Setting a New Standard of Integration

- PDM
- Device integration
- Communication Interface
  - Functions
    - Routing
    - Import/Export
    - Diagnostics
    - Lifelist
    - Multiview
- Benefits
- Contact Us

SIMATIC PDM - The Process Device Manager

The Plantwide, Worldwide Fieldbus
SIMATIC PDM - The Process Device Manager

Setting a New Standard of Integration

- PDM
  - Device integration
  - Communication Interface
- Functions
  - Routing
  - Import/Export
  - Diagnostics
  - Lifelist
  - Multiview
- Benefits
- Contact Us

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.
Setting a New Standard of Integration

PDM

Device integration
Communication
Interface

Functions
• Routing
• Import/Export
• Diagnostics
• Lifelist
• Multiview

Benefits
Contact Us

SIMATIC PDM
A new, standardized approach

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)
EDD / EDDL

- EDDL (Electronic Device Description Language) is the language used for description
- EDD represents the actual device description
- EDD Interpreter designs an integrated human/machine interface

EDDL (Electronic Device Description Language) is the language used for description.
EDD represents the actual device description.
EDD Interpreter designs an integrated human/machine interface.
Field of Application:

- 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.

Examples:

Positioner  Transmitter  Compact controller  Remote I/O

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
Setting a New Standard of Integration

PDM

Device integration

Communication

Interface

Functions

• Routing

• Import/Export

• Diagnostics

• Lifelist

• Multiview

Benefits

Contact Us

Standardization

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 1000 device types from around 100 manufacturers are already described in EDDL.

More than 10,000,000 devices are in use in systems.

SIMATIC PDM – The Process Device Manager

A&D AS PA PM (Ra) 01.04.03 6
How do you achieve a new EDD in a project?

- 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

And away you go – at any time!
Setting a New Standard of Integration

PDM

Device integration

Communication Interface

Functions
- Routing
- Import/Export
- Diagnostics
- Lifelist
- Multiview

Benefits

Contact Us

SIMATIC PDM – The Process Device Manager

Over 1000 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

SIEMENS

ABB

VEGA

Bopp&Reuther

bürkert

SIEMENS

Knick

smar

FIRST IN FIELDBUS

KROHNE

CEAG

SAMSON

Endress+Hauser

The Power of Know How

PEPPERL+FUCHS

SIEMENS

EDDL

A&D AS PA PM (Ra) 01.04.03 8
Integration into the system

- GSD files contain the communication parameters
- EDD files contain the device parameters and visualization structure and describe the device behavior

Setting a New Standard of Integration

PDM

Device integration

Communication

Interface

Functions
- Routing
- Import/Export
- Diagnostics
- Lifelist
- Multiview

Benefits

Contact Us

GSD files contain the communication parameters

EDD files contain the device parameters and visualization structure and describe the device behavior
Setting a New Standard of Integration

Device integration

Communication Interface

Functions
• Routing
• Import/Export
• Diagnostics
• Lifelist
• Multiview

Benefits Contact Us

SIMATIC PDM – The Process Device Manager

Integration takes place in variable steps

• Full integration with DD supplied by manufacturer

• Integration via PROFIBUS PA – Profile V3.0

• Integration via HCF Catalog (HART Communication Foundation)

Based on EDD

Import catalog, can be selected individually

Integration takes place via simple import function in PDM

Integration can be project-specific
The EDD as a versatile source of information

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

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
Setting a New Standard of Integration

PDM
Device integration

Communication

Interface

Functions
• Routing
• Import/Export
• Diagnostics
• Lifelist
• Multiview

Benefits

Contact Us

Network structure:

- Redundant
- Ring
- Line
- Star
- Ex / Non-Ex

Network structure:

- PROFIBUS DP
- Fiber Optic
- PROFIBUS-PA
- Infrared
- PROFIBUS-PA link
- Repeater
- DP/PA link
- OLM
- ILM

SIMATIC PDM – The Process Device Manager
SIMATIC PDM – Connecting points in the automation system

Setting a New Standard of Integration

PDM
Device integration

Communication

Interface

Functions
• Routing
• Import/Export
• Diagnostics
• Lifelist
• Multiview

Benefits

Contact Us

SIMATIC PDM – The Process Device Manager

SIMATIC PDM – The Process Device Manager

Possible SIMATIC PDM connecting point

Any device with any communication type on the work bench
Process device system view

