



ASAM

Association for Standardisation of
Automation and Measuring Systems

ASAM GDI

Generic Device Interface

Part 2 of 3

Programmers Guide PID

Version 2.0.0

Date: 2011-01-31

Base Standard

© by ASAM e.V., 2011

Disclaimer

This document is the copyrighted property of ASAM e.V.
Any use is limited to the scope described in the license terms. The license terms can be viewed at www.asam.net/license

Table of contents

<u>1</u>	<u>Foreword</u>	<u>7</u>
<u>2</u>	<u>Scope</u>	<u>9</u>
<u>3</u>	<u>Terms and definitions</u>	<u>11</u>
<u>4</u>	<u>Symbol and abbreviated terms</u>	<u>15</u>
4.1	Abbreviations	15
<u>5</u>	<u>Compatibility</u>	<u>17</u>
<u>6</u>	<u>GDI PID XSD</u>	<u>19</u>
6.1	Description of the Classes Contained in PID_GDICommon.xsd	19
6.1.1	GDI_CCD	19
6.1.2	GDI_DCD	19
6.1.3	GDI_Module	20
6.1.4	GDI_Interface	20
6.1.5	CreateParameter	20
6.1.6	AttributeReadOnly	21
6.1.7	AttributeReadWrite	22
6.1.8	Parameter	23
6.1.9	GDI_Operation	23
6.1.10	OperationInParameter	24
6.1.11	OperationOutParameter	25
6.1.12	OrderedValue	25
6.2	Naming for Elements of the PID XSD	26
6.3	Assignment of Values	26
6.4	Extensibility	26
<u>7</u>	<u>Mapping of Data Types</u>	<u>27</u>
7.1	Structures	27
7.2	Sequences of Simple Data Types without Length Restriction	27
7.3	Definition of Arrays with Fixed Length for Simple Data Types	28
7.4	Definition of Sequences with Length Restriction for Simple Data Types	28
7.5	Sequences without Length Restriction for Complex Data Types	29
7.5.1	Definition of Array with Fixed Length For Complex Data Types	30
7.6	Definition of Sequences with Length Restriction for Complex Data Types	30
7.7	Definition of Unions	30
7.8	Definition of Enumerations	34

8	<u>Procedure for the Generation of the PID XSD and PID XML Files</u>	35
8.1	Process chain overview	35
8.2	Generation of a PID XSD	35
8.3	Generation of a PID XML file from a PID XSD	36
8.4	Creation of an XML-Instance for DIT Files	36
	Index	37
	Figuredirectory	39
	Tabledirectory	41
	Books	43

1 Foreword

ASAM GDI makes it possible to connect devices and subsystems simply and smoothly with test automation systems.

GDI uses the following basic structure for documents:

- Base Standard
- Companions (e.g. MDAQ, ChasisDyno, Crash, MCD3)
- Transport Layer Communication Types (e.g. IP, COM, LPT, USB, SOFTSYNC)

The Base standard consist of 2 parts:

- Part 1: Common definition of interfaces and description syntax for all layers [ASAM GDI]
- Part 2: Parameterization Instance Description (PID)

The full content of GDI 4.5.0 is available in the ISO 20242 "Industrial automation systems and integration — Service Interface for Testing Applications" with the following parts:

- Part 2: Resource Management Service Interface (content of platform adapter and platform adapter Extension) [ISO 20242-2]
- Part 3: Virtual Device Service Interface (content of Device Driver API) [ISO 20242-3]
- Part 4: Device capability profile template (content of DCD und PID) [ISO 20242-4]
- Part 5: Application Program Service Interface (content of Coordinator Services) [ISO 20242-5]

At the moment the Predefined Service Functions and DIP are not reflected in the ISO standard, as they are specific modeling concepts, which are covered by the creation of ASAM GDI Companions.