GIPO 552C1
High voltage pulse generator – Pockel cell driver

- One standard model: GIPO 552C1
- Negative high voltage pulse, up to -5.5kV
- Adjustment of the high-voltage pulse amplitude
- Rise time : 3ns (on 2pF load)
- High voltage plateau duration: 3µs (factory set)

- frequency: up to 100Hz

General description:

The GIPO product is basically composed of an adjustable high voltage dc/dc converter and a high speed, high voltage switch. The stability of the high voltage power supply integrated in the module is very high (10ppm/°C). The amplitude of the output signal is programed via a 0/10V analog input. HV pulses are triggered by an external signal on the SMA connector. The GIPO can switch 5.5kV in less than 3ns.
The GIPO is only dedicated to light capacity loads such as Pockel cells (without 50Ω end termination). Also, the length of the HV cable changes the rising edge and the amplitude of the HV pulse (see fig. 5 below).

Parameters	Specifications (at Tamb=25°C unless otherwise specified)
Input voltage Vin	24dc ±5% , power 6W
Output voltage amplitude	Continuously adjustable from -500V to -5500V
Output voltage setting	Via an external 0 to 10 V voltage source (Zin=1MΩ)
Output voltage monitoring	DC analog 0/10V buffered output signal, maximum output current 1mA
Pulse rising edge	3ns typically on load of 2pF (through a 3 meters 75Ω coax cable)
Output signal duration (the plateau)	3µs
Jitter	<200ps
Repetition rate	Up to 100Hz
Polarity of the HV pulse	negative
Trigger (50Ω input through the SMA connector)	Triggered on rising edge, typical threshold level: 8.5V (max. allowed: 15Vpeak). Recommended maximum rise time: 10ns
Trigger delay	120ns typical
HV pulse inhibition	Active high CMOS 15V input enables the HV pulse
Input connector (power supply, com-mand and monitoring)	SUBD9 male socket
HV pulse connector	SHV RADIALL R317-580
MTBF	>700 800 hours @25°C (MIL HDBK-217)
Safeguards	24V input protected toward polarity inversion. Input for voltage setting is internally limited to 10V. Monitoring output is protected toward shortcuts. Repetition rate is internally limited at 100 Hz. 50Ω resistor at the Trigger input accepts 15Vdc. High Voltage safe connector

