

INTERNATIONAL STANDARD

IEC
62054-21

First edition
2004-05

**Electricity metering (a.c.) –
Tariff and load control –**

**Part 21:
Particular requirements for time switches**

iTeh Standards
(<https://standards.iteh.ai>)
Document Preview

[IEC 62054-21:2004](#)

<https://standards.iteh.ai/catalog/standards/iec/c09c1cf3-aa2b-4dd2-8516-2317d3404679/iec-62054-21-2004>



Reference number
IEC 62054-21:2004(E)

Publication numbering

As from 1 January 1997 all IEC publications are issued with a designation in the 60000 series. For example, IEC 34-1 is now referred to as IEC 60034-1.

Consolidated editions

The IEC is now publishing consolidated versions of its publications. For example, edition numbers 1.0, 1.1 and 1.2 refer, respectively, to the base publication, the base publication incorporating amendment 1 and the base publication incorporating amendments 1 and 2.

Further information on IEC publications

The technical content of IEC publications is kept under constant review by the IEC, thus ensuring that the content reflects current technology. Information relating to this publication, including its validity, is available in the IEC Catalogue of publications (see below) in addition to new editions, amendments and corrigenda. Information on the subjects under consideration and work in progress undertaken by the technical committee which has prepared this publication, as well as the list of publications issued, is also available from the following:

- **IEC Web Site** (www.iec.ch)

- **Catalogue of IEC publications**

The on-line catalogue on the IEC web site (www.iec.ch/searchpub) enables you to search by a variety of criteria including text searches, technical committees and date of publication. On-line information is also available on recently issued publications, withdrawn and replaced publications, as well as corrigenda.

- **IEC Just Published**

This summary of recently issued publications (www.iec.ch/online_news/justpub) is also available by email. Please contact the Customer Service Centre (see below) for further information.

- **Customer Service Centre**

If you have any questions regarding this publication or need further assistance, please contact the Customer Service Centre: _____

Email: custserv@iec.ch
Tel: +41 22 919 02 11
Fax: +41 22 919 03 00

<https://standards.iteh.ai/catalog/standards/iec/c09c1cf3-aa2b-4dd2-8516-2317d3404679/iec-62054-21-2004>

INTERNATIONAL STANDARD

IEC 62054-21

First edition
2004-05

Electricity metering (a.c.) – Tariff and load control –

Part 21: Particular requirements for time switches

iTeh Standards
(<https://standards.iteh.ai>)
Document Preview

[IEC 62054-21:2004](https://standards.iteh.ai/catalog/standards/iec/c09c1c3-aa2b-4dd2-8516-2317d3404679/iec-62054-21-2004)

<https://standards.iteh.ai/catalog/standards/iec/c09c1c3-aa2b-4dd2-8516-2317d3404679/iec-62054-21-2004>

© IEC 2004 — Copyright - all rights reserved

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 the publisher.

International Electrotechnical Commission, 3, rue de Varembé, PO Box 131, CH-1211 Geneva 20, Switzerland
Telephone: +41 22 919 02 11 Telefax: +41 22 919 03 00 E-mail: inmail@iec.ch Web: www.iec.ch



Commission Electrotechnique Internationale
International Electrotechnical Commission
Международная Электротехническая Комиссия

PRICE CODE

P

For price, see current catalogue

CONTENTS

FOREWORD.....	3
INTRODUCTION.....	5
1 Scope.....	6
2 Normative references	6
3 Terms and definitions	6
4 Standard electrical values	7
5 Mechanical requirements and tests	7
5.1 Dials.....	7
5.2 Digital display.....	7
6 Climatic conditions, requirements and tests	7
7 Electrical requirements and tests.....	7
7.1 Supply voltage.....	7
7.2 Heating	8
7.3 Insulation	8
7.4 Output elements	9
7.5 Functional requirements and tests – accuracy.....	9
7.6 Electromagnetic compatibility (EMC)	12
7.7 Radio interference suppression	15
8 Test conditions and type test.....	15
Annex A (informative) Acceptance tests.....	16

