



SLOVENSKI STANDARD

SIST EN 50136-1-1:1999

01-september-1999

Alarmni sistemi - Sistemi in oprema za prenos alarma - 1-1. del: Splošne zahteve za sisteme za prenos alarmov

Alarm systems - Alarm transmission systems and equipment - Part 1-1: General requirements for alarm transmission systems

Alarmanlagen - Alarmübertragungsanlagen und -einrichtungen - Teil 1-1: Allgemeine Anforderungen an Alarmübertragungsanlagen

Systèmes d'alarme - Systèmes de transmission d'alarme et équipements - Partie 1-1: Exigences générales pour les systèmes de transmission d'alarme

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Ta slovenski standard je istoveten z: EN 50136-1-1:1998

ICS:

13.320 Alarmni in opozorilni sistemi Alarm and warning systems

SIST EN 50136-1-1:1999

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EUROPEAN STANDARD
NORME EUROPÉENNE
EUROPÄISCHE NORM

EN 50136-1-1

January 1998

ICS 13.320

Descriptors: Warning systems, transmission, definitions, specifications, performance evaluation, reliability, safety, dependability, protection of information, tests, documents

English version

**Alarm systems - Alarm transmission systems and equipment
Part 1-1: General requirements for alarm transmission systems**

Systèmes d'alarme - Systèmes et
équipements de transmission d'alarme
Partie 1-1: Exigences générales pour
systèmes de transmission d'alarme

Alarmanlagen
Alarmübertragungsanlagen
und -einrichtungen
Teil 1-1: Allgemeine Anforderungen an
Alarmübertragungsanlagen

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CENELEC

European Committee for Electrotechnical Standardization
Comité Européen de Normalisation Electrotechnique
Europäisches Komitee für Elektrotechnische Normung

Central Secretariat: rue de Stassart 35, B - 1050 Brussels

Foreword

This European Standard was prepared by the Technical Committee CENELEC TC 79, Alarm systems.

The text of the draft was submitted to the Unique Acceptance Procedure and was approved by CENELEC as EN 50136-1-1 on 1996-12-09.

The following dates were fixed:

- latest date by which the EN has to be implemented at national level by publication of an identical national standard or by endorsement (dop) 1998-08-01
- latest date by which the national standards conflicting with the EN have to be withdrawn (dow) 2002-08-01

EN 50136 consists of the following parts, under the general title "Alarm systems - Alarm transmission systems and equipment":

- Part 1-1 General requirements for alarm transmission systems
 - Part 1-2 Requirements for systems using dedicated alarm paths
 - Part 1-3 Requirements for systems with digital communicators using the public switched telephone network
 - Part 1-4 Requirements for systems with voice communicators using the public switched telephone network
 - Part 2-1 General requirements for alarm transmission equipment
 - Part 2-2 Requirements for equipment used in systems using dedicated alarm paths
 - Part 2-3 Requirements for equipment used in systems with digital communicators using the public switched telephone network
 - Part 2-4 Requirements for equipment used in systems with voice communicators using the public switched telephone network
 - Part 3 Alarm transmission protocols (in preparation)
 - Part 4 Annunciation equipment (in preparation)
 - Part 5 (free)
 - Part 6 (free)
 - Part 7 Application guidelines (in preparation)
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1 Scope

This standard specifies the general requirements for the performance, reliability and security characteristics of alarm transmission systems.

It covers the general requirements for connections providing signalling between an alarm system and an alarm receiving centre.

EN 50136 shall apply for transmission of all types of alarms; fire, intrusion, access control social alarm etc. Different types of alarm systems may in addition to alarm messages also send other types of messages, e.g. fault messages and status messages. Also these messages are considered part of alarm transmission. The term alarm is throughout the document used in this broad sense.

Additional requirements for specific types of alarm transmission systems are given in separate parts of this standard. This does not preclude the use of any alarm transmission system not covered by one of these specific parts, provided that it meets these general requirements. It further does not preclude the use of the alarm transmission equipment outside the scope of this document.

2 Normative references

This European Standard incorporates by dated or undated reference, provisions from other publications. These normative references are cited at the appropriate places in the text and the publications are listed hereafter. For dated references, subsequent amendments to or revisions of any of these publications apply to this European Standard only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to applies (including amendments).

<u>Publication</u>	<u>Title</u>
EN 50136-2-1	Alarm systems - Alarm transmission systems and equipment Part 2-1: General requirements for alarm transmission equipment

3 Object

The object of this standard is to specify the general requirements for the performance, reliability and security characteristics of alarm transmission systems and to ensure their suitability for use with different types of alarm systems.

4 Definitions

For the purposes of this standard the following definitions apply:

NOTE: The definitions below should be read in conjunction with Figure 1.

4.1 alarm condition: A condition of an alarm system, or part thereof, which results from the response of the system, or part thereof, to the presence of a hazard.

4.2 alarm receiving centre (central station): A continuously manned centre to which information concerning the status of one or more alarm systems is reported.

4.3 **alarm system:** An electrical installation which responds to the manual or automatic detection of the presence of a hazard.

