

Electric security fences — Design, installation and maintenance — Specification

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Foreword

This Publicly Available Specification, PAS 47, has been prepared by BSI to specify the requirements for the design, installation and maintenance of electric security fences. It was sponsored by the Electric Security Fencing Federation (ESFF), a division of the Fencing Contractors Association (FCA).

NOTE It is strongly recommended that companies and installers are compliant with Sector Schemes for Quality Management for Highways and other Infrastructure Works — Scheme No. 2A [1].

This specification is not intended to restrict new developments in design and materials.

This Publicly Available Specification (PAS) is not to be regarded as a British Standard. It will be withdrawn upon publication of its content in, or as, a British Standard.

Acknowledgement is given to the following organizations that were consulted in the development of this specification and which constitute the Practitioner Standards Development Group of this PAS.

Advanced Perimeter Systems Limited

Allen Fencing Limited

British Security Industry Association

Crime and Fire Defence Systems Limited

Electra Fence Security Limited

Fencing Contractors Association

Gallagher Security (Europe) Limited

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Lantra Awards

Lantra Sector Skills Council

Perimeter Security Solutions Limited

Acknowledgement is also given to the following organizations that were consulted in the development of this PAS.

Association of British Insurers

Police Scientific Development Branch

BSI Technical Committee B/201/2

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Summary of pages

This document comprises a front cover, an inside front cover, pages i to iv, pages 1 to 16, an inside back cover and a back cover.

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Introduction

Due to the increasing number of electric security fencing installations in the UK during the past 10 years and the various and sometimes conflicting codes of practice in operation, this PAS has been produced in order to provide a specification that can be used across the electric security fencing industry.

The specification is applicable in situations where the electric fence is designed to provide both a deterrent effect and a physical security barrier. It therefore sets out the minimum criteria for the physical characteristics for the wire to be used in the barrier.

The PAS does the following:

- a) addresses the specification and quality for manufactured products;
- b) provides guidance for the client in their selection of installation companies which, by their compliance with this standard, have the ability to design, install and maintain an electric security fence system;
- c) addresses competences and training requirements of electric fence installers.

1 Scope

This PAS specifies requirements for the design, installation and maintenance of electric security fences.

It is applicable to installations where the fence is to provide both a deterrent effect and a physical barrier.

It is not intended that this PAS outlines the specific method to be used in construction. Construction specifics are covered in the appointed approved manufacturers installation courses and material available only to accredited installation dealers and marketing partners.

2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

BS 4737 (all parts), *Intruder alarm systems*.

BS 7671, *Requirements for electrical installations — IEE wiring regulations. Sixteenth edition*.

BS EN 10244-2, *Steel wire and wire products — Non-ferrous metallic coatings on steel wire — Zinc or zinc alloy coatings*.

BS EN 50131-1, *Alarm systems — Intrusion systems — Part 1: General requirements*.

BS EN 60335-2-76:1999, *Specification for safety of household and similar electrical appliances — Particular requirements — Particular requirements for electric fence energizers*.

BS EN ISO 1461, *Hot dip galvanized coatings on fabricated iron and steel articles — Specifications and test methods*.

PD 6662, *Scheme for the application of European Standards for intruder alarm systems*.

3 Terms and definitions

For the purpose of this PAS, the following terms and definitions apply.

3.1

accessory equipment

product other than the security controllers or security energizers, e.g. switching equipment, expansion modules, interface modules

3.2

ancillary equipment

electrical equipment used in the security installation

3.3

backup battery

battery source of no less than eight hours to facilitate the activation and transmission of an alarm condition for a short duration if the normal power supply has been tampered with by an intruder

NOTE 1 This is not considered to be an alternative power supply. An example of an alternative power supply is a back-up generator.

NOTE 2 This should conform to BS 4737 (currently eight hours) until such time as it is superseded by BS EN 50131-1 and would only apply to the common control equipment. This would facilitate the activation of an alarm transmission and low battery signal if the normal power supply has been lost for any reason.

3.4 configuration

means of uniquely connecting fence wires to suit the geographical and security requirements of the site

3.5 deterrent pulse

short duration of electricity measuring no more than 5 J when measured into a 500 Ω load separated by a minimum of 1 s intervals

3.6 earth electrode

metallic object intended to provide effective electrical contact with earth (e.g. an electrical earth stake)

NOTE This is part of the fence earth system.

3.7 electric security fence

array of un-insulated strained conductors held in supporting intermediate insulators for the purpose of protection of people, property and/or information

NOTE 1 Used for security detection and deterrent purposes, the electric security fence is connected to a security energizer controller. It is typically constructed as an array of conductive wires (deterrent pulsed and earth or LV conductors).

NOTE 2 The electric security fence may be internal, external, a self-standing barrier, or part of another barrier. The electric security fence may be angled and is intended to be in free air.

3.8 energizer

appliance intended to regulate and control the supply of electric energy to electric security fencing systems

3.9 fence zone

identifiable section of the electric security fencing system which can be divided electrically into multiple fence zones to help identify the location of attack or tampering

NOTE Sometimes known as the “fence circuit”.

3.10 fence earth system

system that ensures a conductive path between the energizer and an effective earth for the electric security fencing system

NOTE “Earth” is used in this document to mean the potential of the physical surrounding terra firma. In some regions the term “ground” is used.