IEC 62708

Edition 1.0 2015-02

INTERNATIONAL STANDARD

NORME INTERNATIONALE

colour inside

Document kinds for electrical and instrumentation projects in the process industry

Types de documents pour les projets relatifs aux systèmes électriques et aux instruments de fonctionnement dans l'industrie de transformation

IEC 62708:2015-02(en-fr)

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INTERNATIONAL
ELECTROTECHNICAL
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INTERNATIONAL ELECTROTECHNICAL COMMISSION

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DOCUMENT KINDS FOR ELECTRICAL AND INSTRUMENTATION PROJECTS IN THE PROCESS INDUSTRY

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.
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International Standard IEC 62708 has been prepared by IEC technical committee 65: Industrial-process measurement, control and automation.

The text of this standard is based on the following documents:

FDIS	Report on voting
65/580/FDIS	65/583/RVD

Full information on the voting for the approval of this standard 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- withdrawn,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.

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INTRODUCTION

The engineering in the process industry is driven by international cooperation. Due to economic reasons, special know-how, special licence, authorization or simply capacity utilisation the work is split between partners. They will arrange their cooperation for each individual project differently. This requires well defined split of work and responsibilities. Documents are the basis for these definitions since they are the result of any engineering work.

If there is only the name of a document without further description of form and content, it will be likely that each partner develops their own view of the result of their efforts. Therefore, for each project the definition of deliverable documents is a major issue. The name of a document is often used for similar but in detail different documents. This standard will take the most commonly used name from synonymous names as the document kind name, intending to make other alternatives obsolete.

The first aim of this standard is to avoid misunderstandings and erroneous elaboration of documents in order to reduce additional corrective works and expenses for clarification between partners.

The second aim is to provide the convenience of document handling by using the IEC 61355 database. This standard will provide document kind names, document kind classification codes specified by IEC 61355, and some templates.

To cover these aims, we specify individual document kind names, but do not specify which documents are mandatory or optional.

DOCUMENT KINDS FOR ELECTRICAL AND INSTRUMENTATION PROJECTS IN THE PROCESS INDUSTRY

1 Scope

This International Standard defines specific documents and their basic content required for electrical and instrumentation projects in the process industry.

This standard specifies the document kind name and the mandatory content of the document kind.

Documents used in the phases of a project from the concept phase to the mechanical completion are covered (see IEC 62337).

Documents for project management and quality assurance are included.

Documents for commercial project administration are excluded.

Examples of documents are provided for easy reference, understanding and usage.

2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. 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*

IEC 60079-10-1, *Explosive atmospheres – Part 10-1: Classification of areas – Explosive gas atmospheres*

IEC 60079-11, *Explosive atmospheres – Part 11: Equipment protection by intrinsic safety "i"*

IEC 61082-1, *Preparation of documents used in electrotechnology – Part 1: Rules*

IEC 61131-3, *Programmable controllers – Part 3: Programming languages*

IEC 61355 (all parts), *Classification and designation of documents for plants, systems and equipment*

IEC 61355-1:2008, *Classification and designation of documents for plants, systems and equipment – Part 1: Rules and classification tables*

IEC 61511 (all parts), *Functional safety – Safety instrumented systems for the process industry sector*

IEC 61987-10, *Industrial-process measurement and control – Data structures and elements in process equipment catalogues – Part 10: Lists of properties (LOPs) for industrial-process measurement and control for electronic data exchange – Fundamentals*

IEC 62337, *Commissioning of electrical, instrumentation and control systems in the process industry – Specific phases and milestones*

IEC 62381, *Automation systems in the process industry – Factory acceptance test (FAT), site acceptance test (SAT), and site integration test (SIT)*

IEC 62424, *Representation of process control engineering – Requests in P&I diagrams and data exchange between P&ID tools and PCE-CAE tools*

IEC 82079-1, *Preparation of instructions for use – Structuring, content and presentation – Part 1: General principles and detailed requirements*

ISO 10006, *Quality management systems – Guidelines for quality management in projects*

ISO 10628, *Flow diagrams for process plants – General rules*

3 Terms, definitions, abbreviated terms and acronyms

3.1 Terms and definitions

For the purposes of this document, the following terms and definitions apply.

