

Title (en)

BIREFRINGENT OPTICAL TEMPERATURE SENSOR WITH ADJUSTABLE TEMPERATURE SENSITIVITY

Title (de)

OPTISCHER, DOPPELBRECHENDER TEMPERATURSENSOR MIT EINSTELLBARER EMPFINDLICHKEIT

Title (fr)

CAPTEUR DE TEMPERATURE DE TYPE OPTIQUE BIREFRINGENT A SENSIBILITE REGLABLE

Publication

EP 0819242 A1 19980121 (EN)

Application

EP 96911553 A 19960403

Priority

- US 9604555 W 19960403
- US 41589495 A 19950403

Abstract (en)

[origin: WO9631763A1] An optical temperature sensor for use in a temperature detector system having at least two birefringent crystal elements arranged in tandem. A collimated broad band light source is transmitted via a fiber optic cable, a polarizer to a first birefringent crystal element. The first crystal element decomposes the light wave into first and second orthogonally polarized waves and transmits the wave components to a second birefringent crystal element. The linearly polarized waves propagate through the birefringent crystals, and the environmental temperature introduces a temperature dependent phase shift between the two polarized waves. The light waves exit the second crystal to a second polarizer producing a modulated light spectrum. A focusing element collects the light and transmits it down another fiber optic cable. The cable transmits the light to an opto-electronic interface where the fringe pattern is extracted and a computer compatible signal is generated for a CPU. The CPU performs a Fourier transform on the fringe pattern, where the phase term for a selected frequency is the measure of the environmental temperature experienced by the birefringent crystals.

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IPC 8 full level

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CPC (source: EP)

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Citation (search report)

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