

INTERNATIONAL STANDARD

IEC
61823

First edition
2002-12

Electrical installations for lighting and beaconing of aerodromes – AGL series transformers

*Installations électriques pour le balisage
et l'éclairage des aérodromes –
Transformateurs séries AGL*



Reference number
IEC 61823:2002(E)

Publication numbering

As from 1 January 1997 all IEC publications are issued with a designation in the 60000 series. For example, IEC 34-1 is now referred to as IEC 60034-1.

Consolidated editions

The IEC is now publishing consolidated versions of its publications. For example, edition numbers 1.0, 1.1 and 1.2 refer, respectively, to the base publication, the base publication incorporating amendment 1 and the base publication incorporating amendments 1 and 2.

Further information on IEC publications

The technical content of IEC publications is kept under constant review by the IEC, thus ensuring that the content reflects current technology. Information relating to this publication, including its validity, is available in the IEC Catalogue of publications (see below) in addition to new editions, amendments and corrigenda. Information on the subjects under consideration and work in progress undertaken by the technical committee which has prepared this publication, as well as the list of publications issued, is also available from the following:

- **IEC Web Site** (www.iec.ch)
- **Catalogue of IEC publications**
The on-line catalogue on the IEC web site (http://www.iec.ch/searchpub/cur_fut.htm) enables you to search by a variety of criteria including text searches, technical committees and date of publication. On-line information is also available on recently issued publications, withdrawn and replaced publications, as well as corrigenda.
- **IEC Just Published**
This summary of recently issued publications (http://www.iec.ch/online_news/justpub/jp_entry.htm) is also available by email. Please contact the Customer Service Centre (see below) for further information.
- **Customer Service Centre**
If you have any questions regarding this publication or need further assistance, please contact the Customer Service Centre:

Email: custserv@iec.ch
Tel: +41 22 919 02 11
Fax: +41 22 919 03 00

INTERNATIONAL STANDARD

IEC
61823

First edition
2002-12

Electrical installations for lighting and beaconing of aerodromes – AGL series transformers

*Installations électriques pour le balisage
et l'éclairage des aérodromes –
Transformateurs séries AGL*

© IEC 2002 — Copyright - all rights reserved

No part of this publication may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from the publisher.

International Electrotechnical Commission, 3, rue de Varembé, PO Box 131, CH-1211 Geneva 20, Switzerland
Telephone: +41 22 919 02 11 Telefax: +41 22 919 03 00 E-mail: inmail@iec.ch Web: www.iec.ch



Commission Electrotechnique Internationale
International Electrotechnical Commission
Международная Электротехническая Комиссия

PRICE CODE

S

For price, see current catalogue

CONTENTS

FOREWORD	4
1 Scope	5
2 Normative references.....	5
3 Definitions and abbreviated terms.....	5
3.1 Definitions	5
3.2 Abbreviated terms	6
4 General requirements	7
4.1 Classification	7
4.2 Rated current.....	7
4.3 Earthing	7
4.4 AGL construction.....	7
4.5 Encapsulation.....	8
4.6 Earthing.....	8
4.7 Service conditions.....	8
4.8 Electrical characteristics.....	8
4.9 Temperature rise	9
5 Type and routine tests	10
5.1 Type tests.....	10
5.2 Routine tests	11
6 Test requirements.....	11
6.1 Introduction to electrical testing	11
6.2 Tests under load.....	12
6.3 Short circuit current	13
6.4 Open circuit voltage.....	13
6.5 AC leakage current test	13
6.6 DC leakage current cycling test	15
6.7 Shock tests.....	16
6.8 Temperature rise	17
6.9 Gas tightness test.....	18
6.10 Physical size demonstration	18
7 Routine tests	18
7.1 Ratio test.....	18
7.2 Earth continuity test.....	18
7.3 Leakage current test.....	18
8 Marking	19
Annex A (normative) Connector descriptions and interface dimensions	20
Bibliography	22
Figure 1 – Tests under load	12
Figure 2 – Primary a.c. leakage current test.....	14
Figure 3 – Secondary a.c. leakage current test	14
Figure 4 – Primary d.c. leakage current.....	16
Figure 5 – Secondary d.c. leakage current	16
Figure 6 – Lead rigidity test.....	17