4.4 **alarm system transceiver:** The alarm transmission equipment, which is located at the supervised premises or at a satellite station.

NOTE: In some systems this transceiver may be able to transmit but not to receive.

4.5 **alarm transmission equipment:** Equipment which is used primarily for the transmission of alarm messages from the supervised premises transceiver interface to the alarm system interface to the receiving centre transceiver interface to the annunciation equipment.

NOTE 1: It may also transmit information or commands from the alarm receiving centre to one or more alarm systems.

NOTE 2: This does not include equipment provided by a public telephone network operator or other common carrier as part of a general purpose, public transmission system, but does include general telecommunications equipment (e.g. modems) where these are used primarily for alarm transmission.

4.6 **alarm transmission path:** A transmission path between an individual alarm system and its associated alarm receiving centre(s).

4.7 **alarm transmission system:** Equipment and network used to transfer information concerned with the state of one or more alarm systems to one or more alarm receiving centres.

NOTE: An alarm transmission system may consist of a number of independent links such as supervised premises to satellite station, satellite station to satellite station or satellite station to alarm receiving centre. Each independent link may be considered to be an alarm transmission system with suitable modification of the wording in the appropriate definitions.

4.8 **annunciation equipment:** Equipment located at an alarm receiving centre which displays the alarm status, or the changed alarm status of alarm systems in response to the receipt of incoming alarm messages.

4.9 **authentication:** The exchange of a code to identify that a supervised premises transceiver has not been substituted by a similar equipment without this code, or that the information message transmitted has not been modified.

4.10 **dedicated transmission path:** A transmission path which is continuously available for the connection of an alarm system to its associated alarm receiving centre(s) and which does not require switching or setting up prior to the transmission of individual alarm events.

NOTE 1: Some of the transmission equipment or lines may be shared with other alarm transmission paths or other services e.g. by use of multi-point or multiplex circuits or by superimposition.

NOTE 2: Systems which include switching to select one of a number of alternative dedicated channels are acceptable.

4.11 **digital communicator:** Supervised premises transceiver used in a digital communicator system.

4.12 **digital communicator system:** An alarm transmission system which transfers information by digital encoded signals over a transmission path established by automatic dialling via the Public Switched Telephone Network (PSTN) to an alarm receiving centre.

4.13 **encryption**: The coding, translation or other modification of information whereby the manner in which the information is modified varies with time in a pseudo-random manner.

4.14 **message**: Series of signals routed by a network which include identification, function data and the various means for providing its own integrity, immunity and proper reception.

4.15 **message formats**: The definitions of the detailed content of individual message types (within the overall message structure) that have a particular meaning.

4.16 **monitoring centre**: A manned remote centre in which the status of one or more alarm transmission systems is monitored.

NOTE: A monitoring centre may be a separate centre or part of an alarm receiving centre.

4.17 **PSTN (public switched telephone network)**: Network available to the public, primarily intended for voice communication.

4.18 **receiving centre transceiver**: The alarm transmission equipment which is located at the alarm receiving centre or other remote centre.

NOTE: In some systems this transceiver may be able to receive but not to transmit.

4.19 **remote centre**: A location remote from the supervised premises, in which the information concerned with the state of one or more alarm systems is collected either for reporting (e.g. an alarm receiving centre) or for onward transmission.

4.20 **signalling security**: The method(s) used to prevent or detect deliberate attempts to interfere with the transmission of an alarm message by blocking or substitution.

4.21 **supervised premises transceiver**: Equipment at the supervised premises including the interface to the alarm system and the interface to the alarm transmission system.

4.22 **system capacity**: The maximum number of alarm systems that can be connected to an alarm transmission system.

4.23 **tamper detection**: The detection of deliberate interference with an alarm system or part thereof.

4.24 **transmission network**: A communications system between two or more items of alarm transmission equipment.

NOTE: Where the network is provided by a common carrier (e.g. a public telephone network operator) the network may include items of general transmission equipment, which may not be covered by the requirements of EN 50136-2-1.

4.25 **transmission path**: A communication route used to convey notification information.

4.26 **transmission time**: The time from when a change of state occurs at the supervised premises transceiver interface to the alarm system until the time that the new state is reported at the receiving centre transceiver interface to the annunciation equipment.

4.27 **voice communicator**: Supervised premises transceiver at the supervised premises used in a voice communicator system.

4.28 voice communicator system: An alarm transmission system which transfers information by means of a stored voice message over a transmission path established by automatic dialling via the Public Switched Telephone Network.

5 General considerations

5.1 Applicable standards

Where use is made of public networks, the relevant European Telecommunication Standards (ETS) from ETSI and recommendations from CCITT, CCIR, and CEPT shall be applied. Where appropriate, reference shall be made to the ISO Open System Interconnection (OSI) layered architecture model.

Where appropriate, equipment and systems shall meet local, national and European requirements and regulations for attachment to, establishment and termination of connection and transmission via public telephone and data networks (including the PSTN) and/or the regulations for transmission via the use of radio, power distribution systems or cable TV distribution systems.

