

# INTERNATIONAL STANDARD

# NORME INTERNATIONALE

AMENDMENT 2  
AMENDEMENT 2

Household and similar electrical appliances – Safety –  
Part 2-76: Particular requirements for electric fence energizers

Appareils électrodomestiques et analogues – Sécurité –  
Partie 2-76: Règles particulières pour les électrificateurs de clôtures

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WITHDRAWN



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## FOREWORD

This amendment has been prepared by subcommittee 61H: Safety of electrically-operated farm appliances, of IEC technical committee 61: Safety of household and similar electrical appliances.

The text of this amendment is based on the following documents:

FDIS	Report on voting
61H/287/FDIS	61H/289/RVD

Full information on the voting for the approval of this amendment can be found in the report on voting indicated in the above table.

The committee has decided that the contents of this amendment and the base publication will remain unchanged until the stability date indicated on the IEC web site under "<http://webstore.iec.ch>" in the data related to the specific publication. At this date, the publication will be

- reconfirmed,
- withdrawn,
- replaced by a revised edition, or
- amended.

NOTE The attention of National Committees is drawn to the fact that equipment manufacturers and testing organizations may need a transitional period following publication of a new, amended or revised IEC publication in which to make products in accordance with the new requirements and to equip themselves for conducting new or revised tests.

It is the recommendation of the committee that the content of this publication be adopted for implementation nationally not earlier than 12 months or later than 36 months from the date of publication.

## CONTENTS

*Replace the title of Clause 3 but not the clause number, by the following:*

Terms and definitions

*Replace the title of Clause 28 but not the clause number, by the following:*

Screws and connections

## INTRODUCTION

*Replace the fifth paragraph by the following:*

When a part 2 standard does not include additional requirements to cover hazards dealt with in Part 1, Part 1 applies.

NOTE 1 This means that the technical committees responsible for the part 2 standards have determined that it is not necessary to specify particular requirements for the appliance in question over and above the general requirements.

This standard is a product family standard dealing with the safety of appliances and takes precedence over horizontal and generic standards covering the same subject.

NOTE 2 Horizontal and generic standards covering a hazard are not applicable since they have been taken into consideration when developing the general and particular requirements for the IEC 60335 series of standards. For example, in the case of temperature requirements for surfaces on many appliances, generic standards, such as ISO 13732-1 for hot surfaces, are not applicable in addition to Part 1 or part 2 standards.

## 2 Normative references

Add the following new references:

IEC 60335-2-29, *Household and similar electrical appliances – Safety – Part 2-29: Particular requirements for battery chargers*

IEC 61204-7, *Low-voltage power supplies, d.c. output – Part 7: Safety requirements*

IEC 61558-2-16, *Safety of transformers, reactors, power supply units and similar products for voltages up to 1 100 V – Part 2-16: Particular requirements and tests for switch mode power supply units and transformers for switch mode power supply units*

ISO 3864-1, *Graphical symbols – Safety colours and safety signs – Part 1: Design principles for safety signs and safety markings*

## 3 Definitions

Replace the title of Clause 3 but not the clause number, by the following:

### Terms and definitions

3.1.6 Delete the addition to this subclause.

3.106 In the term definition, delete “separate”.

3.107 Replace the term definition by the following:

**battery-operated energizer suitable for connection to the mains** consisting of an impulse generating circuit intended to be powered by a battery, or a separate supply unit, when the **energizer** is in operation. The impulse generating circuit or the battery may be connected to a separate **battery charger** for recharging the battery when the **energizer** is in operation.

Note 1 to entry: Examples of separate supply units are power supply units and uninterruptible power supplies.

## 5 General conditions for the tests

5.8.1 Replace the first two paragraphs of the addition by the following:

For **energizers** where the supply terminals for connection of a battery have no indication of polarity, the more unfavourable polarity shall be applied.

Replace the third paragraph of the addition by the following:

For **energizer** tests that require a connection to the mains supply, the reference source impedance of the mains supply shall be  $0,4 \Omega + j0,25 \Omega$ .

