Description
A simple system of automatic regulation of heat carrier supply suitable for heating of residential and administrative buildings has been developed.

Specificity of the regulation system is in combination of controlling and calculating functions of the heat meter. The heat meter “Triton-M” has three ultrasonic and two impulse channels for consumption measurement, four channels for temperature measurement, two channels for pressure measurement and built-in controller supplying control signal to an external device. The regulation system is controlled by signals of temperature indicators set up in the control room of the residential building and outside. Control algorithm is rather simple: at certain given temperature in the control room the controller supplies to the relay circuit controlling the electric drive of the pilot the signal to close the valve and the supply of the heat carrier decreases. If in the control room temperature decreases the signal to open the valve is given and the heat carrier consumption increases. Controller has internal calendar that serves to set various programmes controlling the regulation system. For instance, it is possible to set and maintain different temperatures inside (day-night, working day-holiday). Heat saving at this heating schedule even at rather low temperatures outside achieves 20÷40 %. The programme can be changed distantly from the PC or the device control.

Technical appraisal and economic benefits
The system solves two main tasks: convenience for people in the building and saving of heat energy used for house heating.

Controller for the pilot valve is built in a measuring and calculating block (MCB) of the heat meter “Triton-M” that significantly decreases the cost of regulation system.

There are no analogues produced in Russia.

Application areas
Heating systems for housing and communal services.

Development stage
The device has been producing since 2000 (once modernized).

The systems are used in the dwelling house (1, Ilyicha St., Novosibirsk, Russia), Institute of Thermophysics SB RAS, Institute of Automatics and Electrometry SB RAS, “Energy” JSC, and other facilities in Novosibirsk and Berdsk cities.

Patent protection
Certificate with the calibration interval of three years was obtained in 2005.

Commercial offers
Contract for production and supply of a control and regulation system.

Estimated cost
Cost of the system for small-scale objects (residential building, section of an apartment building) is about 50÷70 thousand rubles.
Cost of the system for administrative buildings (institute, etc.) is about 150÷300 thousand rubles.

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