

This is a preview of "IEC 61800-7-301 Ed. ...". Click here to purchase the full version from the ANSI store.



Edition 1.0 2007-11

# INTERNATIONAL STANDARD

---

**Adjustable speed electrical power drive systems –  
Part 7-301: Generic interface and use of profiles for power drive systems –  
Mapping of profile type 1 to network technologies**

INTERNATIONAL  
ELECTROTECHNICAL  
COMMISSION

PRICE CODE

**XF**

---

ICS 29.200; 35.100.05

ISBN 2-8318-9380-1

## CONTENTS

|   |     |
|---|-----|
| FOREWORD.....   | 8   |
| INTRODUCTION.....   | 10  |
| 1 Scope.....  | 13  |
| 2 Normative references .....                              | 13  |
| 3 Terms, definitions and abbreviated terms .....          | 14  |
| 3.1 Terms and definitions .....                           | 14  |
| 3.2 Abbreviated terms .....                               | 17  |
| 4 General .....   | 17  |
| 5 Mapping to CANopen .....                                | 17  |
| 5.1 Overview .....  | 17  |
| 5.2 Mapping of communication objects.....                 | 17  |
| 5.3 Communication parameter objects.....                  | 17  |
| 5.3.1 General .....                                       | 17  |
| 5.3.2 Object 1000 <sub>h</sub> : Device type.....         | 18  |
| 5.3.3 Object 1029 <sub>h</sub> : Error behaviour.....     | 19  |
| 5.3.4 Object 67FF <sub>h</sub> : Single device type ..... | 20  |
| 5.4 Emergency message .....                               | 20  |
| 5.5 Communication fault events .....                      | 20  |
| 5.6 Sets of pre-defined PDOs.....                         | 20  |
| 5.6.1 General .....                                       | 20  |
| 5.6.2 PDO set for generic drive device .....              | 21  |
| 5.6.3 PDO set for frequency converter.....                | 57  |
| 5.6.4 PDO set for servo drive .....                       | 72  |
| 5.6.5 PDO set for stepper motor.....                      | 91  |
| 5.7 PDO mapping attributes .....                          | 110 |
| 6 Mapping to EtherCAT .....                               | 114 |
| 6.1 Overview .....  | 114 |
| 6.2 Mapping of communication objects.....                 | 114 |
| 6.3 Communication parameter objects.....                  | 114 |
| 6.3.1 General .....                                       | 114 |
| 6.3.2 Object 1000 <sub>h</sub> : Device type.....         | 115 |
| 6.4 Sets of pre-defined PDOs.....                         | 115 |
| 6.5 PDO mapping attributes .....                          | 115 |
| 7 Mapping to ETHERNET Powerlink.....                      | 115 |
| 7.1 Overview .....  | 115 |
| 7.2 Mapping of communication objects.....                 | 115 |
| 7.3 Communication parameter objects.....                  | 116 |
| 7.3.1 General .....                                       | 116 |
| 7.3.2 Object 1000 <sub>h</sub> : Device type.....         | 116 |
| 7.3.3 Object 67FF <sub>h</sub> : Single device type ..... | 116 |
| 7.4 Emergency Information .....                           | 116 |
| 7.5 Sets of pre-defined PDOs.....                         | 116 |
| 7.5.1 General .....                                       | 116 |
| 7.5.2 PDO set for generic drive device .....              | 117 |
| 7.5.3 PDO set for frequency converter.....                | 123 |

