



Engineering Standard

SAES-Z-002

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Technically Accepted Process Automation Systems

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Saudi Aramco DeskTop Standards

Table of Contents

1	Scope.....	2
2	Conflicts and Deviations.....	2
3	References.....	2
4	Definitions.....	3
5	General.....	3
6	Restricted Vendor List For Process Automation Systems.....	4
7	Recommended Vendor List For Process Automation Systems.....	6

1 Scope

- 1.1 This Standard identifies acceptable manufacturers for Process Automation Systems. This Standard does not apply to purchasing procedures associated with Process Automation Systems for replenishment of SAMSS stock.
- 1.2 This standard contains both Restricted and Recommended Vendor's Lists for Process Automation Systems. The Distributed Control Systems (DCS) RVL and SCADA RVL are Restricted Vendor Lists. All others are Recommended Vendor Lists.

2 Conflicts and Deviations

- 2.1 All conflicts between this standard and other applicable Saudi Aramco Engineering Standards (SAESs), Materials System Specifications (SAMSSs), Standard Drawings (SASDs), or industry standards, codes, and forms shall be resolved in writing by the Company or Buyer Representative through Manager, Process & Control Systems Department, Saudi Aramco, Dhahran.
- 2.2 Direct all requests to deviate from this standard in writing to the Company or Buyer Representative, who shall follow internal company procedure SAEP-302 and forward such requests to the Manager, Process & Control Systems Department, Saudi Aramco, Dhahran.

3 References

Saudi Aramco References

Saudi Aramco Engineering Procedure

<i>SAEP-15</i>	<i>Preparation of Restricted Vendors Lists for Process Automation Systems</i>
<i>SAEP-302</i>	<i>Instructions for Obtaining a Waiver of a Mandatory Saudi Aramco Engineering Requirement</i>

Saudi Aramco Materials System Specifications

<i>23-SAMSS-010</i>	<i>Distributed Control Systems</i>
<i>23-SAMSS-020</i>	<i>Supervisory Control and Data Acquisition (SCADA) Systems</i>
<i>23-SAMSS-030</i>	<i>Remote Terminal Unit</i>
<i>23-SAMSS-050</i>	<i>Terminal Management Systems</i>

34-SAMSS-621	<i>ESD Systems – Hardwired – Solid State (Non-Programmable)</i>
34-SAMSS-622	<i>ESD Systems – Electromagnetic Relay</i>
34-SAMSS-623	<i>Programmable Controller Based ESD Systems</i>
34-SAMSS-624	<i>Wellhead Control, Monitoring and Shutdown</i>

Saudi Aramco Engineering Standard

SAES-Z-003 *Pipeline Leak Detection Systems*

4 Definitions

Terms shown in **bold** font within this document are defined below:

9COM: Is a material number used within SAP system to represent a "Commodity Number". The 9COM number represents a particular category of item and whether or not materials belonging to that category are inspectable or not.

Approval: Written authorization by the Manager, Process & Control Systems Department, Saudi Aramco, Dhahran.

P&CSD: Process & Control Systems Department, Saudi Aramco

Restricted Vendor List: A Restricted Vendor List (RVL) constitutes the exclusive list of vendors and their associated product lines qualified to provide the applicable class of process automation equipment to Saudi Aramco. Restricted Vendor Lists are prepared in accordance with procedures defined in SAEP-15. Restricted Vendor List is intended for only of the host systems (i.e., DCS and SCADA).

Recommended Vendor List: Products contained in Recommended Vendor's Lists have been evaluated by P&CSD and found to be technically acceptable. Recommended Vendor List is intended for subsystems only (i.e., ESD and RTU).

Supplier: The person/company etc. who is responsible to provide the equipment to Saudi Aramco.

Vendor: The company whom is the manufacturer of the system or equipment.

5 General

5.1 Procurement of a product made by a manufacturer not listed in Section 6 of this Standard is not allowed without **Approval**. Requests for approval of an alternate manufacturer must be supported by documentation identifying how the alternate manufacturer would better serve Saudi Aramco over the manufacturers listed in this standard.

5.2 The listings within sections 6 and 7 shall be interpreted in the following manner:

5.2.1 **System Name** denotes the name of the system which as been determined to be acceptable. A particular vendor may manufacture more than one system for the type of application. Only the system shown in the "System Name" column may be used.