3.1.1
activity
smallest identified item of work in a project

[SOURCE: ISO 10006: 2003, 3.1]

3.1.2
document
fixed and structured amount of information intended for human perception that can be managed and interchanged as a unit between users and systems

[SOURCE: IEC 61355-1: 2008, 3.2, modified – notes removed for easy understanding.]

3.1.3
document kind
type of document defined with respect to its specified content of information and form of presentation

[SOURCE: IEC 61355-1: 2008, 3.6, modified – note removed for easy understanding.]

3.1.4
document request
document which requests to prepare or provide a set of documents

3.1.5
documentation
collection of documents related to a given subject

[SOURCE: IEC 61355-1: 2008, 3.5, modified – notes removed for easy understanding.]

3.1.6
export permission
authority permission to transport e.g. embargo goods from the country of origin to its intended country of destination

3.1.7
identifier
attribute associated with an object to unambiguously distinguish it from other objects within a specified domain

[SOURCE: IEC/ISO 81346-1: 2009, 3.10]

3.1.8
process industry
industry that uses chemical reactions, separations, or mixing techniques in order to create new products, modify existing products or treat waste and includes the following types of industries: chemical, petrochemical, waste treatment, paper, cement, etc. It does not include such industries as equipment/machine manufacturing or similar industries. Industries which are subject to special requirements and or validation, etc. are also not included

[SOURCE: IEC 62337: 2012, 3.13]

3.1.9
project
sum of commercial, technical and other activities related to a specific object

[SOURCE: IEC 61355-1: 2008, 3.12 modified – definition adapted to comply with the ISO/IEC Directives, Part 2.]

3.1.10
work package
subset of a project forming a group of activities having common characteristics such as purpose, theme, object, responsible, time frame, etc.

3.2 Abbreviated terms and acronyms

DCS	Distributed control system
DLOP	Device list of properties
E&I	Electrical and instrumentation
ESD	Emergency shutdown system
Ex-i	Instrinsic safety "i" according to IEC 60079-11
FAT	Factory acceptance test
I/O	Input/output
ID	Identifier
IT	Information technology
OLOP	Operating list of properties
P&ID	Piping and instrumentation diagram
PLC	Programmable logic controller
SAT	Site acceptance test
SIF	Safety instrumented function
SIL	Safety integrity level
SIS	Safety instrumented system
SIT	Site integration test
SRS	Safety requirement specification

4 Conformity

4.1 Document

Conformance of a document with this international standard may be declared if the following is fulfilled:

The document kind name shall be indicated on the respective document. If the document contains more than one page, the document kind name may be shown on the cover sheet only. The document kind name defined in this standard shall be used.

In addition, a reference to this international standard shall be made in close relation with the usage. A footnote or endnote may be used for this purpose.

Furthermore the final document shall contain all mandatory contents defined in this international standard as a minimum. If data is not or not completely available at the point of time the document is issued, the document may claim conformity with this standard if the missing information is clearly marked as to be given later. A general note declaring the document as being in progress may be used.

4.2 Document request

Conformance of a document request with this international standard may be declared if the following is fulfilled:

The document kind name defined in this standard shall be used.

In addition, a reference to this international standard shall be made in close relation with the usage. A footnote or endnote may be used for this purpose.

5 Document kinds

Table 1 lists document kinds with their properties listed below.

- “Document kind name” indicates the name of the document kind.
- “Description" is the short description of the kind of information to be provided by the document kind.
- "Mandatory content” indicates mandatory information included in the document kind.
- “DCC” indicates a document kind classification code of the document kinds according to IEC 61355-1. The document kind classification code shown is informative only since IEC 61355 may leave other classifications open to the user.
- "Identifier" is a number which together with the DCC is used within this standard to reference the items.
- "Example" shows where an example can be accessed.

