BRITISH STANDARD

BS 5992-6: 1984

Electrical relays —

Part 6: Specification for the basic modules for the dimensions of general purpose all-or-nothing relays

UDC 621.318.5-544

Committees responsible for this British Standard

The preparation of this British Standard was entrusted by the General Electrotechnical Engineering Standards Committee (GEL/-) to Technical Committee GEL/5 upon which the following bodies were represented:

BEAMA Transmission and Distribution Association
British Telecommunications
Electricity Supply Industry in England and Wales
Electronics Components Industry Federation
Institution of Electrical Engineers
Ministry of Defence
Telecommunication Engineering and Manufacturing Association (TEMA)

The following bodies were also represented in the drafting of the standards through subcommittees and panels:

Association of Control Manufacturers TACMA (BEAMA)
Association of Manufacturers Allied to the Electrical and Electronic Industry (BEAMA)
Electronic Engineering Association
Greater London Council
National Supervising Inspectorate
Society of British Aerospace Companies Limited

This British Standard, having been prepared under the direction of the General Electrotechnical Engineering Standards Committee, was published under the authority of the Board of BSI and comes into effect on
31 May 1984

The following BSI references relate to the work on this standard:
Committee reference GEL/5
Draft for comment 77/22764 DC

ISBN 0 580 13861 5

Amendments issued since publication

Amd. No.	Date of issue	Comments

Contents

Foreword

This Part of this British Standard, which has been prepared under the direction of the General Electrotechnical Engineering Standards Committee, is technically equivalent to IEC Publication 255-18 "Electrical relays, Part 18: Dimensions for general purpose all-or-nothing relays", published in 1982 by the International Electrotechnical Commission (IEC). Most of the text is identical to the international document. Where changes have been made this has been done to clarify the meaning of the text and to render the scope of the document more precise.

Those Parts of IEC Publication 255 "Electrical relays" which are concerned primarily with protection relays are incorporated where required into BS 142 "*Electrical protection relays*". Other Parts of IEC Publication 255 which are implemented as British Standards form, or will form, Parts of this British Standard[1)].

Some Parts of IEC Publication 255 are designated first level documents, i.e. they cover the requirements of all relays within the scope of IEC Technical Committee No. 41, Electrical relays. Other Parts of IEC Publication 255 are designated lower level documents, i.e. they are concerned with the requirements of a family of relays (second level) and of smaller and more specialized groups of relays within such a family (third and fourth level).

According to this system of classification this is a third level document.

A British Standard does not purport to include all the necessary provisions of a contract. Users of British Standards are responsible for their correct application.

Compliance with a British Standard does not of itself confer immunity from legal obligations.

Summary of pages

This document comprises a front cover, an inside front cover, pages i and ii, pages 1 to 8, an inside back cover and a back cover.

This standard has been updated (see copyright date) and may have had amendments incorporated. This will be indicated in the amendment table on the inside front cover.

[1)] Parts of IEC 255 that form part of the IEC Q Quality Assurance System will also carry a QC series number beginning with the digits 16. The corresponding British Standards will then become Parts of BS 9916.

1 Scope

This Part of BS 5992 specifies the basic dimensional modules to be used in determining the external dimensions of general purpose all-or-nothing relays and the location of their terminal and fixing centres. It applies equally to all such relays regardless of their type of construction (e.g. electromechanical, electronic, reed, etc.) and includes the height of the socket when the relay is socket-mounted.

It also defines the external dimensions and gives preferred values for these in terms of multiples of the specified modules.

This standard does not apply to relays standardized by the International Organization for Standardization (ISO) (TC 20, Aircraft and space vehicles) or to the internal construction of relays or to the size of fixing arrangements and terminals (see flow-chart).

The object of this standard is to state the following for the external dimensions and location of terminal and fixing centres for general purpose all-or-nothing relays:

a) definitions (clause **2**);

b) basic module and recommended multipliers (clause **3**) for:

1) socket-mounted relays (clause **4**);