Setting a New Standard of Integration

- PDM
- Device integration
- Communication

Interface

Functions
- Routing
- Import/Export
- Diagnostics
- Lifelist
- Multiview

Benefits

Contact Us

Object name (TAG)

Communication status

Diagnostic status

Communication method

Who was logged in

Overview of all configured SIMATIC PDM objects with:

- Object name (TAG)
- Communication status
- Diagnostic status
- Communication method
- Who was logged in
- When was the last processing
- Free text 1
- Free text 2
- Free text 3
Setting a New Standard of Integration

PDM
Device integration
Communication

Interface

Functions
• Routing
• Import/Export
• Diagnostics
• Lifelist
• Multiview

Benefits

Contact Us

Process device network view

- Interface for stand alone application
- Represents real networks
- Structure can be imported from the lifelist
Parameter view

### SIMATIC PDM - The Process Device Manager

#### Setting a New Standard of Integration

**PDM**
- Device integration

**Communication**

**Interface**

**Functions**
- Routing
- Import/Export
- Diagnostics
- Lifelist
- Multiview

**Benefits**

**Contact Us**

![Parameter view screenshot](image)

**Connected HART device**
- Navigation in entire ET 200iS including to the connected HART devices
  - Parameterization of station
  - Parameterization of individual modules
  - Parameterization of connected HART devices

**Grouping of device parameters assigned by modules**

**Read / write parameters online**
- By module
- Entire ET200 iS

**Parameter view**
- **IM 151-2**
  - **Description**
  - **Initial value**
  - **Value**
  - **Unit**
  - **Status**

**Manufacturer**
- SIEMENS AG

**Device ID**
- Initial value

**Device serial number**
- 00

**Station**

**Grouping of device parameters assigned by modules**

- **I/O channels format**
  - SIMATIC S7

- **Parasitic input frequency**
  - 50 Hz

### Functions

- **Routing**
- **Diagnostics**
- **Lifelist**
- **Multiview**

### Benefits

- **Import/Export**
- **Connected HART device**
- **Navigation in entire ET 200iS**
- **Parameterization of station**
- **Parameterization of individual modules**
- **Parameterization of connected HART devices**

### Contact Us
Online views

- Parameterization / Comparison
  - Online with offline
  - Device with device

- Process value display
  - Curves
  - Bar chart

- Device diagnostics
  - Status
  - Quality

- Commissioning aids
  - Calibration
  - Adjustment
  - Alignment

- Identification
  - Bus scan (lifelist)
  - Device identification
  - HART multiplexer scan

SIMATIC PDM – The Process Device Manager
Routing with SIMATIC S7 / PCS 7

Each point in the networked system can be reached.
Setting a New Standard of Integration

- PDM
- Device integration
- Communication
- Interface

Functions
- Import/Export
- Routing
- Import/Export
- Diagnostics
- Lifelist
- Multiview

Benefits

Contact Us

Import and export of projects, networks . . . .

- Import from XML file
- Export to XML file
- Incorrect data is detected
- Access to Office environment
- Data created or modified by the user is detected and reported
- Tool for conversion to csv file (Excel) is included on the PDM CD
- XML is the universal interface for PDM
Objective

Integration of all process instrumentation components with the minimum possible project planning costs

Closing the circle

- Diagnostics (Fault detection)
- Diagnostics (Results)
- Maintenance requirement (Remedy)
- Servicing (Healing)
- Re-commissioning (Work)

Or shortening the circle

- Preventive maintenance requirement (Cure)
- Preventive maintenance (Work)

- SIMATIC PDM is an ideal component for achieving this objective
- SIMATIC PDM provides a tool and optimum integration into the SIMATIC S7 / PCS 7
Secure 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
### Diagnostic symbols (Principle)

#### Status / Diagnostic display

- **Unchecked**
- **Communication interrupted**
- **Configuration error**
- **Fault**
- **Process error**
- **Maintenance required**
- **Advance maintenance warning**
- **Simulation**
- **Good**
- **Communication good**
- **Device has no diagnostics**
- **Device passive or not assigned**

#### 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
Status from PDM - Functions

- Status of load functions
- Status of set operations
- Status of export and import functions

Extended individual status

Individual status

- was executed successfully
- was executed successfully (new object inserted)
- was executed, the address has changed
- was not executed because it is identical
- was executed with warnings
- was aborted due to an error
- was not executed, because the object is being edited by another user at the moment.
- was not executed for this object.
- is not supported by this object.
- is currently processing
Diagnostic messages from the quality code