|  |                                 |     |
|--|---------------------------------|-----|
| 7.5.4  | PDO set for servo drive .....   | 127 |
| 7.5.5  | PDO set for stepper motor ..... | 131 |
| 7.6  | PDO mapping attributes .....    | 136 |
| Bibliography.....  |                                 | 137 |
| Figure 1 – Structure of IEC 61800-7.....                                   |                                 | 12  |
| Table 1 – List of used data types .....                                    |                                 | 18  |
| Table 2 – Additional information field for generic PDO mapping .....       |                                 | 18  |
| Table 3 – Additional information field for type-specific PDO mapping ..... |                                 | 19  |
| Table 4 – Value definition .....   |                                 | 19  |
| Table 5 – Object description .....   |                                 | 19  |
| Table 6 – Entry description .....  |                                 | 19  |
| Table 7 – Overview on RPDO .....   |                                 | 21  |
| Table 8 – Overview on TPDO.....  |                                 | 21  |
| Table 9 – Object description of communication parameters.....              |                                 | 22  |
| Table 10 – Entry description of communication parameters.....              |                                 | 22  |
| Table 11 – Object description of mapping parameters.....                   |                                 | 23  |
| Table 12 – Entry description of mapping parameters.....                    |                                 | 23  |
| Table 13 – Object description of communication parameters.....             |                                 | 24  |
| Table 14 – Entry description of communication parameters.....              |                                 | 24  |
| Table 15 – Object description of mapping parameters.....                   |                                 | 25  |
| Table 16 – Entry description of mapping parameters.....                    |                                 | 25  |
| Table 17 – Object description of communication parameters.....             |                                 | 26  |
| Table 18 – Entry description of communication parameters.....              |                                 | 26  |
| Table 19 – Object description of mapping parameters.....                   |                                 | 27  |
| Table 20 – Entry description of mapping parameters.....                    |                                 | 27  |
| Table 21 – Object description of communication parameters.....             |                                 | 28  |
| Table 22 – Entry description of communication parameters.....              |                                 | 28  |
| Table 23 – Object description of mapping parameters.....                   |                                 | 29  |
| Table 24 – Entry description of mapping parameters.....                    |                                 | 29  |
| Table 25 – Object description of communication parameters.....             |                                 | 31  |
| Table 26 – Entry description of communication parameters.....              |                                 | 31  |
| Table 27 – Object description of mapping parameters.....                   |                                 | 32  |
| Table 28 – Entry description of mapping parameters.....                    |                                 | 32  |
| Table 29 – Object description of communication parameters.....             |                                 | 33  |
| Table 30 – Entry description of communication parameters.....              |                                 | 33  |
| Table 31 – Object description of mapping parameters.....                   |                                 | 34  |
| Table 32 – Entry description of mapping parameters.....                    |                                 | 34  |
| Table 33 – Object description of communication parameters.....             |                                 | 35  |
| Table 34 – Entry description of communication parameters.....              |                                 | 35  |
| Table 35 – Object description of mapping parameters.....                   |                                 | 36  |

This is a preview of "IEC 61800-7-301 Ed. ...". [Click here to purchase the full version from the ANSI store.](#)

|  |    |
|--|----|
| Table 36 – Entry description of mapping parameters.....        | 36 |
| Table 37 – Object description of communication parameters..... | 38 |
| Table 38 – Entry description of communication parameters.....  | 38 |
| Table 39 – Object description of mapping parameters.....       | 39 |
| Table 40 – Entry description of mapping parameters.....        | 39 |
| Table 41 – Object description of communication parameters..... | 40 |
| Table 42 – Entry description of communication parameters.....  | 40 |
| Table 43 – Object description of mapping parameters.....       | 41 |
| Table 44 – Entry description of mapping parameters.....        | 41 |
| Table 45 – Object description of communication parameters..... | 42 |
| Table 46 – Entry description of communication parameters.....  | 42 |
| Table 47 – Object description of mapping parameters.....       | 43 |
| Table 48 – Entry description of mapping parameters.....        | 44 |
| Table 49 – Object description of communication parameters..... | 45 |
| Table 50 – Entry description of communication parameters.....  | 45 |
| Table 51 – Object description of mapping parameters.....       | 46 |
| Table 52 – Entry description of mapping parameters.....        | 46 |
| Table 53 – Object description of communication parameters..... | 47 |
| Table 54 – Entry description of communication parameters.....  | 47 |
| Table 55 – Object description of mapping parameters.....       | 48 |
| Table 56 – Entry description of mapping parameters.....        | 49 |
| Table 57 – Object description of communication parameters..... | 50 |
| Table 58 – Entry description of communication parameters.....  | 50 |
| Table 59 – Object description of mapping parameters.....       | 51 |
| Table 60 – Entry description of mapping parameters.....        | 51 |
| Table 61 – Object description of communication parameters..... | 52 |
| Table 62 – Entry description of communication parameters.....  | 52 |
| Table 63 – Object description of mapping parameters.....       | 53 |
| Table 64 – Entry description of mapping parameters.....        | 54 |
| Table 65 – Object description of communication parameters..... | 55 |
| Table 66 – Entry description of communication parameters.....  | 55 |
| Table 67 – Object description of mapping parameters.....       | 56 |
| Table 68 – Entry description of mapping parameters.....        | 56 |
| Table 69 – Overview on RPDO .....                              | 57 |
| Table 70 – Overview on TPDO.....                               | 58 |
| Table 71 – Object description of communication parameters..... | 58 |
| Table 72 – Entry description of communication parameters.....  | 58 |
| Table 73 – Object description of mapping parameters.....       | 59 |
| Table 74 – Entry description of mapping parameters.....        | 59 |
| Table 75 – Object description of communication parameters..... | 60 |
| Table 76 – Entry description of communication parameters.....  | 60 |
| Table 77 – Object description of mapping parameters.....       | 61 |
| Table 78 – Entry description of mapping parameters.....        | 61 |

