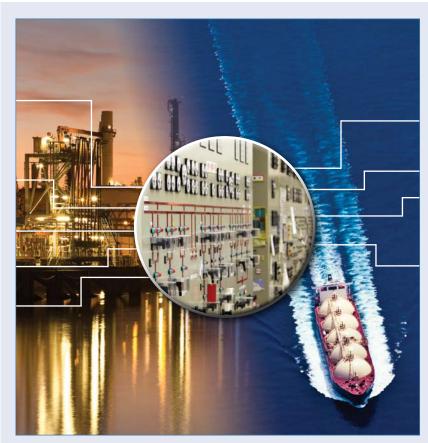
AVEVA Instrumentation

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.



An estimated 70% of all data items in Plant and Marine environments are typically connected to instrumentation and control processes

Business Benefits

■ 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.







Instrument Datash	eet					ONTRO	LV	AL	/E		
Tag No.			80-PV-1	105	_	PSO No.			_	A1-1	
Service					190	Line Number 150-HC-11					
3		_	ULL UND TO FILLD		PROCESS CO					100 110	
Fluid Name				FUEL		NOTITION 3	_		Design Condition	4	
	Fluid State				(seour	Design Temp.	Min	Max	0%	_	
Operating Condition			Min Flow	Norm I		Design Press.	Min	Max	0 kPag		
7 Liquid Flow Rate						Critical Temp.	Cess	el Press.			
B Vapour Flow Rate			6481 Sm3hr	-	17055 Sm3 for	Vapour S.G @ 15			_	_	
9 Inlet Pressure			2460 kPa-a	-	2440 kPa-o	Flashing/Cavitation/Choked			_		
D Pressure Drop			ASkPa	-	45 iPa	delta P. B. Shut Off			2500		
1 Inlet Temperature			85 °C	-	85 °C	Hazardous Area Classification			Zone 1, 0		
2 Liquid Vapour Pressure				-		Allowable Noise SPL			82		
3 Liquid Density				-		Ingress Protection			10 65 4	ral De	
4 Liquid Viscosity							Test & Certification		Hel		
5 Vapour Molecular Weigh	_		8.22	_	8.22	Sizing Considerations		rye			
6 Vapour Compress, Facto			9.44	-	9.22	Material Selection			Materials to be su		
7 Vapour Ratio of Specific			129	-	129	NACE Certification			Not Ro		
8 Cv Calculated	- News		34.472	-	126,153	Serial Number			_	190.1	
9 Valve Opening			20%	-	75%	Denai reumber			_		
Noise: Calculated SPL			60.2 dBA	-	64.6 dBA	+					
1			974.900	_	VALVE 8	ODV					
2 Line Size & Sch	Inlet	Outlet	DN 150 Sch	40 I	DN 150 Sch 40	Bonnet Type				-	
3 Insulation/Jacket	riet	COORE	D14 100 001	Non		Body Material				o ASTM	
4 Valve Type			Globe			Bonnet Material			Same		
	fv Size Rated Cv		DN 80		148	Packing Type & Material		EWR			
6 End Connections Type &			ASME CL30			Body Boting Bots Nuts		ASTM A193 O			
7 Flange Finish			32 to 63 umRa			Lub & Isol Valve /		Nurs	AJISKIA	Not F	
8	ge Finish		321063 µmpa			Flow Direction	Lime		_	Flow	
9	_	_		_	TRIN					1.00	
	Sign		Metal 1	_	3-7/16 Inch	PlugBall Disk Ma	terial			416	
			Linear		1-1/2 Inch	Seat Material			4163		
2 Style (Balanced / Unbala			Balanced			Material: Cape/Guide			174		
			0.819 0.649			Material: Shah/Stern			316		
4 No. of Seats			0.045				Leakage Class			ANSI C	
6						Leanage Class				MNOI	
6	_				ACTUAT	O.B.					
7 Type	_			Spring Dia		Actuator Orientati	00			96	
8 Actuator	Size	Ama	45	T T		Handaheel	-			Not F	
g Valve Action on Air Supp				e Closes o	n Air Failure	Volume Tank				Not F	
D Bench Range			100	14-30		Other				-401	
1	_				ACCESSO					_	
2 Positioner: Type			Smart	Digital 4-20	In A with HART	Air Set	Model	Set Pr	Fisher FS67CF	R-362	
3 Positioner:	Action	Charac'	Direct			Look Us/Quick Ex		week!		Not R	
	Gauges	Bypess	Supply, Outs	nut I	Not Required	Solenoid Valve		Voltage	Not Require		
4 Positioner:					nic Enclosures	Limit Switches: T		. Joseph		Not R	
					m Control System	Limit Switches:		Close	N/A		
4 Positioner:	put		230 to 275 kP		14'NPT F	Split Range Open				Not R	
4 Positioner: 5 Cable Entries	put Range	Conn			MANUFACTURE						
4 Positioner: 5 Cable Entries 6 IP Transducer: Signal In		Conn					_				
4 Positioner: 5 Cable Entries 6 IP Transducer: Signal In 7 Air Supply	Range	Conn	Manufacturer		Model	Ex Cert.	Ex Au	uthority	Certificate No.	Cert	
4 Postioner: 5 Cable Entries 6 IP Transducer: Signal in 7 Air Supply 8	Range				Model 3° ET	Ex Cert.	Ex A	uthority	Certificate No	Cert	
4 Positioner: 5 Cable Entries 6 IP Transducer: Signal In 7 Air Supply 8 9 Rem	Range T S2P	ag	Manufacturer			Ex Cert.	Ex Au	uthority	Certificate No	Cert	
4 Positioner: 5 Cable Entries 6 IP Transducer: Signal In 7 Air Supply 8 9 Rem 0 Valve	Range T S2P	ag /366A	Manufacturer Fisher		3° ET	Ex Cert.		uthority	Certificate No Aus Ex 3725X	Cer	

