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International Standard 3511/2

INTERNATIONAL ORGANIZATION FOR STANDARDIZATION • МЕЖДУНАРОДНАЯ ОРГАНИЗАЦИЯ ПО СТАНДАРТИЗАЦИИ • ORGANISATION INTERNATIONALE DE NORMALISATION

Process measurement control functions and instrumentation — Symbolic representation — Part 2: Extension of basic requirements

Fonctions et instrumentation pour la mesure et la régulation des processus industriels — Représentation symbolique — Partie 2: Extension des principes de base

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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of developing International Standards is carried out through ISO technical committees. Every member body interested in a subject for which a technical committee has been authorized has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work.

Draft International Standards adopted by the technical committees are circulated to the member bodies for approval before their acceptance as International Standards by the ISO Council.

International Standard ISO 3511/2 was developed by Technical Committee ISO/TC 10, *Technical drawings*, and was circulated to the member bodies in May 1983.

It has been approved by the member bodies of the following countries:

Australia	India	Sweden
Austria	Italy	Switzerland
Belgium	Japan	United Kingdom
Brazil	Netherlands	USA
Czechoslovakia	Norway	USSR
Germany, F.R.	Poland	

No member body expressed disapproval of the document.

This part of ISO 3511 was developed by sub-committee 3, *Graphical symbols for instrumentation*. The symbols are intended to be used to represent functions and, in special cases, equipment on technical drawings such as schematic diagrams or process flow-diagrams. However, this field of engineering is closely related to electrical instrumentation dealt with by IEC/TC 65 or in part by IEC/SC 3A. For this reason there has been close coordination in a joint working group and the results were accepted by members of ISO and IEC.

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Process measurement control functions and instrumentation — Symbolic representation — Part 2: Extension of basic requirements

0 Introduction

This International Standard has been devised to provide a universal means of communication among the various interests involved in the design, manufacture, installation and operation of measurement and control equipment used in the process industries.

Requirements within the industries vary considerably; in recognition of this, this International Standard is presented in four parts, as follows:

Part 1: Basic requirements (directed towards the needs of those employing comparatively simple measurements and control means).

Part 2: Extension of basic requirements.

Part 3: Detailed symbols for instrument interconnection diagrams.

Part 4: Basic symbols for process computer, interface, and shared display/control functions.¹⁾

The four parts together are intended to:

- a) meet the requirements of those who, possibly employing more sophisticated measurement and control means, may wish to depict such aspects as the measurement techniques embodied in a particular instrument, or the means — hydraulic, pneumatic, electrical, mechanical — used for its actuation;
- b) provide standard symbolic representation for process measurement control functions and instrumentation. These symbols are not intended to replace graphical symbols for electrical equipment as contained in IEC Publication 117.

1 Scope and field of application

This part of ISO 3511 is an extension of part 1, which is limited to identification of instrument functions.

This part of ISO 3511 includes additional symbols and is intended for the communication of measurement and control functions among instrument specialists and other engineers involved with vessels, piping, layout design and operation.

The symbols are used on piping and instrumentation diagrams and engineering line diagrams.

2 Reference

IEC 117-15, *Recommended graphical symbols; graphical symbols — Part 15: Binary logic elements.*

3 Definitions

The definitions given in ISO 3511/1 equally apply to this part of ISO 3511.

The following definition also applies:

3.1 sensing element: That part of an instrument loop that first senses the value of a process variable and that assumes a predetermined and intelligible state or output.

NOTE — The sensing element may be separate from or integral with another functional element of a loop, but should be given an individual tag number only if it is separate.

Examples:

Where a direct-connected pressure transmitter has an integral pressure-sensitive element, the combined element and transmitter assembly shall be tagged PT.

Where an external pressure cell is connected to a transmitter, the pressure cell shall be tagged PE and the transmitter shall be tagged PT.

4 Letter code

4.1 Identifying letters

The function of the instrument shall be defined by a letter code included within the instrument symbol circle.

4.2 Basis for the letter code

The letter code is built up similarly to the letter code for basic symbols given in ISO 3511/1 but the table extends the letters available for use.

1) At present at the stage of draft.