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Alarmni sistemi - Sistemi in oprema za prenos alarma - 7. del: Smernice za uporabo

Alarm systems - Alarm transmission systems and equipment - Part 7: Application guidelines

Alarmanlagen - Alarmübertragungsanlagen und -einrichtungen - Teil 7: Anwendungsregeln

Systèmes d'alarme - Systèmes et équipements de transmission d'alarme - Partie 7: Guide d'application

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English version

**Alarm systems –
Alarm transmission systems and equipment
Part 7: Application guidelines**

Systemes d'alarme –
Systemes et equipements
de transmission d'alarme
Partie 7: Guide d'application

Alarmanlagen –
Alarmübertragungsanlagen
und -einrichtungen
Teil 7: Anwendungsregeln

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This Technical Specification was approved by CENELEC on 2003-05-31.

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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 Technical Specification was prepared by the Technical Committee CENELEC TC 79, Alarm systems.

The text of the draft was submitted to the formal vote and was approved by CENELEC as CLC/TS 50136-7 on 2003-05-31.

The following date was fixed:

- latest date by which the existence of the CLC/TS has to be announced at national level (doa) 2004-04-08

EN 50136 will consist 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 (Free)
- Part 4 ¹⁾ Annunciation equipment used in alarm receiving centres
- Part 5 (Free)
- Part 6 (Free)
- Part 7 ¹⁾ Application guidelines

¹⁾ This part is published as a Technical Specification.

Contents

	Page
Introduction	4
1 Scope	4
2 Normative references	4
3 Definitions	5
4 alarm transmission systems	5
4.1 General and technology specific requirement	5
4.2 Purpose of an alarm transmission system	5
4.3 Components of an alarm transmission system (Annex A)	6
4.4 Performance of an alarm transmission system	6
4.4.1 Transmission time	6
4.4.2 Reporting time	6
4.4.3 Availability	7
4.4.3.1 Evaluation of availability	7
4.4.3.2 Improvement of availability	7
4.4.4 Signalling security	7
4.4.5 Throughput	8
4.5 Miscellaneous	8
4.5.1 Shared transmission networks	8
4.5.2 Interfacing devices to the transmission network	8
4.5.3 Additional signalling	8
4.5.4 Secondary alarm receiving centres	9
4.5.5 Avoiding the loss of message	9
4.5.6 Dead Man feature	9
5 Application of alarm transmission systems	9
5.1 Intruder and hold-up alarm	9
5.2 Fire alarms	10
5.3 Social alarms	10
5.4 Access control alarms	11
5.5 CCTV alarms	11
5.6 Other applications	11
5.7 Multiple applications	11
6 Installation and connection of alarm transmission equipment	12
6.1 Supervised premises transceiver	12
6.2 Receiving centre transceiver	12
Annex A (normative) Tables from EN 50136-1-1	13
Annex B (normative) Figure 1 from EN 50136-1-1	14

Introduction

To come to a common understanding of the alarm transmission standards documents there is a need for application guidelines to support other TC 79 WG, other standardisation bodies, insurance companies and customers to require an appropriate performance of the alarm transmission system for a specific application.

Application knowledge and needs are not always available by the alarm transmission experts and therefore guidelines for alarm transmission should assist other experts to understand the alarm transmission standards and the performance of an alarm transmission system. This should help to make an appropriate specification based on the performance tables of the general standard, also including the economical aspects and consequences.

The alarm transmission standards applies to different applications (e.g. intrusion, fire, access control, CCTV,...). Therefore, this guideline should be read in conjunction with the standards relating to these applications when appropriate.

Several alarm transmission systems may be used by the providers of alarm transmission services, which implies that the level of services may vary, depending on the performance of each alarm transmission system.

1 Scope

This Technical Specification will give to the readers of the alarm transmission system standards appropriate guidance to define alarm transmission and announcement equipment systems in line with the requirements of their specific applications.

2 Normative references

This Technical Specification 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 application guideline only when incorporated in it by amendment or revision. For undated references the latest edition of the publication referred to apply (including amendments).

EN 54 series	Fire alarms
EN 50131 series	Alarm systems – Intrusion systems
EN 50131-1:1997	Part 1: General requirements
CLC/TS 50131-7	Part 7: Application guidelines
EN 50132 series	Alarm systems – CCTV surveillance systems for use in security applications
EN 50133 series	Alarm systems - Access control systems for use in security applications
EN 50134 series	Alarm systems – Social alarm systems
CLC/TS 50134-7	Part 7: Application guidelines
EN 50136-1-1	Alarm systems – Alarm transmission systems and equipment – Part 1-1: General requirements for alarm transmission systems
EN 50136-2-1	Part 2-1: General requirements for alarm transmission equipment
EN 50136-2-2	Part 2-2: Requirements for equipment used in systems using dedicated alarm paths
EN 50136-2-3	Part 2-3: Requirements for equipment used in systems with digital communicators using the public switched telephone network

EN 50136-2-4	Part 2-4: Requirements for equipment used in systems with voice communicators using the public switched telephone network
CLC/TS 50136-4	Alarm systems – Alarm transmission systems and equipment – Part 4: Annunciation equipment used in alarm receiving centres

3 Definitions

For the purposes of this Technical Specification, the definitions in EN 50136-1-1 apply.

4 Alarm transmission systems

4.1 General and technology specific requirement

Alarm transmission systems are a part of a total security solution. The selection of requirements for the alarm transmission system depends on the requirements of the specific application.

The alarm transmission standards parts EN 50136-1-1 and EN 50136-2-1 are the main documents. They provide requirements for all types of systems and equipment commonly in use.

