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An American National Standard

IEEE Recommended Practice for Unique Identification in Power Plants and Related Facilities—Principles and Definitions

Sponsor
Power Generation Committee
of the
IEEE Power Engineering Society

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Foreword

(This Foreword is not a part of IEEE Std 803-1983, IEEE Recommended Practice for Unique Identification in Power Plants and Related Facilities—Principles and Definitions)

In April 1979, the Working Group on Unique Identification in Power Plants of the Station Design Subcommittee was formed and charged with the task of producing a series of recommended practices for unique identification in power plants. Later, realizing that this concept provided the same benefits to other types of facilities, the title was extended to include *and related facilities*, an example of which would be radioactive waste storage or disposal, or both.

This series of recommended practices, entitled the Energy Industry Identification System (EIIS), provides a single source of unique identification of systems, structures, and components for all types of power generation and related facilities with provision for the inclusion of currently established plant system identifier codes. Using this series of recommended practices, which includes principles, a table of component function identifier codes, implementation instructions, and system descriptions for the various types of power plants and related facilities, a user can correlate a system, structure, or component with another organization for purposes of reporting, comparison, or general communication. Numerous economic, safety, and convenience benefits can be derived from this concept. IEEE Std 803-1983 deals with principles and definitions, including the structure of the Unique Identification Code.

The original purpose of this working group was to generate an industry-wide language of communication which users could employ at the interface of their organizations and which would not require them to change a viable identification concept which they were using internally. In the event a user does not have a viable identification concept of their own, they may choose to employ this concept for their internal applications since it has been successfully applied by several utilities and architect/engineering firms.

This recommended practice was prepared by the Working Group for Unique, Identification in Power Plants and Related Facilities, Station Design Subcommittee of the Power Generation Committee. At the time this standard was approved, the members of the working group were:

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D. T. Hall	R. Nalven	F.W. Sloat
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IEEE Recommended Practice for Unique Identification in Power Plants and Related Facilities—Principles and Definitions

1. Scope

This recommended practice provides a single source of unique identification principles and definitions which, along with related recommended practices concerning component function identifiers, implementation instructions, and system descriptions, make up a concept, entitled the Energy Industry Identification System (EIIS), for uniquely identifying systems, structures, and components of nuclear and fossil fueled power plant projects (electric power generating stations) and related facilities. Hydro and other types of power plant projects are not included in this issue.

1.1 Purpose

The purpose of this series of recommended practices is to present a common language of communication which will permit a user to correlate a system, structure, or component with another organization for the purposes of reporting, comparison, or general communication. It does not require a using organization to change their own internal identification concept, but rather they have only to transcode at the interface of their organization from their internal language to this common language concept.

The users may, if they so choose, adopt this concept for their internal use. It represents the accumulated practice of the industry assimilated into one set of practices. A significant feature of this concept is that the unique identification code identifies the function at the component level and not the hardware itself.

1.2 References

When the following standards referred to in this recommended practice are superseded by a revision, the revision shall apply.

[1] ANSI/IEEE Std 100-1977, IEEE Standard Dictionary of Electrical and Electronics Terms.

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[2] IEEE Std 803A-1933, IEEE Recommended Practice for Unique Identification in Power Plants and Related Facilities—Component Function Identifiers.

1.3 Applicable Documents in Preparation[1]

2. Procedure

This recommended practice presents a procedure whereby systems/structures and component functions of power plant projects and related facilities can be uniquely identified according to the following principles:

1) Divide the *total plant* into discrete systems/structures and assign a system identifier to each system / structure
2) Assign each component within each system/structure a function identifier which identifies the function being performed at that point in the system/structure
3) For each component function identifier within a system/structure a sequence code is assigned which, with the items described in (1) and (2) above and a generating unit identifier, provides a unique identification code for each component function in a facility
4) While the use of the electrical separation identifier is optional, and it is not essential in providing uniqueness to the unique identification code, sufficient instruction is given so its use will be generally uniform throughout those organizations which use it.

3. Definitions

3.1

The following are definitions for terms as they are used in this unique identification concept or are assigned some special or restricted meaning in this recommended practice. For other terms not defined herein, refer to ANSI/ IEEE Std 100-1977 [1][2]

3.1.1 unique identification code: A code applied at the component function level to uniquely distinguish a specific function within a specific system from all other similar or different functions occurring within the system or facility. The basic code format described in this recommended practice may also be applied, with appropriate field identifiers, for project software and project control elements (schedule and budget items).

