Setting the Standard for Automation™

Keeping Systems and Communicators Up-to-date using EDDL

Sponsored by ISA-SP104, Electronic Device Description Language

Standards
Certification
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Presenter

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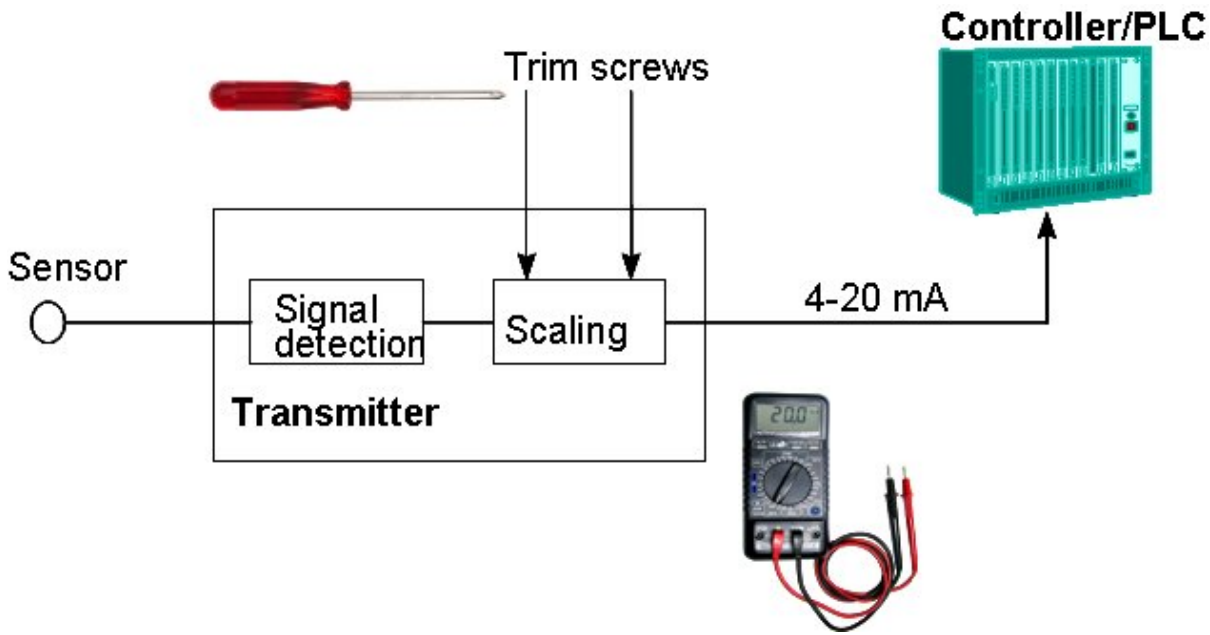
Tutorial Agenda

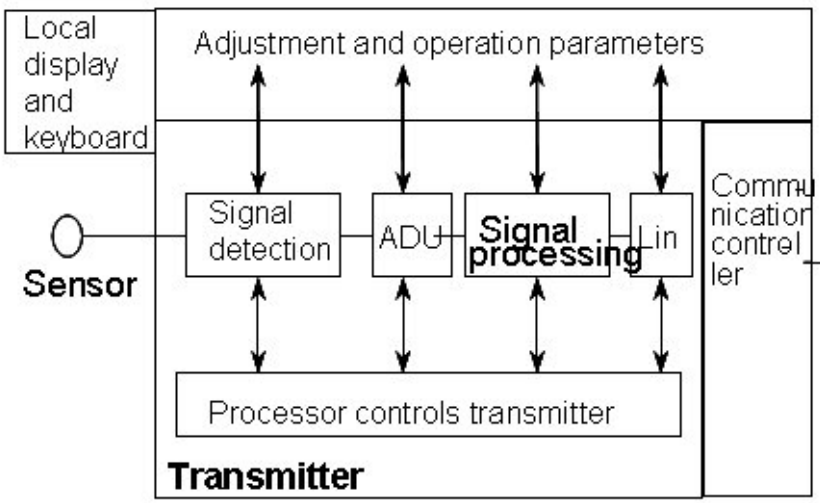
- History of Development
- How EDDL Technology Works
- Benefits of Approach
- Recent EDDL Advancements – Examples
- Updating Systems And Communicators
- Demonstration.

Structure of simple analog field devices



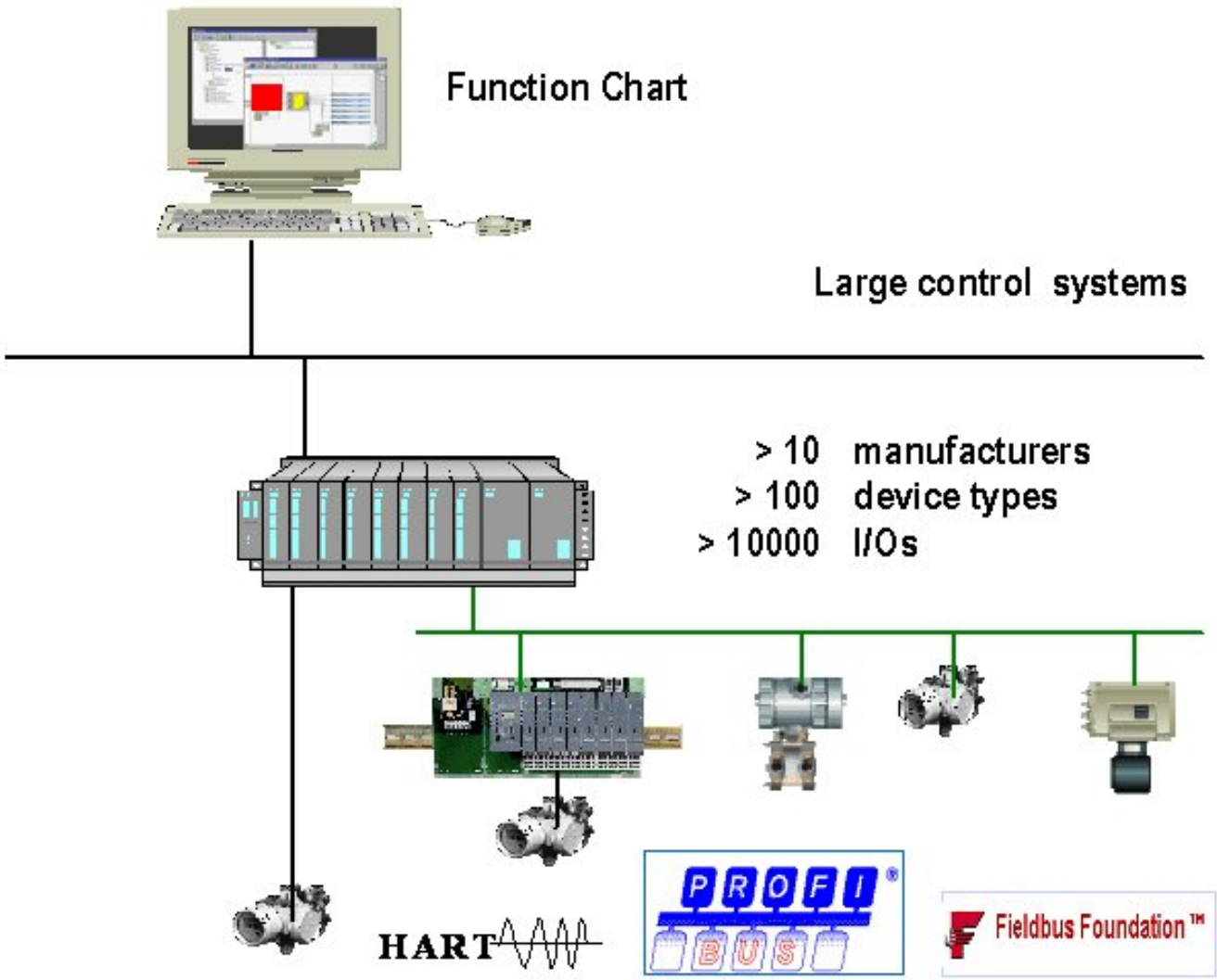
- Local calibration only
- Universal tools i.e. screw driver, meter.
- No remote diagnostic

Structure of digital field devices



- Calibration and diagnostic parameters through communications link
- Different protocols are utilized and device implementation varies with manufacturer
- Diagnostic information is available to support on-line operation.

EDDL – Provides a universal means to access Device Parameters



What is EDDL? International Standard for Interoperability

- EDDL is an Electronic Device Description Language
- EDDL is an international standard
  - Standardized by IEC (IEC 61804-3)
- EDDL is endorsed by four major foundations
  - Fieldbus Foundation
  - HART Communication Foundation
  - Profibus Nutzerorganisation e.V (PNO)
  - The OPC Foundation

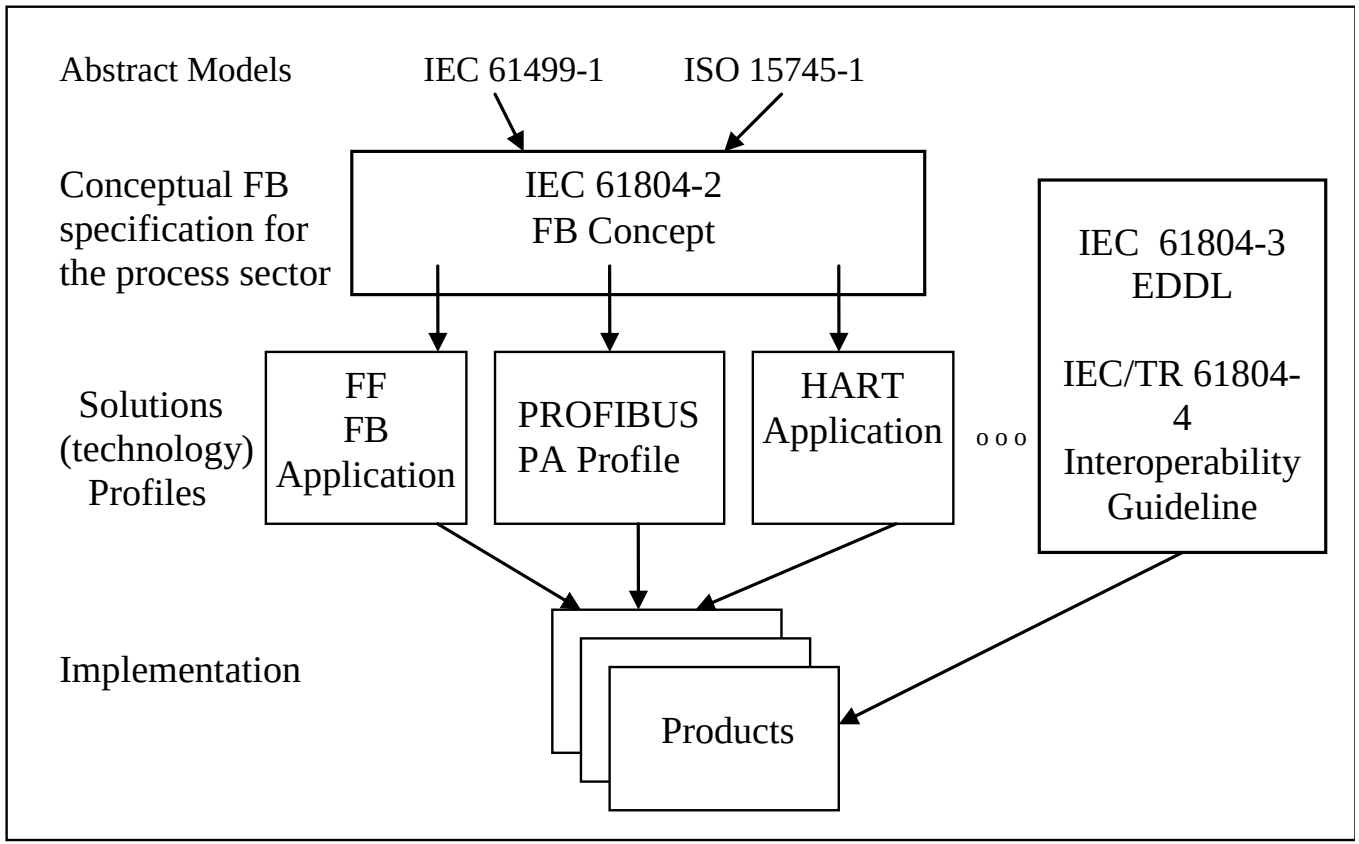
Where is EDDL Utilized

- Using this technology, it is possible to provide an interoperable environment where information available in modern automation sensors and actuators may be accessed by Distributed process control systems or handheld communicator to:
  - Configure
  - Calibrate a device
  - Diagnose problems
  - Provide data and alarms for user-interface displays.
- EDD's are available for more than 20 million installed field instruments from a host of manufacturers.

Development History

- Electronic Device Description technology first appeared in the early 1990's in HART instruments
- In 1994, the Fieldbus Foundation (FF), HART® Communication Foundation (HCF), Profibus Nutzer Organisation e.V. (PNO) adopted EDDL as part of their specifications.
- The Fieldbus Foundation, HCF and PNO collaborated to enhance EDDL and in 2002 submitted a unified version of EDDL to the IEC. The technology became an IEC international standard, IEC 61804-2, in March 2004

IEC61804 Standard for Electronic Device Description



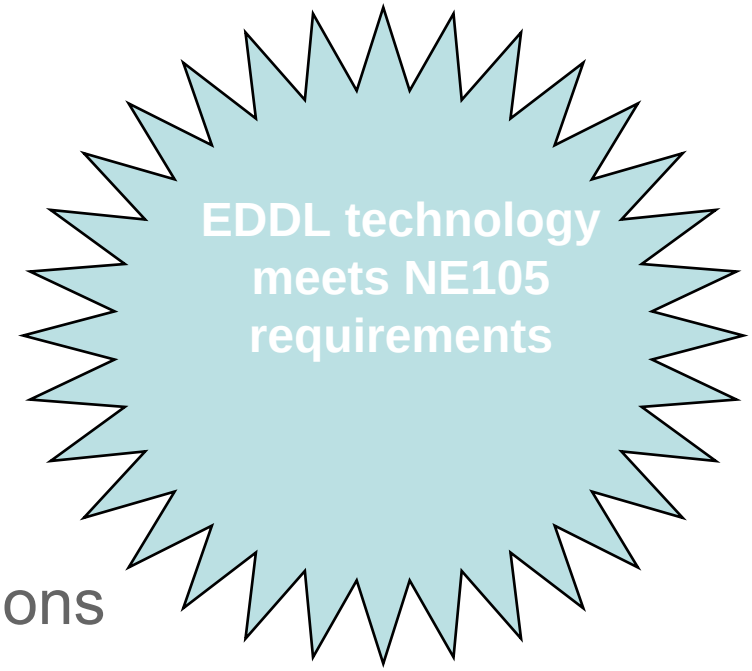
- Complies with IEC61499
- Profile are defined for Fieldbus Foundation, Profibus, and HART

IEC 61804-3 Standard

- This standard specifies EDDL as a generic language for describing:
  - device parameters and their dependencies;
  - device functions, for example, simulation mode, calibration;
  - graphical representations, for example, menus;
  - interactions with control devices
  - graphical representations
  - persistent data store.
- EDDL is to be used to create Electronic Device Description (EDD). This EDD is used with appropriate tools to support parameter handling, operation, and monitoring of automation systems.

EDDL Consistent with NAMUR NE105

- √ 3.1 Investment Safety
- √ 3.2 Version Conflicts
- √ 4.1 Device Integration with Tools
- √ 4.2 User Guidance
- √ 4.3 Display of Devices
- √ 4.4 Standard Profiles
- √ 5.1 Device Descriptions
- √ 5.2 Licensing of Device Descriptions
- √ 5.3 Cross-Platform Compatibility
- √ 5.4 Full Support of Device Functionality
- √ 5.5 Standardized Data filing
- √ 6.0 Certification



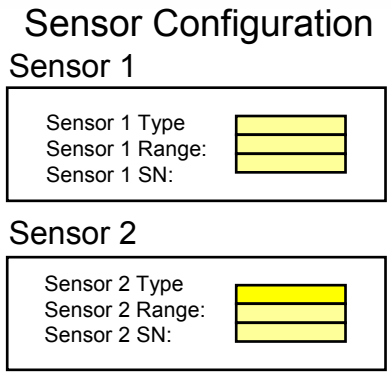
EDDL Cooperation Project

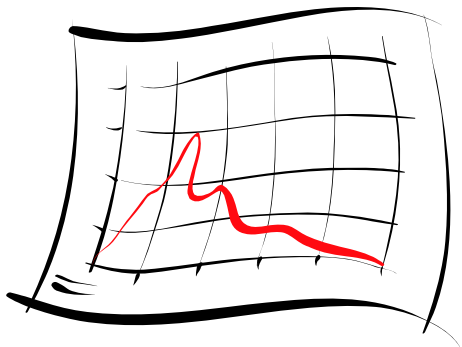
- Founded at the Hannover Fair in April 2004 by Fieldbus Foundation, HCF and PNO and the OPC Foundation to promote and enhance EDDL technology.

