

GENERAL SPECIFICATION

INSTRUMENTATION

GS EP INS 103

Instrument Database Management

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1. Scope

This specification defines the minimum requirements for the development and administration of an instrument database during the life cycle of a plant. It also details the responsibilities of the different parties who may be involved in developing this database. It shall be applied to all projects developing new installations or extending existing facilities.

The Basic Engineering Contractor shall use this specification as a basis to define the project specific rules for the instrument database which shall be required to be applied throughout the development stage of the project.

2. Reference documents

The reference documents listed below form an integral part of this General Specification.

External Documents

Unless otherwise stipulated, the applicable version of these documents, including relevant appendices and supplements, is the latest revision published at the effective date of this document.

Reference	Title
ISA 20	Specification Forms for Process Measurement and Control Instruments, Primary Elements, and Control Valves
ISA 5.4	Instrument Loop Diagrams

Total General Specifications

Unless otherwise stipulated, the applicable version of these documents, including relevant appendices and supplements, is the latest revision published in the applicable yearly collection.

Reference	Title
GS EP INS 000	Minimum Contractor Document Requirements
GS EP INS 102	Instrumentation identification
GS EP INS 107	Design and installation of instrumentation links
GS EP INS 134	Design and supply of integrated control and safety system

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3. Definitions

3.1 Parties

Contractor	Any party TOTAL E&P has signed a contract with for the Engineering, Procurement, Construction and Installation as part of a project or maintenance contract.
ICSS Supplier	The party that supplies the Integrated Control and Safety Systems.
Package Supplier	The party that supplies an equipment package.

3.2 Abbreviations

CAD	Computer Aided Design
EPC	Engineering Procurement and Construction
F&G	Fire and Gas
FPSO	Floating Production Storage Offloading unit
FSO	Floating Storage and Offloading unit
FTA	Field Termination Assembly
HIPS	High Integrity Protection System
HMI	Human Machine Interface
I/O	Input output
ICSS	Integrated Control and Safety System
IT	Information Technology
LLI	Long Lead Items
P&ID	Piping and Instrument Diagram
PCS	Process Control System
PLC	Programmable Logic Controller
PSS	Process Safety System
SCU	Subsea Control Unit
SCS	Subsea Control System
SPCS	Subsea Production Control System
SPS	Subsea Production System
TSLD	Trouble Shooting Loop Diagram
UCP	Unit Control Panel
UFR	Umbilical Flow-line Riser

4. Introduction

An Instrument database is required to organize and manage the large amounts of instrument data required to be defined on a project. The instrument database shall be the common source of data used to produce the engineering deliverables (e.g. instrument data sheet, wiring diagrams, cables list, loop diagrams...).

The instrument database shall be used to identify, specify and quantify the instruments. Furthermore, it shall be capable of attaching relevant associated process data to these instruments as well as provide sorting and filtering capabilities. The instrument database shall continue to be used throughout the lifecycle of the plant as the primary source of instrument data.

The instrument database will be a key input source to the following:

- The ICSS configuration database
- The commissioning database (ICAPS)
- The maintenance database.

The information contained in the instrument database shall be complete, accurate and precise.

Company has validated and standardised on the following instrument database software packages:

- S4I^R by Capgemini
- SmartPlant^R INtools by Intergraph.

Each project with the assistance of the Company affiliate, who will be the final end user of the facility, shall select the preferred instrument database software from the two above.

The selection shall be made during the pre-project phase with due consideration given to the following:

- Existing instrument database in the affiliate –if any
- Version of the software
- Local support.

5. Databases and Users

The instrument database shall always be considered as a single overall project. Nevertheless, depending on the project organisation, there may be several “subsets” of the overall database.

The following provides an example of project database subsets::

- Drilling platform(s) database
- Processing platform database
- Living quarter database
- FSO (Floating, Storage and Offloading unit) database
- HIPS Database.

