FORM 2

THE PATENTS ACT, 1970
(39 of 1970)
AND
THE PATENTS RULES, 2003

COMPLETE SPECIFICATION

(See Section 10; rule 13)

TITLE OF THE INVENTION

"SENSORED CABLE FOR A POWER NETWORK"

APPLICANT

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The following specification particularly describes
the invention and the manner in which
it is to be performed

CLAIMS

1. Sensored cable (1) for distribution of electrical power in a power network, the sensored cable (1) comprising an inner conductor (5) and an insulating layer (10) arranged concentrically around at least an axial section of the inner conductor (5),
wherein the sensored cable (1) further comprises a capacitive voltage sensor (100) for sensing a voltage of the inner conductor (5),
characterized by
the sensor (100) including a printed circuit board element (60),
the printed circuit board element (60) being placed over an electrically isolated piece (40, 140) of conductive or semiconductive material,
the electrically isolated piece (40, 140) of conductive or semiconductive material being arranged on the insulating layer (10) of the cable (1) and being operable to form an electrode of a sensing capacitor of the capacitive voltage sensor (100).

2. Sensored cable (1) according to claim 1, wherein the printed circuit board element (60) is in electrical contact with the electrically isolated piece (40, 140) of conductive or semiconductive material.

3. Sensored cable (1) according to any one of claims 1 or 2, wherein the printed circuit board element (60) comprises a double-sided printed circuit board (60).

4. Sensored cable (1) according to any one of claims 1 to 3, wherein the printed circuit board element (60) comprises an exposed conductive region (62) providing an extended two-dimensional surface contact area, wherein the exposed conductive region (62) is in mechanical and electrical contact with the electrically isolated piece (40, 140) of conductive or semiconductive material in two dimensions and over an extended area.

5. Sensored cable (1) according to claim 4, wherein the exposed conductive region (62) comprises a gold-plated copper layer.

6. Sensored cable (1) according to claim 4 or 5, wherein the exposed conductive region (62) provides a continuous surface contact area or a patterned surface contact area.

7. Sensored cable (1) according to any one of claims 4 to 6, wherein the printed circuit board element (60) comprises a flexible portion, and wherein the exposed conductive region (62) is arranged on the flexible portion.

8. Sensored cable (1) according to any one of claims 1 to 7, wherein the cable (1) comprises a conductive or semiconductive layer (20), arranged concentrically on at least a portion of the insulating layer (10),
and wherein the electrically isolated piece (40, 140) of conductive or semiconductive material comprises a first portion of the conductive or semiconductive layer (20).

9. Sensored cable (1) according to claim 8, wherein the first portion of the semiconductive layer (20) extends along a full circumference of at least an axial portion of the insulating layer (10).

10. Sensored cable (1) according to any one of the preceding claims, further comprising additional conductive or semiconductive material, arranged concentrically around at least an axial section of the insulating layer (10) on either side of the electrically isolated piece (40, 140) of conductive or semiconductive material, the additional conductive or semiconductive material comprising two conductive or semiconductive axial sections, the two axial sections being electrically isolated from the electrically isolated piece of conductive or semiconductive material by non-conductive axial sections (150).

11. Sensored cable (1) according to claim 10, wherein the cable (1) comprises a conductive or semiconductive layer (20), arranged concentrically on at least a portion of the insulating layer (10),
and wherein the additional semiconductive material comprises at least second portions of the conductive or semiconductive layer (20).

12. Sensored cable (1) according to any one of the preceding claims, wherein some or all of the electrically isolated piece (40, 140) of conductive or semiconductive material or of the additional semiconductive material is affixed to the insulating layer (10) by an adhesive (50).

13. Use of a printed circuit board element (60) for electrically contacting a conductive or semiconductive layer (20) of a high-voltage or medium-voltage power network cable (1), wherein the printed circuit board element (60) comprises an exposed conductive region

(62) providing an extended two-dimensional surface contact area, wherein the exposed conductive region (62) is in mechanical and electrical contact with the conductive or semiconductive layer (20) in two dimensions and over an extended area.

14. Use of a printed circuit board element (60) for electrically contacting a conductive or semiconductive layer (20) of a high-voltage or medium-voltage power network cable (1) according to claim 13,
wherein the printed circuit board element (60) comprises a flexible portion.

dated this 19 day of June 2014.

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