

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

“TERMINAL CONNECTION DEVICE FOR A POWER CABLE”

APPLICANT

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

CLAIMS

1. Terminal connection device for connecting an end of a medium- or high-voltage power cable (42) to a connection point, the terminal connection device (10) comprising

5 a) an interface cable (12) having first and second end portions, comprising an inner conductor (14) and a conductive or semiconductive layer (18),

b) a first stress control tube (36) comprising

10 - a stress control element (38), and

- an insulating layer (40) arranged around the stress control element (38),

wherein the first stress control tube (36) is mounted on the first end portion of the interface cable (12);

15 c) a first cable connector (24) for connecting the interface cable (12) to the power cable (42), the first cable connector (24) being connected to the second end portion of the interface cable (12);

d) a second stress control tube (36') comprising

20 - a stress control element (38), and

- an insulating layer (40) arranged around the stress control element (38), wherein the second stress control tube (36') is mounted over the second end portion of the interface cable (12) and at least a portion of the first cable connector (24);

25 e) one or more tubular shrinkable sleeves (52, 52', 52''),

at least a portion of one of the tubular shrinkable sleeves (52, 52', 52'') extending over at least a portion of the first stress control tube (36), and at least a portion of one of the tubular shrinkable sleeves (52, 52', 52'') extending over at least a portion of the second stress control tube (36'),

30 wherein the portion of the tubular shrinkable sleeve (52, 52'') extending over at least a portion of the first stress control tube (36) is shrunk down around at least a portion of the first stress control tube (36).

- 35 2. Terminal connection device according to claim 1, wherein the first cable connector (24) is adapted to be connected to the power cable (42) by engagement between the first cable connector (24) and a mating second cable connector (26) mounted on an end of the power

cable (42).

3. Terminal connection device according to claim 1 or claim 2, wherein a portion of at least one of the tubular shrinkable sleeves (52, 52', 52'') is shrunk down around a portion of the interface cable (12).
4. Terminal connection device according to any one of the preceding claims, wherein the tubular shrinkable sleeve (52, 52') extending over at least a portion of the second stress control tube (36') comprises a portion adapted to be shrunk down around a portion of the power cable (42).
5. Terminal connection device according to any one of the preceding claims, wherein the first end portion of the interface cable (12) is attached to a lug (34).
6. Terminal connection device according to any one of the preceding claims, wherein the stress control element (38) of one or both of the first and second stress control tubes (36, 36') is a geometric stress control element or a dielectric stress control element.
7. Terminal connection device according to any one of the preceding claims, wherein the tubular shrinkable sleeve (52, 52'') extending over at least a portion of the first stress control tube (36) comprises, on an outer side, one or more skirts (56) for reducing tracking current.
8. Terminal connection device according to any one of the preceding claims, wherein the interface cable (12) further comprises an insulating layer (40) arranged concentrically around at least an axial section of the inner conductor (14), and wherein the terminal connection device (10) comprises a capacitive voltage sensor (102) including a printed circuit board element, the printed circuit board element placed over an electrically isolated piece of conductive or semiconductive material, the electrically isolated piece of conductive or semiconductive material arranged on the insulating layer (40) of the interface cable (12) and operable to form an electrode of a sensing capacitor for sensing a voltage of the inner conductor (14), and wherein the insulating layer (40) is operable to form a dielectric of the sensing capacitor.
9. Terminal connection device according to claim 8, wherein the terminal connection device (10) further comprises additional semiconductive material, arranged concentrically around at least an axial section of the insulating layer (40) on either side of the electrically isolated

piece of conductive or semiconductive material, the additional semiconductive material comprising two semiconductive axial sections, electrically isolated from the electrically isolated piece of conductive or semiconductive material by non-conductive axial sections (100).

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10. Terminal connection device according to any one of claims 8 through 9, wherein some or all of the electrically isolated piece of conductive or semiconductive material or of the additional semiconductive material is affixed adhesively to the insulating layer (40).

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11. Terminal connection device according to any one of claims 8 through 10 wherein the printed circuit board element comprises a patterned gold-plated copper layer in electrical contact with the electrically isolated piece of conductive or semiconductive material.

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12. Terminal connection device according to any one of claims 8 through 11 wherein the electrically isolated piece of conductive or semiconductive material comprises a portion of the semiconductive layer (18) of the interface cable (12).

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13. Method of connecting an end of a medium- or high-voltage power cable (42) to a connection point, comprising the steps of

a) providing a terminal connection device (10) according to any one of claims 1 through 12;

b) providing a medium- or high-voltage power cable (42);

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c) connecting the terminal connection device (10) to an end of the power cable (42) by connecting the interface cable (12) to the end of the power cable (42) via the first cable connector (24); and

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d) connecting the terminal connection device (10) to the connection point by connecting the first end portion of the interface cable (12) to the connection point.

Dated this 19 day of June 2014