Pulse Train Microprocessor Programmer for NMR Relaxometers-Diffusiometers

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Abstract

A pulse train programmer for a spin-echo NMR relaxometer-diffusiometer is based on an AT89C51-24PC microcontroller. The programmer ensures the arbitrary generation of pulse trains with a minimum train step of 30 μs and recording of up to 30000 10-bit amplitudes of spin-echo NMR signals with a minimum quantization step of 3 μs. The all-in-one one-board programmer is connected to a computer serial asynchronous data port, which is compatible with NMR relaxometer-diffusiometers of almost any design.