WHITE PAPER

Next Step in Control System Engineering

Why SmartPlant® Instrumentation is Better than the Next-best Alternative

INTERGRAPH®

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1. Introduction

Engineering companies and plant owners look for engineering solutions that improve business and lower the risk of project execution and plant operations.

The basics of engineering have not changed that much over the years, such as specifying an instrument or connecting the wiring. What have changed are the business drivers, including:

- Schedule
- Cost
- Project size
- Time to market
- Distributed engineering

To best address these drivers, Intergraph® offers SmartPlant® Instrumentation. Take advantage of the solution's innovative capabilities to create and manage your control system engineering data.

2. Why Choose SmartPlant Instrumentation?

2.1 Market Leadership

SmartPlant Instrumentation is the clear market leader. This gives you many benefits, including:

2.1.1 Proven Performance

More than 20,000 professionals use the extensively tested solution on projects in various industries and configurations. Benefit from user input and proven project execution scenarios.

2.1.2 User Forums

Take advantage of a wealth of experience in the form of ideas, requirements, and specifications submitted by users.

2.1.3 Partners

With seamless interfaces to automation and other vendors such as Fluke, you can benefit from their input combined with the powerful functionality of SmartPlant Instrumentation. For example, innovative marshalling with CHARM from Emerson and wireless design capabilities will be supported in the next release of SmartPlant Instrumentation.

2.2 Cost of Ownership

2.2.1 Start from Day One

SmartPlant Instrumentation is delivered as a ready-to-use solution featuring engineering content such as default datasheets, a symbol library, and an installation details library. This gives you a running start to beginning productive project execution.

SmartPlant Instrumentation is widely used, which means that there are many experienced personnel available. This is a definite benefit if you need to expand your staffing levels.

2.2.2 Intergraph Stands by You

We follow Intergraph’s core value to stand by you, whether during project execution or plant operations. With Intergraph offices around the world, help is literally just around the corner. This lowers your risk and gives you peace of mind.

2.3 Value Proposition

SmartPlant Instrumentation is the proven, best choice with an innovative approach to control system engineering. Gain a clear value proposition to enhance your business.

2.3.1 I^3 Value Proposition

- Innovative
  - Rules- and relationship-driven for deliverables consistency
  - Automation
  - Workflow-driven
- Indispensable
  - Change control
  - Automatic creation of deliverables as data views
- Inspirational
  - Opportunity to re-think the work process
  - Automatic wiring
  - Mass editing
  - Integration with engineering and vendor solutions

3. Innovative Capabilities

3.1 Build Instrument Lists for Estimates and Indexes

The development and maintenance of instrument indexes are critical functions of process control systems design and engineering work processes.

Associated index data, such as document cross references, I/O requirements, statuses, and services, needs to be up to date and accessible to all members of the control systems team and related communities. SmartPlant Instrumentation creates an integrated environment that automates the work processes of building, managing, and publishing the instrument index.

3.2 Design and Automatically Create Deliverables

Design and then automatically create your deliverables, such as loop diagrams, directly from the design base. SmartPlant Instrumentation boosts productivity and creates a true representation of the design on the deliverables during all project stages. This gives you consistency through all of your deliverables.

3.3 Make the Right Decision Early

The sooner you can fix a problem, the more money you can save, as Table 1 illustrates:

Table 1: Costs increase when errors are found later in the workflow.

Stage at which an Error is Found	Possible Cost
Design Phase	$1
Downstream Disciplines	$50
Construction	$1,000

SmartPlant Instrumentation offers a powerful and unique rules engine that enables you to verify design while designing. This helps you avoid the costs of making a series of updates. You can also reduce the risk of finding a change late in the process. Enforce design practices even with changing resources.

3.4 Intelligent Datasheets

Datasheets are key deliverables, so it's important that they are accurate for purchasing and maintaining the devices. The new datasheets available in SmartPlant Instrumentation are not only industry-driven with respect to content, but are also intelligent to help you input the right data with rules, such as gas or fluid duty types of processes, and select lists to make faster and more consistent entries. SmartPlant Instrumentation helps you quickly and consistently perform data entry.