Phase 1 Scope

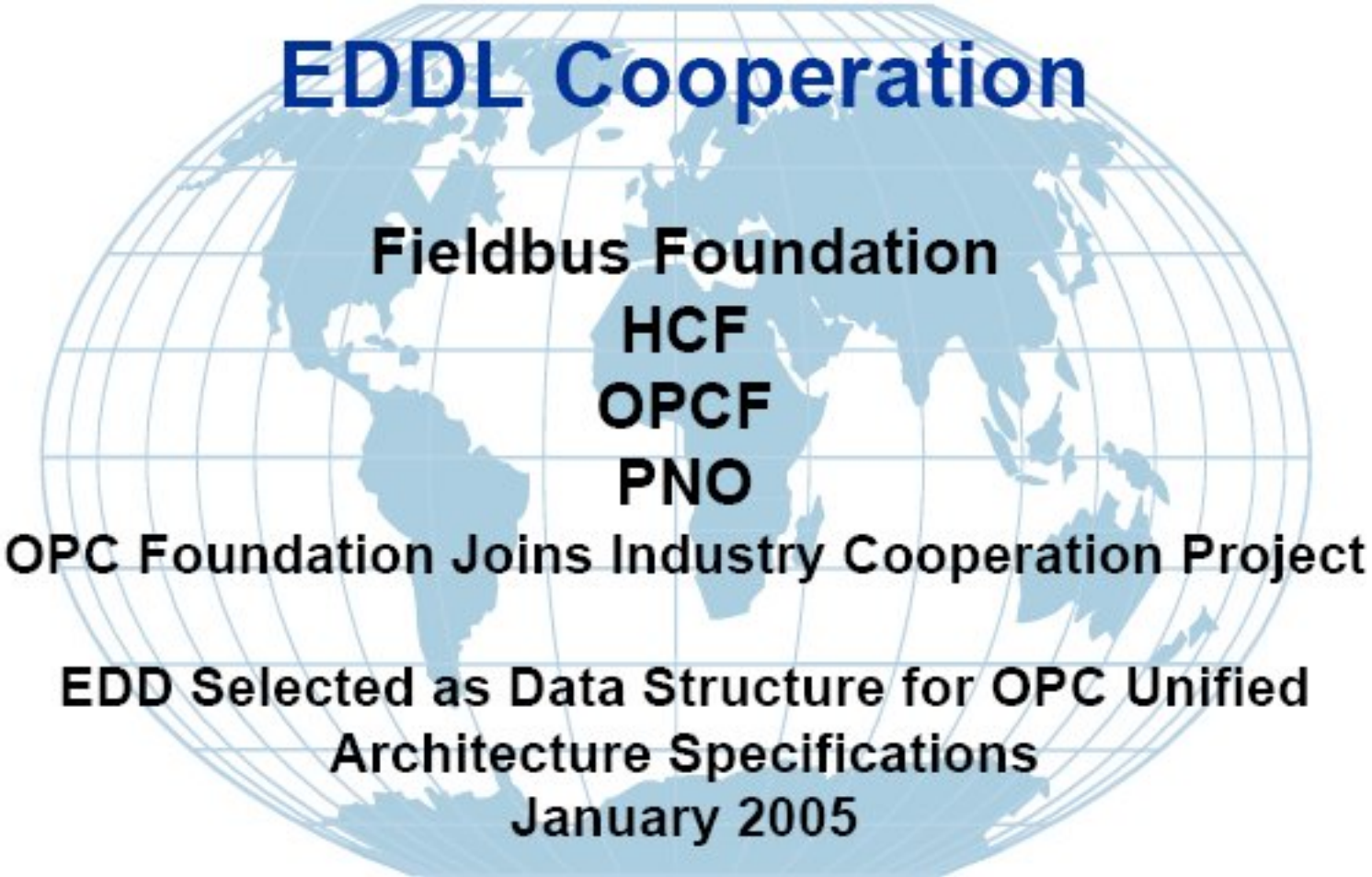
- **Enhanced User Interface**
  - Parameter Organization
  - Images
- **Graphing System**
  - Support for Charts and Graphs to visualize complex data
- **Persistent Data Store**
  - Archive and retrieve data
  - Aids diagnostics executed by devices

These enhancements to EDDL were approved in 2006 as a normal part of the IEC 61804-3 maintenance cycle.





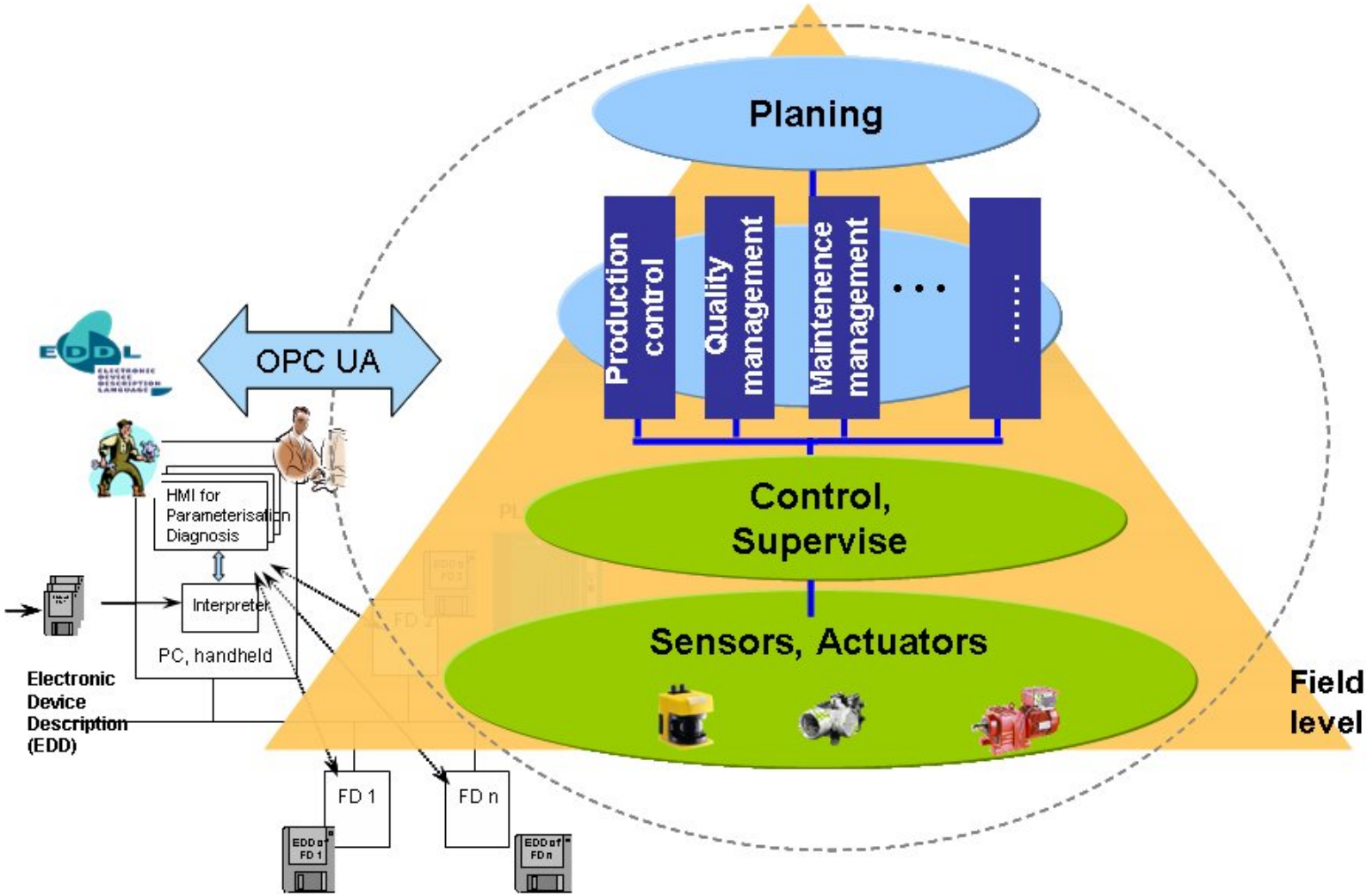
Phase 2 – Joint Work With OPC Foundation



Phase 2 Scope

- Enhanced support for devices connected to process
  - Automation systems
  - Procedures - e.g. device setup and maintenance
- Enhanced access to data references in large
  - Databases and look up tables
- Extended access to product information
  - (e.g. contact, device classification, etc.)
- Information model for OPC UA
  - Includes device and EDD information
- Support of modular devices

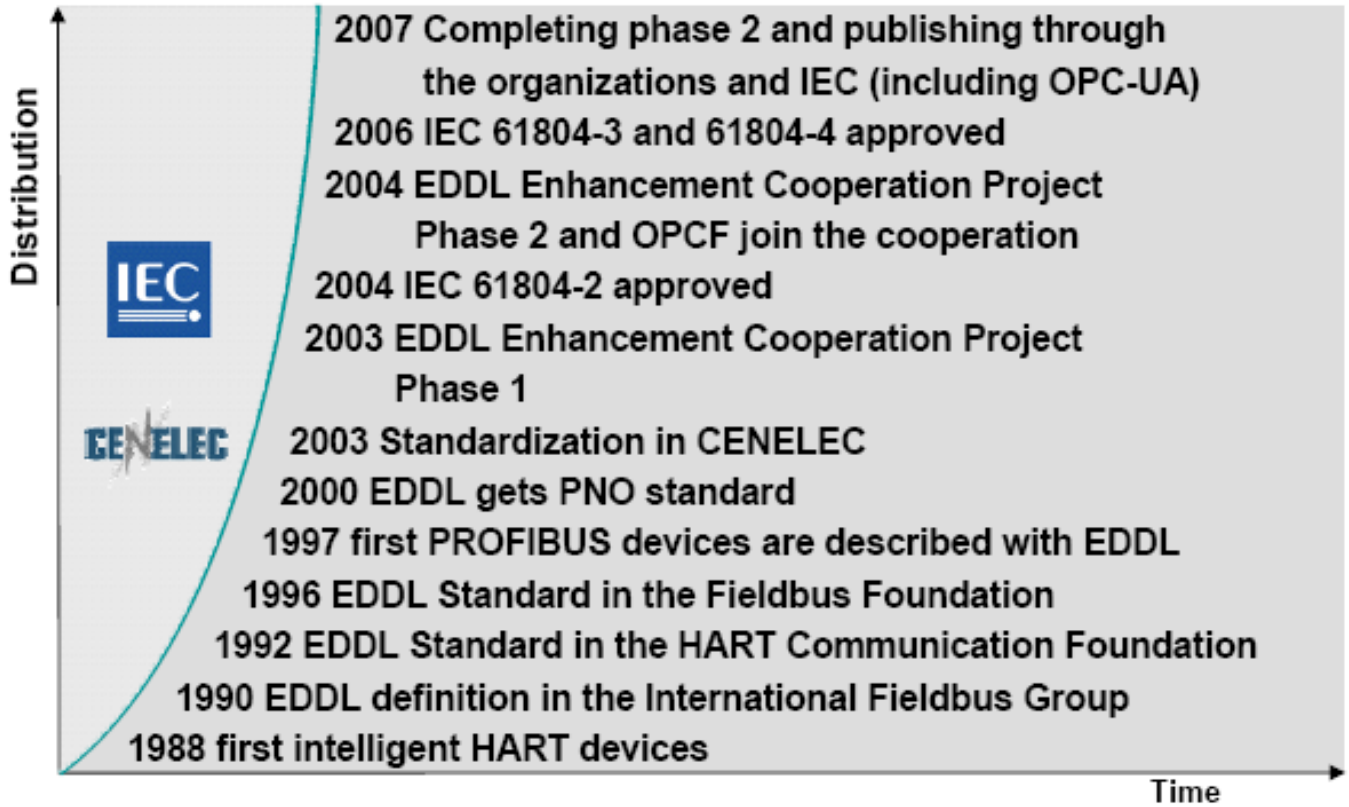
Integration in DCS, MES using OPC UA



ISA SP104

- ISA standards committee established in 2006 to adopt IEC 61804 for device integration.
- Committee has worldwide participation
- Committed to harmonizing its ongoing work with the IEC SC65E WG7
- IEC 61804 approved and published as an ANSI/ISA standard in June, 2007.
- The committee is committed to provide information that will help users and integrators fully utilize EDDL.

EDDL- The Standard for Device Integration



Other Developments

- In 2005, the OPC Foundation announced its adoption of EDDL as the descriptive technology used in its Unified Architecture (UA). The goal is to provide a service oriented architecture that allows for exchanging data/information between manufacturing and business systems.
- The FDT Group announced at the Hanover Fair on April 17th, 2007 that they had joined the EDDL Cooperation Team to help work toward a unified solution for device integration that will use a subset of the OPC UA technology

EDDL Acceptance in the Process Industry

- Foundation Fieldbus (FF) device registration requires an EDD
- EDDL is the only device description language supported by the HART Communication Foundation,
- EDD's are available for FOUNDATION, HART, and Profibus based field device.
- EDD's are available for about 1800 Foundation, HART, and Profibus devices from more than 100 manufacturers
- More than 20,000,000 EDD enables devices are in use in the process industry.
- Because of operating system independence, EDD's from 1992 are still used without changes.

Host Applications Supporting EDDL

ABB - Industrial IT Freelance 800F
ABB - Industrial IT System 800xA
Emerson Process Management - 375 Field Communicator
Emerson Process Management - DeltaV
Emerson Process Management - Ovation
Endress+Hauser - ControlCare
Foxboro - I/A Series FoxCAE
Honeywell - PlantScape
Honeywell - Experion-PKS
Metso - ValvGuard
National Instruments - NI-FBUS Configurator
Rockwell Automation - ProcessLogix
Rockwell Automation – Logix Architecture
Siemens – SIMATIC PCS 7
Smar - System 302
Yamatake - Industrial-DEO
Yokogawa - CENTUM
Yokogawa - STARDOM

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- Recent EDDL Advancements – Examples
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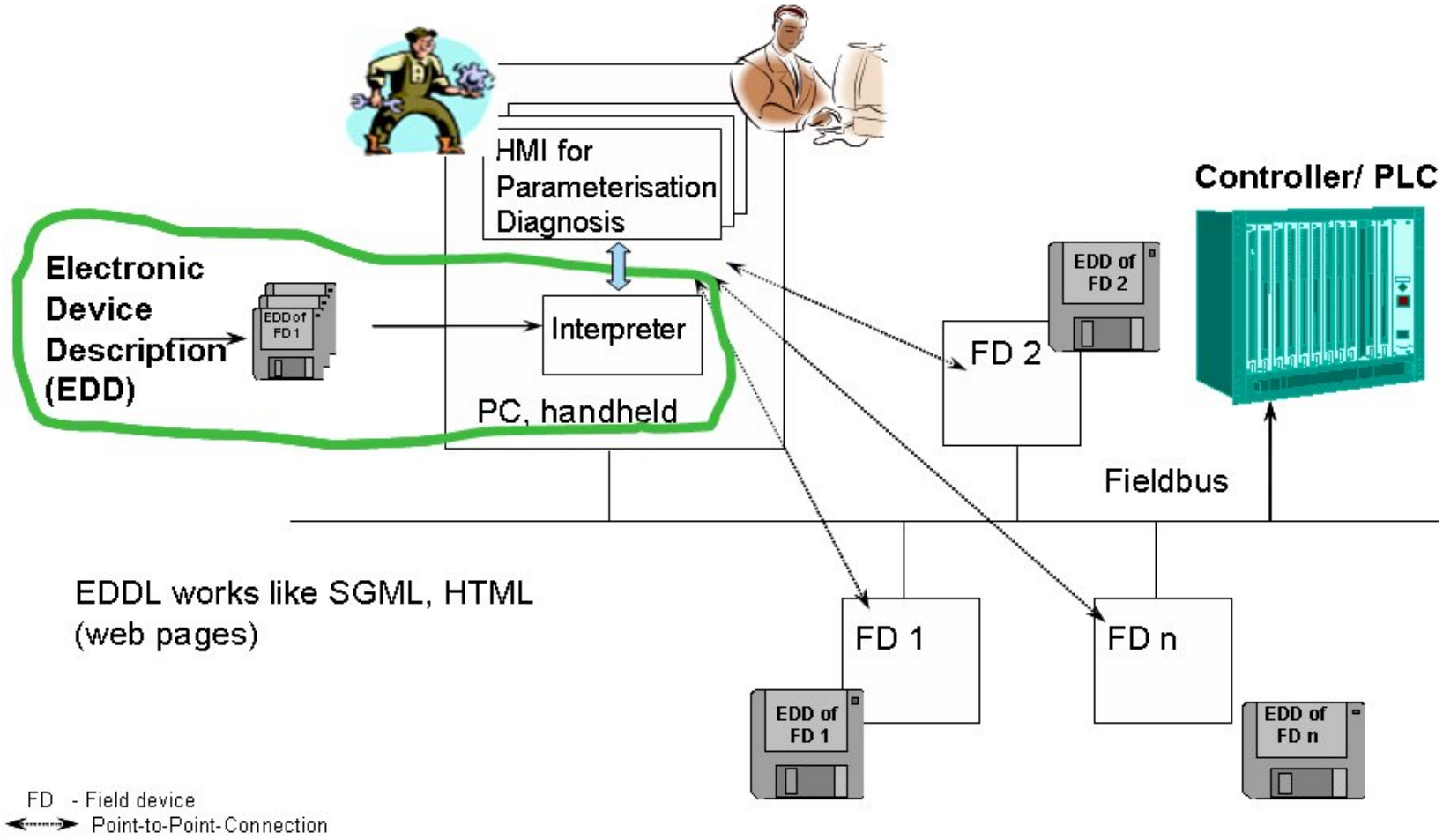
EDDL – What is It?

- The Electronic Device Description Language (EDDL) is a ***text-based language*** that may be used to describe the characteristics of field devices.
- Device suppliers use EDDL to create Electronic Device Description (EDD) files.
- The EDD file provides a standardized form and structure for host systems and handheld communicators to access and display information in field instruments independent of the communication protocol or device operating system.

Interactions with individual field devices



EDD Creation

- The EDD file created by an instrument or device designer uses EDDL syntax to describe a device and all its parameters in detail.
- This can include parameters such as process variable, setpoint, high-low limits, ambient temperature, etc.
- Also, EDDL supports Methods, a scripting language based on a subset of ANSI C that is used to support step-by-step, interactive setup and calibration procedures.
- Device designers can define where all the important parameters should appear on an UI display, such as in columns or bar charts, and in which order.

Language Structure and Key Words

Identification and Version Information

- MANUFACTURER, DEVICE_TYPE
- DEVICE_REVISION and EDD_REVISION

Data Description

- VARIABLES
  - LABEL
  - HELP
  - TYPE
  - CLASS
  - DEFAULT_VALUE
  - MIN/MAX_VALUE
  - UNIT
  - ACTIONS (METHODs)
- ARRAY, ITEM_ARRAY
- BLOCK, RECORD
- COLLECTION
- LIST
- FILE
- ...

User Interface Description

- MENU
- WINDOW, DIALOG
- PAGE, GROUP
- TABLE, GRID
- IMAGE
- CHART
  - hor. and ver. BAR
  - GAUGE
  - SCOPE, STRIP, SWEEP
- GRAPH YT, XY
- ACTIONS (METHODs)
- ...

Communication Description

- COMMAND
  - Data ordering
  - Bit-masks and -positioning
- Upload and Download of offline and online configurations
- Ordering of COMMANDs
- Control of time conditions
- Error handling and Error messages
- Relative and absolute addressing...

Example - Data Description

Parameter can be described with there label, help text, data type, min and max values, read/write handling, etc. The data definitions can be used in structures like BLOCK, RECORD, COLLECTION, ARRAY, LIST, FILE, etc. Any **device model** and **data archives** can be described with EDDL.

References to **text dictionaries** allows to use common wording and translations.

