



## ISA Expo 2009 EDDL Demonstration

ISA Expo 2009 was held in Houston, Texas, USA 6-8 October 2009. The ISA104 group participated like previous years, but on a much grander scale together with more manufacturers. The purpose was to create awareness of the enhancements made to the EDDL standard, and the new capabilities products gain as a result of these enhancements, and the results plants in turn get from these capabilities - for instance integrated diagnostics as per the NAMUR NE 91 requirements. Also demonstrated was software used by device manufacturers and bus organizations to develop and test EDDL files to achieve interoperability between systems and devices with full access to functionality. Users had an opportunity to see interoperability between standards compliant products from multiple vendors.



## About EDDL

EDDL is the leading international standard for device integration and is known as IEC 61804-3. The EDDL standard enables device management software and handheld communicators to display device information so that technicians can setup and commission a device, calibrate, perform diagnostics and troubleshooting, and other device management tasks. Traditional DD was introduced in 1992 but lacked graphics. It became an international standard in 2004. In 2006 the graphical enhancements were added to the standard making it possible to support sophisticated (complex) devices, meeting this and all the other NAMUR NE 105 requirements. The device manufacturer provides an EDDL file for their device, declaring to the system how the information shall be displayed to make the device easy to use.

# Sponsors

The ISA104 booth was located in the "Bus Station" area of the exhibition hall. It was sponsored by Fieldbus Foundation (FF), HART Communication Foundation (HCF), PROFIBUS International, and the OPC Foundation along with leading automation vendors.



## Interoperable Solutions

Five different hosts including handheld field communicator, laptop software, and integrated control systems supporting EDDL enhancements were on display, and these are just some of the systems supporting EDDL. All leading DCS have by now passed the Fieldbus Foundation Host Registration Process (HRP), supporting EDDL enhancements. A handheld field communicator with color graphics was shown as well. Visitors to the booth could see how system software interoperates with devices from other manufacturers, implementing the EDDL enhancements. The EDDL standard allows a single software application or a single handheld field communicator to work with different types of devices from many manufacturers. That is, a single open solution takes the place of many proprietary tools.

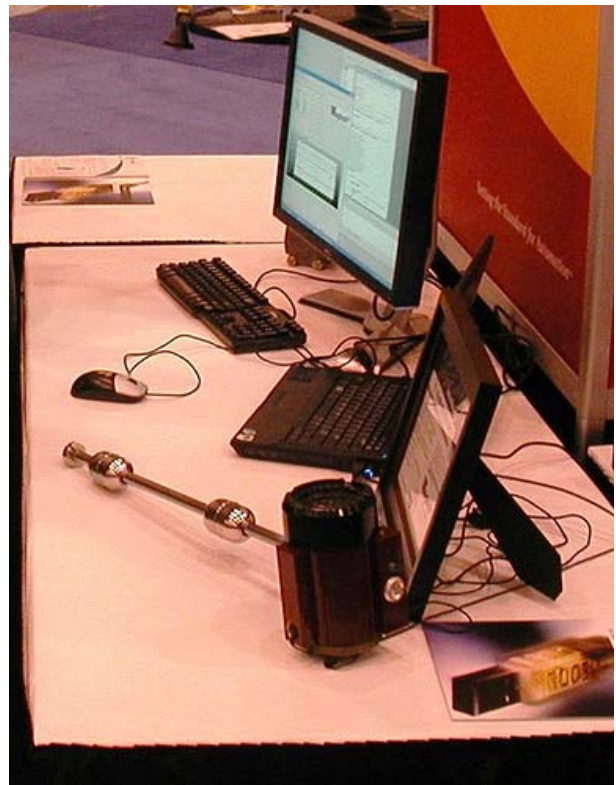
A handheld field communicator is smaller, lighter, and more rugged than a laptop and thus more portable and suitable for field work such as calibration and commissioning than laptops.



## Device interoperability

Devices demonstrated included a mix of products communicating using HART, FOUNDATION fieldbus, PROFIBUS, and WirelessHART protocols. Many of the systems support several of these protocols simultaneously. That is, EDDL is the standard that permits this mix of devices using different protocols to be managed from the same single software.