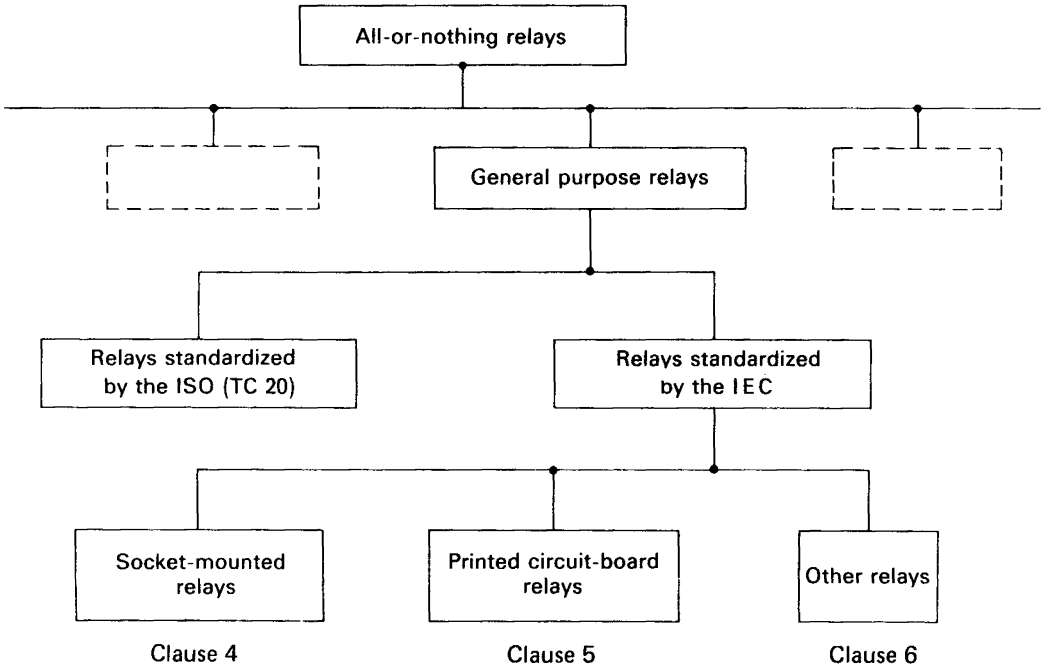
2) relays for printed circuit boards (clause **5**);

3) other relays (clause **6**).

All dimensions given in this standard are in millimetres.

External dimensions are given in integer multiples of the basic module whose value is specified for the various types of relay.

NOTE The titles of the publications referred to in this standard are listed on the inside back cover.



2 Definitions

For the purposes of this Part of BS 5992 the following definitions apply.

2.1
general purpose relays

general purpose relays are all types of electrical relays, independent of application, with fixing devices and terminals

2.2
dimensions

the external dimensions of relays together with their fixing devices and terminals are given in terms of the symbols marked in the general diagram of Figure 1 and the particular example of Figure 4

2.3
basic module

module is a unit of size used as an increment in modular co-ordination (ISO 1791)

the basic module M is a step in a grid system as shown in Figure 2 and Figure 3

3 Location of terminal and fixing centres

The terminal and fixing centres, which may be on one or more planes, shall be located on, or mid-way between, the intersections of the standard grid compatible with the particular surface of the relay (see **4.2**, **5.2.1**, **6.1** and Figure 2 and Figure 3).

