

INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(51) International Patent Classification ⁶:

G01K 15/00

A1

(11) International Publication Number:

WO 98/08067

(43) International Publication Date:

26 February 1998 (26.02.98)

(21) International Application Number:

PCT/US97/14537

(22) International Filing Date:

19 August 1997 (19.08.97)

(30) Priority Data:

08/702,373

23 August 1996 (23.08.96)

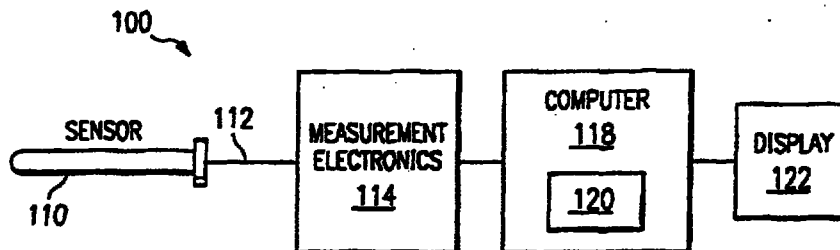
US

(71) Applicant: ACCUTRU INTERNATIONAL CORPORATION
[US/US]; 817 Russell Palmer Road, Kingwood, TX 77339
(US)(72) Inventors: LUNGHOFFER, James, G.; 1143 Chambers Drive,
Colorado Springs, CO 80904 (US). BRANNON, C., Tom;
7306 Birchtree Forest Drive, Houston, TX 77088 (US).
CONNER, Bernard, L.; 2310 Glenburn, Kingwood, TX
77339 (US). TRANSIER, Lee; 3603 Fawn Creek Drive,
Kingwood, TX 77339 (US). CANNON, Collins, P.; 6
Victory Lane, Liberty, MO 64068 (US).(74) Agent: SAMUEL, W., Mathias; Fish & Richardson P.C., P.A.,
Suite 3300, 60 South Sixth Street, Minneapolis, MN 55402
(US).(81) Designated States: AL, AM, AT, AU, AZ, BA, BB, BG, BR,
BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GE,
GH, HU, IL, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR,
LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ,
PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR,
TT, UA, UG, UZ, VN, YU, ZW, ARIPO patent (GH, KE,
LS, MW, SD, SZ, UG, ZW), Eurasian patent (AM, AZ, BY,
KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH,
DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT,
SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, ML,
MR, NE, SN, TD, TG).

Published

With international search report.

(54) Title: SELF-VERIFYING TEMPERATURE SENSOR



(57) Abstract

A self-verifying temperature sensor and method for measuring and verifying the true thermodynamic temperature of a system. The sensor is constructed of various combinations of the following temperature-dependent elements: thermoelements, resistive elements, capacitive elements and other inductive elements. In the preferred embodiment, the sensor is constructed of resistive element connected between four thermoelement wires. A fifth thermoelement wire is connected to the resistive element. The sensor produces a data signature from various voltage, resistance, inductance, and capacitance measurements. Measurement electronics collect and condition the data signature. A computer analyzes the data signature and provides the system operator with a verified sensor temperature, thus, allowing the system operator to recognize and account for drift or decalibration of the sensor. The self-verifying temperature sensor can also be recalibrated in situ, thereby eliminating the necessity of sensor removal to verify recalibration.