SIMATIC PDM
A new, standardized approach

Customer requirements as a base of the development

Before PDM

Different programs for operation of the associated field devices and components

Now

SIMATIC PDM for operation of all field devices and components based on EDD technology

One piece of software for standardized operation of all field devices

Device Descriptions (DD)
Requirements of NAMUR

NE 105 „Specifications for Integrating Fieldbus Devices in Engineering Tools for Field Devices“

- Uniform standards
  - for Device Description
  - for Interfaces

- Investment safety
  - Cross-Platform Compatibility of the Device Description
  - Compliance compatibility rules of the Device Description
  - Compliance compatibility rules of the Tool

- Standard procedure for the integration of new devices
  - independent of the manufacturer
  - independent of the communication

NAMUR – Normenarbeitsgemeinschaft für Meß- und Regelungstechnik
in der Chemischen Industrie
NE – NAMUR - Recommendation
SIMATIC PDM - The Process Device Manager

->_ Customer requirements as a base of the development

SIMATIC PDM
is the universal tool for commissioning, maintenance, diagnostics and display for field devices and automation components.
Can be integrated into SIMATIC S7 / PCS 7 or run on a stand alone basis

Requirements
EDD
Device Integration
User Interface
Communication
Functions
Diagnosis
Product
Summery
**EDD / EDDL**

- EDDL is the language used for description
- EDD represents the actual device description
- EDD Interpreter designs an integrated human/machine interface

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**Requirements**

- EDD
- Device Integration
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- Functions
- Diagnosis
- Product
- Summery

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**Setting a New Standard of Integration**

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**EDD**

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**User Interface**

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**Communication**

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**Functions**

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**Diagnosis**

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**Product**

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**Summery**

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**SIMATIC PDM V6.0 SP1 - Der Process Device Manager**

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**Siemens AG A&D AS PA PM (Ra) 28.11.2005**

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**EDD** – Electronic Device Description

**EDDL** – Electronic Device Description Language
What is actually the EDD?

Textual description of the field devices in the language EDDL

A composition of different information about a device generally is understood by the EDD, however:

- Device Description (EDD)
- Dictionary (user languages)
- Helps (for operation and functions)
- Manuals (technical documentation)
- Communication Descriptions (e.g. PROFIBUS – GSD)
- Pictures
Field of application: EDD / EDDL

- universal and also for very complex field devices

Requirements

- EDD

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Summary

Text interface ideal for devices where the diagnostic, parameterization and optimization functions are realized within the device itself. The EDD is responsible for interpretation, representation and parameterization.

Strengths:

- The description of the device parameters can be used unchanged over many years
- This type of device description is independent of the operating system used for the engineering
- The human/machine interface within an engineering system is standardized for all devices
- All data for all field devices is openly available for further processing
Standardization EDDL

Worldwide a success story

- 2005 EDDL Enhancement Step 1
- 2002 Standardization in CENELEC / IEC 61804
- 2000 Standard in PNO
- 1997 First PROFIBUS devices described in EDDL
- 1996 Standard in the Fieldbus Foundation
- 1992 EDDL becomes standard for HART devices in HART Communication Foundation
- 1990 EDDL used in the International Fieldbus Group (working group of device and system manufacturers)
- 1988 First intelligent HART devices

Today, more than 1200 device types from around 110 manufacturers are already described in EDDL.
Integration into the system

- GSD files contain the communication parameters

- EDD files contain the device parameters and visualization structure and describe the device behavior
The real Problem of Device Integration

- EDDL is the only device description language standardized in the IEC.
- IEC 61804 the only standardized method for the device description.

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Responsibility
System supplier => IEC 61804-2
Device Supplier

Reality
How do you achieve a new EDD in Simatic PDM?

Worldwide simply, quickly, safety and excellent value for money.

