

CTL DECISION SHEET

Standard: IEC 60730-1:1999 (3 rd ed.)+ A1:2003 + A2:2007	Sub clause(s): 20.2.2	Sheet n°: DSH-657
Subject: Characterizing the pollution degree of the micro-environment within a sealed device that has switching contacts	Key words: - pollution degree - switching contacts	Decision approved by the 46th CTL plenary meeting 2009

Question:

Clause 20.2.2 of IEC 60730-1 states that creepage distances for operational insulation shall be as specified in table 20.4 based on the material group and the pollution degree. What is the pollution degree of the micro-environment within a sealed control that has switching contacts?

Example: Bimetal temperature sensing device.

IEC 60730-2-9 does not give any additional guidance.

Even though the micro-environment is sealed (by construction) from influence by the external environment, the pollution situation can be conductively contaminated due to ionization of the contact material and out-gassing of the plastic parts that may be near the switching mechanism.

This is very similar to sealed relays covered under IEC 61810-1. In this standard, creepage distances inside a relay are specified in accordance with pollution degree 2.

Decision:

For controls, an endurance test and a high voltage test in combination are required.

If sealed contacts of a control have passed the endurance test and the high voltage test, it could be assumed that the pollution and the ionized gases in the sealed control does not influence the creepage and clearances of the control. Therefore pollution degree 2 in accordance to Annex N (normative) of IEC 60730-1 could be defined.

Explanatory notes:

It is not the task of CTL to modify standards or to amend standards. Therefore it is not possible to decide to apply Annex L of IEC 61058-1 for the problem mentioned.
In principle the decision follows the present practice but is in line with Annex L of IEC 61058-1.

In Europe this problem has been discussed by CLC/TC 72 of CENELEC. With document CLC/prTR 50455 "List of interpretations on EN 60730 series" (=IEC 60730) it has been defined:

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08/01/19/11.1

Paris, November 2004, TC72/Sec0189/RM, item 11.1

**EN 60730-1: 2000, Automatic electrical controls for household and similar use -
Part 1: General requirements**

Annex N

'Conductive pollution described in Subclause N.1 note 2 should be considered as pollution degree 2 unless the area is affected by other pollution, in which case the pollution degree corresponding to the other pollution applies.

If this interpretation is not accepted, then controls which previously passed according to the requirements for operational insulation of the previous edition may not meet the requirements for pollution degree 3 of this edition.'

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At present this subject is under discussion of IEC/TC 72. So this PDSH is only temporarily.