3.1.1.1 project: A single- or multiple-unit power plant or major independent related facility. A project is composed of systems and structures and may be defined to include the design, construction, operation, and related activities associated with the project during its life cycle.

3.1.1.2 generating unit: The generator, or generators, associated prime mover or movers, auxiliaries and energy supply or supplies that are normally operated together as a single source of electric power.

3.1.1.3 system structure: A combination of two or more integrated components, generally physically remote or occupying a large area, interacting to perform a specific function important to plant operation or safety, or both. A

[1]When the following documents are completed, approved and published, they become a part of this listing.
1) IEEE Standards Project P804 (in preparation), Recommended Practice for Unique Identification in Power Plants and Related Facilities—Implementation.
2) IEEE Standards Project P805 (in preparation), Recommended Practice for System Identification in Nuclear Power Plants and Related Facilities.
3) IEEE Standards Project P806 (in preparation), Recommended Practice for System Identification in Fossil-Fueled Power Plants and Related Facilities.

[2]The numbers in brackets correspond to those of the References listed in 1.2.

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system may be civil/structural, that is, a building or structure, mechanical/fluid, or electrical/ control. A system, for the purpose of this recommended practice, will not be considered a subsystem of another system.

3.1.1.4 component function: The action performed by a component within a system.

3.2

The following definitions are provided for reasons of clarity:

3.2.1 component: A part or assembly of parts that is viewed as an entity for purposes of design, operation, and reporting.

3.2.2 subsystem: A portion of a system containing two or more integrated components which, while not completely performing the specific function of a system, may be isolated for design, test, or maintenance.

3.2.3 component assembly: An assembly of components, physically contiguous, which is viewed as a single entity for purposes of procurement, for example, boric-acid control panel.

3.2.4 part: An element of a component not normally useful by itself and not readily capable of further disassembly for maintenance purposes.

4. Description

4.1 Unique Identification Code Format

The basic Unique Identification Code Format is made up of a maximum of 25 spaces, including four dashes, divided into the fields listed in Table 1.

4.1.1 Project Identifier (Field No 1)

The identification associated with a project, normally assigned by the using organization. (The identifier should uniquely identify the project from all other projects of the same organization.)

4.1.2 Generating Unit/System Identifier (Field No 2)

4.1.2.1 Generating Unit

The designation (alpha, numeric, or both) associated with the unit or units of a plant within a project. The generating unit is designated by the first two characters of the six character field.

4.1.2.2 System Identifier

The last four characters of Field No 2 are designated for system identifiers, as used by the user. These systems identifiers, which should be uniform in application across the industry, are to be provided in future documents identified in 1.3.

4.1.3 Component Function Identifier (Field No 3)

This field consists of a one to four (1 to 4) character alphanumeric code that identifies the function which is performed by a component. These identifiers, which should be uniform in application across the industry, appear in IEEE Std 803A-1983 [2], Table 1.

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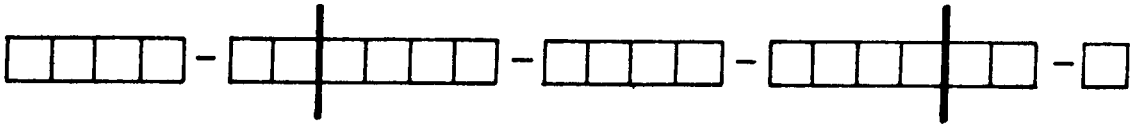
Table 1—Fields for Unique Identification Code Format

Field 1	Field 2	Field 3	Field 4	Field 5
Project Identifier	Generating Unit/ System Identifiers	Component Function Identifier	Sequence Code	Electrical Separation Identifier



Project identifier	– 4 characters, maximum
Generating unit identifier	– 2 characters, maximum
System identifier	– 4 characters, maximum
Component function identifier	– 4 characters, maximum
Sequence code	– 6 characters, maximum, of which the last one or two characters may be designated the subcode.
Electrical separation identifier	– 1 character

4.1.4 Sequence Code (Field No 4)

This field consists of an addressing feature which can be numerical, alpha, or alphanumerical and is selected to provide unique identification for each component within a system. Ordinarily, sequence codes are assigned in ascending order, but it is not necessary. A *subcode* following the basic sequence code may be used in special cases, such as where an associate coding convention is used to associate one or more component functions with a major or primary component they serve.