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The users of these databases would be:

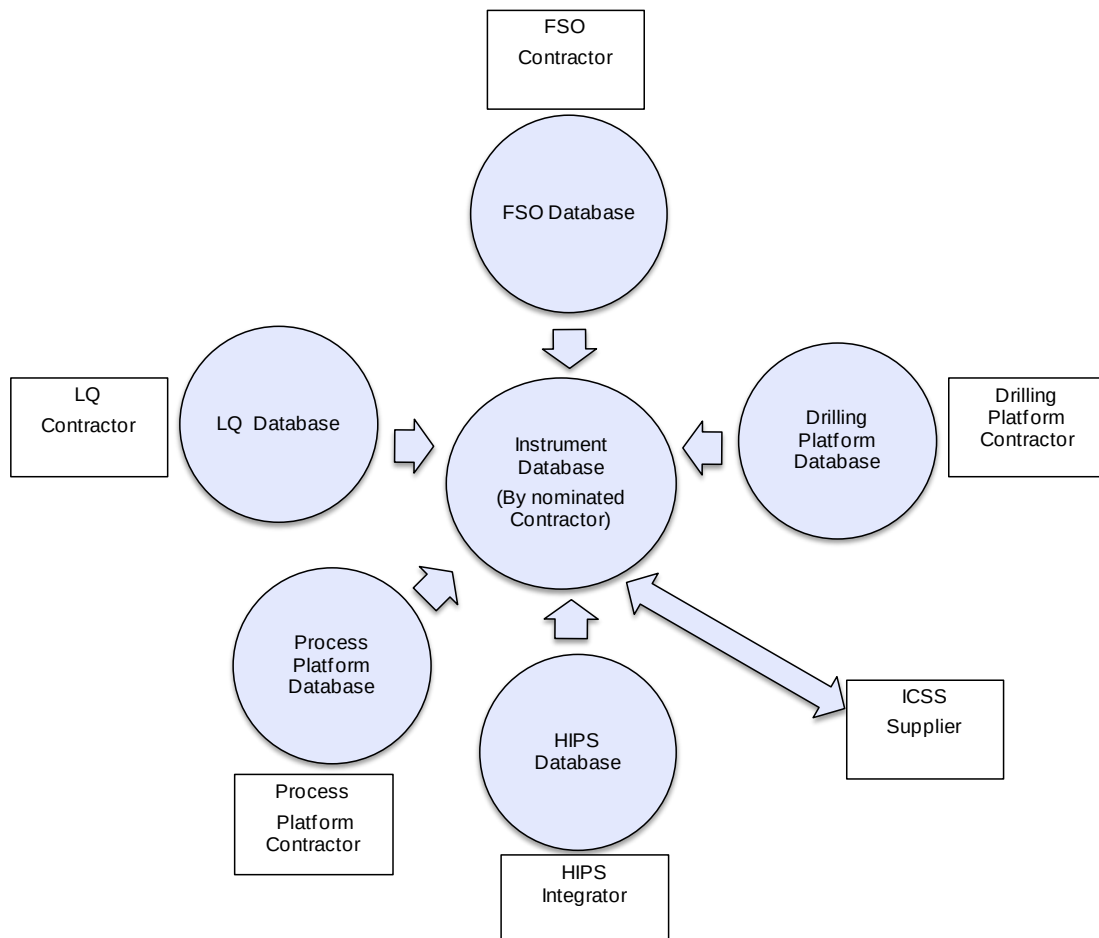
- Drilling platform(s) Contractor
- Processing platform Contractor
- Living quarter Contractor
- FSO Contractor
- HIPS Integrator
- ICSS (Integrated, Control and Safety System) Supplier
- Company.

At the end of the project the different parts of the databases shall be brought together to ensure an overall facility database is provided.

The collation of the databases shall be done under the responsibility of the main EPC Contractor.

Refer to Figure 1 for illustration of a typical database organisation with its associated users.

Figure 1 - Example of instrument database with several subsets and various users



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6. Responsible Parties and Methodology

The development of the instrument database shall commence during the basic engineering phase and continue throughout the project phase. A project specific Instrument database management procedure shall be issued as part of the basic engineering deliverables in accordance with the requirements of **GS EP INS 000**.

As a general rule, all instruments identified on the P&IDs, F&G Layouts, Causes & Effect matrix, Safety Logic Diagrams, electrical/instrument interface and package interface shall be included in the database.

6.1 Company

Company shall confirm the selected instrument database software to the Contractor at the commencement of basic engineering.

In case of brown-field development, the Company shall define the level of integration of the new database with the existing one, as a minimum the structure of the existing database should be maintained. Also the Company shall give a copy of the current database which will be used as a model.

6.2 Basic engineering Contractor

The basic engineering Contractor shall develop the project specific rules to create, manage and populate the instrument database

The Instrument Database Management Procedure and the Identification & Numbering Procedure will require to be issued at the early stages of basic engineering.

These two documents are closely linked and shall therefore be consistent and coherent.

The Instrument Database Management Procedure shall include as a minimum:

- The database organisation and structure
- The definition of the Instrument Database Administrator
- The detail of the fields including syntax and size
- The database population rules
- Instrumentation data exchange procedure between EPC Contractors, ICSS Supplier and Subsystem Suppliers / Vendors and sub-Contractors (LLI, Package Supplier...).