Document Preview

[IEC 62054-21:2004](https://standards.iteh.ai/catalog/standards/iec/c09c1cf3-aa2b-4dd2-8516-2317d3404679/iec-62054-21-2004)

<https://standards.iteh.ai/catalog/standards/iec/c09c1cf3-aa2b-4dd2-8516-2317d3404679/iec-62054-21-2004>

INTERNATIONAL ELECTROTECHNICAL COMMISSION

**ELECTRICITY METERING (AC) –
TARIFF AND LOAD CONTROL –****Part 21: Particular requirements for time switches**

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 provides no marking procedure to indicate its approval and cannot be rendered responsible for any equipment declared to be in conformity with an IEC Publication.
- 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 62054-21 has been prepared by IEC technical committee 13: Equipment for electrical energy measurement and load control.

This standard, in conjunction with IEC 62052-21, cancels and replaces IEC 61038:1990, *Electricity metering – Tariff and load control – Particular requirements for time switches* and all amendments. .

This standard is to be used in conjunction with IEC 62052-21 and the relevant parts of the IEC 62059 series.

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

FDIS	Report on voting
13/1308/FDIS	13/1317/RVD

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.

IEC 62054 consists of the following parts, under the general title: *Electricity metering (a.c.)
Tariff and load control:*

IEC 62054-11: Particular requirements for electronic ripple control receivers
(Replaces the particular requirements of IEC 61037.)

IEC 62054-21: Particular requirements for time switches
(Replaces the particular requirements of IEC 61038.)

The committee has decided that the contents of this publication will remain unchanged until 2013. At this date, the publication will be

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

A bilingual version of this standard may be issued at a later date.

[IEC 62054-21:2004](https://standards.iteh.ai/standards/iec/c09c1cf3-aa2b-4dd2-8516-2317d3404679/iec-62054-21-2004)

<https://standards.iteh.ai/catalog/standards/iec/c09c1cf3-aa2b-4dd2-8516-2317d3404679/iec-62054-21-2004>

INTRODUCTION

This standard distinguishes between protective class I and protective class II equipment

The test levels are regarded as minimum values to guarantee the proper functioning of the equipment under normal working conditions. For special application, other test levels might be necessary and should be agreed on between the user and the manufacturer.

For information, the relevant parts of IEC 62052, IEC 62054 and IEC 62059 are listed below.

IEC 62052-21 Electricity metering equipment (a.c.) – General requirements, tests and test conditions – Part 21: Tariff and load control equipment

(Replaces the general requirements of IEC 61037 and IEC 61038.)

IEC 62054-11 Electricity metering (a.c.) – Tariff and load control – Part 11: Particular requirements for electronic ripple control receivers

(Replaces the particular requirements of IEC 61037.)

IEC 62054-21 Electricity metering (a.c.) – Tariff and load control – Part 21: Particular requirements for time switches

(Replaces the particular requirements of IEC 61038.)

IEC 62059-11 Electricity metering equipment – Dependability – Part 11: General concepts

IEC 62059-21 Electricity metering equipment – Dependability – Part 21: Collection of meter dependability data from the field

IEC 62059-41 Electricity metering equipment – Dependability – Part 41: Reliability prediction¹

Document Preview

[IEC 62054-21:2004](https://standards.iteh.ai/)

<https://standards.iteh.ai/catalog/standards/iec/c09c1cf3-aa2b-4dd2-8516-2317d3404679/iec-62054-21-2004>

¹ To be published.

ELECTRICITY METERING (AC)– TARIFF AND LOAD CONTROL –

Part 21: Particular requirements for time switches

1 Scope

This part of IEC 62054 specifies particular requirements for the type test of newly manufactured indoor time switches with operation reserve that are used to control electrical loads, multi-tariff registers and maximum demand devices of electricity metering equipment.