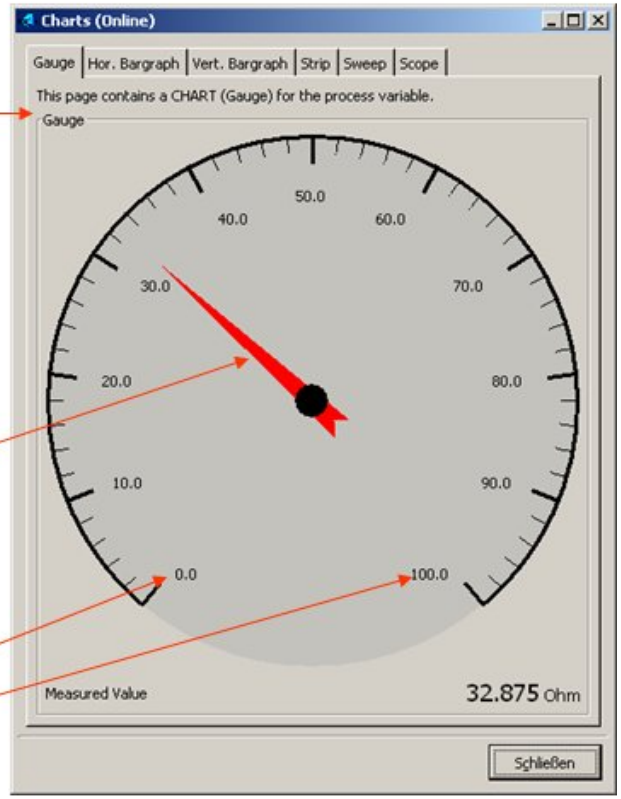
Conditional expression allows to define e.g. value ranges, read/write handling dependent of any other parameters

```
#define LINEAR  0

VARIABLE trans1_temperature_unit
{
   LABEL     [digital_units];
   HELP      [temperature_unit_help];
   CLASS     CONTAINED;
   HANDLING READ & WRITE;
   TYPE      ENUMERATED (2)
   {
      DEFAULT_VALUE 32;
      { 32, [degC],   [degC_help] },
      { 33, [degF],   [degF_help] },
      { 34, [degR],   [degR_help] },
      { 35, [Kelvin], [Kelvin_help] }
      IF (trans1_sensor_type == LINEAR)
      {
         { 36, [mV], [mV_help]   },
         { 37, [Ohm], [Ohm]      },
         { 39, [mA], [mA_help]   },
      }
   }
}
```

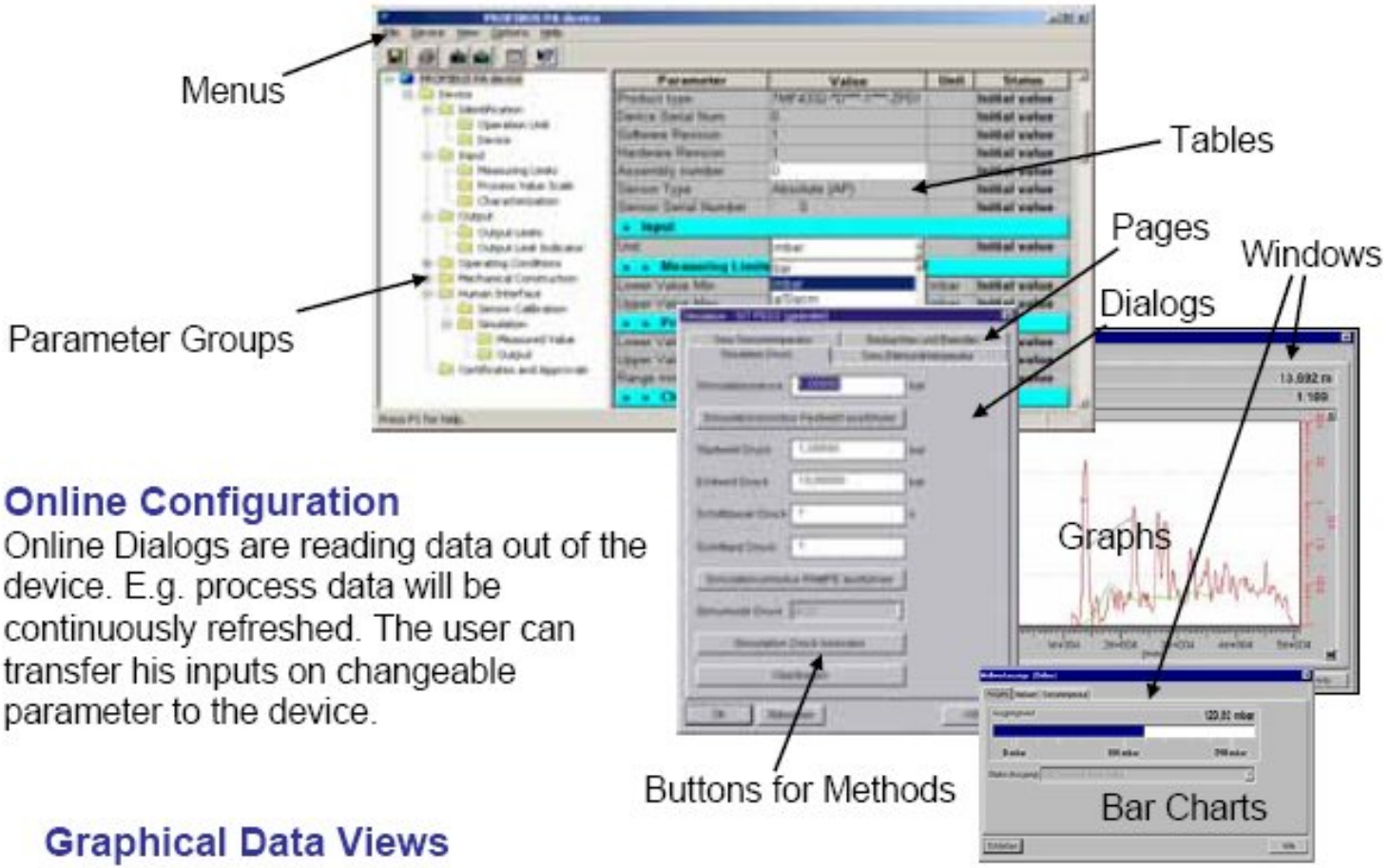
Graphical User interface - AXIS

```
CHART GaugeChartNormalSize
{
        LABEL    "Gauge";
        TYPE     GAUGE;
        MEMBERS
        {
                SOURCE1, chartsource1;
        }
}
SOURCE chartsource1
{
        LABEL "source 1";
        Y_AXIS chartyaxis1;
        MEMBERS
        {
                VALUE1, trans1_primary_value;
        }
}
AXIS chartyaxis1
{
        LABEL "yaxis 1";
        MIN_VALUE trans1_lower_sensor_limit;
        MAX_VALUE trans1_upper_sensor_limit;
}
```



EDD User Interface Description

Very simply hierarchies of menus, dialogs, windows,table views with parameter groups, images, graphs, charts, etc. can be created.



Online Configuration

Online Dialogs are reading data out of the device. E.g. process data will be continuously refreshed. The user can transfer his inputs on changeable parameter to the device.

Graphical Data Views

It very easy to define graphs or charts with different styles. Therefore in the EDD the ranges, unit, the data or datalist and optional some additional information have to be defined.

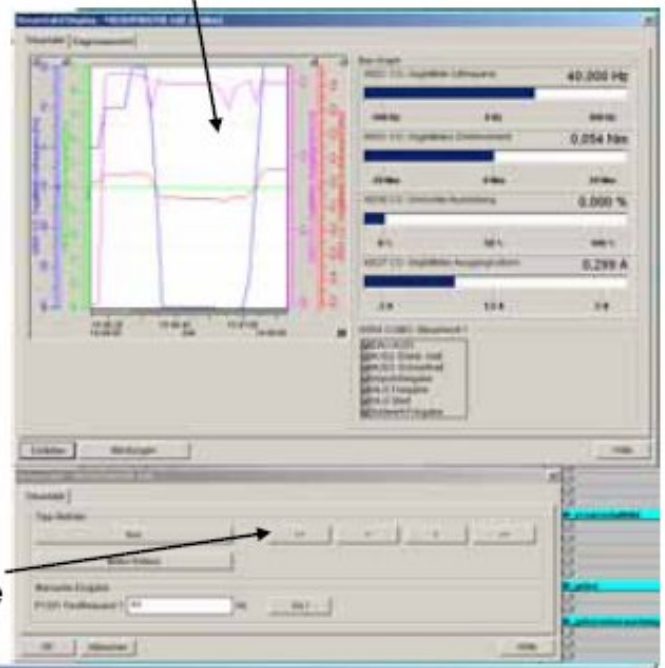
Graphical Examples

Through the graphical possibilities user friendly user interfaces for complex devices.

Today a large set of different device are available with EDD

- **Frequency Controller**
- **Switchgears**
- **Electrical, pneumatic and hydraulic Drivers**
- **Valve Positioners**
- **Close loop Controller**
- **Fluid and Gas Analyzer**
- **Sensors for**
  - **Temperature**
  - **Pressure**
  - **Density**
  - **Level**
  - **Flow**
  - **etc.**
- **Remote I/Os**
- **etc.**

Example: Control Panel of an frequency controller



Direct device control

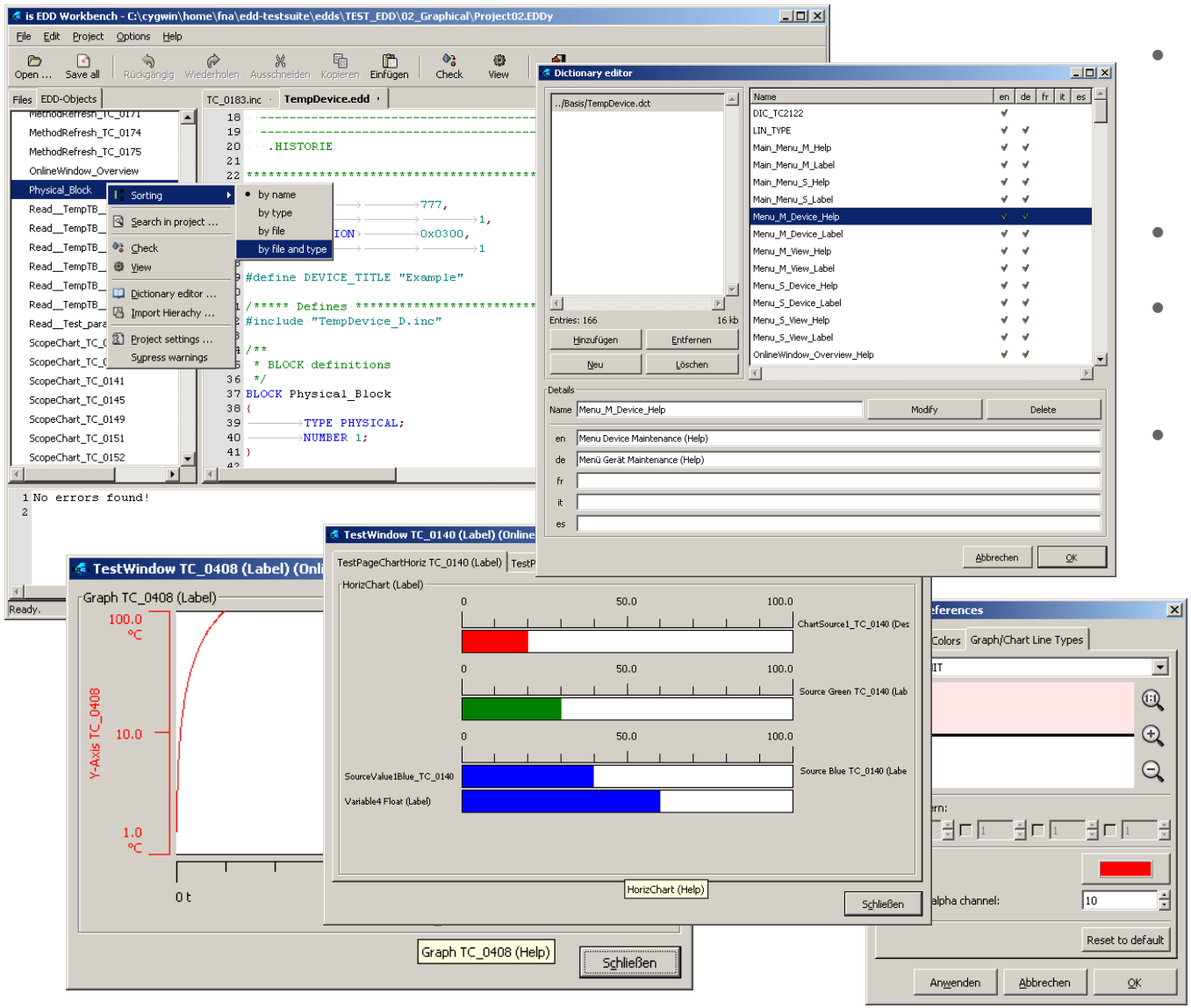
Dynamic visualization of control flow

Support for Device Developers

Toolkit available through the FF, HCF, and PNO foundations

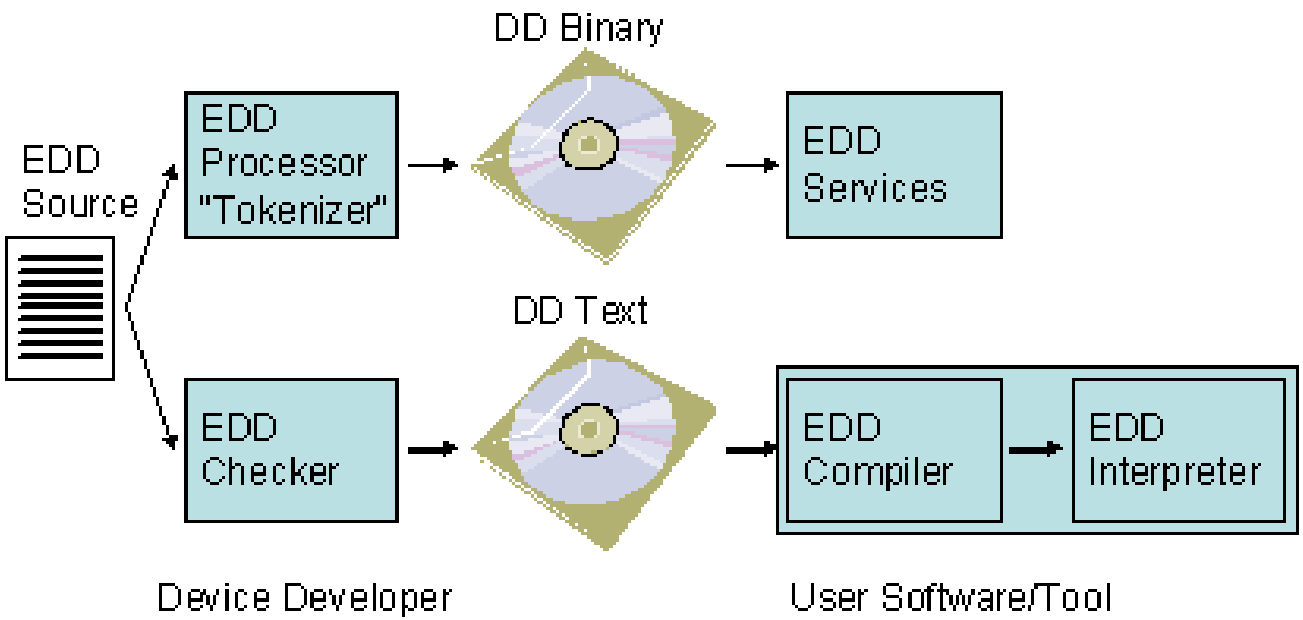
- Permit a device developer to easily checks for syntax or logical errors in EDDL source files
- Source files may be converted into a compressed ("tokenized") binary file format to provide a more compact representation.
- Includes checking of EDDL syntax etc.
- Allows the device developer to do more complete testing, to simulate user interaction, and results in improved quality assurance

Example – ifak EDD IDE for Developers



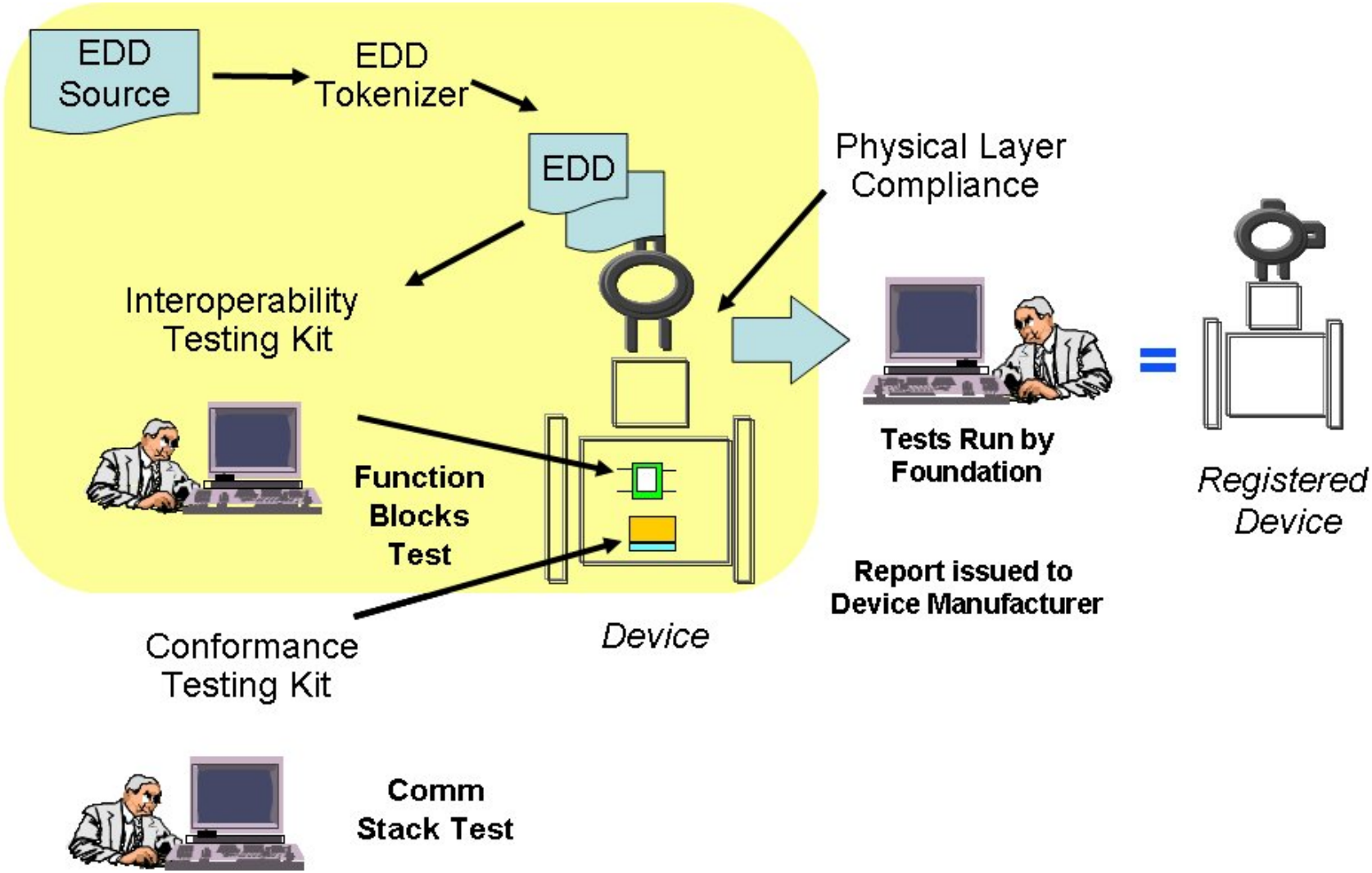
- Text editor with syntax-highlighting and coloring
- Project management
- Integrated method debugger
- Syntax and semantic check supports the three profiles:
  - PROFIBUS
  - HART
  - Fieldbus

