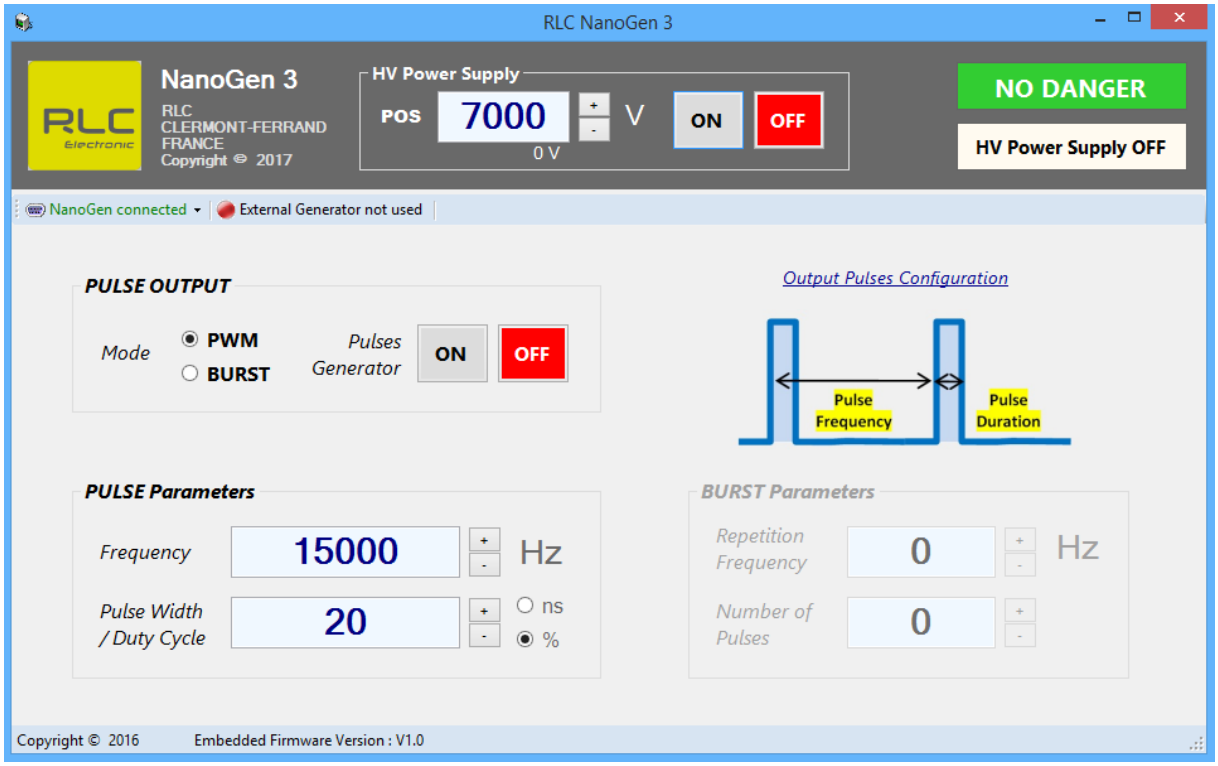
VI. NanoGen 3 HMI

The **NanoGen3** 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…



VII. Maximum Power Limitation

The yelow line represents the maximum power limitation. The safety area is under this line. Thanks to the new software, the user can not go beyond the maximum power limits.