Good
- Good, configuration change in progress
- Good, active warning
- Good, unknown configuration
- Good, device in failsafe position
- Good, initialization configuration

Good, import/export
- Good, local operation
- Good, not connected
- Good, device out of service

Uncertain
- Uncertain, sensor calibration
- Uncertain, configuration error
- Uncertain, not connected
- Uncertain, device error
- Uncertain, sensor error
- Uncertain, no connection – last valid value
- Uncertain, no connection – no valid value
- Uncertain, bad device

Bad
- Bad, configuration error
- Bad, not connected
- Bad, device error
- Bad, sensor error
- Bad, device out of service

Alarm text PA Profile HART RIO Conv.
Good
XX X X
Good, configuration change in progress
XX
Good, active warning
Good, unknown configuration
Good, device in failsafe position
Good, initialization configuration

Good, import/export
Good, local operation
Good, not connected
Good, device out of service

Uncertain
- Uncertain, configuration error
- Uncertain, not connected
- Uncertain, device error
- Uncertain, sensor error
- Uncertain, no connection – last valid value
- Uncertain, no connection – no valid value
- Uncertain, bad device

Bad
- Bad, configuration error
- Bad, not connected
- Bad, device error
- Bad, sensor error
- Bad, device out of service
Field device diagnostics

- Standard diagnostics
- Detailed device-specific diagnostics

- Communication diagnostics
- Diagnostic classification for all devices
- Last communication established
- Detailed diagnostics from EDD
Diagnostics – Value comparison

- Comparison of offline data with the online data in the device
- Comparison of offline data from two different devices
- Comparison of online data from two different devices

Diagnostics – Value comparison

Comparison of offline data with the online data in the device
Comparison of offline data from two different devices
Comparison of online data from two different devices
Lifelist

- For PROFIBUS (DP/PA) – Networks, including sub-networks
- For HART modem

Field devices can be parameterized from the lifelist
Data from the lifelist can be exported into the project
Display of diagnostics
Direct transfer into the project

- Transfer of actual lifelist into the project
- Ideal for commissioning, service and maintenance
- Complete, adjusting or additive transfer
Navigation in the project

- PROFIBUS network
- Remote I/O – ET200iS
- Module with HART communication
- Remote I/O – ET200M
- Module with HART communication
- HART field device
- DP/PA link
- PA field device
- Device status
Setting a New Standard of Integration

PDM
- Device integration
- Communication Interface
- Functions
  - Routing
  - Import/Export
  - Diagnostics
  - Lifelist
  - Multiview

Benefits

Contact Us

SIMATIC PCS 7 / SIMATIC PDM / PROFIBUS

Cost savings are possible due to:

- Optimum decentralized system structure
  - Less space required
  - Lower cabling costs

- Effective engineering
  - Standardization of process signals
  - Standardization of diagnostics
  - Standardization of profiles

- Reduced commissioning times
  - Short loop checks
  - No adjustment work
  - Simple parameterization

- Optimum life cycle management
  - Optimum diagnostics
  - Preventive maintenance
Setting a New Standard of Integration

PDM
Device integration
Communication
Interface
Functions
• Routing
• Import/Export
• Diagnostics
• Lifelist
• Multiview

Benefits

SIMATIC PDM is the most powerful manager for process devices in the global market in terms of device integration.
Setting a New Standard of Integration

PDM
Device integration
Communication
Interface
Functions
• Routing
• Import/Export
• Diagnostics
• Lifelist
• Multiview
Benefits

Contact Us

SIEMENS AG
Customer Support
City D-90475 Nürnberg
Tel.: +49 (0) 180 50 50 222
Fax: +49 (0) 180 50 50 223
E-mail: techsupport@ad.siemens.de

Internet
• General information
  https://pcs.khe.siemens.com/pdm

• Customer Support
  http://www.siemens.com/automation/service&support

• Subsequent installation of field devices
  individual from field device manufacturers
  or
  https://pcs.khe.siemens.com/pdm
Setting a New Standard of Integration

PDM
Device integration
Communication Interface
Functions
• Routing
• Import/Export
• Diagnostics
• Lifelist
• Multiview
Benefits
Contact Us

Thank you very much for your interest!

SIEMENS