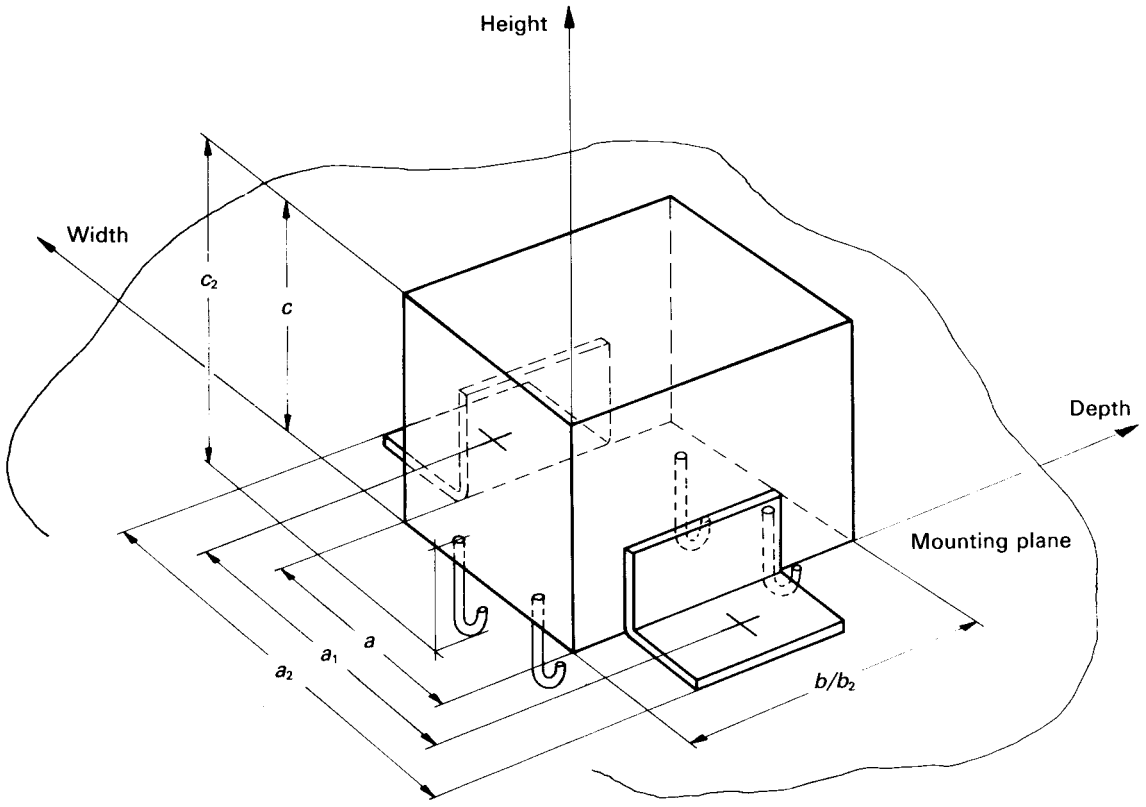


Figure 1 — Designation of external dimensions, fixing devices and terminals for relays

NOTE to Figure 1 to Figure 4. In the figures

$a\ b\ c$	are the *maximum dimensions* of width, depth and height of the relay *excluding* terminals, sockets and fixing devices.
$a_1\ b_1\ c_1$	(where applicable) are the nominal distances between the centres of the fixing points. (b_1 and c_1 are not shown in Figure 1). Example of b_1 is shown in Figure 4.
$a_2\ b_2\ c_2$	are the *maximum overall dimensions* of the relay *including* terminals, sockets and fixing devices, a_2, b_2 and c_2 do not include any additional space which may be necessary when mounting due to environmental factors such as stray magnetic fields.
$a_2\ Xb_2$	the area parallel to the mounting plane is defined as the *mounting surface*.
c_3	is the total height of relay plus socket above the mounting plane (see Figure 4) when both parts are correctly mated.

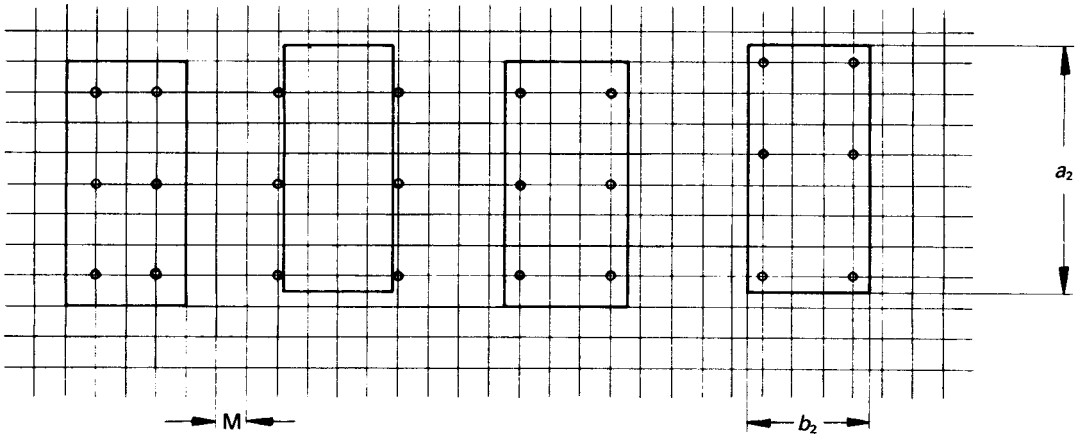


Figure 2 — Example of location for the centres of terminals on one plane of the standard grid

