

GENERAL SPECIFICATION

INSTRUMENTATION

GS EP INS 131

Standard Functions and Functional Analysis Development Requirements

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1. Scope

This specification defines the minimum requirements for the development of Standard Functions and Functional Analysis (sometimes called control narratives) for ICSS and packaged units intended for use on TOTAL Exploration & Production facilities. It shall be applied by all projects developing new installations or extending the existing facilities.

Standard Functions are developed to define the Hardware interface and Software requirements for individual instrument and equipment.

These Standard Functions are key requirements for the development of the Functional Analysis which would then define how these functions are applied to specific process/utility and safety sub systems.

This specification shall be used in conjunction with [GS EP EXP 139](#), [GS EP INS 110](#), [GS EP INS 134](#), [GS EP INS 150](#), [GS EP INS 196](#), [GS EP INS 197](#) and [GS EP INS 198](#).

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
Not applicable	

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 EXP 139	Alarm Management
GS EP INS 110	Instrumentation for package units
GS EP INS 134	Design and supply of integrated control and safety system
GS EP INS 150	Design method for system configuration - Standard functions
GS EP INS 196	Input and Output Standard Functions
GS EP INS 197	Process Standard Functions
GS EP INS 198	Safety and Fire & Gas Standard Functions

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3. Definitions

3.1 Parties

Functional Analysis Subcontractor	Subcontractor that develops the Functional Analysis for the complete plant
ICSS Supplier	Entity that provides the Integrated Control and Safety Systems
Package Supplier	Entity that provides the P3 type package

3.2 Abbreviations

CAD	Chronological Alarm Display
DMCMS	Data Management and Condition Monitoring System
ECS	Electrical Control System
EDP	Emergency Depressurization
ESD	Emergency Shut-Down
FA	Functional Analysis
FAT	Factory Acceptance Test
FDS	Functional Design Specification
FGS	Fire and Gas System
HMI	Human Machine Interface
ICSS	Integrated Control and Safety System
I/O	Inputs/Outputs
OFMS	Overall Flow Metering System
OTS	Operator Training Simulator
PCS	Process Control System
PLC	Programmable Logic Controller
PSS	Process Safety System
UCP	Unit Control Panel

4. Introduction

4.1 Standard Functions

Standard Functions documents are required to describe the hardware interface and software of an individual instrument or item of equipment. They shall describe the functions required of all process monitoring, control and safety protection.

These Standard Functions then become the building block for the loop wiring hardware design as well as the base configuration of the instrument or item of equipment.

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The Standard Functions, both hardware and software, shall be verified and fully tested as per Appendix 4 - Testing Requirements of the **GS EP INS 134** prior to their implementation within the system.

4.2 Plant Functional Analysis

Functional Analysis documents are required to describe with all relevant data and information the detailed functionalities of process units, utilities, equipment, packages and their interfaces with the ICSS.

It shall logically describe and present such functions and their relationships in an hierarchical structure that expresses the operational needs and enables the ICSS and Package Suppliers to configure the systems adequately without any ambiguity.

The Plant Functional Analysis shall explain how individual Standard Functions are to be used within specific process or utility units of the plant.

The Plant Functional Analysis shall primarily be used for ICSS configuration, OTS design, and shall also be a support for the Factory Acceptance Tests, field production operation manuals documents and maintenance activities.

4.3 Package Functional Analysis

The Package Functional Analysis documents are required to describe with all relevant data and information the detailed functionalities of a specific P3 package.

The Package Functional Analysis shall primarily be used for configuring the package UCP. It shall also be used for developing the associated Plant Functional Analysis

5. Methodology

5.1 Responsible parties

5.1.1 Contractor

Contractor shall have the ultimate responsibility for the Functional Analysis even though actual development of the analysis shall be done by the Functional Analysis Subcontractor, unless specifically defined otherwise by the project contract strategy.

Contractor shall compile all the required documents and drawings as listed in section 7.1 of this specification, these shall be arranged into a readily usable package for the use of the Functional Analysis Subcontractor.

5.1.2 ICSS Supplier

The ICSS Supplier shall develop the Standard Functions to be used within the ICSS system.

These shall be developed in close liaison with the Contractor and Company Field Operations representative.

5.1.3 Functional Analysis Subcontractor

A single experienced Subcontractor shall be engaged by the Contractor to develop all the Functional Analysis for the complete plant.