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GE Energy

KKS Identification

These instructions do not purport to cover all details or variations in equipment nor to provide for every possible contingency to be met in connection with installation, operation or maintenance. Should further information be desired or should particular problems arise which are not covered sufficiently for the purchaser's purposes the matter should be referred to the GE Company.

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I. PREAMBLE

It is absolutely essential for the parties participating in the construction and operation of a power plant to agree upon a standard system for the designation and classification of the plant, its part and components.

Due to the size of power plants and the fact that the large numbers of parties participating are all in different locations, communication problems arise which can incur costs that cannot be estimated in advance.

A standard designation system enables each party, irrespective of language and assignment, to identify uniformly and unambiguously, those parts of the plant within its responsibility. The Power Station Designation System KKS satisfies these requirements.

The planners and operators of power stations employ a common, standard system for identifying installations, and parts thereof, with which the data required to plan, construct and operate power stations, can be collected and processed. This publication reviews the GE Power System application of the Power Station Designation System KKS based on KKS VGB PowerTech GmbH 4th edition dated 1995.

A. Abbreviations used

KKS	Power Station Designation System (Kraftwerk Kennzeichen System)
VGB	Technical Association of Large Power Plant Operators
DIN	(German Industrial Standard)

II. INTRODUCTION OF GE ENERGY CODING SYSTEM

The purpose of this publication is to summarise the structure and content of the KKS.

For their internal use, GE Energy have reduced the VGB - KKS code to the specific parts for conventional Gas Turbine and Combined Cycle power plants and included in a KKS identification standard handbook.

The scope of tasks coded in KKS includes

- Tagging of GT, ST, Generator, and BOP instrument (GE Supply), valves, and equipment in scope of contract supply
- Tagging of BOP cubicles (GE Supply), panels, cabinets and junction boxes
- Tagging by using the “process related” coding
- Tagging of Piping and “long distance” Cables
- Tagging of DCS graphic displays
- Tagging of PLC's displays where easily applicable
- Tagging shall consist of labeling on “process related” drawings, namely P&IDs, schematics, Operation and Maintenance manuals and installation of additional “KKS” device tags

The following are excluded:

- Tagging of GT, ST and Generator cubicles, panels, cabinets and junction boxes
- Tagging of devices within cubicles, panels, cabinets and junction boxes
- Tagging of internal controls variables
- Tagging of non functional equipment and component such as supports, civil work pedestal, blades, frames, screws, bolts, shafts, etc
- Document numbering based on KKS
- Point of installation and location code tagging and labeling even though it is described within this document

Special consideration shall be given to the following:

- The systems related to the ST, GT and their generator will be identified using the GE coding system. In addition, a secondary KKS functional code will be given and shown on the P&IDs (ie. double identification). Similarly the field devices will also be tagged with KKS coding in addition to the original standard GE tagging.
- In the DCS all the signals transmitted from the turbine controllers will be given a code according to the KKS identification. A cross reference list will be provided for all signals exchanged between the turbine controllers and the DCS
- Part ordering system will nominally be based on the GE part number or specific vendor part number for a particular component.
- For “Package Plants” such as chemical plants, compressors, auxiliary boilers, etc., which are supplied by a vendor in accordance with his standard practice or as catalogue items, the KKS system is not fully applied. In case of electrical or I&C interfaces of these package plants with the rest of the plant (i.e. DCS), KKS identification is used

A. Requirements to be Met by the Designation System

In order to perform the tasks established, the designation systems must be capable of meeting the following requirements:

- Determination of all installations and subsystems
- An adequate number of reserve codes must be available for future developments in power plant engineering
- Clear identification of all subsystems
- A designation used in a power plant must be non-recurring
- Subdivision with graded details and a fixed meaning for the data characters
- Plausibility check facility, especially for data processing
- Existing standards, guidelines and recommendations must be taken into consideration

III. INTRODUCTION TO KKS

A. DESIGNATION AND TYPE OF DATA CHARACTERS

In consideration of the various requirements placed on the identification of plants, sections of plants and items of equipment in power stations, KKS has three different types of code:

1. Process-related code

Process- related identification of systems and items of equipment according to their functions in mechanical, civil, electrical and control and instrumentation engineering.

Mainly used for every process in Combined Cycle Power Plants

2. Point of installation code

Identification of points of installation of electrical and control and instrumentation equipment in installation units (e.g. in cabinets, panels, consoles).

Rarely used in Combined Cycle Power Plants. May be used for electrical cubicles.

3. Location code

Identification of locations in structures, on floors and in rooms and also of fire areas.

Rarely used in Combined Cycle Power Plants. May be used for complex installation based on location areas.

Each of the above classifications uses a defined structure to describe a particular information content using a string of alphanumeric characters. The uniform composition of all three types of classification is used by all engineering disciplines in their planning and engineering tasks, thus ensuring effective integration of information coupled with unambiguous recognition by all concerned.

The titles of the breakdown levels of the three types of code will henceforth be as follows:

Serial No. of breakdown level	0	1	2	3
Process-related identification	Total plant	System code	Equipment unit code	Component code
Point of installation identification	Total plant	Installation unit code	Installation space code	
Location identification	Total plant	Structure code	Room code	

Table 1 summarises the designation and type of data characters of the breakdown levels for all three different types of designation appearing in the KKS.

TABLE 1: Breakdown Level Structure

Serial number of breakdown level	0	1	2	3
Designation of data character	(G)	F ₀ F ₁ F ₂ F ₃ F _N F _N	A ₁ A ₂ A _N A _N A _N (A ₃)	B ₁ B ₂ B _N B _N
Type of data character	(N)	N A A A N N	A A N N N (A)	A A N N

A = Alphabetical symbols (letters, special symbols)

N = Numerical symbols (digits)

() – These data characters may be omitted

B. PROCESS-RELATED DESIGNATION

In this type of designation the entire system is subdivided according to the function or process, since, whether for mechanical, electrical or control, the equipment units and items must be identifiable in relation to the process.

The process-related designation is for many applications the most important designation, since it permits, for example, locations of electrical and control equipment, rooms, signals, and the designations in circuit diagrams to be related to particular functions.

In the mechanical, electrical and instrumentation control engineering sectors, the equipment for auxiliary services, power supply, open-loop control, instrumentation, protection, etc., is treated as a process engineering function.

This block has the prefix sign “=”. According to the standard, the prefix sign can be omitted provided that the designation remains unambiguous.



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