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NATIONAL STANDARD OF THE PEOPLE'S REPUBLIC OF CHINA

GB/T 18891-2024

Replacing GB/T 18891-2009

Designation of phase differences by hour numbers in three-phase AC systems

三相交流系统相位差的钟时序数标识

(English Translation)

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Foreword

This document is in accordance with the provisions of GB/T 1.1-2020 "Guidelines for standardization work Part 1: Structure and drafting rules for standardization documents" Drafting:

This document replaces GB/T 18891-2009 "Clock timing number identification of phase conductors in three-phase power systems" and is consistent with GB/T 18891-2009:

In addition to structural adjustments and editorial changes, the main technical changes are as follows:

a) The scope of application has been changed (see Chapter 1, Chapter 1 of the:2009 edition);

b) Added a chapter on "Terms and Definitions" (see Chapter 3);

c) Deleted "Application", "Basic points for compiling clock and time sequence numbers", and "Position of marking clock and time sequence numbers" (see Chapter 2, Chapter 3, Chapter 4);

d) Added a chapter on "Clock Sequence Numbers" (see Chapter 4);

e) Added a chapter on "Phase Difference" (see Chapter 5):

This document is equivalent to IEC 60152:2021 "Clock timing number identification of phase differences in three-phase AC systems":

The following minimal editorial changes were made to this document:

---Added references:

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1 Scope

This document specifies the method and rules for identifying the phase difference between the two in a three-phase AC system:

This document applies to the technical documentation of industrial plants, equipment and products, as well as the marking of equipment and products:

2 Normative references

This document has no normative references:

3 Terms and definitions

The following terms and definitions apply to this document:

hournumber

Hours clocknumber

Used to identify the phase difference of the same amount between two in an AC system:

Phase difference

For two sinusoidal quantities with the same frequency given in a given order, their initial phase difference may be added to some integer of 2pi:

multiples so that the difference is greater than -pi and less than or equal to pi:

Note: For two quantities a'(t)=A^'cos(omegat theta'0) and a"(t)=A^"cos(omegat theta"0), their phase difference is phi=theta"0-theta'0 2pin, where n is an integer such that -pi< phi<=pi:

[Source: GB/T 2900.92-2015, 103-07-06] 4-hour clock for the identification of phase differences in a three-phase AC system, the following clock sequence numbers may be used: 0, 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, and 11:

Each clock timing number should represent a corresponding multiple of the 30° phase difference:

Example 1: The clock timing number 3 indicates a phase difference of 90°:

Example 2: The clock timing number 5 indicates a phase difference of 150°:

5 Phase difference

When identifying the phase difference between two quantities, the clock sequence number should indicate the corresponding degree by which the second quantity lags behind the first:

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Example 1: To represent the phase difference between line conductors L1 and L2 in a three-phase power transmission system, the clock digit 4 can represent a phase difference of 120°:

When indicating the same amount of phase difference between the in-phase input side and the output side, the clock timing number should indicate how much the output side lags behind the input side:

Less degree:

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