This is a preview of "IEC 61800-7-301 Ed. ...". [Click here to purchase the full version from the ANSI store.](#)

|   |    |
|---|----|
| Table 79 – Object description of communication parameters.....  | 62 |
| Table 80 – Entry description of communication parameters.....   | 63 |
| Table 81 – Object description of mapping parameters.....        | 63 |
| Table 82 – Entry description of mapping parameters.....         | 64 |
| Table 83 – Object description of communication parameters.....  | 65 |
| Table 84 – Entry description of communication parameters.....   | 65 |
| Table 85 – Object description of mapping parameters.....        | 66 |
| Table 86 – Entry description of mapping parameters.....         | 66 |
| Table 87 – Object description of communication parameters.....  | 67 |
| Table 88 – Entry description of communication parameters.....   | 67 |
| Table 89 – Object description of mapping parameters.....        | 68 |
| Table 90 – Entry description of mapping parameters.....         | 69 |
| Table 91 – Object description of communication parameters.....  | 70 |
| Table 92 – Entry description of communication parameters.....   | 70 |
| Table 93 – Object description of mapping parameters.....        | 71 |
| Table 94 – Entry description of mapping parameters.....         | 71 |
| Table 95 – Overview on RPDO .....                               | 72 |
| Table 96 – Overview on TPDO.....                                | 72 |
| Table 97 – Object description of communication parameters.....  | 73 |
| Table 98 – Entry description of communication parameters.....   | 73 |
| Table 99 – Object description of mapping parameters.....        | 74 |
| Table 100 – Entry description of mapping parameters.....        | 74 |
| Table 101 – Object description of communication parameters..... | 75 |
| Table 102 – Entry description of communication parameters.....  | 75 |
| Table 103 – Object description of mapping parameters.....       | 76 |
| Table 104 – Entry description of mapping parameters.....        | 76 |
| Table 105 – Object description of communication parameters..... | 77 |
| Table 106 – Entry description of communication parameters.....  | 77 |
| Table 107 – Object description of mapping parameters.....       | 78 |
| Table 108 – Entry description of mapping parameters.....        | 78 |
| Table 109 – Object description of communication parameters..... | 79 |
| Table 110 – Entry description of communication parameters.....  | 80 |
| Table 111 – Object description of mapping parameters.....       | 80 |
| Table 112 – Entry description of mapping parameters.....        | 81 |
| Table 113 – Object description of communication parameters..... | 82 |
| Table 114 – Entry description of communication parameters.....  | 82 |
| Table 115 – Object description of mapping parameters.....       | 83 |
| Table 116 – Entry description of mapping parameters.....        | 83 |
| Table 117 – Object description of communication parameters..... | 84 |
| Table 118 – Entry description of communication parameters.....  | 84 |
| Table 119 – Object description of mapping parameters.....       | 85 |
| Table 120 – Entry description of mapping parameters.....        | 85 |
| Table 121 – Object description of communication parameters..... | 86 |

