Insulation Class

Fandis products are protected against electric shock in compliance with the harmonized product standards, mainly EN 60335-1 and EN 60730-1.

They can be divided into Class I, II or Class III appliances.

Class I appliances (or control devices) are those in which protection against electric shock is not based solely on the basic insulation, but also by connecting the conductive accessible parts to a protective earth conductor. Therefore, this class of equipment can count on an additional safety measure, and they are safe even in the event of a first fault, because the conductive accessible parts do not become dangerous in the event of the main insulation failure.

The protective earthing terminals, or its preparation by means of a threaded hole with screw on the metal part of the appliance, must be indicated by the symbol 5019 of the IEC 60417 standard;

For example, the following Fandis products belong to this class:

- compact fans with metal casing, which have the predisposition for the connection of the earthing conductor through a threaded hole in the casing with screw and toothed washer already assembled;
- filter units that mount class I fans; in this case, the earthing is already set up in the power supply terminal, by means of a dedicated pole marked with the earthing symbol.

Class II appliances (or control devices) are those whose protection against electric shock is not based solely on the main insulation, but also on additional safety measures consisting of double insulation or reinforced insulation. These measures exclude protective earthing and do not depend on the installation conditions.

This category includes appliances with a continuous casing of insulating material that encloses all metal parts, with the exception of small parts such as screws that are isolated from live parts by means of insulation at least equivalent to reinforced insulation;

Class II appliances must be marked with the symbol 5172 of the IEC 60417 publication.

For example, the following Fandis products belong to this class:

- thermostats and hygrostats, whose insulation is to be considered reinforced, because it consists of a plastic casing of suitable thickness, such as to guarantee compliance with the requirements of double insulation;
- some special models of fans with motor encapsulated in resin (potted); the potting has the purpose of making the fan of IP55 degree, but as a side effect it makes it doubly insulated from the electrical point of view, as the resin is an electrical insulator that is added to the basic insulation of the motor.

Class III appliances (or control devices) are those whose protection against electric shock is based on the power supply from a safety extra low voltage system and in which no voltages exceeding the the safety extra low voltage are generated.

Safety Extra-Low Voltage or briefly SELV is defined as a nominal voltage not exceeding 42 V between the conductors and between the conductors and the earth; the no-load voltage must not exceed 50 V.

If a very low safety voltage is obtained from the supply mains, this must be achieved by means of a safety isolating transformer, whose insulation complies with the requirements of double insulation or reinforced insulation, and which, powered at its rated voltage, does not exceed voltage limits specified above to the product it feeds.

For example, a fan with a nominal power supply not exceeding 50V must be declared in class III only if it is powered by SELV; therefore it depends on the final application in which the fan will be installed, if the fan is not sold with its own SELV power supply integrated. If, on the other hand, the fan is sold complete with its own power supply with isolated transformer, then it can be declared in class III.

Class III appliances must be marked with the symbol 5180 of the IEC 60417.

	[symbol IEC 60417- 5019 (2006-08)]	protective earth
	[symbol IEC 60417- 5172 (2003-02)]	class II equipment
	[symbol IEC 60417-5180 (2003-02)]	Class III appliance

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