For some specific technologies there are standards providing detailed additional requirements or interpretations or explanations for the application of the general requirements.

For technologies not covered by a specific standard document, the general documents EN 50136-1-1 and EN 50136-2-1 should apply.

4.2 Purpose of an alarm transmission system

The purpose of an alarm is always to initiate some kind of response, locally or remotely. The function of the alarm is in some cases twofold, to prevent something from occurring, e.g. burglary, and to respond when something occurs. The most common set-up is with an alarm equipment including detection of the expected incidents, an alarm transmission system, a monitoring centre and a response force, police, guards, fire brigade, medical assistance, etc.

The characteristics of each of these parts of the total preventive and responsive system should correspond to the nature of the threat, for which it provides protection:

- for a burglar alarm, tamper and manipulation protection are important characteristics: the higher the values or risks, the more important is also the availability of the system;
- for a fire alarm system the most important characteristics may be transmission time and availability, of course related to the values at risk).

Sufficient information should be provided through the alarm transmission system to enable appropriate intervention.

Examples of useful information are

- fault,
- set/unset (arm/disarm),
- alarm including type, location and also detector or zone,
- power failure/battery fault.

4.3 Components of an alarm transmission system (Annex A)

The alarm transmission system has several parts. The **supervised premises transceiver** is the part which is located at the premises and which receives the alarm status signal(s) from the local alarm system. It transmits the corresponding alarm through a **transmission network** (which is, in most cases, a network provided by a telephone network operator), to a **receiving centre transceiver** located in a remote centre or in an alarm receiving centre.

The message corresponding to the alarm is then passed to the **annunciation equipment**, which secures its presentation. The **annunciation equipment** can be either located in the same alarm receiving centre as the **receiving centre transceiver** or in a different one.

4.4 Performance of an alarm transmission system

The performance of the alarm transmission system is evaluated from the criterias of transmission time of alarm messages, the reporting time of faults, the signalling security and the availability including the transmission network.

The transmission network should be selected according to the required performance. As the transmission network performance can not be influenced, prior to selecting the alarm transmission system performance, the inherent performance of the transmission network should be assessed with the network operator.

For alarm transmission systems which are not automatically monitored, the verification of performance should be carried out manually, following a documented procedure. This procedure should use a check-list which should take into account every component of the alarm transmission system which may influence its performance.

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4.4.1 Transmission time

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The transmission time (see Table 1 of Annex B) is the time it takes to convey the alarm message, from when the alarm is signalled to the supervised premises transceiver to the receiving centre transceiver.

As the transmission time may vary from one transmission to another, due to the transmission network (availability of lines, type and number of exchanges,...), this value is considered statistically. This is the reason to specify the arithmetic mean and the upper 95 % of this value.

When designing a system to a certain target in this table it is important to verify that the inherent performance of the network, allows to meet the selected class from Table 1 (see Annex B). In addition, the worse case value of transmission time shall be considered in order to verify that this value is under the limits of the application. The highest classes providing a short transmission time are more relevant if the corresponding response time is immediate or short.

The maximum time (see Table 2 in Annex B) is an absolute limit to be specified separately. Each occasion when the maximum time is exceeded should be considered as a fault during the verification of performance. Each fault affects the availability criteria of the alarm transmission system.

4.4.2 Reporting time

The reporting time (given by Table 3 in Annex B) is the period from the time a fault occurs in the alarm transmission system until a fault message is reported to the receiving centre transceiver. It is used to prove that the alarm transmission system is operational as it basically gives the physical availability of the alarm transmission system. The fault reporting time relates to transmission time requirements, availability and manipulation protection.

There may be different ways to evaluate the reporting time in order to establish a classification. The selected method should be assed in a clear written procedure.

Some examples of this evaluation are

- measuring from the time the last successful message was received by the alarm receiving centre (at the receiving centre transceiver or at the annunciation equipment),
- monitoring continually by using test messages.

4.4.3 Availability

4.4.3.1 Evaluation of availability

The availability of the alarm transmission system is defined by a calculation method in 7.5.3 of EN 50136-1-1.

It represents the period of time, measured on a yearly or monthly basis, during which the alarm transmission system is capable of communicating; this evaluation includes the probability of occurrence of a fault and the time it takes to repair it.

The corresponding classification, resulting from the calculation method is expressed in percentage.

The evaluation of the availability depends on the alarm transmission system equipment and on the transmission networks which are going to be selected. The method of evaluation should be clearly explained in a written procedure. In addition, these networks should be adequately chosen, taking into account the following considerations:

- attention should be paid when using a cable network, to the quality and vulnerability of the local links;
- consideration should be given to the consistency of the transmission network with the availability classification which is required by the alarm company (e.g. switched telephone network, data transmission network, leased lines,...).

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4.4.3.2 Improvement of availability

The availability may be increased by using secondary paths or redundant equipment. This may be another type of alarm transmission system or another system or line of the same type. A special combination which improves the availability substantially may be dialler complemented by a radio or mobile telephone system.

With this possibility, when totally independent alarm transmission systems are used with automatic switching features, the evaluation can be made as:

$$\text{Availability} = 1 - (1 - \text{AV ats1}) \times (1 - \text{AV ats2})$$

where AV ats 1: availability of A.T.S. 1
AV ats 2: availability of A.T.S. 2

This would result in increasing the overall availability of the combined alarm transmission system.

Should parts of these different alarm transmission systems be common, this should be identified, as it would proportionally reduce the overall improvement of availability.

4.4.4 Signalling security

To achieve protection against substitution and to provide information on the integrity of the transmission, additional methods are required as defined in the chapter on signalling security in the EN 50136-1-1.