This is a preview of "IEC 61800-7-301 Ed. ...". [Click here to purchase the full version from the ANSI store.](#)

|  |     |
|--|-----|
| Table 122 – Entry description of communication parameters .....  | 86  |
| Table 123 – Object description of mapping parameters .....       | 88  |
| Table 124 – Entry description of mapping parameters .....        | 88  |
| Table 125 – Object description of communication parameters ..... | 89  |
| Table 126 – Entry description of communication parameters .....  | 89  |
| Table 127 – Object description of mapping parameters .....       | 90  |
| Table 128 – Entry description of mapping parameters .....        | 90  |
| Table 129 – Overview on RPDO .....                               | 91  |
| Table 130 – Overview on TPDO .....                               | 92  |
| Table 131 – Object description of communication parameters ..... | 92  |
| Table 132 – Entry description of communication parameters .....  | 92  |
| Table 133 – Object description of mapping parameters .....       | 93  |
| Table 134 – Entry description of mapping parameters .....        | 93  |
| Table 135 – Object description of communication parameters ..... | 94  |
| Table 136 – Entry description of communication parameters .....  | 94  |
| Table 137 – Object description of mapping parameters .....       | 95  |
| Table 138 – Entry description of mapping parameters .....        | 95  |
| Table 139 – Object description of communication parameters ..... | 96  |
| Table 140 – Entry description of communication parameters .....  | 97  |
| Table 141 – Object description of mapping parameters .....       | 97  |
| Table 142 – Entry description of mapping parameters .....        | 98  |
| Table 143 – Object description of communication parameters ..... | 99  |
| Table 144 – Entry description of communication parameters .....  | 99  |
| Table 145 – Object description of mapping parameters .....       | 100 |
| Table 146 – Entry description of mapping parameters .....        | 100 |
| Table 147 – Object description of communication parameters ..... | 101 |
| Table 148 – Entry description of communication parameters .....  | 101 |
| Table 149 – Object description of mapping parameters .....       | 102 |
| Table 150 – Entry description of mapping parameters .....        | 102 |
| Table 151 – Object description of communication parameters ..... | 103 |
| Table 152 – Entry description of communication parameters .....  | 103 |
| Table 153 – Object description of mapping parameters .....       | 104 |
| Table 154 – Entry description of mapping parameters .....        | 104 |
| Table 155 – Object description of communication parameters ..... | 106 |
| Table 156 – Entry description of communication parameters .....  | 106 |
| Table 157 – Object description of mapping parameters .....       | 107 |
| Table 158 – Entry description of mapping parameters .....        | 107 |
| Table 159 – Object description of communication parameters ..... | 108 |
| Table 160 – Entry description of communication parameters .....  | 108 |
| Table 161 – Object description of mapping parameters .....       | 109 |
| Table 162 – Entry description of mapping parameters .....        | 110 |
| Table 163 – PDO mapping attributes of CiA 402 objects .....      | 110 |
| Table 164 – List of used data types .....                        | 114 |

|  |     |
|--|-----|
| Table 165 – Additional information field for generic PDO mapping ..... | 115 |
| Table 166 – List of used data types .....                              | 116 |
| Table 167 – Overview on objects in RPDO.....                           | 117 |
| Table 168 – Overview on objects in TPDO .....                          | 117 |
| Table 169 – Object description of communication parameters.....        | 117 |
| Table 170 – Entry description of communication parameters.....         | 118 |
| Table 171 – Object description of mapping parameters.....              | 118 |
| Table 172 – Entry description of mapping parameters.....               | 118 |
| Table 173 – Object description of communication parameters.....        | 120 |
| Table 174 – Entry description of communication parameters.....         | 120 |
| Table 175 – Object description of mapping parameters.....              | 121 |
| Table 176 – Entry description of mapping parameters.....               | 121 |
| Table 177 – Overview on objects in RPDO.....                           | 123 |
| Table 178 – Overview on objects in TPDO .....                          | 123 |
| Table 179 – Object description of communication parameters.....        | 123 |
| Table 180 – Entry description of communication parameters.....         | 123 |
| Table 181 – Object description of mapping parameters.....              | 124 |
| Table 182 – Entry description of mapping parameters.....               | 124 |
| Table 183 – Object description of communication parameters.....        | 125 |
| Table 184 – Entry description of communication parameters.....         | 125 |
| Table 185 – Object description of mapping parameters.....              | 126 |
| Table 186 – Entry description of mapping parameters.....               | 126 |
| Table 187 – Overview on objects in RPDO.....                           | 127 |
| Table 188 – Overview on objects in TPDO .....                          | 127 |
| Table 189 – Object description of communication parameters.....        | 128 |
| Table 190 – Entry description of communication parameters.....         | 128 |
| Table 191 – Object description of mapping parameters.....              | 128 |
| Table 192 – Entry description of mapping parameters.....               | 129 |
| Table 193 – Object description of communication parameters.....        | 129 |
| Table 194 – Entry description of communication parameters.....         | 130 |
| Table 195 – Object description of mapping parameters.....              | 130 |
| Table 196 – Entry description of mapping parameters.....               | 130 |
| Table 197 – Overview on objects in RPDO.....                           | 131 |
| Table 198 – Overview on objects in TPDO .....                          | 132 |
| Table 199 – Object description of communication parameters.....        | 132 |
| Table 200 – Entry description of communication parameters.....         | 132 |
| Table 201 – Object description of mapping parameters.....              | 133 |
| Table 202 – Entry description of mapping parameters.....               | 133 |
| Table 203 – Object description of communication parameters.....        | 134 |
| Table 204 – Entry description of communication parameters.....         | 134 |
| Table 205 – Object description of mapping parameters.....              | 135 |
| Table 206 – Entry description of mapping parameters.....               | 135 |

