

INTERNATIONAL STANDARD

NORME INTERNATIONALE

**Alarm and electronic security systems –
Part 5-3: Alarm transmission systems – Requirements for receiving centre
transceiver (RCT)**

**Systèmes d'alarme et de sécurité électroniques –
Partie 5-3: Systèmes de transmission d'alarme – Exigences pour les
transmetteurs du centre de réception (RCT)**



THIS PUBLICATION IS COPYRIGHT PROTECTED
Copyright © 2016 IEC, Geneva, Switzerland

All rights reserved. Unless otherwise specified, no part of this publication may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from either IEC or IEC's member National Committee in the country of the requester. If you have any questions about IEC copyright or have an enquiry about obtaining additional rights to this publication, please contact the address below or your local IEC member National Committee for further information.

Droits de reproduction réservés. Sauf indication contraire, aucune partie de cette publication ne peut être reproduite ni utilisée sous quelque forme que ce soit et par aucun procédé, électronique ou mécanique, y compris la photocopie et les microfilms, sans l'accord écrit de l'IEC ou du Comité national de l'IEC du pays du demandeur. Si vous avez des questions sur le copyright de l'IEC ou si vous désirez obtenir des droits supplémentaires sur cette publication, utilisez les coordonnées ci-après ou contactez le Comité national de l'IEC de votre pays de résidence.

IEC Central Office
3, rue de Varembe
CH-1211 Geneva 20
Switzerland

Tel.: +41 22 919 02 11
Fax: +41 22 919 03 00
info@iec.ch
www.iec.ch

About the IEC

The International Electrotechnical Commission (IEC) is the leading global organization that prepares and publishes International Standards for all electrical, electronic and related technologies.

About IEC publications

The technical content of IEC publications is kept under constant review by the IEC. Please make sure that you have the latest edition, a corrigenda or an amendment might have been published.

IEC Catalogue - webstore.iec.ch/catalogue

The stand-alone application for consulting the entire bibliographical information on IEC International Standards, Technical Specifications, Technical Reports and other documents. Available for PC, Mac OS, Android Tablets and iPad.

IEC publications search - www.iec.ch/searchpub

The advanced search enables to find IEC publications by a variety of criteria (reference number, text, technical committee,...). It also gives information on projects, replaced and withdrawn publications.

IEC Just Published - webstore.iec.ch/justpublished

Stay up to date on all new IEC publications. Just Published details all new publications released. Available online and also once a month by email.

Electropedia - www.electropedia.org

The world's leading online dictionary of electronic and electrical terms containing 20 000 terms and definitions in English and French, with equivalent terms in 15 additional languages. Also known as the International Electrotechnical Vocabulary (IEV) online.

IEC Glossary - std.iec.ch/glossary

65 000 electrotechnical terminology entries in English and French extracted from the Terms and Definitions clause of IEC publications issued since 2002. Some entries have been collected from earlier publications of IEC TC 37, 77, 86 and CISPR.

IEC Customer Service Centre - webstore.iec.ch/csc

If you wish to give us your feedback on this publication or need further assistance, please contact the Customer Service Centre: csc@iec.ch.

A propos de l'IEC

La Commission Electrotechnique Internationale (IEC) est la première organisation mondiale qui élabore et publie des Normes internationales pour tout ce qui a trait à l'électricité, à l'électronique et aux technologies apparentées.

A propos des publications IEC

Le contenu technique des publications IEC est constamment revu. Veuillez vous assurer que vous possédez l'édition la plus récente, un corrigendum ou amendement peut avoir été publié.

Catalogue IEC - webstore.iec.ch/catalogue

Application autonome pour consulter tous les renseignements bibliographiques sur les Normes internationales, Spécifications techniques, Rapports techniques et autres documents de l'IEC. Disponible pour PC, Mac OS, tablettes Android et iPad.

Recherche de publications IEC - www.iec.ch/searchpub

La recherche avancée permet de trouver des publications IEC en utilisant différents critères (numéro de référence, texte, comité d'études,...). Elle donne aussi des informations sur les projets et les publications remplacées ou retirées.

IEC Just Published - webstore.iec.ch/justpublished

Restez informé sur les nouvelles publications IEC. Just Published détaille les nouvelles publications parues. Disponible en ligne et aussi une fois par mois par email.

Electropedia - www.electropedia.org

Le premier dictionnaire en ligne de termes électroniques et électriques. Il contient 20 000 termes et définitions en anglais et en français, ainsi que les termes équivalents dans 15 langues additionnelles. Egalement appelé Vocabulaire Electrotechnique International (IEV) en ligne.

Glossaire IEC - std.iec.ch/glossary

65 000 entrées terminologiques électrotechniques, en anglais et en français, extraites des articles Termes et Définitions des publications IEC parues depuis 2002. Plus certaines entrées antérieures extraites des publications des CE 37, 77, 86 et CISPR de l'IEC.

Service Clients - webstore.iec.ch/csc

Si vous désirez nous donner des commentaires sur cette publication ou si vous avez des questions contactez-nous: csc@iec.ch.