## 6 Classification

6.2 Add the following to the addition as a new sentence:

This requirement does not apply to separate supply units of **type D energizers**.

## 7 Marking and instructions

7.1 In the first paragraph replace “symbol 1641 of ISO 7000” by “symbol ISO 7000-0790 (2004-01)”.

Replace the third paragraph by the following:

**Battery-operated energizers** shall be marked with the symbol for “connection to mains-operated equipment prohibited” or with the substance of the following warning:

WARNING: Do not connect to mains-operated equipment including battery chargers

The rules for a prohibition sign in ISO 3864-1, except for colours, apply to the symbol for “connection to mains-operated equipment prohibited”.

A **Type D Energizer** shall be marked with symbol IEC 60417-6181 (2013-03) and the references of the separate supply units that may be used to supply the impulse generating circuit.

7.6 Delete the “dangerous voltage symbol” and its associated text.

Replace [symbol 5017 of IEC 60417] by [symbol IEC 60417-5017 (2006-08)].

Replace the last paragraph by the following:

The symbols for output (Fence) and output (Earth) shall be in accordance with symbols IEC 60417-5036 (2002-10) and IEC 60417-5017 (2006-08) respectively.

Add the following:



[symbol IEC 60417-6181  
(2013-03)]

separate supply unit



connection to mains-operated equipment  
prohibited

7.12 Replace the text of the addition by the following:

Instructions for **battery-operated energizers suitable for connection to the mains** shall

- include a warning against using non-rechargeable batteries while the energizer is powered by the mains;
- state that during charging, vented rechargeable-batteries must be placed in a well-ventilated area.

If the symbol for a separate supply unit or the symbol for “connection to mains-operated equipment prohibited” is used, its meaning shall be explained.

*Add the following:*

#### **7.14 Addition:**

*If symbol IEC 60417-6181 (2013-03) is marked on the appliance, its length shall be at least 12 mm.*

*If the symbol for “connection to mains-operated equipment prohibited” is marked on the appliance, the outer diameter of the circle shall be at least 15 mm.*

*The height of characters used in the warning information that is marked on the appliance shall not be less than that given by a 12 point font.*

#### **7.15 Addition:**

If symbol IEC 60417-6181 (2013-03) is used, one shall be located adjacent to the appliance inlet.

#### **7.101** *Replace the first paragraph of the requirement by the following:*

Unless the correct mode of connection is obvious or irrelevant, the output terminals of the **energizer**, other than dedicated output earth terminals, shall be clearly and indelibly identified using symbol IEC 60417-5036 (2002-10). Dedicated output earth terminals, shall be clearly and indelibly identified using symbol IEC 60417-5017 (2006-08).

*Replace the last paragraph of the requirement by the following:*

The height of characters in the marking shall not be less than that given by an 18 point font and the symbols shall have a height of at least 6 mm.

#### **7.102** *Replace the text of the requirement by the following:*

For **battery-operated energizers** and **battery-operated energizers suitable for connection to the mains**, the supply terminals for connection of the battery shall be clearly indicated by symbol IEC 60417-5005 (2002-10) for positive polarity, and by symbol IEC 60417-5006 (2002-10) for negative polarity, unless the polarity is irrelevant.

## **11 Heating**

**11.5** *In the last paragraph, delete “, when they are connected for **battery charger** supply,”.*

## **14 Transient overvoltages**

**14.101** *Replace the first two dashed items by the following:*

- 14.102 to 14.104 for **mains-operated energizers** and **battery-operated energizers suitable for connection to the mains**;

**14.102** Add the following as a new second paragraph:

**Type D energizers** are further tested as follows.

Each specified separate supply unit is connected to the impulse generating circuit of the **energizer** in turn. The impulse voltages are applied between the **energizer** output terminals and the a.c. input terminals of the specified separate supply unit connected together and the metal plate.

Each specified **battery charger** is connected as for charging the battery. The impulse voltages are applied between the **energizer** output terminals and the a.c. input terminals of the specified **battery charger** connected together and the metal plate. It is not necessary to include a battery during this test.