5.2 Alarm transmission system configuration

The logical configuration of an alarm transmission system shall be as shown in Figure 1.

Depending upon the required reliability level and the operational features of the alarm receiving centres, various system configurations may be used, including the use of more than one alarm transmission path between an alarm system and one or more alarm receiving centres.

Selection of the type of alarm transmission system used for an alarm system shall be determined by the required level of reliability and security. Reference shall be made to the separate standards describing the different types of alarm transmission systems where these exist.

For purposes of transmission redundancy it shall be permissible for a supervised premises alarm system to be connected to a remote centre by more than one form of transmission, e.g. dedicated alarm transmission path and digital communicators using the public switched telephone network.

Where a transmission network is used the alarm transmission path may only exist for the period of time for which the connection is established.

NOTE: Where the path is provided by a common carrier (e.g. a public telephone network operator) the path may itself include items of general transmission equipment which are not covered by the requirements of EN 50136-2-1.

5.3 Transmission characteristics

The transmission of the state of the alarm system shall be:

1. continuous, or
2. periodic, and/or
3. whenever the state of the alarm system changes.

If transmission is not continuous, the transmission shall be controlled by:

1. the alarm system, and/or
2. the alarm receiving centre and/or
3. the alarm transmission system.

5.4 Alarm transmission system classification

This document defines alarm transmission system characteristics. For some specific characteristics also a classification system or measuring scale is introduced.

Being applicable to a number of very different applications like e.g. intrusion, fire and access control, the requirements for each application should be specified and include:

Classes for

Transmission time (table 1)
Maximum time (table 2)
Reporting time (table 3)
Availability (table 4)

and requirements regarding

Signalling security (as per 6.5)
Remote parameter modification (EN 50136-2-1, subclause 5.2.3.1)
Access levels (EN 50136-2-1)

6 System requirements

The alarm transmission system shall provide communication between one or more alarm systems and one or more alarm receiving centres.

6.1 Transmission facilities shared with other alarm systems

6.1.1 General

The communications between an alarm system and an alarm receiving centre shall continue to meet the requirements of the appropriate class of table 1 in the presence of any other normal messages carried by the same alarm transmission system.

The alarm transmission system shall be such that adding, changing or removing an alarm system does not compromise messages from other alarm systems.

6.1.2 Throughput

The communications between an alarm system and an alarm receiving centre shall continue to meet the requirements of the appropriate transmission time class of table 1 and the maximum transmission time class of table 2 when alarm or fault messages are generated:

- a) at a rate equivalent to one such message per minute from each of a number of supervised premises transceivers representing up to 0,1% of the system capacity, and
- b) at a rate of at least 2 alarm messages per minute at the receiving centre transceiver interface to the annunciation equipment

The evaluation shall be done when the alarm transmission system is in a stable condition with the stipulated rate of messages.

6.1.3 Degradation of performance

If the rates of transmission specified in 6.1.2 are exceeded then the degree of degradation of performance of the alarm transmission system shall be gradual (e.g. transmission times shall slowly increase) until a rate equivalent to one such message per minute from supervised premises transceivers representing up to double the throughput specified in 6.1.2 a) or b).

The transmission time shall return to meeting the requirements of 6.1.2 a) or b) within a period not exceeding 5 minutes of the rate being reduced to half the specified throughput specified in 6.1.2 a) or b).

The increase of the rate shall be done over a period of not less than 5 minutes and the alarm transmission system shall be in a stable condition before the rate is decreased over a period no longer than 5 minutes.

Where the alarm transmission system carries other messages in addition to alarm messages, the alarm transmission system shall still meet the requirements of this standard.

6.2 Transmission facilities shared with non-alarm systems

Transmission facilities shared with non-alarm systems, shall be so arranged that operation and maintenance of the non-alarm systems does not prevent the alarm transmission system from meeting the requirements of this standard.

NOTE: The above applies in the case of a switched network after the connection is established.

6.3 Performance

6.3.1 General

The alarm transmission system shall transmit information concerning the state of the alarm system to its associated alarm receiving centre.

6.3.2 Transmission time

The arithmetic mean of the alarm transmission time and 95 % of the measurements of transmission time shall not exceed the values specified in table 1 for the appropriate class, as assessed by the verification method in 7.4.

Any transmission time exceeding the maximum acceptable transmission time of table 2 for a specific system shall for each incident be classified as a transmission system fault in accordance with 6.4.3.

The transmission time shall be measured from the time that a change of state occurs at the supervised premises transceiver interface to the alarm system to the time that the new state is reported at the receiving centre transceiver interface to the annunciation equipment.

The transmission time applies to all changes of state that are transmitted from the alarm system through the supervised premises transceiver interface to the alarm transmission system.

NOTE 1: Where the supervised premises transceiver interface to the alarm system is not accessible the measurement may be made from a more accessible point before the supervised premises transceiver interface to the alarm system and an appropriate correction applied to the result.

NOTE 2: Where the receiving centre transceiver interface to the annunciation equipment is not accessible or where it is more convenient the measurement may be made to a point after the receiving centre transceiver interface to the annunciation equipment and an appropriate correction applied to the result.