PROFIdrive Implementation Guide V2.0

Intention and purpose of this implementation guide

The implementation guide was designed to help with the following tasks:

a) Providing a quick overview about the necessary functionality to be implemented for a PROFIdrive device interface without reading and understanding the Profile specification in detail. For best overview the functionality is clustered in functional blocks and there interaction shown in separate function plan diagrams.

b) Entire set of necessary PROFIdrive functionality for specific drive types, related to the PROFIdrive application classes AC1 and AC4 (for version 2). Therefore, it is not necessary to read and understand the Profile specification in detail to determine the necessary functionality and working tasks for a frequency converter interface (AC1) and a Servo Drive interface (AC4). This should help to speed up the establishment of a development plan.

c) Characterization of every PROFIdrive function. For every function there is specified if for the dedicated interface type the implementation is mandatory or optional according to the PROFIdrive standard. In addition, there is a recommendation if it is useful to implement an optional function or not.

d) Additional information to specific functions. If helpful there is additional information for the usage and implementation of specific functions which sometimes can't be found in the standard.

e) In the Application Guide for every functional block there is a reference to the exact clause, pages and figures/tables in the PI PROFIdrive V4.2 standard where this functionality is specified in detail. Therefore, the Application Guide provides also a guide to the PROFIdrive profile.

f) The Application Guide Excel chart can be used as starting basis for an own development plan.

g) The Application Guide Excel chart can be used for tracking of interface development.

How to use the implementation guide

Here is a proposal how to use the implementation guide:

1) Decide which communication system and which PROFIdrive interface type you want to realize in your development/planning. According to this decision extract the correct files from the Implementation Guide Zip-file:
   a. For an AC1 only interface on PROFINET or PROFIBUS use "Profidrive function plan_AC1.pdf" as the functional diagram and "PROFIdrive Implementation Guide All_IRT V4.2.xls" as Excel chart. The excel chart provides two sheets one for the PROFINET interface and one for the PROFIBUS interface.

b. For an AC4 only interface or an AC4 plus AC1 interface on PROFINET or PROFIBUS use "Profidrive function plan_AC4.pdf" as the functional diagram and "PROFIdrive Implementation Guide All_IRT V4.2.xls" as Excel chart. The excel chart provides two sheets one for the PROFINET interface and one for the PROFIBUS interface.

2) Decide which functionality shall be implemented in your project. Therefore according to the required functionality of your drive and the related required PROFIdrive telegrams edit the column "L" in the Excel sheet. An overall functional diagram is given in the related Visio drawing. Numbers in red boxes point to the function blocks in the Excel sheet column "B". You may also use the Visio original files to modify or extend the functional diagram to adapt or include the mapping to your drive internal interferface.

3) Start your PROFIdrive interface development plan by further examination of the functional blocks marked with implementation "yes" in column "L". For more detailed information to these topics read the notes in column "J" or refer to the PROFIdrive V4.2 standard by using the references given in columns "F", "G" and "H". If you have decided to realize your project in different development steps you may add the step sequence and step names to column "M" of the Excel sheet. The default steps already entered in column M" provides an example for a usefull sequence.

4) Based on the necessary functionality claimed in column "L" and the knowledge of the specific functions, you are now able to make a plan for the function mapping to your internal drive interface and also an estimation about the necessary implementation effort. As help for your own implementation or as a tutorial, there are sources for an example PROFIdrive interface implementation available at the PROFIdrive Source Code Project at www.industrialnetworx.com.

5) During implementation, you may track your implementation status by using column "N" in the Excel sheet. For pre certification there is the PROFIdrive Profile tester test tool available free of charge for all PI members. Therefore, it is strongly recommended to immediately check your implementation of a function block by running the corresponding test scripts on the Profile Tester tool. The Profile Tester test scripts for validation of correct function block implementation are listed in column "P" in the Excel chart. Tracking of your test status can be done by using column "O" in the Excel sheet.

How to get further documents

For PI members all specifications and test tools are available free of charge via the PI download area www.profibus.com . Filter for Drives/PROFIdrive or PROFINET and PROFIBUS. Available downloads:

- PROFIdrive Profile specification – PROFIdrive Profile V4.1 at www.profibus.com/downloads .
- List of errata topics related to Profile Version 4.1 or new draft document of PROFIdrive Profile V4.2 (IEC 61800-7 Edition 2). Available at www.profibus-project.com at project PROFIdrive.
- PROFIdrive on PROFIsafe Amendment to the PROFIdrive Profile V3.0 www.profibus.com/downloads .
- PROFIdrive Implementation Guide (including this document). Available at www.profibus-project.com at project PROFIdrive.

- PROFIdrive Profile Tester test tool. There is a PROFIBUS PROFIdrive Profile Tester tool and a PROFINET PROFIdrive Profile Tester tool available. The Profile tester tools will be available at www.profibus.com/downloads in the future.

How to get in contact with other people

- As a PI member you have the possibility to joint the PROFIdrive Marketing and/or the PROFIdrive technical working group. As a member of a working group you will get latest information about all marketing and technical topics. Also you can contribute to the further development of the specification. Ask for details at www.profibus.com.
- As user of the PROFIdrive Profile Tester you can send questions related to the test tool and PROFIdrive technical topics via email to profidrive-test.aud@siemens.com.
- If you register at www.industrialnetworx.com you have access to the download of the PROFIdrive source code example project. Also you can post questions to the community or contribute to the community.

How to give feedback to the implementation guide

If you have comments on bugs in the implementation guide or suggestions for improvement please use the PI working area at www.profibus-project.com and add at the PROFIdrive PG a CR at the "Application Guide" project. If you don't have access to the PI-Working area send an email to profidrive-test.aud@siemens.com.