INTERNATIONAL ELECTROTECHNICAL COMMISSION

**ADJUSTABLE SPEED ELECTRICAL POWER DRIVE SYSTEMS –**

**Part 7-301: Generic interface and use  
of profiles for power drive systems –  
Mapping of profile type 1 to network technologies**

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.
- 2) The formal decisions or agreements of IEC on technical matters express, as nearly as possible, an international consensus of opinion on the relevant subjects since each technical committee has representation from all interested IEC National Committees.
- 3) IEC Publications have the form of recommendations for international use and are accepted by IEC National Committees in that sense. While all reasonable efforts are made to ensure that the technical content of IEC Publications is accurate, IEC cannot be held responsible for the way in which they are used or for any misinterpretation by any end user.
- 4) In order to promote international uniformity, IEC National Committees undertake to apply IEC Publications transparently to the maximum extent possible in their national and regional publications. Any divergence between any IEC Publication and the corresponding national or regional publication shall be clearly indicated in the latter.
- 5) IEC provides no marking procedure to indicate its approval and cannot be rendered responsible for any equipment declared to be in conformity with an IEC Publication.
- 6) All users should ensure that they have the latest edition of this publication.
- 7) No liability shall attach to IEC or its directors, employees, servants or agents including individual experts and members of its technical committees and IEC National Committees for any personal injury, property damage or other damage of any nature whatsoever, whether direct or indirect, or for costs (including legal fees) and expenses arising out of the publication, use of, or reliance upon, this IEC Publication or any other IEC Publications.
- 8) Attention is drawn to the Normative references cited in this publication. Use of the referenced publications is indispensable for the correct application of this publication.
- 9) Attention is drawn to the possibility that some of the elements of this IEC Publication may be the subject of patent rights. IEC shall not be held responsible for identifying any or all such patent rights.

The International Standard IEC 61800-7-301 has been prepared by subcommittee SC 22G: Adjustable speed electric drive systems incorporating semiconductor power converters, of IEC technical committee TC 22: Power electronic systems and equipment.

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

|              |                  |
|--------------|------------------|
| FDIS         | Report on voting |
| 22G/185/FDIS | 22G/193/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.

This is a preview of "IEC 61800-7-301 Ed. ...". [Click here to purchase the full version from the ANSI store.](#)

A list of all parts of the IEC 61800 series, under the general title *Adjustable speed electrical power drive systems*, can be found on the IEC website.

The committee has decided that the contents of this publication will remain unchanged until the maintenance result 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.

A bilingual version of this publication may be issued at a later date.

## INTRODUCTION

The IEC 61800 series is intended to provide a common set of specifications for adjustable speed electrical power drive systems.

IEC 61800-7 describes a generic interface between control systems and power drive systems. This interface can be embedded in the control system. The control system itself can also be located in the drive (sometimes known as "smart drive" or "intelligent drive").

A variety of physical interfaces is available (analogue and digital inputs and outputs, serial and parallel interfaces, fieldbuses and networks). Profiles based on specific physical interfaces are already defined for some application areas (e.g. motion control) and some device classes (e.g. standard drives, positioner). The implementations of the associated drivers and application programmers interfaces are proprietary and vary widely.

IEC 61800-7 defines a set of common drive control functions, parameters, and state machines or description of sequences of operation to be mapped to the drive profiles.

