Title (en)

METHOD AND DEVICE FOR MEASURING THE TEMPERATURE OF A GAS USING LASER-INDUCED INCANDESCENCE PYROMETRY

Title (de)

VERFAHREN UND VORRICHTUNG ZUR GASTEMPERATURMESSUNG MIT LASERINDUZIERTER WEISSGLUT-PYROMETRIE

Title (fr)

PROCEDE ET DISPOSITIF DE MESURE DE TEMPERATURE DE GAZ PAR PYROMETRIE D'INCANDESCENCE INDUITE PAR LASER

Publication

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Application

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Abstract (en)

[origin: DE19945640A1] The invention relates to a method and a sensor (1; 1a, 1b) for measuring temperature. Known pyrometric methods of gas temperature measurement already exist. According to the invention, particles (14) in the gas (12) or in the flame are heated to incandescence with a laser pulse (7), the induced continuum heat radiation of the particles (14) is measured pyrometrically, the particle temperature T is calculated and the original gas temperature T DEG is determined from said particle temperature by calculation and/or scaling. The calculation can be carried out with a theoretical model for the energy balance of the heated particles (14) and the scaling with an independent gas temperature measurement. The pyrometric measurements can be analysed monochromatically, bichromatically or with broadband and especially independently of the particle-emissivity. In preferred embodiments, a one or two-dimensional gas temperature profile is determined. The inventive method is contactless, avoids disturbances in the gas flow (13), is characterised by a very high measuring sensitivity and is especially suitable for measuring the temperature of gases or flames in gas turbines.

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IPC 8 full level

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