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Specifications for diagrams for process industry —

Part 2: Measurement and control

Spécifications pour schémas de l'industrie de traitement —

Partie 2: Mesurage et contrôle

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Foreword

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The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular the different approval criteria needed for the different types of ISO documents should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

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Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation on the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the WTO principles in the Technical Barriers to Trade (TBT), see the following URL: Foreword — Supplementary information.

The committee responsible for this document is ISO/TC 10, *Technical product documentation*, SC 10, *Process plant documentation*.

ISO 15519 consists of the following parts, under the general title *Specifications for diagrams for process industry*:

— *Part 1: General rules*

— *Part 2: Measurement and control*

Introduction

0.1 General

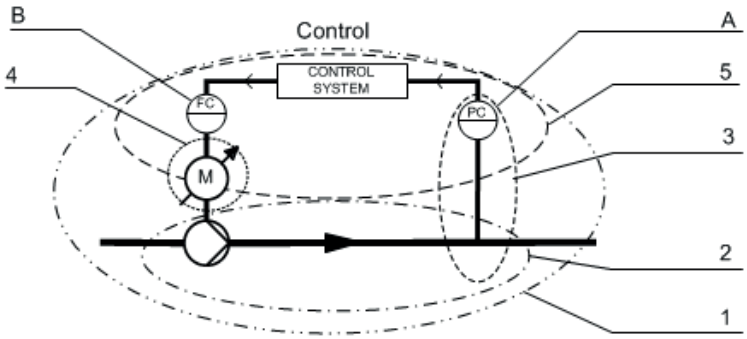
The ISO 15519 series consists of standards for specification of diagrams for process industry, published under the general title: Specification for diagrams for process industry.

This International Standard specifies preparation of different types of diagrams and use of graphical symbols, letter codes, and reference designation in diagrams. This International Standard addresses all process industry fields for example chemical, petrochemical, power, pharmaceutical, foodstuff, pulp, and paper.

This part of ISO 15519 deals with representation of measurement, actuation, and control in process diagrams which in this context covers process flow diagrams (PFD), process and instrument diagrams (PID), process control diagrams (PCD), and typical diagrams (TYD).

0.2 Engineering interrelations

Process diagrams, which represent the configuration of the process system and of the measurement, actuation, and control systems, involves engineering disciplines like process, mechanical, instrumentation, electrical, and control as illustrated in Figure 1.



Key

1 process
2 mechanical
3 instrumentation
4 electrical
5 control
A measurement
B actuation

Figure 1 — Interrelations between engineering disciplines

Figure 1 illustrates the discipline complexity of process systems which force diagrams not only to focus on individual disciplines but overlap to neighbouring disciplines. This is, for example, done in the process and instrumentation diagram which shows mechanical, instrumentation, and electrical objects in same diagram.

As process engineering by tradition is an ISO discipline and control engineering is IEC discipline representation of measurement and control in diagrams need to be coordinated and unambiguously.

0.3 Control system technology and influence on documentation

The technological development within Information Technology constantly challenges the process industry to use "state of the art" technology for engineering of process and control systems. This puts pressure on the standardization organisations to deliver up to date International Standards. As development time and expected lifetime of a standard at present is overtaken several times by the IT development, the standard developers need to develop standards which focus on basic principles and rules to secure high quality documentation and exchange of information.

At present, the configuration and functionality of the process control system are programmed direct in modern control system as control Programmable Logic Controller (PLC) and Distributed Control Systems (DCS). In addition, these systems are self-documenting which could lead to the assumption that traditional diagram documentation are superfluous.

Diagrams are however an important tool for documentation and representation of process system information in all lifecycle phases of a process plant. In the development and engineering phase, diagrams are used also for exchange and sharing of technical information between engineering disciplines and in operation and maintenance phases diagrams are used in daily operation and as part of operation and maintenance manuals.

0.4 Letter codes

ISO 14617-6, 7.3.1 have been moved to this part of ISO 15519 and the description has been changed to "Letter codes for Process Control Information (PCI)".

ISO 14617-6 will be revised at first periodical review or revision after publication of this International Standard.

0.5 Figures

Figures in this International Standard are only examples for illustration of a given rule in the standard.

0.6 Reference designation

In this part of ISO 15519, IEC 81346-1, IEC 81346-2, and ISO/TS 81346-3 are used to illustrate the application of reference designation in diagrams.