

Rotating electrical machines —

Part 8: Terminal markings and direction of rotation

ICS 29.160.01

National foreword

This British Standard is the UK implementation of EN 60034-8:2007+A1:2014. It is identical to IEC 60034-8:2007, incorporating amendment 1:2014. It supersedes BS EN 60034-8:2007 which will be withdrawn on 24 April 2017.

The UK participation in its preparation was entrusted to Technical Committee PEL/2, Rotating electrical machinery.

A list of organizations represented on this committee can be obtained on request to its secretary.

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**Rotating electrical machines -
Part 8: Terminal markings and direction of rotation
(IEC 60034-8:2007)**

Machines électriques tournantes -
Partie 8: Marques d'extrémité
et sens de rotation
(CEI 60034-8:2007)

Drehende elektrische Maschinen -
Teil 8: Anschlussbezeichnungen
und Drehsinn
(IEC 60034-8:2007)

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CENELEC

European Committee for Electrotechnical Standardization
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Foreword

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The main change with respect to EN 60034-8:2002 is listed below:

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The following dates were fixed:

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Annex ZA has been added by CENELEC.

Endorsement notice

The text of the International Standard IEC 60034-8:2007 was approved by CENELEC as a European Standard without any modification.

Foreword to amendment A1

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INTRODUCTION

The revision of this part of IEC 60034 provides worldwide uniformity in the electrical connections for rotating electrical machines and applies the recommendations of the basic safety publication IEC 60445 in specifying marking requirements.

These standardized connections will then permit the safe interchange of electric machines with their control and protective devices using standardized terminal markings.

ROTATING ELECTRICAL MACHINES –

Part 8: Terminal markings and direction of rotation

1 Scope

This part of IEC 60034 applies to a.c. and d.c. machines and specifies

- a) rules for the identification of winding connection points;
- b) marking of winding terminals;
- c) direction of rotation;
- d) relationship between terminal markings and direction of rotation;
- e) terminal marking of auxiliary devices;
- f) connection diagrams of machines for common applications.

Turbine-type synchronous machines are excluded from this standard.

2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

IEC 60034-1, *Rotating electrical machines – Part 1: Rating and performance*

IEC 60417-1, *Graphical symbols for use on equipment – Part 1: Overview and application*

IEC 60445, *Basic and safety principles for man-machine interface, marking and identification – Identification of equipment terminals and conductor terminations*

3 Terms and definitions

For the purposes of this document, the terms and definitions given in IEC 60034-1 and the following apply.

3.1

terminal marking

permanent identification of the external termination of winding leads or auxiliary leads at the disposal of the user for connection of the machine to the supply or apparatus that indicates the function of the termination

3.2

connecting points

all current transfer points that are used to permanently interconnect winding or winding element ends internally

3.3

tapping points

intermediate connections to a portion of a winding element

3.4

winding leads

insulated conductors that make the electrical connection between a winding and its termination

3.5

winding

assembly of turns or coils having a defined function in an electrical rotating machine

[IEV 411-37-01]

3.6

winding phase

one or more winding elements associated with a particular phase

3.7

winding element

part of a winding, all the turns or coils in that part being permanently connected together

3.8

separate windings

two or more windings, each having a separate function, and not interconnected, used only separately, whether fully or in part

3.9

multi-speed motor

motor, which can be operated at any one of two or more definite speeds

3.10

constant power

when a multi-speed motor provides approximately constant power over the speed range

3.11

constant torque

when a multi-speed motor provides approximately constant torque over the speed range

3.12

variable torque

when output torque of a multi-speed motor is proportional to approximately the square of the speeds

3.13

phase sequence

order in which the voltages successively reach their maximum positive values between supply conductors

3.14

D-end

that end of the machine which accommodates the shaft end

[IEV 411-43-36]

NOTE For machines having two shaft ends, the D-end is the end

- a) having the larger diameter;
- b) opposite the external fan when the shaft ends are of the same diameter.

4 Symbols

4.1 General

L	Supply conductor
PE	Protective earthing terminal
○ —	User available terminal, marking mandatory
— ● —	Internal connection point
(....)	Internal terminal marking (showing element symbol), optional
[.... , ...]	Grouping of user joined terminals
;	Separation of terminals or groups of terminals

4.2 DC and single-phase commutator machines

A	Armature winding
B	Commutating winding
C	Compensating winding
D	Series excitation winding
E	Shunt excitation winding
F	Separately excited winding
H	Direct-axis auxiliary winding
J	Quadrature-axis auxiliary winding

4.3 AC machines without commutator

F	DC excitation winding
K	Secondary winding
L	Secondary winding
M	Secondary winding
N	Star point (neutral conductor) of the primary winding
Q	Star point (neutral conductor) of a secondary winding
U	Primary winding
V	Primary winding
W	Primary winding
Z	Auxiliary windings

NOTE The primary and secondary symbol allocations are irrespective of whether the primary winding is located in the stator or rotor.