EDD Development Process

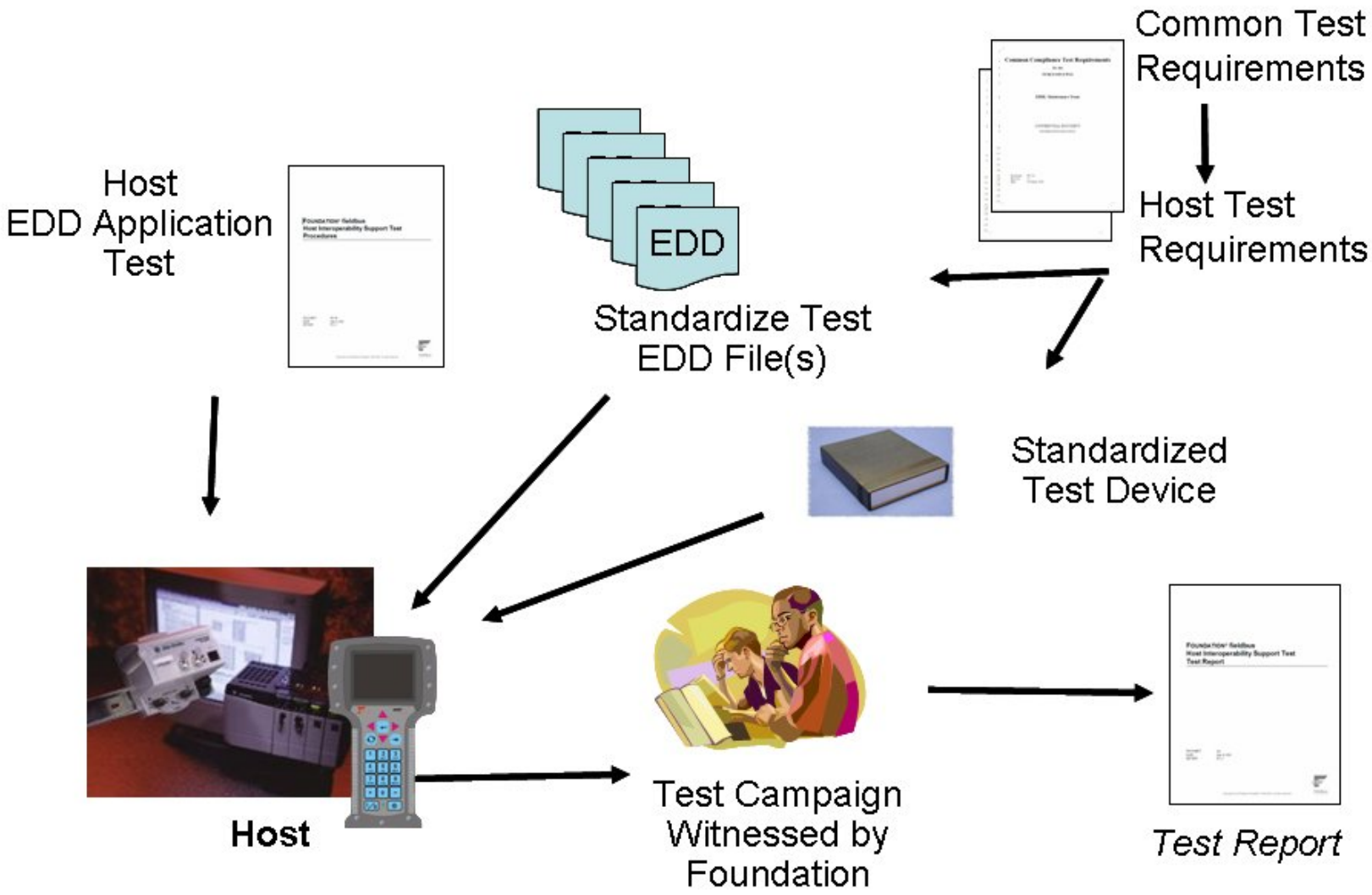


- EDD files created by the device developer are registered together with the device as part of the ***device interoperability registration process.***

Example – Device Testing and Registration



Example - Host Interoperability Support Test



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- Benefits of Approach
- Recent EDDL Advancements – Examples
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- Demonstration.

EDDL's Unique Characteristics

- Provides a well-defined structure
- Support the most simple to the very complex field device.
- Since EDD's are text-based, these files are independent of operating systems and control platforms.
- The same EDD has common look and feel across applications which reduces the learning curve.
- A field device can be incorporated without affecting the runtime stability of the control system.

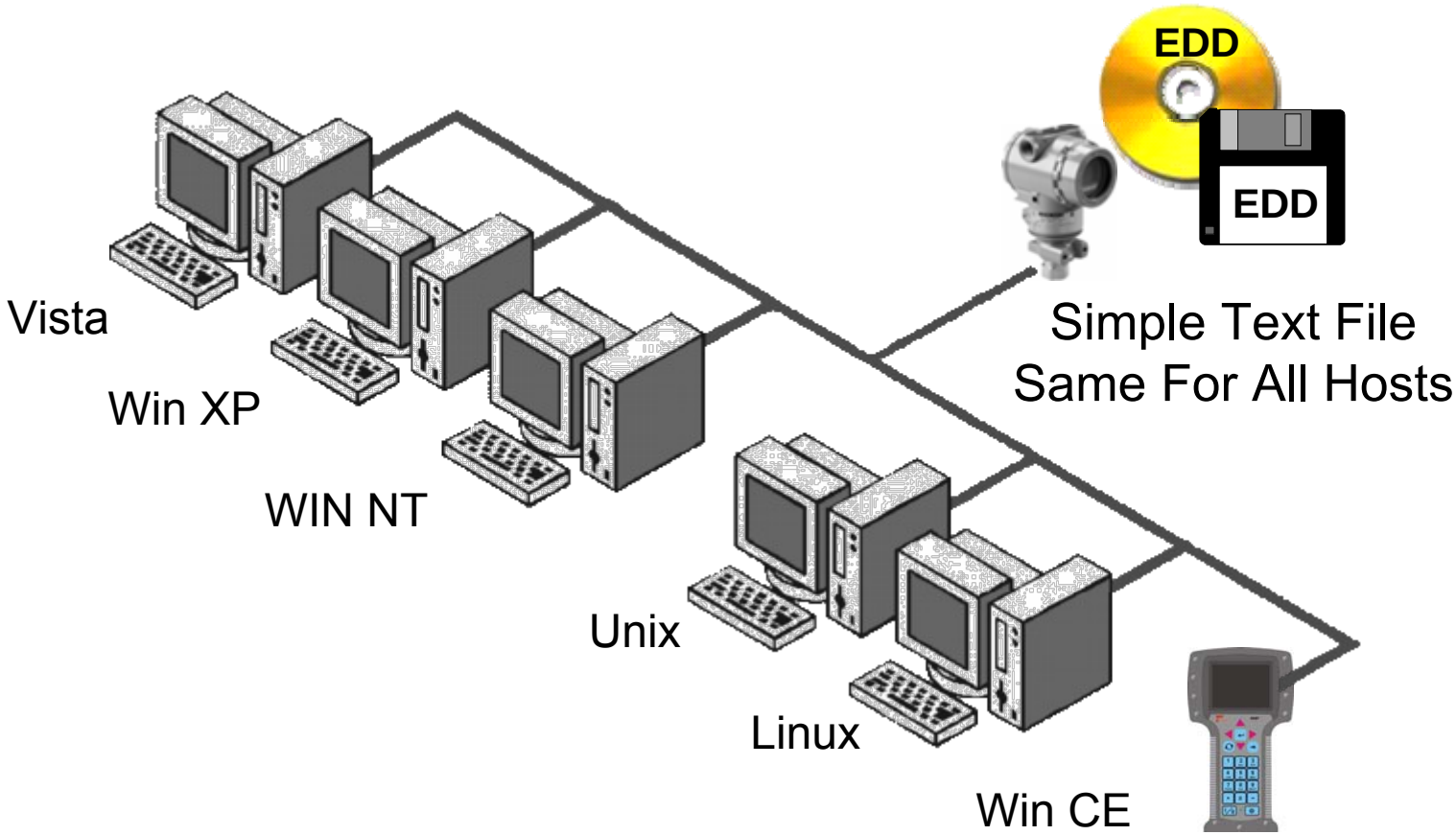
EDDL Benefit - Interoperability

EDDL enables interoperability across multiple hosts, devices and technologies.

- EDDL / EDDs are Independent from:
  - Operating systems and versions
  - DCS Platforms
  - Communication and interface paths
- EDDL technology was designed to avoid the need for special, proprietary, and operating system-specific host application files
- It allows a host system to both configure as well as monitor devices on-line

EDDL: Operating System Independent

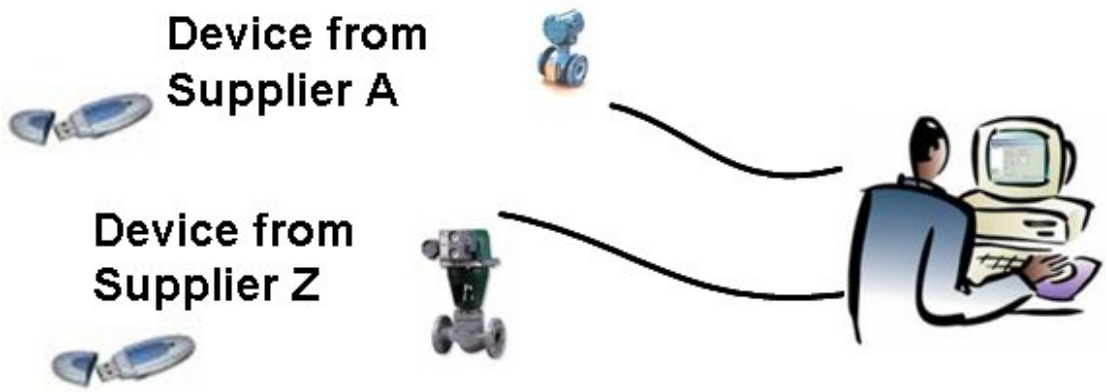
- Application on PC or Handheld uses the same EDD
- Fully backward compatible



EDD's and Interoperability

EDD's enable :

- Devices from different suppliers to interoperate with a single Host
- The same device to interoperate with different Hosts.



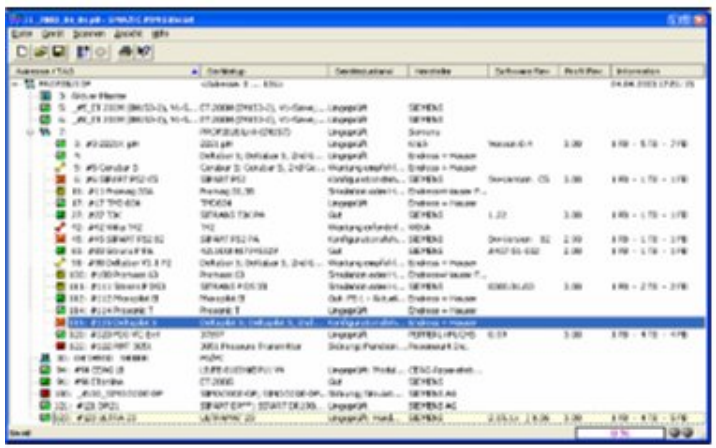
Describes

How the device functions per IEC 61804

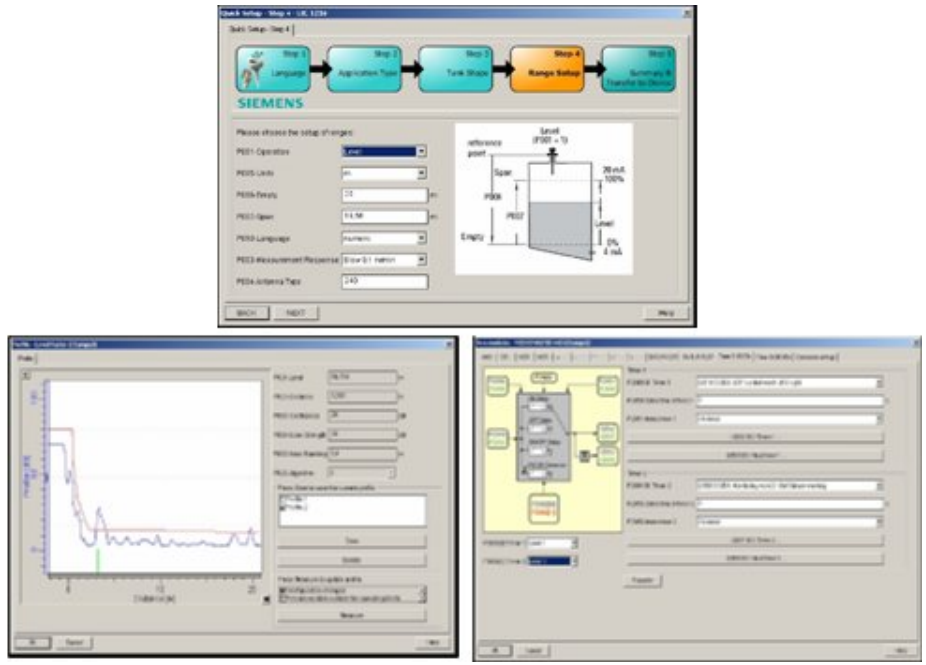
Small ASCII files (< 200k)

EDDL Benefit - Ease to Use

- One tool for all devices
  - **Common transparent data base**
  - **A new device just a new EDD**

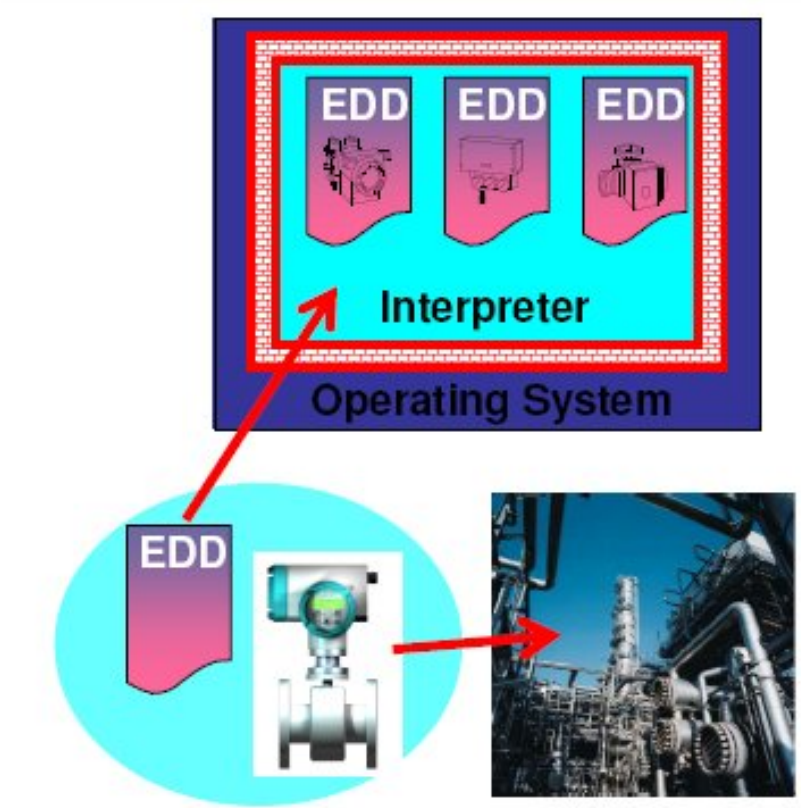


- Build in state of the art graphics
  - **Trends, Bar graphs**



EDDL Benefit – Quick Installation

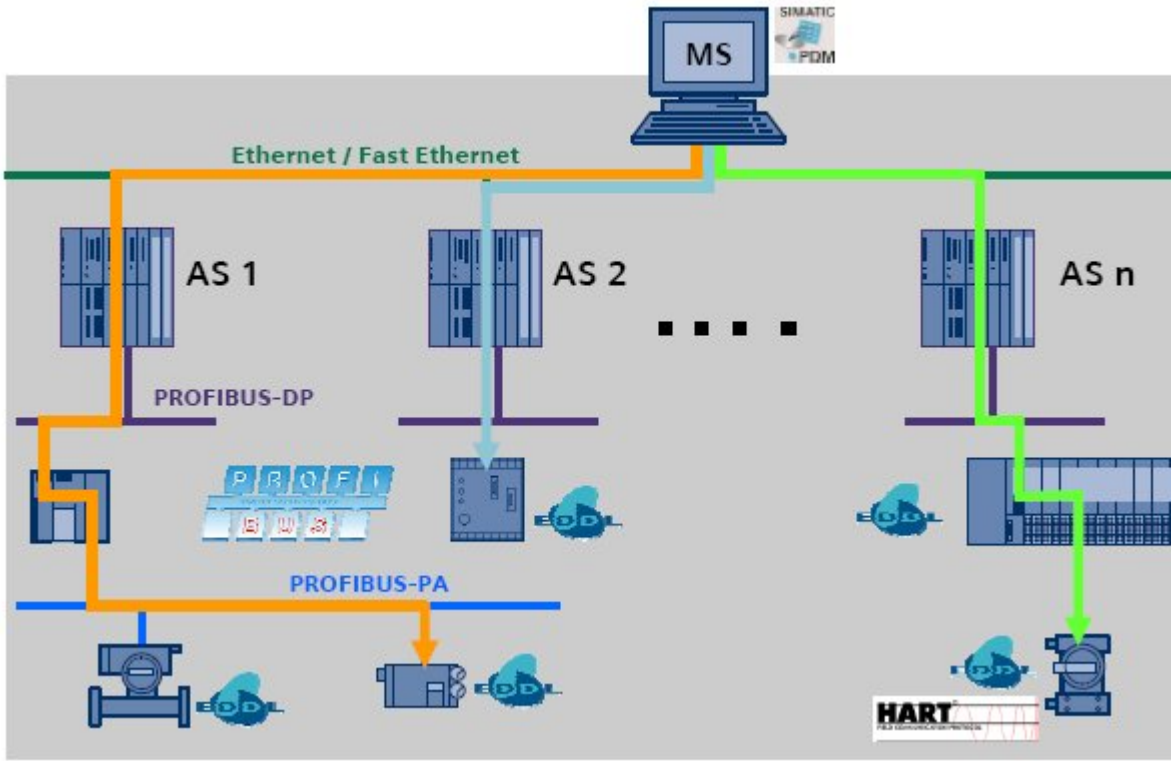
- There is no executable code with EDDs which may have an effect to the stability of the operating system
- EDDs are interpreted and therefore encapsulated
  - No impact of one EDD to others
  - Easy update and device additions during operation



EDDL Benefit – Full Featured

- The EDDL enhancements enable device manufacturers to describe the complete user interface for all device requirements.
- The many support features of EDDL, such as the “Methods” construct, enable automate procedures to ensure set-up, maintenance and diagnostic functions are performed properly.
- EDDL can be used to handle or show field device status via diagnostic parameters e.g. pH sensors are coated.
- The style (look & feel) comes from the host. This ensures that colors are used consistently and that buttons and other controls function uniformly.