The time switch keeps the real time, it may keep the date, it may be capable of handling leap years, it may support daylight saving, i.e. it modifies the deviation of local time to GMT according to the relevant regulations. The time switch may have a synchronization capability. The time switch also holds a schedule of switching actions, which may be specified in terms of time, day of the week, date within a month or a year. The time switch controls the output elements depending on the time and the schedule of switching actions stored.

This standard gives no requirements for constructional details internal to the time switch.

In the case where time switch functionality is integrated into multifunction electricity metering equipment, the relevant parts of this standard apply.

This standard covers time switches with analogue mechanical dials or electronic digital displays that are

- synchronous; or
- crystal-controlled.

This standard does not cover the acceptance tests and the conformity tests. Nevertheless, an example of what could be an acceptance test is given in Annex A .

The dependability aspect is covered by the documents of the IEC 62059 series.

When using this standard in conjunction with IEC 62052-21, the requirements of this standard take precedence over those of IEC 62052-21 with regard to any item already covered in it.

2 Normative references

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

IEC 62052-21:200X *Electricity metering equipment (a.c.) – General requirements, tests and test conditions – Part 21: Tariff and load control equipment*²

3 Terms and definitions

For the purposes of this document, the definitions of IEC 62052-21 apply.

² To be published.

4 Standard electrical values

The values given in IEC 62052-21 apply.

5 Mechanical requirements and tests

The requirements and tests specified in IEC 62052-21 and the following apply.

5.1 Dials

For time switches with analogue mechanical dials:

- the direction of rotation of the dials shall be marked by an arrow;
- the hour dial (if any) shall be capable of being read to the nearest minute;
- when required, the hours on the day dial and the days on the week dial should be marked in a different colour;
- all markings shall be indelible and easy to read.

5.2 Digital display

For time switches with electronic digital display:

- the display shall be easy to read. If the same display is used for displaying different values, then a code or other indication shall be displayed to enable each value to be identified;
- the display time of each displayed value shall be at least 6 s.

6 Climatic conditions, requirements and tests

The conditions, requirements and tests specified in IEC 62052-21 apply.

7 Electrical requirements and tests

7.1 Supply voltage

7.1.1 Supply voltage range

The values specified in IEC 62052-21 apply.

7.1.2 Supply frequency range

IEC 62052-21 applies.

7.1.3 Power consumption

IEC 62052-21 applies.

7.1.4 Voltage dips and short interruptions

See 7.6.8.

7.1.5 Long interruptions of supply voltage

7.1.5.1 Requirements

During an interruption of the supply voltage not exceeding the operation reserve, the time switch shall keep the time within the prescribed accuracy (see 7.5.2).

The output elements shall take up the position determined by the time switch programme within 5 s after the restoration of the nominal supply voltage.

If the length of the interruption of the supply voltage exceeds the operation reserve, the time may need to be re-adjusted. The time switch shall begin to execute the time switch programme within 6 h following the restoration of the supply. However, the user and the supplier may agree that, after a prolonged interruption of the supply voltage, the time switch does not restart, the outputs take up a pre-determined position and the time switch displays a special flag.

7.1.5.2 Test of effect of a long interruption of the supply voltage

For testing the time-keeping accuracy on operation reserve, see 7.5.2.3.

The test of the behaviour of the output elements consists of verifying that, after interrupting the supply voltage for an agreed length of time and when the supply is restored to the time switch, the output elements take up the position as determined by the time-switch programme, according to the indicated time.

This test shall be carried out for all possible positions of the output element(s).

The restoration of the supply voltage shall be made with the switching device free from bounce.

7.1.6 Operation reserve

[IEC 62054-21:2004](https://standards.iteh.ai/document/iec/62054-21-2004)

7.1.6.1 Requirements

IEC 62052-21 applies.

7.1.6.2 Tests

For the test of time-keeping accuracy, see 7.5.2.

For the test of required behaviour of the output elements, see 7.1.5.2.

7.1.7 Life of back-up power supply

IEC 62052-21 applies.

7.1.8 Back-up power supply replacement

IEC 62052-21 applies.

7.2 Heating

IEC 62052-21 applies.

7.3 Insulation

IEC 62052-21 applies.