

Measurement Categories according to IEC/EN 61010-031

To facilitate the assignment of test accessories to the appropriate applications, standard IEC/EN 61010-031 has established a number of categories which define where they can be used in the power supply network and to lay down appropriate requirements for each category.

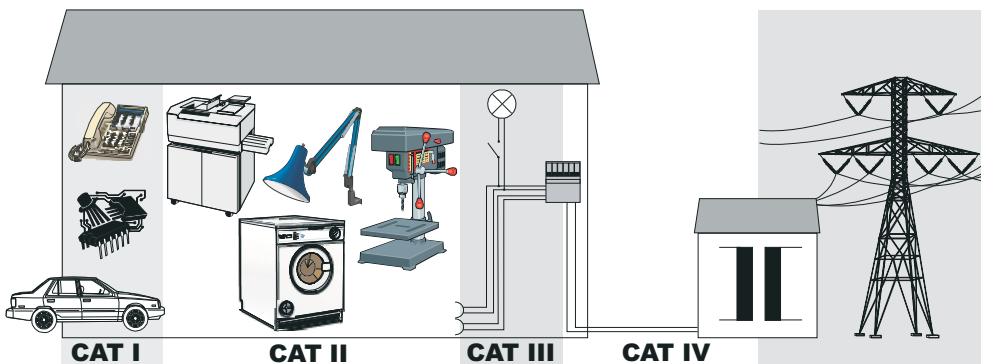
Formerly (until 2002), the measurement categories now defined in standard IEC/EN 61010-031 were designated as overvoltage categories. This term originated from the fact that the classification was based primarily upon the overvoltages (surges) that were likely to occur in the mains supply.

Actually the measurement categories differ not so much in the level of the expected transient values as with regard to the available energy in each test category in the event of a short circuit.

In a higher measurement category more energy can be released than in a lower one, with results that may even have an explosive like character with very serious consequences for the user.

In standard EN 61010-031 there are four different test categories, abbreviated "CAT". The category CAT followed by a number from I to IV is stated in our catalogues with the rated voltage, and also marked on the products.

As a general rule, the higher the CAT rating, the higher the safety requirement that applies to the product. One exception is CAT I → Page 9.



Overview of measurement categories according to IEC/EN 61010-031 (VDE 0411-031)

Measurement Categories according to IEC/EN 61010-031

CAT I

Applies to test objects that are not connected to the mains. Here, either no overvoltages occur or only quite specific ones which are not, however, specified in the insulation coordination. In order to establish the requirements for this CAT, it is therefore necessary to know what overvoltages can occur.

From now on, CAT I will also include all test objects that cannot be assigned to CAT II to CAT IV. Renaming as 0 or CAT 0 may be considered in future.

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CAT II

Applies to measurements on equipment that is connected to the mains or supplied from the mains without constituting a part of the mains installation.

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CAT III

Applies to measurements inside the house or building installation.

Examples → Page 10

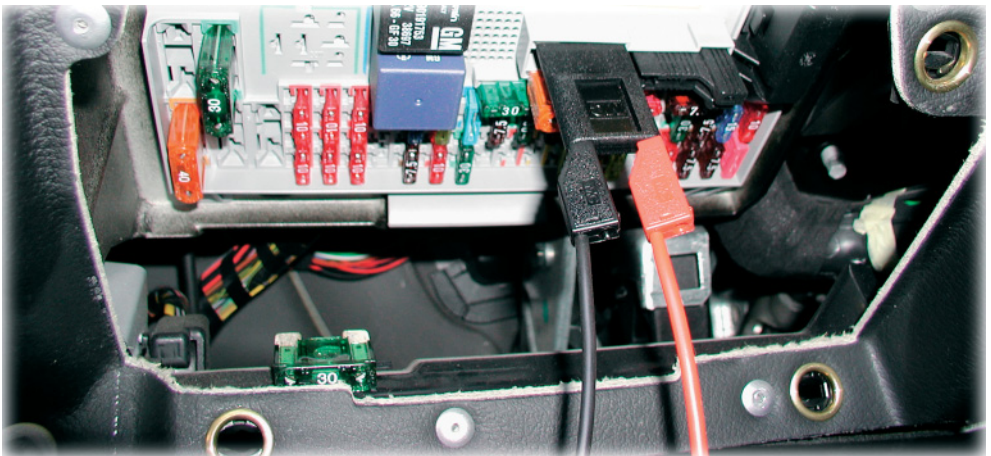
CAT IV

Applies to measurements at the supply source of the installation (input side).