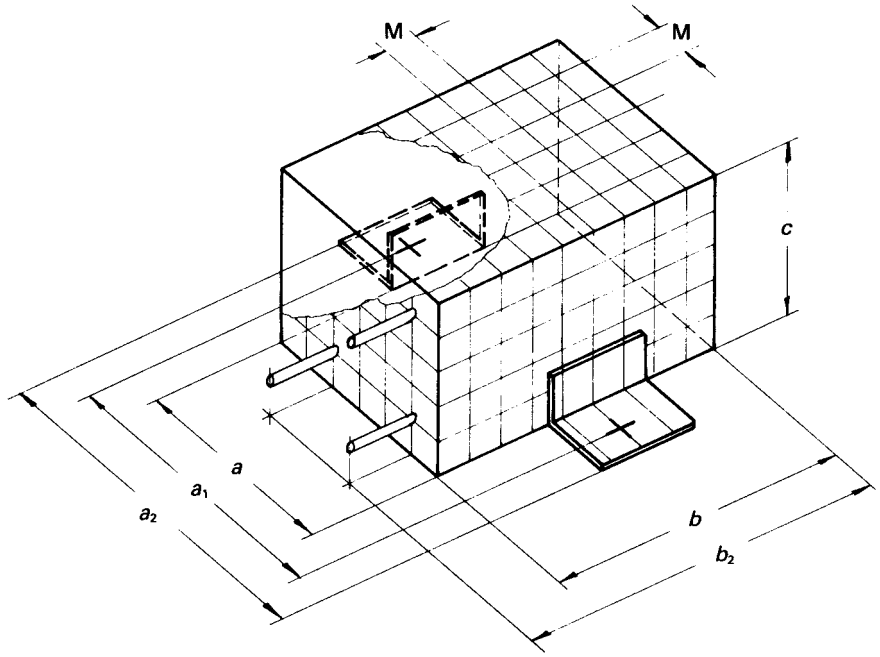


Figure 3 — Example of location for the terminal and fixing centres on two planes of the standard grid

4 Socket-mounted relays

4.1 General. Only relays designed as socket-mounted relays are dealt with. Relays for use on printed circuit boards, directly or with an intermediate socket, are dealt with in clause **5**.

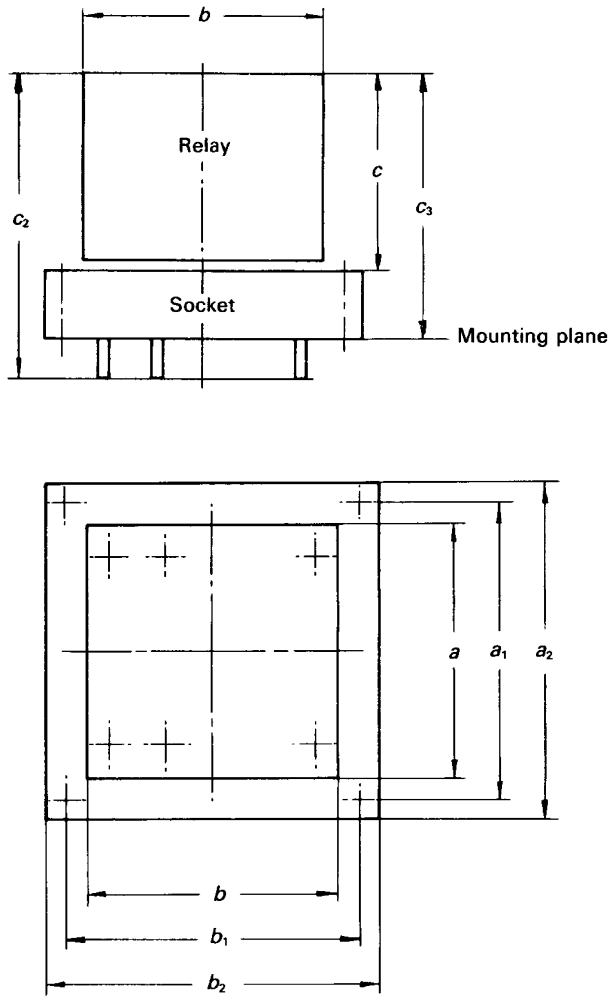


Figure 4 — Example of socket-mounted relay

4.2 Basic module. The basic module for all dimensions shall be 2.50 mm.

4.3 Table of multipliers. Multipliers for socket-mounted relays shall be selected according to Table 1.

Table 1 — Multipliers for socket-mounted relays

Multipliers	Corresponding value	Dimensions		
n	mm	a_2, b_2	c_2	c_3
4	10.0	–	–	+
5	12.5	○	–	–
6	15.0	○	+	+
7	17.5	–	–	–
8	20.0	+	+	+
9	22.5	–	–	–
10	25.0	+	+	+
11	27.5	–	–	–
12	30.0	○	+	+
13	32.5	–	–	–
14	35.0	○	–	–
15	37.5	○	○	–
16	40.0	○	–	○
18	45.0	–	–	–
19	47.5	–	–	–
20	50.0	+	+	○
25	62.5	○	○	+
30	75.0	+	+	○
40	100.0	○	○	○
50	125.0	○	○	+
60	150.0	○	○	○

Key
+ recommended and preferred
○ recommended
– not recommended

5 Relays for printed circuit boards

5.1 General. Only relays designed for mounting on printed circuit boards directly or with an intermediate socket, are dealt with in this clause.