All necessary information that will facilitate an effective instrumentation data collection from the LLI Vendors shall be included in the LLI Call For Tenders dossiers.

The Basic Engineering Contractor shall establish working rules to guide the other Contractors that may be involved during the execution phase of the project e.g.: Subsea Production System (SPS) and Umbilical Flowline Riser (UFR) Contractors. The purpose is to ensure that all Contractors shall provide instrument information in a coherent, consistent and compatible format.

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The instrument database deliverable at the end of basic engineering shall have all fields identified and populated as a minimum with the data fields identified in Appendix 1. The instrument database shall be sufficient in order to produce:

- The instrument index
- ICSS Input/output list.

Datasheets for control valves, on/off valves and process safety valves may also be required to be produced from the database as required by the project.

6.3 Instrument Database Administration Manager

During the detailed engineering phase, the procedure developed at basic engineering will be used. The custodian of this procedure shall be the Instrument Database Administration Manager.

It is the responsibility of the Instrument Database Administration Manager to update the Instrument Database Management Procedure into a detailed and comprehensive procedure which shall be followed by all the parties involved (EPC Contractors, ICSS Supplier, Package Suppliers...) during the execution phase. This shall take into account contractual split and responsibilities between the different Contractors.

The Instrument Database Administration Manager shall ensure the implementation of the procedure by all the different parties involved. He shall in particular provide all the parties with the necessary instructions for populating data directly into the master database or for transmitting data under predefined formats for import in to the database.

The instrument database manager shall define the IT infrastructure to allow for database population from multiple sources and ensure its implementation as required by § 7.

The Instrument Database Administration Manager shall be responsible for the final delivery at the end of the project – including “as commissioned” modifications. All the modifications made by other Contractors whose data forms part of the instrument database are also included.

6.4 EPC Contractors

Each Contractor is responsible for the instrument database for his facility. This includes the packages that might be subcontracted to other parties.

The Contractor shall ensure that the instrument database is populated with the correct information and that it is used as the source data for the design and build of the facility.

6.5 ICSS Supplier

The ICSS Supplier is responsible for the ICSS part of the database. This shall include not only the “system” aspects but also include the wiring from the marshalling termination strips up to FTA associated to I/O modules.

The activities of the ICSS Supplier shall be in accordance with § 6.9 of [GS EP INS 134](#).

6.6 Package Suppliers

Package suppliers are generally subcontractors to their EPC Contractors.

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Two cases are foreseen:

- The Package Supplier agrees to use the instrument database software: the detailed engineering Contractor shall receive the package database and will integrate it in the general database. Or,
- The package Supplier does not use the instrument database software: the detailed engineering Contractor will define and impose a procedure on the Package supplier to collect the instrument database in a format useful for a direct transfer to the final instrument database.

In all cases the EPC Contractor shall be responsible for the integration of the Package instrumentation data.

6.7 Battery limits

The battery limits of the different parts of the database shall be fixed in accordance with the split of the EPC Contracts and the requirements of the Instrument Database Management Procedure.

Special attention shall be given to the scope attributed to the ICSS Supplier. The ICSS Supplier is responsible for the ICSS part of all databases. The exchange of data between ICSS Supplier and the EPC Contractor is further explained in § 9.3.1 of this document.

The Instrument Database Administration Manager shall be responsible for ensuring that the different procedures include all necessary interfaces between all parties involved in the project.

7. IT system design

The architecture of the IT system shall be defined for the purpose of the project depending on the size of the project, the number of Contractors, the geographical location of Contractors and the necessity to have real time access or not.

Different architectures may be foreseen.

- Centralized architecture with one master database in EPC Contractor office with communication flow based on partial copy of the database between the different teams involved. This architecture needs very strict rules and is applicable for small project.
- Distributed architecture with one database in each EPC Contractor office. The main EPC Contractor shall be responsible to merge the different databases.
- Centralized database with direct access for the different Contractors through Internet. This architecture is the most complex in term of hardware but has good result in term of time saving. Very strong IT safety rules must be put in place to avoid database corruption.

It is the responsibility of the Database Administration Manager to propose the desired architecture and to ensure via real tests that this architecture is fit for purpose.

