

The proposed method for measuring the velocity and determining the direction of liquid or gas flow is distinctive by that the method allows the measurement accuracy to be increased by excluding delays of acoustic signals in transmitting and receiving devices. The method implies using four acoustic transceivers/ which are arranged at the vertices of an irregular quadrangle, in the plane of the cross-section of the flow, so that the directional pattern of each transceiver covers the remaining three transceivers. Accordingly, the radiation of each transceiver is received by the remaining three transceivers. The velocity is determined by the time of the propagation of the acoustic signals between the reference points that are arranged in the direction of the liquid or gas flow.

The proposed device for the realization of the method contains acoustic transceivers, amplifiers, time-to-number converters, a reference frequency oscillator, a microprocessor computing unit, a pulse generator, and a switching unit. The outputs of the receivers are connected to the corresponding disabling inputs of the time-to-number converters via the corresponding amplifiers. The timing inputs of the converters are connected to the output of the reference frequency oscillator. The outputs of the converters are connected to the input of the computing unit. The output of the computing unit is used as the output of the proposed device. The output of the pulse generator is connected to the enabling inputs of the converters and the input of the switching unit. The outputs of the switching unit are connected to the inputs of the transmitters, and the address input is connected to the output of the computing unit. According to the other variant, the proposed device contains transceivers, amplifiers, a microprocessor computing unit, and a four-bit register. The outputs of the receivers are connected to the bit inputs of the register via the amplifiers. The bit outputs of the register are connected to the input of the computing unit. The output of the computing unit is used as the output of the proposed device. The inputs of the transmitters are connected to the bit outputs of the register via the amplifiers.