



SLOVENSKI STANDARD

SIST EN 50136-2-1:1999

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Alarmni sistemi - Sistemi in oprema za prenos alarma - 2-1. del: Splošne zahteve za opremo za prenos alarmov

Alarm systems - Alarm transmission systems and equipment - Part 2-1: General requirements for alarm transmission equipment

Alarmanlagen - Alarmübertragungsanlagen und -einrichtungen - Teil 2-1: Allgemeine Anforderungen an Alarmübertragungseinrichtungen

Systèmes d'alarme - Systèmes et équipements de transmission d'alarme - Partie 2-1: Exigences générales pour équipements de transmission d'alarme

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EUROPEAN STANDARD

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Descriptors: Warning systems, transmission, transmitters, receivers, specification, performance evaluation, design, interfaces, safety, reliability, performance tests, environmental tests, electrostatic discharge tests, electromagnetic compatibility, marking

English version

Alarm systems - Alarm transmission systems and equipment Part 2-1: General requirements for alarm transmission equipment

Systèmes d'alarme - Systèmes et
équipements de transmission d'alarme
Partie 2-1: Exigences générales pour
équipements de transmission d'alarme

Alarmanlagen
Alarmübertragungsanlagen
und -einrichtungen
Teil 2-1: Allgemeine Anforderungen
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Up-to-date lists and bibliographical references concerning such national standards may be obtained on application to the Central Secretariat or to any CENELEC member.

This European Standard exists in three official versions (English, French, German). A version in any other language made by translation under the responsibility of a CENELEC member into its own language and notified to the Central Secretariat has the same status as the official versions.

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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 50136-2-1 on 1997-07-01.

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 alarm transmission equipment used in alarm transmission systems.

This standard does not specify the equipment used to display the information at the alarm receiving centre or the installation of equipment.

Additional requirements for specific types of alarm transmission equipment are given in separate documents as parts of this standard. This does not preclude the use of any alarm transmission equipment not covered by one of these specific documents, provided that it meets these general requirements.

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>Year</u>	<u>Title</u>
EN 50082-1		Electromagnetic compatibility - Generic immunity standard Part 1: Residential, commercial and light industry
EN 50131-1		Alarm systems - Intrusion systems Part 1: General requirements
EN 50136-1-1		Alarm systems - Alarm transmission systems and equipment Part 1: General requirements for alarm transmission systems
EN 50136-4		Part 4: Annunciation equipment
EN 55022		Limits and methods of measurement of radio disturbance characteristics of information technology equipment (emission) (CISPR 22)
EN 60950		Safety of information technology equipment (IEC 60950, modified)
IEC 60068-1		Environmental testing Part 1: General and guidance
IEC 60068-2-1	1974	Part 2: Tests - Tests A: Cold
+ IEC 60068-2-1A	1976	
+ A1	1983	
IEC 60068-2-2	1974	Part 2: Tests - Tests B: Dry heat
+ IEC 60068-2-2A	1976	
IEC 60068-2-3	1969	Part 2: Tests - Test Ca: Damp heat, steady state
IEC 60068-2-6	1982	Part 2: Tests - Test Fc: Vibration (sinusoidal)
IEC 60068-2-27	1987	Part 2: Tests - Test Ea and guidance: Shock
IEC 60068-2-30	1980	Part 2: Tests - Test Db and guidance: Damp heat, cyclic (12 + 12 hour cycle)
+ A1	1985	
IEC 60068-2-42	1982	Part 2: Tests - Test Kc: Sulphur dioxide test for contacts and connections
IEC 60068-2-52	1984	Part 2: Tests - Test Kb: Salt mist, cyclic (sodium chloride solution)
IEC 60068-2-56	1988	Part 2: Tests - Test Cb: Damp heat, steady state, primarily for equipment

<u>Publication</u>	<u>Year</u>	<u>Title</u>
IEC 60068-2-63	1991	Part 2: Test methods - Test Eg: Impact, spring hammer
IEC 60364	series	Electrical installations of buildings
IEC 60529		Degrees of protection provided by enclosure (IP Code)
IEC 60664	series	Insulation coordination for equipment within low-voltage systems
IEC 61000-4-2	1995	Electromagnetic compatibility
		Part 4: Testing and measurement techniques
		Section 2: Electrostatic discharge immunity test
IEC 61000-4-3	1995	Section 3: Radiated, radio-frequency, electromagnetic field immunity test
IEC 61000-4-4	1995	Section 4: Electrical fast transient/burst immunity test
CCITT Recommendation V24		
CCITT Recommendation V23		
CCITT Recommendation V31 bis		
CCITT Recommendation X24		

3 Object

The object of this standard is to specify the general requirements for the performance, reliability and security and safety characteristics of equipment used in alarm transmission systems, to facilitate its compatibility with different types of alarm systems.