Datasheets and Instrument Indexes can be efficiently created with the Instrument Engineer module

Tag No	Descripti	on	P&ID	Plant Connection	Man
Loop No:	L-1023	Service:	T-1020 SLUG CAT	CHER	
LIC-1023A	PCS CONT	ROLLER	DWG-01-BP-1003	*	*
LIC-1023B	PCS CONT	ROLLER	DWG-01-BP-1003	*	*
LT-1023	DP FB LVL	TRANS. HP&LP SEAL	S DWG-01-BP-1003	T-1020	YOKO
LV-1023A	CONTROL		DWG-01-BP-1003	150-PL-1020-EA3N	FLOV VALT
LV-1023B	CONTROL		DWG-01-8P-1002		FLOV VALT
LY-1023A	I/P CONVE	RTER	DWG-01-BP-1003	150-PL-1020-EA3N	*
LY-1023B	I/P CONVE	ERTER	DWG-01-8P-1002	100-PF-1014-EA3X	*
Loop No:	L-1024	Service:	T-1020 SLUG CAT	CHER	
LAHH-1024	SIS ALARI	4	DWG-01-BP-1003	*	*
LALL-1024	SIS ALARI	4	DWG-01-BP-1003	*	*
LG-1024	MAG FOLL	OWER LEVEL GAUGE	DWG-01-BP-1003	T-1020	VTA
LZT-1024	MAG ANA	LVL TRANS.	DWG-01-BP-1003	T-1020	K-TE
Loop No:	L-1045	Service:	C-1030 INLET SE	PARATOR	
LAHH-1045	SIS ALARI	4	DWG-01-BP-1004	*	*
LALL-1045	SIS ALARI	4	DWG-01-BP-1004	*	*
LG-1045	MAG FOLL	OWER LEVEL GAUGE	DWG-01-8P-1004	C-1030	VTA
LZT-1045	MAG ANA	LVL TRANS.	DWG-01-BP-1004	C-1030	K-TE
Loop No:	L-1046	Service:	C-1030 INLET SE	PARATOR	
LIC-1046	PCS CONT	ROLLER	DWG-01-BP-1004		*
LT-1046	DP FB LVL	TRANS, HP&LP SEAL	S DWG-01-8P-1004	C-1030	YOKO
LV-1046	CONTROL	VALVE	DWG-01-BP-1004	150-PL-1029-DA3N	FLOV
LY-1046	I/P CONVE	ERTER	DWG-01-8P-1004	150-PL-1029-DA3N	*
Loop No:	L-1061	Service:	C-1040 STABILIS	ER FEED SURGE	DRU
LG-1061	MAG FOLL	OWER LEVEL GAUGE	DWG-01-8P-1005	C-1040	VTA
LIC-1061	PCS CONT	ROLLER	DWG-01-BP-1005		*