- Decision in favor of intelligent field components
  - Profile use or full integration
  - Communication definition

- Order from device manufacturer
  - Device available with EDD (manufacturer produces EDD, if necessary using service provider)
  - Manufacturer declares compliance with specifications
  - Manufacturer declares compatibility with SIMATIC PDM (quality mark)
  - Device is pre-parameterized on request

- Delivery of device
  - Delivery with enclosed diskette for EDD, GSD and documentation
  - Provision via e-mail, Internet etc.

- Import into PDM
  - Data copied onto computer
  - Execution of import function in PDM
Over 1200 different field device types are integrated with SIMATIC PDM

These field devices come from more than 150 different manufacturers

Current information on field devices that can be parameterized using SIMATIC PDM is available on the Internet
SIMATIC PDM

simple Device Integration

⇒ from CD, DVD or Internet and without PC shutdown

- textual descriptions
- operation system-independent
- pure importation
Setting a New Standard of Integration

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SIEMENS

EDD - operation system-independent

Common life cycle of field device and device description.

- SIMATIC PDM V4
  - Windows NT
  - 1997
- SIMATIC PDM V5.02
  - Windows 98
- SIMATIC PDM V5.2
  - Windows ME
- SIMATIC PDM V5.2 SP1
  - Windows 2000
- SIMATIC PDM V6.0
  - Windows XP
  - 2004

1997

2000

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28.11.2005
Benefits of device integration via EDD

**Field devices**
- PA Profile 2
- PA Profile 3

**Device tool**
- n x EDD
- 1 x Tool
- Dates
- EDDL IEC 61804-2

**Asset Management System**
- 1 x standard convert
- Dates
- EDDL IEC 61804-2

**SIMATIC PDM**
- n x Tool
- Dates + Programs
- Programs, Application depend from operation-system
- non Profile
- PA Profile 3

**Product**
- HART

**Diagnosis**
- User Interface
- Communication
- Functions
- Requirements

**SUMMARY**
- Benefits of device integration via EDD
- Field devices
- Device tool
- Asset Management System

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**Automation and Drives**
The EDD as a versatile source of information

Engineering
- Configuration of networks, gateways and remote I/Os
- Export / import of device data
- Upload / Download
- Parameterization
- Comparison of Values

Commissioning
- Address assignment
- Measured value display
- Simulation
- Calibration, adjustment
- Online parameterization
- Device detection for a lifelist

Operating phase
- Display device status and diagnostic information
- Support device replacement
- Check device identification

Asset Management
- Prepare information for maintenance, repair and fault elimination

User profiles
- For maintenance staff with limited access to device parameters
- For specialists with full access to device parameters
- For device-specific user profiles

Help and documentation
Overview of:
- Variables, dialogs, methods
- Ranges of values, default values, units

Catalog and E-commerce
- Ordering data
- Process connection
- Manufacturer information

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SIMATIC PDM
Parameter View / Online - View

➡️ Common view (same look and feel for all devices)

Contents are defined in the Device description (EDD).
Online – View new
(Realization Enhancement step 1)

⇒ New possibilities of graphic representation
Online – View new
(Realization Enhancement step 1)

⇒ New possibilities of graphic representation

- Integration from pictures / video sequences
- Free possibility of combinations
SIMATIC PDM Properties

Diagnostic view for all field device

Communication diagnosis

Standard diagnosis

Detail diagnosis based on EDD (Manufacturer information)
SIMATIC PDM
Integrated Help

⇒ Manufacturer specific documentation can integrate over EDD

Help about Parameters will generate based on EDD

Recommendation for documents is format .pdf
Simatic PDM

Process device system view

Object name (TAG)
Communication status
Diagnostic status
Communication method

When was the last processing
Free text 1
Free text 2
Free text 3

Diagnostic status at last communication
SIMATIC PDM
Process device network view

Common view for stand alone application

- Represents real networks
- Structure can be imported from the lifelist

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Simatic PDM Hardware project (integrated)

➤ Common view for integrated application in Simatic

- Simatic PDM can be started directly from hardware project view Step 7 in Simatic S7 and Simatic PCS 7
- Project wide connections to the field devices
Automation and Drives