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4 General considerations standards.iteh.ai

4.1 Applicable standards

If use is made of public networks, the relevant recommendations from ETSI, CCITT, CCIR, CEPT, etc. shall be applicable.

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

4.2 System configuration

The logical configuration of an alarm transmission system is as shown in figure 1, which is attached.

Depending upon the required reliability levels and alarm receiving centres operational features, various system configurations are possible.

4.3 Transmission characteristics

4.3.1 Transmission of the state of the alarm system

It shall be:

- a) continuous, or
- b) periodic, and/or
- c) whenever the status of the alarm system changes.

4.3.2 Control of transmission If transmission is not continuous

It shall be provided by:

- a) the alarm system, and/or
- b) the alarm receiving centre and/or
- c) the alarm transmission system.

4.4 Requirement considerations

Requirements in this standard shall be considered as a minimum for alarm transmission equipment. Where the alarm system transceiver is used together with associated alarm systems, the requirements of the specific applications shall be considered.

Specific applications may require additional or more severe testing of the alarm system transceiver. If such characteristics for a certain application are provided and are submitted for testing, they shall be specified by the manufacturer.

NOTE: Examples of further requirements for the alarm system transceiver are:

- tamper detection;
- power supply;
- indication;
- housing.

4.5 Definitions

For the purpose of this standard, the definitions given in EN 50136-1-1, clause 4 apply.

5. Functional requirements

5.1 Access levels

Three levels of access are provided:

- Level 1 Unrestricted
- Level 2 Operation
- Level 3 Configuration

5.1.1 Access level 1

There is no restriction on access. Level 1 is used for inscriptions, indicating lights etc, which are directly visible. Setting and unsetting of the equipment and changes of configuration are not permitted.

5.1.2 Access level 2

Level 2 is the user level and allows modification of the operating status (without changing system configuration).

Access shall be restricted by means keys, code operated switches or locks or other equivalent means.

5.1.3 Access level 3

Level 3 provides access to all operations affecting system configuration.

Access shall be restricted by means of keys, tools or code operated switches or locks. Level 3 access provides level 2 access.

Access shall be annunciated to the remote centre before any modifications are effective.

5.2 Design

All equipment used in alarm transmission systems shall have a high degree of reliability.

5.2.1 Equipment using software

Where software is used within equipment a monitor, which is independent of this software (e.g. watchdog device), shall ensure the correct execution of the program. Incorrect execution of the program shall generate a fault output.

5.2.2 Configuration parameter modification

It is allowed at access level 3 as per 5.1.3.

Where modification of parameters is permitted from a remote centre the alarm transmission path for modification shall be established at the supervised premises at access level 3.

5.2.3 Parameter read-out

Read-out of parameters settings shall be possible. Read-out is required and allowed at the access level at which change can be done.

5.2.4 Storage of parameters

Where different parameters are stored within the alarm system transceiver (e.g. calling numbers, encryption keys, records etc) measures shall be taken to prevent the loss of these parameters for at least a period of six months following a loss of operational power supply.

If a specific device for storing energy is used, e.g. a battery, the replacement of this device shall be made at access level 3.

The details for storage capacity are given within relevant specific equipment standards.

If the alarm system transceiver parameters can be configured remotely the transceiver shall have facilities to inhibit and enable remote parameter modification manually at access level 3.

5.3 Test transmission

At access level 2 or level 3, a supervised premises transceiver shall provide a means to send a message manually to the remote centre, for test purposes.

5.4 Autonomy and Power Supply of the supervised premises transceiver

The supervised premises transceiver may be powered by the alarm system power supply or by a separate power supply. Where a separate power supply is used, it shall meet the performance requirements of the most demanding associated alarm system.

A means shall be provided to send a message to the alarm receiving centre before the total loss of power for the supervised premises transceiver, unless the loss of power is immediate (e.g. due to short circuit).

5.5 Acknowledgement signal

Alarm transmission assurance can be accomplished by using an acknowledgement signal, see EN 50136-1-1 subclause 6.4.2.

Where an acknowledgement signal is provided the time when the acknowledgement signal is generated shall be given in the product specification.

5.6 Alarm report abortion

A means may be provided to abort an attempt to report an alarm message by access level 2 or 3 dependent from the alarm system during the time period before the communication line has been established.

