



SLOVENSKI STANDARD
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**Alarm systems - Part 5: Requirements for alarm transmission systems - Section 2:
General requirements for equipment**

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Systemes d'alarme - Partie 5: Prescriptions pour les systemes de transmission d'alarme
- Section 2: Prescriptions generales pour les materiels utilises

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Partie 5:

**Prescriptions pour les systèmes de transmission
d'alarme**

Section 2: Prescriptions générales
pour les matériels utilisés
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Alarm systems

Part 5:

Requirements for alarm transmission systems

Section 2: General requirements for equipment

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INTERNATIONAL ELECTROTECHNICAL COMMISSION

ALARM SYSTEMS

Part 5: Requirements for alarm transmission systems

Section 2: General requirements for equipment

FOREWORD

- 1) The formal decisions or agreements of the IEC on technical matters, prepared by Technical Committees on which all the National Committees having a special interest therein are represented, express, as nearly as possible, an international consensus of opinion on the subjects dealt with.
- 2) They have the form of recommendations for international use and they are accepted by the National Committees in that sense.
- 3) In order to promote international unification, the IEC expresses the wish that all National Committees should adopt the text of the IEC recommendation for their national rules in so far as national conditions will permit. Any divergence between the IEC recommendation and the corresponding national rules should, as far as possible, be clearly indicated in the latter.

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This section of the International Standard IEC 839-5 has been prepared by IEC Technical Committee No. 79: Alarm systems. [SIST IEC 60839-5-2:2002](https://standards.iteh.ai/catalog/standards/sist/86e53e22-c8fa-4c79-a7c5-46214470811/sist-iec-60839-5-2-2002)

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The text of this section is based on the following documents:

Six Months' Rule	Report on Voting	Two Months' Procedure	Report on Voting
79(CO)20	79(CO)30	79(CO)38	79(CO)48

Full information on the voting for the approval of this section can be found in the Voting Reports indicated in the above table.

ALARM SYSTEMS

Part 5: Requirements for alarm transmission systems

Section 2: General requirements for equipment

1 Scope

This section of IEC 839-5 specifies the general requirements for equipment used in alarm transmission systems.

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

Additional requirements for specific types of alarm transmission systems are given in separate sections as part of IEC 839-5. This does not preclude the use of any alarm transmission system not covered by one of these specific sections, provided that it meets these general requirements.

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2 Normative references standards.iteh.ai

The following standards contain provisions which, through reference in this text, constitute provisions of this section of IEC 839-5. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this section of IEC 839-5 are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below. Members of IEC and ISO maintain registers of currently valid International Standards.

IEC 68, *Environmental testing*.

IEC Guide 105: 1985, *Principles concerning the safety of equipment electrically connected to a telecommunications network*.

IEC 529: 1989, *Degrees of protection provided by enclosures (IP Code)*.

IEC 664: 1980, *Insulation co-ordination within low-voltage systems including clearances and creepage distances for equipment*.

IEC 801, *Electromagnetic compatibility for industrial-process measurement and control equipment*.

IEC 839-1-1: 1988, *Alarm systems - Part 1: General requirements - Section One: General*.

IEC 839-1-3: 1988, *Alarm systems - Part 1: General requirements - Section Three: Environmental testing*.

IEC 839-5-1: 1991, *Alarm systems - Part 5: Requirements for alarm transmission systems - Section 1: General requirements for systems.*

CCITT *Protection against interference, Vol. IX: 1989,*

- *Recommendation K.21: Resistivity of subscribers' terminals to overvoltages and overcurrents.*

CCITT *Data communication over the telephone network, Vol. VIII, Fascicle VIII.1: 1985.*

- *Recommendation V.24: List of definitions for interchange circuits between data terminal equipment and data circuit-terminating equipment.*
- *Recommendation V.28: Electrical characteristics for unbalanced double-current interchange circuits*
- *Recommendation V.31 bis: Electrical characteristics for single-current interchange circuits using optocouplers.*

3 General considerations

Where use is made of public networks, the relevant recommendations (CCITT, CCIR, etc.) are applicable. Where appropriate, reference should also be made to the ISO Open System Interconnection (OSI) layered architecture model.