Simple temperature and pressure transmitters were provided by Emerson, Endress+Hauser, Microcyber and Siemens. Other devices included pH transmitter from Knick as well as Current to Fieldbus Converter from Microcyber. Sophisticated (complex) devices included radar and magnetostrictive level transmitters from Emerson, ISE-Magtech, Siemens, and Vega as well as control valves with positioners from Emerson, Foxboro-Eckardt, Metso, Samson, and Siemens. A variable speed drive was provided by Siemens and fieldbus diagnostics module (a relatively new type of device that monitors signal and noise level of the bus infrastructure) by MTL. Pressure and temperature transmitters using WirelessHART were also displayed. And these are just some of the

many kinds of devices supported by EDDL. Visitors to the booth were able to see advanced setup and diagnostics for all these types of devices.

### **Wireless adaptors**

Some HART devices were demonstrated with a WirelessHART adaptor. Since EDDL is independent of the communication path, these devices are integrated using the same EDDL file as when they communicate HART over the wire.

### **Development & Testing Island**

The Fieldbus Foundation, HART Communication Foundation, and Ifak showed software that device manufacturers use to write and validate the EDDL files for their devices - much like designing a web page - to unlock all its functionality and provide guidance for the user in the form of help text, illustrations, and step-by-step wizards ensuring correct order and that steps are not missed.



## **Exhibit Live Demonstration**

Visitors to the booth had an opportunity to see what EDDL-based device management software is capable of and get a notion of how their work can be simplified and be made more effective.

### **Graphics and Wizards**

The systems showcased displays with echo curve from radar level transmitters together with the amplitude threshold curve. Another example was valve signature curve from positioner. Valve position histograms and multi-variable trend were shown. Users were given demonstrations of how wizards (aka EDDL methods) take the technician through device setup and calibration procedures step-by-step ensuring it's done correctly. Examples of wizards demonstrated include guided pressure transmitter calibration, and stroking of a valve.

### **Consistent Look & Feel**

As visitors tested intelligent device management software to remotely interrogate the mix of live devices on display, they could see how devices from different manufacturers are displayed with a consistent look & feel. While the content & structure of the device display is defined by the device manufacturer, the appearance and location for buttons to accept or cancel changes, help, print, as well as zooming in/out, pan backwards/forward for trend charts and waveform graphs work the same way for all devices. Similarly, they could see consistent indication of parameter status: read-write, read-only, download change, database miscompare, lost communication, and failure are all indicated the same way regardless of manufacturer. No other device integration standard provides this level of consistency and ease of use.

## **Device Manufacturer Know-how**

Users got to see how device manufacturers make use of images in the EDDL files to make their devices easier to use. This includes static images to illustrate wiring and configuration options, as well as conditional images that changes depending on the status of the device. Case in point: illustrating which sensor has failed. Other expert know-how in form of help text for all settings and diagnostics the device manufacturers embed in the EDDL file were demonstrated.

## **Easy Integration**

In the systems users were shown the device libraries of traditional DD and enhanced EDDL files for hundreds of devices since many years ago, each version of the device having a separate file eliminating conflicts with other versions or types. Files for existing devices are pre-loaded when the system is bought. As new devices and types come into the plant over time, their EDDL files shall be loaded into the system. Because an EDDL file is compressed text (like HTML), not software, it is copied onto the system, not installed. This makes software using EDDL easy to keep up to date with new device types and versions without help from IT experts.

Quick commissioning of new device types and versions without software installation is a highly valued characteristics of EDDL as replacement of a faulty device is fast, minimizing downtime, and commissioning of a new plant is speedy shortening the project time.

