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Requirements concerning the interoperability between electromechanical and electrical applications in CAx-systems

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COMMISSION

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CONTENTS

INTERNATIONAL ELECTROTECHNICAL COMMISSION

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REQUIREMENTS CONCERNING THE INTEROPERABILITY BETWEEN ELECTROMECHANICAL AND ELECTRICAL APPLICATIONS IN CAx-SYSTEMS

FOREWORD

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IEC-PAS 62515 has been processed by technical committee 3: Information structures, documentation and graphical symbols.

The text of this PAS is based on the following document:

This PAS was approved for publication by the P-members of the committee concerned as indicated in the following document

Draft PAS	Report on voting
3/837/NP	3/855/RVN

Following publication of this PAS, which is a pre-standard publication, the technical committee or subcommittee concerned will transform it into an International Standard.

This PAS shall remain valid for an initial maximum period of three years starting from 2007-09. The validity may be extended for a single three-year period, following which it shall be revised to become another type of normative document or shall be withdrawn.

INTRODUCTION

During the preparation of several international IEC standards, especially ISO/IEC 10303-212, the question arose as to how to deal with the requirements concerning the physical layout of cubicles, panels, boards, in which devices of different size and of any product class are used, defining the requirements for their installation, service and operation.

The existing definitions on the national level as well as the definitions on the international level do not suffice to supply, process and exchange the data in a computer-sensible form with partners in a process chain. This includes, for example, the installation of devices using robots as well as the semi- or automatic wiring in cubicles.

At the same time, software suppliers requested the German Electrotechnical Commission within VDE (DKE) to define related specifications. For this purpose a task-force has been established, consisting of members of the following companies.

ABB Calor-Emag Schaltanalagen AG	Mannheim
Robert Bosch GmbH	Crailsheim and Stuttgart
Klöckner-Moeller GmbH	Bonn
L. Schuler GmbH	Goeppingen
Siemens AG	Erlangen

During the specification period members of the task force established the request to specify a list of minimum requirements for a software system concerning the needs within electrotechnical applications.

The results of the task force concerning data element types are already widely included within IEC 61360-4.

REQUIREMENTS CONCERNING THE INTEROPERABILITY BETWEEN ELECTROMECHANICAL AND ELECTRICAL APPLICATIONS IN CAx-SYSTEMS

1 Scope

This PAS is intended to serve as a checklist and guideline for the evaluation of CAx-software for applications within the electromechanical field by users in industry.

This PAS provides a set of data element types required in the context of electromechanical applications, especially in the context of electrical applications and their mechanical representations in the real or virtual three-dimensional world.

Where possible, existing internationally standardized data element types have been taken from the existing data element repository as listed in the data base of IEC 61360 available under the URL http://std.iec.ch/iec61360

Available data element types are indicated by their identity number, followed by its name and the definition as given in the data base at the time of publication of this document.

The application of standardized data element types supports the automatization of design processes during the development of products, systems and plants.

2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

IEC 60027 (all parts), *Letter symbols to be used in electrical technology*

IEC 60715:1981, *Dimensions of low-voltage switchgear and controlgear – Standardized mounting on rails for mechanical support of electrical devices in switchgear and controlgear installations*

IEC 61346-1:1996, *Industrial systems, installations and equipment and industrial products – Structuring principles and reference designations – Part 1: Basic rules*

IEC 61360-4:DB, *Standard data element types with associated classification scheme for electric components – Part 4: IEC reference collection of standard data element types and component classes*

IEC 61666:1997, *Industrial systems – Installations and equipment and industrial products – Identification of terminals within a system*

IEC 81714-3:2004, *Design of graphical symbols for use in the technical documentation of products – Part 3: Classification of connect nodes, networks and their encoding*

ISO 31 (all parts), *Quantities and units*

ISO 128 (all parts), *Technical drawings – General principles of presentation*

ISO 129, *Technical drawings – Indication of dimensions and tolerances*

ISO 406:1987, *Technical drawings – Tolerancing of linear and angular dimensions*

ISO 3098 (all parts), *Technical product documentation – Lettering*

ISO 5455:1979, *Technical drawings – Scales*

ISO 5457:1999, *Technical product documentation – Sizes and layout of drawing sheets*

ISO 6428:1982, *Technical drawings – Requirements for microcopying*

ISO 7200:2004, *Technical product documentation – Data fields in title blocks and document headers*

ISO 10303-42:2003, *Industrial automation systems and integration – Product data representation and exchange – Part 42: Integrated generic resource: Geometric and topological representation*

ISO 10303-212:2001, *Industrial automation systems and integration – Product data representation and exchange – Part 212: Application protocol: Electrotechnical design and installation*

ISO 10303-214:2003, *Industrial automation systems and integration – Product data representation and exchange – Part 214: Application protocol: Core data for automotive mechanical design processes*