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8. Detailed Scope and Responsibilities

8.1 EPC Contractors

8.1.1 EPC Contractor “database administrator”

The database administrator is responsible for the following:

- Appointing an instrument index specialist, a specification specialist and a wiring specialist.
- Elaborating the different tables used to identify all items in the database. These tables shall be adapted to the selected software (S4I^R or SmartPlant^R INtools). For a good transfer of data between Contractors, it is important to define a clear terminology of all fields, in particular for the “Description” field.
- Ensuring the database structure and database completion rules agreed by the different parties are respected.
- Adding and naming fields or modifying field characteristics after review and acceptance by the Company. In particular, he is responsible for integrating the additional fields that have been specially created for the ICSS needs.
- Submitting to Company agreement the different instrumentation documents forms (name and content).
- Managing the documents releases and tracks revision indexes.
- Importing the ICSS part into the database.

He shall ensure each responsible person within his team keeps record of all changes from a quality point of view.

The Contractor organisation chart shall include and show the above position.

8.1.2 EPC Contractor “instrument index specialist”

The instrument index specialist populates the fields related to general instrument information, such as but not limited to:

- Instrument tag
- Instrument type
- Instrument loop number
- Signal type
- P&ID and line references
- Process piping class
- Instrument piping class
- Instrument service descriptor (the instrument service descriptor shall be meaningful and include valuable data)
- Instrument scale max and min

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- Engineering unit
- ICSS sub-system allocation (ESD, FGS, PSS, PCS, etc.)
- The digital alarm option (threshold type), the threshold option (HH, H, L, LL) and set point value
- Vendor name
- Vendor instrument reference
- ...

He is the only one entitled to create or delete an instrument, under the database manager's responsibility.

8.1.3 EPC Contractor "instrument datasheet specialist"

The instrument datasheets specialist is responsible to populate the data relating to the instrument datasheets, typically, but not limited to:

- Process and construction data
- Measurement parameters (range, scale, threshold value...)
- Manufacturer, type and model
- Datasheet number
- And all other data ensuring a complete instrument definition.

He creates the instrument datasheets forms according to [ISA 20](#) standards.

Even if the database is not directly compatible with the [ISA 20](#) standards, he shall allocate all data from the datasheets in the instrument database

All the fields labelled "specification" have to be populated.

Instrument datasheets specialist is only allowed to work on the datasheets.

8.1.4 EPC Contractor "instrument wiring specialist"

The instrument wiring specialist defines the junction boxes models, the cable type and the marshalling cabinet terminal strips models.

He creates the ICSS I/O cards models and the I/O cards mirror based on documents provided by the ICSS Supplier.

He creates the instruments "cabling" and will be responsible for producing the instrument Trouble Shooting Loop Diagrams:

- Using the standard functions of the database software
- Using the data interchange functions with the CAD software package agreed for the project (i.e. MicroStation or AutoCAD).

CAD templates and standard forms defined for the project shall be created by the main EPC Contractor and provided to other Contractors to ensure consistency.

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8.2 ICSS Supplier “system database specialist”

The system database specialist has to liaise with all Contractors involved in the project.

He is responsible for defining and submitting to the main EPC Contractor any additional fields required for ICSS needs.

The system database specialist shall only work on a spreadsheet file, extracted from the original database and re-imported after ICSS data has been incorporated.

He shall populate the ICSS fields of all databases such as but not limited to:

- Input/output rack, card and channel allocation
- ICSS configuration typical reference
- Display mimic reference
- Controller action
- Direct or Reverse input/output
- Alarm level and group
- Alarm descriptor
- System Cable assignment
- Cross wiring assignment
- Marshalling terminal blocks assignment,

9. Database Structure and Population rules

9.1 Database Structure

The minimum fields to be provided in the database shall be such as to ensure that all the deliverables listed in § 10 of this document can be realized.

Basic engineering Contractor shall define the database structure as part of the project instrument database management procedure to be issued as described in § 6.2.

The main EPC Contractor shall specify the format of all instrument tables used during the detailed engineering-phase. It shall contain all fields already used during the Basic Engineering plus the ones that will be required to perform the detailed engineering activities such as data-sheets, wiring drawings, trouble shooting loop diagrams and hook-ups.

The following information shall be specified as a minimum for additional fields:

- Field Name
- Field Description or duty
- List of possible values or characteristics (length, type of data...)
- Populating requirements if required (for what type of instrument it applies, mandatory field...)
- Field Responsibility (EPC Contractor, ICSS Supplier, Vendor...).