INTERNATIONAL STANDARD

NORME INTERNATIONALE

**Alarm and electronic security systems –
Part 5-3: Alarm transmission systems – Requirements for receiving centre
transceiver (RCT)**

**Systèmes d'alarme et de sécurité électroniques –
Partie 5-3: Systèmes de transmission d'alarme – Exigences pour les
transmetteurs du centre de réception (RCT)**

INTERNATIONAL
ELECTROTECHNICAL
COMMISSION

COMMISSION
ELECTROTECHNIQUE
INTERNATIONALE

ICS 13.320

ISBN 978-2-8322-3166-1

**Warning! Make sure that you obtained this publication from an authorized distributor.
Attention! Veuillez vous assurer que vous avez obtenu cette publication via un distributeur agréé.**

CONTENTS

FOREWORD.....	4
INTRODUCTION.....	6
1 Scope.....	7
2 Normative references.....	7
3 Terms, definitions and abbreviations	8
3.1 Terms and definitions	8
3.2 Abbreviations	8
4 General requirements	8
4.1 General.....	8
4.2 RCT classification	8
5 Functional requirements	8
5.1 General.....	8
5.2 Access levels	9
5.3 Uploading and downloading of software	10
5.4 Storage of parameters and data	10
5.5 Monitoring and notification of failure of the ATP and ATS.....	10
5.6 Interface(s) to the AE(s)	10
5.7 Fault signalling.....	10
5.8 Event recording.....	11
5.9 Mode of operation (store-and-forward or pass-through).....	12
5.9.1 General	12
5.9.2 Store-and-forward operation requirements.....	12
5.9.3 Pass-through operation requirements	12
5.10 Denial of service	12
5.11 Information security.....	12
5.12 Substitution security.....	12
5.13 RCT redundancy	13
5.14 Documentation.....	13
5.15 Marking/identification	13
6 Tests.....	13
6.1 General.....	13
6.2 Test conditions.....	13
6.2.1 Laboratory conditions and tolerance	13
6.2.2 Mounting.....	14
6.2.3 Documentation.....	14
6.2.4 Power supply	14
6.3 Functional tests.....	14
6.3.1 General	14
6.3.2 Access levels.....	15
6.3.3 Upload and download of software	16
6.3.4 Parameter storage	17
6.3.5 Monitoring and notification of an ATS failure for a single path ATS.....	17
6.3.6 Monitoring and notification of an ATS failure for a dual path ATS	18
6.3.7 Interface(s) to the AE(s)	18
6.3.8 Fault signalling	19
6.3.9 Processing of alarm signals.....	20

6.3.10	Event recording.....	20
6.3.11	Clock resolution and synchronisation.....	21
6.3.12	Endurance of the log.....	21
6.3.13	Optimising methods of storage of events.....	21
6.3.14	User identification for log entries.....	22
6.3.15	Mode of operation.....	22
6.3.16	Denial of service.....	23
6.3.17	Information and substitution security.....	23
6.3.18	RCT redundancy.....	24
6.3.19	Documentation.....	24
Bibliography.....		25
Table 1 – Access levels – Logical access to functions.....		10
Table 2 – Event recording classification – Events to be recorded.....		11
Table 3 – Summary of functional tests.....		14
Table 4 – Test of access levels.....		15
Table 5 – Test of upload and download of software.....		16
Table 6 – Test of parameter storage.....		17
Table 7 – Test of interface(s) to the AE(s).....		19
Table 8 – Fault signalling.....		19
Table 9 – Test of event recording.....		20
Table 10 – Test of clock resolution and synchronisation.....		21
Table 11 – Test of log optimisation.....		22
Table 12 – Test of user identification logging.....		22
Table 13 – Test of mode of operation.....		23
Table 14 – Test of RCT redundancy.....		24

INTERNATIONAL ELECTRICAL COMMISSION

ALARM AND ELECTRONIC SECURITY SYSTEMS –**Part 5-3: Alarm transmission systems –
Requirements for receiving centre transceiver (RCT)**