5.2.2 **Release Tested** denotes the latest revision level of the system which has been evaluated by P&CSD and determined to be acceptable. Requests to use a more recent revision level or a previous version to the revision listed shall be directed to the General Supervisor, Process Control Division, P&CSD, Saudi Aramco, Dhahran.

Commentary Notes:

*The intention of this requirement is to ensure the use of the most recent revision level which meets Company requirements. It is not the intention to limit user to only the releases listed in this document. In general, minor revisions within a Major Release do not need **Approval**. However, vendors are not consistent in how they designate major vs. minor releases. Therefore, users are required to consult with P&CSD on the specifics of any release which is newer than that listed.*

*P&CSD recommendation is to use the most recent, approved revision level for a given system. However, it is recognized that for certain projects where a system is being "expanded", there are valid reasons to use a revision level which is prior to the one listed in the tables. Expansions to existing systems do not require P&CSD **Approval** to use a prior revision level system.*

5.2.3 **Vendor** is listed with the word "None" as a "Limitation": The system listed in the "System Name" column may be used without restriction.

5.2.4 **Vendor** is listed with a "Limitation": The system listed in the "System Name" Column may be used with the restrictions noted.

5.2.4 **Vendor or Manufacturer** is listed as "On-Hold" in the "Limitation" column: Purchasing the system from a vendor whom is listed as "On-Hold" is prohibited, unless such a deviation is mandated by a business decision for a specific purchase order.

6 Restricted Vendor List For Process Automation Systems

6.1 *Equipment: Distributed Control Systems for FOUNDATION Fieldbus (FF)
9COM: 6000001537
Specification: 23-SAMSS-010*

Vendor	System Name	Release Tested	Limitations
Yokogawa	CS3000	R3.05	None
Honeywell	Experion PKS	R200	No more than one controller per chassis
Emerson	DeltaV	R7.3	None
Foxboro / Invensys	Foxboro IA	V8.0	None

SAP Details

Manufacturer	Vendor / Plant ID	Location	Limitations
Yokogawa Electric Corp.	30001465	Musashino-Shi, JP	None
Yokogawa Engineering Asia	30000134	Singapore	None
Yokogawa Middle East	30003212	Bahrain	None
Yokogawa Corp. of America	30003766	Stafford, TX, USA	None
Honeywell Inc.	30001743	Phoenix, USA	None
Honeywell	30003366	Calgary, Canada	None
Honeywell Industrial Control	30001744	Houston, TX, USA	None
Honeywell Middle East	30003684	Abu Dhabi, UAE	On-Hold
Emerson	30001655	Austin, TX, USA	None
Emerson Process Mgmt.	30003598	Calgary, Canada	None
Invensys PLC	30002059	Foxboro, USA	None
Invensys Middle East	30003562	Dubai, UAE	None

- 6.2 *Equipment: Supervisory Control and Data Acquisition Systems (SCADA)*
9COM: 6000001547
Specification: 23-SAMSS-020

Vendor	System Name	Release Tested	Limitations
Yokogawa	FAST/Tools	V8.2	None
Bristol Babcock	OpenEnterprise	V2.5	None
Cegelec GMBH	ViewStar ICS	V2.12	None
Telvent	Metso DNA	V7.3	None
Invensys	iScada	R5.0	On-Hold

SAP Details

Manufacturer	Vendor / Plant ID	Location	Limitations
Yokogawa Systems Center Europe BV	30000135	Apeldoorn, NL	None
Yokogawa Middle East	30003212	Bahrain	None
Yokogawa Corp. of America	30003766	Stafford, TX, USA	None
Bristol Babcock Ltd.	30003547	Worcester, GB	None
Cegelec GMBH & Co. KG	30003547	Frankfurt, DE	None
Invensys Middle East	30003562	Dubai, UAE	On-Hold

7 Recommended Vendor List For Process Automation Systems

- 7.1 *Equipment: Programmable Controller based Emergency Shutdown Systems*
9COM: 6000002723
Specification: 34-SAMSS-623

Vendor	System Name	Release Tested	Limitations
Triconex / Invensys	Tricon	V10	None
Triconex / Invensys	Trident	V1.3	Maximum 500 I/O per system
ICS Triplex	Trusted	R3.4	None
ABB-August	SC300	N/A	On-Hold