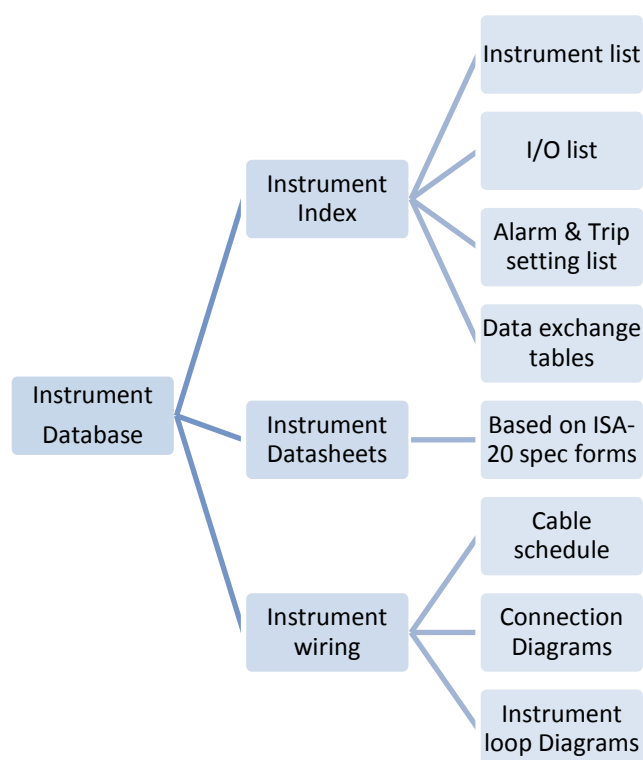
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The field responsibility shall clearly specify who will initiate the data, at what stage of the project and how and by whom the data will be entered into the database.

Special care shall be taken such as not to transfer all Vendor data to the instrument database fields. The intention is not that the instrument index becomes the Vendor index.

The instrument database to be developed shall generally consist of the major parts as shown in the drawing hereafter; Figure 2 - Instrument Database Main Structure.

Figure 2 - Instrument Database Main Structure



9.2 Database Population Rules

9.2.1 General

Population of the database during basic engineering will typically involve only a small number of fields.

During the detailed engineering phase, EPC Contractors and Package Suppliers shall update and fully populate the database created during basic engineering accordingly to detailed design. ICSS Supplier shall populate the ICSS data of the database.

A typical sequence is as follows:

EPC Contractor will have to populate the database with:

- Field data

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- Package data linked to ICSS
- Sub-sea data linked to ICSS (for projects involving subsea systems).

Package Suppliers will have to populate the database with:

- Package field data
- UCP I/Os allocation.

The Package Suppliers will issue:

- The Package Trouble shooting loop diagrams
- The UCP marshalling wiring diagrams.

Then main EPC Contractor will transfer the data base to ICSS Supplier who will have to issue the following:

- I/Os allocation
- System cable assignment
- Cross wiring assignment
- Marshalling wiring assignment.

When the ICSS Supplier has updated the data base with his own data, he will return it as explained in § 9.3.1 to the main EPC Contractor who will then issue other deliverables dependant on the ICSS data such as Trouble shooting loop diagrams.

The database shall be transferred periodically.

At each transfer, all changes shall be identified and reported using a dedicated software tool.

9.2.2 Tagging rules

Instruments coding principles are given in [GS EP INS 102](#) and in the project specific tagging rules that will be defined during the basic engineering.

Instrumentation equipment (e.g. cabinets, cables...) shall be tagged according to [GS EP INS 107](#).

9.2.3 Field description

The structure (i.e. length, characters type) and the rules to populate in the different fields shall be detailed in the project instrument database management procedure.

9.2.4 Revision management

The database shall identify all modifications.

An "Updating" field shall be dedicated to identify a data change in a field of the instrument list. These modifications/additions/deletions shall be identified as follows:

- "N": indicates a new instrument and appears only in the new issue of the instrument list. It shall be removed from the "Updating" field for the next issue.

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- **"M"**: indicates any modification of the Data record. It shall be removed from the "Updating" field for the next issue.
- **"D"**: indicates a deletion of an instrument and appears in the new issue of the instrument list. It shall not be removed from the "Updating" field for the coming issues and therefore remain in the instrument list so that the loop number cannot be re-used.
- **"R"**: indicates the rename of a loop or an instrument within a loop. It shall be removed from the "Updating" field for the next issue.

9.2.5 Modifying the database structure

Only the database administration manager shall be able to change the structure of the database.

Such changes may concern field addition and deletion or modification of fields characteristics such as field length or choice of characters (alphanumeric / numerical / date) to allow specific data acquisition.

9.2.6 Packages

Refer to hereafter: Figure 3 - Database Populating Principles for Packages.

The Package Suppliers will work on a spreadsheet file in the same way as the ICSS Supplier.