EDDL Benefit – Minimizes Risk



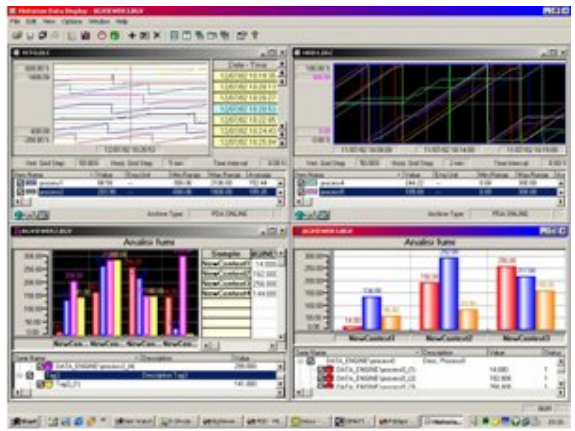
- Prevents Conflicts between different Versions of a device.
- Complies with NAMUR NE 105.
- Quick installation of new devices
- No Special expert knowledge/privileg e Required
- No additional Cost for EDD files.
- Multi-lingual support

EDDL Benefit – Scalable To System

- EDDL is used
  - from Handheld

  - from simple devices

- to MES[1)]



- to very complex devices

1) Manufacturing Execution System

Benefits for End users and Vendors - Summary

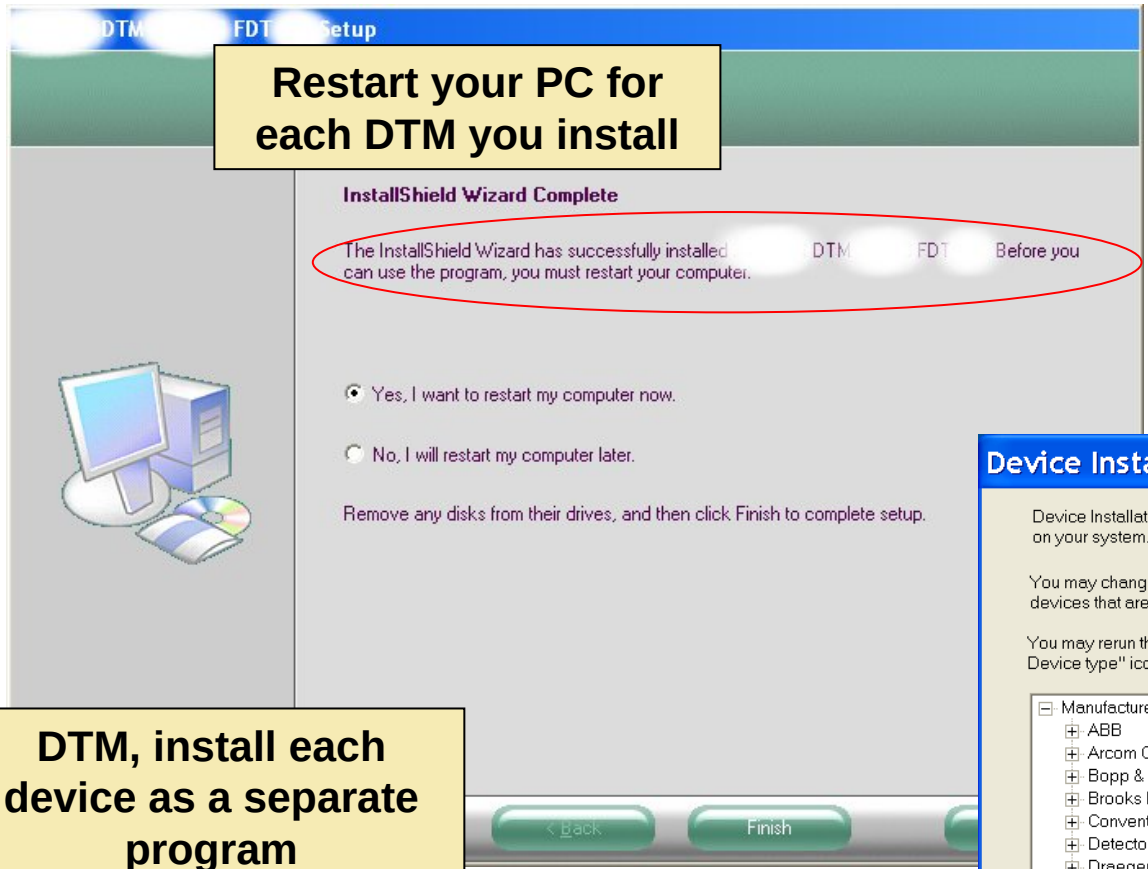
☑ **Interoperability** Independent of operating system Work with All Platforms/Version All communication protocol	☑ **Full Featured** Describes Complete UI Automate procedures Supports diagnostic
☑ **Ease of Use** Unified user interface One tool for all devices State of the art graphics	☑ **Minimizes Risk** No additional cost Special skill not needed Quick to install
☑ **Quick Installation** No influence on the runtime stability Easy update and device addition during operation	☑ **Scalable** From handheld to MES From simplex to complex devices

EDDL Advantage Over FDT/DTM

- Taken together, the technology advantages of EDDL provide significant benefits over other approaches such as FDT/DTM in terms of longevity and stability of the instrumentation and control system over the plant lifecycle.
- EDDL is a declarative technology, not a software program like FDT/DTM .
- The EDD file format is readable by many devices including handheld communicators, control systems, PC's and other process interface devices that are DD-enabled.
- EDDL, being text-based, is independent of operating systems and control platforms.
- Through the use of EDDL, it is possible to avoid problems caused by operating system upgrades, control system revisions, and new versions of the device software from multiple suppliers different than that of the host system.

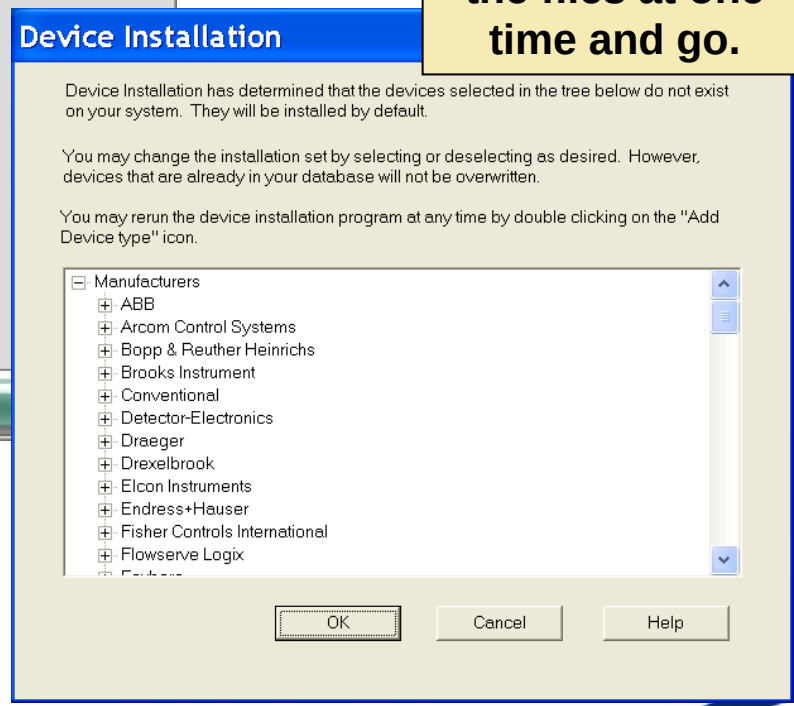
Installation, Restarts and Downtime

Restart your PC for each DTM you install



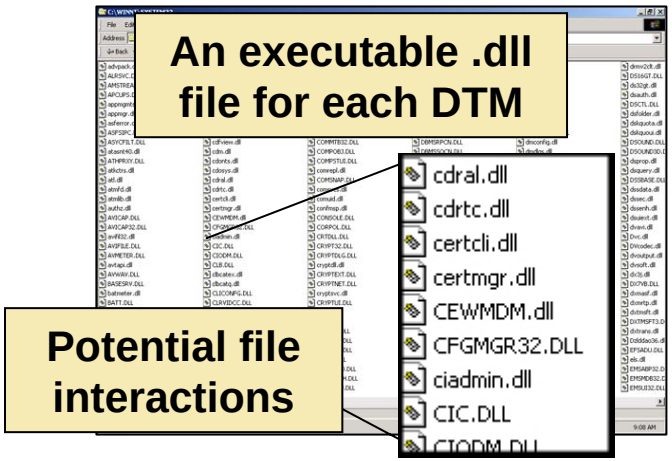
DTM, install each device as a separate program

EDDL, load all the files at one time and go.

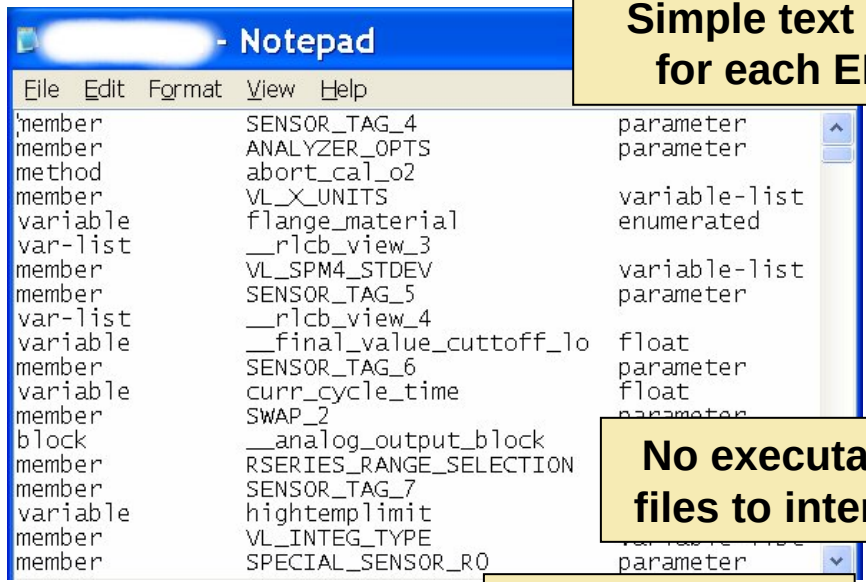


Asset Security

- FDT/DTM
  - Incompatible .dll files
  - Delete one effect many?
  - Viruses?



- EDDL
  - Simple text file



Simple text files for each EDD

No executable files to interact

No shutdowns and restarts for malware to exploit

Ease of Maintenance, Add, or Upgrade and it Works

Prerequisites and Requirements

The DTM (software) requires a frame application conforming to FDT
The DTM is released to run under the operating systems WINDOWS 2000 (Service Pack 2) and WINDOWS NT (Service Pack 6).

OS restrictions

Internet Explorer 6.0 or higher and .Net Framework 1.1 or higher are required to use Version . We recommend to download the software directly from the Microsoft® website.

Services / Upgrades to download

Prior to installing a device DTM, please note the following:

If a previous version of a device DTM has already been installed, select the "repair" option. Install the device DTM as a basic version. If a professional version is required, please contact the Sales Department of or your local sales representative after having installed the basic version.

The device DTMs can be used both in and in other applications compatible with FDT

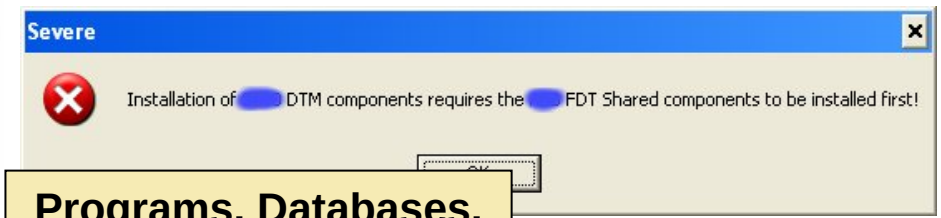
Maintenance procedures and version concerns

Upgrading EDDL

Upgrade the host application (EG AMS Device Manager) to version that supports the EDDL enhancements (One Time)

Load new EDD files for the desired devices

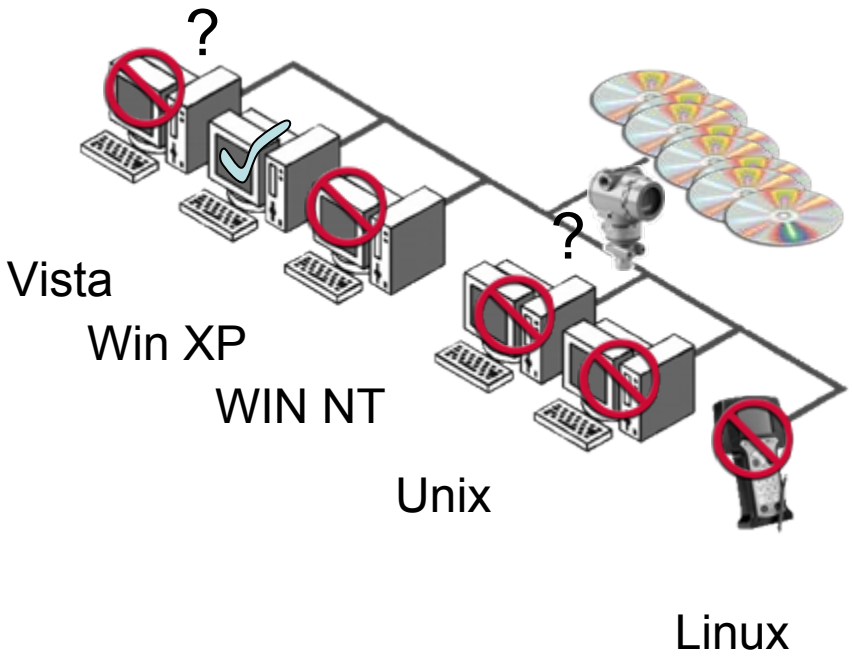
Use existing DD's and devices without change



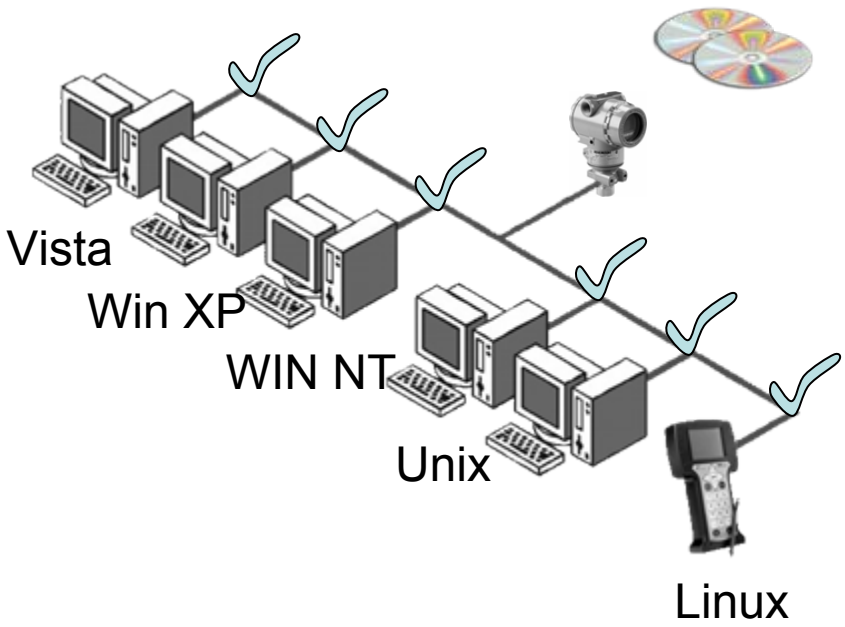
Programs, Databases, etc to add.

Operating System Independence

- FDT/DTM
  - Operating System Dependent
  - Sometimes SP dependent
  - May need to change FDT and DTM's with a host upgrade
  - Many operating systems are not supported



- EDDL
  - Works on most operating systems and service packs
  - No DD migration with OS change



Comparison FDT/DTM and EDDL

- FDT/DTM
  - Focus on device configuration vs. comprehensive asset management
  - No real-time alert monitoring for predictive maintenance
  - No automated configuration of the FDT application
  - No UI consistency
  - No Audit Trail consistency
  - No concurrent access to multiple devices (e.g. Batch Runner functionality)
- EDDL
  - Configuration and asset management
  - Real time alert monitoring
  - Automated configuration of the application (just add the EDD)
  - UI Consistency
  - Audit trail consistency
  - Concurrent access multiple devices

Comparison FDT/DTM and EDDL

- FDT/DTM
  - Ongoing maintainability
  - No client/server architecture
  - Operating system dependencies
  - Susceptibility to viruses
  - No backward compatibility
  - Does not meet NAMUR requirements
- EDDL
  - No OS specific maintenance
  - No Device rev specific maintenance
  - No program installing and uninstalling
  - Supports client – server
  - Supports non-windows OS's
  - Backward compatible
  - Meets NAMUR requirements

Tutorial Agenda

- History of Development
- How EDDL Technology Works
- Benefits of Approach
- Recent EDDL Advancements – Examples
- Updating Systems And Communicators
- Demonstration.

