FIG. 4 illustrates schematically the electronic circuit 16 of the sensor of the present invention which includes the individual receptor cells, the temperature sensor 17, the multiplexer 15, transmitter 3 and the control logic 18. The receptor cells 2 and the temperature sensor 17 are connected to the multiplexer 15, which is connected to the transmitter 3 for the broadcast of the measurement signals, to the solar cells 10 for power supply purposes, and to the control logic 18 for control of the data transmission.

A suitable multiplexer is Model MC 14051 from the firm Motorola Semiconductor Products Inc., USA.

A suitable control logic is a digital CMOS circuit for sequencing signals for transmission comprising different electronic components of the MC 14 . . . series from the firm Motorola Semiconductor Products Inc., USA.

The solar cells used are preferably the Model SSC-8-1010H from the firm KODENSHI Ltd., Kyoto, Japan, and under normal testing conditions will produce a current of at least 23 milliamperes at 6.5 volts. The model numbers and manufacturers of the preferred photo cells 2', 2'' and 2''' are, respectively, as follows:

Manufacture: Hamamatsu, TVCO, Ltd., 1126, ICHINO-CHO, Hamamatsu, Japan

cells 2' and cells 2'': Type G1126-02

cell 2''': Type S1226-5BQ

We claim:

1. A compact, revolvable, self-contained and electrically self-sufficient simulated-solar-radiation and temperature measuring sensor adapted for use in a weather resistance testing chamber,

comprising, in accordance with the invention,

a sealed housing (1) transparent to the simulated solar radiation to be measured,

a plurality of receptor cells (2', 2'', 2''') disposed in said housing, said receptor cells each comprising an interference filter (12) and at least one diffusing lens (13) in front of a photocell (11) and being responsive to differing wavelength ranges of incident radiation and generating signals representing radiation received,

a multiplexer (15) connected to said receptor cells and sequencing said signals for serial transmission,

a plurality of solar cells (10) disposed in said housing and generating, entirely from incident simulated solar radiation, sufficient electrical power for generation and transmission of said signals, and

a single radio transmitter (3) connected to said multiplexer (15) for radio transmission of said signals, during revolution of said sensor, to a stationary receiver.

2. The sensor of claim 1, wherein said housing (1) comprises

a cylindrical quartz glass tube (4) having two ends,

a circular detachable stopper (5) at each of said ends of said tube (4),

means (7) for adjustably securing said stoppers (5) in spaced relation to each other, and

gasket means (6) for forming a seal between each stopper (5) and a circular peripheral edge of an end of said tube (4).

3. The sensor of claim 2, wherein said quartz glass tube (4) has an inner surface,

said inner surface bearing a film (9) which limits transmission of infrared radiation.

4. The sensor of claim 2, wherein said securing means (7) comprises a threaded rod which screws into each of said stoppers.

5. The sensor of claim 2, wherein a plurality of said receptor cells (2) are arranged in a row parallel to the longitudinal axis of said cylindrical quartz glass tube (4).

6. The sensor of claim 5, wherein said solar cells are arranged in a row with said receptor cells.

7. The sensor of claim 1, wherein at least one (2'') of said receptor cells (2) is responsive to radiation in the ultraviolet wavelengths from 300 to 400 nm and at least one (2''') of said receptor cells is responsive to ultraviolet and visible radiation in the spectral range from 300 to 800 nm.

8. The sensor of claim 7, wherein four (2') of said receptor cells are respectively responsive to radiation in partial ultraviolet wavelength ranges from 300 to 320 nm, 330 to 350 nm, 355 to 375 nm, and 380 to 400 nm, a further receptor cell (2'') is responsive to the complete ultraviolet spectral range from 300 to 400 nm, and

yet another receptor cell (2''') is responsive to the entire ultraviolet and visible spectral range from 300 to 800 nm.

9. The sensor of claim 8, wherein said receptor cells (2') for the four partial ultraviolet spectral ranges comprise an interference filter (12), an apertured partition (14) and a diffusing lens (13) disposed in front of a photo cell (11), and

the remainder of said receptor cells (2'', 2''') each comprise an interference filter (12) and two diffusing lenses (13) in front of a photo cell (11).

10. The sensor of claim 1, further comprising a connection terminal (19) on said housing (1) for a temperature measuring device.

11. The sensor of claim 1, further comprising control logic (18) connected to and regulating said multiplexer (15) and said transmission means (3).

12. The sensor of claim 11, wherein said control logic is a digital CMOS circuit.

13. The sensor of claim 1, further comprising

means (19) on said housing for connecting said sensor to an external temperature sensor (17).

14. The sensor of claim 1, wherein said multiplexer is a Motorola Model MC 14051.

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