The data imported in the instrument database shall include at least:

- The instrument tag
- The instrument type
- The measuring range
- The signal type
- The PID and line references
- The failure signal of instrument and/or failure action of valves
- The UCP (Unit Control Panel) instrument allocation (cabinet, rack, card, channel, logic address...)
- The make
- The Vendor reference.

9.2.6.1 Serial link

The EPC Contractor shall populate the database with:

- The UCP tag name of the instrument
- The UCP name.

The ICSS Supplier shall populate:

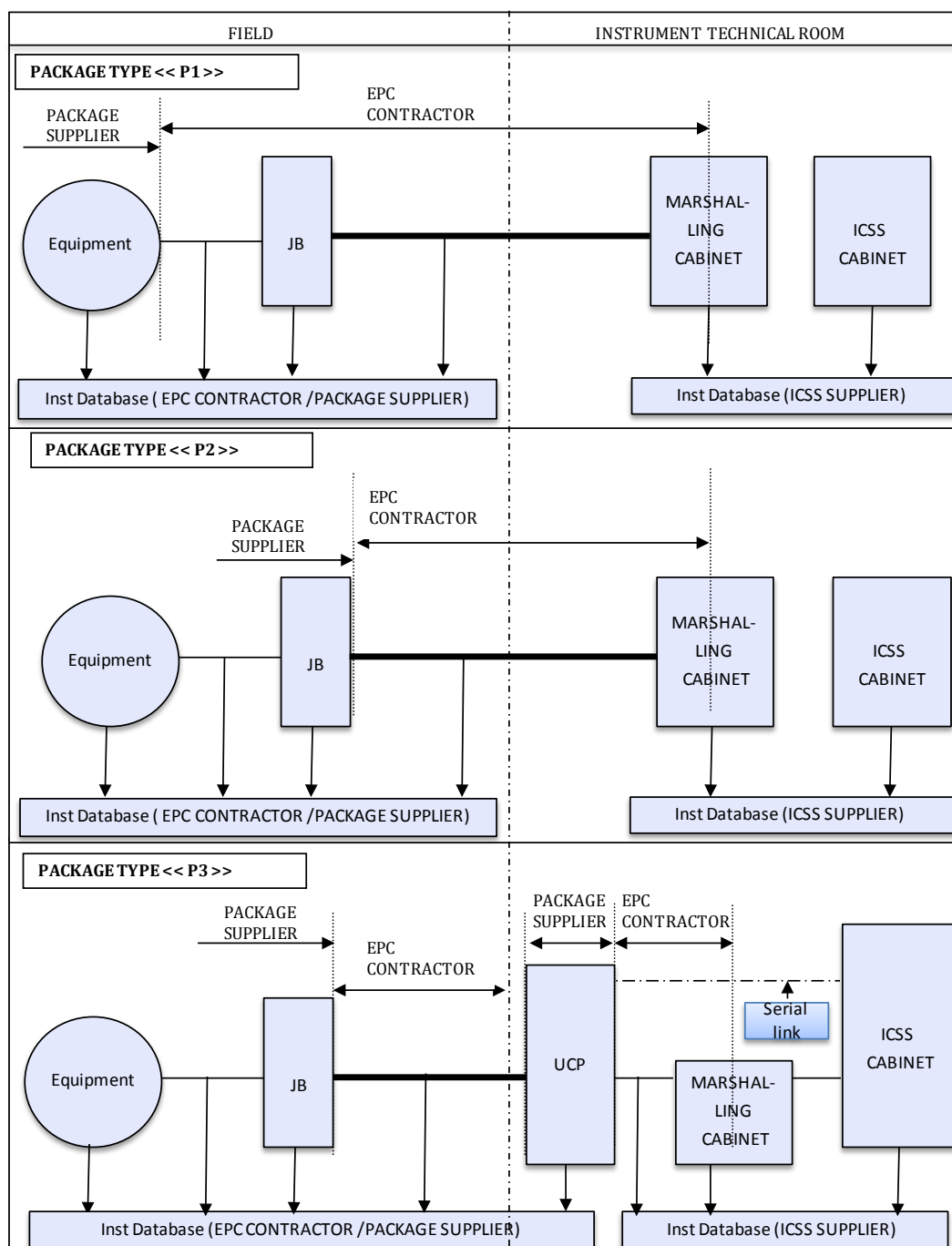
- The ICSS tag name of the instrument.

