ISDD Industry Standard Datasheet Definition

Build and Use Program
(Why Do It)
(How to Do It)
Datasheet/Spreadsheet Engineering Use Issues

• Datasheets are *visual documents* with a significant amount of data represented by graphic symbols

• Managing the *number of datasheets* Types, Instances, and the *number of data elements* required per instance become a daunting challenge

• Engineering handover is complicated by datasheets as a storage/system of record especially if there are multiple revisions steps.

• Systems of Record and plant applications requiring initialization becomes very difficult if data is trapped in datasheets/spreadsheets & documents

• Green field project installations still heavily rely on standardized datasheets developed by API, ASME, ANSI, PIDEX, PIP, ISA, IEC, etc. for design and procurement

• Almost all Brown field plants keep important data resident in datasheets/spreadsheet
Industry Standard Data Sheets (ISDs)

- Currently we have identified 263 source ISDs in common use
- Most commonly identified ISD publishers are listed below

<table>
<thead>
<tr>
<th>Publisher</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>API</td>
<td>15 (+20 ISO equivalents)</td>
</tr>
<tr>
<td>ASME</td>
<td>2 (+1 ISO equivalent)</td>
</tr>
<tr>
<td>IEC</td>
<td>10</td>
</tr>
<tr>
<td>ISA</td>
<td>166</td>
</tr>
<tr>
<td>ISO</td>
<td>28</td>
</tr>
<tr>
<td>NORSOK</td>
<td>31</td>
</tr>
<tr>
<td>PIP</td>
<td>11</td>
</tr>
</tbody>
</table>
ISDD Build Values and Benefits

**ISDD Build Benefits**

- A step-wise conversion process producing single final format for all data sheet types that is the input for the OIIE SDAIR – Standardized Digital Asset Interoperability Register.
- A means to define Graphical Symbol logic values utilized in data sheets (Radio Buttons, Rectangles, Check Boxes etc).
- A reliable method for managing Units of Measure – UOM for both SI and US Customary Units leveraging the Energistics UOM source information.
Condenser Unit of Debutanizer Tower P&ID

Equipment class ISD

API 660 Shell and Tube Heat Exchanger Data-sheet

Instrument class ISD

ISA 20T2221 RTD/Thermocouple Temperature Transmitter or Switch Revision 1 Data-sheet
These data sheets comprise all the data to define the functional location of a flow meter installation on a P&ID.
Data Sheet To ISDD Load File Processing Steps Until 2017 Was Manual Steps Below

- Mark datasheet elements for loading specific elements
- Data Sheet Preparation Using Tuples (Links variables names to entry area)
- Define datasheet blocks areas
- Linearize (decomposes the spreadsheet to single elements on a single row)
- Linearized data sheet page processing
- Assign/Manage Units of Measure - UOM for each data sheet element
- Filter linearized data sheet final format for machine loading
ISDD Phases

Build
- ISO 15926 PCA RDL
- Energistics Unit of Measure
- MIMOSA CCOM Reference Data
- ISA 20 Picklists
- USPI CFIHOS RDL
- IEC Common Data Dictionary
- ECCMA Open Technical Dictionary

Map

 Publish
- MIMOSA Website

Use
- XML
- Excel
- JSON (Work-in-progress)
Estimated ISDD Build Process Efforts

- Estimated level of effort per class for ISA and API ISDs
  - ISA-Build ISDDs - 3.5 Hours/Class, Versus
  - Manual-Build ISDDs - 3, 7 or 10 Days/Class/Sub-Class

- Estimated level of effort per class to “convert” CFIHOS classes
  - 2 Hours/class assuming CFIHOS logically correct and consistent
  - Automated conversion with manual QC review
Finish