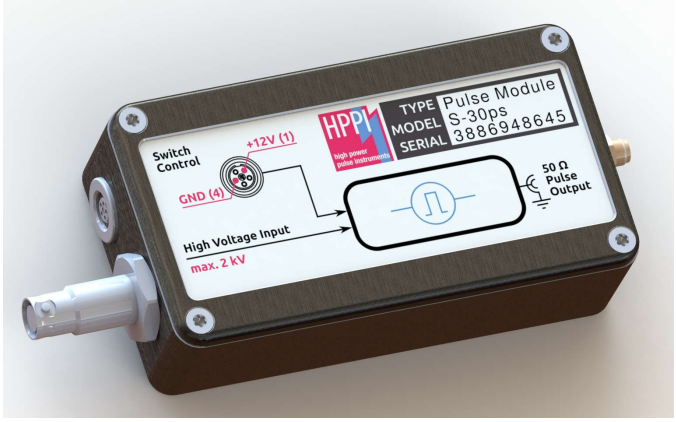
30 ps Rise-Time Pulse Module S-30ps

Advanced TLP/HMM/HBM Solutions

1 Features

- 30 ps rise time pulse module for advanced VF-TLP and CC-TLP application
- 500 ps pulse width (customizable e.g. 100 ps)
- Wide voltage range:
  sub-1 V to 1 kV pulse output voltage into 50 Ω



2 Description

The S-30ps is a stand-alone pulse module for advanced VF-TLP application. It can be operated with HPPI pulse generators TLP-3010C/4010C/8010AC/12010AC/16010A or the stand-alone high voltage power supply unit HV-CU10-A.

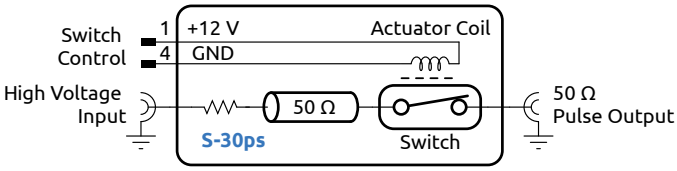


Figure 1: S-30ps block diagram

Fig. 1 shows the block diagram of the S-30ps. The pulse unit has the following terminals:

Switch Control: to be activated using 12 V/65 mA. The connector is a Binder, 712 series, 5-pin model 09 0416 00 05.

High Voltage Input: to be used to connect the charge line voltage. The connector is a JYEBAO 10KV-8501-000 coaxial connector.

50 Ω Pulse Output: to be connected to the device under test. The connector is a standard SMA coaxial connector.

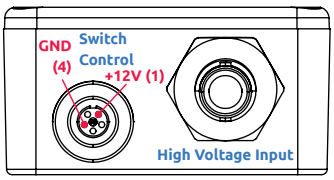


Figure 2: Control inputs

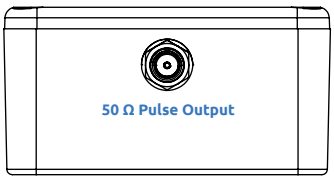


Figure 3: 50 Ω pulse output

The pulse module is controlled automatically by the HPPI tester software suite.

3 Electrical Characteristics

Nominal output impedance	50	Ω
Output pulse rise time [1]	30	ps
Output pulse width [2]	500	ps
Pulse repetition frequency (max.)	10	Hz
Pulse output voltage (min.)	±1	V
Pulse output voltage (max.)	±800	V
High voltage input (max.)	±2	kV
Actuator coil resistance	185	Ω
Actuator coil voltage	12	V
Actuator coil current	65	mA

[1] increasing rise time at maximum pulse voltage
[2] customizable e.g. 100 ps

The following data have been measured using a Keysight UXR0334A, MY59120115, 11.50.00601 oscilloscope at 33 GHz bandwidth and 128 GS/s sampling rate. Fig. 4 shows the measured pulse rising edge at 100 V. The preferred range of pulse output voltage to be used is up to 800 V (Fig. 5).