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Figure 3 - Database Populating Principles for Packages

Note:
PACKAGE TYPE << P4 >>:

The instruments for P4 package types shall be included in the instrument database. The extent of details to be provided will depend on the particular P4 package and its application; this shall be detailed in the Instrument database management procedure at basic engineering phase.

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9.3 Data exchange format

In a case where some Contractors do not use the database software, the main EPC Contractor has to create exchangeable files based on Excel spreadsheets.

The Excel files will be organised with the different names of the database fields in title of each column and the individual instrument tag names in beginning of each row.

The purpose is to ensure that each Contractor use a database built in conformity with the final instrument data base

The useful fields will be defined between the two entities who will exchange data.

The database manager shall be responsible for import of these data's in the instrumentation database

9.3.1 EPC Contractor and ICSS Supplier data exchange

Refer to: Figure 4 - EPC and ICSS data exchange and ICSS Engineering work flow hereafter.

A standardized method of data transfer shall be developed between the EPC engineering database, which is controlled by the main EPC Contractor and the systems part of the database controlled by the ICSS Supplier to ensure consistency between facility's data and its configuration in the control systems. This shall be clearly elaborated in the updated Instrument database management procedure to be issued by the main EPC Contractor.

The electronic data exchange between each EPC and ICSS Supplier will use Microsoft Excel as standard format for an interface database, referred to as the Exchange Database. The data will then be transferred to the ICSS Supplier to be imported for the ICSS configuration purposes.

To avoid conflict in case of any additions, deletion and modification on the configured records between EPC's database and ICSS configuration data, the EPC shall provide an "Extract" of their database, in MS Excel Format at mutually agreed specific ICSS Project development milestones. This shall establish the design basis for engineering and manufacturing of the ICSS system.

Upon completion of the ICSS configuration, data shall be transferred back to EPC via the Exchange Database in MS Excel format. The data transferred back to EPC's database are the hardware related data within ICSS Supplier's scope. Examples of these data are Controller number, node number, IO card number, marshalling cabinet number, FTA number, terminal block number and terminal number etc., which are designed and assigned by ICSS Supplier for the construction of system and marshalling cabinets.

The loop drawings shall be created by the main EPC Contractor and will be based on [ISA 5.4](#) requirements.

Figure 4 - EPC and ICSS data exchange and ICSS Engineering work flow



10. Deliverables

The main instrumentation documents to be produced using the instrument database as the source information, and their basic contents are detailed below.

For each category, different reports may be issued based on filtering criteria, such as Fire & Gas I/O list, instrument list per equipment, PCS marshalling connection diagrams, etc.

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The descriptions below are typical only and project requirements shall be specified in the project specific Instrument Database Management procedure. This shall include field names and structure, descriptors, and possibly support tables (pre-defined authorized content for a field).

In addition to paper documents, electronic backups of the database, complete or partial, shall be issued, either upon Company request or on a scheduled basis as described in project contractual documents.

Electronic copies of the complete database shall be supplied to Company at the end of the commissioning activities including the modifications performed during the commissioning phase by all Contractors.

Contractor deliverables shall include the supply of the native files of the “as built” database.

Sample of “typical database table fields” is given for information in Appendix 1. This does not show all possible fields. Project requirements shall be fully detailed as described in § 9.1 of this document.

10.1 Instrument index

10.1.1 Instrument lists

- Tag number
- Instrument Type
- Service Description
- Location
- Equipment or Line
- P&I D Number
- Instrument room location
- Signal Type
- ICSS Sub-System
- UCP Name
- Datasheet number
- Supplier
- Reference type
- ...

10.1.2 I/O lists

- Tag number
- Instrument Type
- Signal Type
- ICSS Sub-System

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- UCP Name
- Rack Allocation
- Slot Allocation
- Channel Allocation
- Calibration Unit
- Min. Range
- Max. Range
- Engineering Unit
- Min. Scale
- Max. Scale
- ...

10.1.3 Alarm and trip setting list

- Tag number
- Instrument Type
- Signal Type
- ICSS Sub-System
- UCP Name
- Engineering Unit
- Min. Scale
- Max. Scale
- Set point value in EU
- Alarm Group
- Alarm Descriptor
- ...

10.1.4 Data exchange tables

- Tag number
- Instrument Type
- Service Description
- Signal Type
- ICSS Sub-System
- ICSS Tag Name

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- ICSS Address
- UCP Name
- UCP Address
- ...

10.2 Instruments data sheets

Instruments data sheets shall be generated based on [ISA 20](#) data sheet forms.