User defined reports may be easily created, including export to Excel and PDF

Key Features

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

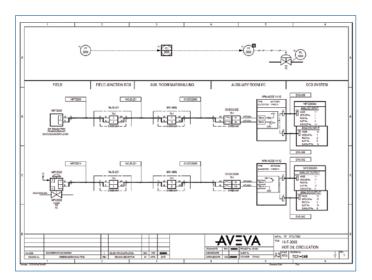
- Report all drawing changes, additions, deletions, renaming etc
- Report changes by field
- Log changes for reporting

Process Engineer Module

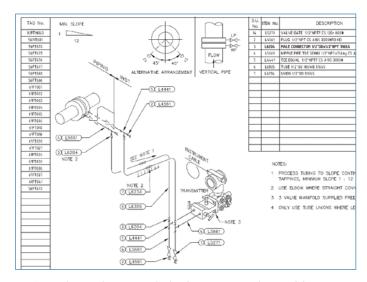
The Process Engineer module enables the viewing and editing of process data for multiple instruments, in a grid format. It gives users the ability to enter their own data and makes process data available for inclusion alongside instrumentation data on all documentation, e.g. datasheets.

Features include:

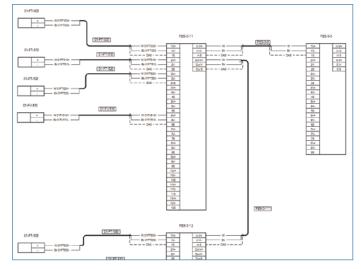
- Ability to view like instruments
- Immediate identification of gaps in data
- Immediate identification of inconsistencies in data
- Intuitive reporting capability, fully aligned with the rest of the AVEVA Instrumentation modules



AutoCAD Loop Diagram, generated using the Instrument Designer module



AutoCAD Hookup Drawing, generated using the Instrument Designer module



Fieldbus segment diagrams can be customised and delivered using AVEVA Instrumentation

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

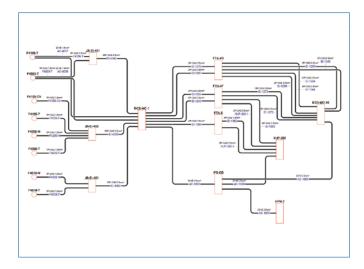
Cable / Wire Terminations

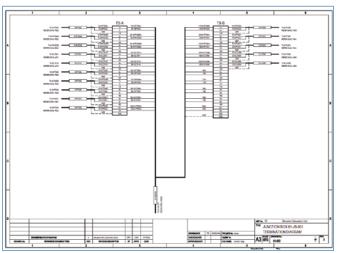
- 'Drag & Drop' wire termination and I/O allocation
- Automatic creation of editable Block Diagrams
- Automatic rule-based numbering
- Automatic cross-patch wiring within equipment and within rooms
- Graphical termination reports in pdf format

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.





