

Compact Nano- And Picosecond High Voltage FID Pulsers

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High voltage pulse generator FPG 5-3000KM has been developed. The pulse generator has an output voltage of 5 kV into 50-100 Ohm load, rise time of 0,7-1,5 ns, pulse duration of 1-2 ns and pulse repetition rate of 3 MHz in burst mode. The duration of burst is 1 millisecond, repetition rate of packets is 5-10 Hz, average PRF is 15-30 kHz. A delay time from triggering pulse to the output voltage pulse is about 100 ns, jitter of output voltage is 10-20 ps. A synchronous operation of several pulse generators controlled by computer is possible.

A new series of compact modules FPM 30-10K has been developed. The output voltage amplitude is up to 30 kV, rise time is 100-150 ps, pulse width is 0,5-1 ns, maximum pulse repetition rate is 10 kHz. Dimensions of FPM 30-10K are 220x120x50 mm. Input power is DC 100-200V. External triggering of 20 V, 100 ns is also essential.

A series of compact pulsed power modules with maximum repetition rate of up to 1 MHz has been developed. FPM 10-100KM power module has output voltage of 10 kV, rise time of 80-100 ps, pulse width of 0,5-1 ns, maximum repetition rate of 100 kHz. Its size is 180x90x50 mm. Input power of DC 100-200 V and external triggering of 20 V, 100 ns are required for operation. Module FPM 1-1000KM has output voltage of 1-2 kV at 50 Ohm, rise time of 100-150 ps, pulse width of 0,5-1 ns and maximum PRF of 1 MHz. Dimensions are 120x100x50 mm. Input power is DC 48V, external triggering is 20V, 50 ns.

All modules have a high stability of specifications. Jitter of the output voltage to triggering pulse is not more than 10-20 ps. A synchronous operation of a large number of power modules into a single load is possible. Developed compact modular pulsers have the efficiency of 60-70% which allows using them with forced air or convectional cooling.