Title (en)

OPTICAL DEVICE AND METHOD FOR THE NON-INTRUSIVE MEASURING OF THE TEMPERATURE OF A FLOWING LIQUID

Title (de)

OPTISCHES VERFAHREN UND VORRICHTUNG ZUM BERÜHRUNGSFREIEN MESSEN DER TEMPERATUR EINER STRÖMENDEN FLÜSSIGKEIT

Title (fr)

PROCEDE ET DISPOSITIF OPTIQUE POUR LA MESURE NON INTRUSIVE DE LA TEMPERATURE DANS UN LIQUIDE EN ECOULEMENT

Publication

EP 1269132 A1 20030102 (FR)

Application

EP 01913981 A 20010312

Priority

- FR 0100723 W 20010312
- FR 0003005 A 20000309

Abstract (en)

[origin: FR2806159A1] A single temperature sensitive fluorescent tracer is used with two spectral detection windows on the same tracer. The single reception area has a holographic filter (6) and a separation assembly (4) dividing the optical signal into two (5a,b). Each measuring route has a filter giving a measuring window, an amplifier (9a,b) converting the light signals to electrical signals and a computer (11) Preferred Features: The tracer used is Rhodamine B ($C_{28}H_{31}ClN_2O_3$). The ratio between the intensity measurement of the fluorescence of the two signals received in the two windows is: $Rf = (If_1/If_2) = Ke$ (beta 1 - beta 2)/T. The apparatus constant K is determined by a simple calibration at a known temperature To, giving $Ln (Rf/Rfo) = $ (beta 1 - beta 2)/(1/T 1/To) where Rfo is the ratio at temperature To. The filter forming the measuring window can be an interference filter, a pass-band, high pass or low pass filter. In particular, the first signal passes through a, interference pass-band filter (7) with band size DELTA lambda 1 centred on a wavelength lambda 1 of about 530 nm and the second signal passes through a high pass filter (8) with a threshold wavelength lambda 2 of about 590 nm.

IPC 1-7

G01K 11/20

IPC 8 full level

G01K 11/20 (2006.01)

CPC (source: EP US)

G01K 11/20 (2013.01 - EP US)

Citation (search report)

See references of WO 02073145A1

Designated contracting state (EPC)

AT BE CH CY DE DK ES FI FR GB GR IE IT LI LU MC NL PT SE TR

DOCDB simple family (publication)

FR 2806159 A1 20010914; **FR 2806159 B1 20030307**; EP 1269132 A1 20030102; US 2003048831 A1 20030313; US 7059766 B2 20060613; WO 02073145 A1 20020919; WO 02073145 A8 20030213

DOCDB simple family (application)

FR 0003005 A 20000309; EP 01913981 A 20010312; FR 0100723 W 20010312; US 23968302 A 20020905