10.3 Instrument wiring

10.3.1 Cable schedules

All required cable schedules shall be produced including but not limited to the following:

- Instrument individual cables
- Junction boxes cables
- Interconnecting cables between equipment
- Control and safety system cables
- ...

10.3.2 Connection diagrams

All required connection diagrams shall be issued including but not limited to the following:

- Junction boxes drawings
- Local panels drawings
- UCP's drawings
- Marshalling cabinets drawings
- ICSS cabinets drawings
- etc.

10.3.3 Instrument Troubleshooting Loop Diagrams

The instrument Trouble Shooting Loop Diagrams (TSLDs) shall be automatically generated from the database software tool using templates and standard forms created by the main EPC Contractor.

The TSLD templates shall be developed and ensure that all information required to trouble shoot a loop is included within the diagram in a consistent and coherent format;

CAD format shall be used to produce the TSLDs. The selected software shall be specified in project documents

Contractors shall deliver copies of documents in both electronic and paper format.



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At the end of the engineering activities, the main EPC Contractor shall provide Company with all native templates and standard forms in electronic format.

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Bibliography

Reference**GS EP INS 101**

Title of the publication

Instrumentation engineering, supply and construction
general requirements**GS EP INS 110**

Instrumentation for package units

Appendix 1 Typical instrument database table fields

(SAMPLE FOR INFORMATION ONLY)

Sample of typical Instrument database table fields is given hereafter. They shall be fully developed during basic and detailed engineering stages.

NAME	Description	Maximum Field length (no of characters)	Completion phase	
			Basic Engineering	EPC
Rev	Revision index of each record	2	X	X
Tag name	Instrument tag name	20	X	X
Loop name	Loop to which the instrument applies	20		X
Instrument type	Instrument description	50	X	X
Service	Service of the function or equipment	50	X	X
Equipment/Line	Equipment /Line on which the instrument is installed	30		X
LOC	Location of the equipment or of the function handled	20		X
PID	Number of the PID of the function or equipment	20	X	X
Signal type	I/O type of instrument	10	X	X
System	System managing the I/O signal (PCS, PSS, FGS, ESD, UCP, HIPS, etc.)	10	X	X
System location	Location (Instrument Technical Room) corresponding to the control system	20		X
Datasheet	Datasheet document number	30	X	X
IS	Intrinsically safe instrument or not?	1	X	X
Power	Externally or Internally powered instrument?	1		X
Voltage	Instrument supply (Ex: 24V)	6		X
Instrument Supplier	Name of instrument supplier	50		X
Reference type	Instrument reference	30		X
Design pressure	Barg	10		X
Operating pressure	Barg	10		X
Design temperature	° C	10		X
Operating temperature	° C	10		X
Installation drawing	Installation drawing number	20		X
Hart Data	Instrument with Hart protocol or not?	1	X	X
Fire Zone	Fire Zone number (ex: FZ101)	6		X
ESD level	ESD level	5	X	X

Instrument Database Management

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Appendix 1

NAME	Description	Maximum Field length (no of characters)	Completion phase	
			Basic Engineering	EPC
SIL Instrument	Safety Integrity Level suitability certification of Instrument	5	X	X
Logic diagram	Logic diagram number	20	X	X
Package type	Package type (P1, P2, P3 or P4)	5	X	X
Typical	Valve type or Motor type	20		X
Fail action	Valve fail action position	2		X
Energy	Powering medium	20		X
Remark	Comments	200		X
Junction box	Number of Junction box to where the instrument is connected	10		X
Min Scale	Engineering unit	20		X
Max Scale	Engineering unit	20		X
Scale Unit	Engineering unit	20		X
ICSS Min Scale	Engineering unit	20		X
ICSS Max Scale	Engineering unit	20		X
ICSS Scale unit	Engineering unit	20		X
H - Threshold value	Threshold values	20		X
HH - Threshold value	Threshold values	20		X
L- Threshold value	Threshold values	20		X
LL-Threshold value	Threshold values	20		X
Threshold types	Alarm or Shutdown	10		X
PID Control Action	D: Direct - R: Reverse	10		X
System Reference Display	Mimic display number	20		X
Marshalling Cabinet	Marshalling cabinet (PCS, ESD, etc.) tag number	20		X
System cabinet	System cabinet (PCS, ESD, etc.) tag number	20		X
System Rack	Rack identification	20		X
System Slot	Slot identification	20		X
Board type	Board reference and/or model	20		X
System Channel	System channel identification	20		X
System Tag Name	System Tag Name	20		X
ICSS Typical soft	ICSS typical software applying to the instrument	20		X
FA Typical	Functional Analysis typical	20		X