NOTE Dimensions of terminals are dealt with in **5.6** of IEC Publication 321:1970.

5.2 Basic module

5.2.1 The basic module for the mounting surface shall be 2.50 mm.

5.2.2 The basic module for the location of terminal and fixing centres shall be 2.54 mm in accordance with BS 5830 (see Figure 5).

5.2.3 The basic module for height c shall be 2.50 mm. For relays with c less than 25 mm, **4.3** of IEC Publication 321:1970 shall apply.

5.2.4 When the dimensions a_2, b_2, or both a_2 and b_2, are less than 5 mm, the module for the relative dimension(s) shall be 1.25 mm.

5.3 Table of multipliers. Multipliers for relays for printed circuit boards shall be selected according to Table 2.

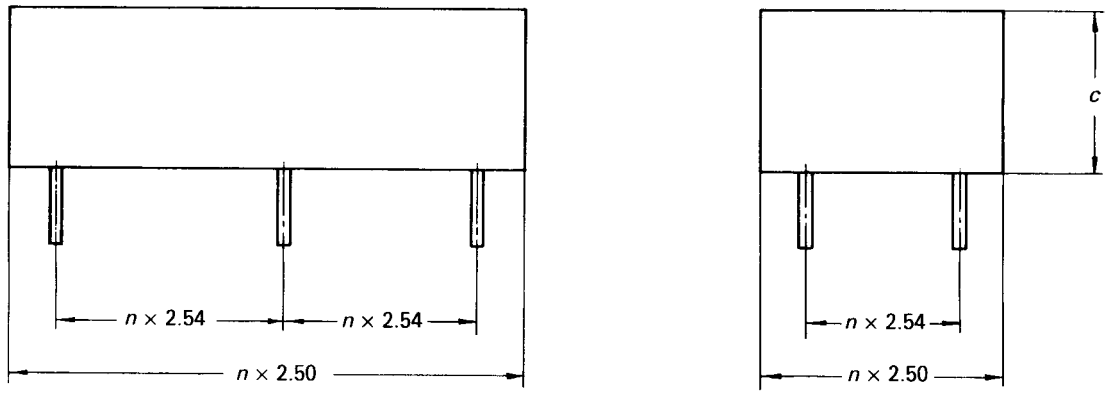


Figure 5 — Example of relay for printed circuit board

Table 2 — Multipliers for relays for printed circuit boards

Multipliers	**Corresponding value** mm		**Dimensions**	
n	M = 2.54	M = 2.50	a_2, b_2	c
1	2.54	2.5	–	2.5 ○[a]
2	5.08	5.0	○	4.0 –
3	7.62	7.5	+	5.0 ○
4	10.16	10.0	○	6.3 —
5	12.70	12.5	+	8.0 ○
6	15.24	15.0	○	10.5 ○
7	17.78	17.5	–	13.5 ○
8	20.32	20.0	○	16.5 ○
9	22.86	22.5	–	20.0 ○
10	25.4	25.0	+	25.0 ○
11	27.94	27.5	–	–
12	30.48	30.0	○	+
13	33.02	32.5	–	–
14	35.56	35.0	○	–
15	38.10	37.5	○	–
16	40.64	40.0	○	○
18	45.72	45.0	+	○
19	48.26	47.5	–	–
20	50.80	50.0	+	○
25	63.50	62.5	○	–
30	76.20	75.0	+	–

[a] For multipliers 1 to 10, see **4.3** of IEC Publication 321:1970.

Key
+ recommended and preferred
○ recommended
– not recommended

6 Other relays

6.1 General. The basic module for all dimensions shall be 2.50 mm.

6.2 Table of multipliers. Multipliers for other relays shall be selected according to Table 3.

6.3 Fixing centres. The fixing centres shall be on the intersections of the standard grid compatible with the mounting surface of the relay ($a_2 \times b_2$) as in Figure 6.

NOTE 1 The method of fixing (drilling and tapping etc.) should comply with British and ISO standards, if appropriate.