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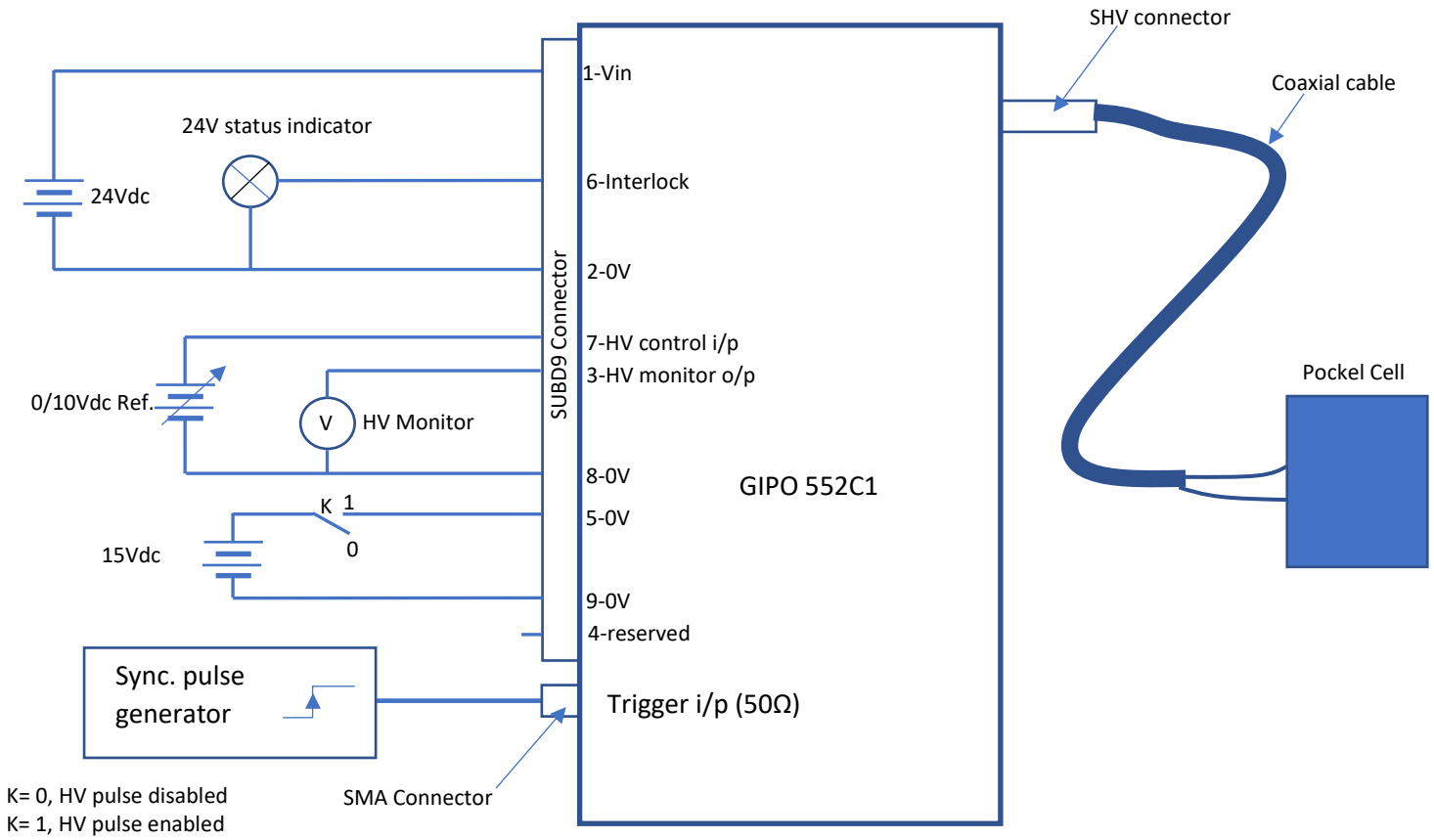
Package Configuration	
Case	Aluminium case : 105 mm x w :80 mm x h : 36 mm with 6 fixing holes on the flanges
Weight	~500g
Insulation	Potted with some silicon resins

Pins' function	
Line input	#1: Supply (IN+) #2: 0V supply (IN-)
Output	#3: Output Return (OUT-) #4: Output (OUT+)

Functional diagram



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Test (all tests realized with a HV coaxial cable of 3meter length, otherwise specified)

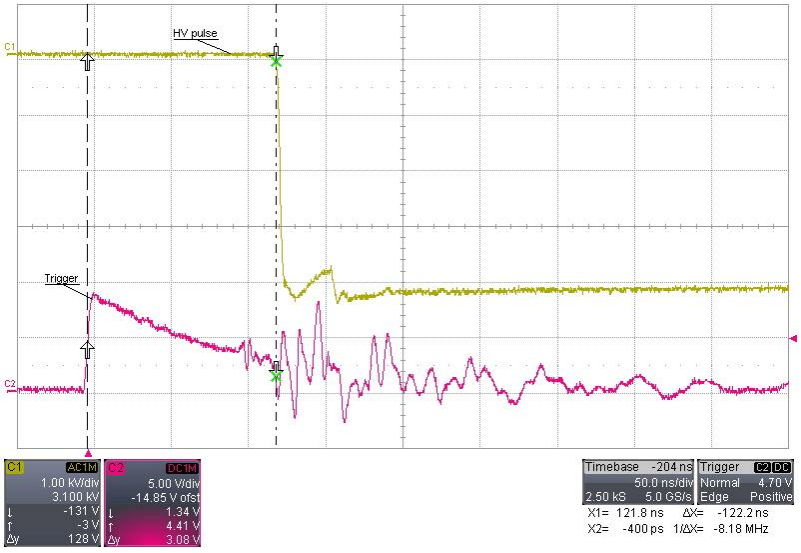

Fig.1: delay of the trigger = 120ns (typical)