3.5 Projects in Projects

Projects within projects are common during the plant operational phase. SmartPlant Instrumentation supports as-built projects. This enables you to execute projects such as revamps or plant modernizations while keeping your data consistent, avoiding risk during operations. This very complex work process, specified and driven by the industry, is fully supported by SmartPlant Instrumentation.

3.6 Open and Flexible

With SmartPlant Instrumentation, you can make specific modifications to meet specific project needs. An application program interface can create interfaces to external solutions that complement SmartPlant Instrumentation. Plus, an out-of-the-box interface with most automation vendors enables you to access their on-line component catalogs and drive DSC configuration. Powerful import capabilities enable data import from external sources to jumpstart design, increase productivity, and boost data quality. Also, this interface can connect to your ERP solution, such as SAP, to support your plant maintenance operations.

3.7 Change Management

The one thing that is certain in engineering is change. There is no problem with changes, as long as you know what changed and where it changed. SmartPlant Instrumentation offers change management capabilities that highlight any changes and report on the variance between design versions, including clouding, changes, or coloring.

3.8 Engineering Standards-enabled

SmartPlant Instrumentation supports industry engineering standards, often out-of-the-box, such as KKS for the power industry.

3.9 Connect to the Physical Design

At some point, instruments must be located in the 3D design model so that they can be located correctly, both process-wise and operational-wise. SmartPlant Instrumentation offers an automated link to create the instrument's 3D representation based on the vendor dimensional data. The piping designer can place this 3D representation, ensuring that the isometrics and interference checking are correct.

3.10 Automated Wiring

SmartPlant Instrumentation helps you with one of the most time-consuming tasks – wiring. Comprehensive automatic wiring capabilities enable you to hook up the instruments and control system, automate the cross-wiring, and verify the connectivity. The connectivity (relationships) associated with the rules is one of the most powerful capabilities in SmartPlant Instrumentation. This also addresses one of the most time-consuming and error-prone tasks in control system design.

3.11 Integration with Engineering Tasks

Part of the SmartPlant Enterprise solution, SmartPlant Instrumentation offers integration with upstream and downstream tasks, such as SmartPlant P&ID, SmartPlant Electrical, and SmartPlant 3D. SmartPlant Instrumentation can be used for small, medium, and mega-projects. The solution gives you the flexibility to work the way that best fits your needs, supporting both connected and disconnected worksharing. SmartPlant Instrumentation covers the complete life cycle from basic engineering through detail design, commissioning to operations and maintenance.

4. Clear Choice

SmartPlant Instrumentation is the clear choice over the next-best alternative (see Table 2). With an innovative approach to control system engineering, you can enjoy a solid value proposition to enhance your business and deliver real benefits.

Table 2: SmartPlant Instrumentation shows a clear advantage over the next-best alternative.

Capability	SmartPlant Instrumentation	Next-Best Alternative
Market Leader	✓	
Instrument Index	✓	✓
Automatic Creation of Deliverables	✓	
Rules-driven to Make the Right Decision Early	✓	
Intelligent Datasheets	✓	
Projects in Projects	✓	
Open and Flexible	✓	✓
Change Management	✓	
Engineering Standards-enabled (DIN, ANSI, KKS)	✓	
Connect to the Physical Design (3D)	✓	
Automated Wiring	✓	
Integration with Engineering Tasks	✓	
Hosting Support	✓	
Fieldbus Design	✓	✓
Content (Symbols, Standards, etc.)	✓	

4.1 Proof-positive

To see specific tasks with associated value, see our Interactive Business case. This includes a specific case such as calibration and how it benefits you with information from customers, partners, an ROI calculator to see the true business value, and more.

4.2 Choose SmartPlant Instrumentation

To join the winning team and experience the benefits that SmartPlant Instrumentation offers, contact your local Intergraph office for additional information.

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