



TECHNICAL REPORT

Mnemonics and designations of symbols for measuring relays, instruments and related device

INTERNATIONAL
ELECTROTECHNICAL
COMMISSION

PRICE CODE

T

ICS 01.080.40; 29.200

ISBN 978-2-88912-691-0

CONTENTS

| | |
|--|----|
| FOREWORD..... | 3 |
| 1 Scope..... | 5 |
| 2 Normative references | 6 |
| 3 Terms and definitions | 6 |
| 4 Measuring relay symbols | 6 |
| 5 Measuring instruments | 6 |
| 6 Mnemonics and designations for measuring relays and instruments | 7 |
| 6.1 Overview | 7 |
| 6.2 Measuring relays..... | 7 |
| 6.3 Power system measuring instruments..... | 17 |
| Bibliography..... | 24 |
| Figure 1 – The general symbol for a measuring relay in IEC 60617..... | 5 |
| Figure 2 – The general symbols for a measuring instrument in IEC 60617 | 5 |
| Table 1 – Measuring relays – Prefix..... | 7 |
| Table 2 – Measuring relays – Suffix | 7 |
| Table 3 – Measuring relays – General..... | 8 |
| Table 4 – Measuring relays – Current | 9 |
| Table 5 – Measuring relays – Voltage | 10 |
| Table 6 – Measuring relays – Frequency..... | 10 |
| Table 7 – Measuring relays – Impedance..... | 11 |
| Table 8 – Measuring relays – Power | 11 |
| Table 9 – Measuring relays – Phase | 12 |
| Table 10 – Measuring relays – Other quantities | 12 |
| Table 11 – Measuring relays – Other fault phenomenon..... | 12 |
| Table 12 – Measuring relays – Pilot wire relay..... | 13 |
| Table 13 – Measuring relays – Carrier pilot relay | 13 |
| Table 14 – Measuring relays – Microwave relay..... | 14 |
| Table 15 – Measuring relays – Calculation type | 14 |
| Table 16 – Measuring relays – Apparatus protection and control | 14 |
| Table 17 – Measuring relays – Other type..... | 15 |
| Table 18 – Measuring relays – Power system control..... | 17 |
| Table 19 – Measuring instruments – Power system measuring instruments | 18 |

INTERNATIONAL ELECTROTECHNICAL COMMISSION

**MNEMONICS AND DESIGNATIONS OF SYMBOLS FOR MEASURING
RELAYS, INSTRUMENTS AND RELATED DEVICE**

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.

The main task of IEC technical committees is to prepare International Standards. However, a technical committee may propose the publication of a technical report when it has collected data of a different kind from that which is normally published as an International Standard, for example "state of the art".

IEC 62711, which is a technical report, was prepared by IEC technical committee 3: Information structures, documentation and graphical symbols.

The text of this technical report is based on the following documents:

| | |
|---------------|------------------|
| Enquiry draft | Report on voting |
| 3/1029A/DTR | 3/1041/RVC |

Full information on the voting for the approval of this technical report 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.

The committee has decided that the contents of this publication will remain unchanged until the stability date indicated on the IEC web site 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.

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

MNEMONICS AND DESIGNATIONS OF SYMBOLS FOR MEASURING RELAYS, INSTRUMENTS AND RELATED DEVICE

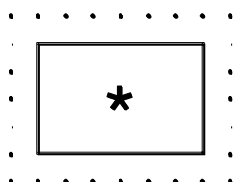
1 Scope

This Technical Report provides recommendations for consistent use of mnemonics and qualifying symbols to be applied to symbols representing devices used in systems for monitoring, protection, switching, and controlling of apparatus in electrical substations, generating stations, power utilization and conversion facilities, and equipment designed for automatic protection of power systems. The recommendations are intended for designers, manufacturers and engineers of such systems.

For symbols of measuring relay and measuring instrument, it is intended to serve two purposes, namely:

- Give a review of standardized designations (as defined in this report);
- Limit the range of possible variants (after final standardization and introduction in IEC 60617).

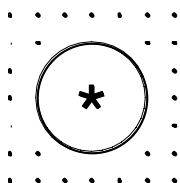
Symbols for measuring relays are symbols in which the functional behaviour of an element, mostly because of its complexity, is described by qualifying symbols e.g. IEC 60617-S00328 (2001-07), IEC 60617-S00337 (2001-07), particularly by referring to supporting documentation; the relevant rules and explanations are to be found in IEC 60617 in the application notes associated with the symbols, e.g. IEC 60617-S00327 (2001-07) (A00091 through A00094).



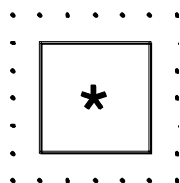
IEC 60617-S00327 (2001-07):
Measuring relay

Figure 1 – The general symbol for a measuring relay in IEC 60617

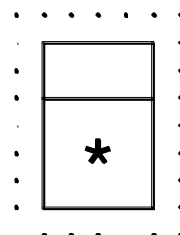
Symbols for indicating, recording or integrating instruments are symbols in which the functional behaviour of an element is fully described by standardized means. The relevant rules and explanations are to be found in IEC 60617 in the application notes associated with the symbols IEC 60617-S00910 (2001-07), IEC 60617-S00911 (2001-07) and IEC 60617-S00912 (A00144 through A00147).



IEC 60617-S00910 (2001-07):
Indicating instrument



IEC 60617-S00911 (2001-07):
Recording instrument



IEC 60617-S00912 (2001-07):
Integrating instrument

Figure 2 – The general symbols for a measuring instrument in IEC 60617

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 60617, *Graphical symbols for diagrams*

ISO/IEC 81714-1, *Design of graphical symbols for use in the technical documentation of products – Part 1: Basic rules*