FOREWORD

- 1) The International Electrotechnical Commission (IEC) is a worldwide organization for standardization comprising all national electrotechnical committees (IEC National Committees). The object of IEC is to promote international co-operation on all questions concerning standardization in the electrical and electronic fields. To this end and in addition to other activities, IEC publishes International Standards, Technical Specifications, Technical Reports, Publicly Available Specifications (PAS) and Guides (hereafter referred to as “IEC Publication(s)”). Their preparation is entrusted to technical committees; any IEC National Committee interested in the subject dealt with may participate in this preparatory work. International, governmental and non-governmental organizations liaising with the IEC also participate in this preparation. IEC collaborates closely with the International Organization for Standardization (ISO) in accordance with conditions determined by agreement between the two organizations.
- 2) The formal decisions or agreements of IEC on technical matters express, as nearly as possible, an international consensus of opinion on the relevant subjects since each technical committee has representation from all interested IEC National Committees.
- 3) IEC Publications have the form of recommendations for international use, and are accepted by IEC National Committees in that sense. While all reasonable efforts are made to ensure that the technical content of IEC Publications is accurate, IEC cannot be held responsible for the way in which they are used or for any misinterpretation by any end user.
- 4) In order to promote international uniformity, IEC National Committees undertake to apply IEC Publications transparently to the maximum extent possible in their national and regional publications. Any divergence between any IEC Publication and the corresponding national or regional publication shall be clearly indicated in the latter.
- 5) IEC itself does not provide any attestation of conformity. Independent certification bodies provide conformity assessment services and, in some areas, access to IEC marks of conformity. IEC is not responsible for any services carried out by independent certification bodies.
- 6) All users should ensure that they have the latest edition of this publication.
- 7) No liability shall attach to IEC or its directors, employees, servants or agents including individual experts and members of its technical committees and IEC National Committees for any personal injury, property damage or other damage of any nature whatsoever, whether direct or indirect, or for costs (including legal fees) and expenses arising out of the publication, use of, or reliance upon, this IEC Publication or any other IEC Publications.
- 8) Attention is drawn to the normative references cited in this publication. Use of the referenced publications is indispensable for the correct application of this publication.
- 9) Attention is drawn to the possibility that some of the elements of this IEC Publication may be the subject of patent rights. IEC shall not be held responsible for identifying any or all such patent rights.

International Standard IEC 60839-5-3 has been prepared by IEC technical committee 79: Alarm and electronic security systems.

This international standard is based on EN 50136-3:2013.

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

CDV	Report on voting
79/464/CDV	79/515/RVC

Full information on the voting for the approval of this standard can be found in the report on voting indicated in the above table.

This publication has been drafted in accordance with the ISO/IEC Directives, Part 2.

A list of all parts in the IEC 60839 series, published under the general title *Alarm and electronic security systems*, can be found on the IEC website.

The committee has decided that the contents of this publication will remain unchanged until the stability date indicated on the IEC website under "<http://webstore.iec.ch>" in the data related to the specific publication. At this date, the publication will be

- reconfirmed,
- withdrawn,
- replaced by a revised edition, or
- amended.

Currently in preview, click buy full version

INTRODUCTION

The object of this part of IEC 60839 is to specify the general requirements for the performance, reliability, resilience and security of alarm transmission systems and to ensure their suitability for use with different types of alarm systems and annunciation equipment.

An alarm transmission system may use any type of transmission network.

When the ATS functions are integrated into an alarm system or annunciation equipment the requirements of this standard apply.

The intended users of this international standard include alarm transmission service providers, alarm receiving centre operators, fire departments, insurance companies, telecommunication network operators, internet service providers, equipment manufacturers, alarm companies, end users and others.

The IEC 60839-5 series consists of the following parts, under the general title *Alarm and electronic security systems*:

- Part 5-1: Alarm transmission systems – General requirements;
- Part 5-2: Alarm transmission systems – Requirements for super-seal premises transceiver (SPT);
- Part 5-3: Alarm transmission systems – Requirements for receiving centre transceiver (RCT);
- Part 5-4¹: (under evaluation);
- Part 5-5¹: (under evaluation);
- Part 5-6¹: (under evaluation);
- Part 5-7: (place holder).

¹ The former IEC 60839-5 series (1991) is being reviewed by an ad-hoc group set-up at the TC 79 meeting in Milano in October 2013. This ad-hoc group is in charge of evaluating the relevance / obsolescence of IEC 60839-5-4, IEC 60839-5-5 and IEC 60839-5-6 developed in 1991 and advise TC 79 on their future.

ALARM AND ELECTRONIC SECURITY SYSTEMS –

Part 5-3: Alarm transmission systems – Requirements for receiving centre transceiver (RCT)

1 Scope

This part of IEC 60839 specifies the minimum equipment requirements for the performance, reliability, resilience, security and safety characteristics of the receiving centre transceiver (RCT) installed in an ARC and used in alarm transmission systems.

The alarm transmission system requirements and classifications are defined within IEC 60839-5-1. Different types of alarm systems may in addition to alarm messages also send other types of messages, e.g. fault messages and status messages. These messages are also considered to be alarm messages. The term alarm message is used in the broad sense throughout the document.

Where application specific standards exist, the RCT should comply with relevant standards called up by that application.

The RCT can be either an integrated element of any receiving/annunciation equipment, or a stand-alone device. In either case, the requirements of this international standard should apply.

The function of the RCT is to monitor the ATPs, receive alarm messages, forward alarm messages to one or more AEs and send acknowledgements to the SPTs.

This international standard specifies the minimum equipment requirements for the performance, reliability, resilience, security and safety characteristics of the receiving centre transceiver (RCT) installed in alarm receiving centres and to define parameters that are tested to ensure its compatibility with AIS categories.

Management of the transmission network is not in the scope of this international standard.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

IEC 60839-5-1:2014, *Alarm and electronic transmission systems – Part 5-1: Alarm transmission systems – General requirements*

IEC 62599-1, *Alarm systems – Part 1: Environmental test methods*

IEC 62599-2, *Alarm systems – Part 2: Electromagnetic compatibility – Immunity requirements for components of fire and security alarm systems*