

# **ISA-S37.1-1975 (R 1982)**

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(Formerly ANSI MC 6.1-1975)

Standard



# **Electrical Transducer Nomenclature and Terminology**



ISA-S37.1 — Electrical Transducer Nomenclature and Terminology

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## Preface

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This Preface is included for information purposes and is not part of S37.1.

This Standard has been prepared as a service of ISA toward the goal of uniformity in the field of instrumentation. To be of real value, it should not be static, but should be subject to periodic review. Toward this end, the Society welcomes all comments and criticisms and asks that they be addressed to the Standards and Practices Board Secretary, ISA, 67 Alexander Drive, P.O. Box 12277, Research Triangle Park, North Carolina 27709, e-mail: standards@isa.org.

The ISA Standards and Practices Department is aware of the growing need for attention to the metric system of units in general, and the International System of Units (SI) in particular, in the preparation of instrumentation standards. The Department is further aware of the benefits to users of ISA Standards in the USA of incorporating suitable references to the SI (and the metric system) in their business and professional dealings with other countries. Toward this end, this Department will endeavor to introduce SI and SI-acceptable metric units as optional alternatives to English units in all new and revised standards to the greatest extent possible. *The Metric Practice Guide*, which has been published by the American Society for Testing and Materials as ASTM E380-72 (ANSI Z210-1973), and future revisions, will be the reference guide for definitions, symbols, abbreviations and conversion factors.

It is the policy of ISA to encourage and welcome the participation of all concerned individuals and interests in the development of ISA Standards. Participation in the ISA standards-making process by an individual in no way constitutes endorsement by the employer of that individual of ISA or any of the standards which ISA develops.

This Standard supersedes ISA Tentative Recommended Practice RP37.1-1963, which was developed by ISA Subcommittee 8A/RP37.1 (M.E. Binkley, H.N. Norton, T.A. Peris, and A.A. Zuehlke) between 1960 and 1963 to fill a need for standardized transducer nomenclature and specification terminology required, at that time, primarily by the aerospace industry.

As production techniques of electrical transducers advanced, associated measuring techniques and systems became more established, and as new transducer designs became more readily available, they found increasing applications in all industries and sciences in addition to those types of transducers already in widespread use. Hence, it became necessary for ISA to develop uniform transducer nomenclature and terminology for use in as many technological fields as possible.

Using RP37.1-1963 as a starting point, Committee SP37 (consisting of the chairmen of Standards Committees on individual transducer types as well as the cognizant Standards Director) created a draft version of new S37.1 which was mailed to a large review board, representing a wide variety of fields, in 1968. The results of this review indicated the general acceptability of the new Standard to most industries, sciences, and educational institutions. Numerous suggestions for improvements and clarifications were also received by the Committee. Each comment was evaluated, and suitable revisions were made with Committee concurrence.

The preparation of this Standard was coordinated with the government-sponsored Inter-Range Instrumentation Group (IRIG) as well as with ISA Committee SP51 (Measurement & Control Terminology).

The following individuals served on the 1969 SP37 committee:

<b>NAME</b>	<b>COMPANY</b>
H. N. Norton, Chairman	Jet Propulsion Laboratory
J. Z. Inskip, Vice-Chairman	Jet Propulsion Laboratory
P. S. Lederer	National Bureau of Standards
H.C. Chandon	Rosemount Engineering Co.
L. L. Lathrop	Sandia Corp.
C. W. Silver	Revere Corp. of America
R. W. Bidstrup	Kaiser Aluminum and Chemical Co.
R. D. Bronson	General Dynamics Corp., Ft. Worth Div.

The following individuals served on the 1982 SP37 committee:

<b>NAME</b>	<b>COMPANY</b>
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E. W. Malone	Boeing Aerospace Co.
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This Standard was approved for publication by the ISA Standards and Practices Board in October 1982.

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R. Prescott	Moore Products Company
W. C. Weidman	Gilbert Associates
K. A. Whitman	Allied Chemical Corp.
J. R. Williams	Stearns-Roger, Inc.
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R. L. Galley*	
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\*Director Emeritus

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## 1 Purpose

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1.1 This Standard establishes:

1.1.1 Uniform nomenclature for transducers.

1.1.2 Uniform simplified terminology for transducer characteristics.

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## 2 Scope

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2.1 This Standard covers transducers used in electrical and electronic measuring systems.

2.2 It is realized that this Standard may not be wholly suitable for transducers used in automatic control systems and in some other specialized applications.

2.3 Emphasis on the usability of this Standard in all types of written and verbal communications has been placed in the following order of precedence:

- I) Users' and manufacturers' specifications, including catalogs and advertising.
- II) Calibration and test procedures and reports.
- III) Technical papers, educational and reference material, and periodicals.
- IV) Other communications.

2.4 A recommended manner of assigning nomenclature to transducers is shown in [Section 3](#).

2.5 Recommended terminology for transducer characteristics is shown in [Section 4](#).

2.6 The word "simplified" ([see 1.1.2](#)) denotes the most brief, adequate definition which could be derived. The definition may be supplemented as deemed necessary by the user of the term.

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## 3 Nomenclature

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### 3.1 Nomenclature requirements

Nomenclature of transducers should consist of the following:

3.1.1 The noun "transducer";

3.1.2 A first modifier denoting the measurand;

3.1.3 When required, a second modifier restricting the measurand;

3.1.4 A third modifier denoting the electrical transduction principle; the adjective form should be used whenever possible.