For an example see Table 2. In this example are shown six thermocouple sensors in a motor winding. If associative coding is used, the sequence code is the same for all; thus, a *subcode* is needed to distinguish them. Ordinarily, the *subcode* is an alpha character.

4.1.5 Electrical Separation Identifier (Field No 5)

This field may be used for designating electrical divisional power supply or reactor protection channel for the component. It is not to be used to create a unique identification code. This is accomplished by the sequence code. When a component function is not assigned to an electrical separation, this space is left vacant.

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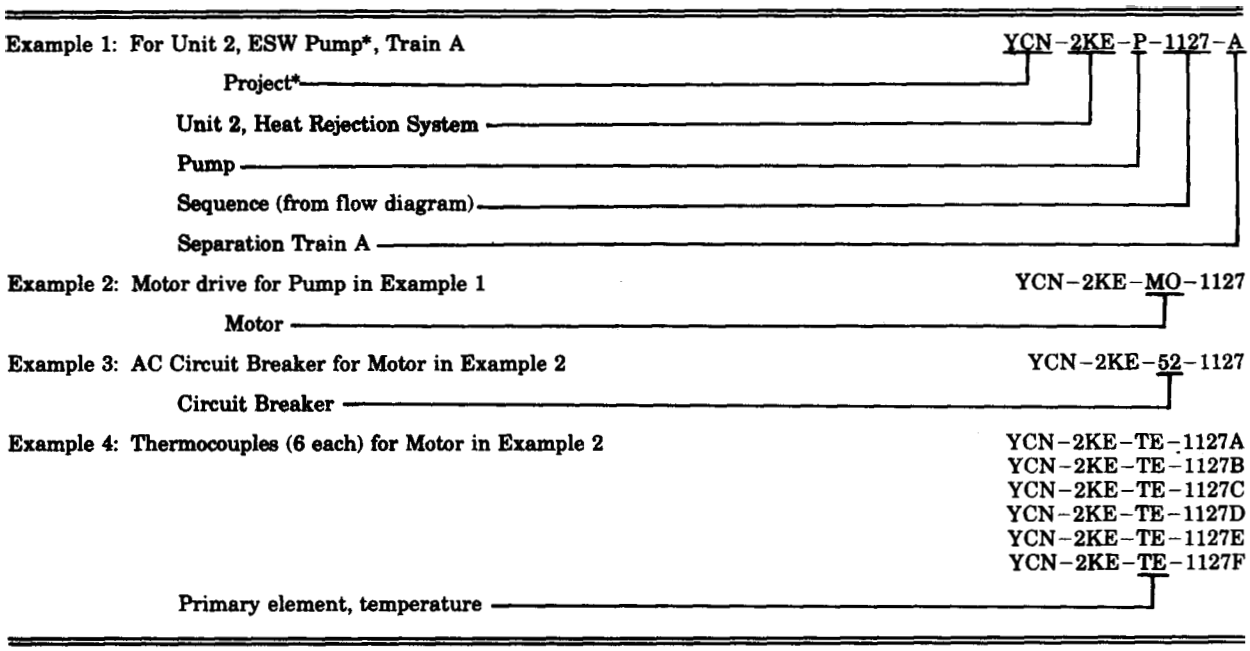
Table 2—Examples of Unique Identification Codes



*Preexisting identification for illustrative purposes only.

The above illustrates how the Unique Identification Code can be used to tie associated equipment or components together by use of the sequence code. Project 804 [see (1) footnote 1] shows examples of other methods of assigning Unique Identification Codes.

NOTES:

1 — This Unique Identification Code, 25 spaces maximum, including dashes, may be reduced by shortening one or more fields; however, each field should retain its functional identity and purpose.

2 — As will be shown by Project 804 [see (1) footnote 1], the full address code need not always be used. In those cases where the project identifier, and even the generating unit identifier, occur prominently elsewhere (that is, as the title block of the drawing) these may be omitted. The system identifier likewise may not be needed where the system identification is obvious. In special cases, it may be possible to use only the sequence code.

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