NOTE 2 The terminals should comply with the relevant British and IEC standards where appropriate. The following types of terminal are in use:

a) screw terminals;
b) solder tags;
c) wire wrapped connections;
d) tab terminals.

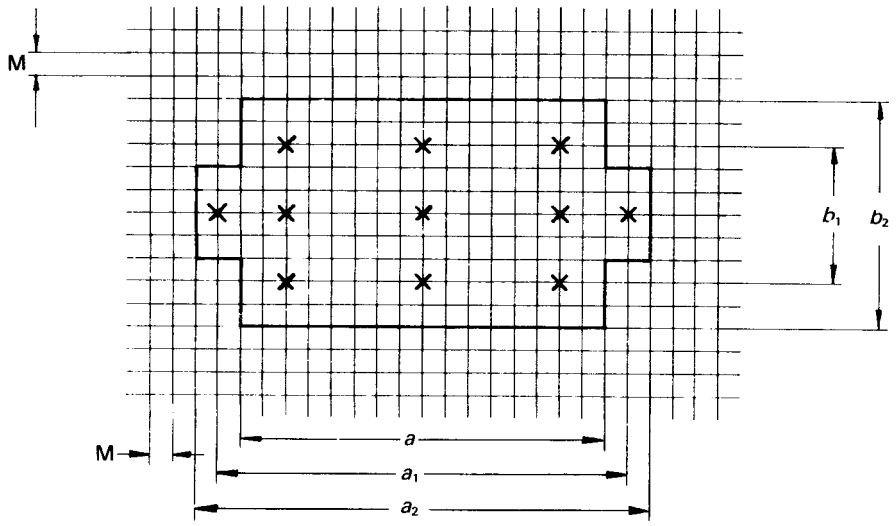


Figure 6 — Example of possible location for the fixing centres on the standard grid

Table 3 — Multipliers for other relays

Multipliers	Corresponding value	Dimensions		
n	mm	a_2, b_2	c_2	c
2	5.0	–	–	–
3	7.5	–	–	–
4	10.0	○	–	+
5	12.5	+	○	○
6	15.0	○	+	○
7	17.5	–	–	–
8	20.0	○	○	+
9	22.5	–	–	–
10	25.0	+	+	–
11	27.5	–	–	–
12	30.0	○	○	+
13	32.5	–	–	–
14	35.0	○	○	–
15	37.5	○	○	–
16	40.0	○	○	○
18	45.0	–	–	–
19	47.5	–	–	–
20	50.0	+	○	○
25	62.5	○	○	+
30	75.0	+	+	○
40	100.0	○	○	○
50	125.0	○	○	+
60	150.0	○	○	–

Key
+ recommended and preferred
○ recommended
– not recommended

Publications referred to

BS 5830, *Specification for grid system for printed circuits.*

IEC 321, *Guidance for the design and use of components intended for mounting on boards with printed wiring and printed circuits.*

ISO 1791, *Building construction — Modular co-ordination — Vocabulary.*

BSI — British Standards Institution

BSI is the independent national body responsible for preparing British Standards. It presents the UK view on standards in Europe and at the international level. It is incorporated by Royal Charter.

Revisions

British Standards are updated by amendment or revision. Users of British Standards should make sure that they possess the latest amendments or editions.

It is the constant aim of BSI to improve the quality of our products and services. We would be grateful if anyone finding an inaccuracy or ambiguity while using this British Standard would inform the Secretary of the technical committee responsible, the identity of which can be found on the inside front cover. Tel: 020 8996 9000. Fax: 020 8996 7400.

BSI offers members an individual updating service called PLUS which ensures that subscribers automatically receive the latest editions of standards.

Buying standards

Orders for all BSI, international and foreign standards publications should be addressed to Customer Services. Tel: 020 8996 9001. Fax: 020 8996 7001.

In response to orders for international standards, it is BSI policy to supply the BSI implementation of those that have been published as British Standards, unless otherwise requested.

Information on standards

BSI provides a wide range of information on national, European and international standards through its Library and its Technical Help to Exporters Service. Various BSI electronic information services are also available which give details on all its products and services. Contact the Information Centre. Tel: 020 8996 7111. Fax: 020 8996 7048.

Subscribing members of BSI are kept up to date with standards developments and receive substantial discounts on the purchase price of standards. For details of these and other benefits contact Membership Administration. Tel: 020 8996 7002. Fax: 020 8996 7001.

Copyright

BSI
389 Chiswick High Road
London
W4 4AL