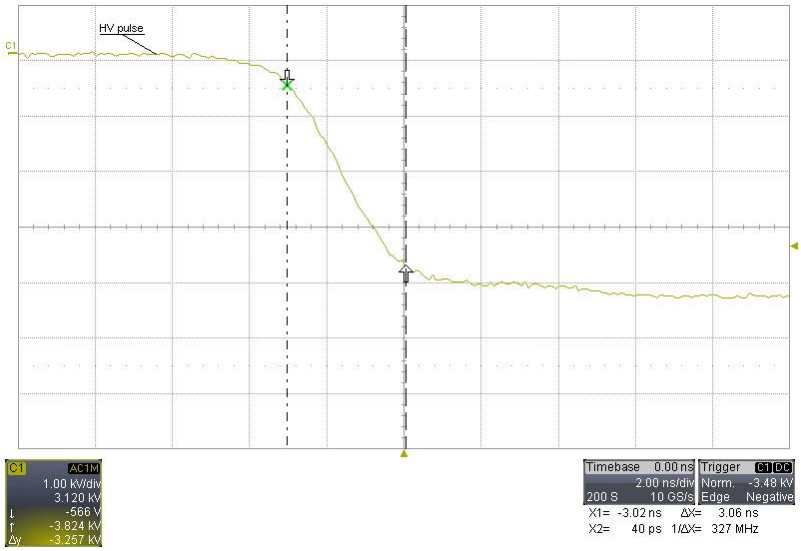

Fig. 2: Rise time = 3ns

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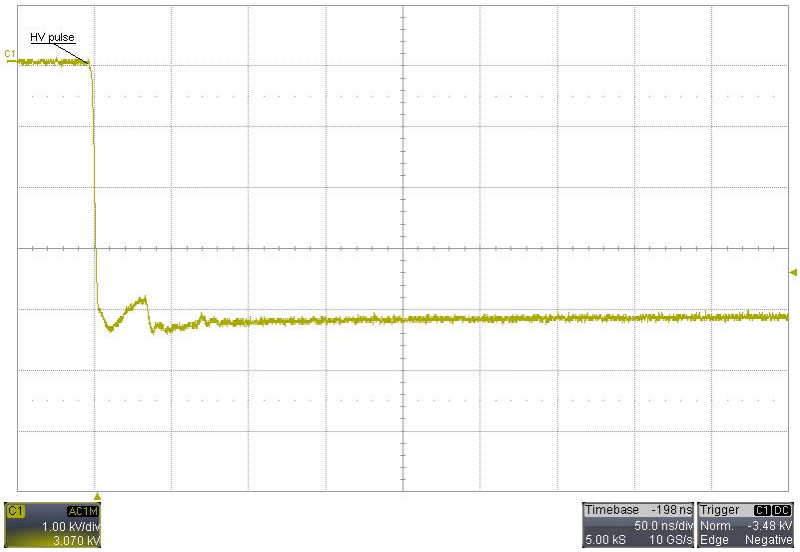