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4 Requirements

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4.1 Equipment at the supervised premises

4.1.1 Equipment container

Where the equipment is supplied in its own container, it shall meet the requirements of Class IP3X as described in IEC 529.

4.2 Interface with the alarm transmission system

Alarm transmission equipment installed at the supervised premises and designed to interface with alarm systems from different suppliers shall provide an alarm system interface meeting the requirements of 4.2.1 or 4.2.2.

Alarm transmission equipment installed at the alarm receiving centre and designed to interface with annunciation equipment from different suppliers shall provide a terminal interface meeting the requirements of 4.2.1 or 4.2.2.

4.2.1 D.C. switching at the interface

The alarm transmission system shall not respond to input signals at the interface lasting less than 50 ms and shall respond to input signals lasting more than 200 ms.

The alarm transmission system shall provide output signals at the interface of a duration greater than 200 ms.

The electrical interface shall be either:

- 1) an electrical interface in accordance with the CCITT V.31 bis Recommendation, or
- 2) the alarm transmission system shall transmit an alarm condition when a d.c. voltage of either greater than 10,2 V in a nominal 12 V system or 20,4 V in a nominal 24 V system is applied to the input.

The alarm condition shall cease to be transmitted when the input current is reduced below 2,5 mA for longer than 1 s.

An alarm or fault condition shall not be transmitted when a monitoring current of greater than 2,5 mA, but less than 10 mA, is flowing through the input circuit.

The input impedance of the alarm transmission system shall not exceed 1 k Ω .

4.2.2 *Serial data interface*

a) Functional interface

The functional interface at physical level shall follow the CCITT V.24 Recommendation.

NOTE - This is the same as RS232C.

b) Electrical interface

The electrical interface shall follow the CCITT V.28 Recommendation.

4.3 *Monitoring of the connection to the alarm transmission system*

4.3.1 *D.C. switching at the interface*

With all of the inputs from the alarm system in their normal condition (non-alarm), the alarm transmission equipment shall monitor the connections to the alarm system and shall generate an alarm or fault condition within 1 s 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 from the alarm system.

NOTE - It is recommended that failure of this connection should also be monitored by the alarm system.

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

4.3.2 *Serial data interface*

The integrity of the interface to the alarm system shall be monitored by the regular transmission of a status message in both directions and an alarm or fault signal shall be generated within 1 s in the alarm system and in the alarm transmission system in the event of a failure to communicate.

Facilities shall be provided to allow the monitoring of the terminal interface by the annunciation equipment.

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

5 Electrical safety and protection

Protection of persons and resistibility of alarm transmission equipment against electrical shock, fire and consequential hazards shall be provided in accordance with IEC relevant standards and with IEC Guide 105.

Tests related to mains voltage connection points shall be designed in accordance with IEC 664 to withstand conditions occurring on the mains supply connection.

The equipment shall include protection against power induction, power contact and the effects of lightning such that it meets the requirements of the CCITT K.21 Recommendation for categories without the addition of agreed primary protection.

6 Environmental requirements

6.1 All equipment

The equipment shall continue to meet the requirements of this section of IEC 839-5 when subjected to the following environmental conditions and shall not generate false alarms or fault messages or modify transmitted messages.

The environmental requirements are intended to apply to equipment for use in weather protected locations. If the equipment is intended for use in outdoor installations, the tests listed below shall be carried out using severity levels appropriate for such applications.

6.1.1 Dry heat

Dry heat of +40 °C for 16 h as described in IEC 839-1-3, test A-1 (severity 3).

6.1.2 Cold

Low temperature of +5 °C for 16 h as described in IEC 839-1-3, test A-2 (severity 2).

6.1.3 Electrical spikes

Electrical spikes as described in IEC 839-1-3, test A-9 (severity 4).

6.1.4 Electrostatic discharges

Electrostatic discharges as described in IEC 839-1-3, test A-11 (severity 3).

6.1.5 Electromagnetic fields

Electromagnetic fields as described in IEC 839-1-3, test A-13 (severity 3).