**14.103** Replace the second dashed item of the existing first paragraph by the following:

- the terminals for connection of the external **battery charger** or separate supply unit, for **type D energizers**.

Add the following after the existing last paragraph:

**Type D energizers** are further tested as follows.

Each specified separate supply unit is connected to the impulse generating circuit of the **energizer** in turn. The impulse voltages are applied between the **energizer** output terminals connected together and the a.c. input terminals of the specified separate supply unit connected together.

Each specified **battery charger** is connected as for charging the battery. The impulse voltages are applied between the **energizer** output terminals connected together and the a.c. input terminals of the specified **battery charger** connected together. It is not necessary to include a battery during this test.

**14.104** Add the following to the end of the paragraph:

For **type D energizers**, the input terminals of the impulse generating circuit are open-circuited.

## **16 Leakage current and electric strength**

**16.1** In first dashed item, bold the words “**suitable for connection to the mains**”.

**16.3** In Table 102, add “mains” before “supply circuit” in two places.

## **18 Endurance**

Replace the third paragraph of the test specification by the following:

**Type D energizers**, are operated under conditions of **normal operation**. The voltage applied is as specified in 11.5.

Add the following to the last sentence of the fourth paragraph of the test specification:

“or until the **energizer** ceases to function due to low battery voltage”



Replace the fifth paragraph of the test specification by the following:

For **type A energizers**, a battery of the largest type for which the **energizer** is designed is connected and placed in the battery compartment. Before starting the test, the battery is discharged to such an extent that the voltage delivered does not exceed 0,75 times its nominal value.

## 19 Abnormal operation

19.1 Delete the modification and add the following to the addition:

**Energizers** are also subjected to the tests of 19.101, 19.102, 19.103, 19.104 and 19.105.

19.13 Replace the second paragraph of the addition by the following:

If the impulse repetition rate is greater than 1,34 Hz, the discharge energy per second into a load consisting of a non-inductive resistor of 500  $\Omega$  shall not exceed 2,5 J/s after 3 min.

## 22 Construction

Add the following:

22.46 Addition:

If programmable **protective electronic circuits** alone are used to ensure compliance with the output characteristics specified in 19.13, the software shall contain measures to control the fault/error conditions specified in Table R.2.

22.112 The **clearance** between parts of opposite polarity for connecting the battery in **battery operated energizers** and in **battery operated energizers suitable for connections to the mains** shall not be less than 2 mm, when the **energizer** is fitted with conductors as in normal use.

Compliance is checked by measurement.

## 24 Components

Replace the text by the following:

This clause of Part 1 is applicable except as follows.

24.1.101 The relevant standard for separate power supply units is IEC 61558-2-6.

Separate power supply units of the switch mode type shall be safety isolating switch mode power supplies complying with IEC 61558-2-16.

The relevant standard for battery chargers is IEC 60335-2-29.

The relevant standard for uninterruptible power supply units is IEC 61204-7.

## 25 Supply connection and external flexible cords

25.8 Replace the text of the addition by the following:

The conductors in flexible leads or flexible cords used to connect the battery in **battery operated energizers** and **type D energizers** shall have a nominal cross-sectional area of not less than 0,75 mm<sup>2</sup>.

