AVEVA Instrumentation

Instrument and Systems engineering, design, documentation and management for the entire asset lifecycle

AVEVA Instrumentation is a proven, feature-rich software suite for Instrumentation and Control engineering. Its advanced graphical user interfaces, extensive use of design rules and catalogues for data creation, and maximum workflow flexibility make AVEVA Instrumentation the preferred choice for projects of all sizes.

Stand-alone or fully integrated, AVEVA Instrumentation is functionality rich and supports the complete asset life-cycle.

When used as part of an integrated AVEVA software deployment, it adds instrumentation data into the complete project information model, exposing it to the full range of AVEVA’s design, engineering, collaboration and lifecycle management technologies.

Increased productivity
Catalogue and rules-based automation makes system design efficient and effective. Highly graphical ‘visual engineering’ approach boosts productivity on both large and small projects.

Automatically generated deliverables
An extensive range of customisable deliverables may be created, including:
- Cable Block Diagrams
- Loop Diagrams
- Instrument Index
- Datasheets
- Hookup Diagrams
- Termination Diagrams
- Cable Schedules
- Bill of Materials
- Fieldbus Diagrams

Increased design quality
Use of catalogues and rules enables ‘right first time’ design. Accurate design information is further supported by seamless integration with 3D model data, e.g., for cable routing. High-quality documentation maximises productivity in operations.

Rapid payback
Easily and rapidly deployed on new or existing projects. Intuitive use minimises training needs and makes users immediately productive.

Collaborative workflow
A database shared with AVEVA Electrical provides significant interconnection ensuring the integrity of the design.
AVEVA Instrumentation comprises four integrated modules which share a common, multi-user database for design and as-built data. It can be used with MS SQL server (recommended), or other database packages for smaller projects.

AVEVA Instrumentation supports multiple languages throughout for ease of deployment and use worldwide. Data integrity is ensured by extensive validation processes, automatic cross-referencing and rigorous change control. Straightforward customisation enables configuration by users without the need for programming skills. Other important features include:

- Full integration with the AVEVA Enterprise information and resource management portfolio
- Interface to all industry-standard document management systems
- Report comparison and highlighting
- E&I Extracts feature enables data to be divided up between project teams and then merged back into the main database

### Integrated Modules

AVEVA Instrumentation operates a collaborative set of modules which share a common multi-user database for design and as-built data.

#### Instrument Engineer module

This module enables instrument index data entry, change tracking, generation of datasheets and the creation and management of reports and documentation. Its features include a straightforward and flexible spreadsheet-style interface, plus:

- **Datasheets**
  - Multiple instruments assignable by tag reference to a classification datasheet
  - Easy management of process data across multiple datasheets
  - Document management functions, including searching and change highlighting
  - Familiar spreadsheet functions such as import/export, format copying, datasheet reuse, configurable printing, PDF creation
  - Audit logging, revision control and change reporting

- **Instrument List**
  - Data import from Excel and P&IDs
  - Add, edit and maintain list data, including DCS/PLC I/O information
  - User-definable tag formats and list layout
  - Change reporting and management
  - Data association with Datasheets
  - Data association with the Instrument Designer module
  - Automatic update of loop drawing and hook-up document numbers

- **Loop List**
  - Advanced user interface for easy creation, editing and copying of loops
  - Assign ‘wiring rules’ and generate Wiring Manager module data automatically
  - Generate Loop Wiring Check reports in pdf format
  - Data association with the Instrument Designer and Wiring Manager modules

- **Reports**
  - Extensive, user-definable report generation, including:
    - Instrument and Loop Lists, I/O allocations
    - Datasheet List, Process data List
    - Report by datasheet type, by tag, by assignment status etc
    - Database changes between revisions, Audit log
    - Flexible print layout and export options
Instrument Designer module

This module enables automatic generation and revision of CAD drawings from the project/plant database, with or without the use of templates. It handles the parametric creation of termination drawings and may be used on existing AutoCAD drawings. Features include:

- **Drawing List Management**
  - Manually add, edit, update, delete or open drawings from the Drawing List
  - Add Loop Drawings automatically from Instrument Engineer’s Loop List
  - Add Termination Drawings automatically from Wiring Manager’s Equipment List
  - Create and manage drawing revisions
  - Link drawing text fields to any database fields
  - Batch mode operation for efficient drawing creation, updating and printing

- **Loop Diagram Generation**
  - Fully user-definable drawing templates
  - Edit and update existing drawings
  - Data association with Wiring Manager and Instrument Engineer for automatic updating
  - Full revision history

- **Termination Diagram Generation**
  - Fully automated creation of template-based and parametric drawings
  - Cable and termination data automatically updated from Wiring Manager
  - Automatic continuation over multiple drawings
  - Automatic reference drawing numbering

- **Hookup / Installation Drawing Generation**
  - User-definable AutoCAD drawings
  - Assign tags to hookup type, and hookup items from a user-definable catalogue. (Catalogue supplied with over 3000 items.)
  - Automatically create drawings with BoM and Tag List
  - Create BoM reports by plant area or for the total project

- **Change Management**
  - Report all drawing changes, additions, deletions, renaming etc
  - Report changes by field
  - Log changes for reporting

Process Engineer Module

The Process Engineer module enables the viewing and editing of process data for multiple instruments, in a grid format. It gives users the ability to enter their own data and makes process data available for inclusion alongside instrumentation data on all documentation, e.g. datasheets.

Features include:

- Ability to view like instruments
- Immediate identification of gaps in data
- Immediate identification of inconsistencies in data
- Intuitive reporting capability, fully aligned with the rest of the AVEVA Instrumentation modules
Key Features (continued)

**Wiring Manager module**

This powerful module handles all detailed cable, wiring, and termination design, creating data which is used by the Instrument Designer module for drawing generation. It features an advanced user interface and three integrated functions for handling equipment, cable, and interconnection data.

- **Advanced User Interface**
  - Intuitive and easy to learn for immediate productivity
  - ‘Drag & Drop’ wire termination and diagram layout functions
  - Catalogue-driven component selection

- **Equipment functions**
  - Graphical definition and easy reuse of equipment terminal arrangements and terminal strips/rails
  - Graphical representation of equipment hierarchy
  - Supports DIN rails with multiple devices
  - Assign tags to junction boxes
  - Rule-based creation of terminations

- **Cable functions**
  - Cable creation by catalogue or by copying existing cables
  - Cable merge and split functions
  - Catalogue-driven gland and gland adapter assignment
  - Automatic core marking updates from Catalogue Number changes
  - Automatic cable schedules and gland BoM reports
  - Automatic cable drumming for minimum wastage

- **Cable / Wire Terminations**
  - ‘Drag & Drop’ wire termination and I/O allocation
  - Automatic creation of editable Block Diagrams
  - Automatic rule-based numbering
  - Automatic cross-patch wiring within equipment and within rooms
  - Graphical termination reports in pdf format

- **Reporting**
  - Cable Schedules
  - Cable BoM, Cable Gland BoM
  - Cable Drum Schedule
  - Wire/Ferrule Number Schedules
  - I/O Allocations

AVEVA Instrumentation’s rich functionality not only enables efficient, accurate and productive system design and assembly, it provides rapid access to up-to-date information during operation. It is a complete lifecycle solution.

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AVEVA Instrumentation is one of AVEVA’s Engineer products, which create schematics, diagrams, datasheets, engineering lists and indexes.