Enhanced EDDL

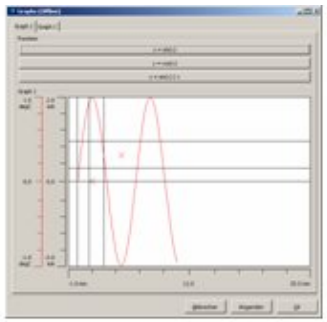
- Through the work of the ECT, EDDL enhancements have been developed for the following:
  - Improved data visualization and display capabilities, such as for waveforms and valve signatures
  - A standardized method to access historic measurement or device performance information
  - Enhanced tools for display and use of high-level information such as algorithmic relationships for Complex device parameters.
  - Improved user interface with support for menus (windows, tabs and groups) and added graphic support for graphs, charts and dial indicators.
- These enhancements were submitted to the International Electrotechnical Commission (IEC), and are reflected in IEC 61804-3.

Functionality Provided by EDDL

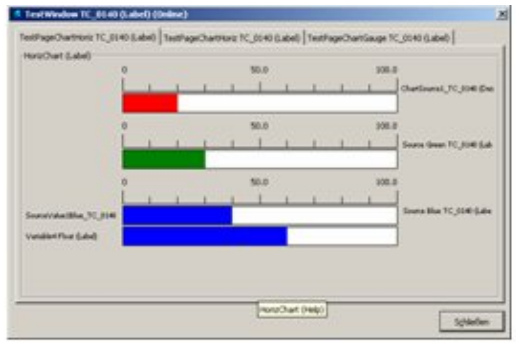
- Identification
- General Information
- Diagnostics
- Performance Analysis
  - For example valve signature, hysteresis, step response etc.
- Operational Statistics
- Parameterization and Range
  - Advanced setup such as radar echo curve
- Simulation and Override
- Calibration Trim
- Monitoring
- Device Security
- Reset

EDDL may be used to Create Wide Range of Graphical User Interfaces

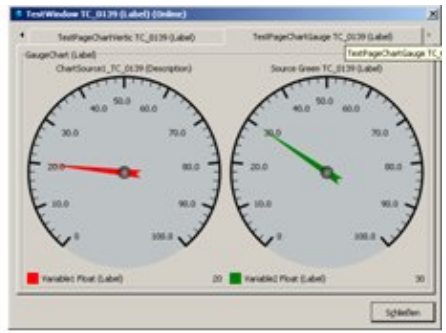
Historgam



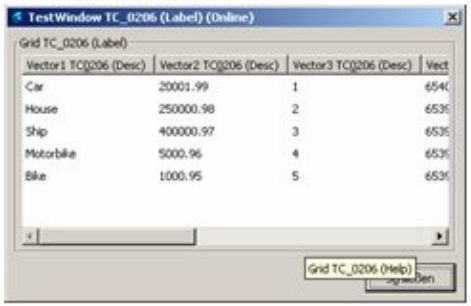
Bargraph



Double Axis

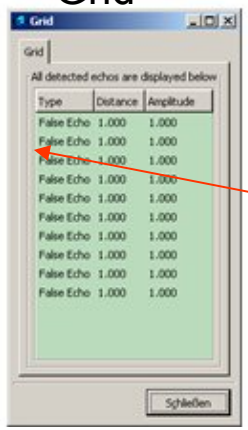


Table



HELP “Grid TC_0206 (Help)”;

Grid

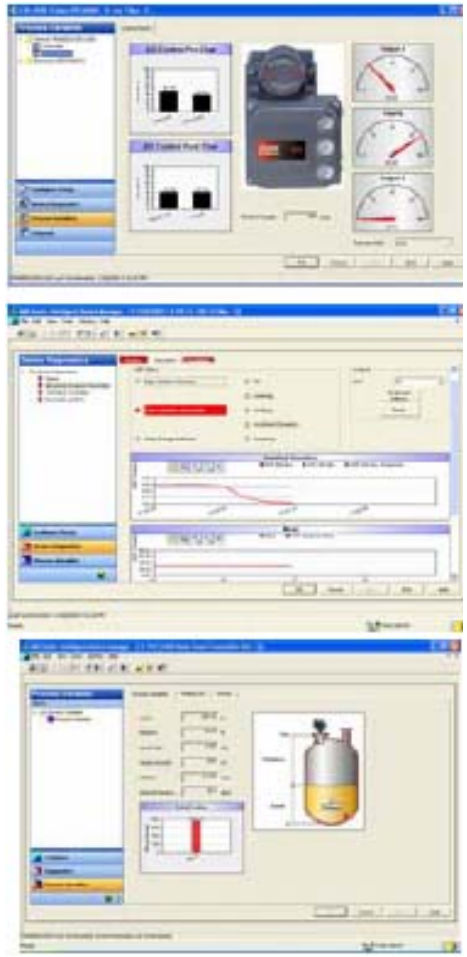



```
GRID GridFoundEcho
{
        LABEL "All detected echos are displayed below";
        VECTORS
        {
                { "Type", arrPeakType },
                { "Distance", arrPeakDistance },
                { "Amplitude", arrPeakAmplitude }

        }
```

Intuitive graphics layout

- According to functionality
  - Parameters, Status indicators
  - Menus logically, Human readable labels and
- Engineering units
  - Unused factory parameters are hidden.
- Help and Descriptions
  - Parameters, Multiple choice options
- Charts
  - Strip chart historical trend
  - Vertical or horizontal bar-graphs
  - Needle gauge.
- Images
  - Photos, Illustrations → tank geometries.
- Grids
  - Large data sets table
  - Tank strapping tables
  - List of false echoes for radar level transmitters



EDDL Example Applications

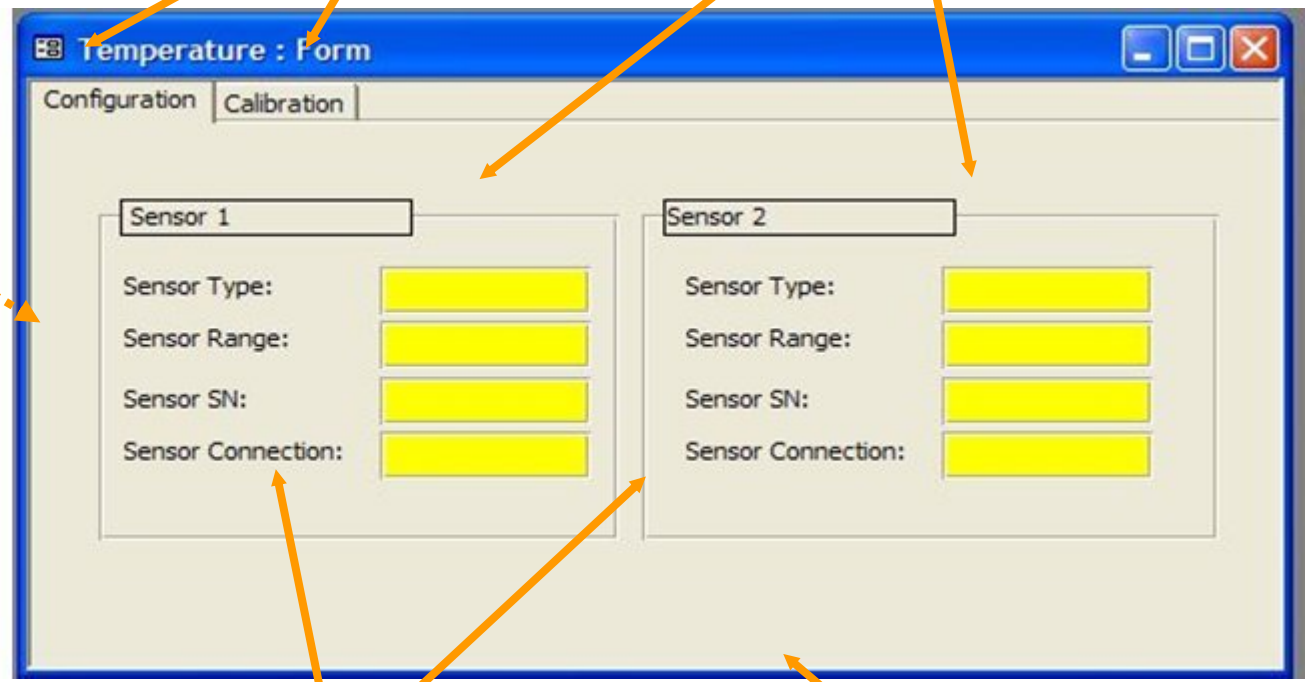
- ✓ **Charting – Enables graphical display of real-time (continuous) data from device**
  - ✓ New **CHART** construct to define display characteristics
  - ✓ New **SOURCE** construct enables multiples curves on a CHART
  - ✓ New **AXIS** construct
- ✓ **Graphing – Enables graphical display of static Y-t and XY data**
  - ✓ New **GRAPH** construct to define display characteristics
  - ✓ New **WAVEFORM** construct enables multiple curves on a GRAPH.
  - ✓ New **AXIS** construct
- ✓ **Improved Data Storage- Enables DD Developer to securely store data on the host**
  - ✓ New **FILE** construct describes parameters that will be stored
  - ✓ New **LIST** construct is used with **FILE** to access specific parameters
- ✓ **Improved User Interface (UI) – DD Developer can describe screen layout**
  - ✓ Enhanced **MENU** construct with screen layout attributes (e.g. dialog boxes)

EDDL Capabilities – Temperature Example

Device DD File

Pages

Group Boxes



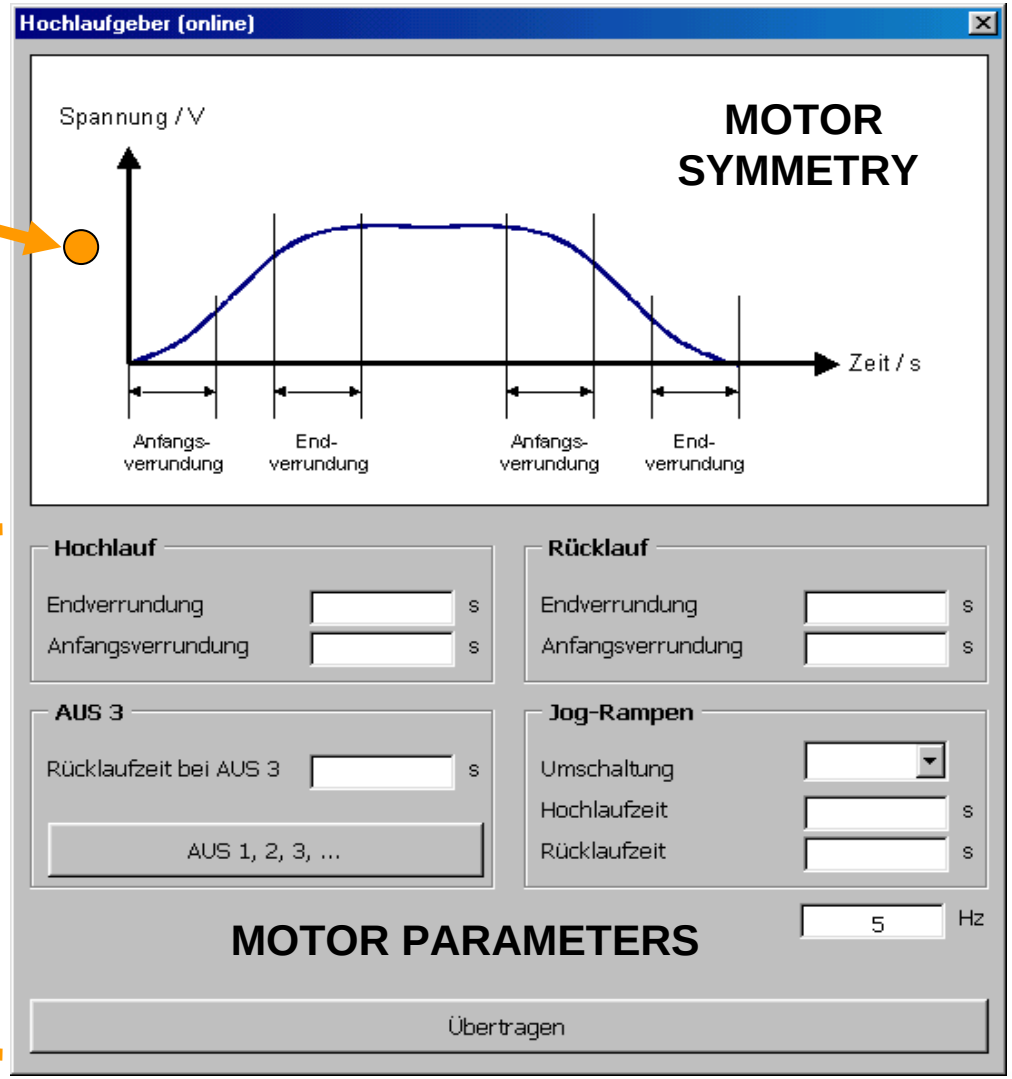
Parameter Organization

Window

EDDL Capabilities – Motor Control Example

Image

- Static bit map
- Objective is to provide a visual representation of the parameters

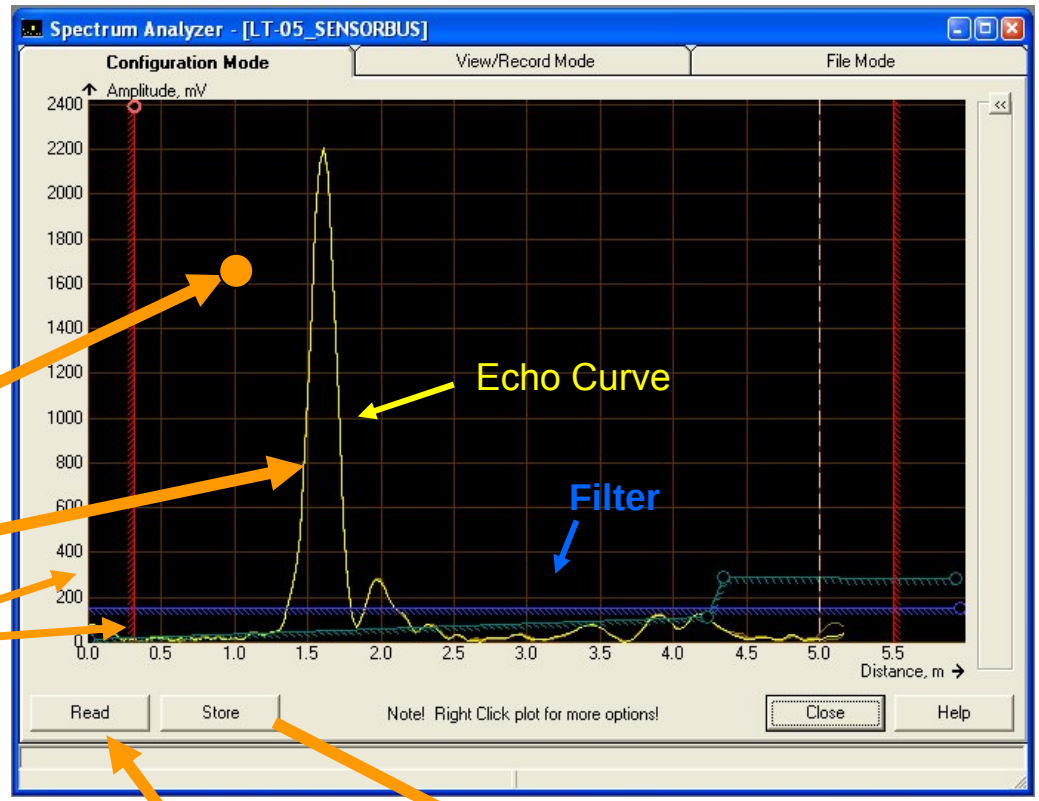


Enhanced MENUS and METHOD are used to build dialog boxes displaying motor starts, operating hours, number of overload trips, etc.

EDDL Capabilities – Radar Gauge Example

A GRAPH is used to present the echo WAVEFORM to enable configuration of thresholds and false echoes areas in the device.

- **Trigger device to build WAVEFORM data**
- **Retrieve WAVEFORM data**
- **Update the GRAPH**



GRAPH

WAVEFORM
(Data from Device)

AXIS

MENUS & METHODS
(Enhanced UI)

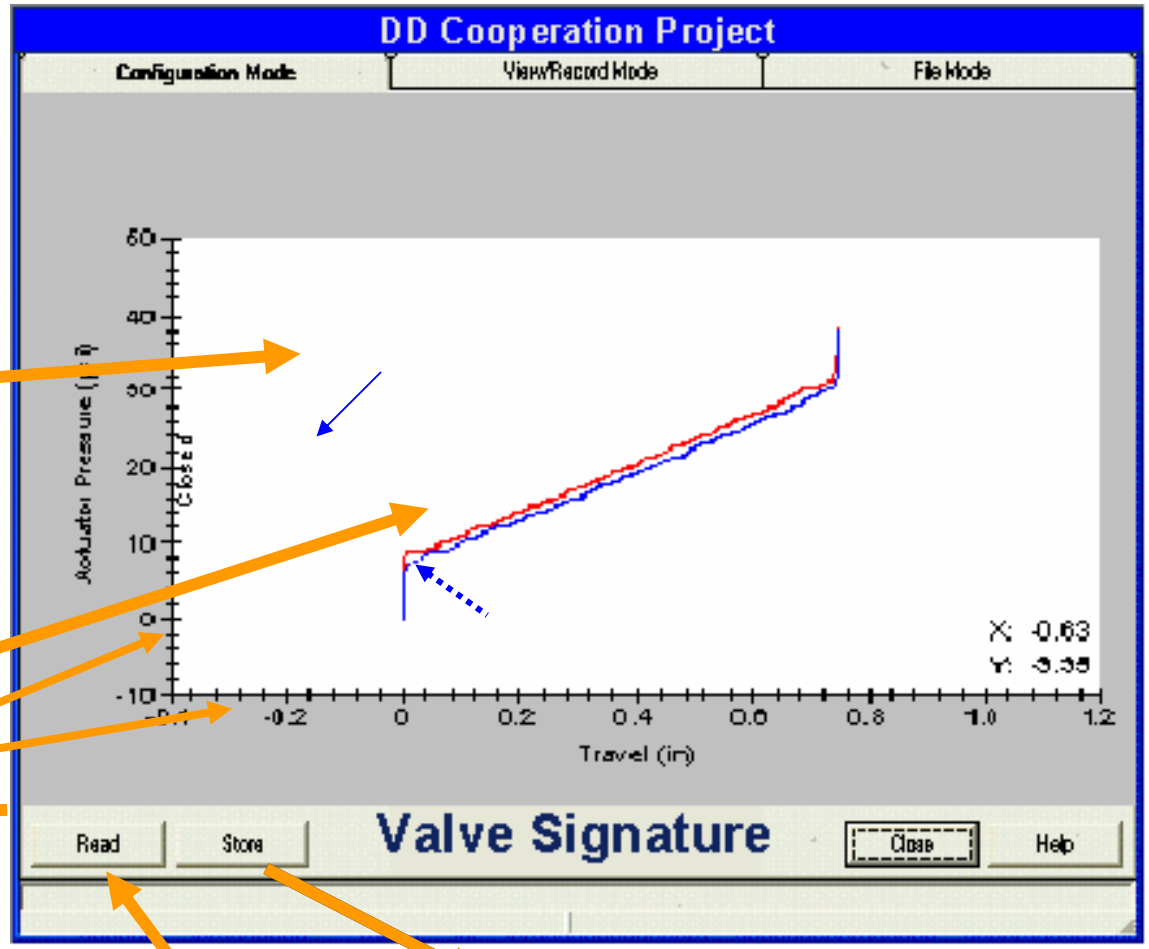
ARRAY(s)
(Device Data)

FILE/LIST
(Persistent Data)

EDDL Capabilities - Valve Signature Example

A GRAPH is used to present the Valve Signature (Hysteresis) WAVEFORM as a measure of the air pressure to stroke the valve open and close.