Cable No	From	To	Length	Cores	Size	0A5	65	Description	Status
19:538:024	69-518-024	101-52C-67	110	2007	0.5mm²	E		PE/DASCIN/LAS/SWA/PVC-Blue	tien
56-338-02/1	56-198-00	56-590-156	150	2001	0.5mm²	E		PETOASCN/LAS/SWA/PVC-Blue	tien
56-19B-02/2	56-088-00	56-60C-156	150	20Pr	0.5mm²	8	H	PE/ONSCIN/LAS/SWA/PVC-Blue	New
6-128-10/3	56-035-02	56-58C-157	150	20Pt	0.5mm²	×		PE/GASCIN/LAS/SWA/PVC-Blue	New
6-180-03	56-520-00	56-53C-157	150	20Pr	0.5mm²	₽.		PETOASCINILASSINA/PVC-Bloe	New
6-LCP-600AW1	56-LCP-6mAX	56-50C-157	150	20Pr	0.5mm²	E	1	PETOASCIN/LAS/SWW/PVC-Blue	New
6-LCP-600AV/2	56-LCP-600AX	56-SIC-157	150	20Pr	0.5mm²		i i	PE/DASCIN/LAS/SWA/TVC-Blue	New
G-LCP-GOIDUS	SG-LCP-GOODS	56-58C-157	150	20Pr	0.5mm²	E		PETOASCIVILAS/SWA/PVC-Blue	New
6-LCP-60150/2	56-LCP-6018X	56-530-157	150	200-	0.5mm²	×		PETOASCINILASISWA/PVC-Blue	tions
6105-6000/1	56-LCP-600CX	56-50C-157	150	20Pr	0.5mm²	2	Ы	PE/DASCN/LAS/SWA/PVC-Nue	tien
6409400007	S6-LCP-600CX	56-530-157	150	20Pr	0.5mm²	F		PE/DASCIN/LAS/SWA/PVC-Bloe	Sex
6-515-002	56-530-012	56-530-465	130	200	0.5mml	2	П	PETOASCINILAS/SWA/PVC-Blue	Existing
6-518-003	56-518-013	56-500-465	100	20Pr	0,5mm²	E		PE/DASCIN/LAS/SWA/PVC-filler	Dristing
6-520-004	56-538-004	56-520-655	200	20Pt	0.5mm²	₩.	Н	PE/OASCIN/LAS/SWA/PVC-Blue	Dosting
6-538-005	56-538-005	56-500-455	120	2001	0.5mm²	E	П	PE/OASCIN/LAS/SWA/PVC-Blue	Existing
6.575.006	56-518-016	56-530-455	120	20Pt	0,5mm²	P		PE/DASCIN/LAS/SWA/PVC-Blue	Bristing
6-538-007	56-538-867	56-520-465	130	21Pt	0.5mm²	E		PL/OASCIN/LAS/SWA/PVC-Hiller	Exercise
6-530-118	56-530-918	56-500-456	\$0	20Pr	0.5mm²	12	-	PE/DASCIN/LAS/SWA/PVC-Blue	Existing
6-538-021	56-538-021	56-500-4/56	130	20Pr	0.5mm²	₩.	П	PE/DASCIN/LAS/SWA/PVC-Blue	Existing
6-538-023	54-538-023	58-520-156	150	2EPt	0.5mm²	₩.	П	PE/DASCIN/LAS/SWA/PVC-Hiller	New
6-530-024	56-538-024	56-680-156	190	20Pr	0.Sees2	×	П	PE/OASCIN/LAS/SWA/PVC-Blue	New
6-538-025	56-538-925	56-580-156	150	20Pr	0.5mm ²	W	П	PE/OASCIN/LAS/SWA/PVC-Blue	tion
6-538-026	56-528-026	56-520-156	170	HPY	0.5mm²	₩.	п	PI/OASCN/LAS/SWA/PAC-Blue	lieu
6-538-031	56-538-001	56-A3C-01	110	20Tr	0.5mm²	E	1	PL/ICASON/LAS/SWA/PVC-Blue	New
6-538-032	56-538-932	56-680-157	199	2001	0.5mm²	2	П	PE/OASCIN/LAS/SWA/PVC-Blue	New
96-516-033	56-538-933	56-500-156	130	20Pr	0.5mm²	E	-	PE/DASCN/LAS/SWA/PVC-Blue	firm

The Wiring Manager module generates high-quality Cable Block Diagrams, Termination Diagrams and Cable Schedules. as shown in the sequence above



AVEVA Instrumentation is one of AVEVA's Engineer products, which create schematics, diagrams, datasheets, engineering lists and indexes AVEVA Worldwide Offices | www.aveva.com/offices



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