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Measurement Category CAT I

Inside battery-operated electronic equipment or inside devices in which voltages are generated.

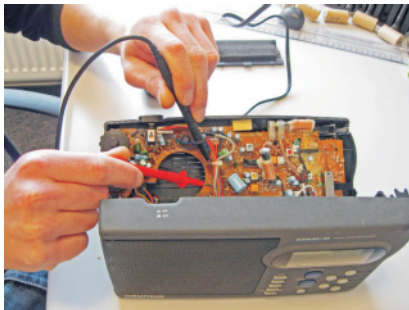
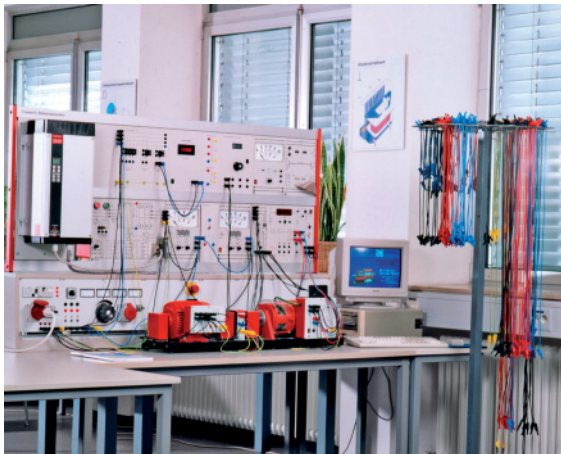


Example: Measurement in motor vehicle (here with automobile fuse adapter PA2-5X0,65/B4)

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Measurement Category CAT II

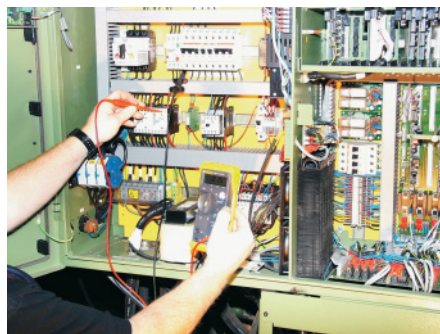
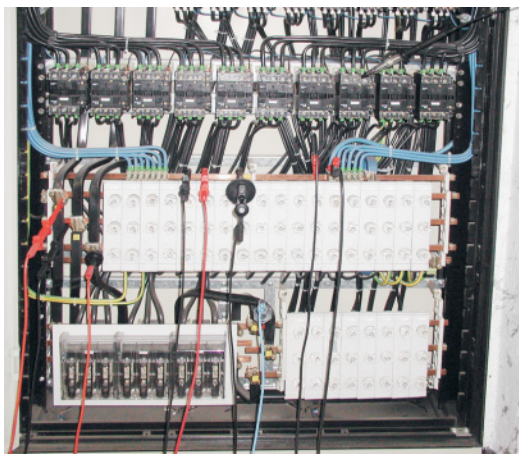
Electrical equipment between appliance and power socket, or inside electrical equipment such as domestic appliances (Repair shops).



Examples: Electrical laboratory in training establishment and test connection in electronic device

Measurement Category CAT III

Installations in buildings, contactors, protective devices, switches, power sockets (electricians).



Examples: Measurements in fuse boxes and switch boxes

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Measurement Category CAT IV

Secondary side of medium-voltage transformers, electricity meters, connection to overhead lines (employees of power distribution companies).



Example: House junction box and examples of measuring accessories for CAT IV