IEC 61800-7 provides a way to access functions and data of a drive that is independent of the used drive profile and communication interface. The objective is a common drive model with generic functions and objects suitable to be mapped on different communication interfaces. This makes it possible to provide common implementations of motion control (or velocity control or drive control applications) in controllers without any specific knowledge of the drive implementation.

There are several reasons to define a generic interface:

### **For a drive device manufacturer**

- Less effort to support system integrators
- Less effort to describe drive functions because of common terminology
- The selection of drives does not depend on availability of specific support

### **For a control device manufacturer**

- No influence of bus technology
- Easy device integration
- Independent of a drive supplier

### **For a system integrator**

- Less integration effort for devices
- Only one understandable way of modeling
- Independent of bus technology

Much effort is needed to design a motion control application with several different drives and a specific control system. The tasks to implement the system software and to understand the functional description of the individual components may exhaust the project resources. In some cases, the drives do not share the same physical interface. Some control devices just support a single interface which will not be supported by a specific drive. On the other hand, the functions and data structures are often specified with incompatibilities. This requires the system integrator to write special interfaces for the application software and this should not be his responsibility.

Some applications need device exchangeability or integration of new devices in an existing configuration. They are faced with different incompatible solutions. The efforts to adopt a solution to a drive profile and to manufacturer specific extensions may be unacceptable. This will reduce the degree of freedom to select a device best suited for this application to the selection of the unit which will be available for a specific physical interface and supported by the controller.

This is a preview of "IEC 61800-7-301 Ed. ...". [Click here to purchase the full version from the ANSI store.](#)

IEC 61800-7-1 is divided into a generic part and several annexes as shown in Figure 1. The drive profile types for CiA 402<sup>1</sup>, CIP Motion<sup>TM2</sup>, PROFIdrive<sup>3</sup> and SERCOS interface<sup>TM4</sup> are mapped to the generic interface in the corresponding annex. The annexes have been submitted by open international network or fieldbus organizations which are responsible for the content of the related annex and use of the related trademarks.

The different profile types 1, 2, 3, 4 are specified in IEC 61800-7-201, IEC 61800-7-202, IEC 61800-7-203 and IEC 61800-7-204.

This part of IEC 61800-7 specifies how the profile type 1 (CiA 402) is mapped to the network technologies CANopen<sup>5</sup>, EtherCAT<sup>TM6</sup> and Ethernet Powerlink<sup>TM7</sup>.

IEC 61800-7-302, IEC 61800-7-303 and IEC 61800-7-304 specify how the profile types 2, 3 and 4 are mapped to different network technologies (such as DeviceNet<sup>TM8</sup>, ControlNet<sup>TM9</sup>, EtherNet/IP<sup>TM10</sup>, PROFIBUS<sup>11</sup>, PROFINET<sup>12</sup> and SERCOS interface)

---

1 CiA 402 is a trade name of CAN in Automation, e.V. This information is given for the convenience of users of this International Standard and does not constitute an endorsement by IEC of the trade name holder or any of its products. Compliance to this profile does not require use of the trade name CiA 402.

2 CIP Motion<sup>TM</sup> is a trade name of Open DeviceNet Vendor Association, Inc. This information is given for the convenience of users of this International Standard and does not constitute an endorsement by IEC of the trademark holder or any of its products. Compliance to this profile does not require use of the trade name CIP Motion<sup>TM</sup>. Use of the trade name CIP Motion<sup>TM</sup> requires permission of Open DeviceNet Vendor Association, Inc.

3 PROFIdrive is a trade name of PROFIBUS International. This information is given for the convenience of users of this International Standard and does not constitute an endorsement by IEC of the trade name holder or any of its products. Compliance to this profile does not require use of the trade name PROFIdrive. Use of the trade name PROFIdrive requires permission of PROFIBUS International.

4 SERCOS<sup>TM</sup> and SERCOS interface<sup>TM</sup> are trade names of SERCOS International e.V. This information is given for the convenience of users of this International Standard and does not constitute an endorsement by IEC of the trade name holder or any of its products. Compliance to this profile does not require use of the trade names SERCOS or SERCOS interface. Use of the trade name SERCOS and SERCOS interface requires permission of the trade name holder.