- Trigger device to build
- WAVEFORM data
- Retrieve WAVEFORM data
- Update the GRAPH



GRAPH

WAVEFORM
(Data from Device)

AXIS

MENUS & METHODS
(Enhanced UI)

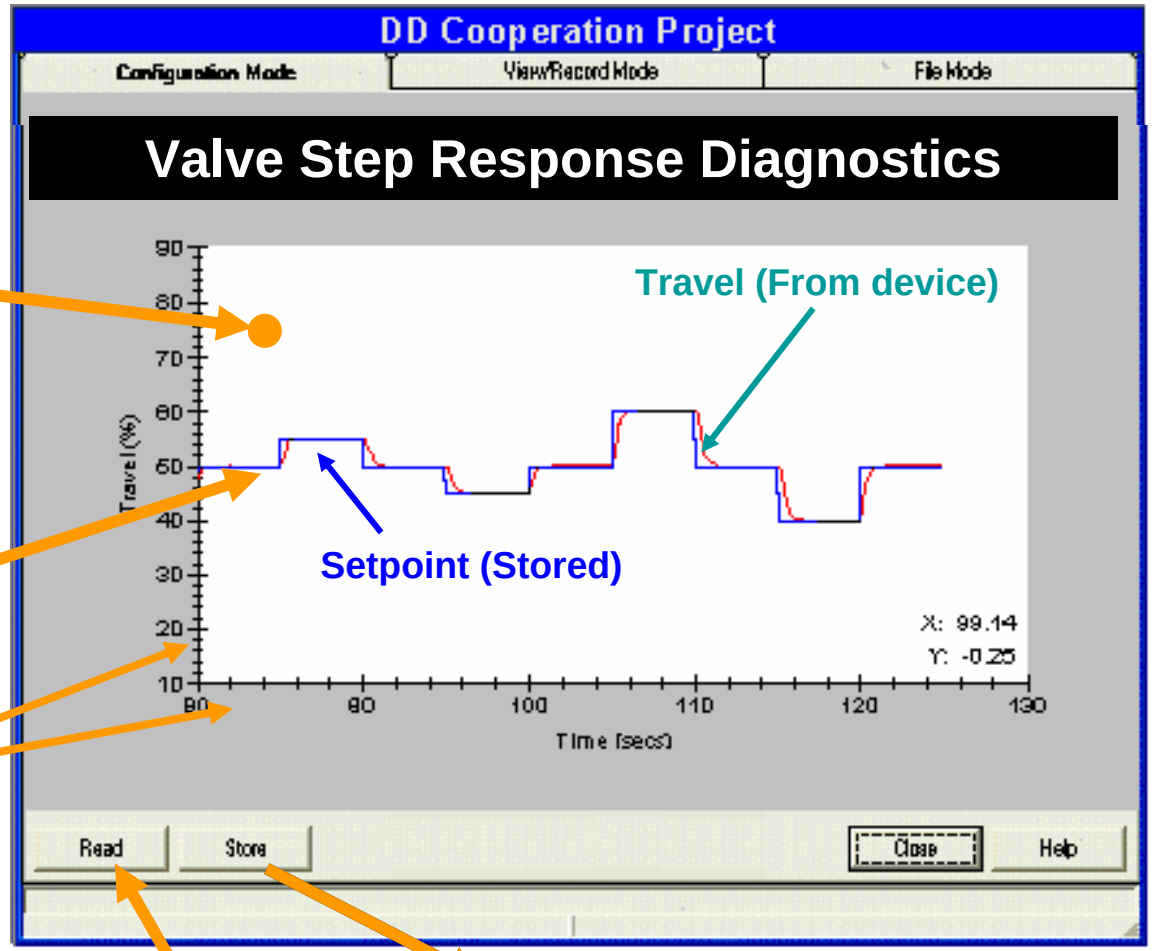
ARRAY(s)
(Device Data)

FILE/LIST
(Persistent Data)

EDDL Capabilities – Valve Step Example

A CHART is used to present the Real-time (continuous) Step Response SOURCE of a valve.

- Trigger device to build
- SOURCE data
- Retrieve SOURCE data
- Update the CHART



CHART

SOURCEs
(Stored Data and Data from Device)

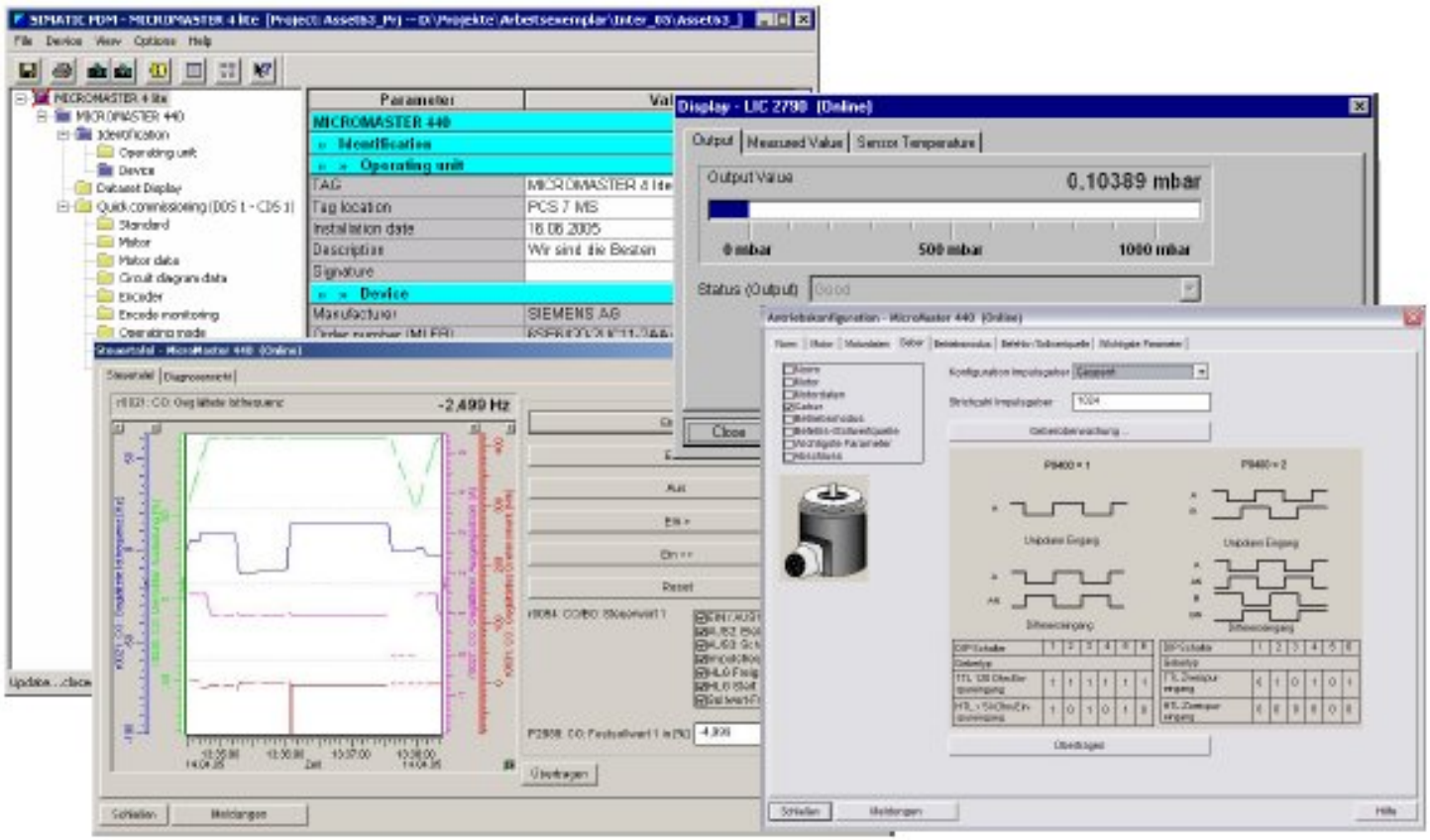
AXIS

MENUS & METHODS
(Enhanced UI)

ARRAY(s)
(Device Data)

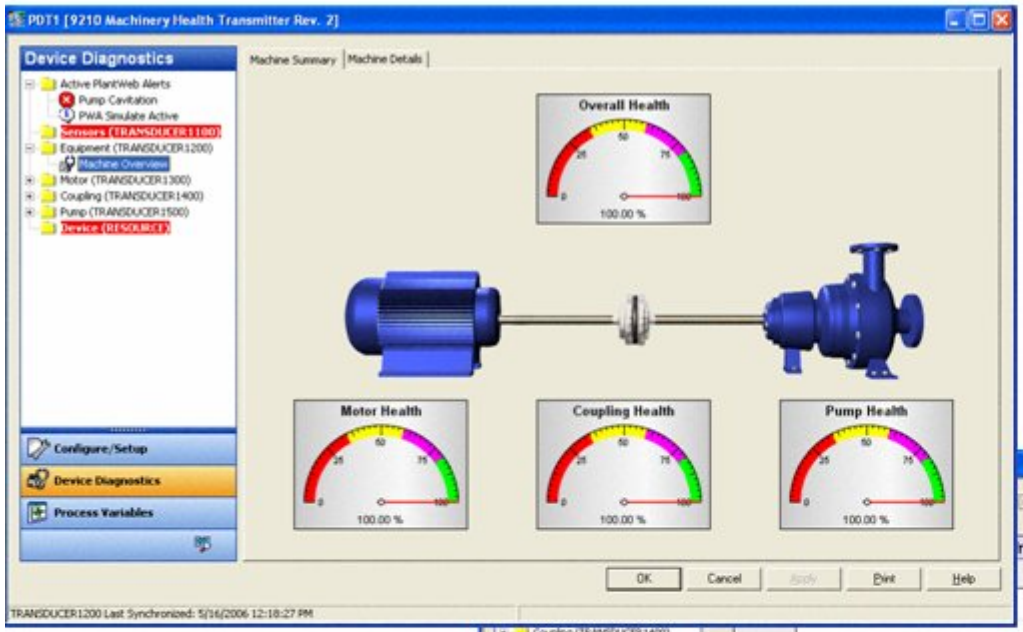
FILE
(Persistent Data)

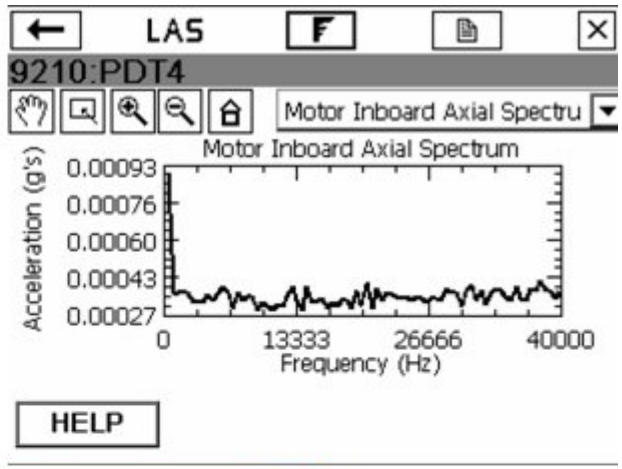
Example – Host 2 Online - View

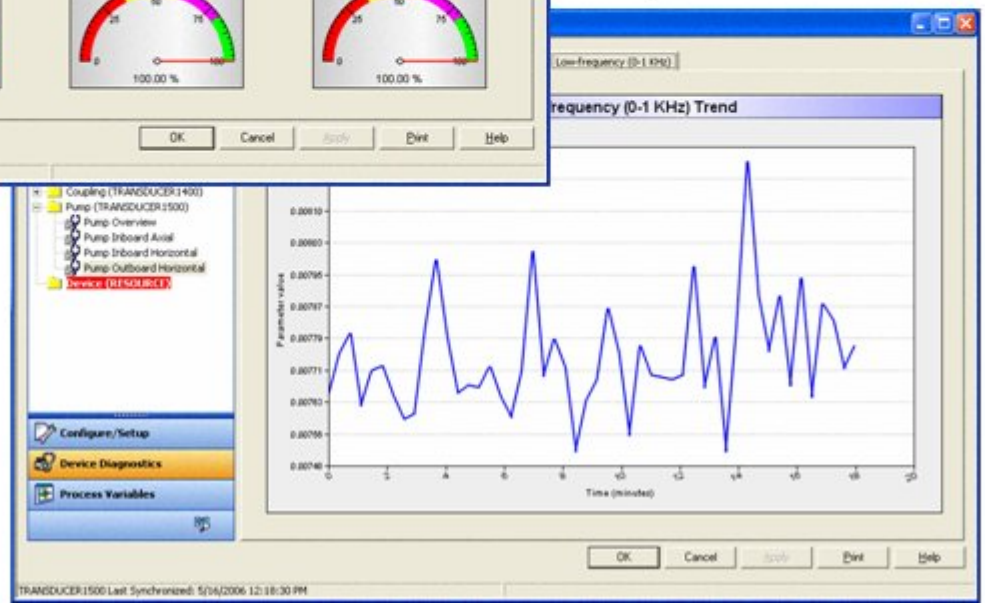


- EDD-based Views
- Central common View (same look and feel for all Devices)
- Contents are defined in the Device description (EDD).