## **Integrated Device Diagnostics**

Visitors were shown the concept of integrated smart diagnostics where device status can be checked from the operator workstation in only two clicks without having to go to a separate maintenance station. This is important because maintenance technicians are out working in the field, not idle in front of the maintenance station. Therefore, the old way of showing critical device diagnostics only in the maintenance station may not be effective as nobody sees it - the maintenance station often fell into disuse. However, an operator is always at the console. In an integrated host where device management is integrated with the control system, an alert appears in the operator console when device self-diagnostics reports a fault, and is therefore seen. This gives the operator minutes or hours of advance notice to act before the process is affected. The operator cannot fix the device, but can radio the technician in the field to do it. That is, integrated diagnostics naturally fits into the daily work processes. Devices and alerts are prioritized preventing alarm flooding - only critical device failures are brought to the operators' attention.

DCS do not permit third-party software drivers to be installed as they may affect system robustness. However, EDDL is not restricted by this because EDDL is compressed text (like HTML), not software. Integrated device diagnostics and subsequent operations and maintenance efficiencies are only possible with EDDL.

## **Data Access**

System vendors demonstrated how data from devices decoded using EDDL can be printed and exported to Excel, and how changes made to any of the devices are logged in the audit trail. It was shown how EDDL is used to automatically configure an OPC server to make device data accessible to other software applications.

## **Control Strategy**

Visitors got to see how EDDL is necessary in the DCS engineering station when configuring control strategies involving FOUNDATION fieldbus devices, in order to select the function blocks, link them together, set the parameters, and schedule the communication.

## Life-Cycle Solutions

That is, visitors could see the role EDDL plays in each phase of the system lifecycle and is supported in all the different solutions. From configuration in DCS and commissioning with handheld field communicator, to operations from device management software part of asset management solutions, and maintenance using a laptop in the workshop.

## Frequently Asked Questions

EDDL experts were also on hand in the booth to provide insights into advantages of EDDL that may not be immediately apparent simply by using the software to interact with devices. This includes for instance aspects related to long-term system administration.

### Windows obsolescence

All the control systems on display use workstations based on Windows. However, because an EDDL file is compressed text (like HTML), not software, the support files for the devices are not made incompatible by new versions of Windows such as the recent Vista or upcoming Windows 7. This provides a level of investment protection not possible with other solutions.

### License key

Because an EDDL file is a compressed text document (like HTML), not software, it does not have any license key.

### Interoperability test

EDDL files are interoperability tested together with the device as part of the testing performed by the bus organization for the protocol used.

## Others

MTL provided the fieldbus power conditioners and couplers, and LEONI Kerpen supplied the fieldbus cable.

## Theater Presentations

Four EDDL topics were presented in the x-pod theaters on the exhibit floor: the first presentation introduced the requirements in the NAMUR NE 105 recommendation and how EDDL is the sole device integration standard to meet these requirements. The second topic was an abridged version of the seminar covering the users benefits for operations & maintenance as well as system administration. The third and fourth covered how EDDL makes integration of data from WirelessHART devices into DCS easy, as well as commissioning and diagnostics. The third subject was an overview of the EDDL standard.



Copies of the presentations can be downloaded from [www.eddl.org](http://www.eddl.org)

## Seminar

The seminar presentation covered the topic of End-user Benefits from EDDL more extensively. For instance, how the EDDL approach enables device diagnostics to be integrated into the DCS. The seminar showed how diagnostic information can be accessed in less than three clicks, how EDDL provides more consistent look & feel, EDD file independence from Windows version with no file version conflicts, copy & paste a new file instead software installation, no need for administrator level password, no license key, etc. EDDL is an enabling technology that simplifies both operations & maintenance for the devices as well as system administration.

## Committee Meeting

The ISA104 committee had a meeting. Topics included review of the many accomplishments the past year, a proposal for setting up an EDDL lab in China, updates on further enhancements to the IEC 61804-3 standard, and discussion on possible web site improvements.

## Conclusion:

State-of-the-art systems and devices support EDDL enhancements in the 2006 edition of the IEC 61804-3 standard. The ISA104 EDDL demonstration at ISA Expo confirmed what the report from BIS found: EDDL is interoperable and meets the requirements of NAMUR NE 105.

## Reference

For more information go to [www.eddl.org](http://www.eddl.org)