5 CANopen is an acronym for Controller Area Network *open* and is used to refer to EN 50325-4.

6 EtherCAT<sup>TM</sup> is a trade name of Beckhoff, Verl. This information is given for the convenience of users of this International Standard and does not constitute an endorsement by IEC of the trademark holder or any of its products. Compliance to this profile does not require use of the trade name EtherCAT<sup>TM</sup>. Use of the trade name EtherCAT<sup>TM</sup> requires permission of the trade name holder.

7 Ethernet Powerlink<sup>TM</sup> is a trade name of B&R, control of trade name use is given to the non profit organization EPSG. This information is given for the convenience of users of this International Standard and does not constitute an endorsement by IEC of the trademark holder or any of its products. Compliance to this profile does not require use of the trade name Ethernet Powerlink<sup>TM</sup>. Use of the trade name Ethernet Powerlink<sup>TM</sup> requires permission of the trade name holder.

8 DeviceNet<sup>TM</sup> is a trade name of Open DeviceNet Vendor Association, Inc. This information is given for the convenience of users of this International Standard and does not constitute an endorsement by IEC of the trademark holder or any of its products. Compliance to this profile does not require use of the trade name DeviceNet<sup>TM</sup>. Use of the trade name DeviceNet<sup>TM</sup> requires permission of Open DeviceNet Vendor Association, Inc.

9 ControlNet<sup>TM</sup> is a trade name of ControlNet International, Ltd. This information is given for the convenience of users of this International Standard and does not constitute an endorsement by IEC of the trademark holder or any of its products. Compliance to this profile does not require use of the trade name ControlNet<sup>TM</sup>. Use of the trade name ControlNet<sup>TM</sup> requires permission of ControlNet International, Ltd.

10 EtherNet/IP<sup>TM</sup> is a trade name of ControlNet International, Ltd. and Open DeviceNet Vendor Association, Inc. This information is given for the convenience of users of this International Standard and does not constitute an endorsement by IEC of the trademark holder or any of its products. Compliance to this profile does not require use of the trade name EtherNet/IP<sup>TM</sup>. Use of the trade name EtherNet/IP<sup>TM</sup> requires permission of either ControlNet International, Ltd. or Open DeviceNet Vendor Association, Inc.

11 PROFIBUS is a trade name of PROFIBUS International. This information is given for the convenience of users of this International Standard and does not constitute an endorsement by IEC of the trade name holder or any of its products. Compliance to this profile does not require use of the trade name PROFIBUS. Use of the trade name PROFIBUS requires permission of PROFIBUS International.

12 PROFINET is a trade name of PROFIBUS International. This information is given for the convenience of users of this International Standard and does not constitute an endorsement by IEC of the trade name holder or any of its products. Compliance to this profile does not require use of the trade name PROFINET. Use of the trade name PROFINET requires permission of PROFIBUS International.

This is a preview of "IEC 61800-7-301 Ed. ...". Click here to purchase the full version from the ANSI store.