5.7 Housing and tampering

Where the supervised premises transceiver is housed separately the requirements for tampering and housing of the alarm transmission equipment shall be the same as or higher than those of the associated alarm system equipment. If no other requirement is given for an alarm transmission transceiver it shall as a minimum requirement meet the requirements of Class IP3x as specified in EN 60529.

5.8 Logging function

A logging function may be provided.

5.9 Interface and/or protocol adaptation equipment

When interface/protocol adaptation equipment is necessary and if this equipment is separately housed, it shall fulfil the requirements of subclause 5.7.

5.10 Power supply at the alarm receiving centre

The power supply of the receiving centre transceiver shall meet the same requirements as that specified for the associated annunciation equipment in EN 50136-4.

5.11 Transmission time

The transmission time of the supervised premises transceiver shall be measured from the time that the supervised premises transceiver interface to the alarm system changes state. Where this is not accessible (eg. where the supervised premises transceiver is an integrated part of the control and indicating equipment) or where more convenient the transmission time may be measured from a detectable change of state of the control and indicating equipment, or from the time that a simple switch or detector connected to the control and indicating equipment is operated.

The transmission time shall be the time that the new state is reported at the supervised premises transceiver interface to the transmission network. Where this is not accessible or where more convenient the transmission time may be measured to the time that the new state is reported at the supervised premises transceiver interface to the transmission network. Whichever method is used it shall be given in the product specification and tested accordingly.

The transmission time applies to all changes of state that are transmitted from the control and indicating equipment.

The transmission times within the alarm system and within the annunciation equipment shall be specified.

5.12 Interfaces

5.12.1 General

The manufacturer shall specify which interfaces are provided in the alarm system transceiver. This may include any proprietary or publicly available interface or an interface as per 5.12.2, 5.12.3 or 5.12.4. If any of the three following interfaces is specified it shall fulfil all the requirements of the appropriate clause.

To allow free interconnection of equipment from different manufacturers, the following electrical interfaces are specified.

5.12.2 Parallel interface according to V31 bis

Signals with a duration greater than 200 mS shall be recognized as messages.

Input signals with a duration less than 50 mS shall not be recognized as messages.

Output signals from the supervised premises transceiver shall have a duration of at least 200 mS.

5.12.3 Serial data interface according to V24/V28

The interface shall consist of not less than the following 3 connections, defined in accordance with CCITT Recommendation V24/V28.

Circuit 102 Signal ground / common return
Circuit 103 Transmitted data
Circuit 104 Received data

NOTE: these are equivalent to circuits G, T and R in CCITT Recommendation X24.

Equipment connected to the interface shall be capable of transmitting and receiving at least one of the speeds 300 baud and 1200 baud.

The equipment may provide the facility to transmit and receive data at alternative speeds. Where this facility is provided both the transmitted and the received data speeds shall be identical and the alternative speeds shall be selectable by the use of links, switches or user programmable codes.

5.12.4 Serial data interface according to V23

Where a serial interface is provided (e.g. for transmission over amplified lines) then the equipment shall be able to send/ receive data using CCITT Recommendation V23 (1200 baud, half duplex, 2 wire interface).

The equipment may also provide transmission via alternative CCITT Recommendations. Where this option is provided then the form of transmission shall be selectable via the use of links, switches, other user programmable codes or automatically by the modem equipment itself.

5.13 Monitoring of the integrity of the supervised premises transceiver interface to the alarm system

Details of the method of monitoring, and of any restrictions, shall be given in the product specification.

5.13.1 Monitoring of interconnection with the alarm system

In the event of failure of the interconnection between the alarm system and the alarm transmission equipment an alarm or fault message shall be generated and transmitted to the alarm receiving centre. The time to detect and send this signal shall be specified for the supervised premises transceiver.

5.13.2 Monitoring of the alarm transmission system

The period of time defined in EN 50136-1-1, subclause 6.3.4 shall be specified by the manufacturer.

5.13.3 Parallel interface

With all of the outputs from the alarm system in their normal (non-alarm) condition the supervised premises transceiver shall monitor the connections to the alarm system. An alarm or fault condition shall be generated within 10 seconds in the event of a short of all of the conductors or an open circuit of any conductor that would inhibit the transmission of an alarm message from the alarm system.

5.13.4 Serial data interface

The integrity of the supervised premises transceiver interface to the alarm system shall be monitored and an alarm or fault message shall be generated within 10 s.

5.14 Monitoring of the integrity of the receiving centre transceiver interface to the annunciation equipment

Details of the method of monitoring, and of any restrictions, shall be given in the product specification.

5.14.1 Parallel interface

The interface shall be monitored

NOTE: It is desirable that failure of this connection should also be monitored by the alarm transmission system.

5.14.2 Serial data interface

The interface shall be monitored.