## **28 Screw and connection**

*Replace the title of Clause 28 but not the clause number, by the following:*

### **Screws and connections**

## **29 Clearances, creepage distances and solid insulation**

*Delete the Addition and 29.101 and replace the existing text by the following.*

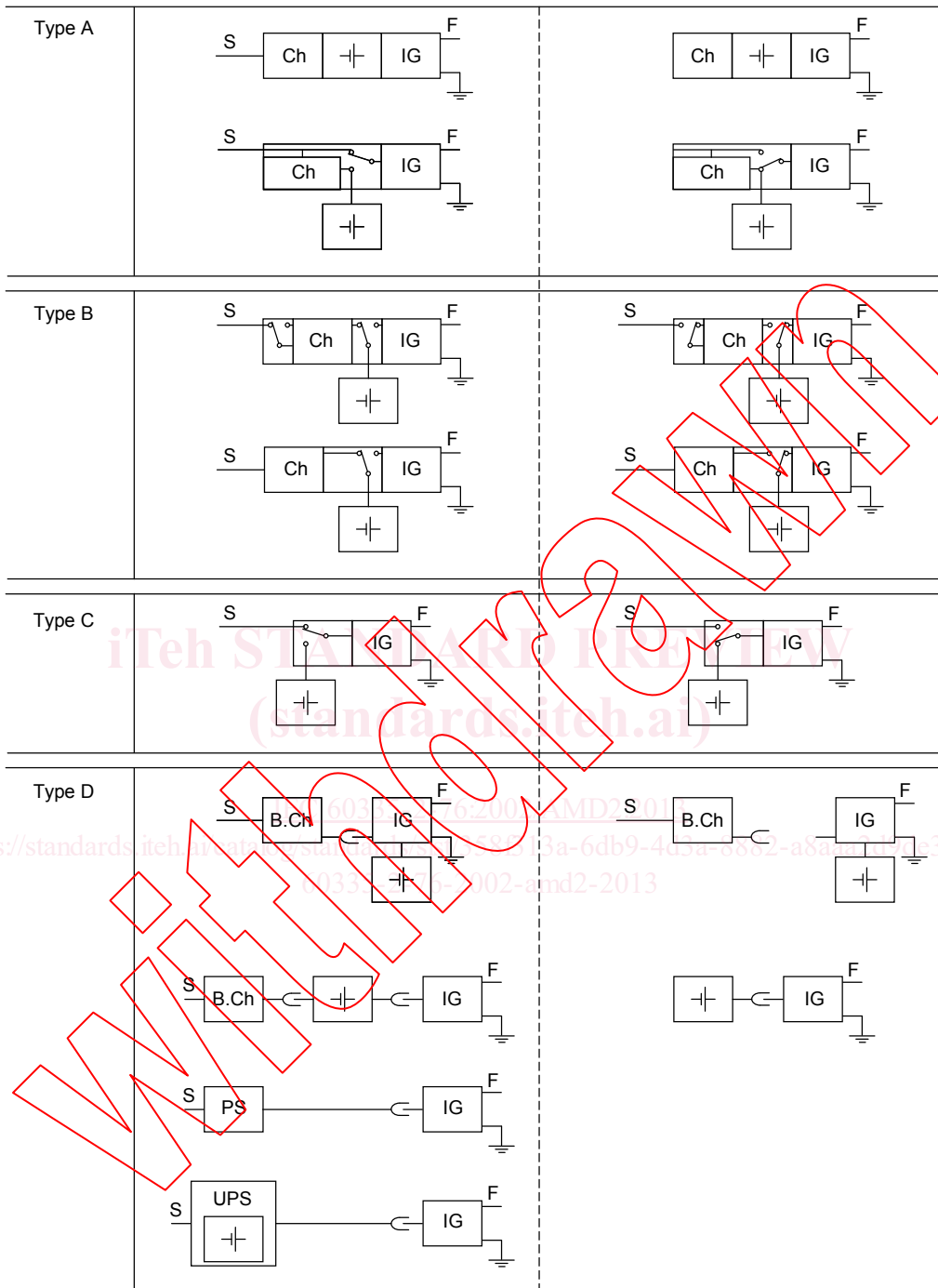
This clause of Part 1 is applicable.

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Replace Figure 101 by the following:



IEC 1195/13

**Key**

- |— battery
- B.Ch separate **battery charger**
- PS separate DC power supply unit
- UPS separate uninterruptible DC power supply unit
- IG impulse generating circuit
- Ch **battery charger** circuit
- S supply mains
- F fence connection

NOTE The fence connection to the **energizer** can have a fence wire return instead of a ground return

**Figure 101 – Schematic examples of the different types of battery-operated energizers suitable for connection to the mains**