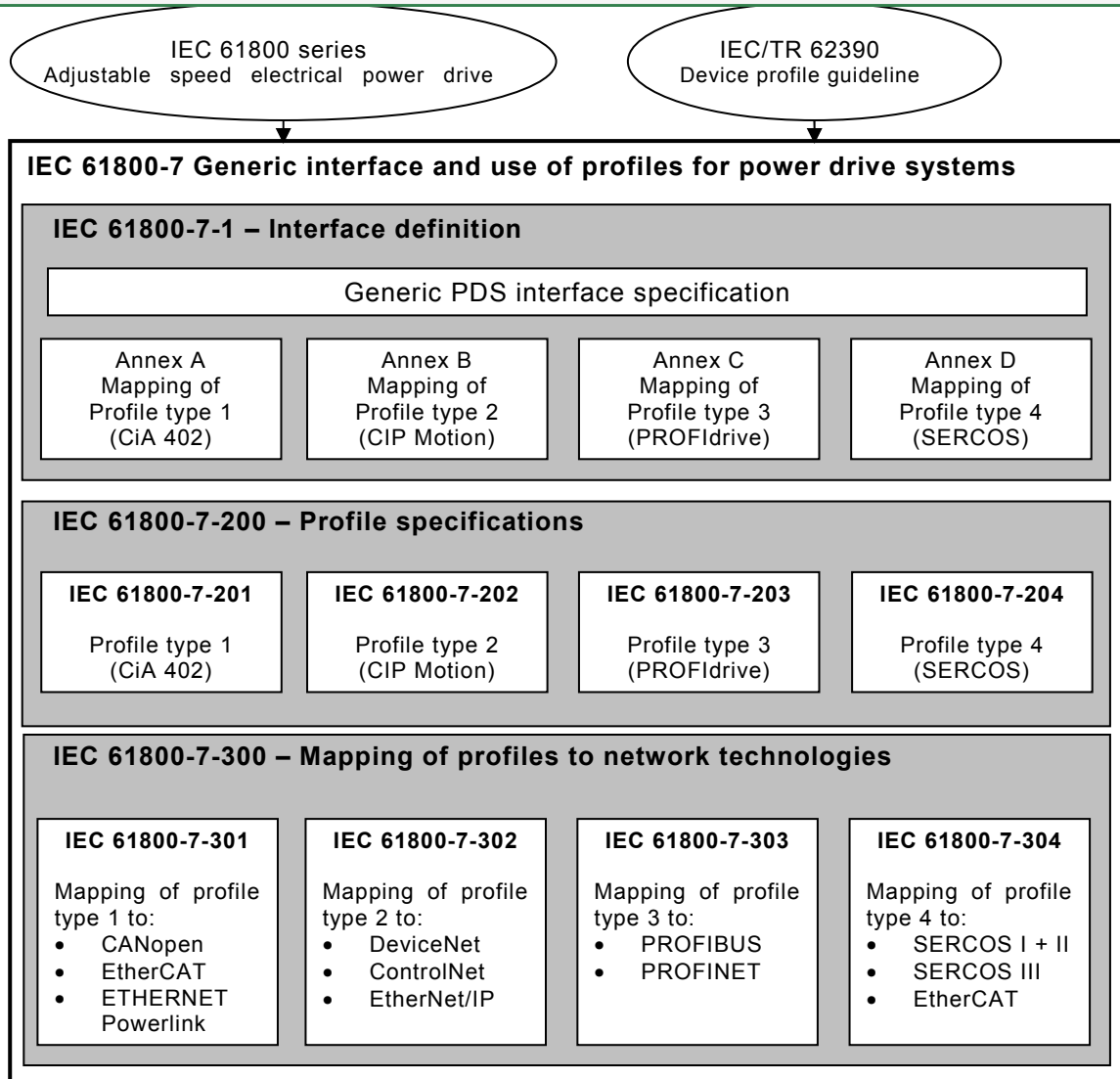


Figure 1 – Structure of IEC 61800-7

## **ADJUSTABLE SPEED ELECTRICAL POWER DRIVE SYSTEMS –**

### **Part 7-301: Generic interface and use of profiles for power drive systems – Mapping of profile type 1 to network technologies**

#### **1 Scope**

IEC 61800-7 specifies profiles for Power Drive Systems (PDS) and their mapping to existing communication systems by use of a generic interface model.

The functions specified in this part of IEC 61800-7 are not intended to ensure functional safety. This requires additional measures according to the relevant standards, agreements and laws.

This part of IEC 61800-7 specifies the mapping of the profile type 1 (CiA 402) specified in IEC 61800-7-201 onto different network technologies.

- CANopen, see Clause 5;
- EtherCAT, see Clause 6;
- ETHERNET Powerlink, see Clause 7.

#### **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 61158-5-12, *Industrial communication networks – Fieldbus specifications – Part 5-12 (Ed.1.0): Application layer service definition – Type 12 elements*

IEC 61158-5-13, *Industrial communication networks – Fieldbus specifications – Part 5-13 (Ed.1.0): Application layer service definition – Type 13 elements*

IEC 61158-6-12, *Industrial communication networks – Fieldbus specifications – Part 6-12 (Ed.1.0): Application layer protocol specification – Type 12 elements*

IEC 61158-6-13, *Industrial communication networks – Fieldbus specifications – Part 6-13 (Ed.1.0): Application layer protocol specification – Type 13 elements*

IEC 61800-7 (all parts), *Adjustable speed electrical power drive systems – Generic interface and use of profiles for power drive systems*

IEC 61800-7-201, *Adjustable speed electrical power drive systems – Part 7-201: Generic interface and use of profiles for power drive systems – Profile type 1 specification*

EN 50325-4, *Industrial communications subsystem based on ISO 11898 (CAN) for controller-device interfaces – Part 4: CANopen*