Fig. 3: time base 50ns/div

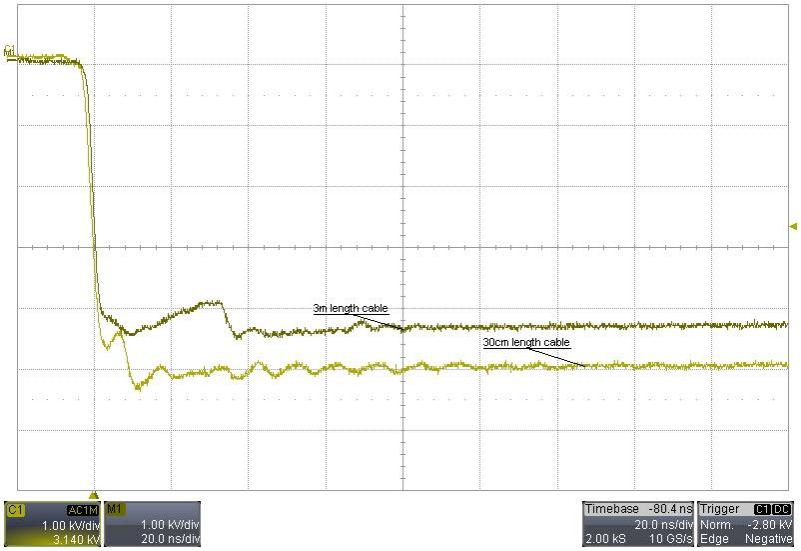

Fig. 4: 3m and 30cm cable (same setting applies to both measures except the length of the HV cable)

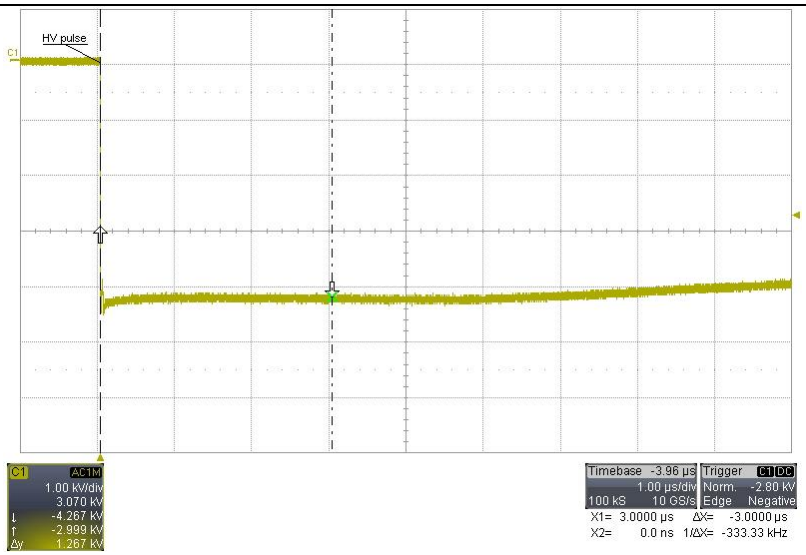

Fig. 5: time base 1µs

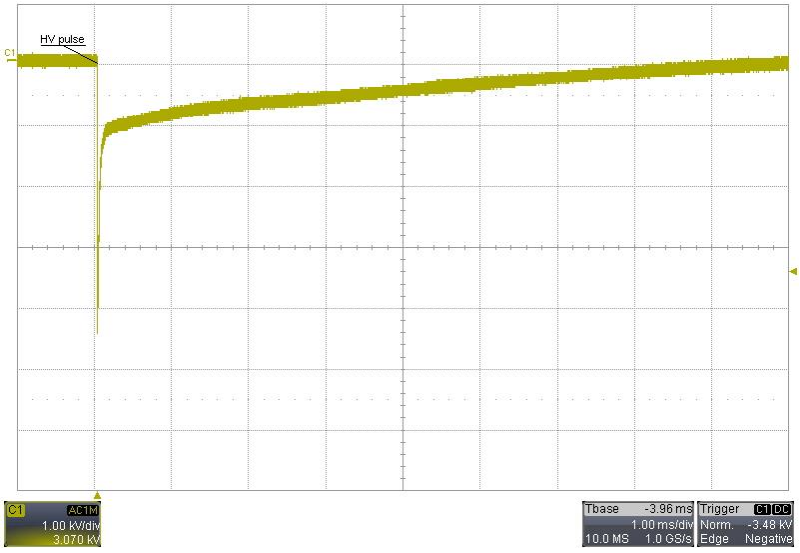

Fig.6 : the decay

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Ordering information

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