Table 1 – Document kinds *(1 of 12)*

Document kind name	Description	Mandatory content	DCC (informative)	Identifier	Example
List of documents	Formal list of content of a document package or a documentation.	- Drawing / document number - Number of sheets - Revision index - Document designation code - Title of document	AB	001	Figure B.1
Punch list	List of all open tasks.	- Task ID - Task description - Task owner - Due date - Priority - Status	BB	001	Figure B.2
Work breakdown structure (WBS)	Structured list of major work packages. It has a tree structure which covers all works required to perform the projects scope and includes all deliverables. The use is described in ISO 10006.	See ISO 10006	BD	001	
Communication plan	Binding agreement regarding permitted ways of information and partners including rules for content and frequency. For further details see ISO 10006.	See ISO 10006	BD	002	
Project execution plan	Execution plan to confirm the project over all scope.	- Scope - Schedule - Documents lists - Organization - Communication plan	BD	003	
Manpower mobilization plan	Bar chart schedule with associated personnel resources and qualifications. For further details of resource planning see ISO 10006.	See ISO 10006 - Name of resource - Resources related to time	BE	001	Figure B.3
Time schedule	Representation of start and end dates of activities from work breakdown structure and main milestones according to IEC 62337.	- Defined activity - Division of activities into sub-activities, if required (e.g. preliminary studies, engineering, manufacturing, testing, dispatch, erection, commissioning, etc.) - Start and end dates for each activity	BE	002	
Equipment list with export restriction	List of equipment requiring export permission.	- Type of equipment - Reference to applicable export restriction	BF	001	

Table 1 *(2 of 12)*

Document kind name	Description	Mandatory content	DCC (informative)	Identifier	Example
Instrument data sheet	Data sheet with data for an instrument loop required for operation and maintenance. The document is typically used to transfer data between the different phases of the whole life-cycle.	- ID - Function - Description - Measuring range - Location - Process data - Instrument data	DA	001	Figure B.4
Identification system	Coding system for objects within a complex or plant.	- Scope of identification system - Coding rules	DB	001	
Test and maintenance recommendations	List of recommended test and maintenance activities.	- Description of recommended activities - Affected objects - Frequency	DC	001	Figure B.5
Operating manual	Manufacturer's instruction for the intended handling and using of a device or system according to IEC 82079-1.	See IEC 82079-1	DC	002	
Test and maintenance requirements	List of legally required or necessary test and maintenance works.	- Description of required activities - Affected objects - Frequency - Designation and title of applicable law or regulation	DZ	001	Figure B.6
General design requirements	Mandatory design rules adapted from project specific requirements as well as from relevant legal requirements and regulations.	- Scope - Description of rules - Designation and title of applicable law or regulation	EC	001	
Electrical consumer list	Tabulated list with all electrical consumers.	- Load ID - Load type (i.e. motor, etc.) - Description - Rated power - Rated current - Rated voltage	EC	002	Figure B.7
Lighting concept	Lighting design guide in compliance with applicable rules and standards paying attention to the safety concept. Typically the concept is further detailed than the general design requirements.	- Scope - Designation and title of applicable law or regulation - Design rules for lighting	EC	003	

Table 1 *(3 of 12)*

Document kind name	Description	Mandatory content	DCC (informative)	Identifier	Example
Concept for communication equipment	Design guide in compliance with applicable rules and standards for electrical systems such as: - warning system - fire alarm system - alarm and signaling system - general communication systems - IT systems - security systems - video surveillance systems etc. Typically the concept is further detailed than the general design requirements.	- Scope - Designation and title of applicable law or regulation - Design rules for communication equipment	EC	004	
Lightning protection, grounding and equipotential bonding concept	Design guide in compliance with applicable rules and standards for the design of lightning protection, grounding and equipotential bonding taking the local conditions into account. Typically the concept is further detailed than the general design requirements.	- Scope - Designation and title of applicable law or regulation - Design rules for lightning protection, grounding and equipotential bonding	EC	005	
Cathodic corrosion protection concept	Design guide in compliance with applicable rules and standards for the design of a cathodic corrosion protection system taking the local conditions into account. Typically the concept is further detailed than the general design requirements.	- Scope - Designation and title of applicable law or regulation - Design rules for cathodic corrosion protection	EC	006	
Electrical heat tracing concept	Design guide in compliance with applicable rules and standards for the design of an electrical heat tracing system taking the local conditions into account. Typically the concept is further detailed than the general design requirements.	- Scope - Designation and title of applicable law or regulation - Design rules for electrical heat tracing	EC	007	
Heating circuit list	List of all heating circuits.	- ID - Heated equipment - Heating cable type - Maintenance temperature - Starting point - Length - Power	EC	008	Figure B.8