Figure A.1 – Style 2 primary plug	20
Figure A.2 – Style 9 primary receptacle.....	20
Figure A.3 – Style 8 secondary receptacle	21
Figure A.4 – Style 7 secondary receptacle	21
Table 1 – Transformer characteristics	9
Table 2 – Encapsulation method type tests	10
Table 3 – Electrical characteristic type tests.....	11
Table 4 – Routine tests	11
Table 5 – DC leakage current test limits	15
Table A.1 – Interface dimensions for Figures A.1 and A.2	20
Table A.2 – Interface dimensions for Figures A.3 and A.4	21

INTERNATIONAL ELECTROTECHNICAL COMMISSION

ELECTRICAL INSTALLATIONS FOR LIGHTING AND BEACONING OF AERODROMES – AGL SERIES TRANSFORMERS

FOREWORD

- 1) The IEC (International Electrotechnical Commission) is a worldwide organization for standardization comprising all national electrotechnical committees (IEC National Committees). The object of the IEC is to promote international co-operation on all questions concerning standardization in the electrical and electronic fields. To this end and in addition to other activities, the IEC publishes International Standards. Their preparation is entrusted to technical committees; any IEC National Committee interested in the subject dealt with may participate in this preparatory work. International, governmental and non-governmental organizations liaising with the IEC also participate in this preparation. The IEC collaborates closely with the International Organization for Standardization (ISO) in accordance with conditions determined by agreement between the two organizations.
- 2) The formal decisions or agreements of the IEC on technical matters express, as nearly as possible, an international consensus of opinion on the relevant subjects since each technical committee has representation from all interested National Committees.
- 3) The documents produced have the form of recommendations for international use and are published in the form of standards, technical specifications, technical reports or guides and they are accepted by the National Committees in that sense.
- 4) In order to promote international unification IEC National Committees undertake to apply IEC International Standards transparently to the maximum extent possible in their national and regional standards. Any divergence between the IEC Standard and the corresponding national or regional standard shall be clearly indicated in the latter.
- 5) The IEC provides no marking procedure to indicate its approval and cannot be rendered responsible for any equipment declared to be in conformity with one of its standards.
- 6) Attention is drawn to the possibility that some of the elements of this International Standard may be the subject of patent rights. The IEC shall not be held responsible for identifying any or all such patent rights.

International Standard IEC 61823 has been prepared by IEC technical committee 97: Electrical installations for lighting and beaconing of aerodromes.

The text of this standard is based on the following documents:

FDIS	Report on voting
97/94/FDIS	97/95/RVD

Full information on the voting for the approval of this standard can be found in the report on voting indicated in the above table.

This publication has been drafted in accordance with the ISO/IEC Directives, Part 2.

The committee has decided that the contents of this publication will remain unchanged until 2006. At this date, the publication will be

- reconfirmed;
- withdrawn;
- replaced by a revised edition, or
- amended.

ELECTRICAL INSTALLATIONS FOR LIGHTING AND BEACONING OF AERODROMES – AGL SERIES TRANSFORMERS

1 Scope

This standard specifies the characteristics of aeronautical ground lighting series transformers (AGLST) used in aeronautical ground lighting for 6,6 A series circuits, at a service voltage of up to 5 kV, supplied by constant current regulators up to 30 kVA in rating.

AGL series transformers provide power to airport lighting luminaires or other loads (resistive) from their secondary circuits. The AGL series transformers provide continuity of the series circuit in the event of a loss of the load on the transformer, and electrical isolation between the primary circuit supplied by a constant current regulator, and the secondary circuit connected to the load under conditions defined in this standard.

An AGL series transformer is able to withstand a permanent short or open-circuit secondary series circuit.

Specifications for similar series transformers intended for any primary or secondary currents other than 6,6 A, or to supply alternative voltages, constant power, reactive loads, etc., are not included in 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 60085, *Thermal evaluation and classification of electrical insulation*

IEC 61822, *Electrical installations for lighting and beaconing of aerodromes – Constant current regulators*

ISO 48, *Rubber, vulcanised or thermoplastic – Determination of hardness (hardness between 10 IRHD and 100 IRHD)*

3 Definitions and abbreviated terms

3.1 Definitions

For the purposes of this standard the following definitions apply.

Where the terms voltage and current are used, they shall be r.m.s. values unless otherwise stated.

3.1.1

AGL series transformer

aeronautical ground lighting series transformer, as specified in this standard

3.1.2

ambient temperature

the temperature of the air or other medium surrounding the AGL series transformer; for testing purposes, a temperature of $(20 \pm 5) ^\circ\text{C}$