SAP Details

Manufacturer	Vendor / Plant ID	Location	Limitations
Invensys Middle East	30003562	Dubai, UAE	None
Triconex Corporation	30003780	Webster, TX, USA	None
ICS Triplex	30001898	Houston, TX, USA	None
Industrial Control Services	30001186	Maldon, GB	None
ABB August Inc.	30001711	Houston, TX, USA	On-Hold
ABB August Ltd.	30000172	Crawley, GB	On-Hold

- 7.2 *Equipment: Programmable Wellhead Shutdown Systems*
9COM: 6000002723 (Note: Same 9COM as Programmable ESD)
Specification: 34-SAMSS-624

Vendor	System Name	Release Tested	Limitations
Yokogawa	Prosafe	Revision 4	None
Triconex / Invensys	Trident	1.3	None
Siemens	Quadlog	Revision 4	None

SAP Details

Manufacturer	Vendor / Plant ID	Location	Limitations
Yokogawa Systems Center Europe BV	30000135	Apeldoorn, NL	None
Yokogawa Engineering Asia	30000134	Singapore	None
Yokogawa Corp. of America	30003766	Stafford, TX, USA	None
Invensys Middle East	30003562	Dubai, UAE	None
Triconex Corporation	30003780	Webster, TX, USA	None
Siemens	30001273	Karlsruhe, DE	None

7.3 *Equipment: Remote Terminal Units (RTU)*
9COM: 6000002683
Specification: 23-SAMSS-030

Vendor	Model Number	Limitations
Siemens	Sinaut, ST115, ST155, ST7-400, ST7-300	None
Bristol Babcock	DPC 3310, 3330, 3331, 3332, 3335 Control wave, Control wave micro	None
GE Harris	D20	None
Yokogawa	Stardom FCN, FCJ	None

SAP Details

Manufacturer	Vendor / Plant ID	Location	Limitations
Siemens AG – A&D AS EWK	30003832	Karlsruhe, DE	None
Siemens Automation & Drives	30003472	Winchester, GB	None
Bristol Babcock Ltd.	30003547	Worcester, GB	None
Bristol Babcock Inc.	30001469	Watertown, USA	None
GE Energy Services	30001734	Calgary, Canada	None
Yokogawa Middle East	30003212	Bahrain	None
Yokogawa Engineering Asia	30000134	Singapore	None
Yokogawa Corp. of America	30003766	Stafford, TX, USA	None

7.4 *Equipment: Terminal Management Systems (TMS)*
9COM: 6000001584
Specification: 23-SAMSS-050

Vendor	System Name	Release Tested	Limitations
Siemens	SINAUT PACOS	N4.01	None
Honeywell	Experion PKS - CTS	R100	None
Emerson	AutoLoad	N/A	None
ABB	Fulfil IT – MAC / Advant TAS	R3.3	On-Hold

SAP Details

Manufacturer	Vendor / Plant ID	Location	Limitations
Siemens AG – A&D I&S	30001273	Karlsruhe, DE	None
Honeywell Industrial Control	30001744	Houston, TX, USA	None
Honeywell Automation India	30004031	Pune, India	None
Emerson Process Mgmt.	30003598	Calgary, Canada	None
ABB Automation Inc.	30001713	Houston, TX, USA	On-Hold

7.5 *Equipment: Compressor Control Systems*
9COM: 6000001582
Specification: None

Vendor	Model Number	Limitations
Compressor Controls Corp.	Series 5 – Vanguard, Series 5 - Reliant	None
Triconex / Invensys	Tricon V10 TS-3000	None
GE Woodward	MicroNet, MicroNet TMR, 505C	None
Foxboro / Invensys	Foxboro I/A V6.X	On-Hold

SAP Details

Manufacturer	Vendor / Plant ID	Location	Limitations
Invensys Middle East	30003562	Dubai, UAE	None
Compressor Controls Corp.	30003669	Des Moines, USA	None
Woodward Governor Company	30002970	Fort Collins, USA	None
Invensys / Foxboro	30002059	Foxboro, MA, USA	On-Hold

7.6 *Equipment: Leak Detection Systems*
9COM: 6000002759 and 6000002884
Specification: SAES-Z-003

Vendor	System Name	Limitations
Acoustic Systems Inc.	WaveAlert	None
Energy Solutions International	ESI PAS	None
Multiphase Solutions	VPM	None
EFA Technologies	LeakNet	None
REL Instrumentation	ATMOS PIPE	None