THE DIFFERENTIAL SCHEME OF DOPPLER ANEMOMETRY FOR THE ANALYSIS OF PARTICLES' SIZE AND VELOCITY OF SMOKES OF DIFFERENT NATURE

A.I. Kitsak[c], D.L. Esipovich

Research Institute of Fire Safety and Emergencies of the Ministry for Emergency of Belarus, Minsk, 220046, Belarus

[c]Corresponding author: Tel.: +375172464204; Fax: +375172465731; Email: kitsak48@mail.ru

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ABSTRACT: There is described vibration resistant optical system of smoke particles sensing, which provides distribution control according to their size and velocity, which makes it possible to recognize the nature of the smoke particles and the source of its generation. The scheme uses modulated by the periodic law distribution of the intensity of optical radiation in a limited amount of smoke chamber. Moving of particles through such an area forming a different signal depending on the particles` size and velocity. There are provided model experiments of time signals registration, which are generated by particles of different sizes crossing the sensitive area. There are described characteristics of recorded signals, which are used to estimate particles` size and velocity in a specified direction. The proposed scheme of size and velocity control of smoke particles can be used to create "intelligent" smoke detector.