SIMATIC PDM
Parameter view (Multi view)

Setting a New Standard of Integration

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Simatic PDM
Communication via Ethernet

→ Central parameterizing /configuration of field devices
Simatic PDM

Communication check

➡️ Sure Communication

- Checks when establishing a connection include
  - Whether the device type matches
  - Whether it is the same device
  - Whether modifications have been made on the device, which have not been saved in the project

- If the connection breaks down, there is an automatic attempt to establish a new connection

- Faults are displayed and logged
Simatic PDM
Im- and Export

➔ XML is the universal interface for im- and export

- Access to Office environment
- Tool for conversion to csv file (Excel) is included on the PDM CD
- Export with HTML – display information (View e.g. with MS Internet Explorer)

- It is possible to export:
  - Lifelist
  - Projects
  - Net works
  - Stations
  - Field devices (Parameters)
  - Audit trail protocol
  - Calibration Protocols (Check protocol)
SIMATIC PDM

Export of Data

⇒ It is the many small points which form the product

- Display as HTML in the Internet Explorer
- Display with XML - Parser
- Conversation in CSV – Format possible
**SIMATIC PDM**
**Asset Management integrated**

- Provision and preparation of information for the Simatic PCS 7 Maintenance station

**Requirements**
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**Cost reduction with PROFIBUS**

Data via Simatic PDM

**Simatic PDM**

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Simatic PDM
Diagnosis / Diagnosis classification

⇒ Any diagnosis found out is classified

- Communication status
  - good / fault
  - Device – assignment fault

- Process status
  - Device status (unchecked, deactivated)
  - Process limits (Tolerant, Warning, Alarm)

- Maintenance status
  - Maintenance request
  - Maintenance demand
  - Maintenance alarm

- Configuration status
  - Fault / Warning
  - Change

- Operate mode
  - locale function check / manual
  - Simulation
  - Out of order
Simatic PDM
Diagnostic symbols (Principle)

» expressive and graphical representation

- The device diagnostics are the basis
  - Described in EDD
  - Described in value status (quality code)

- Symbol is used at all relevant points
  - Process device system view
  - Lifelist
  - Parameter view
  - Multiview

- Only displayed for available information from the field device

- The device manufacturer is responsible for the information content
Simatic PDM

Status from PDM - Functions

- System functions are supervised

- Status of load functions
- Status of set operations
- Status of export and import functions
Simatic PDM
Value comparison

⇒ Identification of local changes

- Comparison of offline data with the online data in the device
Simatic PDM Lifelist

► Ideal for commissioning, service and maintenance

- For PROFIBUS (DP/PA) – Networks, including sub-networks
- Integrate in Simatic S7 / PCS 7 for PROFIBUS PA
- For HART - modem
- Field devices can be parameterized from the lifelist
Simatic PDM

Product structure

➤ The product structure orientates itself to customer requirements

- Single Point
  - Point to Point
- Basic
  - Base Functionality
- Service
  - Ideal for service uses
  - Protocol-/ extended diagnostic Functions
- Simatic S 7
  - Ideal for uses in Simatic S7
  - Integration in Step 7
- Simatic PCS 7
  - Ideal for uses in Simatic PCS 7
  - Routing in the System
- Options
  - Tag – Options
  - HART - Multiplexer
SIMATIC PDM - The Process Device Manager

SIMATIC PDM is the most powerful manager for process devices in the global market in terms of device integration.
Contacts

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SIEMENS AG

Customer Support

City

Tel.: +49 (0) 180 50 50 222

Fax: +49 (0) 180 50 50 223

E-mail: techsupport@ad.siemens.de

Internet

General information

http://pcs.khe.siemens.de/pdm

Customer Support

http://www.siemens.com/automation/service&support
http://www.ad.siemens.com/csinfo

Subsequent installation of field devices

individual from field device manufacturers

or

http://pcs.khe.siemens.de/pdm