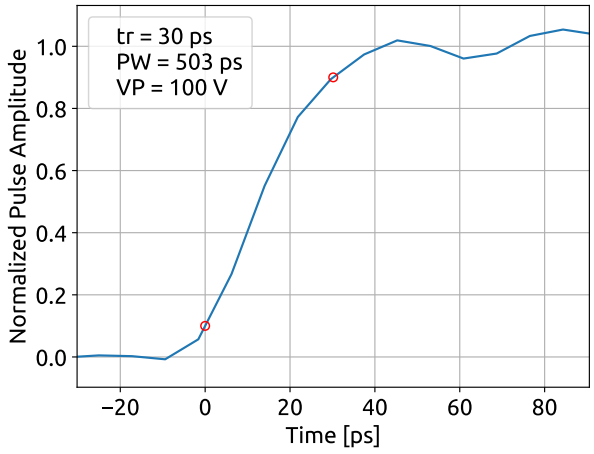


Figure 4: Measured pulse output voltage into 50 Ω

High Power Pulse Instruments GmbH
Internet: https://www.hppi.de/
E-mail: info@hppi.de

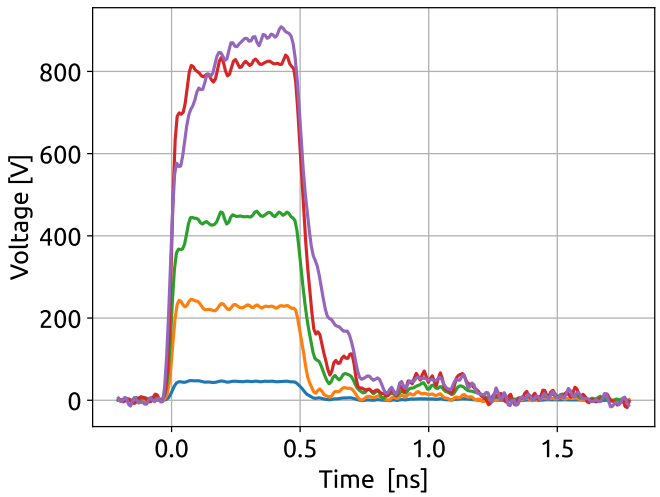


Figure 5: Measured pulse output voltage into 50 Ω

4 Application Note

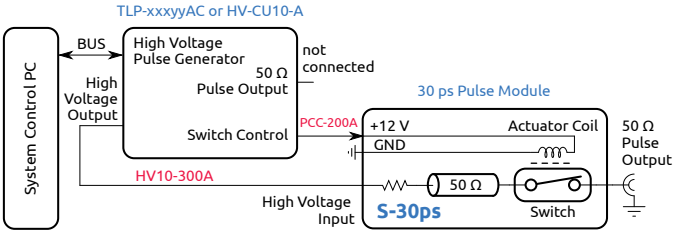


Figure 6: S-30ps typical minimal setup

The S-30ps pulse module should be located as close as possible to the device under test (DUT). The cable from the pulse output to DUT should be as short as possible to avoid pulse distortions. To interconnect the pulse module with the base units TLP-3010C/4010C/8010AC/12010AC/16010A or the stand-alone high voltage power supply unit HV-CU10-A, the control cable PCC-200A and the high voltage cabel HV10-300A are required.

5 Ordering Information

Specify pulse width PW [ps] at order.
Example: S-30ps-200ps for 200 ps pulse width.

Pos.	Description	Part No.
01	30 ps Rise-Time Pulse Module	S-30ps-PW
02	Control Cable	PCC-200A
03	High Voltage Cable	HV10-300A

General

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High Power Pulse Instruments GmbH
Stadlerstrasse 6A
D-85540 Haar, Germany
Phone : +49 (0)89 8780698 - 440
Fax : +49 (0)89 8780698 - 444
E-Mail : info@hppi.de

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