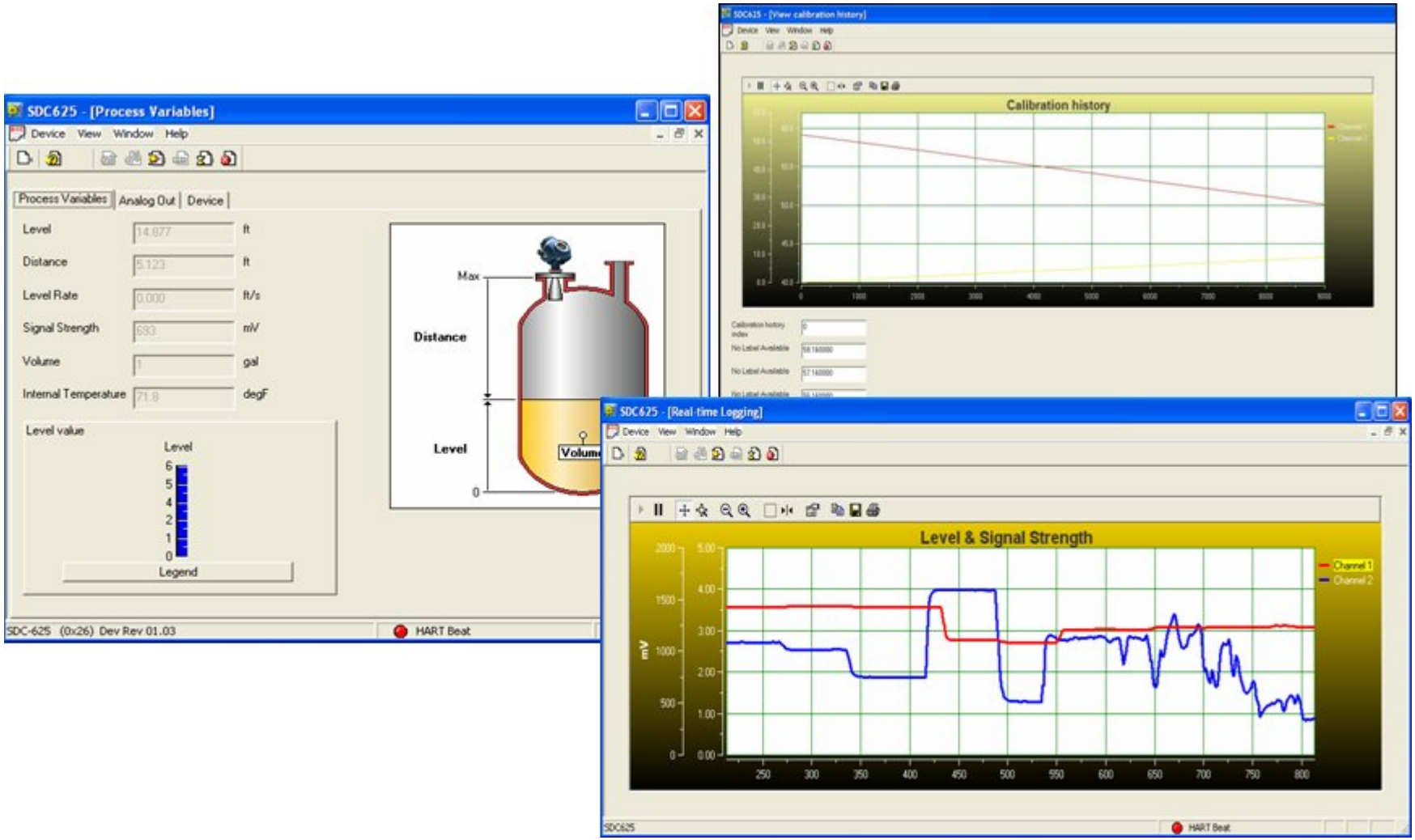
Example – Host 1 and Handheld



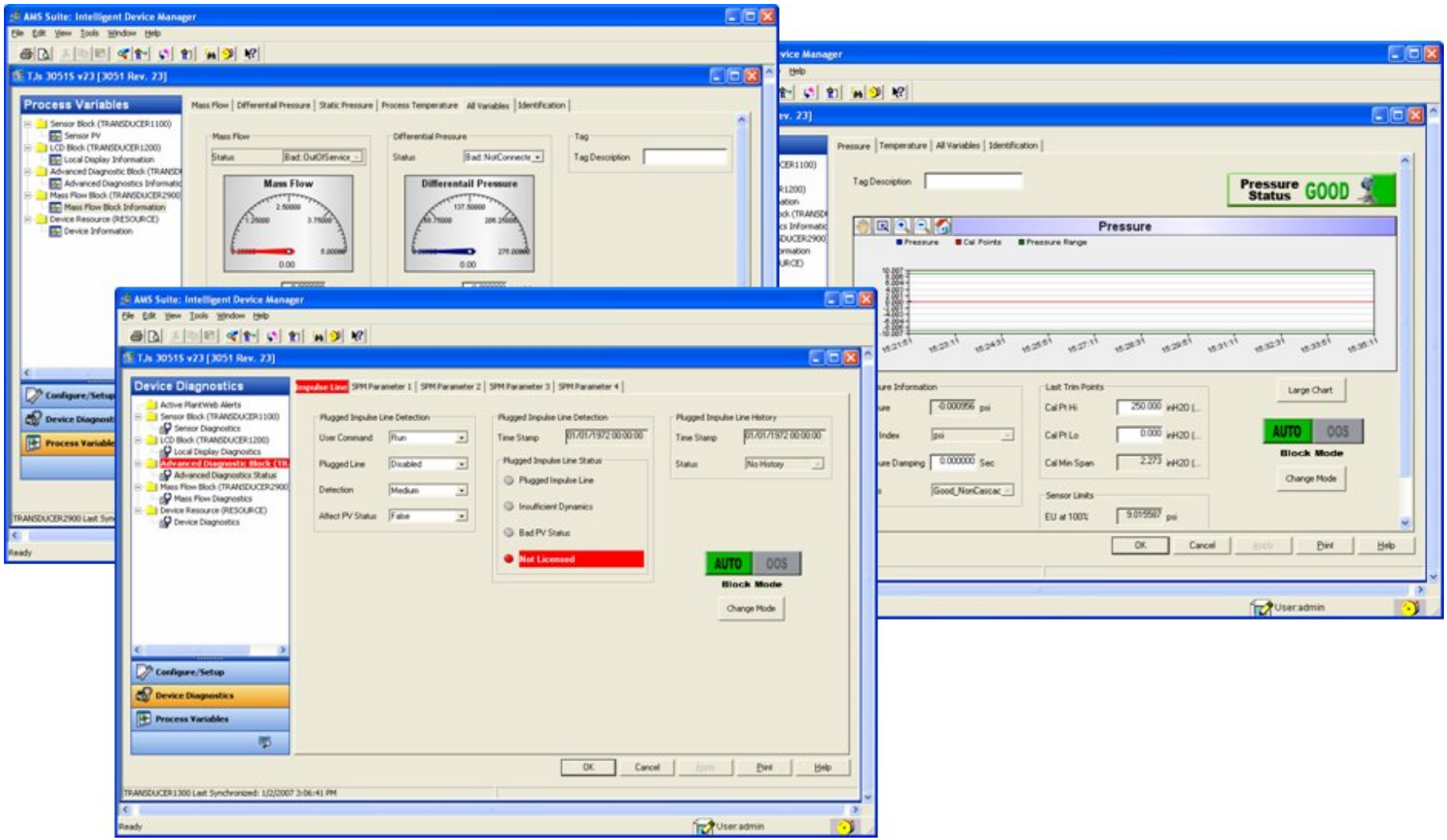




Host 3 – Example Interface Display



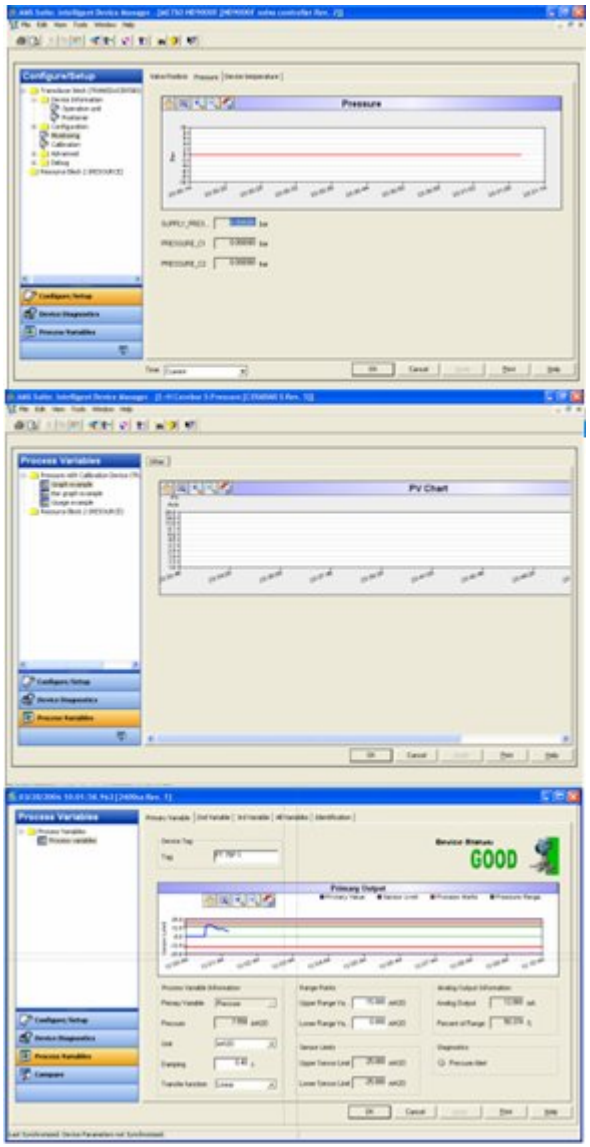
Example – Pressure Transmitter

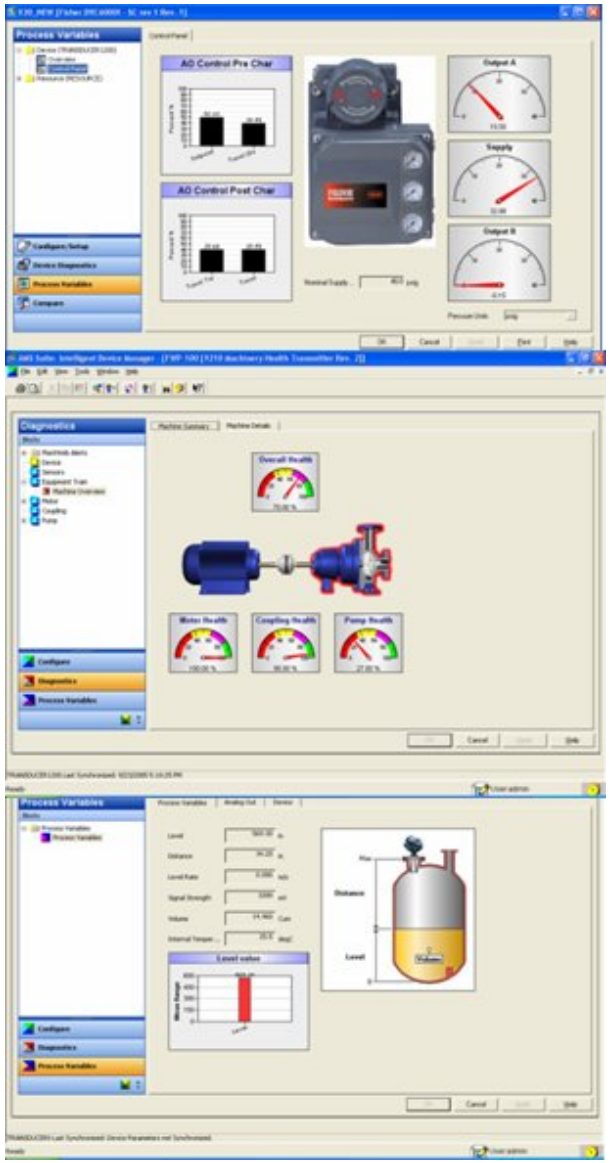


Presentation of Device Information

- The *look and feel* of the User Interface is determined by the Host System
  - All devices on a given Host system will have the same look and feel.
  - Necessary for efficient utilization by operator and maintenance personnel.
  - The same field device will have a different look and feel on each Host system.
- The *detailed information* of the Device is still determined by the Device Manufacturer in the EDD

EDDL - Consistent Look & Feel for a given Host

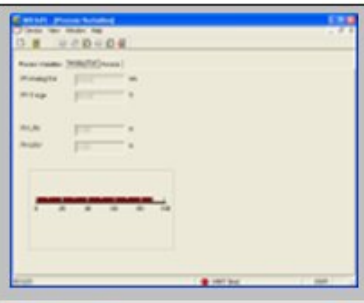
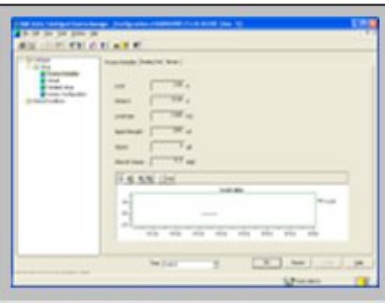
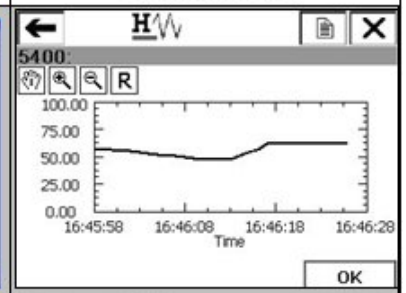
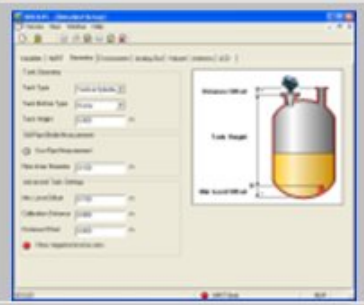
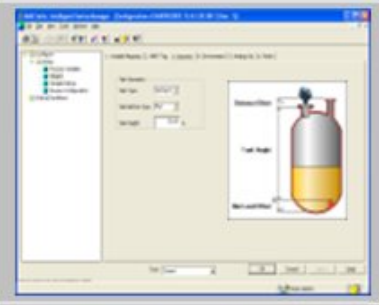
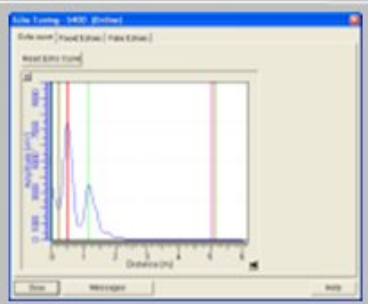
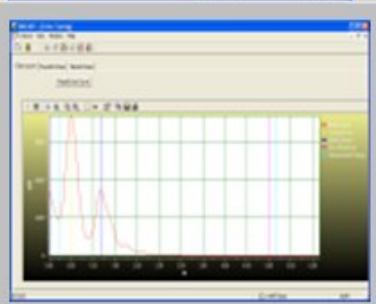
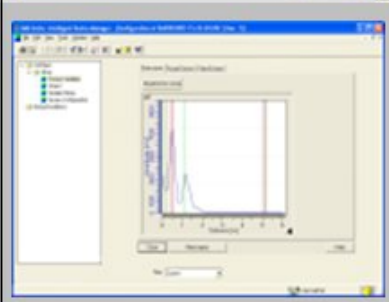
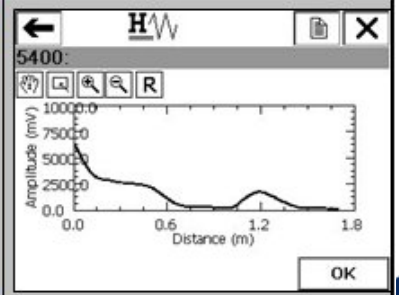




Example: Radar Level EDD on 4 different Hosts

The *look and feel* of the *User Interface* is determined by the Host System

The *detailed information* of the *Device* is determined by the EDD

Host	Host 1	Host 2	Host 3	Handheld
Process Variables Trending				
Geometry				
Echo Tuning				

Tutorial Agenda

- History of Development
- How EDDL Technology Works
- Benefits of Approach
- Recent EDDL Advancements – Examples
- Updating Systems And Communicators
- Demonstration.

Keeping Device EDD's Up-to-date

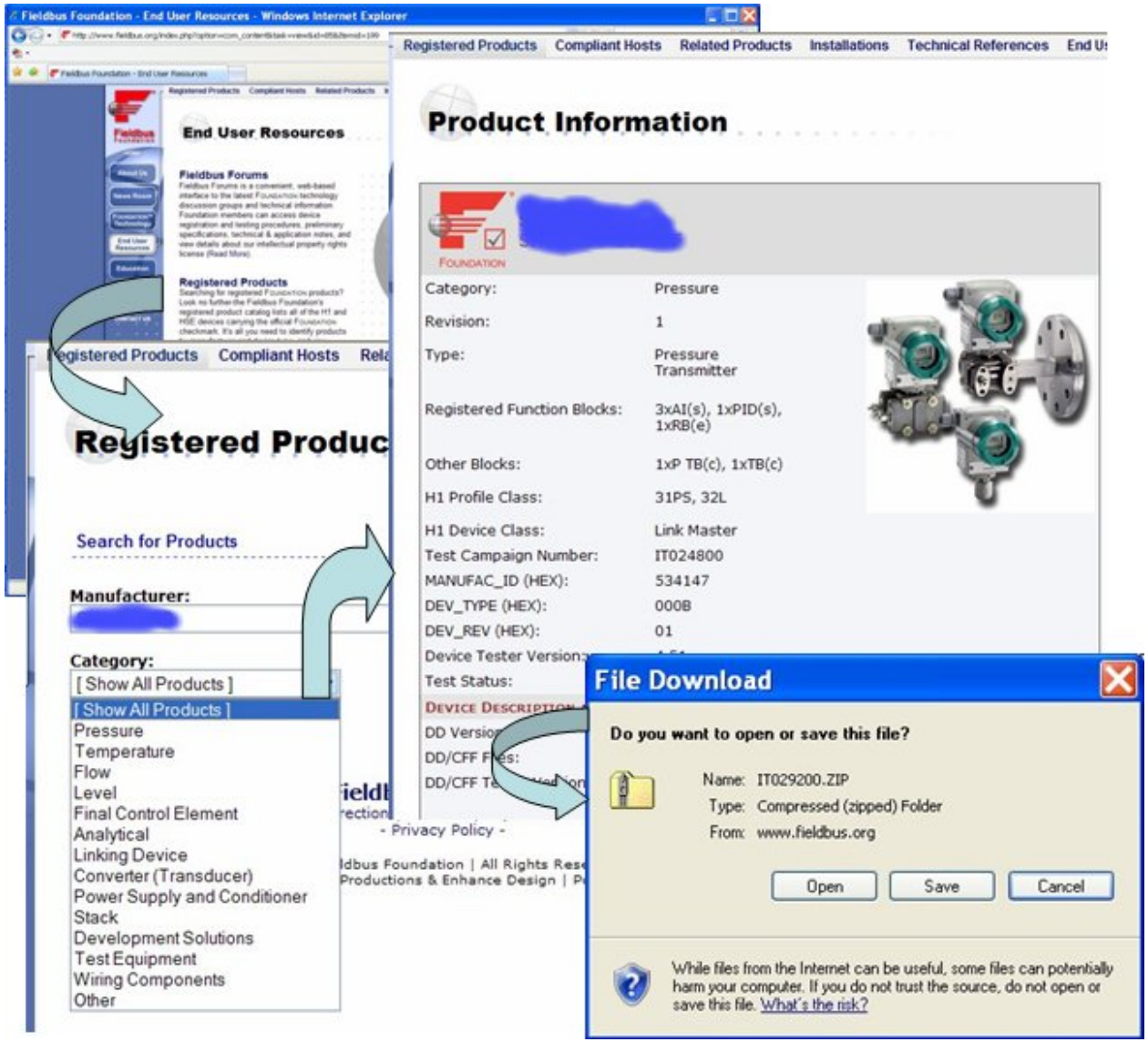
- It is common in many plants for both handheld communicators and intelligent device management software in a plant.
- The EDD source file created for an instrument never requiring an upgrade, revision, or patch to work with a new or upgraded control system or handheld.
- However, to take advantage of the latest enhancements that manufactures have implemented in the device EDD, it is best to periodically verify that the latest EDD is being used in device maintenance and support.
- If a manufacturer has introduce a new EDD for a device, then it is a simple matter to incorporate the latest EDD into the control system and handheld.

Easy Integration

- New device vendors, models, and versions come to market every week
  - EDDL is a small file
  - Existing device files are pre-loaded on systems
  - Additional files on CD
  - Download new files from Internet without long waits or timeout
  - EDDL can even be stored in device itself

- An EDDL file is easy to add
  - Just copy to hard disk
  - No need to install
  - No need for high-level access privileges
  - No registry entries are done
  - No restart required
  - Other applications are not disturbed
  - No DLL conflicts
  - Device versions are organized

Accessing the Latest Device EDD



Obtain latest version device EDD from:

- Device manufacturer.
- The registered Foundation web site
  - Fieldbus Foundation, HART and Profibus International web sites.
- The control system supplier

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Summary

EDDL is ***The*** International standard for Device Description Language

- Robust
- Secure
- Externally accessible information
- Single universal solution
- Investment protection
- Consistent display of devices
- No version conflicts
- Cross-platform compatibility
- Easy integration and removal
- No licensing
- Full support of device functionality
- Certification

Finding More Information

1. "Fieldbuses for Process Control - Engineering, Operation and Maintenance", Jonas Berge, ISBN 1-55617- 760-7, http://www.isa.org/fieldbuses
2. IEC 61804-3, Edition 1.0 (2006-09), Function blocks (FB) for process control - Part 3: Electronic Device Description Language (EDDL)
3. NAMUR Recommendation, Version: 24.08.2004, NE 105, Specifications for Integrating Fieldbus Devices in Engineering Tools for Field Devices
4. SP104 EDDL web site – http://www.eddl.org/
5. IEC61804 Web site http://www.iec.ch/cgi-bin/procgi.pl/www/iecwww.p?wwwlang=e&wwwprog=dirwg.p&progdb=db1&ctnum=519
6. SP104 Committee web site http://www.isa.org/MSTemplate.cfm?MicrositeID=1170&CommitteeID=6927
7. Fieldbus Foundation http://www.fieldbus.org/index.html
8. HART Communications Foundation http://www.hartcomm2.org/
9. Profibus Nutzerorganisation e.V (PNO) http://www.profibus.com/