

INTERNATIONAL STANDARD

NORME INTERNATIONALE

Electrical measuring transducers for converting AC and DC electrical quantities to analogue or digital signals

Transducteurs électriques de mesure convertissant les grandeurs électriques alternatives ou continues en signaux analogiques ou numériques





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INTERNATIONAL ELECTROTECHNICAL COMMISSION

**ELECTRICAL MEASURING TRANSDUCERS FOR CONVERTING AC AND DC
ELECTRICAL QUANTITIES TO ANALOGUE OR DIGITAL SIGNALS**

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This fourth edition cancels and replaces the third edition published in 2012. This edition constitutes a technical revision.

This edition includes the following significant technical changes with respect to the previous edition:

- a) updating normative references;
- b) additional requirements for specific transducers used for LV monitoring applications;
- c) creation of interface coding to ease selection by the end-user.

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

The language used for the development of this International Standard is English.

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INTRODUCTION

New transducers can now be equipped with microprocessors that utilise digital data processing, communication methods and auxiliary sensors. This makes them more complex than conventional analogue transducers and gives them considerable added value.

The class index system of classification used in this document is based upon IEC 60051 (all parts). Under this system, the permitted variations of the output signal due to varying influence quantities – ambient temperature, voltage, frequency, etc. – are implicit in the classification.

For those unfamiliar with the class index system, a word of warning is necessary. If, for example, a transducer is classified as class 1, it does not mean that the error under practical conditions of use will be within ± 1 % of the actual value of the output or ± 1 % of the full output value. It means that the error should not exceed ± 1 % of the fiducial value under closely specified conditions. If the influence quantities are varied between the limits specified by the nominal ranges of use, a variation of amount comparable with the value of the class index may be incurred for each influence quantity.

The permissible error of a transducer under working conditions is the sum of the permissible intrinsic error and of the permissible variations due to each of the influence quantities. However, the actual error is likely to be much smaller because not all of the influence quantities are likely to be simultaneously at their most unfavourable values and some of the variations may cancel one another. It is important that these facts be taken into consideration when specifying transducers for a particular purpose.

Furthermore, some of the terms used in this document are different from those used in IEC 60051 (all parts) due to the fundamental differences between indicating instruments and measuring transducers.

All statements of performance are related to the output which is governed by two basic terms:

- "the nominal value", which may have a positive or a negative sign or both;
- "the span", which is the range of values of the output signal from maximum positive to maximum negative, if appropriate.