

INTELLIGENT CONTROLLERS FOR THE DISTRIBUTED POWER SUPPLIES CONTROL.

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Intelligent Power Supplies Controllers (IPSC) widely used today to control distributed power supplies at VEPP-4 facility. These controllers support all control functions for beam energy rising and falling. The using of IPSCs minimize a number of interacts between central computer and power supplies. IPSC was developed to control power supplies (with power range from 50 Watts to 200 kWatts) for VEPP-5 facility with accuracy of stabilization of output current about 0.01%. IPSC includes 16-bit DAC and microprocessors Intel 80C196KC with programm support for a time interpolation of output signal, 24-bit ADC with differential 8-channel CMOS analog multiplexer for analog measurements, 8-bit opto-coupled input/output register for power supplies digital control. Microprogramms provide control and measuring functions. IPSC also includes 64K SRAM for storage control and measured codes. IPSC may communicate with a computer via two serial interfaces CAN2.0B (Controller Area Network, twisted pair, 20kbit/s - 1Mbit/s) and RS-485. RS-485 and IRDA1.0 (infra-red link) port connected to it can be used for manual external control. Microprogramms can be written by user in C language using IPSC library and loaded into IPSC's 256K FLASH PROM via serial interfaces. IPSCs are placed directly inside power supplies electronics to avoid parasitic induced voltages. An analog part, digital part, I/O registers and serial interfaces of IPSC are galvanically isolated.